

Hydraulic Swing Clamp

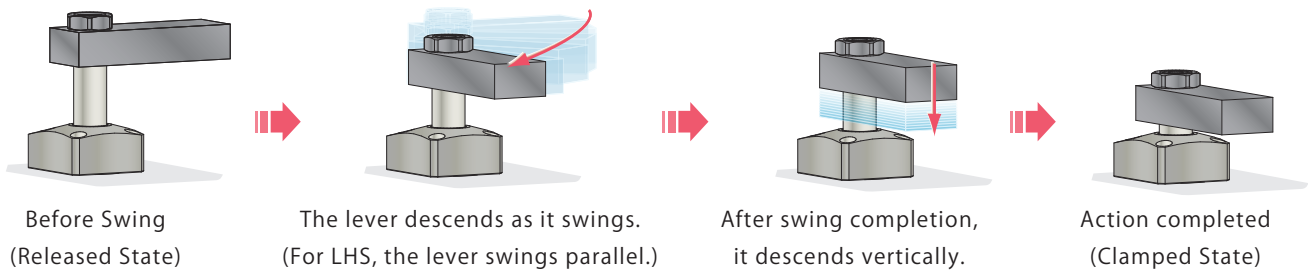
- | | |
|-----------|-------------|
| Model LHA | Model LT/LG |
| Model LHC | Model TLA-2 |
| Model LHS | Model TLA-1 |
| Model LHW | Model TLB-2 |



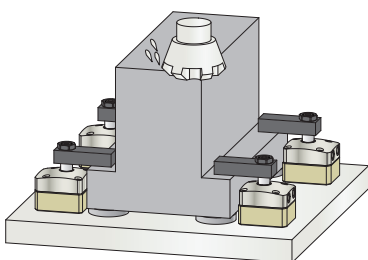
High Rigidity • Long Life • High Accuracy

High Speed • High Rigidity • Swing Completion Position Repeatability $\pm 0.5^\circ$ ($\pm 0.75^\circ$ only for LHS)

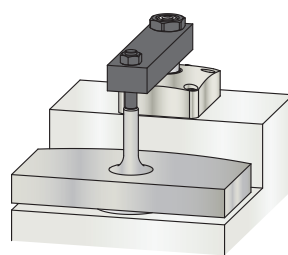
Action Description



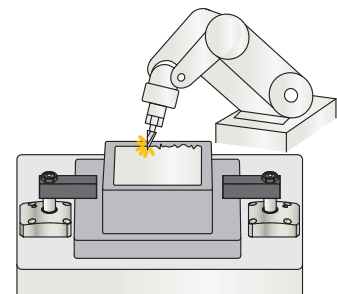
Application Examples



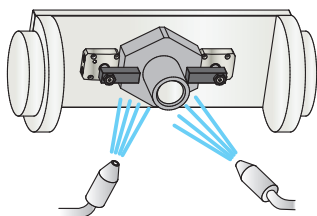
Machining



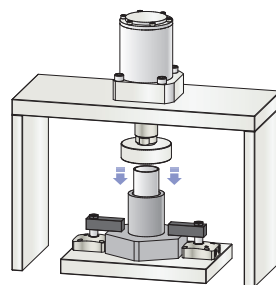
For the applications which require clamp position repeatability



Deburring



Cleaning



Press Fitting

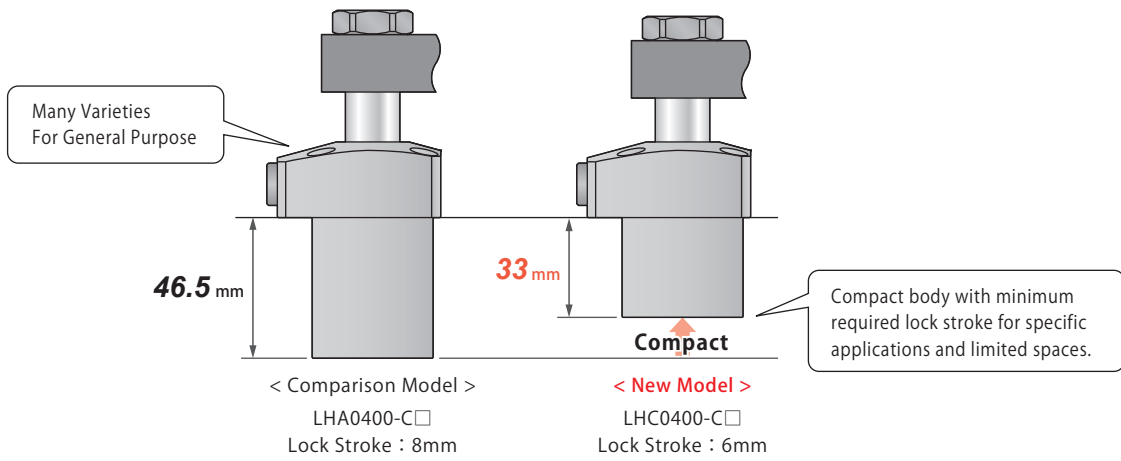
New Products



Compact Swing Clamp

Model LHC

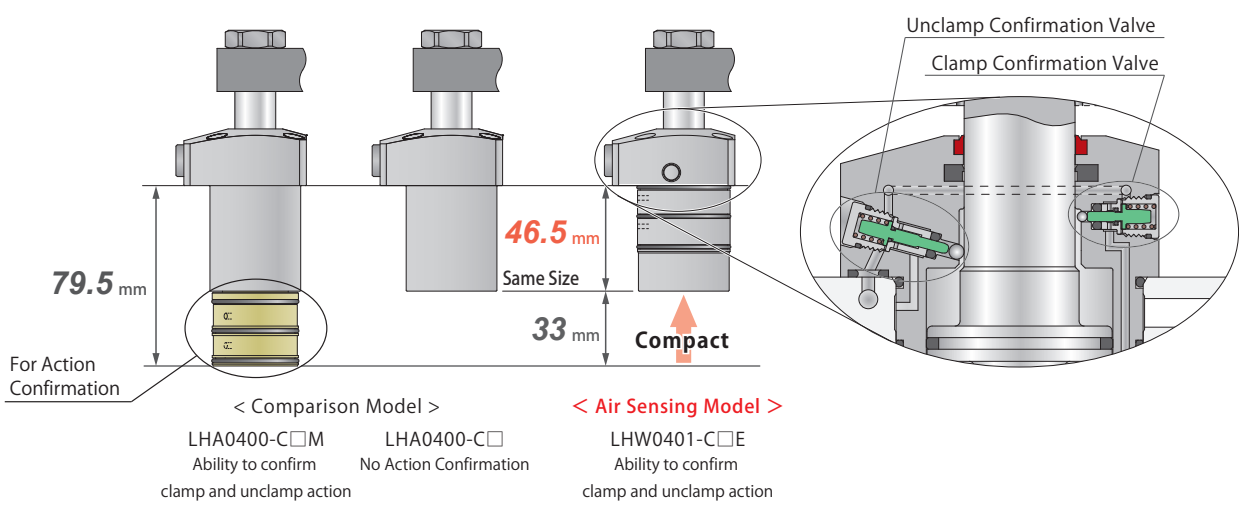
Compact swing clamps for small footprint fixtures designed with minimum required stroke.



Air Sensing Swing Clamp

Model LHW

Clamp-unclamp confirmation with built-in air catch sensor for smaller footprint fixtures.
















High-Power Swing Clamp Hydraulic Double Action










Model LHE





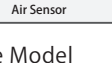







2 sizes smaller with equivalent clamping force. Mechanical lock and hydraulic pressure allow for strong clamping and holding force. Refer to P. 13 for further information.

| |
|--------------------------------|
| High-Power Series |
| Pneumatic Series |
| Hydraulic Series |
| Valve / Coupler Hydraulic Unit |
| Manual Operation Accessories |
| Cautions / Others |
| Hole Clamp |
| SFA |
| SFC |
| Swing Clamp |
| LHA |
| LHC |
| LHS |
| LHW |
| LT/LG |
| TLA-2 |
| TLB-2 |
| TLA-1 |
| Link Clamp |
| LKA |
| LKC |
| LKW |
| LM/LJ |
| TMA-2 |
| TMA-1 |
| Work Support |
| LD |
| LC |
| TNC |
| TC |
| Air Sensing Lift Cylinder |
| LLW |
| Compact Cylinder |
| LL |
| LLR |
| LLU |
| DP |
| DR |
| DS |
| DT |
| Block Cylinder |
| DBA |
| DBC |
| Control Valve |
| BZL |
| BZT |
| BZX/JZG |
| Pallet Clamp |
| VS |
| VT |
| Expansion Locating Pin |
| VL |
| VM |
| VJ |
| VK |
| Pull Stud Clamp |
| FP |
| FQ |
| Customized Spring Cylinder |
| DWA/DWB |

| Low Pressure Model MAX. 7MPa | |  Model LHA → P.289 |  Model LHC → P.319 |  Model LHS → P.331 |
|---------------------------------|---|---|--|---|
| Classification | | Double Action | Double Action Compact | Double Action Parallel Swing Action |
| Operating Pressure Range | | 1.5~7MPa | 1.5~7MPa | 1.5~7MPa |
| Standard Model | | External Dimensions → P.297 | External Dimensions → P.327 | External Dimensions → P.339 |
| Action Confirmation | Double End Rod Option for Dog  | External Dimensions → P.299 | — | ★ |
| | Air Sensing Manifold Option  | External Dimensions → P.301 | — | ★ |
| | Air Sensing Piping Option  | External Dimensions → P.303 | — | ★ |
| | Built-in Sensing Valve Model | — | — | — |
| Option | Quick Change Lever Option  | External Dimensions → P.305 | ★ | External Dimensions → P.341 |
| | Balance Lever Option  | External Dimensions → P.307 | ★ | External Dimensions → P.343 |
| | Long Stroke Option  | External Dimensions → P.309 | — | ★ |
| | Swing Angle Selectable Option  | External Dimensions → P.313 | ★ | External Dimensions → P.345 |
| Accessories | Lever  | LZH-T, LZH-F, LZH-B → P.318 | LZH-T → P.330 | LZH-T, LZH-F, LZH-B → P.348 |
| | Manifold Block  | LZY-MD | | → P.1025 |
| | Speed Control Valve Plug  | BZL, BZX, JZG | | → P.727 |

※ Please contact us for detail dimension at ★ part.

| High Pressure Model MAX. 35MPa | |  Model TLA-2 → P.387 |  Model TLB-2 → P.413 |  Model TLA-1 → P.431 |
|-----------------------------------|---|---|---|---|
| Classification | | Double Action Top Flange | Double Action Bottom Flange | Single Action (Spring Release) Top Flange |
| Operating Pressure Range | | 7~35MPa | 7~35MPa | 7~35MPa |
| Standard Model | | External Dimensions → P.395 | External Dimensions → P.421 | External Dimensions → P.439 |
| Option | Balance Lever Option  | External Dimensions → P.399 | External Dimensions → P.423 | — |
| | Long Stroke Option  | External Dimensions → P.403 | External Dimensions → P.425 | — |
| | Swing Angle Selectable Option  | External Dimensions → P.407 | External Dimensions → P.427 | — |
| Accessories | Lever  | TLZ-L2, TLZ-LB → P.412 | TLZ-L2, TLZ-LB → P.429 | TLZ-L2, TLZ-LB → P.443 |
| | Speed Control Valve Plug  | BZT, JZG | | → P.727 |
| | G-Thread Fitting  | G-Thread Fitting (Made by Ihara Science) | | → P.1039 |

| Low Pressure Model MAX. 7MPa | |  Model LHW → P.349 |  Model LT/LG → P.367 |
|---------------------------------|---|---|--|
| Classification | | Double Action Built-in Sensing Valve | Single Action (Spring Release) |
| Operating Pressure Range | | 1.5~7MPa | 2.5~7MPa |
| Standard Model | | — | External Dimensions → P.375 |
| Action Confirmation | Double End Rod Option for Dog  Able to Install Dog | — | — |
| | Air Sensing Manifold Option  | — | — |
| | Air Sensing Piping Option  Able to Install Air Sensor | — | — |
| | Built-in Sensing Valve Model | External Dimensions → P.359 | — |
| Option | Quick Change Lever Option  | ★ | External Dimensions → P.377 |
| | Balance Lever Option  | ★ | External Dimensions → P.379 |
| | Long Stroke Option  Long | — | — |
| | Swing Angle Selectable Option  30° 45° 60° | ★ | External Dimensions → P.381 |
| Accessories | Lever  | LZH-T → P.366 | LZ-LE1、LZ-LE2 LZH-F、LZH-B → P.384 |
| | Manifold Block  | — | LZ-MS → P.1026 |
| | Speed Control Valve Plug  | BZL、BZX、JZG | → P.727 |



High-Power Swing Clamp Hydraulic Double Action

Model **LHE**

2 sizes smaller with equivalent clamping force. Mechanical lock and hydraulic pressure allow for strong clamping and holding force. Refer to P. 13 for further information.

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

Hole Clamp

SFA
SFC

Swing Clamp

LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1

Link Clamp

LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA
DBC

Control Valve

BZL
BZT
BZX/JZG

Pallet Clamp

VS
VT

Expansion Locating Pin

VL
VM
VJ
VK

Pull Stud Clamp

FP
FQ

Customized Spring Cylinder

DWA/DWB

Hydraulic Double Action Swing Clamp

PAT.

Model LHA

Low Pressure (1.5~7MPa)

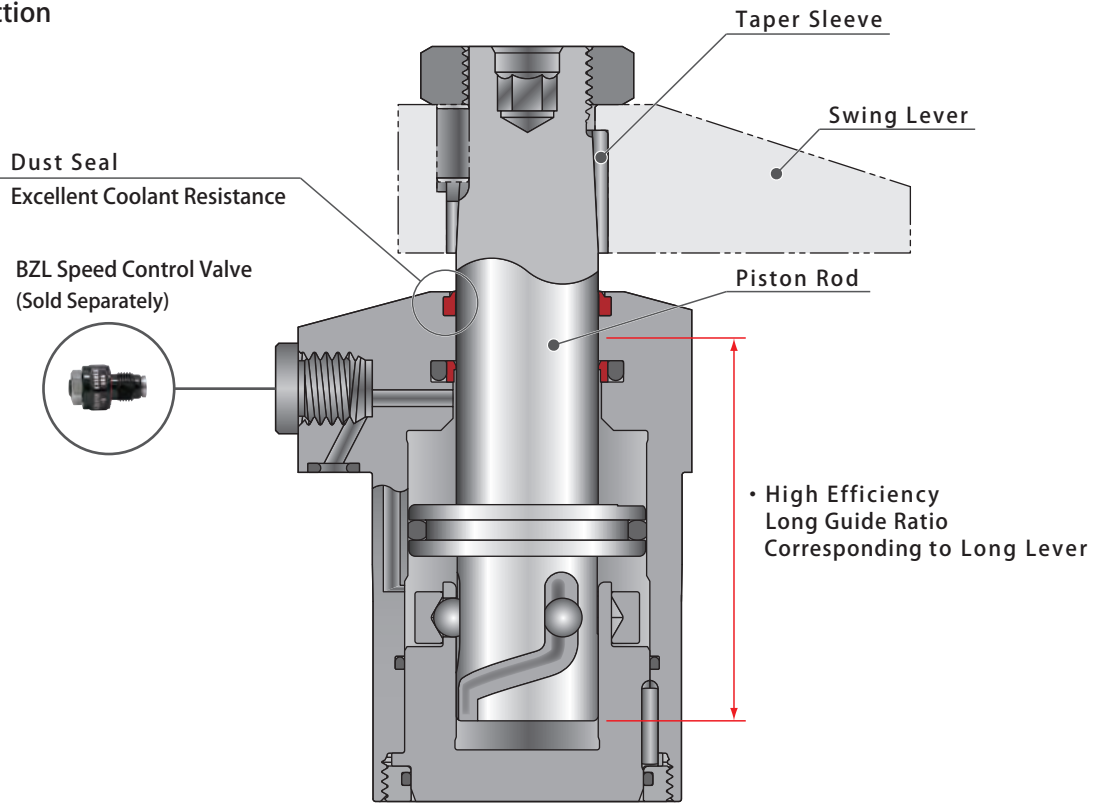
High Power • High Speed • Compact Clamp



● Index

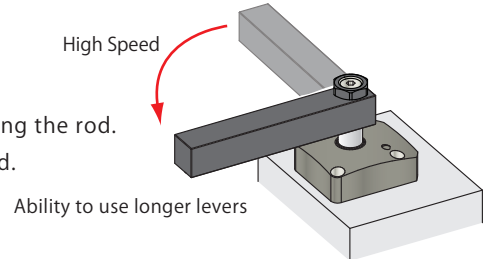
| | |
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● **Cross Section**



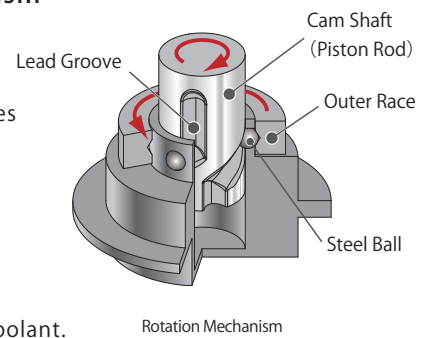
● **Able to Use Longer Levers**

The long guide ratio allows for longer clamping levers by supporting the rod. The guide is located between the flange and at the edge of the rod.



● **High Speed and High Endurance with Rotation Mechanism**

The resistance created by the swing action is minimized by having the outer race rotate in accordance with the steel ball movement. High endurance is achieved by enlarging rod diameter which decreases torque and by using bigger steel balls and making the lead groove. (Position repeatability for swing is within $\pm 0.5^\circ$.)

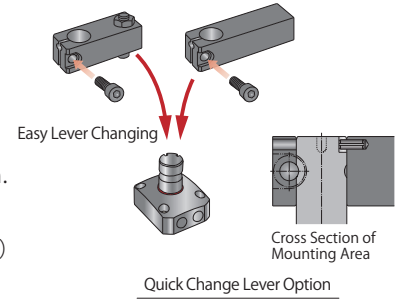


● **Excellent Coolant Resistance**

Our exclusive dust seal is designed to protect against high pressure coolant. It also has high durability against chlorine-based coolant by using a sealing material with excellent chemical resistance.

● **Easy Fabrication of Swing Lever (Taper sleeve is standard accessory)**

As taper sleeve is standard accessory, tapering process while manufacturing clamp lever is eliminated. Supplied lever sleeve incorporates taper simplifying clamping lever design. Quick change lever option that is available as option is easy to attach and detach the lever with one wrench. (Refer to the drawing on the right.)



● **Able to Attach Speed Control Valve Directly**

When fitting the gasket (-C option), it is able to attach the speed control valve with air venting function. (Speed control valve is sold separately.)

- High-Power Series
- Pneumatic Series
- Hydraulic Series**
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

Hole Clamp

| |
|-----|
| SFA |
| SFC |

Swing Clamp

| |
|------------|
| LHA |
| LHC |
| LHS |
| LHW |
| LT/LG |
| TLA-2 |
| TLB-2 |
| TLA-1 |

Link Clamp

| |
|-------|
| LKA |
| LKC |
| LKW |
| LM/LJ |
| TMA-2 |
| TMA-1 |

Work Support

| |
|-----|
| LD |
| LC |
| TNC |
| TC |

Air Sensing Lift Cylinder

| |
|-----|
| LLW |
|-----|

Compact Cylinder

| |
|-----|
| LL |
| LLR |
| LLU |
| DP |
| DR |
| DS |
| DT |

Block Cylinder

| |
|-----|
| DBA |
| DBC |

Control Valve

| |
|---------|
| BZL |
| BZT |
| BZX/JZG |

Pallet Clamp

| |
|----|
| VS |
| VT |

Expansion Locating Pin

| |
|----|
| VL |
| VM |
| VJ |
| VK |

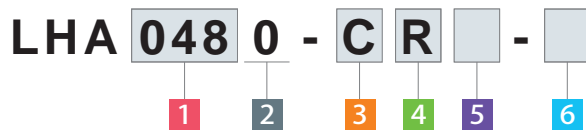
Pull Stud Clamp

| |
|----|
| FP |
| FQ |

Customized Spring Cylinder

| |
|---------|
| DWA/DWB |
|---------|

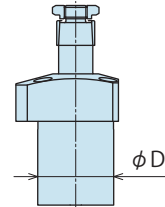
Model No. Indication



1 Body Size

- | | |
|-----------------------------------|------------------------------------|
| 036 : $\phi D=36\text{mm}$ | 065 : $\phi D=65\text{mm}$ |
| 040 : $\phi D=40\text{mm}$ | 075 : $\phi D=75\text{mm}$ |
| 048 : $\phi D=48\text{mm}$ | 090 : $\phi D=90\text{mm}$ |
| 055 : $\phi D=55\text{mm}$ | 105 : $\phi D=105\text{mm}$ |

※ Outer diameter (ϕD) of the cylinder.



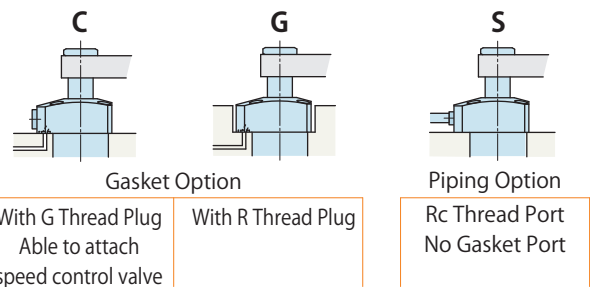
2 Design No.

0 : Revision Number

3 Piping Method

- C** : Gasket Option (With G Thread Plug)
- G** : Gasket Option (With R Thread Plug)
- S** : Piping Option (Rc Thread Port)

※ Speed control valve (BZL) is sold separately.
Refer to P.727.



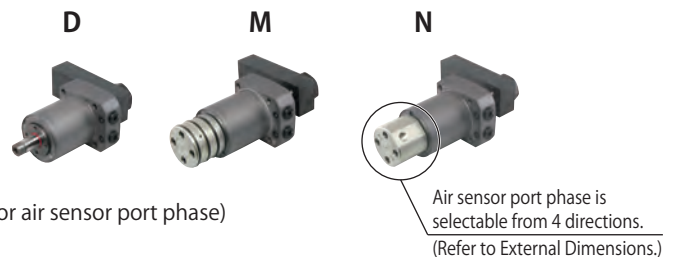
4 Swing Direction when Clamping

- R** : Clockwise
- L** : Counter-Clockwise



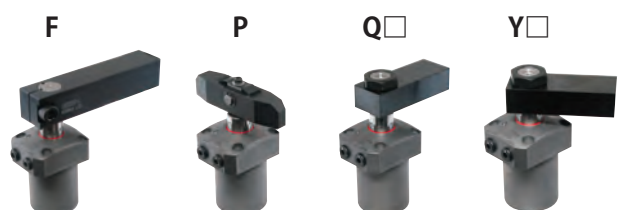
5 Action Confirmation Method

- Blank** : None (Standard)
- D** : Double End Rod Option for Dog
- M** : Air Sensing Manifold Option
- N□** : Air Sensing Piping Option
(**N** : Standard Air Sensor Port Phase
NC/NL/NR : Refer to external dimensions for air sensor port phase)



6 Option

- Blank** : None (Standard: Taper Lock Lever Option)
- F** : Quick Change Lever Option
- P** : Balance Lever Option
- Q□** : Long Stroke Option (□ stands for vertical stroke value)
(Refer to External Dimensions)
- Y□** : Swing Angle Selectable Option
(**Y30** : 30° / **Y45** : 45° / **Y60** : 60°)



※ Please contact us when action check method have a combination with option.

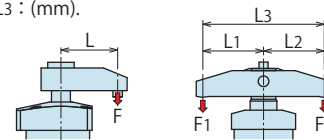
Specifications

| Model No. | LHA0360 | LHA0400 | LHA0480 | LHA0550 | | |
|---|---|---|---|---|---|-------------------------|
| Cylinder Area for Locking | cm ² | 3.54 | 5.00 | 6.95 | 10.3 | |
| Clamping Force (Calculation Formula) ^{※1} kN | 6 Blank/F/Q□/Y□ selected | $F = \frac{P(1-0.0021 \times L)}{2.9379+0.0052 \times L}$ | $F = \frac{P(1-0.0016 \times L)}{2.0920+0.0040 \times L}$ | $F = \frac{P(1-0.0009 \times L)}{1.4892+0.0018 \times L}$ | $F = \frac{P(1-0.0011 \times L)}{1.0039+0.0011 \times L}$ | |
| | 6 P selected | F1= (L2/L3)×0.354×P F2= (L1/L3)×0.354×P | F1= (L2/L3)×0.5×P F2= (L1/L3)×0.5×P | F1= (L2/L3)×0.695×P F2= (L1/L3)×0.695×P | F1= (L2/L3)×1.03×P F2= (L1/L3)×1.03×P | |
| 6 Blank/F/P selected | Full Stroke | mm | 13.5 | 14.5 | 15.5 | 18.5 |
| | Swing Stroke (90°) | mm | 5.5 | 6.5 | 7.5 | 8.5 |
| | Vertical Stroke | mm | 8 | 8 | 8 | 10 |
| | Swing Angle Accuracy | | 90° ±3° | | | |
| | Swing Completion Position Repeatability | | ±0.5° | | | |
| 6 Q□ selected | Option | | Q15 Q20 Q25 Q30 Q35 | Q15 Q20 Q25 Q30 Q35 | Q15 Q20 Q25 Q30 Q35 | Q15 Q20 Q25 Q30 Q35 |
| | Full Stroke | mm | 20.5 25.5 33 38 43 | 21.5 26.5 34.5 39.5 44.5 | 22.5 27.5 36 41 46 | 23.5 28.5 33.5 42 47 |
| | Swing Stroke (90°) | mm | 5.5 5.5 8 8 8 | 6.5 6.5 9.5 9.5 9.5 | 7.5 7.5 11 11 11 | 8.5 8.5 12 12 12 |
| | Vertical Stroke | mm | 15 20 25 30 35 | 15 20 25 30 35 | 15 20 25 30 35 | 15 20 25 30 35 |
| | Swing Angle Accuracy | | 90° ±3° | | | |
| | Swing Completion Position Repeatability | | ±0.5° | | | |
| 6 Y□ selected | Option | | Y30 Y45 Y60 | Y30 Y45 Y60 | Y30 Y45 Y60 | Y30 Y45 Y60 |
| | Full Stroke | mm | 10.9 11.5 12.2 | 11.5 12.3 13 | 12.1 13 13.8 | 14.7 15.6 16.6 |
| | Swing Stroke | mm | 2.9 3.5 4.2 | 3.5 4.3 5 | 4.1 5 5.8 | 4.7 5.6 6.6 |
| | Vertical Stroke | mm | 8 8 8 | 8 8 8 | 8 8 8 | 10 10 10 |
| | Swing Angle Accuracy | | 30° ±3° 45° ±3° 60° ±3° | 30° ±3° 45° ±3° 60° ±3° | 30° ±3° 45° ±3° 60° ±3° | 30° ±3° 45° ±3° 60° ±3° |
| | Swing Completion Position Repeatability | | ±0.5° | | | |
| Max. Operating Pressure | MPa | 7 | | | | |
| Min. Operating Pressure ^{※2} | MPa | 1.5 | | | | |
| Withstanding Pressure | MPa | 10.5 | | | | |
| Operating Temperature | °C | 0 ~ 70 | | | | |
| Usable Fluid | | General Hydraulic Oil Equivalent to ISO-VG-32 | | | | |

| Model No. | LHA0650 | LHA0750 | LHA0900 | LHA1050 | | |
|---|---|---|---|---|---|-------------------------|
| Cylinder Area for Locking | cm ² | 13.4 | 20.3 | 29.5 | 41.3 | |
| Clamping Force (Calculation Formula) ^{※1} kN | 6 Blank/F/Q□/Y□ selected | $F = \frac{P(1-0.0009 \times L)}{0.7822+0.0010 \times L}$ | $F = \frac{P(1-0.0007 \times L)}{0.5175+0.0006 \times L}$ | $F = \frac{P(1-0.0009 \times L)}{0.3547+0.0004 \times L}$ | $F = \frac{P(1-0.0008 \times L)}{0.2495+0.0002 \times L}$ | |
| | 6 P selected | F1= (L2/L3)×1.34×P F2= (L1/L3)×1.34×P | F1= (L2/L3)×2.03×P F2= (L1/L3)×2.03×P | F1= (L2/L3)×2.95×P F2= (L1/L3)×2.95×P | F1= (L2/L3)×4.13×P F2= (L1/L3)×4.13×P | |
| 6 Blank/F/P selected | Full Stroke | mm | 20 | 24 | 26 | 32 |
| | Swing Stroke (90°) | mm | 10 | 12 | 14 | 16 |
| | Vertical Stroke | mm | 10 | 12 | 12 | 16 |
| | Swing Angle Accuracy | | 90° ±3° | | | |
| | Swing Completion Position Repeatability | | ±0.5° | | | |
| 6 Q□ selected | Option | | Q15 Q20 Q25 Q30 Q35 Q40 Q45 Q50 | Q20 Q25 Q30 Q35 Q40 Q45 Q50 | Q20 Q25 Q30 Q35 Q40 Q45 Q50 | Q25 Q30 Q35 Q40 Q45 Q50 |
| | Full Stroke | mm | 25 30 35 40 50 55 60 65 | 32 37 42 47 55 60 65 | 34 39 44 49 57 62 67 | 41 46 51 56 61 66 |
| | Swing Stroke (90°) | mm | 10 10 10 10 15 15 15 15 | 12 12 12 12 15 15 15 14 | 14 14 14 14 17 17 17 16 | 16 16 16 16 16 16 16 |
| | Vertical Stroke | mm | 15 20 25 30 35 40 45 50 | 20 25 30 35 40 45 50 | 20 25 30 35 40 45 50 | 25 30 35 40 45 50 |
| | Swing Angle Accuracy | | 90° ±3° | | | |
| | Swing Completion Position Repeatability | | ±0.5° | | | |
| 6 Y□ selected | Option | | Y30 Y45 Y60 | Y30 Y45 Y60 | Y30 Y45 Y60 | Y30 Y45 Y60 |
| | Full Stroke | mm | 15.3 16.5 17.6 | 18.7 20 21.3 | 19.9 21.4 22.9 | 24.8 26.6 28.4 |
| | Swing Stroke | mm | 5.3 6.5 7.6 | 6.7 8 9.3 | 7.9 9.4 10.9 | 8.8 10.6 12.4 |
| | Vertical Stroke | mm | 10 10 10 | 12 12 12 | 12 12 12 | 16 16 16 |
| | Swing Angle Accuracy | | 30° ±3° 45° ±3° 60° ±3° | 30° ±3° 45° ±3° 60° ±3° | 30° ±3° 45° ±3° 60° ±3° | 30° ±3° 45° ±3° 60° ±3° |
| | Swing Completion Position Repeatability | | ±0.5° | | | |
| Max. Operating Pressure | MPa | 7 | | | | |
| Min. Operating Pressure ^{※2} | MPa | 1.5 | | | | |
| Withstanding Pressure | MPa | 10.5 | | | | |
| Operating Temperature | °C | 0 ~ 70 | | | | |
| Usable Fluid | | General Hydraulic Oil Equivalent to ISO-VG-32 | | | | |

Notes ※1. F, F1, F2 : Clamping Force (kN) P : Supply Hydraulic Pressure (MPa)
L, L1, L2 : Distance between the piston center and the clamping point (mm) L3 : (mm).

- ※2. Minimum pressure to operate the clamp with no load.
1. Please see the external dimension if you need the information of mass and cylinder volume.



| |
|--------------------------------|
| High-Power Series |
| Pneumatic Series |
| Hydraulic Series |
| Valve / Coupler Hydraulic Unit |
| Manual Operation Accessories |
| Cautions / Others |

| |
|------------|
| High Clamp |
| SFA |
| SFC |

| |
|-------------|
| Swing Clamp |
| LHA |
| LHC |
| LHS |
| LHW |
| LT/LG |
| TLA-2 |
| TLB-2 |
| TLA-1 |

| |
|------------|
| Link Clamp |
| LKA |
| LKC |
| LKW |
| LM/LJ |
| TMA-2 |
| TMA-1 |

| |
|--------------|
| Work Support |
| LD |
| LC |
| TNC |
| TC |

| |
|---------------------------|
| Air Sensing Lift Cylinder |
| LLW |

| |
|------------------|
| Compact Cylinder |
| LL |
| LLR |
| LLU |
| DP |
| DR |
| DS |
| DT |

| |
|----------------|
| Block Cylinder |
| DBA |
| DBC |

| |
|---------------|
| Control Valve |
| BZL |
| BZT |
| BZX/JZG |

| |
|--------------|
| Pallet Clamp |
| VS |
| VT |

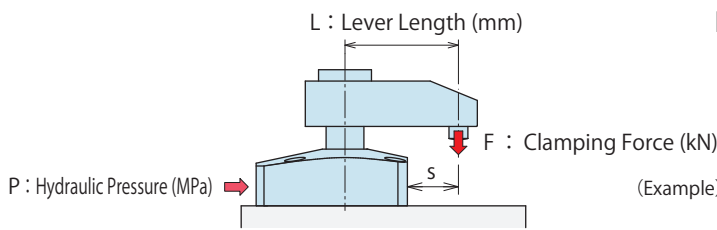
| |
|------------------------|
| Expansion Locating Pin |
| VL |
| VM |
| VJ |
| VK |

| |
|-----------------|
| Pull Stud Clamp |
| FP |
| FQ |

| |
|----------------------------|
| Customized Spring Cylinder |
| DWA/DWB |

Clamping Force Curve

※ LHA□0-□□□-P : For balance lever option, the clamping force curve is different from the graph. Please calculate it with the specification's formula.



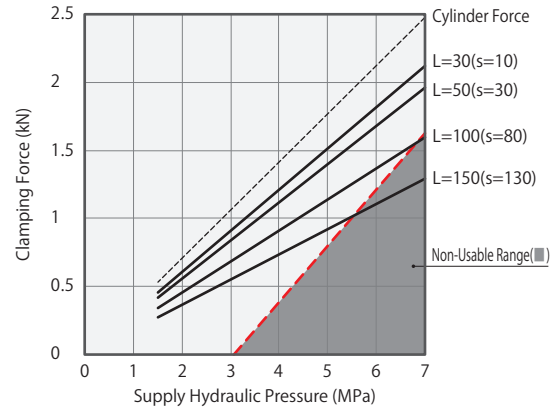
Applicable Model



(Example) When using LHA0480
Supply Hydraulic Pressure 5.0 MPa, Lever Length L=50 mm
Clamping force is about 3.1 kN.

