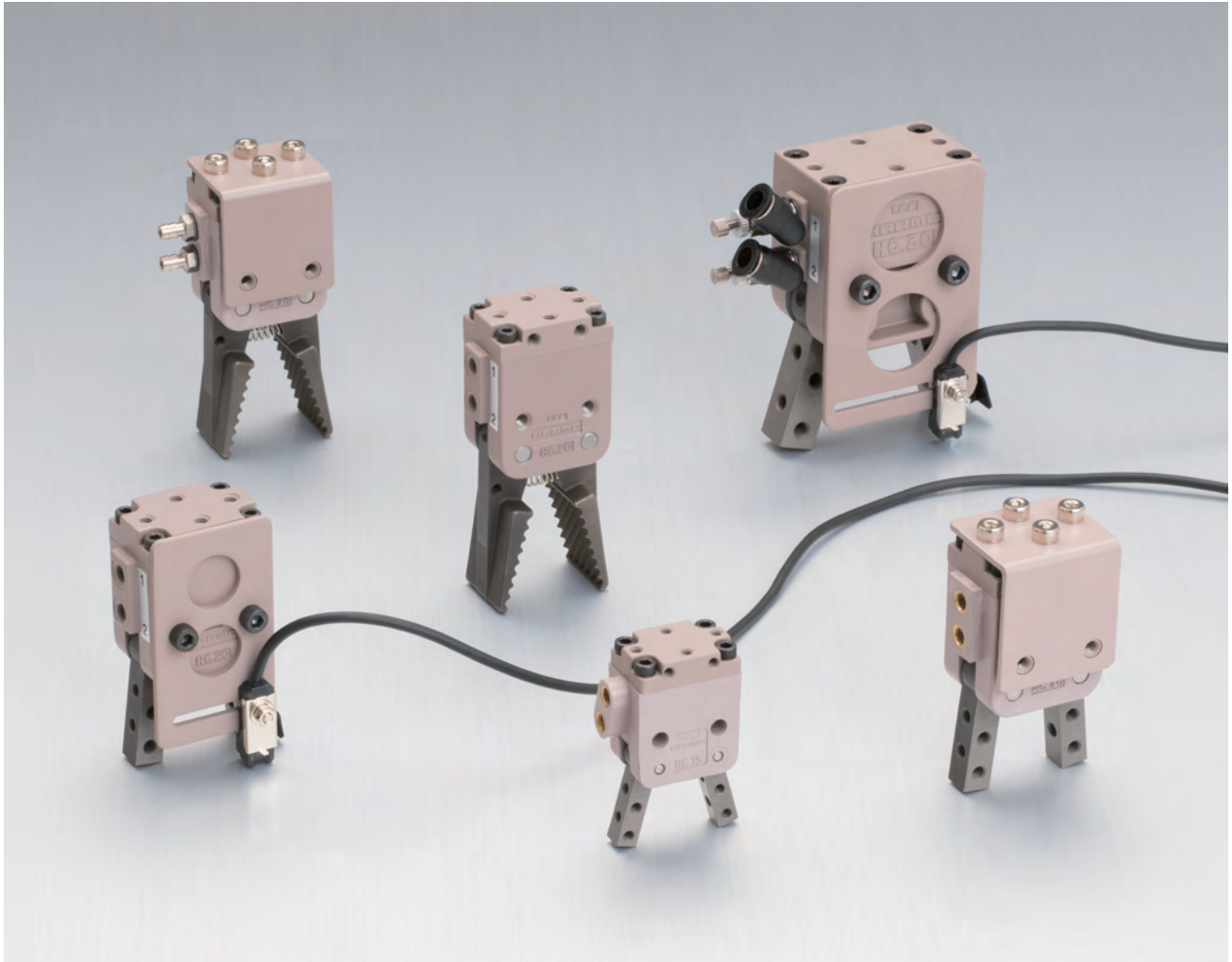


Angular Gripper



- Two types of body material are provided.

Plastic type realized light-weighted and Die cast type did durability.

- Three types of actions as option

Select from three types, double acting, single acting N.O., single acting N.C. for your application

- Single acting, spring open sprue grippers are offered, ideal for handling small plastic pieces or sprues.

No attachments are needed for gripping sprues.

- Hot** Now HC15 type is available with sprue jaws.

The weight is 2.15 oz. (61g) which is less than half the weight of HC20BPX.



