# Series 10-/11-REC

**ø20, ø25, ø32, ø40**
**Sine Cylinder**

## How to Order

**10 - R E C L 25 ☐ - 150 - M9BW ☐ - C**

**Clean series**

| | |
|---|---|
| 10 | Relief type |
| 11 | Vacuum suction type |

**Mounting**

| | |
|---|---|
| B | Basic |
| L | Axial foot |
| F | Rod flange |
| G | Head flange |

**Bore size (mm)**

**Port type**

| | |
|---|---|
| Nil | Rc |
| TN | NPT |
| TF | G |

**Cylinder stroke (mm)**

**Auto switch**

| | |
|---|---|
| Nil | Without auto switch (Built-in magnet) |

∗ The minimum stroke for auto switch mounting, operating range and auto switch mounting brackets/part no. are the same as standard products.

**Number of auto switches**

| | |
|---|---|
| Nil | 2 pcs. |
| S | 1 pc. |
| n | n pcs. |

**Auto switch mounting bracket** Note)

Note) This symbol is indicated when the D-A9□ or M9□ type auto switch is specified.
This mounting bracket does not apply to other auto switches (D-C7□ and H7□ , etc.) (Nil)

## Model

| | Model | Bore size (mm) | Port size | Lubrication | Action | Standard stroke (mm) | Auto switch mounting | Cushion | Effective cushioning stroke (mm) |
|---|---|---|---|---|---|---|---|---|---|
| Relief type | **10-REC□20** | 20 | 1/8 | Non-lube | Double acting Single rod | 150 to 700 | ○ | Air cushion (Both sides) | 45 |
| | **10-REC□25** | 25 | | | | | | | |
| | **10-REC□32** | 32 | | | | 150 to 1000 | | | 50 |
| | **10-REC□40** | 40 | 1/4 | | | 200 to 1000 | | | 60 |
| Vacuum suction type | **11-REC□20** | 20 | 1/8 | | | 150 to 700 | | | 45 |
| | **11-REC□25** | 25 | | | | | | | |
| | **11-REC□32** | 32 | | | | 150 to 1000 | | | 50 |
| | **11-REC□40** | 40 | 1/4 | | | 200 to 1000 | | | 60 |

## Specifications

| Item \ Bore size (mm) | 20/25/32/40 |
|---|---|
| **Proof pressure** | 1.5 MPa |
| **Maximum operating pressure** | 1.0 MPa |
| **Minimum operating pressure** | 0.2 MPa |
| **Ambient and fluid temperature** | –10°C to 60°C (With no freezing) |
| **Piston speed** | 50 to 400 mm/s |
| **Cushion** | Air cushion |
| **Stroke length tolerance** | Up to 250 ST: $^{+1.0}_{0}$, 251 to 1000 ST: $^{+1.4}_{0}$ |
| **Mounting** | Basic/Axial foot/Rod flange/Head flange |
| **Grease** | Fluorine grease |
| **Cleanliness class (ISO class)** | 10-: Class 4 |
| | 11-: Class 3 |

## Suction Flow Rate of Vacuum Suction Type (Reference values)

| Size | Suction flow rate L/min (ANR) |
|---|---|
| 20 | 1 |
| 25/32/40 | 2 |

## Auto Switch Specifications (Refer to the **WEB catalog** for detailed specifications and auto switches not in the following table.)

| Type | Electrical entry | Indicator light | Wiring (Output) | Load voltage | | | Auto switch model | Lead wire length (m) | | | | Applicable load | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | DC | | AC | Band mounting | 0.5 (Nil) | 1 (M) | 3 (L) | 5 (Z) | | |
| Solid state auto switch | Grommet | Yes | 2-wire | 24 V | 5 V 12 V | — | **M9B** | ● | ● | ● | ○ | — | Relay, PLC |
| | | | | | | | **M9BW** | ● | ● | ● | ○ | | |
| Reed auto switch | Grommet | Yes | 2-wire | 24 V | 12 V | 100 V | **A93** | ● | — | ● | ● | | |

Note 1) Lead wire length symbols: 0.5 m ····· Nil (M9BW)
1 m ····· M (M9BWM)
3 m ····· L (M9BWL)
5 m ····· Z (M9BWZ)

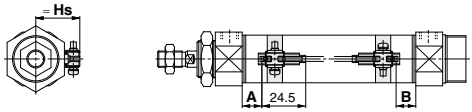
Note 2) Auto switches marked with "○" are produced upon receipt of order.
Note 3) PLC: Programmable Logic Controller

Refer to page 889 for the applicable auto switch list.

