



Ultra Compact Cross Roller Parallel Gripper Double Acting Type/Single Acting Type

BSA2 Series

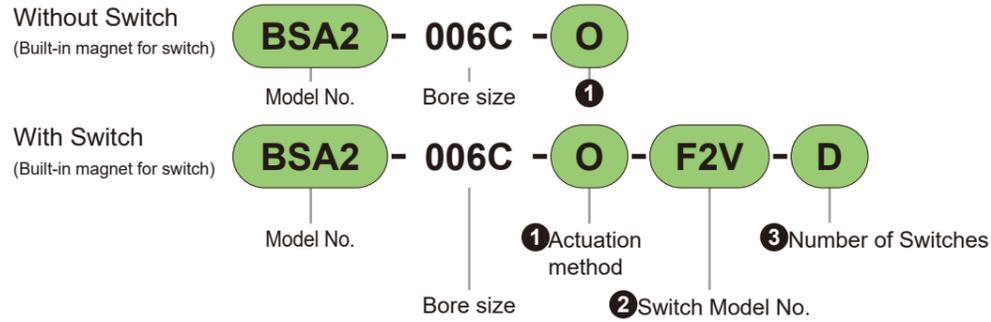
● Operating stroke: 4 mm



BSA2 Series

Specifications/Gripping Force Performance Data

Model No. Notation Method



① Actuation method

Code	Content
Blank	Standard (Double Acting Type)
O	Single Acting (Normally Open)
C	Single Acting (Normally Closed)

② Switch Model No.

For switch details, refer to P. 573. Switches are included with the product and shipped.

Contact	Indicator LED Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead wire *1		
			AC	DC	AC	DC	Straight	L-shape	
Solid State	1-Color	2-wire	-	10 to 30	-	5 to 20	-	F2S□	
		3-wire (NPN)	-	30 or less	-	50 or less	-	F3S□	
		2-wire	-	10 to 30	-	5 to 20 *2	F2H□	F2V□	
		3-wire (NPN)	-	30 or less	-	50 or less	F3H□	F3V□	

*1: For "□" in the switch model No., enter the code selected from the "Lead wire length" table.
 *2: The maximum load current value above, 20 mA, is at 25 °C. If the switch operating ambient temperature is higher than 25 °C, it will be lower than 20 mA. (At 60 °C, it will be 5 to 10 mA.)
 *3: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 573.

*Lead wire length

Code	Content
Blank	1 m (Standard)
3	3 m (Option)

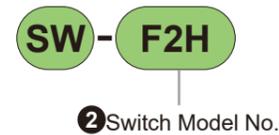
Example) Lead wire length
 1 m F2S
 3 m F2S[3]

③ Number of Switches

Code	Content
R	With 1 pc. on Open Side
H	With 1 pc. on Close Side
D	With 2 pcs

Note) When 2 switches are included, the opening/closing stroke is short, so depending on the size of the workpiece, both switches may turn ON. Please be careful.

Switch Single Unit Model No. Notation Method



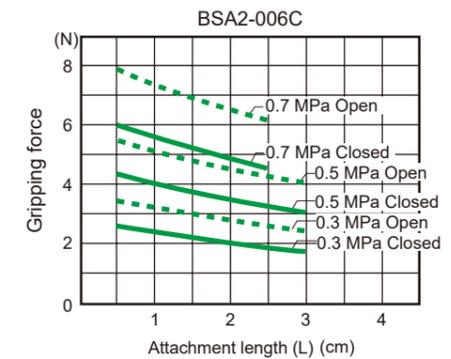
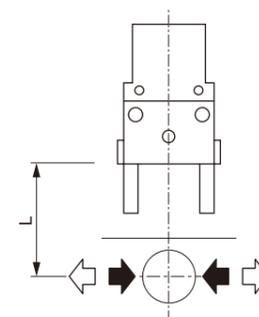
Specifications

Item	BSA2-006C
Bore size	mm ø6
Actuation method	Double Acting Type/Single Acting Type
Operating Fluid	Compressed Air
Max. Working Pressure	MPa 0.7
Min. Operating Pressure	MPa Double Acting Type 0.15
	MPa Normally Open 0.25
	MPa Normally Closed 0.25
Ambient Temperature	°C 5 to 60
Port Size	M3
Operating stroke	mm 4
Rod diameter	mm ø3
Internal volume (reciprocating)	cm ³ 0.1
Repeatability	mm ±0.01
Weight	kg 0.034
Lubrication	Not required (When lubricating, use turbine oil Class 1 ISO VG32)

Gripping Force Performance Data

- Gripping force represents the thrust (for one finger) in the direction of the arrow shown in the figure.
- The gripping force in the opening/closing directions with attachment length L of hand with a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