Model Designation (example)

①. Angular Gripper by Harmo

②. Cylinder Sectional Area

Code	15	20	30
Sectional area (cm ²)	2.1	4.3	8.8

③. Action

Code	A	B	C
Action	Double	Single N.O.	Single N.C.

④. Body Material

Code	P	D	PX	DX
Material	Plastic	Die Cast	Plastic with Sprue Jaws	Die Cast with Sprue Jaws
HC15	✓	—	—	—
HC20	✓	✓	✓	✓
HC30	—	✓	—	—

⑤. Option

Code	-B	-S
Option	Mounting bracket	Sensor (with bracket)
HC15□P	✓	✓
HC20□P(X)	✓	✓
HC20□D	—	✓
HC20□DX	✓	✓
HC30□D	—	✓

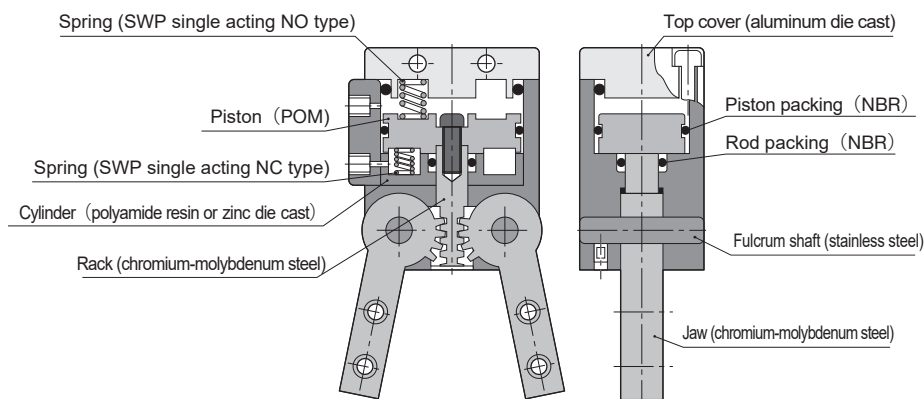
Gripper Specification

Type		HC15□P	HC20□P	HC20□D	HC30□D
Action		Double acting · Single acting			
Fluid		Air (No lubricated)			
Service Pressure Range		29~87psi (0.2~0.6MPa)		29~101.5psi (0.2~0.7MPa)	
Service Temperature Range		14~140 °F (-10~60 °C) (No freezing)			
Port size		M5×0.8mm			
Cylinder Sectional Area		2.1cm² (.32in²)	4.3cm² (.67in²)		8.8cm² (1.36in²)
Repeatability		±0.1mm (Ceter of fingers)			
Maximum cycles		100cpm			
Option	Mounting Bracket	✓	✓	—	—
	Sensor	✓	✓	✓	✓

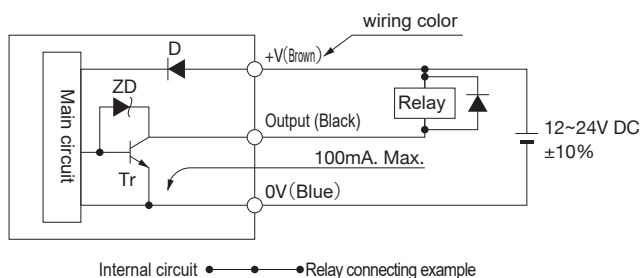
Sensor Specification

Power Voltage	12~24V DC +10%/-15% Ripple Max. P-P10%
Current consumption	Max. 15mA
Output	NPN transistor open collector Max. inflowing current : 100mA, Applied voltage : Max. 30V DC
Indication light	Orange LED (light on output)
Service Temperature Range	-13~158°F (-25~70°C)
Cable	0.08SQ 3 wires Length 1meter

