10th Anniversary since 2007

eins

GENERAL CATALOG

Parts List Vol.5

WHAT'S *eins* ?

Our user friendly and flexible designed components,
allow our customers to solve
almost any tooling or automation project.

Robust and light weight frame system

Three unique frame systems !

Eins provides three way to produce your end of arm tools.

11 kg
520 × 840 mm

Weight reduction of
56%

4.8 kg
510 × 810 mm

Ultra Lightweight/ combination-free type	Lightweight/ combination-free type	Lightweight/ rigid type
Jungle-gym Series (for small/medium size)	**Let' s Joint Series** (for medium/large size)	**Let' s SUS Series** (for large/ultralarge size/metal goods)

Extensive line of products

Suitable for a variety of methods of part extraction !

Custom high quality tooling can be built in a short time.

Variety of applications

The Eins product line can be used with unloaders and articulation robots !

Used with Star Seiki robots, other robots,
and various conveyor/FA machines.

Traverse-type Robot from our Company

Articulating robots

Robots of Other Companies

Various conveyor/FA machines

Automotive | Home electrical appliances | Office automation/ Communication | Precision | Instrument Medicine/ Medical | Food

Eins products support a diverse range of industries.

Total design support

3D CAD designing support with professional-grade E.O.A.T design

- *Over 5000 tool designs in the production through out the word.*
- *Superior 3 dimensional design.*
- *Quick designs for high-performance E.O.A.T.*
- *Tool weight calculated before build.*
- *High-quality service.*
- *Option for customer assembly of end of arm tool.*

Service Flow

Request to sales staff of Star Seiki ▶ Consultation with sales staff ▶ Design ▶ Eins Chuck Completed !

Send PDF 3D drawing and quotation via e-mail.

* Limited to 3D design with Eins parts.

eins

GENERAL CATALOG Vol.5

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Information about new product

Please refer to the relations pages for more information about the products.
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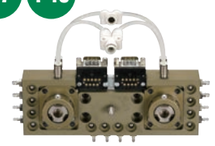
Quick Chuck Change

▶ For take-out robot

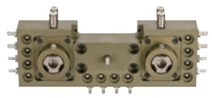
1-7 1-10



Tool changer • robot side (Load capacity 15kg)

Order code No.	140299
Standard	OX-WSB

1-7 1-10



Tool changer • robot side (Load capacity 15kg)

Order code No.	140300
Standard	OX-WSBN

● W/o connector

1-7 1-10

Tool changer • tool side (Load capacity 15kg)

Order code No.	140301
Standard	OX-WSBI

1-7 1-10

Tool changer • tool side (Load capacity 15kg)

Order code No.	140302
Standard	OX-WSBNI

● W/o connector

1-17

Connector plate for WSB

Order code No.	140303
Standard	OX-DPS09WCNP

1-17

D-SUB connector for WSB • robot side

Order code No.	140304
Standard	OX-DS15-WS

1-17

D-SUB connector for WSB • tool side

Order code No.	140305
Standard	OX-DS15-I-WS

1-17

Wireless connector 4P • robot side(for OX-SB, LB)

Order code No.	140306
Standard	OX-RS04R-SB

1-17

Wireless connector 4P • tool side(for OX-SB, LB)

Order code No.	140307
Standard	OX-RS04T-SBI

1-17

Wireless connector 12P • robot side

Order code No.	140308
Standard	OX-RS12R-LB

1-17

Wireless connector 12P • tool side

Order code No.	140309
Standard	OX-RS12T-LBI

▶ For articulated robots

1-23

Tool changer for parallel link • robot side (Load capacity 500g)

Order code No.	140310
Standard	OX-005A

1-23

Tool changer for parallel link • tool side (Load capacity 500g)

Order code No.	140315
Standard	OX-005AI

1-23

Tool changer for articulated robots • robot side (Load capacity 35kg)

Order code No.	140311
Standard	OX-35A

1-23

Tool changer for articulated robots • tool side (Load capacity 35kg)

Order code No.	140316
Standard	OX-35AI

1-24 Products on order

Tool changer for articulated robots • robot side (specification to correct mounting position)

Order code No.	140312
Standard	OX-35AT

1-24 Products on order

Tool changer for articulated robots • tool side (specification to correct mounting position)

Order code No.	140317
Standard	OX-35ATI

1-24

Tool changer for articulated robots • robot side (Load capacity 60kg)

Order code No.	140313
Standard	OX-60A

1-24

Tool changer for articulated robots • tool side (Load capacity 60kg)

Order code No.	140318
Standard	OX-60AI

1-24

Tool changer for articulated robots • robot side (Load capacity 200kg)

Order code No.	140314
Standard	OX-200A

1-24

Tool changer for articulated robots • tool side (Load capacity 200kg)

Order code No.	140319
Standard	OX-200AI

1-25

Air option(for OX-20) • robot side

Order code No.	140296
Standard	OX-20BA

1-25

Air option(for OX-20) • tool side

Order code No.	140297
Standard	OX-20BAI

1-25

Manifold for 60A • robot side

Order code No.	140342
Standard	OX-60AA

1-25

Manifold for 60A • tool side

Order code No.	140343
Standard	OX-60AIA

1-26

Wireless connector 4P • robot side(for OX-03/05)

Order code No.	140320
Standard	OXR-RS04R-03

1-26

Wireless connector 4P • tool side(for OX-03/05)

Order code No.	140322
Standard	OXR-RS04T-03I

1-26

Wireless connector 4P • robot side(for OX-10/20)

Order code No.	140321
Standard	OXR-RS04R-10

1-26

Wireless connector 4P • tool side(for OX-10/20)

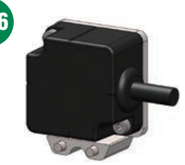
Order code No.	140323
Standard	OXR-RS04T-10I

1-26

Wireless connector 12P • robot side(for OX-20)

Order code No.	140330
Standard	OXR-RS12R-20

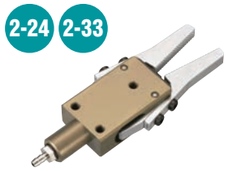
1-26



Wireless connector 12P • tool side(for OX-20)

Order code No.	140331
Standard	OXR-RS12T-20I

Grip

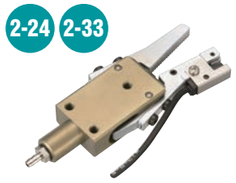


Runner chuck EM (detachable / attachable claw)

Order code No.	023284
Standard	CHK-EMBF-12

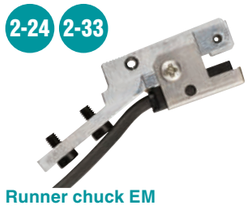
Runner chuck EM (attachment / detachment claw)

Order code No.	023285
Standard	CHK-EMF-12



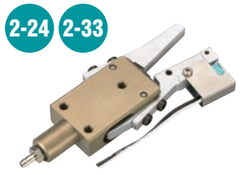
Runner chuck EM (proximity sensor・detachable / attachable claw)

Order code No.	023286
Standard	CHK-EMBF-12-C



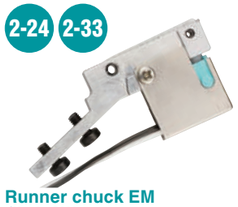
Runner chuck EM (proximity sensor・attachment / detachment claw)

Order code No.	023287
Standard	CHK-EMF-12-C



Runner chuck EM (limit SW・detachable / attachable claw)

Order code No.	023288
Standard	CHK-EMBF-12-C1



Runner chuck EM (limit SW・attachment / detachment claw)

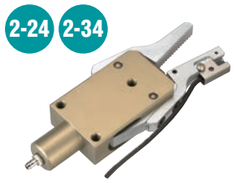
Order code No.	023289
Standard	CHK-EMF-12-C1

Runner chuck EX (detachable / attachable claw)

Order code No.	023290
Standard	CHK-EXBF-20

Runner chuck EX (attachment / detachment claw)

Order code No.	023291
Standard	CHK-EXF-20

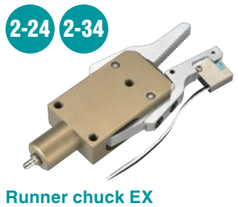


Runner chuck EX (proximity sensor・detachable / attachable claw)

Order code No.	023292
Standard	CHK-EXBF-20-C

Runner chuck EX (proximity sensor・attachment / detachment claw)

Order code No.	023293
Standard	CHK-EXF-20-C



Runner chuck EX (limit SW・detachable / attachable claw)

Order code No.	023294
Standard	CHK-EXBF-20-C1

Runner chuck EX (limit SW・attachment / detachment claw)

Order code No.	023295
Standard	CHK-EXF-20-C1

Cut

Mini air nipper (standard blade)

Order code No.	131603
Standard	NW-50

Mini air nipper (reversed blade)

Order code No.	131604
Standard	NW-50R

Information about renewal • production stop

Renewal

Order Code No.	Name	Specification	Detailed contents of change	Page		Order Code No.	Old specification
140290	Quick chuck change・manual・robot side	OA1-SA	Slack prevention of handle fix section	1-2,3	←	140152	OA-SA
140291	Quick chuck change・manual・robot side	OA2-LA		1-2,4	←	140222	OA1-LA
140324	D-SUB & probe connector・robot side	OX-DPS09A	Thickness changed to cope with multiple products	1-17	←	140189	OX-DPS09
140325	D-SUB & probe connector・tool side	OX-DPS09A-I		1-17	←	140191	OX-DPS09-I
090203	Pipe combination chuck D・φ20・90 degrees	J25410-30A	Reinforced link section	2-25,37	←	090135	J25410-300
090204	Pipe combination chuck E・φ12・90 degrees	J25410-40A		2-25,37	←	090134	J25410-400
131602	Spare blade of air nipper	N207SA	Reinforced blade section	4-20	←	130303	N207S
131601	Spare blade of air nipper	N303SA		4-21	←	130227	N303S
131435	Rotation bracket・φ8・M10A	N01864-201	For nut to fix joint	5-6,20	←	131163	N01864-201
131411	Connector plate 25・G	N01913-107	Lightweight (to aluminum material)	5-39	←	131048	N01913-107
054325	Sliding chuck slide base	FCK2-0004	Change of surface process	5-54,55	←	370729	FCK-0004
054326	Sliding chuck mounting bolt	FCK1-0005	Change of surface process	5-54	←	370730	FCK-0005
054324	Sliding chuck (mini)	FCK1-1000	Sales start of reproduced edition	5-56	←	370879	FCK-1000
041954	Optical amplifier	E3X-HD11 (NPN)	Substitute for discontinued product	6-26	←	041416	E3X-DA11AT-S (NPN)

Change in prices

Order Code No.	Name	Specification	Changed price		Old price	Page
101207	Spare blade・pipe cutter	K-203-1	1,350	←	1,000	5-9
054285	Sliding chuck (gate type)	FCK1-0000	31,000	←	28,000	5-54
054286	Sliding chuck (H type)	FCKH-0000	34,000	←	32,000	5-55
280018	Air coupler	20PF	260	←	230	6-8

Discontinued product (See Eins parts catalog Vol.4-2.)

Order Code No.	Name	Specification	Page
072599	Hanger for automatic exchange	HSS	1-26,27
071998	Thin parallel hand・25st・w / rubber cover	HLAG-20AS	2-25,40
060224	Air nipper	GT-NT03R	4-12,13
131076	Swing block・PT1/8	N01915-114	5-4,12,35
131203	Bush nut・φ20・M17	N01868-406	5-7,25
041663	For base frame・jungle gym	EFCK-1004	5-27
041662	For base frame・jungle gym	EFCK-1003	5-27
041669	For base frame・jungle gym	EFCK-2004	5-28
041673	For base frame・jungle gym	EFCK-2502	5-29
041674	For base frame・jungle gym	EFCK-2600	5-29
041676	For base frame・jungle gym	EFCK-2602	5-29
090170	For gripper module・jungle gym (φ12)	JGM-008	5-31
090172	For gripper module・jungle gym (φ12)	JGM-010	5-31
090177	For gripper module・jungle gym (φ20)	JGM-015	5-31
090181	For gripper module・jungle gym (φ20)	JGM-019	5-32
090183	For gripper module・jungle gym (φ20)	JGM-021	5-32
090186	For gripper module・jungle gym (φ20)	JGM-024	5-32

Order Code No.	Name	Specification	Page
090187	For gripper module・jungle gym (φ20)	JGM-025	5-32
041691	For base frame・let's joint	EFCK-7602	5-39
041693	For base frame・let's joint	EFCK-8001	5-39
110575	For suction module・let's joint	LSM-007	5-40
110576	For gripper module・let's joint (UMCD)	LGM-001	5-41
110578	For gripper module・let's joint (UMCD)	LGM-003	5-41
110591	For gripper module・let's joint (MCP)	LGM-016	5-42
110595	For gripper module・let's joint (MCP)	LGM-020	5-42
110596	For gripper module・let's joint (MCP)	LGM-021	5-42
040560	Optical fiber・permeable φ1	E32-T24	6-25
041641	Optical amplifier	E3X-DA41AT-S (PNP)	6-26
041855	Eins parts set 5A	EINS PARTS SET 5A	7-2
041856	Eins parts set 5A mini	EINS PARTS SET 5A MINI	7-3
041857	Eins parts set 10A	EINS PARTS SET 10A	7-4
041858	Eins parts set 10A mini	EINS PARTS SET 10A MINI	7-5
041859	Eins parts set 15A	EINS PARTS SET 15A	7-6

Product search by purpose

Quick Chuck Change

Item to exchange chuck in a short time

1-2 Quick Chuck Change (Manual)

- OA-SSL / OA-SSI / OA1-SA / OA1-SAI ····· 1-3
- OA2-LA / OA-LAI / Chuck Spacer (Plastic) ····· 1-4
- OA-SSL (SS) / OA-SSI (SS) / OC-LA / OC-LAII ··· 1-5

1-6 Tool Changer

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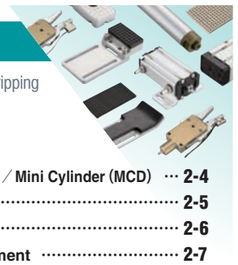
Grip



Optimum item for extension by work gripping

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- Mini Cylinder (MCE) ····· 2-5
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2-8 Accessories for Mini Cylinder

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- Claws / Nut Plates ····· 2-12
- Chuck Spacers (Plastic) / Spacers (Aluminum) ····· 2-13
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Suction

Optimum item for extension by vacuum pressure

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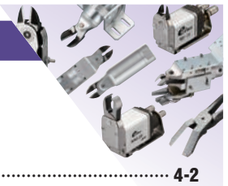
Cut



Best item for gate, sprue cut

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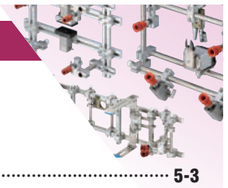
Frame / Module



Base frame item of chuck plate

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- Jungle Gym Series Parts (Rotate) ····· 5-19
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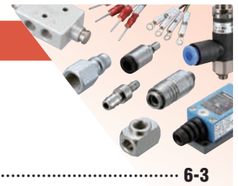
Tubing / Sensors



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- Regulator / Manual Air Valve Push Button / Manual Air Valve Push Slide Button ····· 6-11
- Flow Control ····· 6-12
- Quick Exhaust Valve / Finger Valve ····· 6-13
- Mini Pressure Regulator ····· 6-14

6-16 Sensors

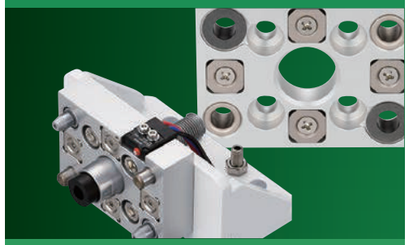
- Star Sensor ····· 6-17
- Limit Switch ····· 6-18
- Limit Switch Micro / Limit Switch ····· 6-19
- Limit Switch Mounting Bracket ····· 6-20
- Auto Switch (Reed·Contactless) ····· 6-21
- Photo Sensor ····· 6-22
- Photo Area Sensor ····· 6-24
- Fiber Units ····· 6-25
- Fiber Amplifier Unit ····· 6-26
- Proximity Sensor Runner Confirm ····· 6-30
- Multi AND Board ····· 6-32

Other Products

7-2 Others

- Vacuum Generator Unit ····· 7-2
- PCIO Communication Unit ····· 7-3
- Bolt / Nut / Washer ····· 7-4

MEMO



Quick Chuck Change

Quick Chuck Change (Manual) •••• 1-2

- OA-SSL/OA-SSⅠ/OA1-SA/OA1-SAⅠ ····· 1-3
- OA2-LA/OA-LAⅠ/Chuck Spacer (Plastic) ····· 1-4
- OA-SSL (SS)/OA-SSⅠ (SS)/OC-LA/OC-LAⅡ ····· 1-5

Tool Changer •••••••••••••••••• 1-6

- B/BN Type ····· 1-9
- Long Center Guide ····· 1-14
- Additional Air Expansion for A/B/BN Type ····· 1-15
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- Quick Chuck Change Automatic for Articulated Robots ··· 1-20
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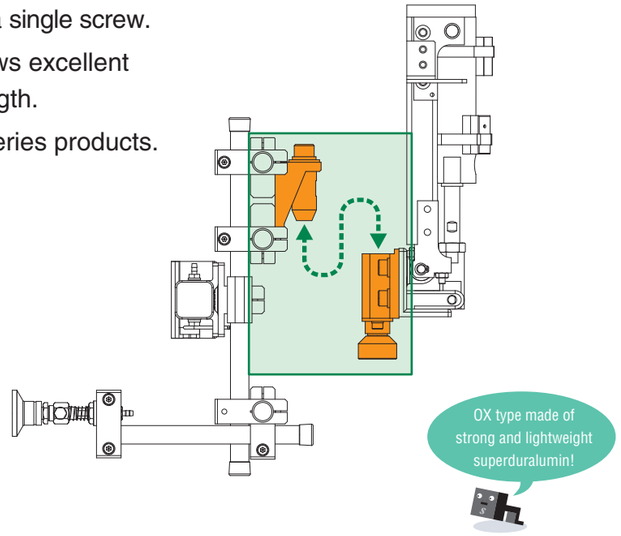
Automated Chuck Exchange System •••• 1-32

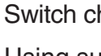
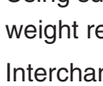
- Auto Quick Chuck Change Hanger/Hanger Tool ··· 1-33
- Magnet Chuck Hanger ····· 1-35

Quick Chuck Change (Manual)

- Switch chucks merely by tightening a single screw.
- Using superduralumin material allows excellent weight reduction and superior strength.
- Interchangeable with existing OC series products.

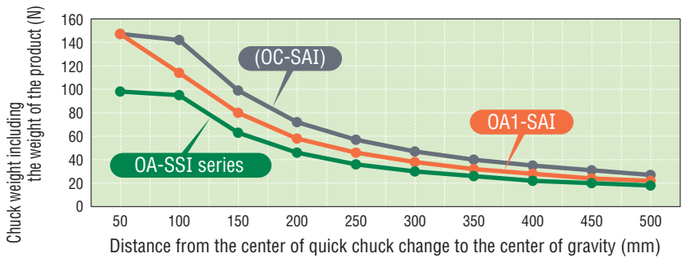


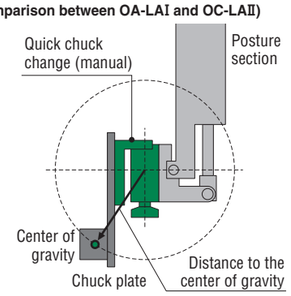
■ Specification

	Product name	Order code No. / Standard	Weight (g)	Weight capacity(kg)	Injection press range(ton)	Page of details
▶ Superduralumin						
Quick chuck change (manual)		140219 / OA-SSL	165	～10	40 - 650	1-3
		140151 / OA-SSI	97			
		140290 / OA1-SA	156	～15		
		140257 / OA1-SAI	229			
		140291 / OA2-LA	495	～35	650 - 1,600	1-4
		140155 / OA-LAI	555			

	Product name	Order code No. / Standard	Weight (g)	Weight capacity(kg)	Injection press range(ton)	Page of details
▶ Stainless steel (SS)						
Quick chuck change (manual)		140271 / OA-SSL (SS)	370	～10	40 - 650	1-5
		140272 / OA-SSI (SS)	265			
▶ Steel						
Bracket for quick chuck change		140042 / OC-LA	1,283	～35	650 - 1,600	1-5
		140043 / OC-LAII	1,000			
▶ Plastic						
Spacer		041645 / ECP-031	35	–	–	1-4

Allowable-load curve of OA-SSI, OA1-SAI, and OC-SAI (see➡ 1-4 for comparison between OA-LAI and OC-LAII)





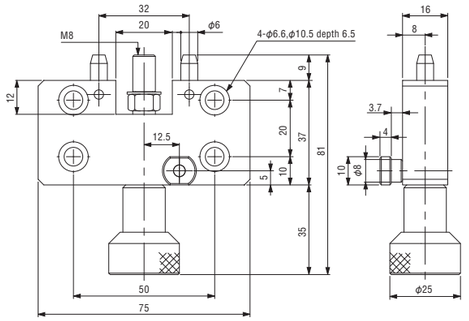
Quick Chuck Change (Manual, Superduralumin)

Easy E.O.A.T. exchange with only one screw.

▶ Mounting bolt for OA-SS was extended.

Order code No.	140219
Standard	OA-SSL

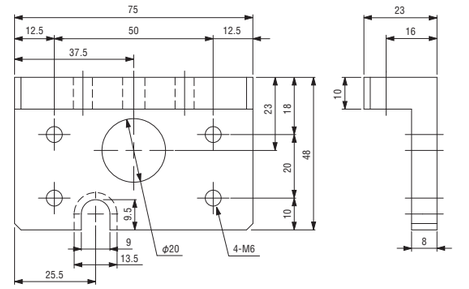
- Superduralumin
- Weight : 165g
- Mounting position : robot side
- Weight capacity : ～10kg
- Thickness after connection : 24mm



▶ Compatible with OC type QCC for robot side.

Order code No.	140151
Standard	OA-SSI

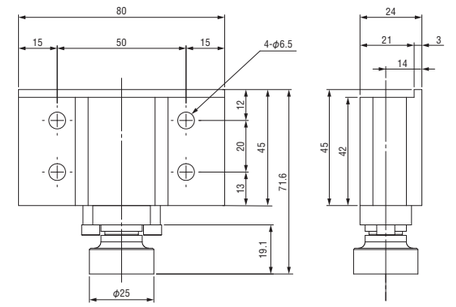
- Superduralumin
- Weight : 97g
- Mounting position : tool side
- Weight capacity : ～10kg
- Thickness after connection : 24mm



▶ The material is popular with the aircraft industry because of its light weight and strength.

Order code No.	140290
Standard	OA1-SA

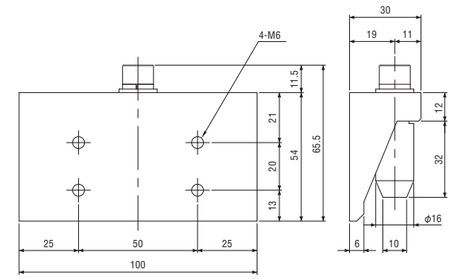
- Superduralumin
- Weight : 156g
- Mounting position : robot side
- Weight capacity : ～15kg
- Thickness after connection : 33mm



▶ Compatible with OC type QCC for robot side.

Order code No.	140257
Standard	OA1-SAI

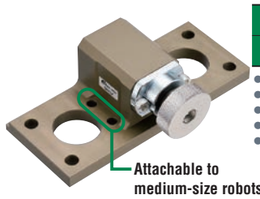
- Superduralumin
- Weight : 229g
- Mounting position : tool side
- Weight capacity : ～15kg
- Thickness after connection : 33mm



Quick Chuck Change (Manual, Superduralumin) / Chuck Spacer

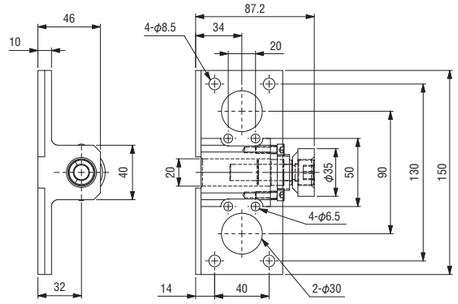
Easy E.O.A.T. exchange with only one screw.

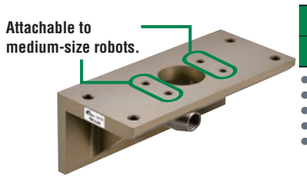
▶ Attachable to medium-size robots.



Order code No.	140291
Standard	OA2-LA

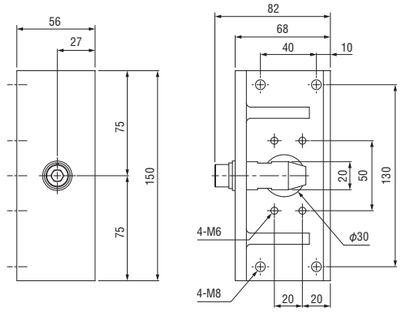
- Superduralumin
- Weight: 495g
- Mounting position: robot side
- Weight capacity: ～35kg
- Thickness after connection: 61mm





Order code No.	140155
Standard	OA-LAI

- Superduralumin
- Weight: 555g
- Mounting position: tool side
- Weight capacity: ～35kg
- Thickness after connection: 61mm

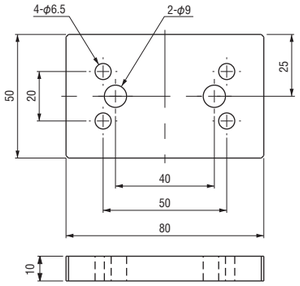


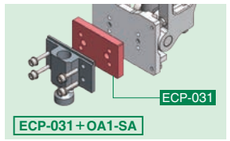
▶ Accessories

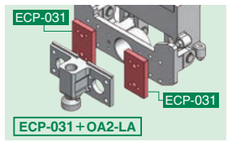
Chuck spacer • for EOAT

Order code No.	041645
Standard	ECP-031

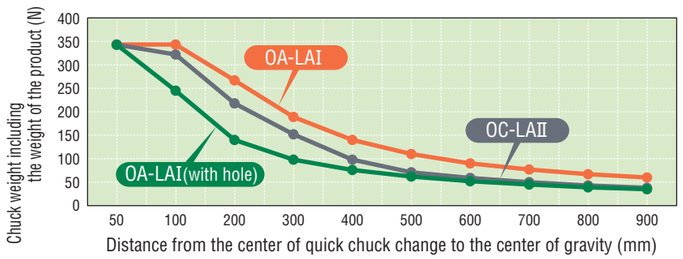
- Plastic
- Weight: 35.0g

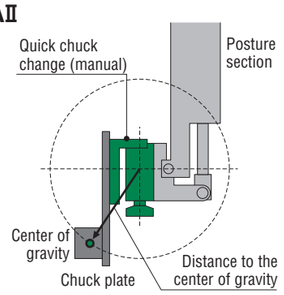






Allowable-load Curve of OA-LAI(with hole), OA-LAI, and OC-LAII





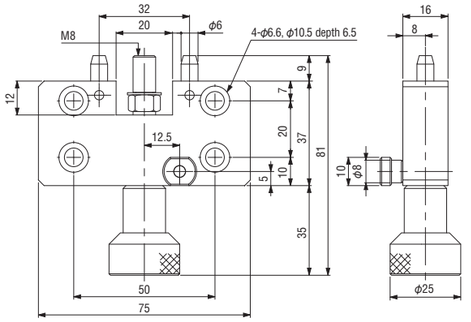
Quick Chuck Change (Manual, Stainless Steel) / Bracket for Quick Chuck Change (Steel)

Easy E.O.A.T. exchange with only one screw.

▶ Chuck plate stainless steel (SS) can be used for food and medicinal industries.

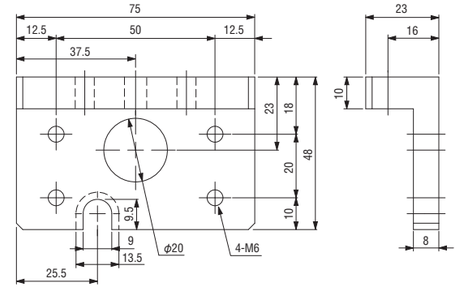
Order code No.	140271
Standard	OA-SSL (SS)

- Stainless steel
- Weight: 370g
- Mounting position: robot side
- Weight capacity: ～10kg
- Thickness after connection: 24mm



Order code No.	140272
Standard	OA-SSI (SS)

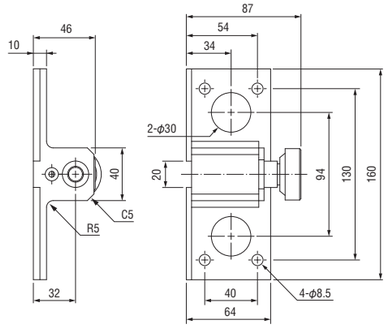
- Stainless steel
- Weight: 265g
- Mounting position: tool side
- Weight capacity: ～10kg
- Thickness after connection: 24mm



Quick chuck change metal fixture

Order code No.	140042
Standard	OC-LA

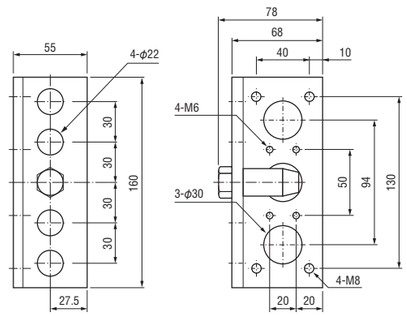
- Steel
- Weight: 1,283g
- Mounting position: robot side
- Weight capacity: ～35kg
- Thickness after connection: 59.5mm



Quick chuck change metal fixture

Order code No.	140043
Standard	OC-LAII

- Steel
- Weight: 1,000g
- Mounting position: tool side
- Weight capacity: ～35kg
- Thickness after connection: 59.5mm



The U.S.: US7, 559, 265 Europe: EP 1 970 170

Tool Changer

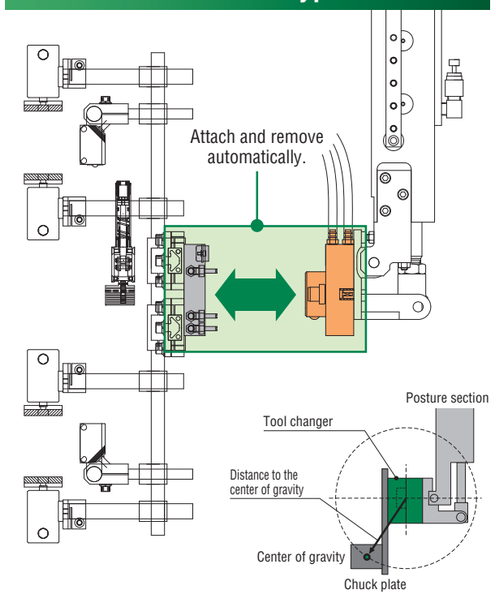
Description of standard **OX- SB N I**
- SB: Type (size)
- N: Connector — NONE (W/ connector)
- I: Installation side — NONE (Robot side), I (Tool side)

Tool changer

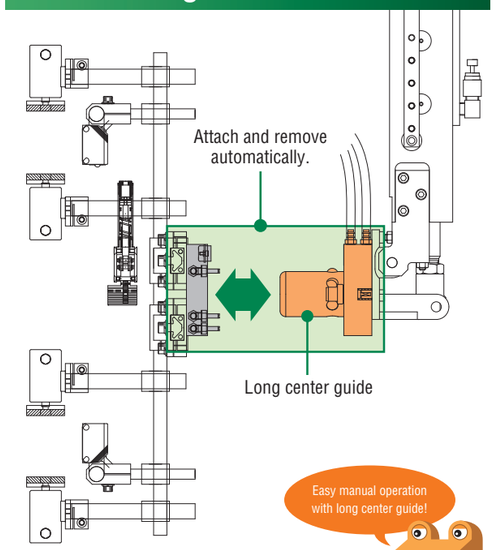
Please read the QR code (right) using a mobile device such as a smartphone.

Detachable function as well as drawing function with installation. Ball-lock-type connection allows easy attachment and detachment. With air cut-off circuit (stops air supplies with detachment). High rigidity and long operating life with superduralumin and steel. Safety-circuit mechanism. Inner hold mechanism for air stop.

A/B/BN Type

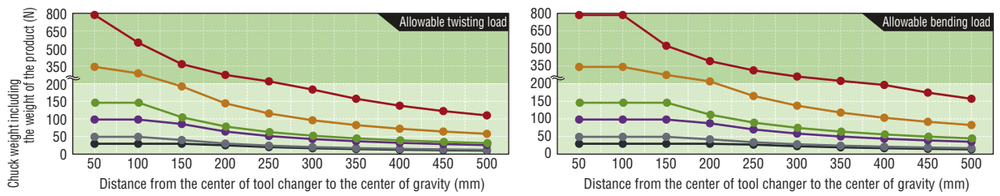


Long Center Guide



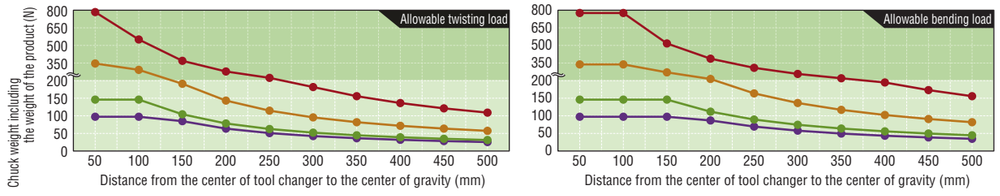
Allowable-load curve of OX-B series

OX-SSB | OX-SBS | OX-SB series | OX-WSB | OX-LB | OX-WLB



Allowable-load curve of OX-A series

OX-SA | OX-WSA | OX-LA | OX-WLA



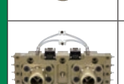
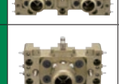
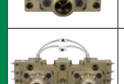
Specification

Product name			Order code No.	Standard	Weight (g)	Weight capacity(kg)	Injection press range(ton)	Power to draw(N) / Power to force(N)	Electric contact / Connector shape	Connected piping	Page of details
Tool changer	B type (with connector)		140266	OX-SSB	330	～3	40 - 80	315 / 166	7Pin×2 2A DC24V Max / Probe connector Solder-fix type	4 port (M5)	1-9
			140268	OX-SSBI	120						
			140181	OX-SB	475	～10	80 - 650	315 / 192	9Pin×2 2A DC24V Max / D-SUB connector Probe connector	6 port (M5)	1-9
			140182	OX-SBI	235						
		NEW	140299	OX-WSB	845	～15	200 - 650	770 / 454		12 port (M5)	1-10
		NEW	140301	OX-WSBI	365						
			140183	OX-LB	1,290	～35	650 - 1,600	770 / 454		6 port (M5)	
			140186	OX-LBI	615						
			140274	OX-LBF	1,485						1-11
			140273	OX-LBFI	760						
			140184	OX-WLB	2,720	～80	1,600 - 5,000	1,540 / 909		10 port (M5)	
			140187	OX-WLBI	1,385						
			140217	OX-SBY	475	～10	80 - 650	315 / 192		6 port (M5)	1-12
			140218	OX-SBYI	235						
			140275	OX-SBH	440						
			140276	OX-SBHI	245						
			140233	OX-SBS	305	～5	80 - 300	192 / 113	9Pin×1 2A DC24V Max / D-SUB connector Probe connector		1-13
			140234	OX-SBSI	122						
	BN type (w/o connector)		140280	OX-SSBN	318	～3	40 - 80	315 / 166	—	6 port (M5)	1-9
			140281	OX-SSBNI	108						
			140225	OX-SBN	435	～10	80 - 650	315 / 192			
			140226	OX-SBNI	195						
		NEW	140300	OX-WSBN	787	～15	200 - 650	770 / 454		12 port (M5)	1-10
		NEW	140302	OX-WSBNI	320						
			140231	OX-LBN	1,250	～35	650 - 1,600	770 / 454		6 port (M5)	
			140232	OX-LBNI	575						1-11
			140258	OX-LBFN	1,445						
			140259	OX-LBFNI	720						

*Please use manual push button "PB1-E (152308), PBW1-E(152306) ➡ 1-16 6-11" for manual exchange.

Description of standard OX- [SB] [N] [I]
- SB: Type (size)
- N: Connector — NONE (None) / N (W/ connector)
- I: Installation side — NONE (Robot side) / I (Tool side)

■ Specification

Product name			Order code No.	Standard	Weight (g)	Weight capacity(kg)	Injection press range(ton)	Power to draw(N) / Power to force(N)	Electric contact / Connector shape	Connected piping	Page of details
Tool changer	BN type (w/o connector)		140277	OX-WLBN	2,680	～80	1,600 - 5,000	1,540 / 909	—	6 port (M5)	1-11
			140278	OX-WLBNI	1,345						
			140229	OX-SBYN	435	～10	80 - 650	315 / 192			1-12
			140230	OX-SBYNI	195						
			140260	OX-SBHN	400						
			140261	OX-SBHNI	205						
	Long center guide (with connector)		140228	OX-LB-30	1,370	～35	650 - 1,600	770 / 454	9Pin×2 2A DC24V Max D-SUB connector Probe connector	6 port (M5)	1-14
			140283	OX-WLB-30	2,905	～80	1,600 - 5,000	1,540 / 909	9Pin×2 2A DC24V Max D-SUB connector	10 port (M5)	
	Long center guide (w/o connector)		140279	OX-LBN-30	1,330	～35	650 - 1,600	770 / 454	—	6 port (M5)	
			140267	OX-WLBN-30	2,865	～80	1,600 - 5,000	1,540 / 909		10 port (M5)	

＊Please use manual push button "PB1-E (152308), PBW1-E(152306)" ➡ 1-16 6-11 " for manual exchange.

■ Common specification

Positional reproduction accuracy	Used air pressure	Drive piping	Acceptable electric wiring	Allowable temperature／humidity range
±0.1 Max.	0.49～0.7Mpa	Clean air, piping of ϕ6 (ϕ4＊), double action type	AWG20 Max.	0℃ -55℃, 0% -95% (w/o condensation)

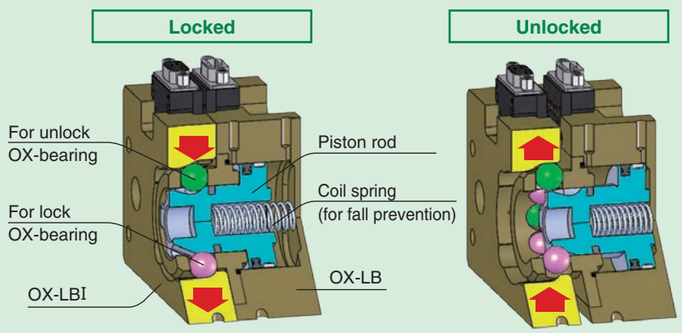
＊ϕ4：OX-SB series (SSB, SB, SBYSBH, SBS, SBN, SBYN, SBHN)

Features

- Original detachable mechanism (The U.S.: US7, 559, 265 Europe: EP 1 970 170)
- Falling prevention mechanism
- Air check valve

Merits

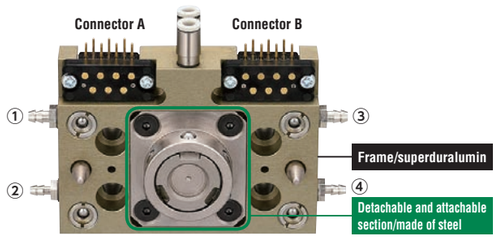
- Reduction of setup change time
- Reproducibility of mounting position
- Prevention of different piping/ wiring connection

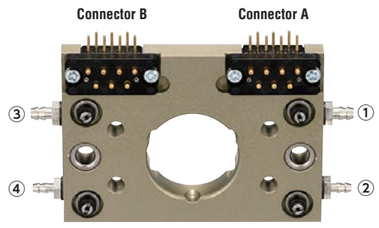


B／BN Type

Easy and reliable attachment and detachment.
Easy and quick attachment and detachment of air／electric signal.

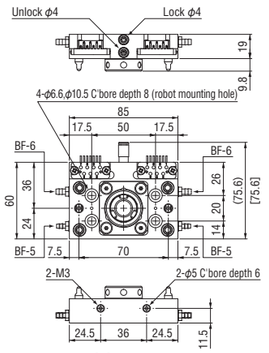
Widening the adherence area reduced undesirable deflections compared with the conventional A type 1-18 . And probe connector reduces loose connections caused by unintentional movement and repeated attachment and detachment. Changing the electric contact section reduces the complication of wiring with D-SUB connectors.





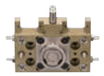
Order code No.	140266
Standard	OX-SSB

- Weight：330g
- Mounting position：robot side
- Weight capacity：～3kg
- Thickness after connection：29mm



W/o connector

Order code No.	140280
Standard	OX-SSBN



- Weight：318g
- Mounting position：robot side
- Weight capacity：～3kg
- Thickness after connection：29mm

＊The value in [ ] shows the type w/o connector.

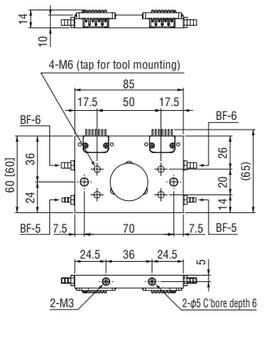
Order code No.	140268
Standard	OX-SSBI

- Superduralumin
- Weight：120g
- Mounting position：tool side
- Weight capacity：～3kg
- Thickness after connection：29mm

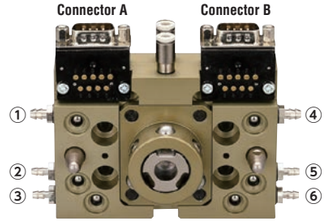
W/o connector

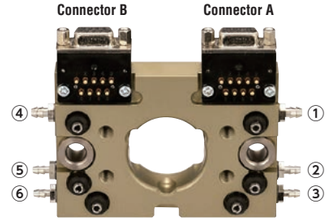
Order code No.	140281
Standard	OX-SSBNI

- Superduralumin
- Weight：108g
- Mounting position：tool side
- Weight capacity：～3kg
- Thickness after connection：29mm



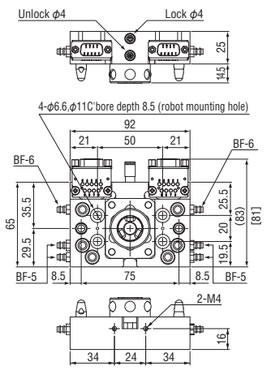
＊The value in [ ] shows the type w/o connector.





Order code No.	140181
Standard	OX-SB

- Superduralumin
- Weight：475g
- Mounting position：robot side
- Weight capacity：～10kg
- Thickness after connection：40mm



W/o connector

Order code No.	140225
Standard	OX-SBN

- Superduralumin
- Weight：435g
- Mounting position：robot side
- Weight capacity：～10kg
- Thickness after connection：40mm

＊The value in [ ] shows the type w/o connector.

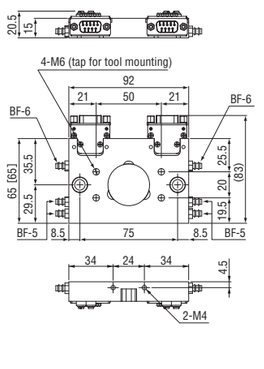
Order code No.	140182
Standard	OX-SBI

- Superduralumin
- Weight：235g
- Mounting position：tool side
- Weight capacity：～10kg
- Thickness after connection：40mm
- Installable to OX-SBY

W/o connector

Order code No.	140226
Standard	OX-SBNI

- Superduralumin
- Weight：195g
- Mounting position：tool side
- Weight capacity：～10kg
- Thickness after connection：40mm

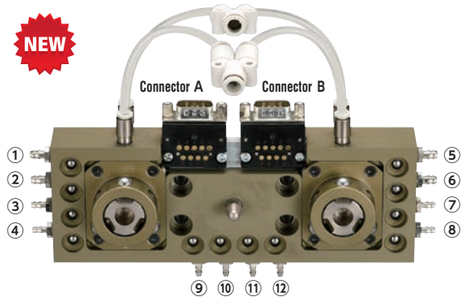


＊The value in [ ] shows the type w/o connector.

B/BN Type

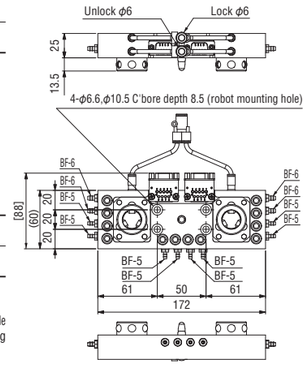
Description of standard: OX- [LB] [N] [I]
- Type (size): LB
- Connector: N (None) / NONE (W/ connector)
- Installation side: NONE (Robot side) / I (Tool side)

For middle-size robot. Load capacity 15kg specification included in the product lineup.



Order code No.	140299
Standard	OX-WSB

- Superduralumin
- Weight: 845g
- Mounting position: robot side
- Weight capacity: ～15kg
- Thickness after connection: 39mm

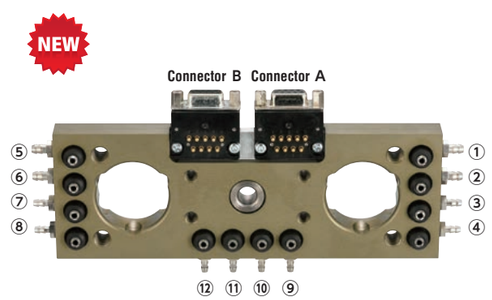


W/o connector

Order code No.	140300
Standard	OX-WSBN

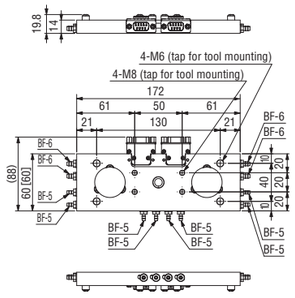
- Superduralumin
- Weight: 787g
- Mounting position: robot side
- Weight capacity: ～15kg
- Thickness after connection: 39mm

＊The value in [ ] shows the type w/o connector.



Order code No.	140301
Standard	OX-WSBI

- Superduralumin
- Weight: 365g
- Mounting position: tool side
- Weight capacity: ～15kg
- Thickness after connection: 39mm



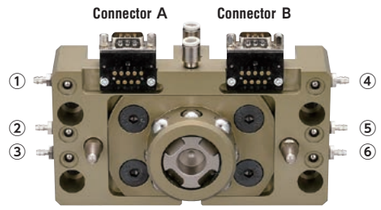
W/o connector

Order code No.	140302
Standard	OX-WSBNI

- Superduralumin
- Weight: 320g
- Mounting position: tool side
- Weight capacity: ～15kg
- Thickness after connection: 39mm

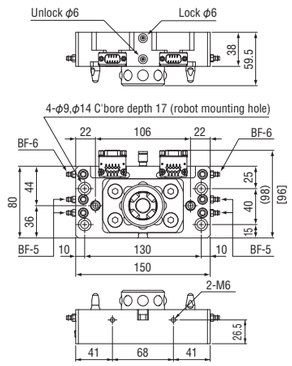
＊The value in [ ] shows the type w/o connector.

＊The value in [ ] shows the type w/o connector.



Order code No.	140183
Standard	OX-LB

- Superduralumin
- Weight: 1,290g
- Mounting position: robot side
- Weight capacity: ～35kg
- Thickness after connection: 60mm

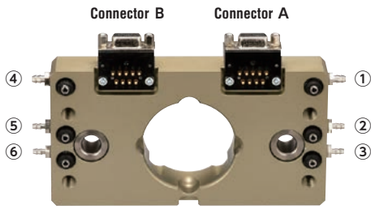


W/o connector

Order code No.	140231
Standard	OX-LBN

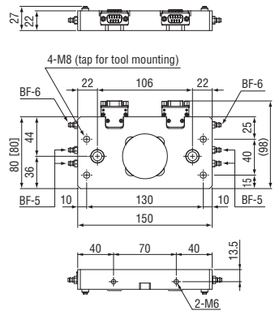
- Superduralumin
- Weight: 1,250g
- Mounting position: robot side
- Weight capacity: ～35kg
- Thickness after connection: 60mm

＊The value in [ ] shows the type w/o connector.



Order code No.	140186
Standard	OX-LBI

- Superduralumin
- Weight: 615g
- Mounting position: tool side
- Weight capacity: ～35kg
- Thickness after connection: 60mm



W/o connector

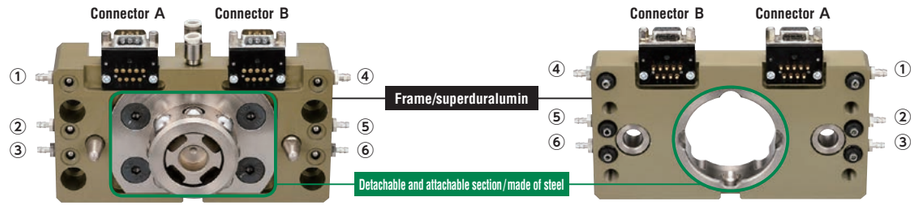
Order code No.	140232
Standard	OX-LBNI

- Superduralumin
- Weight: 575g
- Mounting position: tool side
- Weight capacity: ～35kg
- Thickness after connection: 60mm

＊The value in [ ] shows the type w/o connector.

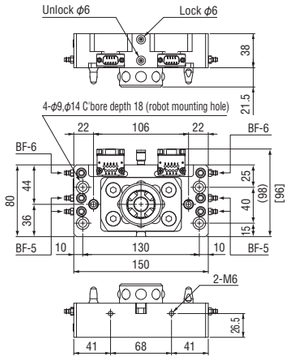
＊The value in [ ] shows the type w/o connector.

Superduralumin-made frame. Improved durability: steel hybrid structure of detachable and attachable section.



Order code No.	140274
Standard	OX-LBF

- Weight: 1,485g
- Mounting position: robot side
- Weight capacity: ～35kg
- Thickness after connection: 60mm



W/o connector

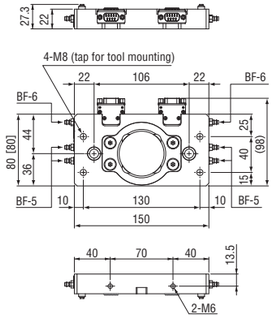
Order code No.	140258
Standard	OX-LBFN

- Weight: 1,445g
- Mounting position: robot side
- Weight capacity: ～35kg
- Thickness after connection: 60mm

＊The value in [ ] shows the type w/o connector.

Order code No.	140273
Standard	OX-LBFI

- Weight: 760g
- Mounting position: tool side
- Weight capacity: ～35kg
- Thickness after connection: 60mm

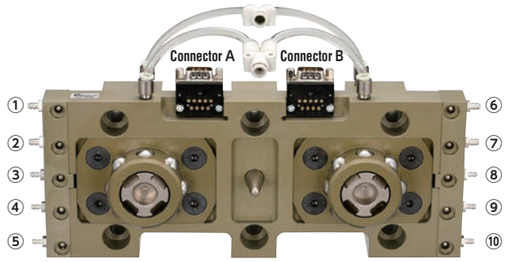


W/o connector

Order code No.	140259
Standard	OX-LBFNI

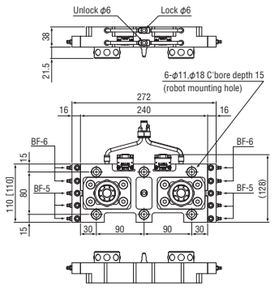
- Weight: 720g
- Mounting position: tool side
- Weight capacity: ～35kg
- Thickness after connection: 60mm

＊The value in [ ] shows the type w/o connector.



Order code No.	140184
Standard	OX-WLB

- Superduralumin
- Weight: 2,720g
- Mounting position: robot side
- Weight capacity: ～80kg
- Thickness after connection: 60mm

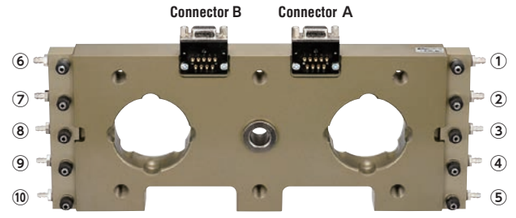


W/o connector

Order code No.	140277
Standard	OX-WLBN

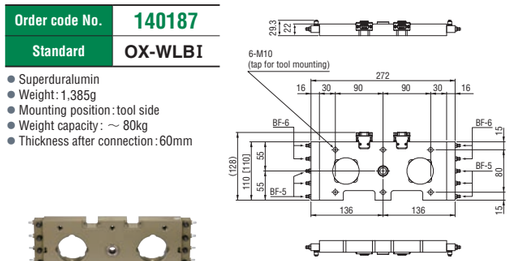
- Superduralumin
- Weight: 2,680g
- Mounting position: robot side
- Weight capacity: ～80kg
- Thickness after connection: 60mm

＊The value in [ ] shows the type w/o connector.



Order code No.	140187
Standard	OX-WLBI

- Superduralumin
- Weight: 1,385g
- Mounting position: tool side
- Weight capacity: ～80kg
- Thickness after connection: 60mm



W/o connector

Order code No.	140278
Standard	OX-WLBNI

- Superduralumin
- Weight: 1,345g
- Mounting position: tool side
- Weight capacity: ～80kg
- Thickness after connection: 60mm

＊The value in [ ] shows the type w/o connector.

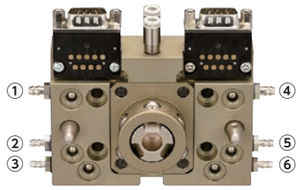
B/BN Type

Also for installation on other enterprises' robots!

Description of standard **OX-** SBY | N | I
- Type (size): SBY
- Connector: N (None) / NONE (W/ connector)
- Installation side: NONE (Robot side) / I (Tool side)

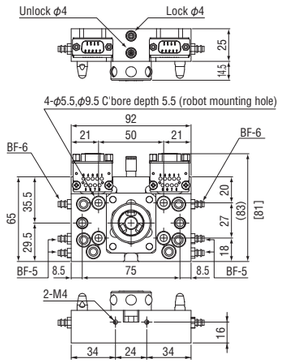
Mounting pitch 27×50

Connector A Connector B



Order code No.	140217
Standard	OX-SBY

- Superduralumin
- Weight: 475g
- Mounting position: robot side
- Weight capacity: ～10kg
- Thickness after connection: 40mm



W/o connector

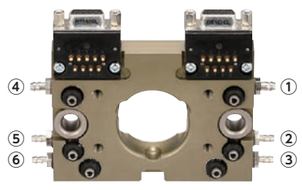
Order code No.	140229
Standard	OX-SBYN

- Superduralumin
- Weight: 435g
- Mounting position: robot side
- Weight capacity: ～10kg
- Thickness after connection: 40mm

＊The value in [ ] shows the type w/o connector.

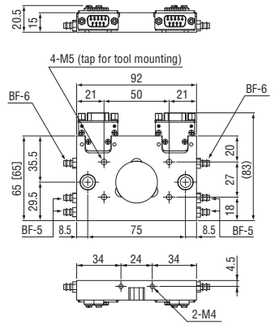
Mounting pitch 27×50

Connector B Connector A



Order code No.	140218
Standard	OX-SBYI

- Superduralumin
- Weight: 235g
- Mounting position: tool side
- Weight capacity: ～10kg
- Thickness after connection: 40mm
- Installable to OX-SB



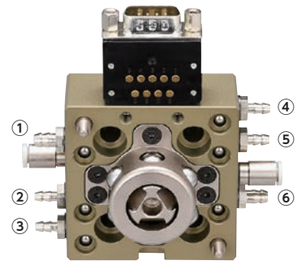
W/o connector

Order code No.	140230
Standard	OX-SBYNI

- Superduralumin
- Weight: 195g
- Mounting position: tool side
- Weight capacity: ～10kg
- Thickness after connection: 40mm

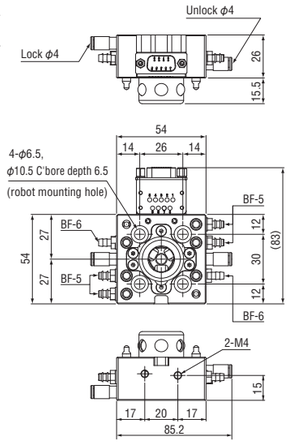
＊The value in [ ] shows the type w/o connector.

Mounting pitch 30×26

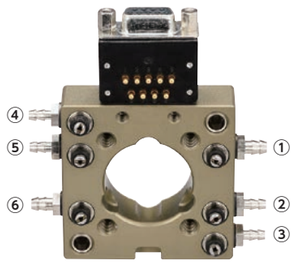


Order code No.	140233
Standard	OX-SBS

- Superduralumin
- Weight: 305g
- Mounting position: robot side
- Weight capacity: ～5kg
- Thickness after connection: 42mm

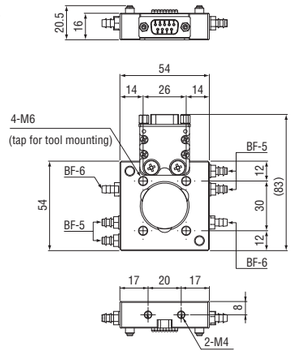


Mounting pitch 30×26



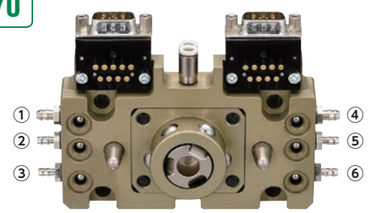
Order code No.	140234
Standard	OX-SBSI

- Superduralumin
- Weight: 122g
- Mounting position: tool side
- Weight capacity: ～5kg
- Thickness after connection: 42mm



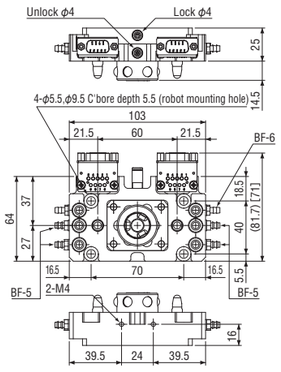
Mounting pitch 40×70

Connector A Connector B



Order code No.	140275
Standard	OX-SBH

- Superduralumin
- Weight: 440g
- Mounting position: robot side
- Weight capacity: ～10kg
- Thickness after connection: 40mm



W/o connector

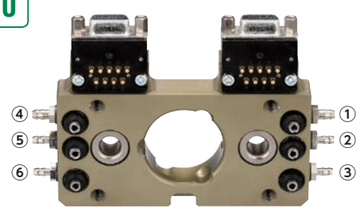
Order code No.	140260
Standard	OX-SBHN

- Superduralumin
- Weight: 400g
- Mounting position: robot side
- Weight capacity: ～10kg
- Thickness after connection: 40mm

＊The value in [ ] shows the type w/o connector.

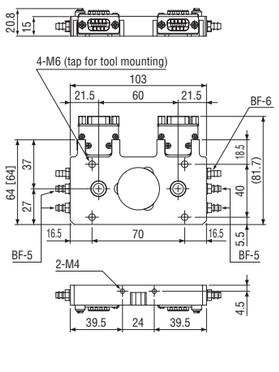
Mounting pitch 40×70

Connector B Connector A



Order code No.	140276
Standard	OX-SBHI

- Superduralumin
- Weight: 245g
- Mounting position: tool side
- Weight capacity: ～10kg
- Thickness after connection: 40mm



W/o connector

Order code No.	140261
Standard	OX-SBHNI

- Superduralumin
- Weight: 205g
- Mounting position: tool side
- Weight capacity: ～10kg
- Thickness after connection: 40mm

＊The value in [ ] shows the type w/o connector.

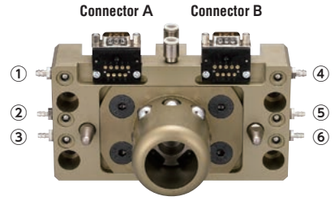
Long Center Guide

Easy exchange of heavy chuck plate with long center guide.

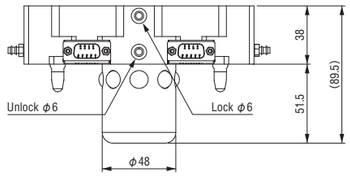
Tool Chenger
(Long center guide)

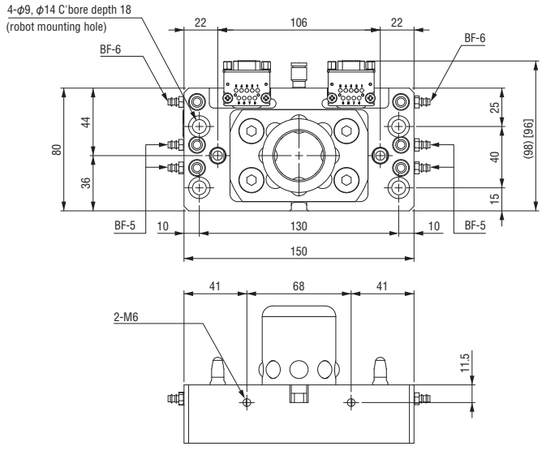
You can see moving images of products by using QR code reader of your smartphone.

● After assembly, the center guide projects about 30mm from tool side.



Example of mounting

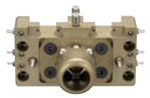




Order code No.	140228
Standard	OX-LB-30

- Superduralumin
- Weight : 1,370g
- Mounting position : robot side
- Weight capacity : ～35kg
- Tool : OX-LBI

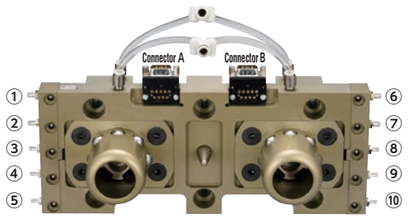
W/o connector



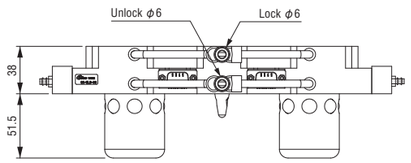
Order code No.	140279
Standard	OX-LBN-30

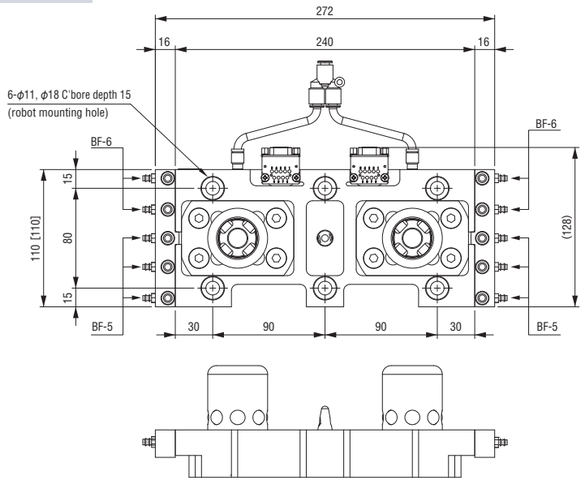
- Superduralumin
- Weight : 1,330g
- Mounting position : robot side
- Weight capacity : ～35kg
- Tool : OX-LBNI

＊The value in [ ] shows the type w/o connector.



Example of mounting





Order code No.	140283
Standard	OX-WLB-30

- Superduralumin
- Weight : 2,905g
- Mounting position : robot side
- Weight capacity : ～80kg
- Tool : OX-WLBI

W/o connector

Order code No.	140267
Standard	OX-WLBN-30

- Superduralumin
- Weight : 2,865g
- Mounting position : robot side
- Weight capacity : ～80kg
- Tool : OX-WLBNI

＊The value in [ ] shows the type w/o connector.

Additional Air Expansion

A type ／ B type ／ BN type

OX-SB (Robot side)

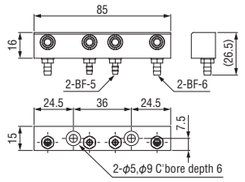
OX-SBA (Robot side)

Example of mounting

For OX-SSB

Order code No.	140294
Standard	OX-SSBA

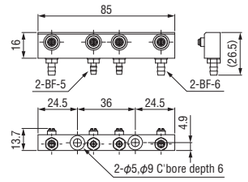
- Weight : 56g
- Attachments : mounting bolt (M3) x 2



For OX-SSBI

Order code No.	140295
Standard	OX-SSBIA

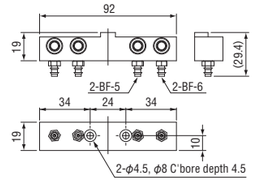
- Weight : 33g
- Attachments : mounting bolt (M3) x 2



For OX-SA/OX-SB

Order code No.	140193
Standard	OX-SBA

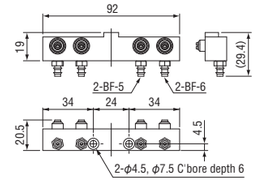
- Weight : 90g
- Attachments : mounting bolt (M4) x 2



For OX-SAI/OX-SBI

Order code No.	140194
Standard	OX-SBIA

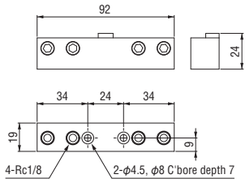
- Weight : 70g
- Attachments : mounting bolt (M4) x 2



For OX-SA/OX-SB

Order code No.	140251
Standard	OX-SBA1

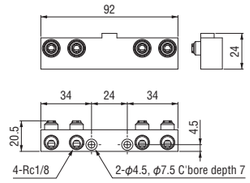
- Weight : 91g
- Air port : 1/8 hole x 4, w/o check valve
- Attachments : mounting bolt (M4) x 2



For OX-SAI/OX-SBI

Order code No.	140252
Standard	OX-SBIA1

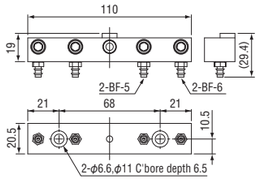
- Weight : 72g
- Air port : 1/8 hole x 4
- Attachments : mounting bolt (M4) x 2



For OX-LA/OX-LB

Order code No.	140195
Standard	OX-LBA

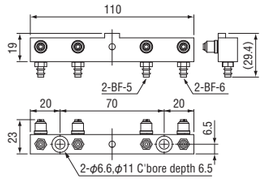
- Weight : 115g
- Attachments : mounting bolt (M6) x 2



For OX-LAI/OX-LBI

Order code No.	140196
Standard	OX-LBIA

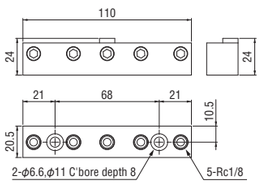
- Weight : 82g
- Attachments : mounting bolt (M6) x 2



For OX-LA/OX-LB

Order code No.	140253
Standard	OX-LBA1

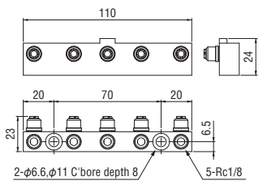
- Weight : 113g
- Air port : 1/8 hole x 5, w/o check valve
- Attachments : mounting bolt (M6) x 2



For OX-LAI/OX-LBI

Order code No.	140254
Standard	OX-LBIA1

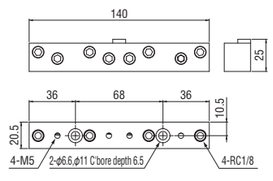
- Weight : 77g
- Air port : 1/8 hole x 5
- Attachments : mounting bolt (M6) x 2



For OX-LA/OX-LB

Order code No.	140287
Standard	OX-LBA3

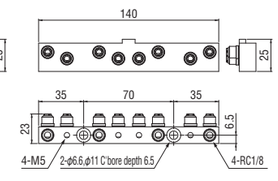
- Weight : 160g
- Air port : 1/8 hole x 4, w/o check valve, hole x 4 M5
- Attachments : mounting bolt (M6) x 2



For OX-LAI/OX-LBI

Order code No.	140288
Standard	OX-LBIA3

- Weight : 112g
- Air port : 1/8 hole x 4, hole x 4 M5
- Attachments : mounting bolt (M6) x 2



Accessories

A Type ／ B Type ／ BN Type

Detachable valve for manual

Manual air valve push button

Order code No.	152308
Standard	PB1-E
Weight	65g

Manual air valve push slide button

Order code No.	152306
Standard	PBW1-E
Weight	75g

Air port accessory

Barbed joint

Order code No.	110623	230076
Standard	LX0004-101	XL0054-106
Weight	2g	1g

OX-bearing ＊Material：SS304

Order code No.	323000	310607
Standard	ϕ6.35	ϕ5.5
Weight	1g	1g

Coil spring

Order code No.	110649	185221	110619	200223
Standard	L00999-420	SAWANE5115	L00999-316	UR5-10
Weight	0.2g	0.4g	0.1g	0.1g

Packing ＊Material：CR (chloroprene rubber)

Order code No.	110551	184474	230077	271742
Standard	L00999-313	S6 (C00503-A00X8)	XL0054-204	1ASS-5
Weight	0.2g	0.05g	0.1g	0.05g

Cable accessary

D-SUB Cable (OX-A type)

● Bending radius(mm)：R46

Order code No.	140168	140167	140170	140169
Standard	OX-DS09-H	OX-DS09-I-H	OX-DS15-H	OX-DS15-I-H
Weight	40g			
Cable Length	0.5m			
Electric contact	9Pin		15Pin	
Electrical wiring	Movable cable (AWG22), for UL			

D-SUB Cable for OX (for OX-B)

Straight type

● Bending radius(mm)：R46

Order code No.	140197	140247	140202
Standard	OX-DS09S-H	OX-DS09S-H (1.5M)	OX-DS09P-I-H
Weight	60g	138g	60g
Cable Length	0.5m	1.5m	0.5m
Electric contact	9Pin		
Electrical wiring	Movable cable (AWG22), for UL		

D-SUB Cable for OX (for OX-B)

L type

● Bending radius(mm)：R46

Order code No.	140203	140248	140204
Standard	OX-DS09SL-H	OX-DS09SL-H (1.5M)	OX-DS09PL-I-H
Weight	60g	138g	60g
Cable Length	0.5m	1.5m	0.5m
Electric contact	9Pin		
Electrical wiring	Movable cable (AWG22), for UL		

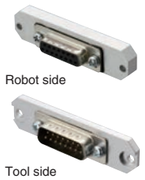
Connector accessory

D-SUB connector (OX-A type)

＊Screws are not included.

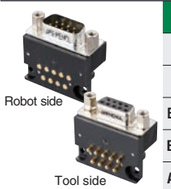
Order code No.	140172	140171	140174	140173
Standard	OX-DS09	OX-DS09-I	OX-DS15	OX-DS15-I
Weight	4g			
Electrical wiring	AWG22			
Electric contact	9Pin		15Pin	
Mounting screw size	OX-A Type / OX-B Type: Screw with cross recessed head M3×6[123446]		Screw with cross recessed head M3×16 (Nut 4PCS) [123449] / NUT M3 [123301]	Screw with cross recessed head M3×10 [123447]
	D-SUB& prove connector: Screw with cross recessed head M2.6×5[123448]			

NEW D-SUB connector (WSB type)



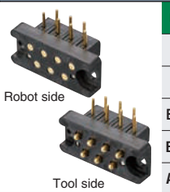
Order code No.	140304	140305
Standard	OX-DS15-WS	OX-DS15-I-WS
Weight	21g	13g
Electrical wiring	AWG22	
Electric contact	15Pin	
Attached screw	bolt M3×8	

D-Sub & Probe connector (OX-A/B type)



Order code No.	140324	140325
Standard	OX-DPS09A	OX-DPS09A-I
Weight	24g	
Electrical wiring	AWG22	
Electric contact	9Pin	
Attached screw	Screw with cross recessed head M3×6 [123446]	

Probe connector (OX-SSB/A/B type) solder-fix type



Order code No.	140286	140285
Standard	OX-PLA-07	OX-PLA-07-I
Weight	6g	
Electrical wiring	AWG22	
Electric contact	7Pin	
Attached screw	Screw with cross recessed head M3×6 [123446]	

Connector plate

＊Required to attach D-SUB connector to OX-B type. ➡ 1-18,19

NEW

＊Required to attach D-SUB & probe connector (for OX-A/B) to OX-WSBN type.

Order code No.	140289
Standard	OX-DS09CNP
Weight	2g
Order code No.	140303
Standard	OX-DPS09WCNP
Weight	6g

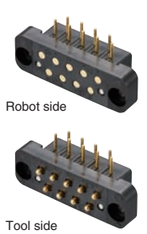
Application

D-SUB connector
＋
D-SUB&Probe connector

Mounting screw: Screw with cross recessed head M2.6×5[123448]

＊D-SUB connector can be mounted on cable wiring.

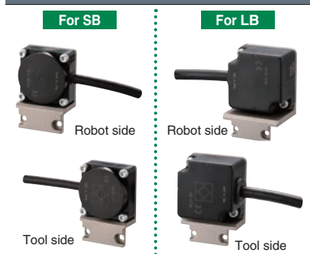
Probe connector (OX-WSA) solder-fix type



Order code No.	140220	140221
Standard	OX-PL09	OX-PL09-I
Weight	9g	
Electrical wiring	AWG22	
Electric contact	9Pin	
Attached screw	Screw with cross recessed head M3×16(Nut 4PCS) [123449]	Screw with cross recessed head M3×10 [123447]

NEW Wireless connector

Can be used for the place with moisture and dust with contactless design



Order code No.	140306	140307	140308	140309
Standard	OX-RS04R-SB	OX-RS04T-SBI	OX-RS12R-LB	OX-RS12T-LBI
Weight	140g	140g	310g	290g
Drive voltage	12V±1.5VDC	—	12V±1.5VDC	—
Input and output points	4 points + 1 point	4 points	12 points + 1 point	12 points
Attached screw	Cross-recessed pan head screw M3×8	Cross-recessed pan head screw M3×8	Cross-recessed pan head screw M3×8	Cross-recessed pan head screw M3×8

＊Check the specification and precautions concerning handling. ➡ 1-29
＊OX-RS12 is basically for the tool changer with load capacity 20kg or more.
＊Check the drawing. ➡ 1-28
＊For protection structure IP67

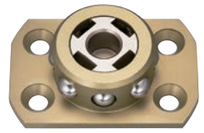
Substitute Product of Tool Changer（A Type）

Repairing Parts of Tool Changer（A Type）

*For more information, please contact our sales office nearest you.

Piston	For OX-SA
Order code No.	140249
Standard	OX-SAP
Weight	94g
Attachments PARTS	Piston set, Spring, Bearing, Bearing holder

Piston	For OX-LA
Order code No.	140250
Standard	OX-LAP
Weight	337g
Attachments PARTS	Piston set, Spring, Bearing, Bearing holder



Substitute Product of Tool Changer（A Type）

*For more information, please contact our sales office nearest you.

Production stopped	
Order code No.	Standard
140156	OX-SA
140157	OX-SAI
140158	OX-LA
140159	OX-LAI
140162	OX-WSA
140163	OX-WSAI
140160	OX-WLA
140161	OX-WLAI
140164	OX-SA-30
140165	OX-LA-30
140166	OX-WLA-30

Substitute		
Order code No.	Standard	Thickness (mm)
140225	OX-SBN	+5
140226	OX-SBNI	0
140231	OX-LBN	+9
140232	OX-LBNI	0
140300	OX-WSBN	+4.5
140302	OX-WSBNI	0
140277	OX-WLBN	+8
140278	OX-WLBNI	0
Production stopped		—
140279	OX-LBN-30	+8
140267	OX-WLBN-30	+7.5

Subroutine Product of Additional Air Expansion for A Type

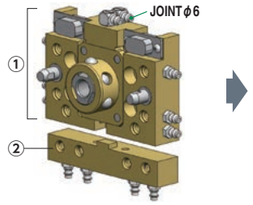
*For more information, please contact our sales office nearest you.

Production stopped	
Order code No.	Standard
110547	L00999-306 SET
110548	L00999-207 SET
110545	L00999-406 SET
110546	L00999-407 SET

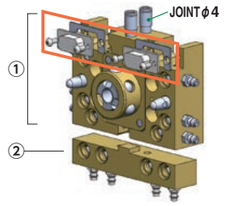
Substitute	
Order code No.	Standard
140193	OX-SBA
140194	OX-SBIA
140195	OX-LBA
140196	OX-LBIA

OX-SA (Robot side)

A type



B type

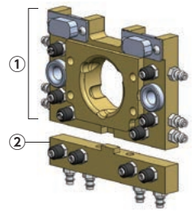


	Order code No.	Standard	Remarks	Qty
①	140225	OX-SBN	Tool changer	1
	140289	OX-DS09CNP	Connector plate	2
	140172	OX-DS09	D-SUB connector	2
	123446	BKJ 3-6 (M3*6)	Screw with cross recessed head	4
②	140193	OX-SBA	Additional air expansion	1

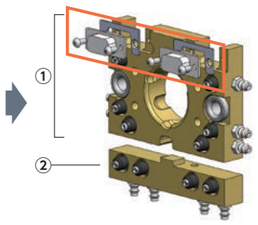
*②:If not used, purchase order is not required.

OX-SAI (Tool side)

A type



B type

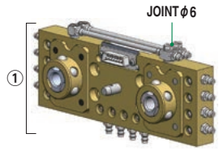


	Order code No.	Standard	Remarks	Qty
①	140226	OX-SBNI	Tool changer	1
	140289	OX-DS09CNP	Connector plate	2
	140171	OX-DS09-I	D-SUB connector	2
	123446	BKJ 3-6 (M3*6)	Screw with cross recessed head	4
②	140194	OX-SBIA	Additional air expansion	1

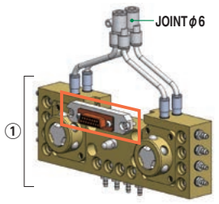
*②:If not used, purchase order is not required.

OX-WSA (Robot side)

A type



B type

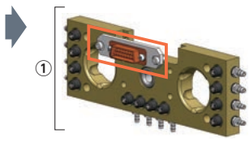


	Order code No.	Standard	Remarks	Qty
①	140300	OX-WSBN	Tool changer	1
	140304	OX-DS15-WS	D-SUB connector	1

OX-WSAI (Tool side)

A type

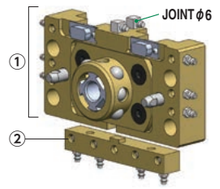
B type



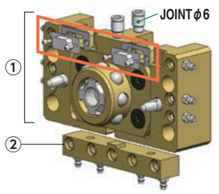
	Order code No.	Standard	Remarks	Qty
①	140302	OX-WSBNI	Tool changer	1
	140305	OX-DS15-I-WS	D-SUB connector	1

OX-LA (Robot side)

A type



B type

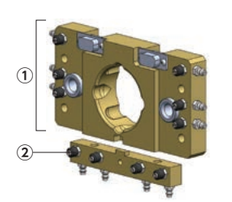


	Order code No.	Standard	Remarks	Qty
①	140231	OX-LBN	Tool changer	1
	140289	OX-DS09CNP	Connector plate	2
	140172	OX-DS09	D-SUB connector	2
	123446	BKJ 3-6 (M3*6)	Screw with cross recessed head	4
②	140195	OX-LBA	Additional air expansion	1

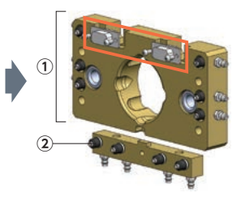
*②:If not used, purchase order is not required.

OX-LAI (Tool side)

A type



B type

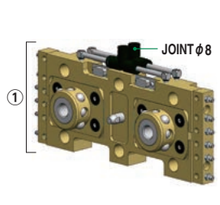


	Order code No.	Standard	Remarks	Qty
①	140232	OX-LBNI	Tool changer	1
	140171	OX-DS09-I	D-SUB connector	2
	123446	BKJ 3-6 (M3*6)	Screw with cross recessed head	4
②	140196	OX-LBIA	Additional air expansion	1

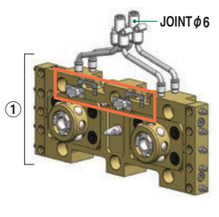
*②:If not used, purchase order is not required.

OX-WLA (Robot side)

A type



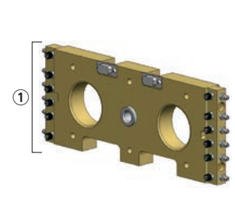
B type



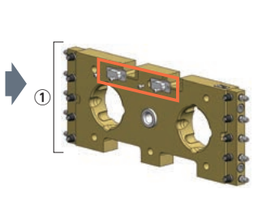
	Order code No.	Standard	Remarks	Qty
①	140277	OX-WLBN	Tool changer	1
	140289	OX-DS09CNP	Connector plate	2
	140172	OX-DS09	D-SUB connector	2
	123446	BKJ 3-6 (M3*6)	Screw with cross recessed head	4

OX-WLAI (Tool side)

A type



B type



	Order code No.	Standard	Remarks	Qty
①	140278	OX-WLBNI	Tool changer	1
	140171	OX-DS09-I	D-SUB connector	2
	123446	BKJ 3-6 (M3*6)	Screw with cross recessed head	4

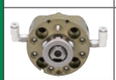
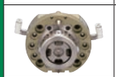
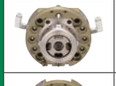
Quick Chuck Change Automatic for Articulated Robots

Essential tool for high performance of robot.

Tool changer
(for articulated robots)

You can watch our product video by using a mobile device such as a smartphone.

■ Specification

Product name	Order code No.	Standard	Weight (g)	Weight capacity (kg)	Power to draw(N) / Power to force(N)	Electric contact / Connector shape	Connected piping	Page of details
Tool changer	140235	OX-03A	125	～3	123 / 63	9Pin×2 2A DC24V Max Connector (option) 16Pin×2 2A DC24V Max Connector (option)	6 port (M5)	1-21
	140236	OX-03AI	45					
	140237	OX-05A	250	～5				
	140238	OX-05AI	115					
	140262	OX-10B	199	～10	277 / 198			
	140263	OX-10BI	115					
	140240	OX-20A	561	～20	492 / 215			1-22
	140242	OX-20AI	229					
	140292	OX-20B	507	～20	492 / 215			
	140293	OX-20BI	226					

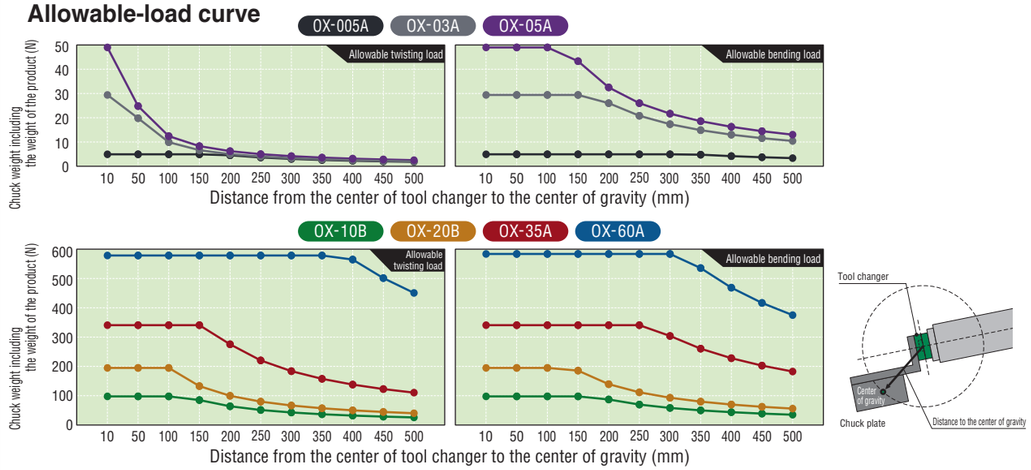
*Production of OX-20A and OX-20AI stopped. The sale ends when all the stocked items are sold out.
*Please use manual push button "PB1-E, PBW1-E" for manual exchange 1-25 6-11

■ Common specification

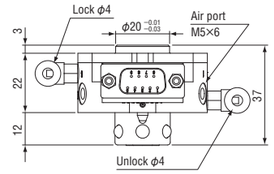
Positional reproduction Accuracy	Used Air pressure	Drive piping	Acceptable electric wiring	Allowable temperature/humidity range
±0.1 Max.	0.49～0.7Mpa	Clean air, piping of φ6 (φ4*), double action type	AWG20 Max.	0～55℃,0～95% (w/o condensation)

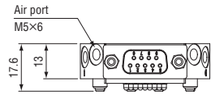
*φ6:OX-35A. OX-35AT, OX-60A

Allowable-load curve



Description of standard OX- 03 A I
Maximum weight capacity (kg) / Version / Installation side: NONE (Robot side), I (Tool side)



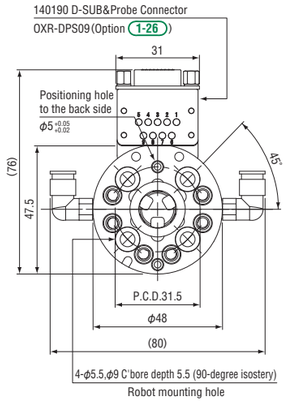


Order code No.	140235
Standard	OX-03A

- Superduralumin
- Weight:125g
- Mounting position:robot side
- Weight capacity: ～3kg
- Thickness after connection:38mm

Order code No.	140237
Standard	OX-05A

- Steel
- Weight:250g
- Mounting position:robot side
- Weight capacity: ～5kg
- Thickness after connection:38mm

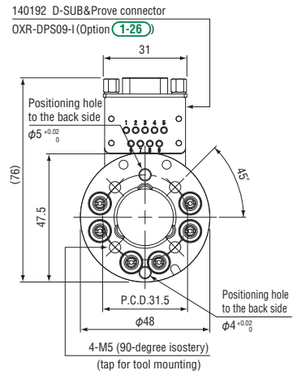


Order code No.	140236
Standard	OX-03AI

- Superduralumin
- Weight:45g
- Mounting position:tool side
- Weight capacity: ～3kg
- Thickness after connection:38mm

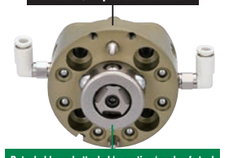
Order code No.	140238
Standard	OX-05AI

- Steel
- Weight:115g
- Mounting position:tool side
- Weight capacity: ～5kg
- Thickness after connection:38mm



▶ Superduralumin-made frame. Improved durability:steel hybrid structure of detachable and attachable section.

Frame/superduralumin



Detachable and attachable section/made of steel

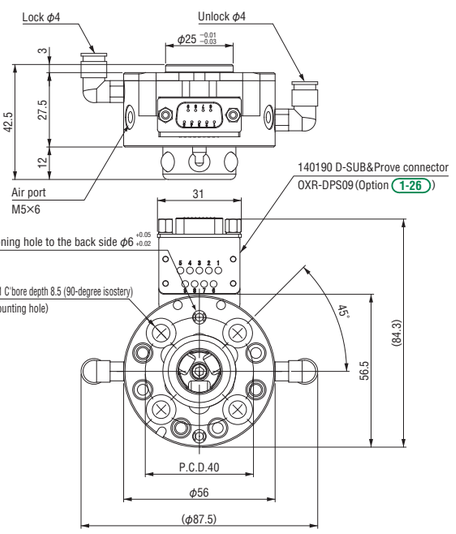
Order code No.	140262
Standard	OX-10B

- Weight:199g
- Mounting position:robot side
- Weight capacity: ～10kg
- Thickness after connection:43mm

Frame/made of steel

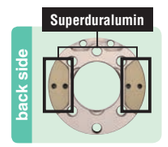
Order code No.	140263
Standard	OX-10BI

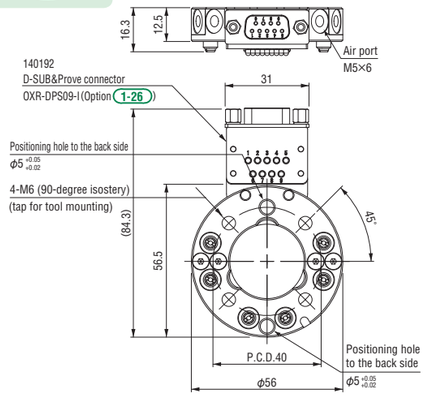
- Weight:115g
- Mounting position:tool side
- Weight capacity: ～10kg
- Thickness after connection:43mm



Superduralumin

back side



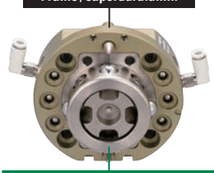


Quick Chuck Change Automatic for Articulated Robots

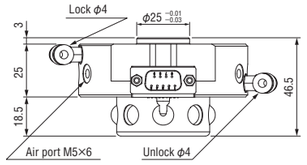
Description of standard: OX- 005 A I
- 005: Maximum weight capacity (kg)
- A: Version
- I: Installation side — NONE (Robot side) / I (Tool side)

● Production of OX-20A and OX-20AI stopped. The sale ends when all the stock is sold out.

