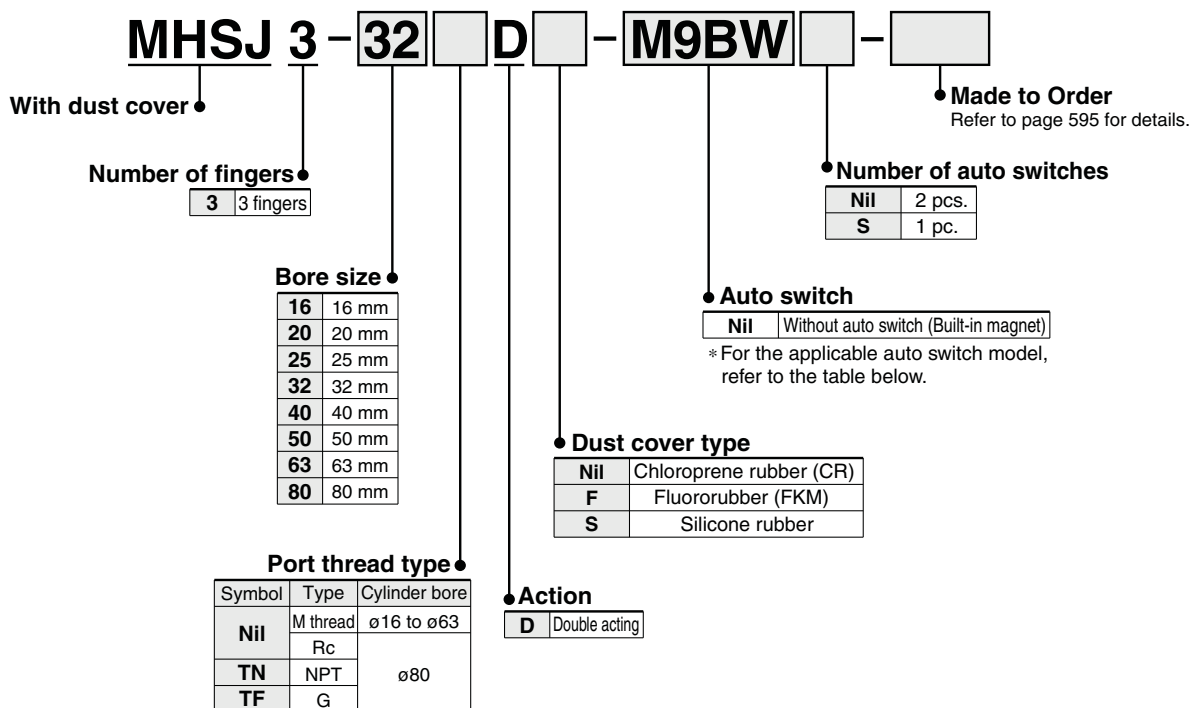


Parallel Type Air Gripper 3-Finger Type with Dust Cover

MHSJ3 Series

ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80

How to Order



Applicable Auto Switches/Refer to pages 797 to 850 for further information on auto switches.

| Type | Special function | Electrical entry | Indicator light | Wiring (Output) | Load voltage | | Auto switch model | | Lead wire length (m)* | | | | Pre-wired connector | Applicable load | | |
|-------------------------|-------------------------------------|------------------|-----------------|-----------------|--------------|--------------|-------------------|---------|-----------------------|-------|-------|-------|---------------------|-----------------|------------|---|
| | | | | | DC | AC | Perpendicular | In-line | 0.5 (Nil) | 1 (M) | 3 (L) | 5 (Z) | | IC circuit | Relay, PLC | |
| Solid state auto switch | — | Grommet | Yes | 3-wire (NPN) | 24 V | 5 V, 12 V | — | M9NV | M9N | ● | ● | ● | ○ | | | ○ |
| | | | | 3-wire (PNP) | | | | M9PV | M9P | ● | ● | ● | ○ | ○ | | |
| | | | | 2-wire | | | | M9BV | M9B | ● | ● | ● | ○ | ○ | | |
| | | | | 3-wire (NPN) | | | | M9NWV | M9NW | ● | ● | ● | ○ | ○ | | |
| | | | | 3-wire (PNP) | | | | M9PWV | M9PW | ● | ● | ● | ○ | ○ | | |
| | | | | 2-wire | | | | M9B WV | M9B W | ● | ● | ● | ○ | ○ | | |
| | Water resistant (2-color indicator) | | | 3-wire (NPN) | M9NAV** | M9NA** | ○ | ○ | ● | ○ | ○ | ○ | IC circuit | Relay, PLC | | |
| | | | | 3-wire (PNP) | M9PAV** | M9PA** | ○ | ○ | ● | ○ | ○ | | | | | |
| | | | | 2-wire | M9BAV** | M9BA** | ○ | ○ | ● | ○ | ○ | | | | | |
| | | | | | | | ○ | ○ | ○ | ○ | ○ | | | | | |
| | | | | | | | ○ | ○ | ○ | ○ | ○ | | | | | |
| | | | | | | | ○ | ○ | ○ | ○ | ○ | | | | | |

** Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

* Lead wire length symbols: 0.5 m Nil (Example) M9NW
 1 m M (Example) M9NWM
 3 m L (Example) M9NWL
 5 m Z (Example) M9NWZ

* Auto switches marked with a "○" symbol are produced upon receipt of order.

