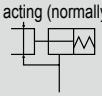
Miniature cross roller parallel hand Double acting/single acting

BSA2 Series

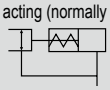
● Operational stroke length: 4 mm

Double acting

Single acting (normally open)



Single acting (normally closed)



RoHS CAD

Specifications

Item			BSA2
Size			006C
Bore size		mm	ø6
Actuation			Double acting/single acting
Working fluid			Compressed air
Max. working pressure		MPa	0.7 (≈100 psi, 7 bar)
Min. working pressure MPa	Double acting		0.15 (≈22 psi, 1.5 bar)
	Normally open		0.25 (≈36 psi, 2.5 bar)
	Normally closed		
Ambient temperature		°C	5 (41°F) to 60 (140°F)
Port size			M3
Operating stroke length		mm	4
Rod diameter		mm	ø3
Volumetric capacity (reciprocating)		cm^3	0.1
Repeatability		mm	±0.01
Weight		kg	0.034
Lubrication			Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)

Switch specifications

Item	Proximity 2-wire			Proximity 3-wire		
	F2H, F2V	F2S	*3	F3H, F3V	F3S	*3
Applications	Dedicated for programmable controller			For programmable controller, relay		
Output method	—	—		NPN output		
Power supply voltage	—	—		10 to 28 VDC		
Load voltage/current	10 to 30 VDC, 5 to 20 mA (*1)			30 VDC, 50 mA or less		
Indicator lamp	Yellow LED (Lit when ON)	LED (Lit when ON)		Yellow LED (Lit when ON)	LED (Lit when ON)	
Leakage current	1 mA or less			10 μA or less		
Weight	1 m:10 g 3 m:29 g			1 m:10 g 3 m:29 g		

*1 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)
*2 : The switch uses a bend-resistant lead wire.
*3 : Refer to Ending Page 1 for detailed switch specifications and dimensions.
*4 : If mounting two switches in one groove to enable detection at both ends, mount them so that their set screws face outward.

How to order

Without switch (built-in magnet for switch)

BSA2 - **006C** - **O**

With switch (built-in magnet for switch)

BSA2 - **006C** - **O** - **F2V** - **D**

Model No. / Size / Ⓐ Option / Ⓑ Switch model No. / Ⓒ Switch quantity

Code	Description
Ⓐ Option	
Blank	Standard (double acting)
O	Single acting (normally open)
C	Single acting (normally closed)

Ⓑ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
-	**F2S***	Proximity		●	1-color display	2-wire
F2H*	**F2V***			●		2-wire
-	**F3S***			●		3-wire
F3H*	**F3V***			●		3-wire

*** Lead wire length**	
Blank	1 m (standard)
3	3 m (option)

Ⓒ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

[Example of model No.]

BSA2-006C-O-F2V-D

Model: Miniature cross roller parallel hand
Size: 006C
Ⓐ Option : Single acting, normally open
Ⓑ Switch model No. : Proximity F2V switch, lead wire 1 m
Ⓒ Switch quantity : 2

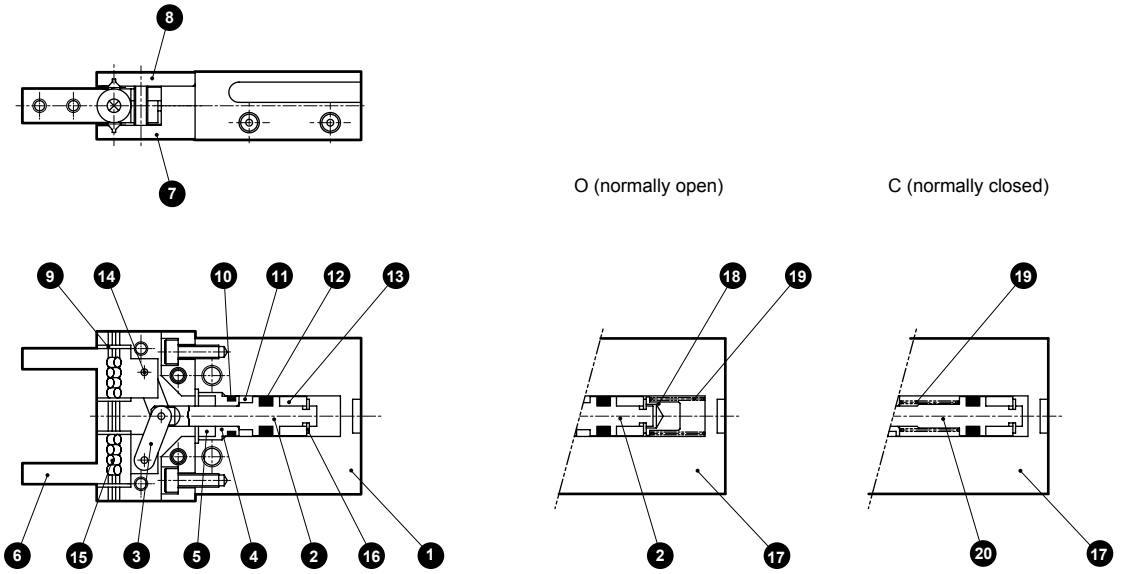
How to order switch

SW - **F2H**

Switch model No.
(Item Ⓑ above)

Note) When two switches are selected, the open/close stroke length will be short. Depending on workpiece size, both switches may turn ON.

