

Hydraulic Swing Clamp

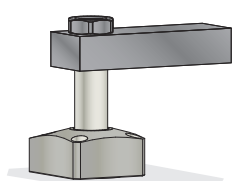
Model LHA	Model LG/LT
Model LHC	Model TLA-2
Model LHS	Model TLA-1
Model LHW	Model TLB-2



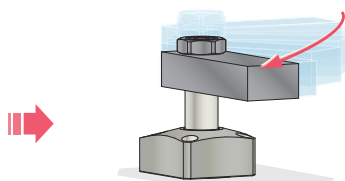
High Rigidity • Long Life • High Accuracy

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

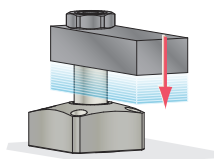
Action Description



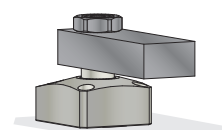
Before Swing
(Released State)



The lever descends as it swings.
(For LHS, the lever swings parallel.)

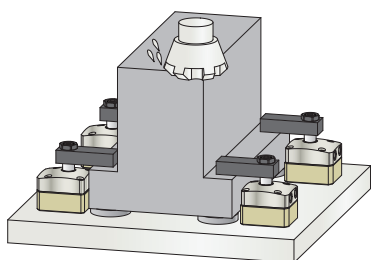


After swing completion,
it descends vertically.

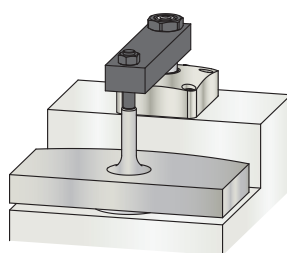


Action completed
(Clamped State)

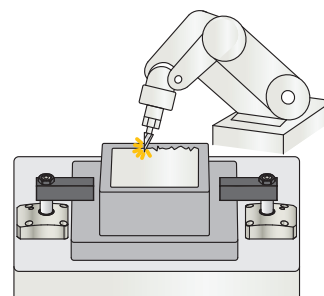
Application Examples



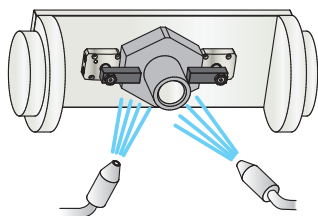
Machining



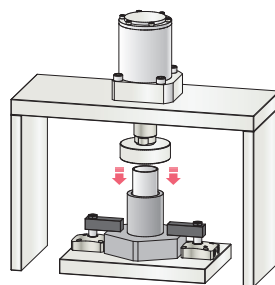
For the applications which require
clamp position repeatability



Deburring



Cleaning



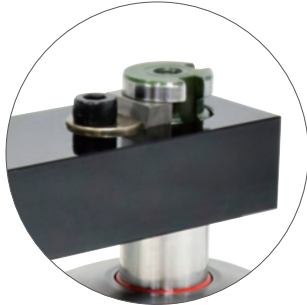
Press Fitting



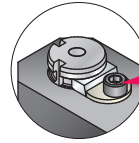
Swing Clamp Quick Change Lever Option A

Model **LHA-A**

Only one bolt is required for lever installation and removal.
Allows for the fastest lever setup time.



The Fastest Lever Change,
with Only One Bolt



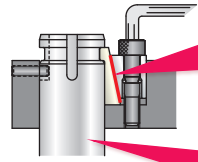
Only One Bolt for
Lever Change!

Remove the Lever
with One Wrench



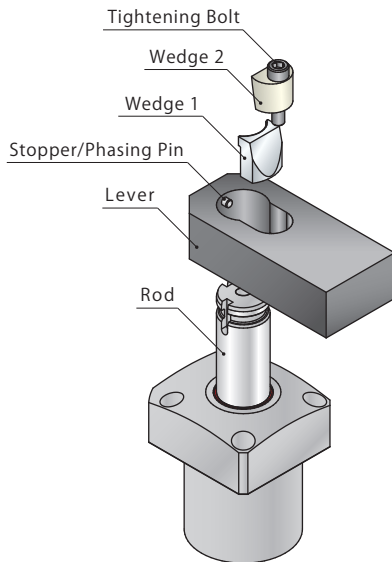
No Special Tools Required!
Use One Wrench
for Removal!

Secure Lever Tightening
Even with Small Torque



Wedge Mechanism for
Lever Tightening with
Small Torque

Due to Small Torque,
Not Required to Fix the Rod!

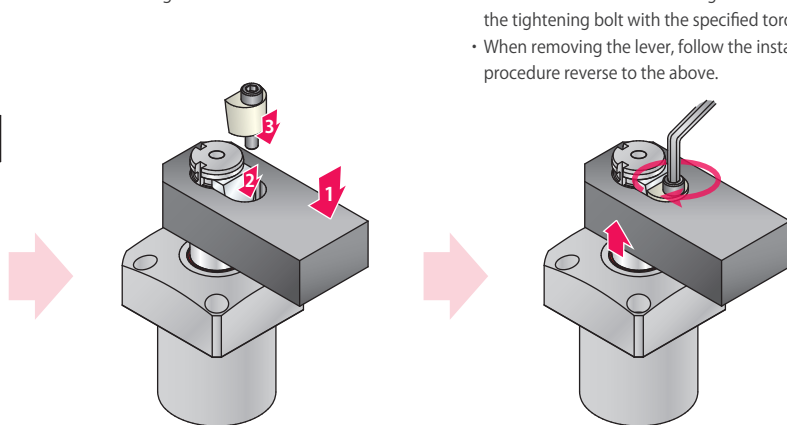


Install the Lever, Wedge1 and 2

- Set Wedge 1 to the slot of the rod.

Tighten the Lever with Tightening Bolt

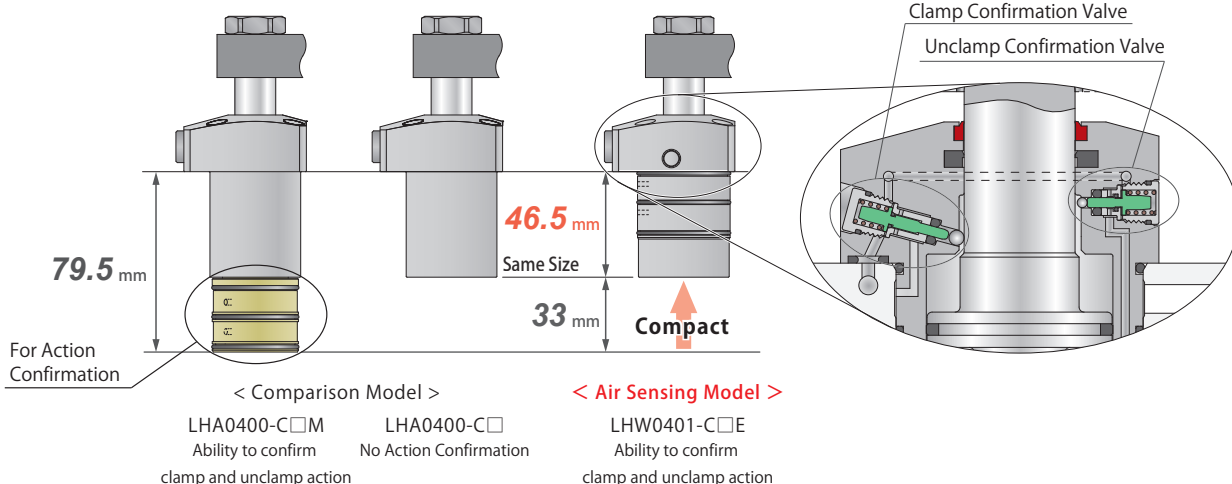
- Pull the lever towards the wedge side and tighten the tightening bolt with the specified torque.
- When removing the lever, follow the installation procedure reverse to the above.



Air Sensing Swing Clamp

Model **LHW**

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



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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing
Lift Cylinder

LLW

Linear Cylinder /
Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion
Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

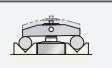
Customized
Spring Cylinder

DWA/DWB

Swing Clamp

Low Pressure Model MAX. 7MPa		 Model LHA → P.429	 Model LHC → P.463	 Model LHS → P.477	 Model LHD
Classification		Double Action	Double Action Compact	Double Action Parallel Swing Action	Double Action Double Piston
Operating Pressure Range		1.5 ~ 7MPa	1.5 ~ 7MPa	1.5 ~ 7MPa	1.5 ~ 6MPa
Standard Model		External Dimensions → P.437	External Dimensions → P.471	External Dimensions → P.485	Further information on the website.
Action Confirmation	Double End Rod Option for Dog 	External Dimensions → P.439	—	★	
	Air Sensing Manifold Option 	External Dimensions → P.441	—	★	
	Air Sensing Piping Option 	External Dimensions → P.443	—	★	
	Built-in Sensing Valve Model	—	—	—	
Option	Quick Change Lever Option A 	External Dimensions → P.445	External Dimensions → P.473	External Dimensions → P.487	
	Quick Change Lever Option F 	External Dimensions → P.447	★	External Dimensions → P.489	
	Balance Lever Option 	External Dimensions → P.449	★	External Dimensions → P.491	
	Long Stroke Option 	External Dimensions → P.451	—	★	
	Swing Angle Selectable Option 	External Dimensions → P.455	★	External Dimensions → P.493	
Accessories	Lever 	LZH-T, LZH-F, LZH-B LZH-A, LZH-W → P.461	LZH-T LZH-A, LZH-W → P.476	LZH-T, LZH-F, LZH-B LZH-A, LZH-W → P.497	
	Manifold Block 	LZY-MD → P.1335			
	Speed Control Valve Plug 	BZL, BZX, JZG, BZS → P.947			

※ Please contact us for detail dimension at ★ part.