## Auto Switch Proper Mounting Position (Detection at Stroke End)

### Solid state auto switch

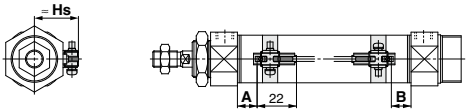
**D-M9□**
**D-M9□W**




A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

### Reed auto switch

**D-A9□**




A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

### Auto Switch Proper Mounting Position (mm)

| Auto switch model / Bore size | D-M9□ D-M9□W | | D-A9□ | |
|---|---|---|---|---|
| | A | B | A | B |
| **20** | 59.5 | 34 | 55.5 | 30.5 |
| **25** | 59.5 | 34 | 55.5 | 30.5 |
| **32** | 63 | 40 | 59 | 36 |
| **40** | 73.5 | 42.5 | 69.5 | 38.5 |

Note) The above values are a guide in the stroke end detection of the mounting positions of the auto switch.
Please adjust in an actual setting after confirming the operating state of the auto switch.

### Auto Switch Mounting Height (mm)

| Auto switch model / Bore size | D-M9□ D-M9□W D-A9□ |
|---|---|
| | Hs |
| **20** | 24.5 |
| **25** | 27 |
| **32** | 30.5 |
| **40** | 35 |

# ⚠ Specific Product Precautions

**Be sure to read this before handling.**

### Speed Adjustment

## ⚠ Caution

**1.** The 10-AS series throttle type speed controllers are recommended for speed adjustment.

**Recommended speed controllers**

| Model | Model | | |
|---|---|---|---|
| | Elbow type | Straight type | In-line type |
| **10-/11-REC20** | 10-AS2201F-01-06-X214 | 10-AS2301F-01-06-X214 | 10-AS2001F-06-X214 |
| **10-/11-REC25** | 10-AS2201F-01-06-X214 | 10-AS2301F-01-06-X214 | 10-AS2001F-06-X214 |
| **10-/11-REC32** | 10-AS2201F-01-06-X214 | 10-AS2301F-01-06-X214 | 10-AS3001F-08-X214 |
| **10-/11-REC40** | 10-AS3201F-02-08-X214 | 10-AS3301F-02-08-X214 | 10-AS3001F-08-X214 |

**2.** Speed control is possible with meter-in and meter-out types of speed controllers. However, smooth acceleration and deceleration may not be obtained by these speed controllers.

**3.** For installation other than horizontal mounting, it is recommended to use a system with reduced pressure supply circuit on the downward side. (This system is also effective for a start delay at rise and air reduction.)

### Cushion Adjustment

## ⚠ Caution

**1.** Cushion adjustment mechanism is not provided.
Cushion adjustment is not necessary because the model can perform smooth acceleration and deceleration in a wide range of strokes without an adjusting cushion.

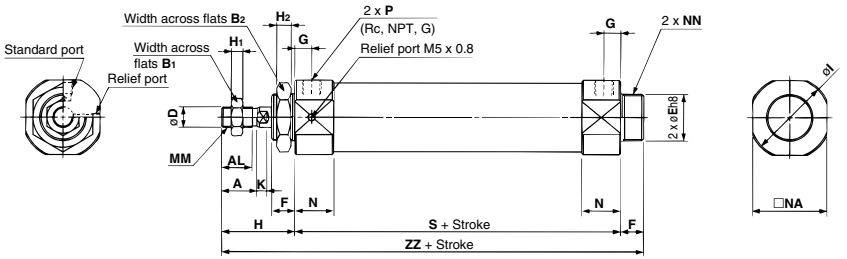
### Relief Port

## ⚠ Caution

**1.** Hexagon socket set screw is not prepared for clean room specifications, and use it as relief port accordingly.

## Dimensions

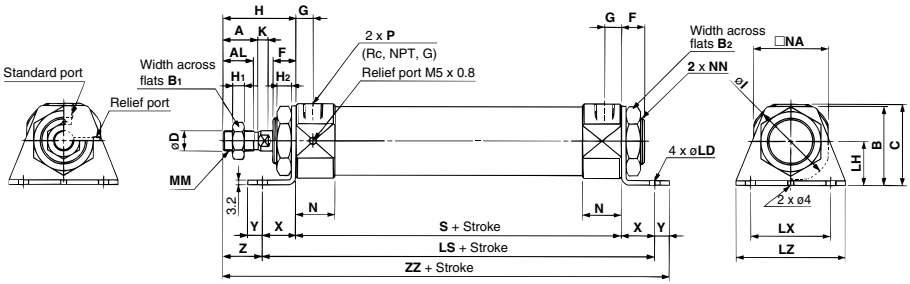
**Basic (B): 10-/11-RECB**




(mm)