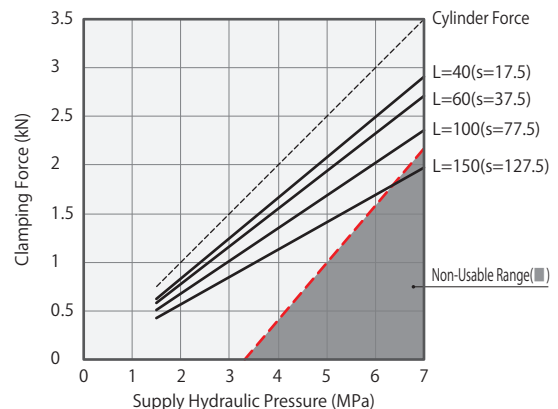
Clamping Force Calculation Formula ※1 (kN) $F = P(1-0.0021 \times L) / (2.9379+0.0052 \times L)$

| Hydraulic Pressure (MPa) | Cylinder Force (kN) | Clamping Force (kN) Lever Length L (mm) | | | | | | | | | Max. Lever Length (L) (mm) |
|-------------------------------|---------------------|---|------|------|------|------|-------|-------|-------|-----|----------------------------|
| | | L=30 | L=40 | L=50 | L=60 | L=80 | L=100 | L=120 | L=150 | | |
| 7 | 2.48 | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 1.5 | 1.3 | 1.1 | 96 | |
| 6.5 | 2.30 | 2.0 | 1.9 | 1.9 | 1.8 | 1.7 | 1.5 | 1.3 | 1.1 | 110 | |
| 6 | 2.13 | 1.9 | 1.8 | 1.7 | 1.7 | 1.5 | 1.4 | 1.3 | 1.1 | 129 | |
| 5.5 | 1.95 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 150 | |
| 5 | 1.77 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 150 | |
| 4.5 | 1.59 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 1.1 | 1.0 | 0.9 | 150 | |
| 4 | 1.42 | 1.3 | 1.2 | 1.2 | 1.1 | 1.0 | 1.0 | 0.9 | 0.8 | 150 | |
| 3.5 | 1.24 | 1.1 | 1.1 | 1.0 | 1.0 | 0.9 | 0.8 | 0.8 | 0.7 | 150 | |
| 3 | 1.06 | 1.0 | 0.9 | 0.9 | 0.9 | 0.8 | 0.7 | 0.7 | 0.6 | 150 | |
| 2.5 | 0.89 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | 0.5 | 150 | |
| 2 | 0.71 | 0.7 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.4 | 150 | |
| 1.5 | 0.53 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 150 | |
| Max. Operating Pressure (MPa) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 6.9 | 6.3 | 5.6 | | | |



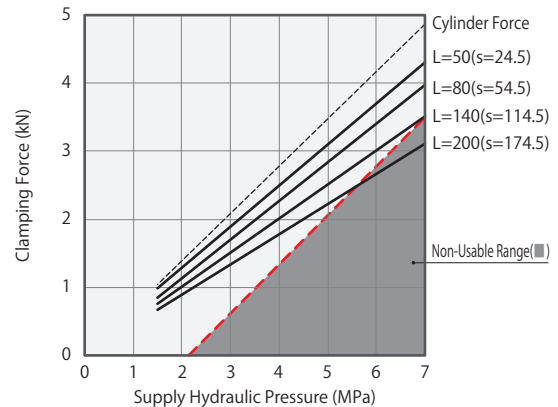
Clamping Force Calculation Formula ※1 (kN) $F = P(1-0.0016 \times L) / (2.0920+0.0040 \times L)$

| Hydraulic Pressure (MPa) | Cylinder Force (kN) | Clamping Force (kN) Lever Length L (mm) | | | | | | | Max. Lever Length (L) (mm) |
|-------------------------------|---------------------|---|------|------|------|------|-------|-------|----------------------------|
| | | L=40 | L=50 | L=60 | L=70 | L=80 | L=100 | L=120 | |
| 7 | 3.50 | 3.0 | 2.9 | 2.8 | 2.7 | 2.6 | 2.4 | 2.2 | 124 |
| 6.5 | 3.25 | 2.7 | 2.7 | 2.6 | 2.5 | 2.4 | 2.2 | 2.1 | 144 |
| 6 | 3.00 | 2.5 | 2.5 | 2.4 | 2.3 | 2.2 | 2.1 | 1.9 | 171 |
| 5.5 | 2.75 | 2.3 | 2.3 | 2.2 | 2.1 | 2.0 | 1.9 | 1.8 | 210 |
| 5 | 2.50 | 2.1 | 2.1 | 2.0 | 1.9 | 1.9 | 1.7 | 1.6 | 210 |
| 4.5 | 2.25 | 1.9 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 210 |
| 4 | 2.00 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | 210 |
| 3.5 | 1.75 | 1.5 | 1.4 | 1.4 | 1.4 | 1.3 | 1.2 | 1.1 | 210 |
| 3 | 1.50 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.0 | 210 |
| 2.5 | 1.25 | 1.1 | 1.0 | 1.0 | 1.0 | 0.9 | 0.9 | 0.8 | 210 |
| 2 | 1.00 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 210 |
| 1.5 | 0.75 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 210 |
| Max. Operating Pressure (MPa) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 6.4 | |



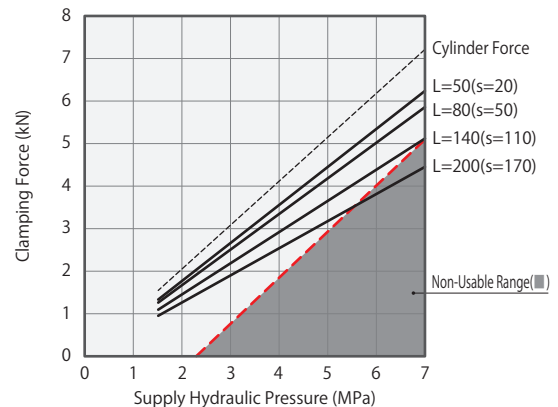
Clamping Force Calculation Formula ※1 (kN) $F = P(1-0.0009 \times L) / (1.4892+0.0018 \times L)$

| Hydraulic Pressure (MPa) | Cylinder Force (kN) | Clamping Force (kN) Lever Length L (mm) | | | | | | | Max. Lever Length (L) (mm) |
|-------------------------------|---------------------|---|------|------|-------|-------|-------|-------|----------------------------|
| | | L=50 | L=60 | L=80 | L=100 | L=120 | L=140 | L=160 | |
| 7 | 4.87 | 4.3 | 4.2 | 4.0 | 3.9 | 3.7 | 3.6 | 3.1 | 141 |
| 6.5 | 4.52 | 4.0 | 3.9 | 3.7 | 3.6 | 3.4 | 3.3 | 2.9 | 157 |
| 6 | 4.17 | 3.7 | 3.6 | 3.5 | 3.3 | 3.2 | 3.1 | 2.9 | 178 |
| 5.5 | 3.82 | 3.4 | 3.3 | 3.2 | 3.0 | 2.9 | 2.8 | 2.7 | 204 |
| 5 | 3.48 | 3.1 | 3.0 | 2.9 | 2.8 | 2.7 | 2.6 | 2.5 | 230 |
| 4.5 | 3.13 | 2.8 | 2.7 | 2.6 | 2.5 | 2.4 | 2.3 | 2.2 | 230 |
| 4 | 2.78 | 2.5 | 2.4 | 2.3 | 2.2 | 2.1 | 2.1 | 2.0 | 230 |
| 3.5 | 2.43 | 2.2 | 2.1 | 2.0 | 2.0 | 1.9 | 1.8 | 1.7 | 230 |
| 3 | 2.09 | 1.9 | 1.8 | 1.7 | 1.7 | 1.6 | 1.6 | 1.5 | 230 |
| 2.5 | 1.74 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 230 |
| 2 | 1.39 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.0 | 1.0 | 230 |
| 1.5 | 1.04 | 1.0 | 0.9 | 0.9 | 0.9 | 0.8 | 0.8 | 0.8 | 230 |
| Max. Operating Pressure (MPa) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 6.6 | 5.7 | |



Clamping Force Calculation Formula ※1 (kN) $F = P(1-0.0011 \times L) / (1.0039+0.0011 \times L)$

| Hydraulic Pressure (MPa) | Cylinder Force (kN) | Clamping Force (kN) Lever Length L (mm) | | | | | | | Max. Lever Length (L) (mm) |
|-------------------------------|---------------------|---|------|------|-------|-------|-------|-------|----------------------------|
| | | L=50 | L=60 | L=80 | L=100 | L=120 | L=140 | L=160 | |
| 7 | 7.21 | 6.3 | 6.2 | 5.9 | 5.6 | 5.4 | 5.2 | 4.2 | 142 |
| 6.5 | 6.69 | 5.8 | 5.7 | 5.5 | 5.2 | 5.0 | 4.8 | 4.2 | 159 |
| 6 | 6.18 | 5.4 | 5.3 | 5.1 | 4.8 | 4.6 | 4.4 | 4.2 | 180 |
| 5.5 | 5.66 | 5.0 | 4.8 | 4.6 | 4.4 | 4.2 | 4.1 | 3.9 | 209 |
| 5 | 5.15 | 4.5 | 4.4 | 4.2 | 4.0 | 3.9 | 3.7 | 3.5 | 245 |
| 4.5 | 4.63 | 4.1 | 4.0 | 3.8 | 3.6 | 3.5 | 3.3 | 3.2 | 245 |
| 4 | 4.12 | 3.6 | 3.5 | 3.4 | 3.2 | 3.1 | 3.0 | 2.8 | 245 |
| 3.5 | 3.60 | 3.2 | 3.1 | 3.0 | 2.8 | 2.7 | 2.6 | 2.5 | 245 |
| 3 | 3.09 | 2.7 | 2.7 | 2.6 | 2.4 | 2.3 | 2.2 | 2.1 | 245 |
| 2.5 | 2.57 | 2.3 | 2.2 | 2.1 | 2.0 | 2.0 | 1.9 | 1.8 | 245 |
| 2 | 2.06 | 1.8 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 245 |
| 1.5 | 1.54 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 245 |
| Max. Operating Pressure (MPa) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 6.4 | 5.6 | |



Notes

- Tables and graphs shown are the relationships between the clamping force (kN) and supply hydraulic pressure (MPa).
- Cylinder output (when L=0) cannot be calculated from the calculation formula of clamping force.
- There may be no lever swing action with large inertia depending on supply hydraulic pressure or lever mounting position.
- The clamping force is shown with lever in the locked position.
- The clamping force varies as per the lever length. Use the hydraulic supply pressure suitable to the lever length.
- Operation in the non-usable range can damage the clamp and lead to fluid leakage.
- The tables and graphs are only for reference. The exact results should be calculated based on the formula in the specification column.

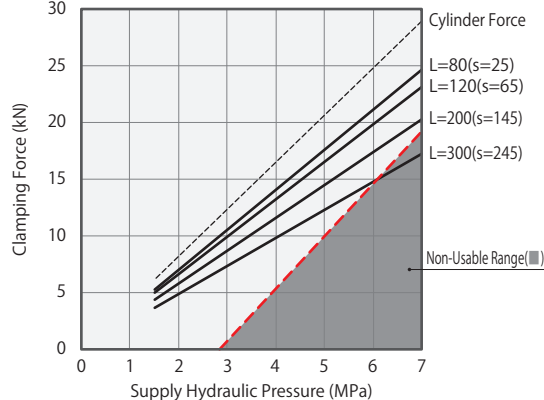
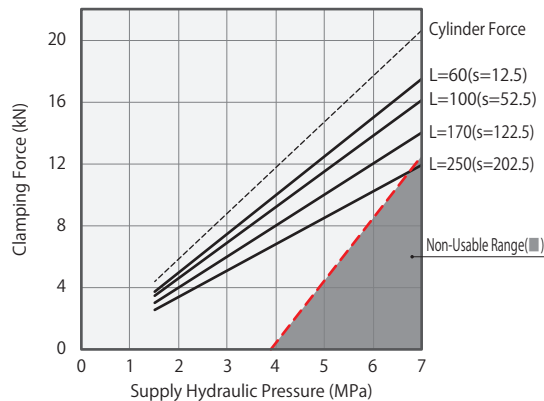
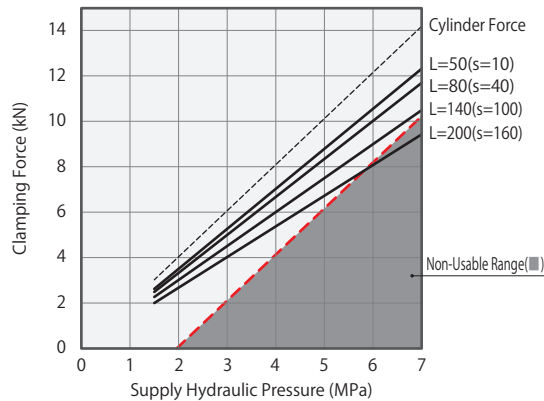
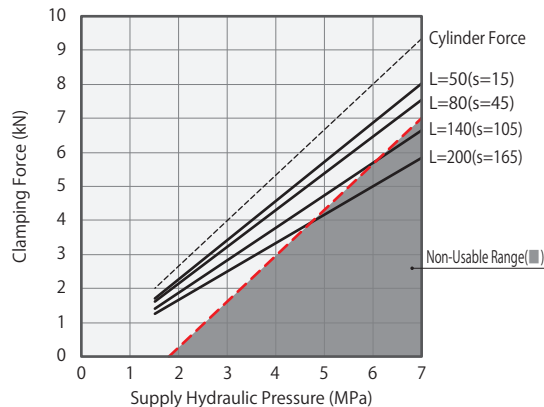
※1. F : Clamping Force (kN) , P : Supply Hydraulic Pressure (MPa) , L : Lever Length (mm).

| LHA0650 | | Clamping Force Calculation Formula ※1 (kN) $F = P(1-0.0009 \times L) / (0.7822+0.0010 \times L)$ | | | | | | | | | |
|-------------------------------|---------------------|--|------|------|-------|-------|-------|-------|-------|-----------------------|----------------------------|
| Hydraulic Pressure (MPa) | Cylinder Force (kN) | Clamping Force (kN) | | | | | | | | Non-Usable Range (mm) | Max. Lever Length (L) (mm) |
| | | L=50 | L=60 | L=80 | L=100 | L=120 | L=140 | L=160 | L=200 | | |
| 7 | 9.35 | 8.1 | 7.9 | 7.6 | 7.3 | | | | | | 115 |
| 6.5 | 8.68 | 7.5 | 7.3 | 7.0 | 6.7 | 6.5 | | | | | 127 |
| 6 | 8.02 | 6.9 | 6.8 | 6.5 | 6.2 | 6.0 | 5.7 | | | | 142 |
| 5.5 | 7.35 | 6.4 | 6.2 | 6.0 | 5.7 | 5.5 | 5.3 | 5.0 | | | 161 |
| 5 | 6.68 | 5.8 | 5.7 | 5.4 | 5.2 | 5.0 | 4.8 | 4.6 | | | 187 |
| 4.5 | 6.01 | 5.2 | 5.1 | 4.9 | 4.7 | 4.5 | 4.3 | 4.1 | 3.8 | | 221 |
| 4 | 5.34 | 4.6 | 4.5 | 4.4 | 4.2 | 4.0 | 3.8 | 3.7 | 3.4 | | 260 |
| 3.5 | 4.68 | 4.1 | 4.0 | 3.8 | 3.7 | 3.5 | 3.4 | 3.2 | 3.0 | | 260 |
| 3 | 4.01 | 3.5 | 3.4 | 3.3 | 3.1 | 3.0 | 2.9 | 2.8 | 2.5 | | 260 |
| 2.5 | 3.34 | 2.9 | 2.9 | 2.7 | 2.6 | 2.5 | 2.4 | 2.3 | 2.1 | | 260 |
| 2 | 2.67 | 2.3 | 2.3 | 2.2 | 2.1 | 2.0 | 1.9 | 1.9 | 1.7 | | 260 |
| 1.5 | 2.00 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 | | 260 |
| Max. Operating Pressure (MPa) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 6.8 | 6.1 | 5.6 | 4.8 | | |

| LHA0750 | | Clamping Force Calculation Formula ※1 (kN) $F = P(1-0.0007 \times L) / (0.5175+0.0006 \times L)$ | | | | | | | | | |
|-------------------------------|---------------------|--|------|------|-------|-------|-------|-------|-------|-----------------------|----------------------------|
| Hydraulic Pressure (MPa) | Cylinder Force (kN) | Clamping Force (kN) | | | | | | | | Non-Usable Range (mm) | Max. Lever Length (L) (mm) |
| | | L=50 | L=60 | L=80 | L=100 | L=120 | L=140 | L=160 | L=200 | | |
| 7 | 14.21 | 12.4 | 12.2 | 11.7 | 11.3 | 10.9 | 10.5 | | | | 147 |
| 6.5 | 13.19 | 11.5 | 11.3 | 10.9 | 10.5 | 10.2 | 9.8 | 9.5 | | | 163 |
| 6 | 12.18 | 10.6 | 10.4 | 10.1 | 9.7 | 9.4 | 9.0 | 8.7 | | | 184 |
| 5.5 | 11.16 | 9.7 | 9.6 | 9.2 | 8.9 | 8.6 | 8.3 | 8.0 | 7.5 | | 209 |
| 5 | 10.15 | 8.9 | 8.7 | 8.4 | 8.1 | 7.8 | 7.5 | 7.3 | 6.8 | | 244 |
| 4.5 | 9.13 | 8.0 | 7.8 | 7.6 | 7.3 | 7.0 | 6.8 | 6.6 | 6.1 | | 280 |
| 4 | 8.12 | 7.1 | 7.0 | 6.7 | 6.5 | 6.3 | 6.0 | 5.8 | 5.4 | | 280 |
| 3.5 | 7.10 | 6.2 | 6.1 | 5.9 | 5.7 | 5.5 | 5.3 | 5.1 | 4.8 | | 280 |
| 3 | 6.09 | 5.3 | 5.2 | 5.1 | 4.9 | 4.7 | 4.5 | 4.4 | 4.1 | | 280 |
| 2.5 | 5.07 | 4.5 | 4.4 | 4.2 | 4.1 | 3.9 | 3.8 | 3.7 | 3.4 | | 280 |
| 2 | 4.06 | 3.6 | 3.5 | 3.4 | 3.3 | 3.2 | 3.0 | 2.9 | 2.7 | | 280 |
| 1.5 | 3.04 | 2.7 | 2.6 | 2.5 | 2.5 | 2.4 | 2.3 | 2.2 | 2.1 | | 280 |
| Max. Operating Pressure (MPa) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 6.9 | 5.9 | | |

| LHA0900 | | Clamping Force Calculation Formula ※1 (kN) $F = P(1-0.0009 \times L) / (0.3547+0.0004 \times L)$ | | | | | | | | | |
|-------------------------------|---------------------|--|------|-------|-------|-------|-------|-------|-------|-----------------------|----------------------------|
| Hydraulic Pressure (MPa) | Cylinder Force (kN) | Clamping Force (kN) | | | | | | | | Non-Usable Range (mm) | Max. Lever Length (L) (mm) |
| | | L=60 | L=75 | L=100 | L=120 | L=140 | L=170 | L=200 | L=250 | | |
| 7 | 20.62 | 17.5 | 17.0 | 16.2 | 15.6 | 14.9 | 14.1 | 13.3 | | | 245 |
| 6.5 | 19.15 | 16.3 | 15.8 | 15.0 | 14.4 | 13.9 | 13.1 | 12.3 | 11.1 | | 292 |
| 6 | 17.68 | 15.0 | 14.6 | 13.9 | 13.3 | 12.8 | 12.1 | 11.4 | 10.3 | | 330 |
| 5.5 | 16.20 | 13.8 | 13.4 | 12.7 | 12.2 | 11.7 | 11.1 | 10.4 | 9.4 | | 330 |
| 5 | 14.73 | 12.5 | 12.2 | 11.6 | 11.1 | 10.7 | 10.1 | 9.5 | 8.6 | | 330 |
| 4.5 | 13.26 | 11.3 | 11.0 | 10.4 | 10.0 | 9.6 | 9.1 | 8.5 | 7.7 | | 330 |
| 4 | 11.78 | 10.0 | 9.7 | 9.3 | 8.9 | 8.6 | 8.1 | 7.6 | 6.9 | | 330 |
| 3.5 | 10.31 | 8.8 | 8.5 | 8.1 | 7.8 | 7.5 | 7.1 | 6.6 | 6.0 | | 330 |
| 3 | 8.84 | 7.5 | 7.3 | 7.0 | 6.7 | 6.4 | 6.1 | 5.7 | 5.2 | | 330 |
| 2.5 | 7.37 | 6.3 | 6.1 | 5.8 | 5.6 | 5.4 | 5.1 | 4.8 | 4.3 | | 330 |
| 2 | 5.89 | 5.0 | 4.9 | 4.7 | 4.5 | 4.3 | 4.1 | 3.8 | 3.5 | | 330 |
| 1.5 | 4.42 | 3.8 | 3.7 | 3.5 | 3.4 | 3.2 | 3.1 | 2.9 | 2.6 | | 330 |
| Max. Operating Pressure (MPa) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 6.8 | | |

| LHA1050 | | Clamping Force Calculation Formula ※1 (kN) $F = P(1-0.0008 \times L) / (0.2495+0.0002 \times L)$ | | | | | | | | | |
|-------------------------------|---------------------|--|-------|-------|-------|-------|-------|-------|-------|-----------------------|----------------------------|
| Hydraulic Pressure (MPa) | Cylinder Force (kN) | Clamping Force (kN) | | | | | | | | Non-Usable Range (mm) | Max. Lever Length (L) (mm) |
| | | L=80 | L=100 | L=120 | L=140 | L=170 | L=200 | L=250 | L=300 | | |
| 7 | 28.90 | 24.7 | 23.9 | 23.2 | 22.4 | 21.4 | 20.4 | | | | 219 |
| 6.5 | 26.83 | 23.0 | 22.2 | 21.5 | 20.8 | 19.9 | 18.9 | | | | 249 |
| 6 | 24.77 | 21.2 | 20.5 | 19.9 | 19.2 | 18.3 | 17.5 | 16.1 | 14.8 | | 288 |
| 5.5 | 22.70 | 19.4 | 18.8 | 18.2 | 17.6 | 16.8 | 16.0 | 14.7 | 13.6 | | 342 |
| 5 | 20.64 | 17.7 | 17.1 | 16.6 | 16.0 | 15.3 | 14.6 | 13.4 | 12.3 | | 380 |
| 4.5 | 18.58 | 15.9 | 15.4 | 14.9 | 14.4 | 13.8 | 13.1 | 12.1 | 11.1 | | 380 |
| 4 | 16.51 | 14.1 | 13.7 | 13.3 | 12.8 | 12.2 | 11.7 | 10.7 | 9.9 | | 380 |
| 3.5 | 14.45 | 12.4 | 12.0 | 11.6 | 11.2 | 10.7 | 10.2 | 9.4 | 8.6 | | 380 |
| 3 | 12.38 | 10.6 | 10.3 | 10.0 | 9.6 | 9.2 | 8.8 | 8.1 | 7.4 | | 380 |
| 2.5 | 10.32 | 8.9 | 8.6 | 8.3 | 8.0 | 7.7 | 7.3 | 6.7 | 6.2 | | 380 |
| 2 | 8.26 | 7.1 | 6.9 | 6.7 | 6.4 | 6.1 | 5.9 | 5.4 | 5.0 | | 380 |
| 1.5 | 6.19 | 5.3 | 5.2 | 5.0 | 4.8 | 4.6 | 4.4 | 4.1 | 3.7 | | 380 |
| Max. Operating Pressure (MPa) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 6.4 | 5.8 | | |



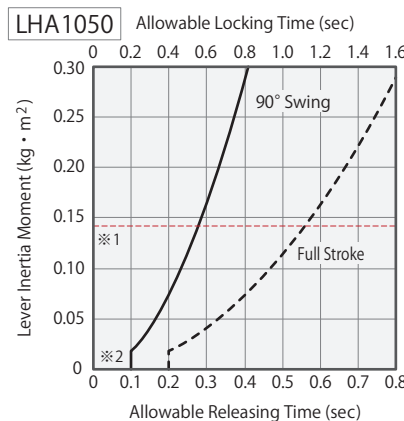
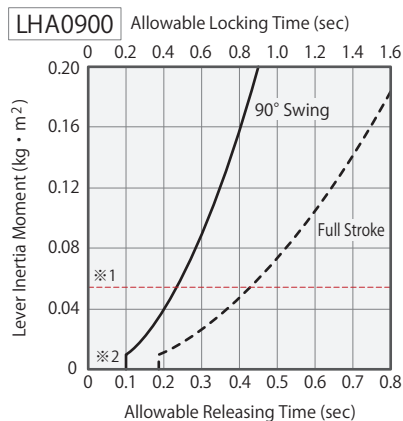
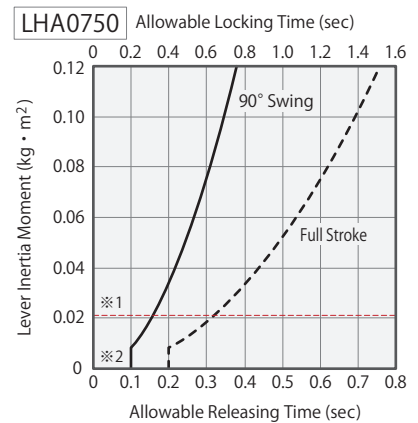
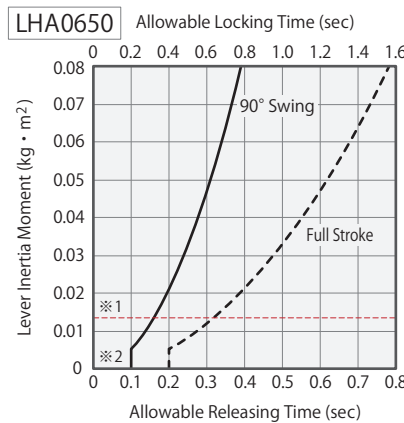
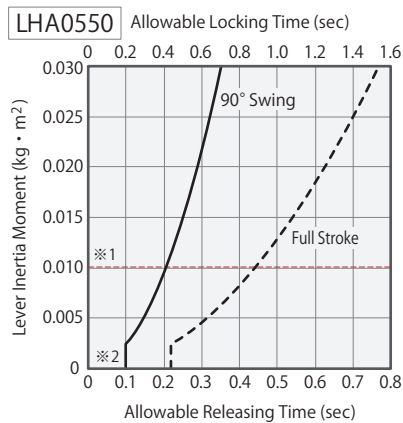
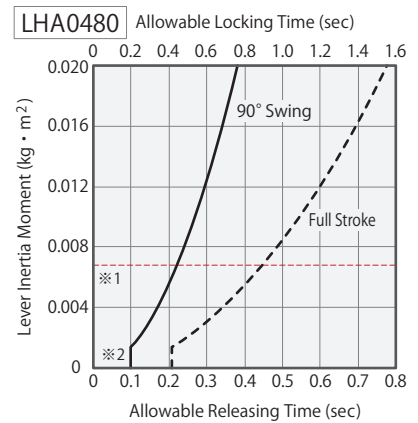
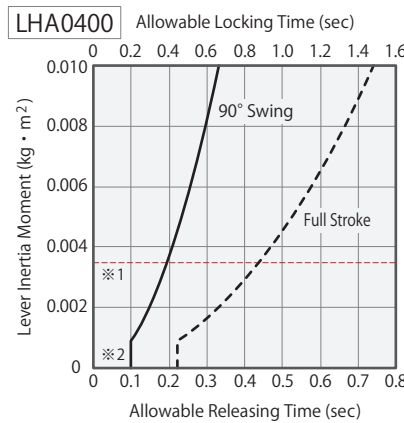
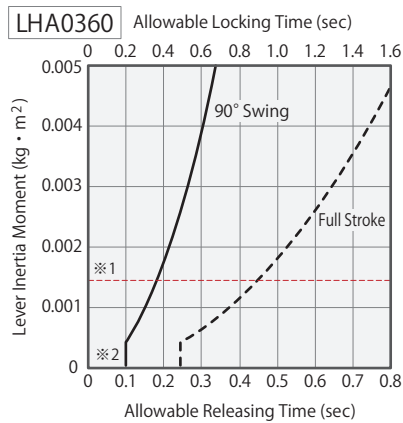
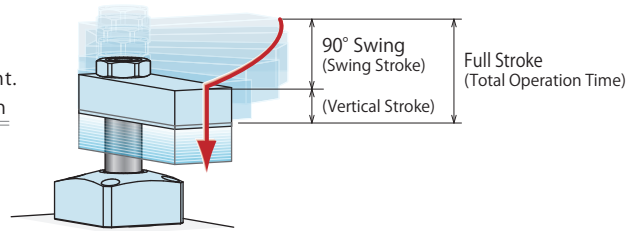
- High-Power Series
- Pneumatic Series
- Hydraulic Series**
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others
- Hole Clamp
 - SFA
 - SFC
- Swing Clamp**
 - LHA**
 - LHC
 - LHS
 - LHW
 - LT/LG
 - TLA-2
 - TLB-2
 - TLA-1
- Link Clamp
 - LKA
 - LKC
 - LKW
 - LM/LJ
 - TMA-2
 - TMA-1
- Work Support
 - LD
 - LC
 - TNC
 - TC
- Air Sensing Lift Cylinder
 - LLW
- Compact Cylinder
 - LL
 - LLR
 - LLU
 - DP
 - DR
 - DS
 - DT
- Block Cylinder
 - DBA
 - DBC
- Control Valve
 - BZL
 - BZT
 - BZX/JZG
- Pallet Clamp
 - VS
 - VT
- Expansion Locating Pin
 - VL
 - VM
 - VJ
 - VK
- Pull Stud Clamp
 - FP
 - FQ
- Customized Spring Cylinder
 - DWA/DWB

● Allowable Swing Time Graph

Adjustment of Swing Time

The graph shows allowable swing time against lever inertia moment. Please make sure that an operation time is more than the operation time shown in the graph.

Excessive action speed can reduce stopping accuracy and damage internal parts.



Notes

- ※1. It shows the inertia moment with material lever (LZH□-T).
- ※2. For any lever inertia moment, minimum 90° swing time should be 0.2 sec for locking and 0.1 sec for releasing or more.
 1. In the case of LHA-Q long stroke option, the full action time should be calculated as per the calculation formula. (90° swing time is shown in the graph.)
 2. The graph shows the action time tolerance in regard to the lever inertia moment when the clamp piston is operating at constant speed.
 3. There may be no lever swing action with large inertia depending on supply hydraulic pressure, oil flow and lever mounting position.
 4. For speed adjustment of clamp lever, please use meter-out flow control valve.

In case of meter-in control, the clamp lever may be accelerated by its own weight during swinging motion (clamp mounted horizontally) or the piston rod may be moving too fast. Please refer to P.1044 for speed control of the hydraulic cylinder.
 5. Excessive swing speed can reduce stopping accuracy and damage the internal parts.
 6. Please contact us if operational conditions differ from those shown on the graphs.

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

(How to read the allowable swing time graph)

When using LHA0480

Lever Inertia Moment : 0.0068kg·m²

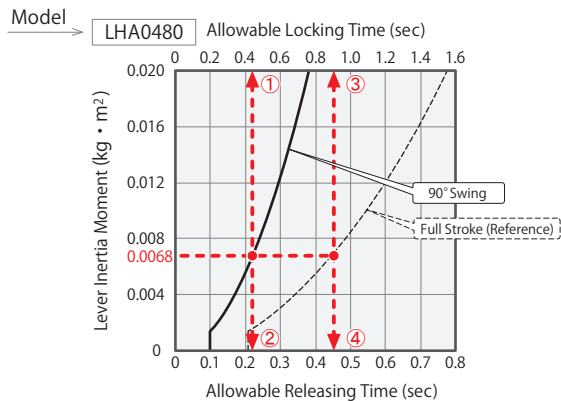
①90° Swing Time when Locking : About 0.44 sec or more

②90° Swing Time when Releasing : About 0.22 sec or more

③Total Lock Operation Time : About 0.9 sec or more

④Total Release Operation Time : About 0.45 sec or more

1. The total operation time on the graph represents the allowable operation time when fully stroked.



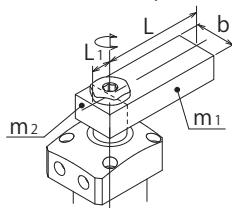
How to calculate inertia moment (Estimated)

I : Inertia Moment (kg·m²)

L,L₁,L₂,K,b : Length (m)

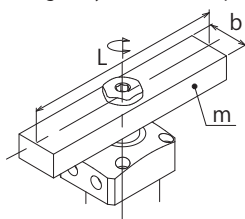
m,m₁,m₂,m₃ : Mass (kg)

① For a rectangular plate (cuboid), the rotating shaft is vertically on one side of the plate.



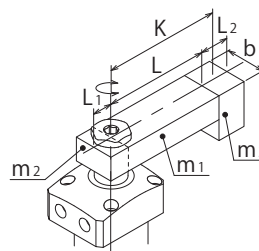
$$I = m_1 \frac{4L^2 + b^2}{12} + m_2 \frac{4L_1^2 + b^2}{12}$$

② For a rectangular plate (cuboid), the rotating shaft is vertically on the gravity center of the plate.



$$I = m \frac{L^2 + b^2}{12}$$

③ Load is applied on the lever front end.



$$I = m_1 \frac{4L^2 + b^2}{12} + m_2 \frac{4L_1^2 + b^2}{12} + m_3 K^2 + m_3 \frac{L_2^2 + b^2}{12}$$

Calculation Formula of Total Operation Time

$$\text{Total Lock Operation Time (sec)} = 90^\circ \text{ Swing Time when Locking (sec)} \times \frac{\text{Full Stroke (mm)}}{\text{Swing Stroke (mm)}}$$

$$\text{Total Release Operation Time (sec)} = 90^\circ \text{ Swing Time when Releasing (sec)} \times \frac{\text{Full Stroke (mm)}}{\text{Swing Stroke (mm)}}$$

Hole Clamp

SFA

SFC

Swing Clamp

LHA

LHC

LHS

LHW

LT/LG

TLA-2

TLB-2

TLA-1

Link Clamp

LKA

LKC

LKW

LM/LJ

TMA-2

TMA-1

Work Support

LD

LC

TNC

TC

Air Sensing Lift Cylinder

LLW

Compact Cylinder

LL

LLR

LLU

DP

DR

DS

DT

Block Cylinder

DBA

DBC

Control Valve

BZL

BZT

BZX/JZG

Pallet Clamp

VS

VT

Expansion Locating Pin

VL

VM

VJ

VK

Pull Stud Clamp

FP

FQ

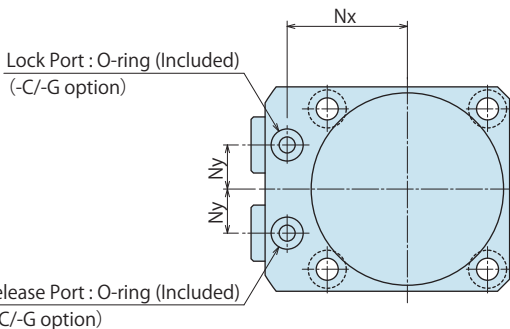
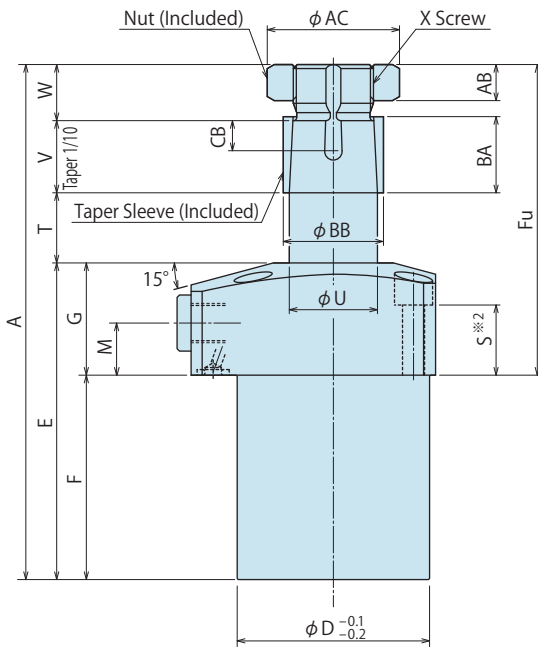
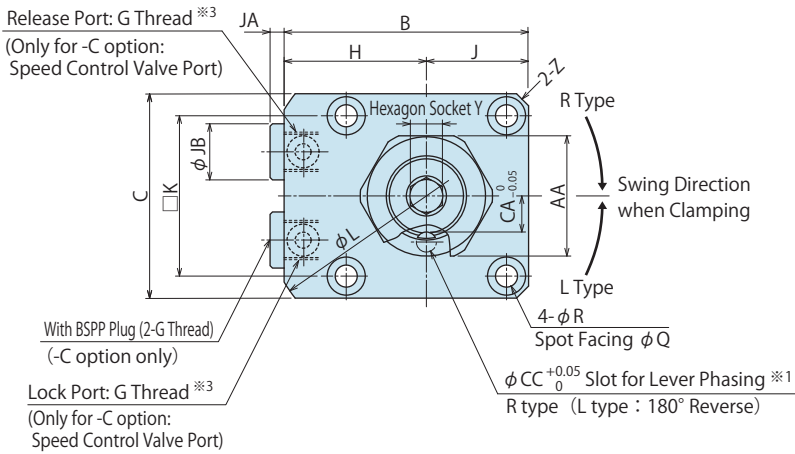
Customized Spring Cylinder

DWA/DWB

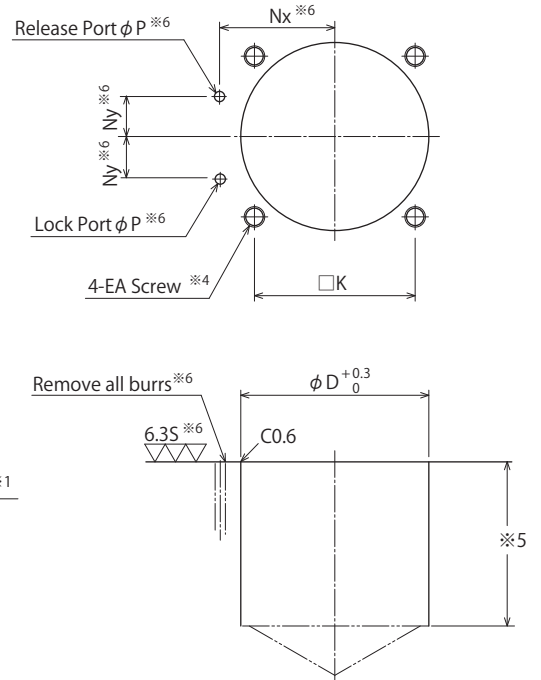
External Dimensions

C : Gasket Option (With G Thread Plug)

※The drawing shows the released state of LHA-CR.



Machining Dimensions of Mounting Area



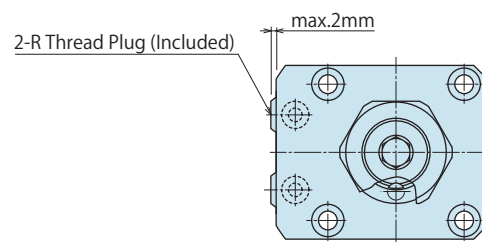
Notes

- ※4. EA tapping depth should be calculated so that mounting bolts engage fixture by at least 1.5 x bolt diameter.
- ※5. The φD depth of the body mounting hole should be decided from dimension F.
- ※6. The machining dimension is for -C/-G : Gasket option.

Piping Method

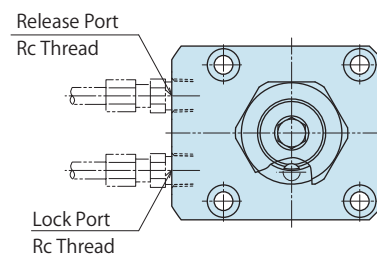
G : Gasket Option (with R Thread Plug)

※The drawing shows the released state of LHA-GR.



S : Piping Option (Rc Thread)

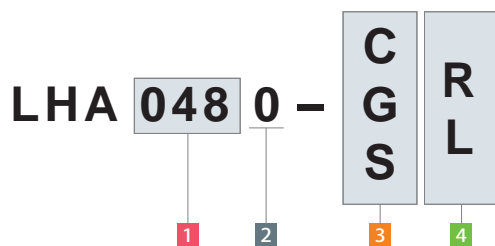
※The drawing shows the released state of LHA-SR.



Notes

- ※1. The slot for determining the lever phase faces the port side if locked.
- ※2. Mounting bolts are not provided. Customer should prepare based on dimension "S".
- ※3. Speed control valve is sold separately. Please prepare using reference to P.727.