Frame/superduralumin

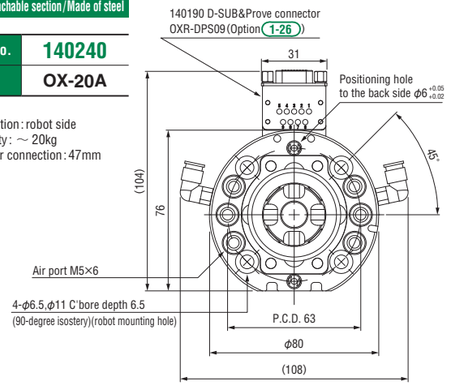


Detachable and attachable section/Made of steel

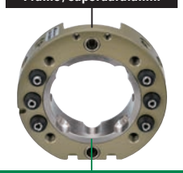


Order code No.	140240
Standard	OX-20A

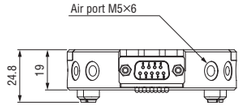
- Weight: 561g
- Mounting position: robot side
- Weight capacity: ～ 20kg
- Thickness after connection: 47mm



Frame/superduralumin

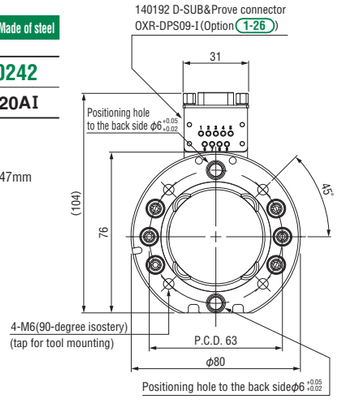


Detachable and attachable section/Made of steel



Order code No.	140242
Standard	OX-20AI

- Weight: 229g
- Mounting position: tool side
- Weight capacity: ～ 20kg
- Thickness after connection: 47mm



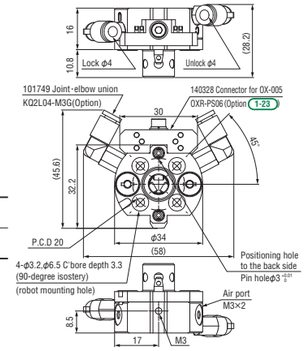
● Specification and dimension may be changed as the product is under development.
● For more information, please contact our sales office nearest you.

For high-speed operation of parallel link robot.

■OX-005A

Order code No.	140310
Standard	OX-005A

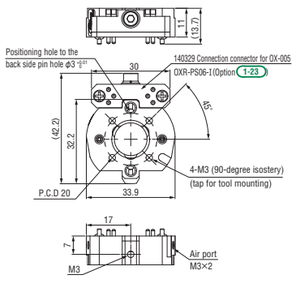
- Weight: 38g
- Mounting position: robot side
- Weight capacity: ～ 500g
- Thickness after connection: 27mm



■OX-005AI

Order code No.	140315
Standard	OX-005AI

- Weight: 17g
- Mounting position: tool side
- Weight capacity: ～ 500g
- Thickness after connection: 27mm



Connector for OX-005 (robot side)

Order code No.	140328
Standard	OXR-PS06

- Weight: 3g
- No. of pins: 6

Connector for OX-005 (tool side)

Order code No.	140329
Standard	OXR-PS06-I

- Weight: 3g
- No. of pins: 6

Air Option (robot side)

Order code No.	140326
Standard	OX-005AA

- Weight: 12g
- No. of ports: 2
- Air port: M3 holes x 2

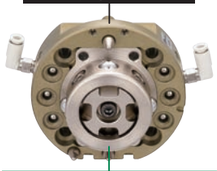
Air Option (tool side)

Order code No.	140327
Standard	OX-005AIA

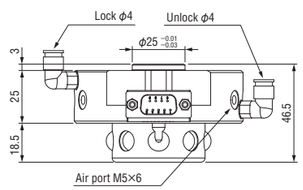
- Weight: 7g
- No. of ports: 2
- Air port: M3 holes x 2

Superduralumin-made frame. Improved durability: steel hybrid structure of detachable and attachable section.

Frame/superduralumin

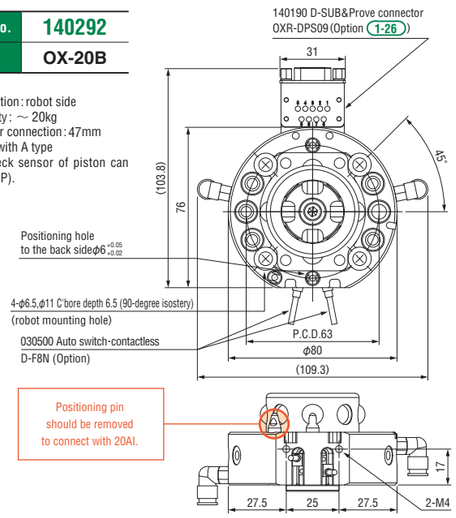


Detachable and attachable section/Made of steel

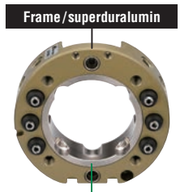


Order code No.	140292
Standard	OX-20B

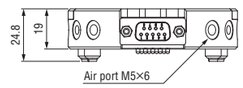
- Weight: 507g
- Mounting position: robot side
- Weight capacity: ～ 20kg
- Thickness after connection: 47mm
- Compatibility with A type
- Operation check sensor of piston can be attached (OP).



Frame/superduralumin

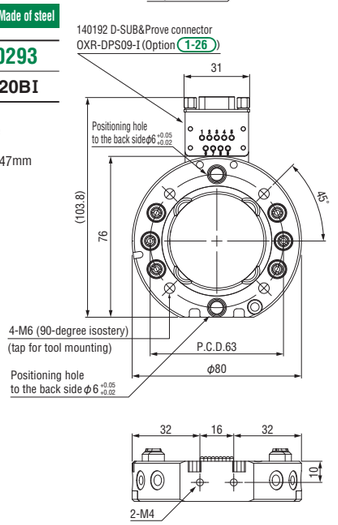


Detachable and attachable section/Made of steel



Order code No.	140293
Standard	OX-20BI

- Weight: 226g
- Mounting position: tool side
- Weight capacity: ～ 20kg
- Thickness after connection: 47mm
- Compatibility with A type

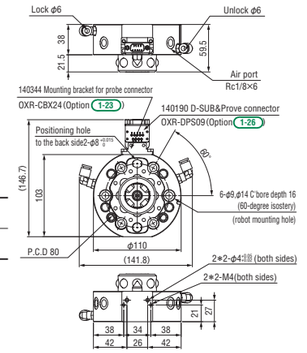


Tool changer for small-size robots. Load capacity 35kg specification.

■OX-35A

Order code No.	140311
Standard	OX-35A

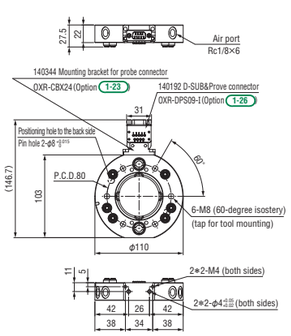
- Weight: 1225g
- Mounting position: robot side
- Weight capacity: ～ 35kg
- Thickness after connection: 60mm



■OX-35AI

Order code No.	140316
Standard	OX-35AI

- Weight: 545g
- Mounting position: tool side
- Weight capacity: ～ 35kg
- Thickness after connection: 60mm



Prove connector

Order code No.	140344
Standard	OXR-CBX24

- Accessories: positioning pin, mounting bolt

Required to attach D-SUB & probe connector to OX-35A and OX-35AI. Refer to 1-26 for the instructions to use the probe connector.

Quick Chuck Change Automatic for Articulated Robots

Description of standard OX- 60 A I
- 60: Maximum weight capacity (kg)
- A: Version
- I: Installation side — NONE (Robot side), I (Tool side)

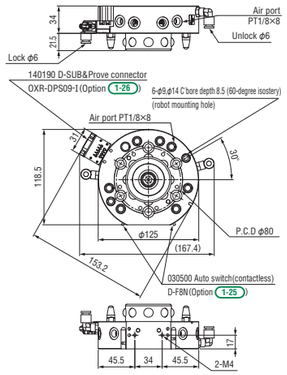
- Specification and dimension may be changed as the product is under development.
- Please visit our web site or contact our sales offices for more information about selling period and price/specifications.

Tool changer for middle-size robots. Load capacity 60kg specification.

OX-60A

Order code No.	140313
Standard	OX-60A

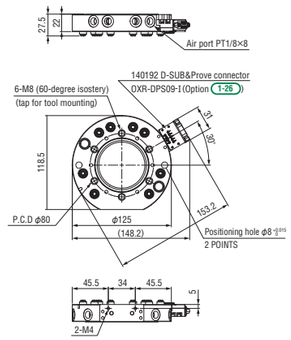
- Weight : 1440g
- Mounting position : robot side
- Weight capacity : ～ 60kg
- Thickness after connection : 56mm



OX-60AI

Order code No.	140318
Standard	OX-60AI

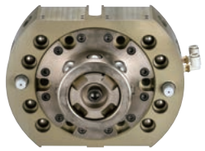
- Weight : 734g
- Mounting position : tool side
- Weight capacity : ～ 60kg
- Thickness after connection : 56mm



Tool changer for large-size robot (load capacity 200kg) will be added to product lineup soon.

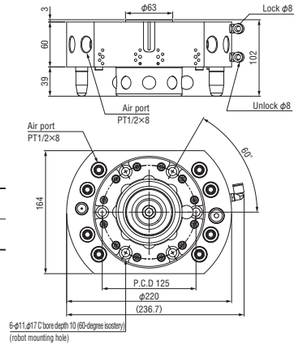
Please contact our sales offices for more information about the sales schedule.

OX-200A



Order code No.	140314
Standard	OX-200A

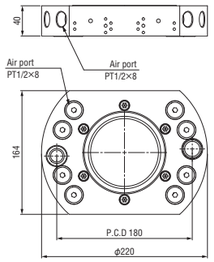
- Weight : 6431g
- Mounting position : robot side
- Weight capacity : ～ 200kg
- Thickness after connection : 103mm



OX-200AI

Order code No.	140319
Standard	OX-200AI

- Weight : 3965g
- Mounting position : tool side
- Weight capacity : ～ 200kg
- Thickness after connection : 103mm



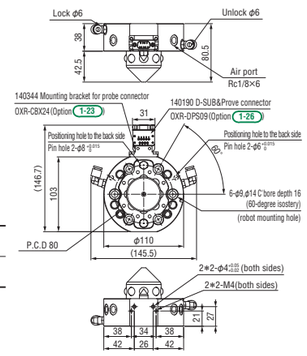
Connected properly even if approach error (±10mm) is large in high-speed operation.

- The products are created after your order. Please contact our sales offices for more information about delivery date/price.

OX-35AT

Order code No.	140312
Standard	OX-35AT

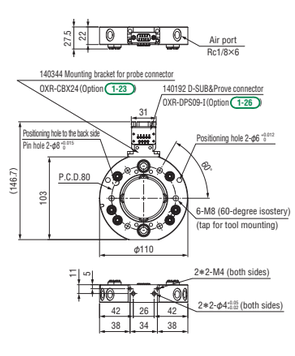
- Weight : 1445g
- Mounting position : robot side
- Weight capacity : ～ 35kg
- Thickness after connection : 60mm



OX-35ATI

Order code No.	140317
Standard	OX-35ATI

- Weight : 535g
- Mounting position : tool side
- Weight capacity : ～ 35kg
- Thickness after connection : 60mm



Accessories for Articulated Robots

Quick chuck change automatic (for articulated robots)

Detachable valve for manual

Manual air valve push button

Order code No.	152308
Standard	PB1-E
Weight	65g

Manual air valve push slide button

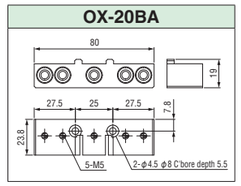
Order code No.	152306
Standard	PBW1-E
Weight	75g

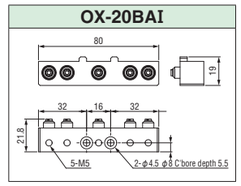
Air port accessory

■ For OX-20B

NEW Air option

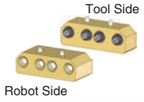
	For OX-20	
Order code No.	140296	140297
Standard	OX-20BA	OX-20BAI
Weight	76g	57g



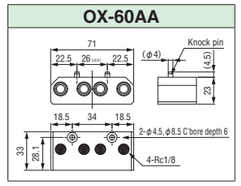


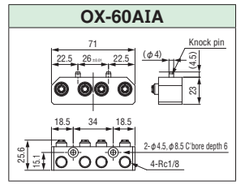
■ For OX-35A,60A

NEW Air option



	For OX-35/60	
Order code No.	140342	140343
Standard	OX-60AA	OX-60AIA
Weight	147g	80g





Barbed joint	For OX-20	For OX-03/05/10
Order code No.	110623	230076
Standard	LX0004-101	XL0054-106
Weight	2g	1g

OX-bearing ∗Material : SS304	For OX-20	For OX-03/05/10
Order code No.	323000	310607
Standard	φ6.35	φ5.5
Weight	1g	1g

Coil spring	For OX-20	For OX-03/05/10
Order code No.	110649	200223
Standard	L00999-420	UR5-10
Weight	0.2g	0.1g

Packing	For OX-20		For OX-03/05/10	
Order code No.	110551	184474	230077	271742
Standard	L00999-313	S6 (C00503-A00X8)	XL0054-204	1ASS-5
Weight	0.2g	0.05g	0.1g	0.05g

S6 1ASS-5

Auto switch·contactless

Auto switch

Order code No.	030500
Standard	D-F8N
Weight	7g

- Applied load : relay PLC
- Load voltage : DC24V
- Maximum load electric current : 5-40mA
- Wiring : See 6-21
- W / indicator lamp

Accessories for Articulated Robots

Connector accessory

D-SUB & Probe connector	Robot side	Tool side
Order code No.	140190	140192
Standard	OXR-DPS09	OXR-DPS09-I
Weight	25g	
Wiring specification	AWG22	
Electric contact	9Pin	
Attached screw	Flat head screw with cross recesse M4×10 [123515]	

Probe connector (Solder)	Robot side	Tool side
Order code No.	140264	140265
Standard	OXR-PS16	OXR-PS16-I
Weight	8g	11g
Wiring specification	AWG22	
Electric contact	16Pin	
Attached screw	Flat head screw with cross recesse M4×10 [123515]	

D-SUB connector (OX-A type)	Robot side	Tool side
Order code No.	140172	140171
Standard	OX-DS09	OX-DS09-I
Weight	4g	
Wiring specification	AWG22	
Electric contact	9Pin	

● Screws are not included.

Application

D-SUB connector
+
D-SUB & Probe connector

Mounting screw — Screw with cross recessed head M2.6×5 [123448]

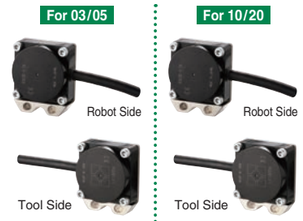
*D-SUB connector can be mounted on cable wiring.

Wireless connector

Can be used for the place with moisture and dust with contactless design

NEW

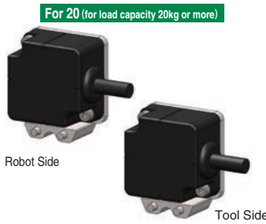
Wireless connector	For 03/05 Robot side	For 03/05 Tool side	For 10/20 Robot side	For 10/20 Tool side
Order code No.	140320	140322	140321	140323
Standard	OXR-RS04R-03	OXR-RS04T-03I	OXR-RS04R-10	OXR-RS04T-10I
Weight	120g	120g	120g	110g
Drive voltage	12V±1.5VDC	—	12V±1.5VDC	—
Input and output points	4points + 1point	4points	4points + 1point	4points
Attached screw	Cross-recessed countersunk screw M4×14		Cross-recessed countersunk screw M4×20	



*Check the specification and precautions concerning handling. ➡ 1-29 *Check the drawing. ➡ 1-28
*For protection structure IP67

	For 20 Robot side	For 20 Tool side
Order code No.	140330	140331
Standard	OXR-RS12R-20	OXR-RS12T-20I
Weight	290g	260g
Drive voltage	12V±1.5VDC	—
Input and output points	12points + 1point	12points
Attached screw	Cross-recessed countersunk screw M4×10	

For 20 (for load capacity 20kg or more)



*Check the specification and precautions concerning handling. ➡ 1-29 *Check the drawing. ➡ 1-28
*OXR-RS20 is basically for the tool changer with load capacity 20kg or more. *For protection structure IP67

Cable accessary

D-SUB cable for OX-A type	Robot side	Tool side	Robot side	Tool side
Order code No.	140168	140167	140170	140169
Standard	OX-DS09-H	OX-DS09-I-H	OX-DS15-H	OX-DS15-I-H
Weight	40g			
Cable Length	0.5m			
Electric Contact	9Pin		15Pin	
Electrical Wiring	Movable cable (AWG22), for UL			

● Bending radius (mm) :R46

D-SUB cable for OX (OX-B)	Robot side	Robot side	Tool side
Order code No.	140197	140247	140202
Standard	OX-DS09S-H	OX-DS09S-H (1.5M)	OX-DS09P-I-H
Weight	60g	138g	60g
Cable Length	0.5m	1.5m	0.5m
Electric Contact	9Pin		
Electrical Wiring	Movable cable (AWG22), for UL		

Straight type

● Bending radius (mm) :R46

D-SUB cable for OX (OX-B)	Robot side (L)	Robot side (L)	Tool Side (L)
Order code No.	140203	140248	140204
Standard	OX-DS09SL-H	OX-DS09SL-H (1.5M)	OX-DS09PL-I-H
Weight	60g	138g	60g
Cable Length	0.5m	1.5m	0.5m
Electric Contact	9Pin		
Electrical Wiring	Movable cable (AWG22), for UL		

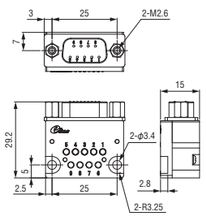
L type

● Bending radius (mm) :R46

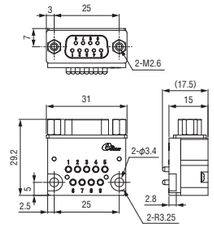
Probe connector drawing

For take-out robot ➡ 1-17

OX-DPS09A

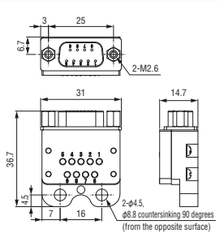


OX-DPS09A-I

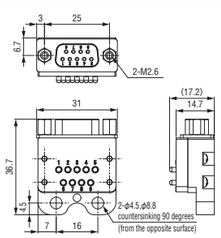


Quick chuck change automatic (for articulated robots) ➡ 1-26

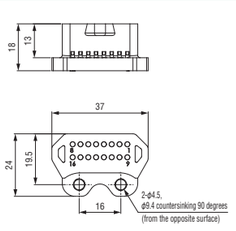
OXR-DPS09



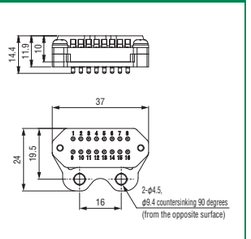
OXR-DPS09-I



OXR-PS16



OXR-PS16-I

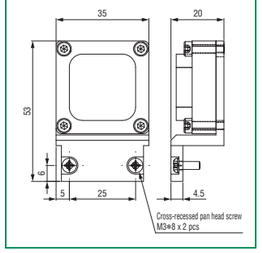


Accessories

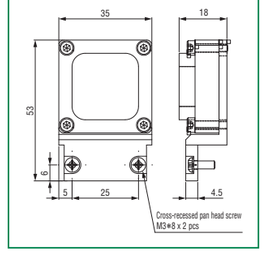
Drawing of wireless connector

For take-out robot 1-17

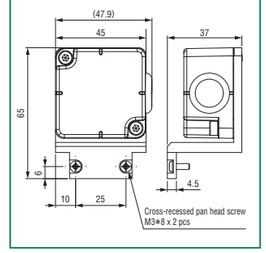
OX-RS04R-SB



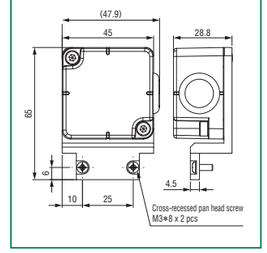
OX-RS04T-SBI



OX-RS12R-LB

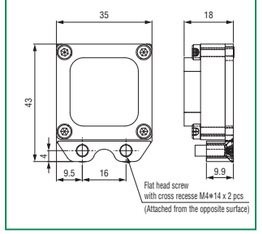


OX-RS12T-LBI

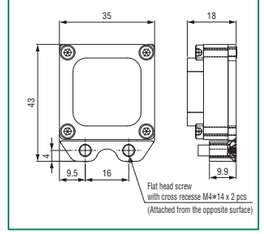


Quick chuck change automatic (for articulated robots) 1-26

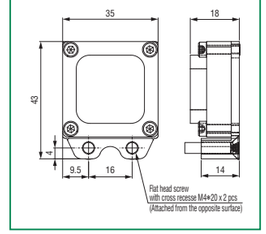
OXR-RS04R-03



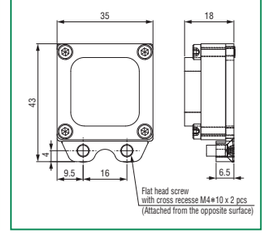
OXR-RS04T-03I



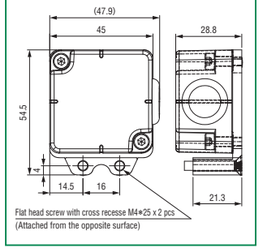
OXR-RS04R-10



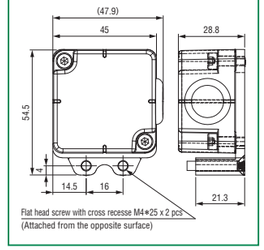
OXR-RS04T-10I



OXR-RS12R-20

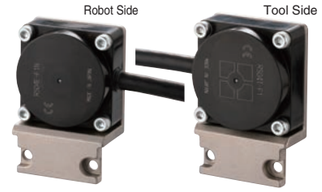


OXR-RS12T-20I



Wireless connector specification and precautions concerning handling

● See 1-17 and 1-26 for more information about wireless connector.



Cautions in installation (Please be sure to read before use.)

Please read this manual well to gain a thorough understanding of the contents to make safe and proper operation.

- Make installation/maintenance/measures at the failure after you turn off the power.
- Please use constant voltage power supply such as switching power supply. (Malfunction may occur if you use the power with ripple of more than the rated value such as full wave rectifying power.)
- Carry out wiring of each unit properly according to the wiring diagram.
- Carry out wiring of cable well away from power line and high voltage apparatus to prevent malfunction caused by induction noise.
- Be careful not splash organic solvent and such liquid on case and transmission face if they are made of resin (ABS or ABS+PBT).
- Be careful not splash water and cutting water on the cable end (wiring section). (Liquid penetration from cable core to the main body may cause problems such as short circuit and corrosion.
- Install the output section not always faced with metal. Metal section may be overheated or internal element may be damaged.

4 contact specification

Specification

Type	RS04T-F1-PU-_ _	
Sensor	Direct current three-wire sensor	
Drive voltage	12V±1.5V DC	
No. of input signals	4points	
Drive current	≦30mA	≦60mA
Transmission distance	0...3mm	0...2mm
Allowable axis misalignment	±2mm	±1mm
Ambient temperature	0...+50℃	
Protection structure	IP67	
Connection cable	PUR φ 6.3 7x0.259mm²	
Material	ABS	
Weight	Main Body 25g + Cable 60g/m	

Type (NPN output / PNP output)	RS04E-F1N-PU-_ _ / RS04E-F1P-PU-_ _
Power supply voltage	24V DC±10% (Ripple included)
Current consumption	≦ 200mA
No. Of output signals	4points+1point(In-zone)
Load electric current	≦ 50mA/1 Output
LED display	Status (green), in-zone (orange)
Circuit protection	Short-circuit protection, reverse connection protection, and surge protection
Ambient temperature	0...+50℃
Protection structure	IP67
Connection cable	PUR φ 6.3 7x0.259mm²
Material	ABS
Weight	Main body 25g + Cable 60g/m

*Total current consumption value of each sensor should be less than the drive current value to use two or more sensors for detection.
*Decrease the number of connected sensors if the actual value exceeds the drive current value.

Allowed sensors

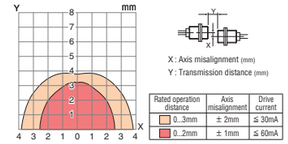
Power supply voltage	12V DC
Total consumption current	≦60mA
Residual voltage	≦3.5V
Load electric current	—

Use the sensor properly operates under the condition of above list.

Transmission area drawing

(Example: power supply voltage 24V/metal not imbedded)

RS04T-F1-PU-_ _ ／ RS04E-F1N-PU-_ _ , RS04E-F1P-PU-_ _



12 contact specification

Specification

Type	RS12T-422-PU-_ _
Sensor	Direct current three-wire sensor
Drive voltage	12V±1.5V DC
No. Of input signals	12points
Drive current	≦230mA
Transmission distance	2...5mm
Allowable axis misalignment	±3mm
Ambient temperature	0...+50℃
Protection structure	IP67
Connection cable	PUR φ 8.6 2×0.5mm²+13×0.18mm²
Material	ABS
Weight	Main body75g + Cable105g/m

Type (NPN output / PNP output)	RS12E-422N-PU-_ _ / RS12E-422P-PU-_ _
Power supply voltage	24V DC±10% (Ripple included)
Current consumption	≦ 600mA
No. of output signals	12points + 1point(status)
Load electric current	≦ 50mA/1 Output
LED display	Status (green), in-zone (orange)
Circuit protection	Short-circuit protection, reverse connection protection, and surge protection
Ambient temperature	0...+50℃
Protection structure	IP67
Connection cable	PUR φ 8.6 2×0.5mm²+13×0.18mm²
Material	ABS
Weight	Main body 80g + Cable105g/m

*Total current consumption value of each sensor should be less than the drive current value to use two or more sensors for detection.
*Decrease the number of connected sensors if the actual value exceeds the drive current value.

Allowed sensors

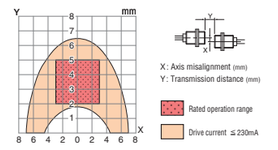
Power supply voltage	12V DC
Total consumption current	≦230mA
Residual voltage	≦3.5V
Load electric current	—

Use the sensor properly operates under the condition of above list.

Transmission area drawing

(Example: power supply voltage 24V/metal not imbedded)

RS12T-422-PU-_ _ ／RS12E-422N-PU-_ _ , RS12E-422P-PU-_ _

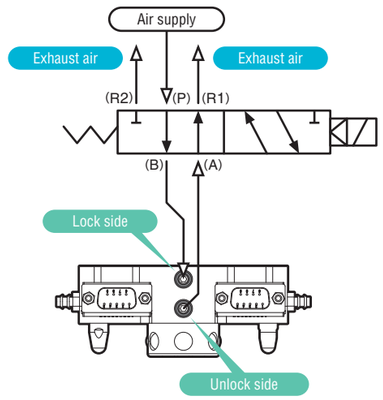


Cautions when using tool changer

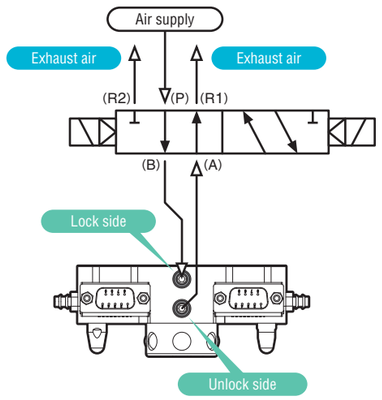
- Check load capacity, bending direction, twist direction, and composite moment. Use the product within reference values. Robot side and tool side may be incompletely connected if proper value is not set.
- Strong friction is created at the end of probe pin if tool changer is connected/detached in an energized state. Turn off the power if you connect and remove the tool changer.
- Do not make operation under the condition with fluffy/accidental/corrosive gas generated by water/water vapor/liquid. Conduction defect of electrode may be caused under the condition with cutting chip/cutting oil/dust/sputter.
- Devices may be damaged if pressure is applied only by tool changer. Supply air after you attach the product to the robot or to the plate.
- Regarding the components related to tool changer, Eins products should be used. We are not liable for any problems and failures caused by combination with the products of other companies.
- OX series (tool changer) has active capture and release mechanism. Your finger may be caught between robot side and tool side when you manually attach / detach the component.
- After you determine the suction port, use the component after you remove the check mechanism of robot side. Remove the blind plug of the back side of the robot. And remove stainless steel ball, spring, and packing. Then attach the blink plug again.
- Operation air for lock/unlock
  Use solenoid valve to keep air pressure on for locking side even when power failure occurs.

Reference Piping connection diagram

With two-position single



With two-position double



MEMO

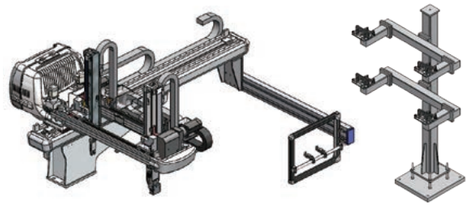
Automated Chuck Exchange System

Chuck automatic exchange is effective for reduction of setup change time, different connection of air and electrical components, and location accuracy for hand exchanges.

Example of tool station

Tool station types:floorstanding tree type, NT type (attached to traverse rail). Stations are created according to the number of setup changes and facility spaces.

＊Please contact our sales office nearest your office or Eins.



Auto Quick Chuck Change Hanger

Hanger unit attached to tool station.(Station Side)

1-33

Magnet Chuck Hanger (Fix Side)

Hanger unit to use and hold the magnet power of Neodymium.(Station Side)

1-35

Hanger Tool

Hold unit attached to the tool side.

1-33

Magnet Chuck Hanger (Tool Side)

Hold unit attached to the tool side.

1-35

■Specification

	Product name	Order code No. / Standard	Weight (g)	Weight capacity (kg)	Page of details
Auto quick chuck change hanger		072600 / HSL	182	～3	1-33
		072601 / HSAL	1,300	～10	1-34
		072602 / HLAL	2,800	～35	1-34
Hanger tool		196532 / TS	43	～3	1-33
		196533 / TSA	99	～10	1-34
		196656 / TLA1	356	～35	1-34

	Product name	Order code No. / Standard	Weight (g)	Weight capacity (kg)	Page of details
Magnet chuck hanger (fix side)		072732 / HNE-48	540	～1 (9.8N)	1-35
		072733 / HNE-S	680		1-35
		072811 / HNE-SL	632		1-36
Magnet chuck hanger (tool side)		196636 / TNE-48I	70	～1 (9.8N)	1-35
		196637 / TNE-SI	140		1-35
		196727 / TNE-SLI	115		1-36

Auto Quick Chuck Change Hanger／Hanger Tool

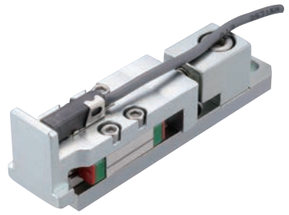
Auto quick chuck change hanger attached to station side. And hanger tool attached to tool side.

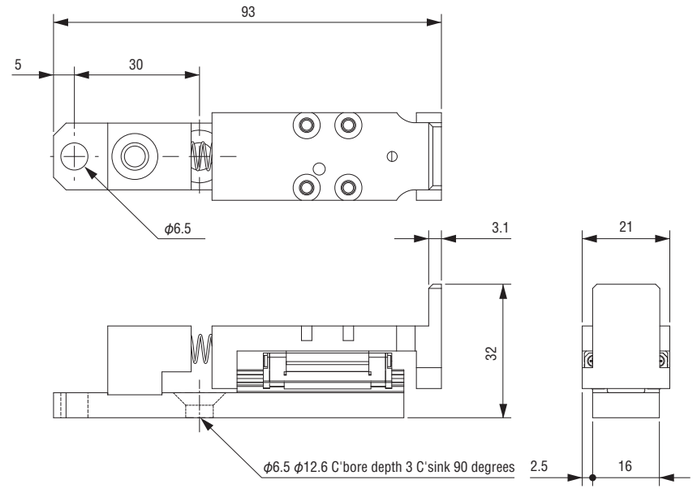
Auto Quick Chuck Change Hanger (Hook Specification)

You can watch our product video by using a mobile device such as a smartphone.

● Delivery will take a few days.Please contact our sales office nearest your office or Eins.

▶ Station side



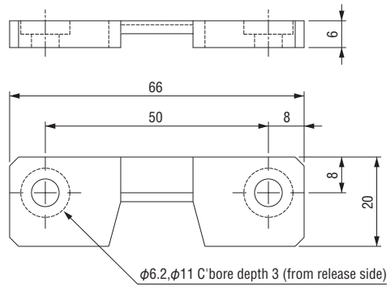


Auto quick chuck change hanger

Order code No.	072600
Standard	HSL

● Weight:182g ● Weight capacity:～3kg
● With sensor:E2S-Q13

▶ Tool side

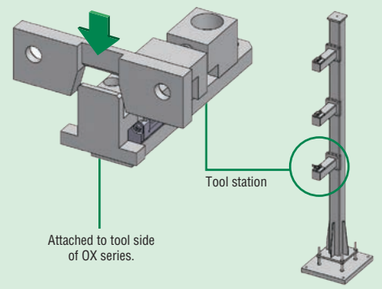


Hanger tool

Order code No.	196532
Standard	TS

● Weight:43g ● Weight capacity:～3kg

Example of combination: HSL and TS



Auto Quick Chuck Change Hanger／Hanger Tool

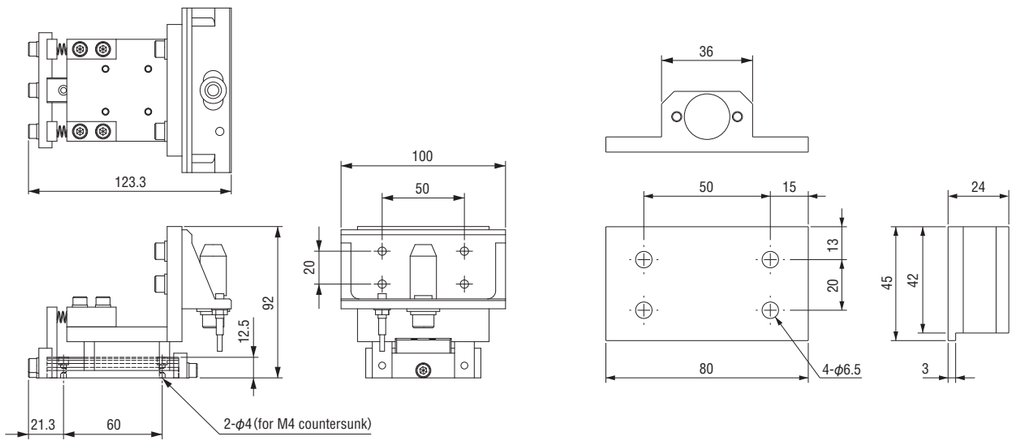
● Delivery will take a few days.Please contact our sales office nearest your office or Eins.

Station side

Auto quick chuck change hanger

Order code No.	072601
Standard	HSAL

- Weight：1.3kg　● Weight capacity：～10kg
- With sensor：E2E-X1C1
- Detects sensor with mounting bolt of hanger tool.



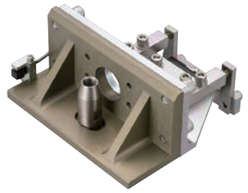
Tool side

Hanger tool

Order code No.	196533
Standard	TSA

- Weight：99g
- Weight capacity：～10kg

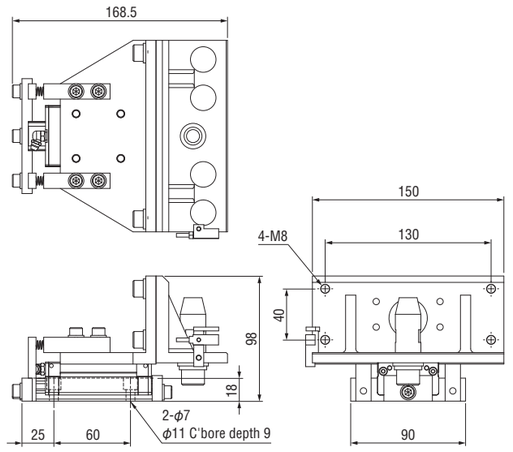
Station side



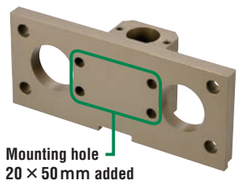
Auto quick chuck change hanger

Order code No.	072602
Standard	HLAL

- Weight：2.8kg　● Weight capacity：～35kg
- With sensor：E2S-W21
- Detects sensor with mounting bolt of hanger tool.



Tool side

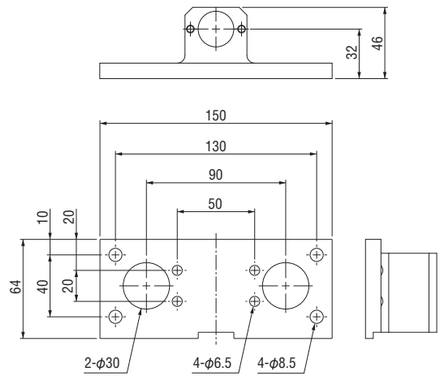


Mounting hole
20 × 50 mm added

Chuck hanger (tool side)

Order code No.	196656
Standard	TLA1

- Weight：356g
- Weight capacity：～35kg



Magnet Chuck Hanger

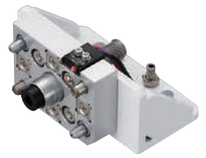
Hanger unit to use and hold the magnet power of Neodymium.

Auto Quick Chuck Change Hanger (Neodymium specification)

You can watch our product video by using a mobile device such as a smartphone.

● Delivery will take a few days.Please contact our sales office nearest your office or Eins.

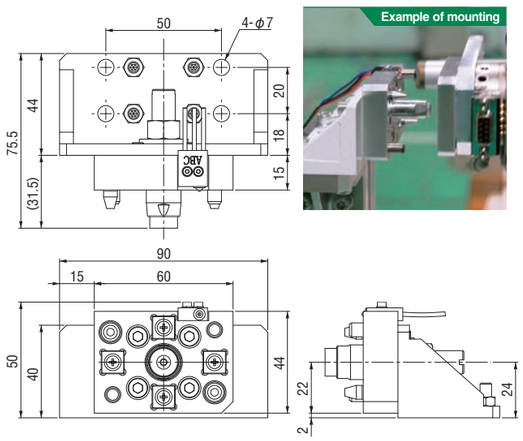
Station side



Magnet chuck hanger (fix side)

Order code No.	072732
Standard	HNE-48

- Weight：540g　● Weight capacity：～1kg(9.8N)
- W/sensor (030317 D2JW-011-MD)
- Wiring：black (COM) blue (NO) red (NC)

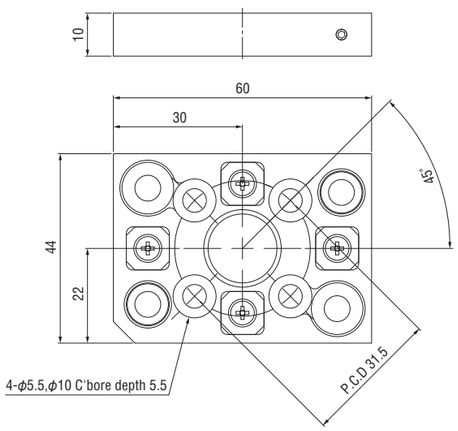


Tool side

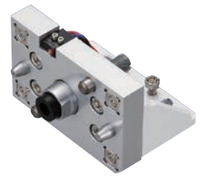
Magnet chuck hanger (tool side)

Order code No.	196636
Standard	TNE-48I

- Weight：70g
- Weight capacity：～1kg (9.8N)



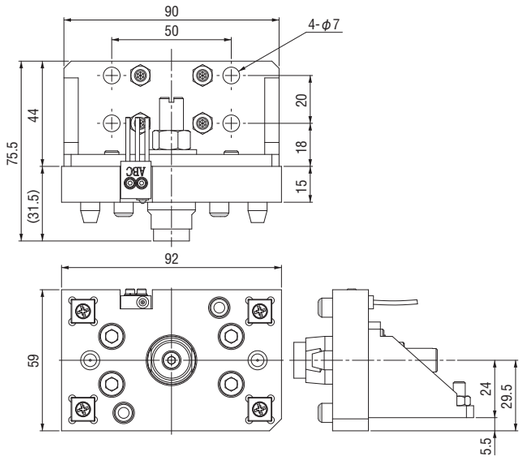
Station side



Magnet chuck hanger (fix side)

Order code No.	072733
Standard	HNE-S

- Weight：680g　● Weight capacity：～1kg(9.8N)
- W/sensor (030317 D2JW-011-MD)
- Wiring：black (COM) blue (NO) red (NC)

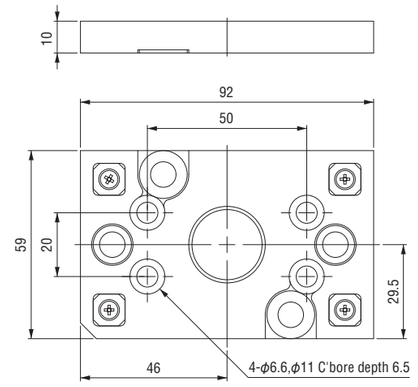


Tool side

Magnet chuck hanger (tool side)

Order code No.	196637
Standard	TNE-SI

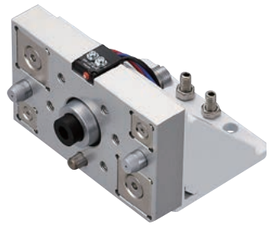
- Weight：140g
- Weight capacity：～1kg (9.8N)

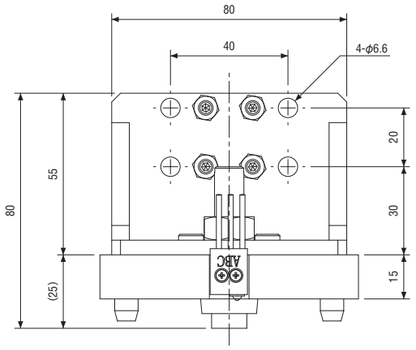


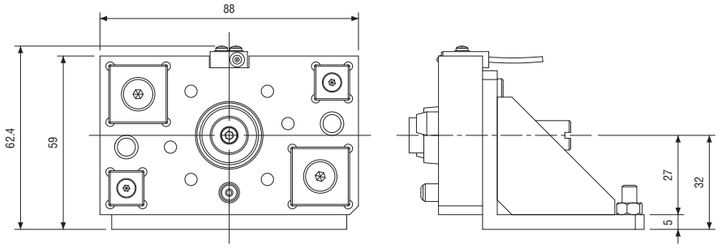
Magnet Chuck Hanger

● Delivery will take a few days.Please contact our sales office nearest your office or Eins.

▶ Station side







Magnet chuck hanger (fix side)

Order code No.	072811
Standard	HNE-SL

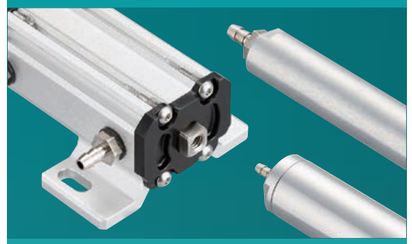
- Weight : 632g
- Weight capacity : ～ 1kg (9.8N)
- W/sensor (030317 D2JW-011-MD)
- Wiring : black (COM) blue (NO) red (NC)

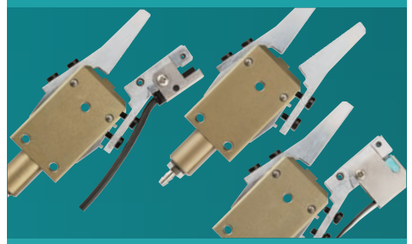
▶ Tool side

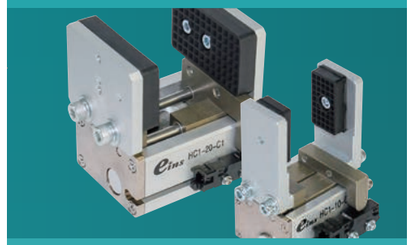
Magnet chuck hanger (tool side)

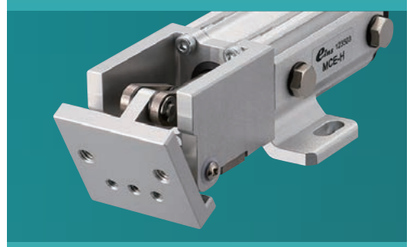
Order code No.	196727
Standard	TNE-SLI

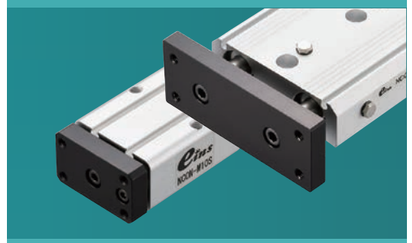
- Weight : 115g
- Weight capacity : ～ 1kg (9.8N)











Grip

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Buffer Material ····· 2-47

- Rubber Pad / EP Sponge / Silicone Sponge ····· 2-47

Mini Cylinder

- Small and lightweight. Attached to jungle gym.
- Non-rotate structure for cylinder rod (except for mini cylinder H)

■ Specification

Product name		Order code No.	Standard	Structure	Used air pressure (Mpa)	Output (N)		Stroke (mm)	Weight (g)	Page of details
Micro mini cylinder		200122	UMCD-5	Single action type	0.3 - 0.49	39 (Used air pressure 0.49Mpa)		5	16	2-4
		200123	UMCD-10					10	22	
		200124	UMCD-5P					5	14	
		200125	UMCD-10P					10	20	
Mini cylinder • MCD1		123219	MCD1-10	Single action type	0.3 - 0.49	Push 98	Pull 19	10	65	2-4
		123220	MCD1-20					20	80	
Mini cylinder • MCE		123504	MCE-10S	Single action type	0.3 - 0.49	Push 110	Pull 20	10	58	2-5
		123505	MCE-10T			Push 20	Pull 85			
		123508	MCE-10W	Double action type		Push 130	Pull 108		62	
		123506	MCE-20S	Single action type		Push 105	Pull 24	20	69	
		123507	MCE-20T			Push 24	Pull 82			
		123509	MCE-20W	Double action type		Push 130	Pull 108		71	

∗ Use conditions: [Fluid to be used] Clean air, [Operation temperature] 5℃ - 40℃

Product name		Order code No.	Standard	Structure	Used air pressure (Mpa)	Output (N)		Stroke (mm)	Weight (g)	Page of details
Mini cylinder H (with rubber pad)		120003	MCY-HS	Single action type	0.3 - 0.49	Push 78	Pull 10	20 degrees	45	2-6
Replacement rubber • w/ screw • for MCY-HS		370877	For MCY-HS	–	–	–		–	1	2-6
Cylinder for pipe attachment		122824	MCP-1210	Single action type	0.3 - 0.49	34.6		10	12	2-7
		122825	MCP-1220			35.7		20	14	
		122826	MCP-2010			93.8		10	40	
		122827	MCP-2020			92.8		20	46	
		122828	MCP-2030			91.8		30	50	
Auto switch (reed SW)		030282	D-A93	–	–	–		–	6	2-5
Auto switch (contactless)		030425	D-M9N	–	–	–		–	8	2-5

∗ Use conditions: [Fluid to be used] Clean air, [Operation temperature] 5℃ - 40℃

Micro Mini Cylinder (UMCD) / Mini Cylinder (MCD)

Mini cylinder series with lightweight body.

▶ High performance for chucking small molded parts.

Micro mini cylinder

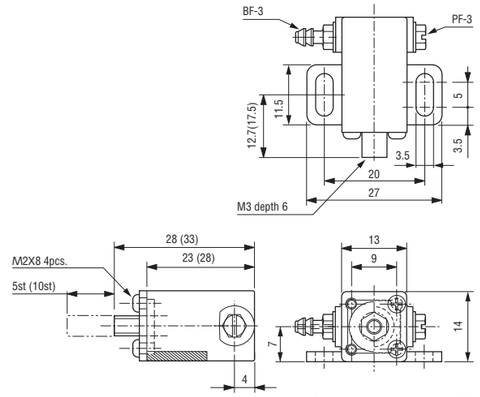
Order code No.	200122
Standard	UMCD-5

● Stroke: 5mm ● Weight: 16g
● With joint BF-3 for piping

Micro mini cylinder

Order code No.	200123
Standard	UMCD-10

● Stroke 10mm ● Weight: 22g
● With joint BF-3 for piping



＊Size in ( ) shows size of UMCD-10.

▶ Can be mounted side by side.

Micro mini cylinder • slim type

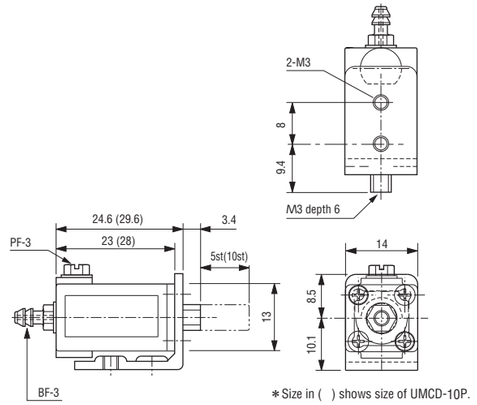
Order code No.	200124
Standard	UMCD-5P

● Stroke: 5mm ● Weight: 14g
● With joint BF-3 for piping

Micro mini cylinder • slim type

Order code No.	200125
Standard	UMCD-10P

● Stroke 10mm ● Weight: 20g
● With joint BF-3 for piping



＊Size in ( ) shows size of UMCD-10P.

▶ Mini cylinder series with lightweight body.

Mini cylinder • MCD1

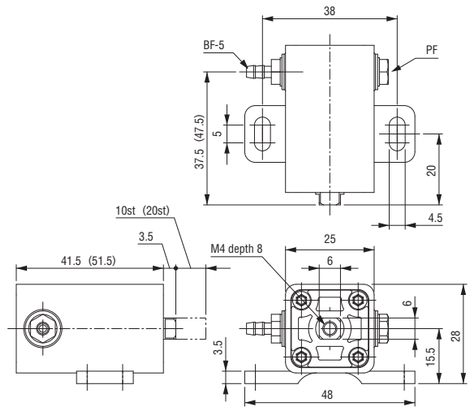
Order code No.	123219
Standard	MCD1-10

● Stroke 10mm ● Weight: 65g
● With joint BF-5 for piping

Mini cylinder • MCD1

Order code No.	123220
Standard	MCD1-20

● Stroke 20mm ● Weight: 80g
● With joint BF-5 for piping



＊Size in ( ) shows size of MCD1-20.

Mini Cylinder (MCE)

Light weight mini cylinder which allows installation of auto switch for act/return limit.

▶ Extension-type cylinder

Mini cylinder • MCE10st (force)

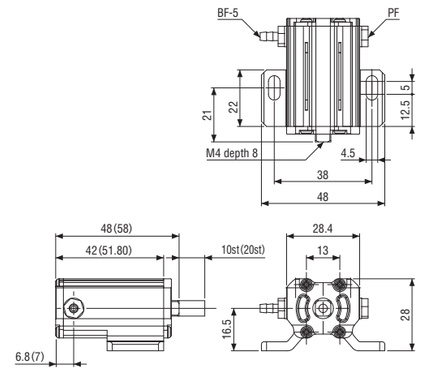
Order code No.	123504
Standard	MCE-10S

● Stroke: 10mm ● Weight: 58g
● With joint BF-5 for piping

Mini cylinder • MCE20st (force)

Order code No.	123506
Standard	MCE-20S

● Stroke: 20mm ● Weight: 69g
● With joint BF-5 for piping



＊Size in ( ) shows size of MCE-20S.

▶ Pull cylinder

Mini cylinder • MCE10st (draw)

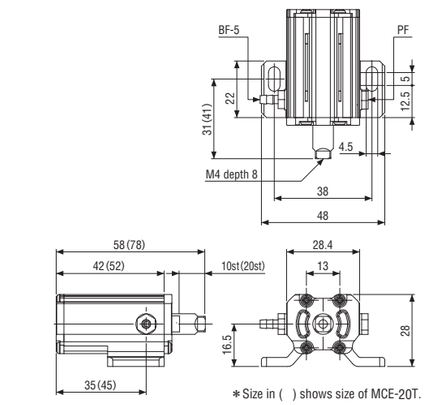
Order code No.	123505
Standard	MCE-10T

● Stroke: 10mm ● Weight: 58g
● With joint BF-5 for piping

Mini cylinder • MCE20st (draw)

Order code No.	123507
Standard	MCE-20T

● Stroke: 20mm ● Weight: 69g
● With joint BF-5 for piping



＊Size in ( ) shows size of MCE-20T.

▶ Double-act-type cylinder

Mini cylinder • MCE10st (double action)

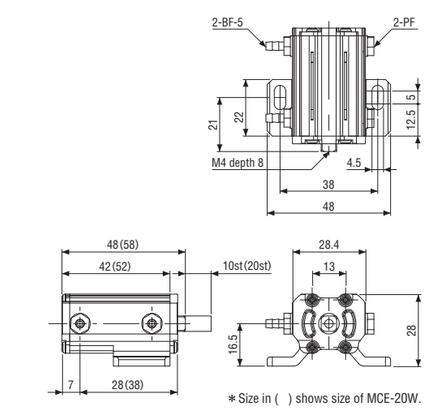
Order code No.	123508
Standard	MCE-10W

● Stroke: 10mm ● Weight: 62g
● With joint BF-5 for piping

Mini cylinder • MCE20st (double action)

Order code No.	123509
Standard	MCE-20W

● Stroke: 20mm ● Weight: 71g
● With joint BF-5 for piping



＊Size in ( ) shows size of MCE-20W.

Auto switch (reed SW)

Order code No.	030282
Standard	D-A93

● Weight: 6g ● Applicable load: relay, PLC
● Load voltage: DC24V ● Load current range: 5mA～40mA
● Lead wire:0.5M OUT (+) BROWN OUT (−) BLUE
● Indicator light

Auto switch (contactless)

Order code No.	030425
Standard	D-M9N

● Weight: 8g ● Applicable load: relay, PLC
● Load voltage: DC24V ● Load current range: ～40mA or lower
● Lead wire:0.5M+V(BROWN), Load(BLACK), 0V(BLUE)
● Indicator light

Mini Cylinder H

Hinge cylinder with compact body.

Mini cylinder H

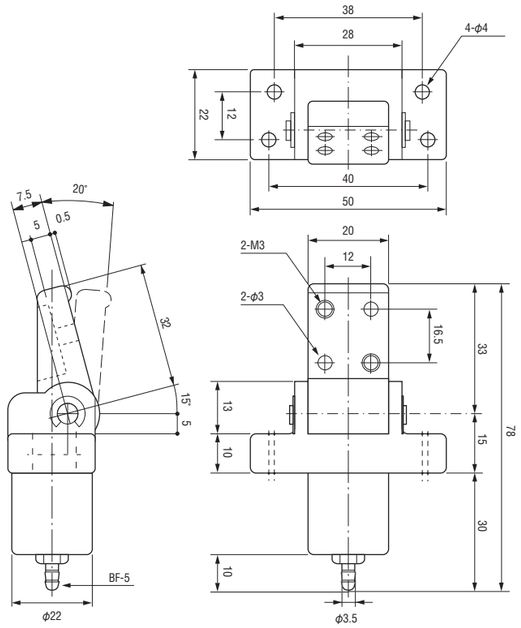
Order code No.	120003
Standard	MCY-HS

- Body material: PBT polybutylene terephthalate
- Operating angle: 0-20 degrees
- Weight: 45g
- With joint BF-5 for piping

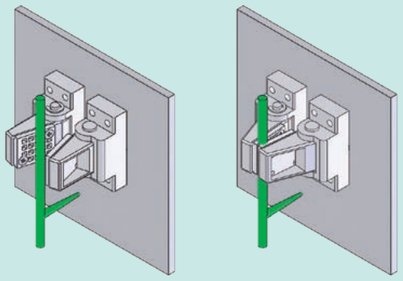
Replacement rubber • w/ screw • for MCY-HS

Order code No.	370877
Standard	FOR MCY-HS

- Weight: 1g
- Rubber pad material: natural rubber (NR) + Styrene-butadiene rubber (SBR)



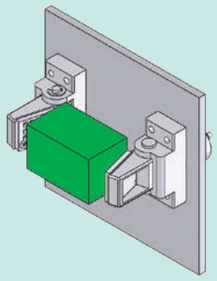
Example of use (runner grip)



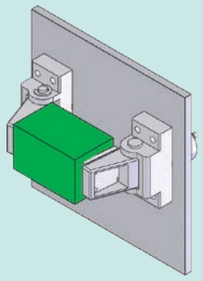
Example of use (product grip)

Chuck close state

Example of use (product grip)



Example of use (product grip)



Chuck close state

∗ Direct attachment to jungle gym is impossible.

Cylinder for Pipe Attachment

Lightweight, high rigidity, and long operating life with superduralumin.

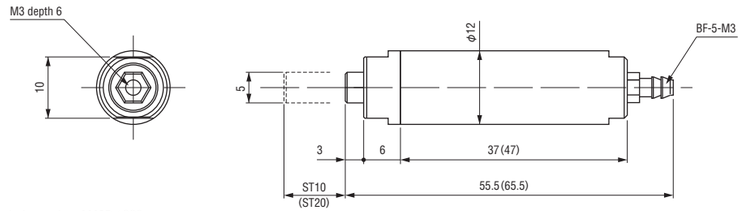
▶ Direct connection to jungle gym series parts (ø12) is possible.

Order code No.	122824
Standard	MCP-1210

- Stroke: 10mm
- Weight: 12g
- With joint BF-5-M3 for piping

Order code No.	122825
Standard	MCP-1220

- Stroke: 20mm
- Weight: 14g
- With joint BF-5-M3 for piping



∗ Size in ( ) shows size of MCP-1220.

▶ Direct connection to jungle gym series parts (ø20) is possible.

Order code No.	122826
Standard	MCP-2010

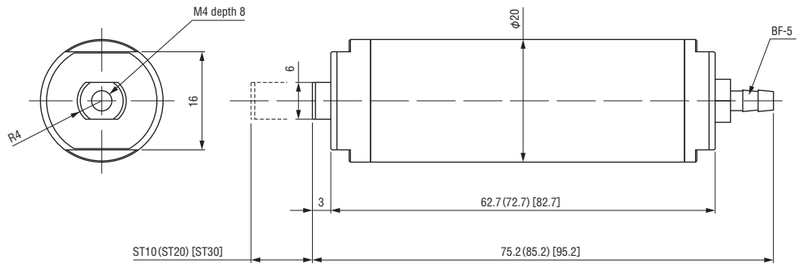
- Stroke: 10mm
- Weight: 40g
- With joint BF-5 for piping

Order code No.	122827
Standard	MCP-2020

- Stroke: 20mm
- Weight: 46g
- With joint BF-5 for piping

Order code No.	122828
Standard	MCP-2030

- Stroke: 30mm
- Weight: 50g
- With joint BF-5 for piping



∗ Size in ( ) shows size of MCP-2020. ∗ Size in [ ] shows size of MCP-2030.

Accessories for Mini Cylinder

Pads

For micro mini cylinder and mini cylinder.

Nut Plates

For fixing mini cylinders.

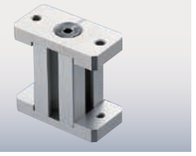
Claws

Most suitable for sprue chuck.

Chuck Spacers (Plastic)

Spacer to install chuck plate and cylinder.

Spacers (Aluminum)

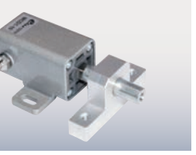


Used to change the mounting height of the mini cylinder.

Slide Plates

Easy mini cylinder position adjustment. This makes possible to use the same chuck plate for several molds.

Extension Shafts / Pillow Blocks



Extension of mini cylinder rod, used with pillow block for stability.

■Specification

	Product name		Order code No.	Standard	Weight (g)	Material	Page of details
Pads	Pad • round • black ϕ25 • for mini cylinder		370071	CP-015	13	NitrileRubber	2-10
	Pad • round • black ϕ 50 • for mini cylinder		370070	CP-016	53		
	Pad • rectangle • black • for micro mini cylinder		022797	CPUM-01	5		
	Pad • rectangle • black 2 holes • for mini cylinder		370835	CP-060	43	Chloroprene rubber	
	Pad • curved • black • for mini cylinder		370005	CP-018	44		
	Pad • rectangle • black • for pull		023219	CP-077	39		2-11
	Pad • rectangle • w/ black SW • for mini cylinder		101714	KRC1-5000	59	NitrileRubber	
	Pad • rectangle • w/ SW • for micro mini cylinder		110568	L1131-100	23		
	Pad • round • white ϕ 25 • for mini cylinder		022664	CP-074	13	Silicone	2-10
	Pad • round • white ϕ 50 • for mini cylinder		370107	CP-071	53		
	Pad • rectangle • white • for micro mini cylinder		023113	CPUM-01 (SR)	5		
	Pad • rectangle • white 2 holes • for mini cylinder		370836	CP-061	43		
	Pad • curved • white • for mini cylinder		022656	CP-072	44		
	Pad • rectangle • white• for pull		023220	CP-078	39		2-11
	Pad • rectangle • w/ white SW • for mini cylinder		101715	KRCW1-5000	59		
	Pad • rectangle • w/ white SW • for micro mini cylinder		110654	L1131-200	23		
	Steel pad		023211	CP-06F	37	–	
	Micro limit switch • for KRC / KRCW		030317	D2JW-011-MD (0.1A,30VDC)	8		

■Specification

	Product name		Order code No.	Standard	Weight (g)	Material	Page of details
Claws	Claw • L shape • for micro mini cylinder		022798	CPUM-02	3.6	–	2-12
	Claw • round shape ϕ 25 • for mini cylinder		370072	CP-013	11.4		
	Claw • L shape • for mini cylinder		370073	CP-014	28.4		
Nut plates	Nut plate • for micro mini cylinder		022801	CPUM-05	5.0	–	
	Nut plate • for mini cylinder		050033	CP-009	8.2		
	Nut plate • for H cylinder		050034	CP-010	5.2		
Chuck spacer	Chuck spacer • for micro mini cylinder		041646	ECPUM-03	1.7	PP material	2-13
	Chuck spacer • for mini cylinder		041647	ECP-011	8.6		
Spacer	Spacer • aluminum • 50H		230060	XL0002-050	73	–	
	Spacer • aluminum • 80H		230061	XL0002-080	93		
	Spacer • aluminum • 100H		230062	XL0002-100	106		
	Spacer • aluminum • 120H		230063	XL0002-120	119		
Mini cylinder extension shaft			370342	CP-033 (30mm)	11	–	2-14
			370711	CP-034 (45mm)	16		
Mini cylinder pillow block			370341	CP-007 (10mm)	20	–	
			370712	CP-008 (20mm)	40		
Mini cylinder slide plate			370793	CP-030 (10H)	53	–	2-15
			370722	CP-030 (15H)	64		

Pads

Use the product by mounting to the tip of cylinder rod.

Pad • round • black ϕ25 • for mini cylinder

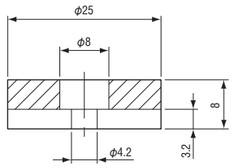
Order code No.	370071
Standard	CP-015

- Material: nitrile rubber
- Weight: 13g
- Cylinder: MCD1, MCE, MCP-20 series

Pad round white ϕ25 • for mini cylinder

Order code No.	022664
Standard	CP-074

- Material: silicone
- Weight: 13g
- Cylinder: MCD1, MCE, MCP-20 series



Pad·round·black ϕ50· for mini cylinder

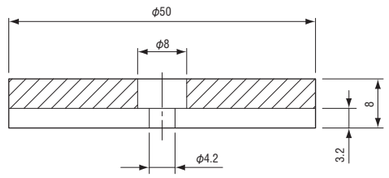
Order code No.	370070
Standard	CP-016

- Material: nitrile rubber
- Weight: 53g
- Cylinder: MCD1, MCE, MCP-20 series

Pad·round·white ϕ50· for mini cylinder

Order code No.	370107
Standard	CP-071

- Material: silicone
- Weight: 53g
- Cylinder: MCD1, MCE, MCP-20 series



Pad·rectangle·black· for micro mini cylinder

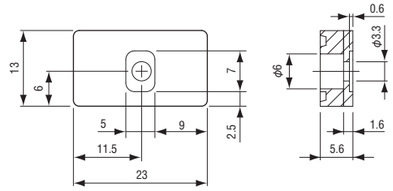
Order code No.	022797
Standard	CPUM-01

- Material: nitrile rubber
- Weight: 5g
- Cylinder: UMCD, MCP-12 series

Pad·rectangle·white· for micro mini cylinder

Order code No.	023113
Standard	CPUM-01(SR)

- Material: silicone
- Weight: 5g
- Cylinder: UMCD, MCP-12 series



Pad • rectangle • black 2 holes • for mini cylinder

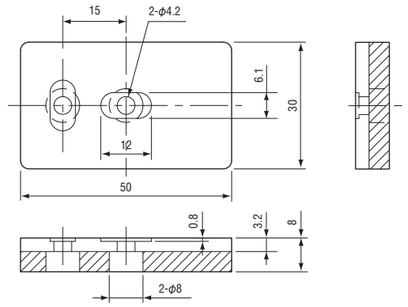
Order code No.	370835
Standard	CP-060

- Material: chloroprene rubber
- Weight: 43g
- Cylinder: MCD1, MCE, MCP-20 series

Pad • rectangle • white 2 holes • for mini cylinder

Order code No.	370836
Standard	CP-061

- Material: silicone
- Weight: 43g
- Cylinder: MCD1, MCE, MCP-20 series



▶ Used when the parts has a curved surface.

Pad • curved • black • for mini cylinder

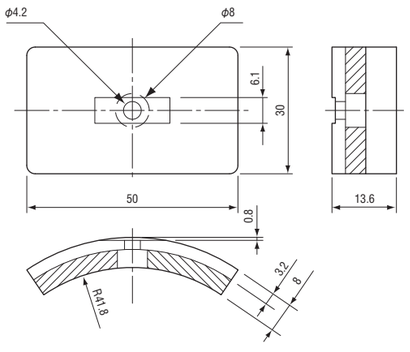
Order code No.	370005
Standard	CP-018

- Material: chloroprene rubber
- Weight: 44g
- Cylinder: MCD1, MCE, MCP-20 series

Pad • curved • white • for mini cylinder

Order code No.	022656
Standard	CP-072

- Material: silicone
- Weight: 44g
- Cylinder: MCD1, MCE, MCP-20 series



Pad • rectangle • black • for pull

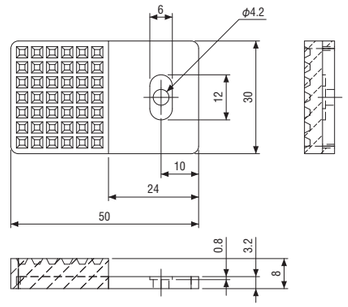
Order code No.	023219
Standard	CP-077

- Material: chloroprene rubber
- Weight:39g
- Cylinder: MCE series

Pad • rectangle • white • for pull

Order code No.	023220
Standard	CP-078

- Material: silicone
- Weight:39g
- Cylinder: MCE series



▶ Supplied with SW, sensor for product confirmation is not necessary.

Pad • rectangle • w/ SW • for mini cylinder

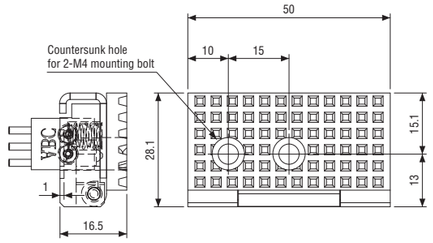
Order code No.	101714
Standard	KRC1-5000

- Material: nitrile rubber
- Weight:59g
- Cylinder: MCD1, MCE, MCP-20 series

Pad • rectangle • w/ SW • for mini cylinder

Order code No.	101715
Standard	KRCW1-5000

- Material: silicone
- Weight:59g
- Cylinder: MCD1, MCE, MCP-20 series



∗Wiring: black (COM) blue (NO) red (NC)

A contact specification: black (COM) blue (NO)
B contact specification: black (COM) red (NC)

▶ Supplied with SW, sensor for product confirmation is not necessary.

Pad • rectangle • w/ black SW • for micro mini cylinder

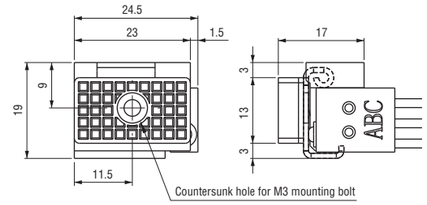
Order code No.	110568
Standard	L1131-100

- Material: nitrile rubber
- Weight:23g
- Cylinder: UMCD, MCP-12 series

Pad • rectangle • w/ white SW • for micro mini cylinder

Order code No.	110654
Standard	L1131-200

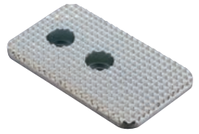
- Material: silicone
- Weight:23g
- Cylinder: UMCD, MCP-12 series



∗Unable to attach to UMCD-5P/10P.
∗Wiring: black (COM) blue (NO) red (NC)

A contact specification: black (COM) blue (NO)
B contact specification: black (COM) red (NC)

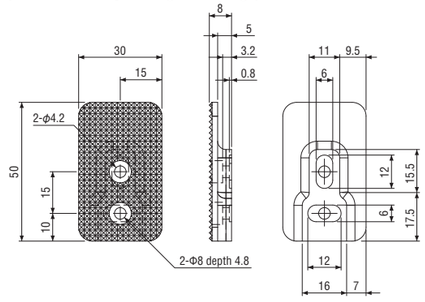
▶ Best suited for sprue slide prevention by using knurling process.



Steel pad

Order code No.	023211
Standard	CP-06F

- Weight:37g
- Cylinder: MCD1, MCE, MCP-20 series



Micro limit switch • for KRC / KRCW

Order code No.	030317
Standard	D2JW-011-MD (0.1A,30VDC)

- Wiring: black (COM) blue (NO) red (NC)

Claws／Nut Plates

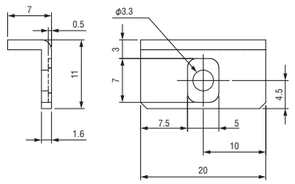
Claw is used for chucking sprue. And nut plate is used for fixing mini cylinder.

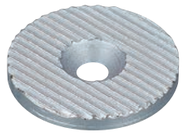
▶ Claws

Claw • L shape • for micro mini cylinder

Order code No.	022798
Standard	CPUM-02

- Weight: 3.6g
- Cylinder: UMCD, MCP-12 series

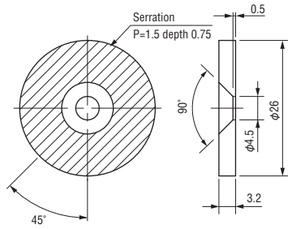




Claw • round shape ϕ25 • for mini cylinder

Order code No.	370072
Standard	CP-013

- Weight: 11.4g
- Cylinder: MCD1, MCP-20 series, MCE series

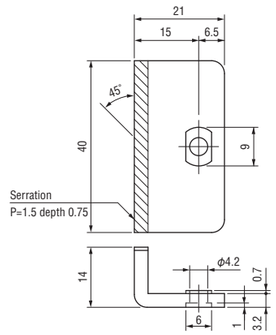


∗Clamp force is conveyed with serration processing.
This product is engaged in less deep than CP-014.

Claw • L shape • for mini cylinder

Order code No.	370073
Standard	CP-014

- Weight: 28.4g
- Cylinder: MCD1, MCP-20 series, MCE series

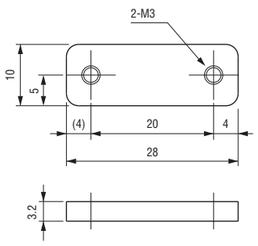


▶ Nut Plates

Nut plate • for micro mini cylinder

Order code No.	022801
Standard	CPUM-05

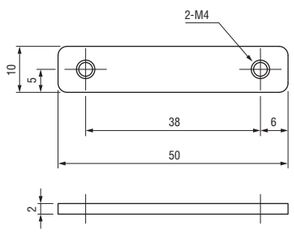
- Weight: 5.0g



Nut plate • for mini cylinder

Order code No.	050033
Standard	CP-009

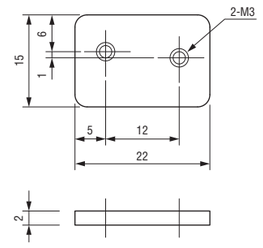
- Weight: 8.2g



Nut plate • for H cylinder

Order code No.	050034
Standard	CP-010

- Weight: 5.2g



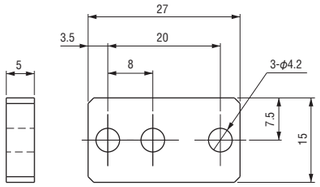
Chuck Spacers（Plastic）／Spacers（Aluminum）

Spacer for height adjustment.

Chuck spacer • for micro mini cylinder

Order code No.	041646
Standard	ECPUM-03

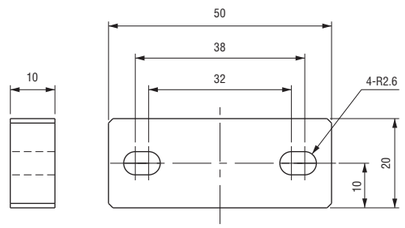
- Weight: 1.7g



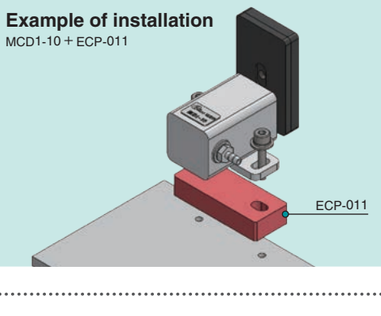
Chuck spacer • for mini cylinder

Order code No.	041647
Standard	ECP-011

- Weight: 8.6g



Example of installation
MCD1-10＋ECP-011



▶ Spacer for mini cylinder

Spacer • aluminum • 50H

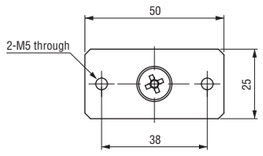
Order code No.	230060
Standard	XL0002-050

- Weight: 73g
- Size A: 50mm

Spacer • aluminum • 80H

Order code No.	230061
Standard	XL0002-080

- Weight: 93g
- Size A: 80mm



Spacer • aluminum • 100H

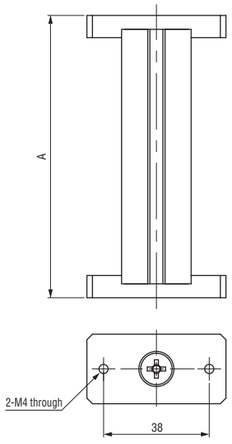
Order code No.	230062
Standard	XL0002-100

- Weight: 106g
- Size A: 100mm

Spacer • aluminum • 120H

Order code No.	230063
Standard	XL0002-120

- Weight: 119g
- Size A: 120mm



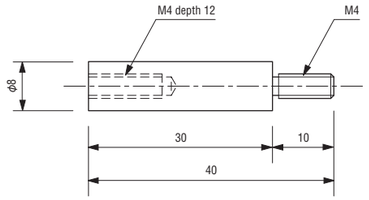
Extension Shafts / Pillow Blocks

Extension of mini cylinder rod, used with pillow block for stability.

Mini cylinder • extension shaft

Order code No.	370342
Standard	CP-033 (30mm)

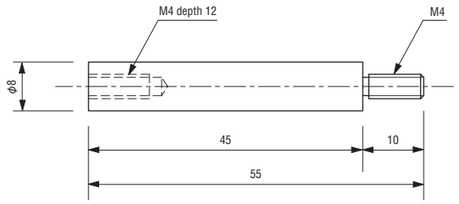
● Weight: 11g



Mini cylinder • extension shaft

Order code No.	370711
Standard	CP-034 (45mm)

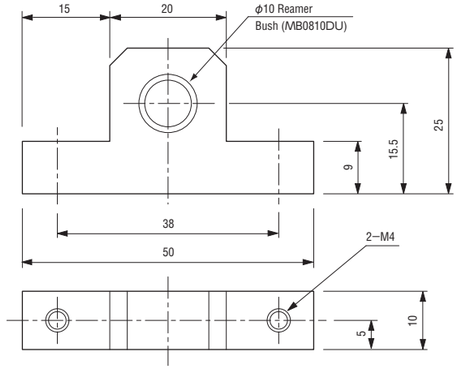
● Weight: 16g



Mini cylinder • pillow block

Order code No.	370341
Standard	CP-007 (10mm)

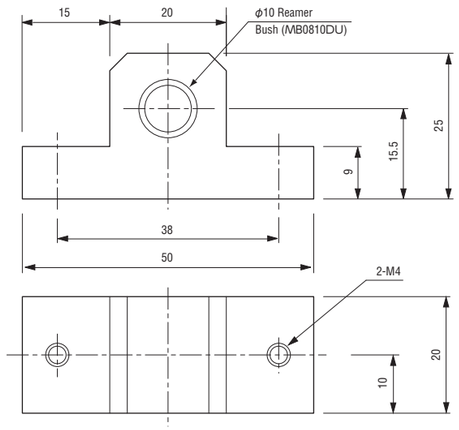
● Weight: 20g



Mini cylinder • pillow block

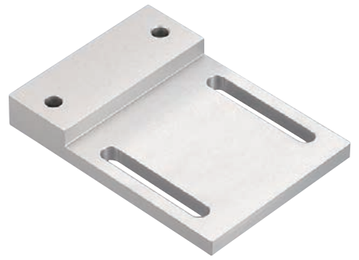
注文コードNo.	370712
規　　格	CP-008 (20mm)

● Weight: 40g



Slide Plates

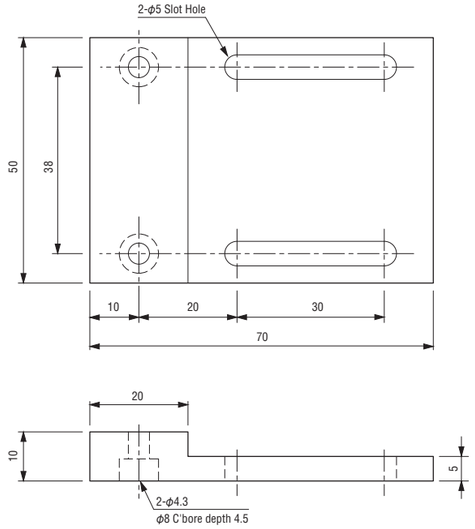
Easy mini cylinder position adjustment.

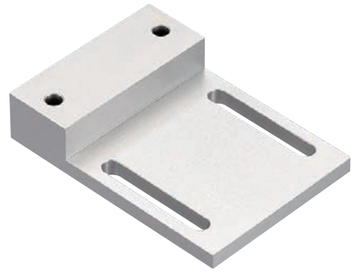


Mini cylinder • slide plate

Order code No.	370793
Standard	CP-030 (10H)

● Weight: 53g
● Use nut plate to attach mini cylinder.



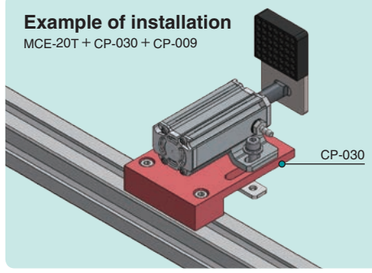


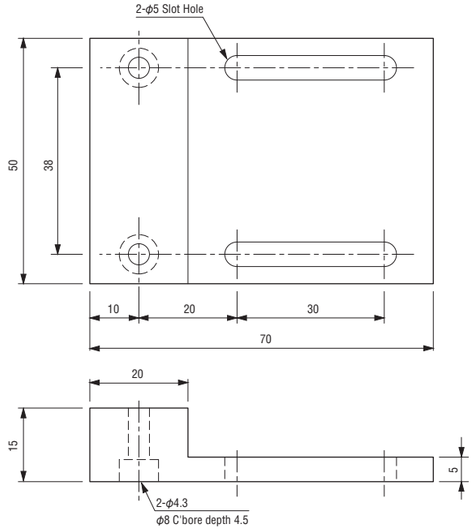
Mini cylinder • slide plate

Order code No.	370722
Standard	CP-030 (15H)

● Weight: 64g
● Use nut plate to attach mini cylinder.

Example of installation
MCE-20T + CP-030 + CP-009





Container Cylinders

Specification

Product name		Order code No.	Standard	Structure	Used air pressure*2 (Mpa)	Withstand pressure (Mpa)	Output*1 (N)	Stroke (mm)	Weight (g)	Page of Details
Mini container cylinder		131014	NCON-M10S	Single action type	0.39～0.49 (4～5kgf/cm²)	1 (10kgf/cm²)	Push 154 (16kgf)	10	135	2-17
		131015	NCON-M15S					15	145	
		131016	NCON-M20S					20	155	
		130709	NCON-M10W	Double action type		1 (10kgf/cm²)	Push 154 (16kgf) Pull 129 (13kgf)	10	135	
		130710	NCON-M15W					15	145	
		130711	NCON-M20W					20	155	
		130712	NCON-M25W					25	165	
		130713	NCON-M30W					30	175	
Container cylinder		130707	NCON-20W	Double action type	0.39～0.49 (4～5kgf/cm²)	1 (10kgf/cm²)	Push 314 (32kgf) Pull 263 (26.8kgf)	20	340	2-18
		130708	NCON-40W					40	415	
		130829	NCON-80W					80	557	

Product name		Order code No.	Standard	Structure	Used air pressure*2 (Mpa)	Cylinder diameter (Mpa)	Output*3 (N)	Stroke (mm)	Weight (g)	Page of Details
Container cylinder reinforced (double)		130869	NCON-40WK	Double action type	0.39 ～ 0.59	20	314 (32kgf)	40	688	2-18
Container cylinder hi-torque (double)		151261	PCON-50W	Double action type	0.39 ～ 0.59	25	490 (50kgf)	50	844	
Container cylinder w/ guided (double)		060496	GCYL20*20	Double action type	0.39 ～ 0.59	20	157 (16kgf)	20	526	2-19
		060497	GCYL20*40					40	670	
		060498	GCYL20*50					50	746	
		060499	GCYL20*75					75	1,000	
		060500	GCYL20*100					100	1,192	
		060501	GCYL20*150					150	1,576	

Auto switch (reed SW)		030282	D-A93	–	–	–	–	–	6	2-17,19
Auto switch (contactless)		030425	D-M9N	–	–	–	–	–	8	2-17,19

*1：Used air pressure (0.49Mpa)　*2：Fluid to be used/Clean air, Ambient temperature/5 ℃ - 40℃　*3：Used air pressure (0.5Mpa)

Mini Container Cylinders (Single / Double)

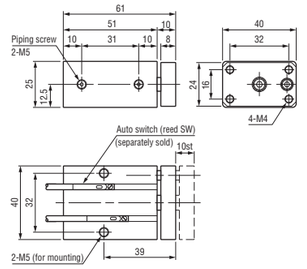
Smooth operation with fit drive guide.

Single Action Type

Installation of auto switch for act/return limit is possible.

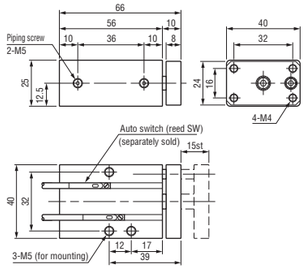
Order code No.	131014
Standard	NCON-M10S

● Stroke: 10mm
● Weight: 135g



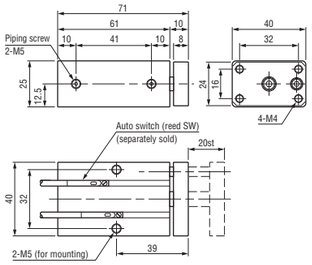
Order code No.	131015
Standard	NCON-M15S

● Stroke: 15mm
● Weight: 145g



Order code No.	131016
Standard	NCON-M20S

● Stroke: 20mm
● Weight: 155g



Auto switch (reed SW)

Order code No.	030282
Standard	D-A93

● Weight: 6g　● Applicable load: relay, PLC
● Load voltage: 24VDC
● Load current range: 5mA～40mA
● Lead wire: 0.5m brown (+) blue (–)
● Indicator light

Auto switch (contactless)

Order code No.	030425
Standard	D-M9N

● Weight: 8g　● Applicable load: relay, PLC
● Load voltage: 24VDC
● Load current range: ～ 40mA or lower
● Lead wire: 0.5M+V (brown), Load (black), 0V(blue)
● Indicator light

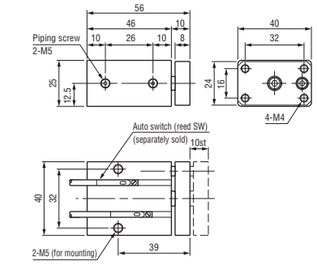
Example of mounting

Double Action Type

Installation of auto switch for act/return limit is possible.

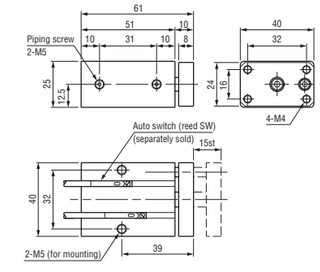
Order code No.	130709
Standard	NCON-M10W

● Stroke: 10mm
● Weight: 135g



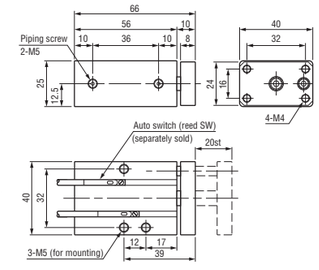
Order code No.	130710
Standard	NCON-M15W

● Stroke: 15mm
● Weight: 145g



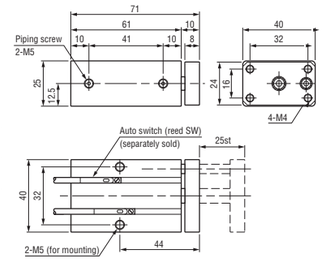
Order code No.	130711
Standard	NCON-M20W

● Stroke: 20mm
● Weight: 155g



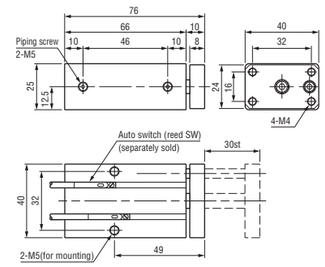
Order code No.	130712
Standard	NCON-M25W

● Stroke: 25mm
● Weight: 165g



Order code No.	130713
Standard	NCON-M30W

● Stroke: 30mm
● Weight: 175g



Container Cylinders (Double / Reinforced / Hi-torque)

Smooth operation with double rods.

Installation of auto switch for act/return limit is possible.

