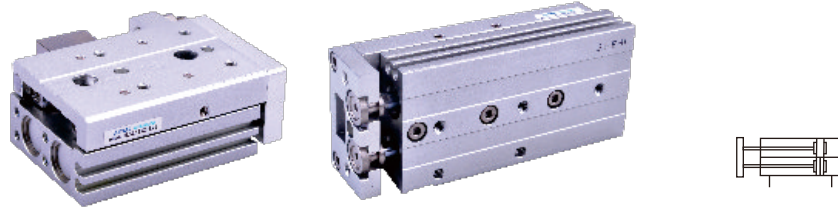




Compact slide cylinder—HLS Series

Roller bearing

Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$



Ordering code

HLS 20 x 30 S A S T



| ① Model |
|--|
| HLS: Compact slide cylinder (Double acting type) (Roller bearing) |
| HLSL: Symmetrical Compact slide cylinder (Double acting type) (Roller bearing) |

| ② Bore Size |
|-----------------|
| 6 8 12 16 20 25 |

| ④ Magnet |
|----------------|
| S: With magnet |

| ⑥ Thread type [Note3] |
|-----------------------|
| T: NPT |

[Note1] Consult us for non-standard stroke.

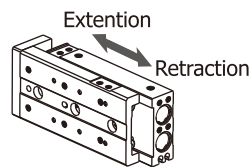
[Note2] B type, BS type, BF type are unavailable for bore size of $\Phi 6$.

[Note3] When the thread is standard, the code is blank.

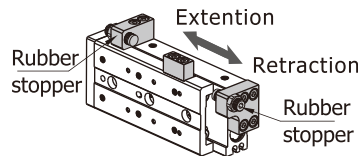
| ③ Stroke [Note1] | | |
|------------------|-------------------------------|----------------|
| Bore size (mm) | Standard stroke (mm) | Max.std stroke |
| 6 | 10 20 30 40 50 | 50 |
| 8 | 10 20 30 40 50 75 | 75 |
| 12 | 10 20 30 40 50 75 100 | 100 |
| 16 | 10 20 30 40 50 75 100 125 | 125 |
| 20 | 10 20 30 40 50 75 100 125 150 | 150 |
| 25 | 10 20 30 40 50 75 100 125 150 | 150 |

| ⑤ Adjuster option [Note2] |
|---------------------------|
|---------------------------|

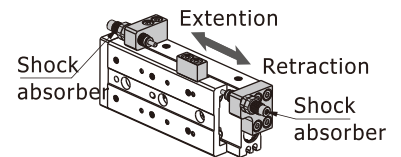
Blank: Without adjuster(Basic type)



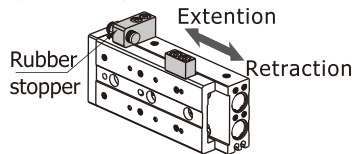
A: Adjustable rubber stopper (Both ends)



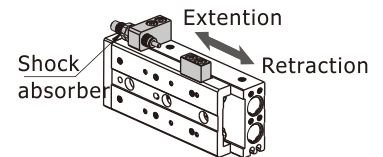
B: Shock absorber(Both ends)



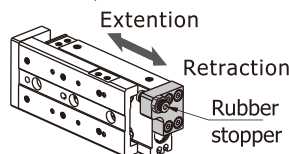
AS: Adjustable rubber stopper (Extention)



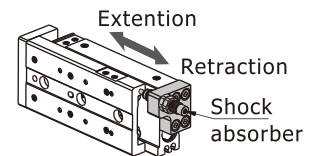
BS: Shock absorber(Extention)



AF: Adjustable rubber stopper (Retraction)



BF: Shock absorber(Retraction)



Compact slide cylinder



HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$

Specification

| Bore size(mm) | 6 | 8 | 12 | 16 | 20 | 25 |
|--------------------|--|---|----|----|-----|----|
| Acting type | Double acting | | | | | |
| Fluid | Air(to be filtered by 40 μ m filter element) | | | | | |
| Operating pressure | 22~100psi(0.15~0.7MPa) | | | | | |
| Proof pressure | 175psi(1.2MPa) | | | | | |
| Temperature | -20~70 $^{\circ}$ C | | | | | |
| Speed range mm/s | 50~500 | | | | | |
| Stroke tolerance | Stroke ≤ 100 $^{+1.0}_0$ Stroke > 100 $^{+1.5}_0$ | | | | | |
| Cushion type | Bumper(Both ends)、Shock absorber | | | | | |
| Sensor switches | CMSH、DMSH(S) | | | | | |
| Port size [Note1] | M5 \times 0.8 | | | | 1/8 | |

[Note1] NPT thread is available.

Criteria for selection: Cylinder thrust

Unit: Newton(N)

| Bore size | Rod size | Acting type | Pressure area(mm ²) | Operating pressure(psi) | | | | | | |
|-----------|----------|---------------|---------------------------------|-------------------------|-----|-----|-----|-----|-----|-----|
| | | | | 30 | 45 | 60 | 75 | 90 | 105 | |
| 6 | 3 | Double acting | Push-side | 42 | 8 | 13 | 17 | 21 | 25 | 29 |
| | | | Pull-side | 57 | 11 | 17 | 23 | 29 | 34 | 40 |
| 8 | 4 | Double acting | Push-side | 75 | 15 | 23 | 30 | 38 | 45 | 53 |
| | | | Pull-side | 101 | 20 | 30 | 40 | 51 | 61 | 71 |
| 12 | 6 | Double acting | Push-side | 170 | 34 | 51 | 68 | 85 | 102 | 119 |
| | | | Pull-side | 226 | 45 | 68 | 90 | 113 | 136 | 158 |
| 16 | 8 | Double acting | Push-side | 302 | 60 | 91 | 121 | 151 | 181 | 211 |
| | | | Pull-side | 402 | 80 | 121 | 161 | 201 | 241 | 281 |
| 20 | 10 | Double acting | Push-side | 471 | 94 | 141 | 188 | 236 | 283 | 330 |
| | | | Pull-side | 628 | 126 | 188 | 251 | 314 | 377 | 440 |
| 25 | 12 | Double acting | Push-side | 756 | 151 | 227 | 302 | 378 | 454 | 529 |
| | | | Pull-side | 982 | 186 | 295 | 393 | 491 | 589 | 687 |

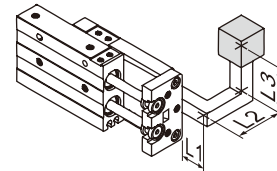


Model Selection Method

Please select compact cylinder's type according to following procedure, and cross reference with data sheets.

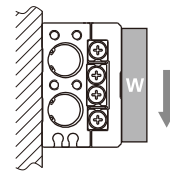
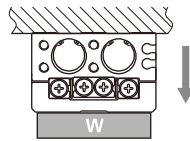
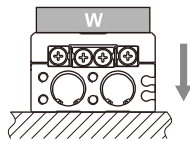
A) Operating conditions(According to mounting position and work form)

1. Model used(Bore size, Stroke)
2. Type of cushion(Bumper, Shock absorber)
3. Mounting position of work(Top, front)
4. Mounting direction(Axial, Vertical)
5. Average speed V_a (mm/s)
6. Applied load W (N) **Fig. 1**
7. Overhang L_1, L_2, L_3 (mm)



Explain: L_1 is the distance of load's center beyond the end plank's plane.
If load's center is not beyond the end plank's plane, L_1 is negative.

Fig. 1: Applied load



B) Kinetic energy check

1. Calculate kinetic energy of load E (J)

$$E = \frac{1}{2} \times \frac{W}{g} \times \left(\frac{1.4 \times V_a}{1000} \right)^2$$

2. Calculate allowable kinetic energy E_a (J)

$$E_a = K \times E_{max}$$

K : Mounting work coefficient (**Fig 2**)

E_{max} : Maximum allowable kinetic energy (**Table 1**)

3. Check that kinetic energy of load doesn't exceed allowable kinetic energy: $E \leq E_a$

C) Load check

1. Calculate allowable applied load W_a (N)

$$W_a = K \times \beta \times W_{max}$$

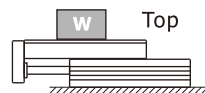
K : Mounting work coefficient (**Fig 2**)

W_{max} : Maximum allowable applied load (**Table 1**)

β : Applied load coefficient (**Fig 3**)

2. Check that load(W) doesn't exceed allowable applied load(W_a): $W \leq W_a$

Fig 2: Mounting work coefficient (K)

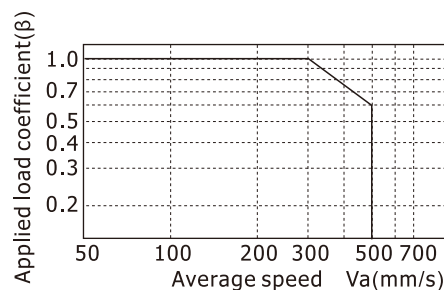


Mounting work coefficient $K=1$



Mounting work coefficient $K=0.6$

Fig 3: Applied load coefficient (β)



Compact slide cylinder

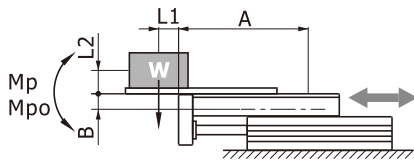
HLS, HLSL Series

Roller bearing

Bore size: Φ6, Φ8, Φ12, Φ16, Φ20, Φ25

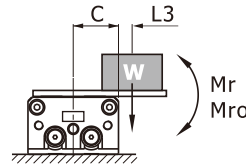
Horizontal

1. Calculate actual moment: M_p , M_{po} , M_y , M_{yo} , M_r , M_{ro} (Nm)



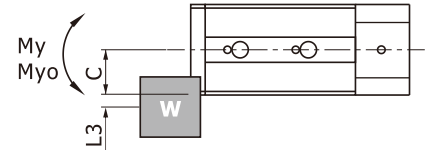
Dynamic moment:
 $M_p = W \times (L_1 + A) / 1000$

Static moment:
 $M_{po} = \frac{W \times (L_1 + A)}{1000} + \frac{W \times a \times (L_2 + B)}{1000 \times g}$



Dynamic moment:
 $M_r = W \times (C + L_3) / 1000$

Static moment:
 $M_{ro} = (W \times a \times (C + L_3)) / 1000g$



Dynamic moment:
 $M_y = 0$

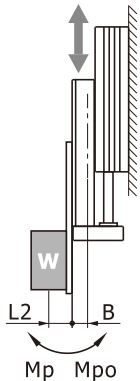
Static moment:
 $M_{yo} = (W \times a \times (C + L_3)) / 1000g$

2. Check

| | |
|--|--|
| Dynamic moment: | Static moment: |
| $\frac{M_p}{M_{p_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_r}{M_{r_{max}}} \leq 1$ | $\frac{M_{po}}{M_{po_{max}}} + \frac{M_{yo}}{M_{yo_{max}}} + \frac{M_{ro}}{M_{ro_{max}}} \leq 1$ |

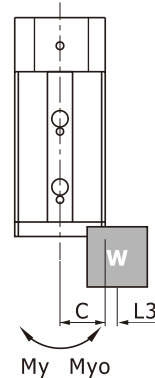
Vertical

1. Calculate actual moment: M_p , M_{po} , M_y , M_{yo} (Nm)



Dynamic moment:
 $M_p = W \times (L_2 + B) / 1000$

Static moment:
 $M_{po} = \frac{W \times (L_2 + B)}{1000} + \frac{W \times a \times (L_2 + B)}{1000 \times g}$



Dynamic moment:
 $M_y = W \times (C + L_3) / 1000$

Static moment:
 $M_{yo} = \frac{W \times a \times (C + L_3)}{1000g} + \frac{W \times (C + L_3)}{1000}$

2. Check

| | |
|--|--|
| Dynamic moment: | Static moment: |
| $\frac{M_p}{M_{p_{max}}} + \frac{M_y}{M_{y_{max}}} \leq 1$ | $\frac{M_{po}}{M_{po_{max}}} + \frac{M_{yo}}{M_{yo_{max}}} \leq 1$ |

Explain:

$L_1/L_2/L_3$: The distance of load center to mount plane (Determined by actuality).

$A/B/C$: Correction value for center position distance of moment (Refer to table 2).

$M_{p_{max}}/M_{y_{max}}/M_{r_{max}}/M_{po_{max}}/M_{yo_{max}}/M_{ro_{max}}$: Maximum allowable moment (Refer to table 2).

g : Acceleration of gravity ($g = 9.81 \text{ m/s}^2$).

a : Acceleration of inertia (Bumper: $a = 1600 \times (V_a/1000)^2$, Shock absorber: $a = 400 \times (V_a/1000)^2$)

W : Load weight (Determined by actuality).

Table 1 Maximum allowable kinetic energy (E_{max}) / Maximum allowable applied load (W_{max})

| Model | Max. allowable kinetic energy E_{max} (J) | | | Max. allowable applied load W_{max} (N) |
|-------|---|---------------------|---------------------|---|
| | Basic type | Rubber stopper type | Shock absorber type | |
| HLS6 | 0.01 | 0.01 | - | 4 |
| HLS8 | 0.024 | 0.024 | 0.048 | 8 |
| HLS12 | 0.05 | 0.05 | 0.1 | 15 |
| HLS16 | 0.1 | 0.1 | 0.2 | 30 |
| HLS20 | 0.13 | 0.13 | 0.26 | 40 |
| HLS25 | 0.22 | 0.22 | 0.44 | 70 |

Table 2 Maximum allowable moment(Nm),
Correction value for center position
distance of moment(mm)