Model No. Indication



(Format Example : LHA0550-CR, LHA0750-SL)

- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Action Confirmation (When blank is chosen)
- 6 Option (When blank is chosen)

External Dimensions and Machining Dimensions for Mounting

(mm)

| Model No. | LHA0360-□□ | LHA0400-□□ | LHA0480-□□ | LHA0550-□□ | LHA0650-□□ | LHA0750-□□ | LHA0900-□□ | LHA1050-□□ | |
|--------------------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Full Stroke | 13.5 | 14.5 | 15.5 | 18.5 | 20 | 24 | 26 | 32 | |
| Swing Stroke(90°) | 5.5 | 6.5 | 7.5 | 8.5 | 10 | 12 | 14 | 16 | |
| Vertical Stroke | 8 | 8 | 8 | 10 | 10 | 12 | 12 | 16 | |
| A | 104 | 115 | 128.5 | 145.5 | 156 | 181 | 203 | 240 | |
| B | 49 | 54 | 61 | 69 | 81 | 92 | 107 | 122 | |
| C | 40 | 45 | 51 | 60 | 70 | 80 | 95 | 110 | |
| D | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 | |
| E | 64.5 | 71.5 | 79 | 89 | 94 | 109 | 120 | 144 | |
| F | 39.5 | 46.5 | 51 | 59 | 63 | 71 | 74 | 88 | |
| Fu | 64.5 | 68.5 | 77.5 | 86.5 | 93 | 110 | 129 | 152 | |
| G | 25 | 25 | 28 | 30 | 31 | 38 | 46 | 56 | |
| H | 29 | 31.5 | 35.5 | 39 | 46 | 52 | 59.5 | 67 | |
| J | 20 | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 | 55 | |
| K | 31.4 | 34 | 40 | 47 | 55 | 63 | 75 | 88 | |
| L | 66 | 73 | 83 | 88 | 106 | 116 | 136 | 152 | |
| M | 11 | 11 | 13 | 12 | 13 | 16 | 19 | 22 | |
| Nx | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 | |
| Ny | 8 | 9 | 11 | 12 | 15 | 16 | 18.5 | 22.5 | |
| P | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 5 | |
| Q | 7.5 | 9 | 9 | 11 | 11 | 14 | 17.5 | 20 | |
| R | 4.5 | 5.5 | 5.5 | 6.8 | 6.8 | 9 | 11 | 14 | |
| S | 16 | 15 | 17.5 | 17 | 17 | 21 | 25 | 32 | |
| T | 15.5 | 16.5 | 17.5 | 20.5 | 22 | 26 | 28 | 34 | |
| U | 15 | 18 | 22 | 25 | 30 | 35.5 | 45 | 55 | |
| V | 13 | 15 | 18 | 21 | 24 | 30 | 37 | 43 | |
| W | 11 | 12 | 14 | 15 | 16 | 16 | 18 | 19 | |
| X (Nominal × Pitch) | M14×1.5 | M16×1.5 | M20×1.5 | M22×1.5 | M27×1.5 | M30×1.5 | M39×1.5 | M48×1.5 | |
| Y | 5 | 6 | 8 | 8 | 10 | 10 | 14 | 14 | |
| Z (Chamfer) | C2 | C3 | C3 | C3 | C4 | C5 | C6 | C6 | |
| AA | 22 | 24 | 30 | 32 | 41 | 46 | 55 | 65 | |
| AB | 7 | 8 | 9 | 10 | 11 | 11 | 12 | 12 | |
| AC | 24.5 | 26.5 | 33 | 35.5 | 45 | 50 | 60 | 71 | |
| BA | 14 | 16 | 19 | 22 | 25 | 31 | 38 | 44 | |
| BB | 17 | 20 | 25 | 28 | 34 | 40 | 49 | 60 | |
| CA | 6 | 7 | 9 | 10 | 12.5 | 14 | 18.5 | 23 | |
| CB | 6.5 | 6.5 | 7.5 | 9.5 | 11.5 | 12.5 | 11.5 | 13.5 | |
| CC | 4 | 4 | 5 | 6 | 6 | 8 | 8 | 10 | |
| EA (Nominal × Pitch) | M4×0.7 | M5×0.8 | M5×0.8 | M6×1 | M6×1 | M8×1.25 | M10×1.5 | M12×1.75 | |
| JA | 3.5 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| JB | 14 | 14 | 14 | 14 | 19 | 19 | 22 | 22 | |
| Lock Port / Release Port | -C option -S option | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/4 Rc1/4 | G1/4 Rc1/4 | G3/8 Rc3/8 | G3/8 Rc3/8 |
| R-Thread Plug | -G option | R1/8 | R1/8 | R1/8 | R1/8 | R1/4 | R1/4 | R3/8 | R3/8 |
| O-ring (-C/-G option) | | 1BP5 | 1BP5 | 1BP5 | 1BP5 | 1BP7 | 1BP7 | 1BP7 | 1BP7 |
| Cylinder Capacity cm ³ | Lock | 4.8 | 7.3 | 10.8 | 19 | 26.7 | 48.7 | 76.6 | 132.1 |
| | Release | 7.2 | 10.9 | 16.7 | 28.1 | 40.9 | 72.5 | 117.9 | 208.1 |
| Mass ^{※7} kg | | 0.7 | 0.9 | 1.4 | 2 | 2.9 | 4.2 | 7.2 | 10.1 |

Note ※7. Mass of single swing clamp including taper sleeve and nut.

- High-Power Series
- Pneumatic Series
- Hydraulic Series**
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

- Hole Clamp
- SFA
- SFC

- Swing Clamp**
- LHA
- LHC
- LHS
- LHW
- LT/LG
- TLA-2
- TLB-2
- TLA-1

- Link Clamp
- LKA
- LKC
- LKW
- LM/LJ
- TMA-2
- TMA-1

- Work Support
- LD
- LC
- TNC
- TC

- Air Sensing Lift Cylinder
- LLW

- Compact Cylinder
- LL
- LLR
- LLU
- DP
- DR
- DS
- DT

- Block Cylinder
- DBA
- DBC

- Control Valve
- BZL
- BZT
- BZX/JZG

- Pallet Clamp
- VS
- VT

- Expansion Locating Pin
- VL
- VM
- VJ
- VK

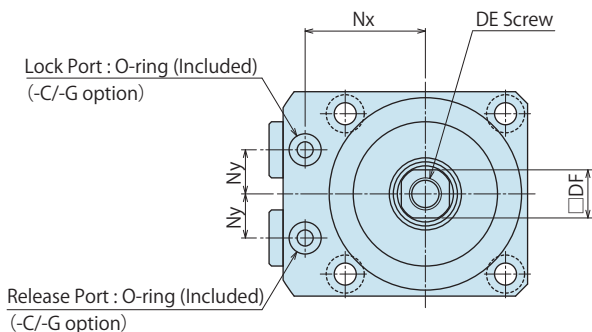
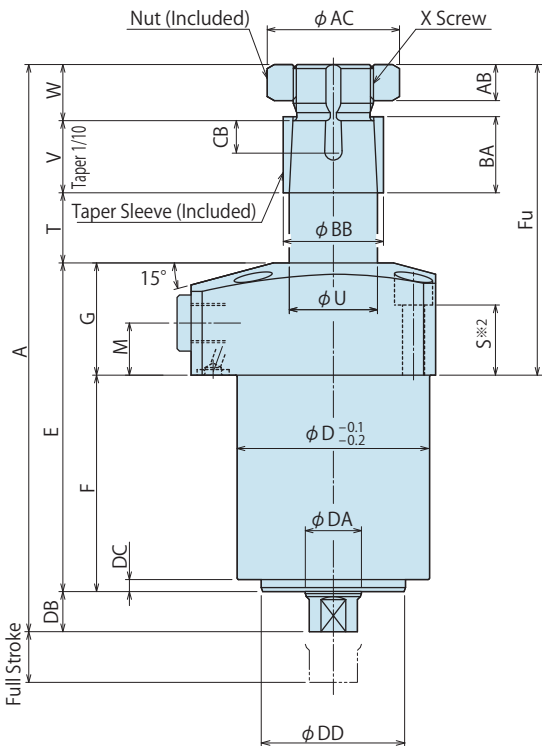
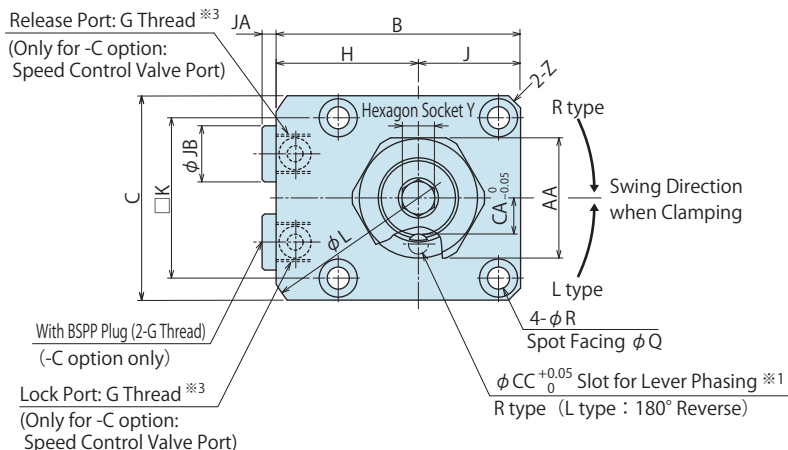
- Pull Stud Clamp
- FP
- FQ

- Customized Spring Cylinder
- DWA/DWB

External Dimensions

C : Gasket Option (G Thread Plug)

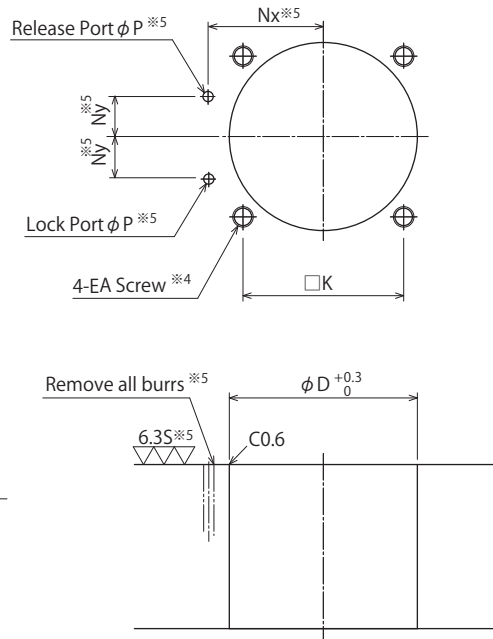
※The drawing shows the released state of LHA-CRD.



Notes

- ※1. The slot for determining the lever phase faces the port side if locked.
- ※2. Mounting bolts are not provided. Customer should prepare based on dimension "S".
- ※3. Speed control valve is sold separately. Please prepare using reference to P.727.
- 1. Please contact us if it has a combination with other check method and option form.

Machining Dimensions of Mounting Area



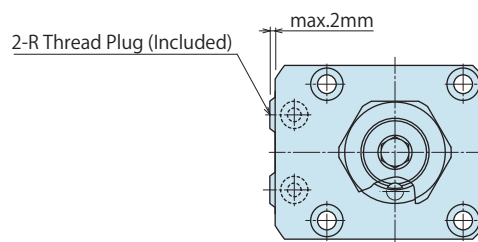
Notes

- ※4. EA tapping depth should be calculated so that mounting bolts engage fixture by at least 1.5 x bolt diameter.
- ※5. This process indicates -C/-G:Gasket option.

Piping Method

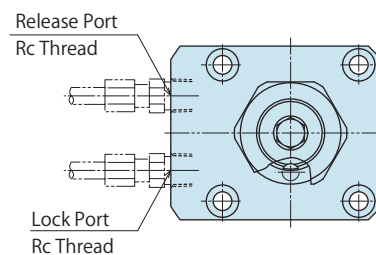
G : Gasket Option (with R Thread Plug)

※The drawing shows the released state of LHA-GRD.

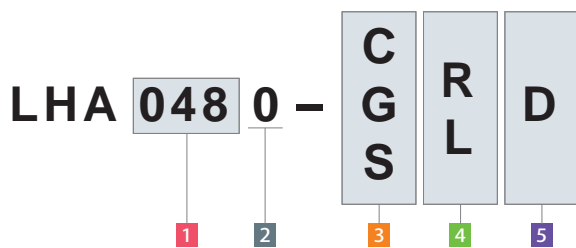


S : Piping Option (Rc Thread)

※The drawing shows the released state of LHA-SRD.



Model No. Indication



(Format Example : LHA0550-CRD、LHA0750-SLD)

- 1 Body size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Action Confirmation (When D is chosen)
- 6 Option (When Blank is chosen)

External Dimensions and Machining Dimensions for Mounting

(mm)

| Model No. | LHA0360-□□D | LHA0400-□□D | LHA0480-□□D | LHA0550-□□D | LHA0650-□□D | LHA0750-□□D | LHA0900-□□D | LHA1050-□□D | |
|--------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Full Stroke | 13.5 | 14.5 | 15.5 | 18.5 | 20 | 24 | 26 | 32 | |
| Swing Stroke(90°) | 5.5 | 6.5 | 7.5 | 8.5 | 10 | 12 | 14 | 16 | |
| Vertical Stroke | 8 | 8 | 8 | 10 | 10 | 12 | 12 | 16 | |
| A | 114.5 | 128 | 141.5 | 158.5 | 169 | 194 | 216 | 253 | |
| B | 49 | 54 | 61 | 69 | 81 | 92 | 107 | 122 | |
| C | 40 | 45 | 51 | 60 | 70 | 80 | 95 | 110 | |
| D | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 | |
| E | 67 | 74.5 | 82 | 92 | 97 | 112 | 123 | 147 | |
| F | 42 | 49.5 | 54 | 62 | 66 | 74 | 77 | 91 | |
| Fu | 64.5 | 68.5 | 77.5 | 86.5 | 93 | 110 | 129 | 152 | |
| G | 25 | 25 | 28 | 30 | 31 | 38 | 46 | 56 | |
| H | 29 | 31.5 | 35.5 | 39 | 46 | 52 | 59.5 | 67 | |
| J | 20 | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 | 55 | |
| K | 31.4 | 34 | 40 | 47 | 55 | 63 | 75 | 88 | |
| L | 66 | 73 | 83 | 88 | 106 | 116 | 136 | 152 | |
| M | 11 | 11 | 13 | 12 | 13 | 16 | 19 | 22 | |
| Nx | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 | |
| Ny | 8 | 9 | 11 | 12 | 15 | 16 | 18.5 | 22.5 | |
| P | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 5 | |
| Q | 7.5 | 9 | 9 | 11 | 11 | 14 | 17.5 | 20 | |
| R | 4.5 | 5.5 | 5.5 | 6.8 | 6.8 | 9 | 11 | 14 | |
| S | 16 | 15 | 17.5 | 17 | 17 | 21 | 25 | 32 | |
| T | 15.5 | 16.5 | 17.5 | 20.5 | 22 | 26 | 28 | 34 | |
| U | 15 | 18 | 22 | 25 | 30 | 35.5 | 45 | 55 | |
| V | 13 | 15 | 18 | 21 | 24 | 30 | 37 | 43 | |
| W | 11 | 12 | 14 | 15 | 16 | 16 | 18 | 19 | |
| X (Nominal × Pitch) | M14×1.5 | M16×1.5 | M20×1.5 | M22×1.5 | M27×1.5 | M30×1.5 | M39×1.5 | M48×1.5 | |
| Y | 5 | 6 | 8 | 8 | 10 | 10 | 14 | 14 | |
| Z (Chamfer) | C2 | C3 | C3 | C3 | C4 | C5 | C6 | C6 | |
| AA | 22 | 24 | 30 | 32 | 41 | 46 | 55 | 65 | |
| AB | 7 | 8 | 9 | 10 | 11 | 11 | 12 | 12 | |
| AC | 24.5 | 26.5 | 33 | 35.5 | 45 | 50 | 60 | 71 | |
| BA | 14 | 16 | 19 | 22 | 25 | 31 | 38 | 44 | |
| BB | 17 | 20 | 25 | 28 | 34 | 40 | 49 | 60 | |
| CA | 6 | 7 | 9 | 10 | 12.5 | 14 | 18.5 | 23 | |
| CB | 6.5 | 6.5 | 7.5 | 9.5 | 11.5 | 12.5 | 11.5 | 13.5 | |
| CC | 4 | 4 | 5 | 6 | 6 | 8 | 8 | 10 | |
| DA | 8 | 12 | 14 | 14 | 14 | 18 | 18 | 18 | |
| DB | 8 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | |
| DC | 2.5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| DD | 25 | 29 | 36 | 36 | 43 | 50 | 65 | 80 | |
| DE (Nominal×Pitch×Depth) | M4×0.7×10 | M6×1×15 | M8×1.25×18 | M8×1.25×18 | M8×1.25×18 | M10×1.5×21 | M10×1.5×21 | M10×1.5×21 | |
| DF | 6 | 10 | 12 | 12 | 12 | 16 | 16 | 16 | |
| EA (Nominal × Pitch) | M4×0.7 | M5×0.8 | M5×0.8 | M6×1 | M6×1 | M8×1.25 | M10×1.5 | M12×1.75 | |
| JA | 3.5 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| JB | 14 | 14 | 14 | 14 | 19 | 19 | 22 | 22 | |
| Lock Port / Release Port | -C option -S option | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/4 Rc1/4 | G1/4 Rc1/4 | G3/8 Rc3/8 | G3/8 Rc3/8 |
| R-Thread Plug | -G option | R1/8 | R1/8 | R1/8 | R1/8 | R1/4 | R1/4 | R3/8 | R3/8 |
| O-ring (-C/-G option) | | 1BP5 | 1BP5 | 1BP5 | 1BP5 | 1BP7 | 1BP7 | 1BP7 | 1BP7 |
| Cylinder Capacity | Lock Release | 4.8 6.5 | 7.3 9.3 | 10.8 14.3 | 19 25.3 | 26.7 37.8 | 48.7 66.4 | 76.6 111.3 | 132.1 200 |
| Mass ※6 | kg | 0.7 | 0.9 | 1.4 | 2 | 3 | 4.2 | 7.3 | 10.3 |

Note ※6. Mass of single swing clamp including taper sleeve and nut.

- High-Power Series
- Pneumatic Series
- Hydraulic Series**
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

Hole Clamp

- SFA
- SFC

Swing Clamp

- LHA**
- LHC
- LHS
- LHW
- LT/LG
- TLA-2
- TLB-2
- TLA-1

Link Clamp

- LKA
- LKC
- LKW
- LM/LJ
- TMA-2
- TMA-1

Work Support

- LD
- LC
- TNC
- TC

Air Sensing Lift Cylinder

- LLW

Compact Cylinder

- LL
- LLR
- LLU
- DP
- DR
- DS
- DT

Block Cylinder

- DBA
- DBC

Control Valve

- BZL
- BZT
- BZX/JZG

Pallet Clamp

- VS
- VT

Expansion Locating Pin

- VL
- VM
- VJ
- VK

Pull Stud Clamp

- FP
- FQ

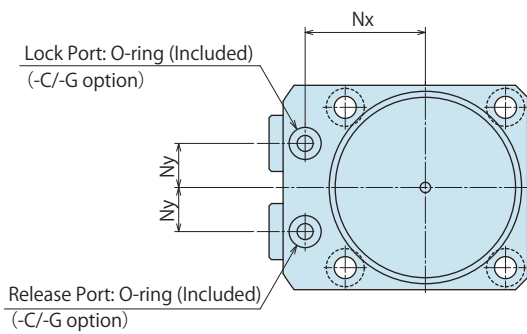
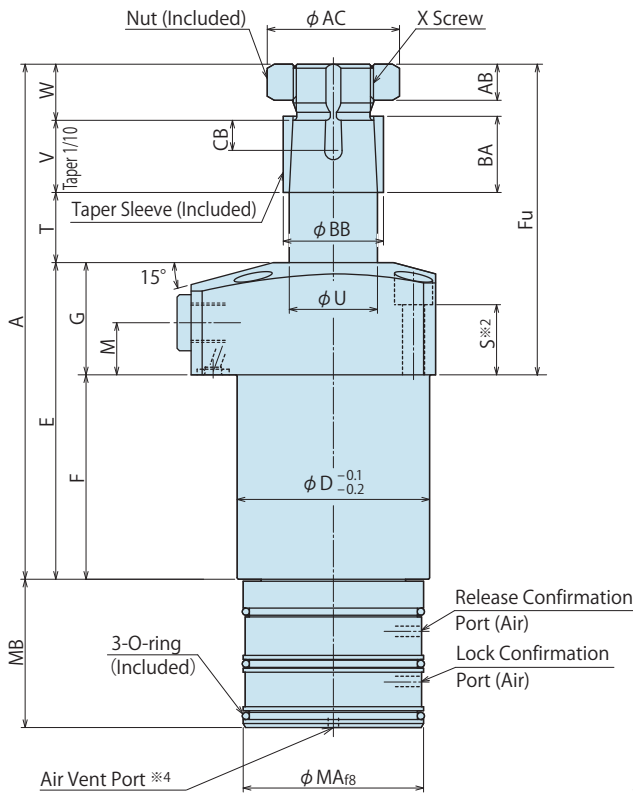
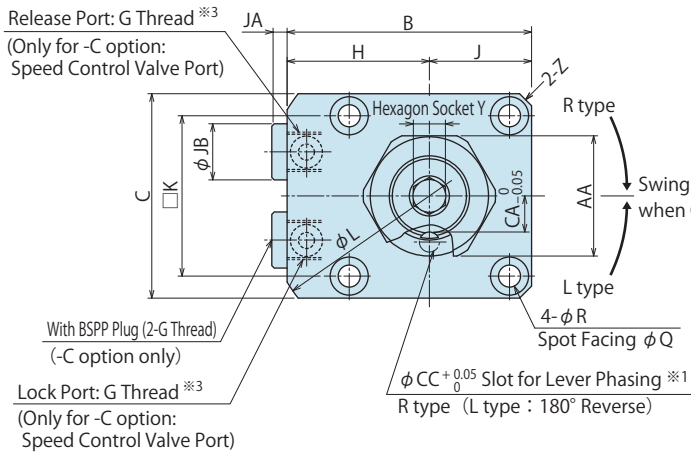
Customized Spring Cylinder

- DWA/DWB

External Dimensions

C : Gasket Option (G Thread Plug)

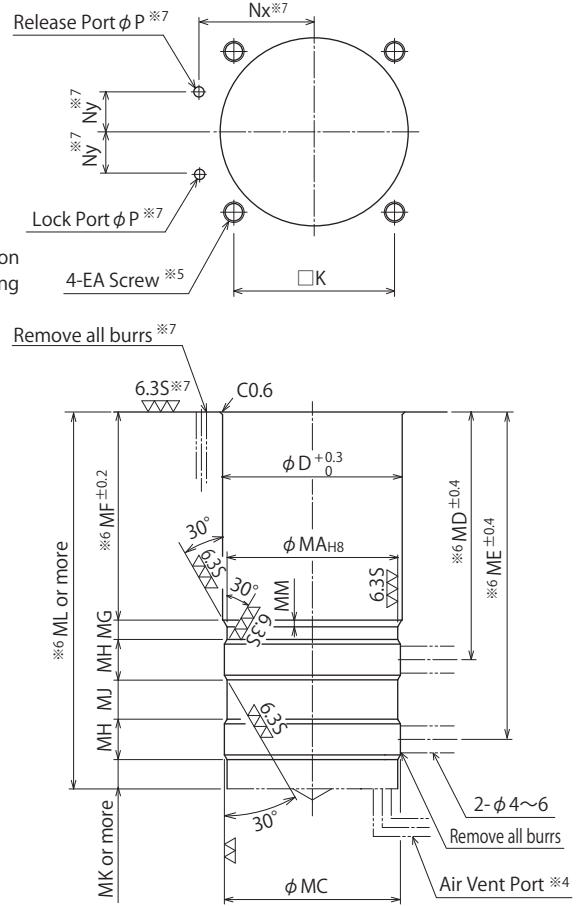
※The drawing shows the released state of LHA-CRM.



Notes

- ※1. The slot for determining the lever phase faces the port side if locked.
- ※2. Mounting bolts are not provided. Customer should prepare based on dimension "S".
- ※3. Speed control valve is sold separately. Please prepare using reference to P.727.
- 1. Please contact us if it has a combination with other check method and option form .

Machining Dimensions of Mounting Area



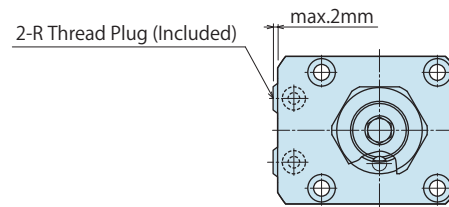
Notes

- ※4. The air vent port must be open to the atmosphere and kept free of coolant, chips or other debris.
- ※5. EA tapping depth should be calculated so that mounting bolts engage fixture by at least 1.5 x bolt diameter.
- ※6. The dimensions indicate those under the flange.
- ※7. This process indicates -C/-G:Gasket option.

Piping Method

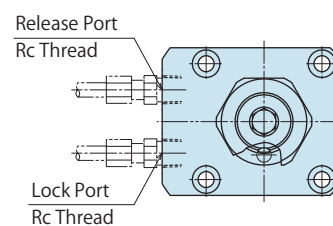
G : Gasket Option (with R Thread Plug)

※The drawing shows the released state of LHA-GRM.

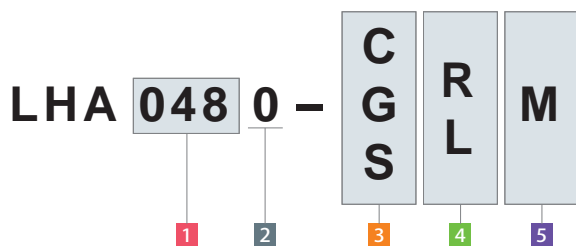


S : Piping Option (Rc Thread)

※The drawing shows the released state of LHA-SRM.



Model No. Indication



(Format Example : LHA0550-CRM, LHA0750-SLM)

- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Action Confirmation (When M is chosen)
- 6 Option (When Blank is chosen)

External Dimensions and Machining Dimensions for Mounting

(mm)

| Model No. | LHA0360-□□M | LHA0400-□□M | LHA0480-□□M | LHA0550-□□M | LHA0650-□□M | LHA0750-□□M | LHA0900-□□M | LHA1050-□□M | |
|--------------------------------------|--|--|--|--|--|--|--|--|---------------|
| Full Stroke | 13.5 | 14.5 | 15.5 | 18.5 | 20 | 24 | 26 | 32 | |
| Swing Stroke(90°) | 5.5 | 6.5 | 7.5 | 8.5 | 10 | 12 | 14 | 16 | |
| Vertical Stroke | 8 | 8 | 8 | 10 | 10 | 12 | 12 | 16 | |
| A | 104 | 115 | 128.5 | 145.5 | 156 | 181 | 203 | 240 | |
| B | 49 | 54 | 61 | 69 | 81 | 92 | 107 | 122 | |
| C | 40 | 45 | 51 | 60 | 70 | 80 | 95 | 110 | |
| D | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 | |
| E | 64.5 | 71.5 | 79 | 89 | 94 | 109 | 120 | 144 | |
| F | 39.5 | 46.5 | 51 | 59 | 63 | 71 | 74 | 88 | |
| Fu | 64.5 | 68.5 | 77.5 | 86.5 | 93 | 110 | 129 | 152 | |
| G | 25 | 25 | 28 | 30 | 31 | 38 | 46 | 56 | |
| H | 29 | 31.5 | 35.5 | 39 | 46 | 52 | 59.5 | 67 | |
| J | 20 | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 | 55 | |
| K | 31.4 | 34 | 40 | 47 | 55 | 63 | 75 | 88 | |
| L | 66 | 73 | 83 | 88 | 106 | 116 | 136 | 152 | |
| M | 11 | 11 | 13 | 12 | 13 | 16 | 19 | 22 | |
| Nx | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 | |
| Ny | 8 | 9 | 11 | 12 | 15 | 16 | 18.5 | 22.5 | |
| P | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 5 | |
| Q | 7.5 | 9 | 9 | 11 | 11 | 14 | 17.5 | 20 | |
| R | 4.5 | 5.5 | 5.5 | 6.8 | 6.8 | 9 | 11 | 14 | |
| S | 16 | 15 | 17.5 | 17 | 17 | 21 | 25 | 32 | |
| T | 15.5 | 16.5 | 17.5 | 20.5 | 22 | 26 | 28 | 34 | |
| U | 15 | 18 | 22 | 25 | 30 | 35.5 | 45 | 55 | |
| V | 13 | 15 | 18 | 21 | 24 | 30 | 37 | 43 | |
| W | 11 | 12 | 14 | 15 | 16 | 16 | 18 | 19 | |
| X (Nominal × Pitch) | M14×1.5 | M16×1.5 | M20×1.5 | M22×1.5 | M27×1.5 | M30×1.5 | M39×1.5 | M48×1.5 | |
| Y | 5 | 6 | 8 | 8 | 10 | 10 | 14 | 14 | |
| Z (Chamfer) | C2 | C3 | C3 | C3 | C4 | C5 | C6 | C6 | |
| AA | 22 | 24 | 30 | 32 | 41 | 46 | 55 | 65 | |
| AB | 7 | 8 | 9 | 10 | 11 | 11 | 12 | 12 | |
| AC | 24.5 | 26.5 | 33 | 35.5 | 45 | 50 | 60 | 71 | |
| BA | 14 | 16 | 19 | 22 | 25 | 31 | 38 | 44 | |
| BB | 17 | 20 | 25 | 28 | 34 | 40 | 49 | 60 | |
| CA | 6 | 7 | 9 | 10 | 12.5 | 14 | 18.5 | 23 | |
| CB | 6.5 | 6.5 | 7.5 | 9.5 | 11.5 | 12.5 | 11.5 | 13.5 | |
| CC | 4 | 4 | 5 | 6 | 6 | 8 | 8 | 10 | |
| EA (Nominal × Pitch) | M4×0.7 | M5×0.8 | M5×0.8 | M6×1 | M6×1 | M8×1.25 | M10×1.5 | M12×1.75 | |
| MAf8 | 34.5 ^{-0.025} _{-0.064} | 38 ^{-0.025} _{-0.064} | 45 ^{-0.025} _{-0.064} | 45 ^{-0.025} _{-0.064} | 45 ^{-0.025} _{-0.064} | 53 ^{-0.030} _{-0.076} | 53 ^{-0.030} _{-0.076} | 53 ^{-0.030} _{-0.076} | |
| MAH8 | 34.5 ^{+0.039} ₀ | 38 ^{+0.039} ₀ | 45 ^{+0.039} ₀ | 45 ^{+0.039} ₀ | 45 ^{+0.039} ₀ | 53 ^{+0.046} ₀ | 53 ^{+0.046} ₀ | 53 ^{+0.046} ₀ | |
| MB | 32 | 33 | 38.5 | 38.5 | 40.5 | 49 | 49 | 57.5 | |
| MC | 35.7 | 39.2 | 46.2 | 46.2 | 46.2 | 54.2 | 54.2 | 54.2 | |
| MD | 49.4 | 57.5 | 65.4 | 73.4 | 79.4 | 86.5 | 89.5 | 106.5 | |
| ME | 62.4 | 70.5 | 78.9 | 86.9 | 92.9 | 106 | 109 | 126 | |
| MF | 40 | 47 | 53 | 61 | 65 | 74 | 77 | 94 | |
| MG | 4.9 | 6 | 7.9 | 7.9 | 9.9 | 7.5 | 7.5 | 7.5 | |
| MH | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | |
| MJ | 4 | 4 | 4.5 | 4.5 | 4.5 | 9.5 | 9.5 | 9.5 | |
| MK | 6.5 | 6.5 | 8 | 8 | 8 | 11 | 11 | 16.5 | |
| ML | 73.4 | 81.5 | 91.4 | 99.4 | 105.4 | 122 | 125 | 147.5 | |
| MM | 1.1 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | |
| JA | 3.5 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| JB | 14 | 14 | 14 | 14 | 19 | 19 | 22 | 22 | |
| Lock Port/ Release Port | -C option -S option | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/4 Rc1/4 | G1/4 Rc1/4 | G3/8 Rc3/8 | G3/8 Rc3/8 |
| R-Thread Plug | -G option | R1/8 | R1/8 | R1/8 | R1/8 | R1/4 | R1/4 | R3/8 | R3/8 |
| O-ring (-C/-G option) | | 1BP5 | 1BP5 | 1BP5 | 1BP5 | 1BP7 | 1BP7 | 1BP7 | 1BP7 |
| 3-O-ring | | AS568-025(70) | AS568-028(70) | AS568-030(70) | AS568-030(70) | AS568-030(70) | AS568-032(70) | AS568-032(70) | AS568-032(70) |
| Cylinder Capacity cm ³ | Lock Release | 4.8 6.5 | 7.3 9.3 | 10.8 14.3 | 19 25.3 | 26.7 37.8 | 48.7 66.4 | 76.6 111.3 | 132.1 200 |
| Mass *7 | kg | 0.8 | 1 | 1.6 | 2.2 | 3.1 | 4.5 | 7.6 | 10.6 |

Notes ※8. Mass of single swing clamp including taper sleeve and nut.
1. Please refer to P.315 about air sensing chart

- High-Power Series
- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

Hole Clamp

- SFA
- SFC

Swing Clamp

- LHA
- LHC
- LHS
- LHW
- LT/LG
- TLA-2
- TLB-2
- TLA-1

Link Clamp

- LKA
- LKC
- LKW
- LM/LJ
- TMA-2
- TMA-1

Work Support

- LD
- LC
- TNC
- TC

Air Sensing Lift Cylinder

- LLW

Compact Cylinder

- LL
- LLR
- LLU
- DP
- DR
- DS
- DT

Block Cylinder

- DBA
- DBC

Control Valve

- BZL
- BZT
- BZX/JZG

Pallet Clamp

- VS
- VT

Expansion Locating Pin

- VL
- VM
- VJ
- VK

Pull Stud Clamp

- FP
- FQ

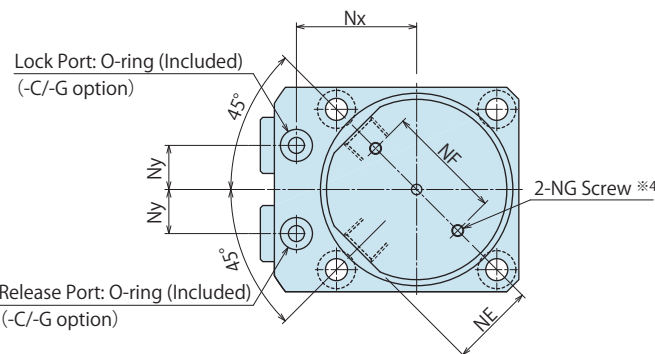
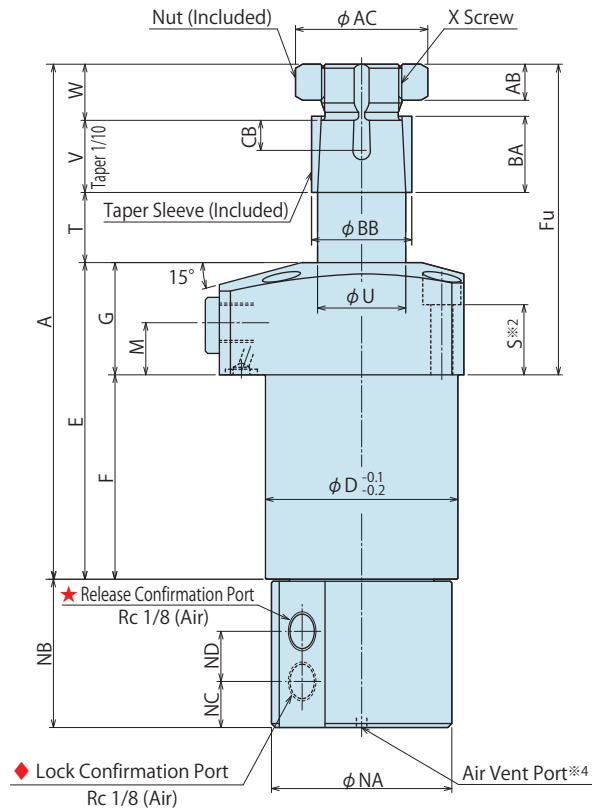
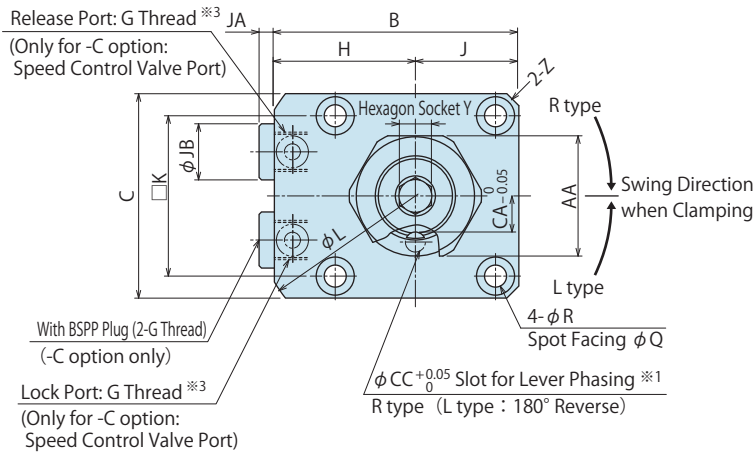
Customized Spring Cylinder

- DWA/DWB

External Dimensions

C : Gasket Option (G Thread Plug)

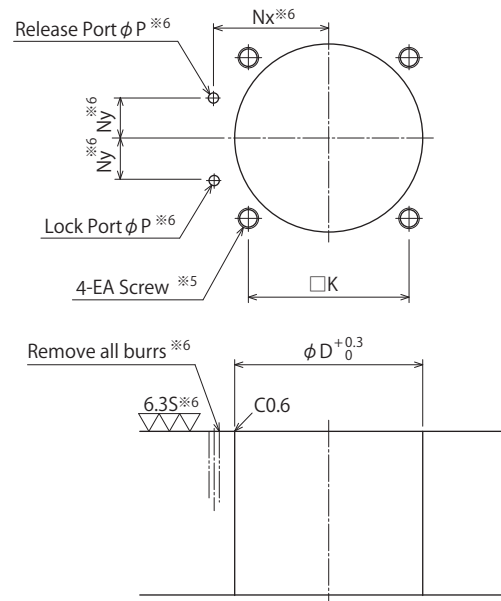
※The drawing shows the released state of LHA-CRN.



Notes

- ※1. The slot for determining the lever phase faces the port side if locked.
- ※2. Mounting bolts are not provided. Customer should prepare based on dimension "S".
- ※3. Speed control valve is sold separately. Please prepare using reference to P.727.
- 1. Please contact us if it has a combination with other check method and option form.