Order code No.	130707
Standard	NCON-20W

- Stroke: 20mm
- Weight: 340g

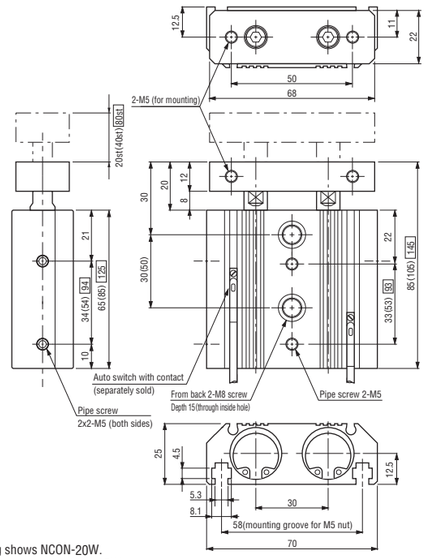
Order code No.	130708
Standard	NCON-40W

- Stroke: 40mm
- Weight: 415g

Order code No.	130829
Standard	NCON-80W

- Stroke: 80mm
- Weight: 557g

Example of mounting



∗Base drawing shows NCON-20W.
∗Size in ( ) shows size of NCON-40W.
∗Size in ▭ shows size of NCON-80W.

▶ High durability and long operation life with widemouthed cylinder and reinforcement of piston structure.

Container cylinder • reinforced (double)

Order code No.	130869
Standard	NCON-40WK

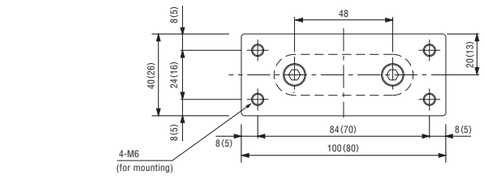
- Stroke: 40mm
- Weight: 688g

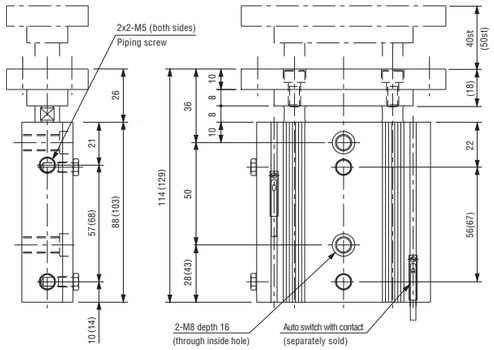
▶ The cylinder bore diameter is increased to provide high torque output.

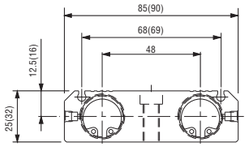
Container cylinder • hi-torque (double)

Order code No.	151261
Standard	PCON-50W

- Stroke: 50mm
- Weight: 844g







∗Base drawing shows NCON-40WK.
∗Size in ( ) shows size of PCON-50W.

Container Cylinder w/ Guided (Double)

Improved durability with integral-type aluminum body.

Installation of auto switch for act/return limit is possible.

Order code No.	060496
Standard	GCYL20∗20

- Stroke: 20mm
- Weight: 526g

Order code No.	060497
Standard	GCYL20∗40

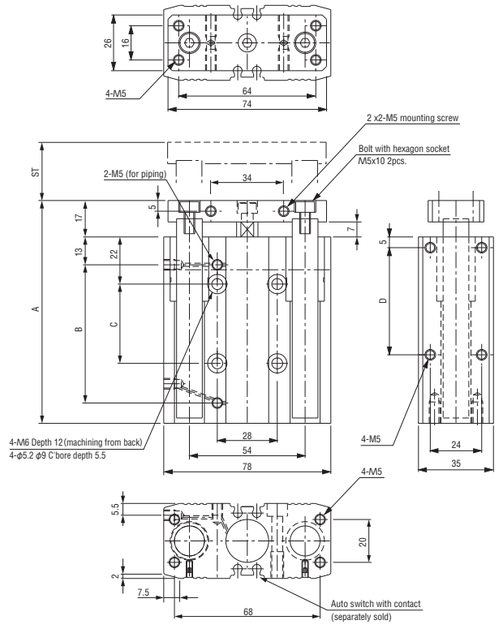
- Stroke: 40mm
- Weight: 670g

Order code No.	060498
Standard	GCYL20∗50

- Stroke: 50mm
- Weight: 746g

Order code No.	060499
Standard	GCYL20∗75

- Stroke: 75mm
- Weight: 1,000g



Order code No.	060500
Standard	GCYL20∗100

- Stroke: 100mm
- Weight: 1,192g

Order code No.	060501
Standard	GCYL20∗150

- Stroke: 150mm
- Weight: 1,576g

■ Dimensions (mm)

Standard	GCYL20∗20	GCYL20∗40	GCYL20∗50	GCYL20∗75	GCYL20∗100	GCYL20∗150
ST	20	40	50	75	100	150
A	74	94	104	136.5	171.5	231.5
B	34.5	54.5	64.5	89.5	114.5	164.5
C	17	37	37	60	60	120
D	30	50	50	85	85	135

Auto switch (reed SW)

Order code No.	030282
Standard	D-A93

- Weight: 6g ● Applicable load: relay, PLC
- Load voltage: 24VDC
- Load current range: 5mA～40mA
- Lead wire: 0.5m brown (+) blue (–)
- Indicator light

Auto switch (contactless)

Order code No.	030425
Standard	D-M9N

- Weight: 8g ● Applicable load: relay, PLC
- Load voltage: 24VDC
- Load current range: ～ 40mA or lower
- Wiring: 0.5M + V (brown), Load (black), 0V (blue)
- Indicator light

Accessories for Container Cylinder

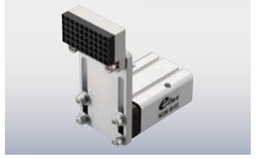
Pads

Used for work grip or positioning.

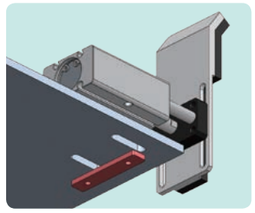
Nut plates

For fixing container cylinders.

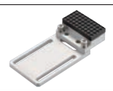
Extension plate



Setting position can be changed according to the work shape.



■Specification

Product name		Order code No.	Standard	Weight (g)	Material	Page of details
Pad・for mini container cylinder		131256	NCON-CP-01	34	Nitrile rubber	2-21
		131257	NCON-CP-02	38		
		131258	NCON-CP-03	38	–	
		131259	NCON-CP-04	71	Nitrile rubber	
		131260	NCON-CP-05	71		
		131281	NCON-CP-06	96		
Extended plate (for wear plate)		230071	XL0006-104	31	–	
Nut plate・for container cylinder		023196	CP-075	10	–	

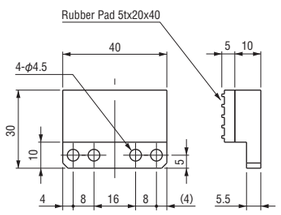
Pads／Extension Plate／Nut Plate

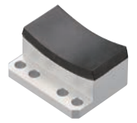
Pads for mini container cylinder.

Pad・for mini container cylinder

Order code No.	131256
Standard	NCON-CP-01

- Material: nitrile rubber
- Weight: 34g

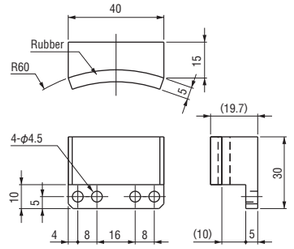




Pad・for mini container cylinder

Order code No.	131257
Standard	NCON-CP-02

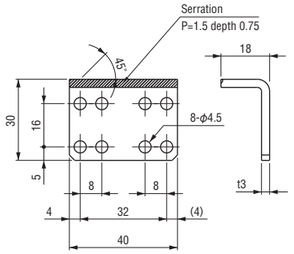
- Material: nitrile rubber
- Weight: 38g



Pad・for mini container cylinder

Order code No.	131258
Standard	NCON-CP-03

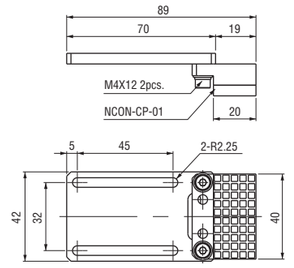
- Weight: 38g



Pad・for mini container cylinder

Order code No.	131259
Standard	NCON-CP-04

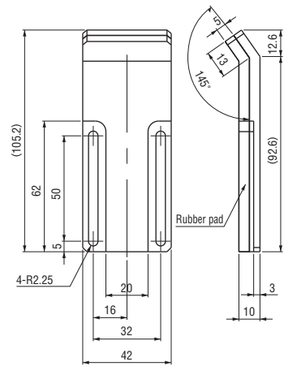
- Material: nitrile rubber
- Weight: 71g



Pad・for mini container cylinder

Order code No.	131260
Standard	NCON-CP-05

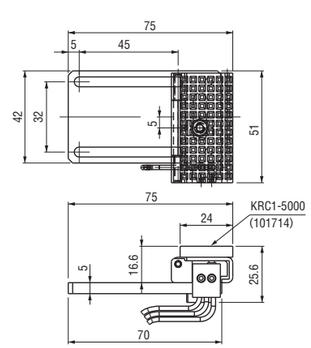
- Material: nitrile rubber
- Weight: 71g



Pad・for mini container cylinder

Order code No.	131281
Standard	NCON-CP-06

- Material: nitrile rubber
- Weight: 96g



∗Wiring:black (COM) blue (NO) red (NC)

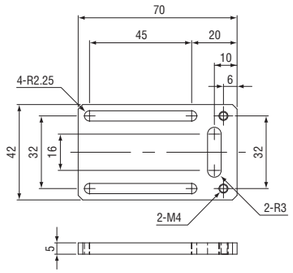
A contact specification:black (COM) blue (NO)
B contact specification:black (COM) red (NC)

∗Base drawing: CHK-EMBF-12
∗Dimension < >: CHK-EMBF-12-C The dimension includes the size of the proximity switch.
∗Dimension [ ]: CHK-EMBF-12-C1 The dimension includes the size of the proximity switch.

Extended plate (for wear plate)

Order code No.	230071
Standard	XL0006-104

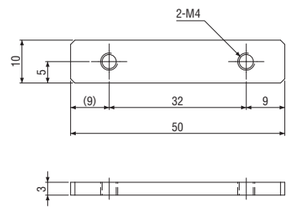
- Weight: 31g



Nut plate・for container cylinder

Order code No.	023196
Standard	CP-075

- Weight: 10g

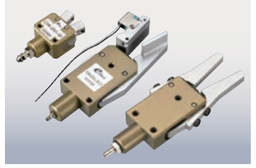


Grippers

Runner Chuck E Series (Claw Superduralumin)

Lightweight, high rigidity, and long operating life with superduralumin.
Mounting selection for Tap type and Eins Parts (jungle-gym series) is possible.

Runner Chuck E1 Series (Steel Type)

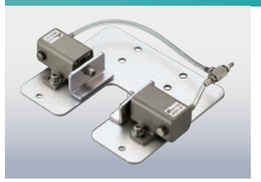


Using superduralumin body and steel claw allows a wide range of uses.
Two types of check limits can be selected.

Runner Module

Module kit for runner extraction.

Runner Chuck Plate



Extracts runners with MCD1-10 mini cylinder which is directly attached to the robot arm.

Tunnel Gate Runner Chuck

Jumping tunnel gate is caught with tapered section.

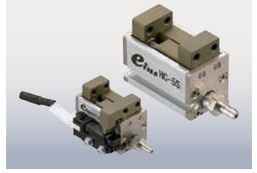
Pipe Combination Chuck

Special cylinder of hinge structure which operates 90 degrees.
Used with jungle gym series parts.

Magnet Chucks

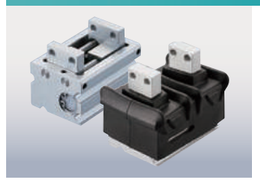
Neodymium magnet is embedded in the piston section.

Parallel Chucks (Single / Double)



Compact design with low profile and small space.

Parallel Hand 15st (Double)



Durable bush guide is used.Parts with rubber for clean-room design are also available.

Needle Gripper

Embedded needle allows holding fiber workpiece with high air permeability.

Hinge Chuck Clamp Unit (Double)

Best Clamp Unit for Hinge Chuck for taking out auto parts of large-scale bumper and Instrument panel, etc.

Runner chuck E series (Claw superduralumin)

With sensor
(Straight claw type)

Runner chuck E1 series (Steel claw type)

With proximity sensor
(Straight claw type)

With Limit SW
(Straight claw type)

With proximity sensor
(L claw type)

With Limit SW
(L claw type)

■ Specification

	Product name		Order code No.	Standard	Weight (g)	Grip (N)	Remarks	Page of Details
E series (Super duralumin • straight claw type)	Runner chuck ES (w/o sensor)		022879	CHK-ES-08	18	5	w/o sensor	2-28
	Runner chuck ES (with sensor)		022883	CHK-ES-08-C	32		Proximity sensor	
	Runner chuck EM (w/o sensor)		022878	CHK-EM-12	46	28	w/o sensor	
	Runner chuck EM (with sensor)		022882	CHK-EM-12-C	56		Proximity sensor	
	Runner chuck EL (w/o sensor)		022877	CHK-EL-12	94	45	w/o sensor	
	Runner chuck EL (with sensor)		022881	CHK-EL-12-C	104		Proximity sensor	
	Runner chuck EX (w/o sensor)		022876	CHK-EX-20	180	80	w/o sensor	2-29
	Runner chuck EX (with sensor)		022880	CHK-EX-20-C	190		Proximity sensor	
E1 series (Steel • straight claw type)	Runner chuck EN (w/o sensor)		022991	CHK-EN1-06	10	2	w/o sensor	2-30
	Runner chuck ES (w/o sensor)		022992	CHK-ES1-08	22	5	w/o sensor	
	Runner chuck ES (with proximity sensor)		022998	CHK-ES1-08-C	38		Proximity sensor	
	Runner chuck ES (with Limit SW)		023004	CHK-ES1-08-C1	33		Limit SW	
	Runner chuck EM (w/o sensor)		022993	CHK-EM1-12	67	28	w/o sensor	
	Runner chuck EM (with proximity sensor)		022999	CHK-EM1-12-C	79		Proximity sensor	
	Runner chuck EM (with Limit SW)		023005	CHK-EM1-12-C1	73		Limit SW	
	Runner chuck EL (w/o sensor)		022994	CHK-EL1-12	143	45	w/o sensor	2-31
	Runner chuck EL (with proximity sensor)		023000	CHK-EL1-12-C	155		Proximity sensor	
	Runner chuck EL (with Limit SW)		023006	CHK-EL1-12-C1	145		Limit SW	
	Runner chuck EX (w/o sensor)		022995	CHK-EX1-20	280	80	w/o sensor	
	Runner chuck EX (with proximity sensor)		023001	CHK-EX1-20-C	283		Proximity sensor	
	Runner chuck EX (with Limit SW)		023007	CHK-EX1-20-C1	272		Limit SW	

Runner chuck E1 series (Steel claw type)

Runner chuck EM (Attachment/detachment claw)

Runner chuck EM (Proximity sensor･attachment/ detachment claw)

Runner chuck EM (Limit SW･attachment/ detachment claw)

Runner chuck EX (Attachment/detachment claw)

Runner chuck EX (Proximity sensor･attachment/ detachment claw)

Runner chuck EX (Limit SW･attachment/ detachment claw)

■Specification

	Product name		Order code No.	Standard	Weight (g)	Grip (N)	Remarks	Page of Details
E1 series (steel L claw type)	Runner chuck EL (w/o sensor)		022996	CHK-EL1L-12	170	45	w/o sensor	2-32
	Runner chuck EL (with proximity sensor)		023160	CHK-EL2L-12-C	196		Proximity sensor	
	Runner chuck EL (with Limit SW)		023161	CHK-EL2L-12-C1	186		Limit SW	
	Runner chuck EX (w/o sensor)		022997	CHK-EX1L-20	305	80	w/o sensor	
	Runner chuck EX (with proximity sensor)		023158	CHK-EX2L-20-C	335		Proximity sensor	
	Runner chuck EX (with Limit SW)		023159	CHK-EX2L-20-C1	325		Limit SW	
E1 series (Steel･attachable and detachable type claw) NEW	Runner chuck EM (detachable/attachable claw)		023284	CHK-EMBF-12	70	28	w/o sensor	
	Runner chuck EM (proximity sensor･detachable/attachable claw)		023286	CHK-EMBF-12-C	85		Proximity sensor	
	Runner chuck EM (limit SW･detachable/attachable claw)		023288	CHK-EMBF-12-C1	77		Limit SW	
	Runner chuck EM (attachment/detachment claw)		023285	CHK-EMF-12	12	–	w/o sensor	2-33
	Runner chuck EM (proximity sensor･attachment/detachment claw)		023287	CHK-EMF-12-C	27	–	Proximity sensor	
	Runner chuck EM (limit SW･attachment/detachment claw)		023289	CHK-EMF-12-C1	20	–	Limit SW	
	Runner chuck EX (detachable/attachable claw)		023290	CHK-EXBF-20	272	80	w/o sensor	2-34
	Runner chuck EX (proximity sensor･detachable/attachable claw)		023292	CHK-EXBF-20-C	287		Proximity sensor	
	Runner chuck EX (limit SW･detachable/attachable claw)		023294	CHK-EXBF-20-C1	278		Limit SW	
	Runner chuck EX (attachment/detachment claw)		023291	CHK-EXF-20	40	–	w/o sensor	
	Runner chuck EX (proximity sensor･attachment/detachment claw)		023293	CHK-EXF-20-C	54	–	Proximity sensor	
	Runner chuck EX (limit SW･attachment/detachment claw)		023295	CHK-EXF-20-C1	40	–	Limit SW	

	Product name		Order code No.	Standard	Weight (g)	Grip (N)	Remarks	Page of Details
Sensor switch for exchange	Proximity sensor Ass'y (E series)		023086	CHK-ESE	10	–	For ES	2-29
			023087	CHK-EMLXE			For EM, EL, EX	
	Proximity sensor Ass'y (E1 series)		023014	CHK-E1SME	15		For ES1 and EM1	2-31
			023015	CHK-E1LXE			For EL1,EX1,EL2L,EX2L	
	Limit switch Ass'y (E1 series)		023016	CHK-E1SW	7		For ES1,EM1,EL1, EX1,EL2L,EX2L	

Product name		Order code No.	Standard	Weight (g)	Remarks	Page of Details
Runner module (w/o chuck)		171227	RM-08	111	For CHK-ES,ES1	2-35
		171228	RM-12	116	For CHK-EM, EM1, EL, EL2, EL2L	
		171229	RM-20	131	For CHK-EX, EX1, EX2L	
Runner chuck plate		022892	CHK-MCD01	396	MCD1-10/CP-014	
Tunnel gate runner chuck		090140	J25411-100	76	UMCD-10/CPUM-02	2-36
		090141	J25411-000	185	MCD1-10/CP-014	
Pipe combination chuck E・ϕ12・90 deg		090134	J25410-400	28	BF-5 (joint) attached	2-37
		090204	J25410-40A	28		
Pipe combination chuck D・ϕ20・90 deg		090203	J25410-30A	78		
90 degree flat A		131218	N01871-101	4.4	For J25410-400	
90 degree flat B		131479	N01871-102	10.4	J25410-300 MCY-H	2-37,38
Hinge cylinder		123503	MCE-H	121	Double action type BF-5 (joint) attached	2-38
Magnet chucks		123218	MGC-20	95	Double-act-type Cylinder	2-39
Magnet chuck end rubber		123571	MGC-C	3	End rubber for MGC-20	

＊Production of pipe combination chuck E･ϕ12･90 degrees (090134) J25410-400 was stopped. The sale will end when all the stock has been sold.

Product name		Order code No.	Standard	Weight (g)	Remarks	Page of Details
Magnet chucks		185352	SSGM 40G1/4-IG	240	W/o sensor	2-39
		185358	SSGM-S-40-G1/4-IG-NPN	260	W/ NPN output sensor	
		185355	SSGM-S-40-G1/4-IG-PNP		W/ PNP output sensor	
		185353	SSGM 50G1/4-IG	440	W/o sensor	
		185359	SSGM-S-50-G1/4-IG-NPN	460	W/ NPN output sensor	
		185356	SSGM-S-50-G1/4-IG-PNP		W/ PNP output sensor	
		185354	SSGM 70G1/4-IG	715	W/o sensor	
		185360	SSGM-S-70-G1/4-IG-NPN	735	W/ NPN output sensor	
		185357	SSGM-S-70-G1/4-IG-PNP		W/ PNP output sensor	
Parallel chuck • single • 5ST		072172	HC-5S	32	5mm (stroke)	2-40,41
Parallel chuck • single • 10ST		072171	HC-10S	70	10mm (stroke)	
Parallel chuck • double • 10ST		072170	HC-10			
With two-wire-type limit switch: Parallel chuck • single • 5ST		072702	HC1-5S-C1	50	5mm (stroke)	
With two-wire-type limit switch: Parallel chuck • single • 10ST		072703	HC1-10S-C1	95	10mm (stroke)	
With two-wire-type limit switch: Parallel chuck • double • 10ST		072705	HC1-10-C1			
With two-wire-type limit switch: Parallel chuck • single • 20ST		072704	HC1-20S-C1	305	20mm (stroke)	
With two-wire-type limit switch: Parallel chuck • double • 20ST		072706	HC1-20-C1	300		
Claws: Claw • for parallel chuck		023215	CP-HC10N	9	For HC1-10, 10S	2-41
		023216	CP-HC20N	26	For HC1-20, 20S	
Spacer: Spacer • for parallel chuck		023217	CP-HC10S	1	For HC1-10, 10S	
		023218	CP-HC20S	2	For HC1-20, 20S	

Product name		Order code No.	Standard	Weight (g)	Remarks	Page of Details
Auto switch (reed SW)		030282	D-A93	6	Reed Sw	2-38,40, 42,43
Auto switch (contactless)		030425	D-M9N	8	Contactless	2-38,40, 42,43
Limit switch Ass'y		072708	HC1-SW1	10	For HC1-5S/10/10S Mounting bolt nut attached	2-40
		072709	HC1-SW2		For HC1-20/20S Mounting bolt nut attached	
Parallel chuck • double act • 40ST＊2		282205	2HC1-80	650	40mm × 2 (stroke)	2-42
Parallel chuck (Single): Standard type		123401	MHZ2-10S	55	4mm (stroke)	2-43
Parallel chuck (Single): Narrow type		122451	MHZ2-10SN			
Parallel hand • double • 15ST		071996	HLA-12AS	152	15mm (stroke)	2-44
Parallel hand • double • 20ST		070986	HLA-15AS	276	20mm (stroke)	
Parallel hand • double • 25ST		071997	HLA-20AS	504	25mm (stroke)	
Parallel hand • double • 15ST • w/ rubber cover		071999	HLAG-12AS	157	15mm (stroke)	
Parallel hand • double • 20ST • w/ rubber cover		072000	HLAG-15AS	281	20mm (stroke)	
Auto switch (contactless)		010633	E16-M1	18	Contactless	2-44
Needle gripper		186255	SNG-M-4-0.8	80	Diameter: 0.8mm	2-45
		186256	SNG-AP-10-0.8-V-10	225		
		186257	SNG-AP-10-1.2-V-10		Diameter: 1.2mm	
Needle piston set for exchange (4 pcs)		041925	ERS-SET-SNG-M-0.8	12	For SNG-M-4-0.8	
Needle holder set for exchange (2 pcs)		041926	ERS-SET-SNG-AP/AE-0.8-10	6	For SNG-AP-10-0.8-V-10	
		041927	ERS-SET-SNG-AP/AE-1.2-10		For SNG-AP-10-1.2-V-10	
Hinge chuck • clamp unit (double)		110566	L11540-000	913	0-11.5 (degree)	2-46
Hinge chuck • suction stem		110567	L11540-109	7	–	

Runner Chuck E Series (Claw Superduralumin)

Lightweight, high rigidity, and long operating life with superduralumin.

Attach with tapped hole or Eins connector parts (Jungle Gym ø8 series).

CHK-ES-08-C

Runner chuck ES w/o sensor

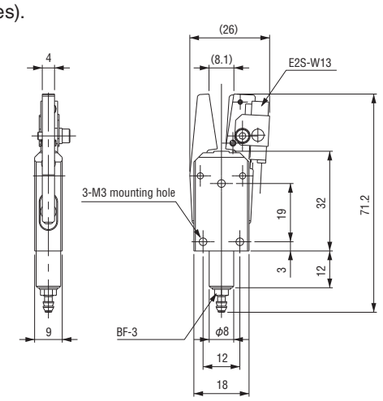
Order code No.	022879
Standard	CHK-ES-08

- Weight: 18g ● Grip: 5N
- With joint BF-3 for piping

Runner chuck ES w/ sensor

Order code No.	022883
Standard	CHK-ES-08-C

- Weight: 32g ● Grip: 5N
- With joint BF-3 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm



Attach with tapped hole or Eins connector parts (Jungle Gym ø12 series).

CHK-EM-12-C

Runner chuck EM w/o sensor

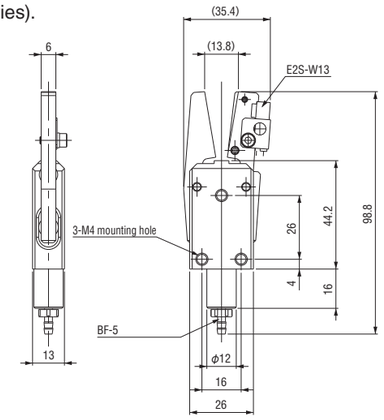
Order code No.	022878
Standard	CHK-EM-12

- Weight: 46g ● Grip:28N
- With joint BF-5 for piping

Runner chuck EM w/ sensor

Order code No.	022882
Standard	CHK-EM-12-C

- Weight: 56g ● Grip: 28N
- With joint BF-5 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm



Attach with tapped hole or Eins connector parts (Jungle Gym ø12 series).

CHK-EL-12-C

Runner chuck EL w/o sensor

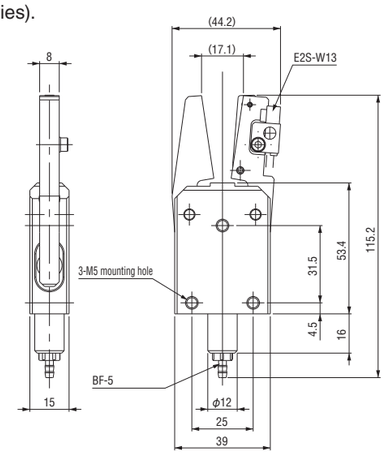
Order code No.	022877
Standard	CHK-EL-12

- Weight: 94g ● Grip: 45N
- With joint BF-5 for piping

Runner chuck EL w/ sensor

Order code No.	022881
Standard	CHK-EL-12-C

- Weight: 104g ● Grip: 45N
- With joint BF-5 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm



Attach with tapped hole or Eins connector parts (Jungle Gym ϕ20 series).

CHK-EX-20-C

Runner chuck EX w/o sensor

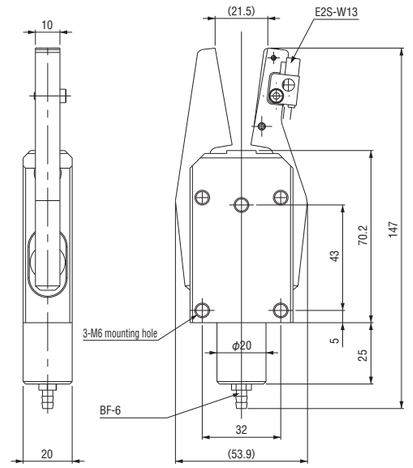
Order code No.	022876
Standard	CHK-EX-20

- Weight: 180g ● Grip: 80N
- With joint BF-6 for piping

Runner Chuck EX w/ sensor

Order code No.	022880
Standard	CHK-EX-20-C

- Weight: 190g ● Grip: 80N
- With joint BF-6 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm



Proximity sensor Ass'y

Order code No.	023086
Standard	CHK-ESE

- Weight: 10g
- For ES (Installation to E1 series is impossible).
- Set Includes: proximity sensor, mounting bracket, spring, mounting bolts
- Terminal process is not made.
- Harness length: 1,000mm

Proximity sensor Ass'y

Order code No.	023087
Standard	CHK-EMLXE

- Weight: 10g
- For EM/EL/EX (Installation to E1 series is impossible).
- Set Includes: proximity sensor, mounting bracket, spring, mounting bolts
- Terminal process is not made.
- Harness length: 1,000mm

■ Specifications of sensor section

Standard	E2S-W13
Power supply voltage	DC12 - 24V
Electric power consumption	13mA or less
Consumption output	NPN
Wiring	1M brown (+V) black (output) blue (0V)
Others	With indicator lamp

Runner Chuck E1 Series (Steel Claw)

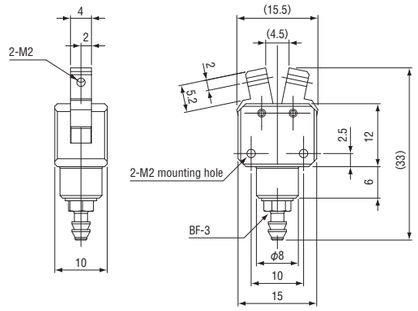
Wear resistance improved by using steel claw.

Attach with tapped hole or Eins connector parts (Jungle Gym ϕ 8 series).

Runner chuck EN w/o sensor

Order code No.	022991
Standard	CHK-EN1-06

- Weight: 10g ● Grip: 2N
- With joint BF-3 for piping
- Sensor cannot be retrofitted.



Attach with tapped hole or Eins connector parts (Jungle Gym ϕ 8 series).

CHK-ES1-08

Runner chuck ES w/o sensor

Order code No.	022992
Standard	CHK-ES1-08

- Weight: 22g ● Grip: 5N
- With joint BF-3 for piping
- Sensor cannot be retrofitted.

Runner chuck ES w/ proximity sensor

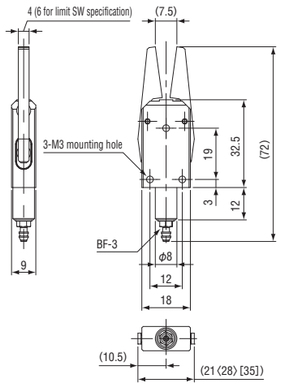
Order code No.	022998
Standard	CHK-ES1-08-C

- Weight: 38g ● Grip: 5N
- With joint BF-3 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm

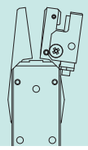
Runner chuck ES w/ limit SW

Order code No.	023004
Standard	CHK-ES1-08-C1

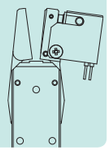
- Weight: 33g ● Grip: 5N
- With joint BF-3 for piping
- Sensor: direct current, two-wire system.
- Rated current: 1mA 5VAC to 100mA 30VDC
- Terminal process is not made.
- Harness length: 300mm



With proximity sensor



With limit SW



∗ Base drawing: CHK-ES1-08
∗ Dimension < >: CHK-ES1-08-C The dimension includes the size of the proximity switch.
∗ Dimension [ ]: CHK-ES1-08-C1 The dimension includes the size of the proximity switch.

Attach with tapped hole or Eins connector parts (Jungle Gym ϕ 12 series).

CHK-EM1-12

Runner chuck EM w/o sensor

Order code No.	022993
Standard	CHK-EM1-12

- Weight: 67g ● Grip: 28N
- With joint BF-5 for piping
- Sensor cannot be retrofitted.

Runner chuck EM w/ proximity sensor

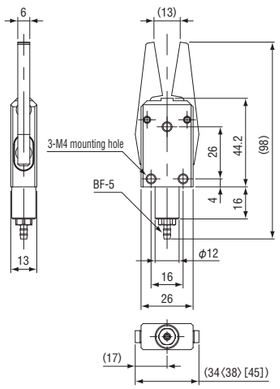
Order code No.	022999
Standard	CHK-EM1-12-C

- Weight: 79g ● Grip: 28N
- With joint BF-5 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm

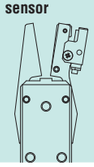
Runner chuck EM w/ limit SW

Order code No.	023005
Standard	CHK-EM1-12-C1

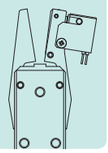
- Weight: 73g ● Grip: 28N
- With joint BF-5 for piping
- Sensor: direct current, two-wire system.
- Rated current: 1mA 5VAC to 100mA 30VDC
- Terminal process is not made.
- Harness length: 300mm



With proximity sensor



With limit SW



∗ Base drawing: CHK-EM1-12
∗ Dimension < >: CHK-EM1-12-C The dimension includes the size of the proximity switch.
∗ Dimension [ ]: CHK-EM1-12-C1 The dimension includes the size of the proximity switch.

Attach with tapped hole or Eins connector parts (Jungle Gym ϕ 12 series).

CHK-EL1-12

Runner chuck EL w/o sensor

Order code No.	022994
Standard	CHK-EL1-12

- Weight: 143g ● Grip: 45N
- With joint BF-5 for piping
- Sensor cannot be retrofitted.

Runner chuck EL w/ proximity sensor

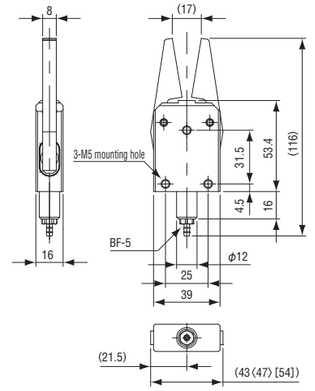
Order code No.	023000
Standard	CHK-EL1-12-C

- Weight: 155g ● Grip: 45N
- With joint BF-5 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm

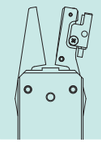
Runner chuck EL w/ limit SW

Order code No.	023006
Standard	CHK-EL1-12-C1

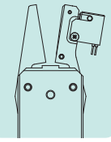
- Weight: 145g ● Grip: 45N
- With joint BF-5 for piping
- Sensor: direct current, two-wire system.
- Rated current: 1mA 5VAC to 100mA 30VDC
- Terminal process is not made.
- Harness length: 300mm



With proximity sensor



With limit SW



∗ Base drawing: CHK-EL1-12
∗ Dimension < >: CHK-EL1-12-C The dimension includes the size of the proximity switch.
∗ Dimension [ ]: CHK-EL1-12-C1 The dimension includes the size of the proximity switch.

Attach with tapped hole or Eins connector parts (Jungle Gym ϕ 20 series).

CHK-EX1-20

Runner chuck EX w/o sensor

Order code No.	022995
Standard	CHK-EX1-20

- Weight: 280g ● Grip: 80N
- With joint BF-6 for piping
- Sensor cannot be retrofitted.

Runner chuck EX w/ proximity sensor

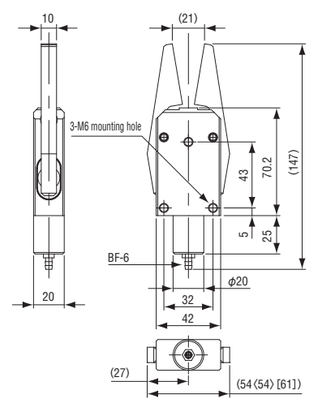
Order code No.	023001
Standard	CHK-EX1-20-C

- Weight: 283g ● Grip: 80N
- With joint BF-6 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm

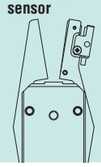
Runner chuck EX w/ limit SW

Order code No.	023007
Standard	CHK-EX1-20-C1

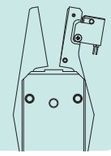
- Weight:272g ● Grip: 80N
- With joint BF-6 for piping
- Sensor: direct current, two-wire system.
- Rated current: 1mA 5VAC to 100mA 30VDC
- Terminal process is not made.
- Harness length: 300mm



With proximity sensor



With limit SW



∗ Base drawing: CHK-EX1-20
∗ Dimension < >: CHK-EX1-20-C The dimension includes the size of the proximity switch.
∗ Dimension [ ]: CHK-EX1-20-C1 The dimension includes the size of the proximity switch.

Proximity sensor Ass'y

Order code No.	023014
Standard	CHK-E1SME

- Weight: 15g
- For ES1/EM1 (Installation to E series is impossible).
- Set Includes: proximity sensor, sensor bracket, mounting bolts
- Terminal process is not made.
- Harness length: 1,000mm

Proximity sensor Ass'y

Order code No.	023015
Standard	CHK-E1LXE

- Weight: 15g
- For EL1/EX1/EL2L/EX2L (Installation to E series is impossible).
- Set Includes: proximity sensor, sensor bracket, mounting bolts
- Terminal process is not made.
- Harness length: 1,000mm

Limit switch Ass'y

Order code No.	023016
Standard	CHK-E1SW

- Weight: 7g
- For ES1/EM1/EL1/EX1/EL2L/EX2L (Installation to E series is impossible).
- Set Includes: limit switch, sensor bracket, mounting bolts
- Rated current: 1mA 5VAC to 100mA 30VDC
- Terminal process is not made.
- Harness length: 300mm

Runner Chuck E1 Series (Steel L Claw Type)

Wear resistance improved by using steel claw.

▶ Attach with tapped hole or Eins connector parts (Jungle gym ϕ12 series).

CHK-EL1L-12

Runner chuck EL w/o sensor

Order code No.	022996
Standard	CHK-EL1L-12

- Weight: 170g
- Grip: 45N
- With joint BF-5 for piping
- Sensor cannot be retrofitted.

Runner chuck EL w/ proximity sensor

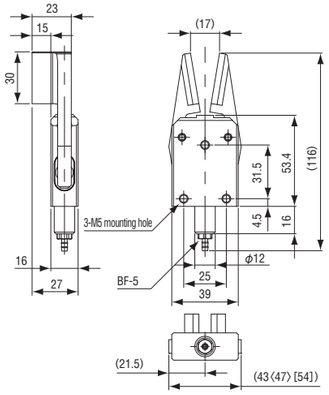
Order code No.	023160
Standard	CHK-EL2L-12-C

- Weight: 196g
- Grip: 45N
- With joint BF-5 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm

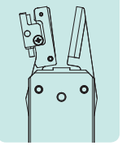
Runner chuck EL w/ limit SW

Order code No.	023161
Standard	CHK-EL2L-12-C1

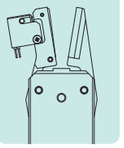
- Weight:186g
- Grip:45N
- With joint BF-5 for piping
- Sensor: direct current, two-wire system.
- Sensor mounting position was changed.
- Rated current: 1mA 5VAC to 100mA 30VDC
- Terminal process is not made.
- Harness length: 300mm



With proximity sensor



With limit SW



∗ Base drawing: CHK-EL1L-12
∗ Dimension < >: CHK-EL2L-12-C The dimension includes the size of the proximity switch.
∗ Dimension [ ]: CHK-EL2L-12-C1 The dimension includes the size of the proximity switch.

▶ Attach with tapped hole or Eins connector parts (Jungle gym ϕ20 series).

CHK-EX1L-20

Runner chuck EX w/o sensor

Order code No.	022997
Standard	CHK-EX1L-20

- Weight: 305g
- Grip: 80N
- With joint BF-6 for piping
- Sensor cannot be retrofitted.

Runner chuck EX w/ proximity sensor

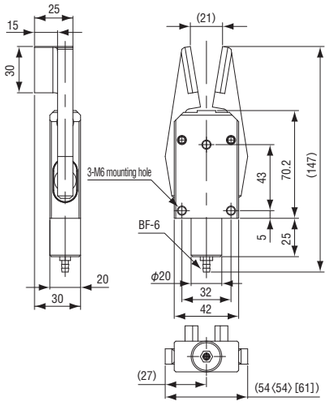
Order code No.	023158
Standard	CHK-EX2L-20-C

- Weight: 335g
- Grip: 80N
- With joint BF-6 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm

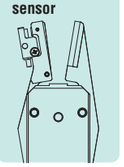
Runner chuck EX w/ limit SW

Order code No.	023159
Standard	CHK-EX2L-20-C1

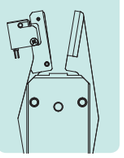
- Weight: 325g
- Grip: 80N
- With joint BF-6 for piping
- Sensor: direct current, two-wire system.
- Sensor mounting position was changed.
- Rated current: 1mA 5VAC to 100mA 30VDC
- Terminal process is not made.
- Harness length: 300mm



With proximity sensor



With limit SW



∗ Base drawing: CHK-EX1L-20
∗ Dimension < >: CHK-EX2L-20-C The dimension includes the size of the proximity switch.
∗ Dimension [ ]: CHK-EX2L-20-C1 The dimension includes the size of the proximity switch.

Runner Chuck E1 Series (Detachable / Attachable Claw)

Chuck claw exchange type newly added to product lineup.

▶ Attach with tapped hole or Eins connector parts (Jungle Gym ϕ12 series).

NEW

CHK-EMBF-12

Runner chuck EM (detachable/ attachable claw)

Order code No.	023284
Standard	CHK-EMBF-12

- Weight: 70g
- Grip: 28N
- With joint BF-5 for piping
- Sensor cannot be retrofitted.

Runner chuck EM (proximity sensor･detachable/ attachable claw)

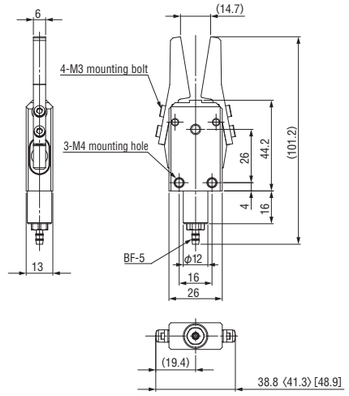
Order code No.	023286
Standard	CHK-EMBF-12-C

- Weight: 85g
- Grip: 28N
- With joint BF-5 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm

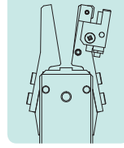
Runner chuck EM (limit SW･detachable/ attachable claw)

Order code No.	023288
Standard	CHK-EMBF-12-C1

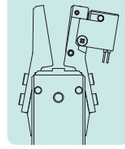
- Weight: 77g
- Grip: 28N
- With joint BF-5 for piping
- Sensor: direct current, two-wire system.
- Rated current: 1mA 5VAC to 100mA 30VDC
- Terminal process is not made.
- Harness length: 300mm



With proximity sensor



With limit SW



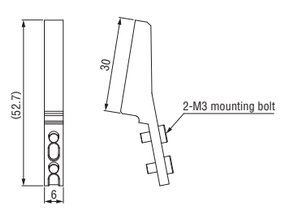
∗ Base drawing: CHK-EMBF-12
∗ Dimension < >: CHK-EMBF-12-C The dimension includes the size of the proximity switch.
∗ Dimension [ ]: CHK-EMBF-12-C1 The dimension includes the size of the proximity switch.

NEW

Runner chuck EM (attachment/ detachment claw)

Order code No.	023285
Standard	CHK-EMF-12

- Weight: 12g
- Sensor cannot be retrofitted.

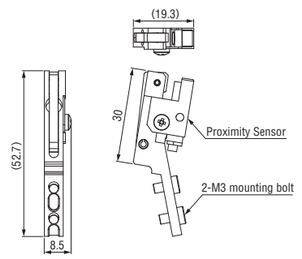


NEW

Runner chuck EM (proximity sensor･attachment/ detachment claw)

Order code No.	023287
Standard	CHK-EMF-12-C

- Weight: 27g
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm
- Sensor Ass'y ➡ See (2-31)

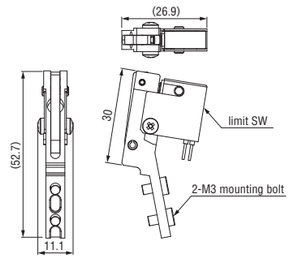


NEW

Runner chuck EM (limit SW･attachment/ detachment claw)

Order code No.	023289
Standard	CHK-EMF-12-C1

- Weight: 20g
- Sensor: direct current, two-wire system.
- Rated current: 1mA 5VAC to 100mA 30VDC
- Terminal process is not made.
- Harness length: 300mm
- Sensor Ass'y ➡ See (2-31)



Runner Chuck E1 Series (Detachable / Attachable Claw)

▶ Attach with tapped hole or Eins connector parts (Jungle Gym ϕ 20 series).

NEW

CHK-EXBF-20

Runner chuck EX (detachable/ attachable claw)

Order code No.	023290
Standard	CHK-EXBF-20

- Weight: 272g ● Grip: 80N
- With joint BF-5 for piping
- Sensor cannot be retrofitted.

Runner chuck EX (proximity sensor･detachable/ attachable claw)

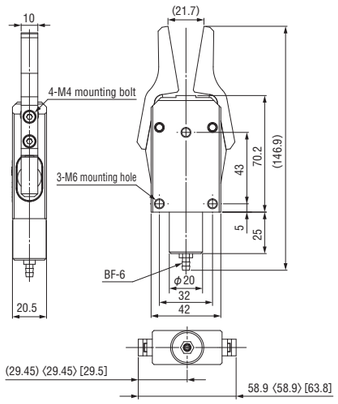
Order code No.	023292
Standard	CHK-EXBF-20-C

- Weight: 287g ● Grip: 80N
- With joint BF-5 for piping
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm

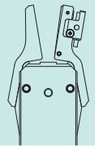
Runner chuck EX (limit SW･detachable/ attachable claw)

Order code No.	023294
Standard	CHK-EXBF-20-C1

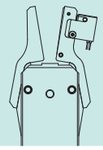
- Weight: 278g ● Grip: 80N
- With joint BF-5 for piping
- Sensor: direct current, two-wire system.
- Rated current: 1mA 5VAC to 100mA 30VDC
- Terminal process is not made.
- Harness length: 300mm



With proximity sensor



With limit SW



∗ Base drawing: CHK-EMBF-20
∗ Dimension < >: CHK-EMBF-20-C The dimension includes the size of the proximity switch.
∗ Dimension [ ]: CHK-EMBF-20-C1 The dimension includes the size of the proximity switch.

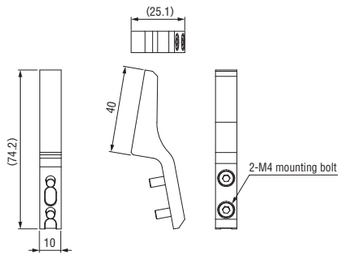
▶ Claw Ass'y with attachable and detachable claw.

NEW

Runner chuck EX (attachment/ detachment claw)

Order code No.	023291
Standard	CHK-EXF-20

- Weight: 40g
- Sensor cannot be retrofitted.

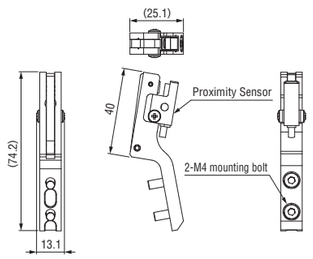


NEW

Runner chuck EX (proximity sensor･attachment/ detachment claw)

Order code No.	023293
Standard	CHK-EXF-20-C

- Weight: 54g
- Sensor: direct current, three-wire system.
- Terminal process is not made.
- Harness length: 1,000mm
- Sensor Ass'y ➡ See (2-31)

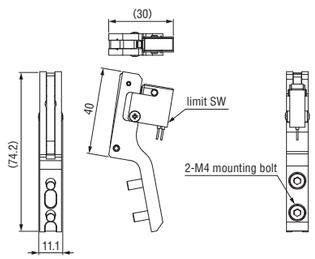


NEW

Runner chuck EX (limit SW･attachment/ detachment claw)

Order code No.	023295
Standard	CHK-EXF-20-C1

- Weight: 40g
- Sensor: direct current, two-wire system.
- Rated current: 1mA 5VAC to 100mA 30VDC
- Terminal process is not made.
- Harness length: 300mm
- Sensor Ass'y ➡ See (2-31)



Runner Module / Runner Chuck Plate

Runner chuck unit directly detachable to the robot arm.

▶ Module unit with runner chuck.

Runner module w/o chuck

Order code No.	171227
Standard	RM-08

- Runner chuck mounting bracket:Slide bracket Wϕ8
- Weight: 111g

Applicable chuck
CHK-ES/ES1

Runner module w/o chuck

Order code No.	171228
Standard	RM-12

- Runner chuck mounting bracket:Slide bracket Wϕ12
- Weight: 116g

Applicable chuck
CHK-EM/EM1/EL/EL1/EL2L/EMBF

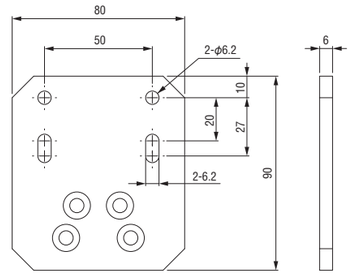
Runner module w/o chuck

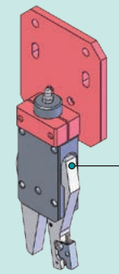
Order code No.	171229
Standard	RM-20

- Runner chuck mounting bracket:Slide bracket Wϕ20
- Weight: 131g

Applicable chuck
CHK-EX/EX1/EX2L/EXBF

Three-point common plate



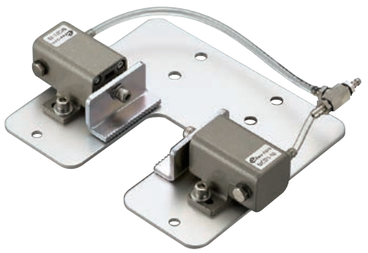


Example of installation

Select the runner chuck from (2-28) - (2-34).

∗ Select the chuck plate according to the size of the slide bracket for mounting runner chuck.
∗ Runner chuck is sold separately.

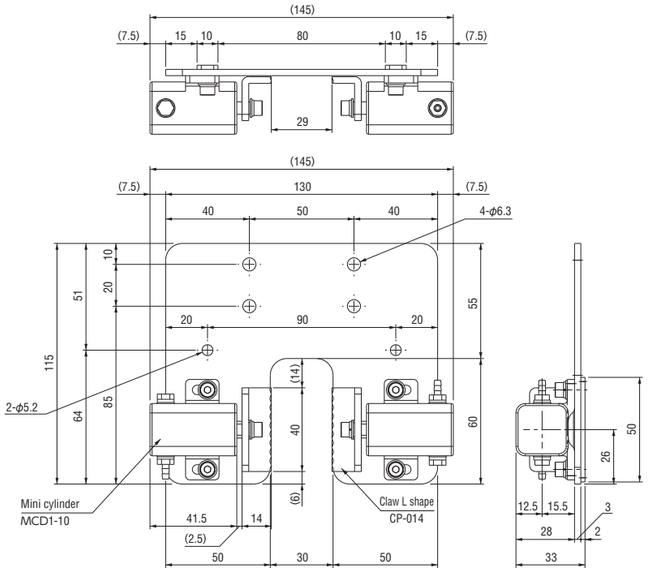
▶ Runner chuck which grips runners with mini cylinders.



Runner chuck plate

Order code No.	022892
Standard	CHK-MCD01

- Weight: 396g

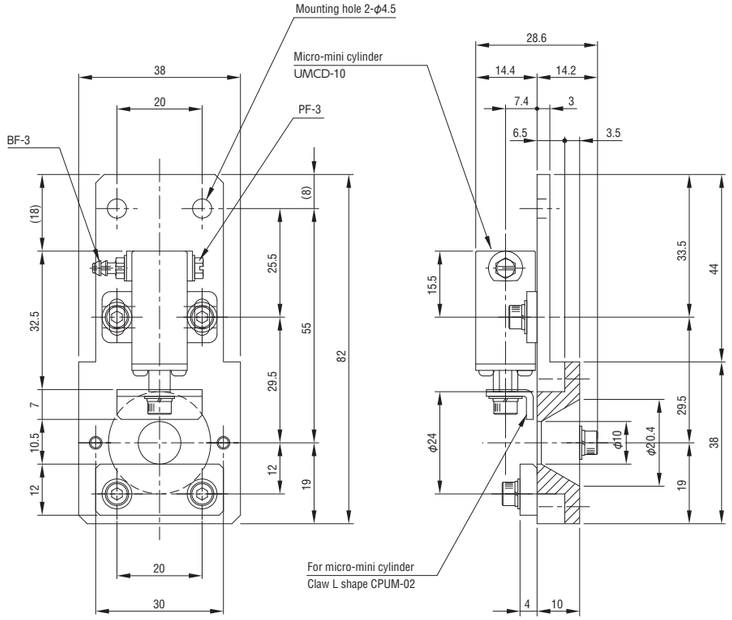


Tunnel Gate Runner Chuck

Jumping tunnel gate is caught with tapered section.

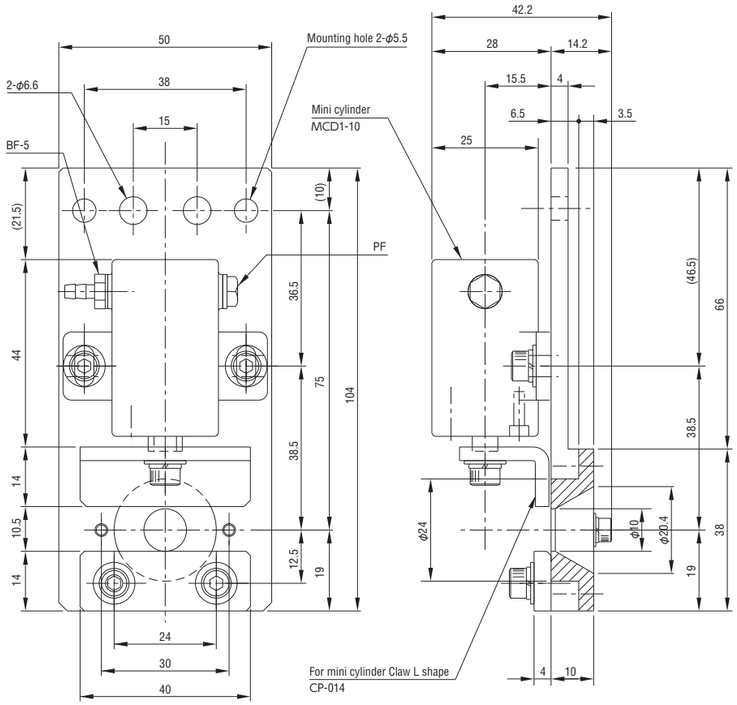
Order code No.	090140
Standard	J25411-100

● Weight: 76g



Order code No.	090141
Standard	J25411-000

● Weight: 185g



Pipe Combination Chuck

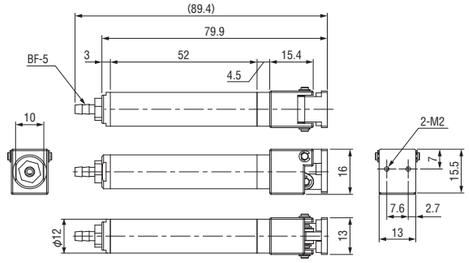
Special cylinder of hinge structure which operates 90 degrees. Connection to jungle gym is possible.

● J25410-400(090134) will be changed to J25410-40A(090204) when all the stock has been sold.

Pipe combination chuck E• ϕ12 • 90 deg

Order code No.	090134
Standard	J25410-400

● Weight: 28g ● With joint BF-5 for piping

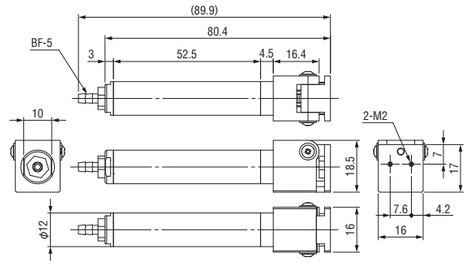


▶ High-strength specification of link section

Pipe combination chuck E• ϕ12 • 90 deg

Order code No.	090204
Standard	J25410-40A

● Weight: 29g ● With joint BF-5 for piping

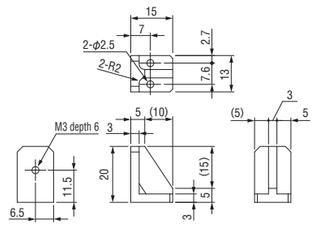


▶ Option

90 degree flat A

Order code No.	131218
Standard	N01871-101

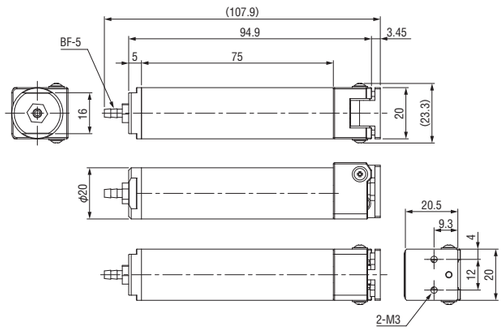
● Weight: 4.4g



Pipe combination chuck D • ϕ20 • 90 deg

Order code No.	090203
Standard	J25410-30A

● Weight: 78g ● With joint BF-5 for piping

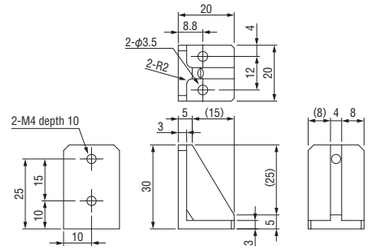


▶ Option

90 degree flat B

Order code No.	131479
Standard	N01871-102

● Weight: 10.4g



Hinge Cylinder

Special cylinder of hinge structure which operates 90 degrees.

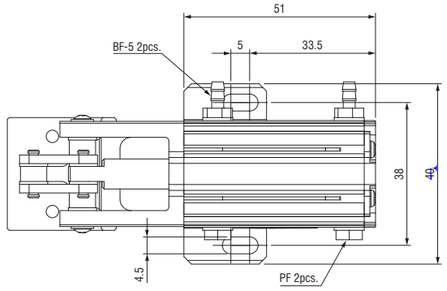
Hinge cylinder

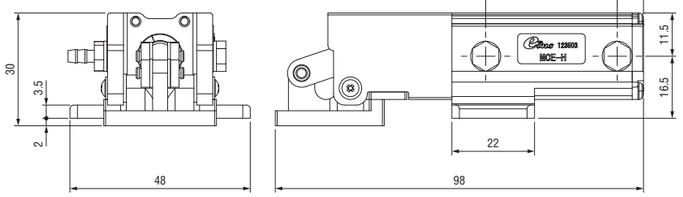
You can watch our product video by using a mobile device such as a smartphone.

▶ Double action type

Order code No.	123503
Standard	MCE-H

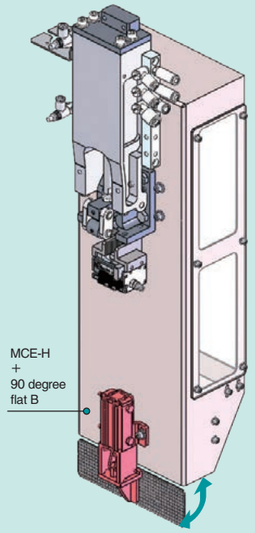
● Weight: 121g ● With joint BF-5 for piping

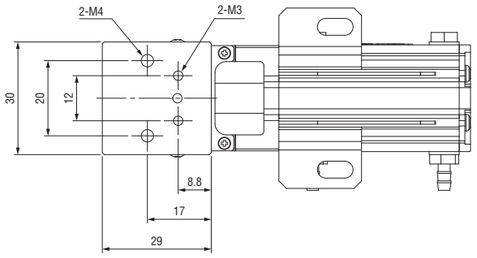




Example of use

[Used to open/close the bottom plate of BOX chuck.]



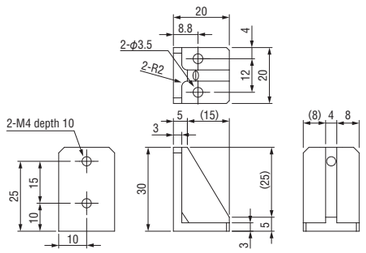


▶ Option

90 degree flat B

Order code No.	131479
Standard	N01871-102

● Weight: 10.4g



Auto switch (reed SW)

Order code No.	030282
Standard	D-A93

● Weight: 6g ● Applicable load: relay, PLC
● Load voltage: 24VDC
● Load current range: 5mA ～ 40mA
● Lead wire: 0.5m brown (+) blue (–)
● Indicator light

Auto switch (contactless)

Order code No.	030425
Standard	D-M9N

● Weight 8g ● Applicable load: relay, PLC
● Load voltage: 24VDC
● Load current range: ～ 40mA or lower
● Lead wire: 0.5M+V (brown), Load (black), OV(blue)
● Indicator light

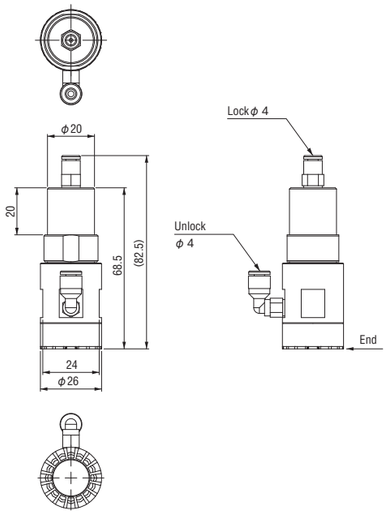
Magnet Chucks

Neodymium magnet is embedded in the chuck parts.

Magnet chucks

You can watch our product video by using a mobile device such as a smartphone.

- Powerful holding force with the magnet.
- Lightweight with compact design
- Jungle gym with ϕ 20 series
- The most suitable for magnetic conveyance.



Magnet chuck

Order code No.	123218
Standard	MGC-20

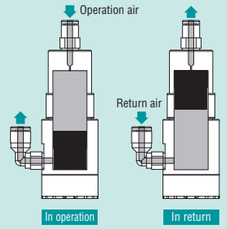
● Double-act-type cylinder ● Weight: 95g

Magnet chuck end rubber

Order code No.	123571
Standard	MGC-C

● Weight: 3g

Operation image

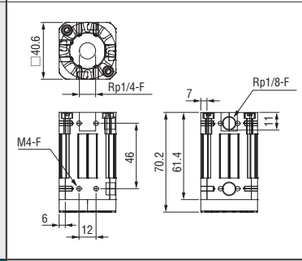
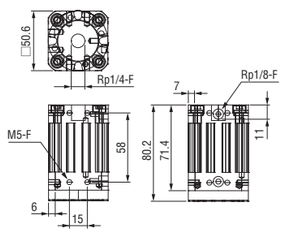
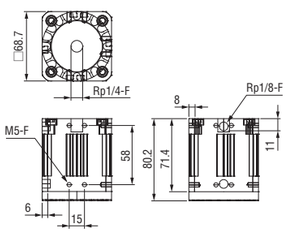


Specification

Standard	MGC-20
Mechanism	Double Action Type
Air pressure	0.39 ～ 0.49Mpa
Holding force	25N
Residual magnet*	0.01N Max.

* Indicates the residual magnet at the top in return operation.

▶ Strong holding of uneven / perforated steel plate with permanent magnet!
Product with sensor to detect magnet position is also available.

Holding force		100N	180N	290N
Magnet chuck				
Drawing				
W/o sensor	Order code No.	185352	185353	185354
	Standard	SSGM 40G 1/4-IG	SSGM 50G 1/4-IG	SSGM 70G 1/4-IG
	Weight	240g	440g	715g
W/ NPN output sensor	Order code No.	185358	185359	185360
	Standard	SSGM-S-40-G1/4-IG-NPN	SSGM-S-50-G1/4-IG-NPN	SSGM-S-70-G1/4-IG-NPN
	Weight	260g	460g	735g
W/ PNP output sensor	Order code No.	185355	185356	185357
	Standard	SSGM-S-40-G1/4-IG-PNP	SSGM-S-50-G1/4-IG-PNP	SSGM-S-70-G1/4-IG-PNP
	Weight	260g	460g	735g

Parallel Chucks (Single / Double)

Compact design with low profile and small space.

Parallel chuck • single • 5ST

Order code No.	072172
Standard	HC-5S

- Stroke: 5mm
- Weight: 32g
- With joint BF-5-M3 for piping
- Auto switch for action/return end can be mounted (middle check is impossible).

Parallel chuck • single • 10ST

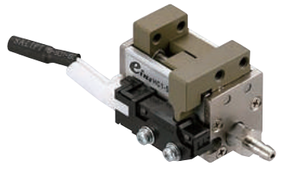
Order code No.	072171
Standard	HC-10S

- Stroke: 10mm
- Weight: 70g
- With joint BF-5 for piping
- Auto switch for action/return end can be mounted (middle check is impossible).

Parallel chuck • double • 10ST

Order code No.	072170
Standard	HC-10

- Stroke: 10mm
- Weight: 70g
- With joint BF-5×2 for piping
- Auto switch for action/return end can be mounted (middle check is impossible).



* Rated current: 100mA 30VDC

Parallel chuck • single • 5ST

Order code No.	072702
Standard	HC1-5S-C1

- Stroke: 5mm
- Weight: 50g
- With joint BF-5-M3 for piping
- Harness length: 500mm

Parallel chuck • single • 10ST

Order code No.	072703
Standard	HC1-10S-C1

- Stroke: 10mm
- Weight: 95g
- With joint BF-5 for piping
- Harness length: 500mm

Parallel chuck • double • 10ST

Order code No.	072705
Standard	HC1-10-C1

- Stroke: 10mm
- Weight: 95g
- With joint BF-5×2 for piping
- Harness length: 500mm

Parallel chuck • single • 20ST

Order code No.	072704
Standard	HC1-20S-C1

- Stroke: 20mm
- Weight: 305g
- With joint BF-5 for piping
- Harness length: 500mm

Parallel chuck • double • 20ST

Order code No.	072706
Standard	HC1-20-C1

- Stroke: 20mm
- Weight: 300g
- With joint BF-5×2 for piping
- Harness length: 500mm

Auto switch (reed SW)

Order code No.	030282
Standard	D-A93

- Weight: 6g
- Applicable load: relay, PLC
- Load voltage: 24VDC
- Load current range: 5mA ～ 40mA
- Wiring: 0.5M OUT (+) brown OUT (-) blue
- Indicator light
- Terminal process is not made.

Auto switch (contactless)

Order code No.	030425
Standard	D-M9N

- Weight: 8g
- Applicable load: relay, PLC
- Load voltage: 24VDC
- Load current range: ～ 40mA or lower
- Lead wire: 0.5M+V (brown), Load (black), OV(blue)
- Indicator light

Limit switch Ass'y

Order code No.	072708
Standard	HC1-SW1

- Weight: 10g
- For HC1-5S/10(S)
- Mounting bolt and nut attached
- Rated current: 100mA 30VDC
- Terminal process is not made.
- Harness length: 500mm

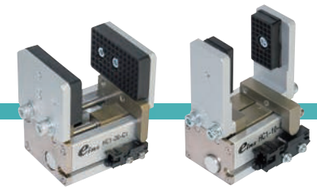
Limit switch Ass'y

Order code No.	072709
Standard	HC1-SW2

- Weight: 10g
- For HC1-20(S)
- Mounting bolt and nut attached
- Rated current: 100mA 30VDC
- Terminal process is not made.
- Harness length: 500mm

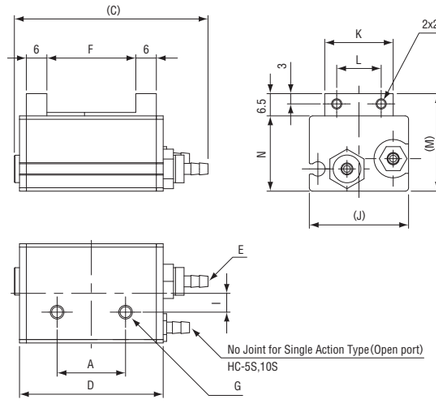
HC／HC1 series specification

Standard	Mechanism	Used air pressure (MPa)	Ambient temperature (℃)	Motion stroke (mm)	Cylinder diameter (mm)	Grip power 〈0.4Mpa〉 Close (N)	Grip power 〈0.4Mpa〉 Open (N)
HC-5S	Single action type	0.3 ～ 0.6	5 ～ 60	5	φ 7	6	–
HC-10S				10	φ 10	14	–
HC-10	Double action type					15	15
HC1-5S-C1	Single action type	0.4 ～ 0.6		5	φ 7	5	–
HC1-10S-C1				10	φ 10	14	–
HC1-10-C1	Double action type					15	15
HC1-20S-C1	Single action type			20	φ 15	17	–
HC1-20-C1	Double action type					28	28

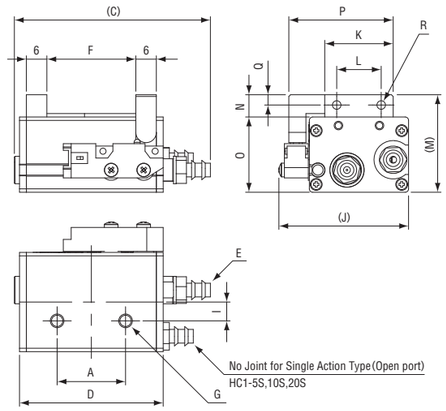


Example of combination

Outside dimension of HC series



Outside dimension of HC1 series



■Dimensions (mm)

Standard	HC-5S	HC-10S	HC-10
A	17	20	
B	10	20	
C	45	56.6	
D	32	42	
E	BF-5-M3	BF-5	
F	max16/min11	max26/min16	
G	2-M3 depth 4	2-M4 depth 8	
H	5	5.5	
I	6	5.5	
J	18	29	
K	13	20	
L	8	13	
M	25.5	28.5	
N	19	22	

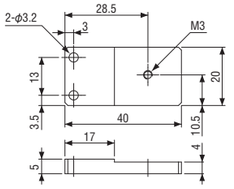
■Dimensions (mm)

Standard	HC1-5S-C1	HC1-10(S)-C1	HC1-20(S)-C1
A	17	20	32
B	10	20	32
C	45	57	73
D	32	42	60
E	BF-5-M3	BF-5	
F	max16/min11	max26/min16	max40/min20
G	2-M3 depth 4	2-M4 depth8	2-M5 depth10
H	5	5.5	8
I	6	5.5	6
J	28	38	58
K	13	20	32
L	8	13	20
M	25.5	28.5	44
N	6.5	6.5	12.5
O	19	22	31.5
P	21.5	30.5	46
Q	3		5
R	2x2-M3		2x2-M5

Claw • for parallel chuck

Order code No.	023215
Standard	CP-HC10N

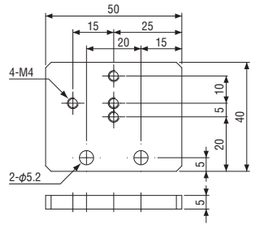
- Weight: 9g
- For HC,HC1-10, 10S
- Installation of CPUM-01 ➡ (2-10) to product positioning side is possible.

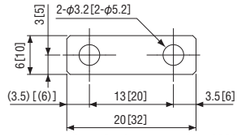


Claw • for parallel chuck

Order code No.	023216
Standard	CP-HC20N

- Weight: 26g
- For HC1-20, 20S
- Installation of CP-060, 061 ➡ (2-10) to product positioning side is possible.





t=2 ＊[ ] shows for CP-HC20S.

Spacer • for parallel chuck

Order code No.	023217
Standard	CP-HC10S

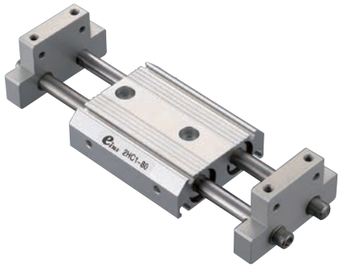
- Weight: 1g
- For HC,HC1-10, 10S

Order code No.	023218
Standard	CP-HC20S

- Weight: 2g
- For HC1-20, 20S

Parallel Chucks (Double)

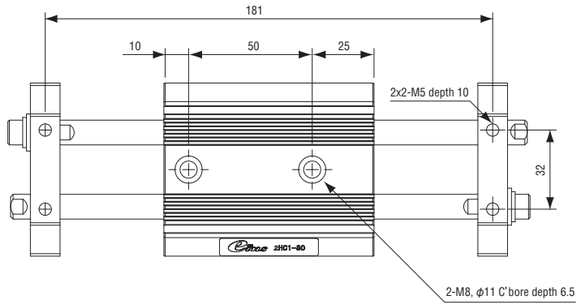
Single open/close of the claws of both sides is possible with the built-in two cylinders.

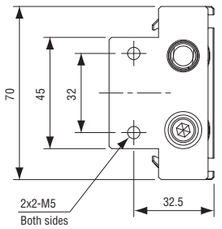


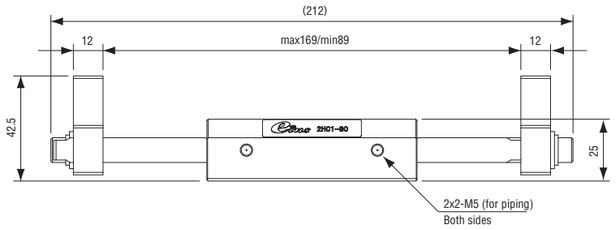
Parallel chuck • double act • 40ST＊2

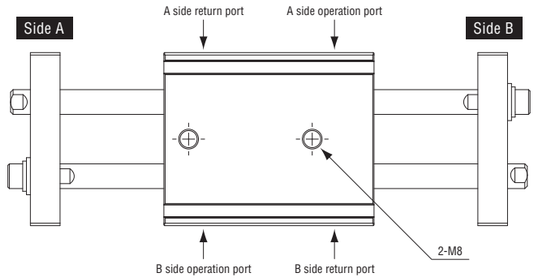
Order code No.	282205
Standard	2HC1-80

- Stroke: 40mm×2
- Weight: 650g
- Installation of auto switch for act / return limit is possible.
- Pipe joint is sold separately. ➡ 6-5,6









Auto switch (reed SW)

Order code No.	030282
Standard	D-A93

- Weight: 6g
- Applicable load: relay, PLC
- Load voltage: 24VDC
- Load current range: 5mA ～ 40mA
- Lead wire: 0.5m brown (+) blue (-)
- Indicator light

Auto switch (contactless)

Order code No.	030425
Standard	D-M9N

- Weight: 8g
- Applicable load: relay, PLC
- Load voltage: 24VDC
- Load current range: ～ 40mA or lower
- Lead wire: 0.5M+V (brown), Load (black), OV(blue)
- Indicator light

■Specification

Product name	Standard	Mechanism	Air Pressure (MPa)	Ambient temperature (℃)	Motion stroke (mm)	Cylinder diameter (mm)	Grip power 〈0.4Mpa〉	
							Close (N)	Open (N)
Parallel chuck	2HC1-80	Double action type	0.4 ～ 0.6	5 ～ 60	40 × 2	ϕ20 × 2	100	100

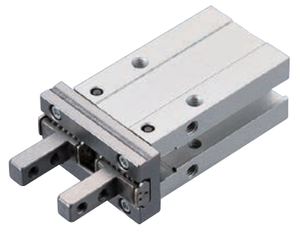
Parallel Chucks (Single)

High precision with linear guide!

Standard type (single) Parallel chuck

Order code No.	123401
Standard	MHZ2-10S

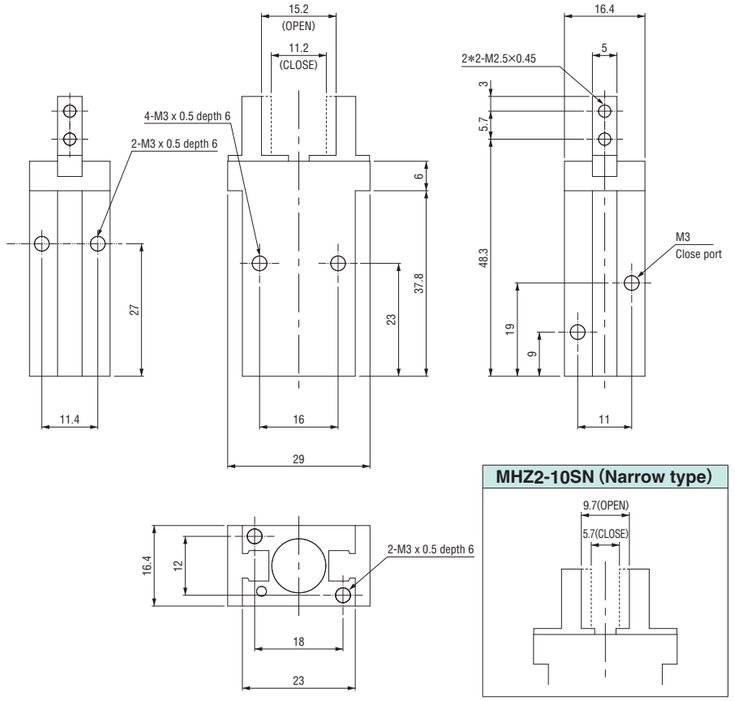
- Stroke: 4mm
- Weight: 55g
- Auto switch can be attached as optional*
- Pipe joint is sold separately. ➡ 6-5,6



Narrow type (single) Parallel chuck

Order code No.	122451
Standard	MHZ2-10SN

- Stroke: 4mm
- Weight: 55g
- Auto switch can be attached as optional*
- Pipe joint is sold separately. ➡ 6-5,6



MHZ2-10SN (Narrow type)

Auto switch (reed SW)

Order code No.	030282
Standard	D-A93

- Weight: 6g
- Applicable load: relay, PLC
- Load voltage: 24VDC
- Load current range: 5mA ～ 40mA
- Wiring: 0.5M OUT (+) brown OUT (-) blue
- Indicator light
- Special metal bracket (BMG2-012) is required to attach auto switch.

Auto switch (contactless)

Order code No.	030425
Standard	D-M9N

- Weight: 8g
- Applicable load: relay, PLC
- Load voltage: 24VDC
- Load current range: ～ 40mA or lower
- Lead wire: 0.5M+V (brown), Load (black), OV(blue)
- Indicator light
- Special metal bracket (BMG2-012) is required to attach auto switch.

Auto switch mounting bracket

Order code No.	010634
Standard	BMG2-012

- Weight: 2g

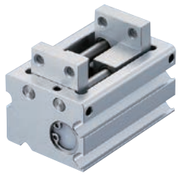
■Specification

Product name	Standard	Air Pressure (MPa)	Ambient temperature (℃)	Motion stroke (mm)	Cylinder diameter (mm)	Gripping force 〈0.5MPa〉 (N)	Accuracy of movement (mm)
Parallel chuck	MHZ2-10S MHZ2-10SN	0.35 ～ 0.7	-10 ～ 60	4	ϕ10	11	± 0.01

＊ Special metal bracket (BMG2-012) is required to attach auto switch.

Parallel Hands (Double)

Durable bush guide embedded.



▶ Double action type
Parallel hand • double • 15ST

Order code No.	071996
Standard	HLA-12AS

- Stroke: 15mm
- Weight: 152g
- Auto switch can be attached as optional*
- Pipe joint is sold separately. ➡ 6-5,6

▶ Double action type
Parallel hand • double • 20ST

Order code No.	070986
Standard	HLA-15AS

- Stroke: 20mm
- Weight: 276g
- Auto switch can be attached as optional*
- Pipe joint is sold separately. ➡ 6-5,6

▶ Double action type
Parallel hand • double • 25ST

Order code No.	071997
Standard	HLA-20AS

- Stroke: 25mm
- Weight: 504g
- Auto switch can be attached as optional*
- Pipe joint is sold separately. ➡ 6-5,6

▶ Double action type
Parallel hand • 15ST • double • w/ rubber cover

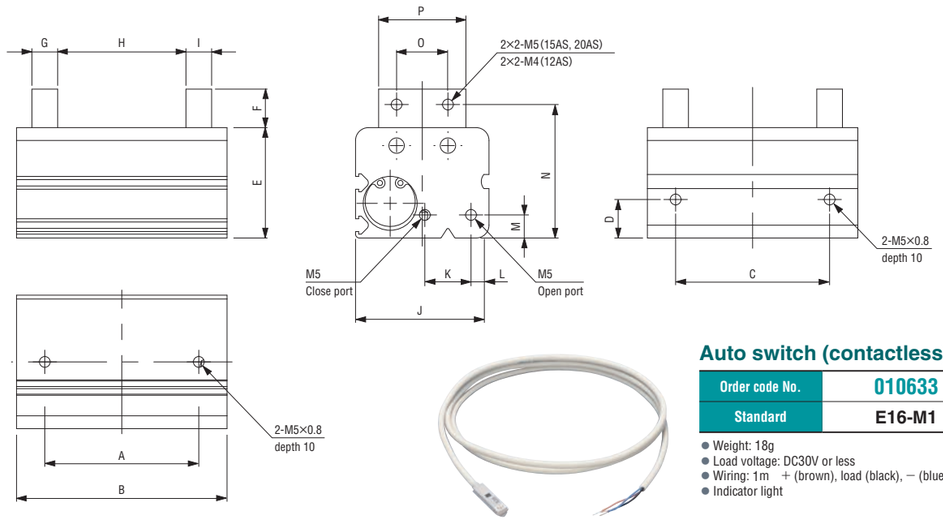
Order code No.	071999
Standard	HLAG-12AS

- Stroke: 15mm
- Weight: 157g
- Auto switch can be attached as optional*
- Pipe joint is sold separately. ➡ 6-5,6

▶ Double action type
Parallel hand • 20ST • double • w/ rubber cover

Order code No.	072000
Standard	HLAG-15AS

- Stroke: 20mm
- Weight: 281g
- Auto switch can be attached as optional*
- Pipe joint is sold separately. ➡ 6-5,6



Auto switch (contactless)

Order code No.	010633
Standard	E16-M1

- Weight: 18g
- Load voltage: DC30V or less
- Wiring: 1m ＋(brown), load (black), －(blue)
- Indicator light

■ Dimensions

(mm)

Standard	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
HLA-12AS	30	54	30	12	29	10	6	max30/min15	6	37	13.5	4	8	35	14	22-0.1
HLA-15AS	40	70	40	13.5	34	12	10	max40/min20	10	43	14	5.5	9	41	18	30-0.1
HLA-20AS	60	82	60	15	43	15	10	max50/min25	10	52	18	7	9	52	20	34-0.1
HLAG-12AS	30	61	–	–	40	10	8	max30/min15	8	46.8	13.5	4	8	46	10	17-0.1
HLAG-15AS	40	81.1	–	–	46.5	12	10	max40/min20	10	57	14	5.5	9	53.5	14	24-0.1

Product name	Standard	Air Pressure (MPa)	Ambient temperature (℃)	Motion stroke (mm)	Cylinder diameter (mm)	Inner capacity (round trip)	Accuracy of movement (mm)	Lubrication
Parallel hand	HLA,HLAG-12AS	0.3 ～ 0.7	5 ～ 60	15	φ 12	1.69cc/times	± 0.03	No lubrication or turbine oil class 1 [ISOVG32]
	HLA,HLAG-15AS			20	φ 15	3.53cc/times		
	HLA			25	φ 20	7.85cc/times		

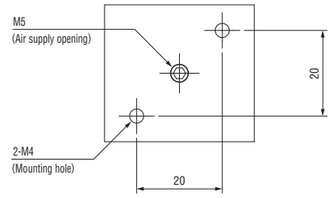
Needle Gripper

Embedded needle allows holding fiber workpiece with high air permeability.

Needle gripper (diameter 0.8mm)

Order code No.	186255
Standard	SNG-M-4-0.8

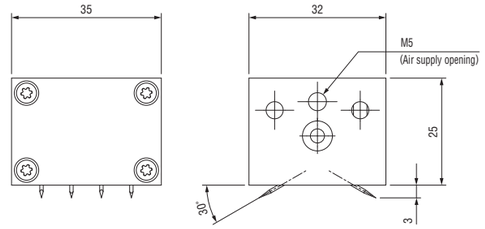
- Weight: 80g
- Air single action type
- Needle will be output with action.



Needle piston set for exchange (4pcs)

Order code No.	041925
Standard	ERS-SET-SNG-M-0.8

- Weight: 12g
- 4pcs
- For SNG-M-4-0.8



Needle gripper (diameter 0.8mm)

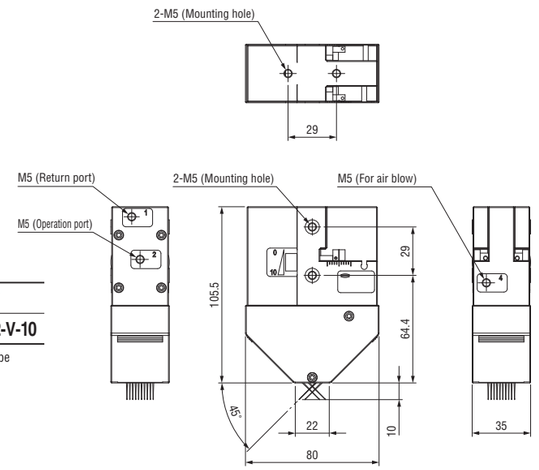
Order code No.	186256
Standard	SNG-AP-10-0.8-V-10

- Weight: 225g
- Air double action type
- Needle will be output with action.

Needle gripper (diameter 1.2mm)

Order code No.	186257
Standard	SNG-AP-10-1.2-V-10

- Weight: 225g
- Air double action type
- Needle will be output with action.



Needle holder set for exchange (2pcs)

Order code No.	041926
Standard	ERS-SET-SNG-AP/AE-0.8-10

- Weight: 6g
- For SNG-AP-10-0.8-V-10

Needle holder set for exchange (2pcs)

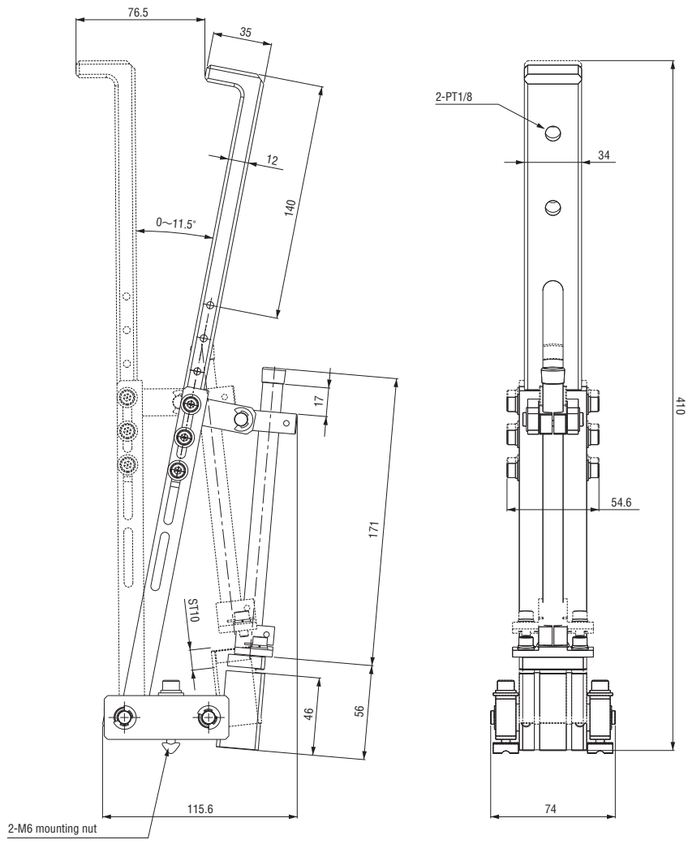
Order code No.	041927
Standard	ERS-SET-SNG-AP/AE-1.2-10

- Weight: 6g
- For SNG-AP-10-1.2-V-10

Hinge Chuck Clamp Unit (Double)

Best for extracting large parts.

- Double action type hinge chuck consist with mini container cylinder.
- Best solution for large parts extraction like automoble bumper or instrument pannel, etc.



Hinge chuck • clamp unit (double)

Order code No.	110566
Standard	L11540-000

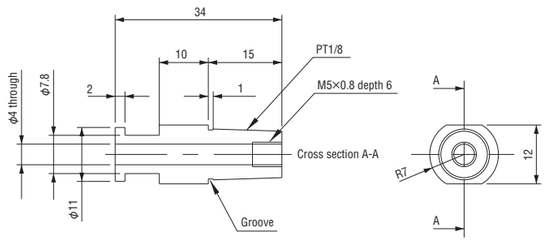
● Weight: 913g

- Suction cup small series can be mounted.