Construction



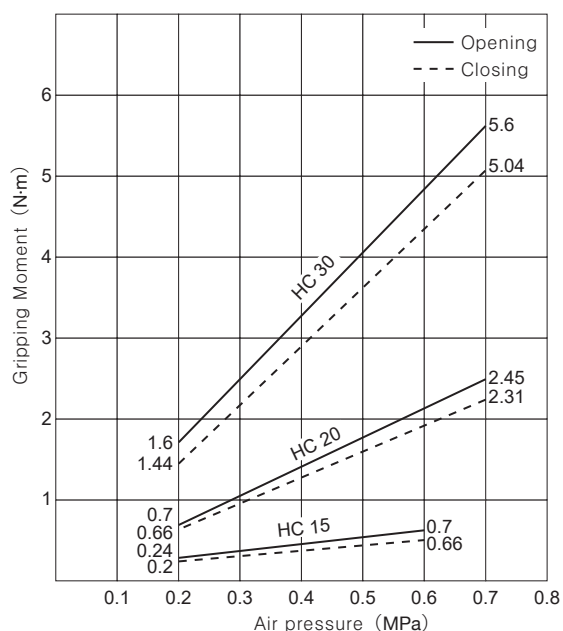
Internal Circuit



Code

- D : Diode (for wrong polarity protection)
- ZD : Zener diode (for surge suppression)
- Tr : Output transistor

Gripping force



Gripping Moment (Theoretical value)

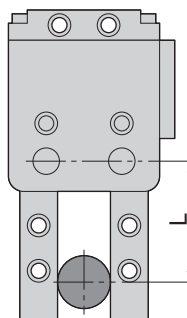
Theoretical gripping force is figured out based on the chart on the left and the following formula.

$$F = \frac{M}{L} \times \frac{1}{100}$$

F : Theoretical gripping force (N)

M : Gripping Moment (N·m)

L : Distance from the finger axis to the point of gripping (cm)



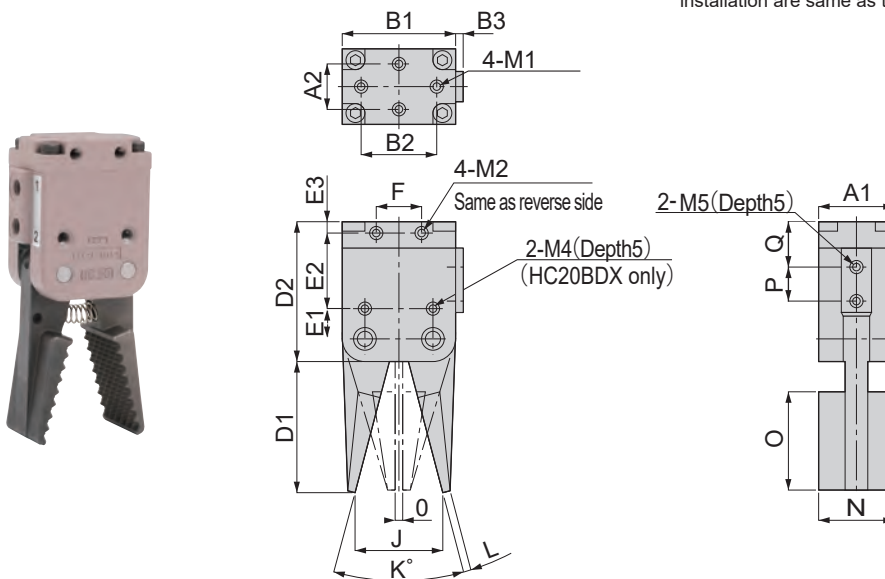
❖ The chart shows the theoretical values. The actual gripping force varies depending on the material and shape of workpiece and jaws. Use the value 40~60% of the theoretical value as a guide.

Dimensions

HC B X

Angular Gripper with Sprue Jaws

※The specification, the construction and the method of sensor installation are same as those of HC20BP、HC20BD.



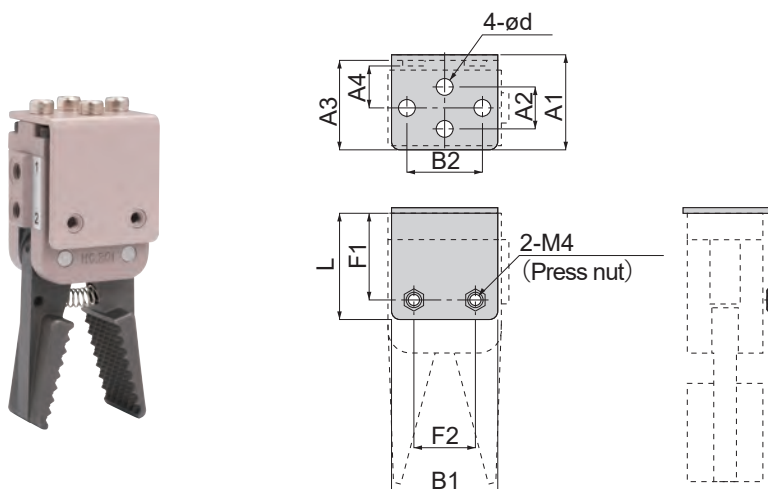
Unit : mm

Model	A1	A2	B1	B2	B3	D1	D2	E1	E2	E3	F	H
HC15BPX	19	12	28	22	5	20.5	35.5	8.5	19	3	12	16
HC20BPX	24	14	34	24	3	41	45	10	23.5	4	14	20
HC20BDX	25											