(Note) When using the 2-color indicator type, please make the setting so that the indicator is lit in red to ensure the detection at the proper position of the air gripper.

Parallel Type Air Gripper 3-Finger Type with Dust Cover **MHSJ3 Series**

Models/Specifications

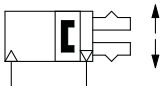


| Model | MHSJ3-16D | MHSJ3-20D | MHSJ3-25D | MHSJ3-32D | MHSJ3-40D | MHSJ3-50D | MHSJ3-63D | MHSJ3-80D | |
|---|----------------------|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----|
| Cylinder bore size (mm) | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | |
| Fluid | Air | | | | | | | | |
| Operating pressure (MPa) | 0.2 to 0.6 | | | | 0.1 to 0.6 | | | | |
| Ambient and fluid temperature (°C) | -10 to 60 | | | | | | | | |
| Repeatability (mm) | ±0.01 | | | | | | | | |
| Max. operating frequency (c.p.m.) | 120 | | | | 60 | | | 30 | |
| Lubrication | Not required | | | | | | | | |
| Action | Double acting | | | | | | | | |
| Effective gripping force (N) at 0.5 MPa <small>Note 1)</small> | External grip | 9 | 21 | 36 | 62 | 97 | 155 | 280 | 400 |
| | Internal grip | 16 | 28 | 47 | 82 | 130 | 204 | 359 | 525 |
| Opening/Closing stroke (mm) (dia.) | 4 | 4 | 6 | 8 | 8 | 12 | 16 | 20 | |
| Weight (g) | 95 | 150 | 230 | 440 | 620 | 1,050 | 1,800 | 3,200 | |

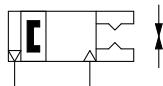
Note 1) Values for $\phi 16$ to $\phi 25$ are with gripping point L = 20 mm, for $\phi 32$ to $\phi 63$ with gripping point L = 30 mm, and for $\phi 80$ with gripping point L = 50 mm. Refer to "Effective Gripping Force" data on pages 597 to 599 for the gripping force at each gripping position.

Symbol

Double acting:
Internal grip



Double acting:
External grip



Made to Order
[Click here for details](#)

| Symbol | Specifications/Description |
|--------------|--|
| -X4 | Heat resistance (100°C) |
| -X5 | Fluororubber seal |
| -X50 | Without magnet |
| -X53 | EPDM seal/Fluorine grease |
| -X56 | Axial ported |
| -X63 | Fluorine grease |
| -X77A | Dust cover adhesion |
| -X77B | Dust cover adhesion (Finger part only) |
| -X78A | Dust cover caulking |
| -X78B | Dust cover caulking (Finger part only) |
| -X79 | Grease for food processing machines, Fluorine grease |
| -X79A | Grease for food processing machines |

Refer to pages 636 to 643 for the specifications of products with auto switches.

- Auto switch installation examples and mounting positions
- Auto switch hysteresis
- Auto switch mounting
- Protrusion of auto switch from edge of body