Internal structure and parts list

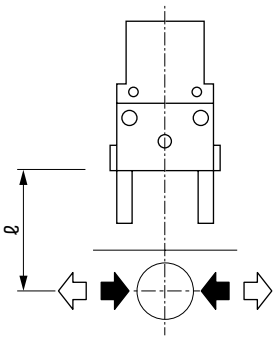


Cannot be disassembled

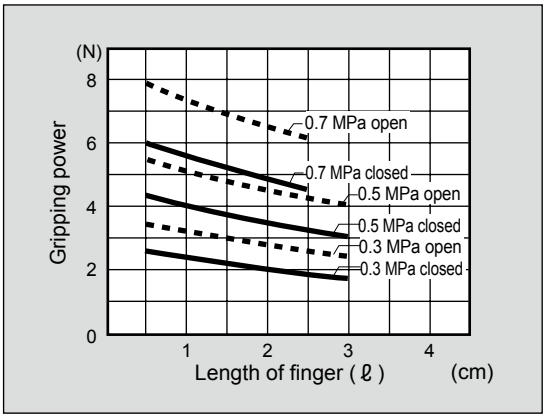
No.	Part name	Material	No.	Part name	Material
1	Body	Aluminum alloy	11	Cylinder gasket	Nitrile rubber
2	Piston	Stainless steel	12	Piston packing	Nitrile rubber
3	Arm	Stainless steel	13	Magnet	
4	Piston guide	Stainless steel	14	Operation shaft	Stainless steel
5	Piston guide holder	Stainless steel	15	Cross roller	Alloy steel
6	Finger	Steel	16	Snap 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 holder	Stainless steel	19	O, C spring	Stainless steel
10	Rod packing	Nitrile rubber	20	C piston	Stainless steel

Gripping power performance data

- Gripping power represents the thrust (per one finger) in the arrow direction shown in the figure.
- At a supply pressure of 0.3, 0.5, or 0.7 MPa,
  the gripping power in the opening/closing directions with finger length ℓ of hand is shown.
  - ● Open direction (⇦) ····· (shown with broken line)
  - ● Closed direction (➡) —— (shown with continuous line)



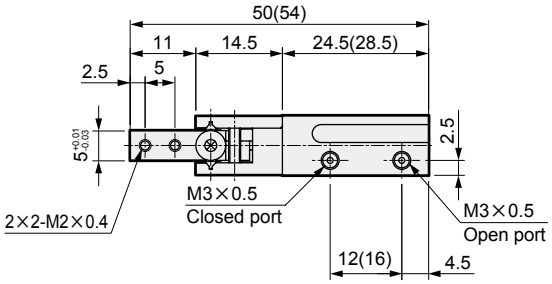
● BSA2-006C



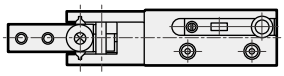
Note: O type gripping power decreases approximately 20 to 30% in the closed direction compared to double acting.
C type gripping power decreases approximately 10 to 20% in the open direction compared to the double acting.
When making a selection, read the precautions for design and selection on page 1764.

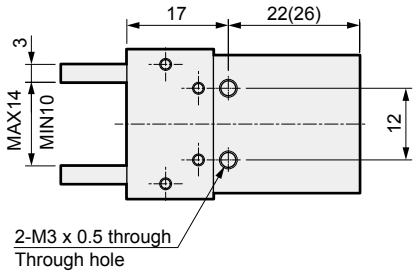
Dimensions CAD

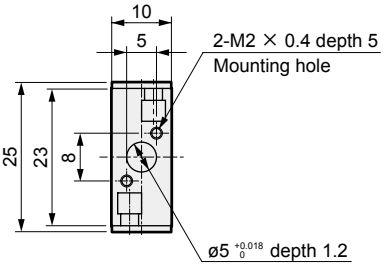
● Dimensions in ( ) are for O [normally open] and C [normally closed] specifications.
● Dimensions in ( ) are for O [normally open] specifications.

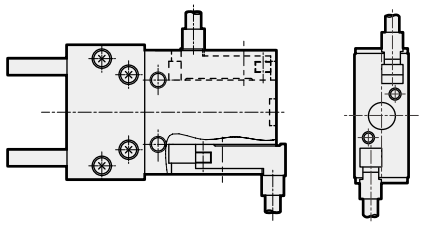


● With switch









Note: When using F□H or F□V, the switch protrudes from the end face of the body head side. If this projection is a problem, use F□S.