| Bore size | Stroke | Static moment | | | Dynamic moment | | | Correction value | | |
|-----------|--------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|------------------|------|----|
| | | M _{po} _{max} | M _{yo} _{max} | M _{ro} _{max} | M _p _{max} | M _y _{max} | M _r _{max} | A | B | C |
| 6 | 10 | 3.3 | 3.8 | 2.6 | 0.7 | 0.7 | 0.6 | 27 | 7.3 | 16 |
| | 20 | 3.3 | 3.8 | 2.6 | 0.7 | 0.8 | 0.6 | 42 | | |
| | 30 | 3.3 | 3.8 | 2.6 | 0.7 | 0.8 | 0.6 | 52 | | |
| | 40 | 7.2 | 7.9 | 3.6 | 1.3 | 1.3 | 0.6 | 72 | | |
| | 50 | 12.4 | 12.7 | 4.7 | 1.8 | 1.8 | 0.6 | 87 | | |
| 8 | 10 | 10.1 | 9.1 | 8.8 | 2.5 | 2.5 | 2.0 | 32 | 8.5 | 20 |
| | 20 | 10.1 | 9.1 | 8.8 | 2.6 | 2.6 | 2.0 | 42 | | |
| | 30 | 10.1 | 9.1 | 8.8 | 2.8 | 2.8 | 2.0 | 57 | | |
| | 40 | 12.4 | 10.8 | 10.1 | 3.4 | 3.4 | 2.3 | 72 | | |
| | 50 | 23.6 | 24.8 | 13.9 | 4.4 | 4.4 | 2.1 | 92 | | |
| 12 | 75 | 32.8 | 35.3 | 16.4 | 4.6 | 4.6 | 1.8 | 132 | 10 | 25 |
| | 10 | 33.0 | 34.3 | 30.9 | 7.3 | 7.3 | 5.8 | 48 | | |
| | 20 | 33.0 | 34.3 | 30.9 | 7.6 | 7.6 | 5.8 | 58 | | |
| | 30 | 33.0 | 34.3 | 30.9 | 7.8 | 7.8 | 5.8 | 68 | | |
| | 40 | 33.0 | 34.3 | 30.9 | 8.0 | 8.0 | 5.8 | 78 | | |
| 16 | 50 | 53.4 | 49.6 | 39.7 | 9.8 | 9.8 | 5.8 | 88 | 11 | 30 |
| | 75 | 78.8 | 71.9 | 48.6 | 14.2 | 14.2 | 6.8 | 125 | | |
| | 100 | 78.8 | 71.9 | 48.6 | 14.7 | 14.7 | 6.8 | 160 | | |
| | 10 | 33.0 | 34.3 | 30.9 | 8.8 | 8.8 | 7.6 | 43 | | |
| | 20 | 33.0 | 34.3 | 30.9 | 9.2 | 9.2 | 7.6 | 53 | | |
| 20 | 30 | 33.0 | 34.3 | 30.9 | 9.5 | 9.5 | 7.6 | 63 | | |
| | 40 | 33.0 | 34.3 | 30.9 | 10.0 | 10.0 | 7.6 | 78 | | |
| | 50 | 53.4 | 49.6 | 39.7 | 12.2 | 12.2 | 7.6 | 93 | | |
| | 75 | 78.8 | 71.9 | 48.6 | 17.6 | 17.6 | 8.9 | 130 | | |
| | 100 | 78.8 | 71.9 | 48.6 | 18.2 | 18.2 | 8.9 | 165 | | |
| 25 | 125 | 143.7 | 144.5 | 53.3 | 24.8 | 24.8 | 7.8 | 204 | 16.5 | 35 |
| | 10 | 60.1 | 50.5 | 72.8 | 14.5 | 14.5 | 15.2 | 47 | | |
| | 20 | 60.1 | 50.5 | 72.8 | 15.2 | 15.2 | 15.2 | 57 | | |
| | 30 | 60.1 | 50.5 | 72.8 | 15.7 | 15.7 | 15.2 | 67 | | |
| | 40 | 60.1 | 50.5 | 72.8 | 16.3 | 16.3 | 15.2 | 82 | | |
| 25 | 50 | 60.1 | 50.5 | 72.8 | 16.6 | 16.6 | 15.2 | 92 | 20.3 | 42 |
| | 75 | 169.3 | 154.3 | 114.4 | 41.2 | 41.2 | 22.0 | 136 | | |
| | 100 | 169.3 | 154.3 | 114.4 | 42.8 | 42.8 | 22.0 | 176 | | |
| | 125 | 169.3 | 154.3 | 114.4 | 43.6 | 43.6 | 22.0 | 205 | | |
| | 150 | 267.5 | 286.6 | 145.6 | 49.0 | 49.0 | 20.5 | 249 | | |
| 25 | 10 | 60.1 | 50.5 | 72.8 | 16.3 | 16.3 | 17.6 | 52 | | |
| | 20 | 60.1 | 50.5 | 72.8 | 17.0 | 17.0 | 17.6 | 62 | | |
| | 30 | 60.1 | 50.5 | 72.8 | 17.4 | 17.4 | 17.6 | 72 | | |
| | 40 | 60.1 | 50.5 | 72.8 | 17.8 | 17.8 | 17.6 | 82 | | |
| | 50 | 60.1 | 50.5 | 72.8 | 18.2 | 18.2 | 17.6 | 96 | | |
| 25 | 75 | 169.3 | 154.3 | 114.4 | 45.2 | 45.2 | 25.3 | 141 | | |
| | 100 | 169.3 | 154.3 | 114.4 | 46.2 | 46.2 | 25.3 | 165 | | |
| | 125 | 169.3 | 154.3 | 114.4 | 48.0 | 48.0 | 25.3 | 210 | | |
| | 150 | 267.5 | 286.6 | 145.6 | 65.0 | 65.0 | 28.3 | 254 | | |

Note Symbol and unit

| Symbol | Item | Unit |
|--|---|------------------|
| A B C | Correction value for center position distance of moment | mm |
| a | Acceleration of inertia | - |
| E | Kinetic energy | J |
| Ea | Allowable kinetic energy | J |
| E _{max} | Maximum allowable kinetic energy | J |
| g | Acceleration of gravity g=9.81 | m/s ² |
| K | Mounting work coefficient | - |
| L1 L2 L3 | Overhang | mm |
| M _p M _y M _r | Dynamic moment(Pitch,Yaw,Roll) | Nm |
| M _p _{max} M _y _{max} M _r _{max} | Maximum allowable dynamic moment (Pitch,Yaw,Roll) | Nm |
| M _{po} M _{yo} M _{ro} | Static moment(Pitch,Yaw,Roll) | Nm |
| M _{po} _{max} M _{yo} _{max} M _{ro} _{max} | Maximum allowable static moment (Pitch,Yaw,Roll) | Nm |
| V _a | Average speed | mm/s |
| W | Applied load | N |
| W _{max} | Maximum allowable applied load | N |
| β | Applied load coefficient | - |

Compact slide cylinder



HLS, HLSL Series

Roller bearing

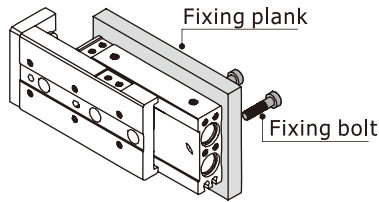
Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$

Installation and application

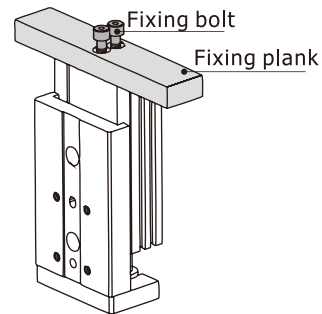
1. How to mount cylinder:

1.1) Cylinder can to be mounted from 3 directions

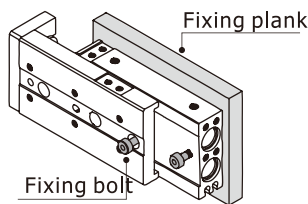
Vertical Mounting(Body thread holes)



Axial Mounting(Body thread holes)

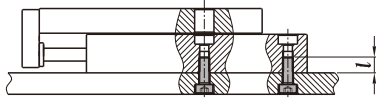


Vertical Mounting(Body through holes)



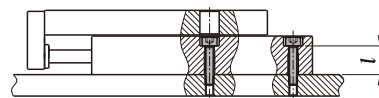
1.2) When mounting an compact slide cylinder, screws of appropriate length should be used and tightened properly within the maximum tightening torque. If screws are tightened beyond designed limits, malfunction may occur. If they are tightened insufficiently, it may result in sliding or falling off from its position.

Vertical Mounting(Body thread holes)



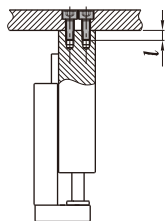
| Model | Bolt used | Max. tightening torque (Nm) | Max. screw-in depth(mm) |
|-------|-----------|-----------------------------|-------------------------|
| HLS6 | M4×0.7 | 2.1 | 8 |
| HLS8 | M4×0.7 | 2.1 | 8 |
| HLS12 | M5×0.8 | 4.4 | 10 |
| HLS16 | M6×1.0 | 4.4 | 10 |
| HLS20 | M6×1.0 | 7.4 | 12 |
| HLS25 | M8×1.25 | 18.0 | 16 |

Vertical Mounting(Body through holes)



| Model | Bolt used | Max. tightening torque (Nm) | Max. screw-in depth(mm) |
|-------|-----------|-----------------------------|-------------------------|
| HLS6 | M3×0.5 | 1.2 | 11.0 |
| HLS8 | M3×0.5 | 1.2 | 12.5 |
| HLS12 | M4×0.7 | 2.8 | 18.0 |
| HLS16 | M5×0.8 | 5.7 | 25.0 |
| HLS20 | M5×0.8 | 5.7 | 28.0 |
| HLS25 | M6×1.0 | 10.0 | 36.2 |

Axial Mounting(Body thread holes)

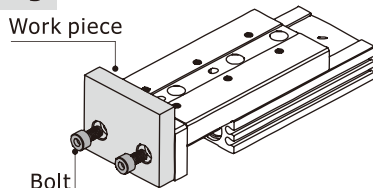


| Model | Bolt used | Max. tightening torque (Nm) | Max. screw-in depth(mm) |
|-------|-----------|-----------------------------|-------------------------|
| HLS6 | M2.5×0.45 | 0.5 | 3.5 |
| HLS8 | M3×0.5 | 0.9 | 4.0 |
| HLS12 | M4×0.7 | 2.1 | 6.0 |
| HLS16 | M5×0.8 | 4.4 | 7.0 |
| HLS20 | M5×0.8 | 4.4 | 8.0 |
| HLS25 | M6×1.0 | 7.4 | 10.0 |

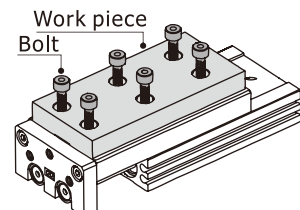
2. Work Piece Mounting:

2.1) Work pieces can be mounted on 2 surfaces of the compact slide.

Front Mounting



Top Mounting



Compact slide cylinder

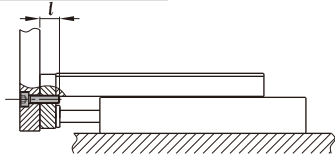
HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$

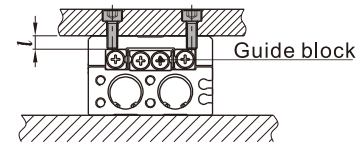
2.2) When mounting a work piece, tighten the bolts properly at a torque value within the limiting range. Use blots at least 0.5mm shorter than maximum thread depth to prevent bolts from contacting the guide block. If the bolts are too long, they hit the guide block and cause damage.

Front Mounting



| Model | Bolt used | Max. tightening torque (Nm) | Max. screw-in depth(mm) |
|-------|-----------|-----------------------------|-------------------------|
| HLS6 | M3×0.4 | 0.9 | 5 |
| HLS8 | M4×0.7 | 2.1 | 6 |
| HLS12 | M5×0.8 | 4.4 | 8 |
| HLS16 | M6×1.0 | 7.4 | 10 |
| HLS20 | M6×1.0 | 7.4 | 13 |
| HLS25 | M8×1.25 | 18.0 | 15 |

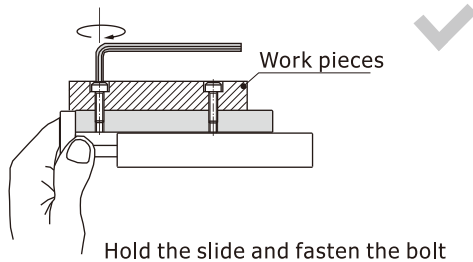
Top Mounting



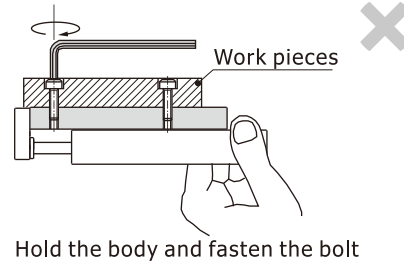
| Model | Bolt used | Max. tightening torque (Nm) | Max. screw-in depth(mm) |
|-------|-----------|-----------------------------|-------------------------|
| HLS6 | M3×0.5 | 0.9 | 4.0 |
| HLS8 | M3×0.5 | 0.9 | 5.0 |
| HLS12 | M4×0.7 | 2.1 | 5.5 |
| HLS16 | M5×0.8 | 4.4 | 6.0 |
| HLS20 | M5×0.8 | 4.4 | 10.0 |
| HLS25 | M6×1.0 | 7.4 | 13.0 |

2.3) Since the table is supported by the linear guide, take care not to apply strong impact or large moment to the guide section.

2.4) Hold the slide when fastening work pieces to it with bolts, If the body is held while tightening bolts, excessive moment may damage guide section.



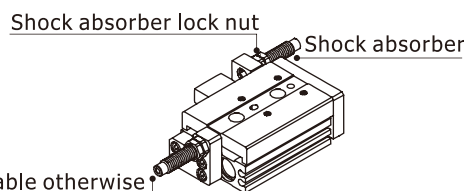
Hold the slide and fasten the bolt



Hold the body and fasten the bolt

3. About shock absorber:

- 3.1) Shock absorbers are expendable. Promptly replace them when energy absorbing capacity decreases.
- 3.2) Never turn or adjust the screws on bottom of the shock absorber body. The screws are not for adjusting. Otherwise would cause oil leakage.
- 3.3) Follow the table for tightening torque of shock absorber to lock nuts.



The screws are not adjustable otherwise would cause oil leakage.

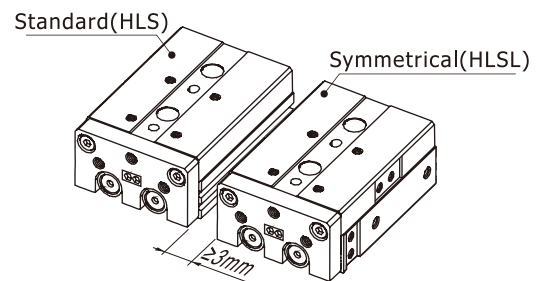
| Model | Shock absorber | Tightening torque |
|-------|------------------------|-------------------|
| HLS6 | Without shock absorber | |
| HLS8 | ACA0806-1N | 1.67(Nm) |
| HLS12 | ACA0806-1N | 1.67(Nm) |
| HLS16 | ACA1007-1N | 3.14(Nm) |
| HLS20 | ACA1210-1N | 3.14(Nm) |
| HLS25 | ACA1412-1N | 10.8(Nm) |

4. How to mount sensor switch:

- 4.1) HLS Series are all with magnet. The matching sensor switches are DS1-H, DS1-HL series.
- 4.2) Maintain a minimum spacing of at least 3mm if two compact cylinders are used side by side in order to avoid malfunction.

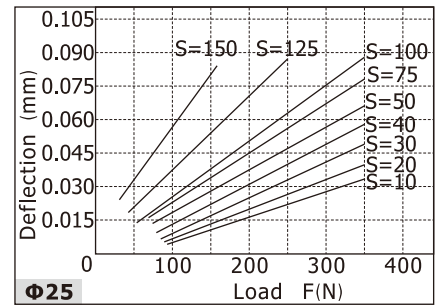
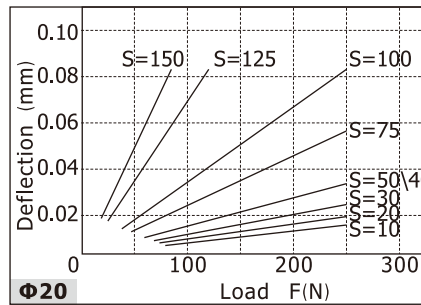
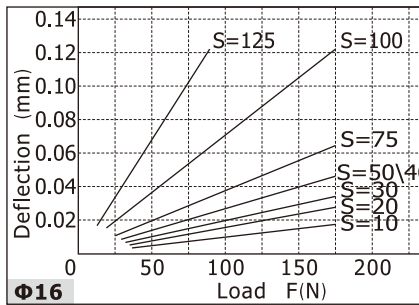
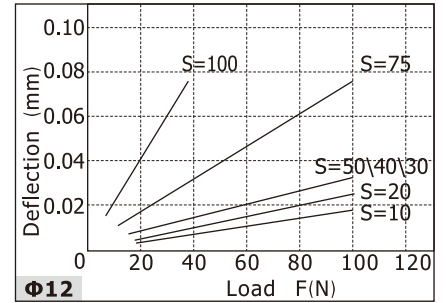
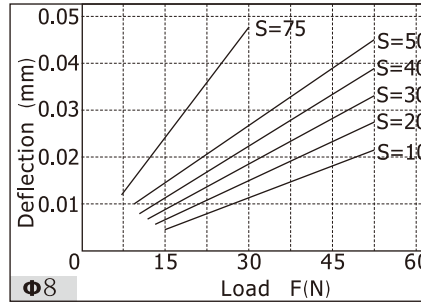
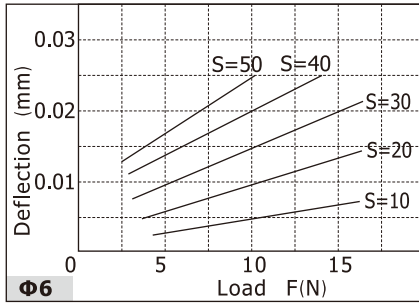
5. Make sure to connect the compact cylinder to speed controller at the meter-out side, and the speed of compact cylinder must below 500mm/s.