High Pressure Model MAX. 35MPa		 Model TLA-2 → P.545	 Model TLB-2 → P.571	 Model TLA-1 → P.589	 Model TLV-2
Classification		Double Action Top Flange	Double Action Bottom Flange	Single Action (Spring Release) Top Flange	Double Action with Action Confirmation
Operating Pressure Range		7 ~ 35MPa	7 ~ 35MPa	7 ~ 35MPa	7 ~ 35MPa
Standard Model		External Dimensions → P.553	External Dimensions → P.579	External Dimensions → P.597	Further information on the website.
Option	Balance Lever Option 	External Dimensions → P.557	External Dimensions → P.581	—	
	Long Stroke Option 	External Dimensions → P.561	External Dimensions → P.583	—	
	Swing Angle Selectable Option 	External Dimensions → P.565	External Dimensions → P.585	—	
Accessories	Lever 	TLZ-L2, TLZ-LB → P.569	TLZ-L2, TLZ-LB → P.587	TLZ-L2, TLZ-LB → P.601	
	Speed Control Valve Plug 	BZT, JZG → P.947			
	G-Thread Fitting 	G-Thread Fitting (Made by Ihara Science) → P.1351			

Low Pressure Model MAX. 7MPa		 Model LHW → P.499	 Model LG/LT → P.521	 Model LHV
Classification		Double Action Built-in Sensing Valve	Single Action (Spring Release)	Double Action 1-Port Sensing
Operating Pressure Range		1.5 ~ 7MPa	2.5 ~ 7MPa	1.5 ~ 7MPa
Standard Model		—	External Dimensions → P.531	Further information on the website.
Action Confirmation	Double End Rod Option for Dog 	—	—	
	Air Sensing Manifold Option 	—	—	
	Air Sensing Piping Option 	—	—	
	Built-in Sensing Valve Model	External Dimensions → P.511	—	
Option	Quick Change Lever Option A 	External Dimensions → P.517	External Dimensions → P.533	
	Quick Change Lever Option F 	★	External Dimensions → P.535	
	Balance Lever Option 	★	External Dimensions → P.537	
	Long Stroke Option 	—	External Dimensions → P.538	
	Swing Angle Selectable Option 	★	External Dimensions → P.539	
Accessories	Lever 	LZH-T LZH-A, LZH-W → P.520	LZ-LE1, LZ-LE2, LZH-F, LZH-B LZH-A, LZH-W → P.543	
	Manifold Block 	—	LZ-MS → P.1336	
	Speed Control Valve Plug 	BZL, BZX, JZG, BZS	→ P.947	

※ Please contact us for detail dimension at ★ part.



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. 11 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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing
Lift Cylinder

LLW

Linear Cylinder /
Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion
Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

Customized
Spring Cylinder

DWA/DWB

Hydraulic Single-Acting Swing Clamp

PAT.

Model LG/LT

Low Pressure (2.5 ~ 7MPa)

High Power • High Speed

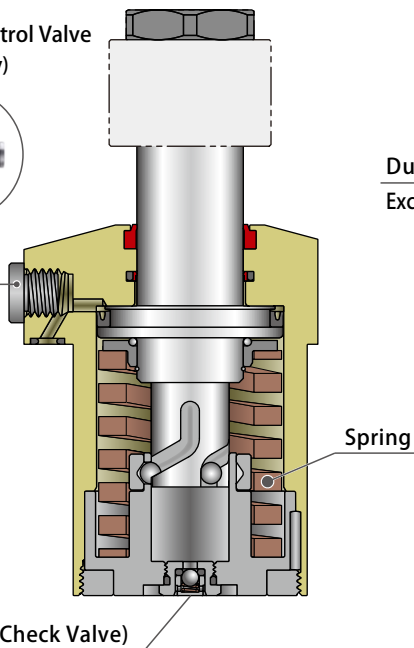


Index

Hydraulic Swing Clamp Digest	P.425
Action Description	P.522
Model No. Indication	P.523
Specifications	P.524
Performance Curve	
• Clamping Force Curve	P.525
• Allowable Swing Time Graph	P.529
External Dimensions	
• Standard Model (LG / LT)	P.531
• Quick Change Lever Option A (LG-A / LT-A)	P.533
• Quick Change Lever Option F (LG-F / LT-F)	P.535
• Balance Lever Option (LG-P / LT-P)	P.537
• Long Stroke Option (LG-Q)	P.538
• Swing Angle Selectable Option (LG-Y / LT-Y)	P.539
Lever Design Dimensions	P.541
Accessories	
• Material Swing Lever for LG / LT	P.543
• Speed Control Valve•Plug	P.947
• Manifold Block (Common Items of Other Models)	P.1336
Cautions	
• Notes for Hydraulic Swing Clamps	P.603
• Cautions (Common)	P.1355
• Installation Notes • Hydraulic Fluid List • Notes on Hydraulic Cylinder Speed Control Circuit	
• Notes on Handling • Maintenance/Inspection • Warranty	

Action Description

BZL Speed Control Valve
(Sold Separately)



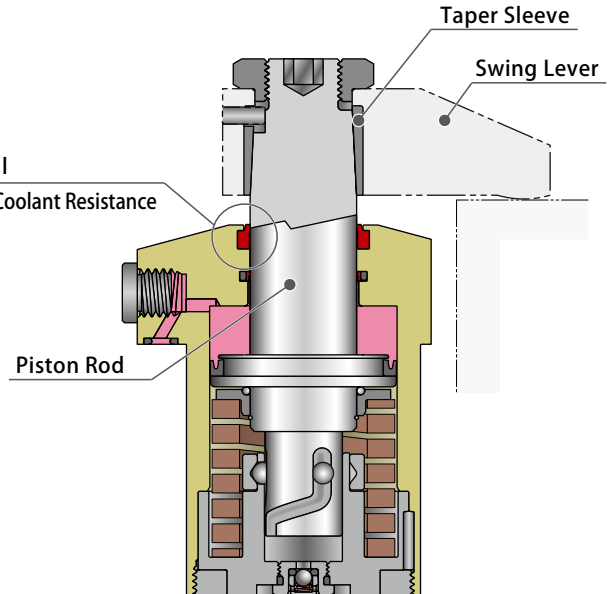
When releasing

Cut off hydraulic supply,
release action is done by spring.

Dust Seal
Excellent Coolant Resistance

Piston Rod

Spring



When locking

When supplying oil to oil port,
do the locking action.

• Trap Valve, High Durability and Long Life

Shutting OFF trap valve, will ensure the complete spring chamber is sealed without contact of external atmosphere. Since the coolant is prevented from entering inside the cylinder, corrosion is eliminated. Also, cumbersome vent port isn't required.

• Lighter • Aluminum Alloy Body (Except LG)

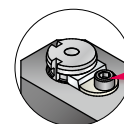
The body of LT0301 ~ LT0751 is made of aluminum alloy that makes the weight of it lighter, which is the most appropriate for high-speed transportation and calculation with no time. Load is reduced by straining the inertial force of the fixture & machine.

• Excellent Coolant Resistance

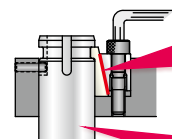
Our exclusive dust seal is designed to protect against high pressure coolant. It also has high durability against chlorine-based coolant by using a sealing material with excellent chemical resistance.

• Simple Design 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 that is available as option is easy to attach and detach the lever with one wrench. (Refer to the drawing on the right.)



Only One Bolt for
Lever Change!



Wedge Mechanism for
Lever Tightening with
Small Torque

Due to Small Torque,
Not Required to Fix the Rod!

Quick Change Lever Option A

• Able to Attach Speed Control Valve Directly

When fitting the gasket (piping option C), 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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing
Lift Cylinder

LLW

Linear Cylinder /
Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion
Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

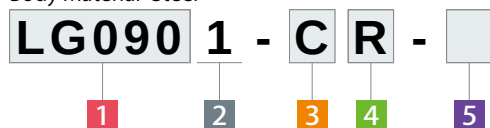
FP
FQ

Customized
Spring Cylinder

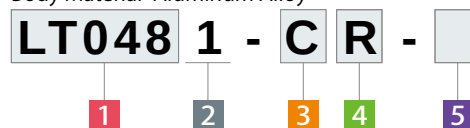
DWA/DWB

Model No. Indication

Body Material: Steel



Body Material: Aluminum Alloy

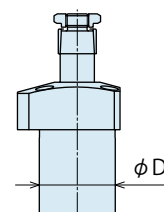


1 Body Material • Body Size

LG030 : ϕ D=30mm Body Material: Steel
LG036 : ϕ D=36mm Body Material: Steel
LG040 : ϕ D=40mm Body Material: Steel
LG048 : ϕ D=48mm Body Material: Steel
LG055 : ϕ D=55mm Body Material: Steel
LG065 : ϕ D=65mm Body Material: Steel
LG075 : ϕ D=75mm Body Material: Steel
LG090 : ϕ D=90mm Body Material: Steel
LG105 : ϕ D=105mm Body Material: Steel

LT030 : ϕ D=30mm Body Material: Aluminum Alloy
LT036 : ϕ D=36mm Body Material: Aluminum Alloy
LT040 : ϕ D=40mm Body Material: Aluminum Alloy
LT048 : ϕ D=48mm Body Material: Aluminum Alloy
LT055 : ϕ D=55mm Body Material: Aluminum Alloy
LT065 : ϕ D=65mm Body Material: Aluminum Alloy
LT075 : ϕ D=75mm Body Material: Aluminum Alloy

※ LG Body Size : 030 ~ 105
 LT Body Size : 030 ~ 075



2 Design No.

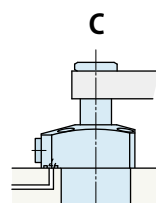
1 : Revision Number

3 Piping Method

C : Gasket Option (With G Thread Plug)

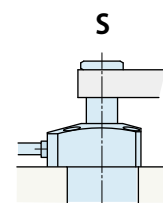
S : Piping Option (Rc Thread Port)

※ Speed control valve (BZL-A) is sold separately.
 Please use a meter-in speed control valve for LG/LT.
 In case of using Kosmek model, select BZL ☐ -A.
 Refer to P.947 for detail.