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

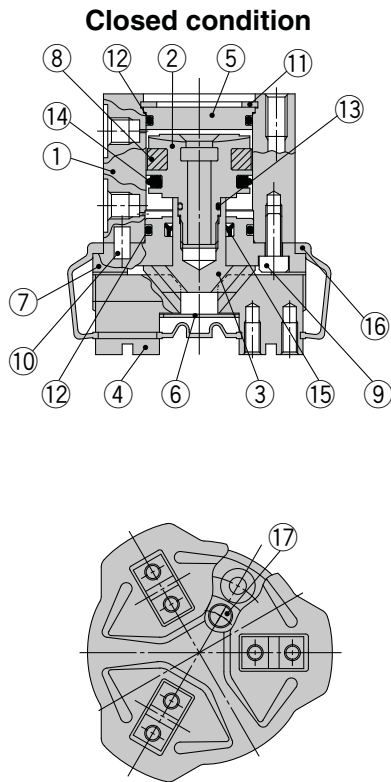
MRHQ

MA

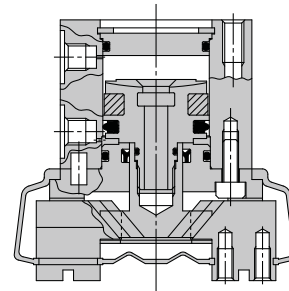
D-□

MHSJ3 Series

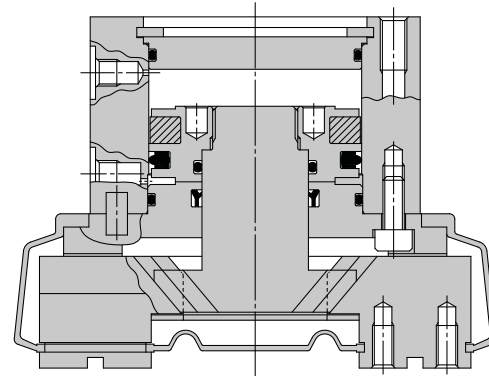
Construction



ø16 to ø25 Open condition



ø32 to ø80 Open condition



Component Parts

| No. | Description | Material | Note |
|-----|------------------|---|---------------------------------|
| 1 | Body | Aluminum alloy | Hard anodized |
| 2 | Piston | ø16 to ø25: Stainless steel ø32 to ø80: Aluminum alloy | Hard anodized |
| 3 | Cam | Carbon steel | Heat treated, Specially treated |
| 4 | Finger | Carbon steel | Heat treated, Specially treated |
| 5 | Cap | Aluminum alloy | Hard anodized |
| 6 | End plate | Stainless steel | |
| 7 | Guide | Aluminum alloy | Hard anodized |
| 8 | Magnet | — | |

| No. | Description | Material | Note |
|-----|---------------------------------------|-----------------|----------------|
| 9 | Hexagon socket head bolt | Carbon steel | Zinc chromated |
| 10 | Parallel pin | Stainless steel | |
| 11 | Type C retaining ring | Carbon steel | Nickel plated |
| 12 | Gasket | NBR | |
| 13 | Gasket | NBR | |
| 14 | Piston seal | NBR | |
| 15 | Rod seal | NBR | |
| 16 | Dust cover | CR/FKM/Si | |
| 17 | Cross recessed flat head screw | Carbon steel | Zinc chromated |

Replacement Parts

| Description | | MHSJ3-16D | MHSJ3-20D | MHSJ3-25D | MHSJ3-32D | Main parts |
|---------------------------|----------|-----------------|------------|------------|------------|------------|
| Seal kit | | MHSJ16-PS | MHSJ20-PS | MHSJ25-PS | MHSJ32-PS | ⑫⑬⑭⑮ |
| Dust cover | Material | CR | MHSJ3-J16 | MHSJ3-J20 | MHSJ3-J25 | ⑯ |
| | | FKM | MHSJ3-J16F | MHSJ3-J20F | MHSJ3-J25F | |
| | | Silicone rubber | MHSJ3-J16S | MHSJ3-J20S | MHSJ3-J25S | |
| Finger | | P3316054 | P3316154 | P3316254 | P3316354 | ④ |
| Cam (J) | | P3316093 | P3316193 | P3316293 | P3316393 | ③ |
| Piston assembly | | MHS-A1603 | MHS-A2003 | MHS-A2503 | MHS-A3203 | ②⑧ |
| End plate assembly | | MHSJ-A1613 | MHSJ-A2013 | MHSJ-A2513 | MHSJ-A3213 | ⑥⑰ |
| Cap | | MHSJ-A1614 | MHSJ-A2014 | MHSJ-A2514 | MHSJ-A3214 | ⑤ |

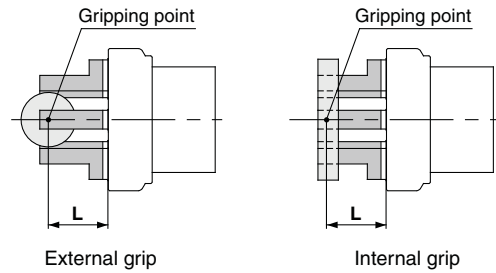
| Description | | MHSJ3-40D | MHSJ3-50D | MHSJ3-63D | MHSJ3-80D | Main parts |
|---------------------------|----------|-----------------|------------|------------|------------|------------|
| Seal kit | | MHSJ40-PS | MHSJ50-PS | MHSJ63-PS | MHSJ80-PS | ⑫⑬⑭⑮ |
| Dust cover | Material | CR | MHSJ3-J40 | MHSJ3-J50 | MHSJ3-J63 | ⑯ |
| | | FKM | MHSJ3-J40F | MHSJ3-J50F | MHSJ3-J63F | |
| | | Silicone rubber | MHSJ3-J40S | MHSJ3-J50S | MHSJ3-J63S | |
| Finger | | P3316454 | P3316554 | P3316654 | P3316754 | ④ |
| Cam (J) | | P3316493 | P3316593 | P3316693 | P3316793 | ③ |
| Piston assembly | | MHS-A4003 | MHS-A5003 | MHS-A6303 | MHS-A8003 | ②⑧ |
| End plate assembly | | MHSJ-A4013 | MHSJ-A5013 | MHSJ-A6313 | MHSJ-A8013 | ⑥⑰ |
| Cap | | MHSJ-A4014 | MHSJ-A5014 | MHSJ-A6314 | MHSJ-A8014 | ⑤ |

* Order 3 pieces of fingers for one unit.