6. Don't apply a load beyond the range of the operation limits. Different load or torque will cause different deflection to table, please see below for details.



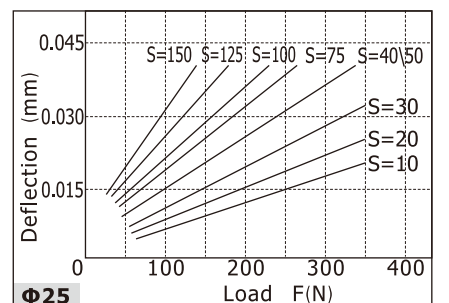
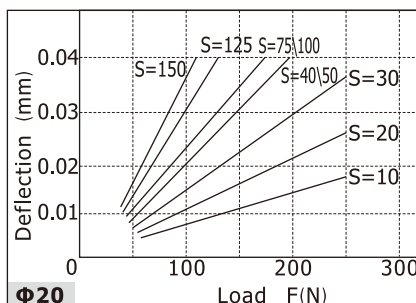
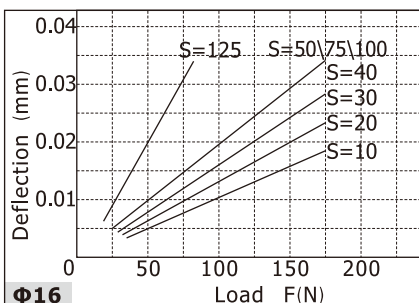
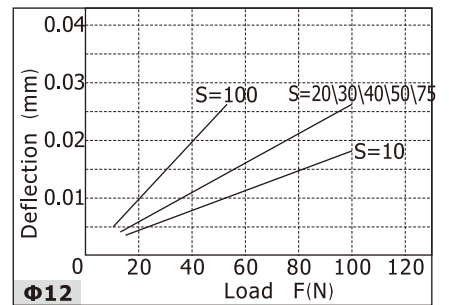
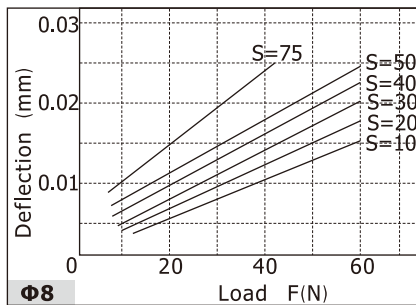
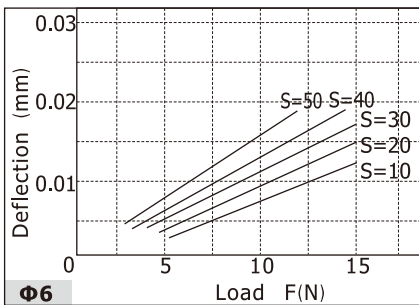
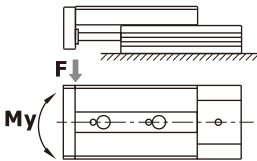
6.1) Table deflection due to pitch moment:

Table deflection (arrow) when a load acts upon the section marked with the arrow at the full stroke of the compact slide.



6.2) Table deflection due to yaw moment:

Table deflection (arrow) when a load acts upon the section marked with the arrow at the full stroke of the compact slide.



Compact slide cylinder

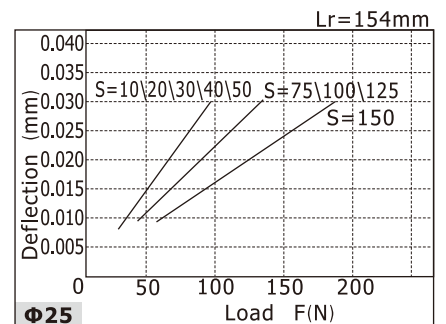
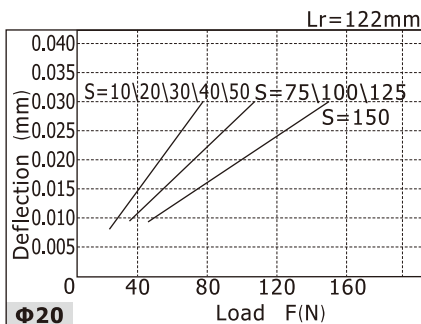
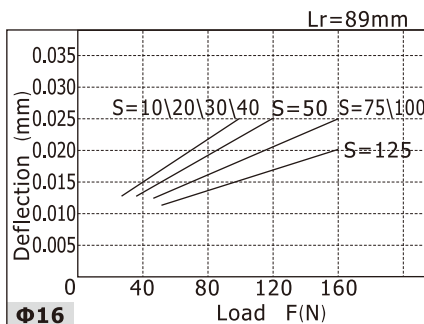
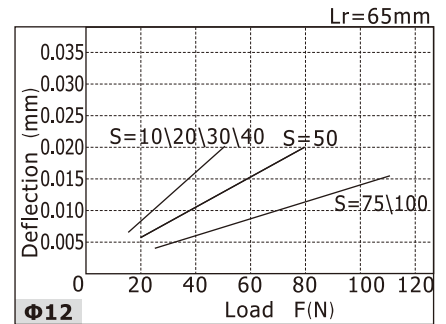
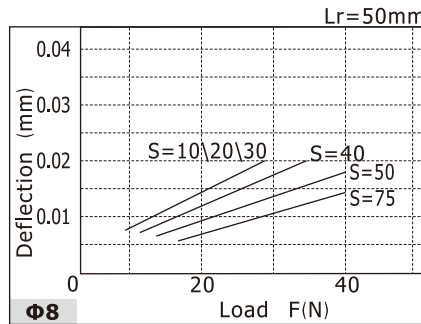
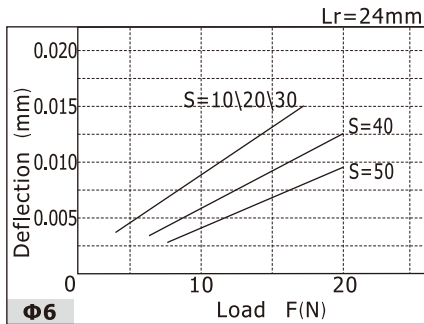
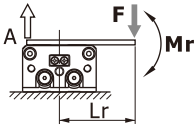
HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$

6.3) Table deflection due to roll moment:

Table deflects (A) when a load acts upon section F at the full stroke of the compact slide.



Compact slide cylinder



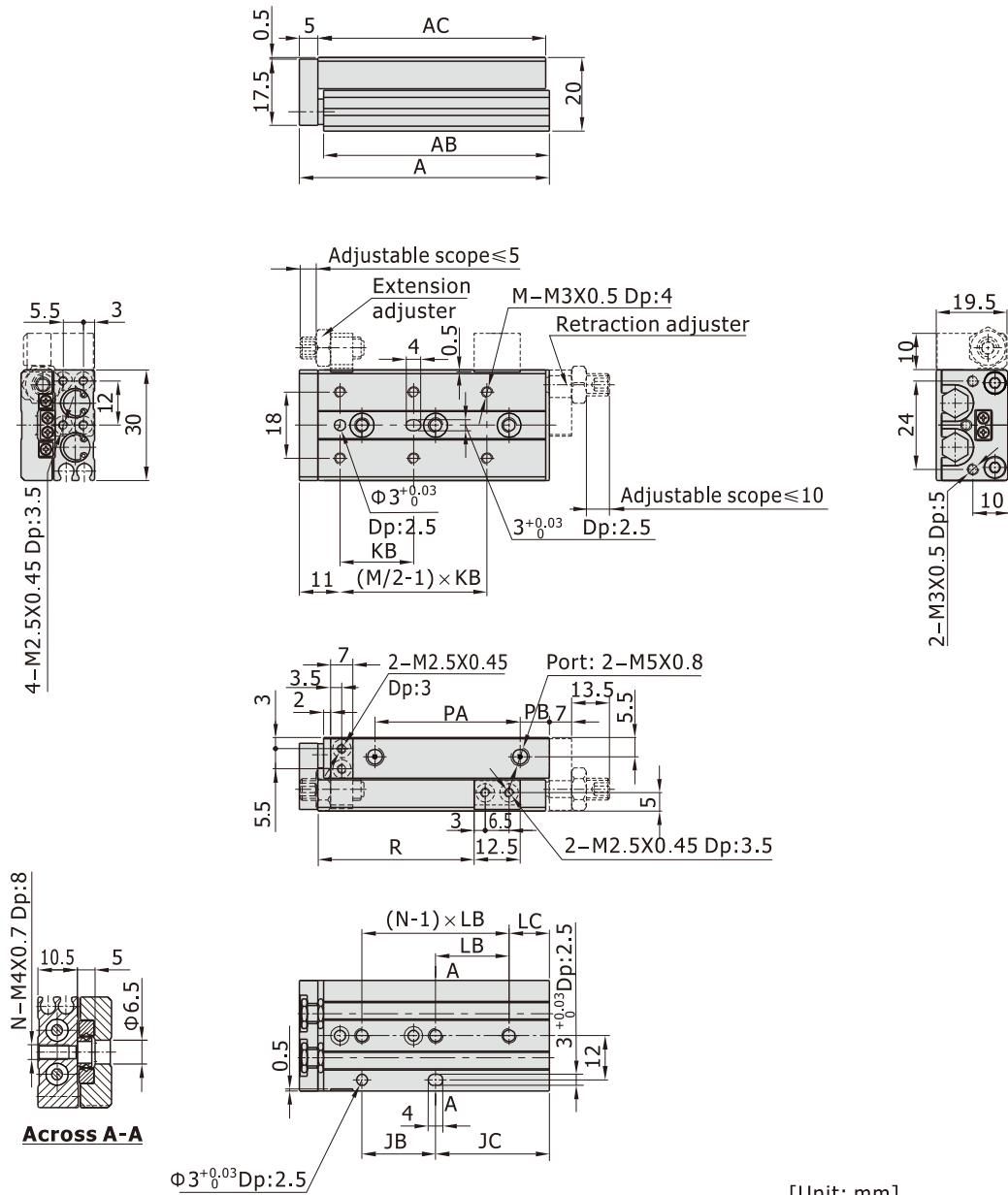
HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$

Dimensions

HLS6



[Unit: mm]

| Stroke\Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | PA | PB | R |
|-------------|-----|------|-----|----|----|----|----|----|---|---|----|----|------|
| 10 | 48 | 41.5 | 42 | 20 | 11 | 20 | 25 | 6 | 4 | 2 | 19 | 8 | 21.5 |
| 20 | 58 | 51.5 | 52 | 20 | 21 | 30 | 35 | 6 | 4 | 2 | 28 | 9 | 31.5 |
| 30 | 68 | 61.5 | 62 | 20 | 31 | 20 | 20 | 11 | 6 | 3 | 39 | 8 | 41.5 |
| 40 | 90 | 83.5 | 84 | 30 | 43 | 28 | 30 | 13 | 6 | 3 | 51 | 18 | 51.5 |
| 50 | 106 | 99.5 | 100 | 48 | 41 | 38 | 24 | 17 | 6 | 4 | 61 | 24 | 61.5 |

Compact slide cylinder

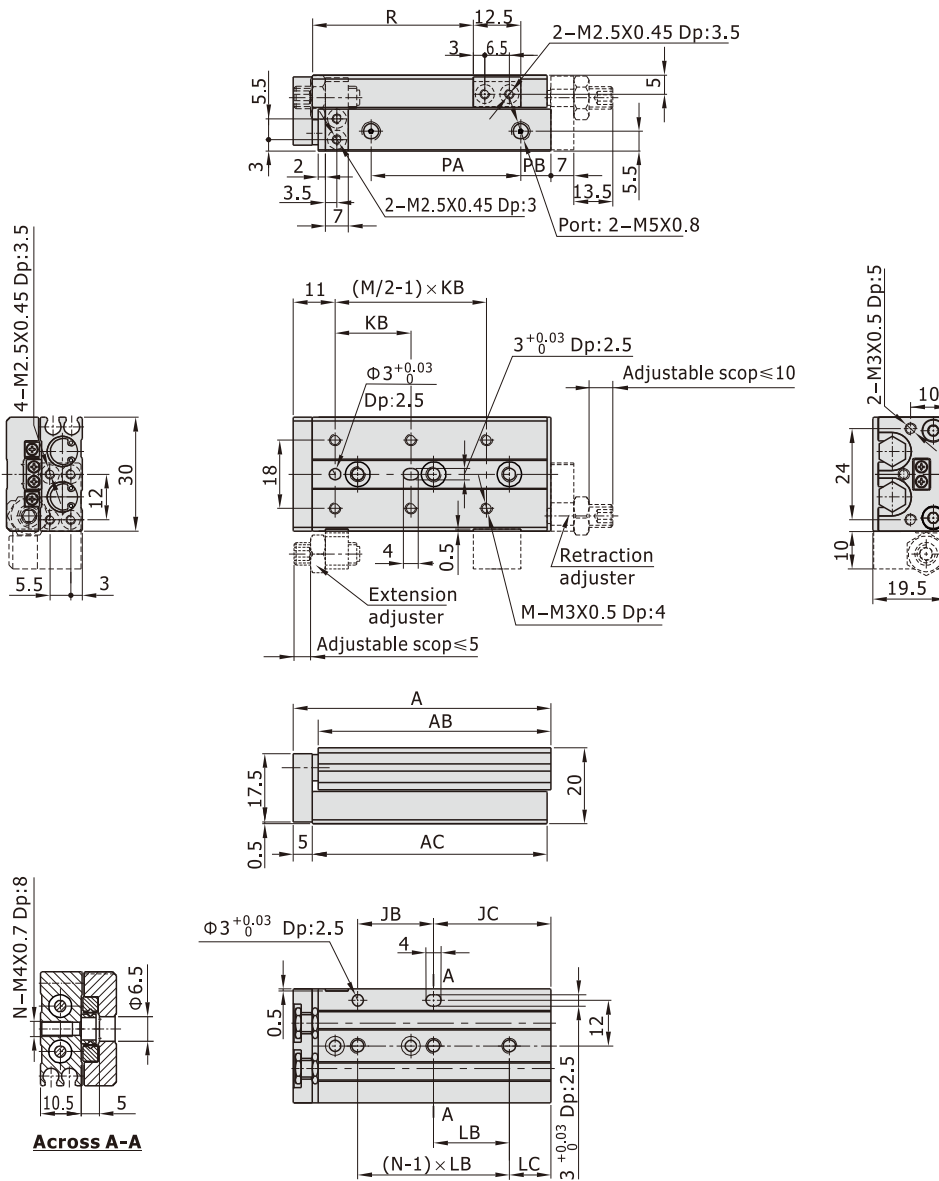


HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$

HLSL6



[Unit: mm]

| Stroke/Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | PA | PB | R |
|-------------|-----|------|-----|----|----|----|----|----|---|---|----|----|------|
| 10 | 48 | 41.5 | 42 | 20 | 11 | 20 | 25 | 6 | 4 | 2 | 19 | 8 | 21.5 |
| 20 | 58 | 51.5 | 52 | 20 | 21 | 30 | 35 | 6 | 4 | 2 | 28 | 9 | 31.5 |
| 30 | 68 | 61.5 | 62 | 20 | 31 | 20 | 20 | 11 | 6 | 3 | 39 | 8 | 41.5 |
| 40 | 90 | 83.5 | 84 | 30 | 43 | 28 | 30 | 13 | 6 | 3 | 51 | 18 | 51.5 |
| 50 | 106 | 99.5 | 100 | 48 | 41 | 38 | 24 | 17 | 6 | 4 | 61 | 24 | 61.5 |