| Bore size | Stroke range | A | AL | B1 | B2 | D | E | F | G | H | H1 | H2 | I | K | MM | N | NA | NN | P | S | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 150 to 700 | 18 | 15.5 | 13 | 26 | 8 | $20^{0}_{-0.033}$ | 13 | 10 | 41 | 5 | 8 | 33.5 | 5 | M8 x 1.25 | 20 | 30 | M20 x 1.5 | 1/8 | 146 | 200 |
| 25 | 150 to 700 | 22 | 19.5 | 17 | 32 | 10 | $26^{0}_{-0.033}$ | 13 | 10 | 45 | 6 | 8 | 37.5 | 5.5 | M10 x 1.25 | 20 | 34.5 | M26 x 1.5 | 1/8 | 146 | 204 |
| 32 | 150 to 1000 | 22 | 19.5 | 17 | 32 | 12 | $26^{0}_{-0.033}$ | 13 | 11 | 45 | 6 | 8 | 46.5 | 5.5 | M10 x 1.25 | 22 | 42.5 | M26 x 1.5 | 1/8 | 159 | 217 |
| 40 | 200 to 1000 | 24 | 21 | 22 | 41 | 14 | $32^{0}_{-0.039}$ | 16 | 12.5 | 50 | 8 | 10 | 56.2 | 7 | M14 x 1.5 | 26.5 | 51 | M32 x 2 | 1/4 | 181 | 247 |

**Axial foot (L): 10-/11-RECL**

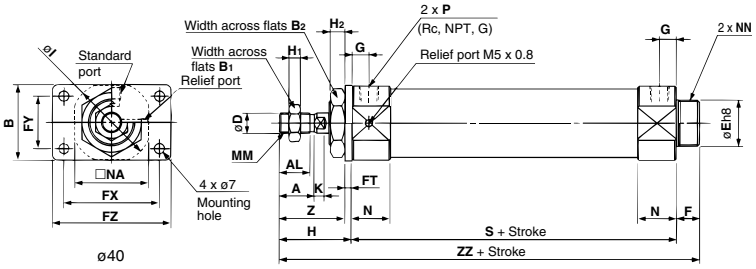



(mm)

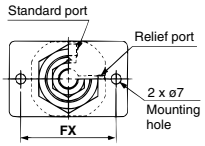
| Bore size | Stroke range | A | AL | B | B1 | B2 | C | D | F | G | H | H1 | H2 | I | K | LD | LH | LS | LX | LZ | MM | N | NA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 150 to 700 | 18 | 15.5 | 40 | 13 | 26 | 40 | 8 | 13 | 10 | 41 | 5 | 8 | 33.5 | 5 | 6.8 | 25 | 186 | 40 | 55 | M8 x 1.25 | 20 | 30 |
| 25 | 150 to 700 | 22 | 19.5 | 47 | 17 | 32 | 45.5 | 10 | 13 | 10 | 45 | 6 | 8 | 37.5 | 5.5 | 6.8 | 28 | 186 | 40 | 55 | M10 x 1.25 | 20 | 34.5 |
| 32 | 150 to 1000 | 22 | 19.5 | 47 | 17 | 32 | 49.5 | 12 | 13 | 11 | 45 | 6 | 8 | 46.5 | 5.5 | 6.8 | 28 | 199 | 40 | 55 | M10 x 1.25 | 22 | 42.5 |
| 40 | 200 to 1000 | 24 | 21 | 54 | 22 | 41 | 55.5 | 14 | 16 | 12.5 | 50 | 8 | 10 | 56.2 | 7 | 7 | 30 | 227 | 55 | 75 | M14 x 1.5 | 26.5 | 51 |

| Bore size | Stroke range | NN | P | S | X | Y | Z | ZZ |
|---|---|---|---|---|---|---|---|---|
| 20 | 150 to 700 | M20 x 1.5 | 1/8 | 146 | 20 | 8 | 21 | 215 |
| 25 | 150 to 700 | M26 x 1.5 | 1/8 | 146 | 20 | 8 | 25 | 219 |
| 32 | 150 to 1000 | M26 x 1.5 | 1/8 | 159 | 20 | 8 | 25 | 232 |
| 40 | 200 to 1000 | M32 x 2 | 1/4 | 181 | 23 | 10 | 27 | 264 |