Gasket Option

With G Thread Plug (able to
attach Speed Control Valve)
 (Order the valve
 (BZL-A) separately)

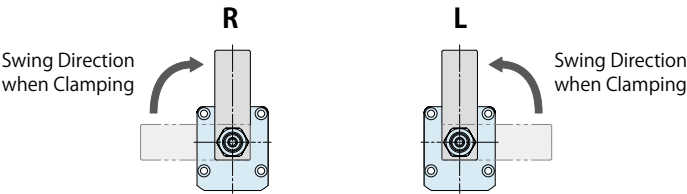


Piping Option

Rc Thread
 No Gasket Port

4 Swing Direction when Clamping

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



5 Option

- Blank** : None (Standard:Taper Lock Lever Option)
 - A** : Quick Change Lever Option A
 - F** : Quick Change Lever Option F
 - 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°)
- ※ Only LG (Body Material:Steel) is available for the long stroke option.
 ※ Please contact us for a combination of options.

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
LG/LT
TLA-2
TLB-2
TLA-1

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

Work Support
LD
LC
TNC
TC

Air Sensing Lift Cylinder
LLW

Linear Cylinder / Compact Cylinder
LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder
DBA/DBC

Centering Vise
FVA
FVD
FVC

Control Valve
BZL
BZT
BZX/JZG
BZS

Pallet Clamp
VS/VT

Expansion Locating Pin
VFL/VFM
VFJ/VFK

Pull Stud Clamp
FP
FQ

Customized Spring Cylinder
DWA/DWB

Specifications

Model No.			LG0301 LT0301			LG0361 LT0361			LG0401 LT0401			LG0481 LT0481			LG0551 LT0551																				
Cylinder Area for Locking		cm ²	2.67			4.0			5.5			7.5			10.3																				
Cylinder Inner Diameter ※ ¹		mm	22			27			32			38			44																				
Rod Diameter ※ ¹		mm	12			15			18			22			25																				
Clamping Force (Calculation Formula) ※ ² kN	5 Option Blank/A/F/Y□		$F = \frac{P - 1.01}{3.75 + 0.018 \times L}$			$F = \frac{P - 1.29}{2.85 + 0.0124 \times L}$			$F = \frac{P - 1.22}{2.04 + 0.0084 \times L}$			$F = \frac{P - 1.09}{1.45 + 0.0044 \times L}$			$F = \frac{P - 1.22}{1.07 + 0.0033 \times L}$																				
	5 Option P		$F_1 = (L_2/L_3) \times (0.27 \times P - 0.27)$ $F_2 = (L_1/L_3) \times (0.27 \times P - 0.27)$			$F_1 = (L_2/L_3) \times (0.40 \times P - 0.52)$ $F_2 = (L_1/L_3) \times (0.40 \times P - 0.52)$			$F_1 = (L_2/L_3) \times (0.55 \times P - 0.69)$ $F_2 = (L_1/L_3) \times (0.55 \times P - 0.69)$			$F_1 = (L_2/L_3) \times (0.75 \times P - 0.83)$ $F_2 = (L_1/L_3) \times (0.75 \times P - 0.83)$			$F_1 = (L_2/L_3) \times (1.03 \times P - 1.29)$ $F_2 = (L_1/L_3) \times (1.03 \times P - 1.29)$																				
5 Option Blank/A/F/P	Full Stroke		mm		10.5			12.5			13			14			16.5																		
	Swing Stroke(90°)		mm		4.5			4.5			5			6			6.5																		
	Vertical Stroke		mm		6			8			8			8			10																		
	Swing Angle Accuracy				90° ±3°																														
	Swing Completion Position Repeatability				± 1°			±0.5°																											
	Return Spring		max.		0.29			0.58			0.76			0.89			1.41																		
	Force		kN		min.		0.21			0.33			0.45			0.59			0.83																
5 Option Q □ ※ ³	Option				—			Q15			Q15		Q30		Q15		Q30		Q15		Q30														
	Full Stroke		mm		—			22.5			24		39		26		41		27		42														
	Swing Stroke(90°)		mm		—			7.5			9		9		11		11		12		12														
	Vertical Stroke		mm		—			15			15		30		15		30		15		30														
	Swing Angle Accuracy				—			90° ±3°																											
	Swing Completion Position Repeatability				—			±0.5°																											
	Return Spring		max.		—			0.47			0.6		0.6		0.72		0.73		0.88		0.9														
5 Option Y □	Force		kN		min.		—			0.22			0.3		0.3		0.37		0.37		0.49		0.49												
	Option				Y30		Y45		Y60		Y30		Y45		Y60		Y30		Y45		Y60		Y30		Y45		Y60								
	Full Stroke		mm		8.1		8.7		9.3		10.2		10.8		11.3		10.3		11		11.7		10.9		11.7		12.4		13		13.9		14.8		
	Swing Stroke		mm		2.1		2.7		3.3		2.2		2.8		3.3		2.3		3		3.7		2.9		3.7		4.4		3		3.9		4.8		
	Vertical Stroke		mm		6		6		6		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°		30°±3°		45°±3°		60°±3°		
	Swing Completion Position Repeatability				± 1°			±0.5°																											
Return Spring		max.		0.29		0.29		0.29		0.58		0.58		0.58		0.76		0.76		0.76		0.89		0.89		0.89		1.41		1.41		1.41			
Force		kN		min.		0.23		0.23		0.22		0.38		0.36		0.35		0.51		0.49		0.48		0.66		0.64		0.63		0.96		0.92		0.89	
Max. Operating Pressure			MPa		7																														
Min. Operating Pressure ※ ⁴			MPa		2.5																														
Withstanding Pressure			MPa		10.5																														
Operating Temperature			°C		0 ~ 70																														
Usable Fluid					General Hydraulic Oil Equivalent to ISO-VG-32																														

Notes: ※1. Clamping force cannot be calculated from the cylinder inner diameter and rod diameter.

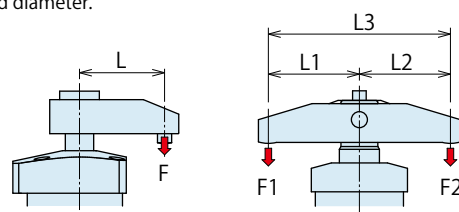
Please refer to the clamping force curve.

- ※2. 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).

※3. Only LG (Body Material: Steel) is available for the long stroke option.

※4. Minimum pressure to operate the clamp without load.

1. Please refer to External Dimensions for the cylinder capacity and the product weight.



Model No.			LG0651 LT0651			LG0751 LT0751			LG0901			LG1051																													
Cylinder Area for Locking		cm ²	14.2			21.3			30.7			42.7																													
Cylinder Inner Diameter ※1		mm	52			63			77			92																													
Rod Diameter ※1		mm	30			35.5			45			55																													
Clamping Force (Calculation Formula) ※2 kN	5 Option Blank/A/F/Y□		F= $\frac{P - 1.22}{0.77+0.0020 \times L}$			F= $\frac{P - 0.97}{0.51+0.0012 \times L}$			F= $\frac{P - 0.87}{0.36+0.0008 \times L}$			F= $\frac{P - 1.00}{0.26+0.0004 \times L}$																													
	5 Option P		F1= (L2/L3)×(1.42×P-1.62) F2= (L1/L3)×(1.42×P-1.62)			F1= (L2/L3)×(2.13×P-2.10) F2= (L1/L3)×(2.13×P-2.10)			F1= (L2/L3)×(3.07×P-2.73) F2= (L1/L3)×(3.07×P-2.73)			F1= (L2/L3)×(4.27×P-4.39) F2= (L1/L3)×(4.27×P-4.39)																													
5 Option Blank/A/F/P	Full Stroke		mm			18			21.5			23			28.5																										
	Swing Stroke(90°)		mm			8			9.5			11			12.5																										
	Vertical Stroke		mm			10			12			12			16																										
	Swing Angle Accuracy		90° ±3°																																						
	Swing Completion Position Repeatability		±0.5°																																						
	Return Spring Force	kN	max. min.	1.75 1.08			2.26 1.43			2.93 1.80			4.76 2.81																												
5 Option Q□ ※3	Option		Q15			Q30			Q20			Q30			—																										
	Full Stroke		mm			29			44			35			45			—																							
	Swing Stroke(90°)		mm			14			14			15			15			—																							
	Vertical Stroke		mm			15			30			20			30			—																							
	Swing Angle Accuracy		90° ±3°												—																										
	Swing Completion Position Repeatability		±0.5°												—																										
	Return Spring Force	kN	max. min.	1.08 0.67			1.07 0.67			1.66 0.97			1.66 0.97			— —																									
	5 Option Y□	Option		Y30			Y45			Y60			Y30			Y45			Y60																						
Full Stroke		mm			13.8			14.8			15.9			16.5			17.7			19			17.3			18.7			20.1			22			23.6			25.2			
Swing Stroke		mm			3.8			4.8			5.9			4.5			5.7			7			5.3			6.7			8.1			6			7.6			9.2			
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°												—																											
Swing Completion Position Repeatability		±0.5°												—																											
Return Spring Force		kN	max. min.	1.75 1.23			1.75 1.20			1.75 1.16			2.26 1.62			2.26 1.58			2.26 1.53			2.93 2.08			2.93 2.01			2.93 1.94			4.76 3.25			4.76 3.15			4.76 3.04				
Max. Operating Pressure		MPa			7																																				
Min. Operating Pressure ※4		MPa			2.5																																				
Withstanding Pressure		MPa			10.5																																				
Operating Temperature		℃			0 ~ 70																																				
Usable Fluid		General Hydraulic Oil Equivalent to ISO-VG-32																																							