Hinge chuck • suction stem

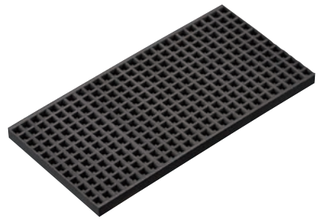
Order code No.	110567
Standard	L11540-109

● Weight: 7g



Rubber Pad / EP Sponge / Silicone Sponge

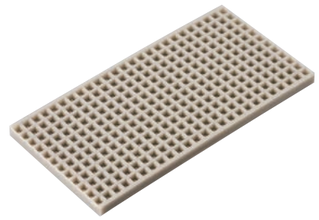
Cut sheets to prevent scratches on products.



Pad (nitrile)

Order code No.	370078
Standard	5T∗50∗100

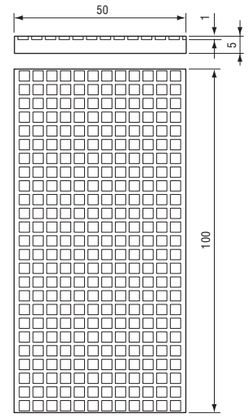
● Weight: 27.6g ● Material: nitrile rubber



Pad (silicone)

Order code No.	310536
Standard	5T∗50∗100

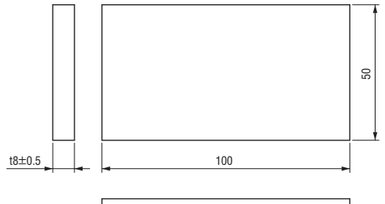
● Weight: 27.6g ● Material: silicon



EP sponge (with double-side tape)

Order code No.	340923
Standard	8∗50∗100-EPSP

● Weight: 5g ● Material: EPDM ● The finished dimensions may be different from those of the drawing as sponge material is used.



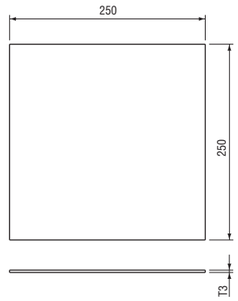
Cautions for pasting

- Use the purchases within one month after you buy them. Adhesive strength is remarkably reduced after left for a long period of time.
- Wipe the surface clean with ethanol before you stick it on the cup. Do not touch the surface with your hands.
- Push the adhesive surface with sufficient adhesion to the surface for about 24 hours.
- Use silicon adhesive if the adhesive strength is low.
- Adhesive strength of double-stick tapes is the highest in vertical direction.

Silicone sponge

Order code No.	293463
Standard	3T∗250∗250

● Weight: 102g ● Material: silicon sponge



Adhesive • cemedine • 20ML

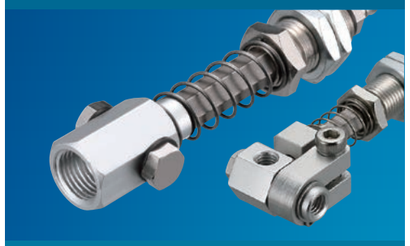
Order code No.	371765
Standard	No.8008-20TM

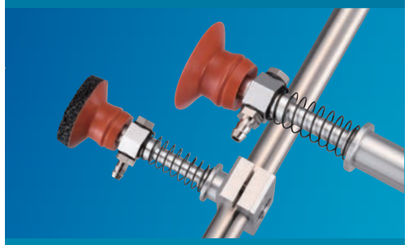
● NET : 20ml

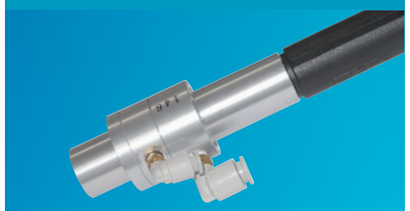
Standard	Standard	Heat resistance*	Hardness	Color
Nitrile rubber	5T∗50∗100	−10 to +100	shore A70 ±10	Black
Silicone	5T∗50∗100	−60 to +250	shore A70 ±10	White
Silicone sponge	3T∗250∗250	−60 to +200	Aska C23	Orange
EPDM	8∗50∗100-EPSP	−30 to +100	–	Black
Chloroprene rubber	CP-060	−35 to +100	shore A70 ±10	Black

∗ General characteristics numerical value (reference value)

MEMO







Suction

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Suction Cups

Suction Cups (Standard / Screw Mount Type)

The most suitable one can be selected from wide range of products.

3-4

Suction Stem Covers (Mini / Small)

Used as a cap when suction cup is not used.

3-6

Bellows Cups

Use bellows cups for medium-sized angled parts.

3-6

Suction Cups (TR / TRN)

The most suitable one can be selected from wide range of products.

3-7

Flat Face Suction Cups

Used for work pieces that are not released easily from suction cup.

3-6

Suction Cups w/ Sponge

Use with parts with uneven suction surfaces.
(For work piece with small unevenness)

3-8

Bellows Cups

Use for small sized parts with angle.

3-6

Suction Cups w/ EP Sponge

Use with parts with uneven suction surfaces.
(For work piece with small unevenness)

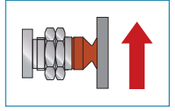
3-9

Theoretical suction power of suction cup

The theoretical suction power can be obtained with the area of cup and the degree of vacuum caused by using the cup.

Horizontal lifting

Vertical lifting



●Indication in kPa and N

$$W=\frac{C\times P}{101}\times 10.13\times f$$

●Indication in mmHg and kg

$$W=\frac{C\times P}{760}\times 1.0332\times f$$

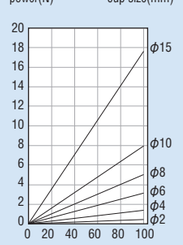
Since the theoretical suction power is a value under static conditions, use the safety factor of 1/4 for horizontal lifting and 1/8 for vertical lifting in practical use.Also for movement, take acceleration caused by the movement into consideration

W : Theoretical suction power (N) · (Kg)
P : Degree of vacuum (-kPa) · (-mmHg)
C : Area of cup (cm²)　　f : Safety factor

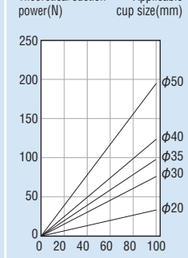
●General type cup (rubber cup)

∗Safety factor is not considered.

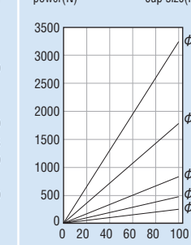
Applicable cup size ϕ2mm～ϕ15mm



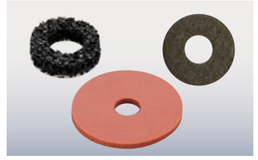
Applicable cup size ϕ20mm～ϕ50mm



Applicable cup size ϕ60mm～ϕ200mm



Accessory for Suction Cup



EP sponge/Sponge sheet/SD Sheet

Stick it to the end of the suction cup according to its use.

3-10

Special Cup

Suction pad for press/Vacuum gripper

Used to transfer sheet steel, wood, resin, and corrugated cardboard.

3-11

Flat Suction Cups

Flat basic type. Silicone type and a mark-free type are provided.

3-12

Oval Cups

Oval type.
There are silicone and mark-less types.

3-14

Bellows Type Suction Cups 1.5-Stage

Bellows type suction cups 2.5-stage
There are silicone and mark-less types.

3-15

Bellows Type Suction Cups 2.5-Stage

Bellows type suction cups 2.5-stage
There are silicone and mark-less types.

3-16

Sheet Metal Suction Cups

Strong holding power in the horizontal direction and excellent balance of stability. Excellent followup ability to a curved surface. Excellent durability with original material.

3-18

Suction Cups for Exchange

Suction cup for exchange in 3-12 - 3-17.

3-19

Materials and characteristics of rubber

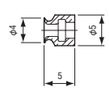
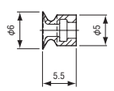
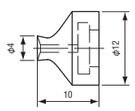
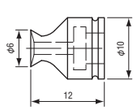
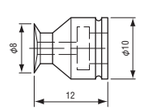
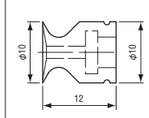
○ : Available　△ : Can be used according to the condition (specification)　× : Not available

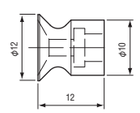
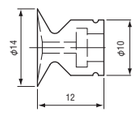
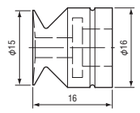
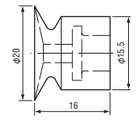
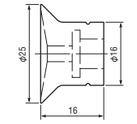
Characteristics \ Material	Silicone (brown) / Silicone (cloudy transparent*)	Urethane (milk white)	Fluorine (black)	Nitrile (green)	Mark-free (blue)
Heat-resistance (℃)	-60-250	-20-75	-10-230	-30-85	-10-140
Shore hardness (HS)	54-80	55	65	50	60
No mark of cup left	×	×	○	○	○
Food	×／○	×	×	×	×
Food packaging	○	○	○	○	○
Oil resistance	×	○	○	○	○
Heavy load	△	○	△	×	△
Antistatic agent	△	×	△	×	×
Rough surface (stone or wood)	×	○	×	×	×
Smooth surface (glass)	×	○	○	×	×
Alcohol resistance	○	△	△	○	○
Acid resistance	△	×	○	△	×

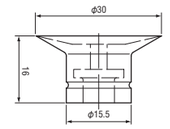
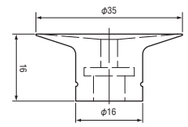
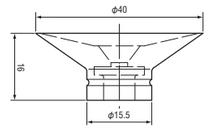
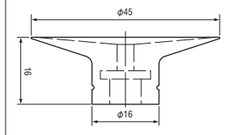
● Above shows the general characteristics of rubber, only. Check the shape of suction cup and operating conditions.
∗ Silicone pad (cloudy transparent) conforms to the U.S. food and drug administration (FDA) standard.

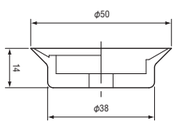
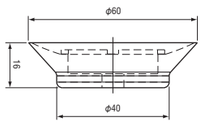
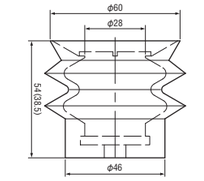
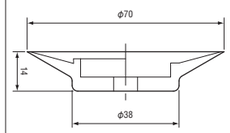
Suction Cups (Standard／Screw Mount Type)

The most suitable one can be selected from wide range of products.

Applicable cup size		ϕ4mm	ϕ6mm	ϕ4mm	ϕ6mm	ϕ8mm	ϕ10mm
Suction cups (standard)							
		＊Micro	＊Micro				
Drawing							
Reinforced silicone (brown)	Order code No.	210789	210790	210700	210255	210191	210615
	Standard	VAPH-4M	VAPH-6M	VAPH-4C	VAPH-6C	VAPH-8C	VAPH-10C
	Weight	0.2g	0.3g	0.4g	0.5g	0.6g	0.7g
Urethane (milk white)	Order code No.	—	—	210701	210395	210396	210703
	Standard	—	—	VAPU-4C	VAPU-6C	VAPU-8C	VAPU-10C
	Weight	—	—	0.4g	0.6g	0.7g	0.7g
Fluorine (black)	Order code No.	—	—	210702	210402	210403	210704
	Standard	—	—	VAPF-4C	VAPF-6C	VAPF-8C	VAPF-10C
	Weight	—	—	0.9g	0.9g	1.0g	1.0g
Nitrile (green)	Order code No.	—	—	210791	210792	210793	210794
	Standard	—	—	VAPN-4C	VAPN-6C	VAPN-8C	VAPN-10C
	Weight	—	—	0.7g	0.7g	0.6g	0.6g
Applicable Stem		Micro or VFILB-M,MSH ➡ 3-21,27		Mini, VFIL-SS, or VFILB-SSH ➡ 3-21,22,27			

Applicable cup size		ϕ12mm	ϕ14mm	ϕ15mm	ϕ20mm	ϕ25mm
Suction cups (standard)						
Drawing						
Reinforced silicone (brown)	Order code No.	210192	210616	210193	210194	210617
	Standard	VAPH-12C	VAPH-14C	VAPH-15C	VAPH-20C	VAPH-25C
	Weight	0.8g	1.0g	2.2g	2.6g	3.3g
Urethane (milk white)	Order code No.	210397	210705	210398	210399	—
	Standard	VAPU-12C	VAPU-14C	VAPU-15C	VAPU-20C	—
	Weight	0.8g	0.8g	2.4g	2.8g	—
Fluorine (black)	Order code No.	210404	210706	210405	210406	—
	Standard	VAPF-12C	VAPF-14C	VAPF-15C	VAPF-20C	—
	Weight	1.2g	1.2g	3.5g	3.8g	—
Nitrile (green)	Order code No.	210795	210796	210797	210798	—
	Standard	VAPN-12C	VAPN-14C	VAPN-15C	VAPN-20C	—
	Weight	1.0g	1.0g	3.1g	3.3g	—
Applicable Stem		Mini, VFIL-SS, or VFILB-SSH ➡ 3-21,22,27		Small, VFIL-S, or VFILB-SH ➡ 3-23,24,27		

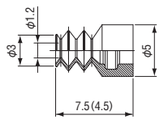
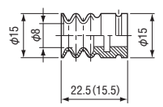
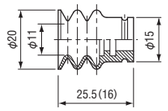
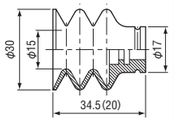
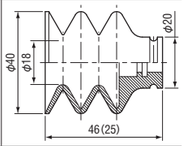
Applicable cup size		ϕ30mm	ϕ35mm	ϕ40mm	ϕ45mm
Suction cups (standard)					
Drawing					
Reinforced silicone (brown)	Order code No.	210195	210618	210196	210621
	Standard	VAPH-30C	VAPH-35C	VAPH-40C	VAPH-45C
	Weight	3.6g	4.0g	5.7g	6.9g
Urethane (milk white)	Order code No.	210400	—	210401	—
	Standard	VAPU-30C	—	VAPU-40C	—
	Weight	3.6g	—	6.0g	—
Fluorine (black)	Order code No.	210407	—	210408	—
	Standard	VAPF-30C	—	VAPF-40C	—
	Weight	5.5g	—	8.8g	—
Nitrile (green)	Order code No.	210799	—	210800	—
	Standard	VAPN-30C	—	VAPN-40C	—
	Weight	4.6g	—	7.6g	—
Applicable Stem		Small, VFIL-S, or VFILB-SH ➡ 3-23,24,27			

Applicable cup size		ϕ50mm	ϕ60mm	ϕ60mm	ϕ70mm
Suction cups (Screw mount type)					
Drawing					
				＊The value in ( ) indicates the dimension with suction.	
Reinforced silicone (brown)	Order code No.	210619	210311	210044	210620
	Standard	VAPH-50F	VAPH-60F	VAPH-60F-2	VAPH-70F
	Weight	11.0g	17.0g	73.0g	17.0g
Fluorine (black)	Order code No.	—	210417	—	—
	Standard	—	VAPF-60F	—	—
	Weight	—	28.0g	—	—
Nitrile (green)	Order code No.	—	210801	—	—
	Standard	—	VAPN-60F	—	—
	Weight	—	23.8g	—	—
Applicable Stem		Large, VFI-L, or VFIL-H ➡ 3-25,28			

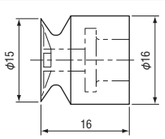
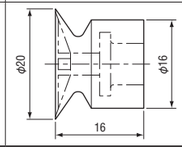
Suction Cups (Bellows／Flat Face／Free)／Suction Stem Covers (Mini／Small)

The most suitable one can be selected from wide range of products.

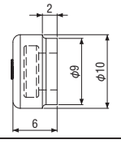
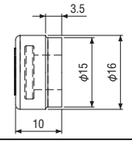
▶ Used for parts with angle.

Applicable cup size		ϕ3mm	ϕ15mm	ϕ20mm	ϕ30mm	ϕ40mm
Suction cups (bellows)						
Drawing ＊The value in ( ) indicates the dimension with suction.						
Reinforced silicone (brown)	Order code No.	210897	210697	210661	210662	210663
	Standard	VAPH-3C-3	VAPH-15C-3	VAPH-20C-3	VAPH-30C-3	VAPH-40C-3
	Weight	1.0g	2.7g	2.9g	7.0g	18.4g
Applicable Stem		Micro or VFILB-M,MSH ➡ 3-21,27	Small, VFIL-S, or VFILB-SH ➡ 3-23,24,27			

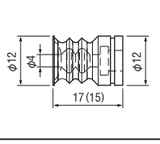
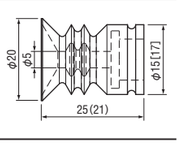
▶ Used for work pieces that are not released easily from suction cup.

Applicable cup size		ϕ15mm	ϕ20mm
Suction cups (flat face)			
Drawing			
Reinforced silicone (brown)	Order code No.	210389	210390
	Standard	VAPH-15C-1	VAPH-20C-1
	Weight	2.0g	2.4g
Applicable Stem		Small, VFIL-S, or VFILB-SH ➡ 3-23,24,27	

▶ Used to be attached to the end of suction stem.

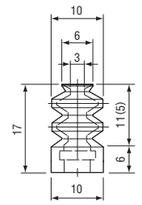
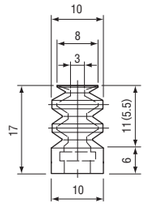
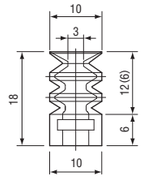
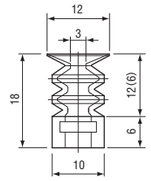
Applicable cup size		ϕ10mm	ϕ16mm
Suction stem covers			
Drawing			
Reinforced silicone (brown)	Order code No.	211024	211023
	Standard	VAPH-SSC	VAPH-SC
	Weight	0.35g	1.70g
Applicable Stem		Mini, VFIL-SS, or VFILB-SSH ➡ 3-21,22,27	Small, VFIL-S, or VFILB-SH ➡ 3-23,24,27

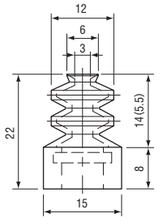
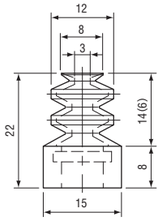
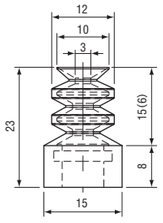
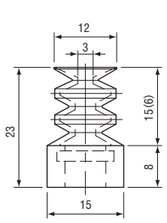
▶ Use for small sized parts with angle.

Applicable cup size		ϕ12mm	ϕ20mm
Suction cups (free)			
Drawing ＊The value in ( ) indicates the dimension with suction. ＊The value in [ ] indicates the dimension for reinforced silicone.			
Reinforced silicone (brown)	Order code No.	210280	210310
	Standard	VAPH-12C-2	VAPH-20C-2
	Weight	1.1g	2.8g
Urethane (milk white)	Order code No.	210409	210410
	Standard	VAPU-12C-2	VAPU-20C-2
	Weight	1.2g	3.0g
Fluorine (black)	Order code No.	210411	210412
	Standard	VAPF-12C-2	VAPF-20C-2
	Weight	1.9g	4.3g
Nitrile (green)	Order code No.	210802	210803
	Standard	VAPN-12C-2	VAPN-20C-2
	Weight	1.5g	3.9g
Applicable Stem		Mini, VFIL-SS, or VFILB-SSH ➡ 3-21,22,27	Small, VFIL-S, or VFILB-SH ➡ 3-23,24,27

Suction Cups (TR／TRN)

The most suitable one can be selected from wide range of products.

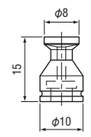
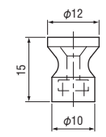
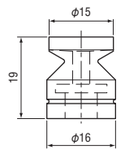
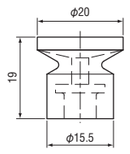
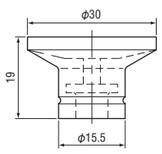
Applicable cup size		ϕ6mm	ϕ8mm	ϕ10mm	ϕ12mm
Suction cups (TR/TRN)					
Drawing ＊The value in ( ) indicates the dimension with suction.					
Reinforced silicone (brown)	Order code No.	196327	196342	196406	196405
	Standard	TR-1062-1M	TR-1062-2M	TR-1062-3M	TR-1062-4M
	Weight	1.0g	1.0g	1.0g	1.1g
Nitrile (green)	Order code No.	196403	196401	196399	196397
	Standard	TRN-1062-1M	TRN-1062-2M	TRN-1062-3M	TRN-1062-4M
	Weight	1.4g	1.4g	1.4g	1.5g
Applicable Stem		Mini, VFIL-SS, or VFILB-SSH ➡ 3-21,22,27			

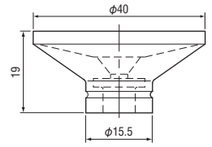
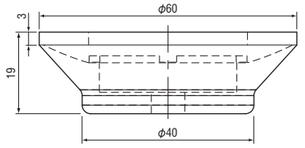
Applicable cup size		ϕ6mm	ϕ8mm	ϕ10mm	ϕ12mm
Suction cups (TR/TRN)					
Drawing ＊The value in ( ) indicates the dimension with suction.					
Reinforced silicone (brown)	Order code No.	193511	193512	196135	196136
	Standard	TR-1062-1	TR-1062-2	TR-1062-3	TR-1062-4
	Weight	1.0g	1.0g	1.0g	1.1g
Nitrile (green)	Order code No.	196404	196402	196400	196398
	Standard	TRN-1062-1	TRN-1062-2	TRN-1062-3	TRN-1062-4
	Weight	1.4g	1.4g	1.4g	1.5g
Applicable Stem		Small, VFIL-S, or VFILB-SH ➡ 3-23,24,27			

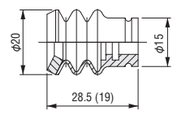
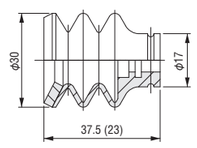
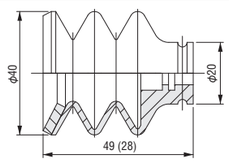
Suction Cups w/ Sponge

Used for work pieces with uneven suction surfaces. (For work piece with small unevenness)

- Please inquire for more information on cups with sponges of other sizes.
- Sponge material: closed-cell foam silicone
- Heat resistance (continuously used for a long time): 150℃

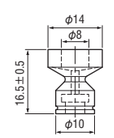
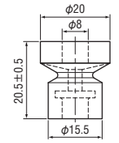
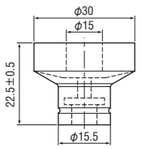
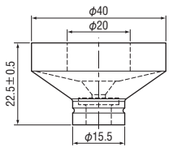
Applicable cup size		ϕ8mm	ϕ12mm	ϕ15mm	ϕ20mm	ϕ30mm
Suction cups w/ sponge						
Drawing						
Reinforced silicone (brown)	Order code No.	210664	210665	210534	210535	210536
	Standard	VAPH-8C-SP	VAPH-12C-SP	VAPH-15C-SP	VAPH-20C-SP	VAPH-30C-SP
	Weight	0.7g	0.9g	2.6g	2.9g	4.8g
	Heat resistance	200℃		200℃		
Applicable Stem		Mini, VFIL-SS, or VFILB-SSH ➡ 3-21,22,27		Small, VFIL-S, or VFILB-SH ➡ 3-23,24,27		

Applicable cup size		ϕ40mm	ϕ60mm
Suction cups w/ sponge			＊Screw mount type
Drawing			
Reinforced silicone (brown)	Order code No.	210537	210538
	Standard	VAPH-40C-SP	VAPH-60F-SP
	Weight	8.3g	22.0g
	Heat resistance	200℃	200℃
Applicable Stem		Small, VFIL-S, or VFILB-SH ➡ 3-23,24,27	Large, VFI-L, or VFIL-H ➡ 3-25,28

Applicable cup size		ϕ20mm	ϕ30mm	ϕ40mm
Suction cups (bellows･w/ sponge)				
Drawing				
Reinforced silicone (brown)	Order code No.	210914	210915	210916
	Standard	VAPH-20C-10-3-SP	VAPH-30C-15-3-SP	VAPH-40C-20-3-SP
	Weight	3.0g	8.0g	19.0g
	Heat resistance	200℃		
Applicable Stem		Small, VFIL-S, or VFILB-SH ➡ 3-23,24,27		

Suction Cups w/ EP Sponge

Used for work pieces with uneven suction surfaces. (For work pieces with uneven suction surfaces.)

Applicable cup size		ϕ14mm	ϕ20mm	ϕ30mm	ϕ40mm
Suction cups w/ EP sponge					
Drawing					
Reinforced silicone (brown)	Order code No.	210859	210860	210861	210862
	Standard	VAPH-14C-EPSP	VAPH-20C-EPSP	VAPH-30C-EPSP	VAPH-40C-EPSP
	Weight	1.1g	2.8g	4.0g	6.4g
	Heat resistance	80℃	80℃		
Applicable Stem		Mini, VFIL-SS, or VFILB-SSH ➡ 3-21,22,27	Small, VFIL-S, or VFILB-SH ➡ 3-23,24,27		

Applicable cup size		ϕ50mm	ϕ60mm
Suction cups w/ EP sponge		＊Screw mount type	＊Screw mount type
Drawing			
Reinforced silicone (brown)	Order code No.	210863	210864
	Standard	VAPH-50F-EPSP	VAPH-60F-EPSP
	Weight	11.5g	18.2g
	Heat resistance	80℃	
Applicable Stem		Large, VFI-L, or VFIL-H ➡ 3-25,28	

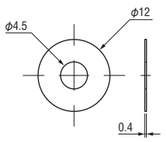
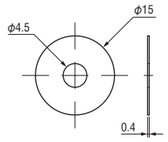
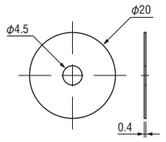
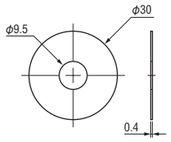
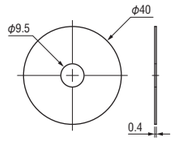
Precautions for Suction Cup

- Double-stick tape is used for adhesion to EP sponge. Use Silicone adhesive if the adhesive strength is low.
- Double-sided tape is weak when the oblique tension force is added. Use the tape for the vertical direction force.
- Your diagram may have a slightly different layout as the component is made of sponge.

Accessory for Suction Cup

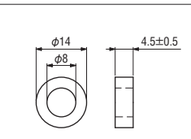
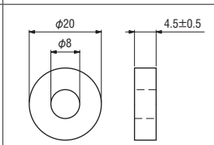
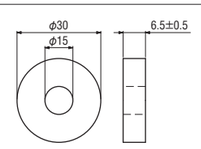
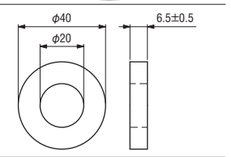
Use as your situation.

Static elimination sheet for suction cups surface.

Applicable cup size	ϕ12mm	ϕ15mm	ϕ20mm	ϕ30mm	ϕ40mm
SD sheets					
Drawing					
Order code No.	271682	271683	282552	297701	300485
Standard	12C-SD	15C-SD	20C-SD	30C-SD	40C-SD
Weight	1.0g	1.0g	1.0g	1.0g	1.0g
Heat resistance	80℃				

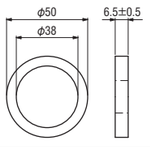
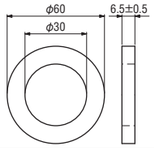
∗ Generation of leakage reduces vacuum force by 40% after SD sheet is attached.　∗ With double-stick-tape processing.

EP sponge sheet to be attached at the tip of the suction cup.

Applicable cup size	ϕ14mm	ϕ20mm	ϕ30mm	ϕ40mm
EP sponges (black)				
Drawing				
Order code No.	271559	282010	294889	300386
Standard	14C-EPSP	20C-EPSP	30C-EPSP	40C-EPSP
Weight	0.1g	0.2g	0.4g	0.7g
Heat resistance	80℃			

∗ Your diagram may have a slightly different layout as the component is made of sponge.Adhesive strength is remarkably reduced after left for a long period of time.

EP sponge sheet to be attached at the tip of the suction cup.

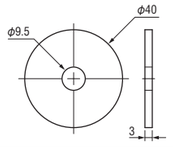
Applicable cup size	ϕ50mm	ϕ60mm
EP sponges (black)		
Drawing		
Order code No.	310589	322949
Standard	50C-EPSP	60C-EPSP
Weight	0.5g	1.2g
Heat resistance	80℃	

∗ Your diagram may have a slightly different layout as the component is made of sponge.Adhesive strength is remarkably reduced after left for a long period of time.

Precautions for sticking
(SD sheet, EP sponge)

- Use the purchases within one month after you buy them.Adhesive strength is remarkably reduced after left for a long period of time.
- Wipe the surface clean with ethanol before you stick it on the cup. Do not touch the surface with your hands.
- Push the adhesive surface with sufficient adhesion to the surface for about 24 hours.
- Use silicone adhesive if the adhesive strength is low.
- Double-sided tape is weak when the oblique tension force is added. Use the tape for the vertical direction force.

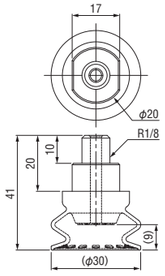
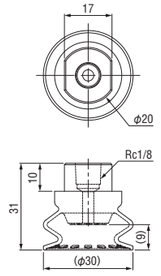
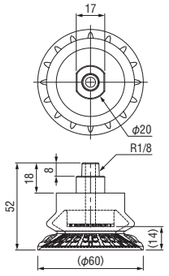
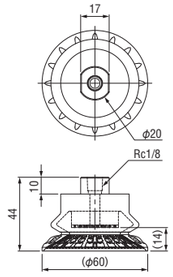
Sponge sheet to be attached at the tip of the suction pad (bellows).

Applicable cup size	ϕ40mm
Sponge sheet	
Drawing	
Order code No.	072746
Standard	40C-SP
Weight	1.0g
Heat resistance	200℃

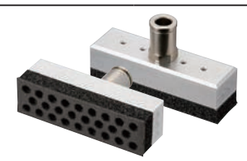
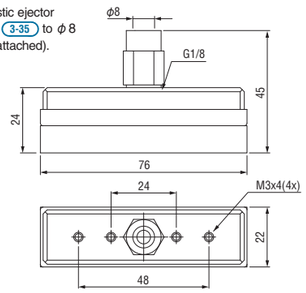
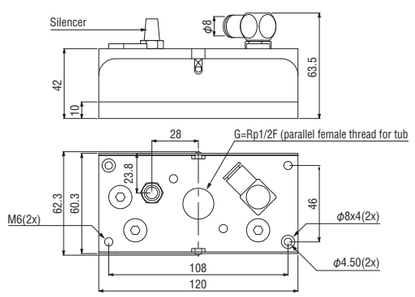
Special Cup

Use as your situation.

Use it for sheet metal conveyance.

Applicable cup size	ϕ30mm		ϕ60mm	
Sheet metal suction cups				
Drawing				
Nitrile (black) Order code No.	210918	210919	210920	210921
Standard	VAPNP-30C-1-M	VAPNP-30C-1-F	VAPNP-60C-1-M	VAPNP-60C-1-F
Weight	15.0g	12.0g	47.0g	45.0g
characteristics of rubber	Heat-resistance: : 85℃ ／ Shore hardness : 60		Heat-resistance: : 85℃ ／ Shore hardness : 60	
Applicable stem	Large, VFI-L, or VFIL-H ➡ (3-25,28)	—	Large, VFI-L, or VFIL-H ➡ (3-25,28)	—

One gripper can transport workpieces with different shapes (wood, resin, corrugated cardboard).

Vacuum grippers		
Drawing	∗ Connect plastic ejector SSBP series (3-35) to ϕ 8 (ejector not attached). 	
Product name	Vacuum gripper 6×22・10mm	Sponge seal 76×22 w/o valve (for exchange)	Vacuum gripper 120×60・10mm	Sponge seal 120×60 w/o valve (for exchange)
Order code No.	183977	183978	183979	183980
Standard	SFM-76/22-SW-10-B	SFMSEAL76/22SW10BW/OV	SFX-120/60-SW-1.5-10-B	SFXFMSEAL120/60SW10BW/OV
Weight	50.0g	1.5g	500.0g	6.5g

■Specification

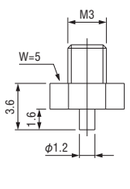
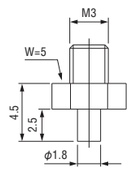
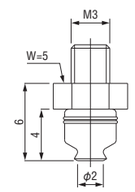
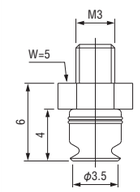
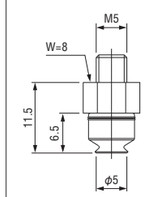
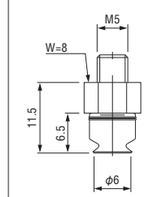
Product name	Standard	Number of cells	Inside diameter	Air consumption	Maximum holding power (at the time of -60kPa)	Heatproof	Ejector
Vacuum gripper	SFM-76/22-SW-10-B	26	5	—	40 (when all cells are covered)	80	Not provided
	SFX-120/60-SW-1.5-10-B	10	15	117 (suction 69)	98 (when all cells are covered)		Provided

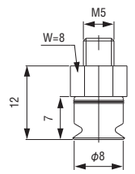
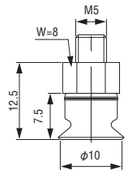
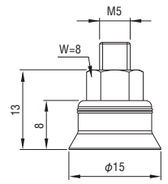
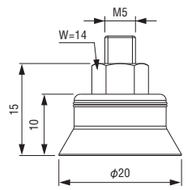
∗ If a workpiece does not hit the suction surface, the special valve will close to prevent vacuum leak, showing maximum holding power. A minimum of 30 to 50% of vacuum cells must be covered with workpieces.
∗ Product confirmation requires separate circuit.ww

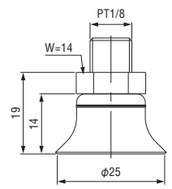
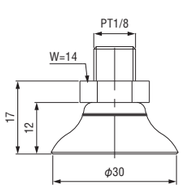
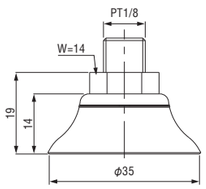
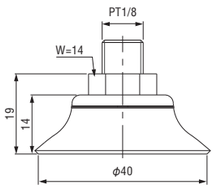
Flat Suction Cups

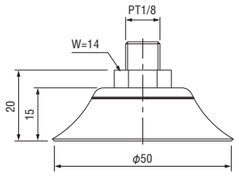
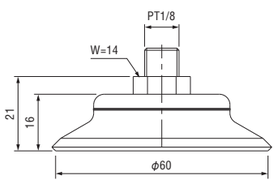
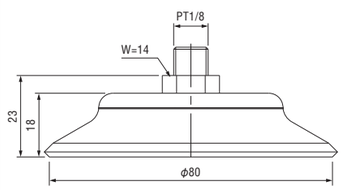
Flat basic type. Silicone type and a mark-free type are provided.

● Suction attach head of suction stem non-rotate (VFILB,VFILB2) can be removed.

Applicable cup size		ϕ1.2mm	ϕ1.8mm	ϕ2mm	ϕ3.5mm	ϕ5mm	ϕ6mm
Flat suction cups							
Drawing							
Silicone (cloudy transparent)	Order code No.	183823	183824	183825	183826	183827	183828
	Standard	SQN 1 SI-M3 M	SQN 1.5 SI-M3 M	SQN 2 SI-M3 M	SQN 3.5 SI-M3 M	SQN 5 SI-M5 M	SQN 6 SI-M5 M
	Weight	1.0g	1.0g	1.0g	1.0g	1.1g	1.1g
Mark-free (blue)	Order code No.	—	—	—	—	183797	183798
	Standard	—	—	—	—	SQN 5 HT1-M5 M	SQN 6 HT1-M5 M
	Weight	—	—	—	—	1.1g	1.1g
Applicable stem		Micro or VFILB-M,MSH ➡ 3-21,27				Non-rotate for mini/small or VFILB/VFILBR ➡ 3-27,28	

Applicable cup size		ϕ8mm	ϕ10mm	ϕ15mm	ϕ20mm
Flat suction cups					
Drawing					
Silicone (cloudy transparent)	Order code No.	183829	183830	183831	183832
	Standard	SQN 8 SI-M5 M	SQN 10 SI-M5 M	SQN 15 SI-M5 M	SQN 20 SI-M5 M
	Weight	1.2g	1.3g	4.5g	5.6g
Mark-free (blue)	Order code No.	183799	183800	183801	183802
	Standard	SQN 8 HT1-M5 M	SQN 10 HT1-M5 M	SQN 15 HT1-M5 M	SQN 20 HT1-M5 M
	Weight	1.2g	1.3g	4.5g	5.6g
Applicable stem		Non-rotate for mini/small or VFILB/VFILBR ➡ 3-27,28			

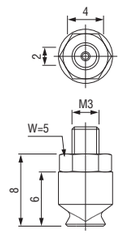
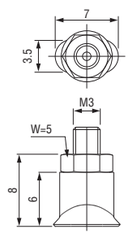
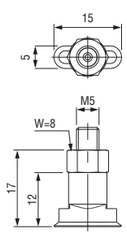
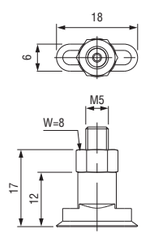
Applicable cup size		ϕ25mm	ϕ30mm	ϕ35mm	ϕ40mm
Flat suction cups					
Drawing					
Silicone (cloudy transparent)	Order code No.	183833	183834	183835	183836
	Standard	SQN 25 SI-PT1/8 M	SQN 30 SI-PT1/8 M	SQN 35 SI-PT1/8 M	SQN 40 SI-PT1/8 M
	Weight	7.2g	7.9g	10.6g	12.2g
Mark-free (blue)	Order code No.	183803	183804	183805	183806
	Standard	SQN 25 HT1-PT1/8 M	SQN 30 HT1-PT1/8 M	SQN 35 HT1-PT1/8 M	SQN 40 HT1-PT1/8 M
	Weight	7.2g	7.9g	10.6g	12.2g
Applicable stem		Non-rotate for small or VFILB-1/8, large VFI-L, VFIL-H ➡ 3-25,28			

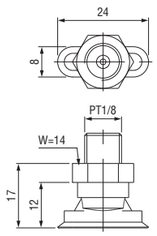
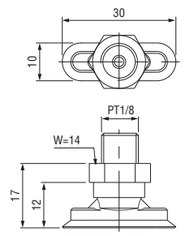
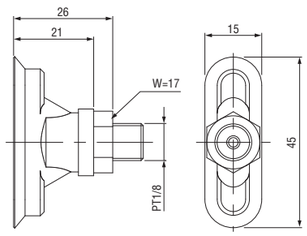
Applicable cup size		ϕ50mm	ϕ60mm	ϕ80mm
Flat suction cups				
Drawing				
Silicone (cloudy transparent)	Order code No.	183837	183838	183839
	Standard	SQN 50 SI-PT1/8 M	SQN 60 SI-PT1/8 M	SQN 80 SI-PT1/8 M
	Weight	15.3g	34.2g	62.5g
Mark-free (blue)	Order code No.	183807	183808	183809
	Standard	SQN 50 HT1-PT1/8 M	SQN 60 HT1-PT1/8 M	SQN 80 HT1-PT1/8 M
	Weight	15.3g	34.2g	62.5g
Applicable stem		Non-rotate for small or VFILB-1/8, large VFI-L, VFIL-H ➡ 3-25,28		

Oval Cups

Oval type. There are silicone and mark-less types.

● Suction attach head of suction stem non-rotate (VFILB,VFILB2) can be removed.

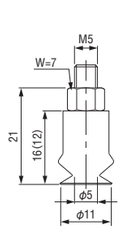
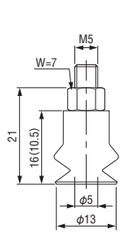
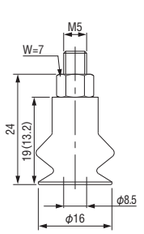
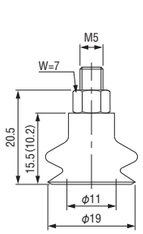
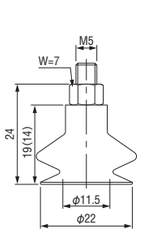
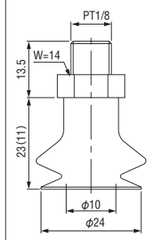
Applicable cup size		2×4mm	3.5×7mm	5×15mm	6×18mm
Oval cups					
Drawing					
Silicone (cloudy transparent)	Order code No.	183948	183949	183950	—
	Standard	SSGON 2＊4 SI-M3 M	SSGON 3.5＊7 SI-M3 M	SSGON 5＊15 SI-M5 M	—
	Weight	2.0g	2.0g	3.4g	—
Mark-free (blue)	Order code No.	183932	183933	183934	183935
	Standard	SSGON 2＊4 HT1-M3 M	SSGON 3.5＊7 HT1-M3 M	SSGON 5＊15 HT1-M5 M	SSGON 6＊18 HT1-M5 M
	Weight	2.0g	2.0g	3.4g	3.7g
Applicable stem		Micro or VFILB-MSH ➡ 3-21,27		Non-rotate for mini/small or VFILB/VFILBR ➡ 3-27,28	

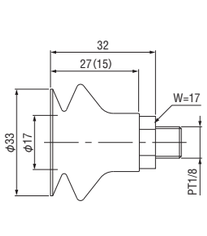
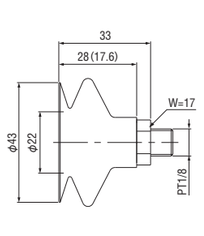
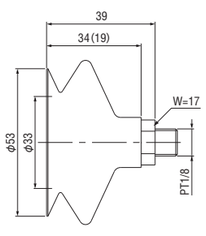
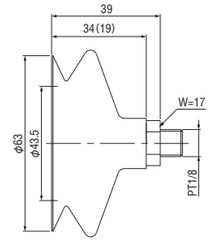
Applicable cup size		8×24mm	10×30mm	15×45mm
Oval cups				
Drawing				
Silicone (cloudy transparent)	Order code No.	—	183951	183952
	Standard	—	SSGON 10＊30 SI-PT1/8 M	SSGON 15＊45 SI-PT1/8 M
	Weight	—	6.8g	14.8g
Mark-free (blue)	Order code No.	183936	183937	183938
	Standard	SSGON 8＊24 HT1-PT1/8 M	SSGON 10＊30 HT1-PT1/8 M	SSGON 15＊45 HT1-PT1/8 M
	Weight	6.7g	6.8g	14.8g
Applicable stem		Non-rotate for small or VFILB-1/8, large, VFI-L, VFIL-H ➡ 3-25,28		

Bellows Type Suction Cups 1.5-Stage

The bellows section contracts with vacuum. There are silicone and mark-less types.

● Suction attach head of suction stem non-rotate (VFILB,VFILB2) can be removed.

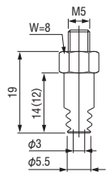
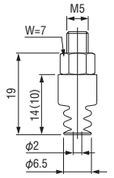
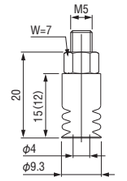
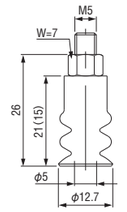
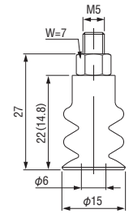
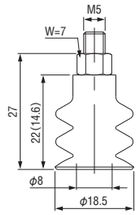
Applicable cup size		ϕ11mm	ϕ13mm	ϕ16mm	ϕ19mm	ϕ22mm	ϕ24mm
Bellows type suction cups 1.5-stage							
Drawing							
＊The value in ( ) indicates the dimension with suction.							
Silicone (cloudy transparent)	Order code No.	183874	183875	183876	183877	183878	183994
	Standard	SFSGA 11 SI-M5 M	SFSGA 14 SI-M5 M	SFSGA 16 SI-M5 M	SFSGA 20 SI-M5 M	SFSGA 22 SI-M5 M	SFSGA 25 SI-PT1/8 M
	Weight	2.0g	2.1g	2.3g	2.7g	3.1g	6.4g
Mark-free (blue)	Order code No.	183857	183858	183859	183860	183861	183993
	Standard	SFSGA 11 HT1-M5 M	SFSGA 14 HT1-M5 M	SFSGA 16 HT1-M5 M	SFSGA 20 HT1-M5 M	SFSGA 22 HT1-M5 M	SFSGA 25 HT1-PT1/8 M
	Weight	2.0g	2.1g	2.3g	2.7g	3.1g	6.4g
Applicable stem		Non-rotate for mini/small or VFILB/VFILBR ➡ 3-27,28					Non-rotate for small or VFILB-1/8, large, VFH-L, VFIL-H ➡ 3-25,28

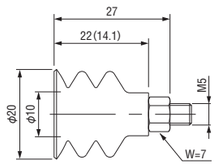
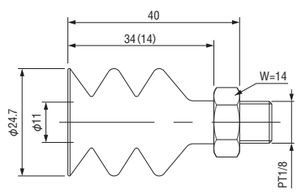
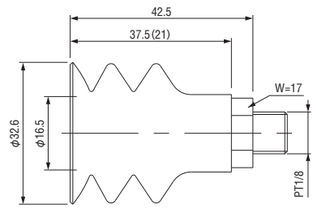
Applicable cup size		ϕ33mm	ϕ43mm	ϕ53mm	ϕ63mm
Bellows type suction cups 1.5-stage					
Drawing					
Silicone (cloudy transparent)	Order code No.	183879	183880	183881	183882
	Standard	SFSGA 33 SI-PT1/8 M	SFSGA 43 SI-PT1/8 M	SFSGA 53 SI-PT1/8 M	SFSGA 63 SI-PT1/8 M
	Weight	15.0g	18.0g	26.0g	33.0g
Mark-free (blue)	Order code No.	183862	183863	183864	—
	Standard	SFSGA 33 HT1-PT1/8 M	SFSGA 43 HT1-PT1/8 M	SFSGA 53 HT1-PT1/8 M	—
	Weight	15.0g	18.0g	26.0g	—
Applicable stem		Non-rotate for small or VFILB-1/8, large, VFI-L, VFIL-H ➡ 3-25,28			

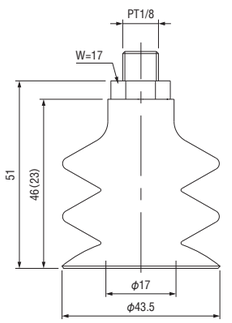
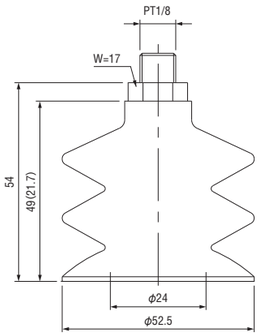
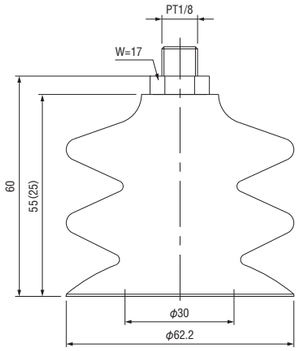
Bellows Type Suction Cups 2.5-Stage

Effective for non-flat suction surface. There are silicone and mark-less types.

● Suction attach head of suction stem non-rotate (VFILB,VFILB2) can be removed.

Applicable cup size		ϕ5.5mm	ϕ6.5mm	ϕ9.3mm	ϕ12.7mm	ϕ15mm	ϕ18.5mm
Bellows type suction cups 2.5-stage							
Drawing ∗ The value in ( ) indicates the dimension with suction.							
Silicone (cloudy transparent)	Order code No.	183909	183910	183911	183912	183913	183914
	Standard	SFSG 5 SI-M5 M	SFSG 7 SI-M5 M	SFSG 9 SI-M5 M	SFSG 12 SI-M5 M	SFSG 14 SI-M5 M	SFSG 18 SI-M5 M
	Weight	1.5g	1.6g	1.8g	2.2g	2.6g	2.9g
Mark-free (blue)	Order code No.	—	—	183893	183894	183895	183896
	Standard	—	—	SFSG 9 HT1-M5 M	SFSG 12 HT1-M5 M	SFSG 14 HT1-M5 M	SFSG 18 HT1-M5 M
	Weight	—	—	1.8g	2.2g	2.6g	2.9g
Applicable stem		Non-rotate for mini/small or VFILB/VFILBR ➡ 3-27,28					

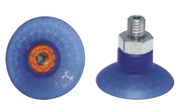
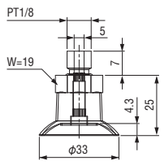
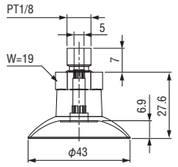
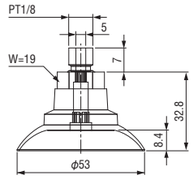
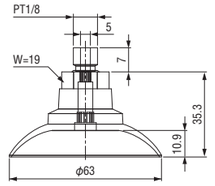
Applicable cup size		ϕ20mm	ϕ24.7mm	ϕ32.6mm
Bellows type suction cups 2.5-stage				
Drawing ∗ The value in ( ) indicates the dimension with suction.				
Silicone (cloudy transparent)	Order code No.	183915	183916	183917
	Standard	SFSG 20 SI-M5 M	SFSG 25 SI-PT1/8 M	SFSG 32 SI-PT1/8 M
	Weight	3.3g	8.0g	16.0g
Mark-free (blue)	Order code No.	183897	183898	183899
	Standard	SFSG 20 HT1-M5 M	SFSG 25 HT1-PT1/8 M	SFSG 32 HT1-PT1/8 M
	Weight	3.3g	8.0g	16.0g
Applicable stem		Non-rotate for mini/small or VFILB/VFILBR ➡ 3-27,28	Non-rotate for small or VFILB-1/8, large VFI-L, VFIL-H ➡ 3-25,28	

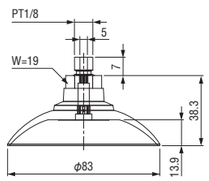
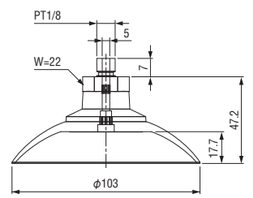
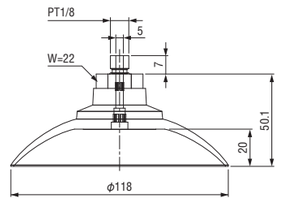
Applicable cup size		ϕ43.5mm	ϕ52.5mm	ϕ62.2mm
Bellows type suction cups 2.5-stage				
Drawing ∗ The value in ( ) indicates the dimension with suction.				
Silicone (cloudy transparent)	Order code No.	183918	183919	183920
	Standard	SFSG 42 SI-PT1/8 M	SFSG 52 SI-PT1/8 M	SFSG 62 SI-PT1/8 M
	Weight	26.0g	31.0g	59.0g
Mark-free (blue)	Order code No.	183900	—	—
	Standard	SFSG 42 HT1-PT1/8 M	—	—
	Weight	26.0g	—	—
Applicable stem		Large, VFI-L, or VFIL-H ➡ 3-25,28		

Sheet Metal Suction Cups

Best for high-speed conveyance of oil-filmed sheet metal.

▶ Strong holding power in the horizontal direction and excellent balance of stability.
Excellent followup ability to a curved surface. Excellent durability with original material.

Applicable cup size	ϕ33mm	ϕ43mm	ϕ53mm	ϕ63mm
Suction cups for sheet metal w/ screw				
Drawing				
Order code No.	185338	185339	185340	185341
Standard	SSAXM-30-ED-85-PT1/8M	SSAXM-40-ED-85-PT1/8M	SSAXM-50-ED-85-PT1/8M	SSAXM-60-ED-85-PT1/8M
Holding force*1	39N	69N	109N	154N
Horizontal power (with oil) *2	41N	71N	110N	155N
Weight	14.0g	15.0g	27.0g	30.0g

Applicable cup size	ϕ83mm	ϕ103mm	ϕ118mm
Suction cups for sheet metal w/ screw			
Drawing			
Order code No.	185342	185343	185344
Standard	SSAXM-80-ED-85-PT1/8M	SSAXM-100-ED-85-PT1/8M	SSAXM-115-ED-85-PT1/8M
Holding force*1	270N	412N	549N
Horizontal power (with oil) *2	269N	414N	584N
Weight	39.0g	73.0g	91.0g

* Mounting screw diameters other than PT1/8 M can be used. Please contact us for more information.
* 1 Above holding force is calculated with dried workpiece with a smooth surface (vertical direction, vacuum pressure -60 kPa)Safety factor is not included.
* 2 Above horizontal force is calculated with dried/oil-filmed workpiece with a smooth surface (vacuum pressure -60 kPa). The calculated value may differ from the actual value according to the actual surface condition of workpiece. Safety factor is not included.

Suction Cups for Exchange

Suction cup for exchange in 3-12 - 3-17.

▶ Flat suction cup.

Page	Order code No.	Standard	Material	Cup color
3-12	183840	SQ 1 SI	Silicone	Cloudy transparent
	183841	SQ 1.5 SI	Silicone	Cloudy transparent
	183842	SQ 2 SI	Silicone	Cloudy transparent
	183843	SQ 3.5 SI	Silicone	Cloudy transparent
	183844	SQ 5 SI	Silicone	Cloudy transparent
	183845	SQ 6 SI	Silicone	Cloudy transparent
	183846	SQ 8 SI	Silicone	Cloudy transparent
	183847	SQ 10 SI	Silicone	Cloudy transparent
	183848	SQ 15 SI	Silicone	Cloudy transparent
	183849	SQ 20 SI	Silicone	Cloudy transparent
3-13	183850	SQ 25 SI	Silicone	Cloudy transparent
	183851	SQ 30 SI	Silicone	Cloudy transparent
	183852	SQ 35 SI	Silicone	Cloudy transparent
	183853	SQ 40 SI	Silicone	Cloudy transparent
	183854	SQ 50 SI	Silicone	Cloudy transparent
	183855	SQ 60 SI	Silicone	Cloudy transparent
	183856	SQ 80 SI	Silicone	Cloudy transparent
3-12	183810	SQ 5 HT1	Mark-free	Blue
	183811	SQ 6 HT1	Mark-free	Blue
	183812	SQ 8 HT1	Mark-free	Blue
	183813	SQ 10 HT1	Mark-free	Blue
	183814	SQ 15 HT1	Mark-free	Blue
	183815	SQ 20 HT1	Mark-free	Blue
3-13	183816	SQ 25 HT1	Mark-free	Blue
	183817	SQ 30 HT1	Mark-free	Blue
	183818	SQ 35 HT1	Mark-free	Blue
	183819	SQ 40 HT1	Mark-free	Blue
	183820	SQ 50 HT1	Mark-free	Blue
	183821	SQ 60 HT1	Mark-free	Blue
	183822	SQ 80 HT1	Mark-free	Blue

▶ Suction pad for flat oval.

Page	Order code No.	Standard	Material	Cup color
3-14	183956	SSGO 2*4 SI	Silicone	Cloudy transparent
	183957	SSGO 3.5*7 SI	Silicone	Cloudy transparent
	183958	SSGO 5*15 SI	Silicone	Cloudy transparent
	183959	SSGO 10*30 SI	Silicone	Cloudy transparent
	183960	SSGO 15*45 SI	Silicone	Cloudy transparent
3-14	183940	SSGO 2*4 HT1	Mark-free	Blue
	183941	SSGO 3.5*7 HT1	Mark-free	Blue
	183942	SSGO 5*15 HT1	Mark-free	Blue
	183943	SSGO 6*18 HT1	Mark-free	Blue
	183944	SSGO 8*24 HT1	Mark-free	Blue
	183945	SSGO 10*30 HT1	Mark-free	Blue
	183946	SSGO 15*45 HT1	Mark-free	Blue

▶ Bellows type suction cup 1.5-stage.

Page	Order code No.	Standard	Material	Cup color
3-15	183883	SFGA 11 SI	Silicone	Cloudy transparent
	183884	SFGA 14 SI	Silicone	Cloudy transparent
	183885	SFGA 16 SI	Silicone	Cloudy transparent
	183886	SFGA 20 SI	Silicone	Cloudy transparent
	183887	SFGA 22 SI	Silicone	Cloudy transparent
	183888	SFGA 25 SI	Silicone	Cloudy transparent
	183889	SFGA 33 SI	Silicone	Cloudy transparent
	183890	SFGA 43 SI	Silicone	Cloudy transparent
	183891	SFGA 53 SI	Silicone	Cloudy transparent
	183892	SFGA 63 SI	Silicone	Cloudy transparent
3-15	183865	SFGA 11 HT 1	Mark-free	Blue
	183866	SFGA 14 HT1	Mark-free	Blue
	183867	SFGA 16 HT1	Mark-free	Blue
	183868	SFGA 20 HT1	Mark-free	Blue
	183869	SFGA 22 HT1	Mark-free	Blue
	183870	SFGA 25 HT1	Mark-free	Blue
	183871	SFGA 33 HT1	Mark-free	Blue
	183872	SFGA 43 HT1	Mark-free	Blue
	183873	SFGA 53 HT1	Mark-free	Blue

▶ Bellows type suction cup 2.5-stage.

Page	Order code No.	Standard	Material	Cup color
3-16	183921	SFG 5 SI	Silicone	Cloudy transparent
	183922	SFG 7 SI	Silicone	Cloudy transparent
	183923	SFG 9 SI	Silicone	Cloudy transparent
	183924	SFG 12 SI	Silicone	Cloudy transparent
	183925	SFG 14 SI	Silicone	Cloudy transparent
	184085	SFG 18 SI	Silicone	Cloudy transparent
	183926	SFG 20 SI	Silicone	Cloudy transparent
	183927	SFG 25 SI	Silicone	Cloudy transparent
	183928	SFG 32 SI	Silicone	Cloudy transparent
3-17	183929	SFG 42 SI	Silicone	Cloudy transparent
	183930	SFG 52 SI	Silicone	Cloudy transparent
	183931	SFG 62 SI	Silicone	Cloudy transparent
3-16	183901	SFG 9 HT1	Mark-free	Blue
	183902	SFG 12 HT1	Mark-free	Blue
	183903	SFG 14 HT1	Mark-free	Blue
	183904	SFG 18 HT1	Mark-free	Blue
	183905	SFG 20 HT1	Mark-free	Blue
	183906	SFG 25 HT1	Mark-free	Blue
	183907	SFG 32 HT1	Mark-free	Blue
3-17	183908	SFG 42 HT1	Mark-free	Blue

Suction Stem

Can be selected according to the type of suction cup and allows secure suction.

Micro 3-21

Mini 3-21

Small 3-23

Large 3-25

Suction Stems Non-Rotate

Exchangeable head for suction stem.

Micro 3-27

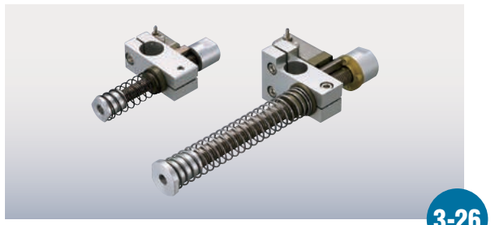
Mini 3-27

Small 3-27

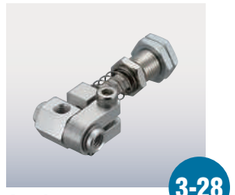
For 1/8 connection 3-28

Suction Stems Locking Mechanism

Non-rotating suction stems. These feature a long stroke, holding unit in position at the stopper cylinder.



3-26



Angle adjustment 3-28

Large 3-28

Fixed

Attach pad to the end before use.

3-29

Adjuster

Height of suction stem can be adjusted.

3-30

Suction Stems for Mini Cylinder

Used when suction cup is attached to the end of mini cylinder.

3-29

Suction Stem Angle Brackets

The angle can be adjusted according to the shape of workpiece.

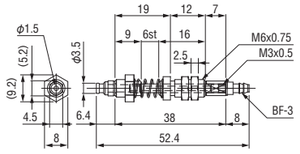
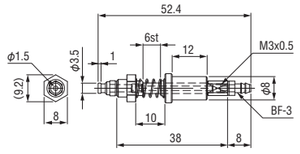
3-31

Suction Stems (Micro/Mini)

Direct connection on jungle gym series parts is possible.

Can be selected according to the type of suction cup and allows secure suction.

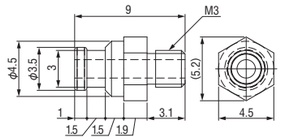
- The suction cup is sold separately.
- Cup fixing system: embedded
- Piping joint for suction stem (mini) was changed from BF-5 to BF-6.
- Holder section for suction stem (mini) pipe specification was changed from 13mm to 18mm.

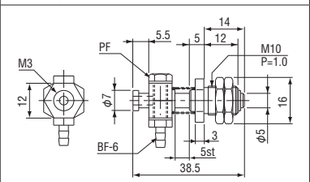
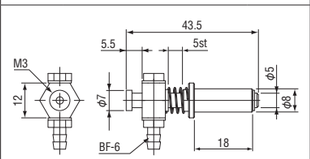
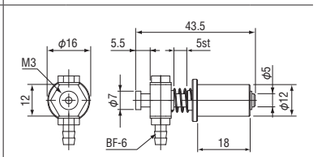
Applicable cup size	ϕ1.2-6	
Suction stems (micro)		
Drawing		
Order code No.	210785	210818
Standard	VFILB-M	VFILB-M-P8
Weight	5g	6g
Piping/Mounting	ϕ4 / M6×07.5	ϕ4 / ϕ8

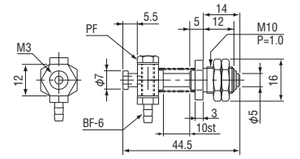
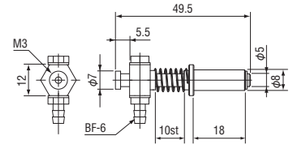
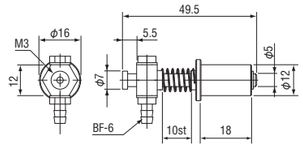
Suction fitting attach head/ M3, micro

Order code No.	131316
Standard	N01891-201

- Weight : 1g
- W/ gasket
- Target: suction stem (micro), suction stem non-rotate (micro)



Applicable cup size	ϕ4-14		
Suction stems (mini)			
Drawing (5st)			
Order code No.	211029	211030	211031
Standard	VFIL1-SS-5	VFIL2-SS-5-P8	VFIL2-SS-5-P12
Weight	14g	9g	13g
Piping/Mounting	ϕ6 / M10 P=1.0	ϕ6 / ϕ8	ϕ6 / ϕ12

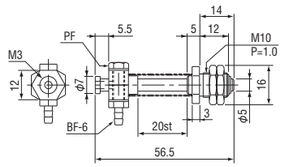
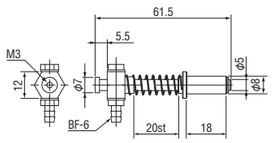
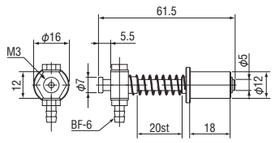
Applicable cup size	ϕ4-14		
Suction stems (mini)			
Drawing (10st)			
Order code No.	211032	211033	211034
Standard	VFIL1-SS-10	VFIL2-SS-10-P8	VFIL2-SS-10-P12
Weight	15g	9g	14g
Piping/Mounting	ϕ6 / M10 P=1.0	ϕ6 / ϕ8	ϕ6 / ϕ12

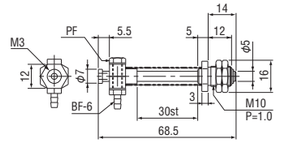
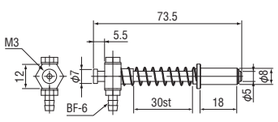
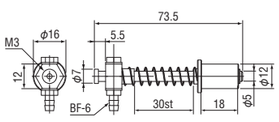
Suction Stems (Mini)

Direct connection on jungle gym series parts is possible.

Can be selected according to the type of suction cup and allows secure suction.

- The suction cup is sold separately. ● Cup fixing system: embedded ● Piping joint for suction stem (mini) was changed from BF-5 to BF-6.
- Holder section for suction stem (mini) pipe specification was changed from 13mm to 18mm.

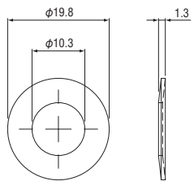
Applicable cup size	ϕ4-14		
Suction stems (mini)			
Drawing (20st)			
Order code No.	211035	211036	211037
Standard	VFIL1-SS-20	VFIL2-SS-20-P8	VFIL2-SS-20-P12
Weight	15g	10g	14g
Piping/Mounting	ϕ6 ／ M10 P=1.0	ϕ6 ／ϕ8	ϕ6 ／ϕ12

Applicable cup size	ϕ4-14		
Suction stems (mini)			
Drawing (30st)			
Order code No.	211038	211039	211040
Standard	VFIL1-SS-30	VFIL2-SS-30-P8	VFIL2-SS-30-P12
Weight	16g	11g	15g
Piping/Mounting	ϕ6 ／ M10 P=1.0	ϕ6 ／ϕ8	ϕ6 ／ϕ12

Taper washer (mini)

Order code No.	371362
Standard	ϕ10 taper washer for VFIL-SS

- Use when fixing a suction stem to the plate.
- Target: suction stem (mini), suction stem non-rotate (mini, small)

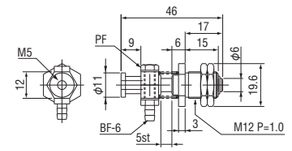
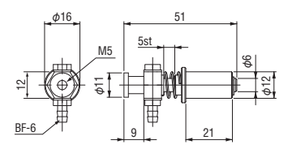
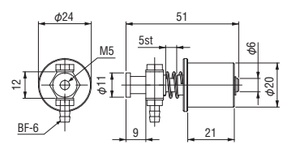


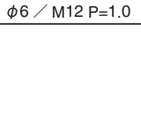
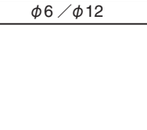
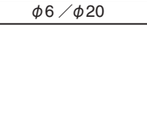
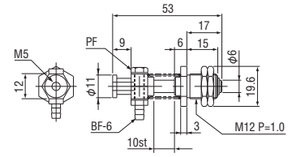
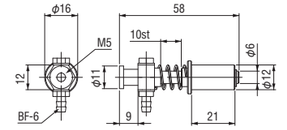
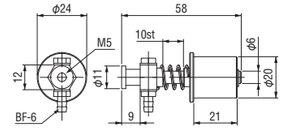
Suction Stem (Small)

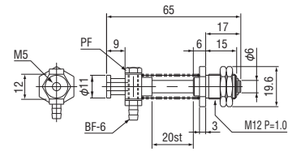
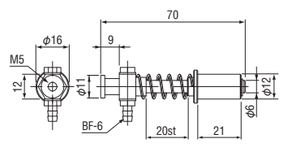
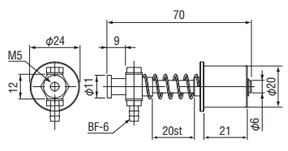
Direct connection on jungle gym series parts is possible.

Can be selected according to the type of suction cup and allows secure suction.

- The suction cup is sold separately. ● Cup fixing system: embedded
- Holder section for suction stem (small) pipe specification was changed from 16mm to 21mm.

Applicable cup size	ϕ15-45		
Suction stems (small)			
Drawing (5st)			
Order code No.	210974	211006	211007
Standard	VFIL-S-5A	VFIL1-S-5-P12	VFIL1-S-5-P20
Weight	20g	15g	29g
Piping/Mounting	ϕ6 ／ M12 P=1.0	ϕ6 ／ϕ12	ϕ6 ／ϕ20

Applicable cup size	ϕ15-45		
Suction stems (small)			
Drawing (10st)			
Order code No.	210975	211008	211009
Standard	VFIL-S-10A	VFIL1-S-10-P12	VFIL1-S-10-P20
Weight	21g	16g	29g
Piping/Mounting	ϕ6 ／ M12 P=1.0	ϕ6 ／ϕ12	ϕ6 ／ϕ20

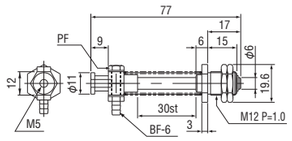
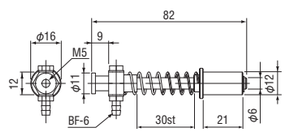
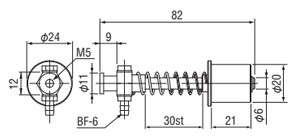
Applicable cup size	ϕ15-45		
Suction stems (small)			
Drawing (20st)			
Order code No.	210976	211010	211011
Standard	VFIL-S-20A	VFIL1-S-20-P12	VFIL1-S-20-P20
Weight	22g	18g	31g
Piping/Mounting	ϕ6 ／ M12 P=1.0	ϕ6 ／ϕ12	ϕ6 ／ϕ20

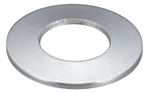
Suction Stem (Small)

Direct connection on jungle gym series parts is possible.

Can be selected according to the type of suction cup and allows secure suction.

- The suction cup is sold separately.
- Cup fixing system: embedded
- Holder section for suction stem (small) pipe specification was changed from 16mm to 21mm.

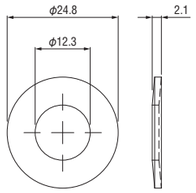
Applicable cup size	ϕ15-45		
Suction stems (small)			
Drawing (30st)			
Order code No.	210977	211012	211013
Standard	VFIL-S-30A	VFIL1-S-30-P12	VFIL1-S-30-P20
Weight	24g	19g	32g
Piping/Mounting	ϕ6 ／ M12 P=1.0	ϕ6 ／ϕ12	ϕ6 ／ϕ20



Taper washer (small)

Order code No.	370244
Standard	Standard: ϕ12 taper washer for VFIL-S

- Use when fixing a suction stem to the plate.
- Target: suction stem (small)

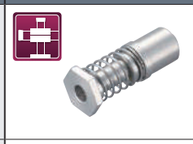
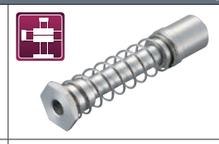
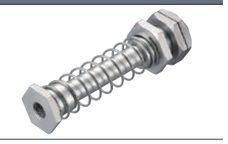
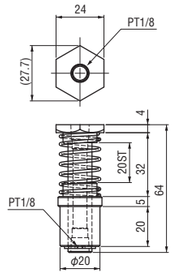
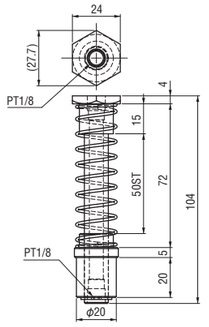
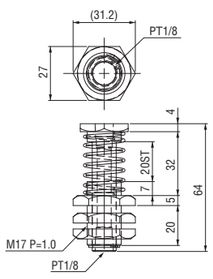
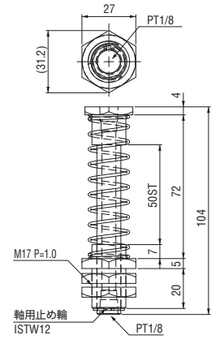


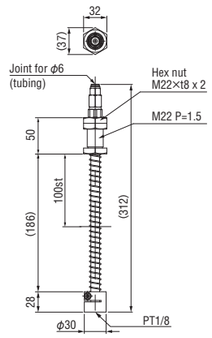
Suction Stems (Large)

Direct connection on jungle gym series parts is possible.

Can be selected according to the type of suction cup and allows secure suction.

- The suction cup is sold separately.
- Cup fixing system: embedded, screw mount
- The attach head of the suction metal fixture (large) is optionally available.

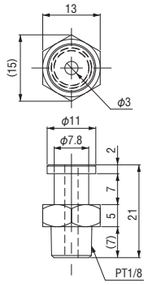
Applicable cup size	ϕ24-70			
Suction stems (large)				
Drawing				
Order code No.	210886	210887	210888	210889
Standard	VFI-L-20-P20	VFI-L-50-P20	VFI-L-20-M17	VFI-L-50-M17
Weight	45g	55g	50g	60g
Piping/Mounting	ϕ6 (RBF F ➡ 6-6 and BF6 ➡ 6-5 are necessary for piping) / ϕ20		ϕ6 (RBF ➡ 6-6 and BF6 ➡ 6-5 are necessary for piping) / M17 P=1.0	

Applicable cup size	ϕ24-70
Suction stem (large)	∗ Use within 100mm stroke.
Drawing	
Order code No.	210917
Standard	VFI-L-100-M22
Weight	220g
Piping/Mounting	ϕ6 ／ M22 P=1.5

Suction stem attachment head • embedded type • small

Order code No.	230066
Standard	XL0037-106

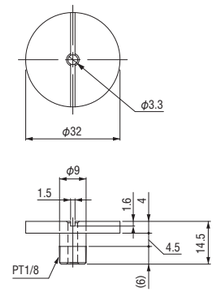
- Weight : 5g
- Target: suction stem (large), suction stem non-rotate (1/8 series), suction stem non-rotate (large)



Suction stem attachment head • screw attach type

Order code No.	230067
Standard	XL0037-103

- Weight : 10g
- Target: suction stem (large), suction stem non-rotate (1/8 series), suction stem non-rotate (large)



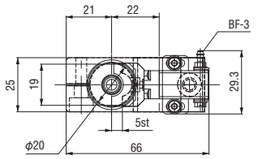
Suction Stems Locking Mechanism

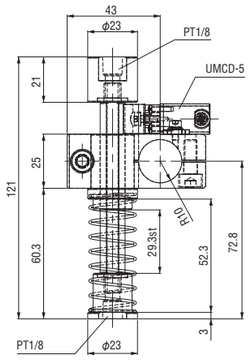
Non-rotating suction stems. These feature a long stroke, holding unit in position at the stopper cylinder.

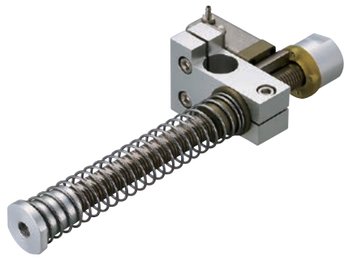
Suction stem • locking mechanism 50mm

Order code No.	110556
Standard	L10761-200

- Weight : 200g
- Piping: ϕ6 (RBF 6-6 and BF6 6-5 are necessary for piping)
- Mounting: ϕ20



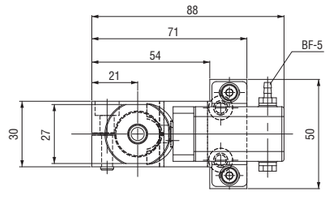


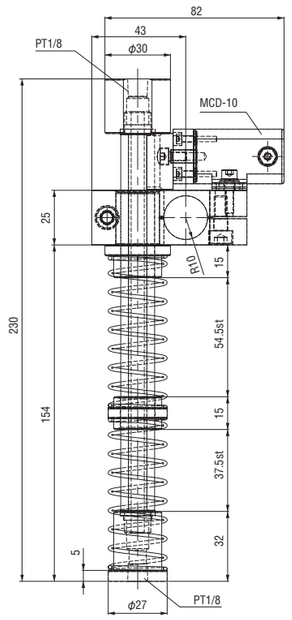


Suction stem • locking mechanism 100mm

Order code No.	110565
Standard	L10761-100

- Weight : 560g
- Piping: ϕ6 (RBF 6-6 and BF6 6-5 are necessary for piping)
- Mounting: ϕ20



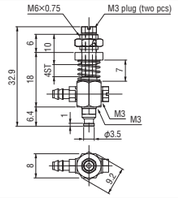
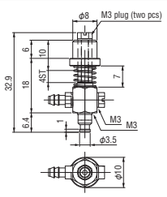


Suction Stems Non-Rotate (Micro / Mini / Small)

Direct connection on jungle gym series parts is possible.

Exchangeable head for suction stems.
Direct connection on jungle gym series parts is possible.

- Mounting hole diameter of end section piping joint of VFILB2-SSH (mini) and SH (small) was changed from M4 to M5.
- End section piping joint of VFILB2-SSH (mini) and SH (small) was changed to BF-6.

Applicable cup size	ϕ1.2-6	
Non rotates (micro)		
Drawing		
Order code No.	210823	210824
Standard	VFILB-MSH	VFILB-MSH-P8
Weight	5g	6g
Piping/Mounting	ϕ4 ／ M6 P=0.75	ϕ4 ／ϕ8

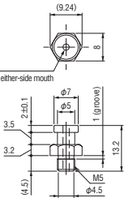
∗ See 3-21 for more details about suction stem accouchement head M3 micro.

Option of VFILB-SSH

Suction stem attachment head M5 mini

Order code No.	131208
Standard	N01892-201

- Mounting screw M5
- W/ gasket

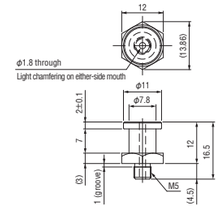


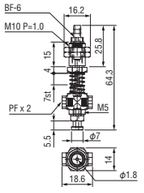
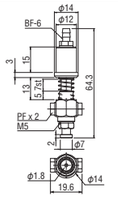
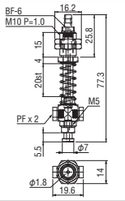
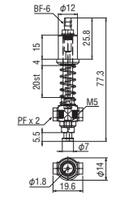
Option of VFILB-SH

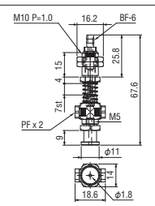
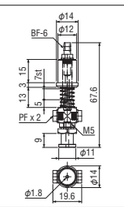
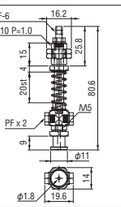
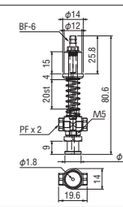
Suction stem attachment head M5 small

Order code No.	131209
Standard	N01892-301

- Mounting screw M5
- W/ gasket



Applicable cup size	ϕ4-14			
Non rotates (mini)				
Drawing				
Order code No.	211041	211042	211043	211044
Standard	VFILB2-SSH	VFILB2-SSH-P12	VFILB2-SSH-20	VFILB2-SSH-20-P12
Weight	28g	26g	31g	24g
Piping/Mounting	ϕ6 ／ M10 P=1.0	ϕ6 ／ϕ12	ϕ6 ／ M10 P=1.0	ϕ6 ／ϕ12

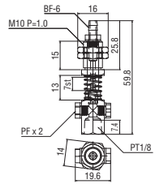
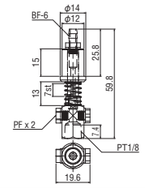
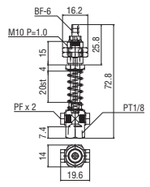
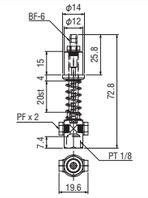
Applicable cup size	ϕ15-45			
Non rotates (small)				
Drawing				
Order code No.	211045	211046	211047	211048
Standard	VFILB2-SH	VFILB2-SH-P12	VFILB2-SH-20	VFILB2-SH-20-P12
Weight	31g	25g	35g	29g
Piping/Mounting	ϕ6 ／ M10 P=1.0	ϕ6 ／ϕ12	ϕ6 ／ M10 P=1.0	ϕ6 ／ϕ12

Non Rotate (⅛Connection / Angle / Large)

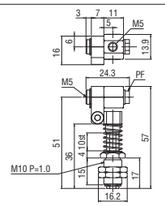
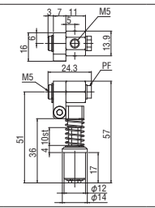
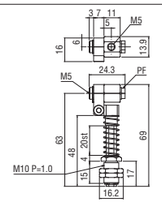
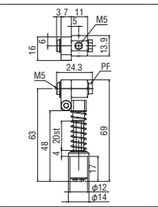
Direct connection on jungle gym series parts is possible.

Exchangeable head for suction stem.

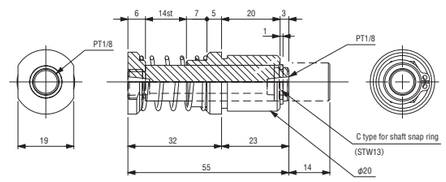
● Mounting hole diameter of end section piping joint of VFILB2-SH was changed from M4 to M5. ● End section piping joint of VFILB2-SH was changed to BF-6.

Applicable cup size	ϕ24-43			
Suction stems non-rotate mini (1/8)				
Drawing				
Order code No.	211049	211050	211051	211052
Standard	VFILB2-SH 1/8	VFILB2-SH 1/8-P12	VFILB2-SH 1/8-20	VFILB2-SH 1/8-20-P12
Weight	25g	19g	27g	22g
Piping/Mounting	ϕ6 ／ M10 P=1.0	ϕ6 ／ϕ12	ϕ6 ／ M10 P=1.0	ϕ6 ／ϕ12

＊ Mounting bracket of suction cup is not attached. Use suction attach head･embedded type･for small (3-25).

Applicable cup size	ϕ4-45			
Suction stems non-rotate (angle adjustment)				
Drawing				
Order code No.	210991	210993	210992	210994
Standard	VFILBR-H-10	VFILBR-H-10-P12	VFILBR-H-20	VFILBR-H-20-P12
Weight	33g	27g	37g	30g
Piping/Mounting	ϕ6 ／ M10 P=1.0	ϕ6 ／ϕ12	ϕ6 ／ M10 P=1.0	ϕ6 ／ϕ12

＊ Use suction stem attachment head M5 mini/small (3-27) as mounting bracket of suction cup.
＊ Joint for air supply hole is not included.

Applicable cup size	ϕ33-63
Suction Stem Non-Rotate Mini (Large)	
Drawing	
Order code No.	210788
Standard	VFIL-H
Weight	102g
Piping/Mounting	ϕ6 (RBF➡ (6-6) and BF6➡ (6-5) are necessary for piping) / ϕ20

＊ Joint for air supply hole is not included.
＊ Mounting bracket of suction cup is not attached. Use suction attach head･embedded type･for small (3-25)
● Since the tip is PT1/8 female screw, fixture 1/8G of special cup is supported. For connection, Jungle gym ϕ 20 fixture is used.

Suction Stems (Fixed / For Mini Cylinder)

Used to be mounted on the tip.

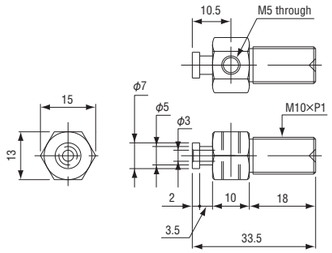
● Suction cup and joint are optionally available.

▶ Use by mounting a bellows cup.

Suction stem • fixed • mini

Order code No.	210699
Standard	VFILK-SS-M10

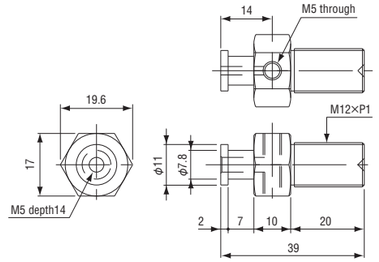
● Weight : 6g
● Applicable cup size : ϕ4-14
● Cup fixing system: embedded
● Suction stem nut (3-30) is not attached.



Suction stem • fixed • small

Order code No.	210698
Standard	VFILK-S-M12

● Weight : 9g
● Applicable cup size : ϕ15-45
● Cup fixing system: embedded
● Suction stem nut (3-30) is not attached.

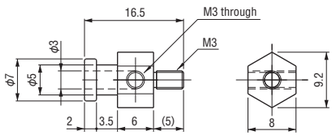


▶ Used when suction cup is attached to the end of mini cylinder.

Suction stem • mini • for micro mini cylinder

Order code No.	230058
Standard	XL0010-105

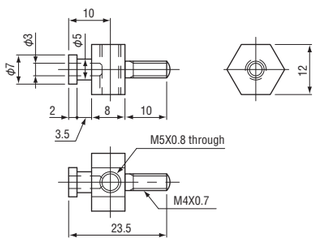
● Weight : 1g



Suction stem • mini • for mini cylinder

Order code No.	020844
Standard	CP-064

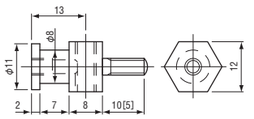
● Weight : 7g



Suction stem • small • for micro mini cylinder

Order code No.	023128
Standard	CP-063A

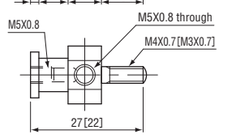
● Weight : 10g ● Mounting screw section M3



Suction stem • small • for mini cylinder

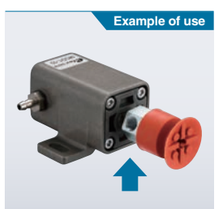
Order code No.	023195
Standard	CP-063B

● Weight : 11g ● Mounting screw section M4



＊[ ] indicates CP-063A.

Example of use



＊ Picture shows CP-063B assembled with MCD-10 and VAPH-20C-1.

Suction Stem Brackets

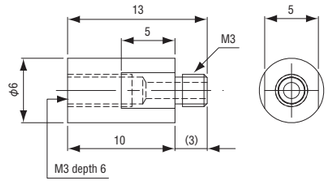
Height of suction stem can be adjusted.

▶ Extension between suction cup and stem is possible.

Suction stem bracket • micro

Order code No.	230072
Standard	XL0061-100

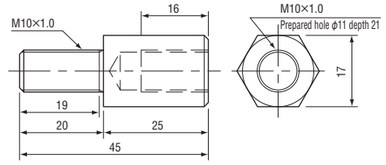
- Weight : 2g



Suction stem bracket • mini

Order code No.	022544
Standard	CP-023AL (20L)

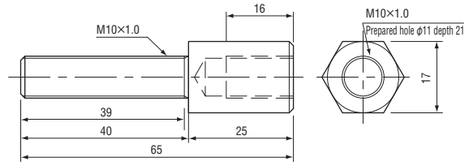
- Weight : 17g
- Suction stem : VFIL1-SS-5
- Suction stem nut is not attached.



Suction stem bracket • mini

Order code No.	022545
Standard	CP-024AL (40L)

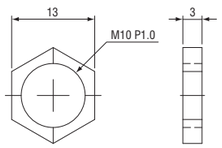
- Weight : 21g
- Suction stem : VFIL1-SS-5
- Suction stem nut is not attached.

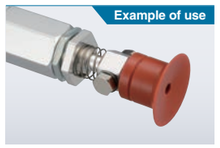


Suction stem nut • small (trivalent white)

Order code No.	120482
Standard	VFIL-M10 (10*14*3 P1.0)

- Weight : 2g
- Screw diameter : M10

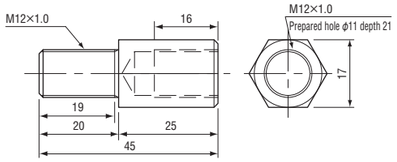




Suction stem bracket • small

Order code No.	022542
Standard	CP-021AL (20L)

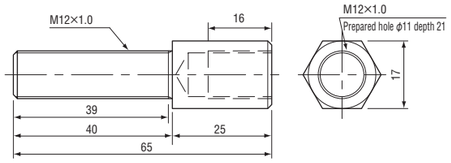
- Weight : 17g
- Suction stem : VFIL-S-5
- Suction stem nut is not attached.



Suction stem bracket • small

Order code No.	022543
Standard	CP-022AL (40L)

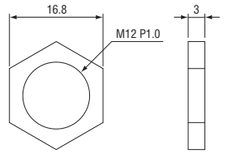
- Weight : 23g
- Suction stem : VFIL-S-5
- Suction stem nut is not attached.