Model	J	K	L	M1	M2	N	O	P	Q	Mass (g)	Price (\$)
HC15BPX	16.2	37	2	M3(Depth 5)	M3(Depth 8)	18	18	8.8	11.7	61	190.00
HC20BPX	29	32	3	M4(Depth 6)	M4(Depth 8)	22	31	10	14	150	190.00
HC20BDX										225	200.00

HC B X-B

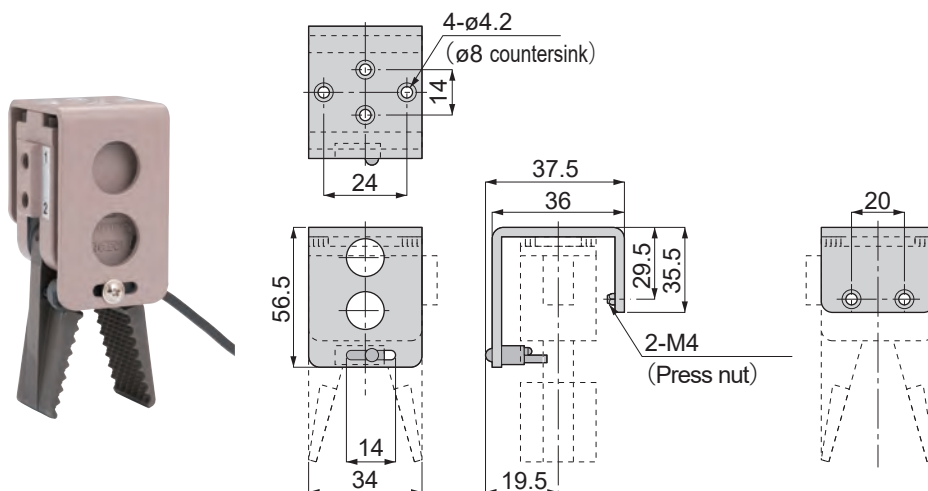
Mounting Bracket / Angular Gripper with Sprue Jaws



Unit : mm

Model	A1	A2	A3	A4	B1	B2	F1	F2	L	ød	Mass (g)	Price (\$)
HC15BPX-B	23.3	12	21	11.5	28	22	22	16	28	3.5	88	202.50
HC20BPX-B	29.3	14	27.3	12.5	34	24	27	20	34	4.5	183	202.50
HC20BDX-B											261	212.50

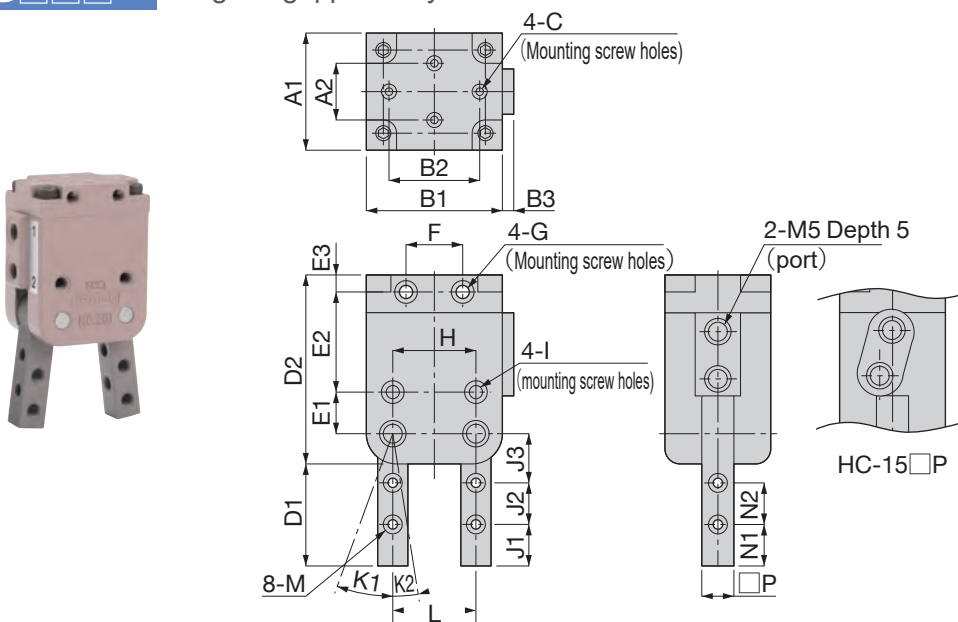
HC20B□X-S Sensor Bracket / Angular Gripper with Sprue Jaws