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
LG/LT
TLA-2
TLB-2
TLA-1

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

Work Support
LD
LC
TNC
TC

Air Sensing Lift Cylinder
LLW

Linear Cylinder / Compact Cylinder
LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder
DBA/DBC

Centering Vise
FVA
FVD
FVC

Control Valve
BZL
BZT
BZX/JZG
BZS

Pallet Clamp
VS/VT

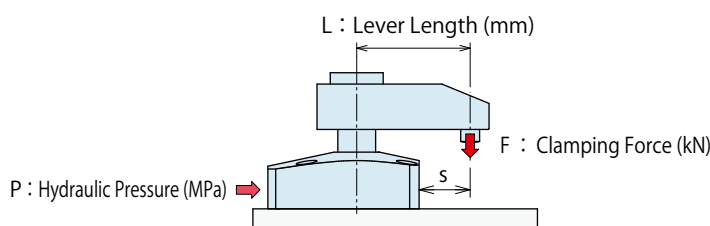
Expansion Locating Pin
VFL/VFM
VFJ/VFK

Pull Stud Clamp
FP
FQ

Customized Spring Cylinder
DWA/DWB

Clamping Force Curve

※ LG/LT□1-□□-P : For balance lever option, the clamping force curve is different from the graph. Please calculate it with the specification's formula.



Applicable Model

LG □
LT □

1 - CS RL

1 Body Material
Body Size

Blank
A
F
Q □
Y □

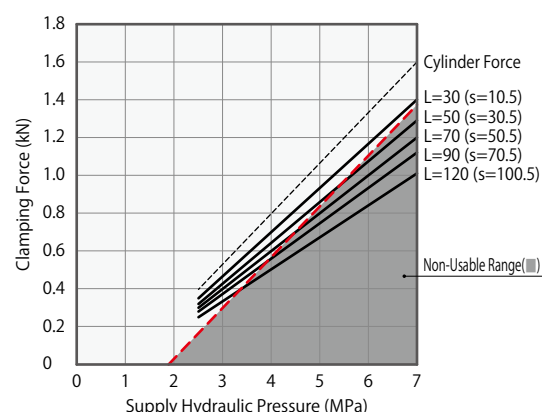
5 Option
Blank/A/F/Q/Y □

(Ex.) In case of LG0481/LT0481 : When supply hydraulic pressure P is 5.0MPa and lever length L is 50mm, clamping force becomes about 2.3kN.

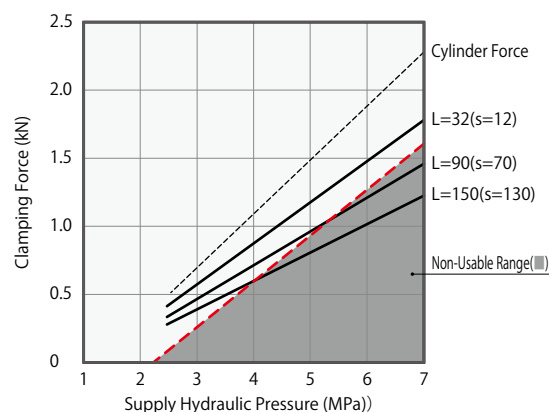
Notes :

- Tables and graphs show the relationship between the clamping force (kN) and supply hydraulic pressure (MPa).
 - Cylinder force (when L=0) cannot be calculated from the formula of clamping force.
 - Lever with a large inertia sometimes does not work depending on supply hydraulic pressure, lever mounting position, etc.
 - Values in below charts indicate clamping force when the lever locks a workpiece in horizontal position.
 - The clamping force varies depending on the lever length. Set the suitable supply hydraulic pressure based on the lever length.
 - Clamping force in the non-usable range may cause damage and fluid leakage.
 - The tables and graphs are only for reference. The exact results should be calculated based on the clamping force calculation formula.
- ※ 1. F : Clamping Force (kN), P : Supply Hydraulic Pressure (MPa), L : Lever Length (mm).

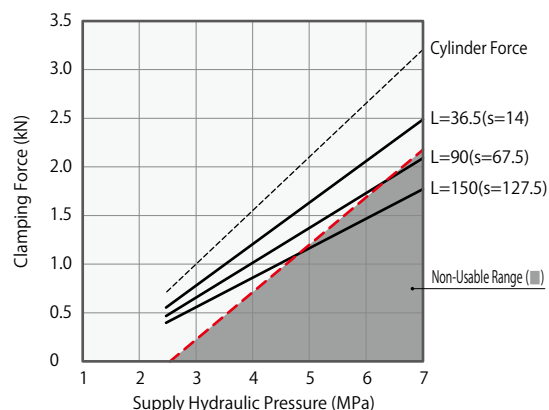
LG0301/LT0301		Clamping Force Calculation Formula ※1 (kN) $F = (P-1.01) / (3.75+0.018 \times L)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (■)	Max. Lever Length (L) (mm)
		L=30	L=40	L=50	L=60	L=70	L=80	L=100	L=120		
7	1.6	1.4									35
6.5	1.5	1.3									38
6	1.3	1.2	1.1								43
5.5	1.2	1.1	1.0								49
5	1.1	0.9	0.9	0.9							57
4.5	0.9	0.8	0.8	0.8	0.7						68
4	0.8	0.7	0.7	0.6	0.6	0.6	0.6				83
3.5	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.4			109
3	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3		120
2.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3		120
Max. Operating Pressure (MPa)		7.0	6.3	5.4	4.8	4.4	4.1	3.6	3.4		



LG0361/LT0361		Clamping Force Calculation Formula ※1 (kN) $F = (P-1.29) / (2.85+0.0124 \times L)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (■)	Max. Lever Length (L) (mm)
		L=30	L=40	L=50	L=60	L=80	L=100	L=120	L=150		
7	2.3	1.8	1.7	1.7							56
6.5	2.1	1.6	1.6	1.5	1.5						63
6	1.9	1.5	1.4	1.4	1.3						72
5.5	1.7	1.3	1.3	1.2	1.2	1.1					84
5	1.5	1.2	1.1	1.1	1.0	1.0	0.9				100
4.5	1.3	1.0	1.0	0.9	0.9	0.8	0.8	0.7			124
4	1.1	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6		150
3.5	0.9	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5		150
3	0.7	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4		150
2.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3		150
Max. Operating Pressure (MPa)		7.0	7.0	7.0	6.7	5.7	5.0	4.6	4.1		



LG0401/LT0401		Clamping Force Calculation Formula ※1 (kN) $F = (P-1.22) / (2.04+0.0084 \times L)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (■)	Max. Lever Length (L) (mm)
		L=40	L=50	L=60	L=70	L=80	L=100	L=120	L=150		
7	3.2	2.4	2.4	2.3	2.2						71
6.5	2.9	2.2	2.2	2.1	2.0	2.0					81
6	2.6	2.0	1.9	1.9	1.8	1.8					92
5.5	2.3	1.8	1.7	1.7	1.6	1.6	1.5				108
5	2.1	1.6	1.5	1.5	1.4	1.4	1.3	1.2			130
4.5	1.8	1.4	1.3	1.3	1.3	1.2	1.1	1.1	1.0		150
4	1.5	1.2	1.1	1.1	1.1	1.0	1.0	0.9	0.8		150
3.5	1.2	1.0	0.9	0.9	0.9	0.8	0.8	0.8	0.7		150
3	1.0	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.5		150
2.5	0.7	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4		150
Max. Operating Pressure (MPa)		7.0	7.0	7.0	7.0	6.6	5.7	5.2	4.7		



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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