Suction stem nut • small (trivalent white)

Order code No.	120483
Standard	VFIL-M12 (12*17*3 P1.0)

- Weight : 3g
- Screw diameter : M12



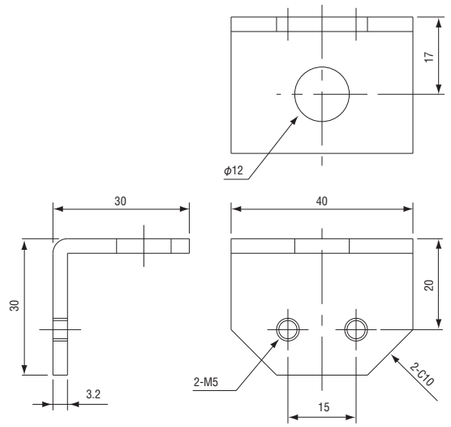
Suction Stem Angle Brackets

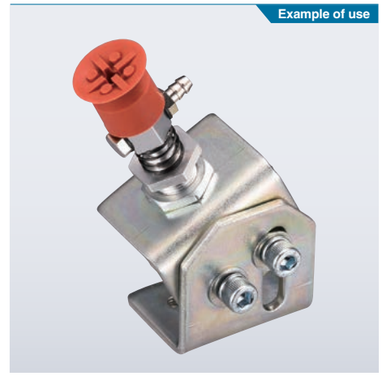
The angle can be adjusted according to the shape of workpiece.

Suction stem angle bracket (upper)

Order code No.	370698
Standard	CP-019

- Weight : 48g
- Fixing bolt M5x15 is available separately.
- Assembly of parts is not available in delivery for an order.





- Photo shows right-hand mount type (CP-019R).

Suction stem angle bracket (L-lower)

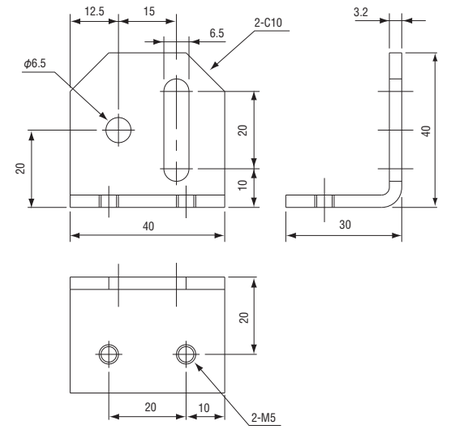
Order code No.	370789
Standard	CP-019L

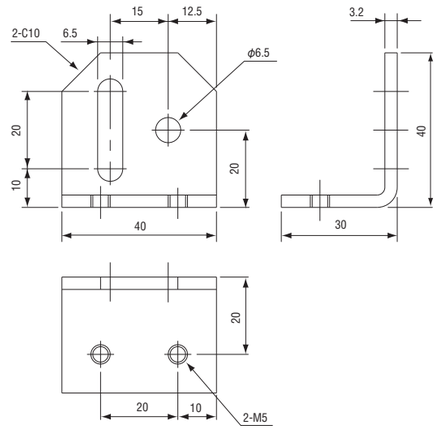
- Weight : 54g
- Fixing bolt M5x15 is available separately.
- Assembly of parts is not available in delivery for an order.

Suction stem angle bracket (R-lower)

Order code No.	370790
Standard	CP-019R

- Weight : 54g
- Fixing bolt M5x15 is available separately.
- Assembly of parts is not available in delivery for an order.

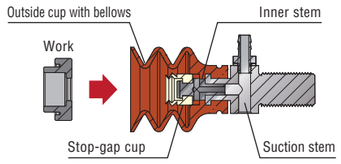




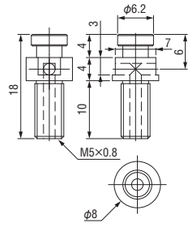
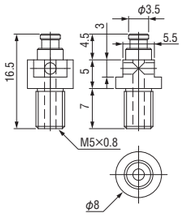
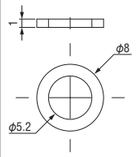
Pad in Pad

Do you have any problems with work piece with holes (food container, cap and inner stopper for cosmetic container, and small gear) which falls automatically?
Pad in Pad can be used for hole opening workpieces.

Example of combination



Composed of outside bellows pad, suction metal fixture, tamping pad, and middle hardware. The flat face of a work is adsorbed with the outside bellows pad. And holes are stopped up with the tamping pad.

Product name	Inner stem (mini)	Inner stem (micro)	Stem spacer
Drawing			
Order code No.	210911	210912	210913
Standard	VFILK-PS-M5	VFILK-PSS-M5	VFILK-P-S
Weight	1.5g	1.0g	0.3g
Applicable stem	Suction stem small (also for some suction stem mini products)		—

∗ Gasket (122891) is separately available when you buy the inner stem. ➡ 6-8

Inner cup example ∗ Below cups are used with "Inner stem (mini)".

Suction cup

Order code No.	196663
Standard	TPJG-6-S

Suction cup

Order code No.	196664
Standard	TPJG-8-S

Suction cup

Order code No.	196665
Standard	TPJG-10-S

Suction cup

Order code No.	196718
Standard	TPJG-15-S

Procedures before delivery
∗Quotation for additional work can be provided.

STEP 1 Check the No. of cavities and No. of suction circuits.
STEP 2 Suction test with the target workpiece.
STEP 3 Submission of quotation and lead time.
STEP 4 Order.
STEP 5 Evaluation of actual machine trial by customer.

Reactions from customers.

- Prevention of dust and stains with automatic drop.
- Time and troubles are reduced in the adjustment of product surveillance cameras for automatic drop.
- Inspection of all items is not required: only sampling inspection is required.
- No. of shots and No. of productions are nearly equal.
- Pushing some products only once (formerly three times) allows reduction of cycle time.

Pad in Pad

You can see moving images of products by using QR code reader of your smartphone.

Example I

Molded product Cap

Main components		
	Outside cup with bellows	VAPH-20C-3
	Stop-gap cup	TPJG-8-S
	Suction stem	VFIL-S-5A
	Inner stem	VFILK-PS-M5

Example II

Molded product Gear of sundry article

Main components		
	Outside cup with bellows	VAPH-20C-3
	Stop-gap cup	TPJG-8-S
	Suction stem	VFIL-S-5A
	Inner stem	VFILK-PS-M5

Example III

Molded product Industrial component

Main components		
	Outside cup with bellows	VAPH-30C-3
	Stop-gap cup	VAPH-14C
	Suction stem	VFIL-S-5A
	Inner stem	VFILK-PS-M5

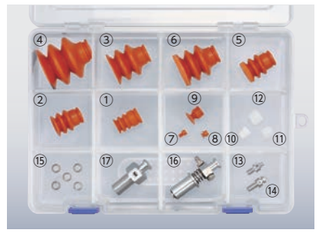
Example IV

Molded product Metal nut

Main components		
	Outside cup with bellows	VAPH-30C-3
	Stop-gap cup	VAPH-14C
	Suction stem	VFIL-S-5A
	Inner stem	VFILK-PS-M5

Pad in Pad test kit

Please try out Pad in Pad with our test kit!!



Pad in Pad test kit (1)

Order code No.	196688
Standard	TEST KIT VERSION (1)

Contents

Group	Product name	Order code No.	Standard	Qty	Applicable cup size
Outside cup with bellows	① Below suction cup (Silicone, brown)	210697	VAPH-15C-3	1	⑦⑧
	② Below suction cup (Silicone, brown)	210661	VAPH-20C-3	1	⑦⑧⑩⑪
	③ Below suction cup (Silicone, brown)	210662	VAPH-30C-3	1	⑦⑧⑩⑪⑫
	④ Below suction cup (Silicone, brown)	210663	VAPH-40C-3	1	⑦ - ⑫
	⑤ Below suction cup w/ sponge (Silicone, brown)	210914	VAPH-20C-10-3-SP	1	⑦⑧⑩⑪
	⑥ Below suction cup w/ sponge (Silicone, brown)	210915	VAPH-30C-15-3-SP	1	⑦⑧⑩⑪⑫
Stop-gap cup	⑦ Below suction cup (Silicone, brown)	210897	VAPH-3C-3	1	① - ⑥
	⑧ Suction cups (standard/micro/brown)	210790	VAPH-6M (シリコン)	1	① - ⑥
	⑨ Suction cups (standard/Silicone/brown)	210616	VAPH-14C	1	④
	⑩ Suction cup	196663	TPJG-6-S	1	② - ⑥
	⑪ Suction cup	196664	TPJG-8-S	1	② - ⑥
	⑫ Suction cup	196665	TPJG-10-S	1	③④⑥
Inner stem	⑬ Pad-in inner stem for micro	210912	VFILK-PSS-M5	1	—
	⑭ Pad-in inner stem for mini	210911	VFILK-PS-M5	1	—
	⑮ Pad-in inner stem (spacer)	210913	VFILK-P-S	5	—
Suction stem	⑯ Suction stem for small	211006	VFIL1-S-5-P12	1	—
	⑰ Suction stem fixed for small	210698	VFILK-S-M12	1	—

Plastic Ejector Nozzles

Lightweight and high-performance low-price ejector.

3-35

Small Air Filters

The product prevents water, oil, steel powder, and so on sucked from thevacuum side from entering the ejector.

3-37

Air Ejectors

Small, lightweight, and long life.

3-36

Small Check Valves for Suction Cup

When suction cup leak air, stop vacuum air line.

3-38

■Specification

Product name		Order code No.	Standard	Weight (g)	Page of details
Plastic ejector nozzle	Plastic ejector nozzle 1.0mm	183988	SSBP-10-S2-SDA	22	3-35
	Plastic ejector nozzle 1.5mm	183989	SSBP-15-S2-SDA		
	Plastic ejector nozzle 2.0mm	183991	SSBP-20-S3-SDA	50	
Plastic ejector clip mount base		183990	SBEF-PL-110＊45	–	
Air ejector		183057	STV-10HS	80	3-36
Air ejector w/ switch		183058	STV-10HSCK	120	
Small air filters		183059	STFC-4	20	3-37
		183060	STFC-6		
Small check valve for suction cup		184150	SSVK-M5	3	3-38
		184151	SSVK-G1/8	11	

Plastic Ejector Nozzles

Lightweight and high-performance low-price ejector.

Plastic ejector nozzle 1.0mm

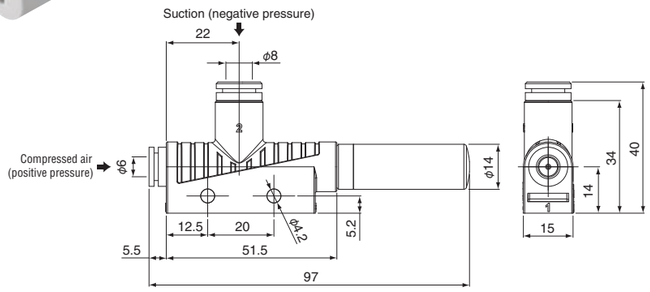
Order code No.	183988
Standard	SSBP-10-S2-SDA

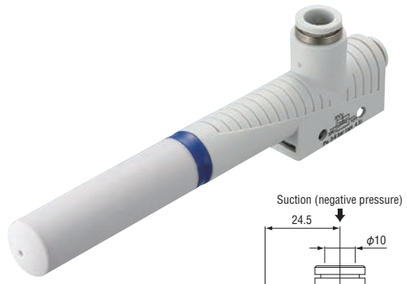
- Weight : 22g
- Recommended inner diameter of compressed air supply hose: 4mm (2m length)
- Recommended inner diameter of vacuum hose: 6mm (2 m length)

Plastic ejector nozzle 1.5mm

Order code No.	183989
Standard	SSBP-15-S2-SDA

- Weight : 22g
- Recommended inner diameter of compressed air supply hose: 4mm (2m length)
- Recommended inner diameter of vacuum hose: 6mm (2 m length)

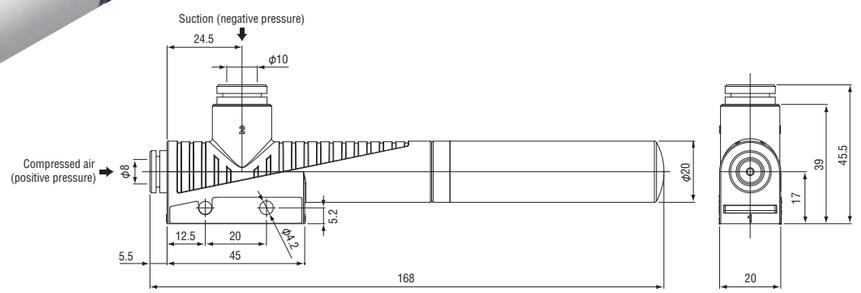




Plastic ejector nozzle 2.0mm

Order code No.	183991
Standard	SSBP-20-S3-SDA

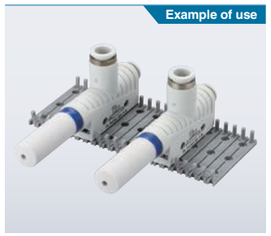
- Weight : 50g
- Recommended inner diameter of compressed air supply hose: 6mm (2 m length)
- Recommended inner diameter of vacuum hose: 7mm (2 m length)



Plastic ejector clip mount base

Order code No.	183990
Standard	SBEF-PL-110＊45

Example of use



■Specification

Product name	Standard	Nozzle diameter (mm)	Max. vacuum pressure (kPa)	Quantity of suction (L/min)	Working pressure (MPa)	Air consumption (L/min)＊	Noise level (db(A))	
							W/o suction	W/ suction
Plastic ejector	SSBP-10-S2-SDA	ϕ1.0	-85	37.7	0.45	48	65	59
	SSBP-15-S2-SDA	ϕ1.5	-85	71.0	0.45	105	72	65
	SSBP-20-S3-SDA	ϕ2.0	-85	127.0	0.45	197	77	68

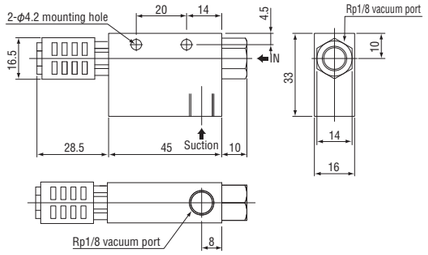
＊ When working pressure is 0.45 MPa.

Air Ejectors

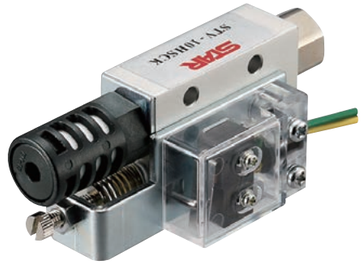
Small, lightweight, and long life.

Order code No.	183057
Standard	STV-10HS

● Weight : 80g

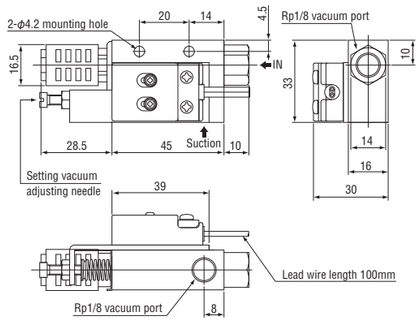


▶ With vacuum switch



Order code No.	183058
Standard	STV-10HSCK

● Weight : 120g



■ Specification

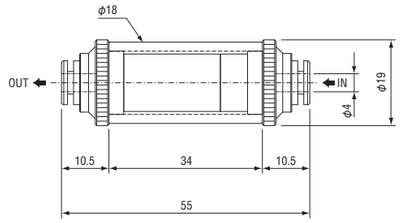
Product name	Standard	Nozzle diameter (mm)	Quantity of suction (L/min)	Vacuum pressure (kPa)	Air consumption (L/min)	Supply air (MPa)
Air ejectors	STV-10HS	φ1.0	27 〈ANR〉	-92	44 〈ANR〉	0.5
	STV-10HSCK					

Small Air Filters

The product prevents water, oil, steel powder, and so on sucked from the vacuum side from entering the ejector.

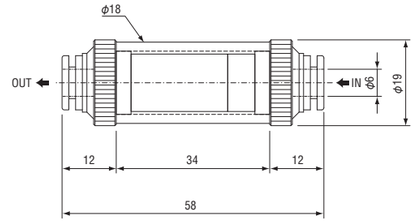
Order code No.	183059
Standard	STFC-4

● Weight : 20g ● Directional



Order code No.	183060
Standard	STFC-6

● Weight : 20g ● Directional



■ Specification

Product name	Standard	Tube size (mm)	Pressure resistance (MPa)	Pressure (kPa)	Nominal filtration rating (μm)
Small air filters	STFC-4	φ4	0.5	-95.9-0	15
	STFC-6	φ6			

* Vacuum filter

Small Check Valve for Suction Cup

When suction cup leak air, stop vacuum air line.

- Remove the head of suction stem before installation.
- Used to attach to the position between suction stem head and main body to use the bracket for VFILB.

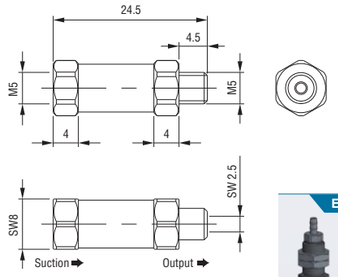
Use of check valves eliminates the need for repositioning vacuum cups when lifting workpieces of different sizes simultaneously.
The check valve cuts off the airflow to the vacuum cup when there is no contact between the cup and the workpiece.

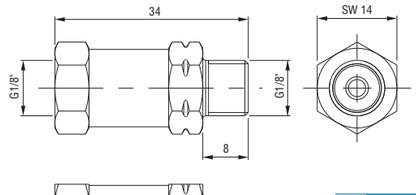
Order code No.	184150
Standard	SSVK-M5

- Weight : 3g

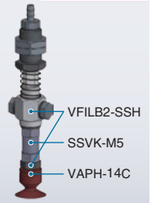
Order code No.	184151
Standard	SSVK-G1/8

- Weight : 11g

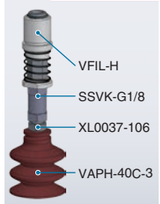




Example of use



Example of use



Operation of check valve

The condition in which a vacuum cup is pressed against the work surface without permeability. The ball in the valve is in the open position under vacuum.

When the work does not cover a vacuum pad completely or a pad is separated during handling. A ball is pushed up in the direction of the sheet with airflow. And vacuum pressure in the system is maintained.

The condition in which the workpiece is released. The cross-sectional area of the valve is widened when the ball is pushed back. Much air is discharged. And the workpiece is released reliably and quickly.

〈Reference value〉

Suction cup	VAPH-15C
Check valve	SSVK-M5
Supply pressure	0.5MPa

(kPa)

No. of uses \ No. of suction operations	0 position	1 position	2 position	3 position	4 position
Check valve: 0	-20.5	-20.5	-20.5	-20.5	-66.5
Check valve: 1	-21.0	-21.0	-21.0	-61.0	-65.4
Check valve: 2	-22.0	-22.0	-55.2	-61.9	-65.3
Check valve: 3	-25.0	-47.6	-54.1	-59.2	-64.4

∗Above list: with maximum degree of vacuum of -66.5 kPa.

MEMO

Micro Mold E.O.A.T.

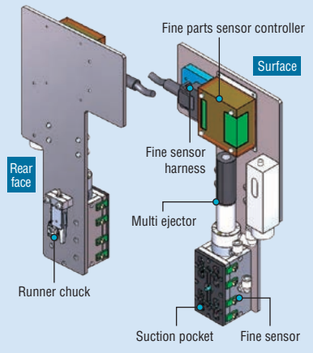
micro E.O.A.T.

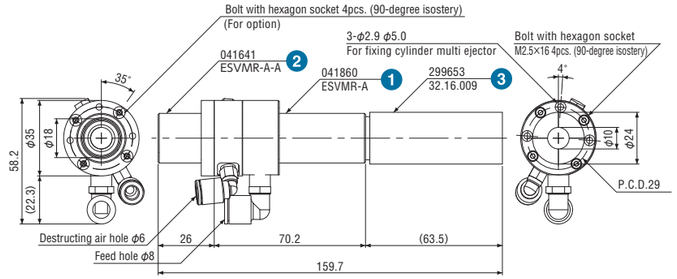
You can see moving images of products by using QR code reader of your smartphone.

Please submit technical information beforehand for our effective design/manufacturing.

- This application enable to separate each cavity products of micro molding process in small tonnage IMM (20ton or less).
- Compact and high-function multi ejector is used.
- Cylindrical multi ejector can be attached to jungle gym SS pipe.
- Fine sensor unit best suited to check the micro workpieces.

Example of micro E.O.A.T. ＊Total weight:900g





1

Multi ejector

Order code No.	041860
Standard	ESVMR-A

- Weight : 104g
- Air consumption: : 280 [L/min]
- Amount of suction fluid flow:700 [L/min]
- Noise:91.2 [dB]
- Attachments: sealing ring packing

2

Option parts A

Order code No.	041861
Standard	ESVMR-A-A

- Weight : 19g
- Attachments: mounting bolt (M2.5 × 10) × 4

3

Silencer

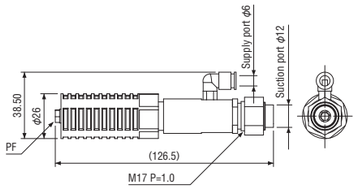
Order code No.	299653
Standard	32.16.009

- Weight : 13g
- Silence, Amount of suction fluid flow: 400 [L/min]

In-line cylinder multi ejector

Order code No.	041836
Standard	ESVMR1-10-3

- Weight : 64g
- Air consumption: : 210 [L/min]
- Amount of suction fluid flow : 260 [L/min]
- Noise : 85 [dB]



Silencer

Order code No.	110663
Standard	L18382-106

- Weight : 22g

Micro parts sensor controller

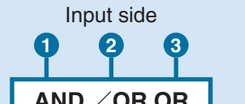
Order code No.	010521
Standard	B-CONT-UNIT

- Weight : 147g

- Product detection level mode: automatic or manual.
- Switching between AND output and OR (/OR) output is possible.
- Input and output for NPN/PNP.
- Up to 32 points can be detected (extension unit is used)
- The input condition of the sensor can be confirmed with the monitor LED.
- Method of product detection can be selected from level (product condition) and latch (product pass hold).
- Light ON / Dark ON can be selected.

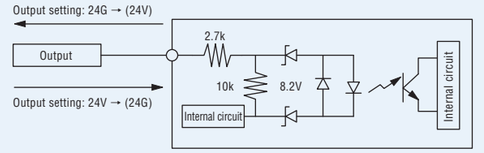
＊ The parts are subject to changes without notice.

About "AND", "/OR", and "OR"



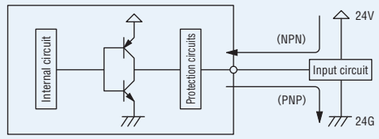
AND	／OR	OR
Output S is turned on when all the inputs (❶❷❸) are ON.	Output S is turned on when all the inputs (❶❷❸) are OFF.	Output S is turned on when either of input (❶❷❸) is ON.

Sensing input, OR switching input circuit configuration



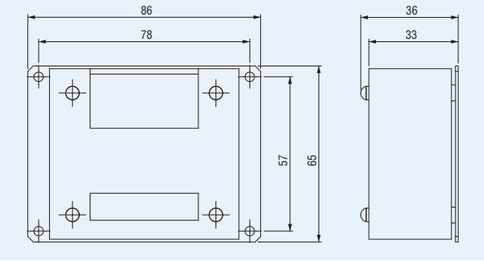
＊ Sensing input switching: change the input setting with the switch according to the output circuit specification of the customer (as shown in the drawing).

Configuration of Output Circuit



＊ Select NPN/PNP as illustrated above according to the input circuit specification of the customer.

Outside Dimension / Mounting Dimension



＊ Mounting hole:4- φ 3.5

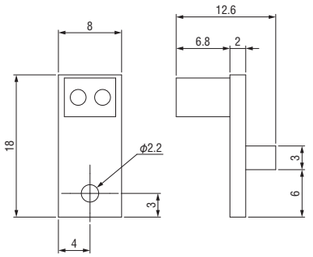
■ Specification

Power supply voltage (V)	Internal consumption current (mA)	Input current (mA)	Output current (mA)	Operating ambient humidity (%)	Ambient temperature (℃)	Environment
DC24 (±10%)	120 max. (DC24V)	10 or less / one point	100 (MAX)	35-80 (non-condensing)	0-40	There is no particulate and corrosive gas.

Fine sensor unit

Order code No.	010519
Standard	B-SENS-UNIT

- Weight : 1g

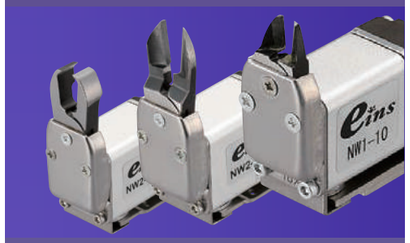


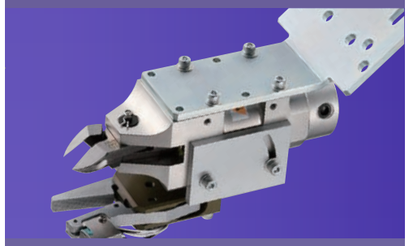
Fine sensor harness

Order code No.	010522
Standard	B-SENS-H

- Weight : 150g

MEMO





Cut

Mini Air Nippers ····· 4-2

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- Replacement Blades ····· 4-9
- Accessories ····· 4-10
- Nipper Mounting Brackets ····· 4-11
- Quick Mount Clip for NW ····· 4-12

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- NS Series／NR Series／Booster Unit ····· 4-16
- Nipper Holders／Brackets ····· 4-17
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- Sprue Cut Unit／Timing Controller ····· 4-19
- Replacement Blades／Accessories ····· 4-20
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Mini Air Nippers

How to select nipper

The air nipper is selected by material and cut diameter (cut area : mm²) of gate.

1. Check the material of cut gate and sprue

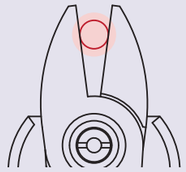
Soft resin
PP, PE, urethane, PS, PVC, PMMA, AS, etc.

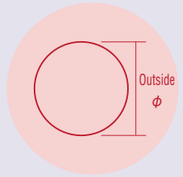
Hard resin
PPS, PA, PBT, LCP, ABS, POM, PC, resin containing glass, etc.

＊Cannot be used with copper/iron wire.

2.Check cut diameter (cut area)

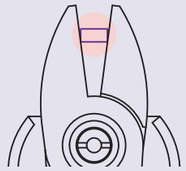
■To cut round gate

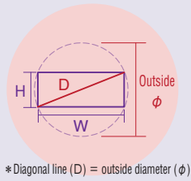




Select the nipper referring to the specification table (right) :
cutting guide (ϕ) > outside diameter of gate

■To cut square gate



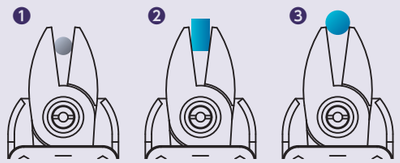


＊Diagonal line (D) = outside diameter (ϕ)

Select the nipper referring to the specification table (right) :
cutting guide (ϕ) > outside diameter of gate

＊Cutting guide: (mm²) > H × W

■Gate cutting is impossible when:



❶ Gate is not made of resin.
❷ Gate (H) is longer than blade.
❸ Gate (H) is longer than blade.

When gate made of hard resin is cut

- **Cutting capacity** will decrease by **35%**.
- Select the blade with **brazed cemented carbide tip**.

● Product temperature when the product is cut may influence the finishing state. ● Cutting guide value is for reference.

▶ Pull push operation (a blade slides to a work surface to ensure the beautiful cut surface).
▶ Compatible with a variety of cuts to suit a variety of different applications.

Standard blade

Thin blade

Reversed blade

Standard long blade

Reversed long blade

Clip type blade

■Specification

Cutting capacity

	Product name	Shape of blade	Order code No.	Standard	Operation	Used air pressure (Mpa)	Withstand pressure (Mpa)	Cutting capacity (soft resin) round bar (mm)	Max opening width of blade (mm)	Weight (g)	Page of details
Mini air nipper		Standard blade	131537	NW1-10	Pull (Max.2mm)	0.39 (4kgf/cm²) | 0.49 (5kgf/cm²)	0.7 (7kgf/cm²)	ϕ1.7 (2.26mm²)	3	110	4-4
		Thin blade	131538	NW1-101							
		Reversed blade	131539	NW1-10R	Push (Max.2mm)						
		Standard blade	131540	NW2-20	Pull (Max.3mm)			ϕ2.8 (6.15mm²)	6	220	
		Thin blade	131541	NW2-201							
		Reversed blade	131542	NW2-20R	Push (Max.3mm)					225	4-5
		Standard long blade	131543	NW2-20-V001S	Pull (Max.3mm)			ϕ2.0 (3.14mm²)	6.5	235	
		Reversed long blade	131544	NW2-20R-V001S	Push (Max.3mm)						
		Clip type blade	131545	NW2-20-01C	Pull (Max.3mm)				7		4-6
		Standard blade	131546	NW2-35				ϕ3.5 (9.61mm²)	9	300	
		Reversed blade	131547	NW2-35R	Push (Max.3mm)						
		Standard long blade	131548	NW2-35-V001S	Pull (Max.3mm)			ϕ3.0 (7.06mm²)	10	320	4-7
		Reversed long blade	131549	NW2-35R-V001S	Push (Max.3mm)						
		Clip type blade	131550	NW2-35-01C	Pull (Max.3mm)				8		
NEW		Standard blade	131603	NW-50	Pull (Max.5mm)			ϕ5.0 (19.62mm²)	15	743	4-8
NEW		Reversed blade	131604	NW-50R	Push (Max.5mm)					745	

＊Reference value changed according to the use conditions.

NW Series

Attaching air nipper to the take-out robot and chuck plate will save labor efficiently.

Standard blade

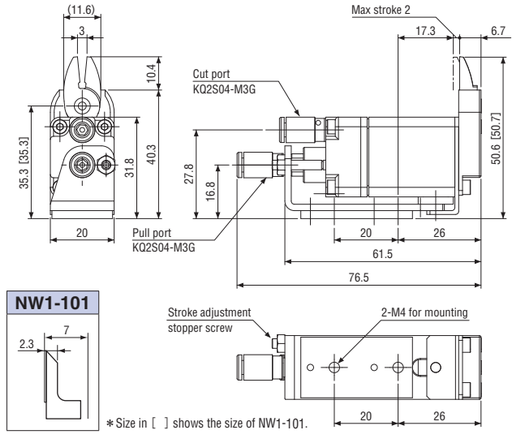
Order code No.	131537
Standard	NW1-10

● Weight : 110g

Thin blade

Order code No.	131538
Standard	NW1-101

● Weight : 110g

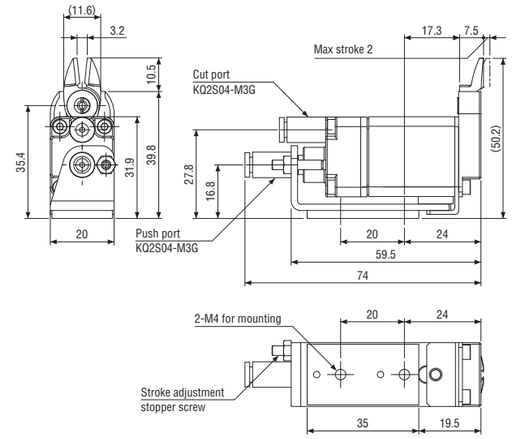


∗Size in [ ] shows the size of NW1-101.

Reversed blade

Order code No.	131539
Standard	NW1-10R

● Weight : 110g



Standard blade

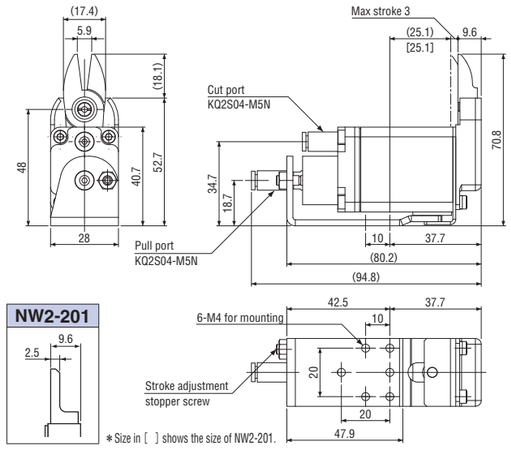
Order code No.	131540
Standard	NW2-20

● Weight : 220g

Thin blade

Order code No.	131541
Standard	NW2-201

● Weight : 220g

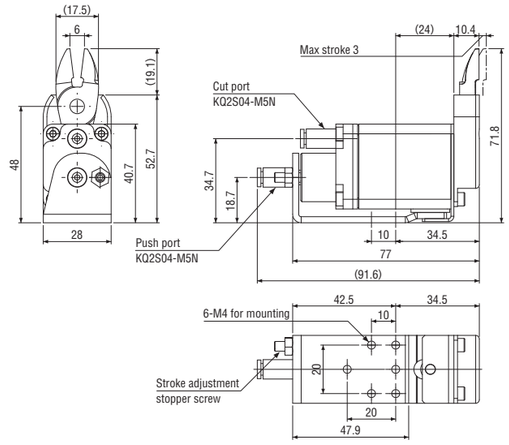


∗Size in [ ] shows the size of NW2-201.

Reversed blade

Order code No.	131542
Standard	NW2-20R

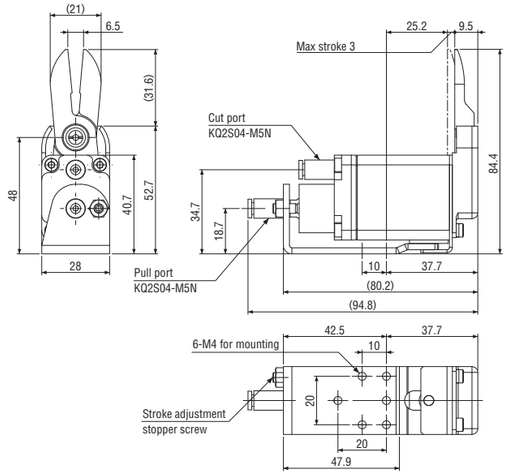
● Weight : 225g



Standard long blade

Order code No.	131543
Standard	NW2-20-V001S

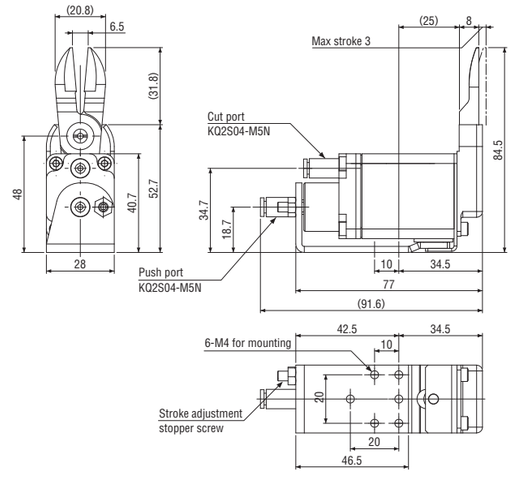
● Weight : 235g



Reversed long blade

Order code No.	131544
Standard	NW2-20R-V001S

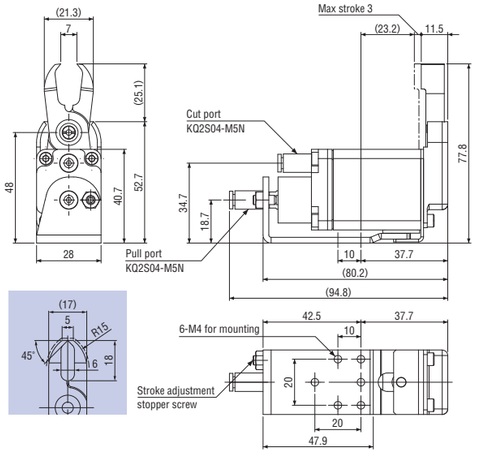
● Weight : 235g



Clip type blade

Order code No.	131545
Standard	NW2-20-01C

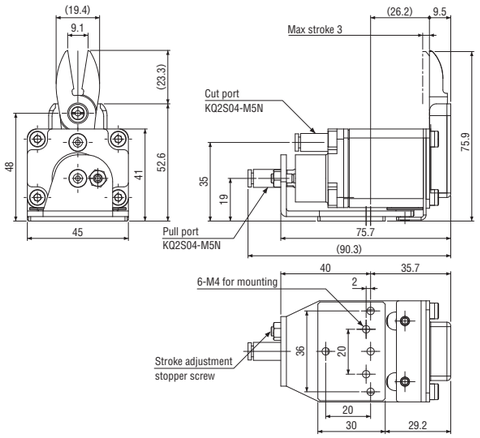
● Weight : 235g



Standard blade

Order code No.	131546
Standard	NW2-35

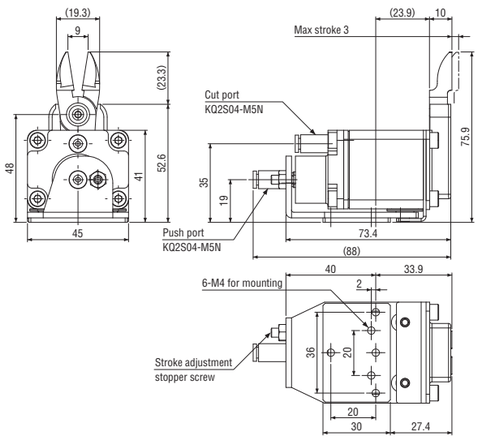
● Weight : 300g



Reversed blade

Order code No.	131547
Standard	NW2-35R

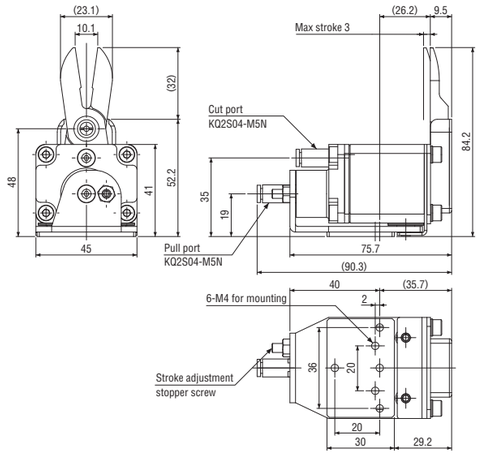
● Weight : 300g



Standard long blade

Order code No.	131548
Standard	NW2-35-V001S

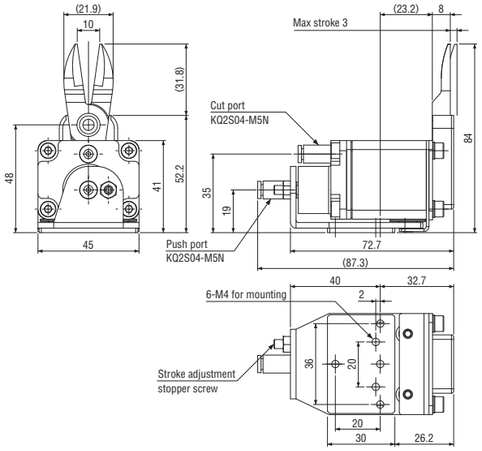
● Weight : 320g



Reversed long blade

Order code No.	131549
Standard	NW2-35R-V001S

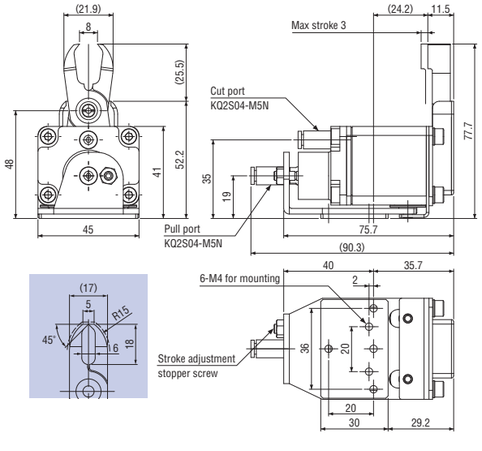
● Weight : 320g



Clip type blade

Order code No.	131550
Standard	NW2-35-01C

● Weight : 320g



Quick Chuck Change
Quick Chuck Change (Manual)
Tool Changer
Automated Chuck Exchange System
Grip
Mini Cylinder
Accessories for Mini Cylinder
Container Cylinders
Accessories for Container Cylinder
Grippers
Buffer Material
Suction
Suction Cups
Suction Stem
Pad in Pad
Air Ejector / Filter / Check Valve
Micro Mold E.O.A.T
Cut
Mini Air Nippers
Air Nippers
Frame/Module
Jungle Gym
Let's Joint
Rectangular Tube
Base Aluminum Material
Sliding Chuck
Tubing/Sensors
Tubing
Sensors
Other Products
Others
Information

- The picture and drawing specify the product under development. Product/specification and dimension may be changed.
- Please visit our web site or contact or sales offices for more information about selling period and price/specifications.

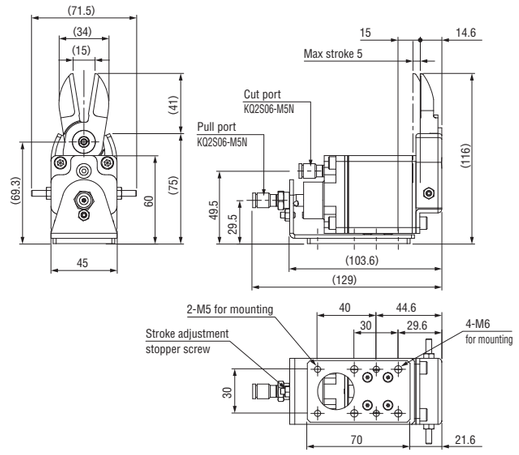
▶The ϕ5 (soft resin) product can be cut. The slide includes the new mechanism.

NEW

Standard blade

Order code No.	131603
Standard	NW-50

- W/ blade open adjust mechanism
- Weight : 743g



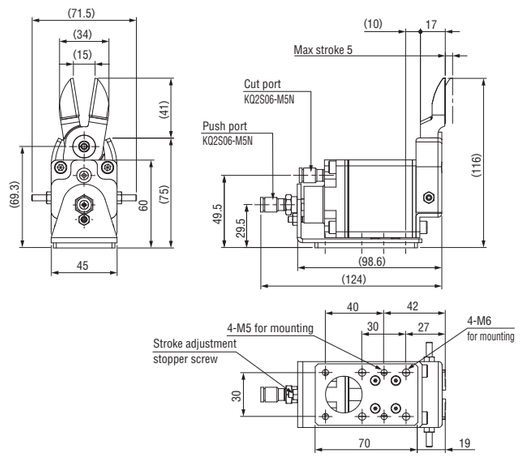
Expected release date:
October 2017

NEW

Reversed blade

Order code No.	131604
Standard	NW-50R

- W/ blade open adjust mechanism
- Weight : 745g



Replacement Blades

Use spare standard mini air nipper blade.

Spare blade

Order code No.	041050	041051	041758	041871
Standard	EG-NW10	EG-NW101	EG-NW10R	EG1-NW20
Weight	20g	20g	20g	61g
Supported nipper	NW1-10 (standard blade)	NW1-101 (thin blade)	NW1-10R(reversed blade)	NW2-20 (standard blade)

Order code No.	041872	041916	041851	041852
Standard	EG1-NW201	EG1-NW20R	EG1-NW35	EG1-NW35R
Weight	61g	61g	68g	68g
Supported nipper	NW2-201 (thin blade)	NW2-20R(reversed blade)	NW2-35 (standard blade)	NW2-35R (reversed blade)

Standard long blade

Order code No.	041064	041361	041065	041310
Standard	EG-NW20-V001S	EG-NW20R-V001S	EG-NW35-V001S	EG-NW35R-V001S
Weight	80g	80g	85g	85g
Supported nipper	NW2-20 (standard blade)	NW2-20R(reversed blade)	NW2-35 (standard blade)	NW2-35R (reversed blade)

Carbide blade

Order code No.	041876	041923	041866	041867
Standard	EG1-NW20 (Carbide blade)	EG1-NW20R (Carbide blade)	EG1-NW35 (Carbide blade)	EG1-NW35R (Carbide blade)
Weight	61g	61g	68g	68g
Supported nipper	NW2-20 (standard blade)	NW2-20R(reversed blade)	NW2-35 (standard blade)	NW2-35R(reversed blade)

Clip type blade

Order code No.	041066	041067
Standard	EG-NW20-01C	EG-NW35-01C
Weight	80g	90g
Supported nipper	NW2-20,NW2-20R	NW2-35,NW2-35R

Adjustable opening

＊Delivery time runs about one week from the order date. ＊Setscrew with hexagon socket and hexagon nut are included.

Blade opening can be adjusted by two screws.

Order code No.	041873	041874	041924
Standard	EG1-NW20-AST	EG1-NW201-AST	EG1-NW20R-AST
Weight	63g	63g	63g
Supported nipper	NW2-20 (standard blade)	NW2-201 (thin blade)	NW2-20R(reversed blade)

Order code No.	041853	041854
Standard	EG1-NW35-AST	EG1-NW35R-AST
Weight	72g	72g
Supported nipper	NW2-35 (standard blade)	NW2-35R(reversed blade)

NEW: **For NW-50, 50R**

Expected release date : October 2017

Spare blade

Order code No.	041955	041956
Standard	EG-NW50	EG-NW50R
Weight	268g	276g
Supported nipper	NW-50 (standard blade)	NW-50R (reversed blade)

Accessories

Used for maintenance of mini air nipper.

Spring for blade

Order code No.	130744	131536
Standard	For NW-10	For NW2-20.35
Weight	0.1g	0.2g
Supported nipper	NW1-10、10R	NW2-20、20R、35、35R

Piston

Order code No.	130767	130768	130769
Standard	For NW/NC-10	For NW/NC-20.20R	For NW/NC-35.35R
Weight	3g	9g	11g
Supported nipper	NC/NW-10、10R	NC/NW-20、20R	NC/NW-35、35R

Piston packing

Order code No.	130772	130773
Standard	For NW/NC-10 (MYA-14 special)	NW/NC-20.20R (MY-22 special)
Weight	0.3g	0.5g
Supported nipper	NC/NW1-10、10R	NC/NW2-20、20R

Order code No.	131487
Standard	NW1-35.35R (LX0107-001-0)
Weight	1.2g
Supported nipper	NW2-35、35R

Piston spring ＊Two pieces are used for a nipper (one piece for NW-35/35R).

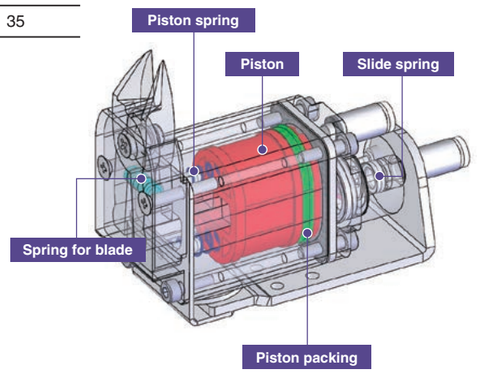
Order code No.	130766	130770
Standard	For NC/NW-10	For NC/NW-20.20R
Weight	0.2g	0.5g
Supported nipper	NC/NW1-10、10R	NC/NW2-20、20R

Order code No.	130771
Standard	For NW-35.35R
Weight	5.6g
Supported nipper	NW2-35、35R

Slide spring

Order code No.	130257	130251
Standard	For NC/NW-10	NC/NW-20.35 (J07930-015-0)
Weight	0.1g	0.4g
Supported nipper	NW-10	NW-20、35

Order code No.	131255
Standard	NW-20R.35R (J0793R-004-0)
Weight	1g
Supported nipper	NW-20R、35R

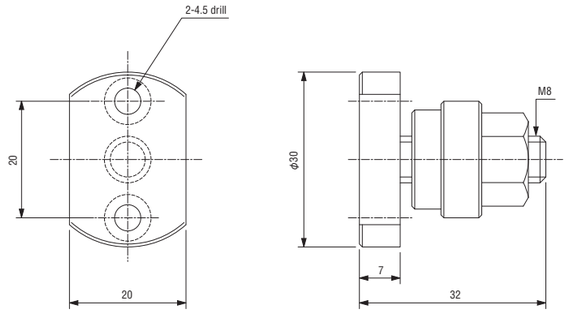


Nipper Mounting Brackets

Metal fixture to fix an air nipper to a NT gate cut unit.

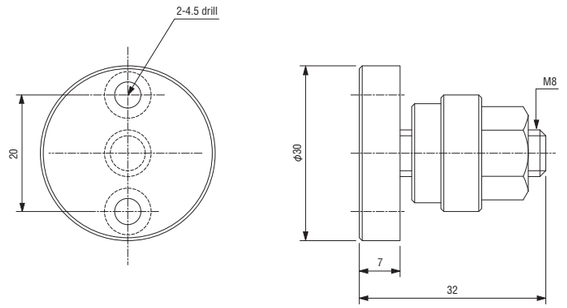
Order code No.	130216
Standard	For NC/NW-10

● Weight : 61g ● Also can be used for NW-35.
● Accessories : taper washer/1pc. screw (M4)/2pcs.



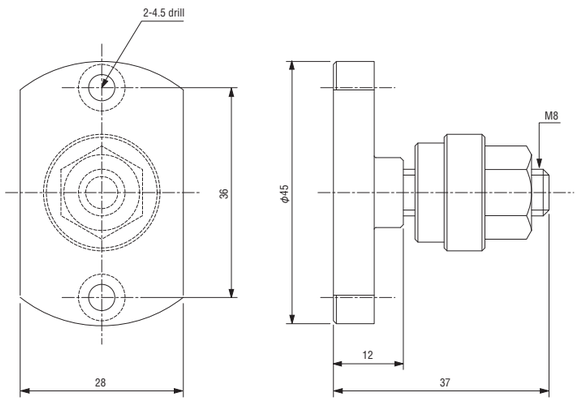
Order code No.	130162
Standard	For NC/NW-20

● Weight : 70g ● Also can be used for NW-35.
● Accessories : taper washer/1pc. screw (M4)/2pcs.



Order code No.	130163
Standard	For NC/NW-35

● Weight : 99g ● Cannot be used for NW-10 and NW-20.
● Accessories : taper washer/1pc. screw (M4)/2pcs.



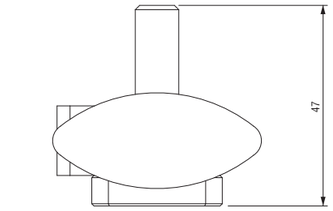
Quick Mount Clip for NW

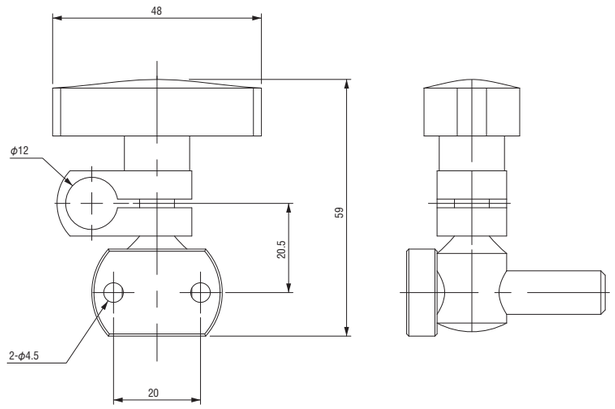
The mounting angle can be free adjusted without using the tool.

Quick mount clip • for NW

Order code No.	110558
Standard	L10160-CL

- Weight : 80g
- Accessories : Mounting bolt (M4) x 2





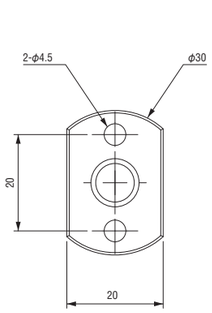
Example of mounting

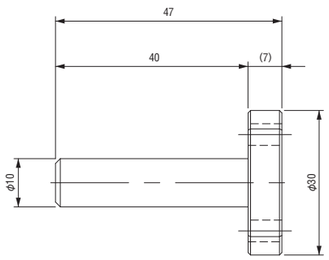
Mini air nipper is mounted and attached to ϕ12 SS jungle gym.

Nipper mounting brackets

Order code No.	110622
Standard	L10160-000

- Weight : 20g
- Accessories : Mounting bolt (M4) x 2





MEMO

Specification

Product name		Order code No.	Standard	Operation	Used air pressure (Mpa)	Applied pressure (N)	Cutting capacity [soft resin] round bar (mm)	Slide amount (mm)	Weight (g)	Page of details
Air nipper	Slide vertical・w/o blade	060207	GT-NT03	Pull	0.4-0.5	147	ϕ 1.5	MAX3	178	4-15
		060208	GT-NT05	Pull	0.5-0.6	196	ϕ 2.5		325	
		060225	GT-NT05R	Push						
		060209	GT-NT10	Pull		441	ϕ 3.5		515	
		060226	GT-NT10R	Push						
		060227	GT-NT20	Pull		931	ϕ 5	MAX8	930	
		060228	GT-NT20R	Push						
	Square type・w/o blade	060240	GT-NS10L	–		588	Different according to the spare blade.	–	230	4-16
		060241	GT-NS20			1,372			390	
		060242	GT-NS30			2,744			705	
	Round type・w/o blade	060083	GT-NR10L			588			160	
		060084	GT-NR20			1,372			280	
		060085	GT-NR30			2,744			510	
Booster unit		150793	P-20	–	-0.5	–	–	–	215	
		150786	P-30						330	
Nipper holder		370336	CP-035 (For GT-NR10L)	–	–	–	–	–	66	4-17
		370337	CP-036 (For GT-NR20)						87	
		370338	CP-037 (For GT-NR30)						105	
Bracket		110656	LX0090-100 (L.R)	–	–	–	–	–	125.4	
Air nipper	Slide bracket・w/o blade	130229	GT-NB20 5-HIKU	Pull	0.5-0.6	1,372	Different according to the spare blade.	MAX5	710	4-18
		130230	GT-NB20 5-OSHI	Push						
		130231	GT-NB20 10-HIKU	Pull				MAX10	720	
		130235	GT-NB30 10-HIKU	Pull		2,744			1,400	
		060477	GT-NB20LW-10TM	Pull		1,372			785	
		060478	GT-NB30LW-10TM	Pull		2,744			1,315	
Sprue cut unit		131565	NS20U	–		–	–	–	1,078	4-19
Timing controller		060321	GT-TC-02	–		–	–	–	275	

Product name		Order code No.	Standard	Operation	Used air pressure(Mpa)	Cutting capacity [soft resin] round bar (mm)	Slide amount (mm)	Weight (g)	Page of details
Heat air nipper	Slide vertical・w/ blade	060353	GT-NTH05	Pull	0.4-0.5	ϕ2.5	MAX3	325	4-22
		060354	GT-NTH10	Pull	0.5-0.6	ϕ3.5		515	
	Flow controller type	060355	GT-NKH10	–		Thickness:ϕ1.5, Width:ϕ7		715	
	Heat air nipper air hydro	060356	GT-NKH20	–		Thickness:ϕ1.5, Width:ϕ10	MAX8	700	
	Temperature controller	030492	DTC-001	–	–	–	–	900	

NT Series

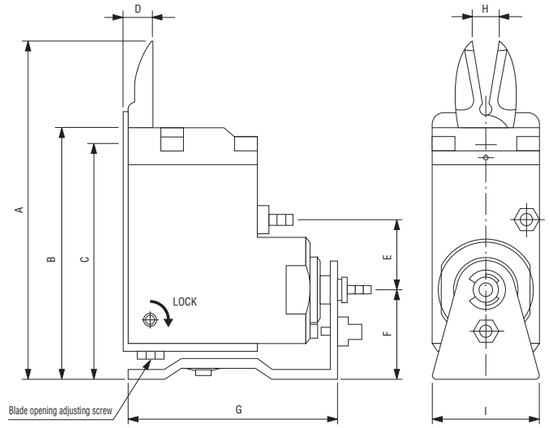
Used for cutting large gate diameter products of direct gate or side gate.

● Spare blades are sold separately. ● The photo shows an example of assembled.

Air nipper slide vertical

- Blade opening can be adjusted.
- Slide stroke can be adjusted.
- A workpiece can be cut by close contact.

Blade Option



Order code No.	060207
Standard	GT-NT03

● Weight : 178g

Uses: Standard blade | Operation: Pull | Blade: Option

Order code No.	060208
Standard	GT-NT05

● Weight : 325g

Uses: Standard blade | Operation: Pull | Blade: Option

Order code No.	060225
Standard	GT-NT05R

● Weight : 325g

Uses: Reversed blade | Operation: Push | Blade: Option

Order code No.	060209
Standard	GT-NT10

● Weight : 515g

Uses: Standard blade | Operation: Pull | Blade: Option

Order code No.	060226
Standard	GT-NT10R

● Weight : 515g

Uses: Reversed blade | Operation: Push | Blade: Option

Order code No.	060227
Standard	GT-NT20

● Weight : 930g

Uses: Standard blade | Operation: Pull | Blade: Option

Order code No.	060228
Standard	GT-NT20R

● Weight : 930g

Uses: Reversed blade | Operation: Push | Blade: Option

Spare blade for GT-NT ＊The standard and reverse directions of spare blade can be changed.				
Order code No.	130403	130310	130311	130404
Standard	NT03AJ	NE5AJ	NE10AJ	NT20AJ
Supported nipper	GT-NT03(R)	GT-NT05(R)	GT-NT10(R)	GT-NT20(R)

Dimensions (mm)

Standard	GT-NT03	GT-NT05	GT-NT10	GT-NT20
A	87.1	90.1	110.1	136.1
B	68	71	88	102.1
C	63.1	66.1	83.1	96.1
D	9	9	11	14
E	15	20	21	21.9
F	23.1	25.1	29.1	33.1
G	62	64	73	103
H	MAX3	MAX6	MAX7	MAX9
I	19	32	38	44
J	M3	M4	M4	M5
K	14	20	24	28
L	12	12	12	13
M	43	45	53	80
N	7	7	8	10

NS Series ／ NR Series ／ Booster Unit

Used for cutting large gate diameter products of direct gate or side gate.

● Spare blade and spring are sold separately. ● The photo shows an example of assembled.

■ Air nipper square type

Blade Option

Order code No.	060240
Standard	GT-NS10L

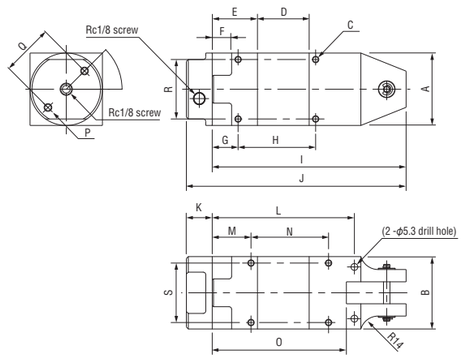
● Weight : 230g

Order code No.	060241
Standard	GT-NS20

● Weight : 390g

Order code No.	060242
Standard	GT-NS30

● Weight : 705g



■ Dimensions (mm)

Standard	GT-NS10L	GT-NS20	GT-NS30
A	36	45	56
B	36	45	56
C	16-M4×0.7 screw depth 5.5	16-M4×0.7 screw depth 7	16-M5×0.8 screw depth 10
D	17	25	40
E	27	29	35
F	14	14	15
G	18	19	20
H	30	40	60
I	93	109	150
J	113	129	170
K	20	20	20
L	65	81	110
M	23	24	30
N	30	40	60
O	59.8	76.8	103.8
P	2-M4 screw depth 10	2-M5 screw depth 12	2-M6 screw depth 12
Q	24	30	40
R	28	36	46
S	28	36	46

■ Air nipper round type

Blade Option

Order code No.	060083
Standard	GT-NR10L

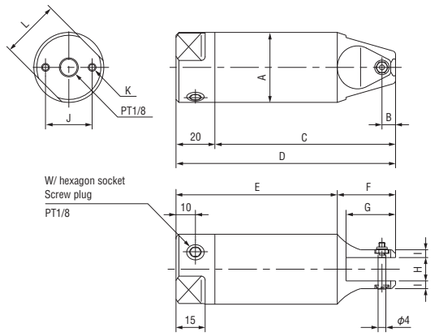
● Weight : 160g

Order code No.	060084
Standard	GT-NR20

● Weight : 280g

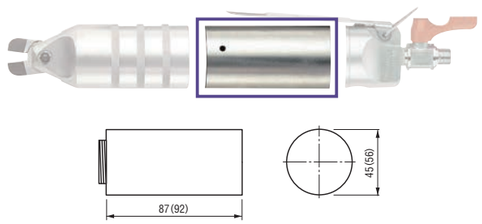
Order code No.	060085
Standard	GT-NR30

● Weight : 510g



■ Dimensions (mm)

Standard	GT-NR10L	GT-NR20	GT-NR30
A	ϕ 36	ϕ 45	ϕ 56
B	7	6	10
C	93	109	145
D	113	129	165
E	83	100	127
F	30	29	38
G	22.5	19	28.5
H	12	12	17
I	4	5.5	6.5
J	24	30	40
K	2-M4 screw depth 10	2-M5 screw depth 12	2-M6 screw depth 12
L	30	36	46



＊( ) inside indicates the dimension of P-30.

▶ When original welding pressure cannot be created with limitations of space and air pressure.

Booster unit

Order code No.	150793
Standard	P-20

● Weight : 215g
● Air consumption : 508cm³
● Air pressure power : ～ 0.5MPa
● Applicable : NS20、NR20

Booster unit

Order code No.	150786
Standard	P-30

● Weight : 330g
● Air consumption : 956cm³
● Air pressure power : ～ 0.5MPa
● Applicable : NS30、NR30

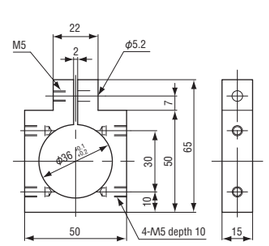
Nipper Holders ／ Brackets

Use the product by mounting to round nipper “GT-NR series.”

Nipper holder

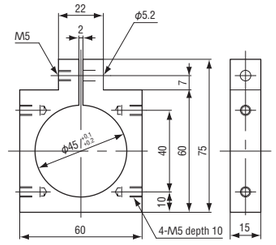
Order code No.	370336
Standard	CP-035 (For GT-NR10L)

● Weight : 66g



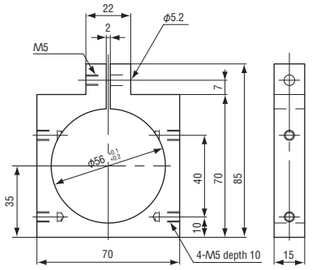
Order code No.	370337
Standard	CP-036 (For GT-NR20)

● Weight : 87g



Order code No.	370338
Standard	CP-037 (For GT-NR30)

● Weight : 105g

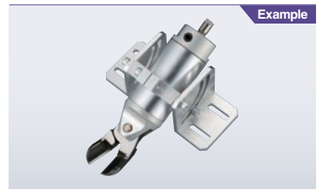


Nipper bracket

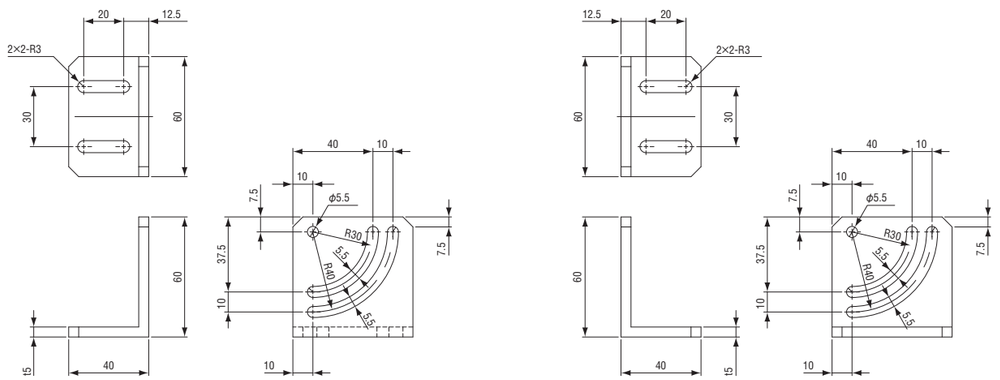
Order code No.	110656
Standard	LX0090-100 (L.R)

● Weight : 125.4g (set weight)
● Include L and R brackets

Example



● The photo shows an example of assembled GT-NR20, CP-036, and LX0090-100.



NB Series

Used for cutting large gate diameter products of direct gate or side gate.

- Spare blade and spring are sold separately.
- Can not be sold separate.
- The spare blade is compatible with GT-NR.

■Slide air nipper

▶ Can be used for gate cut devices with slide air nipper bracket type.

▶ Applicable with cutting of large sized molded parts.

Order code No.	130229
Standard	GT-NB20 5-HIKU

● Weight : 710g ● Slide amount : 5mm

Operation: Pull / Blade: Option

Order code No.	130230
Standard	GT-NB20 5-OSHI

● Weight : 710g ● Slide amount : 5mm

Operation: Push / Blade: Option

Order code No.	130231
Standard	GT-NB20 10-HIKU

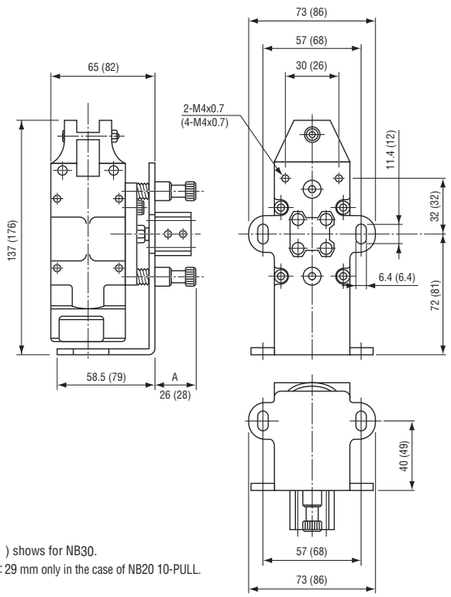
● Weight : 720g ● Slide amount : 10mm

Operation: Pull / Blade: Option

Order code No.	130235
Standard	GT-NB30 10-HIKU

● Weight : 1,400g ● Slide amount : 10mm

Operation: Pull / Blade: Option



∗( ) shows for NB30.
∗A : 29 mm only in the case of NB20 10-PULL.

▶ W/ slide mechanism for position adjustment with high precision.

High-precision slide mechanism

Order code No.	060477
Standard	GT-NB20LW-10TM

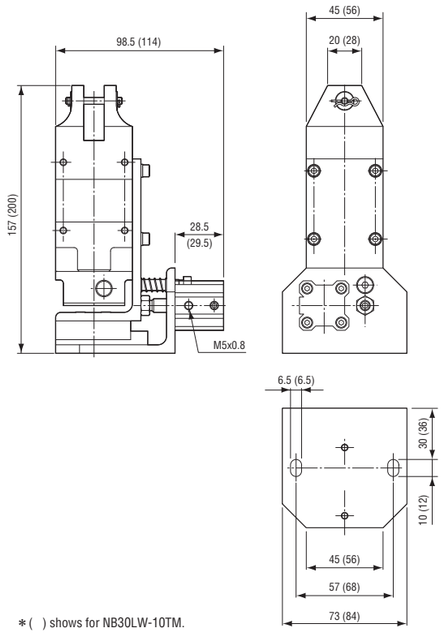
● Weight : 785g ● Slide amount : 10mm

Operation: Pull / Blade: Option

Order code No.	060478
Standard	GT-NB30LW-10TM

● Weight : 1,315g ● Slide amount : 10mm

Operation: Pull / Blade: Option

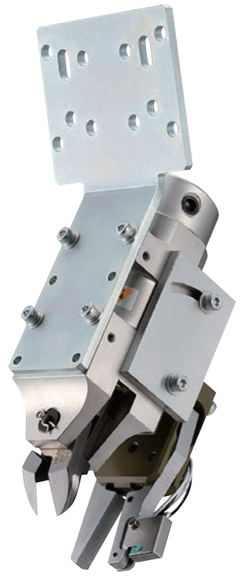


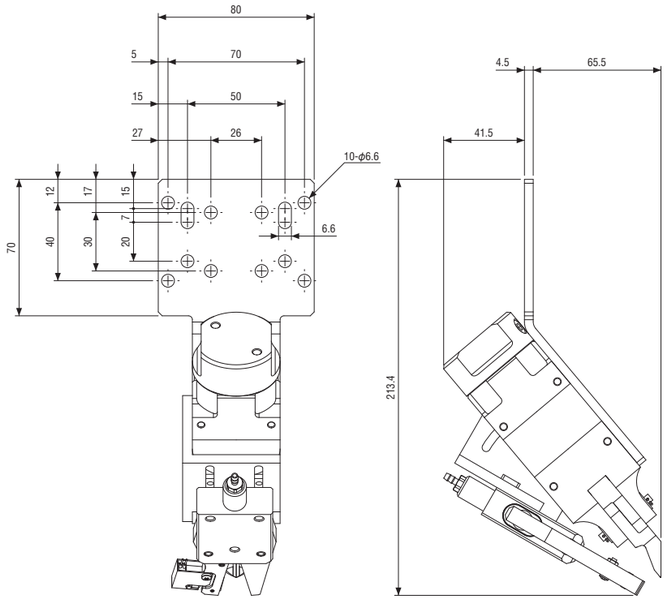
∗( ) shows for NB30LW-10TM.

Sprue Cut Unit ／ Timing Controller

Cutting with sprue chucking is possible.

▶ Most suitable for plastic direct gate.





Sprue cut unit

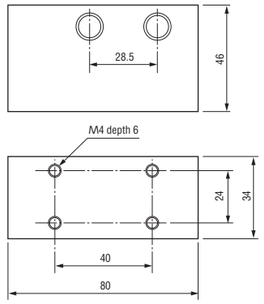
Order code No.	131565
Standard	NS20U

● Weight : 1,078g
● Sold as a set.
● Runner chuck: limit SW type

Standard	Product name	Order code No.	Standard	Qty	Page of details
A	Runner chuck EL w/ limit SW	023006	CHK-EL1-12-C1	1	2-31
B	Air nipper square type w/o blade	060241	GT-NS20	1	4-16
C	Blade for GT-20L flat	130726	N20PF	1	4-20
D	Sprue cut unit (parts)	131553	NS20U-P	1	–

● Delivery time runs about one month from the order date.

▶ Setting in tubing allows adjustment of slide conditions for slide nippers and cutting timing. (About 0.5-1.5 seconds)

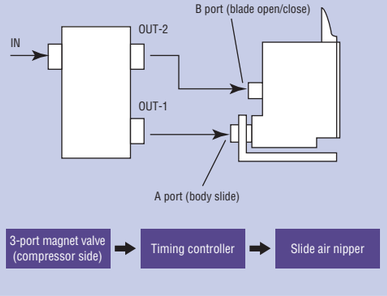


Timing controller

Order code No.	060321
Standard	GT-TC-02

● Weight : 275g
● Air pressure power : 0.6MPa
● With tube joint : inner diameter φ4mm, outside-diameter φ6mm

Example of connection

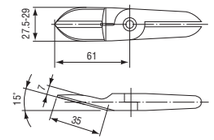
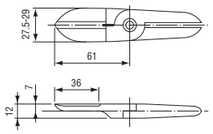


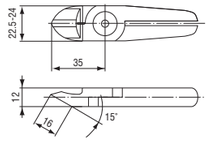
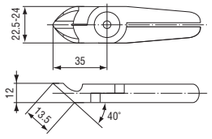
Replacement Blades／Accessories

Spare blades for GT-NS/GT-NR/GT-NB.

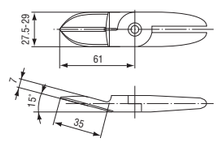
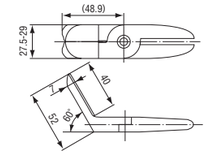
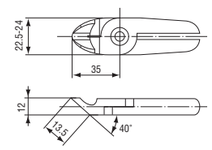
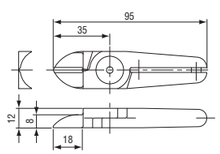
● The cutting capacity depends on the material.

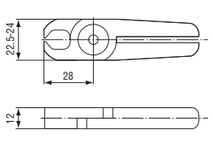
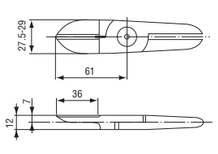
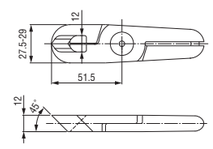
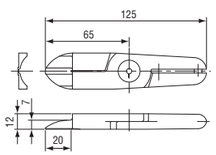
Supported nipper：GT-NS10L/GT-NR10L

Dimensions	Specification	
	Order code No.	130218
	Standard	N10L1S
	Weight	165g
	Opened blade-to blade distance	10mm
	Cutting capacity (soft resin)	ϕ3.5
	Order code No.	130219
	Standard	N10L2S
	Weight	170g
	Opened blade-to blade distance	10mm
	Cutting capacity (soft resin)	ϕ3.5

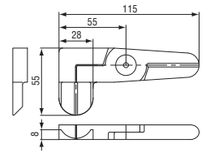
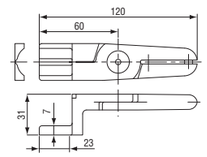
Dimensions	Specification	
	Order code No.	130724
	Standard	N10LAP
	Weight	132g
	Opened blade-to blade distance	5mm
	Cutting capacity (soft resin)	ϕ4
	Order code No.	130725
	Standard	N10LPF
	Weight	136g
	Opened blade-to blade distance	5mm
	Cutting capacity (soft resin)	ϕ4

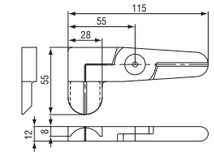
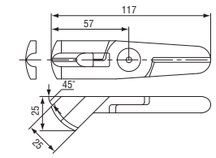
Supported nipper：GT-NS20/GT-NR20/GT-NB20

Dimensions	Specification	
	Order code No.	130222
	Standard	N203S
	Weight	185g
	Opened blade-to blade distance	14mm
	Cutting capacity (soft resin)	ϕ6
	Order code No.	130220
	Standard	N201S
	Weight	200g
	Opened blade-to blade distance	16mm
	Cutting capacity (soft resin)	ϕ6
	Order code No.	130221
	Standard	N202S
	Weight	175g
	Opened blade-to blade distance	14mm
	Cutting capacity (soft resin)	ϕ6
	Order code No.	130726
	Standard	N20PF
	Weight	130g
	Opened blade-to blade distance	11mm
	Cutting capacity (soft resin)	ϕ7
	Order code No.	130697
	Standard	N20AJ
	Weight	125g
	Opened blade-to blade distance	11mm
	Cutting capacity (soft resin)	ϕ7

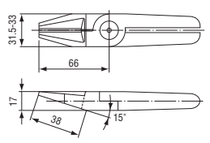
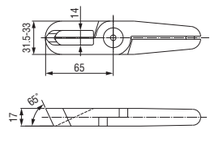
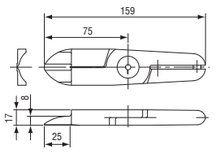
Dimensions	Specification	
	Order code No.	130680
	Standard	N20AP
	Weight	130g
	Opened blade-to blade distance	11mm
	Cutting capacity (soft resin)	ϕ7
	Order code No.	130727
	Standard	N20AE
	Weight	145g
	Opened blade-to blade distance	8mm
	Cutting capacity (soft resin)	ϕ7 L=12
	Order code No.	130265
	Standard	N206S
	Weight	170g
	Opened blade-to blade distance	14mm
	Cutting capacity (soft resin)	ϕ6
	Order code No.	131602
	Standard	N207SA
	Weight	190g
	Opened blade-to blade distance	13mm
	Cutting capacity (soft resin)	ϕ6
	Order code No.	130655
	Standard	N20AJL
	Weight	230g
	Opened blade-to blade distance	16mm
	Cutting capacity (soft resin)	ϕ6

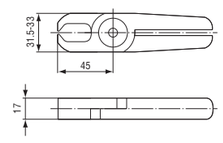
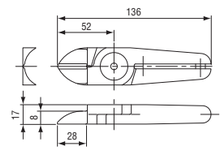
Supported nipper：GT-NS20/GT-NR20/GT-NB20

Dimensions	Specification	
	Order code No.	131466
	Standard	N20AML1498
	Weight	270g
	Opened blade-to blade distance	9.5mm
	Cutting capacity (soft resin)	10×1.5
	Order code No.	131467
	Standard	N20AH
	Weight	240g
	Opened blade-to blade distance	16mm
	Cutting capacity (soft resin)	ϕ6

Dimensions	Specification	
	Order code No.	131468
	Standard	N20AMR1499
	Weight	270g
	Opened blade-to blade distance	9.5mm
	Cutting capacity (soft resin)	10×1.5
	Order code No.	131469
	Standard	N20AK249
	Weight	240g
	Opened blade-to blade distance	14mm
	Cutting capacity (soft resin)	ϕ5.5

Supported nipper：GT-NS30/GT-NR30/GT-NB30

Dimensions	Specification	
	Order code No.	130225
	Standard	N301S
	Weight	430g
	Opened blade-to blade distance	20mm
	Cutting capacity (soft resin)	ϕ8
	Order code No.	130329
	Standard	N30AP
	Weight	380g
	Opened blade-to blade distance	16mm
	Cutting capacity (soft resin)	ϕ10
	Order code No.	131601
	Standard	N303SA
	Weight	390g
	Opened blade-to blade distance	16mm
	Cutting capacity (soft resin)	ϕ8
	Order code No.	131470
	Standard	N30AJL
	Weight	470g
	Opened blade-to blade distance	19mm
	Cutting capacity (soft resin)	ϕ8

Dimensions	Specification	
	Order code No.	130730
	Standard	N30PF
	Weight	415g
	Opened blade-to blade distance	15mm
	Cutting capacity (soft resin)	ϕ10
	Order code No.	130729
	Standard	N30AE
	Weight	440g
	Opened blade-to blade distance	12mm
	Cutting capacity (soft resin)	ϕ10 L=23
	Order code No.	130795
	Standard	N30AJ
	Weight	370g
	Opened blade-to blade distance	11mm
	Cutting capacity (soft resin)	ϕ10

Blade Springs

Order code No.	060100
Standard	GT-NR10L.20 (N10L.N20 Change blade)
Supported nipper	NS/NR 10L、NS/NR/NB 20

Order code No.	060101
Standard	GT-NR30 (N30 Change blade)
Supported nipper	NS/NR/NB 30

Quick Chuck Change
Quick Chuck Change (Manual)
Tool Changer
Automated Chuck Exchange System
Grip
Mini Cylinder
Accessories for Mini Cylinder
Container Cylinders
Accessories for Container Cylinder
Grippers
Buffer Material
Suction
Suction Cups
Suction Stem
Pad in Pad
Air Ejector/ Filter/ Check Valve
Micro Mold E.O.A.T
Cut
Mini Air Nippers
Air Nippers
Frame/Module
Jungle Gym
Let's Joint
Rectangular Tube
Base Aluminum Material
Sliding Chuck
Tubing/Sensors
Tubing
Sensors
Other Products
Others
Information

NTH Series／NKH Series

Used for cutting large gate diameter products of direct gate or side gate.

▶ Gate cut for transparent parts without crack.

＊Attachments：blade, temperature sensor harness, thermocouple harness

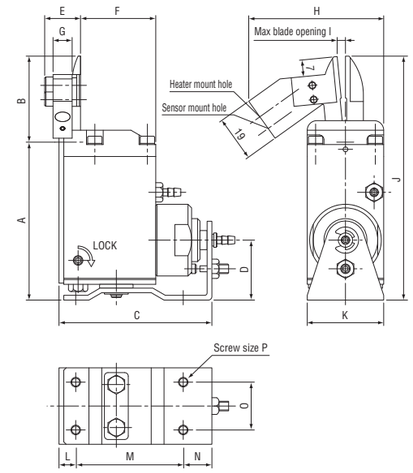
Heat air nipper slide vertical

Order code No.	060353
Standard	GT-NTH05

● Weight : 325g

Order code No.	060354
Standard	GT-NTH10

● Weight : 515g



▶ Suitable for the gate cut of glass fiber/hard plastics.

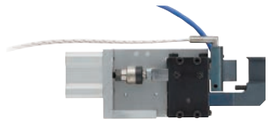
▶ Cutting performance is excellent crack.

＊Attachments：blade, temperature sensor harness, thermocouple harness

Flow controller type (job order production)

Order code No.	060355
Standard	GT-NKH10

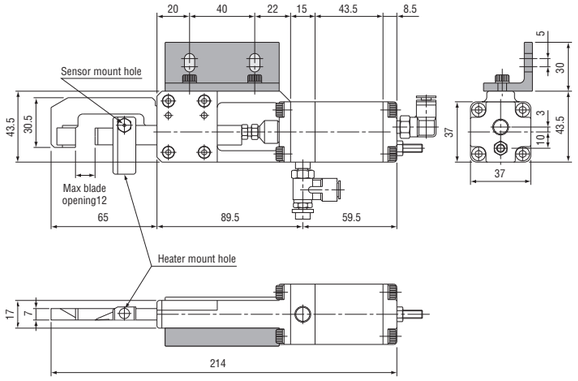
● Weight : 715g



Air hydro type (job order production)

Order code No.	060356
Standard	GT-NKH20

● Weight : 700g ● Hydro converter is required.



＊The drawing indicates GT-NKH10.

＊ Option (bracket)

● Delivery time runs about 30 days from the order date.

■ Dimensions (mm)

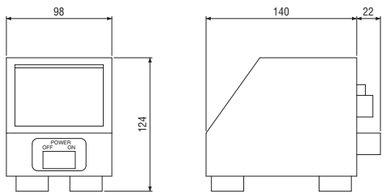
Standard	GT-NTH05	GT-NTH10
A	66.1	83
B	36	47
C	64	73
D	25.1	29
E	15	16.2
F	31.5	37.5
G	8	8
H	56.5	63
I	3.5	4.5
J	102.1	130
K	32	38
L	7	8
M	45	53
N	12	12
O	20	24
P	M4	M4

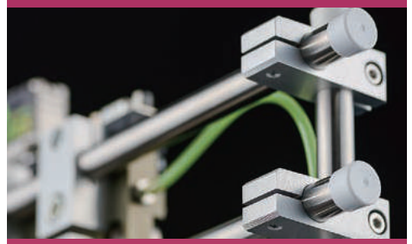
▶ Desktop temperature controller for heat nipper

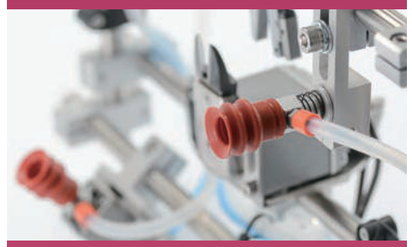
Desktop temperature controller for heat nipper

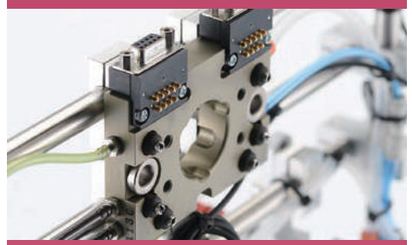
Order code No.	030492
Standard	DTC-001

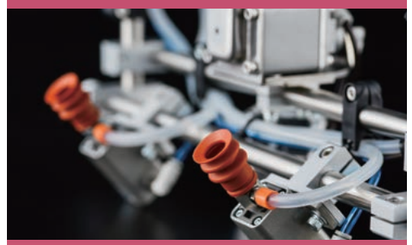
- Weight : 900g
- Power supply voltage : AC100-240V
- Power consumption : about 3W or 5VA (no-load condition)
- Output capacity : 12 MAX (−1.2kw) resistance load
- Ambient operating temperature : 0-40℃ RH35-85% (non-condensing)











Frame／Module

Jungle Gym ····· 5-2

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- Jungle Gym SS Pipe／Fixture Made of Resin ····· 5-8
- Pipe End Cap／SS Pipe Cutter／Clip ····· 5-9
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- Jungle Gym Series Parts (Bracket) ····· 5-13
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- Jungle Gym Series Parts (Washer) ····· 5-24
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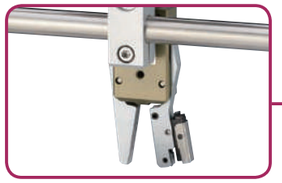
Sliding Chuck ····· 5-54

Jungle Gym

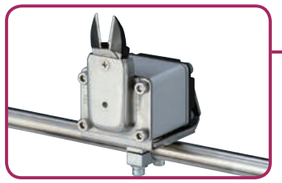
- Features enough rigidity and weight reduction. Frame is made of thin-wall stainless. And connection connector is made of super duralumin.
- Time for adjustment is reduced by easy position adjustment of chuck parts and easy positioning.

Frame ／ Module

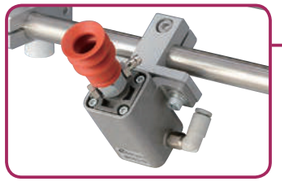
Grip

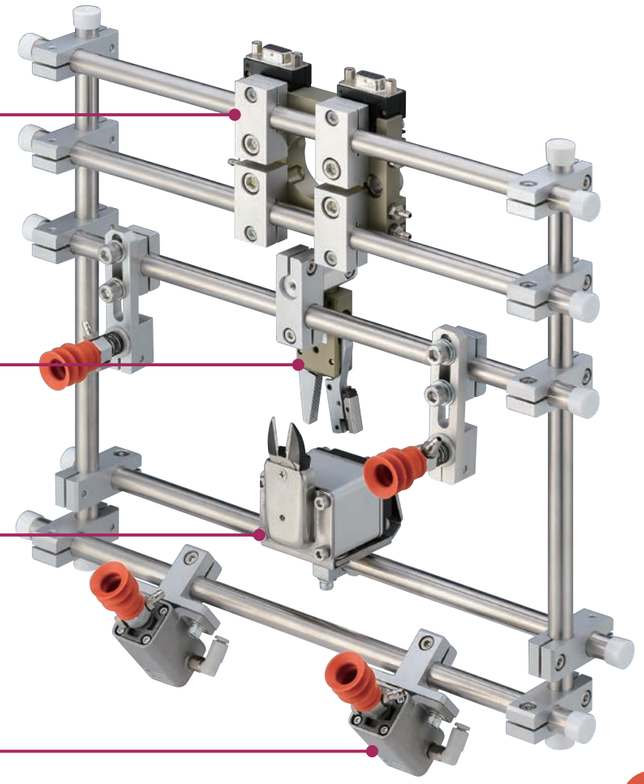


Cut



Suction



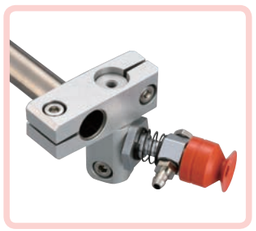


Tubing 6-1

Three kinds of SS pipes (ϕ 8/ ϕ 12/ ϕ 20) are basic components of jungle gym series to a create chuck plate. Determine extract method first. And choose your favorite parts from the product list. The assemble them. Use jungle gym modules in 5-26 to create your chuck plate easily.

■Example of using other components

▶ Suction cup + Suction stem + Rotation bracket + Cross connector



Order code No.	210193
Standard	VAPH-15C

Order code No.	131173
Standard	N01864-306

Order code No.	210974
Standard	VFIL-S-5A

Order code No.	131099
Standard	N01861-202

List of Jungle Gym

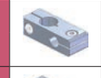
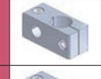
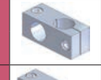
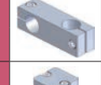
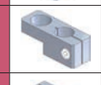
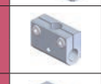
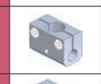
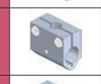
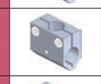
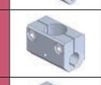
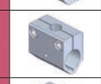
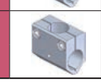
Various parts can be attached to jungle gym SS ø8, ø12, and ø20.

Jungle gym

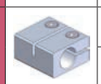
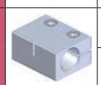
You can see moving images of products by using QR code reader of your smartphone.