Machining Dimensions of Mounting Area



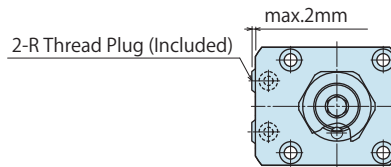
Notes

- ※4. The air venting port must be open to the atmosphere and kept free of coolant, chips or other debris. Install the screw to NG, take these steps to prevent coolant seepage, etc directly. Be sure not to clamp the air vent port.
- ※5. EA tapping depth should be calculated so that mounting bolts engage fixture by at least 1.5 x bolt diameter.
- ※6. This process indicates -C/-G : Gasket option.

Piping Method

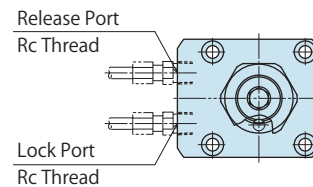
G : Gasket Option (with R Thread Plug)

※The drawing shows the released state of LHA-GRN.

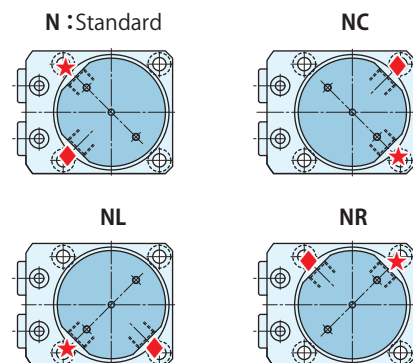


S : Piping Option (Rc Thread)

※The drawing shows the released state of LHA-SRN.

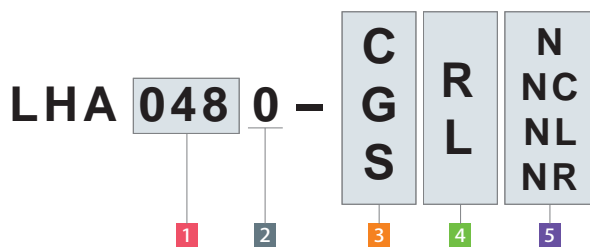


Lock/Release Confirmation Port Phase



★ : Release Confirmation Port
◆ : Lock Confirmation Port

Model No. Indication



(Format Example : LHA0550-CRN, LHA0750-SLNC)

- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Action Confirmation (When N□ is chosen)
- 6 Option (When Blank is chosen)

External Dimensions and Machining Dimensions for Mounting

(mm)

| Model No. | LHA0360-□□□□ | LHA0400-□□□□ | LHA0480-□□□□ | LHA0550-□□□□ | LHA0650-□□□□ | LHA0750-□□□□ | LHA0900-□□□□ | LHA1050-□□□□ | |
|--------------------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Full Stroke | 13.5 | 14.5 | 15.5 | 18.5 | 20 | 24 | 26 | 32 | |
| Swing Stroke(90°) | 5.5 | 6.5 | 7.5 | 8.5 | 10 | 12 | 14 | 16 | |
| Vertical Stroke | 8 | 8 | 8 | 10 | 10 | 12 | 12 | 16 | |
| A | 104 | 115 | 128.5 | 145.5 | 156 | 181 | 203 | 240 | |
| B | 49 | 54 | 61 | 69 | 81 | 92 | 107 | 122 | |
| C | 40 | 45 | 51 | 60 | 70 | 80 | 95 | 110 | |
| D | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 | |
| E | 64.5 | 71.5 | 79 | 89 | 94 | 109 | 120 | 144 | |
| F | 39.5 | 46.5 | 51 | 59 | 63 | 71 | 74 | 88 | |
| Fu | 64.5 | 68.5 | 77.5 | 86.5 | 93 | 110 | 129 | 152 | |
| G | 25 | 25 | 28 | 30 | 31 | 38 | 46 | 56 | |
| H | 29 | 31.5 | 35.5 | 39 | 46 | 52 | 59.5 | 67 | |
| J | 20 | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 | 55 | |
| K | 31.4 | 34 | 40 | 47 | 55 | 63 | 75 | 88 | |
| L | 66 | 73 | 83 | 88 | 106 | 116 | 136 | 152 | |
| M | 11 | 11 | 13 | 12 | 13 | 16 | 19 | 22 | |
| Nx | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 | |
| Ny | 8 | 9 | 11 | 12 | 15 | 16 | 18.5 | 22.5 | |
| P | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 5 | |
| Q | 7.5 | 9 | 9 | 11 | 11 | 14 | 17.5 | 20 | |
| R | 4.5 | 5.5 | 5.5 | 6.8 | 6.8 | 9 | 11 | 14 | |
| S | 16 | 15 | 17.5 | 17 | 17 | 21 | 25 | 32 | |
| T | 15.5 | 16.5 | 17.5 | 20.5 | 22 | 26 | 28 | 34 | |
| U | 15 | 18 | 22 | 25 | 30 | 35.5 | 45 | 55 | |
| V | 13 | 15 | 18 | 21 | 24 | 30 | 37 | 43 | |
| W | 11 | 12 | 14 | 15 | 16 | 16 | 18 | 19 | |
| X (Nominal × Pitch) | M14×1.5 | M16×1.5 | M20×1.5 | M22×1.5 | M27×1.5 | M30×1.5 | M39×1.5 | M48×1.5 | |
| Y | 5 | 6 | 8 | 8 | 10 | 10 | 14 | 14 | |
| Z (Chamfer) | C2 | C3 | C3 | C3 | C4 | C5 | C6 | C6 | |
| AA | 22 | 24 | 30 | 32 | 41 | 46 | 55 | 65 | |
| AB | 7 | 8 | 9 | 10 | 11 | 11 | 12 | 12 | |
| AC | 24.5 | 26.5 | 33 | 35.5 | 45 | 50 | 60 | 71 | |
| BA | 14 | 16 | 19 | 22 | 25 | 31 | 38 | 44 | |
| BB | 17 | 20 | 25 | 28 | 34 | 40 | 49 | 60 | |
| CA | 6 | 7 | 9 | 10 | 12.5 | 14 | 18.5 | 23 | |
| CB | 6.5 | 6.5 | 7.5 | 9.5 | 11.5 | 12.5 | 11.5 | 13.5 | |
| CC | 4 | 4 | 5 | 6 | 6 | 8 | 8 | 10 | |
| EA (Nominal × Pitch) | M4×0.7 | M5×0.8 | M5×0.8 | M6×1 | M6×1 | M8×1.25 | M10×1.5 | M12×1.75 | |
| NA | 35.5 | 39.5 | 45 | 45 | 45 | 53 | 53 | 53 | |
| NB | 32 | 33 | 38.5 | 38.5 | 40.5 | 49 | 49 | 57.5 | |
| NC | 9.8 | 9 | 11 | 11 | 11 | 13 | 13 | 17 | |
| ND | 11.7 | 13 | 14.5 | 14.5 | 14.5 | 20.5 | 20.5 | 24 | |
| NE | 17 | 19 | 21 | 21 | 21 | 24.5 | 24.5 | 24.5 | |
| NF | 25 | 29 | 29 | 29 | 29 | 38 | 38 | 38 | |
| NG (Nominal×Pitch×Depth) | M3x0.5x5 | M3x0.5x5 | M3x0.5x5 | M3x0.5x5 | M3x0.5x5 | M4x0.7x6 | M4x0.7x6 | M4x0.7x6 | |
| JA | 3.5 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| JB | 14 | 14 | 14 | 14 | 19 | 19 | 22 | 22 | |
| Lock Port/ Release Port | -C option -S option | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/4 Rc1/4 | G1/4 Rc1/4 | G3/8 Rc3/8 | G3/8 Rc3/8 |
| R-Thread Plug | -G option | R1/8 | R1/8 | R1/8 | R1/8 | R1/4 | R1/4 | R3/8 | R3/8 |
| O-ring (-C/-G option) | | 1BP5 | 1BP5 | 1BP5 | 1BP5 | 1BP7 | 1BP7 | 1BP7 | 1BP7 |
| Cylinder Capacity cm ³ | Lock Release | 4.8 6.5 | 7.3 9.3 | 10.8 14.3 | 19 25.3 | 26.7 37.8 | 48.7 66.4 | 76.6 111.3 | 132.1 200 |
| Mass ^{※7} kg | | 0.8 | 1 | 1.6 | 2.2 | 3.1 | 4.5 | 7.6 | 10.6 |

Notes ※7. Mass of single swing clamp including taper sleeve and nut.

1. Please refer to P.315 about air sensing chart

- High-Power Series
- Pneumatic Series
- Hydraulic Series**
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

- Hole Clamp
 - SFA
 - SFC

Swing Clamp

- LHA**
- LHC
- LHS
- LHW
- LT/LG
- TLA-2
- TLB-2
- TLA-1

Link Clamp

- LKA
- LKC
- LKW
- LM/LJ
- TMA-2
- TMA-1

Work Support

- LD
- LC
- TNC
- TC

Air Sensing Lift Cylinder

- LLW

Compact Cylinder

- LL
- LLR
- LLU
- DP
- DR
- DS
- DT

Block Cylinder

- DBA
- DBC

Control Valve

- BZL
- BZT
- BZX/JZG

Pallet Clamp

- VS
- VT

Expansion Locating Pin

- VL
- VM
- VJ
- VK

Pull Stud Clamp

- FP
- FQ

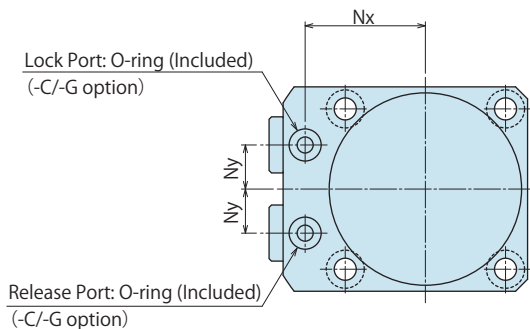
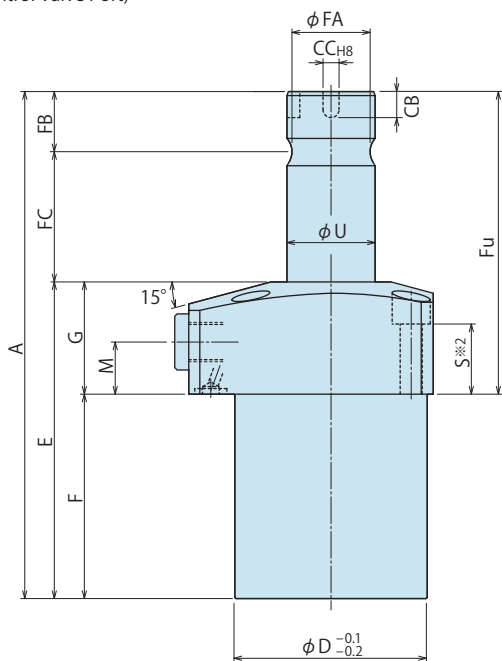
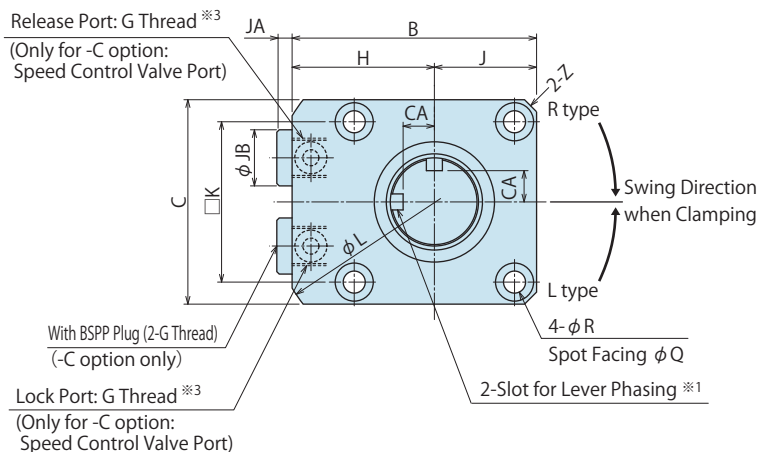
Customized Spring Cylinder

- DWA/DWB

External Dimensions

C : Gasket Option (G Thread Plug)

※The drawing shows the released state of LHA-CR-F.



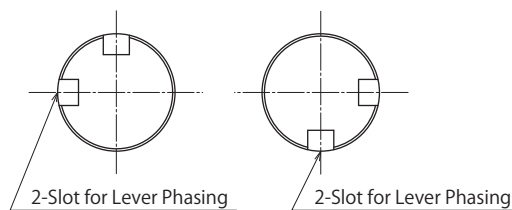
Notes

- ※2. Mounting bolts are not provided. Customer should prepare based on dimension "S".
- ※3. Speed control valve is sold separately. Please prepare using reference to P.727.
- 1. Please contact us if it has a combination with other check method and option form.

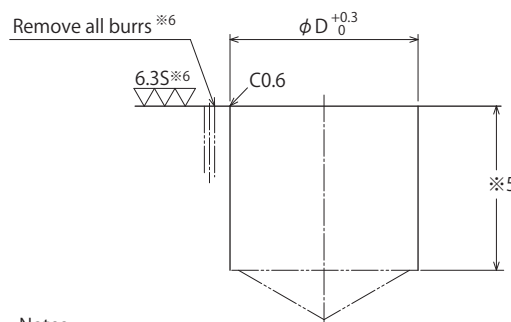
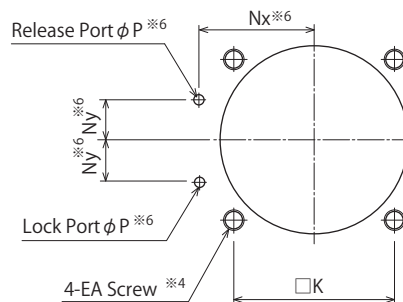
※1. Slot for Lever Phasing (Released State)

The slot position varies as per the lock swinging direction.

Swing Direction when Clamping : R Swing Direction when Clamping : L



Machining Dimensions of Mounting Area



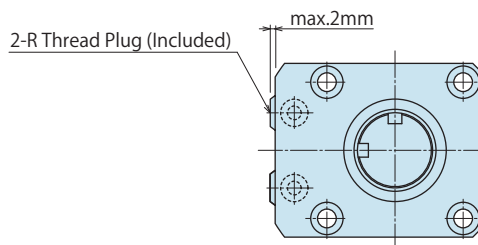
Notes

- ※4. EA tapping depth should be calculated so that mounting bolts engage fixture by at least 1.5 x bolt diameter.
- ※5. The φD depth of the body mounting hole should be decided from dimension F.
- ※6. This process indicates -C/-G:Gasket option.

Piping Method

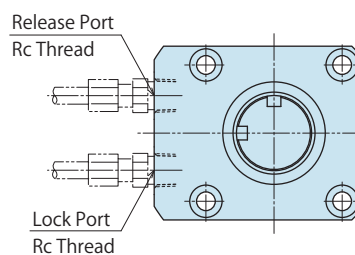
G : Gasket Option (with R Thread Plug)

※The drawing shows the released state of LHA-GR-F.

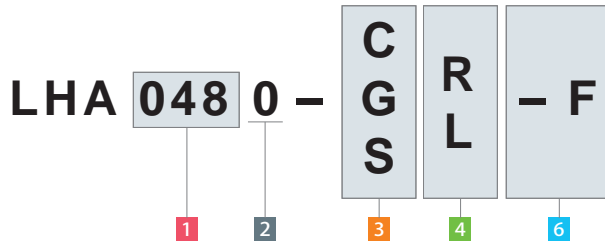


S : Piping Option (Rc Thread)

※The drawing shows the released state of LHA-SR-F.



Model No. Indication



(Format Example : LHA0550-CR-F, LHA0750-SL-F)

- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Action Confirmation (When Blank is chosen)
- 6 Option (When F is chosen)

External Dimensions and Machining Dimensions for Mounting

(mm)

| Model No. | LHA0360-□□-F | LHA0400-□□-F | LHA0480-□□-F | LHA0550-□□-F | LHA0650-□□-F | LHA0750-□□-F | LHA0900-□□-F | LHA1050-□□-F | |
|----------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------|
| Full Stroke | 13.5 | 14.5 | 15.5 | 18.5 | 20 | 24 | 26 | 32 | |
| Swing Stroke(90°) | 5.5 | 6.5 | 7.5 | 8.5 | 10 | 12 | 14 | 16 | |
| Vertical Stroke | 8 | 8 | 8 | 10 | 10 | 12 | 12 | 16 | |
| A | 102 | 113 | 126.5 | 143.5 | 156 | 181 | 203 | 238 | |
| B | 49 | 54 | 61 | 69 | 81 | 92 | 107 | 122 | |
| C | 40 | 45 | 51 | 60 | 70 | 80 | 95 | 110 | |
| D | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 | |
| E | 64.5 | 71.5 | 79 | 89 | 94 | 109 | 120 | 144 | |
| F | 39.5 | 46.5 | 51 | 59 | 63 | 71 | 74 | 88 | |
| Fu | 62.5 | 66.5 | 75.5 | 84.5 | 93 | 110 | 129 | 150 | |
| G | 25 | 25 | 28 | 30 | 31 | 38 | 46 | 56 | |
| H | 29 | 31.5 | 35.5 | 39 | 46 | 52 | 59.5 | 67 | |
| J | 20 | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 | 55 | |
| K | 31.4 | 34 | 40 | 47 | 55 | 63 | 75 | 88 | |
| L | 66 | 73 | 83 | 88 | 106 | 116 | 136 | 152 | |
| M | 11 | 11 | 13 | 12 | 13 | 16 | 19 | 22 | |
| Nx | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 | |
| Ny | 8 | 9 | 11 | 12 | 15 | 16 | 18.5 | 22.5 | |
| P | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 5 | |
| Q | 7.5 | 9 | 9 | 11 | 11 | 14 | 17.5 | 20 | |
| R | 4.5 | 5.5 | 5.5 | 6.8 | 6.8 | 9 | 11 | 14 | |
| S | 16 | 15 | 17.5 | 17 | 17 | 21 | 25 | 32 | |
| U | 15 | 18 | 22 | 25 | 30 | 35.5 | 45 | 55 | |
| Z (Chamfer) | C2 | C3 | C3 | C3 | C4 | C5 | C6 | C6 | |
| CA | 5 | 5.8 | 7.8 | 9 | 10 | 13.25 | 17.5 | 22.5 | |
| CB | 5 | 6.5 | 6.5 | 7 | 9.5 | 9.5 | 13 | 13.5 | |
| CC | 3 ^{+0.014} ₀ | 4 ^{+0.018} ₀ | 4 ^{+0.018} ₀ | 4 ^{+0.018} ₀ | 6 ^{+0.018} ₀ | 6 ^{+0.018} ₀ | 8 ^{+0.022} ₀ | 8 ^{+0.022} ₀ | |
| EA (Nominal × Pitch) | M4×0.7 | M5×0.8 | M5×0.8 | M6×1 | M6×1 | M8×1.25 | M10×1.5 | M12×1.75 | |
| FA | 13.5 | 16 | 19.5 | 22 | 26 | 31 | 39.5 | 48 | |
| FB | 11 | 12.5 | 15 | 17 | 20 | 23 | 27.5 | 30 | |
| FC | 26.5 | 29 | 32.5 | 37.5 | 42 | 49 | 55.5 | 64 | |
| JA | 3.5 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| JB | 14 | 14 | 14 | 14 | 19 | 19 | 22 | 22 | |
| Lock Port/ Release Port | -C option -S option | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/4 Rc1/4 | G1/4 Rc1/4 | G3/8 Rc3/8 | G3/8 Rc3/8 |
| R-Thread Plug | -G option | R1/8 | R1/8 | R1/8 | R1/8 | R1/4 | R1/4 | R3/8 | R3/8 |
| O-ring (-C/-G option) | | 1BP5 | 1BP5 | 1BP5 | 1BP5 | 1BP7 | 1BP7 | 1BP7 | 1BP7 |
| Cylinder Capacity | Lock cm ³ Release | 4.8 7.2 | 7.3 10.9 | 10.8 16.7 | 19 28.1 | 26.7 40.9 | 48.7 72.5 | 76.6 117.9 | 132.1 208.1 |
| Mass ^{※7} | kg | 0.7 | 0.9 | 1.3 | 1.9 | 2.8 | 4 | 7 | 9.8 |

Note ※7. Mass of single swing clamp.

- High-Power Series
- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

Hole Clamp

- SFA
- SFC

Swing Clamp

- LHA
- LHC
- LHS
- LHW
- LT/LG
- TLA-2
- TLB-2
- TLA-1

Link Clamp

- LKA
- LKC
- LKW
- LM/LJ
- TMA-2
- TMA-1

Work Support

- LD
- LC
- TNC
- TC

Air Sensing Lift Cylinder

- LLW

Compact Cylinder

- LL
- LLR
- LLU
- DP
- DR
- DS
- DT

Block Cylinder

- DBA
- DBC

Control Valve

- BZL
- BZT
- BZX/JZG

Pallet Clamp

- VS
- VT

Expansion Locating Pin

- VL
- VM
- VJ
- VK

Pull Stud Clamp

- FP
- FQ

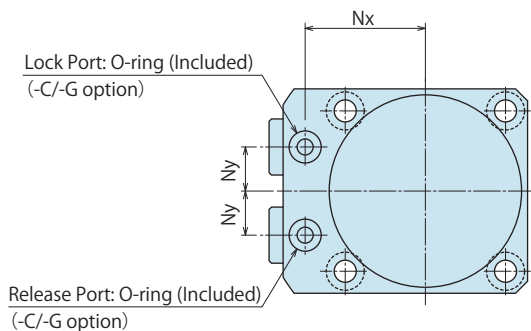
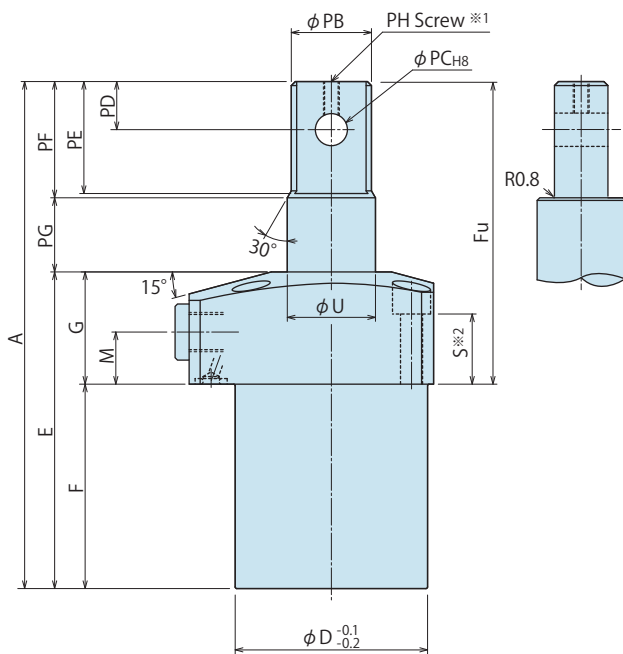
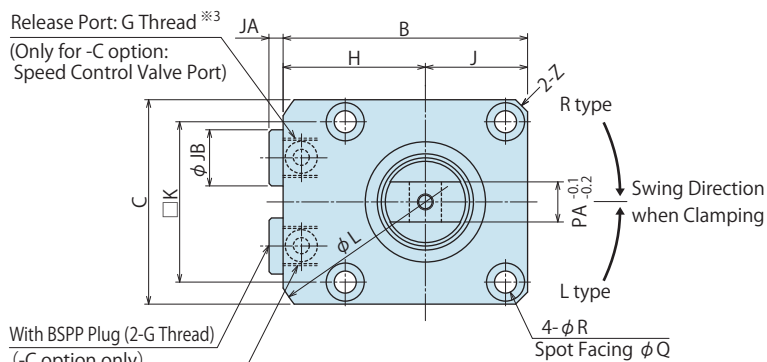
Customized Spring Cylinder

- DWA/DWB

External Dimensions

C : Gasket Option (G Thread Plug)

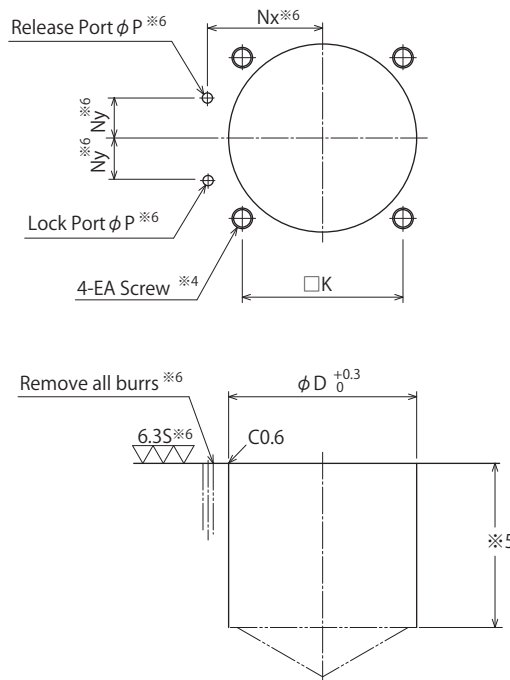
※The drawing shows the released state of LHA-CR-P.



Notes

- ※1. Use the tapped hole (PH thread) on top of rod to attach retainer for lever.
 - ※2. Mounting bolts are not provided. Customer should prepare based on dimension "S".
 - ※3. Speed control valve is sold separately. Please prepare using reference to P.727.
1. Please contact us if it has a combination with other check method and option form.

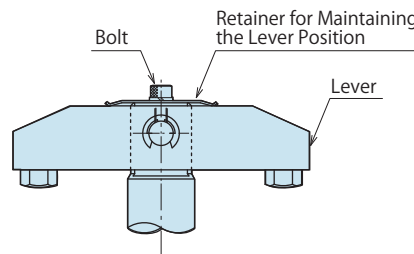
Machining Dimensions of Mounting Area



Notes

- ※4. EA tapping depth should be calculated so that mounting bolts engage fixture by at least 1.5 x bolt diameter.
- ※5. The φD depth of the body mounting hole should be decided from dimension F.
- ※6. This process indicates -C/-G: Gasket option.

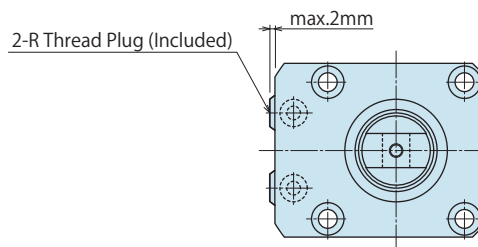
Balance Lever Reference Drawing



Piping Method

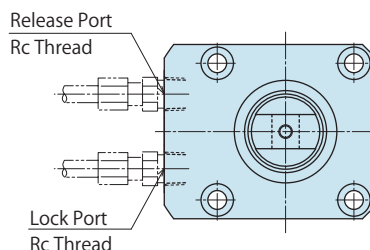
G : Gasket Option (with R Thread Plug)

※The drawing shows the released state of LHA-GR-P.

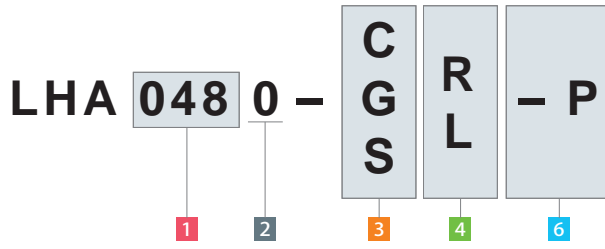


S : Piping Option (Rc Thread)

※The drawing shows the released state of LHA-SR-P.



Model No. Indication



(Format Example : LHA0550-CR-P, LHA0750-SL-P)

- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Action Confirmation (When Blank is chosen)
- 6 Option (When P is chosen)

External Dimensions and Machining Dimensions for Mounting

| Model No. | LHA0360-□□-P | LHA0400-□□-P | LHA0480-□□-P | LHA0550-□□-P | LHA0650-□□-P | LHA0750-□□-P | LHA0900-□□-P | LHA1050-□□-P | |
|----------------------------|----------------------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|---------------|
| Full Stroke | 13.5 | 14.5 | 15.5 | 18.5 | 20 | 24 | 26 | 32 | |
| Swing Stroke(90°) | 5.5 | 6.5 | 7.5 | 8.5 | 10 | 12 | 14 | 16 | |
| Vertical Stroke | 8 | 8 | 8 | 10 | 10 | 12 | 12 | 16 | |
| A | 102 | 113 | 126.5 | 143.5 | 156 | 181 | 203 | 238 | |
| B | 49 | 54 | 61 | 69 | 81 | 92 | 107 | 122 | |
| C | 40 | 45 | 51 | 60 | 70 | 80 | 95 | 110 | |
| D | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 | |
| E | 64.5 | 71.5 | 79 | 89 | 94 | 109 | 120 | 144 | |
| F | 39.5 | 46.5 | 51 | 59 | 63 | 71 | 74 | 88 | |
| Fu | 62.5 | 66.5 | 75.5 | 84.5 | 93 | 110 | 129 | 150 | |
| G | 25 | 25 | 28 | 30 | 31 | 38 | 46 | 56 | |
| H | 29 | 31.5 | 35.5 | 39 | 46 | 52 | 59.5 | 67 | |
| J | 20 | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 | 55 | |
| K | 31.4 | 34 | 40 | 47 | 55 | 63 | 75 | 88 | |
| L | 66 | 73 | 83 | 88 | 106 | 116 | 136 | 152 | |
| M | 11 | 11 | 13 | 12 | 13 | 16 | 19 | 22 | |
| Nx | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 | |
| Ny | 8 | 9 | 11 | 12 | 15 | 16 | 18.5 | 22.5 | |
| P | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 5 | |
| Q | 7.5 | 9 | 9 | 11 | 11 | 14 | 17.5 | 20 | |
| R | 4.5 | 5.5 | 5.5 | 6.8 | 6.8 | 9 | 11 | 14 | |
| S | 16 | 15 | 17.5 | 17 | 17 | 21 | 25 | 32 | |
| U | 15 | 18 | 22 | 25 | 30 | 35.5 | 45 | 55 | |
| Z (Chamfer) | C2 | C3 | C3 | C3 | C4 | C5 | C6 | C6 | |
| EA (Nominal × Pitch) | M4×0.7 | M5×0.8 | M5×0.8 | M6×1 | M6×1 | M8×1.25 | M10×1.5 | M12×1.75 | |
| PA | 7 | 8 | 10 | 12 | 14 | 16 | 22 | 26 | |
| PB | 13.5 | 16 | 20 | 23 | 28 | 33.5 | 43 | 53 | |
| PC | 6 ^{+0.018} ₀ | 6 ^{+0.018} ₀ | 8 ^{+0.022} ₀ | 10 ^{+0.022} ₀ | 13 ^{+0.027} ₀ | 13 ^{+0.027} ₀ | 16 ^{+0.027} ₀ | 20 ^{+0.033} ₀ | |
| PD | 9 | 11 | 12 | 12.5 | 16.5 | 19 | 23.5 | 25.5 | |
| PE | 21 | 24 | 27.5 | 31.5 | 38.5 | 43.5 | 52.5 | 58.5 | |
| PF | 22 | 25 | 29 | 33 | 40 | 45 | 54 | 60 | |
| PG | 15.5 | 16.5 | 18.5 | 21.5 | 22 | 27 | 29 | 34 | |
| PH (Nominal × Pitch) | M3×0.5 | M3×0.5 | M4×0.7 | M5×0.8 | M6×1 | M6×1 | M8×1.25 | M8×1.25 | |
| JA | 3.5 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| JB | 14 | 14 | 14 | 14 | 19 | 19 | 22 | 22 | |
| Lock Port/ Release Port | -C option -S option | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/4 Rc1/4 | G1/4 Rc1/4 | G3/8 Rc3/8 | G3/8 Rc3/8 |
| R-Thread Plug | -G option | R1/8 | R1/8 | R1/8 | R1/8 | R1/4 | R1/4 | R3/8 | R3/8 |
| O-ring (-C/-G option) | | 1BP5 | 1BP5 | 1BP5 | 1BP5 | 1BP7 | 1BP7 | 1BP7 | 1BP7 |
| Cylinder Capacity | Lock | 4.8 | 7.3 | 10.8 | 19 | 26.7 | 48.7 | 76.6 | 132.1 |
| | cm ³ Release | 7.2 | 10.9 | 16.7 | 28.1 | 40.9 | 72.5 | 117.9 | 208.1 |
| Mass ^{※7} | kg | 0.7 | 0.9 | 1.3 | 1.9 | 2.8 | 4 | 7 | 9.8 |

Note ※7. Mass of single swing clamp.

- High-Power Series
- Pneumatic Series
- Hydraulic Series**
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

Hole Clamp

- SFA
- SFC

Swing Clamp

LHA

- LHC
- LHS
- LHW
- LT/LG
- TLA-2
- TLB-2
- TLA-1

Link Clamp

- LKA
- LKC
- LKW
- LM/LJ
- TMA-2
- TMA-1

Work Support

- LD
- LC
- TNC
- TC

Air Sensing Lift Cylinder

- LLW

Compact Cylinder

- LL
- LLR
- LLU
- DP
- DR
- DS
- DT

Block Cylinder

- DBA
- DBC

Control Valve

- BZL
- BZT
- BZX/JZG

Pallet Clamp

- VS
- VT

Expansion Locating Pin

- VL
- VM
- VJ
- VK

Pull Stud Clamp

- FP
- FQ

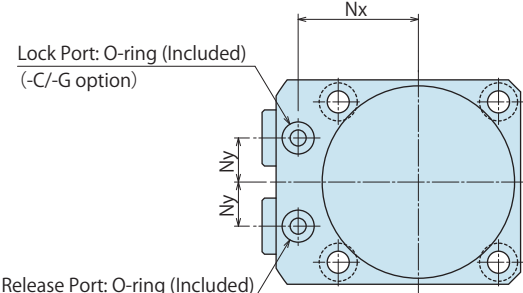
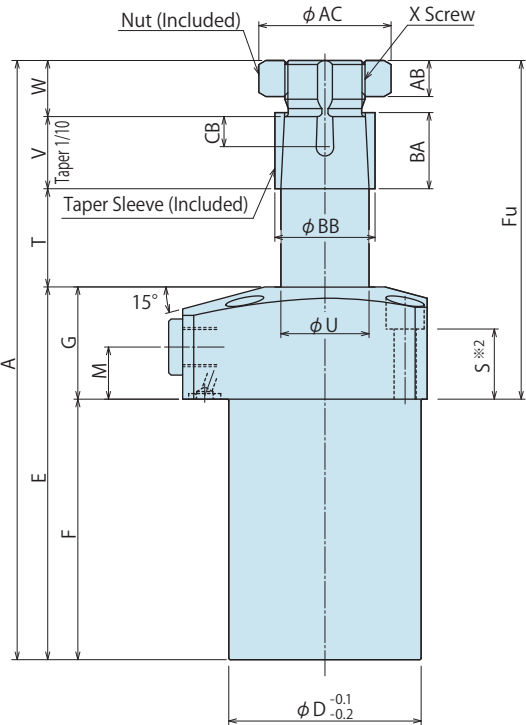
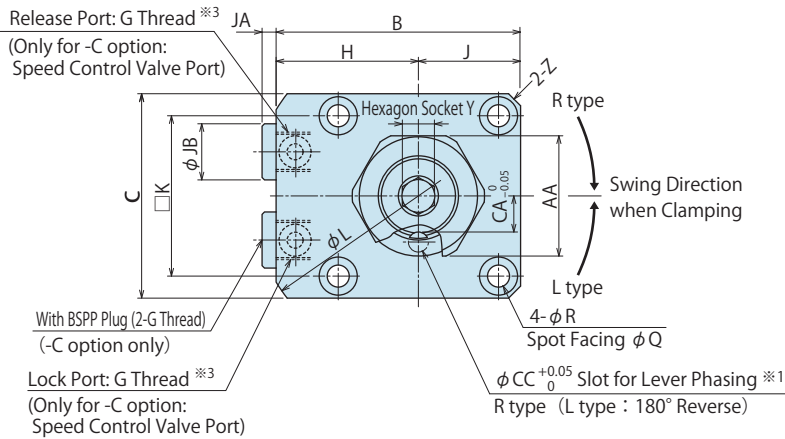
Customized Spring Cylinder

- DWA/DWB

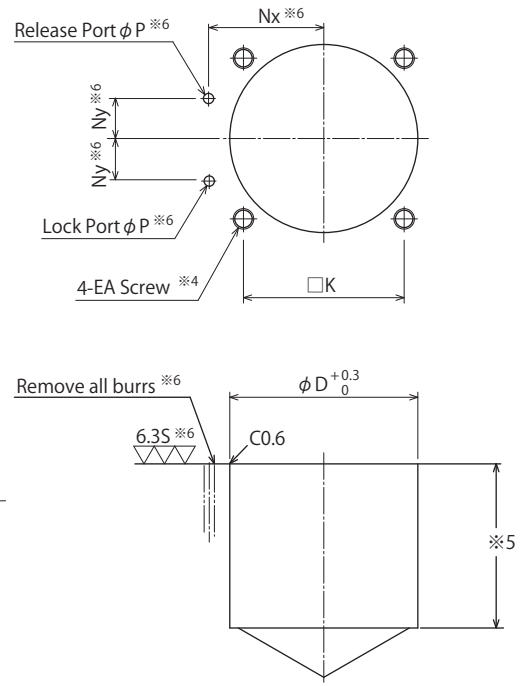
External Dimensions

C : Gasket Option (G Thread Plug)

※The drawing shows the released state of LHA-CR-Q.



Machining Dimensions of Mounting Area



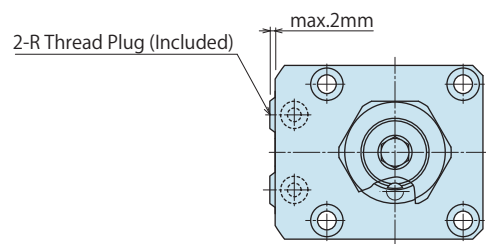
Notes

- ※4. EA tapping depth should be calculated so that mounting bolts engage fixture by at least 1.5 x bolt diameter.
- ※5. The φD depth of the body mounting hole should be decided from dimension F.
- ※6. This process indicates -C/-G:Gasket option.