Unit : mm

Model	Mass (g)	Price (\$)
HC20BPX-S	225	270.00
HC20BDX-S	304	280.00

HC□□□ Angular gripper body



Unit : mm

Model	A1	A2	B1	B2	B3	C		D1	D2	E1	E2	E3	F	G	H	
HC15 ▢ P	19	12	28	22	5	M3(Depth 5)		20	35.5	8.5	19	3	12	M3(Depth 8)	16	
HC20 ▢ P	24	14	34.2	24	3.3	M4(Depth 6)		24.5	45	10	23.5	4	14	M4(Depth 8)	20	
HC20 ▢ D					3											
HC30 ▢ D	32	22	52	42	2	M5(Depth 6.5)		34	55	12	28	4	22	M5(Depth 15)	30	
Model	I		J1	J2	J3	K1	K2	L	M		N1	N2	▢P		Mass (g)	Price (\$)
HC15 ▢ P	—		3	8	14	15°	10°	16	M3(Through)		7	8	6 ^{-0.05} _{-0.10}		50	160.00
HC20 ▢ P	—		5	10	17	8°	13°	23	M4(Through)		10	10	8 ^{-0.05} _{-0.10}		105	160.00
HC20 ▢ D	M4(Depth15)														180	170.00
HC30 ▢ D	M5(Depth6)		6	16	23	19°	10°	30	M5(Through)		12	16	12 ^{-0.05} _{-0.10}		450	280.00

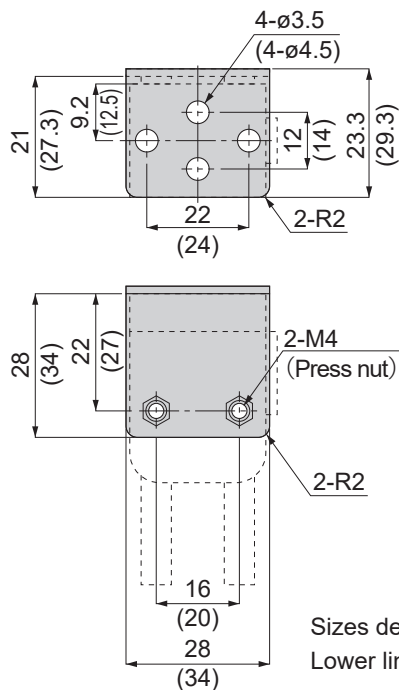
※ Fill the action mode into □ referring to the example of model designation.