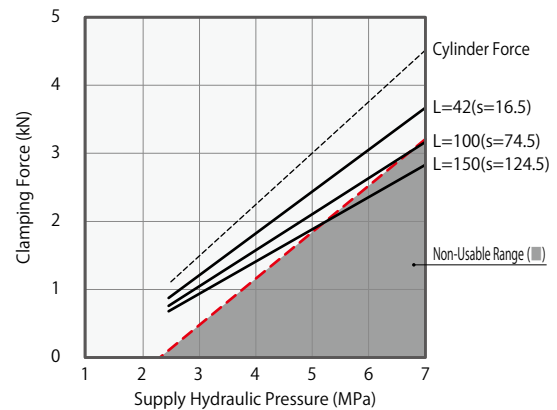
Pull Stud Clamp

FP
FQ

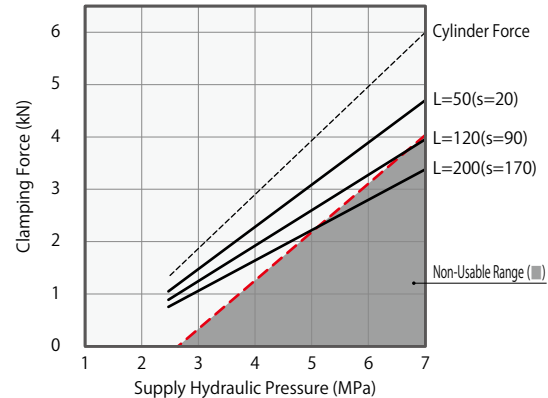
Customized Spring Cylinder

DWA/DWB

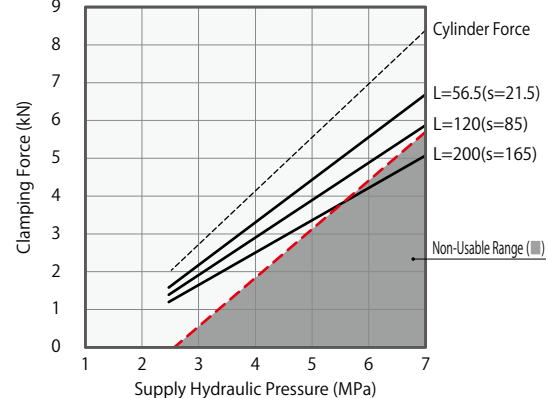
LG0481/LT0481		Clamping Force Calculation Formula ※1 (kN) $F = (P-1.09) / (1.45+0.0044 \times L)$							
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)							
		L=50	L=60	L=70	L=80	L=100	L=120	L=140	L=150
7	4.4	3.5	3.5	3.4	3.3				89
6.5	4.0	3.2	3.2	3.1	3.0	2.9			100
6	3.7	2.9	2.9	2.8	2.7	2.6			114
5.5	3.3	2.6	2.6	2.5	2.5	2.3	2.2		132
5	2.9	2.3	2.3	2.2	2.2	2.1	2.0	1.9	150
4.5	2.5	2.0	2.0	1.9	1.9	1.8	1.7	1.7	150
4	2.2	1.7	1.7	1.7	1.6	1.5	1.5	1.4	150
3.5	1.8	1.4	1.4	1.4	1.3	1.3	1.2	1.2	150
3	1.4	1.1	1.1	1.1	1.1	1.0	1.0	0.9	150
2.5	1.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	150
Max. Operating Pressure (MPa)		7.0	7.0	7.0	7.0	6.5	5.8	5.3	5.1



LG0551/LT0551		Clamping Force Calculation Formula ※1 (kN) $F = (P-1.22) / (1.07+0.0033 \times L)$							
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)							
		L=50	L=60	L=80	L=100	L=120	L=140	L=160	L=200
7	5.9	4.7	4.6	4.3	4.1				102
6.5	5.4	4.3	4.2	4.0	3.8				115
6	4.9	3.9	3.8	3.6	3.4	3.3			132
5.5	4.4	3.5	3.4	3.2	3.1	2.9	2.8		156
5	3.9	3.1	3.0	2.8	2.7	2.6	2.5	2.4	188
4.5	3.3	2.7	2.6	2.5	2.3	2.2	2.1	2.1	190
4	2.8	2.3	2.2	2.1	2.0	1.9	1.8	1.7	200
3.5	2.3	1.9	1.8	1.7	1.6	1.5	1.4	1.3	200
3	1.8	1.4	1.4	1.3	1.3	1.2	1.2	1.1	200
2.5	1.3	1.0	1.0	1.0	0.9	0.9	0.8	0.8	200
Max. Operating Pressure (MPa)		7.0	7.0	7.0	7.0	6.4	5.8	5.4	4.9

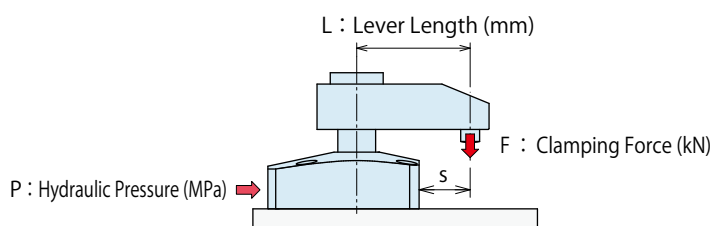


LG0651/LT0651		Clamping Force Calculation Formula ※1 (kN) $F = (P-1.22) / (0.77+0.0020 \times L)$							
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)							
		L=50	L=60	L=80	L=100	L=120	L=140	L=160	L=200
7	8.3	6.6	6.5	6.2	6.0	5.7			126
6.5	7.6	6.1	5.9	5.7	5.4	5.2	5.0		142
6	6.9	5.5	5.4	5.1	4.9	4.7	4.6	4.4	163
5.5	6.2	4.9	4.8	4.6	4.4	4.2	4.1	3.9	191
5	5.5	4.3	4.3	4.1	3.9	3.7	3.6	3.5	200
4.5	4.8	3.8	3.7	3.5	3.4	3.3	3.1	3.0	200
4	4.1	3.2	3.1	3.0	2.9	2.8	2.7	2.6	200
3.5	3.4	2.6	2.6	2.5	2.4	2.3	2.2	2.1	200
3	2.6	2.1	2.0	1.9	1.8	1.8	1.7	1.6	200
2.5	1.9	1.5	1.4	1.4	1.3	1.3	1.2	1.2	200
Max. Operating Pressure (MPa)		7.0	7.0	7.0	7.0	7.0	6.6	6.1	5.4



Clamping Force Curve

※ LG/LT□1-□□-P : For balance lever option, the clamping force curve is different from the graph. Please calculate it with the specification's formula.



Applicable Model

LG □
LT □

1 Body Material
Body Size

Blank
A
F
Q
Y

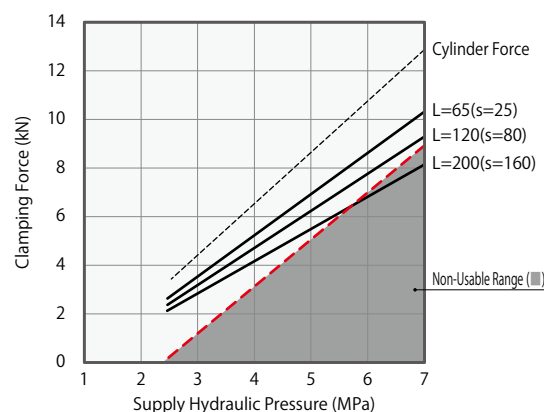
5 Option
Blank/A/F/Q/Y□

(Ex.) In case of LG0751/LT0751 : When supply hydraulic pressure P is 5.0MPa and lever length L is 50mm, clamping force becomes about 7.1kN.

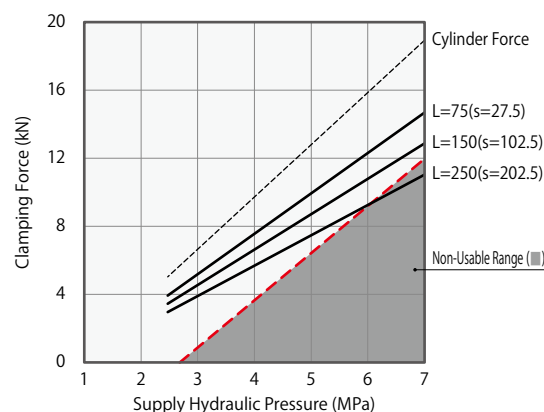
Notes :

- Tables and graphs show the relationship between the clamping force (kN) and supply hydraulic pressure (MPa).
 - Cylinder force (when L=0) cannot be calculated from the formula of clamping force.
 - Lever with a large inertia sometimes does not work depending on supply hydraulic pressure, lever mounting position, etc.
 - Values in below charts indicate clamping force when the lever locks a workpiece in horizontal position.
 - The clamping force varies depending on the lever length. Set the suitable supply hydraulic pressure based on the lever length.
 - Clamping force in the non-usable range may cause damage and fluid leakage.
 - The tables and graphs are only for reference. The exact results should be calculated based on the clamping force calculation formula.
- ※ 1. F : Clamping Force (kN), P : Supply Hydraulic Pressure (MPa), L : Lever Length (mm).

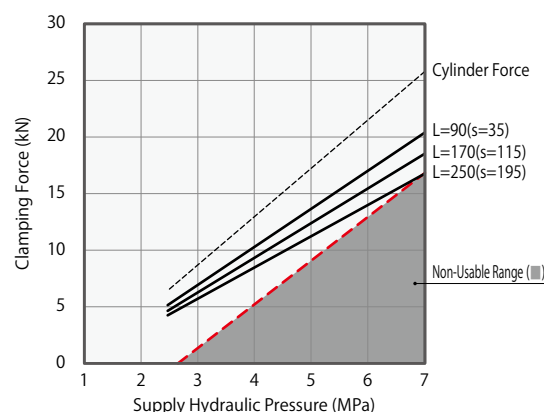
LG0751/LT0751		Clamping Force Calculation Formula ※1 (kN) $F = (P - 0.97) / (0.51 + 0.0012 \times L)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (■)	Max. Lever Length (L) (mm)
		L=50	L=60	L=80	L=100	L=120	L=140	L=160	L=200		
7	12.8	10.6	10.4	10.0	9.6	9.2					134
6.5	11.7	9.7	9.5	9.1	8.8	8.5	8.2				150
6	10.7	8.8	8.6	8.3	8.0	7.7	7.4	7.2			171
5.5	9.6	8.0	7.8	7.5	7.2	6.9	6.7	6.5	6.0		199
5	8.6	7.1	6.9	6.7	6.4	6.2	5.9	5.7	5.4		200
4.5	7.5	6.2	6.1	5.8	5.6	5.4	5.2	5.0	4.7		200
4	6.4	5.3	5.2	5.0	4.8	4.6	4.5	4.3	4.0		200
3.5	5.4	4.4	4.4	4.2	4.0	3.9	3.7	3.6	3.4		200
3	4.3	3.6	3.5	3.4	3.2	3.1	3.0	2.9	2.7		200
2.5	3.2	2.7	2.6	2.5	2.4	2.3	2.3	2.2	2.0		200
Max. Operating Pressure (MPa)		7.0	7.0	7.0	7.0	7.0	6.8	6.3	5.5		