Piping Method

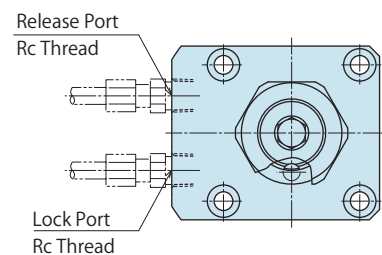
G : Gasket Option (with R Thread Plug)

※The drawing shows the released state of LHA-GR-Q.



S : Piping Option (Rc Thread)

※The drawing shows the released state of LHA-SR-Q.

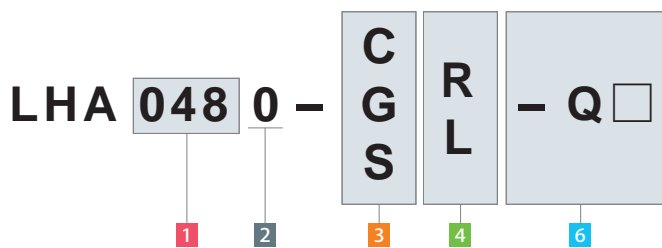


Notes

- ※1. The slot for determining the lever phase faces the port side if locked.
- ※2. Mounting bolts are not provided.Customer should prepare based on dimension "S".
- ※3. Speed control valve is sold separately.Please prepare using reference to P.727.
 1. Please contact us if it has a combination with other check method and option form.

Model No. Indication

(Format Example : LHA0550-CR-Q20, LHA0750-SL-Q25)



- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Action Confirmation (When Blank is chosen)
- 6 Option (When Q□ is chosen)

External Dimensions and Machining Dimensions for Mounting

(mm)

| Model No. | LHA0360-□□-□□ | | | | LHA0400-□□-□□ | | | | LHA0480-□□-□□ | | | | LHA0550-□□-□□ | | | | LHA0650-□□-□□ | | | | LHA0750-□□-□□ | | LHA0900-□□-□□ | | |
|------------------------|---------------|-------|-------|-------|---------------|-------|-------|-------|---------------|-------|------|------|---------------|-------|-------|-------|---------------|-------|------|-------|---------------|-------|---------------|-------|--|
| Option Form ※7 | Q15 | Q20 | Q25 | Q30 | Q15 | Q20 | Q25 | Q30 | Q15 | Q20 | Q25 | Q30 | Q15 | Q20 | Q25 | Q30 | Q15 | Q20 | Q25 | Q30 | Q20 | Q25 | Q20 | Q25 | |
| Full Stroke | 20.5 | 25.5 | 33 | 38 | 21.5 | 26.5 | 34.5 | 42.5 | 22.5 | 27.5 | 36 | 44 | 23.5 | 28.5 | 36.5 | 44.5 | 25 | 30 | 38 | 46 | 32 | 37 | 34 | 39 | |
| Swing Stroke(90°) | 5.5 | 5.5 | 8 | 8 | 6.5 | 6.5 | 9.5 | 9.5 | 7.5 | 7.5 | 11 | 11 | 8.5 | 8.5 | 8.5 | 10 | 10 | 10 | 10 | 10 | 12 | 12 | 14 | 14 | |
| Vertical Stroke ※7 | 15 | 20 | 25 | 30 | 15 | 20 | 25 | 30 | 15 | 20 | 25 | 30 | 15 | 20 | 25 | 30 | 15 | 20 | 25 | 30 | 20 | 25 | 20 | 25 | |
| A | 125 | 140 | 162.5 | 177.5 | 136 | 151 | 175 | 199.5 | 149.5 | 164.5 | 190 | 215 | 160.5 | 175.5 | 190.5 | 215 | 171 | 186 | 201 | 216 | 205 | 220 | 227 | 242 | |
| B | | 49 | | | | 54 | | | | 61 | | | | 69 | | | | 81 | | | | 92 | | 107 | |
| C | | 40 | | | | 45 | | | | 51 | | | | 60 | | | | 70 | | | | 80 | | 95 | |
| D | | 36 | | | | 40 | | | | 48 | | | | 55 | | | | 65 | | | | 75 | | 90 | |
| E | 78.5 | 88.5 | 103.5 | 113.5 | 85.5 | 95.5 | 111.5 | 121.5 | 93 | 103 | 120 | 130 | 99 | 109 | 119 | 129 | 104 | 114 | 124 | 134 | 125 | 135 | 136 | 146 | |
| F | 53.5 | 63.5 | 78.5 | 88.5 | 60.5 | 70.5 | 86.5 | 96.5 | 65 | 75 | 92 | 102 | 69 | 79 | 89 | 99 | 73 | 83 | 93 | 103 | 87 | 97 | 90 | 100 | |
| Fu | 71.5 | 76.5 | 84 | 89 | 75.5 | 80.5 | 88.5 | 93.5 | 84.5 | 89.5 | 98 | 103 | 91.5 | 96.5 | 101.5 | 106.5 | 98 | 103 | 108 | 113 | 118 | 123 | 137 | 142 | |
| G | | 25 | | | | 25 | | | | 28 | | | | 30 | | | | 31 | | | | 38 | | 46 | |
| H | | 29 | | | | 31.5 | | | | 35.5 | | | | 39 | | | | 46 | | | | 52 | | 59.5 | |
| J | | 20 | | | | 22.5 | | | | 25.5 | | | | 30 | | | | 35 | | | | 40 | | 47.5 | |
| K | | 31.4 | | | | 34 | | | | 40 | | | | 47 | | | | 55 | | | | 63 | | 75 | |
| L | | 66 | | | | 73 | | | | 83 | | | | 88 | | | | 106 | | | | 116 | | 136 | |
| M | | 11 | | | | 11 | | | | 13 | | | | 12 | | | | 13 | | | | 16 | | 19 | |
| Nx | | 23.5 | | | | 26 | | | | 30 | | | | 33.5 | | | | 39.5 | | | | 45 | | 52.5 | |
| Ny | | 8 | | | | 9 | | | | 11 | | | | 12 | | | | 15 | | | | 16 | | 18.5 | |
| P | | 3 | | | | 3 | | | | 3 | | | | 3 | | | | 5 | | | | 5 | | 5 | |
| Q | | 7.5 | | | | 9 | | | | 9 | | | | 11 | | | | 11 | | | | 14 | | 17.5 | |
| R | | 4.5 | | | | 5.5 | | | | 5.5 | | | | 6.8 | | | | 6.8 | | | | 9 | | 11 | |
| S | | 16 | | | | 15 | | | | 17.5 | | | | 17 | | | | 17 | | | | 21 | | 25 | |
| T | 22.5 | 27.5 | 35 | 40 | 23.5 | 28.5 | 36.5 | 41.5 | 24.5 | 29.5 | 38 | 43 | 25.5 | 30.5 | 35.5 | 40.5 | 27 | 32 | 37 | 42 | 34 | 39 | 36 | 41 | |
| U | | 15 | | | | 18 | | | | 22 | | | | 25 | | | | 30 | | | | 35.5 | | 45 | |
| V | | 13 | | | | 15 | | | | 18 | | | | 21 | | | | 24 | | | | 30 | | 37 | |
| W | | 11 | | | | 12 | | | | 14 | | | | 15 | | | | 16 | | | | 16 | | 18 | |
| X (Nominal × Pitch) | M14×1.5 | | | | M16×1.5 | | | | M20×1.5 | | | | M22×1.5 | | | | M27×1.5 | | | | M30×1.5 | | M39×1.5 | | |
| Y | 5 | | | | 6 | | | | 8 | | | | 8 | | | | 10 | | | | 10 | | 14 | | |
| Z (Chamfer) | C2 | | | | C3 | | | | C3 | | | | C3 | | | | C4 | | | | C5 | | C6 | | |
| AA | 22 | | | | 24 | | | | 30 | | | | 32 | | | | 41 | | | | 46 | | 55 | | |
| AB | 7 | | | | 8 | | | | 9 | | | | 10 | | | | 11 | | | | 11 | | 12 | | |
| AC | 24.5 | | | | 26.5 | | | | 33 | | | | 35.5 | | | | 45 | | | | 50 | | 60 | | |
| BA | 14 | | | | 16 | | | | 19 | | | | 22 | | | | 25 | | | | 31 | | 38 | | |
| BB | 17 | | | | 20 | | | | 25 | | | | 28 | | | | 34 | | | | 40 | | 49 | | |
| CA | 6 | | | | 7 | | | | 9 | | | | 10 | | | | 12.5 | | | | 14 | | 18.5 | | |
| CB | 6.5 | | | | 6.5 | | | | 7.5 | | | | 9.5 | | | | 11.5 | | | | 12.5 | | 11.5 | | |
| CC | 4 | | | | 4 | | | | 5 | | | | 6 | | | | 6 | | | | 8 | | 8 | | |
| EA (Nominal × Pitch) | M4×0.7 | | | | M5×0.8 | | | | M5×0.8 | | | | M6×1 | | | | M6×1 | | | | M8×1.25 | | M10×1.5 | | |
| JA | 3.5 | | | | 3.5 | | | | 3.5 | | | | 3.5 | | | | 4.5 | | | | 4.5 | | 4.5 | | |
| JB | 14 | | | | 14 | | | | 14 | | | | 14 | | | | 19 | | | | 19 | | 22 | | |
| Lock Port/Release Port | -C option | G1/8 | | | | G1/8 | | | | G1/8 | | | | G1/8 | | | | G1/4 | | | | G1/4 | | G3/8 | |
| | -S option | Rc1/8 | | | | Rc1/8 | | | | Rc1/8 | | | | Rc1/8 | | | | Rc1/4 | | | | Rc1/4 | | Rc3/8 | |
| R-Thread Plug | -G option | R1/8 | | | | R1/8 | | | | R1/8 | | | | R1/8 | | | | R1/4 | | | | R1/4 | | R3/8 | |
| O-ring (-C/-G option) | | 1BP5 | | | | 1BP5 | | | | 1BP5 | | | | 1BP5 | | | | 1BP7 | | | | 1BP7 | | 1BP7 | |
| Cylinder Capacity | Lock | 7.2 | 8.9 | 11.6 | 13.3 | 10.8 | 13.3 | 17.3 | 15.8 | 19.3 | 25.2 | 24.2 | 29.4 | 34.5 | 33.5 | 40.2 | 46.9 | 53.6 | 65 | 75.1 | 100.3 | 115.1 | | | |
| | Release | 10.9 | 13.5 | 17.5 | 20.2 | 16.2 | 20 | 26 | 24.2 | 29.6 | 38.7 | 35.7 | 43.3 | 50.9 | 51.1 | 61.3 | 71.5 | 81.7 | 96.6 | 111.7 | 154.2 | 176.9 | | | |
| Mass ※8 | kg | 0.7 | 0.8 | 1 | 1 | 1 | 1.1 | 1.3 | 1.6 | 1.7 | 2 | 2.2 | 2.4 | 2.5 | 3.2 | 3.5 | 3.7 | 4 | 4.8 | 5.2 | 8.3 | 8.8 | | | |

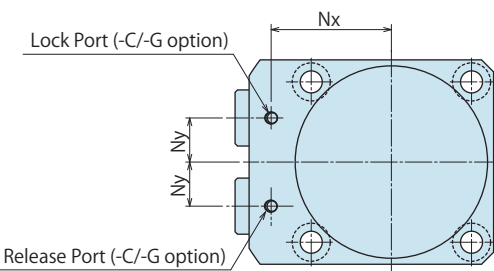
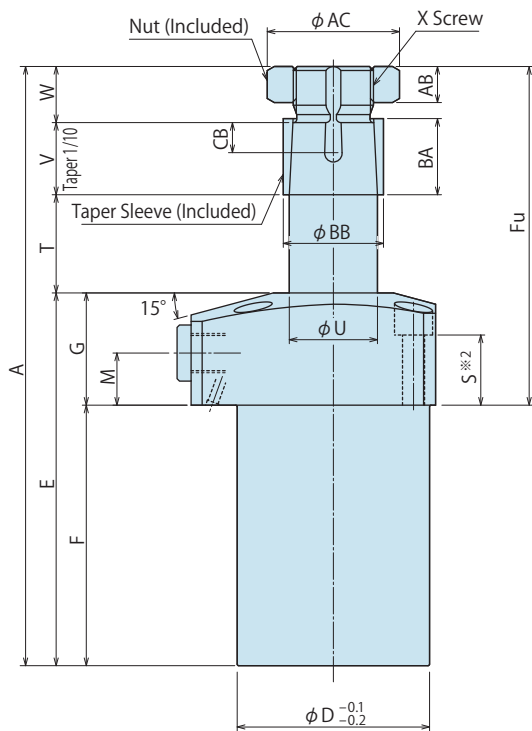
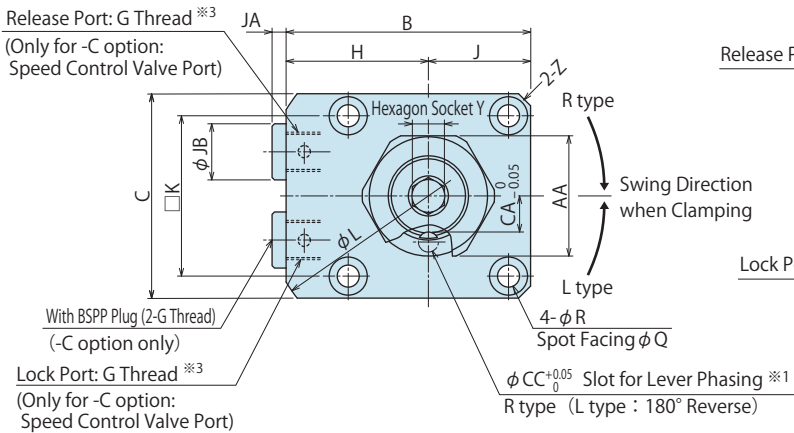
Notes ※7. Refer to P.311 in case the stroke shown in the table above is exceeded.
 ※8. Mass of single swing clamp including taper sleeve and nut.

- High-Power Series
- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others
- Hole Clamp
 - SFA
 - SFC
- Swing Clamp
 - LHA
 - LHC
 - LHS
 - LHW
 - LT/LG
 - TLA-2
 - TLB-2
 - TLA-1
- Link Clamp
 - LKA
 - LKC
 - LKW
 - LM/LJ
 - TMA-2
 - TMA-1
- Work Support
 - LD
 - LC
 - TNC
 - TC
- Air Sensing Lift Cylinder
 - LLW
- Compact Cylinder
 - LL
 - LLR
 - LLU
 - DP
 - DR
 - DS
 - DT
- Block Cylinder
 - DBA
 - DBC
- Control Valve
 - BZL
 - BZT
 - BZX/JZG
- Pallet Clamp
 - VS
 - VT
- Expansion Locating Pin
 - VL
 - VM
 - VJ
 - VK
- Pull Stud Clamp
 - FP
 - FQ
- Customized Spring Cylinder
 - DWA/DWB

External Dimensions

C : Gasket Option (G Thread Plug)

※The drawing shows the released state of LHA-CR-Q.

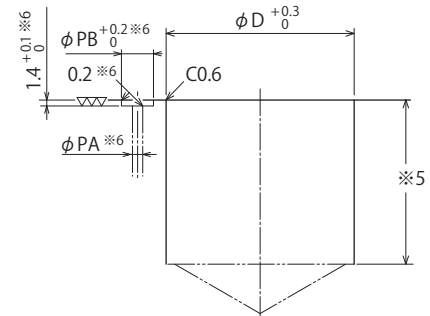
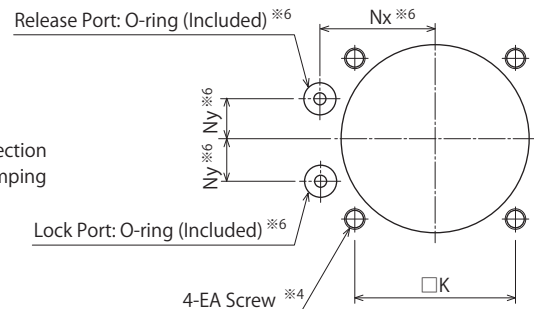


Notes

- ※1. The slot for determining the lever phase faces the port side if locked.
 - ※2. Mounting bolts are not provided. Customer should prepare based on dimension "S".
 - ※3. Speed control valve is sold separately. Please prepare using reference to P.727.
1. Please contact us if it has a combination with other check method and option form.

Machining Dimensions of Mounting Area

As O-ring slot for gasket is not on the body, it should be prepared on the mounting side.



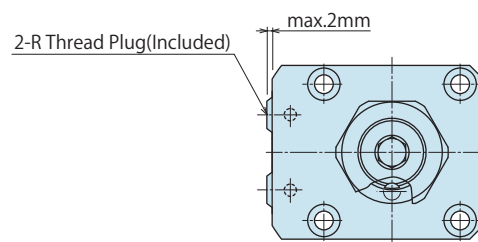
Notes

- ※4. EA tapping depth should be calculated so that mounting bolts engage fixture by at least 1.5 x bolt diameter.
- ※5. The ϕ D depth of the body mounting hole should be decided from dimension F.
- ※6. This process indicates -C/-G: Gasket option.

Piping Method

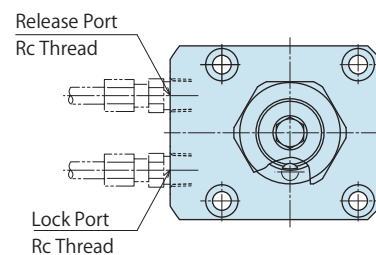
G : Gasket Option (with R Thread Plug)

※The drawing shows the released state of LHA-GR-Q.



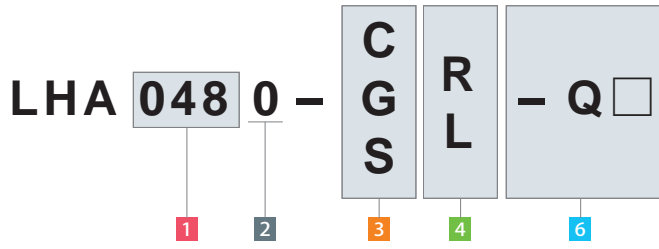
S : Piping Option (Rc Thread)

※The drawing shows the released state of LHA-SR-Q.



Model No. Indication

(Format Example : LHA0550-CR-Q40, LHA0750-SL-Q45)



- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Action Confirmation (When Blank is chosen)
- 6 Option (When Q□ is chosen)

- High-Power Series
- Pneumatic Series
- Hydraulic Series**
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

External Dimensions and Machining Dimensions for Mounting

(mm)

| Model No. | LHA0360-□□-Q□ | LHA0400-□□-Q□ | LHA0480-□□-Q□ | LHA0550-□□-Q□ | LHA0650-□□-Q□ | LHA0750-□□-Q□ | LHA0900-□□-Q□ | LHA1050-□□-Q□ | |
|------------------------|------------------------|-------------------|----------------|---|--|---|---|-----------------------------------|--|
| Option Form ※7 | Q35 | Q30 Q35 Q40 | Q30 Q35 Q40 | Q30 Q35 Q40 Q45 Q50 | Q30 Q35 Q40 Q45 Q50 | Q30 Q35 Q40 Q45 Q50 Q30 Q35 Q40 Q45 Q50 | Q30 Q35 Q40 Q45 Q50 | Q25 Q30 Q35 Q40 Q45 Q50 | |
| Full Stroke | 43 | 39.5 44.5 49.5 | 41 46 51 | 42 47 52 57 62 | 50 55 60 65 | 42 47 55 60 65 44 49 57 62 67 | 41 46 51 56 61 66 | | |
| Swing Stroke(90°) | 8 | 9.5 9.5 9.5 | 11 11 11 | 12 12 12 12 12 | 15 15 15 15 | 12 12 15 15 15 14 14 17 17 17 | | 16 | |
| Vertical Stroke ※7 | 35 | 30 35 40 | 30 35 40 | 30 35 40 45 50 35 | 40 45 50 | 30 35 40 45 50 30 35 40 45 50 25 30 35 40 45 50 | | | |
| A | 192.5 | 190 205 220 | 205 220 235 | 216 231 246 261 276 | 246 261 276 291 | 235 250 274 289 304 257 272 296 311 326 267 282 297 312 327 342 | | | |
| B | 49 | 54 | 61 | 69 | 81 | 92 | 107 | 122 | |
| C | 40 | 45 | 51 | 60 | 70 | 80 | 95 | 110 | |
| D | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 | |
| E | 123.5 | 121.5 131.5 141.5 | 130 140 150 | 136 146 156 166 176 | 154 164 174 184 | 145 155 171 181 191 | 156 166 182 192 202 162 172 182 192 202 212 | | |
| F | 98.5 | 96.5 106.5 116.5 | 102 112 122 | 106 116 126 136 146 | 123 133 143 153 | 107 117 133 143 153 110 120 136 146 156 106 116 126 136 146 156 | | | |
| Fu | 94 | 93.5 98.5 103.5 | 103 108 113 | 110 115 120 125 130 | 123 128 133 138 | 128 133 141 146 151 147 152 160 165 170 161 166 171 176 181 186 | | | |
| G | 25 | 25 | 28 | 30 | 31 | 38 | 46 | 56 | |
| H | 29 | 31.5 | 35.5 | 39 | 46 | 52 | 59.5 | 67 | |
| J | 20 | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 | 55 | |
| K | 31.4 | 34 | 40 | 47 | 55 | 63 | 75 | 88 | |
| L | 66 | 73 | 83 | 88 | 106 | 116 | 136 | 152 | |
| M | 11 | 11 | 13 | 12 | 13 | 16 | 19 | 22 | |
| Nx | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 | |
| Ny | 8 | 9 | 11 | 12 | 15 | 16 | 18.5 | 22.5 | |
| PA | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 5 | |
| PB | 8 | 8 | 8 | 8 | 10 | 10 | 10 | 10 | |
| Q | 7.5 | 9 | 9 | 11 | 11 | 14 | 17.5 | 20 | |
| R | 4.5 | 5.5 | 5.5 | 6.8 | 6.8 | 9 | 11 | 14 | |
| S | 16 | 15 | 17.5 | 17 | 17 | 21 | 25 | 32 | |
| T | 45 | 41.5 46.5 51.5 | 43 48 53 | 44 49 54 59 64 | 52 57 62 67 | 44 49 57 62 67 46 51 59 64 69 43 48 53 58 63 68 | | | |
| U | 15 | 18 | 22 | 25 | 30 | 35.5 | 45 | 55 | |
| V | 13 | 15 | 18 | 21 | 24 | 30 | 37 | 43 | |
| W | 11 | 12 | 14 | 15 | 16 | 16 | 18 | 19 | |
| X (Nominal × Pitch) | M14×1.5 | M16×1.5 | M20×1.5 | M22×1.5 | M27×1.5 | M30×1.5 | M39×1.5 | M48×1.5 | |
| Y | 5 | 6 | 8 | 8 | 10 | 10 | 14 | 14 | |
| Z (Chamfer) | C2 | C3 | C3 | C3 | C4 | C5 | C6 | C6 | |
| AA | 22 | 24 | 30 | 32 | 41 | 46 | 55 | 65 | |
| AB | 7 | 8 | 9 | 10 | 11 | 11 | 12 | 12 | |
| AC | 24.5 | 26.5 | 33 | 35.5 | 45 | 50 | 60 | 71 | |
| BA | 14 | 16 | 19 | 22 | 25 | 31 | 38 | 44 | |
| BB | 17 | 20 | 25 | 28 | 34 | 40 | 49 | 60 | |
| CA | 6 | 7 | 9 | 10 | 12.5 | 14 | 18.5 | 23 | |
| CB | 6.5 | 6.5 | 7.5 | 9.5 | 11.5 | 12.5 | 11.5 | 13.5 | |
| CC | 4 | 4 | 5 | 6 | 6 | 8 | 8 | 10 | |
| EA (Nominal × Pitch) | M4×0.7 | M5×0.8 | M5×0.8 | M6×1 | M6×1 | M8×1.25 | M10×1.5 | M12×1.75 | |
| JA | 3.5 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| JB | 14 | 14 | 14 | 14 | 19 | 19 | 22 | 22 | |
| Lock Port/Release Port | -C option -S option | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/8 Rc1/8 | G1/4 Rc1/4 | G1/4 Rc3/8 | G3/8 Rc3/8 | |
| R-Thread Plug | -G option | R1/8 | R1/8 | R1/8 | R1/8 | R1/4 | R1/4 | R3/8 | |
| O-ring (-C/-G option) | | 1BP5 | 1BP5 | 1BP5 | 1BP5 | 1BP7 | 1BP7 | 1BP7 | |
| Cylinder Capacity | Lock | 15.1 | 19.8 22.3 24.8 | 28.7 32 35.7 43.3 48.4 53.6 58.7 63.9 | 67 73.7 80.4 87.1 | 85.3 95.4 111.7 121.8 132 | 129.8 144.4 168.2 182.9 197.7 | 169.3 190 210.6 231.3 251.9 272.6 | |
| cm ³ | Release | 22.8 | 29.8 33.6 37.4 | 44.1 49.5 54.8 63.9 71.5 79.1 86.7 94.3 102.1 | 112.3 122.6 132.7 126.8 141.9 166 181.1 196.2 | 199.6 222.3 258.6 281.3 303.9 266.7 299.2 331.7 364.2 396.7 429.3 | | | |
| Mass ※8 | kg | 1.1 | 1.4 1.5 1.6 | 2.1 2.3 2.4 2.8 3 3.2 3.4 3.6 4.5 | 4.8 5 5.3 5.5 5.9 6.3 6.6 6.9 9.3 9.8 10.4 10.9 11.4 11.4 12.1 12.7 13.4 14.1 14.8 | | | | |

- Hole Clamp
 - SFA
 - SFC
- Swing Clamp**
 - LHA
 - LHC
 - LHS
 - LHW
 - LT/LG
 - TLA-2
 - TLB-2
 - TLA-1
- Link Clamp
 - LKA
 - LKC
 - LKW
 - LM/LJ
 - TMA-2
 - TMA-1
- Work Support
 - LD
 - LC
 - TNC
 - TC
- Air Sensing Lift Cylinder
 - LLW
- Compact Cylinder
 - LL
 - LLR
 - LLU
 - DP
 - DR
 - DS
 - DT
- Block Cylinder
 - DBA
 - DBC
- Control Valve
 - BZL
 - BZT
 - BZX/JZG
- Pallet Clamp
 - VS
 - VT
- Expansion Locating Pin
 - VL
 - VM
 - VJ
 - VK
- Pull Stud Clamp
 - FP
 - FQ
- Customized Spring Cylinder
 - DWA/DWB

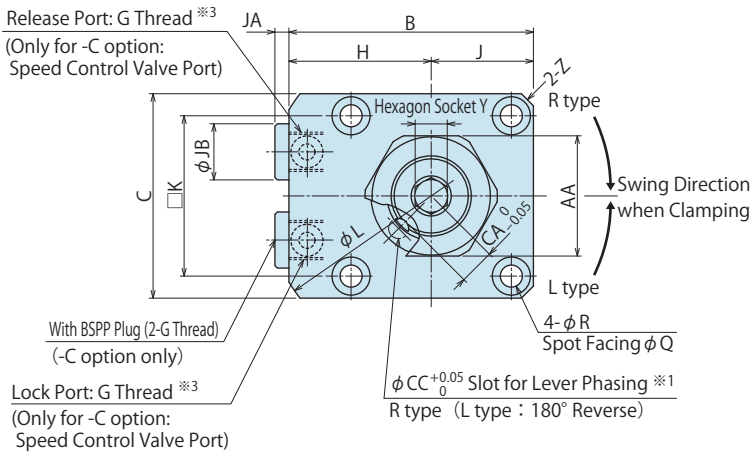
Notes ※7. Refer to P.309 in case the stroke shown in the table above is less than.

※8. Mass of single swing clamp including taper sleeve and nut.

External Dimensions

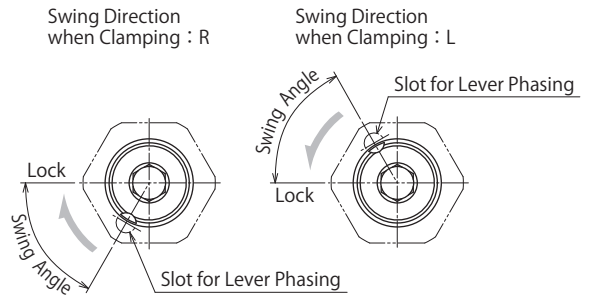
C : Gasket Option (G Thread Plug)

※The drawing shows the released state of LHA-CR-Y45.

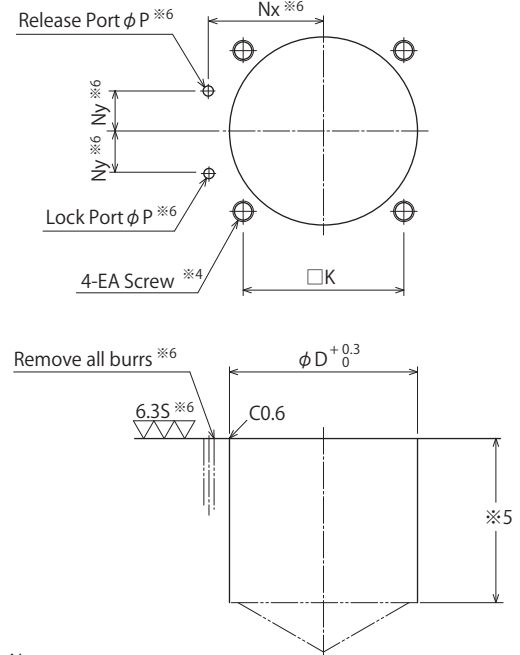


※1. Slot for Lever Phasing (Released State)

The slot position varies as per the lock swinging direction.

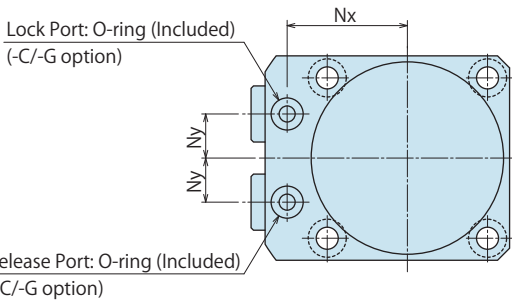
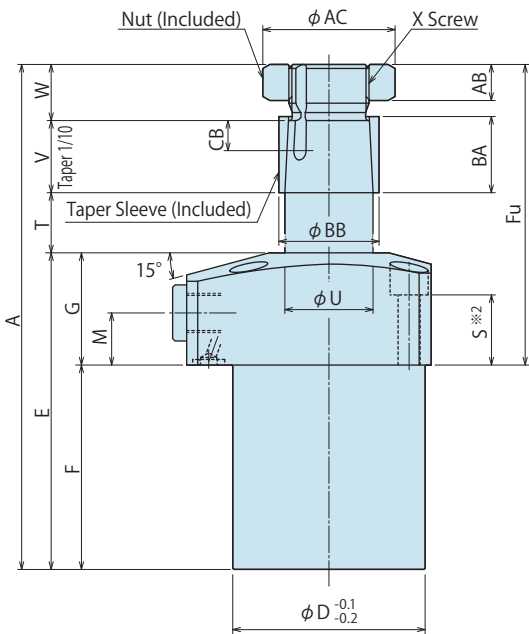


Machining Dimensions of Mounting Area



Notes

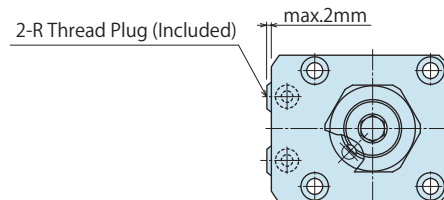
- ※4. EA tapping depth should be calculated so that mounting bolts engage fixture by at least 1.5 x bolt diameter.
- ※5. The φD depth of the body mounting hole should be decided from dimension F.
- ※6. This process indicates -C/-G:Gasket option.



Piping Method

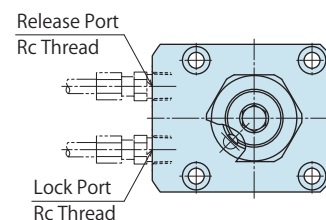
G : Gasket Option (with R Thread Plug)

※The drawing shows the released state of LHA-GR-Y45.



S : Piping Option (Rc Thread)

※The drawing shows the released state of LHA-SR-Y45.

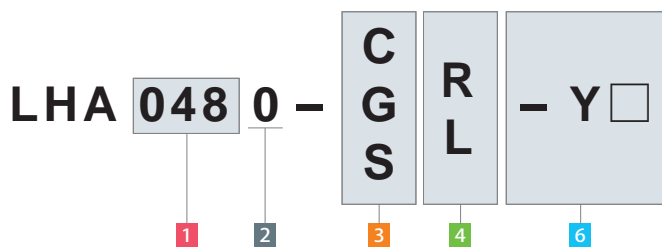


Notes

- ※1. The slot for determining the lever phase faces the port side if locked.
- ※2. Mounting bolts are not provided.Customer should prepare based on dimension "S".
- ※3. Speed control valve is sold separately.Please prepare using reference to P.727.
 1. Please contact us if it has a combination with other check method and option form.

Model No. Indication

(Format Example : LHA0550-CR-Y30、LHA0750-SL-Y45)



- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Action Confirmation (When Blank is chosen)
- 6 Option (When Y□ is chosen)

External Dimensions and Machining Dimensions for Mounting

(mm)

| Model No. | LHA0360-□□-Y□ | | | LHA0400-□□-Y□ | | | LHA0480-□□-Y□ | | | LHA0550-□□-Y□ | | | LHA0650-□□-Y□ | | | LHA0750-□□-Y□ | | | LHA0900-□□-Y□ | | | LHA1050-□□-Y□ | | | |
|----------------------------|-------------------------|-------|-------|---------------|-------|-------|---------------|-------|-------|---------------|-------|-------|---------------|-------|-------|---------------|-------|-------|---------------|-------|-------|---------------|-------|-------|-------|
| Option Form | Y30 | Y45 | Y60 | Y30 | Y45 | Y60 | Y30 | Y45 | Y60 | Y30 | Y45 | Y60 | Y30 | Y45 | Y60 | Y30 | Y45 | Y60 | Y30 | Y45 | Y60 | Y30 | Y45 | Y60 | |
| Swing Angle | 30° | 45° | 60° | 30° | 45° | 60° | 30° | 45° | 60° | 30° | 45° | 60° | 30° | 45° | 60° | 30° | 45° | 60° | 30° | 45° | 60° | 30° | 45° | 60° | |
| Full Stroke | 10.9 | 11.5 | 12.2 | 11.5 | 12.3 | 13 | 12.1 | 13 | 13.8 | 14.7 | 15.6 | 16.6 | 15.3 | 16.5 | 17.6 | 18.7 | 20 | 21.3 | 19.9 | 21.4 | 22.9 | 24.8 | 26.6 | 28.4 | |
| Swing Stroke | 2.9 | 3.5 | 4.2 | 3.5 | 4.3 | 5 | 4.1 | 5 | 5.8 | 4.7 | 5.6 | 6.6 | 5.3 | 6.5 | 7.6 | 6.7 | 8 | 9.3 | 7.9 | 9.4 | 10.9 | 8.8 | 10.6 | 12.4 | |
| Extend Stroke | 8 | | | 8 | | | 8 | | | 10 | | | 10 | | | 12 | | | 12 | | | 16 | | | |
| A | 101.4 | 102 | 102.7 | 112 | 112.8 | 113.5 | 125.1 | 126 | 126.8 | 141.7 | 142.6 | 143.6 | 151.3 | 152.5 | 153.6 | 175.7 | 177 | 178.3 | 196.9 | 198.4 | 199.9 | 232.8 | 234.6 | 236.4 | |
| B | 49 | | | 54 | | | 61 | | | 69 | | | 81 | | | 92 | | | 107 | | | 122 | | | |
| C | 40 | | | 45 | | | 51 | | | 60 | | | 70 | | | 80 | | | 95 | | | 110 | | | |
| D | 36 | | | 40 | | | 48 | | | 55 | | | 65 | | | 75 | | | 90 | | | 105 | | | |
| E | 64.5 | | | 71.5 | | | 79 | | | 89 | | | 94 | | | 109 | | | 120 | | | 144 | | | |
| F | 39.5 | | | 46.5 | | | 51 | | | 59 | | | 63 | | | 71 | | | 74 | | | 88 | | | |
| Fu | 61.9 | 62.5 | 63.2 | 65.5 | 66.3 | 67 | 74.1 | 75 | 75.8 | 82.7 | 83.6 | 84.6 | 88.3 | 89.5 | 90.6 | 104.7 | 106 | 107.3 | 122.9 | 124.4 | 125.9 | 144.8 | 146.6 | 148.4 | |
| G | 25 | | | 25 | | | 28 | | | 30 | | | 31 | | | 38 | | | 46 | | | 56 | | | |
| H | 29 | | | 31.5 | | | 35.5 | | | 39 | | | 46 | | | 52 | | | 59.5 | | | 67 | | | |
| J | 20 | | | 22.5 | | | 25.5 | | | 30 | | | 35 | | | 40 | | | 47.5 | | | 55 | | | |
| K | 31.4 | | | 34 | | | 40 | | | 47 | | | 55 | | | 63 | | | 75 | | | 88 | | | |
| L | 66 | | | 73 | | | 83 | | | 88 | | | 106 | | | 116 | | | 136 | | | 152 | | | |
| M | 11 | | | 11 | | | 13 | | | 12 | | | 13 | | | 16 | | | 19 | | | 22 | | | |
| Nx | 23.5 | | | 26 | | | 30 | | | 33.5 | | | 39.5 | | | 45 | | | 52.5 | | | 60 | | | |
| Ny | 8 | | | 9 | | | 11 | | | 12 | | | 15 | | | 16 | | | 18.5 | | | 22.5 | | | |
| P | 3 | | | 3 | | | 3 | | | 3 | | | 5 | | | 5 | | | 5 | | | 5 | | | |
| Q | 7.5 | | | 9 | | | 9 | | | 11 | | | 11 | | | 14 | | | 17.5 | | | 20 | | | |
| R | 4.5 | | | 5.5 | | | 5.5 | | | 6.8 | | | 6.8 | | | 9 | | | 11 | | | 14 | | | |
| S | 16 | | | 15 | | | 17.5 | | | 17 | | | 17 | | | 21 | | | 25 | | | 32 | | | |
| T | 12.9 | 13.5 | 14.2 | 13.5 | 14.3 | 15 | 14.1 | 15 | 15.8 | 16.7 | 17.6 | 18.6 | 17.3 | 18.5 | 19.6 | 20.7 | 22 | 23.3 | 21.9 | 23.4 | 24.9 | 26.8 | 28.6 | 30.4 | |
| U | 15 | | | 18 | | | 22 | | | 25 | | | 30 | | | 35.5 | | | 45 | | | 55 | | | |
| V | 13 | | | 15 | | | 18 | | | 21 | | | 24 | | | 30 | | | 37 | | | 43 | | | |
| W | 11 | | | 12 | | | 14 | | | 15 | | | 16 | | | 16 | | | 18 | | | 19 | | | |
| X (Nominal × Pitch) | M14×1.5 | | | M16×1.5 | | | M20×1.5 | | | M22×1.5 | | | M27×1.5 | | | M30×1.5 | | | M39×1.5 | | | M48×1.5 | | | |
| Y | 5 | | | 6 | | | 8 | | | 8 | | | 10 | | | 10 | | | 14 | | | 14 | | | |
| Z (Chamfer) | C2 | | | C3 | | | C3 | | | C3 | | | C4 | | | C5 | | | C6 | | | C6 | | | |
| AA | 22 | | | 24 | | | 30 | | | 32 | | | 41 | | | 46 | | | 55 | | | 65 | | | |
| AB | 7 | | | 8 | | | 9 | | | 10 | | | 11 | | | 11 | | | 12 | | | 12 | | | |
| AC | 24.5 | | | 26.5 | | | 33 | | | 35.5 | | | 45 | | | 50 | | | 60 | | | 71 | | | |
| BA | 14 | | | 16 | | | 19 | | | 22 | | | 25 | | | 31 | | | 38 | | | 44 | | | |
| BB | 17 | | | 20 | | | 25 | | | 28 | | | 34 | | | 40 | | | 49 | | | 60 | | | |
| CA | 6 | | | 7 | | | 9 | | | 10 | | | 12.5 | | | 14 | | | 18.5 | | | 23 | | | |
| CB | 6.5 | | | 6.5 | | | 7.5 | | | 9.5 | | | 11.5 | | | 12.5 | | | 11.5 | | | 13.5 | | | |
| CC | 4 | | | 4 | | | 5 | | | 6 | | | 6 | | | 8 | | | 8 | | | 10 | | | |
| EA (Nominal × Pitch) | M4×0.7 | | | M5×0.8 | | | M5×0.8 | | | M6×1 | | | M6×1 | | | M8×1.25 | | | M10×1.5 | | | M12×1.75 | | | |
| JA | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | | | 4.5 | | | 4.5 | | | 4.5 | | | 4.5 | | | |
| JB | 14 | | | 14 | | | 14 | | | 14 | | | 19 | | | 19 | | | 22 | | | 22 | | | |
| Lock Port/ Release Port | -C option | G1/8 | | | G1/8 | | | G1/8 | | | G1/8 | | | G1/4 | | | G1/4 | | | G3/8 | | | G3/8 | | |
| | -S option | Rc1/8 | | | Rc1/8 | | | Rc1/8 | | | Rc1/8 | | | Rc1/4 | | | Rc1/4 | | | Rc3/8 | | | Rc3/8 | | |
| R-Thread Plug | -G option | R1/8 | | | R1/8 | | | R1/8 | | | R1/8 | | | R1/4 | | | R1/4 | | | R3/8 | | | R3/8 | | |
| O-ring (-C/-G option) | 1BP5 | | | 1BP5 | | | 1BP5 | | | 1BP5 | | | 1BP7 | | | 1BP7 | | | 1BP7 | | | 1BP7 | | | |
| Cylinder Capacity | Lock | 3.8 | 4 | 4.3 | 5.8 | 6.2 | 6.5 | 8.5 | 9.1 | 9.7 | 15.1 | 16.1 | 17.1 | 20.5 | 22.1 | 23.6 | 38 | 40.6 | 43.2 | 58.7 | 63.1 | 67.6 | 102.4 | 109.9 | 117.3 |
| | cm ³ Release | 5.8 | 6.1 | 6.5 | 8.7 | 9.3 | 9.8 | 13 | 14 | 14.8 | 22.4 | 23.7 | 25.2 | 31.3 | 33.7 | 36 | 56.5 | 60.4 | 64.3 | 90.3 | 97.1 | 103.9 | 161.3 | 173 | 184.7 |
| Mass ※7 | kg | 0.7 | | | 0.9 | | | 1.4 | | | 2 | | | 2.9 | | | 4.2 | | | 7.2 | | | 10.1 | | |

Note ※7. Mass of single swing clamp including taper sleeve and nut.