Compact slide cylinder

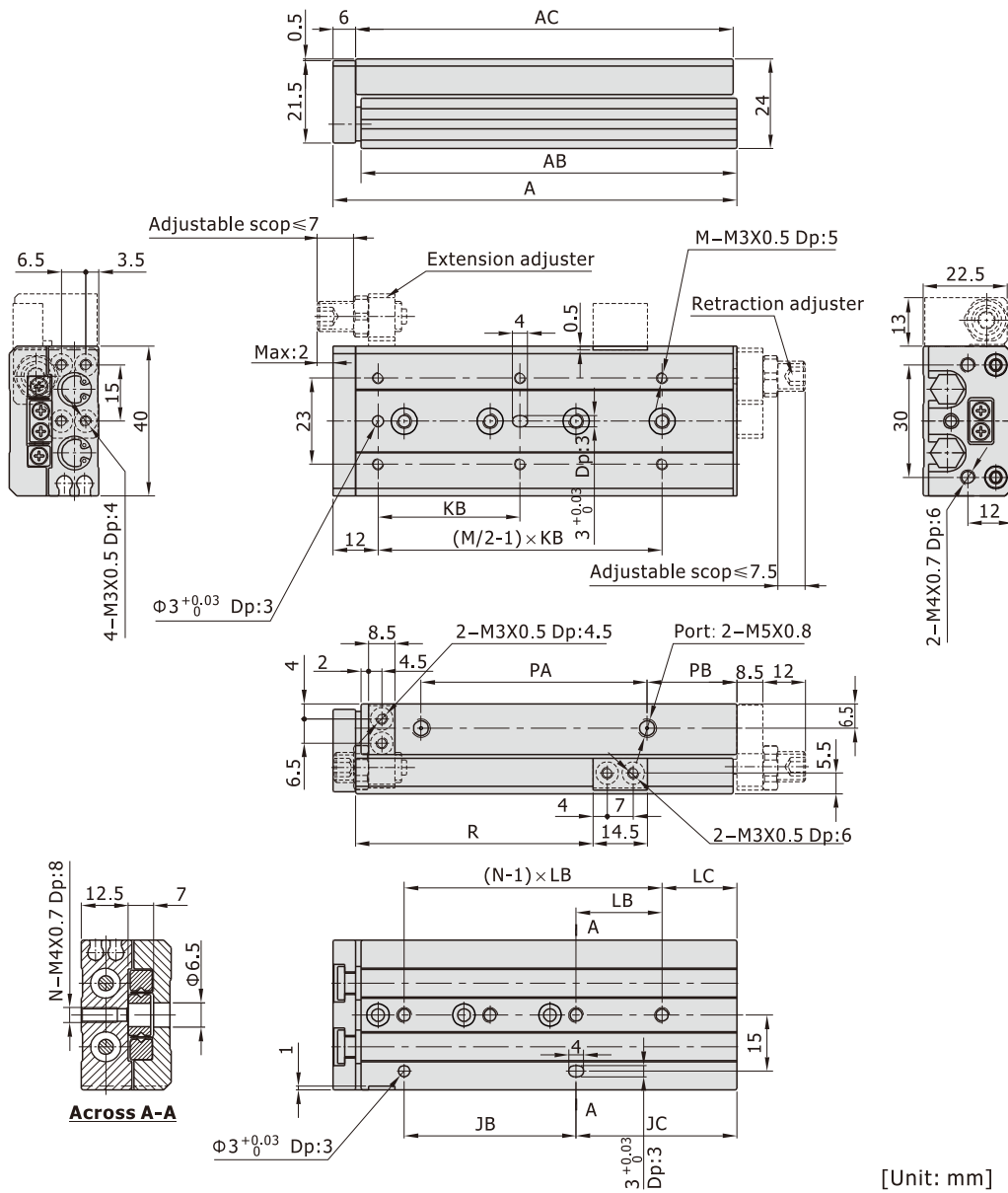
AIRTAC

HLS, HLSSL Series

Roller bearing

Bore size: $\Phi 6, \Phi 8, \Phi 12, \Phi 16, \Phi 20, \Phi 25$

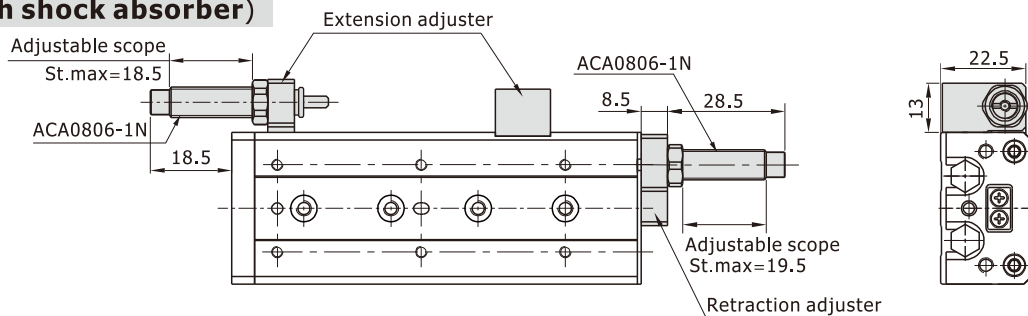
HLS8



[Unit: mm]

| Stroke\Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | PA | PB | R |
|-------------|-----|-------|-----|----|----|----|----|----|---|---|------|------|------|
| 10 | 56 | 48.5 | 49 | 20 | 17 | 25 | 28 | 9 | 4 | 2 | 19.5 | 12.5 | 23.5 |
| 20 | 61 | 53.5 | 54 | 30 | 12 | 25 | 30 | 12 | 4 | 2 | 30 | 7 | 33.5 |
| 30 | 72 | 64.5 | 65 | 20 | 33 | 40 | 20 | 13 | 4 | 3 | 41 | 7 | 43.5 |
| 40 | 90 | 82.5 | 83 | 28 | 43 | 50 | 28 | 15 | 4 | 3 | 56 | 10 | 53.5 |
| 50 | 108 | 100.5 | 101 | 46 | 43 | 38 | 23 | 20 | 6 | 4 | 68 | 16 | 63.5 |
| 75 | 158 | 150.5 | 151 | 56 | 83 | 50 | 28 | 27 | 6 | 5 | 94 | 40 | 88.5 |

HLS8(With shock absorber)



Compact slide cylinder

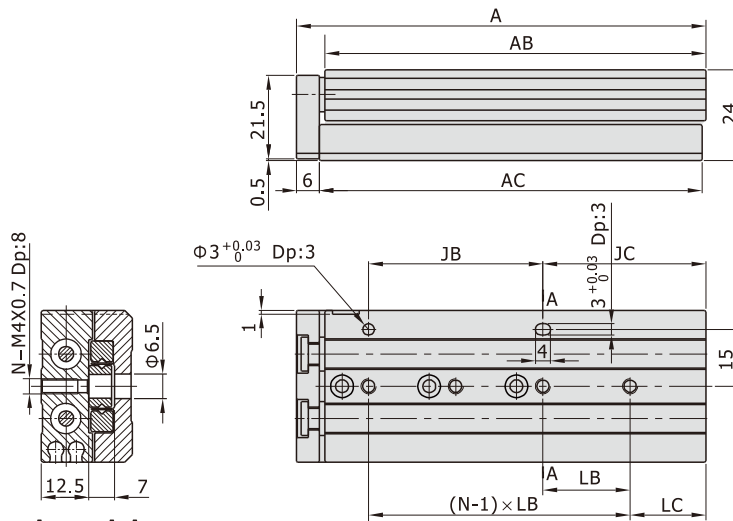
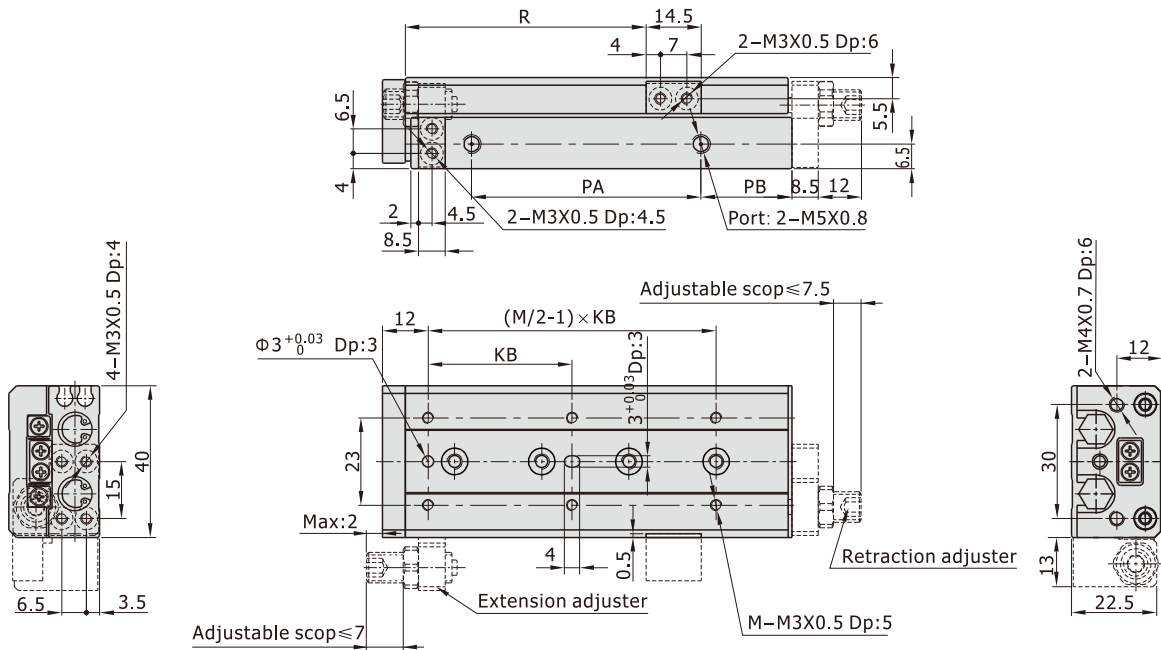


HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6, \Phi 8, \Phi 12, \Phi 16, \Phi 20, \Phi 25$

HLSL8

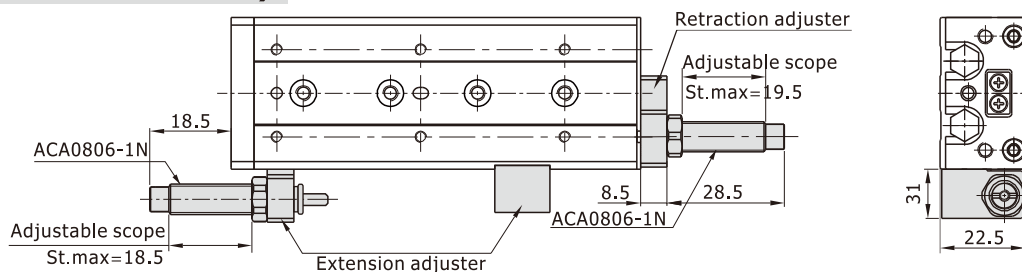


Across A-A

[Unit: mm]

| Stroke\Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | PA | PB | R |
|-------------|-----|-------|-----|----|----|----|----|----|---|---|------|------|------|
| 10 | 56 | 48.5 | 49 | 20 | 17 | 25 | 28 | 9 | 4 | 2 | 19.5 | 12.5 | 23.5 |
| 20 | 61 | 53.5 | 54 | 30 | 12 | 25 | 30 | 12 | 4 | 2 | 30 | 7 | 33.5 |
| 30 | 72 | 64.5 | 65 | 20 | 33 | 40 | 20 | 13 | 4 | 3 | 41 | 7 | 43.5 |
| 40 | 90 | 82.5 | 83 | 28 | 43 | 50 | 28 | 15 | 4 | 3 | 56 | 10 | 53.5 |
| 50 | 108 | 100.5 | 101 | 46 | 43 | 38 | 23 | 20 | 6 | 4 | 68 | 16 | 63.5 |
| 75 | 158 | 150.5 | 151 | 56 | 83 | 50 | 28 | 27 | 6 | 5 | 94 | 40 | 88.5 |

HLSL8(With shock absorber)



Compact slide cylinder

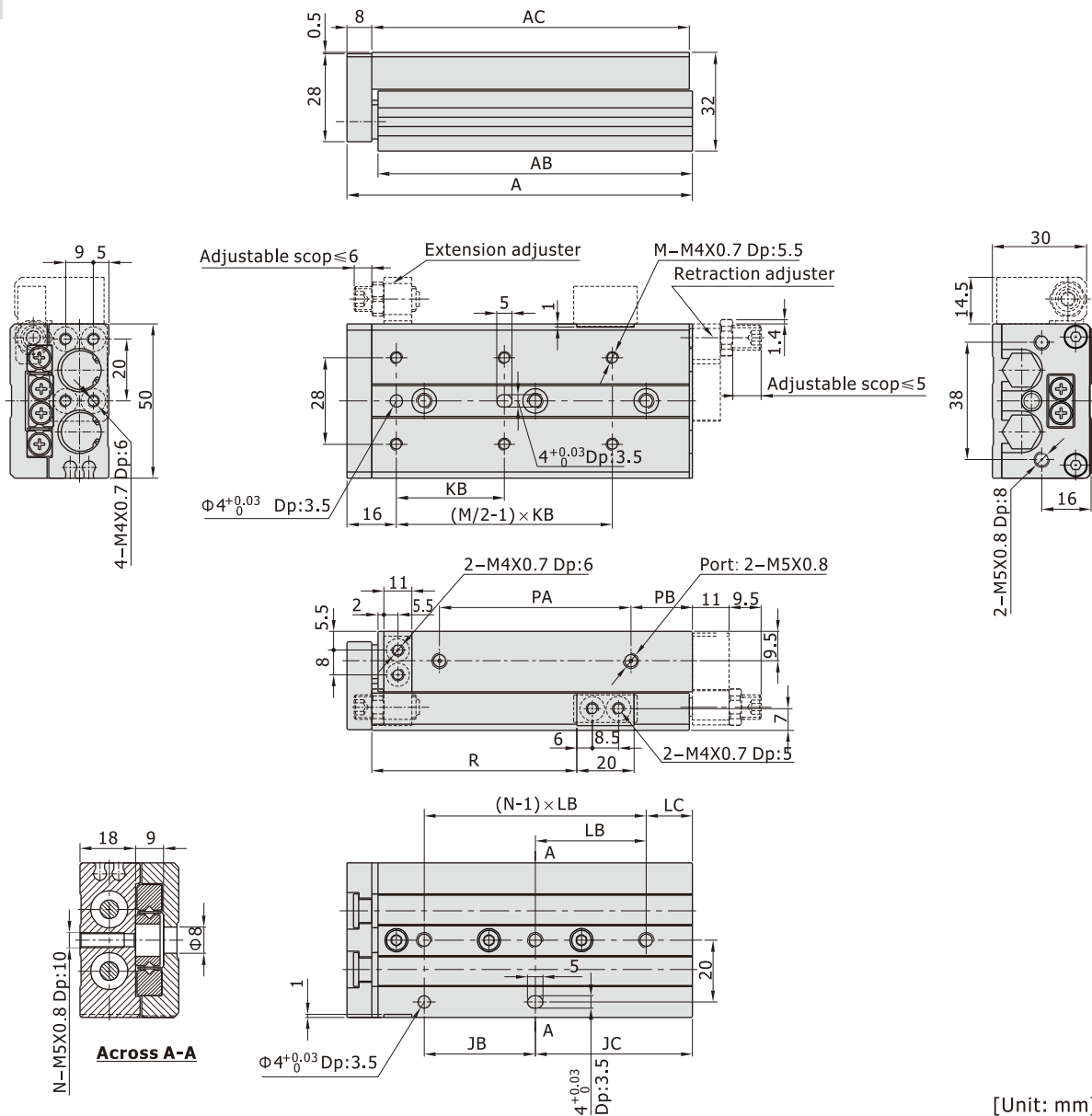


HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$

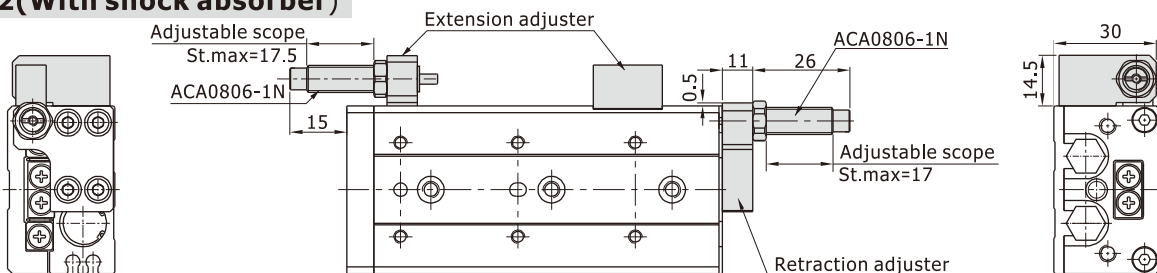
HLS12



[Unit: mm]