■Specification

	Product name		Order code No.	Standard	Page of details
Frame	Jungle gym • SS pipe ϕ 8		340905	8*0.6*500	5-8
			340906	8*0.6*1000	
			340907	8*0.6*1500	
	Jungle gym • SS pipe ϕ 12		271527	12*0.6*500	
			271528	12*0.6*1000	
			271529	12*0.6*1500	
	Jungle gym • SS pipe ϕ 20		281812	20*0.8*500	
			281813	20*0.8*1000	
			281814	20*0.8*1500	
Fixture made of resin	Tie wrap base ϕ 12 (tie band)		171210	RCA12	5-9
	Tie wrap base ϕ 20 (tie band)		171211	RCA20	
	Tie wrap base ϕ 12 (M4)		171212	RCB12	
	Tie wrap base ϕ 20 (M4)		171213	RCB20	
Pipe end cap	Pipe end cap ϕ 8		131212	N01902-003	
	Pipe end cap ϕ 12		131211	N01902-002	
	Pipe end cap ϕ 20		131210	N01902-001	
SS pipe cutter	SS pipe cutter		101206	K-203	
	SS pipe cutter blade		101207	K-203-1	
Clip	Clip • TMA • ϕ 20 * ϕ 20		196559	TMA-CL (20*20)	
	Clip • TMA • ϕ 20 * ϕ 12		196560	TMA-CL (20*12)	

	Product name		Order code No.	Standard	Page of details
Clip	Clip • TMA • ϕ 12*ϕ 12		196561	TMA-CL (12*12)	5-9
	Clip • TMA • ϕ 12*ϕ 8		196562	TMA-CL (12*8)	
	Clip • TMA • ϕ 8*ϕ 8		196563	TMA-CL (8*8)	
	Clip • TMA • ϕ 12*ϕ 10		196564	TMA-CL (12*10)	
Connector	Cross connector • ϕ 8 ϕ 8		131102	N01861-207	5-10
	Cross connector • ϕ 12 ϕ 8		131098	N01861-201	
	Cross connector • ϕ 12 ϕ 12		131099	N01861-202	
	Cross connector • ϕ 20 ϕ 12		131100	N01861-204	
	Cross connector • ϕ 20 ϕ 20		131101	N01861-206	
	Cross connector·long· ϕ 20 ϕ 20		131573	N01861-206B	
	Cross connector • ϕ 12 ϕ 12 (rear entrance)		131569	N01861-202A	
	Cross connector • ϕ 20 ϕ 20 (rear entrance)		131570	N01861-206A	
	Connector • for SSW		131097	N01861-108	
	T Connector ＃1 • ϕ 8 ϕ 8		131108	N01861-306	
	T Connector ＃1 • ϕ 8 ϕ 12		131105	N01861-303	
	T Connector ＃1 • ϕ 12 ϕ 8		131104	N01861-302	
	T Connector #1 • ϕ 12 ϕ 12		131103	N01861-301	5-11
	T Connector ＃1 • ϕ 12 ϕ 20		131109	N01861-307	
	T Connector ＃1 • ϕ 20 ϕ 12		131106	N01861-304	
	T Connector ＃1 • ϕ 20 ϕ 20		131107	N01861-305	

List of Jungle Gym

	Product name		Order code No. Standard	Page of details
Connector	T Connector #2・φ8φ8		131115 / N01861-406	5-11
Connector	T Connector #2・φ8φ12		131112 / N01861-403	
Connector	T Connector #2・φ12φ8		131111 / N01861-402	
Connector	T Connector #2・φ12φ12		131110 / N01861-401	
Connector	T Connector #2・φ12φ20		131116 / N01861-407	
Connector	T Connector #2・φ20φ12		131113 / N01861-404	
Connector	T Connector #2・φ20φ20		131114 / N01861-405	
Connector	Parallel connector・φ8φ8		131096 / N01861-107	
Connector	Parallel connector・φ8φ12		131092 / N01861-101	5-12
Connector	Parallel connector・φ12φ12		131093 / N01861-102	
Connector	Parallel connector・φ20φ12		131094 / N01861-104	
Connector	Parallel connector・φ20φ20		131095 / N01861-106	
Connector	Cross connector #2・φ20φ20		131117 / N01861-501	
Connector	Straight connector・φ8		131488 / N01868-501	5-13
Connector	Straight connector・φ12		131489 / N01868-502	
Connector	Straight connector・φ20		131490 / N01868-503	
Bracket	Access bracket・φ12・M6		131125 / N01862-210	

	Product name		Order code No. Standard	Page of details
Bracket	Access bracket・φ20・M6		131126 / N01862-211	
Bracket	Attachment bracket・φ8・M5		131306 / N01862-208	
Bracket	Attachment bracket・φ8・M6		131121 / N01862-205	
Bracket	Attachment bracket・φ12・M5		131305 / N01862-204	5-13
Bracket	Attachment bracket・φ12・M6		131118 / N01862-201	
Bracket	Attachment bracket・φ12・M8		131225 / N01862-213	
Bracket	Attachment bracket・φ20・M6		131123 / N01862-207	
Bracket	Attachment bracket・φ20・M8		131226 / N01862-214	
Bracket	Suction bracket・φ8・M5		131122 / N01862-206	
Bracket	Suction bracket・φ8・M6		131124 / N01862-209	
Bracket	Suction bracket・φ12・M5		131119 / N01862-202	
Bracket	Suction bracket・φ12・M6		131127 / N01862-212	
Bracket	Suction bracket・φ12・PT1/8		131120 / N01862-203	5-14
Bracket	Cylinder bracket・φ8		131075 / N01915-113	
Bracket	Cylinder bracket・φ12		131074 / N01915-112	
Bracket	Cylinder bracket・φ20		131066 / N01915-103	
Bracket	Swing bracket		131065 / N01915-102	

	Product name		Order code No. Standard	Page of details
Bracket	Slide bracket・φ8		131151 / N01863-207	
Bracket	Slide bracket・φ12		131145 / N01863-201	
Bracket	Slide bracket・φ20		131149 / N01863-205	
Bracket	Slide bracket・W・φ8		131217 / N01863-113	
Bracket	Slide bracket・W・φ12		131128 / N01863-101	5-15
Bracket	Slide bracket・W・φ20		131134 / N01863-111	
Bracket	Sensor bracket・φ8		131190 / N01867-201	
Bracket	Sensor bracket・φ12		131189 / N01867-101	
Bracket	Sensor bracket		131077 / N01915-201	
Bracket	Chuck bracket・TH・φ8		131188 / N01866-502	
Bracket	Chuck bracket・TH・φ12		131187 / N01866-501	
Bracket	Chuck bracket・φ12		131067 / N01915-105	
Bracket	Nipper bracket・A		131078 / N01915-301	5-16
Bracket	Nipper bracket・B		131216 / N01915-302	
Bracket	Nipper bracket・C		131080 / N01915-303	
Bracket	Nipper bracket・D		131081 / N01915-304	
Bracket	Nipper bracket・E		131082 / N01915-305	5-17

	Product name		Order code No. Standard	Page of details
Bracket	Bracket・L・φ8・for UMCD		131180 / N01866-202	
Bracket	Bracket・L・φ12・for MCD		131179 / N01866-201	
Bracket	Bracket・T・φ12・for MCD		131176 / N01866-101	
Bracket	Bracket・T・φ20・for MCD		131554 / N01866-103A	5-17
Bracket	Bracket・T・φ8・for UMCD		131177 / N01866-102	
Bracket	Bracket・TH・φ8・for UMCD		131182 / N01866-302	
Bracket	Bracket・TH・φ12・for MCD		131181 / N01866-301	
Bracket	Bracket・TH・φ20・for MCD		131183 / N01866-303	
Bracket	Bracket・TV・φ8・for UMCD		131185 / N01866-402	
Bracket	Bracket・TV・φ12・for MCD		131184 / N01866-401	
Bracket	Bracket・TV・φ20・for MCD		131186 / N01866-403	
Bracket	Bracket・φ8		131073 / N01915-111	5-18
Bracket	Bracket・φ12		131071 / N01915-109	
Bracket	Bracket・φ20		131072 / N01915-110	
Bracket	Bracket・W・φ8		131070 / N01915-108	
Bracket	Bracket・W・φ12		131068 / N01915-106	
Bracket	Bracket・W・φ20		131069 / N01915-107	5-19

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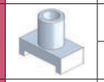
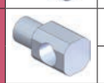
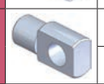
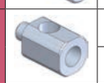
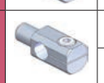
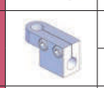
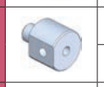
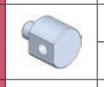
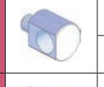
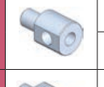
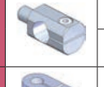
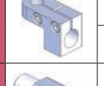
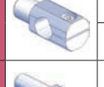
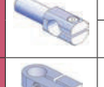
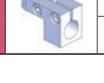
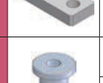
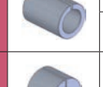
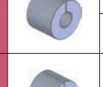
	Product name		Order code No. Standard	Page of details
Bracket	Bracket • NCON		131083	5-19
			N01915-401	
	Rotation bracket • ϕ20		131064	
			N01915-101	
	Rotation bracket • M10 • 8A		131172	
			N01864-305	
	Rotation bracket • M12 • 12A		131173	
			N01864-306	
	Rotation bracket • M17 • 20A		131174	
			N01864-307	
	Rotation bracket • PT1/8 • 8A		131175	
			N01864-401	
	Rotation bracket • ϕ8 • 8A		131170	
			N01864-303	
	Rotation bracket • ϕ8 • 8B		131162	
			N01864-103	
	Rotation bracket • ϕ8 • M5A		131164	5-20
			N01864-202	
	Rotation bracket • ϕ8 • M6A		131165	
			N01864-203	
	Rotation bracket • ϕ8 • M10A		131435	
			N01864-201	
	Rotation bracket • ϕ8 • M12A		131433	
			N01864-205	
	Rotation bracket • ϕ12 • PT1/8A		131166	
			N01864-204	
	Rotation bracket • ϕ12 • 8A		131169	
			N01864-302	
	Rotation bracket • ϕ12 • 8B		131160	
			N01864-101	
	Rotation bracket • ϕ12 • 12A		131168	
			N01864-301	
	Rotation bracket • ϕ12 • 12AL		131567	
			N01864-301L	
	Rotation bracket • ϕ12 • 12B		131161	
			N01864-102	

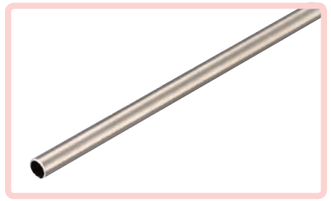
	Product name		Order code No. Standard	Page of details
Bracket	Rotation bracket • ϕ20 • 20A		131171	5-20
			N01864-304	
	Rotation bracket • ϕ20 • 20AL		131568	
			N01864-304L	
Rotate	Suction rotate #A • ϕ8		131194	5-21
			N01868-104	
	Suction rotate #A • ϕ12		131191	
			N01868-101	
	Suction rotate #B • M3 • ϕ8		131195	
			N01868-105	
	Suction rotate #B • M5 • ϕ12		131192	
			N01868-102	
Bracket	Slide bracket 40 • M3		131158	
			N01863-214	
	Slide bracket 40 • M5		131147	
			N01863-203	
	Slide bracket 40 • M6		131156	
			N01863-212	
	Slide bracket 40 • PT1/8		131154	
			N01863-210	
	Slide bracket 40 • W • M10		131139	
			N01863-117	
	Slide bracket 40 • W • M12		131140	5-22
			N01863-118	
	Slide bracket 40 • W • M17		131143	
			N01863-122	
	Slide bracket 40 • ϕ8		131152	
			N01863-208	
	Slide bracket 40 • W • ϕ8		131131	
			N01863-106	
	Slide bracket 40 • W • ϕ12		131132	
			N01863-107	
	Slide bracket 40 • W • ϕ20		131137	
			N01863-114	
	Slide bracket 40 • T • W • ϕ8		230051	
			XL0005-102	

	Product name		Order code No. Standard	Page of details
Bracket	Slide bracket 40 • T • ϕ8		230056	5-22
			XL0005-107	
	Slide bracket 40 • T • ϕ12		230052	
			XL0005-103	
	Slide bracket 40 • T • ϕ20		230054	5-23
			XL0005-105	
	Slide bracket 70 • M3		131159	
			N01863-217	
	Slide bracket 70 • M5		131148	
			N01863-204	
	Slide bracket 70 • M6		131157	
			N01863-213	
	Slide bracket 70 • PT1/8		131155	
			N01863-211	
	Slide bracket 70 • W • M10		131141	
			N01863-120	
	Slide bracket 70 • W • M12		131142	
			N01863-121	
	Slide bracket 70 • W • M17		131144	
			N01863-124	
	Slide bracket 70 • ϕ8		131153	
			N01863-209	
	Slide bracket 70 • W • ϕ8		131133	5-24
			N01863-110	
	Slide bracket 70 • W • ϕ12		131130	
			N01863-103	
	Slide bracket 70 • W • ϕ20		131138	
			N01863-115	
	Slide bracket 70 • T • W • ϕ8		230053	
			XL0005-104	
	Slide bracket 70 • T • ϕ8		230057	
			XL0005-108	
	Slide bracket 70 • T • ϕ12		230050	
			XL0005-101	

	Product name		Order code No. Standard	Page of details
Bracket	Slide bracket 70 • T • ϕ20		230055	5-24
			XL0005-106	
Washer	Slide washer • ϕ8 / ϕ12		131146	
			N01863-202	
	Slide washer • W • ϕ8 / ϕ12		131129	
			N01863-102	
	Slide washer • ϕ20		131150	
			N01863-206	
	Slide washer • W • ϕ20		131135	
			N01863-112	
Nut plates	Nut plate • for slide bracket		023197	
			CP-076	
Nut	Bushing nut • ϕ8 • M5		131200	5-25
			N01868-401	
	Bushing nut • ϕ8 • M6		131206	
			N01868-410	
	Bushing nut • ϕ12 • M5		131202	
			N01868-403	
	Bushing nut • ϕ12 • M10		131201	
			N01868-402	
	Bushing nut • ϕ12 • PT1/8		131207	
			N01868-411	
	Bushing nut • ϕ20 • M12		131205	
			N01868-409	
	Bushing nut • ϕ20 • PT1/8		131199	
			N01868-305	
	Bushing nut • M5-M3		131204	
			N01868-407	
Bushing	Bushing • ϕ12 ϕ8		131196	
			N01868-301	
	Bushing • ϕ20 ϕ8		131197	
			N01868-302	
	Bushing • ϕ20 ϕ12		131198	
			N01868-303	

Jungle Gym SS Pipe／Fixture Made of Resin

Using thin-walled stainless steel pipes allows weight reduction and structural rigidity.



Jungle gym・SS pipe ϕ 8

Order code No.	340905
Standard	8∗0.6∗500

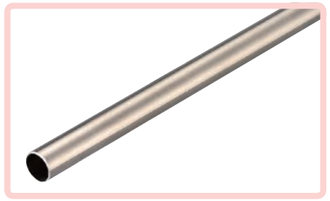
● Weight : 56g

Order code No.	340906
Standard	8∗0.6∗1000

● Weight : 112g

Order code No.	340907
Standard	8∗0.6∗1500

● Weight : 144g



Jungle gym・SS pipe ϕ 12

Order code No.	271527
Standard	12∗0.6∗500

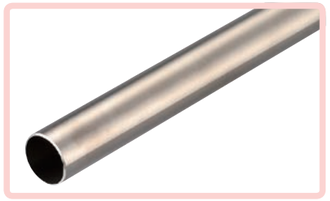
● Weight : 88g

Order code No.	271528
Standard	12∗0.6∗1000

● Weight : 194g

Order code No.	271529
Standard	12∗0.6∗1500

● Weight : 258g



Jungle gym・SS pipe ϕ 20

Order code No.	281812
Standard	20∗0.8∗500

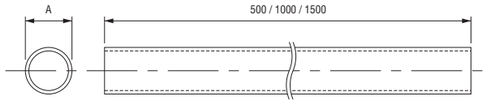
● Weight : 187g

Order code No.	281813
Standard	20∗0.8∗1000

● Weight : 402g

Order code No.	281814
Standard	20∗0.8∗1500

● Weight : 612g



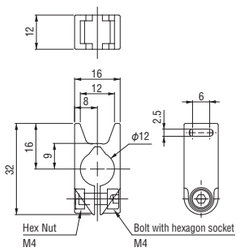
■Specification

Product name	A	Thickness	Material	Outside diameter tolerance
Jungle gym・SS pipeϕ8	ϕ 8	0.6mm	SS304	± 0.05
Jungle gym・SS pipeϕ12	ϕ 12			
Jungle gym・SS pipeϕ20	ϕ 20	0.8mm		

Tie wrap base ϕ12 (tie band)

Order code No.	171210
Standard	RCA12

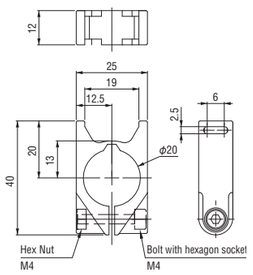
● Weight: 5g



Tie wrap base ϕ20 (tie band)

Order code No.	171211
Standard	RCA20

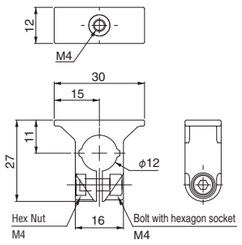
● Weight: 7g



Tie wrap base ϕ 12 (M4)

Order code No.	171212
Standard	RCB12

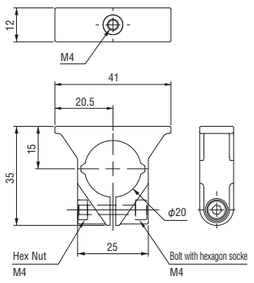
● Weight: 6g



Tie wrap base ϕ 20 (M4)

Order code No.	171213
Standard	RCB20

● Weight: 9g



Pipe End Cap／SS Pipe Cutter／Clip

Cap for SS pipe, SS pipe cutter, and clip.

● Use Semedine Super X Series to fix the pipe end cap to jungle gym SS pipe.

Pipe end cap ϕ 8

Order code No.	171338
Standard	N01902-003

● Weight : 0.2g

Pipe end cap ϕ 12

Order code No.	171339
Standard	N01902-002

● Weight : 0.4g

Pipe end cap ϕ 20

Order code No.	171340
Standard	N01902-001

● Weight : 3.0g

SS pipe cutter

Order code No.	101206
Standard	K-203

● Weight: 205g

SS pipe cutter blade

Order code No.	101207
Standard	K-203-1

Clip・TMA・ϕ 20∗ϕ 20

Order code No.	196559
Standard	TMA-CL (20∗20)

● Weight : 270g

Clip・TMA・ϕ 20∗ϕ 12

Order code No.	196560
Standard	TMA-CL (20∗12)

● Weight: 160g

Clip・TMA・ϕ 12∗ϕ 12

Order code No.	196561
Standard	TMA-CL (12∗12)

● Weight : 75g

Clip・TMA・ϕ 12∗ϕ 8

Order code No.	196562
Standard	TMA-CL (12∗8)

● Weight: 85g

Clip・TMA・ϕ 8∗ϕ 8

Order code No.	196563
Standard	TMA-CL (8∗8)

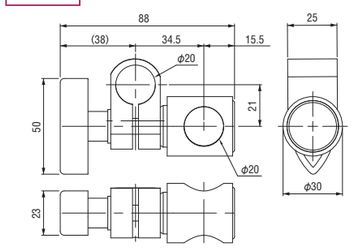
● Weight: 55g

Clip・TMA・ϕ 12∗ϕ 10

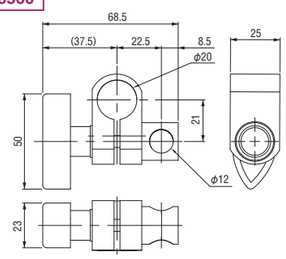
Order code No.	196564
Standard	TMA-CL (12∗10)

● Weight: 62g

196559



196560



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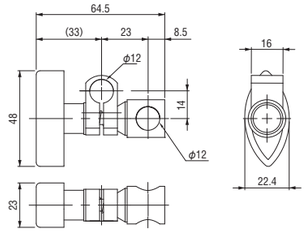

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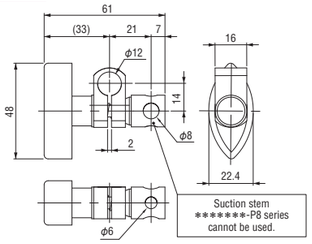
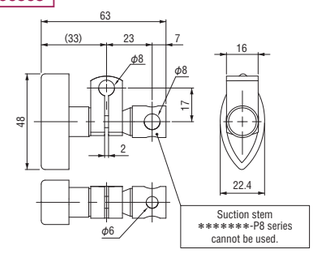


196563



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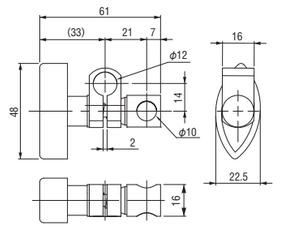
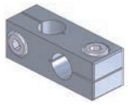


Jungle Gym Series Parts

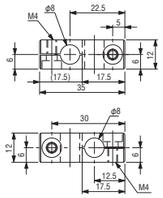
Various parts can be attached to jungle gym based on SS pipe (ϕ 8 / ϕ 12 / ϕ 20).

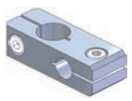


Cross connector • ϕ 8 ϕ 8

Order code No.	131102
Standard	N01861-207

● Weight : 9.0g

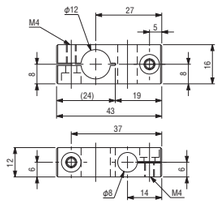


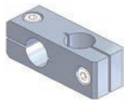


Cross connector • ϕ 12 ϕ 8

Order code No.	131098
Standard	N01861-201

● Weight : 16.8g

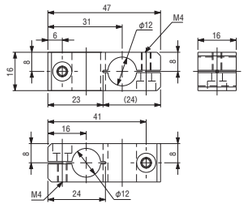


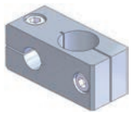


Cross connector • ϕ 12 ϕ 12

Order code No.	131099
Standard	N01861-202

● Weight : 20.5g

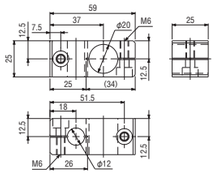


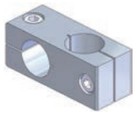


Cross connector • ϕ 20 ϕ 12

Order code No.	131100
Standard	N01861-204

● Weight : 72.0g

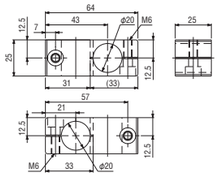


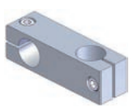


Cross connector • ϕ 20 ϕ 20

Order code No.	131101
Standard	N01861-206

● Weight : 50.3g

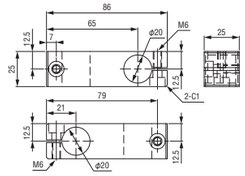




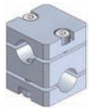
Cross connector· long· ϕ 20 ϕ 20

Order code No.	131573
Standard	N01861-206B

● Weight : 109g



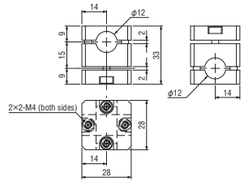
▶ Convenient for addition of components after assembly.



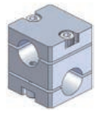
Cross connector • ϕ 12 ϕ 12 (rear entrance)

Order code No.	131569
Standard	N01861-202A

● Weight : 11.1g



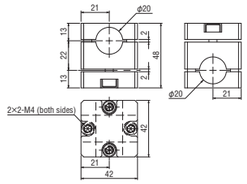
▶ Convenient for addition of components after assembly.

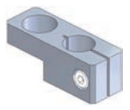


Cross connector • ϕ 20 ϕ 20 (rear entrance)

Order code No.	131570
Standard	N01861-206A

● Weight : 30g

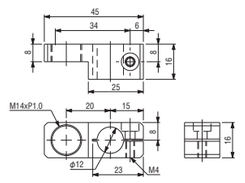


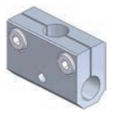


Connector • for SSW

Order code No.	131097
Standard	N01861-108

● Weight : 15.5g

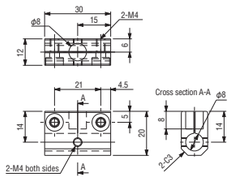


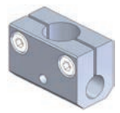


T Connector #1 • ϕ 8 ϕ 8

Order code No.	131108
Standard	N01861-306

● Weight : 12.5g

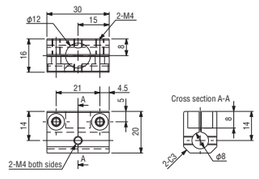


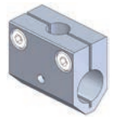


T Connector #1 • ϕ 8 ϕ 12

Order code No.	131105
Standard	N01861-303

● Weight : 22.6g

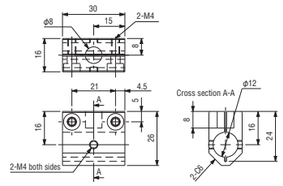


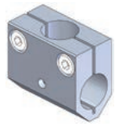


T Connector #1 • ϕ 12 ϕ 8

Order code No.	131104
Standard	N01861-302

● Weight : 18.7g

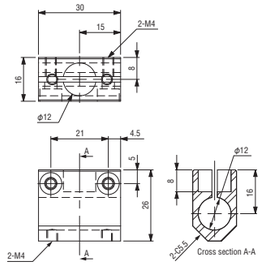


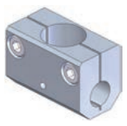


T Connector # 1 • ϕ 12 ϕ 12

Order code No.	131103
Standard	N01861-301

● Weight : 17.5g

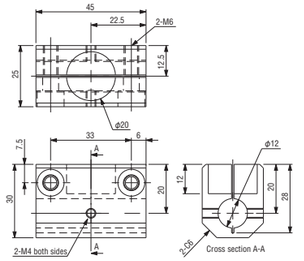


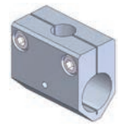


T Connector # 1 • ϕ 12 ϕ 20

Order code No.	131109
Standard	N01861-307

● Weight : 57.8g

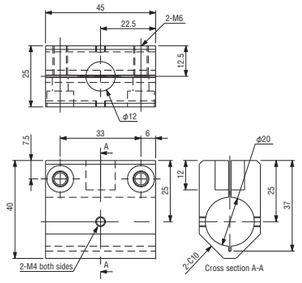


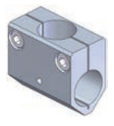


T Connector # 1 • ϕ 20 ϕ 12

Order code No.	131106
Standard	N01861-304

● Weight : 62.4g

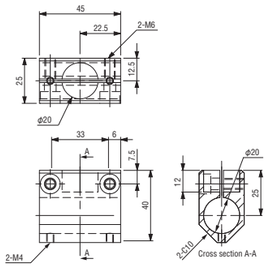


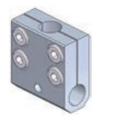


T Connector # 1 • ϕ 20 ϕ 20

Order code No.	131107
Standard	N01861-305

● Weight : 55.9g

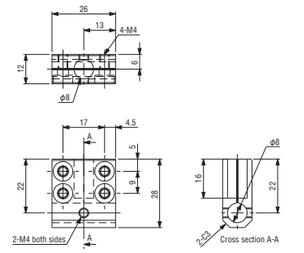


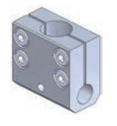


T Connector # 2 • ϕ 8 ϕ 8

Order code No.	131115
Standard	N01861-406

● Weight : 14.6g

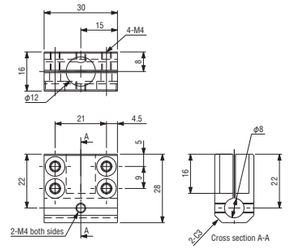


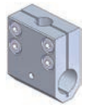


T Connector # 2 • ϕ 8 ϕ 12

Order code No.	131112
Standard	N01861-403

● Weight : 30.8g

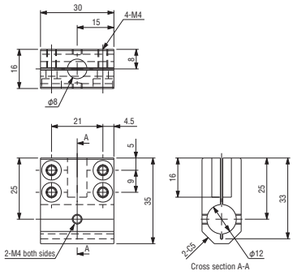


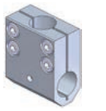


T Connector # 2 • ϕ 12 ϕ 8

Order code No.	131111
Standard	N01861-402

● Weight : 28.3g

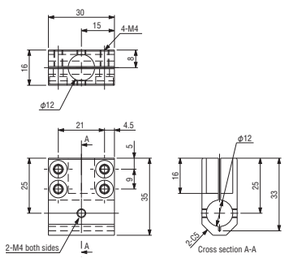


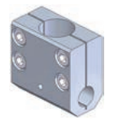


T Connector # 2 • ϕ 12 ϕ 12

Order code No.	131110
Standard	N01861-401

● Weight : 25.7g

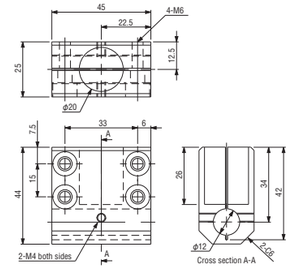




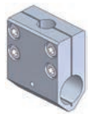
T Connector # 2 • ϕ 12 ϕ 20

Order code No.	131116
Standard	N01861-407

● Weight : 87.2g



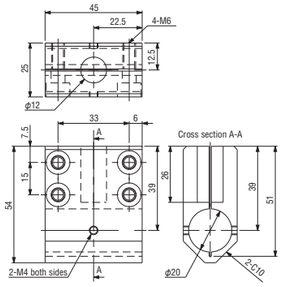
Jungle Gym Series Parts

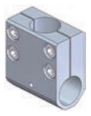


T Connector # 2 • ϕ20 ϕ12

Order code No.	131113
Standard	N01861-404

● Weight : 107.4g

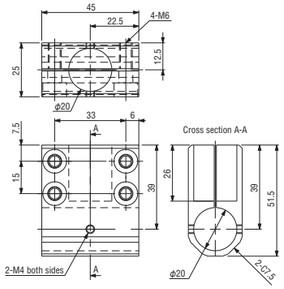


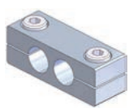


T Connector # 2 • ϕ20 ϕ20

Order code No.	131114
Standard	N01861-405

● Weight : 77.3g

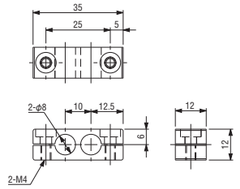


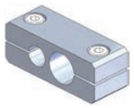


Parallel connector • ϕ8 ϕ8

Order code No.	131096
Standard	N01861-107

● Weight : 9.1g

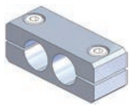




Parallel connector • ϕ8 ϕ12

Order code No.	131092
Standard	N01861-101

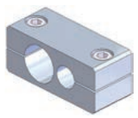
● Weight : 20.6g



Parallel connector • ϕ12 ϕ12

Order code No.	131093
Standard	N01861-102

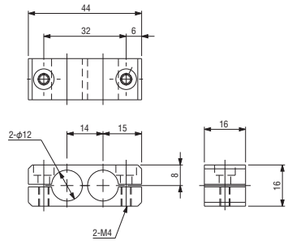
● Weight : 18.6g

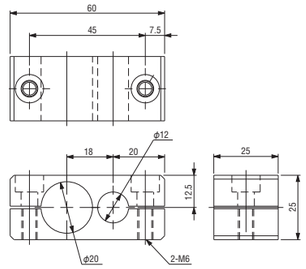


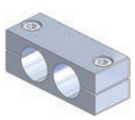
Parallel connector • ϕ20 ϕ12

Order code No.	131094
Standard	N01861-104

● Weight : 67.2g



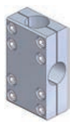




Parallel connector • ϕ20 ϕ20

Order code No.	131095
Standard	N01861-106

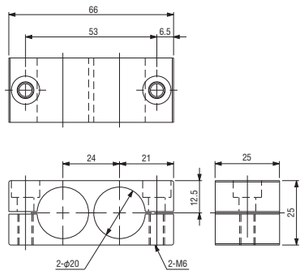
● Weight : 60.7g

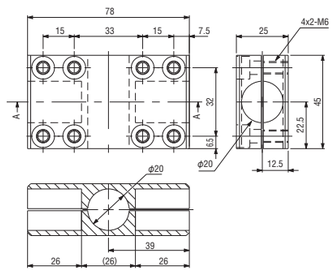


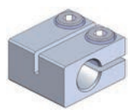
Cross connector # 2• ϕ20 ϕ20

Order code No.	131117
Standard	N01861-501

● Weight : 132.3g



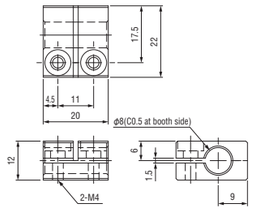


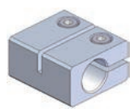


Straight connector • ϕ8

Order code No.	131488
Standard	N01868-501

● Weight : 12.2g

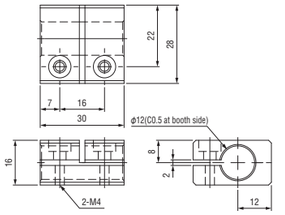


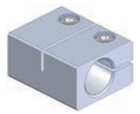


Straight connector • ϕ12

Order code No.	131489
Standard	N01868-502

● Weight : 26.8g

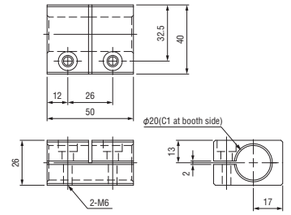




Straight connector • ϕ20

Order code No.	131490
Standard	N01868-503

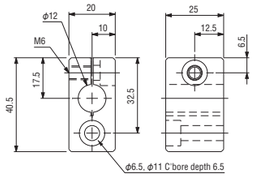
● Weight : 102.1g



Access bracket • ϕ12 • M6

Order code No.	131125
Standard	N01862-210

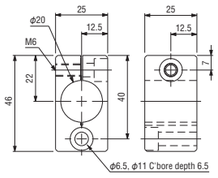
● Weight : 41.5g



Access bracket • ϕ20 • M6

Order code No.	131126
Standard	N01862-211

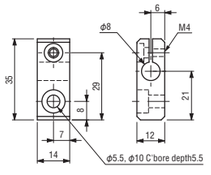
● Weight : 50.8g



Attachment bracket • ϕ8 • M5

Order code No.	131306
Standard	N01862-208

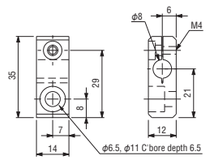
● Weight : 15g

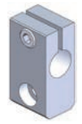


Attachment bracket • ϕ8 • M6

Order code No.	131121
Standard	N01862-205

● Weight : 11.1g

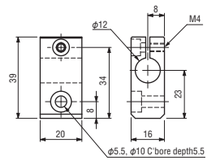




Attachment bracket • ϕ12 • M5

Order code No.	131305
Standard	N01862-204

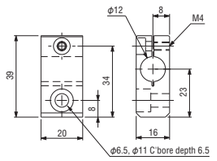
● Weight : 30g



Attachment bracket • ϕ12 • M6

Order code No.	131118
Standard	N01862-201

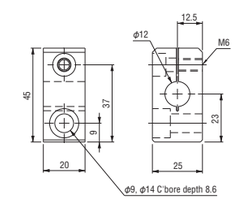
● Weight : 24.1g



Attachment bracket • ϕ12 • M8

Order code No.	131225
Standard	N01862-213

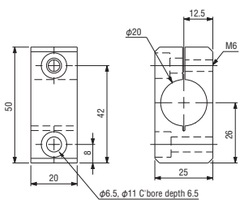
● Weight : 41.5g



Attachment bracket • ϕ20 • M6

Order code No.	131123
Standard	N01862-207

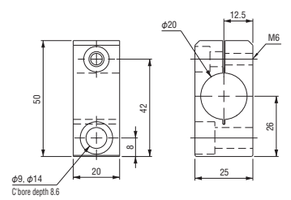
● Weight : 44.7g



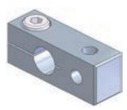
Attachment bracket • ϕ20 • M8

Order code No.	131226
Standard	N01862-214

● Weight : 50.7g



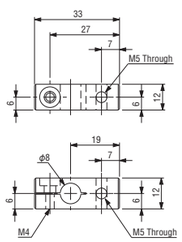
Jungle Gym Series Parts

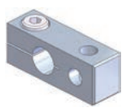


Suction bracket • ϕ8 • M5

Order code No.	131122
Standard	N01862-206

● Weight : 8.1g

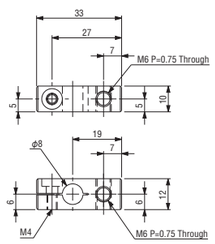


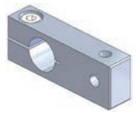


Suction bracket • ϕ8 • M6

Order code No.	131124
Standard	N01862-209

● Weight : 7.8g ● M6 fine

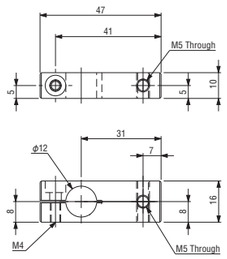


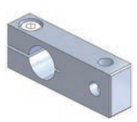


Suction bracket • ϕ12 • M5

Order code No.	131119
Standard	N01862-202

● Weight : 15.7g

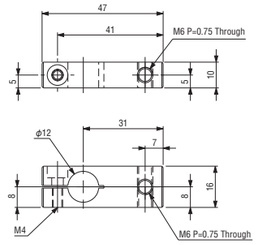


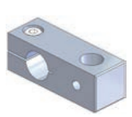


Suction bracket • ϕ12 • M6

Order code No.	131127
Standard	N01862-212

● Weight : 15.4g ● M6 fine

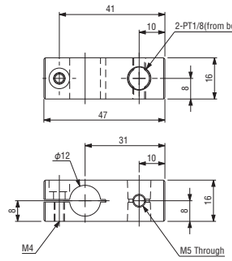


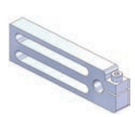


Suction bracket • ϕ12 • PT1/8

Order code No.	131120
Standard	N01862-203

● Weight : 24.1g

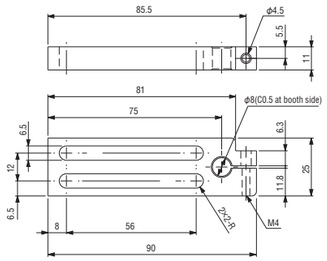




Cylinder bracket • ϕ8

Order code No.	131075
Standard	N01915-113

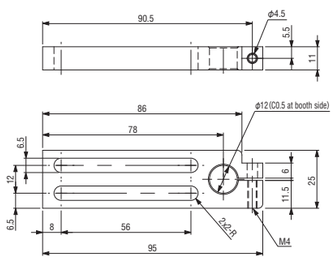
● Weight : 106.2g

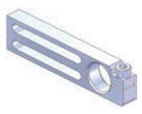


Cylinder bracket • ϕ12

Order code No.	131074
Standard	N01915-112

● Weight : 111.1g

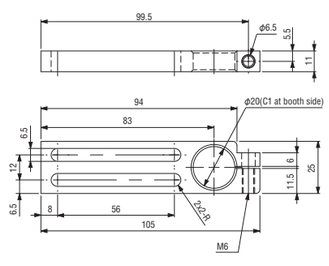




Cylinder bracket • ϕ20

Order code No.	131066
Standard	N01915-103

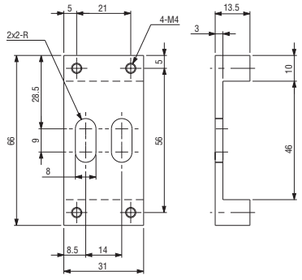
● Weight : 111.6g

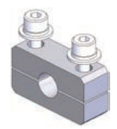


Swing bracket

Order code No.	131065
Standard	N01915-102

● Weight : 32.1g

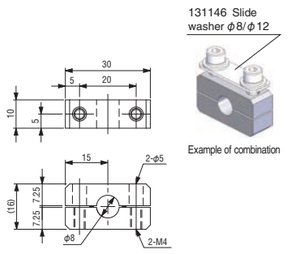


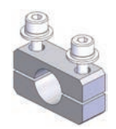


Slide bracket • ϕ8

Order code No.	131151
Standard	N01863-207

● Weight : 10.4g

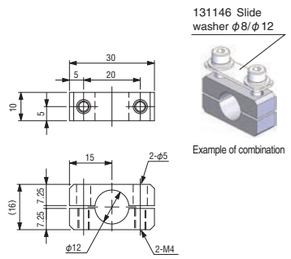


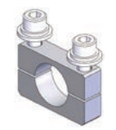


Slide bracket • ϕ12

Order code No.	131145
Standard	N01863-201

● Weight : 8.5g

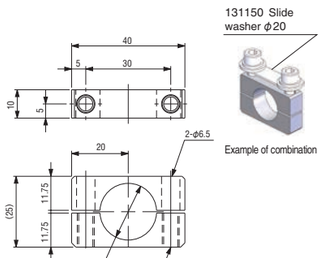


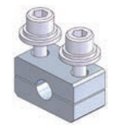


Slide bracket • ϕ20

Order code No.	131149
Standard	N01863-205

● Weight : 15.0g

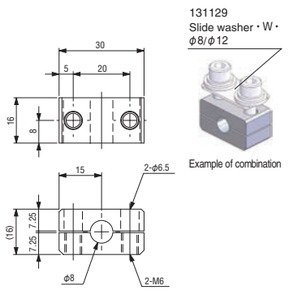


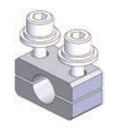


Slide bracket • W • ϕ8

Order code No.	131217
Standard	N01863-113

● Weight : 12.0g

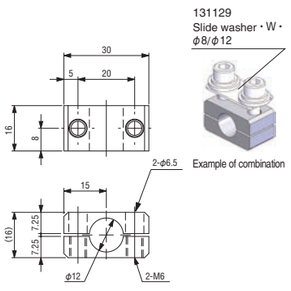


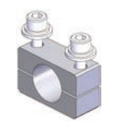


Slide bracket • W • ϕ12

Order code No.	131128
Standard	N01863-101

● Weight : 13.3g

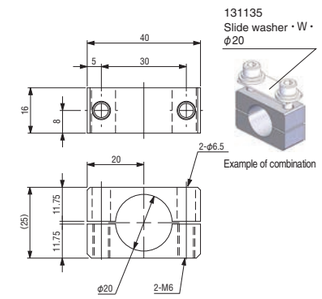


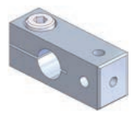


Slide bracket • W • ϕ20

Order code No.	131134
Standard	N01863-111

● Weight : 26.2g

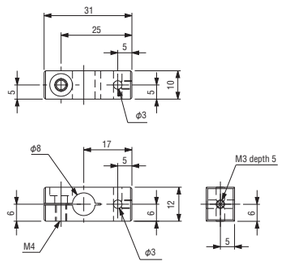


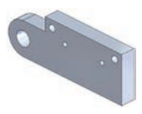


Sensor bracket • ϕ8

Order code No.	131190
Standard	N01867-201

● Weight : 7.7g

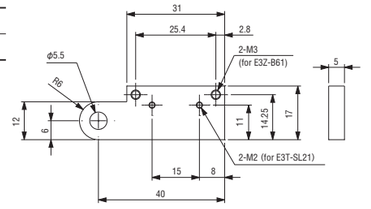




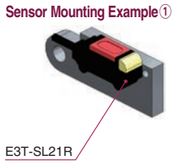
Sensor bracket • ϕ12

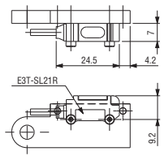
Order code No.	131189
Standard	N01867-101

● Weight : 9.2g

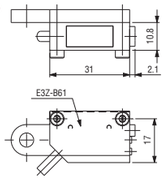


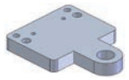
Sensor Mounting Example ①





Sensor Mounting Example ②



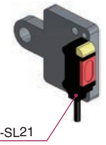


Sensor bracket

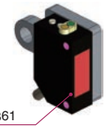
Order code No.	131077
Standard	N01915-201

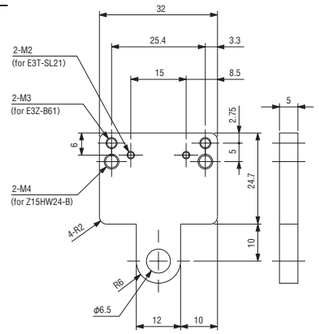
● Weight : 12.6g

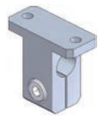
Sensor Mounting Example ①



Sensor Mounting Example ②



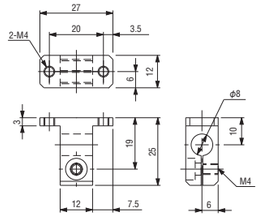


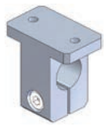


Chuck bracket • TH • φ8

Order code No.	131188
Standard	N01866-502

● Weight : 8.6g
● If base frame φ8 is used, this product may be loosened and rotated.

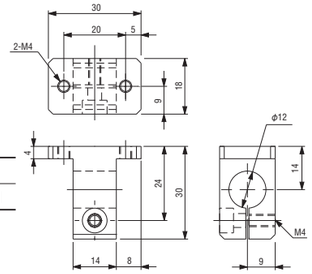


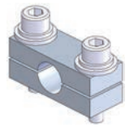


Chuck bracket • TH • φ12

Order code No.	131187
Standard	N01866-501

● Weight : 18.3g

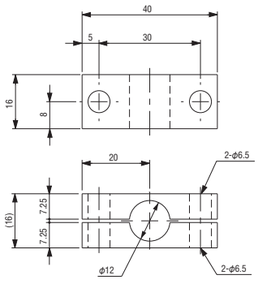


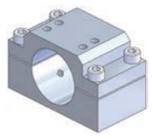


Chuck bracket • φ12

Order code No.	131067
Standard	N01915-105

● Weight : 19.6g

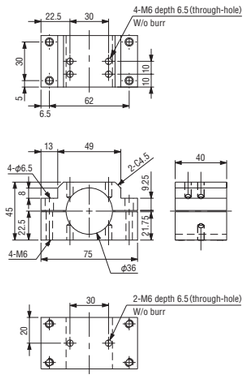


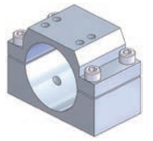


Nipper bracket • A

Order code No.	131078
Standard	N01915-301

● Weight : 208.8g

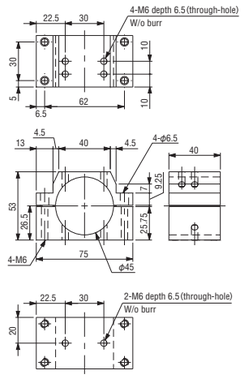


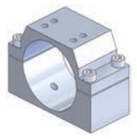


Nipper bracket • B

Order code No.	131216
Standard	N01915-302

● Weight : 198.4g

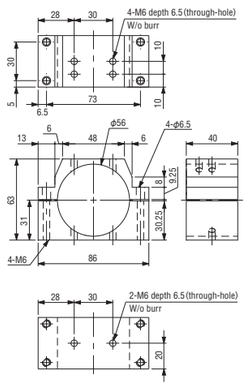


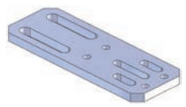


Nipper bracket • C

Order code No.	131080
Standard	N01915-303

● Weight : 241.3g

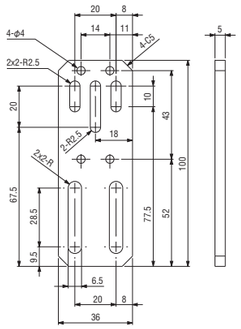


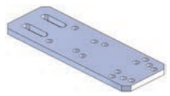


Nipper bracket • D

Order code No.	131081
Standard	N01915-304

● Weight : 109.4g
● for NW-10、NW-20、GT-NT3

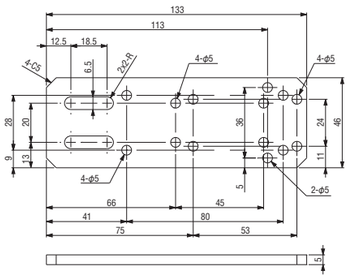




Nipper bracket • E

Order code No.	131082
Standard	N01915-305

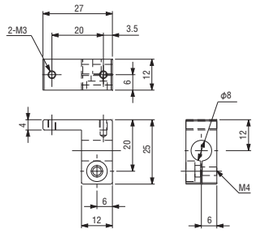
● Weight : 214.0g
● for NW-35、GT-NT05、GT-NT10、GT-NT20



Bracket • L • φ8 • for UMCD

Order code No.	131180
Standard	N01866-202

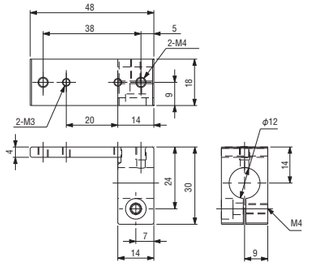
● Weight : 9.3g
● If base frame φ8 is used, this product may be loosened and rotated.
● Check bolt length.

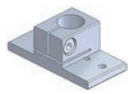


Bracket • L • φ12 • for MCD

Order code No.	131179
Standard	N01866-201

● Weight : 21.8g
● Check bolt length.

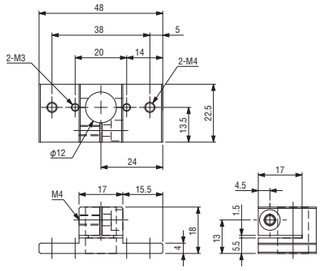


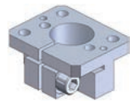


Bracket • T • φ12 • for MCD

Order code No.	131176
Standard	N01866-101

● Weight : 19.3g

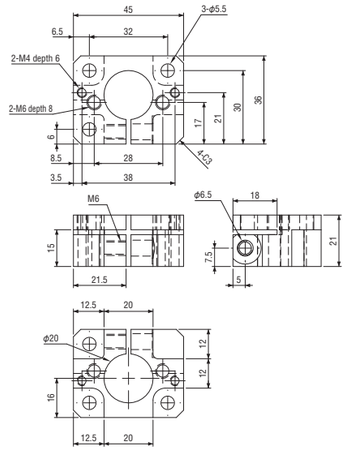


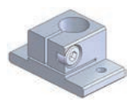


Bracket • T • φ20 • for MCD

Order code No.	131554
Standard	N01866-103A

● Weight : 49g

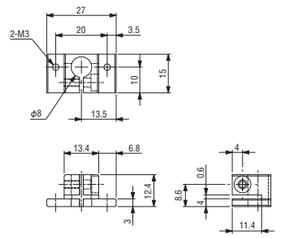


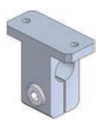


Bracket • T • φ8 • for UMCD

Order code No.	131177
Standard	N01866-102

● Weight : 6.1g
● If base frame φ8 is used, this product may be loosened and rotated.

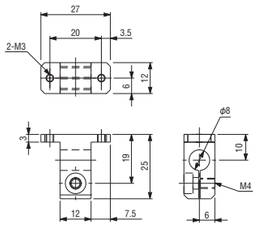


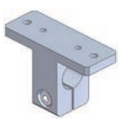


Bracket • TH • φ8 • for UMCD

Order code No.	131182
Standard	N01866-302

● Weight : 8.2g
● If base frame φ8 is used, this product may be loosened and rotated.
● Check bolt length.

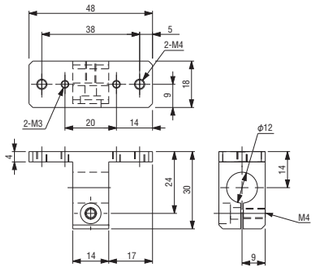




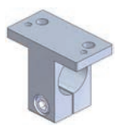
Bracket • TH • φ12 • for MCD

Order code No.	131181
Standard	N01866-301

● Weight : 21.8g
● Check bolt length.



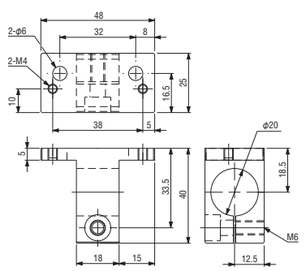
Jungle Gym Series Parts

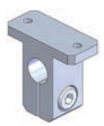


Bracket • TH • ϕ 20 • for UMCD

Order code No.	131183
Standard	N01866-303

- Weight : 40.6g
- Check the length of mounting bolt for mini cylinder.
- There may be interference between pipe and bolt when you attach mini container cylinder.

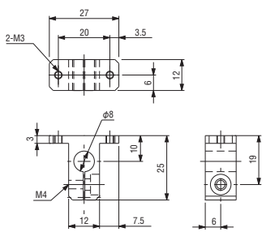


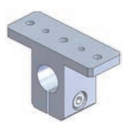


Bracket • TV • ϕ 8 • for UMCD

Order code No.	131185
Standard	N01866-402

- Weight : 8.7g
- If base frame ϕ 8 is used, this product may be loosened and rotated.

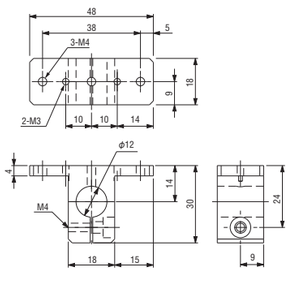


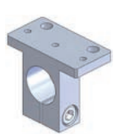


Bracket • TV • ϕ 12 • for MCD

Order code No.	131184
Standard	N01866-401

- Weight : 25.6g

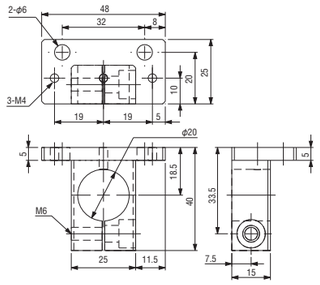


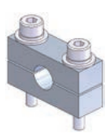


Bracket • TV • ϕ 20 • for MCD

Order code No.	131186
Standard	N01866-403

- Weight : 35.9g

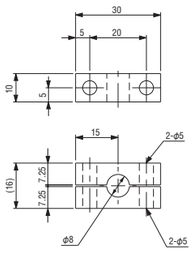


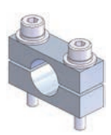


Bracket • ϕ 8

Order code No.	131073
Standard	N01915-111

- Weight : 10.0g

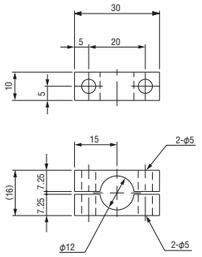


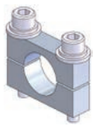


Bracket • ϕ 12

Order code No.	131071
Standard	N01915-109

- Weight : 8.2g

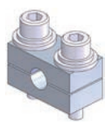




Bracket • ϕ 20

Order code No.	131072
Standard	N01915-110

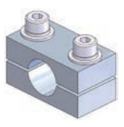
- Weight : 16.1g



Bracket • W • ϕ 8

Order code No.	131070
Standard	N01915-108

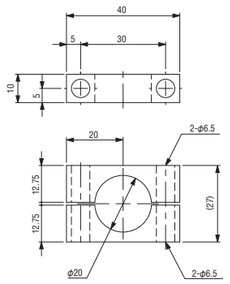
- Weight : 15.8g

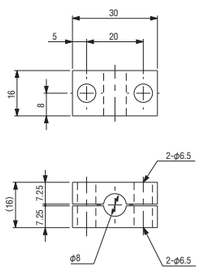


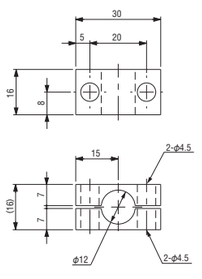
Bracket • W • ϕ 12

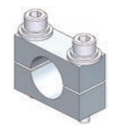
Order code No.	131068
Standard	N01915-106

- Weight : 12.9g





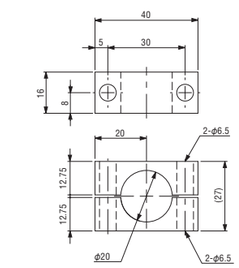




Bracket • W • ϕ 20

Order code No.	131069
Standard	N01915-107

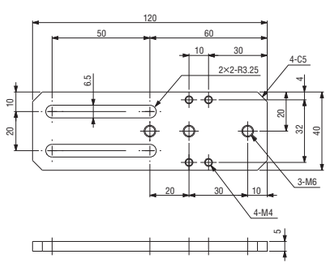
- Weight : 28.6g

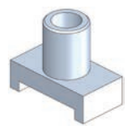


Bracket • NCON

Order code No.	131083
Standard	N01915-401

- Weight : 153.7g
- for NCON-20W、40W、80W

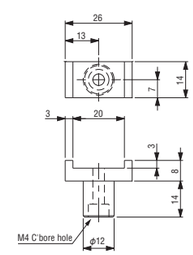


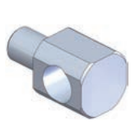


Rotation bracket • ϕ20

Order code No.	131064
Standard	N01915-101

- Weight : 8.9g

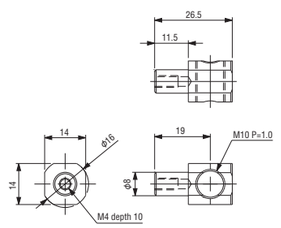


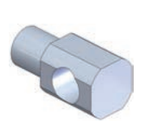


Rotation bracket • M10 • 8A

Order code No.	131172
Standard	N01864-305

- Weight : 6.4g

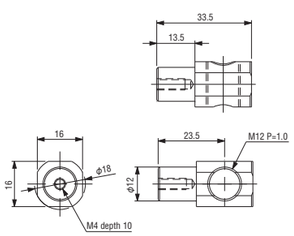


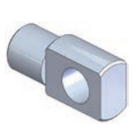


Rotation bracket • M12 • 12A

Order code No.	131173
Standard	N01864-306

- Weight : 12.9g

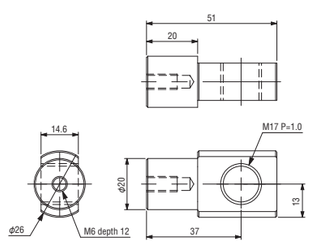


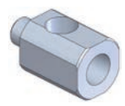


Rotation bracket • M17 • 20A

Order code No.	131174
Standard	N01864-307

- Weight : 59.3g

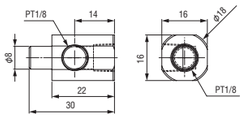


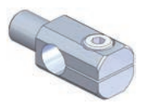


Rotation bracket • PT1/8 • 8A

Order code No.	131175
Standard	N01864-401

- Weight : 11.8g

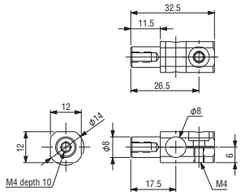


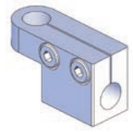


Rotation bracket • ϕ 8 • 8A

Order code No.	131170
Standard	N01864-303

- Weight : 6.6g

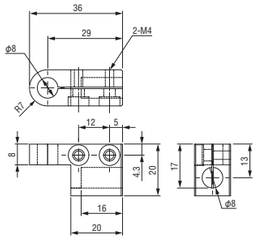




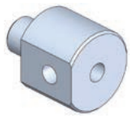
Rotation bracket • ϕ 8 • 8B

Order code No.	131162
Standard	N01864-103

- Weight : 14.7g



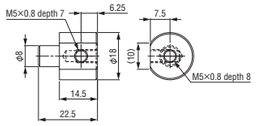
Jungle Gym Series Parts

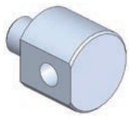


Rotation bracket • ϕ8 • M5A

Order code No.	131164
Standard	N01864-202

● Weight : 10.0g

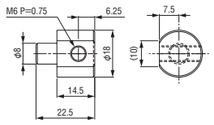


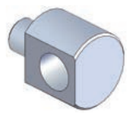


Rotation bracket • ϕ8 • M6A

Order code No.	131165
Standard	N01864-203

● Weight : 10.7g ● M6 fine

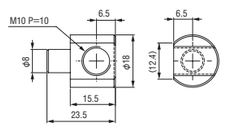


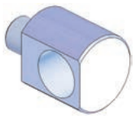


Rotation bracket • ϕ8 • M10A

Order code No.	131435
Standard	N01864-201

● Weight : 8.2g

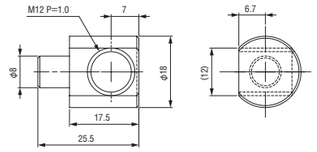


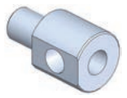


Rotation bracket • ϕ8 • M12A

Order code No.	131433
Standard	N01864-205

● Weight : 7.6g

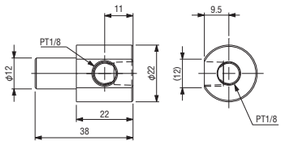


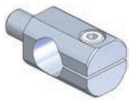


Rotation bracket • ϕ12 • PT1/8A

Order code No.	131166
Standard	N01864-204

● Weight : 24.6g

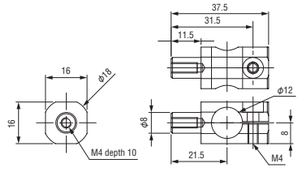


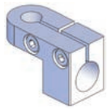


Rotation bracket • ϕ12 • 8A

Order code No.	131169
Standard	N01864-302

● Weight : 11.9g

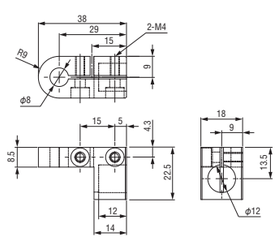


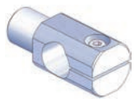


Rotation bracket • ϕ12 • 8B

Order code No.	131160
Standard	N01864-101

● Weight : 20.6g

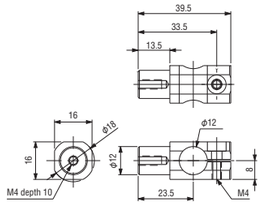


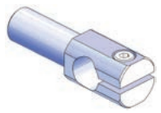


Rotation bracket • ϕ12 • 12A

Order code No.	131168
Standard	N01864-301

● Weight : 14.6g

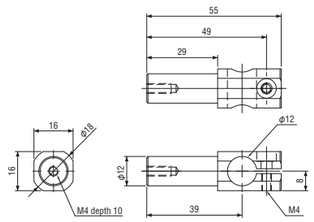


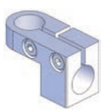


Rotation bracket • ϕ12 • 12AL

Order code No.	131567
Standard	N01864-301L

● Weight : 20g

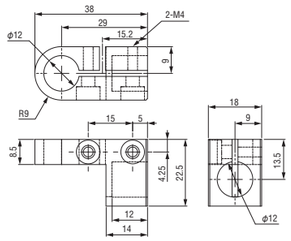


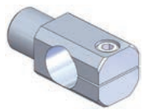


Rotation bracket • ϕ12 • 12B

Order code No.	131161
Standard	N01864-102

● Weight : 20.0g

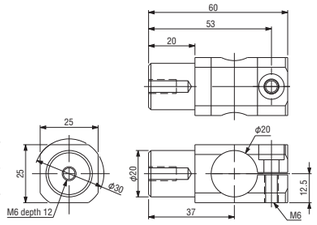


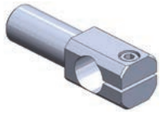


Rotation bracket • ϕ20 • 20A

Order code No.	131171
Standard	N01864-304

● Weight : 50.7g

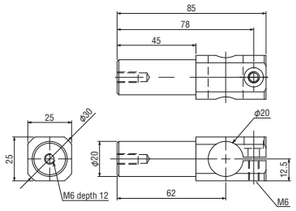


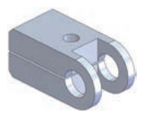


Rotation bracket • ϕ20 • 20AL

Order code No.	131568
Standard	N01864-304L

● Weight : 80g

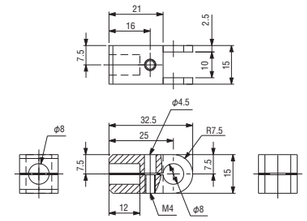


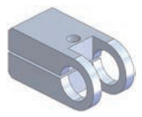


Suction rotate # A • ϕ8

Order code No.	131194
Standard	N01868-104

● Weight : 11.6g

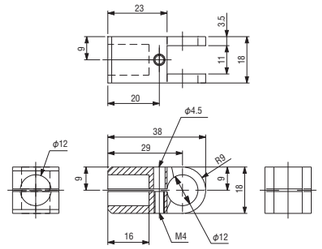


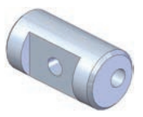


Suction rotate # A • ϕ12

Order code No.	131191
Standard	N01868-101

● Weight : 17.1g

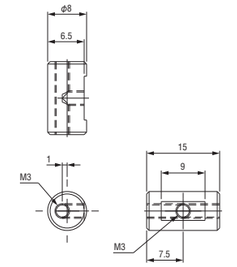




Suction rotate # B • M3 • ϕ8

Order code No.	131195
Standard	N01868-105

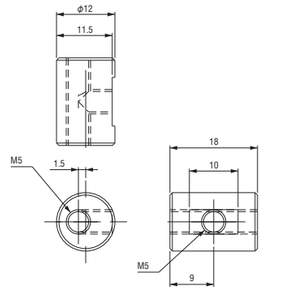
● Weight : 1.9g

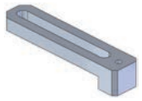


Suction rotate # B • M5 • ϕ12

Order code No.	131192
Standard	N01868-102

● Weight : 4.8g

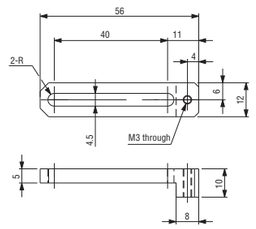


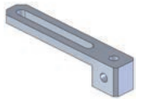


Slide bracket 40 • M3

Order code No.	131158
Standard	N01863-214

● Weight : 6.5g

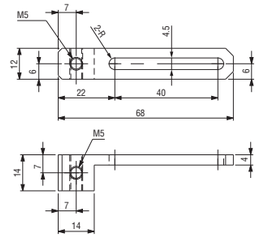


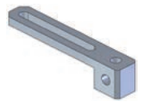


Slide bracket 40 • M5

Order code No.	131147
Standard	N01863-203

● Weight : 8.6g

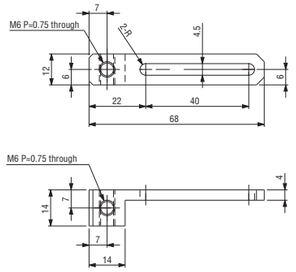


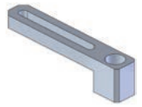


Slide bracket 40 • M6

Order code No.	131156
Standard	N01863-212

● Weight : 10.3g ● M6 fine

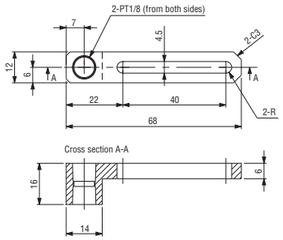


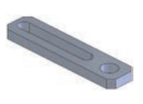


Slide bracket 40 • PT1/8

Order code No.	131154
Standard	N01863-210

● Weight : 12.0g

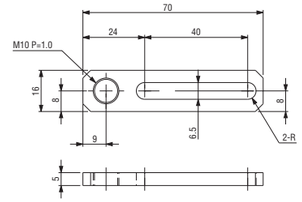




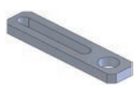
Slide bracket 40 • W • M10

Order code No.	131139
Standard	N01863-117

● Weight : 10.5g ● M10 fine



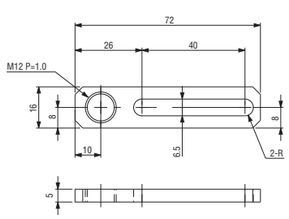
Jungle Gym Series Parts

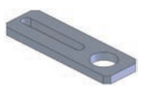


Slide bracket 40 • W • M12

Order code No.	131140
Standard	N01863-118

● Weight : 10.6g ● M12 fine

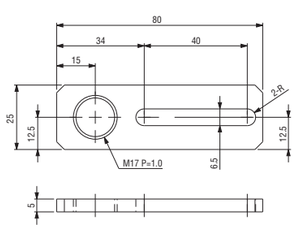


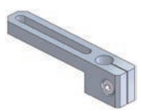


Slide bracket 40 • W • M17

Order code No.	131143
Standard	N01863-122

● Weight : 21.2g ● M17 fine

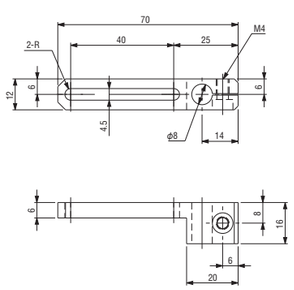




Slide bracket 40 • ϕ8

Order code No.	131152
Standard	N01863-208

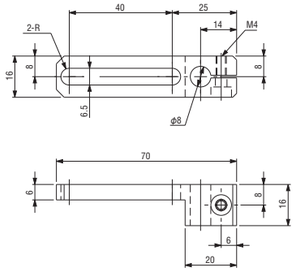
● Weight : 16.7g



Slide bracket 40 • W • ϕ8

Order code No.	131131
Standard	N01863-106

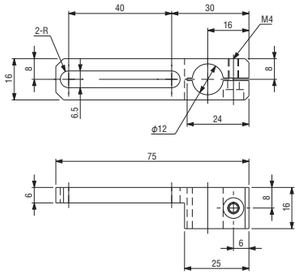
● Weight : 22.7g



Slide bracket 40 • W • ϕ12

Order code No.	131132
Standard	N01863-107

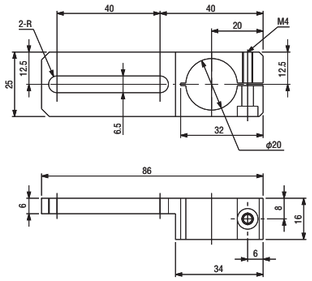
● Weight : 20.0g



Slide bracket 40 • W • ϕ20

Order code No.	131137
Standard	N01863-114

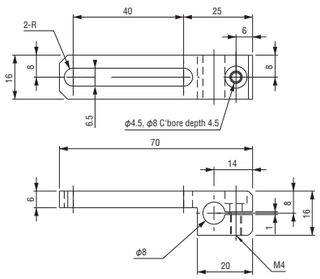
● Weight : 38.9g

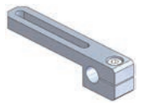


Slide bracket 40 • T • W • ϕ8

Order code No.	230051
Standard	XL0005-102

● Weight : 20.7g

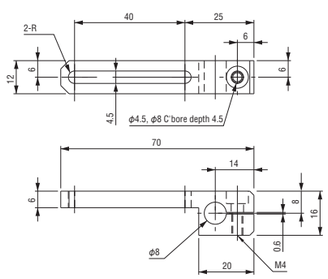




Slide bracket 40 • T • ϕ8

Order code No.	230056
Standard	XL0005-107

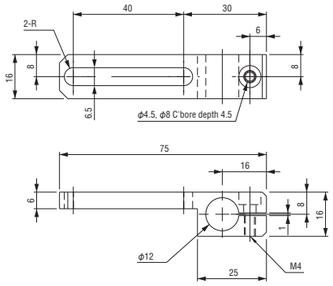
● Weight : 16.2g

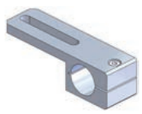


Slide bracket 40 • T • ϕ12

Order code No.	230052
Standard	XL0005-103

● Weight : 21.4g

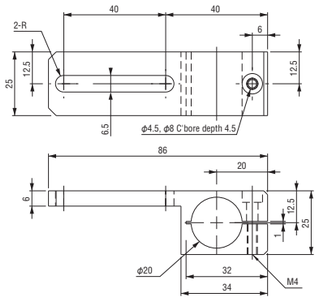


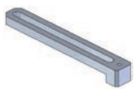


Slide bracket 40 • T • ϕ20

Order code No.	230054
Standard	XL0005-105

● Weight : 54.4g

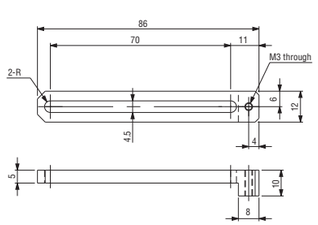


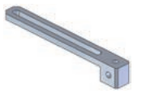


Slide bracket 70 • M3

Order code No.	131159
Standard	N01863-217

● Weight : 9.6g

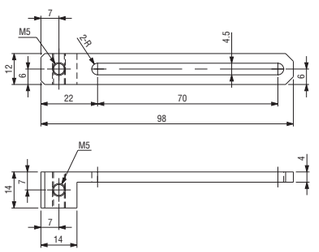


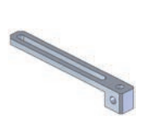


Slide bracket 70 • M5

Order code No.	131148
Standard	N01863-204

● Weight : 13.2g

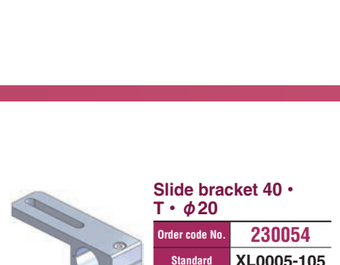


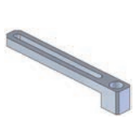


Slide bracket 70 • M6

Order code No.	131157
Standard	N01863-213

● Weight : 12.8g ● M6 fine

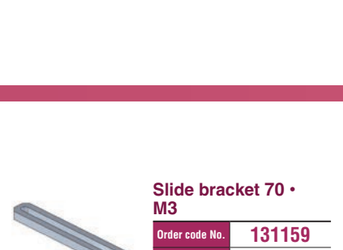


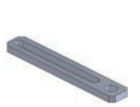


Slide bracket 70 • PT1/8

Order code No.	131155
Standard	N01863-211

● Weight : 15.8g

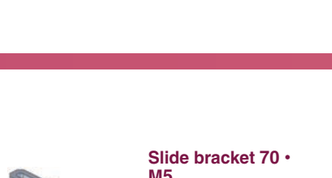


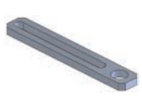


Slide bracket 70 • W • M10

Order code No.	131141
Standard	N01863-120

● Weight : 14.5g ● M10 fine

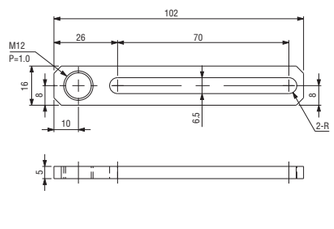


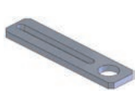


Slide bracket 70 • W • M12

Order code No.	131142
Standard	N01863-121

● Weight : 14.6g ● M12 fine

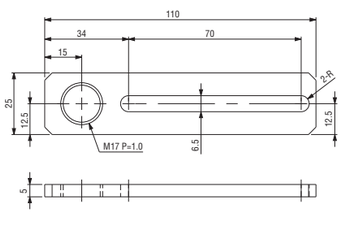




Slide bracket 70 • W • M17

Order code No.	131144
Standard	N01863-124

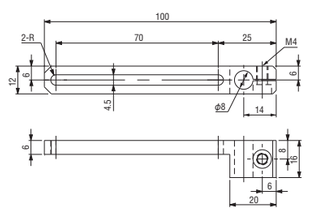
● Weight : 29.0g ● M17 fine



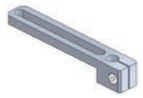
Slide bracket 70 • ϕ8

Order code No.	131153
Standard	N01863-209

● Weight : 20.5g



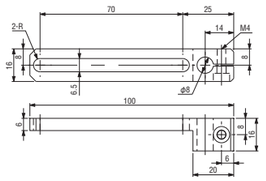
Jungle Gym Series Parts



Slide bracket 70 • W • ϕ 8

Order code No.	131133
Standard	N01863-110

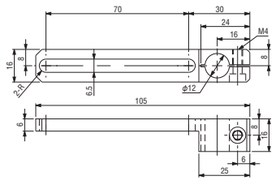
● Weight : 27.4g

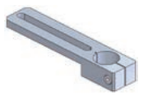


Slide bracket 70 • W • ϕ 12

Order code No.	131130
Standard	N01863-103

● Weight : 24.7g

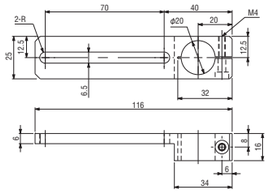




Slide bracket 70 • W • ϕ 20

Order code No.	131138
Standard	N01863-115

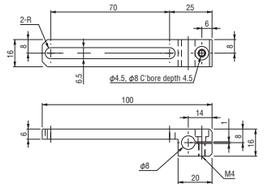
● Weight : 48.3g

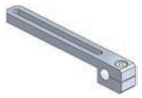


Slide bracket 70 • T • W • ϕ 8

Order code No.	230053
Standard	XL0005-104

● Weight : 25.4g

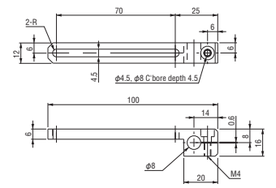


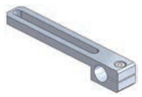


Slide bracket 70 • T • ϕ 8

Order code No.	230057
Standard	XL0005-108

● Weight : 20.0g

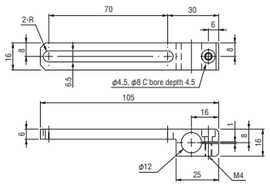


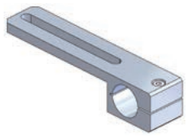


Slide bracket 70 • T • ϕ 12

Order code No.	230050
Standard	XL0005-101

● Weight : 26.2g

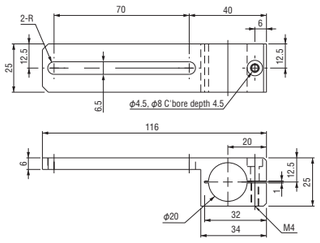




Slide bracket 70 • T • ϕ 20

Order code No.	230055
Standard	XL0005-106

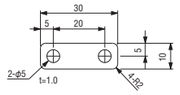
● Weight : 63.7g



Slide washer • ϕ 8 / ϕ 12

Order code No.	131146
Standard	N01863-202

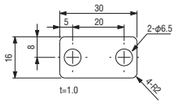
● Weight : 1.0g



Slide washer • W • ϕ 8 / ϕ 12

Order code No.	131129
Standard	N01863-102

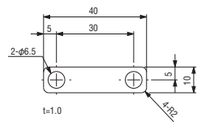
● Weight : 1.7g



Slide washer • ϕ 20

Order code No.	131150
Standard	N01863-206

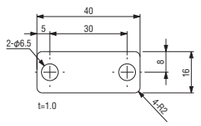
● Weight : 1.4g



Slide washer • W • ϕ 20

Order code No.	131135
Standard	N01863-112

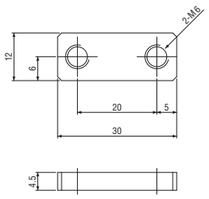
● Weight : 2.3g

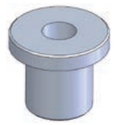


Nut plate • for slide bracket

Order code No.	023197
Standard	CP-076

● Weight : 15g

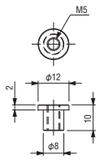




Bushing nut • ϕ 8 • M5

Order code No.	131200
Standard	N01868-401

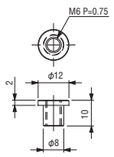
● Weight : 1.4g



Bushing nut • ϕ 8 • M6

Order code No.	131206
Standard	N01868-410

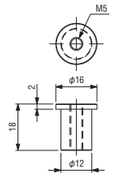
● Weight : 1.3g ● M6 fine



Bushing nut • ϕ 12 • M5

Order code No.	131202
Standard	N01868-403

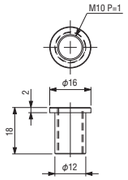
● Weight : 5.5g



Bushing nut • ϕ 12 • M10

Order code No.	131201
Standard	N01868-402

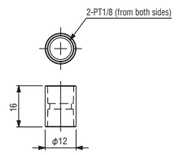
● Weight : 3.0g ● M10 fine

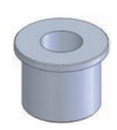


Bushing nut • ϕ 12 • PT1/8

Order code No.	131207
Standard	N01868-411

● Weight : 1.7g

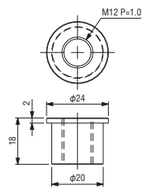




Bushing nut • ϕ 20 • M12

Order code No.	131205
Standard	N01868-409

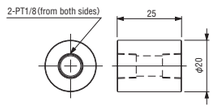
● Weight : 12.3g ● M12 fine



Bushing nut • ϕ 20 • PT1/8

Order code No.	131199
Standard	N01868-305

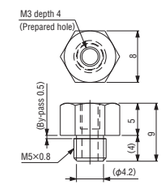
● Weight : 40.0g



Bushing nut • M5-M3

Order code No.	131204
Standard	N01868-407

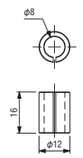
● Weight : 2.6g

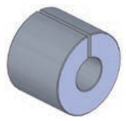


Bushing • ϕ 12 ϕ 8

Order code No.	131196
Standard	N01868-301

● Weight : 2.8g

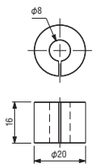


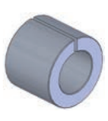


Bushing • ϕ 20 ϕ 8

Order code No.	131197
Standard	N01868-302

● Weight : 11.6g

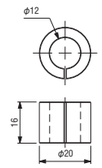




Bushing • ϕ 20 ϕ 12

Order code No.	131198
Standard	N01868-303

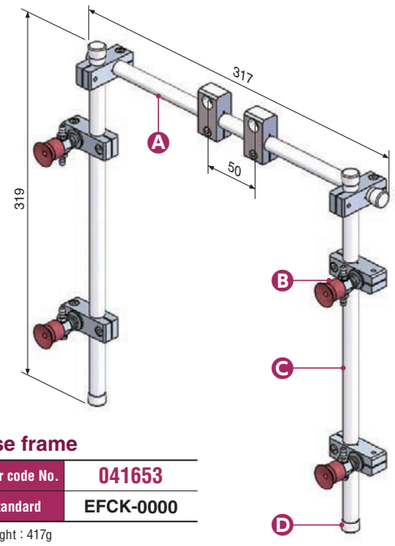
● Weight : 8.9g



Base Frame Module

Modularized chuck parts for jungle gym.

● Pipe lengths of SS pipes specified in each configuration module and components are different from that of base frame.



Base frame

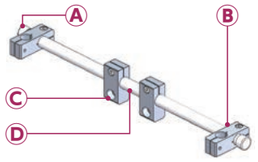
Order code No.	041653
Standard	EFCK-0000

● Weight : 417g

Configuration module	Standard	Order code No.	No. of uses	Details
Ⓐ Base frame for jungle gym	EFCK-0001	041654	1	5-26
Ⓑ Suction module for jungle gym (ϕ12)	JSM-004	090158	4	5-26
Ⓒ Jungle gym・SS pipe ϕ12	12∗0.6∗1000	271528	1	5-8
Ⓓ Pipe end cap・ϕ12	N01902-002	131211	4	5-9

Base frame for jungle gym

components of EFCK-0000…Ⓐ



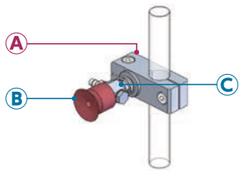
Order code No.	041654
Standard	EFCK-0001

● Weight : 148g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Pipe end cap・ϕ12	N01902-002	131211	2	5-9
Ⓑ Cross connector・ϕ12ϕ12	N01861-202	131099	2	5-10
Ⓒ Attachment bracket・ϕ12・M6	N01862-201	131118	2	5-13
Ⓓ Jungle gym・SS pipe ϕ12	12∗0.6∗500	271527	1	5-8

Suction module for jungle gym (ϕ12)

components of EFCK-0000…Ⓑ

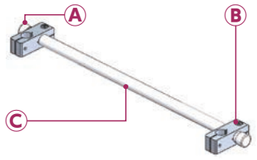


Order code No.	090158
Standard	JSM-004

● Weight : 39g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ12ϕ12	N01861-202	131099	1	5-10
Ⓑ Suction cups (standard/silicon/brown)	VAPH-20C	210194	1	3-4
Ⓒ Suction stem small	VFIL1-S-5-P12	211006	1	3-23

Base frame for jungle gym

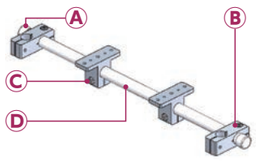


Order code No.	041655
Standard	EFCK-0002

● Weight : 96g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Pipe end cap・ϕ12	N01902-002	131211	2	5-9
Ⓑ Cross connector・ϕ12ϕ12	N01861-202	131099	2	5-10
Ⓒ Jungle gym・SS pipe ϕ12	12∗0.6∗500	271527	1	5-8

Base frame for jungle gym

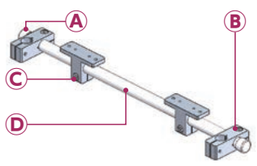


Order code No.	041656
Standard	EFCK-0003

● Weight : 151g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Pipe end cap・ϕ12	N01902-002	131211	2	5-9
Ⓑ Cross connector・ϕ12ϕ12	N01861-202	131099	2	5-10
Ⓒ Bracket・TV・ϕ12・for MCD	N01866-401	131184	2	5-18
Ⓓ Jungle gym・SS pipe ϕ12	12∗0.6∗500	271527	1	5-8

Base frame for jungle gym

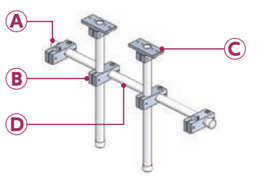


Order code No.	041657
Standard	EFCK-0004

● Weight : 144g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Pipe end cap・ϕ12	N01902-002	131211	2	5-9
Ⓑ Cross connector・ϕ12ϕ12	N01861-202	131099	2	5-10
Ⓒ Bracket・TH・ϕ12・for MCD	N01866-301	131181	2	5-17
Ⓓ Jungle gym・SS pipe ϕ12	12∗0.6∗500	271527	1	5-8

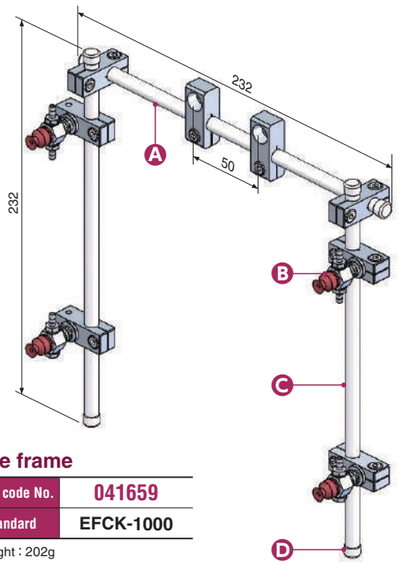
Base frame for jungle gym



Order code No.	041658
Standard	EFCK-0005

● Weight : 247g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Pipe end cap・ϕ12	N01902-002	131211	4	5-9
Ⓑ Cross connector・ϕ12ϕ12	N01861-202	131099	4	5-10
Ⓒ Bracket・T・ϕ12・for MCD	N01866-101	131176	2	5-17
Ⓓ Jungle gym・SS pipe ϕ12	12∗0.6∗1000	271528	1	5-8



Base frame

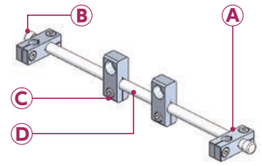
Order code No.	041659
Standard	EFCK-1000

● Weight : 202g

Configuration module	Standard	Order code No.	No. of uses	Details
Ⓐ Base frame for jungle gym	EFCK-1001	041660	1	5-27
Ⓑ Suction module for jungle gym (ϕ8)	JSM-001	090155	4	5-27
Ⓒ Jungle gym SS・pipe ϕ8	8∗0.6∗500	340905	1	5-8
Ⓓ Pipe end cap・ϕ8	N01902-003	131212	4	5-9

Base frame for jungle gym

components of EFCK-1000…Ⓐ



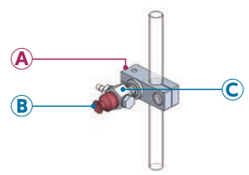
Order code No.	041660
Standard	EFCK-1001

● Weight : 72g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ8ϕ8	N01861-207	131102	2	5-10
Ⓑ Pipe end cap・ϕ8	N01902-003	131212	2	5-9
Ⓒ Attachment bracket・ϕ8・M6	N01862-205	131121	2	5-13
Ⓓ Jungle gym・SS pipe ϕ8	8∗0.6∗500	340905	1	5-8

Suction module for jungle gym (ϕ8)

components of EFCK-1000…Ⓑ

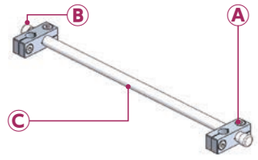


Order code No.	090155
Standard	JSM-001

● Weight : 21g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ8ϕ8	N01861-207	131102	1	5-10
Ⓑ Suction cups (standard/silicon/brown)	VAPH-8C	210191	1	3-4
Ⓒ Suction stem mini	VFIL2-SS-5-P8	211030	1	3-21

Base frame for jungle gym

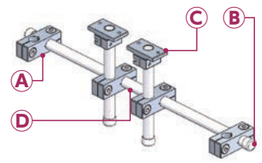


Order code No.	041661
Standard	EFCK-1002

● Weight : 47g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ8ϕ8	N01861-207	131102	2	5-10
Ⓑ Pipe end cap・ϕ8	N01902-003	131212	2	5-9
Ⓒ Jungle gym・SS pipe ϕ8	8∗0.6∗500	340905	1	5-8

Base frame for jungle gym



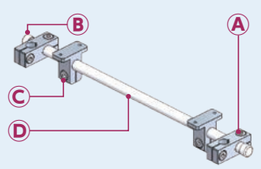
Order code No.	041664
Standard	EFCK-1005

● Weight : 101g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ8ϕ8	N01861-207	131102	4	5-10
Ⓑ Pipe end cap・ϕ8	N01902-003	131212	4	5-9
Ⓒ Bracket・T・ϕ8・for UMCD	N01866-102	131177	2	5-17
Ⓓ Jungle gym・SS pipe ϕ8	8∗0.6∗500	340905	1	5-8

Discontinued product (Following module product is created by combination of components.)