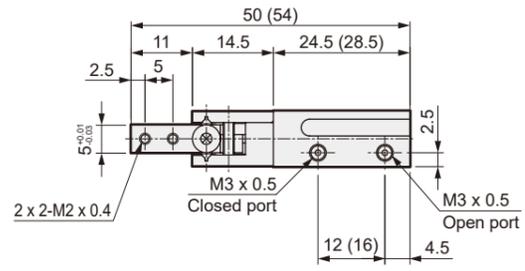
- Opening direction (←) - - - (Dashed line)
- Closing direction (→) ——— (Solid line)



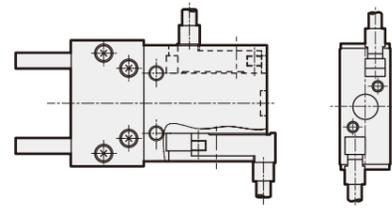
Note) O type gripping force is approx. 20 to 30 % lower in the closing direction compared to the double acting type. C type gripping force is approx. 10 to 20 % lower in the opening direction compared to the double acting type. When selecting, check the design and selection precautions on P. 336.

Outline Dimension Drawing

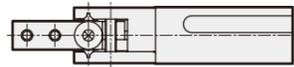
●Dimensions in () are for O [Normally Open] and C [Normally Closed] specifications.



●With Switch

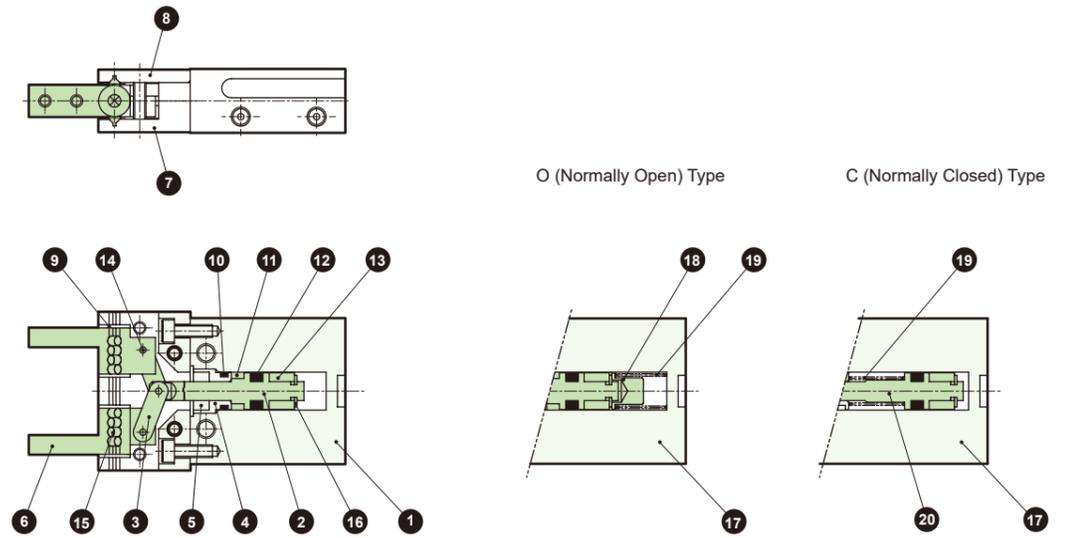


Note) For F□H, F□V, the switch protrudes from the main body head side end face. If protrusion is a problem, use F□S.



Internal Structure Diagram/Material

Internal Structure Diagram/Material



Part No.	Part Name	Material	Part No.	Part Name	Material
1	Body	Aluminum alloy (Standard type only)	11	Gasket	Nitrile Rubber
2	Piston	Stainless steel (Standard, O type only)	12	Piston Packing	Nitrile Rubber
3	Arm	Stainless Steel	13	Magnet	
4	Piston Guide	Stainless Steel	14	Operating Shaft	Stainless Steel
5	Piston guide retainer	Stainless Steel	15	Cross Roller	Alloy Steel
6	Finger	Steel	16	Retaining ring	Stainless Steel
7	Bearing guide A	Steel	17	O, C body	Aluminum Alloy
8	Bearing guide B	Steel	18	Spring Guide	Stainless Steel
9	Bearing retainer	Stainless Steel	19	O, C coil spring	Stainless Steel
10	Rod Packing	Nitrile Rubber	20	C piston	Stainless Steel

Hand (Gripper)

LSH-HP
LSH
FH100
BSA2
BHA
BHG
BHE
LHA
LHAG
HAP-1C
HAP-2 to 4CS
HKP
HCP
HGP
LST-HP
HLF2
HLA/HLB
HLAG/HLBG
HLC
HLD
HMC-HP
HMF
HMF-G
HMF-B
HFP
FH500
HBL
HJL
HMD
HDL
HJD
Cylinder Switch
Ending

Hand (Gripper)

LSH-HP
LSH
FH100
BSA2
BHA
BHG
BHE
LHA
LHAG
HAP-1C
HAP-2 to 4CS
HKP
HCP
HGP
LST-HP
HLF2
HLA/HLB
HLAG/HLBG
HLC
HLD
HMC-HP
HMF
HMF-G
HMF-B
HFP
FH500
HBL
HJL
HMD
HDL
HJD
Cylinder Switch
Ending