- High-Power Series
- Pneumatic Series
- Hydraulic Series**
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

- Hole Clamp
 - SFA
 - SFC

- Swing Clamp**
 - LHA**
 - LHC
 - LHS
 - LHW
 - LT/LG
 - TLA-2
 - TLB-2
 - TLA-1

- Link Clamp
 - LKA
 - LKC
 - LKW
 - LM/LJ
 - TMA-2
 - TMA-1

- Work Support
 - LD
 - LC
 - TNC
 - TC

- Air Sensing Lift Cylinder
 - LLW

- Compact Cylinder
 - LL
 - LLR
 - LLU
 - DP
 - DR
 - DS
 - DT

- Block Cylinder
 - DBA
 - DBC

- Control Valve
 - BZL
 - BZT
 - BZX/JZG

- Pallet Clamp
 - VS
 - VT

- Expansion Locating Pin
 - VL
 - VM
 - VJ
 - VK

- Pull Stud Clamp
 - FP
 - FQ

- Customized Spring Cylinder
 - DWA/DWB

Air Sensing Option (Action Confirmation Method · · · M : Air Sensing Manifold Option / N : Air Sensing Piping Option)

Action confirmation can be conducted by detecting differential pressure with the air catch sensor connected to lock confirmation port and release confirmation port.

Applicable Model

LHA 480 0 -

C
G
S

L
R

M
N

5 Action Confirmation Method
: When M/N is chosen

About Air Catch Sensor

The air catch sensor is necessary to confirm the piston rod action.

The essential condition: Air catch sensor that have a consumption rate more than 22~25L/min(at 0.2 MPa) is needed.

Recommended Operating Air Pressure : 0.2 MPa

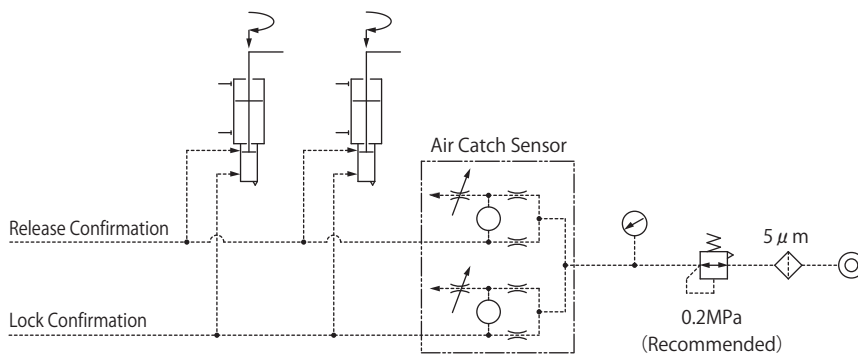
Recommended Air Catch Sensor

| Manufacturer | SMC | CKD |
|--------------|------------------|------------|
| Name | Air Catch Sensor | Gap Switch |
| Model No. | ISA1, ISA2-H | GPS2-07-15 |

In order to carry out stabilized detection, the number of clamps connected per one air catch sensor should be no more than 4.

The air pressure to the air catch sensor should be 0.2MPa.

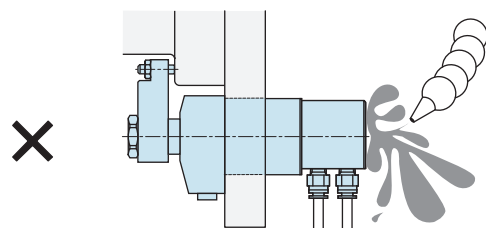
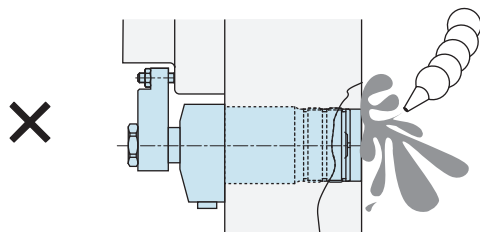
Refer to the drawing below for the pneumatic circuit composition.



Notes for Use and Installation

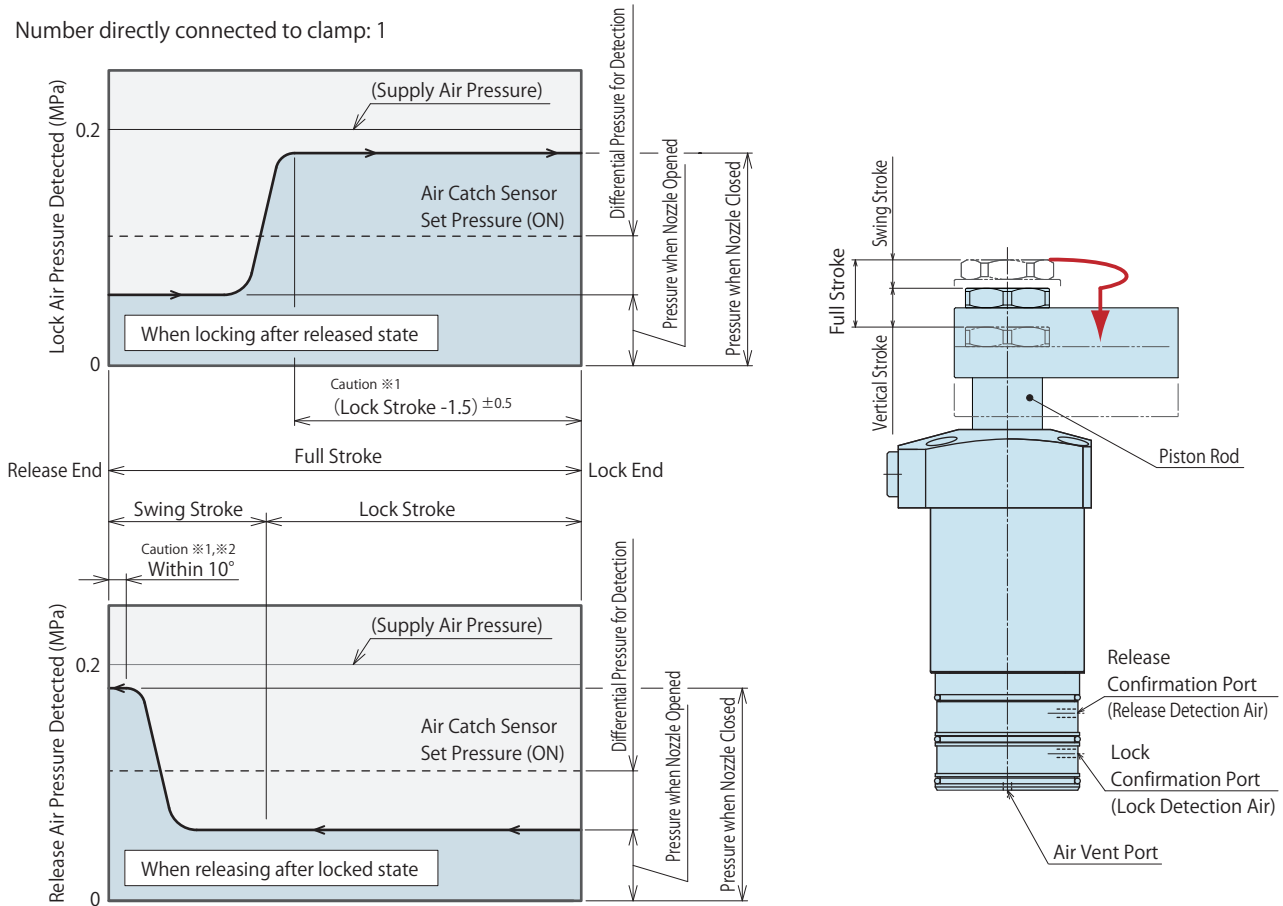
- Air venting port must be open to the atmosphere and kept free of coolant, chips or other debris. The air catch sensor can malfunction if the air vent port is blocked.

- Grease the O-ring before assembly to fixture. If it is mounted under dry state, the O-ring may have twisting or be defective. If excessive grease is applied, the grease may overflow to block the detection port, resulting in malfunctioning of the air catch sensor.



Air Sensing Chart

Number directly connected to clamp: 1



Notes

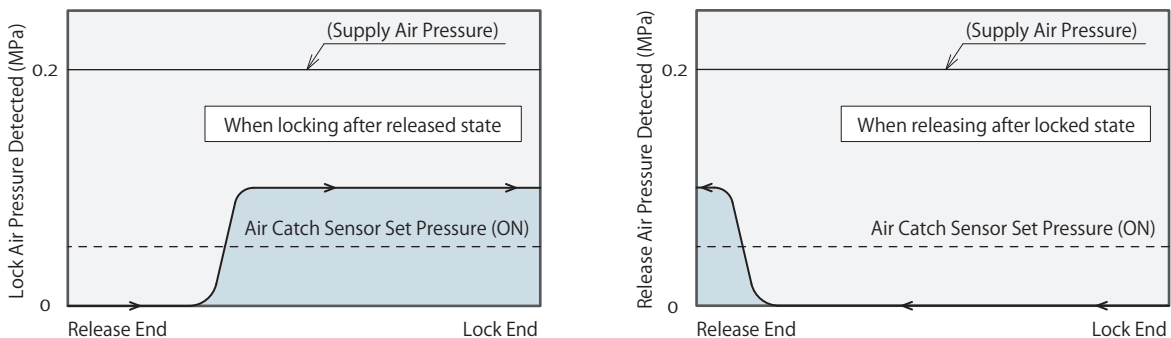
1. Sensing chart shown is the relationship between the stroke and detection circuit air pressure.
2. The position where the air sensor has ON signal output varies as per the sensor setting.
3. The detection pressure varies as per the number of clamps connected per circuit. (Maximum number of clamps connected: 4)
4. The features may vary as per the air circuit structure. For details, please do not hesitate to contact us.

※1. There is certain tolerance with regard to the position where the pressure for fully closing the detection nozzle is reached as per the clamp structure. (Refer to the sensing chart.)

※2. It is below 15 for LHA0360-□□M/N.

| Model No. | LHA0360-□□M/N | LHA0400-□□M/N | LHA0480-□□M/N | LHA0550-□□M/N | LHA0650-□□M/N | LHA0750-□□M/N | LHA0900-□□M/N | LHA1050-□□M/N |
|-----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Full Stroke | mm 13.5 | 14.5 | 15.5 | 18.5 | 20 | 24 | 26 | 32 |
| Swing Stroke | mm 5.5 | 6.5 | 7.5 | 8.5 | 10 | 12 | 14 | 16 |
| Vertical Stroke | mm 8 | 8 | 8 | 10 | 10 | 12 | 12 | 16 |

Number directly connected to clamp: 4 (for reference)



- High-Power Series
- Pneumatic Series
- Hydraulic Series**
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

- Hole Clamp
 - SFA
 - SFC

- Swing Clamp**
 - LHA**
 - LHC
 - LHS
 - LHW
 - LT/LG
 - TLA-2
 - TLB-2
 - TLA-1

- Link Clamp
 - LKA
 - LKC
 - LKW
 - LM/LJ
 - TMA-2
 - TMA-1

- Work Support
 - LD
 - LC
 - TNC
 - TC

- Air Sensing Lift Cylinder
 - LLW

- Compact Cylinder
 - LL
 - LLR
 - LLU
 - DP
 - DR
 - DS
 - DT

- Block Cylinder
 - DBA
 - DBC

- Control Valve
 - BZL
 - BZT
 - BZX/JZG

- Pallet Clamp
 - VS
 - VT

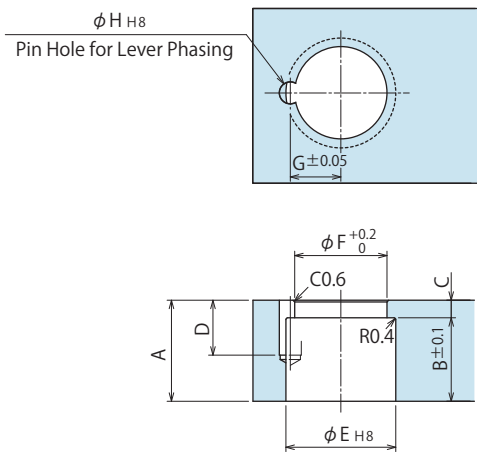
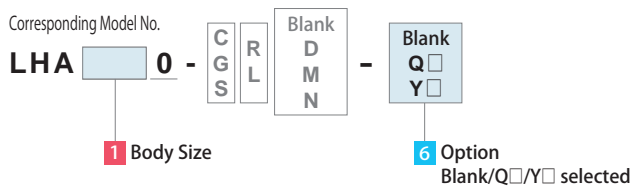
- Expansion Locating Pin
 - VL
 - VM
 - VJ
 - VK

- Pull Stud Clamp
 - FP
 - FQ

- Customized Spring Cylinder
 - DWA/DWB

Taper Lock Lever Design Dimensions

※ Reference for designing taper lock swing lever.



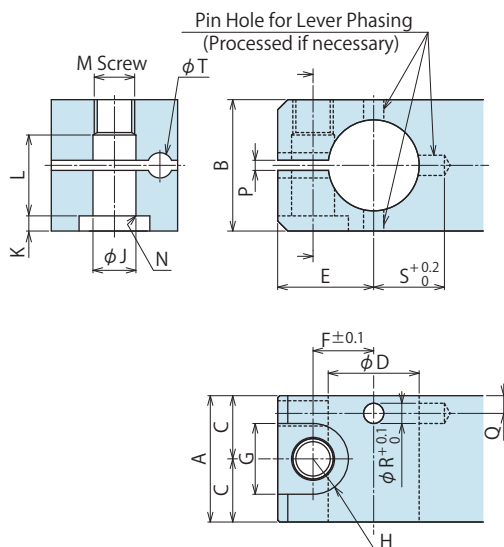
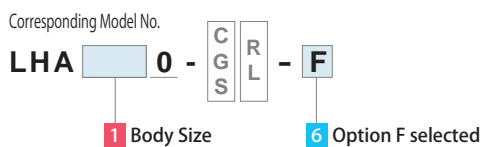
| Corresponding Model No. ^{※1} | LHA0360 | LHA0400 | LHA0480 | LHA0550 | LHA0650 | LHA0750 | LHA0900 | LHA1050 |
|---------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| A | 17 | 19 | 23 | 26 | 29 | 35 | 43 | 50 |
| B | 14 | 16 | 19 | 22 | 25 | 31 | 38 | 44 |
| C | 3 | 3 | 4 | 4 | 4 | 4 | 5 | 6 |
| D | 10.5 | 10.5 | 12.5 | 14.5 | 16.5 | 17.5 | 17.5 | 20.5 |
| E | 17 ^{+0.027} | 20 ^{+0.033} | 25 ^{+0.033} | 28 ^{+0.033} | 34 ^{+0.039} | 40 ^{+0.039} | 49 ^{+0.039} | 60 ^{+0.046} |
| F | 15 | 17 | 21 | 23.5 | 29 | 33 | 42 | 51 |
| G | 8 | 9 | 11.5 | 13 | 15.5 | 18 | 22.5 | 28 |
| H | 4 ^{+0.018} | 4 ^{+0.018} | 5 ^{+0.018} | 6 ^{+0.018} | 6 ^{+0.018} | 8 ^{+0.022} | 8 ^{+0.022} | 10 ^{+0.022} |
| Phasing Pin (Reference) | φ4(h8)×10 | φ4(h8)×10 | φ5(h8)×12 | φ6(h8)×14 | φ6(h8)×16 | φ8(h8)×16 | φ8(h8)×16 | φ10(h8)×20 |

Notes

- Swing lever should be designed with its length according to performance graph shown on P.293.
 - If the swing lever is not in accordance with the dimension shown above, performance may be degraded and damage can occur.
 - The pin hole (φH) for determining the lever phase should be added, if necessary.
- ※1. Please refer to the swing lever design dimension for quick change lever that is described below when -F option (quick change lever option) is used. Please make self preparation, when P option is chosen (balance lever option).

Quick-Change Lever Design Dimensions

※ Reference for designing quick change swing lever.



| Corresponding Model No. ^{※1} | LHA0360 -□□-F | LHA0400 -□□-F | LHA0480 -□□-F | LHA0550 -□□-F | LHA0650 -□□-F | LHA0750 -□□-F | LHA0900 -□□-F | LHA1050 -□□-F |
|---------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|-----------------------------------|
| A | 22 | 25 | 30 | 34 | 40 | 46 | 55 | 60 |
| B | 22 | 26 | 32 | 36 | 45 | 53 | 70 | 82 |
| C | 11 | 12.5 | 15 | 17 | 20 | 23 | 27.5 | 30 |
| D | 15 ⁰ _{-0.016} | 18 ⁰ _{-0.016} | 22 ⁰ _{-0.020} | 25 ⁰ _{-0.020} | 30 ⁰ _{-0.020} | 35.5 ⁰ _{-0.025} | 45 ⁰ _{-0.025} | 55 ⁰ _{-0.030} |
| E | 15 | 19 | 23 | 26.5 | 31.5 | 36.5 | 46 | 55 |
| F | 9.75 | 12 | 14.75 | 17 | 20 | 23.5 | 29.75 | 36 |
| G | 11 | 14 | 17.5 | 20 | 23 | 26 | 32 | 39 |
| H | R5.5 | R7 | R8.75 | R10 | R11.5 | R13 | R16 | R19.5 |
| J | 6.5 | 8.5 | 10.5 | 12.5 | 14.5 | 16.5 | 21 | 25 |
| K | 2 | 3 | 4 | 4 | 5 | 7 | 9 | 11 |
| L | 13.5 | 16 | 18 | 22 | 26.5 | 31 | 42 | 46 |
| M | M6×1 | M8×1 | M10×1.25 | M12×1.5 | M14×1.5 | M16×1.5 | M20×2 | M24×2 |
| N | C0.4 | C0.6 | C0.6 | C1 | C1 | C1 | C1 | C1 |
| P | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Q | 2.5 | 3.5 | 3.5 | 4 | 5.5 | 5.5 | 7.5 | 8 |
| R | 3 | 4 | 4 | 4 | 6 | 6 | 8 | 8 |
| S | 13.5 | 14 | 18 | 19.5 | 24.5 | 27.75 | 38 | 45 |
| T | 3.4 | 4.5 | 4.5 | 4.5 | 6.5 | 6.5 | 9 | 9 |
| Phasing Pin (Reference) | φ3×8 | φ4×8 | φ4×10 | φ4×10 | φ6×14 | φ6×14 | φ8×20 | φ8×22 |

Notes

- Swing lever should be designed with its length according to performance graph shown on P.293.
- If the swing lever is not in accordance with the dimension shown above, performance may be degraded and damage can occur.
- The pin hole (φR) for determining the lever phase should be added, if necessary.
- Sells the tightening bolt (LZH□0-B) for lever separately.

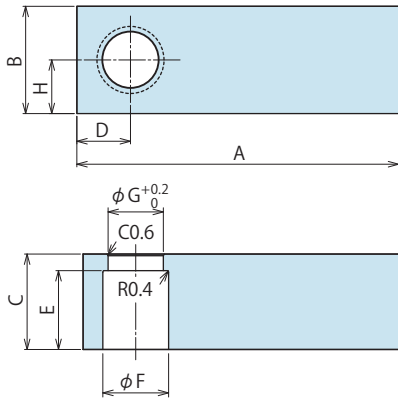
● Accessories : Material Swing Lever for Taper Lock Option

Model No. Indication

LZH 048 0 - T

Size (Refer to the graph on the right)

Design No. (Revision Number)



| Model No. | LZH0360 -T | LZH0400 -T | LZH0480 -T | LZH0550 -T | LZH0650 -T | LZH0750 -T | LZH0900 -T | LZH1050 -T |
|---------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Corresponding Model No. ^{※2} | LHA0360 | LHA0400 | LHA0480 | LHA0550 | LHA0650 | LHA0750 | LHA0900 | LHA1050 |
| A | 120 | 145 | 160 | 170 | 175 | 185 | 220 | 270 |
| B | 26 | 32 | 40 | 45 | 50 | 58 | 75 | 90 |
| C | 17 | 19 | 23 | 26 | 29 | 35 | 43 | 50 |
| D | 13 | 16 | 20 | 23 | 25 | 29 | 38 | 45 |
| E | 14 | 16 | 19 | 22 | 25 | 31 | 38 | 44 |
| F | 17 | 20 | 25 | 28 | 34 | 40 | 49 | 60 |
| G | 15 | 17 | 21 | 23.5 | 29 | 33 | 42 | 51 |
| H | 13 | 16 | 20 | 22.5 | 25 | 29 | 37.5 | 45 |

Notes

1. Material : S50CH
2. If necessary, the front end should be additionally machined.
3. When determining the phase, refer to taper lock lever design dimensions for each model for the additional machining.
- ※2. Please refer to the accessory for quick change lever option when 'F' option (quick change lever option) is used.
Please make self preparation, when P option is chosen (balance lever option).

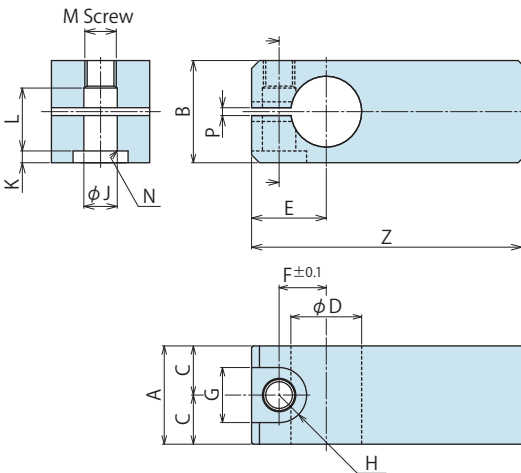
● Accessories : Material Swing Lever for Quick Change Option

Model No. Indication

LZH 048 0 - F

Size (Refer to the graph on the right)

Design No. (Revision Number)



| Model No. | LZH0360 -F | LZH0400 -F | LZH0480 -F | LZH0550 -F | LZH0650 -F | LZH0750 -F | LZH0900 -F | LZH1050 -F |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|
| Corresponding Model No. | LHA0360 -□□-F | LHA0400 -□□-F | LHA0480 -□□-F | LHA0550 -□□-F | LHA0650 -□□-F | LHA0750 -□□-F | LHA0900 -□□-F | LHA1050 -□□-F |
| A | 22 | 25 | 30 | 34 | 40 | 46 | 55 | 60 |
| B | 22 | 26 | 32 | 36 | 45 | 53 | 70 | 82 |
| C | 11 | 12.5 | 15 | 17 | 20 | 23 | 27.5 | 30 |
| D | 15 ^{-0.016} | 18 ^{-0.016} | 22 ^{-0.020} | 25 ^{-0.020} | 30 ^{-0.020} | 35.5 ^{-0.025} | 45 ^{-0.025} | 55 ^{-0.030} |
| E | 15 | 19 | 23 | 26.5 | 31.5 | 36.5 | 46 | 55 |
| F | 9.75 | 12 | 14.75 | 17 | 20 | 23.5 | 29.75 | 36 |
| G | 11 | 14 | 17.5 | 20 | 23 | 26 | 32 | 39 |
| H | R5.5 | R7 | R8.75 | R10 | R11.5 | R13 | R16 | R19.5 |
| J | 6.5 | 8.5 | 10.5 | 12.5 | 14.5 | 16.5 | 21 | 25 |
| K | 2 | 3 | 4 | 4 | 5 | 7 | 9 | 11 |
| L | 13.5 | 16 | 18 | 22 | 26.5 | 31 | 42 | 46 |
| M | M6×1 | M8×1 | M10×1.25 | M12×1.5 | M14×1.5 | M16×1.5 | M20×2 | M24×2 |
| N | C0.4 | C0.6 | C0.6 | C1 | C1 | C1 | C1 | C1 |
| P | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Z | 120 | 145 | 160 | 170 | 175 | 185 | 220 | 270 |

Notes

1. Material : S50CH
2. If necessary, the front end should be additionally processed.
3. When determining the phase, refer to quick change lever design dimensions for each model for the additional machining.
4. Sells the tightening bolt (LZH□□0-B) for lever separately.

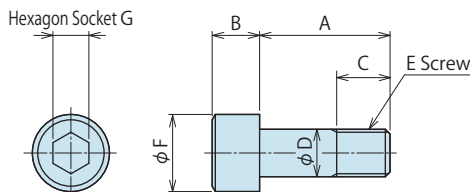
● Accessories : Tightening Bolts for Quick Change Lever

Model No. Indication

LZH 048 0 - B

Size (Refer to the graph on the right)

Design No. (Revision Number)



| Model No. | LZH0360 -B | LZH0400 -B | LZH0480 -B | LZH0550 -B | LZH0650 -B | LZH0750 -B | LZH0900 -B | LZH1050 -B |
|-------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Corresponding Model No. | LHA0360 -□□-F | LHA0400 -□□-F | LHA0480 -□□-F | LHA0550 -□□-F | LHA0650 -□□-F | LHA0750 -□□-F | LHA0900 -□□-F | LHA1050 -□□-F |
| A | 20 | 23 | 28 | 32 | 40 | 46 | 61 | 71 |
| B | 6 | 8 | 10 | 12 | 14 | 16 | 20 | 24 |
| C | 7 | 10 | 11 | 13 | 16 | 18 | 23 | 27 |
| D | 6 | 8 | 10 | 12 | 14 | 16 | 20 | 24 |
| E | M6×1 | M8×1 | M10×1.25 | M12×1.5 | M14×1.5 | M16×1.5 | M20×2 | M24×2 |
| F | 10 | 13 | 16 | 18 | 21 | 24 | 30 | 36 |
| G | 5 | 6 | 8 | 10 | 12 | 14 | 17 | 19 |

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

Hole Clamp

SFA

SFC

Swing Clamp

LHA

LHC

LHS

LHW

LT/LG

TLA-2

TLB-2

TLA-1

Link Clamp

LKA

LKC

LKW

LM/LJ

TMA-2

TMA-1

Work Support

LD

LC

TNC

TC

Air Sensing Lift Cylinder

LLW

Compact Cylinder

LL

LLR

LLU

DP

DR

DS

DT

Block Cylinder

DBA

DBC

Control Valve

BZL

BZT

BZX/JZG

Pallet Clamp

VS

VT

Expansion Locating Pin

VL

VM

VJ

VK

Pull Stud Clamp

FP

FQ

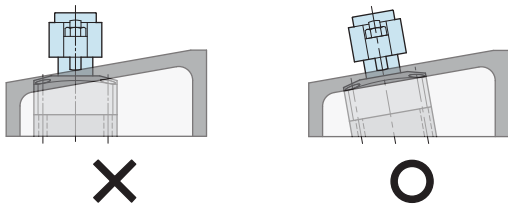
Customized Spring Cylinder

DWA/DWB

Cautions

● Notes for Design

- 1) Check Specifications
 - Please use each product according to the specifications.
- 2) Notes for Circuit Design
 - Please read "Notes on Hydraulic Cylinder Speed Control Circuit" on P. 1044 to assist with proper hydraulic circuit designing.
 - Ensure there is no possibility of supplying hydraulic pressure to the lock and release ports simultaneously.
- 3) Swing lever should be designed so that the inertia moment is small.
 - Large moment of inertia will degrade the lever's stopping accuracy and cause undue wear to the clamp. Additionally, the clamp may not function, depending on supplied hydraulic pressure and lever mounting position.
 - Please set the allowable operating time after the inertia moment is calculated. Please make sure that let the clamps work within allowable operating time referring to the allowable operating time graph.
- 4) When using on a welding fixture, the exposed area of piston rod should be protected.
 - If spatter gets onto the sliding surface it could lead to malfunction and fluid leakage.
- 5) When clamping on a sloped surface of the workpiece
 - Make sure the clamp surface and mounting surface of the clamp are parallel.



6) Notes for LHA-M/N, LHW

- When using air sensing swing clamp (LHA-M/N, LHW), make sure to check the Notes for Design • Installation • Use (Pages shown below).
 - Swing clamp with air sensing option LHA-M/N: Refer to P.315.
 - Swing clamp with air sensing valve LHW: Refer to P.353.

● Installation Notes

- 1) Check the Usable Fluid
 - Please use the appropriate fluid by referring to the Hydraulic Fluid List (P.1043).
- 2) Mounting the clamp
 - When mounting the clamp, use hexagon socket bolts as multiple bolt holes for mounting (with tensile strength of 12.9) and tighten them with the torque shown in the chart below. Tightening with greater torque than recommended can depress the seating surface or break the bolt.

| | Model No. | Thread Size | Tightening Torque (N·m) | |
|--------------------------|--|-----------------|-------------------------|-----|
| LHA LHC LHS LHW | LHA0360 / LHS0360 | M4×0.7 | 4.0 | |
| | LHA0400 / LHC0400 LHS0400 / LHW040□ | M5×0.8 | 8.0 | |
| | LHA0480 / LHC0480 LHS0480 / LHW048□ | M5×0.8 | 8.0 | |
| | LHA0550 / LHC0550 LHS0550 / LHW055□ | M6×1 | 14 | |
| | LHA0650 / LHC0650 LHS0650 / LHW065□ | M6×1 | 14 | |
| | LHA0750 / LHS0750 LHW0751 | M8×1.25 | 33 | |
| | LHA0900 / LHS0900 | M10×1.5 | 65 | |
| | LHA1050 / LHS1050 | M12×1.75 | 114 | |
| | LT/LG | LT0301 / LG0301 | M4×0.7 | 3.2 |
| | | LT036□ / LG036□ | M4×0.7 | 3.2 |
| LT040□ / LG040□ | | M5×0.8 | 6.3 | |
| LT048□ / LG048□ | | M5×0.8 | 6.3 | |
| LT055□ / LG055□ | | M6×1 | 10 | |
| LT065□ / LG065□ | | M6×1 | 10 | |
| LT075□ / LG075□ | | M8×1.25 | 25 | |
| LG090□ | | M10×1.5 | 58.8 | |
| LG105□ | | M12×1.75 | 98 | |
| TLA-2 TLB-2 TLA-1 | | TL□040□-□ | M5×0.8 | 6.9 |
| | TL□060□-□ | M6×1 | 11.8 | |
| | TL□080□-□ | M6×1 | 11.8 | |
| | TL□100□-□ | M8×1.25 | 25 | |
| | TL□160□-□ | M8×1.25 | 25 | |
| | TL□200□-□ | M10×1.5 | 58.8 | |
| | TL□250□-□ | M10×1.5 | 58.8 | |
| | TL□400□-□ | M12×1.75 | 98 | |

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

Hole Clamp

SFA

SFC

Swing Clamp

LHA

LHC

LHS

LHW

LT/LG

TLA-2

TLB-2

TLA-1

Link Clamp

LKA

LKC

LKW

LM/LJ

TMA-2

TMA-1

Work Support

LD

LC

TNC

TC

Air Sensing Lift Cylinder

LLW

Compact Cylinder

LL

LLR

LLU

DP

DR

DS

DT

Block Cylinder

DBA

DBC

Control Valve

BZL

BZT

BZX/JZG

Pallet Clamp

VS

VT

Expansion Locating Pin

VL

VM

VJ

VK

Pull Stud Clamp

FP

FQ

Customized Spring Cylinder

DWA/DWB

3) Mounting and removing the swing lever.

- Oil or debris on the mating surfaces of the lever, taper sleeve or piston rod can cause the rod to loosen. Clean carefully before assembly.
- Lever arm mounting bolt torques are shown below.

LHA/LHC/LHS/LHW/LT/LG Standard : Taper Lock Lever

| | 形式 | Thread Size | Tightening Torque (N·m) |
|--------------------------|--|-----------------|-------------------------|
| LHA LHC LHS LHW | LHA0360 / LHS0360 | M14×1.5 | 21 ~ 25 |
| | LHA0400 / LHC0400 LHS0400 / LHW040□ | M16×1.5 | 33 ~ 40 |
| | LHA0480 / LHC0480 LHS0480 / LHW048□ | M20×1.5 | 54 ~ 65 |
| | LHA0550 / LHC0550 LHS0550 / LHW055□ | M22×1.5 | 84 ~ 100 |
| | LHA0650 / LHC0650 LHS0650 / LHW065□ | M27×1.5 | 120 ~ 145 |
| | LHA0750 / LHS0750 LHW0751 | M30×1.5 | 175 ~ 210 |
| | LHA0900 / LHS0900 | M39×1.5 | 280 ~ 335 |
| | LHA1050 / LHS1050 | M48×1.5 | 333 ~ 400 |
| | LT/LG | LT0301 / LG0301 | M8×1 |
| LT036□ / LG036□ | | M10×1 | 15 ~ 18 |
| LT040□ / LG040□ | | M12×1.5 | 24 ~ 29 |
| LT048□ / LG048□ | | M16×1.5 | 37 ~ 45 |
| LT055□ / LG055□ | | M18×1.5 | 59 ~ 71 |
| LT065□ / LG065□ | | M22×1.5 | 93 ~ 112 |
| LT075□ / LG075□ | | M28×1.5 | 147 ~ 177 |
| LG090□ | | M36×1.5 | 235 ~ 282 |
| LG105□ | | M45×1.5 | 300 ~ 360 |

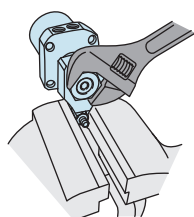
LHA/LHS-F Quick Change Lever, TLA-2/TLB-2/TLA-1 Standard

| | Model No. | Thread Size | Tightening Torque (N·m) | |
|--------------------------------|--|-------------|-------------------------|-----|
| LHA-F LHS-F LT-F LG-F | LT0301-F / LG0301-F | M5×0.8 | 7.5 | |
| | LHA0360-F / LHS0360-F LT036□-F / LG036□-F | M6 | 14 | |
| | LHA0400-F / LHS0400-F LT040□-F / LG040□-F | M8×1 | 33 | |
| | LHA0480-F / LHS0480-F LT048□-F / LG048□-F | M10×1.25 | 65 | |
| | LHA0550-F / LHS0550-F LT055□-F / LG055□-F | M12×1.5 | 100 ~ 114 | |
| | LHA0650-F / LHS0650-F LT065□-F / LG065□-F | M14×1.5 | 160 ~ 180 | |
| | LHA0750-F / LHS0750-F LT075□-F / LG075□-F | M16×1.5 | 250 ~ 280 | |
| | LHA0900-F / LHS0900-F LG090□-F | M20×2 | 500 ~ 540 | |
| | LHA1050-F / LHS1050-F LG105□-F | M24×2 | 760 ~ 810 | |
| | TLA-2 TLB-2 TLA-1 | TL□040□-□ | M6 | 13 |
| | | TL□060□-□ | M8×1 | 32 |
| | | TL□080□-□ | M8×1 | 32 |
| | | TL□100□-□ | M10×1.25 | 63 |
| | | TL□160□-□ | M12×1.5 | 100 |
| TL□200□-□ | | M14×1.5 | 160 | |
| | TL□250□-□ | M16×1.5 | 250 | |
| | TL□400□-□ | M20×2 | 500 | |

- If the piston rod is subjected to excessive torque or shock, the rod or the internal mechanism may be damaged. Observe the following points to prevent such shock.