Replacement part/Grease pack part no.: MH-G01 (30 g)

Gripping Point

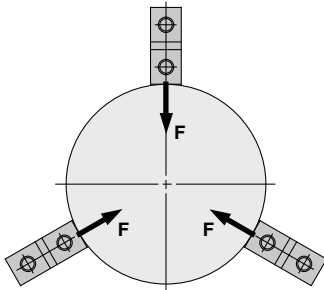
- The workpiece gripping point distance should be within the gripping force ranges given for each pressure in the effective gripping force graphs below.
- If operated with the workpiece gripping point beyond the indicated ranges, an excessive offset load will be applied to the sliding section of the fingers, which can have an adverse effect on the service life of the product.



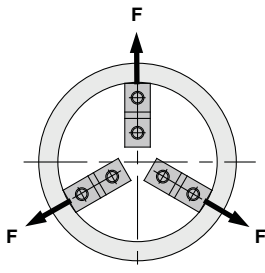
L: Gripping point distance

Effective Gripping Force

- Indication of effective gripping force
The effective gripping force shown in the graphs to the right is expressed as **F**, which is the thrust of one finger when all 3 of the fingers and attachments are in full contact with the workpiece as shown in the figure below.

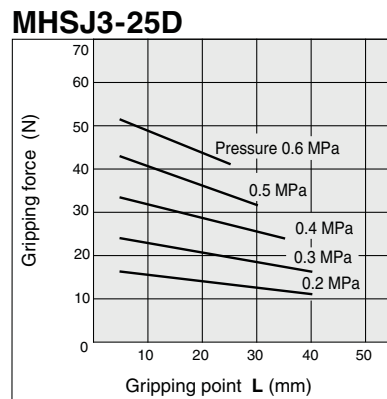
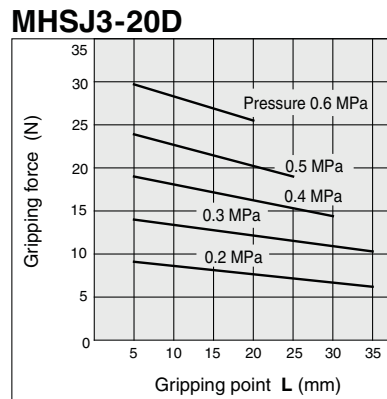
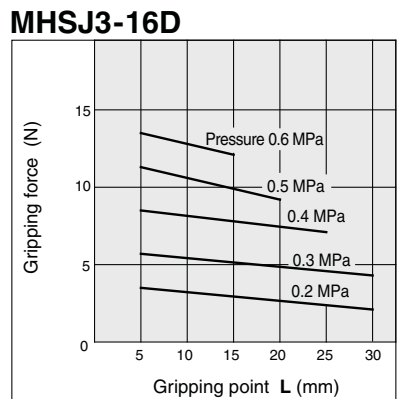


External grip

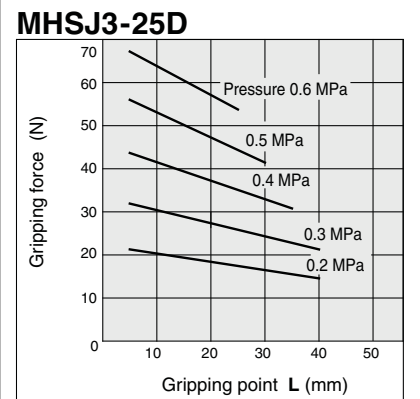
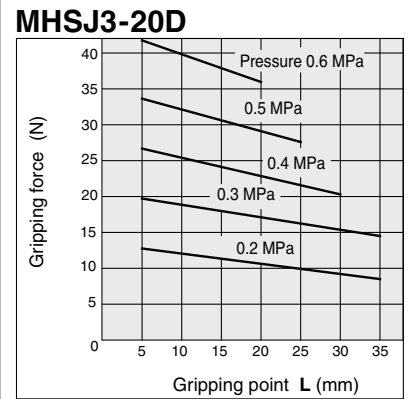
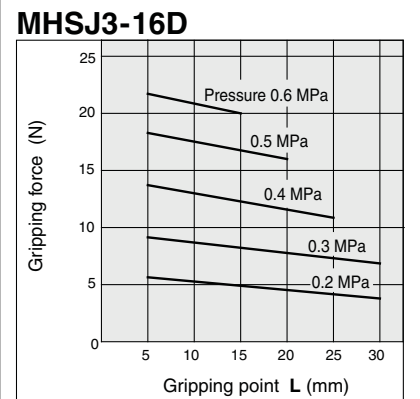


Internal grip

External Gripping Force



Internal Gripping Force



MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

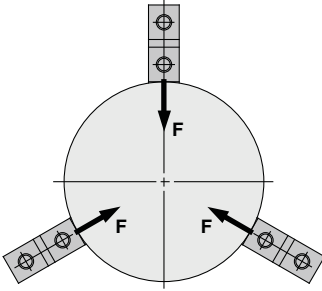
MA

D-□

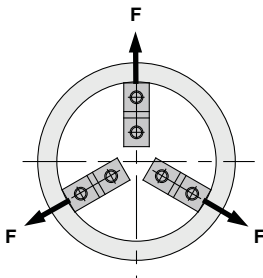
MHSJ3 Series

Effective Gripping Force

- Indication of effective gripping force
The effective gripping force shown in the graphs to the right is expressed as F , which is the thrust of one finger when all 3 of the fingers and attachments are in full contact with the workpiece as shown in the figure below.