| Stroke/Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | PA | PB | R |
|-------------|-----|-----|-----|----|-----|----|----|----|---|---|-------|----|-----|
| 10 | 80 | 70 | 71 | 40 | 15 | 35 | 40 | 15 | 4 | 2 | 39.5 | 10 | 25 |
| 20 | 80 | 70 | 71 | 40 | 15 | 35 | 40 | 15 | 4 | 2 | 39.5 | 10 | 35 |
| 30 | 80 | 70 | 71 | 40 | 15 | 35 | 40 | 15 | 4 | 2 | 39.5 | 10 | 45 |
| 40 | 92 | 82 | 83 | 25 | 42 | 50 | 25 | 17 | 4 | 3 | 51.5 | 10 | 55 |
| 50 | 112 | 102 | 103 | 36 | 51 | 35 | 36 | 15 | 6 | 3 | 61.5 | 20 | 65 |
| 75 | 158 | 148 | 149 | 72 | 61 | 55 | 36 | 25 | 6 | 4 | 87.5 | 40 | 90 |
| 100 | 212 | 202 | 203 | 76 | 111 | 65 | 38 | 35 | 6 | 5 | 131.5 | 50 | 115 |

HLS12(With shock absorber)



Compact slide cylinder

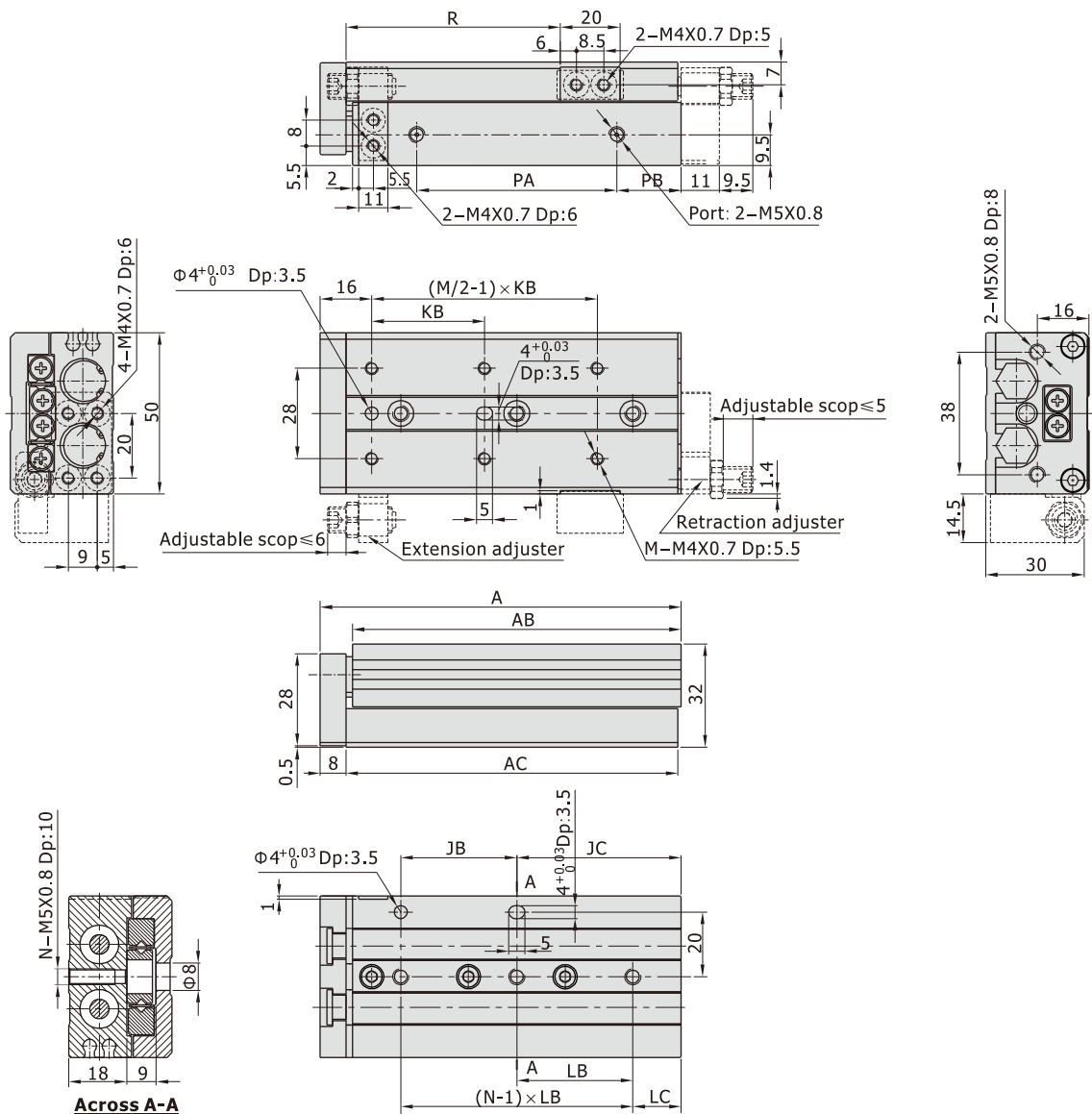


HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$

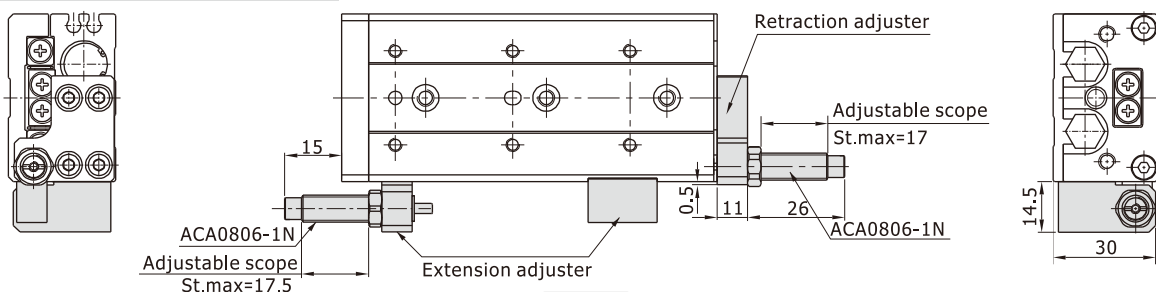
HLSL12



[Unit: mm]

| Stroke/Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | PA | PB | R |
|-------------|-----|-----|-----|----|-----|----|----|----|---|---|-------|----|-----|
| 10 | 80 | 70 | 71 | 40 | 15 | 35 | 40 | 15 | 4 | 2 | 39.5 | 10 | 25 |
| 20 | 80 | 70 | 71 | 40 | 15 | 35 | 40 | 15 | 4 | 2 | 39.5 | 10 | 35 |
| 30 | 80 | 70 | 71 | 40 | 15 | 35 | 40 | 15 | 4 | 2 | 39.5 | 10 | 45 |
| 40 | 92 | 82 | 83 | 25 | 42 | 50 | 25 | 17 | 4 | 3 | 51.5 | 10 | 55 |
| 50 | 112 | 102 | 103 | 36 | 51 | 35 | 36 | 15 | 6 | 3 | 61.5 | 20 | 65 |
| 75 | 158 | 148 | 149 | 72 | 61 | 55 | 36 | 25 | 6 | 4 | 87.5 | 40 | 90 |
| 100 | 212 | 202 | 203 | 76 | 111 | 65 | 38 | 35 | 6 | 5 | 131.5 | 50 | 115 |

HLSL12(With shock absorber)



Compact slide cylinder

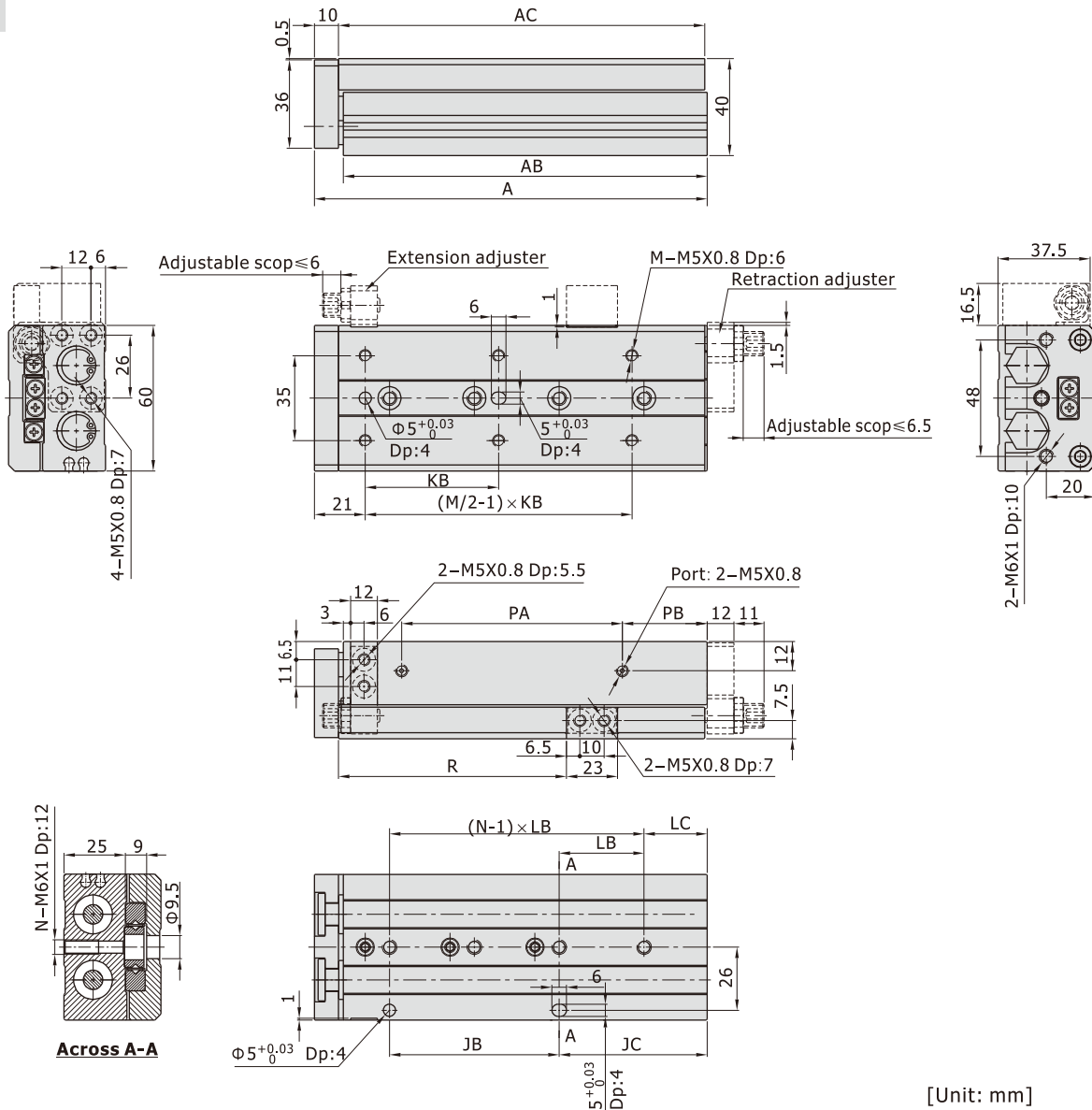


HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$

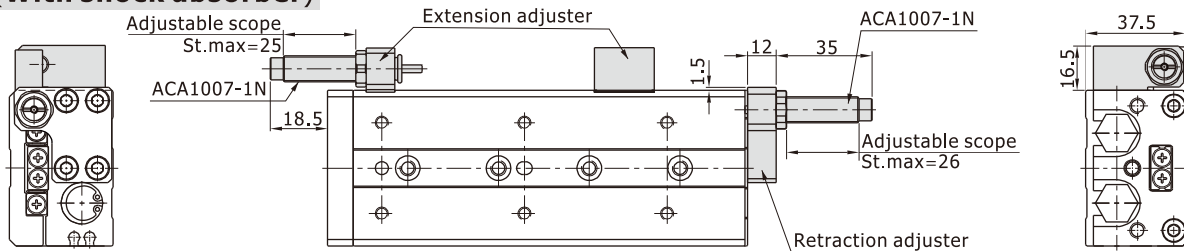
HLS16



[Unit: mm]

| Stroke | Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | PA | PB | R |
|--------|------|-----|-----|-----|----|-----|----|----|----|---|---|-------|----|-------|
| 10 | | 87 | 75 | 76 | 40 | 16 | 35 | 40 | 16 | 4 | 2 | 42.5 | 8 | 28.5 |
| 20 | | 87 | 75 | 76 | 40 | 16 | 35 | 40 | 16 | 4 | 2 | 42.5 | 8 | 38.5 |
| 30 | | 87 | 75 | 76 | 40 | 16 | 35 | 40 | 16 | 4 | 2 | 42.5 | 8 | 48.5 |
| 40 | | 97 | 85 | 86 | 50 | 16 | 40 | 50 | 16 | 4 | 2 | 52.5 | 8 | 58.5 |
| 50 | | 112 | 100 | 101 | 30 | 51 | 30 | 30 | 21 | 6 | 3 | 63.5 | 12 | 68.5 |
| 75 | | 162 | 150 | 151 | 70 | 61 | 55 | 35 | 26 | 6 | 4 | 90.5 | 35 | 93.5 |
| 100 | | 210 | 198 | 199 | 70 | 109 | 65 | 35 | 39 | 6 | 5 | 118.5 | 55 | 118.8 |
| 125 | | 260 | 248 | 249 | 70 | 159 | 70 | 35 | 19 | 8 | 7 | 153.5 | 70 | 143.5 |

HLS16(With shock absorber)