Harmo Gripper Series

Angular Gripper

HC□□P-B Mounting Bracket for Angular Gripper



Unit : mm

Model	Mass (g)	Price (\$)
HC15□ ^③ P-B	77	172.50
HC20□ ^③ P-B	140	172.50

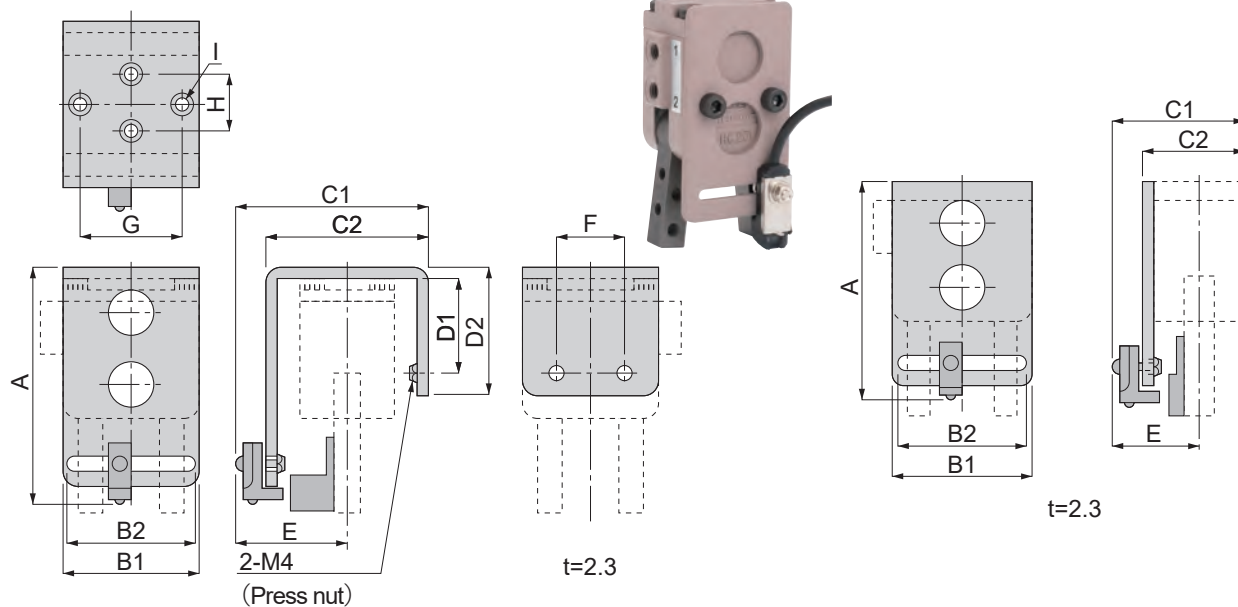
※ Fill the action mode into ^③ referring to the example of model designation.

Sizes described in upper line : for HC15□P
Lower line described by () : for HC20□P

HC□□□-S Sensor Bracket for Angular Gripper

HC15P · 20P type

HC20D · 30D type



Unit : mm

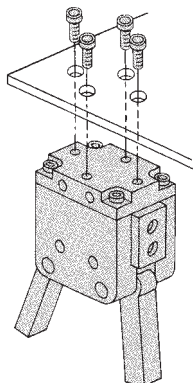
Model	A	B1	B2	C1	C2	D1	D2	E	F	G	H	I	Mass (g)	Price (\$)
HC15□ ^③ P-S	59	28	21	37	30	22	30	22	16	22	12	4-ø3.2 ø6 countersink	112	240.00
HC20□ ^③ P-S	70	34	25	43	36	27	35	25	20	24	14	4-ø4.2 ø8 countersink	188	240.00
HC20□ ^③ D-S	68			33	26	-	-		-	-	-	-	228	250.00
HC30□ ^③ D-S	86	52	45	51	34	-	-	26	-	-	-	-	518	360.00

※1. HC15□^③P-S, HC20□^③P-S - Sensor bracket works as mounting bracket as well.

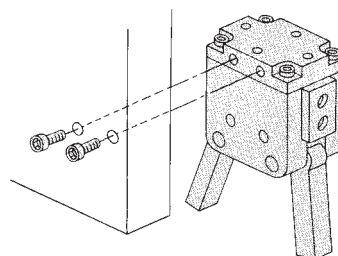
※2. Fill the action mode into ^③ referring to the example of model designation.

How to Install

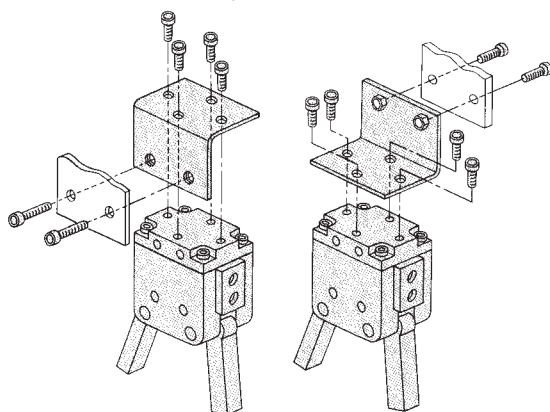
① .Use the mounting screw holes on the top cover all models)



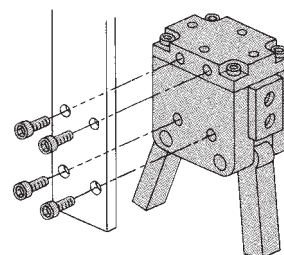
② .Lateral installation for plastic body type
(HC15□P · HC20□P)