LG0901		Clamping Force Calculation Formula ※1 (kN) $F = (P - 0.87) / (0.36 + 0.0008 \times L)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (■)	Max. Lever Length (L) (mm)
		L=60	L=75	L=100	L=120	L=140	L=170	L=200	L=250		
7	18.8	15.0	14.6	13.9	13.4	13.0	12.4				180
6.5	17.2	13.8	13.4	12.8	12.4	11.9	11.4	10.8			203
6	15.7	12.6	12.2	11.7	11.3	10.9	10.3	9.9			234
5.5	14.2	11.4	11.0	10.5	10.2	9.8	9.3	8.9	8.3		250
5	12.6	10.1	9.8	9.4	9.1	8.8	8.3	7.9	7.4		250
4.5	11.1	8.9	8.6	8.3	8.0	7.7	7.3	7.0	6.5		250
4	9.6	7.7	7.5	7.1	6.9	6.6	6.3	6.0	5.6		250
3.5	8.0	6.5	6.3	6.0	5.8	5.6	5.3	5.1	4.7		250
3	6.5	5.2	5.1	4.8	4.7	4.5	4.3	4.1	3.8		250
2.5	4.9	4.0	3.9	3.7	3.6	3.5	3.3	3.1	2.9		250
Max. Operating Pressure (MPa)		7.0	7.0	7.0	7.0	7.0	7.0	6.6	5.8		



LG1051		Clamping Force Calculation Formula ※1 (kN) $F = (P - 1.00) / (0.26 + 0.0004 \times L)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (■)	Max. Lever Length (L) (mm)
		L=80	L=100	L=120	L=140	L=170	L=200	L=250	L=300		
7	25.5	20.6	20.0	19.5	19.0	18.3	17.7				236
6.5	23.4	18.8	18.3	17.9	17.4	16.8	16.2	15.3			267
6	21.2	17.1	16.7	16.2	15.8	15.2	14.7	13.9	13.2		300
5.5	19.1	15.4	15.0	14.6	14.2	13.7	13.2	12.5	11.8		300
5	17.0	13.7	13.3	13.0	12.7	12.2	11.8	11.1	10.5		300
4.5	14.8	12.0	11.7	11.4	11.1	10.7	10.3	9.7	9.2		300
4	12.7	10.3	10.0	9.7	9.5	9.2	8.8	8.3	7.9		300
3.5	10.6	8.6	8.3	8.1	7.9	7.6	7.4	6.9	6.6		300
3	8.4	6.9	6.7	6.5	6.3	6.1	5.9	5.6	5.3		300
2.5	6.3	5.1	5.0	4.9	4.8	4.6	4.4	4.2	4.0		300
Max. Operating Pressure (MPa)		7.0	7.0	7.0	7.0	7.0	7.0	6.8	6.1		



MEMO

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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

Customized Spring Cylinder

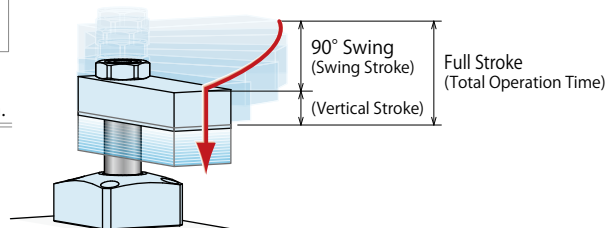
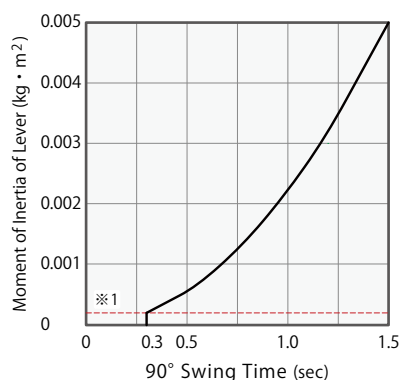
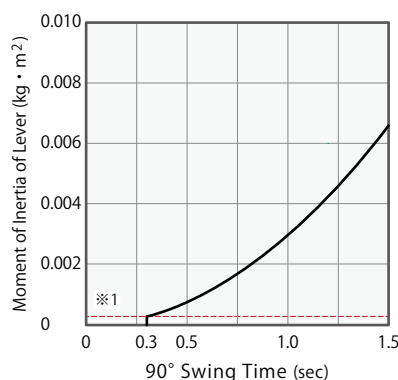
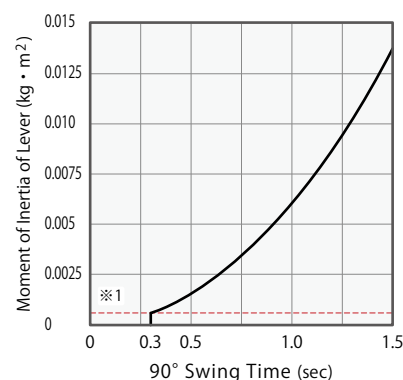
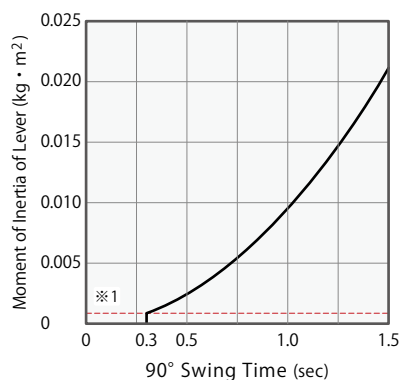
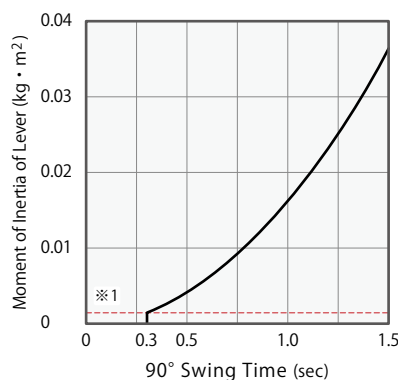
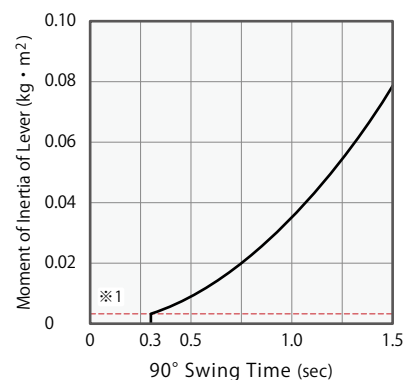
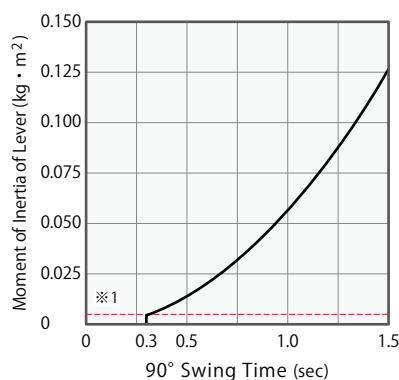
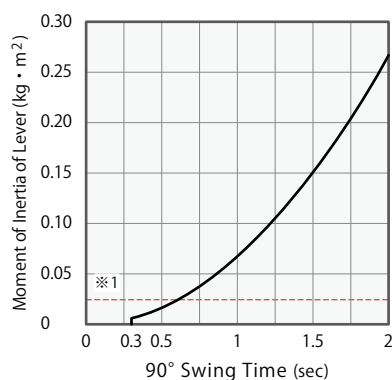
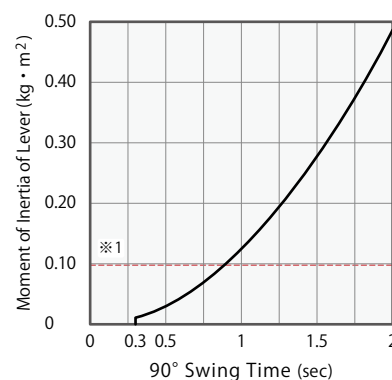
DWA/DWB

● Allowable Swing Time Graph

Adjustment of Swing Time

The graph shows allowable swing time against the moment of inertia of a lever.
An operation time should be longer than the operation time shown in the graph.

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


LG0301/LT0301

LG0361/LT0361

LG0401/LT0401

LG0481/LT0481

LG0551/LT0551

LG0651/LT0651

LG0751/LT0751

LG0901

LG1051


Notes:

- ※1. It shows the moment of inertia of material lever (LZ□-LE2).
- ※2. For any moment of inertia of a lever, the minimum 90° swing time should be 0.3 sec or more.
 1. The graph shows the allowable action time with respect to the moment of inertia of lever when the piston rod operates at constant speed.
 2. Lever with a large inertia sometimes does not work depending on supply hydraulic pressure, oil flow and lever mounting position.
 3. Please adjust the 90° swing time against the moment of inertia of lever to be longer than the indicated time in the above graphs.
 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.1356 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.

Model

LG0481/LT0481

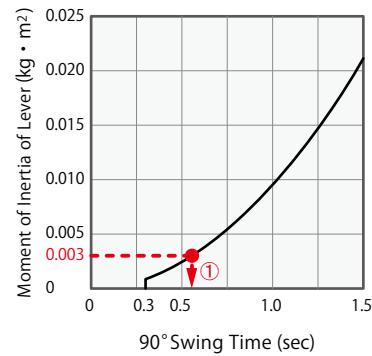
(How to read the allowable swing time graph)

In case of LG0481/LT0481

The moment of inertia of a lever : $0.003\text{kg}\cdot\text{m}^2$

- ① 90° Swing Time : About 0.56 sec or more
- ② Total Operation Time : About 1.30 sec or more

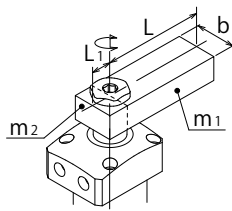
- 1. The total operation time represents the allowable operation time when fully stroked.
- 2. The total operation time should be calculated with the calculation formula.