Compact slide cylinder

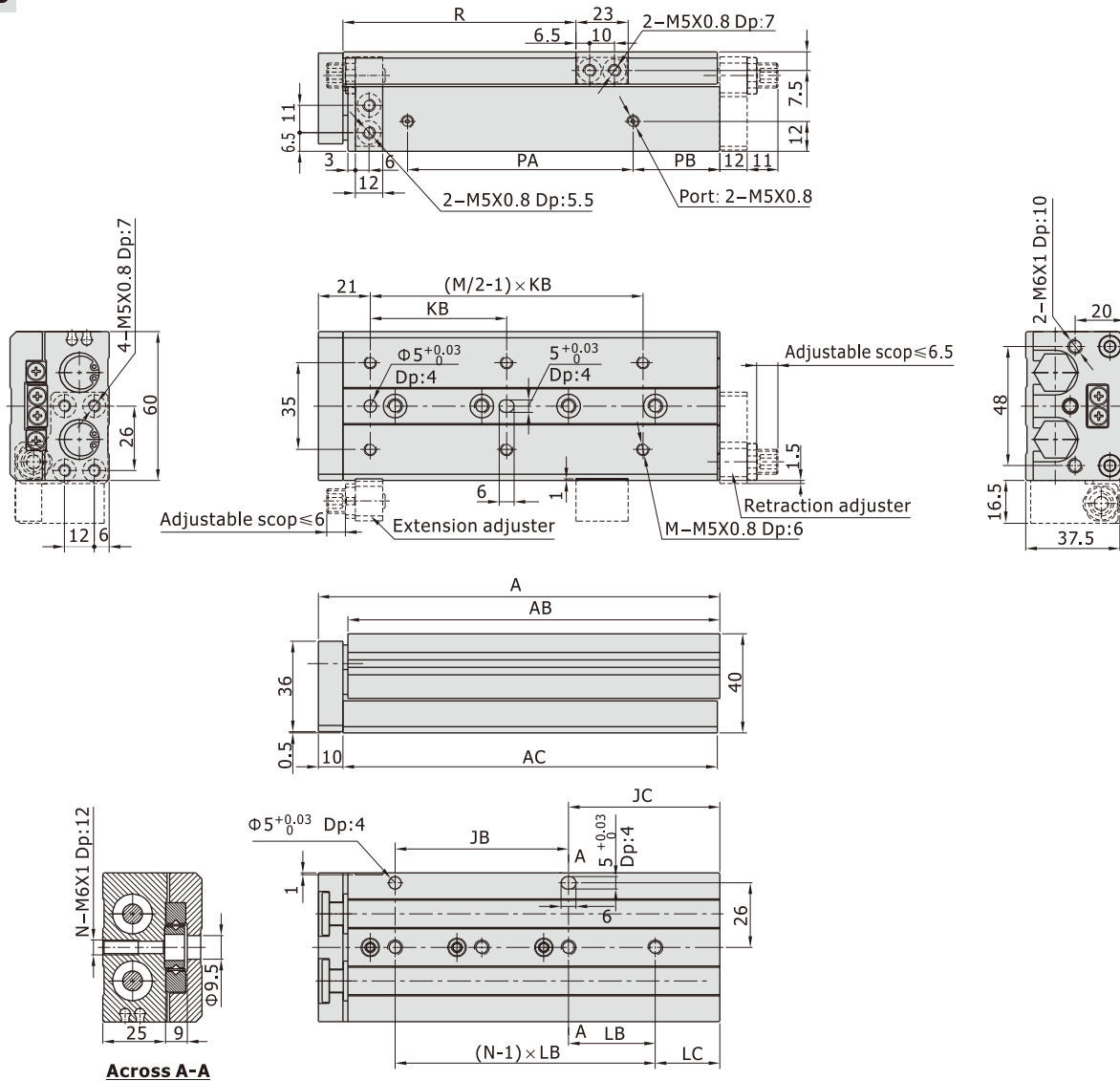


HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$

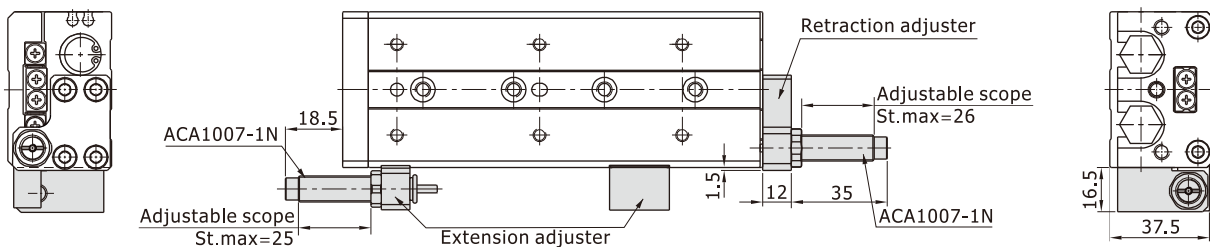
HLSL16



[Unit: mm]

| Stroke\Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | PA | PB | R |
|-------------|-----|-----|-----|----|-----|----|----|----|---|---|-------|----|-------|
| 10 | 87 | 75 | 76 | 40 | 16 | 35 | 40 | 16 | 4 | 2 | 42.5 | 8 | 28.5 |
| 20 | 87 | 75 | 76 | 40 | 16 | 35 | 40 | 16 | 4 | 2 | 42.5 | 8 | 38.5 |
| 30 | 87 | 75 | 76 | 40 | 16 | 35 | 40 | 16 | 4 | 2 | 42.5 | 8 | 48.5 |
| 40 | 97 | 85 | 86 | 50 | 16 | 40 | 50 | 16 | 4 | 2 | 52.5 | 8 | 58.5 |
| 50 | 112 | 100 | 101 | 30 | 51 | 30 | 30 | 21 | 6 | 3 | 63.5 | 12 | 68.5 |
| 75 | 162 | 150 | 151 | 70 | 61 | 55 | 35 | 26 | 6 | 4 | 90.5 | 35 | 93.5 |
| 100 | 210 | 198 | 199 | 70 | 109 | 65 | 35 | 39 | 6 | 5 | 118.5 | 55 | 118.8 |
| 125 | 260 | 248 | 249 | 70 | 159 | 70 | 35 | 19 | 8 | 7 | 153.5 | 70 | 143.5 |

HLSL16(With shock absorber)



Compact slide cylinder

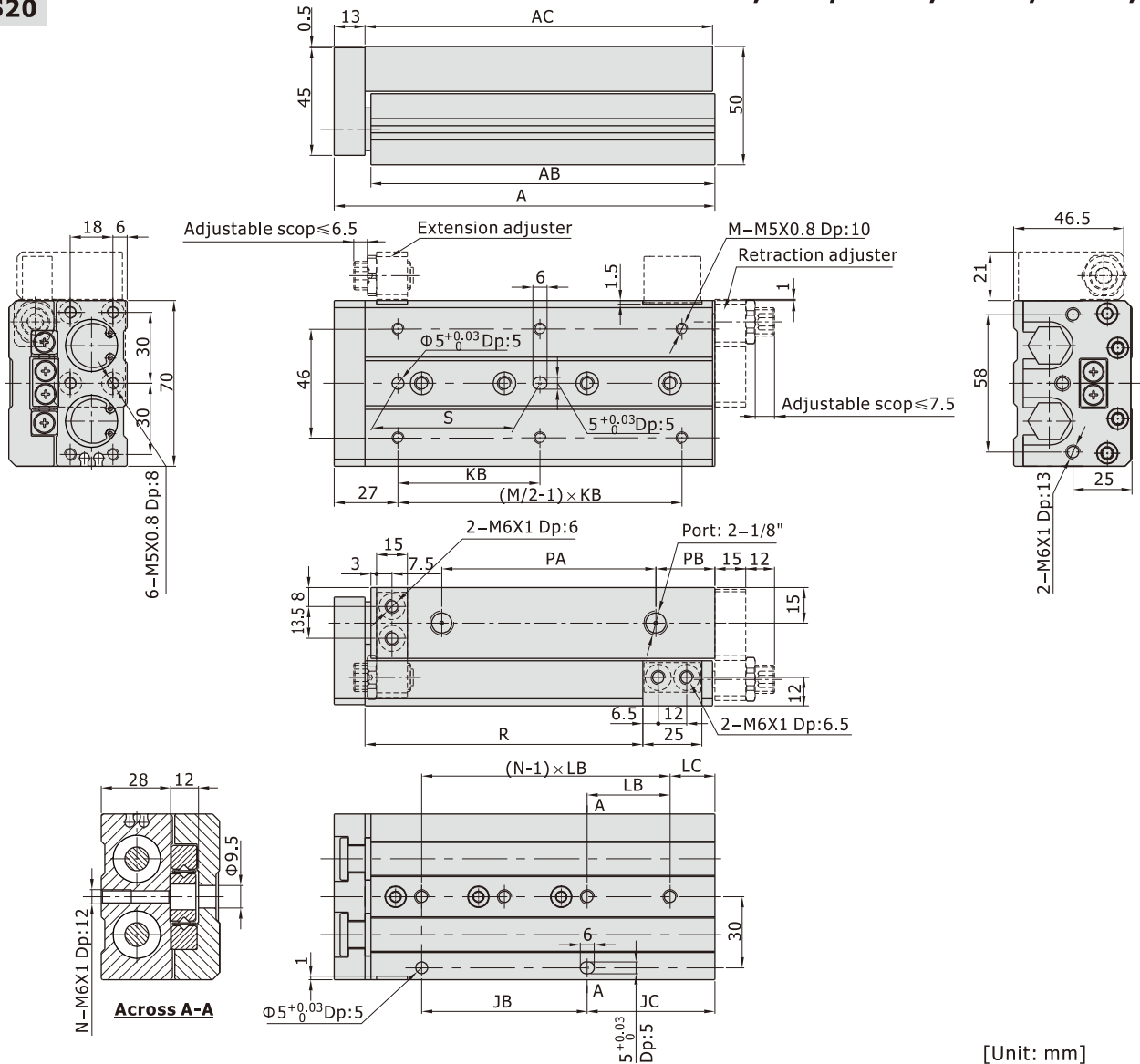


HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6, \Phi 8, \Phi 12, \Phi 16, \Phi 20, \Phi 25$

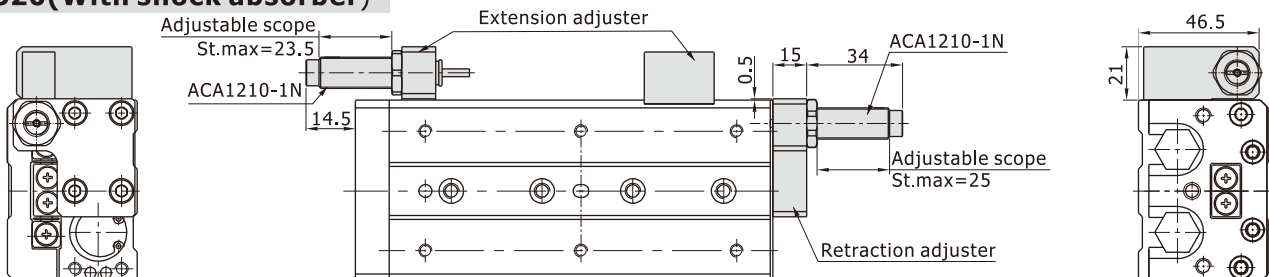
HLS20



[Unit: mm]

| Stroke\Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | S | PA | PB | R |
|-------------|-----|-------|-----|----|-----|----|----|----|---|---|----|-------|----|-------|
| 10 | 97 | 81.5 | 83 | 35 | 25 | 50 | 45 | 15 | 4 | 2 | 40 | 43.5 | 10 | 32.5 |
| 20 | 97 | 81.5 | 83 | 35 | 25 | 50 | 45 | 15 | 4 | 2 | 40 | 43.5 | 10 | 42.5 |
| 30 | 97 | 81.5 | 83 | 35 | 25 | 50 | 45 | 15 | 4 | 2 | 40 | 43.5 | 10 | 52.5 |
| 40 | 107 | 91.5 | 93 | 35 | 35 | 60 | 55 | 15 | 4 | 2 | 50 | 53.5 | 10 | 62.5 |
| 50 | 122 | 106.5 | 108 | 35 | 50 | 35 | 35 | 15 | 6 | 3 | 35 | 68.5 | 10 | 72.5 |
| 75 | 161 | 145.5 | 147 | 70 | 54 | 60 | 35 | 19 | 6 | 4 | 60 | 107.5 | 10 | 97.5 |
| 100 | 214 | 198.5 | 200 | 70 | 107 | 70 | 35 | 37 | 6 | 5 | 70 | 115.5 | 55 | 122.5 |
| 125 | 268 | 252.5 | 254 | 76 | 155 | 70 | 38 | 41 | 8 | 6 | 70 | 154.5 | 70 | 147.5 |
| 150 | 320 | 304.5 | 306 | 88 | 195 | 80 | 44 | 19 | 8 | 7 | 80 | 186.5 | 90 | 172.5 |

HLS20(With shock absorber)



Compact slide cylinder

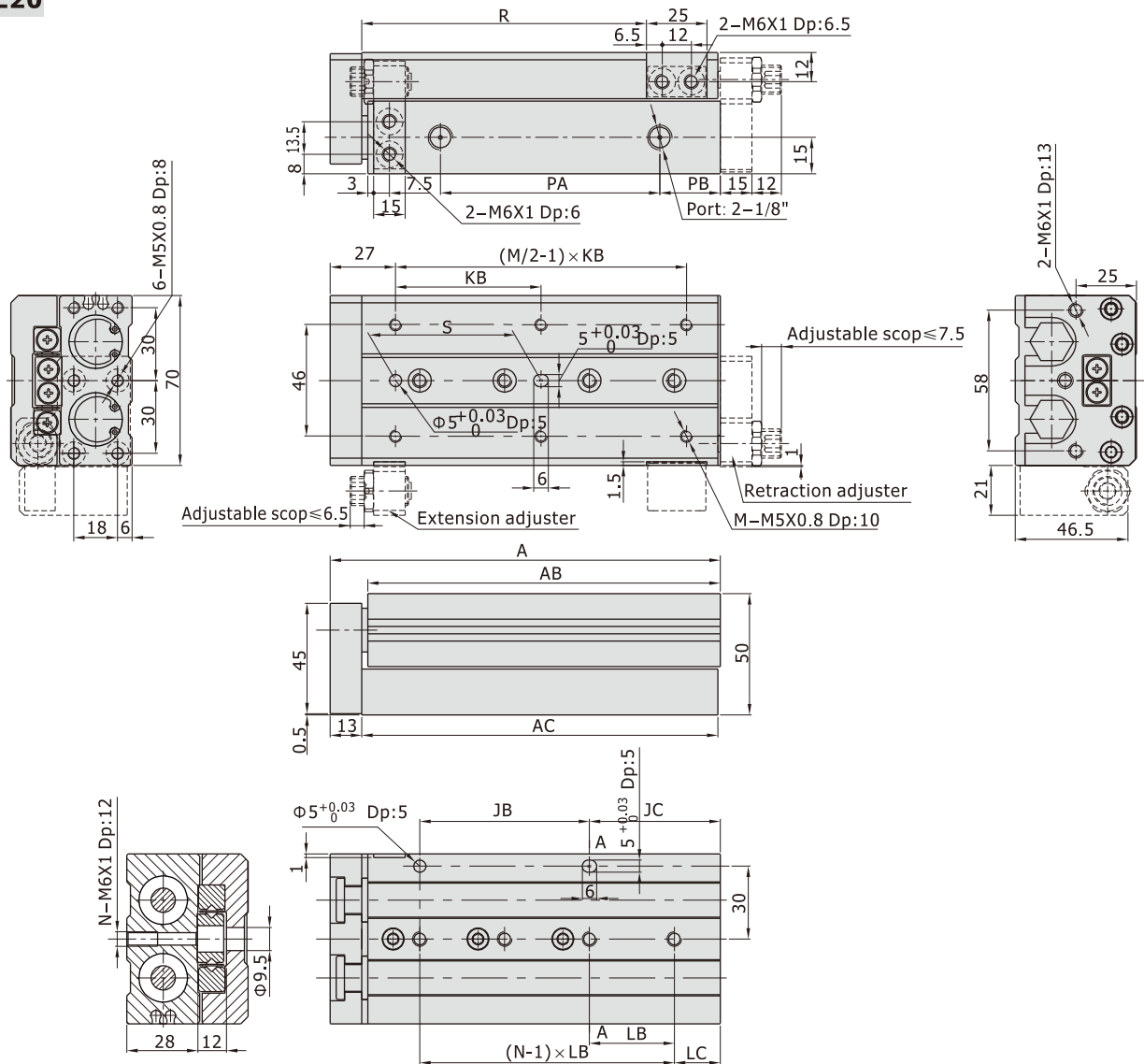


HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6$, $\Phi 8$, $\Phi 12$, $\Phi 16$, $\Phi 20$, $\Phi 25$