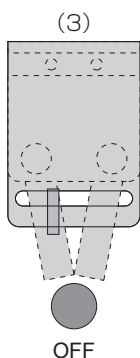
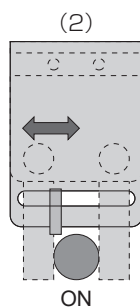
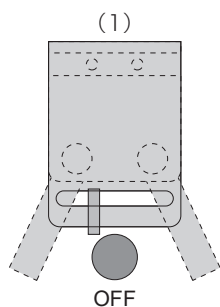
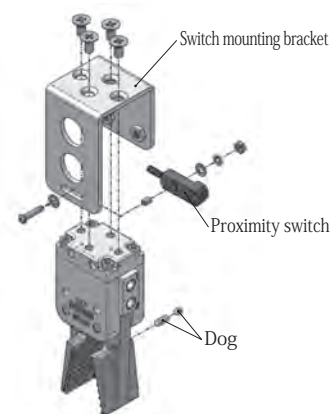
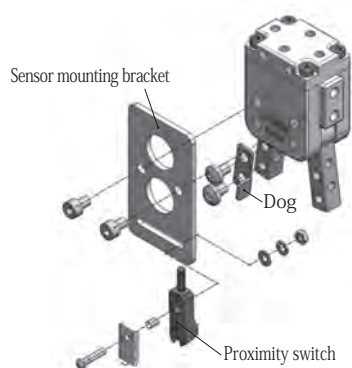
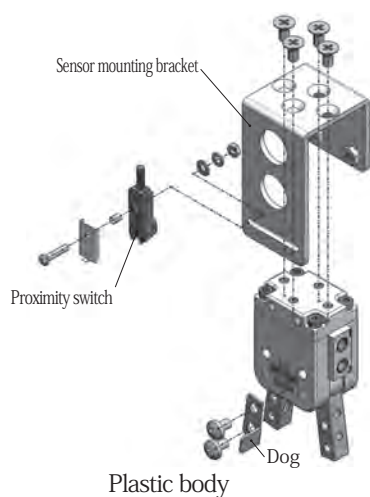
③ .Mounting bracket (option)
(HC15□P · HC20□P)



④ .Lateral installation for die cast type
(HC20□D · HC30□D)



Sensor installation and adjustment



Slide the sensor to the arrow direction and set the switch OFF condition at (1) and (3) position, and ON condition at (2) position



Detailed Safety Instruction

1. Supply clean and dry air to the Gripper.
2. Slower and gentler gripping, more accurate performance and repeatability.
3. Avoid lateral load to the jaws.
4. Make the finger attachment on the jaws as short and light as possible.

Option Parts

Model of Sensor Set (*1)			Model of Sensor only (*1)			Model of Sensor Fixing Plain Washer		
Model	Gripper type	Note	Model	Gripper type	Note	Model	Gripper type	Note
D0002	HC15P	• Set Item	D000907	All types	Sensor 1 pc. + Fixing Screw 1 pc.	/500715	HC20BPX	For fixing 1 pc. required.
D0102	HC20P	Sensor, Sensor Fixing Screw,	Model of Limit Dog Fixing Screw for Sensor				HC20BDX	
D0132	HC20D	Limit Dog, Dog Fixing Screw,						
D0202	HC30D	Sensor Bracket, Sensor	Model	Gripper type	Note	Model of Bracket only (not a sensor mount type) (*2)		
D0162	HC20BPX	Bracket Fixing Screw	/100613	HC15P	For fixing, 2 pcs. required.	Model	Gripper type	Note
	HC20BDX		/100813	HC20P		D000901	HC15P	Fixing Screw Size: M3x0.5, Depth 5mm, 4 holes
Model of Limit Dog for Sensor (Dog only)				HC20D		D010901	HC20P	Fixing Screw Size: M4x0.7, Depth 6mm, 4 holes
			/101015	HC30D				
Model	Gripper type	Note	Model of Sensor Bracket only			Model of Sensor Bracket Fixing Screw		
D000903	HC15P		Model	Gripper type	Note	Model	Gripper type	Note
D010903	HC20P		D000902	HC15P	Bracket with sensor mount only	/110613	HC15P	For fixing, 4 pcs. required.
D013903	HC20D	Both required	D010902	HC20P		/110815	HC20P, HC30D	
/080205	HC20BPX		D013902	HC20D		/000304	HC20D	For fixing, 2 pcs. required.
/080808	HC20BDX		D020902	HC30D		/110815	HC20BPX	For fixing, 2 pcs. required.
D020903	HC30D		D016902	HC20BPX	HC20BDX			



Cautions

- *1. The sensor is NPN Open collector output.
*2. No screw is included. Please prepare
Fixing Screw by yourself.