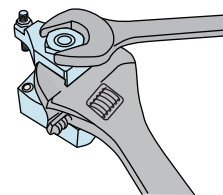
During mounting

- ① When the clamp is positioned with fixture, determine the lever position, and temporarily tighten the nut for fixing the lever.



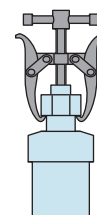
- ② Remove the clamp from a fixture, fix the lever by machine vise etc., and tighten the nut.

- ③ If clamp can't be removed from fixture for final tightening, secure the lever while tightening the nut. It is best to bring the lever to the middle of the swing stroke before tightening the nut.



During removal

- ① While the clamp is in the fixture or vise, use a hex wrench to bring the arm to the middle of the swing stroke and then loosen the nut.
- ② Loosen the taper sleeve nut two or three turns then remove the lever with puller. Do not put any rotating torque on the piston rod.



4) Swinging Speed Adjustment

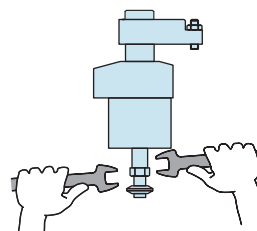
- Adjust the speed following "Allowable Swing Time Graph". If the clamp operates too fast the parts will wear out leading to premature damage and ultimately complete equipment failure.
- Please make sure to release air from the circuit before adjusting speed. It will be difficult to adjust the speed accurately with air mixed in the circuit.
- Turn the speed control valve gradually from the low-speed side (small flow) to the high-speed side (large flow) to adjust the speed.

5) Checking looseness and retightening

- At the beginning of the machine installation, the bolt and nut may be tightened lightly. Check the looseness and re-tighten as required.

6) Notes on dual rod option (-D) for dog application.

- When attaching dog, set up the piston so that it will not turn around. Please secure the dog or cam and prevent any rotation or torque on the piston rod. Torque values for the mounting screw are shown in the table below.



| Model No. | Thread Size | Tightening Torque (N·m) |
|-------------|-------------|-------------------------|
| LHA0360-□□D | M4×0.7 | 3.2 |
| LHA0400-□□D | M6×1 | 10 |
| LHA0480-□□D | M8×1.25 | 25 |
| LHA0550-□□D | M8×1.25 | 25 |
| LHA0650-□□D | M8×1.25 | 25 |
| LHA0750-□□D | M10×1.5 | 50 |
| LHA0900-□□D | M10×1.5 | 50 |
| LHA1050-□□D | M10×1.5 | 50 |

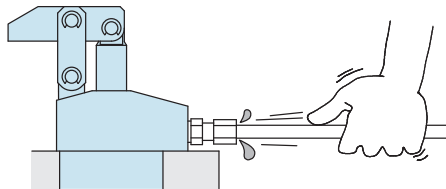
※ Please refer to P.1043 for common cautions.

• Installation Notes • Hydraulic Fluid List • Notes on Hydraulic Cylinder Speed Control Circuit
• Notes on Handling • Maintenance/Inspection • Warranty

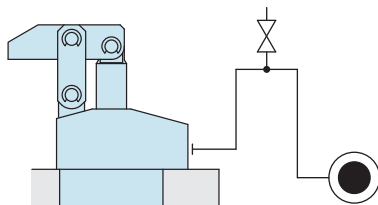
● Cautions

● Installation Notes (For Hydraulic Series)

- 1) Check the Usable Fluid
 - Please use the appropriate fluid by referring to the Hydraulic Fluid List.
- 2) Procedure before Piping
 - The pipeline, piping connector and fixture circuits should be cleaned by thorough flushing.
 - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
 - There is no filter provided with Kosmek' s product except for a part of valves which prevents foreign materials and contaminants from getting into the circuit.
- 3) Applying Sealing Tape
 - Wrap with tape 1 to 2 times following the screw direction.
 - Pieces of the sealing tape can lead to oil leakage and malfunction.
 - In order to prevent a foreign substance from going into the product during the piping work, it should be carefully cleaned before working.
- 4) Air Bleeding of the Hydraulic Circuit
 - If the hydraulic circuit has excessive air, the action time may become very long. If air enters the circuit after connecting the hydraulic port or under the condition of no air in the oil tank, please perform the following steps.
 - ① Reduce hydraulic pressure to less than 2MPa.
 - ② Loosen the cap nut of pipe fitting closest to the clamp by one full turn.
 - ③ Wiggle the pipeline to loosen the outlet of pipe fitting.
Hydraulic fluid mixed with air comes out.



- ④ Tighten the cap nut after bleeding.
- ⑤ It is more effective to bleed air at the highest point inside the circuit or at the end of the circuit.
(Set an air bleeding valve at the highest point inside the circuit.)



5) Checking Looseness and Retightening

- At the beginning of the machine installation, the bolt and nut may be tightened lightly. Check the looseness and re-tighten as required.

● Hydraulic Fluid List

| Maker | ISO Viscosity Grade ISO-VG-32 | |
|------------------------|-------------------------------|-----------------------------|
| | Anti-Wear Hydraulic Oil | Multi-Purpose Hydraulic Oil |
| Showa Shell Sekiyu | Tellus S2 M 32 | Morlina S2 B 32 |
| Idemitsu Kosan | Daphne Hydraulic Fluid 32 | Daphne Super Multi Oil 32 |
| JX Nippon Oil & Energy | Super Hyrando 32 | Super Mulpus DX 32 |
| Cosmo Oil | Cosmo Hydro AW32 | Cosmo New Mighty Super 32 |
| ExxonMobil | Mobil DTE 24 | Mobil DTE 24 Light |
| Matsumura Oil | Hydol AW-32 | |
| Castrol | Hyspin AWS 32 | |

Note As it may be difficult to purchase the products as shown in the table from overseas, please contact the respective manufacturer.

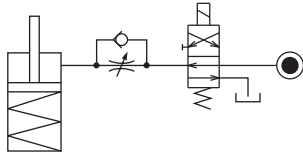
● Notes on Hydraulic Cylinder Speed Control Unit



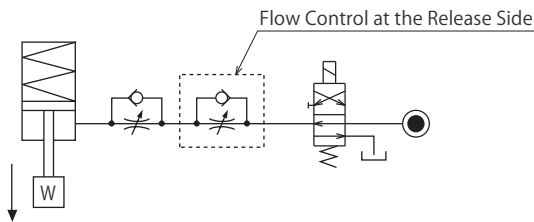
Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

● Flow Control Circuit for Single Acting Cylinder

For spring return single acting cylinders, restricting flow during release can extremely slow down or disrupt release action. The preferred method is to control the flow during the lock action using a valve that has free-flow in the release direction. It is also preferred to provide a flow control valve at each actuator.



Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow. (Please add flow control to release flow if the lever weight is put on at the time of release action when using swing clamps.)



● Flow Control Circuit for Double Acting Cylinder

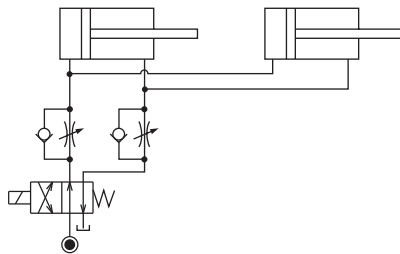
Flow control circuit for double acting cylinder should have meter-out circuits for both the lock and release sides. Meter-in control can have adverse effect by presence of air in the system.

However, in the case of controlling LKE, TMA, TLA, both lock side and release side should be meter-in circuit.

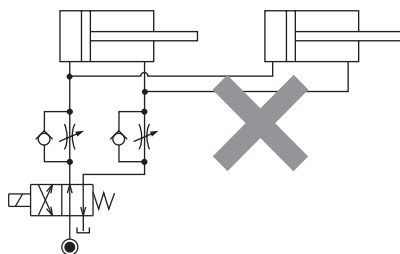
Refer to P.47 for speed adjustment of LKE.

For TMA and TLA, if meter-out circuit is used, abnormal high pressure is created, which causes oil leakage and damage.

【Meter-out Circuit】 (Except LKE/TMA/TLA)

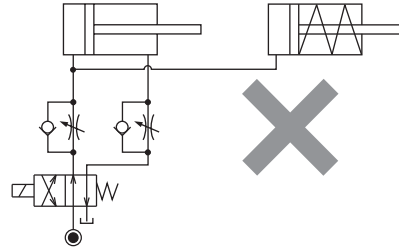


【Meter-in Circuit】 (LKE/TMA/TLA must be controlled with meter-in.)



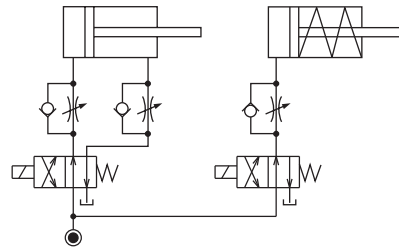
In the case of meter-out circuit, the hydraulic circuit should be designed with the following points.

- ① Single acting components should not be used in the same flow control circuit as the double acting components. The release action of the single acting cylinders may become erratic or very slow.

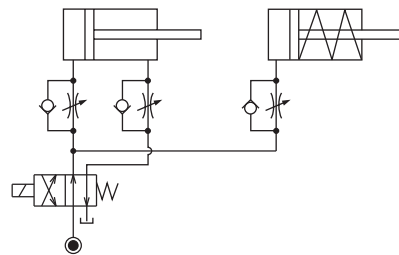


Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together.

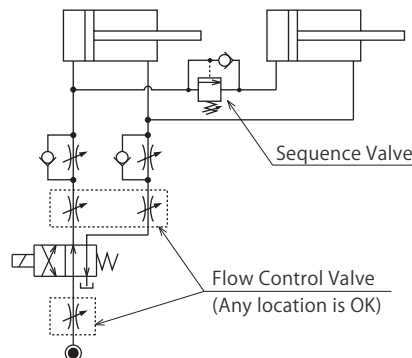
- Separate the control circuit.



- Reduce the influence of double acting cylinder control unit. However, due to the back pressure in tank line, single action cylinder is activated after double action cylinder works.



- ② In the case of meter-out circuit, the inner circuit pressure may increase during the cylinder action because of the fluid supply. The increase of the inner circuit pressure can be prevented by reducing the supplied fluid beforehand via the flow control valve. Especially when using sequence valve or pressure switches for clamping detection. If the back pressure is more than the set pressure then the system will not work as it is designed to.



- High-Power Series
- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

Cautions

- Installation Notes (For Hydraulic Series)
- Hydraulic Fluid List
- Notes on Hydraulic Cylinder Speed Control Circuit
- Notes on Handling
- Maintenance/Inspection
- Warranty

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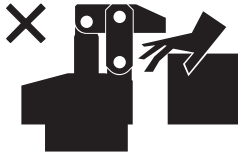
- Search by Alphabetical Order

Sales Offices

● Cautions

● Notes on Handling

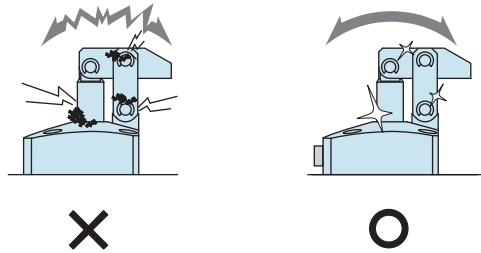
- 1) It should be handled by qualified personnel.
 - The hydraulic machine and air compressor should be handled and maintained by qualified personnel.
- 2) Do not handle or remove the machine unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared when it is confirmed that the preventive devices are in place.
 - ② Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
 - ③ After stopping the machine, do not remove until the temperature cools down.
 - ④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.
- 3) Do not touch clamps (cylinder) while clamps (cylinder) is working. Otherwise, your hands may be injured due to clinching.



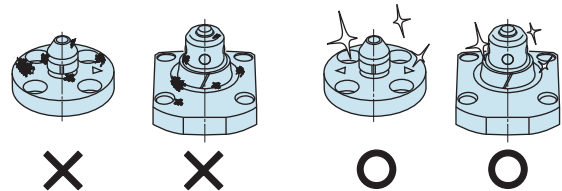
- 4) Do not disassemble or modify.
 - If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

● Maintenance and Inspection

- 1) Removal of the Machine and Shut-off of Pressure Source
 - Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
 - Make sure there is no abnormality in the bolts and respective parts before restarting.
- 2) Regularly clean the area around the piston rod and plunger.
 - If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning, fluid leakage and air leaks.



- 3) Please clean out the reference surface regularly (taper reference surface and seating surface) of locating machine. (VS/VT/VL/VM/VJ/VK/WVS/WM/WK/VX/VXF)
 - Location products, except VX/VXF model, can remove contaminants with cleaning functions. When installing pallets make sure there is no thick sludge like substances on pallets.
 - Continuous use with dirt on components will lead to locating functions not work properly, leaking and malfunction.



- 4) If disconnecting by couplers on a regular basis, air bleeding should be carried out daily to avoid air mixed in the circuit.
- 5) Regularly tighten nuts, bolts, pins, cylinders and pipe line to ensure proper use.
- 6) Make sure the hydraulic fluid has not deteriorated.
- 7) Make sure there is smooth action and no abnormal noise.
 - Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.
- 8) The products should be stored in the cool and dark place without direct sunshine or moisture.
- 9) Please contact us for overhaul and repair.

Cautions

[Installation Notes
\(For Hydraulic Series\)](#)
[Hydraulic Fluid List](#)
[Notes on Hydraulic Cylinder
Speed Control Circuit](#)
[Notes on Handling](#)
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Sales Offices

● Warranty

1) Warranty Period

- The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.

2) Warranty Scope

- If the product is damaged or malfunctions during the warranty period due to faulty design, materials or workmanship, we will replace or repair the defective part at our expense.

Defects or failures caused by the following are not covered.

- ① If the stipulated maintenance and inspection are not carried out.
- ② If the product is used while it is not suitable for use based on the operator's judgment, resulting in defect.
- ③ If it is used or handled in inappropriate way by the operator.
(Including damage caused by the misconduct of the third party.)
- ④ If the defect is caused by reasons other than our responsibility.
- ⑤ If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
- ⑥ Other caused by natural disasters or calamities not attributable to our company.
- ⑦ Parts or replacement expenses due to parts consumption and deterioration.
(Such as rubber, plastic, seal material and some electric components.)

Damages excluding from direct result of a product defect shall be excluded from the warranty.

Control Valve

Model BZL

Model BZT

Model BZX

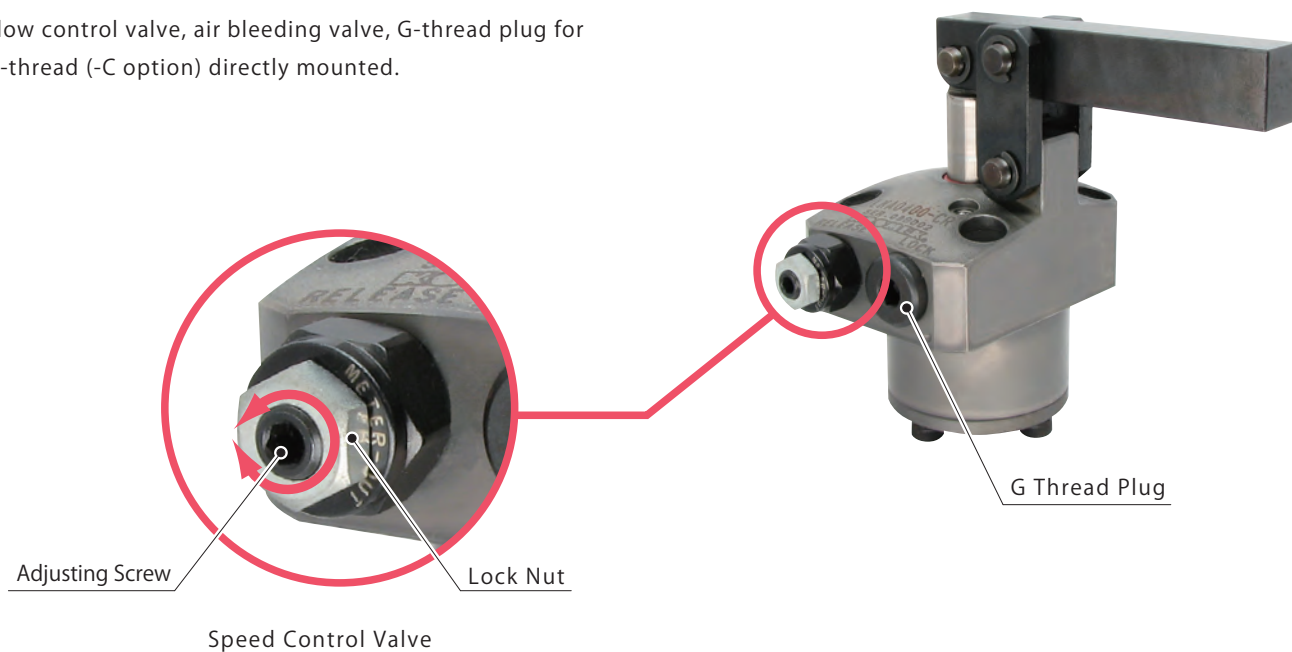
Model JZG


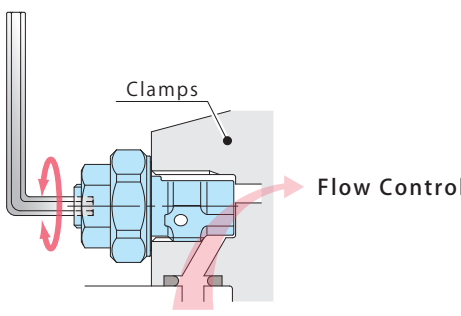
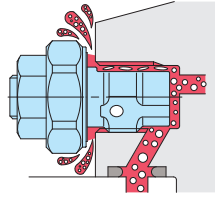

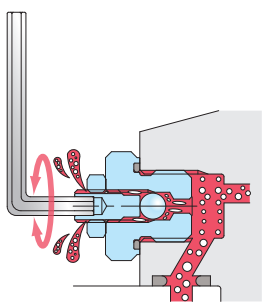

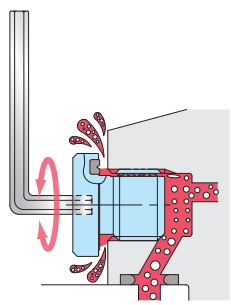


Directly mounted to clamps, flow control valve • Air bleeding • plug

- Directly mounted to clamps

Flow control valve, air bleeding valve, G-thread plug for G-thread (-C option) directly mounted.



| | Operating Pressure Range | Action Description |
|---|--------------------------|--|
| <p>Speed Control Valve (For Low Pressure)</p> <p>Model BZL → P.729</p>  | 7MPa or less | <p>Adjust the flow by wrench. It can adjust the clamping action speed individually.</p>  |
| <p>Speed Control Valve (For High Pressure)</p> <p>Model BZT → P.733</p> | 35MPa or less | <p>Air bleeding in the circuit is possible by loosening flow control valve.</p>  |
| <p>Air Bleed Valve</p> <p>Model BZX → P.735</p>  | 25MPa or less | <p>Air bleeding in the circuit is possible by wrench.</p>  |
| <p>G Thread Plug</p> <p>Model JZG → P.737</p>  | 35MPa or less | <p>Air bleeding in the circuit is possible by loosening G thread plug.</p>  |

- High-Power Series
- Pneumatic Series
- Hydraulic Series**
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

Hole Clamp

- SFA
- SFC

Swing Clamp

- LHA
- LHC
- LHS
- LHW
- LT/LG
- TLA-2
- TLB-2
- TLA-1

Link Clamp

- LKA
- LKC
- LKW
- LM/LJ
- TMA-2
- TMA-1

Work Support

- LD
- LC
- TNC
- TC

Air Sensing Lift Cylinder

- LLW

Compact Cylinder

- LL
- LLR
- LLU
- DP
- DR
- DS
- DT

Block Cylinder

- DBA
- DBC

Control Valve

- BZL**
- BZT**
- BZX/JZG**

Pallet Clamp

- VS
- VT

Expansion Locating Pin

- VL
- VM
- VJ
- VK

Pull Stud Clamp

- FP
- FQ

Customized Spring Cylinder

- DWA/DWB

Model No. Indication (Speed Control Valve for Low Pressure)

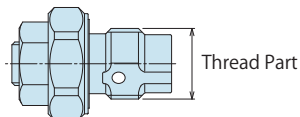
BZL 0 10 0 - B

1 2 3



1 G Thread Size

- 10 : Thread Part G1/8A Thread
- 20 : Thread Part G1/4A Thread
- 30 : Thread Part G3/8A Thread

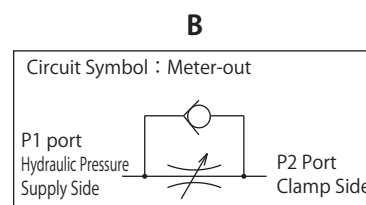
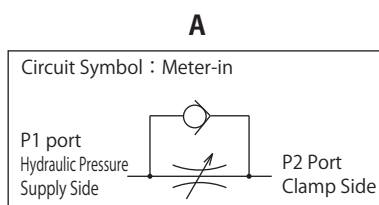


2 Design No.

- 0 : Revision Number

3 Control Method

- A : Meter-in
- B : Meter-out



Specifications

| Model No. | BZL0100-A | BZL0200-A | BZL0300-A | BZL0100-B | BZL0200-B | BZL0300-B |
|-------------------------------------|---|-----------|-----------|-----------|-----------|-----------|
| Max. Operating Pressure MPa | 7 | | | | | |
| Withstanding Pressure MPa | 10.5 | | | | | |
| Control Method | Meter-in | | | Meter-out | | |
| G Thread Size | G1/8A | G1/4A | G3/8A | G1/8A | G1/4A | G3/8A |
| Cracking Pressure MPa | 0.04 | | | 0.12 | | |
| Max. Passage Area mm ² | 2.6 | 5.0 | 11.6 | 2.6 | 5.0 | 10.2 |
| Usable Fluid | General Hydraulic Oil Equivalent to ISO-VG-32 | | | | | |
| Operating Temperature °C | 0 ~ 70 | | | | | |
| Tightening Torque for Main Body N·m | 10 | 25 | 35 | 10 | 25 | 35 |

- Notes
1. Minimum passage area when fully opened is the same as the maximum passage area in the table above.
 2. It must be mounted with recommended torque. Because of the structure of the metal seal, if mounting torque is insufficient, the flow control valve may not be able to adjust the flow rate.
 3. Don't use used BZL to other clamps.
Flow control will not be made because the bottom depth difference of G thread makes metal seal insufficient.

Applicable Products

| Model No. | DBA (Single Action) Block Cylinder | DBC (Single Action) Block Cylinder | LC (Single Action) Work Support | LHA (Double Action) Swing Clamp | LHC (Double Action) Swing Clamp | LHE (Double Action) High-Power Swing Clamp | LHS (Double Action) Swing Clamp | LHW (Double Action) Swing Clamp |
|-----------|------------------------------------|------------------------------------|--|--|--|--|--|--|
| BZL0100-A | (DBA0250-C□) (DBA0320-C□) | (DBC0250-C□) (DBC0320-C□) | LC0402-C□□□ LC0482-C□□□ LC0552-C□□□ LC0652-C□□□ | (LHA0360-C□□□) (LHA0400-C□□□) (LHA0480-C□□□) (LHA0550-C□□□) | (LHC0360-C□□□) (LHC0400-C□□□) (LHC0480-C□□□) (LHC0550-C□□□) | | (LHS0360-C□□□) (LHS0400-C□□□) (LHS0480-C□□□) (LHS0550-C□□□) | (LHW0400-C□□□) (LHW0480-C□□□) (LHW0550-C□□□) |
| BZL0100-B | DBA0250-C□ DBA0320-C□ | DBC0250-C□ DBC0320-C□ | | LHA0360-C□□□ LHA0400-C□□□ LHA0480-C□□□ LHA0550-C□□□ | LHC0360-C□□□ LHC0400-C□□□ LHC0480-C□□□ LHC0550-C□□□ | LHE0300-C□ LHE0360-C□ LHE0400-C□ LHE0480-C□ LHE0550-C□ | LHS0360-C□□□ LHS0400-C□□□ LHS0480-C□□□ LHS0550-C□□□ | LHW0400-C□□□ LHW0480-C□□□ LHW0550-C□□□ |
| BZL0200-A | (DBA0400-C□) (DBA0500-C□) | (DBC0400-C□) (DBC0500-C□) | LC0752-C□□□ LC0902-C□□□ | (LHA0650-C□□□) (LHA0750-C□□□) | (LHC0650-C□□□) | | (LHS0650-C□□□) (LHS0750-C□□□) | (LHW0650-C□□□) |
| BZL0200-B | DBA0400-C□ DBA0500-C□ | DBC0400-C□ DBC0500-C□ | | LHA0650-C□□□ LHA0750-C□□□ | LHC0650-C□□□ | | LHS0650-C□□□ LHS0750-C□□□ | LHW0650-C□□□ |
| BZL0300-A | | | | (LHA0900-C□□□) (LHA1050-C□□□) | | | (LHS0900-C□□□) (LHS1050-C□□□) | |
| BZL0300-B | | | | LHA0900-C□□□ LHA1050-C□□□ | | | LHS0900-C□□□ LHS1050-C□□□ | |

| Model No. | LT/LG (Single Action) Swing Clamp | LKA (Double Action) Link Clamp | LKC (Double Action) Link Clamp | LKE (Double Action) High-Power Link Clamp | LKW (Double Action) Link Clamp | LM/LJ (Single Action) Link Clamp | LL (Double Action) Linear Cylinder | LLR (Double Action) Linear Cylinder |
|-----------|--|--|--|--|--|--|--|--|
| BZL0100-A | LT0360-C□ LT0400-C□ LT0480-C□ LT0550-C□ | (LKA0360-C□□□) (LKA0400-C□□□) (LKA0480-C□□□) (LKA0550-C□□□) | (LKC0400-C□□□) (LKC0480-C□□□) (LKC0550-C□□□) | LKE0300-C□ LKE0360-C□ LKE0400-C□ LKE0480-C□ LKE0550-C□ | (LKW0400-C□□□) (LKW0480-C□□□) (LKW0550-C□□□) | LM0360-C□ LM0400-C□ LM0480-C□ LM0550-C□ | (LL0360-C□□□) (LL0400-C□□□) (LL0480-C□□□) (LL0550-C□□□) | (LLR0360-C□□□□) (LLR0400-C□□□□) (LLR0480-C□□□□) (LLR0550-C□□□□) |
| BZL0100-B | | LKA0360-C□□□ LKA0400-C□□□ LKA0480-C□□□ LKA0550-C□□□ | LKC0400-C□□□ LKC0480-C□□□ LKC0550-C□□□ | | LKW0400-C□□□ LKW0480-C□□□ LKW0550-C□□□ | | LL0360-C□□□ LL0400-C□□□ LL0480-C□□□ LL0550-C□□□ | LLR0360-C□□□□ LLR0400-C□□□□ LLR0480-C□□□□ LLR0550-C□□□□ |
| BZL0200-A | LT0650-C□ LT0750-C□ | (LKA0650-C□□□) (LKA0750-C□□□) | (LKC0650-C□□□) | | (LKW0650-C□□□) | LM0650-C□ LM0750-C□ | (LL0650-C□□□) (LL0750-C□□□) | (LLR0650-C□□□□) (LLR0750-C□□□□) |
| BZL0200-B | | LKA0650-C□□□ LKA0750-C□□□ | LKC0650-C□□□ | | LKW0650-C□□□ | | LL0650-C□□□ LL0750-C□□□ | LLR0650-C□□□□ LLR0750-C□□□□ |
| BZL0300-A | LG0900-C□ LG1050-C□ | (LKA0900-C□□□) (LKA1050-C□□□) | | | | LJ0902-C□ LJ1052-C□ | (LL0900-C□□□) (LL1050-C□□□) | (LLR0900-C□□□□) (LLR1050-C□□□□) |
| BZL0300-B | | LKA0900-C□□□ LKA1050-C□□□ | | | | | LL0900-C□□□ LL1050-C□□□ | LLR0900-C□□□□ LLR1050-C□□□□ |

| Model No. | LLW (Double Action) Lift Cylinder |
|-----------|--|
| BZL0100-A | (LLW0360-C□□□) (LLW0400-C□□□) (LLW0480-C□□□) |
| BZL0100-B | LLW0360-C□□□ LLW0400-C□□□ LLW0480-C□□□ |

- Note 1. Flow control circuit for double acting cylinder both should have meter-out circuits for the locking side and release side except model LKE/TLA/TMA.
Meter-in controls can be adversely affected by any air in the system.

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

Hole Clamp

SFA
SFC

Swing Clamp

LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1

Link Clamp

LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA
DBC

Control Valve

BZL
BZT
BZX/JZG

Pallet Clamp

VS
VT

Expansion Locating Pin

VL
VM
VJ
VK

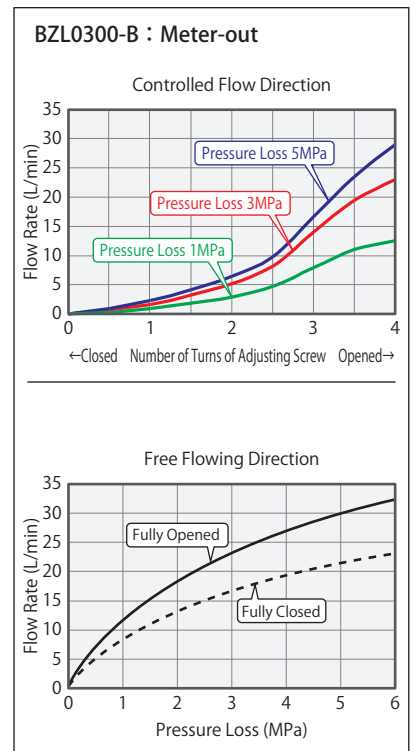
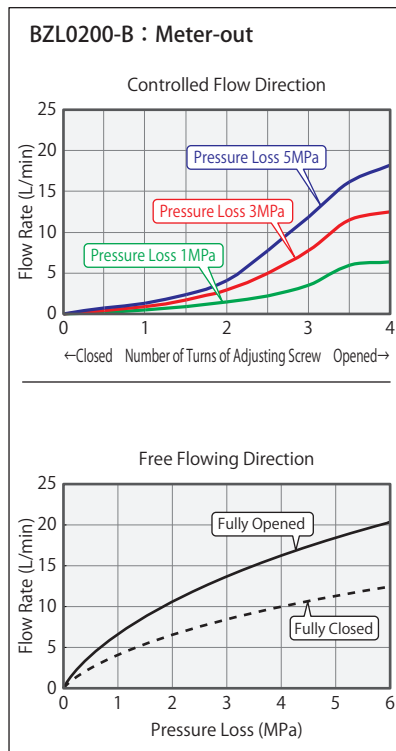
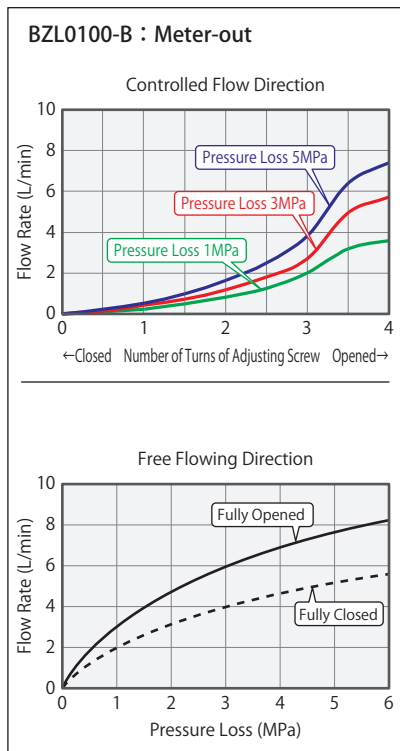
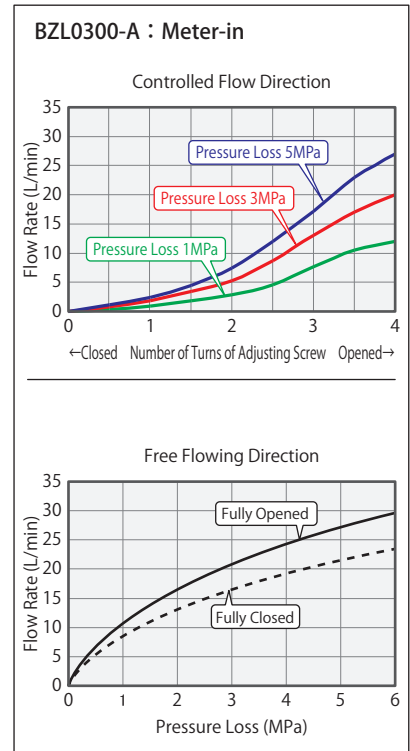
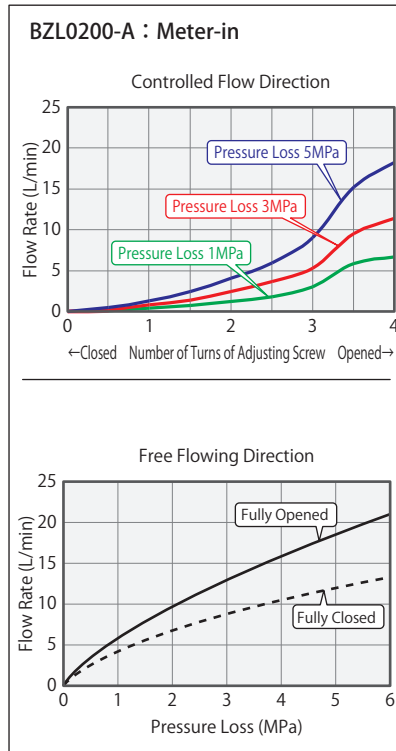
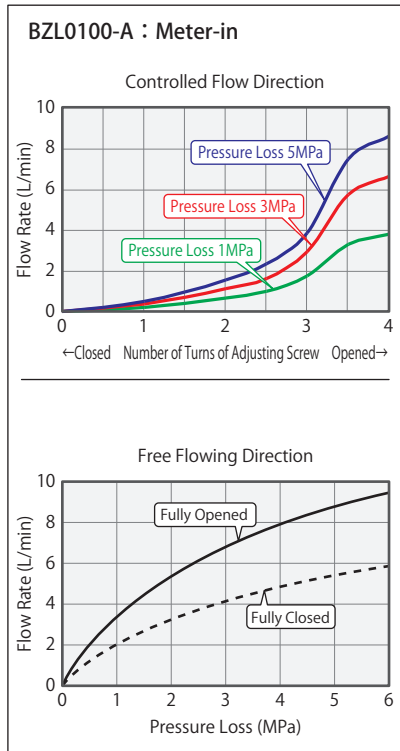
Pull Stud Clamp

FP
FQ

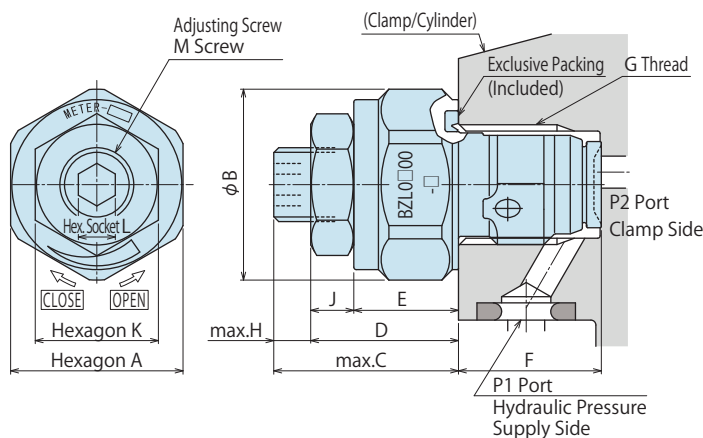
Customized Spring Cylinder

DWA/DWB

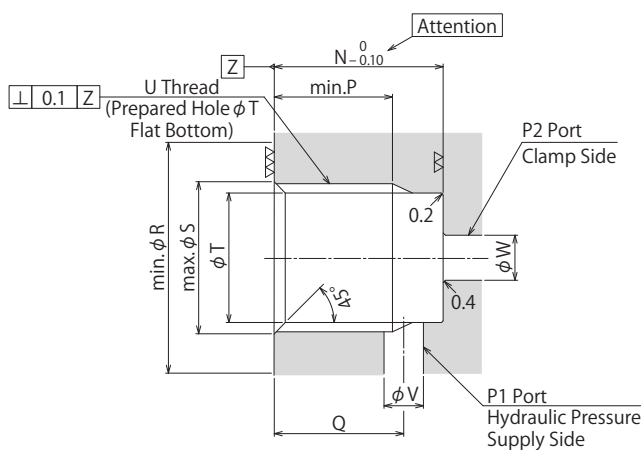
● Flow Rate Graph < Hydraulic Fluids ISO-VG32 (25~35°C) >



External Dimensions



Machining Dimensions of Mounting Area



Notes

- Since the $\nabla\nabla$ area is sealing part, be careful not to damage it.
- Since the $\nabla\nabla$ area is the metal sealing part of BZL, be careful not to damage it. (Especially when deburring)
- No cutting chips or burr should be at the tolerance part of machining hole.
- As shown in the drawing, P1 port is used as the hydraulic supply and P2 port as the clamp side.
- If mounting plugs or fittings with G thread specification available in the market, the dimension '※1' should be 12.5.