### Rod flange (F): 10-/11-RECF




ø40



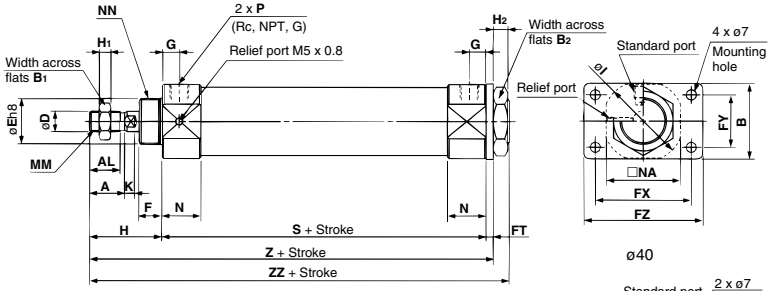

ø20, ø25 and ø32

(mm)

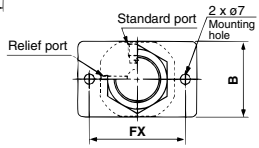
| Bore size | Stroke range | A | AL | B | B1 | B2 | D | E | F | FT | FX | FY | FZ | G | H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 150 to 700 | 18 | 15.5 | 34 | 13 | 26 | 8 | $20^{0}_{-0.033}$ | 13 | 4 | 60 | — | 75 | 10 | 41 |
| 25 | 150 to 700 | 22 | 19.5 | 40 | 17 | 32 | 10 | $26^{0}_{-0.033}$ | 13 | 4 | 60 | — | 75 | 10 | 45 |
| 32 | 150 to 1000 | 22 | 19.5 | 40 | 17 | 32 | 12 | $26^{0}_{-0.033}$ | 13 | 4 | 60 | — | 75 | 11 | 45 |
| 40 | 200 to 1000 | 24 | 21 | 52 | 22 | 41 | 14 | $32^{0}_{-0.039}$ | 16 | 5 | 66 | 36 | 82 | 12.5 | 50 |

| Bore size | Stroke range | H1 | H2 | I | K | MM | N | NA | NN | P | S | Z | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 150 to 700 | 5 | 8 | 33.5 | 5 | M8 x 1.25 | 20 | 30 | M20 x 1.5 | 1/8 | 146 | 37 | 200 |
| 25 | 150 to 700 | 6 | 8 | 37.5 | 5.5 | M10 x 1.25 | 20 | 34.5 | M26 x 1.5 | 1/8 | 146 | 41 | 204 |
| 32 | 150 to 1000 | 6 | 8 | 46.5 | 5.5 | M10 x 1.25 | 22 | 42.5 | M26 x 1.5 | 1/8 | 159 | 41 | 217 |
| 40 | 200 to 1000 | 8 | 10 | 56.2 | 7 | M14 x 1.5 | 26.5 | 51 | M32 x 2 | 1/4 | 181 | 45 | 247 |

### Head flange (G): 10-/11-RECG




ø40




ø20, ø25 and ø32

(mm)

| Bore size | Stroke range | A | AL | B | B1 | B2 | D | E | F | FT | FX | FY | FZ | G | H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 150 to 700 | 18 | 15.5 | 34 | 13 | 26 | 8 | $20^{0}_{-0.033}$ | 13 | 4 | 60 | — | 75 | 10 | 41 |
| 25 | 150 to 700 | 22 | 19.5 | 40 | 17 | 32 | 10 | $26^{0}_{-0.033}$ | 13 | 4 | 60 | — | 75 | 10 | 45 |
| 32 | 150 to 1000 | 22 | 19.5 | 40 | 17 | 32 | 12 | $26^{0}_{-0.033}$ | 13 | 4 | 60 | — | 75 | 11 | 45 |
| 40 | 200 to 1000 | 24 | 21 | 52 | 22 | 41 | 14 | $32^{0}_{-0.039}$ | 16 | 5 | 66 | 36 | 82 | 12.5 | 50 |

| Bore size | Stroke range | H1 | H2 | I | K | MM | N | NA | NN | P | S | Z | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 150 to 700 | 5 | 8 | 33.5 | 5 | M8 x 1.25 | 20 | 30 | M20 x 1.5 | 1/8 | 146 | 191 | 200 |
| 25 | 150 to 700 | 6 | 8 | 37.5 | 5.5 | M10 x 1.25 | 20 | 34.5 | M26 x 1.5 | 1/8 | 146 | 195 | 204 |
| 32 | 150 to 1000 | 6 | 8 | 46.5 | 5.5 | M10 x 1.25 | 22 | 42.5 | M26 x 1.5 | 1/8 | 159 | 208 | 217 |
| 40 | 200 to 1000 | 8 | 10 | 56.2 | 7 | M14 x 1.5 | 26.5 | 51 | M32 x 2 | 1/4 | 181 | 236 | 247 |