HLSL20

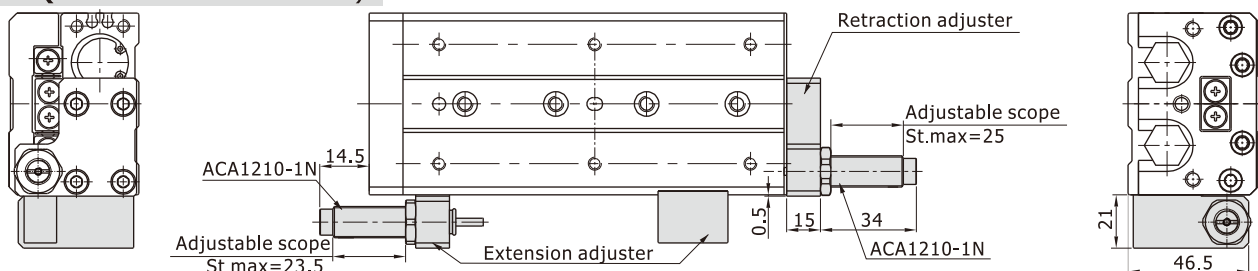


Across A-A

[Unit: mm]

| Stroke\Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | S | PA | PB | R |
|-------------|-----|-------|-----|----|-----|----|----|----|---|---|----|-------|----|-------|
| 10 | 97 | 81.5 | 83 | 35 | 25 | 50 | 45 | 15 | 4 | 2 | 40 | 43.5 | 10 | 32.5 |
| 20 | 97 | 81.5 | 83 | 35 | 25 | 50 | 45 | 15 | 4 | 2 | 40 | 43.5 | 10 | 42.5 |
| 30 | 97 | 81.5 | 83 | 35 | 25 | 50 | 45 | 15 | 4 | 2 | 40 | 43.5 | 10 | 52.5 |
| 40 | 107 | 91.5 | 93 | 35 | 35 | 60 | 55 | 15 | 4 | 2 | 50 | 53.5 | 10 | 62.5 |
| 50 | 122 | 106.5 | 108 | 35 | 50 | 35 | 35 | 15 | 6 | 3 | 35 | 68.5 | 10 | 72.5 |
| 75 | 161 | 145.5 | 147 | 70 | 54 | 60 | 35 | 19 | 6 | 4 | 60 | 107.5 | 10 | 97.5 |
| 100 | 214 | 198.5 | 200 | 70 | 107 | 70 | 35 | 37 | 6 | 5 | 70 | 115.5 | 55 | 122.5 |
| 125 | 268 | 252.5 | 254 | 76 | 155 | 70 | 38 | 41 | 8 | 6 | 70 | 154.5 | 70 | 147.5 |
| 150 | 320 | 304.5 | 306 | 88 | 195 | 80 | 44 | 19 | 8 | 7 | 80 | 186.5 | 90 | 172.5 |

HLSL20(With shock absorber)



Compact slide cylinder

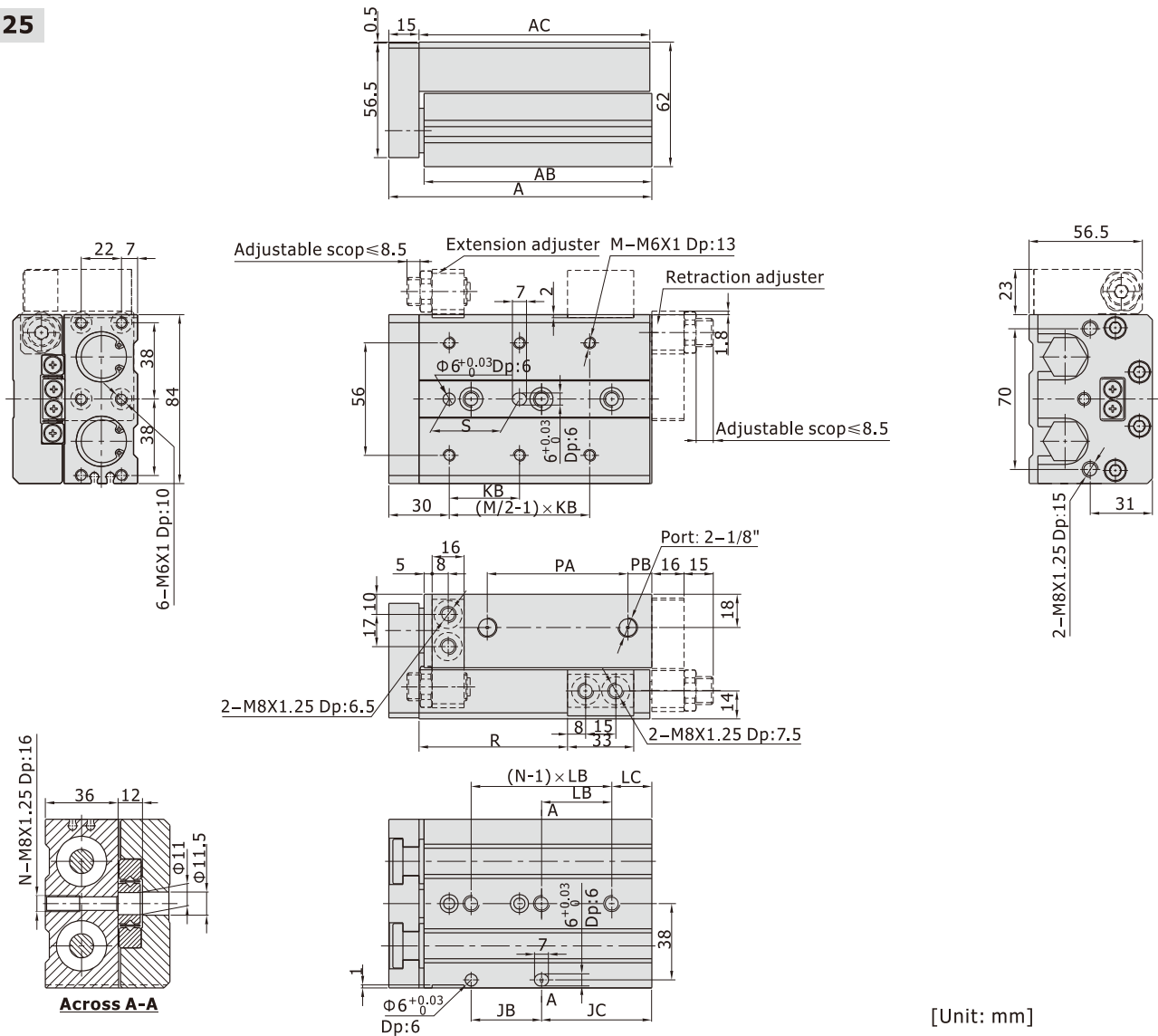


HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6, \Phi 8, \Phi 12, \Phi 16, \Phi 20, \Phi 25$

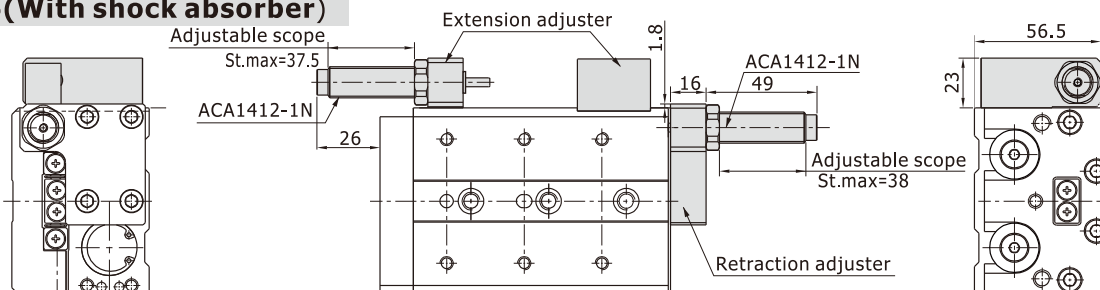
HLS25



[Unit: mm]

| Stroke/Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | S | PA | PB | R |
|-------------|-----|-------|-----|----|-----|----|----|----|---|---|----|-----|----|-----|
| 10 | 108 | 90.5 | 92 | 45 | 22 | 50 | 45 | 22 | 4 | 2 | 40 | 47 | 12 | 35 |
| 20 | 108 | 90.5 | 92 | 45 | 22 | 50 | 45 | 22 | 4 | 2 | 40 | 47 | 12 | 45 |
| 30 | 108 | 90.5 | 92 | 45 | 22 | 50 | 45 | 22 | 4 | 2 | 40 | 47 | 12 | 55 |
| 40 | 118 | 100.5 | 102 | 55 | 22 | 60 | 55 | 22 | 4 | 2 | 50 | 57 | 12 | 65 |
| 50 | 131 | 113.5 | 115 | 35 | 55 | 35 | 35 | 20 | 6 | 3 | 35 | 70 | 12 | 75 |
| 75 | 172 | 154.5 | 156 | 70 | 61 | 60 | 35 | 26 | 6 | 4 | 60 | 90 | 33 | 100 |
| 100 | 213 | 195.5 | 197 | 70 | 102 | 70 | 35 | 32 | 6 | 5 | 70 | 119 | 45 | 125 |
| 125 | 271 | 253.5 | 255 | 76 | 154 | 75 | 38 | 40 | 8 | 6 | 75 | 155 | 67 | 150 |
| 150 | 311 | 293.5 | 295 | 80 | 190 | 80 | 40 | 30 | 8 | 7 | 80 | 180 | 82 | 175 |

HLS25(With shock absorber)



Compact slide cylinder

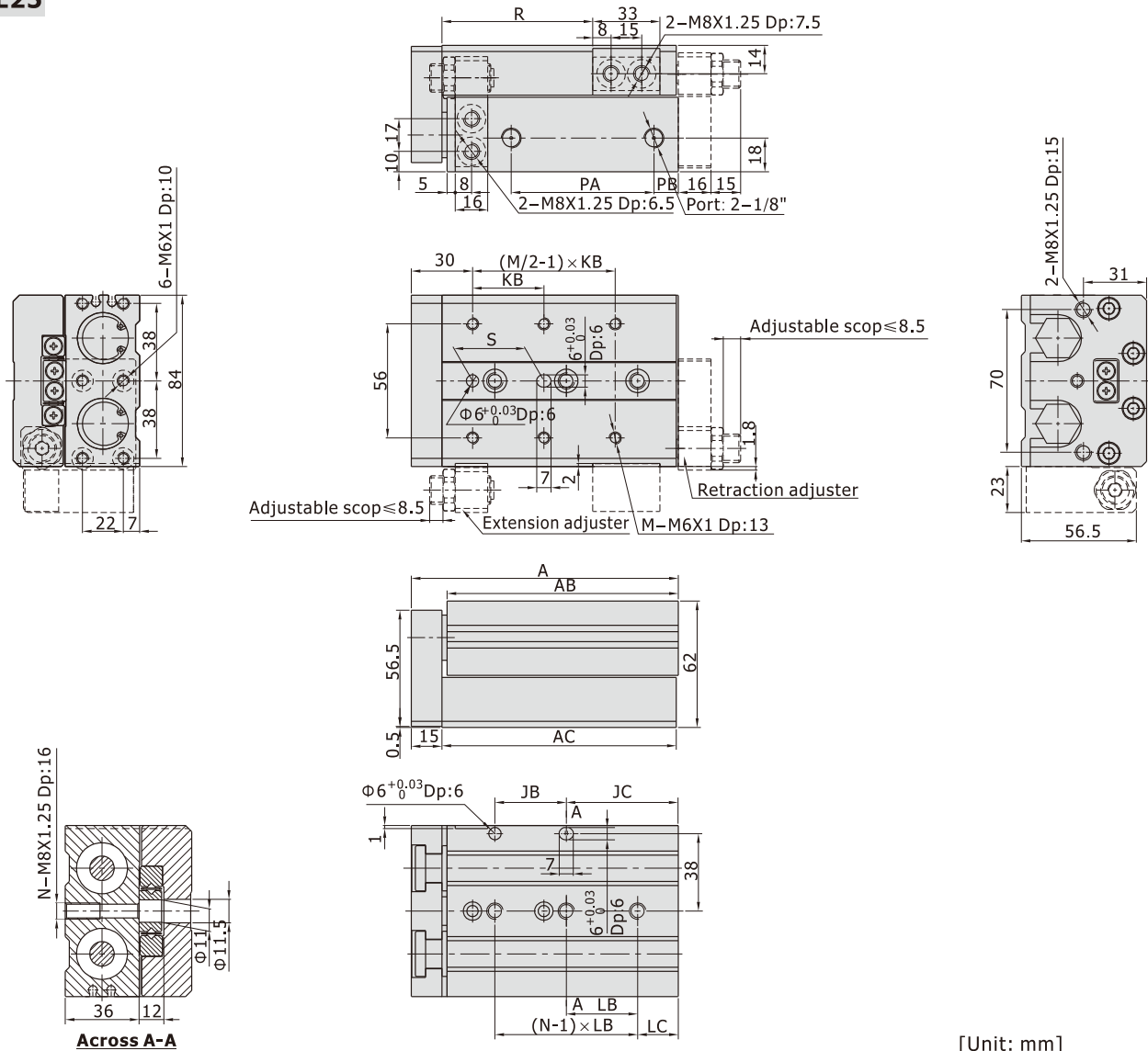


HLS, HLSL Series

Roller bearing

Bore size: $\Phi 6, \Phi 8, \Phi 12, \Phi 16, \Phi 20, \Phi 25$

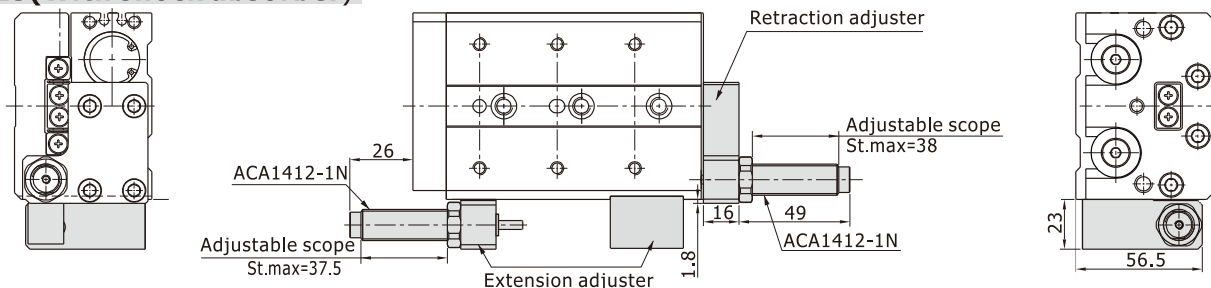
HLSL25



[Unit: mm]

| Stroke\Item | A | AB | AC | JB | JC | KB | LB | LC | M | N | S | PA | PB | R |
|-------------|-----|-------|-----|----|-----|----|----|----|---|---|----|-----|----|-----|
| 10 | 108 | 90.5 | 92 | 45 | 22 | 50 | 45 | 22 | 4 | 2 | 40 | 47 | 12 | 35 |
| 20 | 108 | 90.5 | 92 | 45 | 22 | 50 | 45 | 22 | 4 | 2 | 40 | 47 | 12 | 45 |
| 30 | 108 | 90.5 | 92 | 45 | 22 | 50 | 45 | 22 | 4 | 2 | 40 | 47 | 12 | 55 |
| 40 | 118 | 100.5 | 102 | 55 | 22 | 60 | 55 | 22 | 4 | 2 | 50 | 57 | 12 | 65 |
| 50 | 131 | 113.5 | 115 | 35 | 55 | 35 | 35 | 20 | 6 | 3 | 35 | 70 | 12 | 75 |
| 75 | 172 | 154.5 | 156 | 70 | 61 | 60 | 35 | 26 | 6 | 4 | 60 | 90 | 33 | 100 |
| 100 | 213 | 195.5 | 197 | 70 | 102 | 70 | 35 | 32 | 6 | 5 | 70 | 119 | 45 | 125 |
| 125 | 271 | 253.5 | 255 | 76 | 154 | 75 | 38 | 40 | 8 | 6 | 75 | 155 | 67 | 150 |
| 150 | 311 | 293.5 | 295 | 80 | 190 | 80 | 40 | 30 | 8 | 7 | 80 | 180 | 82 | 175 |

HLSL25 (With shock absorber)



Compact slide cylinder

HLS, HLSL Series

Roller bearing Accessories

Accessory ordering code

F - HLS 20 AF



① Accessory

② Cylinder model

HLS: Compact slide cylinder (Double acting type)
(Roller bearing)

HLSL: Symmetrical Compact slide cylinder (Double acting type)
(Roller bearing)

③ Bore Size

6 8 12 16 20 25

④ Accessory type [Note]

A: Adjustable rubber stopper(Both ends)

AF: Adjustable rubber stopper(Retraction)

B: Shock absorber(Both ends)

BF: Shock absorber(Retraction)

[Note]The list accessories are for HLS cylinder. Accessories that are adaptable to other cylinder are not shown. Please refer to accessory list for selection and ordering information.