How to Calculate the Moment of Inertia (Estimated)

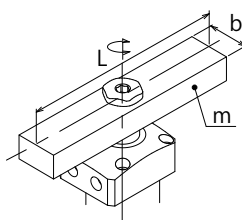
I : Moment of Inertia ($\text{kg}\cdot\text{m}^2$) L, L₁, L₂, K, b : Length (m) m, m₁, m₂, m₃ : Mass (kg)

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



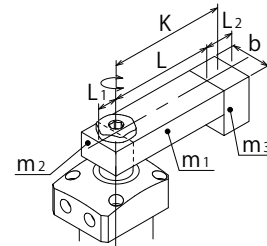
$$I = m_1 \frac{4L^2 + b^2}{12} + m_2 \frac{4L_1^2 + b^2}{12}$$

- 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

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

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
LG/LT

TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

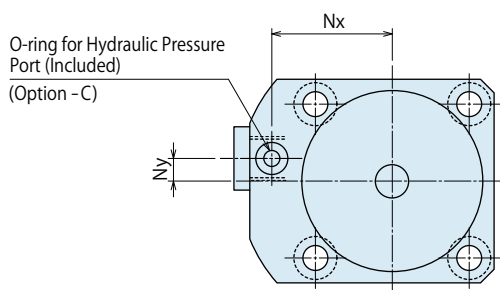
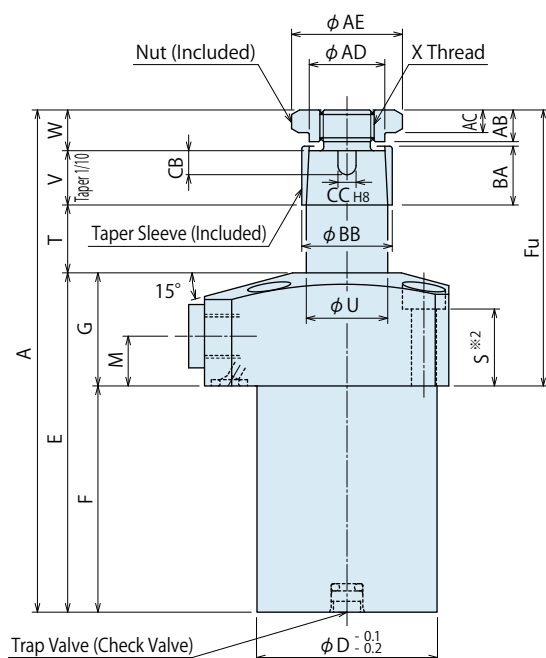
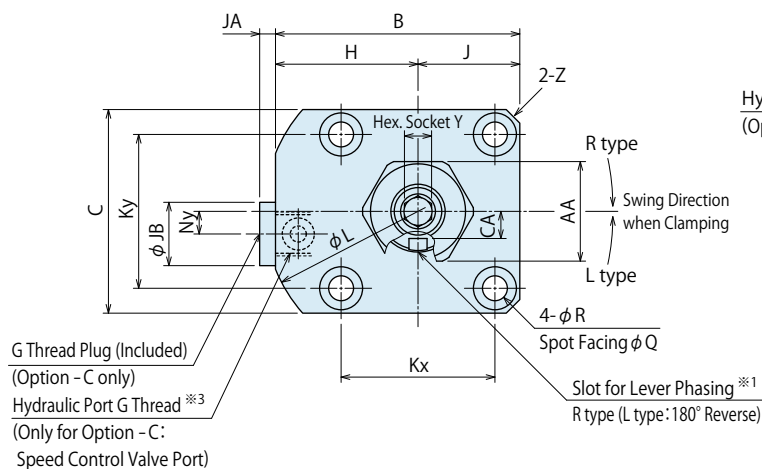
Customized Spring Cylinder

DWA/DWB

External Dimensions

C : Gasket Option (With G Thread Plug)

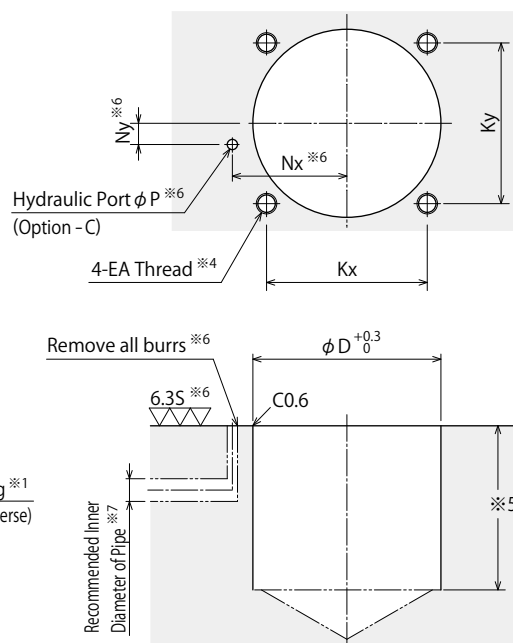
※ The drawing shows the released state of LG-CR and LT-CR.



Notes :

- ※1. The slot for lever phasing faces the port side when locked.
- ※2. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
- ※3. Speed control valve is sold separately. Please refer to P.947.
- 1. Please contact us if it has a combination with other options.

Machining Dimensions of Mounting Area



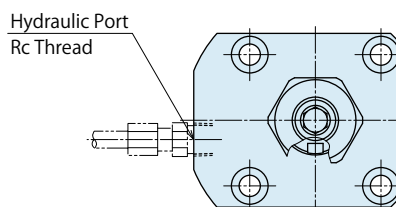
Notes :

- ※4. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
- ※5. The depth of the body mounting hole ϕD should be decided according to the mounting height referring to dimension 'F'.
- ※6. The machining dimension is for -C : Gasket Option.

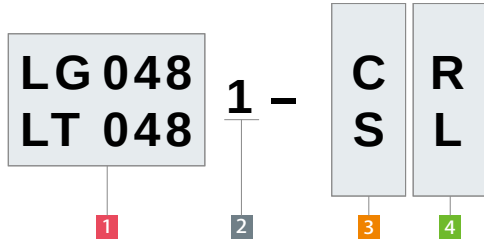
Piping Method

S : Piping Option (Rc Thread)

※ The drawing shows the released state of LG-SR and LT-SR.



Model No. Indication



(Format Example : LG0901-SL, LT0551-CR)

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	LG0301-□□ LT0301-□□	LG0361-□□ LT0361-□□	LG0401-□□ LT0401-□□	LG0481-□□ LT0481-□□	LG0551-□□ LT0551-□□	LG0651-□□ LT0651-□□	LG0751-□□ LT0751-□□	LG0901-□□	LG1051-□□
Full Stroke	10.5	12.5	13	14	16.5	18	21.5	23	28.5
Swing Stroke (90°)	4.5	4.5	5	6	6.5	8	9.5	11	12.5
Vertical Stroke	6	8	8	8	10	10	12	12	16
A	95.5	103.5	111	121	137.5	145	171.5	185	223.5
B	45.5	49	54	61	69	81	92	107	122
C	34	40	45	51	60	70	80	95	110
D	30	36	40	48	55	65	75	90	105
E	68	73	75	80	87	93	108	114	138
F	43	48	50	52	59	63	71	74	88
Fu	52.5	55.5	61	69	78.5	82	100.5	111	135.5
G	25	25	25	28	28	30	37	40	50
H	26	29	31.5	35.5	39	46	52	59.5	67
J	19.5	20	22.5	25.5	30	35	40	47.5	55
Kx	30	31.4	34	40	47	55	63	75	88
Ky	23	31.4	34	40	47	55	63	75	88
L	57	63	68	73	80	94	106	126	147
M	11	11	11	13	12	13	16	16	21
Nx	20.5	23.5	26	30	33.5	39.5	45	52.5	60
Ny	3	5	5	0	0	0	0	0	0
P	3	3	3	3	3	5	5	5	5
Q	7.5	7.5	9.5	9.5	11	11	14	17.5	20
R	4.5	4.5	5.5	5.5	6.8	6.8	9	11	14
S	15.5	18	17	18.5	17	18	22	22	29
T	12.5	14.5	15	16	18.5	20	23.5	25	30.5
U	12	15	18	22	25	30	35.5	45	55
V	9	9	12	14	20	20	26	32	38
W	6	7	9	11	12	12	14	14	17
X (Nominal × Pitch)	M8×1	M10×1	M12×1.5	M16×1.5	M18×1.5	M22×1.5	M28×1.5	M36×1.5	M45×1.5
Y	3	4	5	6	8	10	10	14	14
Z (Chamfer)	C3	C2	C3	C3	(φ80)	(φ94)	(φ106)	(φ126)	(φ147)
AA	14	19	22	24	30	36	41	50	60
AB	4.8	5.8	7	9	10	10	12	12	15
AC	3	4	5	6	7	7	8	8	10
AD	10.9	13.8	16.6	20.5	22.9	27.9	32.8	41.7	51.1
AE	15.5	21.2	24.5	26.5	33	40	45	55	66
BA	9.5	9.5	13	15	21	21	27	33	39
BB	13.5	17	20	25	28	34	40	49	60
CA	4	5	6	8	9	11	14	18	22.5
CB	4	4	5.3	5.3	5.3	7.5	7.5	9.5	9.5
CC	3 ^{+0.014} ₀	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	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	3.5	4.5	4.5	4.5	4.5
JB	14	14	14	14	14	19	19	22	22
G-Thread Plug	Option -C	G1/8	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8
O-ring (Option -C)		1BP5	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7
Recommended Inner Diam. of Pipe ※7		φ6	φ6	φ6	φ6	φ6	φ8	φ8	φ12
Hydraulic Port	Option -S	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc3/8
Cylinder Capacity	cm ³	2.8	4.9	7.1	10.6	17	25.5	45.7	121.7
Weight ※8	kg								
	LG	0.45	0.6	0.9	1.2	1.7	2.6	3.9	8.9
	LT	0.25	0.4	0.6	0.8	1.2	1.8	2.8	—

Notes: ※7. This is for reference. Adjust it depending on the number of clamps and/or the length of the pipe.