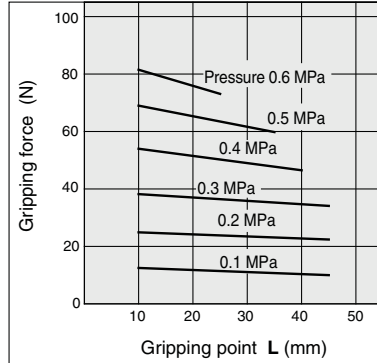
External grip



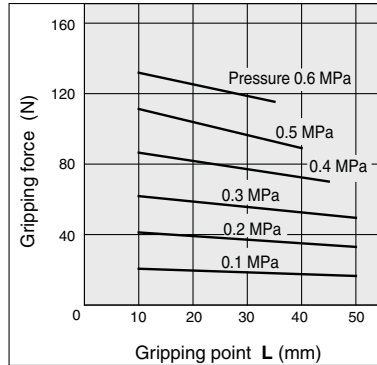
Internal grip

External Gripping Force

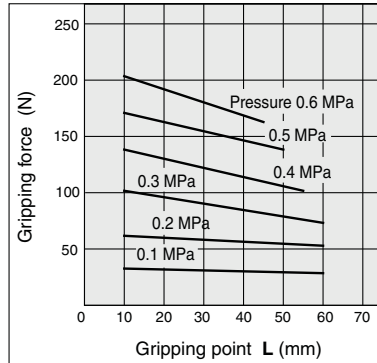
MHSJ3-32D



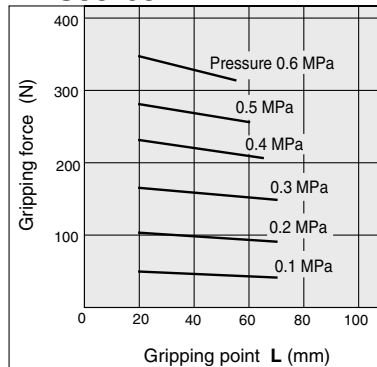
MHSJ3-40D



MHSJ3-50D

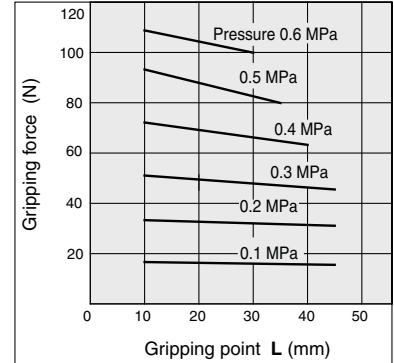


MHSJ3-63D

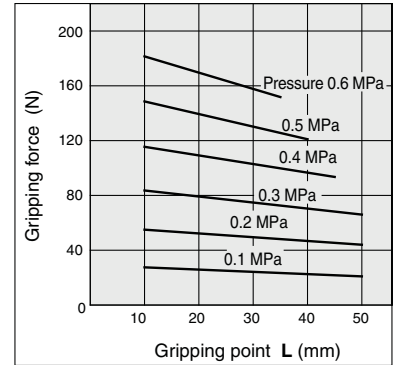


Internal Gripping Force

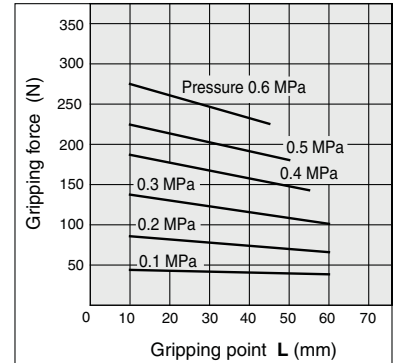
MHSJ3-32D



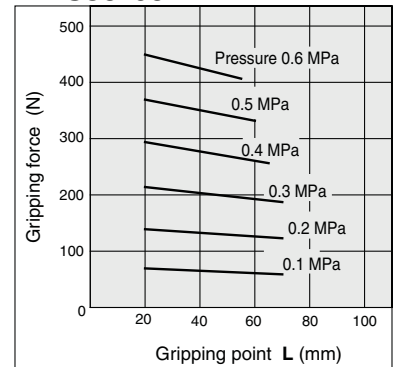
MHSJ3-40D