Accessory selection

| | | Accessories\Bore size | 6 | 8 | 12 |
|-----------------------|------------|-------------------------------|------------|------------|------------|
| Standard (HLS) | Both ends | A(Adjustable rubber stopper) | F-HLQ6A | F-HLS8A | F-HLS12A |
| | | B(Shock absorber) | × | F-HLS8B | F-HLS12B |
| | Extention | AS(Adjustable rubber stopper) | F-HLQ6AS | F-HLQ8AS | F-HLQ12AS |
| | | BS(Shock absorber) | × | F-HLQ8BS | F-HLQ12BS |
| | Retraction | AF(Adjustable rubber stopper) | F-HLQ6AF | F-HLS8AF | F-HLS12AF |
| | | BF(Shock absorber) | × | F-HLS8BF | F-HLS12BF |
| | | Accessories\Bore size | 16 | 20 | 25 |
| Standard (HLS) | Both ends | A(Adjustable rubber stopper) | F-HLS16A | F-HLS20A | F-HLS25A |
| | | B(Shock absorber) | F-HLS16B | F-HLS20B | F-HLS25B |
| | Extention | AS(Adjustable rubber stopper) | F-HLQ16AS | F-HLQ20AS | F-HLQ25AS |
| | | BS(Shock absorber) | F-HLQ16BS | F-HLQ20BS | F-HLQ25BS |
| | Retraction | AF(Adjustable rubber stopper) | F-HLS16AF | F-HLS20AF | F-HLS25AF |
| | | BF(Shock absorber) | F-HLS16BF | F-HLS20BF | F-HLS25BF |
| | | Accessories\Bore size | 6 | 8 | 12 |
| Symmetrical (HLSL) | Both ends | A(Adjustable rubber stopper) | F-HLQL6A | F-HLSL8A | F-HLSL12A |
| | | B(Shock absorber) | × | F-HLSL8B | F-HLSL12B |
| | Extention | AS(Adjustable rubber stopper) | F-HLQ6AS | F-HLQ8AS | F-HLQ12AS |
| | | BS(Shock absorber) | × | F-HLQ8BS | F-HLQ12BS |
| | Retraction | AF(Adjustable rubber stopper) | F-HLQL6AF | F-HLSL8AF | F-HLSL12AF |
| | | BF(Shock absorber) | × | F-HLSL8BF | F-HLSL12BF |
| | | Accessories\Bore size | 16 | 20 | 25 |
| Symmetrical (HLSL) | Both ends | A(Adjustable rubber stopper) | F-HLSL16A | F-HLSL20A | F-HLSL25A |
| | | B(Shock absorber) | F-HLSL16B | F-HLSL20B | F-HLSL25B |
| | Extention | AS(Adjustable rubber stopper) | F-HLQ16AS | F-HLQ20AS | F-HLQ25AS |
| | | BS(Shock absorber) | F-HLQ16BS | F-HLQ20BS | F-HLQ25BS |
| | Retraction | AF(Adjustable rubber stopper) | F-HLSL16AF | F-HLSL20AF | F-HLSL25AF |
| | | BF(Shock absorber) | F-HLSL16BF | F-HLSL20BF | F-HLSL25BF |

Note): A=AS+AF; B=BS+BF.

Compact slide cylinder



HLS, HLSSL Series

Roller bearing Accessories

Dimensions

AS: Adjustable rubber stopper(Extension)

Body Mounting

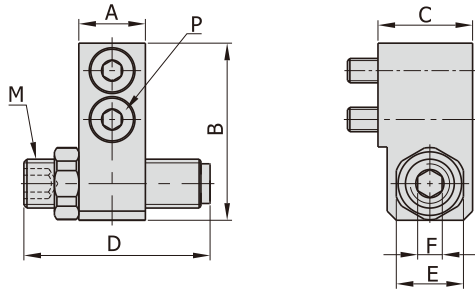
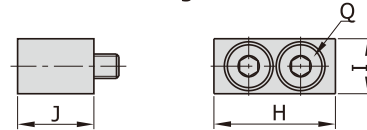


Table Mounting



[Unit: mm]

| Bore size\Item | Adjusting stroke range | A | B | C | D | E | F | M | P | H | I | J | Q |
|----------------|------------------------|-----|------|------|------|----|---|---------|---------------|------|------|------|---------------|
| 6 | 5 | 7 | 19 | 10.5 | 16.5 | 8 | 3 | M6×1.0 | M2.5Length:10 | 12.5 | 6.5 | 10.5 | M2.5Length:10 |
| 8 | 5 | 8.5 | 22 | 14 | 21.5 | 11 | 4 | M8×1.0 | M3Length:14 | 14.5 | 8 | 12 | M3Length:14 |
| 12 | 5 | 11 | 29 | 15.5 | 31.5 | 11 | 4 | M8×1.0 | M4Length:16 | 20 | 9 | 13.5 | M4Length:12 |
| 16 | 5 | 12 | 36 | 17.5 | 24 | 14 | 5 | M10×1.0 | M5Length:16 | 23 | 10.5 | 17 | M5Length:16 |
| 20 | 5 | 15 | 44.5 | 22 | 28 | 17 | 6 | M12×1.0 | M6Length:20 | 25 | 12.5 | 21 | M6Length:20 |
| 25 | 5 | 16 | 54 | 24 | 32 | 19 | 6 | M14×1.5 | M8Length:20 | 33 | 16.5 | 23 | M8Length:20 |

BS: Shock absorber(Extension)

Body Mounting

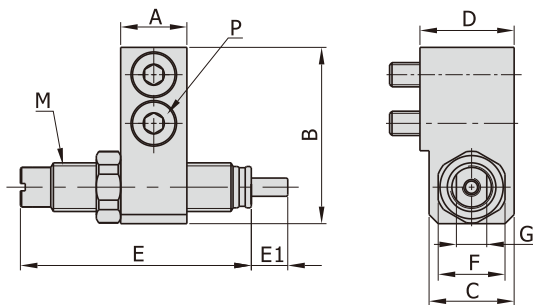
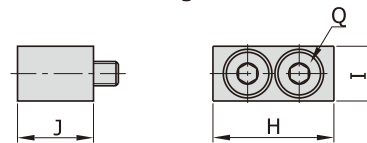


Table Mounting

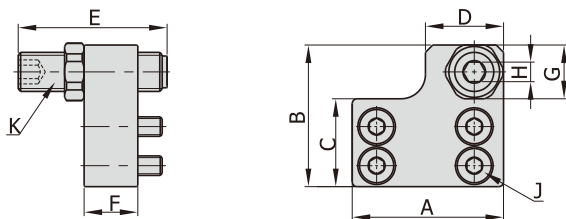


[Unit: mm]

| Bore size\Item | A | B | C | D | E | E1 | F | G | M | P | H | I | J | Q |
|----------------|-----|------|------|------|------|----|----|----|---------|-------------|------|------|------|-------------|
| 8 | 8.5 | 22 | 12.5 | 14 | 40 | 6 | 11 | 7 | M8×1.0 | M3Length:14 | 14.5 | 8 | 12 | M3Length:14 |
| 12 | 11 | 29 | 14 | 15.5 | 40 | 6 | 11 | 7 | M8×1.0 | M4Length:16 | 20 | 9 | 13.5 | M4Length:12 |
| 16 | 12 | 36 | 16 | 17.5 | 49 | 7 | 14 | 9 | M10×1.0 | M5Length:16 | 23 | 10.5 | 17 | M5Length:16 |
| 20 | 15 | 44.5 | 20 | 22 | 53.5 | 10 | 17 | 11 | M12×1.0 | M6Length:20 | 25 | 12.5 | 21 | M6Length:20 |
| 25 | 16 | 54 | 22 | 24 | 68.5 | 12 | 19 | 12 | M14×1.5 | M8Length:20 | 33 | 16.5 | 23 | M8Length:20 |

AF: Adjustable rubber stopper(Retraction for standard)

[Unit: mm]



| Bore size\Item | Adjusting stroke range | A | B | C | D |
|----------------|------------------------|------|------|------|----|
| 6 | 5 | 18 | 19 | 11 | 8 |
| 8 | 5 | 24 | 23.5 | 13 | 14 |
| 12 | 5 | 31 | 29 | 18 | 16 |
| 16 | 5 | 37 | 37.5 | 23 | 18 |
| 20 | 5 | 45.5 | 47 | 28.5 | 23 |
| 25 | 5 | 54 | 56 | 34 | 28 |

| Bore size\Item | E | F | G | H | J | K |
|----------------|------|-----|----|---|--------------|---------|
| 6 | 21.5 | 7 | 8 | 3 | M2.5Length:6 | M6×1.0 |
| 8 | 21.5 | 8.5 | 11 | 4 | M3Length:8 | M8×1.0 |
| 12 | 21.5 | 11 | 11 | 4 | M4Length:12 | M8×1.0 |
| 16 | 24 | 12 | 14 | 5 | M5Length:12 | M10×1.0 |
| 20 | 28 | 15 | 17 | 6 | M5Length:16 | M12×1.0 |
| 25 | 32 | 16 | 19 | 6 | M6Length:18 | M14×1.5 |

Compact slide cylinder

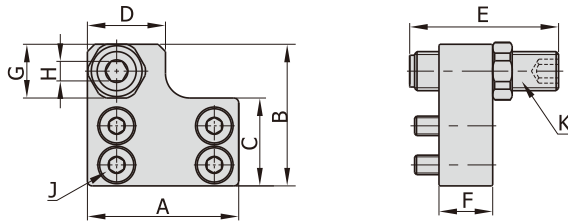
HLS, HLSSL Series



Roller bearing Accessories

AF: Adjustable rubber stopper(Retraction, for symmetrical)

[Unit: mm]

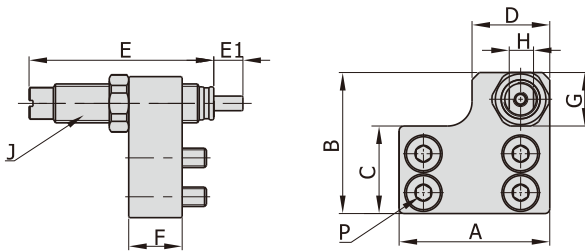


| Bore size/Item | Adjusting stroke range | A | B | C | D |
|----------------|------------------------|------|------|------|----|
| 6 | 5 | 18 | 19 | 11 | 8 |
| 8 | 5 | 24 | 23.5 | 13 | 14 |
| 12 | 5 | 31 | 29 | 18 | 16 |
| 16 | 5 | 37 | 37.5 | 23 | 18 |
| 20 | 5 | 45.5 | 47 | 28.5 | 23 |
| 25 | 5 | 54 | 56 | 34 | 28 |

| Bore size/Item | E | F | G | H | J | K |
|----------------|------|-----|----|---|--------------|---------|
| 6 | 21.5 | 7 | 8 | 3 | M2.5Length:6 | M6×1.0 |
| 8 | 21.5 | 8.5 | 11 | 4 | M3Length:8 | M8×1.0 |
| 12 | 21.5 | 11 | 11 | 4 | M4Length:12 | M8×1.0 |
| 16 | 24 | 12 | 14 | 5 | M5Length:12 | M10×1.0 |
| 20 | 28 | 15 | 17 | 6 | M5Length:16 | M12×1.0 |
| 25 | 32 | 16 | 19 | 6 | M6Length:18 | M14×1.5 |

BF: Shock absorber(Retraction, for standard)

[Unit: mm]

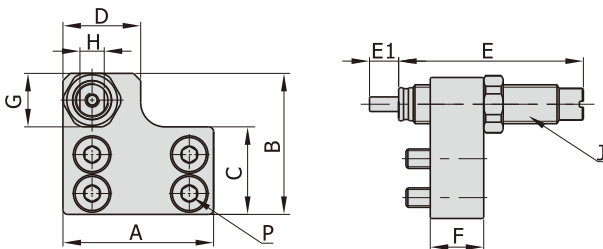


| Bore size/Item | A | B | C | D | E | E1 | F |
|----------------|------|------|------|----|------|----|-----|
| 8 | 24 | 23.5 | 13 | 14 | 40 | 6 | 8.5 |
| 12 | 31 | 29 | 18 | 16 | 40 | 6 | 11 |
| 16 | 37 | 37.5 | 23 | 18 | 49 | 7 | 12 |
| 20 | 45.5 | 47 | 28.5 | 23 | 53.5 | 10 | 15 |
| 25 | 54 | 56 | 34 | 28 | 68.5 | 12 | 16 |

| Bore size/Item | G | H | J | P |
|----------------|----|----|---------|-------------|
| 8 | 11 | 7 | M8×1.0 | M3Length:8 |
| 12 | 11 | 7 | M8×1.0 | M4Length:12 |
| 16 | 14 | 9 | M10×1.0 | M5Length:12 |
| 20 | 17 | 11 | M12×1.0 | M5Length:16 |
| 25 | 19 | 12 | M14×1.5 | M6Length:18 |

BF: Shock absorber(Retraction, for symmetrical)

[Unit: mm]



| Bore size/Item | A | B | C | D | E | E1 | F |
|----------------|------|------|------|----|------|----|-----|
| 8 | 24 | 23.5 | 13 | 14 | 40 | 6 | 8.5 |
| 12 | 31 | 29 | 18 | 16 | 40 | 6 | 11 |
| 16 | 37 | 37.5 | 23 | 18 | 49 | 7 | 12 |
| 20 | 45.5 | 47 | 28.5 | 23 | 53.5 | 10 | 15 |
| 25 | 54 | 56 | 34 | 28 | 68.5 | 12 | 16 |

| Bore size/Item | G | H | J | P |
|----------------|----|----|---------|-------------|
| 8 | 11 | 7 | M8×1.0 | M3Length:8 |
| 12 | 11 | 7 | M8×1.0 | M4Length:12 |
| 16 | 14 | 9 | M10×1.0 | M5Length:12 |
| 20 | 17 | 11 | M12×1.0 | M5Length:16 |
| 25 | 19 | 12 | M14×1.5 | M6Length:18 |