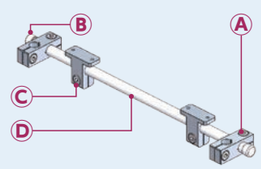
Base frame for jungle gym



Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ8ϕ8	N01861-207	131102	2	5-10
Ⓑ Pipe end cap・ϕ8	N01902-003	131212	2	5-9
Ⓒ Bracket・TV・ϕ8・for UMCD	N01866-402	131185	2	5-18
Ⓓ Jungle gym・SS pipe ϕ8	8∗0.6∗500	340905	1	5-8

∗Pipe length is 500mm if only SS pipe ϕ8 is ordered.

Base frame for jungle gym

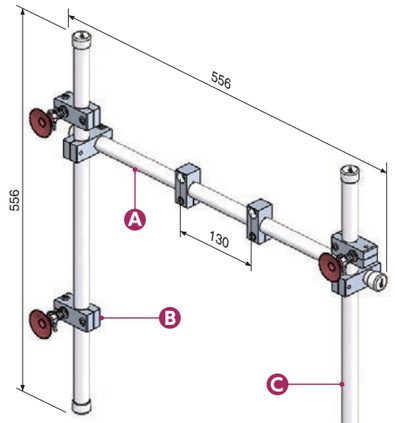


Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ8ϕ8	N01861-207	131102	2	5-10
Ⓑ Pipe end cap・ϕ8	N01902-003	131212	2	5-9
Ⓒ Bracket・TH・ϕ8・for UMCD	N01866-302	131182	2	5-17
Ⓓ Jungle gym・SS pipe ϕ8	8∗0.6∗500	340905	1	5-8

∗Pipe length is 500mm if only SS pipe ϕ8 is ordered.

Base Frame Module

● Pipe lengths of SS pipes specified in each configuration module and components are different from that of base frame.



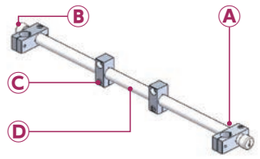
Base frame

Order code No.	041665
Standard	EFCK-2000

● Weight : 1,293g

Configuration module	Standard	Order code No.	No. of uses	Details
Ⓐ Base frame for jungle gym	EFCK-2001	041666	1	5-28
Ⓑ Suction module for jungle gym (ϕ20)	JSM-008	090162	4	5-28
Ⓒ Jungle gym・SS pipe ϕ20	20∗0.8∗1500	281814	1	5-8
Ⓓ Pipe end cap・ϕ20	N01902-001	131210	4	5-9

Base frame for jungle gym components of EFCK-2000…Ⓐ

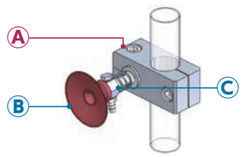


Order code No.	041666
Standard	EFCK-2001

● Weight : 452g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ20ϕ20	N01861-206	131101	2	5-10
Ⓑ Pipe end cap・ϕ20	N01902-001	131210	2	5-9
Ⓒ Attachment bracket・ϕ20・M8	N01862-214	131226	2	5-13
Ⓓ Jungle gym・SS pipeϕ20	20∗0.8∗1000	281813	1	5-8

Suction module for jungle gym (ϕ20) components of EFCK-2000…Ⓑ

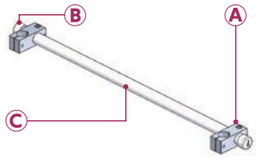


Order code No.	090162
Standard	JSM-008

● Weight : 102g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ20ϕ12	N01861-204	131100	1	5-10
Ⓑ Suction cups (standard/silicon/brown)	VAPH-40C	210196	1	3-5
Ⓒ Suction stem small	VFIL1-S-5-P12	211006	1	3-23

Base frame for jungle gym

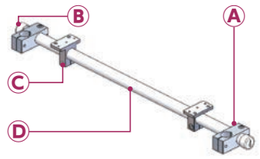


Order code No.	041667
Standard	EFCK-2002

● Weight : 358g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ20ϕ20	N01861-206	131101	2	5-10
Ⓑ Pipe end cap・ϕ20	N01902-001	131210	2	5-9
Ⓒ Jungle gym・SS pipe ϕ20	20∗0.8∗1000	281813	1	5-8

Base frame for jungle gym

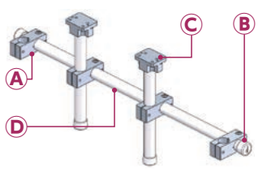


Order code No.	041668
Standard	EFCK-2003

● Weight : 379g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ20ϕ20	N01861-206	131101	2	5-10
Ⓑ Pipe end cap・ϕ20	N01902-001	131210	2	5-9
Ⓒ Bracket・TV・ϕ20・for MCD	N01866-403	131186	2	5-18
Ⓓ Jungle gym・SS pipe ϕ20	20∗0.8∗1000	281813	1	5-8

Base frame for jungle gym



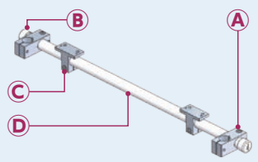
Order code No.	041670
Standard	EFCK-2005

● Weight : 767g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ20ϕ20	N01861-206	131101	4	5-10
Ⓑ Pipe end cap・ϕ20	N01902-001	131210	4	5-9
Ⓒ Bracket・T・ϕ20・for MCD	N01866-103A	131554	2	5-17
Ⓓ Jungle gym・SS pipe ϕ20	20∗0.8∗1000	281813	1	5-8

Discontinued product

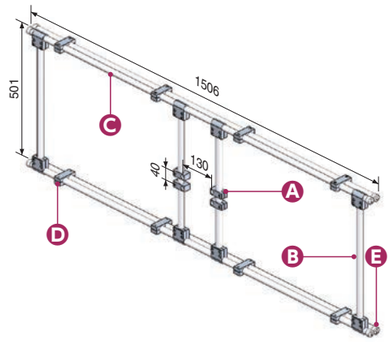
(Following module product is created by combination of components.)



Base frame for jungle gym

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ20ϕ20	N01861-206	131101	2	5-10
Ⓑ Pipe end cap・ϕ20	N01902-001	131210	2	5-9
Ⓒ Bracket・TH・ϕ20・for MCD	N01866-303	131183	2	5-18
Ⓓ Jungle gym・SS pipe ϕ20	20∗0.8∗1000	281813	1	5-8

∗Pipe length is 1000mm if only SS pipe ϕ20 is ordered.



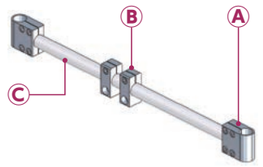
Base frame

Order code No.	041671
Standard	EFCK-2500

● Weight : 4,282g

Configuration module	Standard	Order code No.	No. of uses	Details
Ⓐ Base frame for jungle gym	EFCK-2501	041672	2	5-29
Ⓑ Base frame for jungle gym	EFCK-2502	041673	2	5-29
Ⓒ Jungle gym・SS pipe ϕ20	20∗0.8∗1500	281814	4	5-8
Ⓓ Parallel connector・ϕ20ϕ20	N01861-106	131095	8	5-12
Ⓔ Pipe end cap・ϕ20	N01902-001	131210	8	5-9

Base frame for jungle gym components of EFCK-2500…Ⓐ

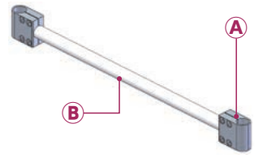


Order code No.	041672
Standard	EFCK-2501

● Weight : 457g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ T Connector#2・ϕ20ϕ20	N01861-405	131114	2	5-12
Ⓑ Attachment bracket・ϕ20・M8	N01862-214	131226	2	5-13
Ⓒ Jungle gym・SS pipe ϕ20	20∗0.8∗500	281812	1	5-8

Base frame for jungle gym components of EFCK-2500…Ⓑ



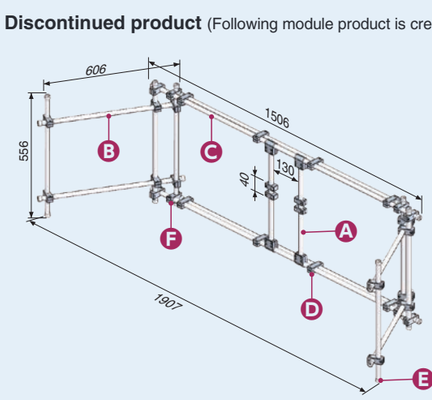
Order code No.	041673
Standard	EFCK-2502

● Weight : 363g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ T Connector#2・ϕ20ϕ20	N01861-405	131114	2	5-12
Ⓑ Jungle gym・SS pipe ϕ20	20∗0.8∗500	281812	1	5-8

Discontinued product

(Following module product is created by combination of components.)

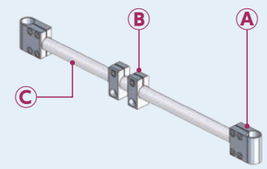


Base frame

Configuration module	Standard	Order code No.	No. of uses	Details
Ⓐ Base frame for jungle gym	EFCK-2501	041672	2	5-29
Ⓑ Base frame for jungle gym	EFCK-2602	041676	6	—
Ⓒ Jungle gym・SS pipe ϕ20	20∗0.8∗1500	281814	4	5-8
Ⓓ Parallel connector・ϕ20ϕ20	N01861-106	131095	8	5-12
Ⓔ Pipe end cap・ϕ20	N01902-001	131210	8	5-9
Ⓕ Cross connector・ϕ20ϕ20	N01861-206	131101	8	5-10

∗Pipe length is 1500mm if only SS pipe ϕ20 is ordered.

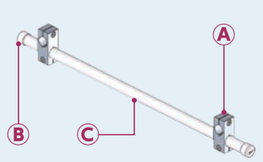
Base frame for jungle gym components of EFCK-2600…Ⓐ



Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ T Connector#2・ϕ20ϕ20	N01861-405	131114	2	5-12
Ⓑ Attachment bracket・ϕ20・M8	N01862-214	131226	2	5-13
Ⓒ Jungle gym・SS pipe ϕ20	20∗0.8∗500	281812	1	5-8

∗Pipe length is 500mm if only SS pipe ϕ20 is ordered.

Base frame for jungle gym components of EFCK-2600…Ⓑ

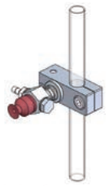


Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Cross connector・ϕ20ϕ20	N01861-206	131101	2	5-10
Ⓑ Pipe end cap・ϕ20	N01902-001	131210	2	5-9
Ⓒ Jungle gym・SS pipe ϕ20	20∗0.8∗500	281812	1	5-8

∗Pipe length is 500mm if only SS pipe ϕ20 is ordered.

Suction Module

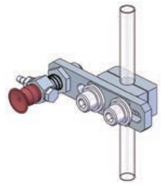
Modularized chuck parts for jungle gym.



Suction module•for jungle gym (ϕ8)

Order code No.	090155
Standard	JSM-001

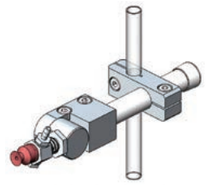
● Weight : 21g ● Suction stem : VFIL2-SS-5-P8



Suction module•for jungle gym (ϕ8)

Order code No.	090156
Standard	JSM-002

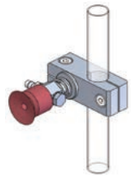
● Weight : 57g ● Suction stem : VFIL1-SS-5



Suction module•for jungle gym (ϕ8)

Order code No.	090157
Standard	JSM-003

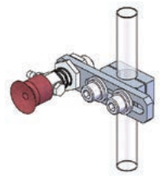
● Weight : 81g ● Suction stem : VFIL1-SS-5



Suction module • for jungle gym (ϕ12)

Order code No.	090158
Standard	JSM-004

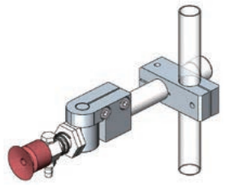
● Weight : 39g ● Suction stem : VFIL1-S-5-P12



Suction module • for jungle gym (ϕ12)

Order code No.	090159
Standard	JSM-005

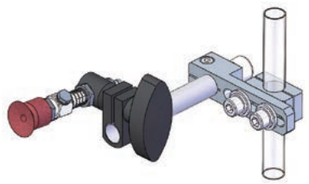
● Weight : 69g ● Suction stem : VFIL-S-5A



Suction module • for jungle gym (ϕ12)

Order code No.	090160
Standard	JSM-006

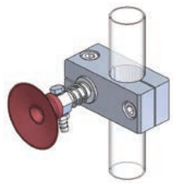
● Weight : 92g ● Suction stem : VFIL-S-5A



Suction module • for jungle gym (ϕ12)

Order code No.	090161
Standard	JSM-007

● Weight : 151g ● Suction stem : VFILB2-SH

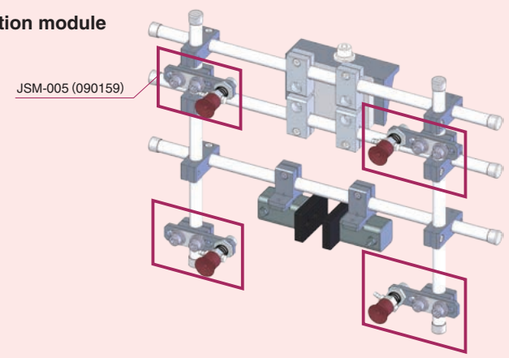


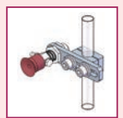
Suction module • for jungle gym (ϕ20)

Order code No.	090162
Standard	JSM-008

● Weight : 102g ● Suction stem : VFIL1-S-5-P12

Example of using suction module

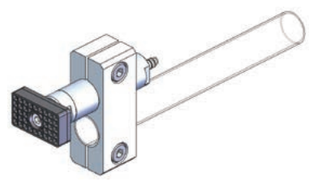




JSM-005 (090159)

Gripper Module

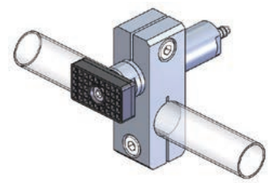
Modularized chuck parts for jungle gym.



Gripper module • for jungle gym (ϕ12)

Order code No.	090163
Standard	JGM-001

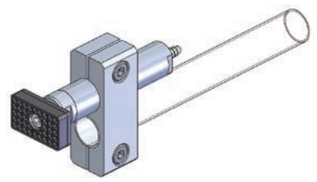
● Weight : 41g ● Cylinder for pipe attachment : MCP-1210



Gripper module • for jungle gym (ϕ12)

Order code No.	090164
Standard	JGM-002

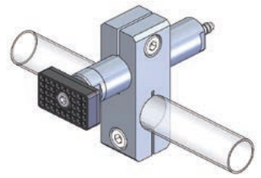
● Weight : 43g ● Cylinder for pipe attachment : MCP-1210



Gripper module • for jungle gym (ϕ12)

Order code No.	090165
Standard	JGM-003

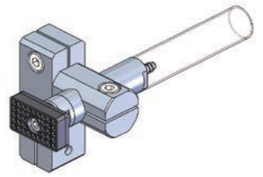
● Weight : 42g ● Cylinder for pipe attachment : MCP-1220



Gripper module • for jungle gym (ϕ12)

Order code No.	090166
Standard	JGM-004

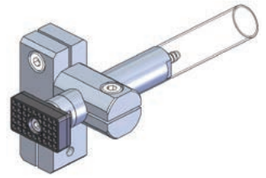
● Weight : 44g ● Cylinder for pipe attachment : MCP-1220



Gripper module • for jungle gym (ϕ12)

Order code No.	090167
Standard	JGM-005

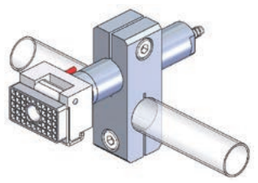
● Weight : 58g ● Cylinder for pipe attachment : MCP-1210



Gripper module • for jungle gym (ϕ12)

Order code No.	090168
Standard	JGM-006

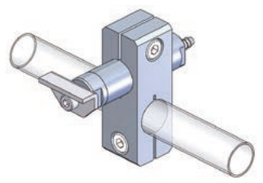
● Weight : 59g ● Cylinder for pipe attachment : MCP-1220



Gripper module • for jungle gym (ϕ12)

Order code No.	090169
Standard	JGM-007

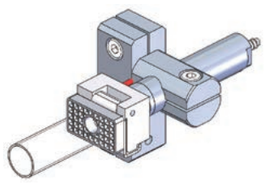
● Weight : 62g ● Cylinder for pipe attachment : MCP-1220



Gripper module • for jungle gym (ϕ12)

Order code No.	090171
Standard	JGM-009

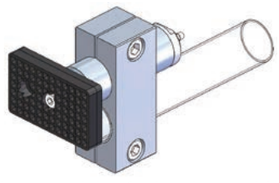
● Weight : 41g ● Cylinder for pipe attachment : MCP-1210



Gripper module • for jungle gym (ϕ12)

Order code No.	090173
Standard	JGM-011

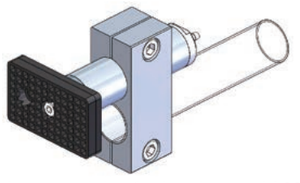
● Weight : 77g ● Cylinder for pipe attachment : MCP-1220



Gripper module • for jungle gym (ϕ20)

Order code No.	090174
Standard	JGM-012

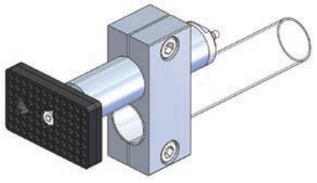
● Weight : 157g ● Cylinder for pipe attachment : MCP-2010



Gripper module • for jungle gym (ϕ20)

Order code No.	090175
Standard	JGM-013

● Weight : 161g ● Cylinder for pipe attachment : MCP-2020

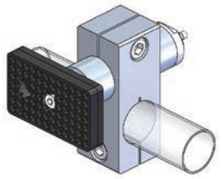


Gripper module • for jungle gym (ϕ20)

Order code No.	090176
Standard	JGM-014

● Weight : 167g ● Cylinder for pipe attachment : MCP-2030

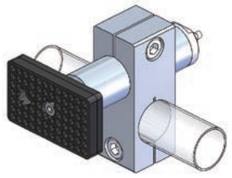
Gripper Module



Gripper module • for jungle gym (ϕ 20)

Order code No.	090178
Standard	JGM-016

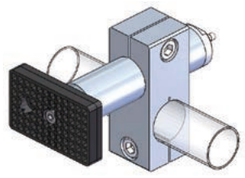
● Weight : 156g ● Cylinder for pipe attachment : MCP-2010



Gripper module • for jungle gym (ϕ 20)

Order code No.	090179
Standard	JGM-017

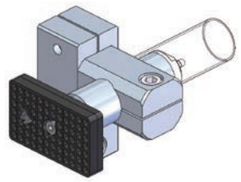
● Weight : 160g ● Cylinder for pipe attachment : MCP-2020



Gripper module • for jungle gym (ϕ 20)

Order code No.	090180
Standard	JGM-018

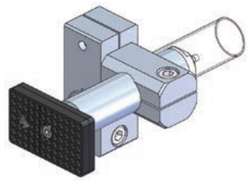
● Weight : 166g ● Cylinder for pipe attachment : MCP-2030



Gripper module • for jungle gym (ϕ 20)

Order code No.	090182
Standard	JGM-020

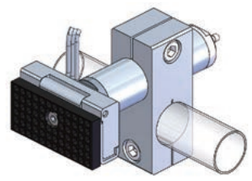
● Weight : 212g ● Cylinder for pipe attachment : MCP-2010



Gripper module • for jungle gym (ϕ 20)

Order code No.	090184
Standard	JGM-022

● Weight : 222g ● Cylinder for pipe attachment : MCP-2030

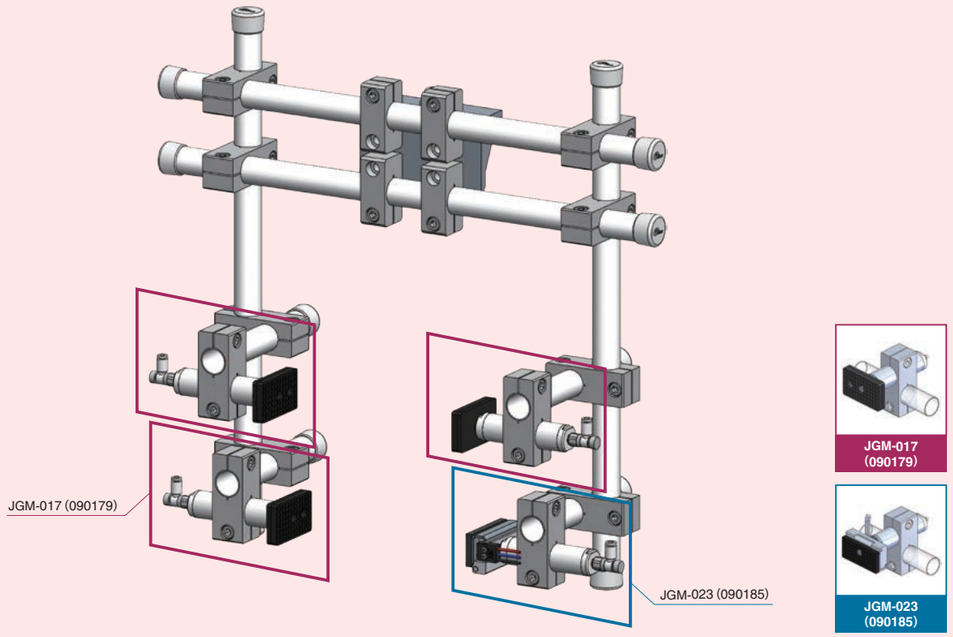


Gripper module • for jungle gym (ϕ 20)

Order code No.	090185
Standard	JGM-023

● Weight : 176g ● Cylinder for pipe attachment : MCP-2020

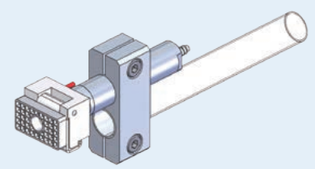
Example of using gripper module



JGM-017 (090179)

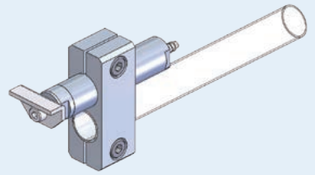
JGM-023 (090185)

Discontinued product (Following module product is created by combination of components.)



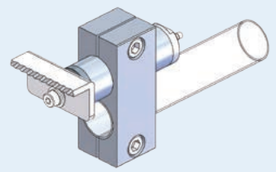
Gripper module • for jungle gym (ϕ12)

Configuration parts	Standard	Order code No.
Pad rectangle w/SW for micro-mini cylinder	L1131-100-0	110568
Cylinder for pipe attachment	MCP-1220	122825
Parallel connector • ϕ12ϕ12	N01861-102	131093



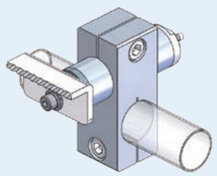
Gripper module • for jungle gym (ϕ12)

Configuration parts	Standard	Order code No.
Claw L shape for micro mini cylinder	CPUM-02	022798
Cylinder for pipe attachment	MCP-1220	122825
Parallel connector • ϕ12ϕ12	N01861-102	131093



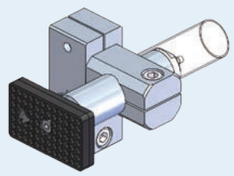
Gripper module • for jungle gym (ϕ20)

Configuration parts	Standard	Order code No.
Claw L shape for mini cylinder	CP-014	370073
Cylinder for pipe attachment	MCP-2010	122826
Parallel connector • ϕ20 ϕ 20	N01861-106	131095



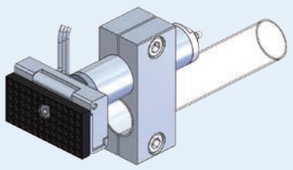
Gripper module • for jungle gym (ϕ20)

Configuration parts	Standard	Order code No.
Claw L shape for mini cylinder	CP-014	370073
Cylinder for pipe attachment	MCP-2010	122826
Cross connector • ϕ20 ϕ 20	N01861-206	131101



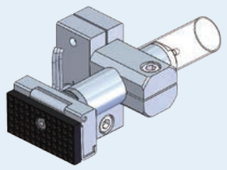
Gripper module • for jungle gym (ϕ20)

Configuration parts	Standard	Order code No.
Pad rectangle black 2 holes for mini cylinder	CP-060	370835
Cylinder for pipe attachment	MCP-2020	122827
Rotation bracket • ϕ 20 • 20A	N01864-304	131171
Cross connector • ϕ20 ϕ 20	N01861-206	131101



Gripper module • for jungle gym (ϕ20)

Configuration parts	Standard	Order code No.
Pad rectangle w/black SW for mini cylinder	KRC1-5000	101714
Cylinder for pipe attachment	MCP-2020	122827
Parallel connector • ϕ20 ϕ 20	N01861-106	131095

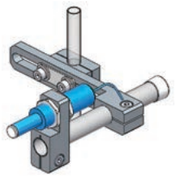


Gripper module • for jungle gym (ϕ20)

Configuration parts	Standard	Order code No.
Pad rectangle w/black SW for mini cylinder	KRC1-5000	101714
Cylinder for pipe attachment	MCP-2020	122827
Rotation bracket • ϕ 20 • 20A	N01864-304	131171
Cross connector • ϕ20 ϕ 20	N01861-206	131101

Limit Switch Module

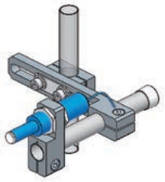
Modularized chuck parts for jungle gym.



Limit switch module • for jungle gym (ϕ8)

Order code No.	090188
Standard	JLM-001

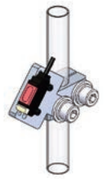
● Weight : 91g



Limit switch module • for jungle gym (ϕ12)

Order code No.	090189
Standard	JLM-002

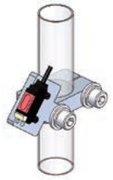
● Weight : 89g



Limit switch module • for jungle gym (ϕ12)

Order code No.	090190
Standard	JLM-003

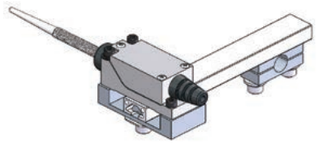
● Weight : 64g



Limit switch module • for jungle gym (ϕ20)

Order code No.	090191
Standard	JLM-004

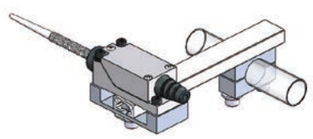
● Weight : 69g



Limit switch module • for jungle gym (ϕ12)

Order code No.	090192
Standard	JLM-005

● Weight : 242g

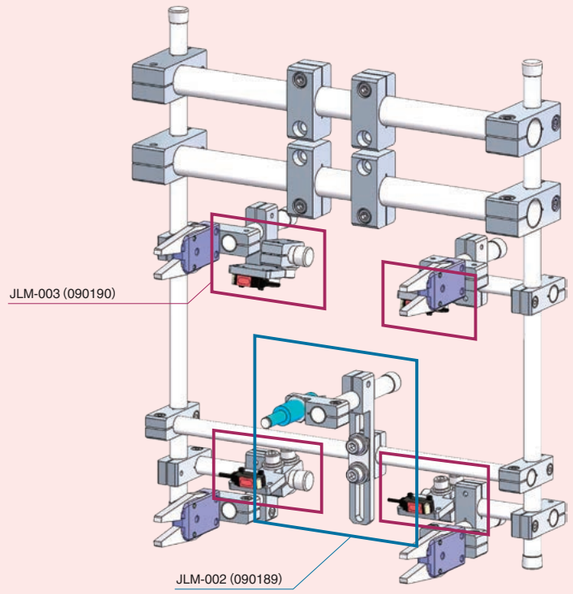


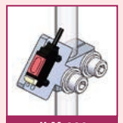
Limit switch module • for jungle gym (ϕ20)

Order code No.	090193
Standard	JLM-006

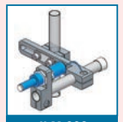
● Weight : 287g

Example of using limit switch module





JLM-003 (090190)



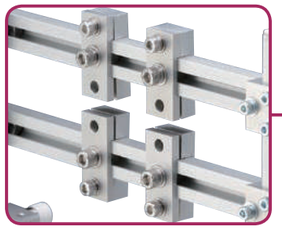
JLM-002 (090189)

MEMO

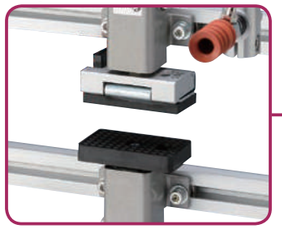
Let's Joint

- Combination of Eins parts makes building an E.O.A.T. for many different shape of products easy.
- Light weight and easy fabrication.
- Let's joint fittings are attached with bolts.

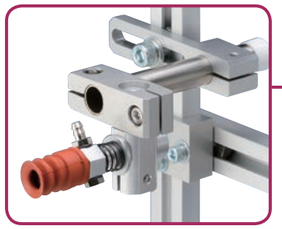
Frame／Module

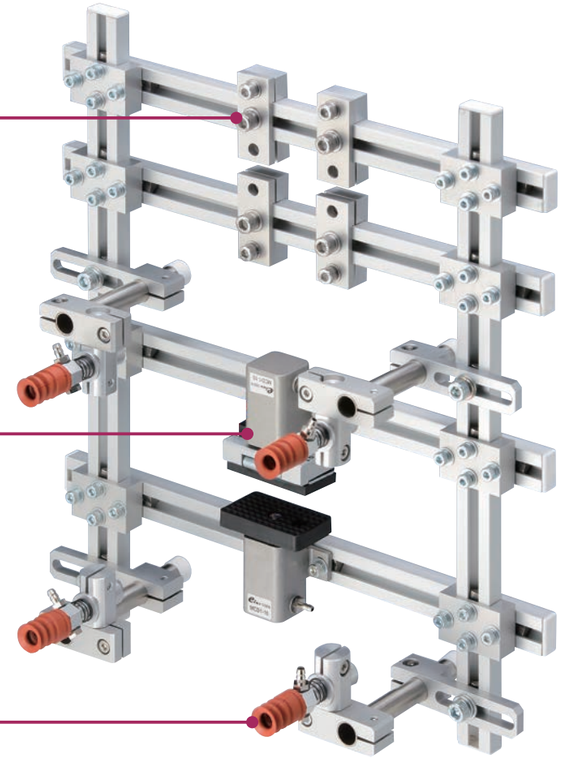


Grip



Suction



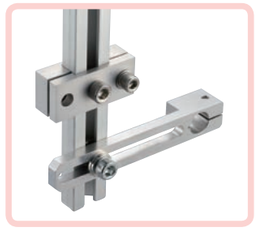


Tubing 6-1

Let's Joint series parts based on three different size of aluminium profile extrusions to build an end of arm tool.Determine extract method first. And choose your favorite parts from the product list. The assemble them.Use let's joint modules in (5-40) to create your chuck plate easily.

■ Example of using other components parts

- Let's joint + Connector + Bracket + Nut



Order code No.	271520
Standard	10*20*500

Order code No.	131222
Standard	N01911-204-205SET

Order code No.	131130
Standard	N01863-103

Order code No.	131056
Standard	N01914-103

List of Let's Joint

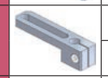
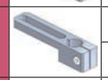
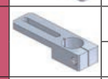
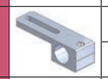
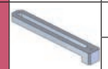
Various parts can be attached to let's joint frame.

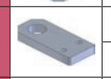
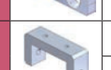
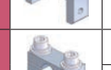
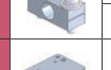
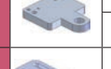
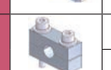
■ Specification

Product name			Order code No.
			Standard
Frame	Let's joint • PROFILE		271520
			10*20*500
			271521
			10*20*1000
			271515
			10*20*1500
			281807
			25*25*500
			281809
			25*25*1000
			281753
			25*25*1500
			281808
			25*50*500
			281810
			25*50*1000
			281754
			25*50*1500
Profile end cap	Profile end cap • 10-20		131213
			N01902-004
	Profile end cap • 25-25		131214
			N01902-005
	Profile end cap • 25-50		131215
			N01902-006
Connector set	Connector 20 • set A		131220
			N01911-201-202SET
	Connector 20 • set B		131221
			N01911-201-203SET
	Connector 20 • set C		131222
			N01911-204-205SET
	Cross connector • 20/25 • set A		131223
			N01911-208-106-201SET
	Connector 25 • set A		131224
			N01911-101-102SET
Connector	Cross connector • 20		131028
			N01911-206
	Cross connector • 25		131019
			N01911-103

Product name			Order code No.
			Standard
Connector	Cross connector • 25/50		131033
			N01911-401
	Cross connector • 50		131032
			N01911-301
	Connector 20 • F		131029
			N01911-207
	Connector 20 • G		131031
			N01911-209
	Cylinder connector 25 • A		131020
			N01911-104
	Cylinder connector 25 • B		131021
			N01911-105
Block	Swing block • PT1/8		131076
			N01915-114
	Connector block 50 • B		131040
			N01912-203
	Connector block • for GCYL		131039
			N01912-202
	Connector block • light		131038
			N01912-106
	Connector block 25/50 • A		131041
			N01912-301
	Connector block 25 • C		131035
			N01912-103
	Connector block 25 • D		131036
			N01912-104
Bracket	Slide bracket 40 • M3		131158
			N01863-214
	Slide bracket 40 • M5		131147
			N01863-203
	Slide bracket 40 • M6		131156
			N01863-212
	Slide bracket 40 • PT1/8		131154
			N01863-210
	Slide bracket 40 • W • M10		131139
			N01863-117
	Slide bracket 40 • W • M12		131140
			N01863-118

List of Let's Joint

	Product name		Order code No. Standard
Bracket	Slide bracket 40 • W • M17		131143
			N01863-122
	Slide bracket 40 • ϕ 8		131152
			N01863-208
	Slide bracket • W • ϕ 8		131131
			N01863-106
	Slide bracket 40 • W • ϕ12		131132
			N01863-107
	Slide bracket 40 • W • ϕ20		131137
			N01863-114
	Slide bracket 40 • T • W • ϕ 8		230051
			XL0005-102
	Slide bracket 40 • T • ϕ 8		230056
			XL0005-107
	Slide bracket 40 • T • ϕ 12		230052
			XL0005-103
	Slide bracket 40 • T • ϕ 20		230054
			XL0005-105
	Slide bracket 70 • M3		131159
			N01863-217
	Slide bracket 70 • M5		131148
			N01863-204
	Slide bracket 70 • M6		131157
			N01863-213
	Slide bracket 70 • PT1/8		131155
			N01863-211
	Slide bracket 70 • W • M10		131141
			N01863-120
	Slide bracket 70 • W • M12		131142
			N01863-121
	Slide bracket 70 • W • M17		131144
			N01863-124
	Slide bracket 70 • ϕ 8		131153
			N01863-209
	Slide bracket 70 • W • ϕ 8		131133
			N01863-110
	Slide bracket 70 • W • ϕ12		131130
			N01863-103

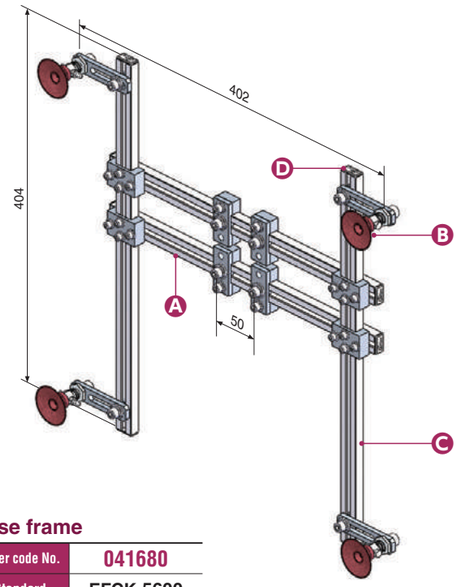
	Product name		Order code No. Standard
Bracket	Slide bracket 70 • W • ϕ 20		131138
			N01863-115
	Slide bracket 70 • T • W • ϕ 8		230053
			XL0005-104
	Slide bracket 70 • T • ϕ 8		230057
			XL0005-108
	Slide bracket 70 • T • ϕ 12		230050
			XL0005-101
	Slide bracket 70 • T • ϕ 20		230055
			XL0005-106
	Swing bracket		131065
			N01915-102
	Connector bracket 25 • E		131037
			N01912-105
	Suction link bracket • M12		131090
			N01918-201
	Cylinder bracket • ϕ 8		131075
			N01915-113
	Cylinder bracket • ϕ 12		131074
			N01915-112
	Cylinder bracket • ϕ 20		131066
			N01915-103
	Link bracket 25/50		131034
			N01911-402
	Chuck bracket • ϕ 12		131067
			N01915-105
	Sensor bracket		131077
			N01915-201
	Nipper bracket • D		131081
			N01915-304
	Nipper bracket • E		131082
			N01915-305
	Bracket • NCON		131083
			N01915-401
	Bracket • ϕ 8		131073
			N01915-111
	Bracket • ϕ 12		131071
			N01915-109

	Product name		Order code No. Standard
Bracket	Bracket • ϕ 20		131072
			N01915-110
	Bracket • W • ϕ 8		131070
			N01915-108
	Bracket • W • ϕ 12		131068
			N01915-106
	Bracket • W • ϕ 20		131069
			N01915-107
	Rotation bracket • ϕ 20		131064
			N01915-101
Plate	Connect plate 20 • A		131413
			N01913-201
	Connect plate 25 • A		131406
			N01913-101
	Connect plate 25 • B		131407
			N01913-102
	Connect plate 25 • C		131405
			N01913-103
	Connect plate 25 • D		131045
			N01913-104
	Connect plate 25 • E		131046
			N01913-105
	Connect plate 25 • F		131047
			N01913-106
	Connect plate 25 • G		131411
			N01913-107
	Connect plate 25 • H		131049
			N01913-108
	Connect plate 25/50 • A		131416
			N01913-401
	Connect plate 50 • A		131051
			N01913-301
	Connect plate 50 • B		131052
			N01913-302
Washer	Washer • A • for let's joint		131087
			N01918-102
	Washer • B • for let's joint		131088
			N01918-103

	Product name		Order code No. Standard
Nut	Nut • M4		131061
			N01914-108
	Nut • M4 • 2P • 32, M5 • 2P • 28		131063
			N01914-202
	Nut • M4 • 2P • 38, M3 • 2P • 20		131062
			N01914-201
	Nut • M6		131056
			N01914-103
	Nut • M6 • 2P • 12		131055
			N01914-102
	Nut • M6 • 2P • 15		131054
			N01914-101
	Nut • M6 • 2P • 20		131058
			N01914-105
	Nut • M6 • 2P • 25		131059
			N01914-106
	Nut • M6 • 3P • 15		131057
			N01914-104
	Nut • M6 • 3P • 30		131060
			N01914-107
Nut plate	Nut plate • for slide bracket		023197
			CP-076
Guide bar	Guide bar • 100		131084
			N01916-201
	Guide bar • 200		131085
			N01916-202
Joint	Joint • for let's joint		131089
			N01918-104
Spacer	Spacer 25 • T5 • P25		131086
			N01918-101
Plate	Attach plate • A		131091
			N01918-301

Base Frame Module

Modularized chuck parts for let's joint.



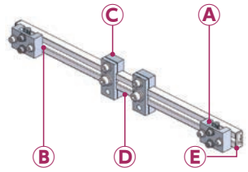
Base frame

Order code No.	041680
Standard	EFCK-5600

● Weight : 775g

Configuration module	Standard	Order code No.	No. of uses	Details
Ⓐ Base frame・for let's joint	EFCK-5601	041681	2	5-40
Ⓑ Suction module・for let's joint	LSM-003	110571	4	5-40
Ⓒ Let's joint・PROFILE	10*20*500	271520	2	5-37
Ⓓ Profile end cap・10-20	N01902-004	131213	4	5-37

Base frame・for let's joint components of EFCK-5600…Ⓐ

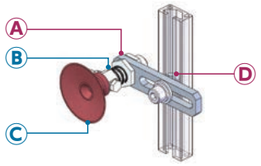


Order code No.	041681
Standard	EFCK-5601

● Weight : 180g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Connector 20・F	N01911-207	131029	2	5-37
Ⓑ Nut・M4	N01914-108	131061	8	5-39
Ⓒ Connector 20・set C	N01911-204-205set	131222	2	5-37
Ⓓ Let's joint・PROFILE	10*20*500	271520	1	5-37
Ⓔ Profile end cap・10-20	N01902-004	131213	2	5-37

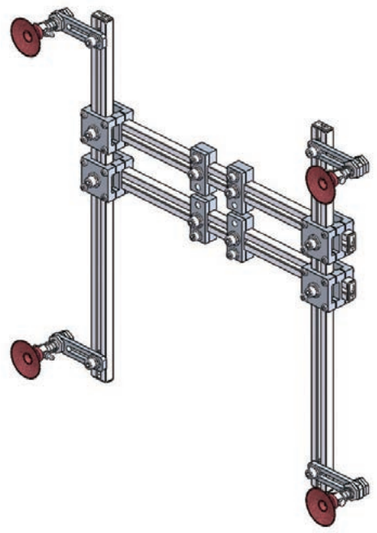
Suction module・for let's joint components of EFCK-5600…Ⓑ



Order code No.	110571
Standard	LSM-003

● Weight : 50g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Slide bracket 40・W・M12	N01863-118	131140	1	5-22
Ⓑ Suction stem small	VFIL-S-5A	210974	1	3-23
Ⓒ Suction cups(standard/silicon/brown)	VAPH-40C	210196	1	3-5
Ⓓ Nut・M6	N01914-103	131056	1	5-39

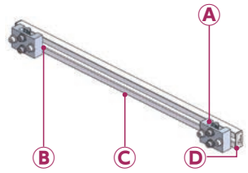


Base frame

Order code No.	041677
Standard	EFCK-5500

● Weight : 924g

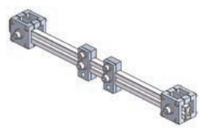
Base frame・for let's joint



Order code No.	041682
Standard	EFCK-5602

● Weight : 130g

Configuration parts	Standard	Order code No.	No. of uses	Details
Ⓐ Connector 20・F	N01911-207	131029	2	5-37
Ⓑ Nut・M4	N01914-108	131061	8	5-39
Ⓒ Let's joint・PROFILE	10*20*500	271520	1	5-37
Ⓓ Profile end cap・10-20	N01902-004	131213	2	5-37



Base frame・for let's joint

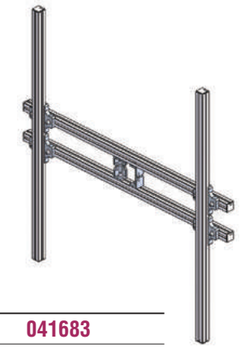
Order code No.	041678
Standard	EFCK-5501

● Weight : 253g

Base frame・for let's joint

Order code No.	041679
Standard	EFCK-5502

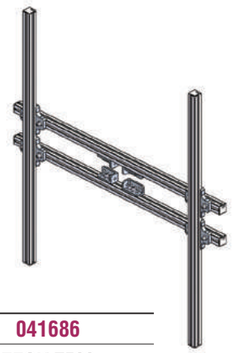
● Weight : 203g



Base frame

Order code No.	041683
Standard	EFCK-7000

● Weight : 3,114g



Base frame

Order code No.	041686
Standard	EFCK-7500

● Weight : 3,476g

Base frame・for let's joint

Order code No.	041684
Standard	EFCK-7001

● Weight : 1,030g

Base frame・for let's joint

Order code No.	041685
Standard	EFCK-7002

● Weight : 961g

Base frame・for let's joint

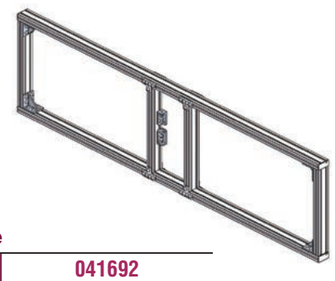
Order code No.	041687
Standard	EFCK-7501

● Weight : 1,211g

Base frame

Order code No.	041689
Standard	EFCK-7600

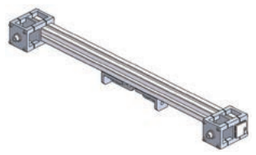
● Weight : 3,992g



Base frame

Order code No.	041692
Standard	EFCK-8000

● Weight : 7,612g



Base frame・for let's joint

Order code No.	041690
Standard	EFCK-7601

● Weight : 772g

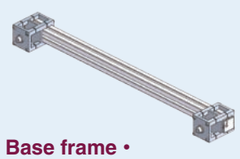
Base frame・for let's joint

Order code No.	041694
Standard	EFCK-8002

● Weight : 822g

Discontinued product

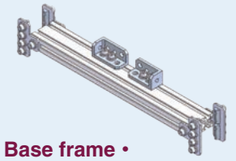
(Following module product is created by combination of components.)



Base frame・for let's joint

Configuration parts	Standard	Order code No.
Connector 25・set A	N01911-101-102 SET	131224
Profile end cap・25-25	N01902-005	131214
PROFILE25*25	25*25*500	281807

*PROFILE length is 500mm if only PROFILE is ordered.



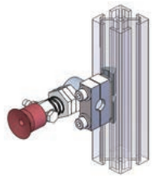
Base frame・for let's joint

Configuration parts	Standard	Order code No.
Connector block 25・D	N01912-104	131036
Nut・M6・2P・15	N01914-101	131054
Connector plate 25・D	N01913-104	131045
PROFILE 25*50	25*50*500	281808

*PROFILE length is 500mm if only PROFILE is ordered.

Suction Module

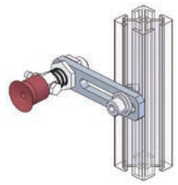
Modularized chuck parts for let's joint.



Suction module • for let's joint

Order code No.	110569
Standard	LSM-001

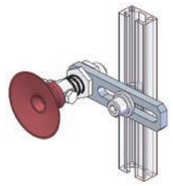
● Weight : 75g ● Suction stem : VFIL-S-5A



Suction module • for let's joint

Order code No.	110570
Standard	LSM-002

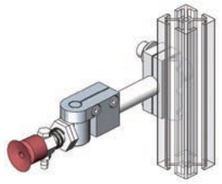
● Weight : 38g ● Suction stem : VFIL-S-5A



Suction module • for let's joint

Order code No.	110571
Standard	LSM-003

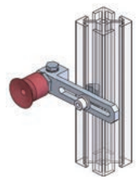
● Weight : 50g ● Suction stem : VFIL-S-5A



Suction module • for let's joint

Order code No.	110572
Standard	LSM-004

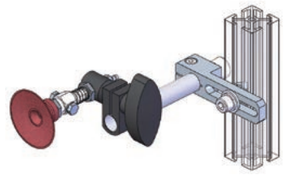
● Weight : 95g ● Suction stem : VFIL-S-5A



Suction module • for let's joint

Order code No.	110573
Standard	LSM-005

● Weight : 24g ● Suction stem : N01892-301

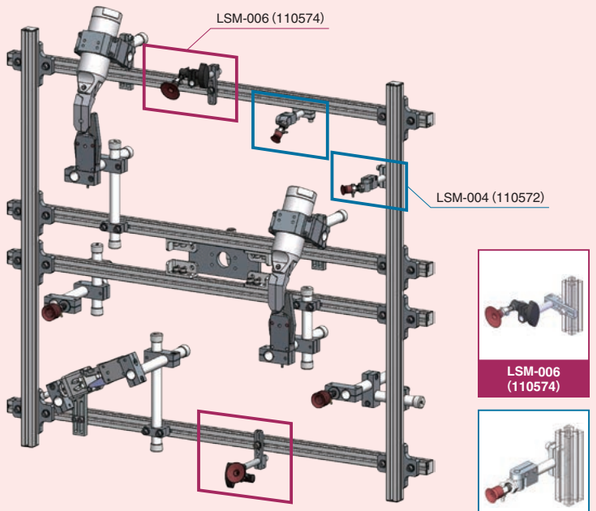


Suction module • for let's joint

Order code No.	110574
Standard	LSM-006

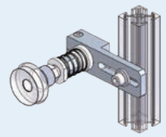
● Weight : 132g ● Suction stem : VFILB2-SH

Example of using suction module



Discontinued product

(Following module product is created by combination of components.)

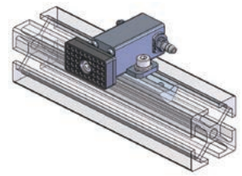


Suction module • for let's joint

Configuration parts	Standard	Order code No.
Bellows type suction cups 1.5-stage	SFSGA33SI-PT1/8M	183879
Suction Stem Non-Rotate Mini (Large)	VFIL-H	210788
Slide bracket 40・W・φ20	N01863-114	131137
Nut・M6	N01914-103	131056

Gripper Module

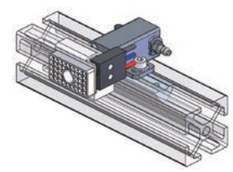
Modularized chuck parts for let's joint.



Gripper module • for let's joint (UMCD)

Order code No.	110577
Standard	LGM-002

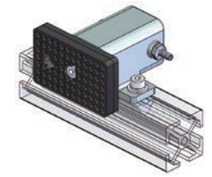
● Weight : 46g ● Micro mini cylinder : UMCD-10



Gripper module • for let's joint (UMCD)

Order code No.	110579
Standard	LGM-004

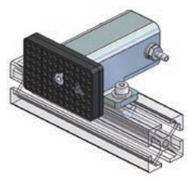
● Weight : 64g ● Micro mini cylinder : UMCD-10



Gripper module • for let's joint (MCD1)

Order code No.	110580
Standard	LGM-005

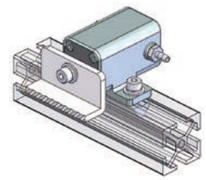
● Weight : 131g ● Mini cylinder : MCD1-10



Gripper module • for let's joint (MCD1)

Order code No.	110581
Standard	LGM-006

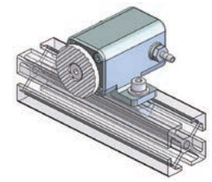
● Weight : 146g ● Mini cylinder : MCD1-20



Gripper module • for let's joint (MCD1)

Order code No.	110582
Standard	LGM-007

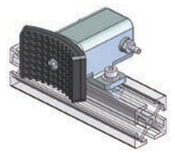
● Weight : 117g ● Mini cylinder : MCD1-10



Gripper module • for let's joint (MCD1)

Order code No.	110583
Standard	LGM-008

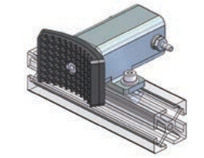
● Weight : 98g ● Mini cylinder : MCD1-10



Gripper module • for let's joint (MCD1)

Order code No.	110584
Standard	LGM-009

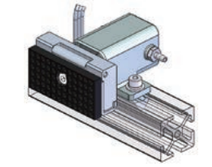
● Weight : 132g ● Mini cylinder : MCD1-10



Gripper module • for let's joint (MCD1)

Order code No.	110585
Standard	LGM-010

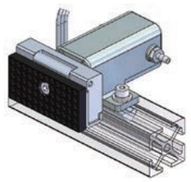
● Weight : 147g ● Mini cylinder : MCD1-20



Gripper module • for let's joint (MCD1)

Order code No.	110586
Standard	LGM-011

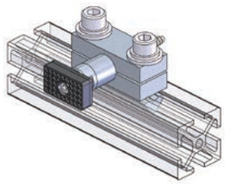
● Weight : 147g ● Mini cylinder : MCD1-10



Gripper module • for let's joint (MCD1)

Order code No.	110587
Standard	LGM-012

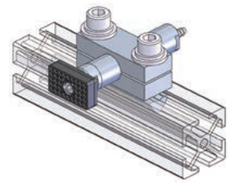
● Weight : 162g ● Mini cylinder : MCD1-20



Gripper module • for let's joint (MCP)

Order code No.	110588
Standard	LGM-013

● Weight : 42g ● Cylinder for pipe attachment : MCP-1210

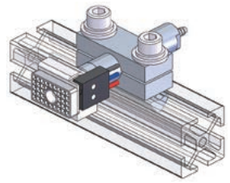


Gripper module • for let's joint (MCP)

Order code No.	110589
Standard	LGM-014

● Weight : 43g ● Cylinder for pipe attachment : MCP-1220

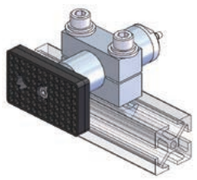
Gripper Module



Gripper module • for let's joint (MCP)

Order code No.	110590
Standard	LGM-015

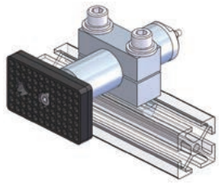
● Weight : 61g ● Cylinder for pipe attachment : MCP-1220



Gripper module • for let's joint (MCP)

Order code No.	110592
Standard	LGM-017

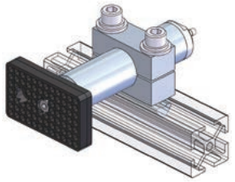
● Weight : 148g ● Cylinder for pipe attachment : MCP-2010



Gripper module • for let's joint (MCP)

Order code No.	110593
Standard	LGM-018

● Weight : 168g ● Cylinder for pipe attachment : MCP-2020

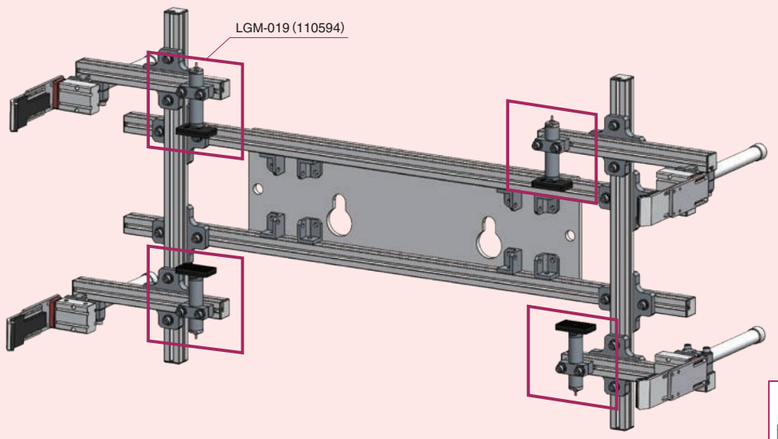


Gripper module • for let's joint (MCP)

Order code No.	110594
Standard	LGM-019

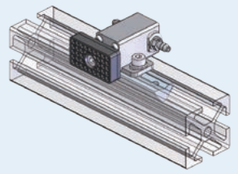
● Weight : 158g ● Cylinder for pipe attachment : MCP-2030

Example of using gripper module



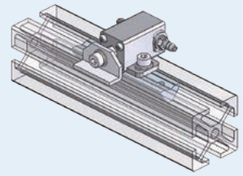
LGM-019 (110594)

Discontinued product (Following module product is created by combination of components.)



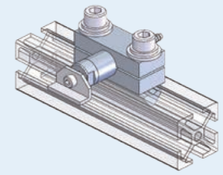
Gripper module for let's joint (UMCD)

Configuration parts	Standard	Order code No.
Pad rectangle black for micro mini cylinder	CPUM-01	022797
Micro mini cylinders	UMCD-5	200122
Fitting	BF-3	010473
Nut・M4・2P・38, M3・2P・20	N01914-201	131062



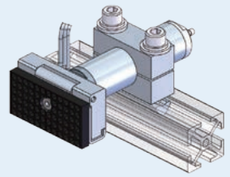
Gripper module for let's joint (UMCD)

Configuration parts	Standard	Order code No.
Claw L shape for micro mini cylinder	CPUM-02	022798
Micro mini cylinders	UMCD-5	200122
Fitting	BF-3	010473
Nut・M4・2P・38, M3・2P・20	N01914-201	131062



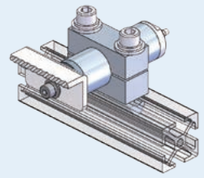
Gripper module for let's joint (MCP)

Configuration parts	Standard	Order code No.
Claw L shape for micro mini cylinder	CPUM-02	022798
Cylinder for pipe attachment	MCP-1210	122824
Chuck bracket・φ12	N01915-105	131067
Nut・M6・3P・15	N01914-104	131057



Gripper module for let's joint (MCP)

Configuration parts	Standard	Order code No.
Pad rectangle w/ black SW for mini cylinder	KRC1-5000	101714
Cylinder for pipe attachment	MCP-2020	122827
Bracket・W・φ20	N01915-107	131069
Nut・M6・3P・15	N01914-104	131057

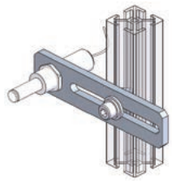


Gripper module for let's joint (MCP)

Configuration parts	Standard	Order code No.
Claw L shape for mini cylinder	CP-014	370073
Cylinder for pipe attachment	MCP-2010	122826
Bracket・W・φ20	N01915-107	131069
Nut・M6・3P・15	N01914-104	131057

Limit Switch Module

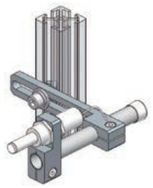
Modularized chuck parts for let's joint.



Limit switch module • for let's joint

Order code No.	110597
Standard	LLM-001

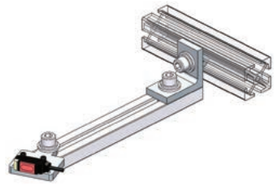
● Weight : 55g



Limit switch module • for let's joint

Order code No.	110598
Standard	LLM-002

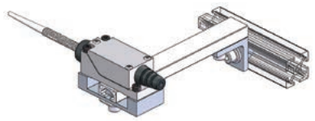
● Weight : 86g



Limit switch module • for let's joint

Order code No.	110599
Standard	LLM-003

● Weight : 117g

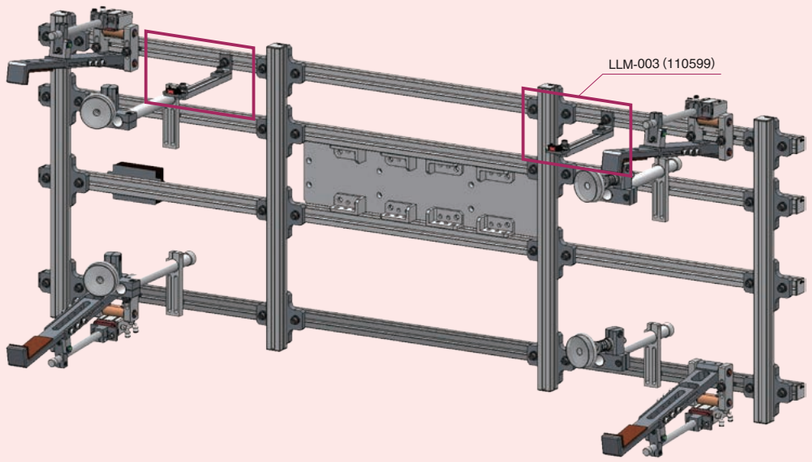


Limit switch module • for let's joint

Order code No.	110600
Standard	LLM-004

● Weight : 254g

Example of using limit switch module

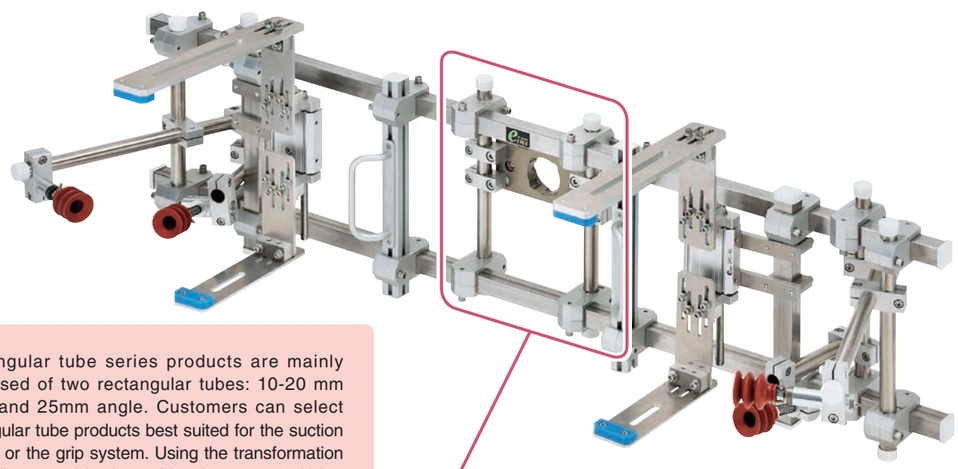


LLM-003
(110599)

MEMO

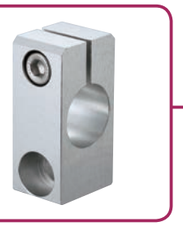
Rectangular Tube

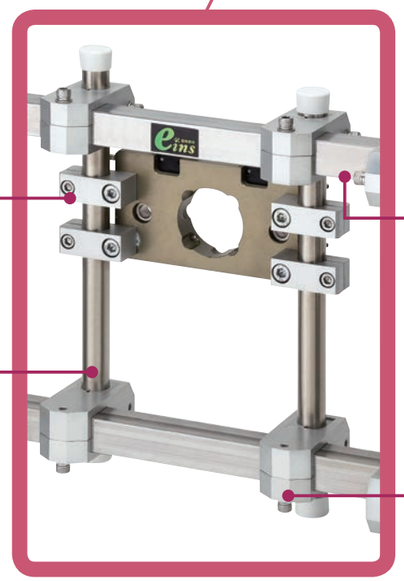
- Light weight, strong,and better rotate resistance.
- Combination of Eins parts makes building an E.O.A.T. for many different shape of products easy.



Rectangular tube series products are mainly composed of two rectangular tubes: 10-20 mm angle and 25mm angle. Customers can select rectangular tube products best suited for the suction system or the grip system. Using the transformation block allows combinations of jungle gym parts.Using the transformation block allows combinations of jungle gym parts.

Attachment bracket • ϕ20 • M8





Rectangular tube

Tubing 6-1

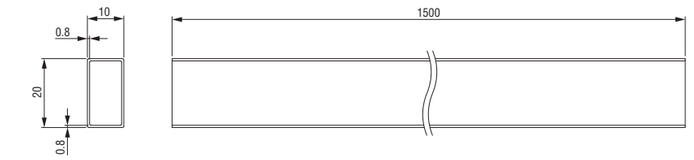
Cross connector • 25-25

Conversion block • 25-ϕ20

Jungle gym SS pipe ϕ20

Rectangular Tube / Tube End Cap

Attaches various kinds of components based on the rectangular tube.

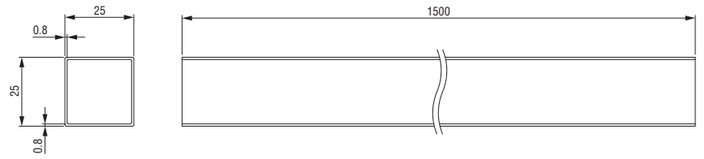


Rectangular tube

*Diameter of a pipe may expand when you cut the pipe.

Order code No.	185124
Standard	S10*20*1500

● Weight : 535g



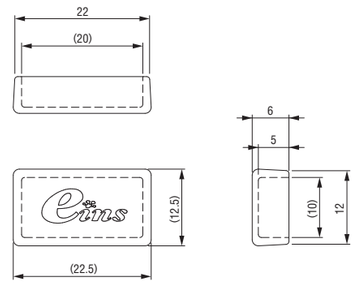
Order code No.	185125
Standard	S25*25*1500

● Weight : 895g

Tube end cap • 10*20

Order code No.	185219
Standard	S-CAP 10-20

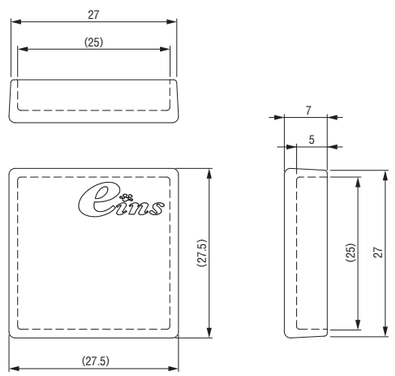
● Weight : 1g



Tube end cap • 25*25

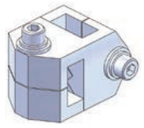
Order code No.	185218
Standard	S-CAP 25-25

● Weight : 3g



Rectangular Tube Series Parts

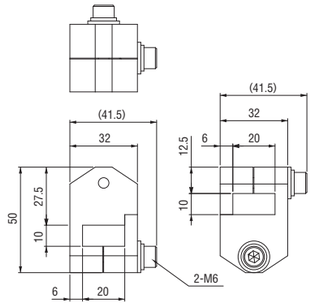
Securely fixes the Let's SS square pipe by precision processing.

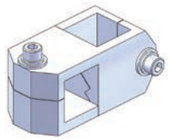


Cross connector • 10-20

Order code No.	185126
Standard	S-CROSS 10-20

● Weight : 102g

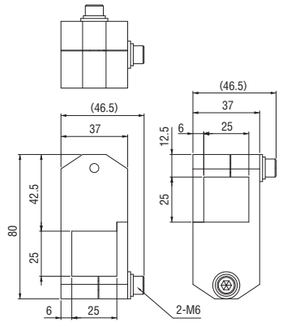


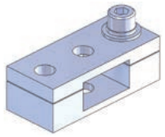


Cross connector • 25-25

Order code No.	185127
Standard	S-CROSS 25-25

● Weight : 170g

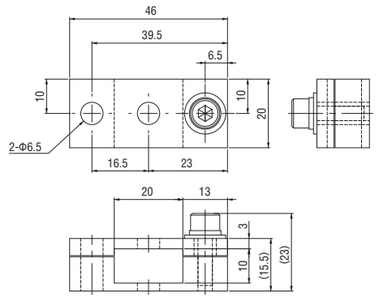


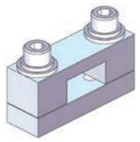


Attach bracket • 10-20 • M6

Order code No.	185128
Standard	S-ATBR 10-20 • M6

● Weight : 30g

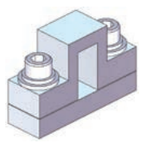




Slide bracket • 10-20

Order code No.	185129
Standard	S-SLBR 10-20

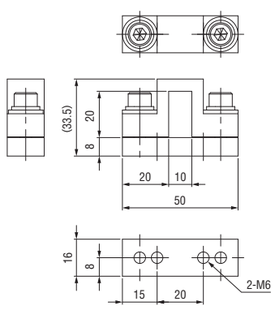
● Weight : 55g

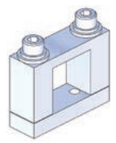


Slide bracket • 20-10

Order code No.	185130
Standard	S-SLBR 20-10

● Weight : 57g

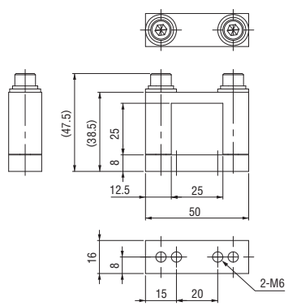


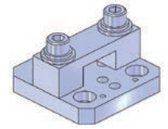


Slide bracket • 25-25

Order code No.	185131
Standard	S-SLBR 25-25

● Weight : 73g

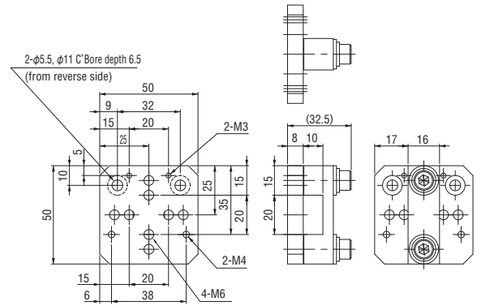


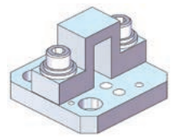


Bracket • 10 • MCD

Order code No.	185132
Standard	S-BR10 MCD

● Weight : 87g

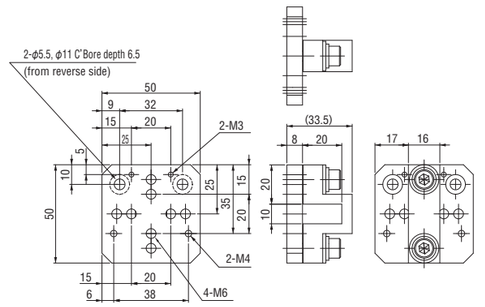


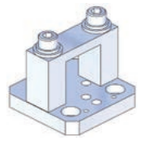


Bracket • 20 • MCD

Order code No.	185133
Standard	S-BR20 MCD

● Weight : 90g

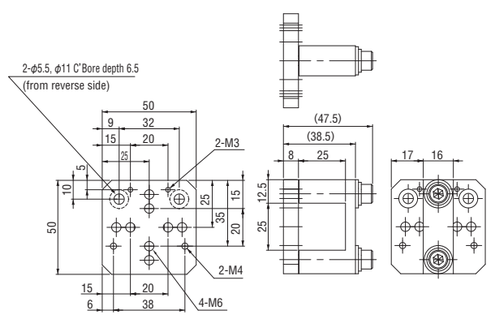


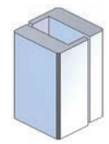


Bracket • 25 • MCD

Order code No.	185134
Standard	S-BR25 MCD

● Weight : 105g



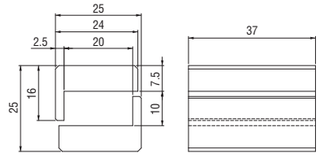


Conversion block • 25-10-20

Order code No.	185136
Standard	S-CBL25-10-20

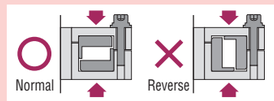
● Weight : 42g

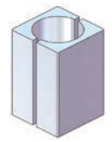
Convert to rectangular tube 25×25 inner dimension to rectangular tube 10×20.



Notes on use

Reverse attachment prevents fixing of conversion block.



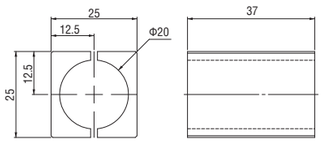


Conversion block • 25 - φ20

Order code No.	185135
Standard	S-CBL25-D20

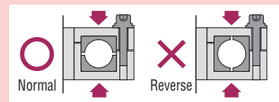
● Weight : 31g

Convert to rectangular tube 25×25 inner dimension to jungle gym φ20.



Notes on use

Reverse attachment prevents fixing of conversion block.

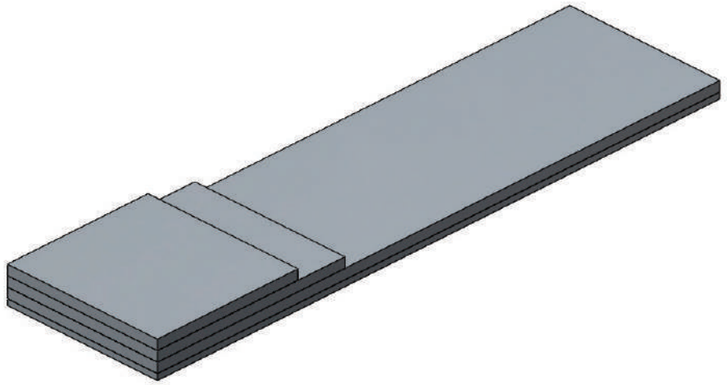


■ Leading connection

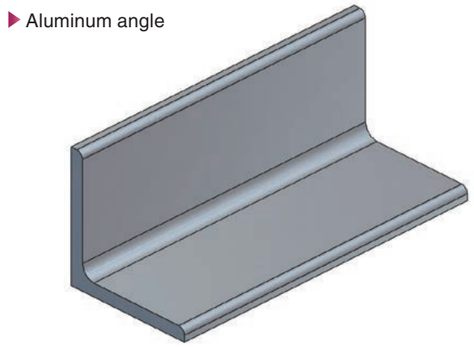
	Countermeasures	Page of details
Pitch 20-M3	Micro mini cylinder	2-4
Pitch 38-M4	Mini cylinder	2-4
Pitch 32-C'Bore	Mini container cylinder	2-17
Pitch 20-M6	Slide bracket φ8, φ12	5-15
	Slide bracket	5-21,22,23,24
	Nipper bracket	5-38
	Bracket NCON	5-38

Base Aluminum Material

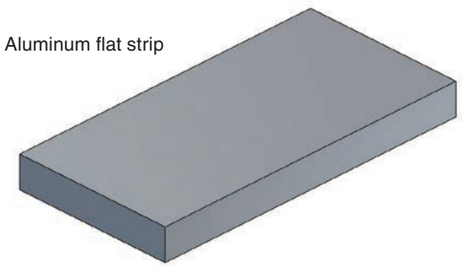
▶ Aluminum plate



▶ Aluminum angle



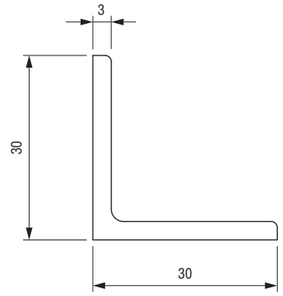
▶ Aluminum flat strip

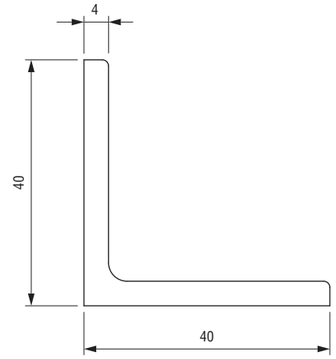


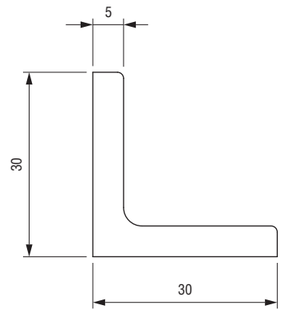
■ Specification

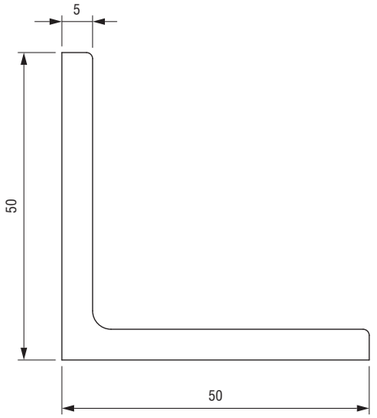
Product name	Standard	Order code No.	Weight (g)	Remarks
Aluminum plate	3T*400*1200	370029	3,920	Material code : A5052
	5T*400*300	370028	1,630	Material code : A5052
	5T*400*400	370027	2,180	Material code : A5052
	5T*400*1200	370026	6,530	Material code : A5052
Aluminum angle	3T*30*30*2M	370074	900	Material code : A5052
	4T*40*40*2M	370075	1,670	Material code : A6063
	5T*30*30*2M	370077	1,400	Material code : A6063
	5T*50*50*2M	370076	2,440	Material code : A6063
Aluminum flat strip	10T*30*2M	370373	1,470	Material code : A6063
	10T*50*2M	370374	2,630	Material code : A6063

▶ Aluminum angle

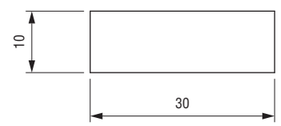


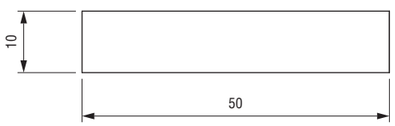






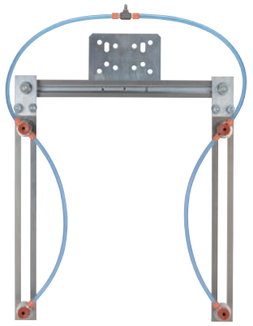
▶ Aluminum flat strip





Sliding Chuck

- Suction stem can be moved freely according to the shape of workpiece.
- Chuck mounting section can be attached to other enterprises' robots.
  The material of vertical bar was changed to duralumin to enhance rigidity.



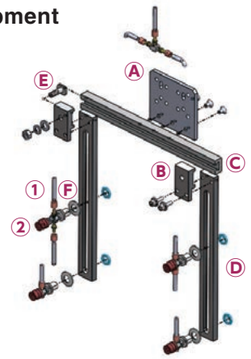
▶ Suction stem: for small

Sliding chuck (gate type)

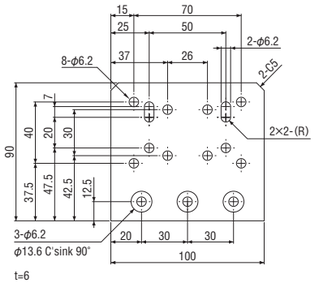
Order code No.	054285
Standard	FCK1-0000

- Weight : 1,160g
- Order the product separately except for a standard.

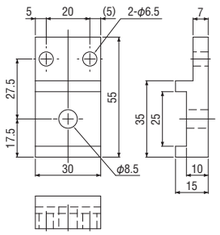
Development



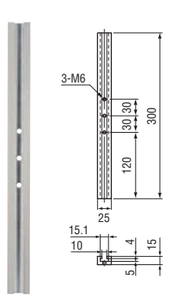
A Chuck mounting base



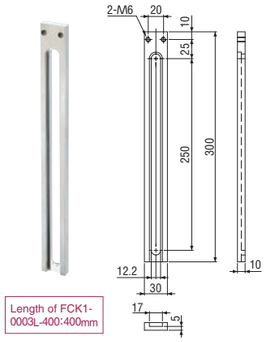
B Sliding holder



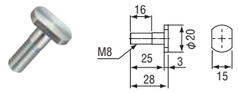
C Sliding chuck slide base



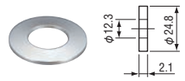
D Vertical bar (L)



E Sliding chuck fastening bolt



F Taper washer・for small

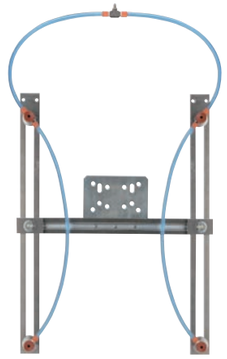


■Specification

	Product name		Standard	Order code No.	Weight (g)
A	Chuck mounting base		FCK1-0001	054287	393
B	Sliding holder		FCK1-0002S	054288	41
C	Sliding chuck slide base		FCK2-0004	054325	209
D	Vertical bar (L)	300mm (standard)	FCK1-0003L	054289	139
		400mm	FCK1-0003L-400	054290	183
E	Sliding chuck fastening bolt		FCK1-0005	054326	11
1	Suction stem for small (M5)		VFIL-S-5A	210974	20
2	Suction cup (standard/silicon/brown)		VAPH-15C	210193	2.2
F	Taper washer・for small		φ12 (for VFIL-S)	370244	1

■Information of used bolt

	Product name	Standard	Order code No.	Qty
A+C	Flat head screw with hexagon socket	M6*10	122786	3
B+C	Nut class 1	M8	122783	2
	Spring washer	M8	122776	2
	Flat washer	M8	122781	2
B+D	Bolt with hexagon socket (SW+flat W)	M6*20	122822	4



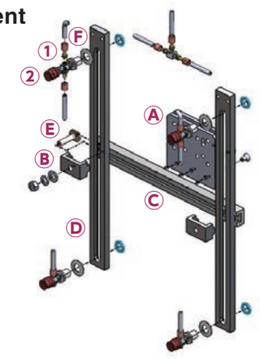
▶ Suction stem：for small

Sliding chuck (H type)

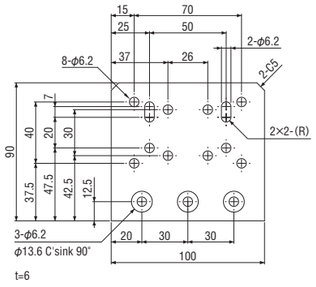
Order code No.	054286
Standard	FCKH-0000

- Weight : 1,160g
- Order the product separately except for a standard.

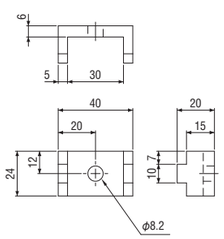
Development



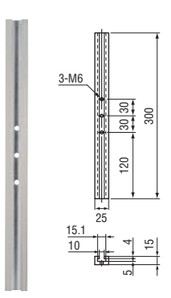
A Chuck mounting base



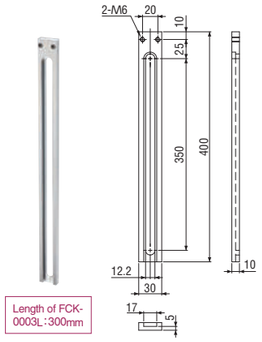
B Sliding holder H



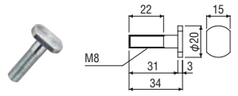
C Sliding chuck slide base



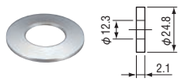
D Vertical bar (L)



E Sliding chuck fastening bolt H



F Taper washer・for small



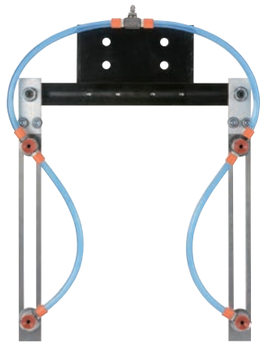
■Specification

	Product name		Standard	Order code No.	Weight (g)
A	Chuck mounting base		FCK1-0001	054287	393
B	Sliding holder H		FCKH-0007	054291	21
C	Sliding chuck slide base		FCK2-0004	054325	209
D	Vertical bar (L)	400mm (standard)	FCK1-0003L-400	054290	183
		300mm	FCK1-0003L	054289	139
E	Sliding chuck fastening bolt H		FCKH-0005L	054292	16
1	Suction stem for small (M5)		VFIL-S-5A	210974	20
2	Suction cup (standard/silicon/brown)		VAPH-15C	210193	2.2
F	Taper washer・for small		φ12 (for VFIL-S)	370244	1

■Information of used bolt

	Product name	Standard	Order code No.	Qty
A+C	Flat head screw with hexagon socket	M6*10	122786	3
B+C	Nut class 1	M8	122783	2
	Spring washer	M8	122776	2
	Flat washer	M8	122781	2

Quick Chuck Change
Quick Chuck Change (Manual)
Tool Changer
Automated Chuck Exchange System
Grip
Mini Cylinder
Accessories for Mini Cylinder
Container Cylinders
Accessories for Container Cylinder
Grippers
Buffer Material
Suction
Suction Cups
Suction Stem
Pad in Pad
Air Ejector / Filter / Check Valve
Micro Mold E.O.A.T
Cut
Mini Air Nippers
Air Nippers
Frame/Module
Jungle Gym
Let's Joint
Rectangular Tube
Base Aluminum Material
Sliding Chuck
Tubing/Sensors
Tubing
Sensors
Other Products
Others
Information



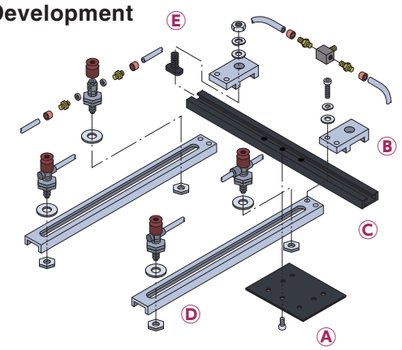
▶ Suction stem : for mini

Sliding chuck (mini)

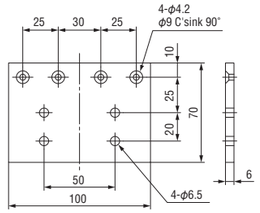
Order code No.	054324
Standard	FCK1-1000

● Weight : 616g

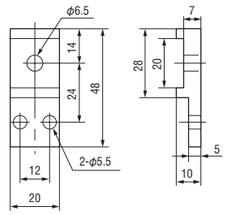
Development



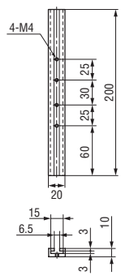
A Chuck mounting base



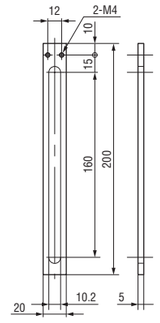
B Sliding holder



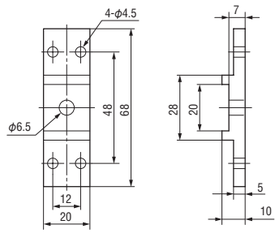
C Sliding chuck slide base



D Vertical bar

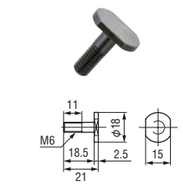


Sliding holder



*Used to change to H type.

E Sliding chuck fastening bolt



■ Specification

	Product name	Standard	Order code No.	Weight (g)
A	Chuck mounting base	FCK-1001	370732	312.5
B	Sliding holder	FCK1-1002	054321	16
C	Sliding chuck slide base	FCK-1004	370735	69
D	Vertical bar 200mm	FCK1-1003	054322	32
E	Sliding chuck fastening bolt	FCK-1005	370736	7.5
	Sliding holder	FCK-1006	050794	21

*Used to change to H type.