Package specifications

- 1 pc. in a bag: Limit Dog Fixing Screw for Sensor
Limit Dog for Sensor (Dog only)
Sensor Fixing Plain Washer
Sensor Bracket only
Sensor Bracket Fixing Screw
Bracket only (not a sensor mount type)

1 set / bag: Sensor Set
Sensor only

i Accessories

1 Flow Control Valve

Meter-in flow control valve is best suitable for single-acting grippers.

Type	Model	Type	Model	Price (\$)
	JSCøD-MB		JSSøD-MB	
	JSC3-M3B		JSS3-M3B	12.45
	JSC3-M5B		JSS3-M5B	8.64
	JSC4-M3B (5/32")		JSS4-M3B (5/32")	12.45
	JSC4-M5B (5/32")		JSS4-M5B (5/32")	8.64
	JSC6-M5B		JSS6-M5B	10.45
	JSC1/8-M3B		JSS1/8-M3B	12.45
	JSC1/8-M5B		JSS1/8-M5B	8.64
	JSC1/4-M5B		JSS1/4-M5B	10.45

Meter-out flow control valve is best suitable for double-acting grippers.

Type	Model	Type	Model	Price (\$)
	JSCøD-MA		JSSøD-MA	
	JSC3-M3A		JSS3-M3A	12.45
	JSC3-M5A		JSS3-M5A	8.64
	JSC4-M3A (5/32")		JSS4-M3A (5/32")	12.45
	JSC4-M5A (5/32")		JSS4-M5A (5/32")	8.64
	JSC6-M5A		JSS6-M5A	10.45
	JSC1/8-M3A		JSS1/8-M3A	12.45
	JSC1/8-M5A		JSS1/8-M5A	8.64
	JSC1/4-M5A		JSS1/4-M5A	10.45

2 Barb Fitting

Ideal for small grippers with extremely thin bodies

Type	Model	Price (\$)
	LC-øD-M	
	LC-0320-M3	1.18
	LC-0320-M3M ※	3.64
	LC-0320-M5	.55
	LC-0425-M3	1.18
	LC-0425-M5	.55
	LC-0640-M3	3.00
	LC-0640-M5	.55

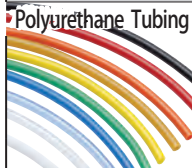
3 Push-in Mini Fitting

Push-in connect fitting makes piping easier

Type	Model	Price (\$)	Type	Model	Price (\$)
	PCøD-MM			PLøD-MM	
	PC3-M5M	1.91		PL3-M5M	2.82
	PC4-M5M	2.27		PL4-M5M	3.18
	PC6-M5M	2.36		PL6-M5M	3.23
	PC1/8-M5M	2.27		PL1/8-M5M	3.18
	PC5/32-M5M	2.27		PL5/32-M5M	3.18
	PC1/4-M5M	2.45		PL1/4-M5M	3.32

4 Tubings

Flexible polyurethane tubing, 9 colors

Type	Model	Price (\$) (per meter)
	UBT0320-①-②	.56
	UBT0425-①-②	.36
	UBT0640-①-②	.67
	UBT1/8-①-②	.30
	UBT1/4-①-②	.74

❖ Specify UBT0425 if you need 5/32" O.D. tubing

※Specify the tubing length in ① and the color in ② of the model number from the following option.

■ Polyurethane Tubing

- ① Tubing length ▶ 20 (20 meter roll) or 100 (100 meter reel)
 ② Color ▶ B : Black, R : Red, Y : Yellow, BU : Blue, O : Orange
 G : Green, CB : Clear Blue, C : Clear, W : Milky white

Softer polyurethane tubing, 6 colors

Type	Model	Price (\$) (per meter)
	UC0425-①-②	.73
	UC0640-①-②	1.18

■ Soft Polyurethane Tubing

- ① Tubing length (m) ▶ 20 (20 meter roll), 100 (100 meter roll in a box)
 ② Color ▶ CBL : Clear Black, CO : Clear Orange, CY : Clear Yellow
 CG : Clear Green, CB : Clear Blue, C : Clear