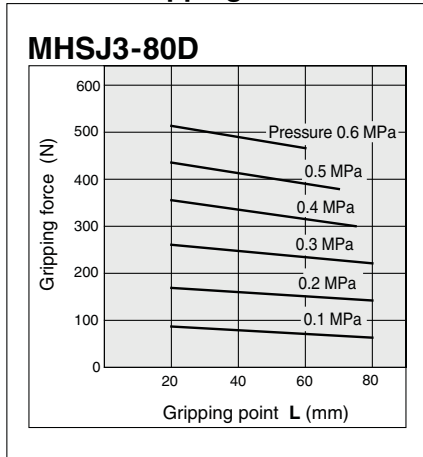
MHSJ3-50D



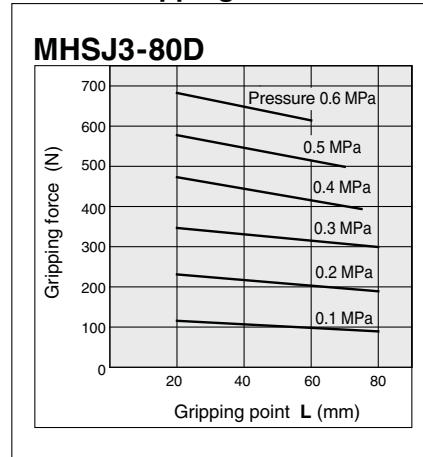
MHSJ3-63D



External Gripping Force



Internal Gripping Force

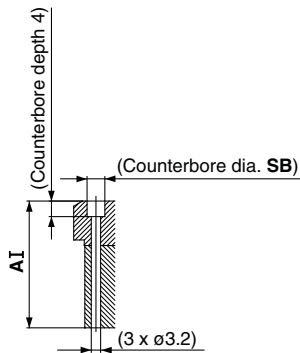
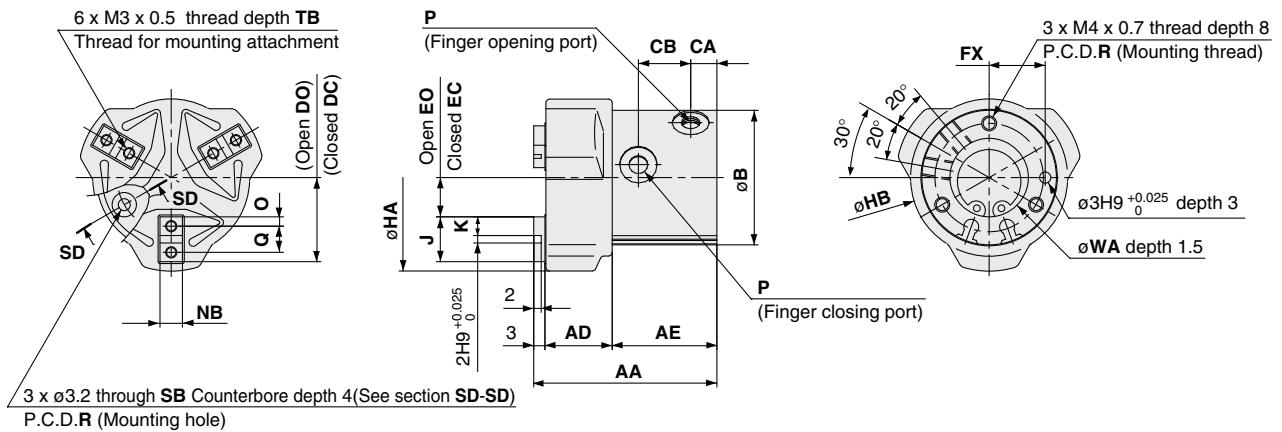


- MHZ
- MHF
- MHL
- MHR
- MHK
- MHS**
- MHC
- MHT
- MHY
- MHW
- X□
- MRHQ
- MA
- D-□

MHSJ3 Series

Dimensions

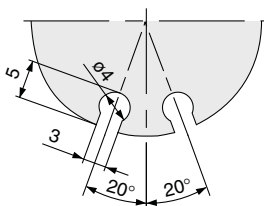
MHSJ3-16D to 25D



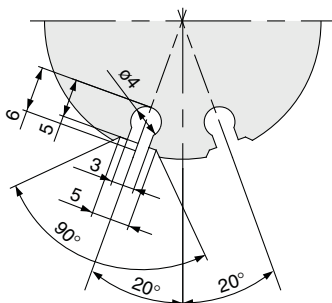
Section SD - SD

Auto switch mounting groove dimensions (2 locations)