■ Information of used bolt

	Product name	Standard	Order code No.	Qty
A+C	Flat head screw with hexagon socket	M4*8	122785	4
B+C	Nut class 1	M6	122782	1
	Spring washer	M6	122775	1
	Flat washer	M6	122780	1
B+D	Bolt with hexagon socket (SW+flat W)	M4*12	122812	2

Tubing ／ Sensors

Tubing ····· 6-2

- Manifold ····· 6-3
- Light Weight Plastic Manifold ····· 6-4
- Fitting ····· 6-5
- Gasket ／ Air Coupler ／ Micro Coupler ····· 6-8
- Tube ／ Sleeve ····· 6-9
- Cable Ties ／ Cable Tie Mount ／ Tube Cutter ····· 6-10
- Regulator／Manual Air Valve Push Button／Manual Air Valve Push Slide Button ····· 6-11
- Flow Control ····· 6-12
- Quick Exhaust Valve ／ Finger Valve ····· 6-13
- Mini Pressure Regulator ····· 6-14

Sensors ····· 6-16

- Star Sensor ····· 6-17
- Limit Switch ····· 6-18
- Limit Switch Micro ／ Limit Switch ····· 6-19
- Limit Switch Mounting Bracket ····· 6-20
- Auto Switch (Reed • Contactless) ····· 6-21
- Photo Sensor ····· 6-22
- Photo Area Sensor ····· 6-24
- Fiber Units ····· 6-25
- Fiber Amplifier Unit ····· 6-26
- Proximity Sensor Runner Confirm ····· 6-30
- Multi AND Board ····· 6-32

Manifold

Air circuit can be branched to two or more.

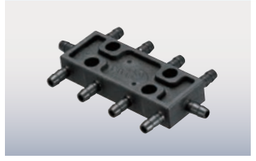
6-3

Cable Ties／Cable Tie Mount／Tube Cutter

Use for arranging chuck piping.

6-10

Light Weight Plastic Manifold



Air circuit can be branched to two or more.

6-4

Regulator／Manual Air Valve Push Button／Manual Air Valve Push Slide Button

Used for air pressure regulations and switches.

6-11

Fitting

Used for connection of chuck device and air tube.

6-5

Flow Control

Speed of air cylinder can be adjusted.

6-12

Gasket／Air Coupler／Micro Coupler

Used for pipe connection of chuck device.

6-8

Quick Exhaust Valve／Finger Valve

Used to control air flow.

6-13

Tube／Sleeve

Used for pipe connection of chuck device.The product is flexible and can follow hard action of robot.

6-9

Mini Pressure Regulator

Grips work piece gently by decreasing gripping force.

6-14

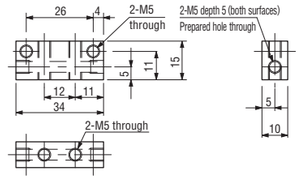
Manifold

Air circuit is branched off in two or more directions.

Manifold • mini

Order code No.	122034
Standard	MM-6P

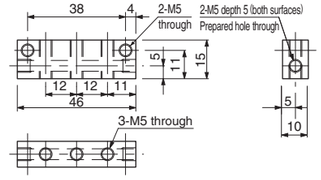
● Weight : 10g ● Mounting : M5/P26



Manifold • mini

Order code No.	122035
Standard	MM-8P

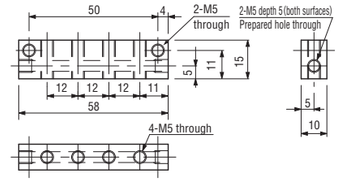
● Weight : 14g ● Mounting : M5/P38



Manifold • mini

Order code No.	122036
Standard	MM-10P

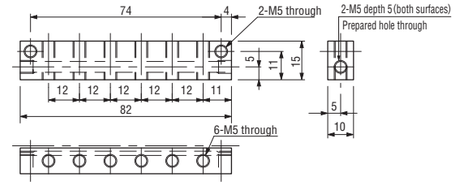
● Weight : 17g ● Mounting : M5/P50



Manifold • mini

Order code No.	122037
Standard	MM-14P

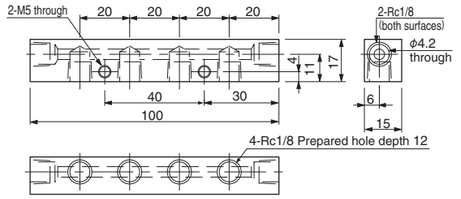
● Weight : 25g
● Mounting : M5/P74



Manifold • small

Order code No.	122040
Standard	MS-6P (1/8)

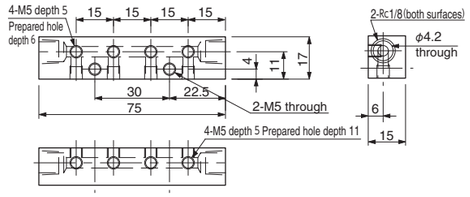
● Weight : 52g
● Mounting : M5/P40

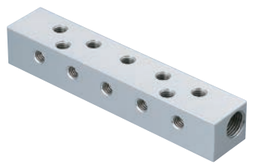


Manifold • small

Order code No.	122038
Standard	MS-10P

● Weight : 41g
● Mounting : M5/P30

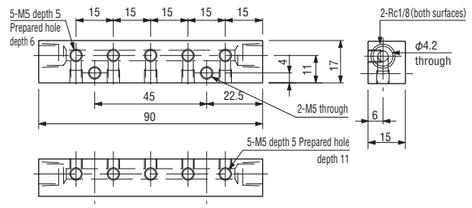




Manifold • small

Order code No.	122039
Standard	MS-12P

● Weight : 50g
● Mounting : M5/P45



Light Weight Plastic Manifold

The air circuit can be branched to multiple units.

● Stop up the port not used by air tube and cap (blind).

Light weight plastic manifold • BF5

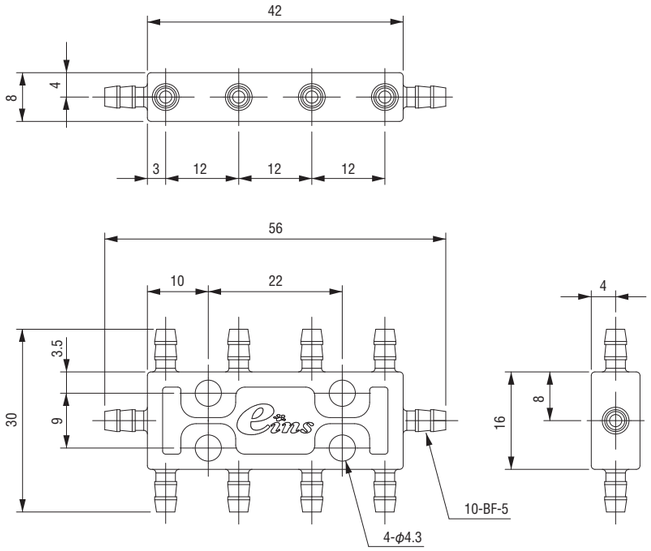
Order code No.	123195
Standard	MP-10P-BF5

● Weight : 5g

Cap for resin manifold • BF5

Order code No.	010585
Standard	BF5-CAP

● Weight : 1g



Light weight plastic manifold • BF6

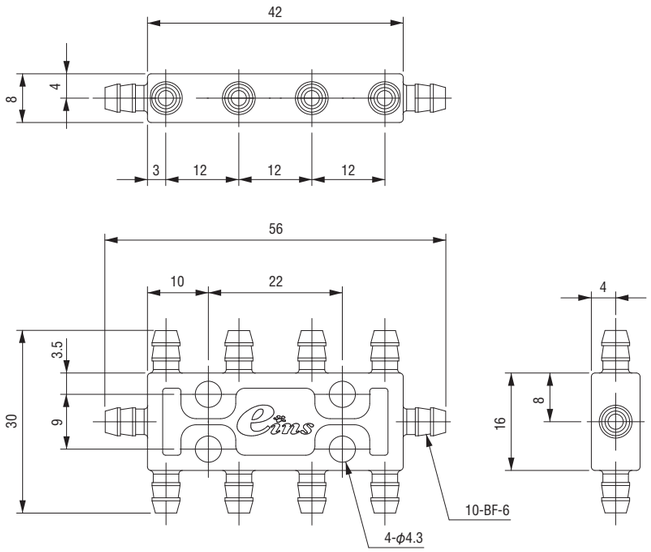
Order code No.	123196
Standard	MP-10P-BF6

● Weight : 5g

Cap for resin manifold • BF6

Order code No.	010586
Standard	BF6-CAP

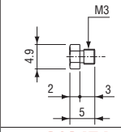
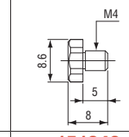
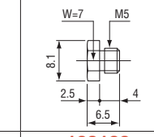
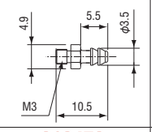
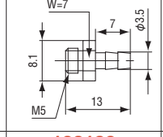
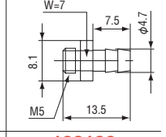
● Weight : 1g

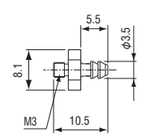
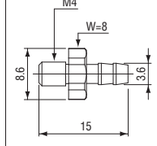
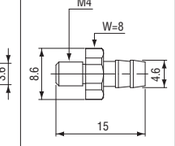
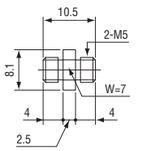
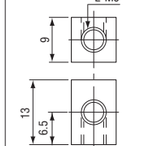
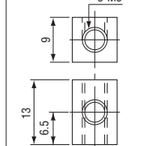


Fitting

Used for connection of chuck device and air tube.

● Use urethane tube or soft polyurethane tube for connection.

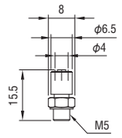
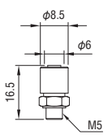
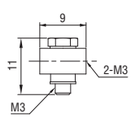
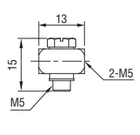
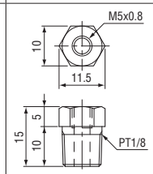
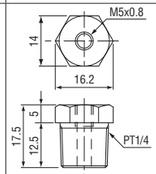
Fitting	For micro-mini cylinder			For micro-mini cylinder		
Drawing						
Order code No.	010474	151349	190106	010473	190109	190108
Standard	PF-3	PF-M4	PF	BF-3	BF-5	BF-6
Weight	0.5g	0.2g	1.2g	0.7g	1.4g	1.5g
Connection	M3	M4	M5	M3	M5	M5
Tube Size	–	–	–	ϕ4	ϕ4、ϕ4.5	ϕ6

Fitting	For micro-mini cylinder					
Drawing						
Order code No.	010416	010482	010481	190107	190110	190111
Standard	BF-5-M3	BF-5-M4	BF-6-M4	NF	EF	TF
Weight	1.2g	0.2g	0.2g	1.4g	7.0g	6.6g
Connection	M3	M4	M4	M5	M5	M5
Tube Size	ϕ4、ϕ4.5	ϕ4、ϕ4.5	ϕ6	–	–	–

Fitting	Barb elbow for soft tubing			Hose elbow	
	For micro-mini cylinder				
Drawing					
Order code No.	120543	120692	122892	120500	122832
Standard	M-3ALU-4	M-5ALU-4	M-5ALU-6	MS-5HLH-4	MS-5HLH-6
Weight	0.7g	4.1g	4.5g	4.2g	6.2g
Connection	M3	M5	M5	M5	M5
Tube Size	ϕ4	ϕ4	ϕ6	ϕ4	ϕ6

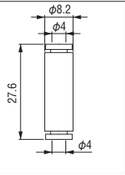
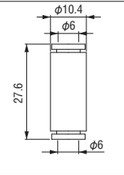
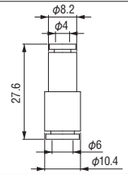
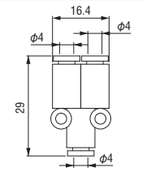
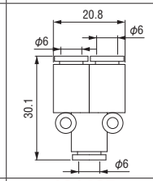
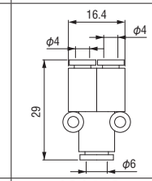
Fitting

● Use urethane tube or soft polyurethane tube for connection.

Fitting	Hose nipple		Universal tee			
Drawing						
Order code No.	122831	122049	123471	120607	190112	190113
Standard	MS-5H-4	MS-5H-6	M-3UT	M-5UT	RBF	RBF-1
Weight	2.5g	3.7g	1.4g	4.8g	7.1g	17.6g
Connection	M5	M5	M3	M5	PT1/8,M5	PT1/4,M5
Tube Size	ϕ4	ϕ6	–	–	–	–

Fitting	Reducer nipple	Joint	Socket plug (trivalent chromate white)	Male connector		
Drawing						
Order code No.	300385	022667	271714	101749	101467	101466
Standard	4-S-6	CF	1/8	KQ2S04-M3G	KQ2S04-M5N	KQ2S06-M5N
Weight	1.2g	1.75g	2.5g	2.0g	3.0g	4.1g
Connection	–	M5	1/8	M3	M5	M5
Tube Size	ϕ4、ϕ4.5、ϕ6	–	–	ϕ4	ϕ4	ϕ6

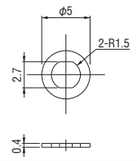
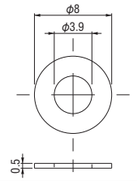
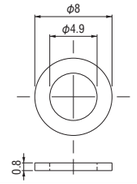
Fitting	Male connector		Male elbow union			
Drawing						
Order code No.	101746	101468	101462	101464	101710	101463
Standard	KQ2S04-01NS	KQ2S06-01NS	KQ2L04-M5N	KQ2L06-M5N	KQ2L04-01NS	KQ2L06-01NS
Weight	8.0g	6.5g	3.1g	3.2g	4.0g	5.2g
Connection	1/8	PT1/8	M5	M5	PT1/8	PT1/8
Tube Size	ϕ4	ϕ6	ϕ4	ϕ6	ϕ4	ϕ6

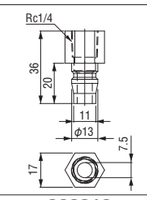
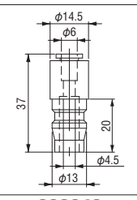
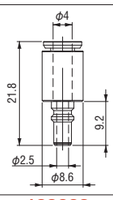
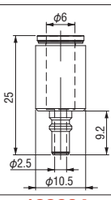
Fitting	Straight union		Straight reducer union	Union Y		Reducer union Y
Drawing						
Order code No.	101469	101470	101471	101472	101465	101473
Standard	KQ2H04-00A	KQ2H06-00A	KQ2H04-06A	KQ2U04-00A	KQ2U06-00A	KQ2U04-06A
Weight	1.6g	2.1g	2.0g	2.9g	4.1g	3.3g
Connection	–	–	–	–	–	–
Tube Size	ϕ4	ϕ6	ϕ4、ϕ6	ϕ4	ϕ6	ϕ4、ϕ6

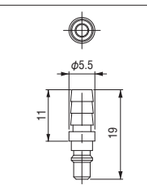
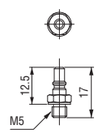
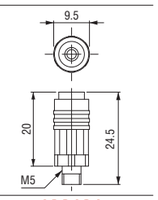
Gasket／Air Coupler／Micro Coupler

Used for pipe connection of chuck device.

● Use urethane tube or soft polyurethane tube for connection.

Gasket			
Drawing			
Order code No.	122889	122890	122891
Standard	M3-G	M4-G	M5-G
Weight	–	–	–
Connection	–	–	–
Tube Size	–	–	–

Air Coupler				
Drawing				
Order code No.	280018	322948	122893	122894
Standard	20PF	60PC	MC-04PC	MC-06PC
Weight	29.0g	24.0g	5.0g	3.0g
Connection	Rc1/4	–	–	–
Tube Size	–	ϕ6	ϕ4	ϕ6

Micro coupler			
Drawing			
Order code No.	120170	120120	120121
Standard	MC-04PH	MC-05PM	MC-05SM
Weight	1.5g	2.0g	7.0g
Connection	–	M5	M5
Tube Size	ϕ6	–	–

Tube／Sleeve

Used for pipe connection of chuck device.The product is flexible and can follow hard action of robot.

Polyurethane tube (flexible)

Order code No.	196516	196277	193564	196513
Standard	TU0425W-20	TU0425B-20	TU0425BU-20	TU0425R-20
Color	White	Black	Blue	Red
Length	20m			
Outside×Inside diameter	ϕ4×ϕ2.5			

Order code No.	196514	196515	196520	196278
Standard	TU0425Y-20	TU0425G-20	TU0604W-20	TU0604B-20
Color	Yellow	Green	White	Black
Length	20m			
Outside×Inside diameter	ϕ4×ϕ2.5		ϕ6×ϕ4	

Order code No.	193566	196517	196518	196519
Standard	TU0604BU-20	TU0604R-20	TU0604Y-20	TU0604G-20
Color	Blue	Red	Yellow	Green
Length	20m			
Outside×Inside diameter	ϕ6×ϕ4			

Soft polyurethane tube (more flexible)

Order code No.	196530	196531
Standard	TUS0425W-20	TUS0604W-20
Color	White	
Length	20m	
Outside×Inside diameter	ϕ4×ϕ2.5	ϕ6×ϕ4

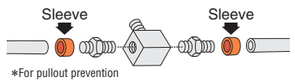
Urethane tube (flexible)

Order code No.	200039	200113	200040	200112
Standard	UF4.5＊2.7 (5M)	UF4.5＊2.7 (20M)	UF6＊4 (5M)	UF6＊4 (20M)
Color	Light blue			
Length	5m	20m	5m	20m
Outside×Inside diameter	ϕ4.5×ϕ2.7		ϕ6×ϕ4	

Silicone tube (super flexible)

Order code No.	300514	322194
Standard	4＊2 (5M)	6＊3 (5M)
Color	White	
Length	5m	
Outside×Inside diameter	ϕ4×ϕ2	ϕ6×ϕ3

Sleeve



Order code No.	300001
Standard	BS-06
Weight	0.2g

Cable Ties／Cable Tie Mount／Tube Cutter

Use for arranging chuck piping.

Cable ties

Order code No.	001920	001921	001922	001923	001924
Standard	AB100-W	AB150-W	AB200-W	AB300-W	AB350-W
Length	100mm	152mm	202mm	301mm	382mm
Per bag	1,000pcs.	100pcs.			50pcs.

Tie wrap w／tag

Order code No.	152324
Standard	PLF1M-C
Length	109mm
Per bag	100pcs.

Cable tie mount

Order code No.	183222	183223
Standard	SKM-20	SKM-30
Length	20×20×5.3	30×30×6
Per bag	100pcs.	

Example of use

Tie wrap base

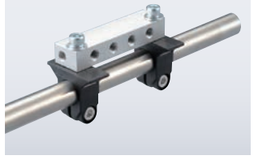
Order code No.	171210	171211
Standard	RCA12	RCA20
Weight	0.2g	
Per bag	ϕ12	ϕ20

Example of use

Tie wrap base (M4)

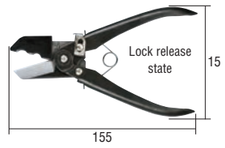
Order code No.	171212	171213
Standard	RCB12	RCB20
Weight	0.2g	
Per bag	ϕ12	ϕ20

Example of use



Tube cutter

※Do not use for cutting metal such as electric wire.



Order code No.	190508
Standard	TK-1
Weight	140g
Applied tube material	Nylon, soft nylon, polyurethane, other non-rigid plastic tubes
Applied tube outside diameter	13mm or less

Regulator／Manual Air Valve Push Button／Manual Air Valve Push Slide Button

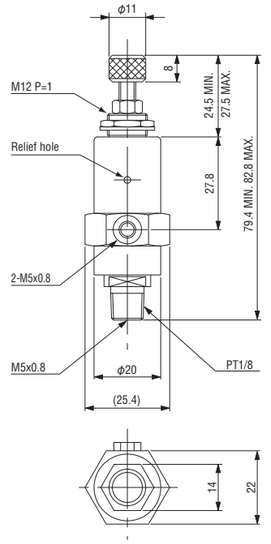
Used for air pressure regulations and switches.

▶ Grip strength of components such as mini cylinder is adjusted by regulating pressure.

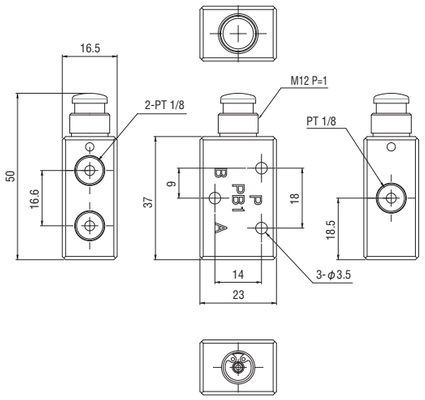
Regulator

Order code No.	190009
Standard	RSR

● Weight : 108g



▶ Used to switch port of air (A/B).

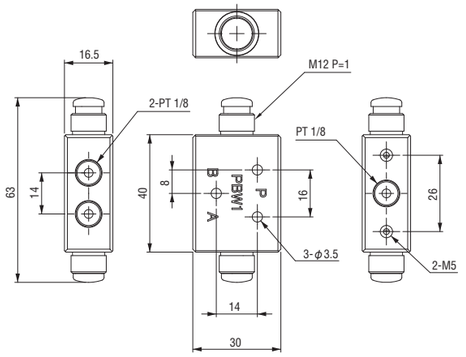


Manual air valve push button

Order code No.	152308
Standard	PB1-E

● Weight : 65g
● Fixing bolt and nut are separately sold.

▶ Used to switch port of air (A/B).



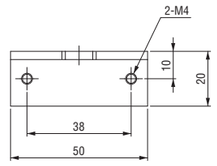
Manual air valve push slide button

Order code No.	152306
Standard	PBW1-E

● Weight : 75g
● Fixing bolt and nut are separately sold.

Mountable on RSR, PB1-E, and PBE1-E.
"120483 ➡ (3-30)" is separately required for installation to PB1-E, PBW1-E.

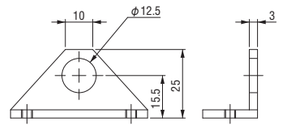
▶ Mounting bracket for push button and regulator.



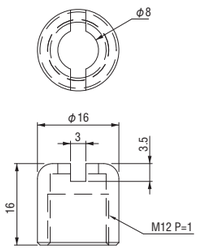
RSR 4P mount BKT

Order code No.	020830
Standard	CP-055

● Weight : 2g



▶ Installation to PB1-E and PBW1-E is possible.



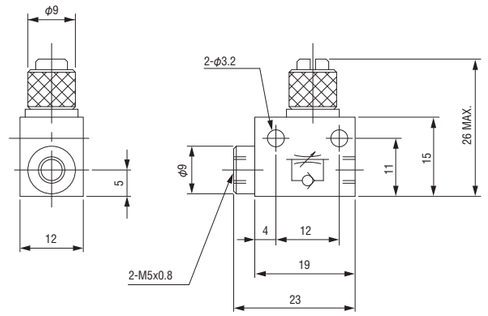
Push button cap

Order code No.	152307
Standard	PB1-C

● Weight : 5g
● With spring washer

Flow Control

Speed of air cylinder can be adjusted.



Order code No.	190002
Standard	SCO

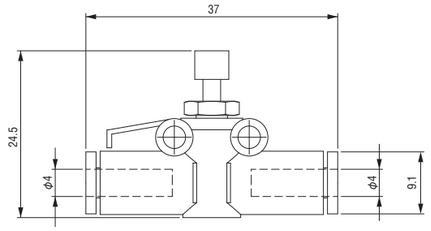
- Weight : 29g
- Directional

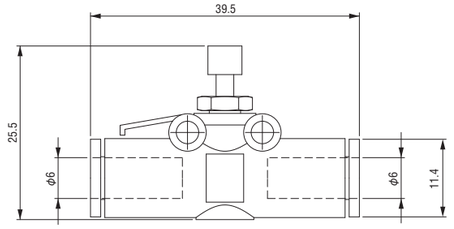
Order code No.	002199
Standard	AS1002F-04

- Weight : 5.5g
- Directional

Order code No.	002200
Standard	AS1002F-06

- Weight : 6.5g
- Directional



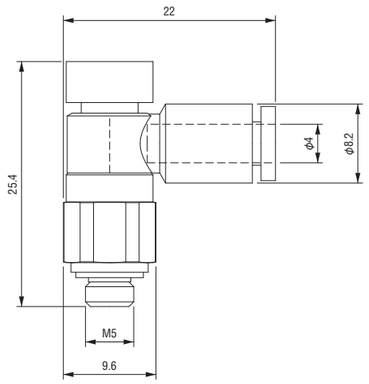


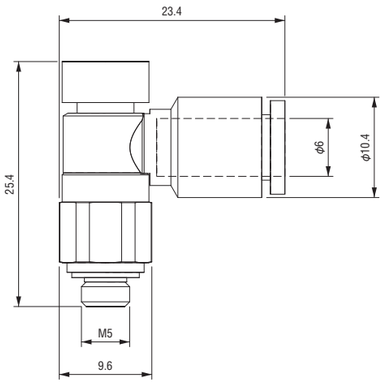
Order code No.	002239
Standard	AS-1201F-M5-04A

- Weight : 5g

Order code No.	002288
Standard	AS-1201F-M5-06A

- Weight : 6g





Quick Exhaust Valve／Finger Valve

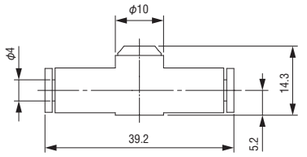
Used to control air flow.

▶ Quick exhaust valve with one-touch pipe joint.

Quick exhaust valve

Order code No.	002216
Standard	AQ240F-04-00

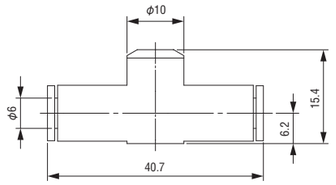
- Weight : 5g
- Silencer is included.
- Directional



Quick exhaust valve

Order code No.	002217
Standard	AQ240F-06-00

- Weight : 6g
- Silencer is included.
- Directional



▶ One-touch pipe joint which allows visual inspection of valve open/close with the orientation of the knob.

2-port valve

Finger valve

Order code No.	210935
Standard	VHK2-04F-04FL

- Weight : 15g
- Applicable tube size : ϕ4
- Directional

Finger valve

Order code No.	210936
Standard	VHK2-06F-06FL

- Weight : 16g
- Applicable tube size : ϕ6
- Directional

3-port valve

Finger valve

Order code No.	210937
Standard	VHK3-04F-04FL

- Weight : 15g
- Applicable tube size : ϕ4
- Directional

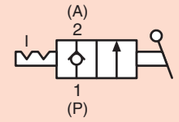
Finger valve

Order code No.	210938
Standard	VHK3-06F-06FL

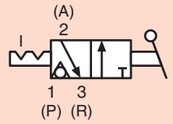
- Weight : 16g
- Applicable tube size : ϕ6
- Directional

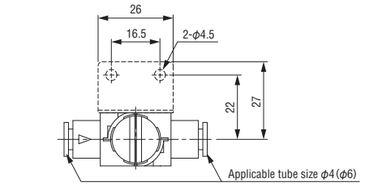
Structural drawing

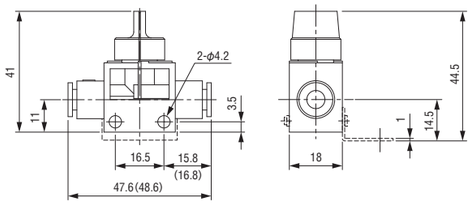
2-port valve



3-port valve



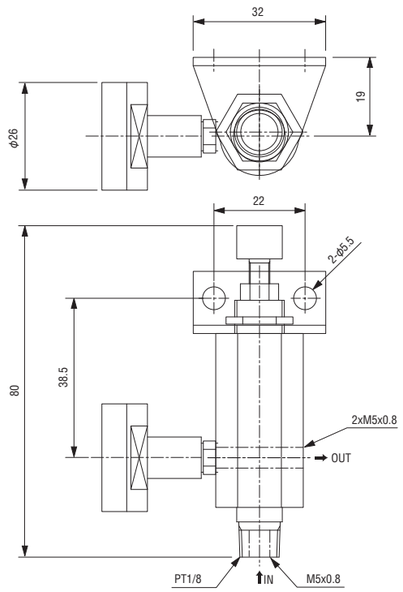




∗ Size in ( ) shows the size of the component for 06F.

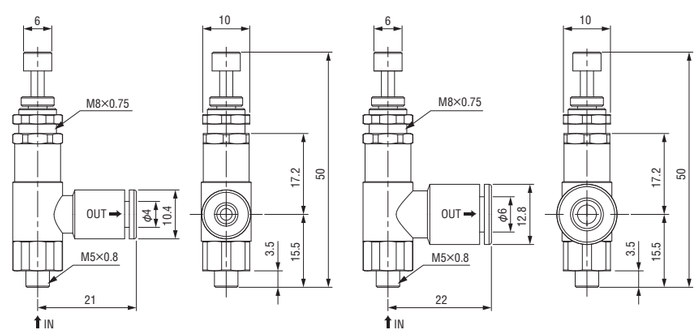
Mini Pressure Regulator

Grips work piece gently by decreasing gripping force.



Order code No.	001312
Standard	ARJ210-M5BG

● Weight : 60g



Order code No.	001382
Standard	ARJ1020F-M5-04

● Weight : 16g

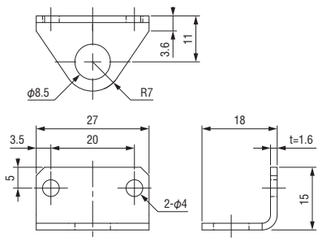
Order code No.	001447
Standard	ARJ1020F-M5-06

● Weight : 16g

ARJ1 Regulator Bracket

Order code No.	110655
Standard	LX0109-102

● Weight : 8g



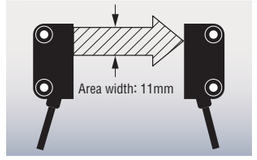
MEMO

Star Sensor

Reed switch adopted to inside to improve durability. Easy two-wire connection.

6-17

Photo Area Sensor



Can be used for passing fine workpieces. Space-saving reflection type can be provided as a special-order product.

6-24

Limit Switch

Adequate for product confirmation in chuck with large molded product.

6-18

Fiber Units

Minute workpeace is detected by using optical amplifier E3 series together.

6-25

Limit Switch Micro／Limit Switch

Easy-to-use small limit switches.

6-19

Fiber Amplifier Unit

Amplifier for optical fiber.

6-26

Limit Switch Mounting Bracket

Use to mount a limit switch, allowing a proper position for product confirmation to be secured.

6-20

Proximity Sensor Runner Confirm

Check sensor for Eins function chuck.

6-30

Auto Switch (Reed･Contactless)

Can be used for container cylinder and mini cylinder.

6-21

Multi AND Board

Many sensor inputs are integrated in the board. And it is output from a point to the robot.

6-32

Photo Sensor

No amplifier is required ! Special-purpose mounting brackets are also provided for Jungle Gym and Let's Joint.

6-22

Star Sensor

Reed switch adopted to inside to improve durability. Easy two-wire connection.

- Silicone rubber is adopted at the tip to prevent damage to the product.
- Lightweight (14g) and compact design.

Star sensor

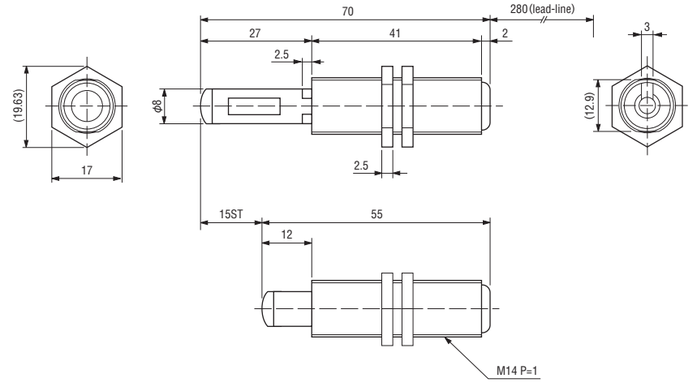
Order code No.	181139
Standard	SSW-15

- Weight : 14g
- With 280mm lead line.

Replacement rubber head･ for SSW-15

Order code No.	270449
Standard	14103301 (SSW-15)

- (One set / 5 pcs)



＊Sensing-stroke range : 2.5mm-15mm

■Electrical specification

	Standard	SSW-15
Contact point	Contact point type	1A
	Contact position	Off center gap
	Maximum contact capacity	20W
	Maximum open/close voltage	200VDC
	Maximum open/close electric current	0.5A
Electrical characteristics	Turn-on value＊1	15-50A＊1
	Detecting stroke	2.5mm-15mm
	Open value＊1	5A (min)
	Withstand voltage＊2	250VDC
Others	Operation temperature	− 2-80℃
	Useful life	1×10^8times / DC10mV-10μA
		1×10^7times / DC10V-4mA
		250×10^4times / DC20V-0.5A
	Connection method	Code drawing type (280mm)

＊1 Crossing in shipment : ±2A
＊2 Voltage withstanding standard: turn-on value 25A or more.

■Body specification

Standard		SSW-15
Weight		20g
Material	Main body	PA
	Shaft	PA
	Rubber head	Silicon
Accessories		Hex nut M14 × P1 (2 pcs)

＊Do not put a strong shock from the outside.

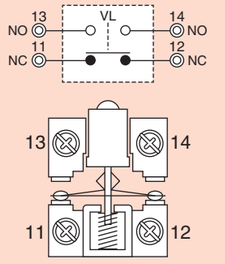
Limit Switch

Adequate for product confirmation in chuck with large molded product.

Limit switch

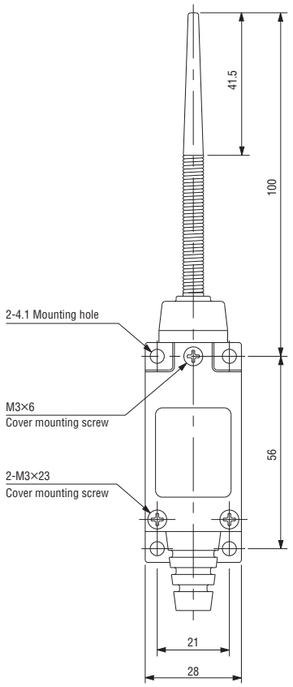
Order code No.	000012
Standard	AZ8166

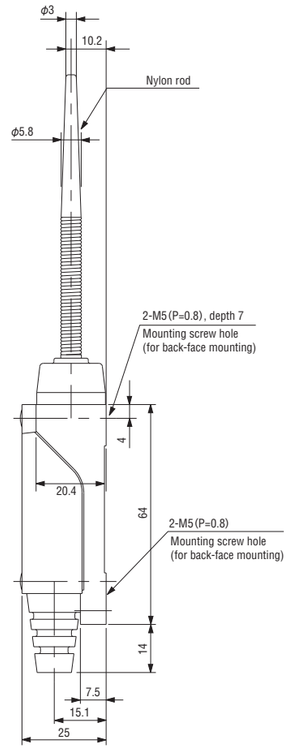
● Weight : 111g



NO connection (13,14)
Signal “ON” after lever is pressed.

NC connection (11,12)
Signal “OFF” after lever is pressed.





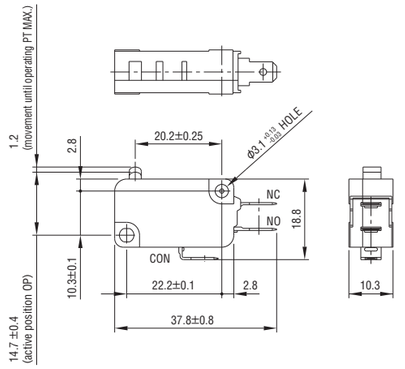
Limit Switch Micro ／ Limit Switch

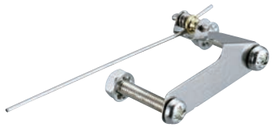
User-friendly small limit switch.

Limit switch micro

Order code No.	210843
Standard	VX-5-1A2

● Weight : 6g

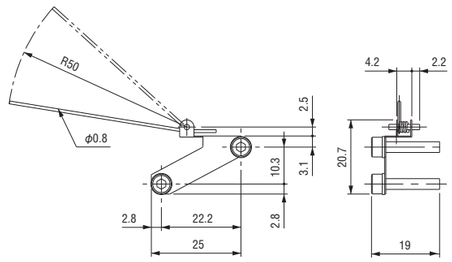




Limit switch hinge lever

Order code No.	210414
Standard	VAV-5

● Weight : 5g



Connection terminal

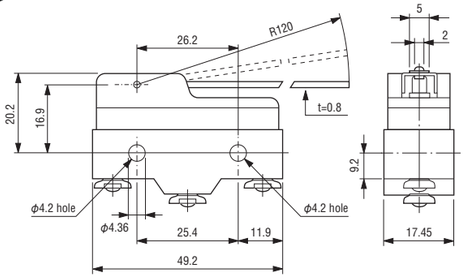
Order code No.	196749
Standard	TMEDN480509FA

● Weight:0.8g

Limit switch

Order code No.	250012
Standard	Z-15HW24-B

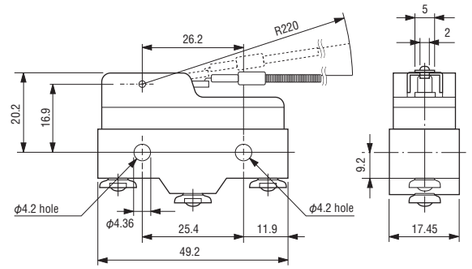
● Weight : 36g ● Stainless steel lever
● Can be attached to sensor bracket (N01915-201).



Limit switch• hinge lever type

Order code No.	250017
Standard	Z-15GW55-B

● Weight : 42g
● Can be attached to sensor bracket (N01915-201).



Limit switch spring

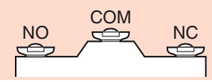
Order code No.	250018
Standard	Z-15GW55-B spring

● Weight : 8g

Limit switch micro case

Order code No.	140039
Standard	OM-1

● Weight : 19g
● Mounting screws are not included.



COM+NO Signal “ON” after lever is pressed.
COM+NC Signal “OFF” after lever is pressed.

Limit Switch Mounting Bracket

Use to mount a limit switch, allowing a proper position for product confirmation to be secured.

Order code No.	020837
Standard	CP-059-A

● Weight : 9g

Order code No.	020838
Standard	CP-059-B

● Weight : 10g

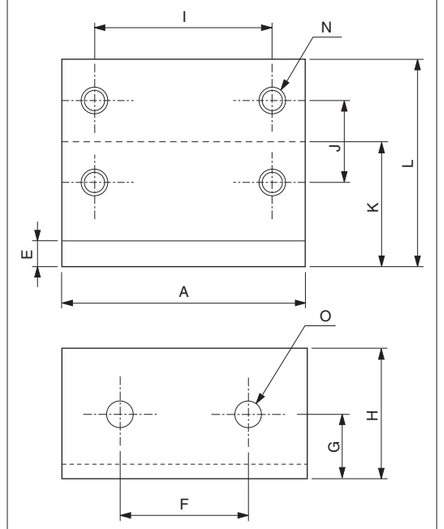
Order code No.	020839
Standard	CP-059-C

● Weight : 11g

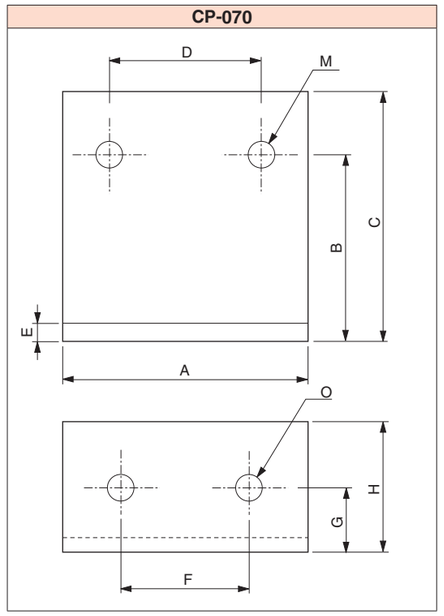
Order code No.	021009
Standard	CP-070

● Weight : 17g

CP-059



CP-070



■Dimensions (mm)

Standard	CP-059-A	CP-059-B	CP-059-C	CP-070
A	30			40
B	–			30
C	–			40
D	–			25.5
E	3			3
F	20			20
G	10			10
H	20			20
I	22			–
J	10			–
K	15	20	25	–
L	25	30	35	–
M	–			M4
N	M3			–
O	M4			M4
Remarks	For VX-5-1A2			For Z-15HW24-B For Z-15GW55-B

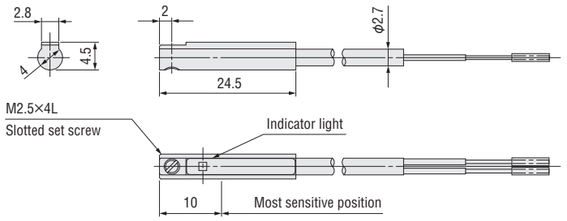
Auto Switch (Reed・Contactless)

Can be attached to container cylinder series and resin mini cylinder.

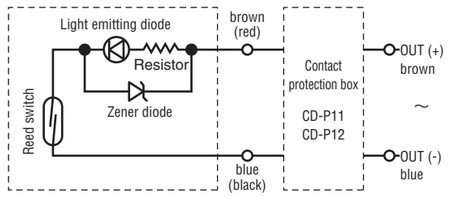
Auto switch (reed SW)

Order code No.	030282
Standard	D-A93

● Weight : 6g



Internal circuit diagram



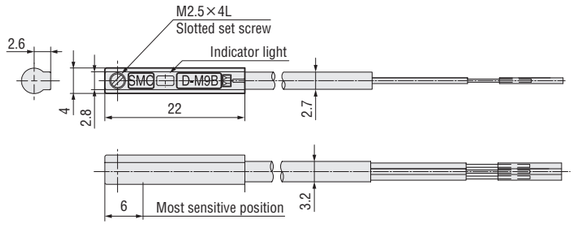
■Specification

Standard	D-A93 (w/indicator lamp)
Applicable load	relay, PLC
Load voltage	DC24V
Load current range	5mA ～ 40mA
Contact protection circuit	none
Internal voltage drop	2.4V or Less (～20mA) / 3V or Less (～40mA)
Indicator light	Red LED lights when ON
Standard	CE marking
Wiring	0.5M brown (+) blue (−)

Auto switch (contactless)

Order code No.	030425
Standard	D-M9N

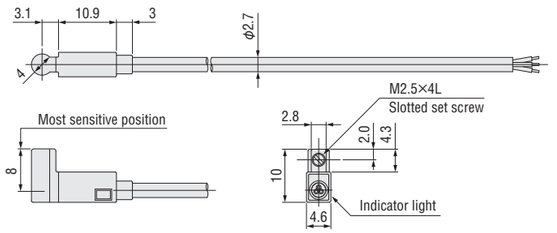
● Weight : 8g



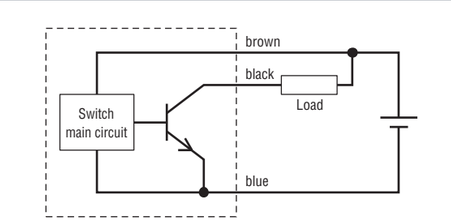
Auto switch (contactless)

Order code No.	030500
Standard	D-F8N

● Weight : 7g



Internal circuit diagram



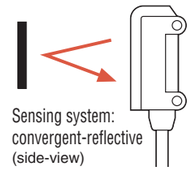
■Specification

Standard	D-F8N・D-M9N
Output system	NPN type
Applicable load	IC circuit, DC24V relay, PLC
Power supply voltage	DC5・12・24V (DC4.5 ～ 28V)
Current consumption	10mA or less
Load voltage	DC28V or lower
Load current	40mA or less
Internal drop voltage	1.5V or less (0.8V or less with load electric current 10mA)
Leakage current	100 μA or less with DC24V
When indicator lamp ON	Red light emitting diode lighting
Standard	CE marking, RoHS
Wiring	0.5M ＋V (brown), Load (black), 0V (blue)

Photo Sensor

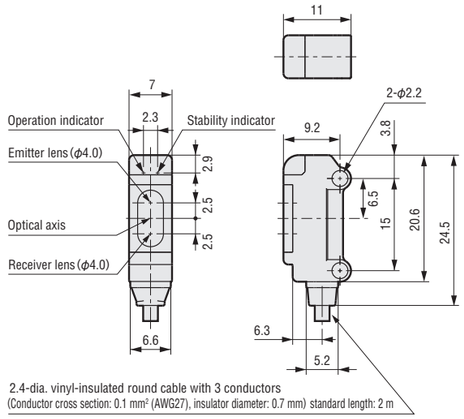
No amplifier is required ! Special-purpose mounting brackets are also provided for jungle gym and let's joint.

▶ Can be used with AND board.



Order code No.	041412
Standard	E3T-SL21R (NPN)

Order code No.	041649
Standard	E3T-SL23R (PNP)



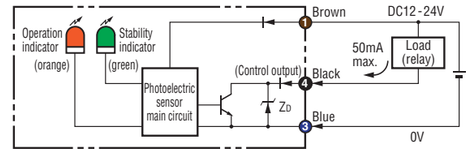
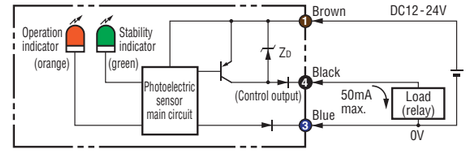
2.4-dia. vinyl-insulated round cable with 3 conductors
(Conductor cross section: 0.1 mm² (AWG27), insulator diameter: 0.7 mm) standard length: 2 m

∗ Wiring : brown (+V), black (load), blue (0V)

■ Specification

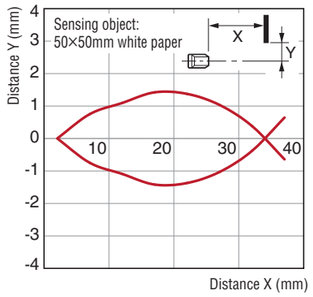
Standard		E3T-SL21R (NPN)	E3T-SL23R (PNP)
Sensing system		Convergent-reflective (side-view)	
Output system		NPN output	PNP output
Sensing distance		5 to 30mm (50×50mm white paper)	
Minimum detectable object(typical)		0.15-mm dia. (sensing distance of 10mm)	
Hysteresis (white paper)		6mm max.	
Light source (wavelength)		Red LED ("pin-point" LED) λ = 650nm	
Power supply voltage		12 to 24 VDC ±10%, ripple (p-p) 10% max.	
Current consumption		20mA max.	
Control output		Load power supply voltage 26.4VDC max.	
		Load current: 50mA max. (residual voltage : 2V max. for load current of 10 to 50mA, 1V max. for load current of less than 10mA)	
		Open-collector output	
Protection circuits		Power supply and control output reverse polarity protection, output short-circuit protection, mutual interference prevention	
Response time		Operate or reset 1ms max.	
Ambient illumination		Incandescent lamp 5,000lx max., sunlight 10,000lx max.	
Ambient temperature range		Operating −25 to 55℃, storage : −40 to 70℃ (with no icing or condensation)	
Ambient humidity range		Operating 35% to 85%, storage: 35% to 95% (with no condensation)	
Insulation resistance		20MΩ min. at 500 VDC	
Dielectric strength		1,000VAC, 50/60Hz for 1min	
Vibration resistance		Destruction 10 to 2,000Hz, 1.5-mm double amplitude or 300m/s² for 0.5 hrs each in X, Y, and Z directions	
Shock resistance		destruction 1,000 m/s², 3times each in X, Y, and Z directions	
Degree of protection		IP67 (IEC60529)	
Connection method		Pre-wired (standard length : 2m)	
Weight		About 20g	
Materials	case	PBT (polybutylene terephthalate)	
	Display window	Denatured polyarylate	
	Lens	Denatured polyarylate	
Accessories		Instruction manual, installation Phillips screws (side-view models : M2×14, flat : M2×8), nuts, spring washers, flat washers	

■ Input/output stage circuit diagram

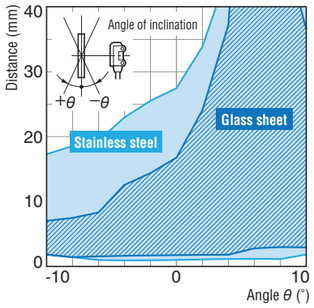
Standard	Operation mode	Time chart	Output circuit
SE3T-SL21R (NPN output)	Light-ON	Incident light / No incident light Operation indicator (orange) ON / OFF Output transistor ON / OFF Load (relay) Operate / Reset (Between brown (1) and black (4) leads)	
SE3T-SL23R (PNP output)	Light-ON	Incident light / No incident light Operation indicator (orange) ON / OFF Output transistor ON / OFF Load (relay) Operate / Reset (Between blue (3) and black (4) leads)	

■ Technical characteristics

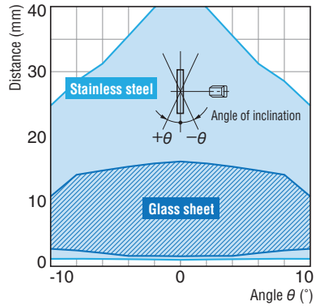
Operation area characteristics



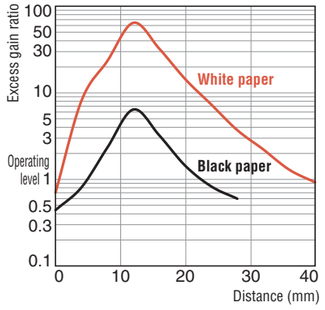
Angle detection area characteristics (vertical direction)



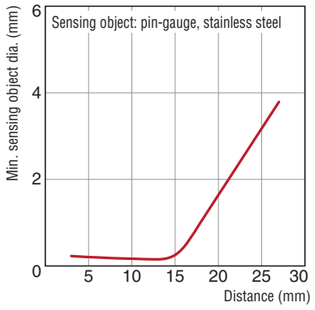
Angle detection area characteristics (horizontal direction)



Detected object size – Distance characteristics



Light-receiving output – Distance characteristics



Detection distance – Material characteristics

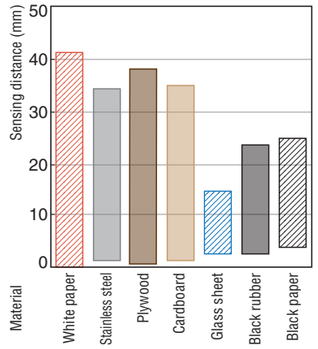


Photo Area Sensor

Can be used for passing fine workpieces. Space-saving reflection type can be provided as a special-order product.

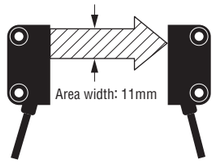
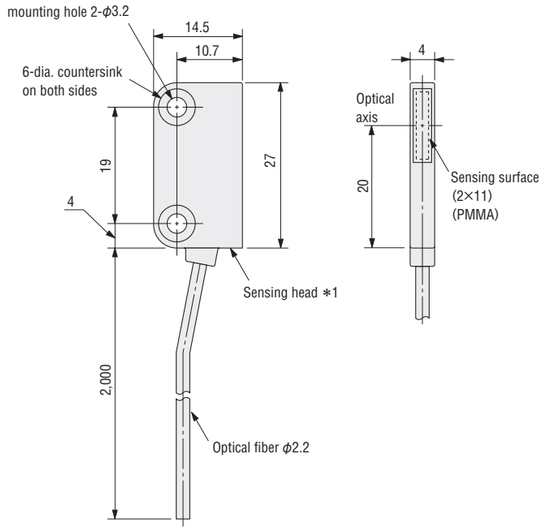


Photo area sensor

Order code No.	041415
Standard	E32-T16PR

● Use the product with the optical amplifier sold separately.



∗1 Material: heat-resistant ABS (sensing surface: PMMA)
∗2 Provided with stickers with slits of width 0.5 and 1mm (2 of each).

■ Specification

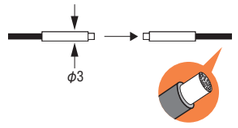
Fiber unit	E32-T16PR
Sensing system	area-sensing
Sensing distance (mm)	1,100 840 560 220
Ambient temperature range∗2	−40 to +70℃
Ambient humidity range∗2	35-85% RH
Fiber material	Plastic (vinyl chloride coated)
Degree of protection	IP50 (IEC)

∗1 High-resolution mode Standard mode High-speed mode Super-high-speed mode(When used in combination with the E3X-DA-S amplifier unit (general-purpose).)
∗2 No freezing or no dew condensation shall occur under the operating ambient temperature and humidity.

Fiber Units

Micro workpiece can be detected with optical amplifier E3 series.

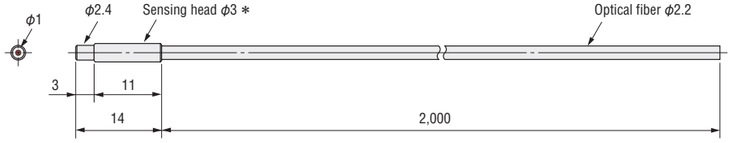
● It is possible to install it in jungle gym ϕ8 by using splicing fittings (N01867-201).



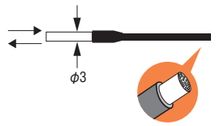
Fiber unit • ϕ3mm through beam

Order code No.	041413
Standard	E32-T12R

● Use the product with the optical amplifier sold separately.



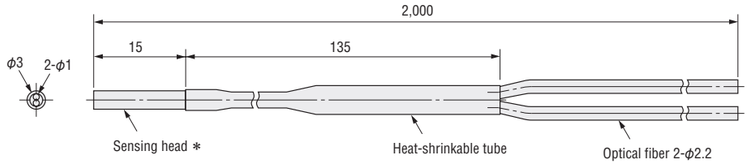
∗ Material : Brass/nickel plating



Fiber unit • ϕ3mm reflect

Order code No.	041414
Standard	E32-D12R

● Use the product with the optical amplifier sold separately.



∗ Material : stainless steel (SS304)

■ Specification

Fiber unit	E32-T12R	E32-D12R
Sensing system	Through-beam fiber units	Fiber units with reflective sensors
Sensing distance (mm)	700 530 350 140	300 170 120 50
Ambient temperature range∗2	−40 to +70℃	
Ambient humidity range∗2	35-85% RH	
Fiber material	Plastic (vinyl chloride coated)	
Degree of protection	IP67 (IEC)	

∗1 High-resolution mode Standard mode High-speed mode Super-high-speed mode(When used in combination with the E3X-DA-S amplifier unit (general-purpose).)
∗2 No freezing or no dew condensation shall occur under the operating ambient temperature and humidity.

Fiber Amplifier Unit

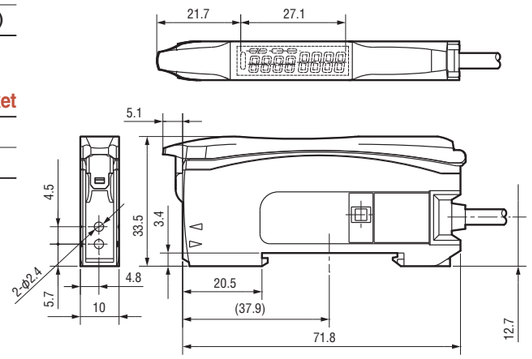
Amplifier for optical fiber.

Order code No.	041954
Standard	E3X-HD11 (NPN)

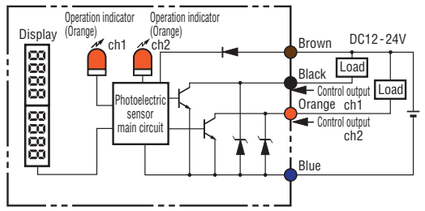
● Function : AND/OR output

Fiber amplifier mounting bracket

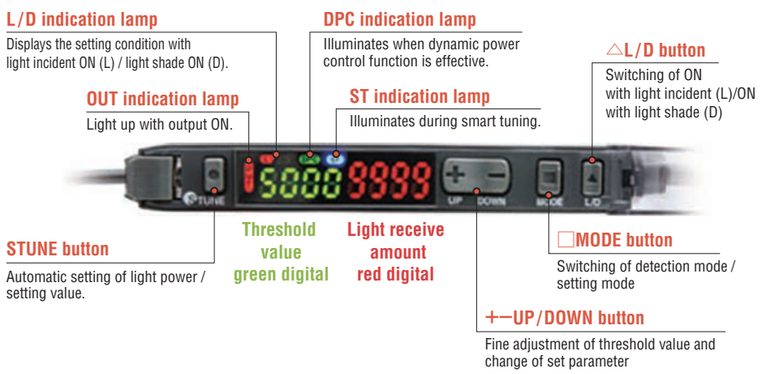
Order code No.	041697
Standard	E39-L143



■ Input / output stage circuit diagram

Standard	Operation mode	Time chart	Operation selector	Output circuit
E3X-HD11 (NPN)	Light -ON	ch1/ch2 Incident light / No incident light Operation indicator (orange) ON / OFF Output transistor ON / OFF Load (relay) Operate / Reset (Between brown and black leads)	L·ON (LIGHT ON)	
	Dark -ON	ch1/ch2 Incident light / No incident light Operation indicator (orange) ON / OFF Output transistor ON / OFF Load (relay) Operate / Reset (Between brown and black leads)	D·ON (DARK ON)	

■ Part names



■ Specification

Standard		E3X-HD11 (NPN)
Light source (wavelength)		Red 4 element light emitting diode (625nm)
Power supply voltage		DC12-24V±10% ripple (p-p) 10% or less
Power consumption		0mW or less (power supply voltage 24V, current consumption 30mA or less / power supply voltage 12V, current consumption 60mA or less)
Control output	Load power supply voltage	DC26.4V or less, open collector output type
	Load electric current	1-3 devices : 100mA or less, more than 4 devices : 20mA or less
	Residual voltage	Load electric current less than 10mA : 1V or less, load electric current 10-100mA : 2V or less
	OFF state current	0.1 mA or less
Protection circuits		Reverse connection protection of power supply, output short circuit protection, output reverse connection protection
Response time	Super-highspeed mode*	NPN output : action/return : 50 μs each, PNP output : action/return : 55 μs each
	High-speed mode	Action : return : 250 μs each (default setting)
	Standard mode	Operate or reset : 1ms
	Giga power mode	Operate or reset : 16ms
No. of interference prevent devices		10 (optical communication synchronous)*
Automatic power control		Always effective
Other functions		"Power tuning, differential function, DPC function, timer (off delay/on delay/one shot), zero reset, setting reset, eco mode"
Ambient illumination (Receiver side)		Illumination of light receiving face Incandescent lamp : 20,000 lux max. Sunlight : 30,000 lux max.
Ambient temperature range		Operating : Groups of 1 to 2 Amplifiers : −25℃ to 55℃, Groups of 3 to 10 Amplifiers : −25℃ to 50℃, Groups of 11 to 16 Amplifiers : −25℃ to 45℃ Storage : −30 to 70℃ (with no icing or condensation)
Ambient humidity range		In operation/in storage : 35 ～ 85%RH for each (without condensation)
Insulation resistance		More than 20M Ω (DC500V mega)
Dielectric strength		AC1,000V 50/60Hz 1min
Vibration resistance		Destruction : 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance		500m/s^2 3times each in X, Y, and Z directions
Degree of protection		IEC standards IP50 (w/protective cover)
Mass (packaging condition/only main body)		About 105g/about 65g
Materials	case	Polycarbonate (PC)
	cover	Polycarbonate (PC)
	cable	PVC
Accessories		Instruction manual

* Communication function is disabled if the fastest mode is selected to the detecting function. Mutual interference prevention function and communication function cannot be used.
Six interference prevent devices can be used if power tuning which includes E3X-DA-S is connected.
And five interference prevent devices can be used if power tuning which includes E3X-MDA is connected.

■ For correct use

⚠ Warning

This product cannot be used for detecting directly or indirectly the human body for the purpose of safety.Do not use this product as a detecting device for protection of human body.

Notes on use

Do not use this product under ambient atmosphere and environment exceeding the rating.

● For design (operation at power on)

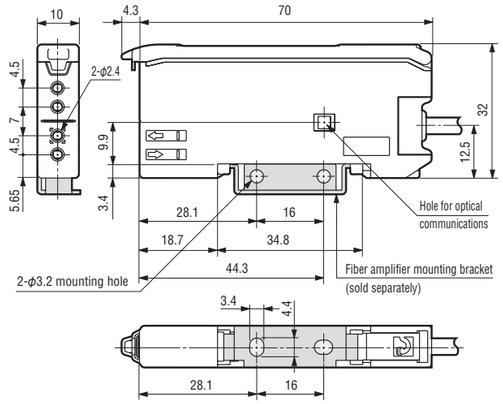
The sensor becomes detectable within 200 ms after the power is turned on. If the load and the sensor are connected to separate power supply units, be sure to turn on the sensor power supply first.

Order code No.	041696
Standard	E3X-MDA11 (NPN)

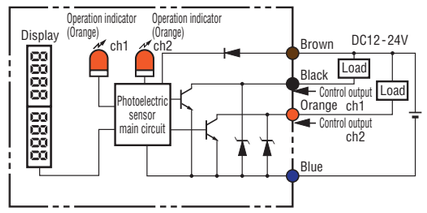
● Function : AND/OR output ● Two channel type

Fiber amplifier mounting bracket

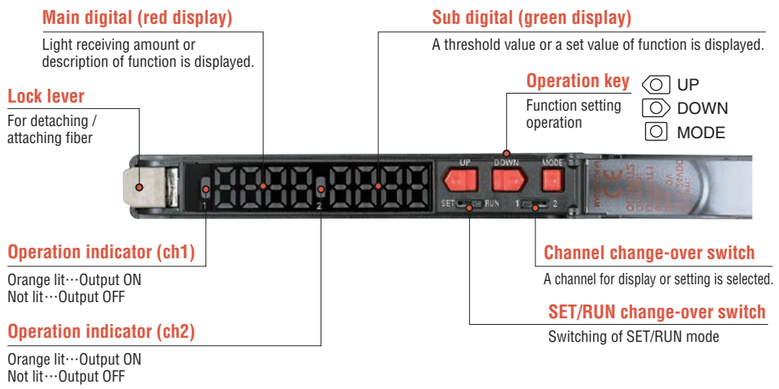
Order code No.	041697
Standard	E39-L143



■ Input / output stage circuit diagram

Standard	Operation mode	Time chart	Operation selector	Output circuit
E3X-MDA11 (NPN)	Light -ON	ch1/ch2: Incident light / No incident light Operation indicator (orange): ON / OFF Output transistor: ON / OFF Load (relay): Operate / Reset (Between brown and black leads)	L·ON (LIGHT ON)	
	Dark -ON	ch1/ch2: Incident light / No incident light Operation indicator (orange): ON / OFF Output transistor: ON / OFF Load (relay): Operate / Reset (Between brown and black leads)	D·ON (DARK ON)	

■ Part names



■ Specification

Standard		E3X-MDA11 (NPN)
Light source (wavelength)		Red LED (635nm)
Power supply voltage		12 to 24 VDC ±10%, ripple (p-p) 10% max.
Power consumption		1,080mW max. (current consumption: 45mA max. at power supply voltage of 24VDC)
Control output	Load power supply voltage	26.4 VDC ; NPN/PNP open collector *1
	Load current	50mA max.; residual voltage : 1V max.
Protection circuits		Reverse polarity for power supply connection, output short-circuit
Response time	Super-highspeed mode*2	Operate or reset : 130μs*2*3
	High-speed mode	Operate or reset : 450μs
	Standard mode	Operate or reset : 1ms
	High-resolution mode	Operate or reset : 4ms
Sensitivity setting		Teaching or manual method
Functions	Power tuning	Light emission power and reception gain, digital control method
	Timer function	Select from OFF-delay, ON-delay, or one-shot timer. 1ms to 5s(1 to 20ms set in 1-ms increments, 20 to 200ms set in 10-ms increments, 200ms to 1s set in 100-ms increments, and 1 to 5 s set in 1 s-increments)
	Automatic power control	High-speed control method for emission current
	Zero-reset	Negative values can be displayed. (Threshold value is shifted.)
	Initial reset	Settings can be returned to defaults as required
	Mutual interference prevention	Possible for up to 9 units (18 channels) *4
Display		Operation indicator for channel 1 (orange), Operation indicator for channel 2 (orange)
Digital display		Select from incident level for channel 1 + incident level for channel 2 or other 7patterns
Display orientation		Switching between normal/reversed display is possible
Ambient illumination(Receiver side)		Incandescent lamp : 10,000 lux max. Sunlight : 20,000 lux max.
Ambient temperature range		Operating : Groups of 1 to 2 Amplifiers : −25℃ to 55℃, Groups of 3 to 10 Amplifiers : −25℃ to 55℃, Groups of 11 to 16 Amplifiers : −25℃ to 45℃ Storage : −30℃ to 70℃ (with no icing or condensation)
Ambient humidity range		Operating and storage : 35% to 85% (with no condensation)
Insulation resistance		20MΩ min. (at 500VDC)
Dielectric strength/Vibration resistance /Shock resistance		1,000VAC at 50/60 Hz for 1minute/Destruction : 10 to 55Hz with a 1.5-mm double amplitude for 2hrs each in X, Y and Z directions/Destruction : 500 m/s², for 3 times each in X, Y and Z directions
Degree of protection		IEC 60529 IP50 (with protective cover attached)
Connection method		Pre-wired or amplifier unit connector
Weight (packed state)		Pre-wired model : Approx. 100g, Amplifier unit connector model : Approx. 55g
Materials		Case : Polybutylene terephthalate (PBT), Cover: Polycarbonate (PC)
Accessories		Instruction manual

*1 Depends on the NPN/PNP output system.
*2 Communications are disabled if the detection mode is selected during super-high-speed mode, and the communications functions for mutual interference prevention and the Mobile Console will not function.
*3 When differential output is selected for the output setting, the second channel output is 200 μs for operation and reset respectively.
*4 Mutual interference prevention can be used for up to 5 units (10 channels) if power tuning is enabled.

■ For correct use

⚠ Warning

This product cannot be used for detecting directly or indirectly the human body for the purpose of safety.Do not use this product as a detecting device for protection of human body.

Notes on use

Do not use this product under ambient atmosphere and environment exceeding the rating.

● For design (operation at power on)

The sensor becomes detectable within 200 ms after the power is turned on. If the load and the sensor are connected to separate power supply units, be sure to turn on the sensor power supply first.

Proximity Sensor Runner Confirm

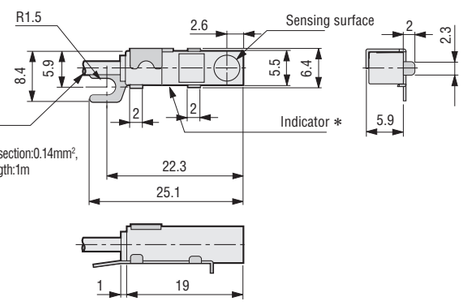
Confirmation sensor for Eins function chuck.

Order code No.	041417
Standard	E2S-W13 (NPN)

● DC 3-wire system

Order code No.	041640
Standard	E2S-W15 (PNP)

With mounting bracket attached



ϕ2.9. vinyl-insulated round cable
with 2 / 3 conductors (conductor cross section:0.14mm^2, insulator diameter:0.9mm), standard length:1m

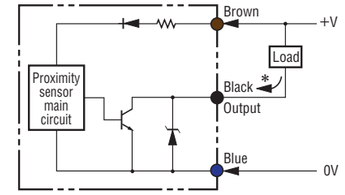
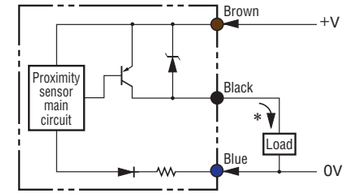
∗ Operation indicator (orange)
∗ Wiring : brown (+V), black (load), blue (0V)

■ Specification

Standard		E2S-W13 (NPN)	E2S-W15 (PNP)
Sensing surface		Top	
Sensing distance		1.6mm ± 15%	
Set distance		0-1.2mm	
Differential travel		10% max. of sensing distance	
Detectable object		Ferrous metal (The sensing distance decreases with non-ferrous metal.)	
Standard sensing object		Steel, 12 × 12 × 1mm	
Response frequency∗1		1kHz min.	
Power supply voltage (operating voltage range)		12 to 24 VDC (10 to 30 VDC), ripple (p-p) : 10% max.	
Current consumption		13mA max. at 24VDC (no-load)	
Control output	Load current	NPN open-collector output, 50mA max. (30VDC max.)	PNP open-collector output, 50mA max. (30VDC max.)
	Residual voltage	1.0V max. (under load current of 50mA with cable length of 1m)	
Indicators		Operation indicator (orange)	
Operation mode (with sensing object approaching)		NO	
Protection circuits		Reverse polarity protection, surge suppressor	
Ambient temperature range		Operating : −25 to 70℃ (with no icing or condensation), Storage : −40 to 85℃ (with no icing or condensation)	
Ambient humidity range		Operating : 35% to 90% (with no condensation), Storage : 35% to 95% (with no condensation)	
Temperature influence		±15% max. of sensing distance at 23℃ in the temperature range of −25 to 70℃	
Voltage influence		±2.5% max. of sensing distance at rated voltage in rated voltage ±10% range	
Insulation resistance		50MΩ min. (at 500VDC) between current-carrying parts and case	
Dielectric strength		1,000VAC for 1min between current-carrying parts and case	
Vibration resistance		Destruction : 10 to 55Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions	
Shock resistance		Destruction : 500m/s^2 3times each in X, Y, and Z directions	
Degree of protection		IEC 60529 IP67	
Connection method		Pre-wired (standard length : 1m)	
Weight (packed state)		About 10g	
Materials (case)		Polyarylate resin	
Accessories		Mounting brackets∗2	

∗1 The response frequency is an average value. Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing distance.
∗2 Not for runner chuck. See page ➡ 2-29,31 for runner chuck.

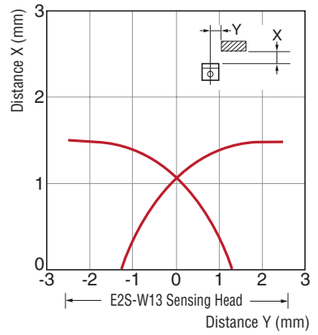
■ Input/output stage circuit diagram

Standard	Operation mode	Output system	Time chart	Output circuit
E2S-W13 (NPN)	NO	NPN	Sensing object: Present / Not present Output transistor (load): ON / OFF Operation indicator (orange): ON / OFF	
E2S-W15 (PNP)	NO	PNP	Sensing object: Present / Not present Output transistor (load): ON / OFF Operation indicator (orange): ON / OFF	

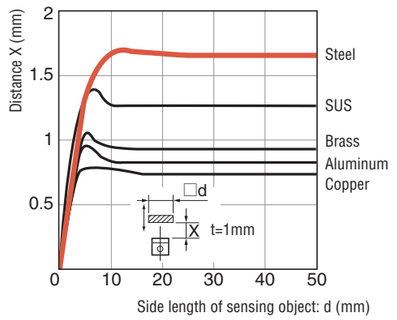
∗Load current:50mA max.

■ Technical characteristics (typical example)

Detection area



Influence of detected object size and material



Multi AND Board

Many sensor inputs are integrated in the board. And it is output from a point to the robot.

Multi AND board

Please read the QR code (right) using a mobile device such as a smartphone. You can watch our product video.

Eight-point specification

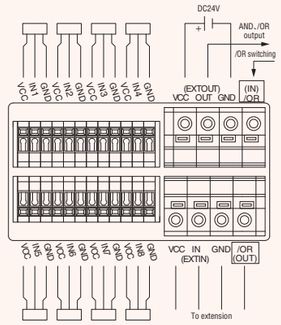
Multi AND board

Order code No.	002161
Standard	AND/OR-EU

● Weight : 115g

- Just connect a sensor. The easy design allows minimum wiring and space saving.
- Switching AND and /OR outputs is easy and quick. Just slide the select switch at the unit.
- The protective circuit prevents problems with overloads.

Wiring specification



Connection method

①Push down the button with tools such as minus driver.
②Put the stripped electric wire into the wire insert hole of the terminal block.
③Release the button. And connection completed.

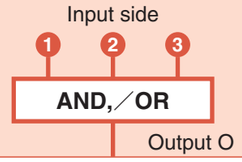
＊Be sure to insert a wire into the hole.

Diameter of electric wire

Sensor input terminal
AWG28-AWG22
Power supply input, signal output terminal/extension
AWG26-AWG22

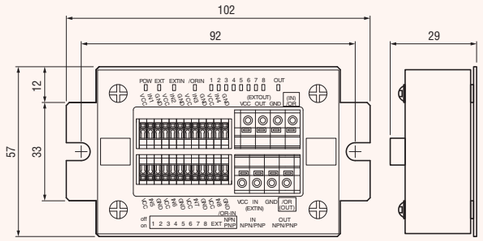
＊Stripped wire length of each terminal is 10mm.

About "AND" and "/OR"



AND	／OR
Output O is turned on when all the inputs (❶❷❸) are ON.	Output O is turned on when all the inputs (❶❷❸) are OFF.

Outside dimension / Mounting dimension



VCC 24V(+) GND 24G(−) IN signal

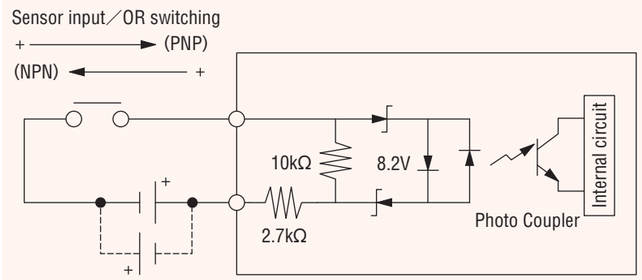
＊2-φ6 (mounting hole) : M4-M5
＊Use the mounting washer (φ10 mm or less) for M5.

Specification

Max. number of connection sensors	Power supply voltage (V)	Internal consumption current (mA)	Sensor input current (mA)	Operating ambient humidity (%)	Operating ambient temperature (℃)	Operation condition
8	DC24 (±10%)	100 or less (DC24V)	10 or less/one point	35-80 (non-condensing)	0-40	No particulate and corrosive gas

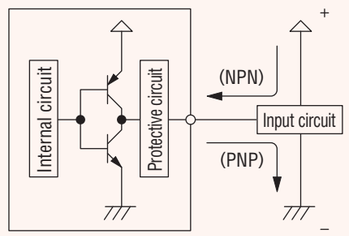
＊Can be extended to 32 points.

Sensor input OR switching input circuit configuration (8-point, 4-point common)



＊Select the input setting with the switch as illustrated according to the output circuit specification of the customer's sensor.
＊Select the input with the DIP switch as illustrated according to the output circuit specification of the customer.

Configuration of output circuit (8-point, 4-point common)



＊Select NPN/PNP as illustrated above according to the input circuit specification of the customer.

Four-point specification

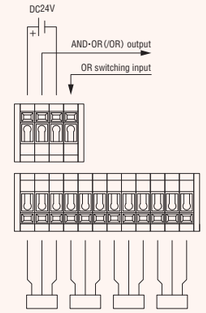
Multi AND board 4P

Order code No.	002237
Standard	AND/OR-EU-4P

● Weight : 58g

- Just connect a sensor. The easy design allows minimum wiring and space saving.
- Product hold condition check and product release condition check can be switched by switching AND output, /OR output, and OR output. Product hold condition and product release condition can be checked by one unit.
- The protective circuit prevents problems with overloads.

Wiring specification



Connection method

①Push down the button with tools such as minus driver.
②Put the stripped electric wire into the wire insert hole of the terminal block.
③Release the button. And connection completed.

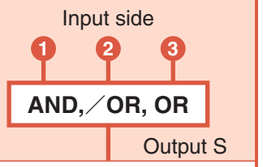
＊Be sure to insert a wire into the hole.

Diameter of electric wire

Sensor input terminal
AWG28-AWG22
Power supply input, signal output terminal/extension
AWG26-AWG22

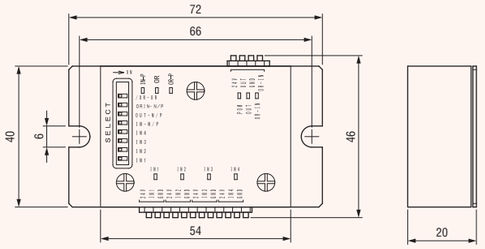
＊Stripped wire length of each terminal is 10mm.

About "AND", "/OR", and "OR"



AND	／OR	OR
Output S is turned on when all the inputs (❶❷❸) are ON.	Output S is turned on when all the inputs (❶❷❸) are OFF.	Output S turns on when one of the inputs (❶❷❸) is ON.

Outside dimension / Mounting dimension



24V 24V(+) GND 24G(−) IN signal

＊2-φ6 (mounting hole) : M4-M5
＊Use the mounting washer (φ10 mm or less) for M5.

Specification

Max. number of connection sensors	Power supply voltage (V)	Internal consumption current (mA)	Sensor input current (mA)	Operating ambient humidity (%)	Operating ambient temperature (℃)	Operation condition
4	DC24 (±10%)	50 or less (DC24V)	10 or less/one point	35-80 (non-condensing)	0-40	No particulate and corrosive gas

Connecting cable for Eins Multi AND Board

for eight-point specification

Connection harness • for multi AND boards

Order code No.	123106
Standard	MAND-EH05 • 500MM

● Overall length : 500mm

for eight-point specification

Connection harness • for multi AND boards

Order code No.	123105
Standard	MAND-EH02 • 200MM

● Overall length : 200mm

for eight-point specification

Connection harness • for multi AND boards

Order code No.	123107
Standard	MAND-EH10 • 1000MM

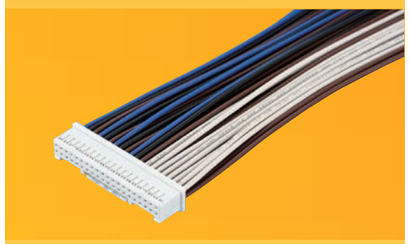
● Overall length : 1,000mm

Triplex cable (5m)

Order code No.	171292
Standard	RMCV-0 0.3SQ＊3C 5M

● Overall length : 5,000mm

MEMO



Other Products

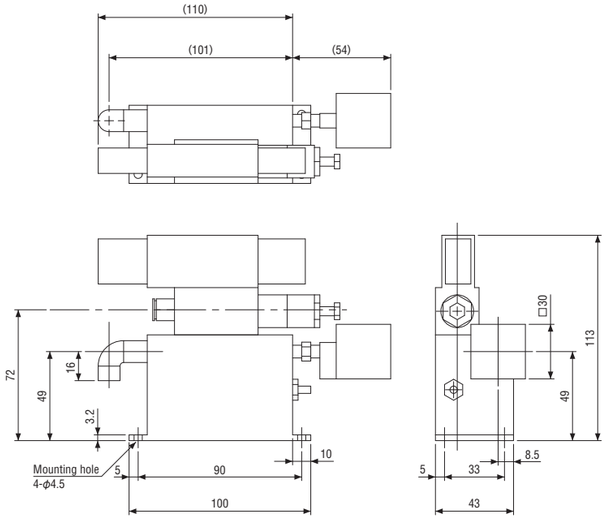
Others 7-2

- Vacuum Generator Unit 7-2
- PCIO Communication Unit 7-3
- Bolt ／ Nut ／ Washer 7-4

Vacuum Generator Unit

Supplying dry air allows easy generation of vacuum pressure.

Not available on our online shop site. Please contact our nearest sales office to make purchases.



Order code No.	210804
Standard	V51-100-8283

● Weight : 800g

■ Specification

Fluid to be used	Pressure air regulated by air regulator with 74μ or less of filter.
Pressure	0.35 ～ 0.5MPa
Vacuum pressure	-0.079MPa or more (supply pressure 0.5MPa)
Suction flow rate	18±1.5dm/min ANR (supply pressure 0.4MPa)
Air consumption	30 - 40dm/min ANR (supply pressure 0.4MPa)
Weight	Approx. 1.0kg
2-port solenoid valve	2-port solenoid valve
Solenoid	Double solenoid
Response time	0.05sec or less
Specific voltage	DC24V
Power consumption	1.8W
Fluctuation rate of allowable voltage	±10%
Type of insulation	B type

■ Vacuum pressure sensor with display

Type	PG-30-102R-N (Copal Electronics)
Power supply voltage	10 to 30VDC (ripple included)
Protection grade	IP65 (connector not included)
Output 1	NPN open collector, 30VDC max. (100mA max.)
Residual voltage	1.2VDC max. (load voltage 100mA)
Output setting pressure	-53.3±5kPa (power supply voltage DC24V, ambient temperature 25±5˚C)
Output hysteresis setting	13.3kPa
Operation mode	Output transistor ON, red LED lighted when negative pressure exceeds the preset pressure. (On display, "−" lights under negative pressure).
Output 2	Linear output (1-5VDC)

PCIO Communication Unit

Two power lines allows simple wiring between units for power supply and input/output communication.

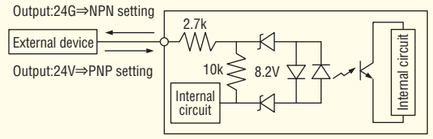
- Two power lines allows simple wiring between units for power supply and input communication.
- Input signal reception with sink/source specifications.
- Two types according to the number of input/output points: 16 points (8/8) and 32 points (16/16).

■ Specification

	E-PCIO-Unit16	E-PCIO-Unit32
Power supply voltage	DC24V (±10%)	
System consumption current	2A or less	
Internal consumption current	100mA or less (DC24V)	180mA or less (DC24V)
Output current	100mA (Max) / one point	50mA (Max) / one point
Input current	5mA or less / one point	
Operating ambient humidity	35% - 80% (non-condensing)	
Operating ambient temperature	0˚C - 40˚C	
Operation condition	No particulate and corrosive gas	

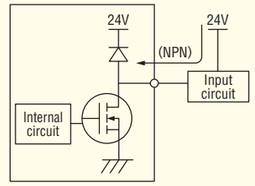
Input circuit configuration

Input switch



∗ Change the switch setting according to your output specifications referring to the above drawing.

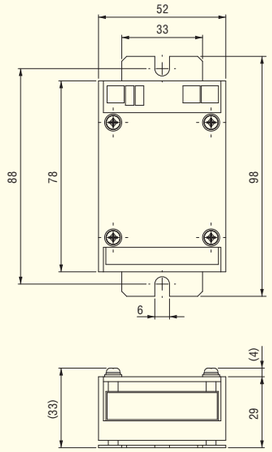
Configuration of output circuit



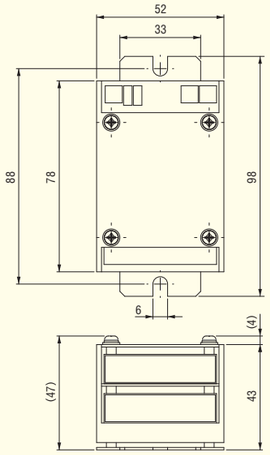
∗ Only NPN is used for the output specification of the unit.

Outside dimension / Mounting dimension

E-PCIO-UNIT 16



E-PCIO-UNIT 32



E-PCIO-UNIT 16

Order code No.	152312
Standard	E-PCIO-UNIT 16

● Weight: 97g

E-PCIO-UNIT 32

Order code No.	152313
Standard	E-PCIO-UNIT 32

● Weight: 131g

PCIO communication harness (03)

Order code No.	152314
Standard	E-PCIO-HNS 03

● Harness length: 300 mm

PCIO mark tube

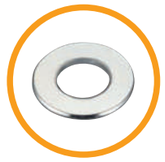
Order code No.	041770
Standard	E-PCIO-MKT SET

● 2 set

Bolt / Nut / Washer

Used to fix parts.

Nut class 1



Flat washer

Spring washer

Flat head screw w/ hexagon socket

Pan-head small screw w/ cross recessed

Bolt with hexagon socket w/ SW, Flat washer, Trivalent white

	Product name	Order code No.	Standard
1	Pan-head small screw w/ cross recessed	123449	M3*16
2	Bolt with hexagon socket w/ SW, Flat washer, Trivalent white	122812	M4*12 (E)
3	Bolt with hexagon socket w/ SW, Flat washer, Trivalent white	122821	M6*15 (E)
4	Bolt with hexagon socket w/ SW, Flat washer, Trivalent white	122822	M6*20 (E)
5	Flat head screw w/ hexagon socket	122785	M4*8
6	Flat head screw w/ hexagon socket	122786	M6*10
7	Small flat head small screw w/ cross recessed	122787	M2.5*16
8	Flat head screw w/ cross recessed (Stainless steel)	123515	M4*10
9	Flat head screw w/ cross recessed	371193	M4*12
10	Pan-head small screw w/ cross recessed	123446	BKJ3-6 (M3*6)
11	Pan-head small screw w/ cross recessed	123447	BKJ3-10 (M3*10)
12	Pan-head small screw w/ cross recessed (Stainless steel)	123448	NKJ2.6-5 (M2.6*5)
13	Spring washer	122775	M6
14	Spring washer	122776	M8
15	Flat washer	122780	M6
16	Flat washer	122781	M8
17	Hexagon nut (M3)	123301	M3
18	Nut class 1	122782	M6
19	Nut class 1	122783	M8

Information

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Global Network -Overseas Network-

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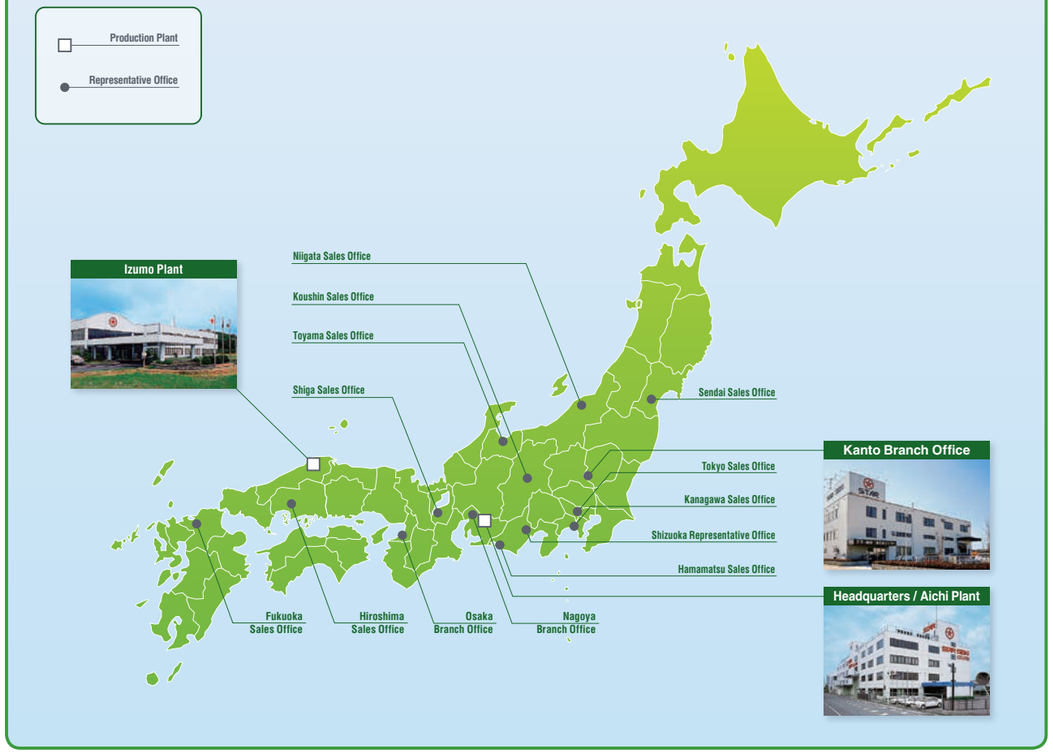
Global Network -JAPAN Network-



JAPAN

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