Notes

- Please read "Notes on Hydraulic Cylinder Speed Control Circuit" to assist with proper hydraulic circuit design.
If there is something wrong with the circuit design, it leads to the applications malfunction and damage. (Refer to P.1044)
- It is dangerous to air bleed during operation under high pressure. It must be done under lower pressure.
(For reference: the minimum operating range of the product within the circuit.)

(mm)

| Model No. | BZL0100-□ | BZL0200-□ | BZL0300-□ |
|-----------------------|-----------|-----------|-----------|
| A | 14 | 18 | 22 |
| B | 15.5 | 20 | 24 |
| C | 15 | 16 | 19 |
| D | 12 | 13 | 16 |
| E | 8.5 | 9.5 | 11 |
| F | (11.6) | (15.1) | (17.6) |
| G | G1/8 | G1/4 | G3/8 |
| H | 3 | 3 | 3 |
| J | 3.5 | 3.5 | 5 |
| K | 10 | 10 | 13 |
| L | 3 | 3 | 4 |
| M | M6×0.75 | M6×0.75 | M8×0.75 |
| N | 11.5 | 15 | 17.5 |
| P | 8.5 | 11※1 | 13 |
| Q | 9 | 11.5 | 13 |
| R (Flat Surface Area) | 16 | 20.5 | 24.5 |
| S | 10 | 13.5 | 17 |
| T | 8.7 | 11.5 | 15 |
| U | G1/8 | G1/4 | G3/8 |
| V | 2 ~ 3 | 3 ~ 4 | 4 ~ 5 |
| W | 2.5 ~ 5 | 3.5 ~ 7 | 4.5 ~ 9 |

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

Hole Clamp

SFA
SFC

Swing Clamp

LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1

Link Clamp

LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA
DBC

Control Valve

BZL
BZT
BZX/JZG

Pallet Clamp

VS
VT

Expansion Locating Pin

VL
VM
VJ
VK

Pull Stud Clamp

FP
FQ

Customized Spring Cylinder

DWA/DWB

Model No. Indication (Air Bleed Valve)

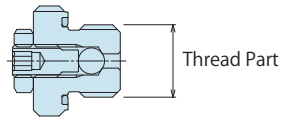
BZX0 1 0

1 2



1 G Thread Size

- 1 : Thread Part G1/8A Thread
- 2 : Thread Part G1/4A Thread
- 3 : Thread Part G3/8A Thread



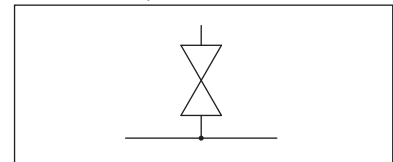
2 Design No.

- 0 : Revision Number

Specifications

| Model No. | BZX010 | BZX020 | BZX030 |
|-------------------------------------|---|--------|--------|
| Max. Operating Pressure MPa | 25 | | |
| Withstanding Pressure MPa | 37.5 | | |
| G Thread Size | G1/8A | G1/4A | G3/8A |
| Usable Fluid | General Hydraulic Oil Equivalent to ISO-VG-32 | | |
| Operating Temperature °C | 0 ~ 70 | | |
| Tightening Torque for Main Body N·m | 10 | 25 | 35 |

Circuit Symbol



- Notes
- Do not over loosen the plug during air venting.
(Do not loosen for more than 2 turns from the fully closed position.)
 - It is dangerous to have air venting operation under high pressure. It must be done under lower pressure.
(For reference: the minimum operation pressure range of the product within the circuit)
 - Refer to the processing dimensions for BZL mounting area.

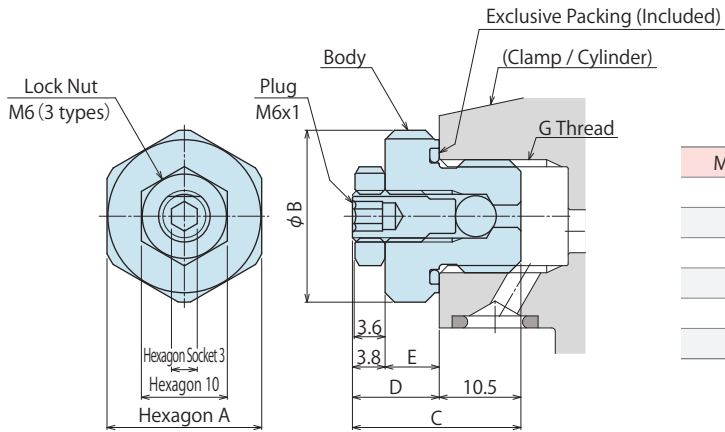
Applicable Products

| Model No. | DBA (Single Action) Block Cylinder | DBC (Single Action) Block Cylinder | LC (Single Action) Work Support | LHA (Double Action) Swing Clamp | LHC (Double Action) Swing Clamp | LHE (Double Action) High-Power Swing Clamp | LHS (Double Action) Swing Clamp | LHW (Double Action) Swing Clamp |
|-----------|---------------------------------------|---------------------------------------|--|--|--|--|--|--|
| BZX010 | DBA0250-C□ DBA0320-C□ | DBC0250-C□ DBC0320-C□ | LC0402-C□□□ LC0482-C□□□ LC0552-C□□□ LC0652-C□□□ | LHA0360-C□□□ LHA0400-C□□□ LHA0480-C□□□ LHA0550-C□□□ | LHC0360-C□□□ LHC0400-C□□□ LHC0480-C□□□ LHC0550-C□□□ | LHE0300-C□ LHE0360-C□ LHE0400-C□ LHE0480-C□ LHE0550-C□ | LHS0360-C□□□ LHS0400-C□□□ LHS0480-C□□□ LHS0550-C□□□ | LHW0400-C□□□ LHW0480-C□□□ LHW0550-C□□□ |
| BZX020 | DBA0400-C□ DBA0500-C□ | DBC0400-C□ DBC0500-C□ | LC0752-C□□□ LC0902-C□□□ | LHA0650-C□□□ LHA0750-C□□□ | LHC0650-C□□□ | | LHS0650-C□□□ LHS0750-C□□□ | LHW0650-C□□□ |
| BZX030 | | | | LHA0900-C□□□ LHA1050-C□□□ | | | LHS0900-C□□□ LHS1050-C□□□ | |

| Model No. | LT/LG (Single Action) Swing Clamp | LKA (Double Action) Link Clamp | LKC (Double Action) Link Clamp | LKE (Double Action) High-Power Link Clamp | LKW (Double Action) Link Clamp | LM/LJ (Single Action) Link Clamp | LL (Double Action) Linear Cylinder | LLR (Double Action) Linear Cylinder |
|-----------|--|--|--|--|--|--|--|--|
| BZX010 | LT0360-C□ LT0400-C□ LT0480-C□ LT0550-C□ | LKA0360-C□□□ LKA0400-C□□□ LKA0480-C□□□ LKA0550-C□□□ | LKC0400-C□□□ LKC0480-C□□□ LKC0550-C□□□ | LKE0300-C□ LKE0360-C□ LKE0400-C□ LKE0480-C□ LKE0550-C□ | LKW0400-C□□□ LKW0480-C□□□ LKW0550-C□□□ | LM0360-C□ LM0400-C□ LM0480-C□ LM0550-C□ | LL0360-C□□□ LL0400-C□□□ LL0480-C□□□ LL0550-C□□□ | LLR0360-C□□□□ LLR0400-C□□□□ LLR0480-C□□□□ LLR0550-C□□□□ |
| BZX020 | LT0650-C□ LT0750-C□ | LKA0650-C□□□ LKA0750-C□□□ | LKC0650-C□□□ | | LKW0650-C□□□ | LM0650-C□ LM0750-C□ | LL0650-C□□□ LL0750-C□□□ | LLR0650-C□□□□ LLR0750-C□□□□ |
| BZX030 | LG0900-C□ LG1050-C□ | LKA0900-C□□□ LKA1050-C□□□ | | | | LJ0902-C□ LJ1052-C□ | LL0900-C□□□ LL1050-C□□□ | LLR0900-C□□□□ LLR1050-C□□□□ |

| Model No. | LLW (Double Action) Lift Cylinder |
|-----------|--|
| BZX010 | LLW0360-C□□□ LLW0400-C□□□ LLW0480-C□□□ |

External Dimensions



| Model No. | BZX010 | BZX020 | BZX030 |
|-----------|--------|--------|--------|
| A | 14 | 18 | 22 |
| B | 15.5 | 20 | 24 |
| C | 19.8 | 20.6 | 20.6 |
| D | 9.3 | 10.1 | 10.1 |
| E | 5.5 | 6.3 | 6.3 |
| G | G1/8 | G1/4 | G3/8 |

(mm)

High-Power
Series

Pneumatic Series

Hydraulic Series

Valve / Coupler
Hydraulic UnitManual Operation
Accessories

Cautions / Others

Hole Clamp

SFA
SFC

Swing Clamp

LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1

Link Clamp

LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1

Work Support

LD
LC
TNC
TCAir Sensing
Lift Cylinder

LLW

Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA
DBC

Control Valve

BZL
BZT

BZX/JZG

Pallet Clamp

VS
VTExpansion
Locating PinVL
VM
VJ
VK

Pull Stud Clamp

FP
FQCustomized
Spring Cylinder

DWA/DWB

Model No. Indication (G Thread Plug with Air Bleeding Function)

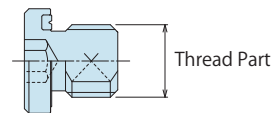
JZG0 1 0

1 2



1 G Thread Size

- 1 : Thread Part G1/8A Thread
- 2 : Thread Part G1/4A Thread
- 3 : Thread Part G3/8A Thread



2 Design No.

- 0 : Revision Number

Specifications

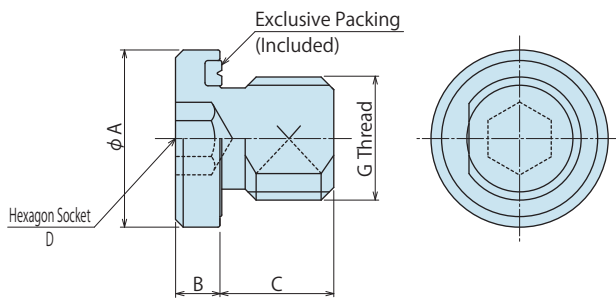
| Model No. | JZG010 | JZG020 | JZG030 |
|-------------------------------------|---|--------|--------|
| Max. Operating Pressure MPa | 35 | | |
| Withstanding Pressure MPa | 42 | | |
| G Thread Size | G1/8A | G1/4A | G3/8A |
| Usable Fluid | General Hydraulic Oil Equivalent to ISO-VG-32 | | |
| Operating Temperature °C | 0 ~ 70 | | |
| Tightening Torque for Main Body N·m | 10 | 25 | 35 |

- Notes
- It is dangerous to have air venting operation under high pressure. It must be done under lower pressure.
(For reference: the minimum operation pressure range of the product within the circuit)
 - Refer to the processing dimensions for BZL mounting area.

Applicable Products

| Model No. | DBA (Single Action) Block Cylinder | DBC (Single Action) Block Cylinder | LC (Single Action) Work Support | LHA (Double Action) Swing Clamp | LHC (Double Action) Swing Clamp | LHE (Double Action) High-Power Swing Clamp | LHS (Double Action) Swing Clamp | LHW (Double Action) Swing Clamp |
|-----------|--|---|---|---|--|--|--|--|
| JZG010 | DBA0250-C□ DBA0320-C□ | DBC0250-C□ DBC0320-C□ | LC0402-C□□□ LC0482-C□□□ LC0552-C□□□ LC0652-C□□□ | LHA0360-C□□□ LHA0400-C□□□ LHA0480-C□□□ LHA0550-C□□□ | LHC0360-C□□□ LHC0400-C□□□ LHC0480-C□□□ LHC0550-C□□□ | LHE0300-C□ LHE0360-C□ LHE0400-C□ LHE0480-C□ LHE0550-C□ | LHS0360-C□□□ LHS0400-C□□□ LHS0480-C□□□ LHS0550-C□□□ | LHW0400-C□□□ LHW0480-C□□□ LHW0550-C□□□ |
| JZG020 | DBA0400-C□ DBA0500-C□ | DBC0400-C□ DBC0500-C□ | LC0752-C□□□ LC0902-C□□□ | LHA0650-C□□□ LHA0750-C□□□ | LHC0650-C□□□ | | LHS0650-C□□□ LHS0750-C□□□ | LHW0650-C□□□ |
| JZG030 | | | | LHA0900-C□□□ LHA1050-C□□□ | | | LHS0900-C□□□ LHS1050-C□□□ | |
| Model No. | LT/LG (Single Action) Swing Clamp | LKA (Double Action) Link Clamp | LKC (Double Action) Link Clamp | LKE (Double Action) High-Power Link Clamp | LKW (Double Action) Link Clamp | LM/LJ (Single Action) Link Clamp | LL (Double Action) Linear Cylinder | LLR (Double Action) Linear Cylinder |
| JZG010 | LT0360-C□ LT0400-C□ LT0480-C□ LT0550-C□ | LKA0360-C□□□ LKA0400-C□□□ LKA0480-C□□□ LKA0550-C□□□ | LKC0400-C□□□ LKC0480-C□□□ LKC0550-C□□□ | LKE0300-C□ LKE0360-C□ LKE0400-C□ LKE0480-C□ LKE0550-C□ | LKW0400-C□□□ LKW0480-C□□□ LKW0550-C□□□ | LM0360-C□ LM0400-C□ LM0480-C□ LM0550-C□ | LL0360-C□□□ LL0400-C□□□ LL0480-C□□□ LL0550-C□□□ | LLR0360-C□□□□□ LLR0400-C□□□□□ LLR0480-C□□□□□ LLR0550-C□□□□□ |
| JZG020 | LT0650-C□ LT0750-C□ | LKA0650-C□□□ LKA0750-C□□□ | LKC0650-C□□□ | | LKW0650-C□□□ | LM0650-C□ LM0750-C□ | LL0650-C□□□ LL0750-C□□□ | LLR0650-C□□□□□ LLR0750-C□□□□□ |
| JZG030 | LG0900-C□ LG1050-C□ | LKA0900-C□□□ LKA1050-C□□□ | | | | LJ0902-C□ LJ1052-C□ | LL0900-C□□□ LL1050-C□□□ | LLR0900-C□□□□□ LLR1050-C□□□□□ |
| Model No. | LLW (Double Action) Lift Cylinder | TLA-2 (Double Action) Swing Clamp | TLB-2 (Double Action) Swing Clamp | TLA-1 (Single Action) Swing Clamp | TMA-2 (Double Action) Link Clamp | TMA-1 (Single Action) Link Clamp | | |
| JZG010 | LLW0360-C□□□□□ LLW0400-C□□□□□ LLW0480-C□□□□□ | TLA0401-2C□□□ TLA0601-2C□□□ TLA0801-2C□□□ TLA1001-2C□□□ TLA1601-2C□□□ | TLB0401-2C□□□ TLB0601-2C□□□ TLB0801-2C□□□ TLB1001-2C□□□ TLB1601-2C□□□ | TLA0402-1C□ TLA0602-1C□ TLA0802-1C□ TLA1002-1C□ TLA1602-1C□ | TMA0250-2C□ TMA0400-2C□ TMA0600-2C□ TMA1000-2C□ | TMA0250-1C□ TMA0400-1C□ TMA0600-1C□ TMA1000-1C□ | | |
| JZG020 | | TLA2001-2C□□□ TLA2501-2C□□□ TLA4001-2C□□□ | TLB2001-2C□□□ TLB2501-2C□□□ TLB4001-2C□□□ | TLA2002-1C□ TLA2502-1C□ TLA4002-1C□ | TMA1600-2C□ TMA2500-2C□ TMA3200-2C□ | TMA1600-1C□ TMA2500-1C□ TMA3200-1C□ | | |

External Dimensions



| Model No. | JZG010 | JZG020 | JZG030 |
|-----------|--------|--------|--------|
| A | 14 | 18 | 22 |
| B | 3.5 | 4.5 | 4.5 |
| C | 8 | 9 | 10 |
| D | 5 | 6 | 8 |
| G | G1/8A | G1/4A | G3/8A |

(mm)

High-Power
Series

Pneumatic Series

Hydraulic Series

Valve / Coupler
Hydraulic UnitManual Operation
Accessories

Cautions / Others

Hole Clamp

SFA
SFC

Swing Clamp

LHA
LHC
LHS
LHW
LT/LG
TLA-2
TLB-2
TLA-1

Link Clamp

LKA
LKC
LKW
LM/LJ
TMA-2
TMA-1

Work Support

LD
LC
TNC
TCAir Sensing
Lift Cylinder

LLW

Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA
DBC

Control Valve

BZL
BZT

BZX/JZG

Pallet Clamp

VS
VTExpansion
Locating PinVL
VM
VJ
VK

Pull Stud Clamp

FP
FQCustomized
Spring Cylinder

DWA/DWB

Manifold Block

Model WHZ-MD

Model LZY-MD

Model LZ-MS

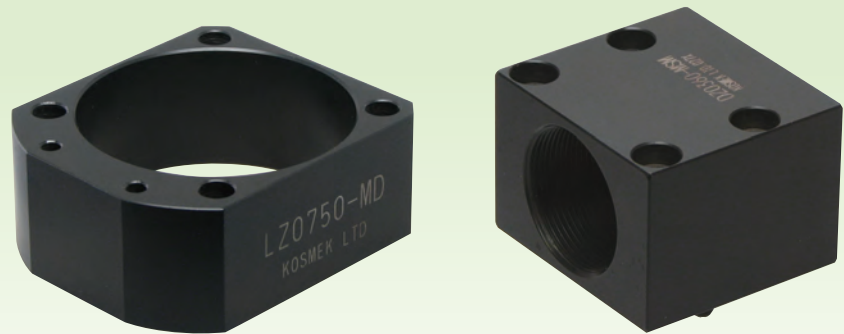
Model LZ-MP

Model TMZ-1MB

Model TMZ-2MB

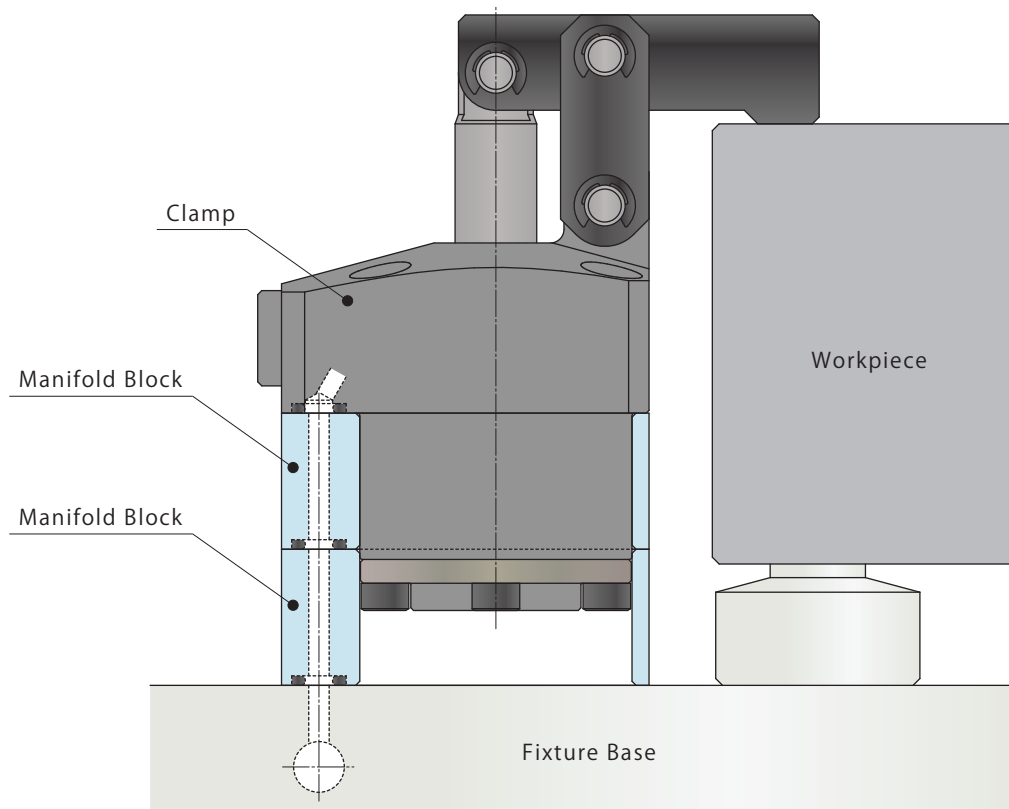
Model DZ-MG

Model DZ-MS



- **Manifold Block**

The mounting height of clamp is adjustable with the manifold block.



Applicable Model

| Manifold Block Model No. | Corresponding Item Model No. |
|--------------------------|---|
| Model WHZ-MD | Model WCA Model WHA Model WCE Model WHE |
| Model LZY-MD | Model LKA Model LKE Model LHC Model LHS Model LKC Model LHA Model LHE Model LL |
| Model LZ-MS | Model LM Model LT Model LJ Model LG |
| Model LZ-MP | Model LC Model TC |
| Model TMZ-1MB | Model TMA-1 |
| Model TMZ-2MB | Model TMA-2 |
| Model DZ-MG□/MS□ | Model DP |

- High-Power Series
- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories**
- Cautions / Others

Screw Locator
VXF

Manual Expansion Locating Pin
VX

Manifold Block

- WHZ-MD
- LZY-MD
- LZ-MS
- LZ-MP
- TMZ-1MB
- TMZ-2MB
- DZ-M

Manifold Block / Nut

- DZ-R
- DZ-C
- DZ-P
- DZ-B
- LZ-S
- LZ-SQ
- TNZ-S
- TNZ-SQ

Pressure Switch
JB

Pressure Gauge
JGA/JGB

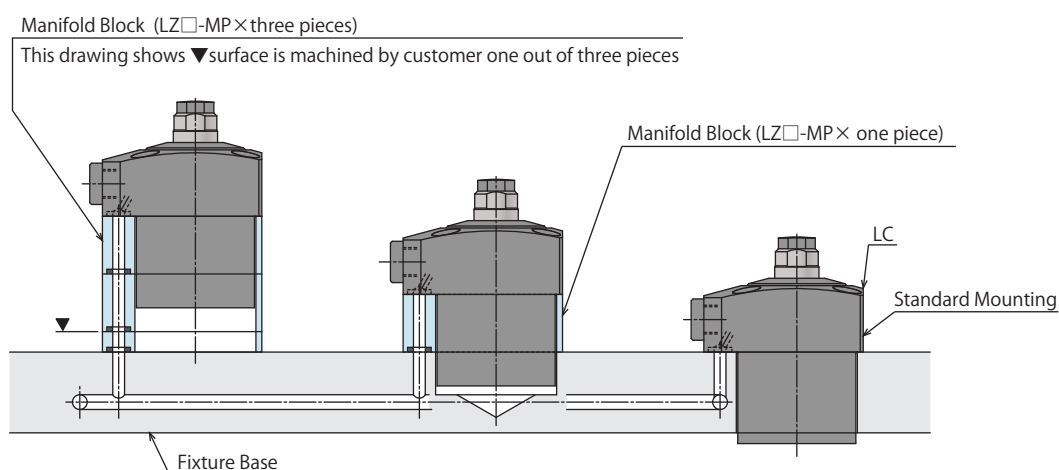
Manifold
JX

Coupler Switch
PS

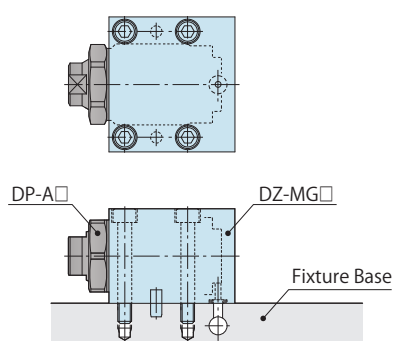
G-Thread Fitting

Application Examples

• Work Support (LC) Application Example



• Push Cylinder (DP) Application Example



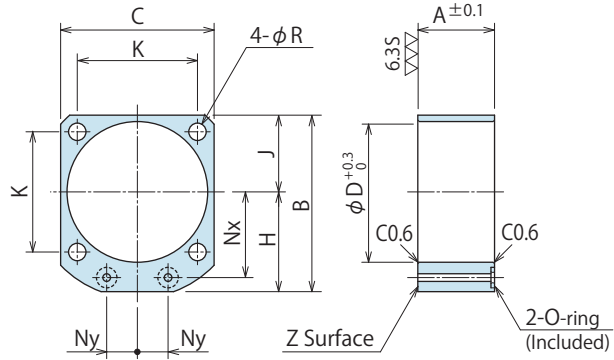
Manifold Block for WCA/WCE/WHA/WHE

Model No. Indication

WHZ 048 0 - MD

Size
(Refer to following table)

Design No.
(Revision Number)



(mm)

| Model No. | WHZ0600-MD | WHZ0320-MD | WHZ0400-MD | WHZ0500-MD | WHZ0630-MD |
|---------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Corresponding Item Model Number | WCE0601 WHE0600 | WCA0321 WHA0320 | WCE1001 WHE1000 | WCA0401 WHA0400 | WCE1601 WHE1600 |
| A | 23 | 25 | 27 | 31 | 35 |
| B | 54 | 60 | 67 | 77 | 88.5 |
| C | 45 | 50 | 58 | 68 | 81 |
| D | 40 | 46 | 54 | 64 | 77 |
| H | 31.5 | 35 | 38 | 43 | 48 |
| J | 22.5 | 25 | 29 | 34 | 40.5 |
| K | 34 | 39 | 45 | 53 | 65 |
| Nx | 26 | 28 | 31 | 36 | 41 |
| Ny | 9 | 10 | 13 | 15 | 20 |
| R | 5.5 | 5.5 | 5.5 | 6.5 | 6.5 |
| O-ring | 1BP5 | 1BP7 | 1BP7 | 1BP7 | 1BP7 |
| Mass kg | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 |

- Notes
1. Material: A2017BE-T4
 2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the A dimensions as a reference.
 3. If thickness other than A is required, perform additional machining on surface Z. Please refer to the drawing.

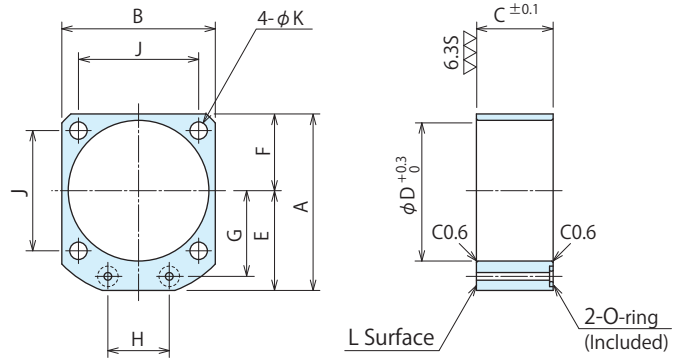
Manifold Block for LKA/LKC/LKE/LHA/LHC/LHE/LHS/LL

Model No. Indication

LZY 048 0 - MD

Size
(Refer to following table)

Design No.
(Revision Number)



(mm)

| Model No. | LZY0360-MD | LZY0400-MD | LZY0480-MD | LZY0550-MD | LZY0650-MD | LZY0750-MD | LZY0900-MD | LZY1050-MD |
|---------------------------------|---|---|---|---|---|---|---|--|
| Corresponding Item Model Number | LKA0360 / LKE0360 LHA0360 / LHC0360 LHE0360 / LHS0360 LLO360 | LKA0400 / LKC0400 LKE0400 / LHA0400 LHC0400 / LHE0400 LHS0400 / LLO400 | LKA0480 / LKC0480 LKE0480 / LHA0480 LHC0480 / LHE0480 LHS0480 / LLO480 | LKA0550 / LKC0550 LKE0550 / LHA0550 LHC0550 / LHE0550 LHS0550 / LLO550 | LKA0650 / LKC0650 LHA0650 / LHC0650 LHS0650 LLO650 | LKA0750 LHA0750 LHS0750 LLO750 | LKA0900 LHA0900 LHS0900 LLO900 | LKA1050 LHA1050 LHS1050 LLO1050 |
| A | 49 | 54 | 61 | 69 | 81 | 92 | 107 | 122 |
| B | 40 | 45 | 51 | 60 | 70 | 80 | 95 | 110 |
| C | 20 | 20 | 27 | 30 | 32 | 37 | 45 | 50 |
| D | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| E | 29 | 31.5 | 35.5 | 39 | 46 | 52 | 59.5 | 67 |
| F | 20 | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 | 55 |
| G | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| H | 16 | 18 | 22 | 24 | 30 | 32 | 37 | 45 |
| J | 31.4 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| K | 4.5 | 5.5 | 5.5 | 6.8 | 6.8 | 9 | 11 | 14 |
| O-ring | 1BP5 | 1BP5 | 1BP5 | 1BP5 | 1BP7 | 1BP7 | 1BP7 | 1BP7 |
| Mass kg | 0.2 | 0.2 | 0.3 | 0.4 | 0.5 | 0.8 | 1.2 | 1.7 |

- Notes
1. Material: S45C
 2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the C dimensions as a reference.
 3. If thickness other than C is required, perform additional machining on surface L. Please refer to the drawing.

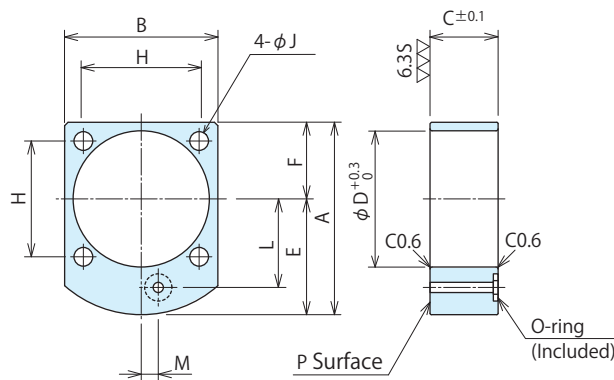
Manifold Block for LM/LJ/LT/LG

Model No. Indication

LZ 048 0 - MS

Size
(Refer to following table)

Design No.
(Revision Number)



| Model No. | LZ0360-MS | LZ0400-MS | LZ0480-MS | LZ0550-MS | LZ0650-MS | LZ0750-MS | LZ0900-MS | LZ1050-MS |
|---------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Corresponding Item Model Number | LT0360 LM0360 | LT0400 LM0400 | LT0480 LM0480 | LT0550 LM0550 | LT0650 LM0650 | LT0750 LM0750 | LG0900 LJ0902 | LG1050 LJ1052 |
| A | 51.5 | 56.5 | 62 | 70 | 82 | 93 | 107 | 122 |
| B | 40 | 45 | 51 | 60 | 70 | 80 | 95 | 110 |
| C | 20 | 20 | 27 | 30 | 32 | 37 | 45 | 50 |
| D | 36 | 40 | 48 | 55 | 65 | 75 | 90 | 105 |
| E | 31.5 | 34 | 36.5 | 40 | 47 | 53 | 59.5 | 67 |
| F | 20 | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 | 55 |
| H | 31.4 | 34 | 40 | 47 | 55 | 63 | 75 | 88 |
| J | 4.5 | 5.5 | 5.5 | 6.8 | 6.8 | 9 | 11 | 14 |
| L | 23.5 | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 | 60 |
| M | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| O-ring | 1BP5 | 1BP5 | 1BP5 | 1BP5 | 1BP7 | 1BP7 | 1BP7 | 1BP7 |
| Mass kg | 0.2 | 0.2 | 0.3 | 0.4 | 0.5 | 0.8 | 1.2 | 1.7 |

- Notes
1. Material: S45C
 2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the C dimensions as a reference.
 3. If thickness other than C is required, perform additional machining on surface L. Please refer to the drawing.

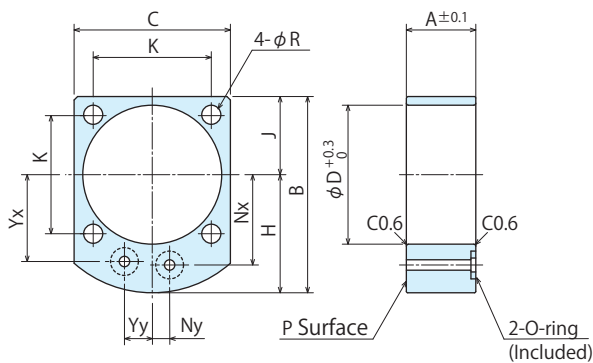
Manifold Block for LC/TC

Model No. Indication

LZ 048 0 - MP

Size
(Refer to following table)

Design No.
(Revision Number)



| Model No. | LZ0400-MP | LZ0480-MP | LZ0550-MP | LZ0650-MP | LZ0750-MP | LZ0900-MP |
|---------------------------------|------------------|------------------|------------------|------------------|------------------|-----------|
| Corresponding Item Model Number | LC0402 TC0402 | LC0482 TC0482 | LC0552 TC0552 | LC0652 TC0652 | LC0752 TC0752 | LC0902 |
| A | 20 | 27 | 30 | 32 | 37 | 45 |
| B | 56.5 | 62 | 70 | 82 | 93 | 107 |
| C | 45 | 51 | 60 | 70 | 80 | 95 |
| D | 40 | 48 | 55 | 65 | 75 | 90 |
| H | 34 | 36.5 | 40 | 47 | 53 | 59.5 |
| J | 22.5 | 25.5 | 30 | 35 | 40 | 47.5 |
| K | 34 | 40 | 47 | 55 | 63 | 75 |
| Nx | 26 | 30 | 33.5 | 39.5 | 45 | 52.5 |
| Ny | 5 | 0 | 0 | 0 | 0 | 0 |
| R | 5.5 | 5.5 | 6.8 | 6.8 | 9 | 11 |
| Yx | 25 | 28 | 31 | 37 | 42.5 | 50 |
| Yy | 8 | 11 | 13 | 14 | 15 | 15 |
| O-ring | 1BP5 | 1BP5 | 1BP5 | 1BP7 | 1BP7 | 1BP7 |
| Mass kg | 0.2 | 0.3 | 0.4 | 0.5 | 0.8 | 1.2 |

- Notes
1. Material: S45C
 2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the A dimensions as a reference.
 3. If thickness other than A is required, perform additional machining on surface P. Please refer to the drawing.

- High-Power Series
- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

- Screw Locator
 - VXF
- Manual Expansion Locating Pin
 - VX

- Manifold Block
 - WHZ-MD
 - LZY-MD
 - LZ-MS
 - LZ-MP
 - TMZ-1MB
 - TMZ-2MB
 - DZ-M

- Manifold Block / Nut
 - DZ-R
 - DZ-C
 - DZ-P
 - DZ-B
 - LZ-S
 - LZ-SQ
 - TNZ-S
 - TNZ-SQ

- Pressure Switch
 - JB

- Pressure Gauge
 - JGA/JGB

- Manifold
 - JX

- Coupler Switch
 - PS

- G-Thread Fitting

Sales Offices

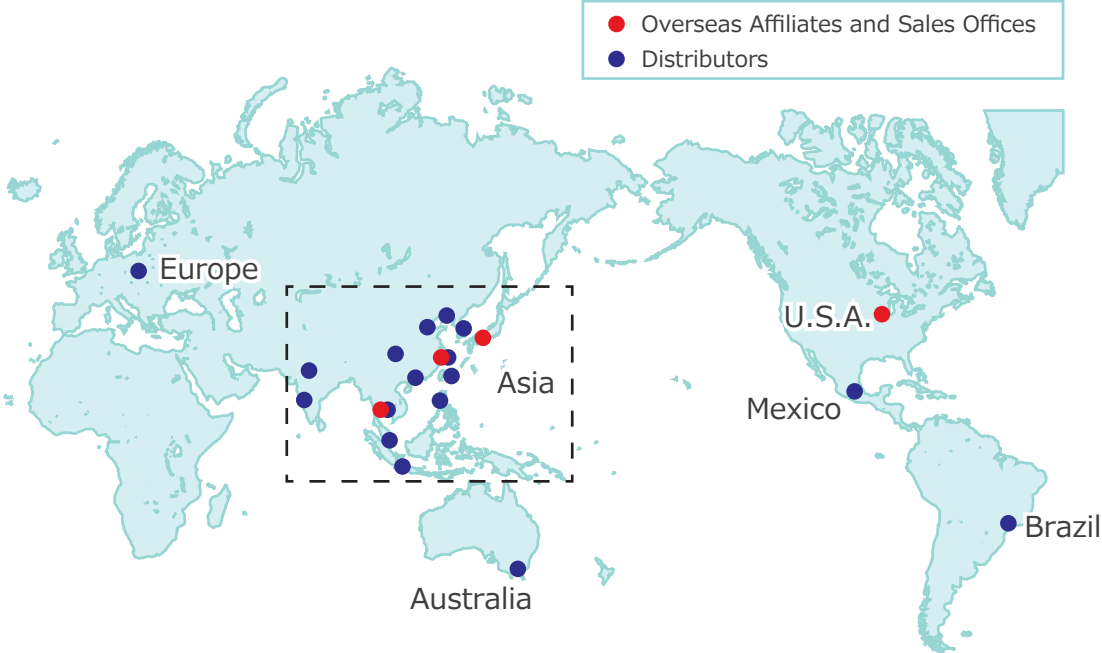
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| KOSMEK (USA) LTD. | 1441 Branding Avenue, Suite 110, Downers Grove, IL 60515 USA | |
| China | TEL.+86-21-54253000 | FAX.+86-21-54253709 |
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Global Network



Asia Detailed Map



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