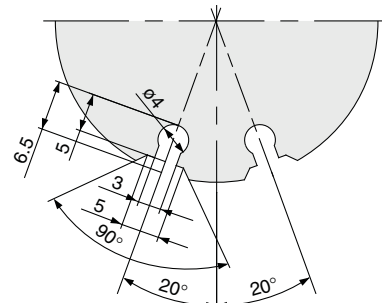
MHSJ3-16D



MHSJ3-20D



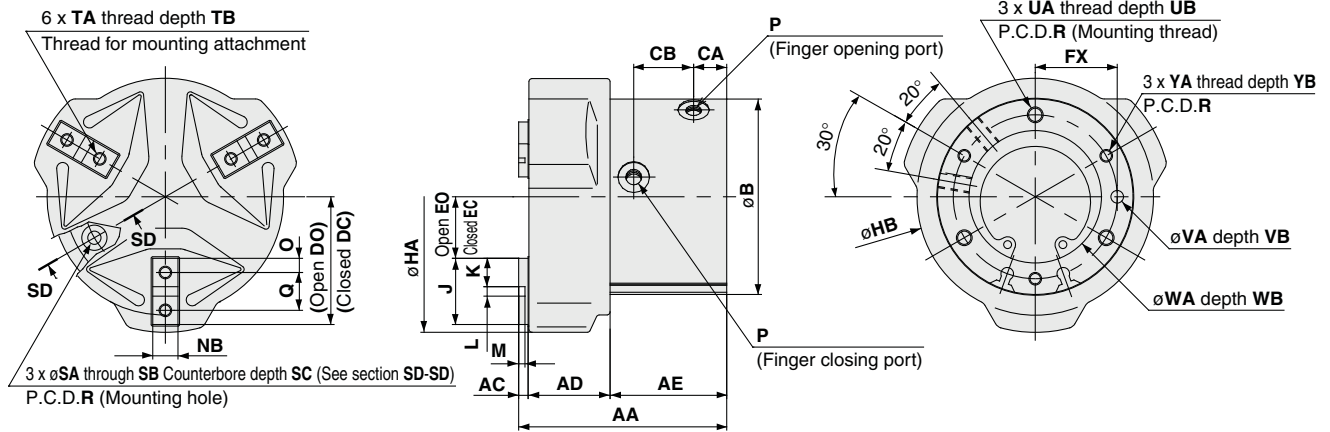
MHSJ3-25D



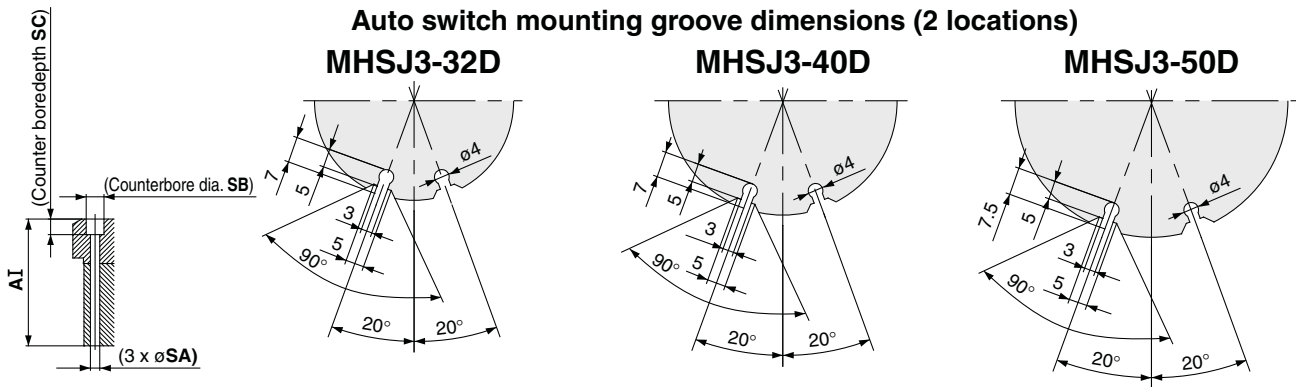
| Model | AA | AD | AE | AI | B | CA | CB | DC | DO | EC | EO | FX | HA | HB | J | K | NB | O | P | Q |
|-----------|----|----|----|----|----|-----|------|------|------|-----|------|----|----|----|----|---|-----------------------------------|-----|----------|---|
| MHSJ3-16D | 46 | 16 | 27 | 39 | 30 | 7 | 14 | 17.5 | 19.5 | 7.5 | 9.5 | 12 | 46 | 36 | 10 | 4 | 5h9 ₀ ^{0.030} | 2 | M3 x 0.5 | 6 |
| MHSJ3-20D | 49 | 18 | 28 | 42 | 36 | 7 | 14 | 20 | 22 | 8 | 10 | 15 | 52 | 42 | 12 | 5 | 6h9 ₀ ^{0.030} | 2.5 | M5 x 0.8 | 7 |
| MHSJ3-25D | 55 | 20 | 32 | 47 | 42 | 7.5 | 17.5 | 23.5 | 26.5 | 9.5 | 12.5 | 18 | 62 | 50 | 14 | 6 | 6h9 ₀ ^{0.030} | 3 | M5 x 0.8 | 8 |

| Model | R | SB | TB | WA |
|-----------|----|-----|----|-------------------------------------|
| MHSJ3-16D | 24 | 6 | 5 | 17H9 ₀ ^{+0.043} |
| MHSJ3-20D | 29 | 6.5 | 6 | 21H9 ₀ ^{+0.052} |
| MHSJ3-25D | 34 | 6.5 | 6 | 26H9 ₀ ^{+0.052} |

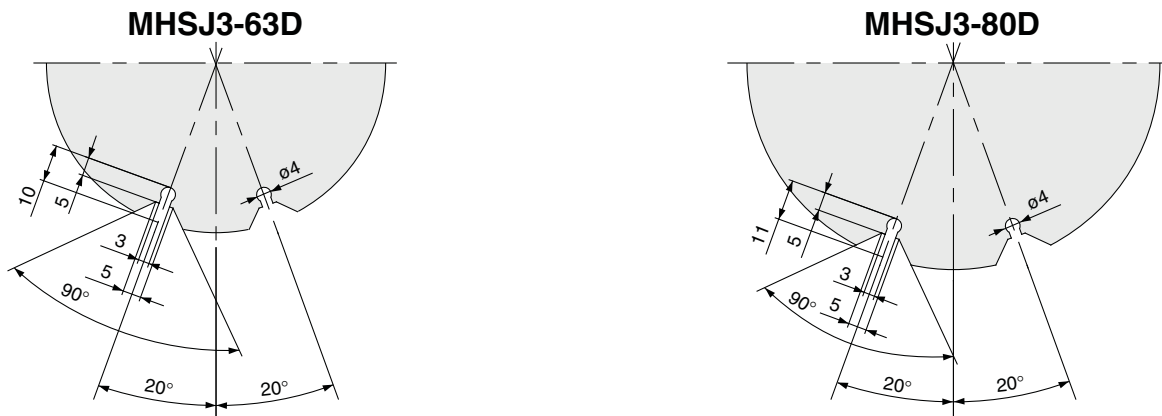
MHSJ3-32D to 80D



Auto switch mounting groove dimensions (2 locations)



Section SD - SD



| Model | AA | AC | AD | AE | AI | B | CA | CB | DC | DO | EC | EO | FX | HA | HB | J | K | L | M | NB |
|-----------|-----|----|----|----|----|-----|------|------|------|------|------|------|----|-----|-----|----|----|------------------------------------|---|-------------------------------------|
| MHSJ3-32D | 63 | 3 | 24 | 36 | 54 | 54 | 9.5 | 19 | 31.5 | 35.5 | 11.5 | 15.5 | 22 | 80 | 65 | 20 | 9 | 2H9 ^{+0.025} ₀ | 2 | 8h9 ₀ ^{-0.036} |
| MHSJ3-40D | 66 | 3 | 26 | 37 | 57 | 62 | 10.5 | 19 | 36 | 40 | 15 | 19 | 26 | 90 | 75 | 21 | 9 | 3H9 ^{+0.025} ₀ | 2 | 8h9 ₀ ^{-0.036} |
| MHSJ3-50D | 80 | 3 | 31 | 46 | 70 | 74 | 11.5 | 26.5 | 42 | 48 | 18 | 24 | 32 | 109 | 88 | 24 | 10 | 4H9 ^{+0.030} ₀ | 2 | 10h9 ₀ ^{-0.036} |
| MHSJ3-63D | 91 | 4 | 37 | 50 | 79 | 92 | 13 | 28 | 51 | 59 | 23 | 31 | 40 | 133 | 106 | 28 | 11 | 6H9 ^{+0.030} ₀ | 3 | 12h9 ₀ ^{-0.043} |
| MHSJ3-80D | 108 | 5 | 46 | 57 | 93 | 112 | 14 | 31 | 63 | 73 | 31 | 41 | 50 | 168 | 130 | 32 | 12 | 8H9 ^{+0.036} ₀ | 4 | 14h9 ₀ ^{-0.043} |

| Model | O | P | Q | R | SA | SB | SC | TA | TB | UA | UB | VA | VB | WA | WB | YA | YB |
|-----------|-----|-------------------------|----|----|-----|-----|----|----------|----|-----------|----|------------------------------------|----|-------------------------------------|-----|----------|----|
| MHSJ3-32D | 4.5 | M5 x 0.8 | 11 | 44 | 4.2 | 8 | 7 | M4 x 0.7 | 8 | M5 x 0.8 | 10 | 4H9 ^{+0.030} ₀ | 4 | 34H9 ^{+0.062} ₀ | 2 | M4 x 0.7 | 8 |
| MHSJ3-40D | 4.5 | M5 x 0.8 | 12 | 52 | 4.2 | 8 | 7 | M4 x 0.7 | 8 | M5 x 0.8 | 10 | 4H9 ^{+0.030} ₀ | 4 | 42H9 ^{+0.062} ₀ | 2 | M4 x 0.7 | 8 |
| MHSJ3-50D | 5 | M5 x 0.8 | 14 | 63 | 5.1 | 9.5 | 8 | M5 x 0.8 | 10 | M6 x 1 | 12 | 5H9 ^{+0.030} ₀ | 5 | 52H9 ^{+0.074} ₀ | 2 | M5 x 0.8 | 10 |
| MHSJ3-63D | 5.5 | M5 x 0.8 | 17 | 78 | 6.6 | 11 | 8 | M5 x 0.8 | 10 | M8 x 1.25 | 16 | 6H9 ^{+0.030} ₀ | 6 | 65H9 ^{+0.074} ₀ | 2.5 | M6 x 1 | 12 |
| MHSJ3-80D | 6 | Rc 1/8 (G 1/8, NPT 1/8) | 20 | 98 | 6.6 | 11 | 8 | M6 x 1 | 12 | M8 x 1.25 | 16 | 6H9 ^{+0.030} ₀ | 6 | 82H9 ^{+0.087} ₀ | 3 | M6 x 1 | 12 |

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

MA

D-□