※8. It shows the weight 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

LG/LT

TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing
Lift Cylinder

LLW

Linear Cylinder /
Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion
Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

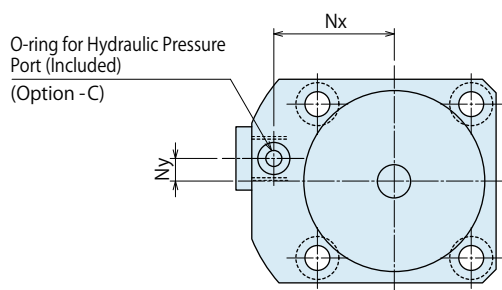
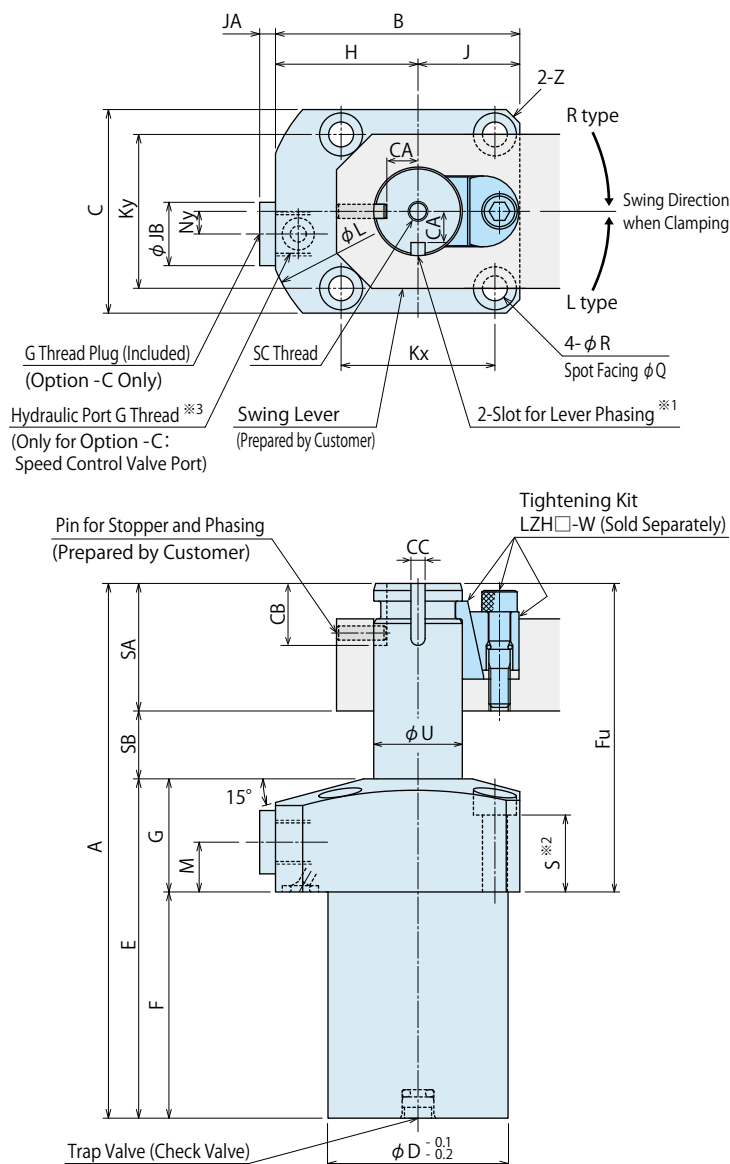
Customized
Spring Cylinder

DWA/DWB

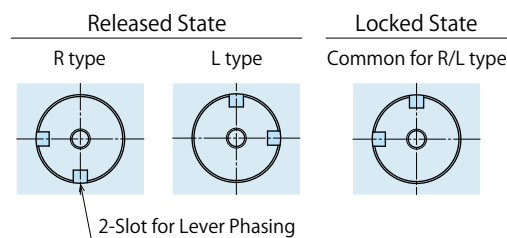
External Dimensions

C : Gasket Option (With G Thread Plug)

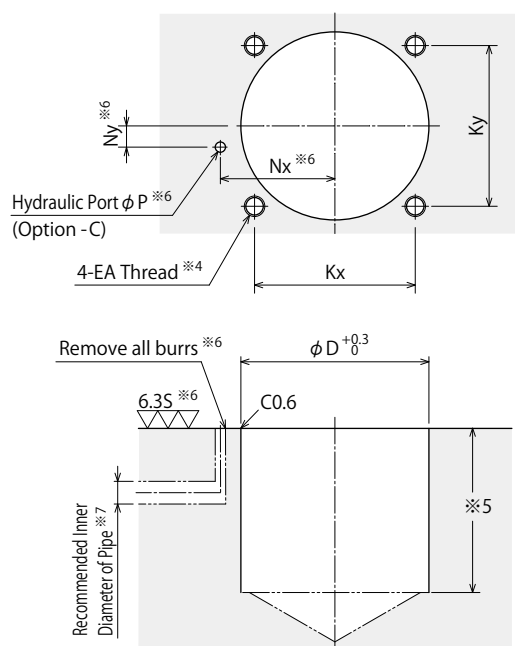
※ The drawing shows the released state of LG-CR-A and LT-CR-A.



※1. Slot for Lever Phasing



Machining Dimensions of Mounting Area



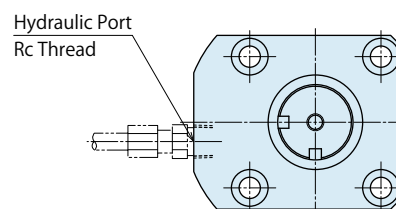
Notes :

- ※4. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
- ※5. The depth of the body mounting hole ϕD should be decided according to the mounting height referring to dimension 'F'.
- ※6. The machining dimension is for -C : Gasket Option.

Piping Method

S : Piping Option (Rc Thread)

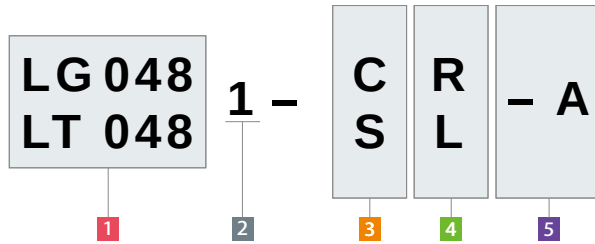
※ The drawing shows the released state of LG-SR-A and LT-SR-A.



Notes :

- ※2. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
- ※3. Speed control valve is sold separately. Please refer to P.947.
- 1. Please contact us if it has a combination with other options.

Model No. Indication



(Format Example : LG0901-SL-A, LT0551-CR-A)

- 1 Body Material • Body Size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Option (When selecting A)

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	LG0301-□□-A LT0301-□□-A	LG0361-□□-A LT0361-□□-A	LG0401-□□-A LT0401-□□-A	LG0481-□□-A LT0481-□□-A	LG0551-□□-A LT0551-□□-A	LG0651-□□-A LT0651-□□-A	LG0751-□□-A LT0751-□□-A	LG0901-□□-A	LG1051-□□-A
Full Stroke	10.5	12.5	13	14	16.5	18	21.5	23	28.5
Swing Stroke (90°)	4.5	4.5	5	6	6.5	8	9.5	11	12.5
Vertical Stroke	6	8	8	8	10	10	12	12	16
A	100.5	111.5	117	128	141.5	153	177.5	194	230.5
B	45.5	49	54	61	69	81	92	107	122
C	34	40	45	51	60	70	80	95	110
D	30	36	40	48	55	65	75	90	105
E	68	73	75	80	87	93	108	114	138
F	43	48	50	52	59	63	71	74	88
Fu	57.5	63.5	67	76	82.5	90	106.5	120	142.5
G	25	25	25	28	28	30	37	40	50
H	26	29	31.5	35.5	39	46	52	59.5	67
J	19.5	20	22.5	25.5	30	35	40	47.5	55
Kx	30	31.4	34	40	47	55	63	75	88
Ky	23	31.4	34	40	47	55	63	75	88
L	57	63	68	73	80	94	106	126	147
M	11	11	11	13	12	13	16	16	21
Nx	20.5	23.5	26	30	33.5	39.5	45	52.5	60
Ny	3	5	5	0	0	0	0	0	0
P	3	3	3	3	3	5	5	5	5
Q	7.5	7.5	9.5	9.5	11	11	14	17.5	20
R	4.5	4.5	5.5	5.5	6.8	6.8	9	11	14
S	15.5	18	17	18.5	17	18	22	22	29
U	12	15	18	22	25	30	35.5	45	55
Z (Chamfer)	C3	C2	C3	C3	(φ80)	(φ94)	(φ106)	(φ126)	(φ147)
CA	4.3	4.8	5.8	7.8	8.8	10.5	12.5	17.5	22.5
CB	10.25	12	15	16	17.5	21.5	21.5	26	26
CC	2.5 ^{+0.028} _{+0.014}	3 ^{+0.028} _{+0.014}	4 ^{+0.038} _{+0.020}	4 ^{+0.038} _{+0.020}	4 ^{+0.038} _{+0.020}	6 ^{+0.038} _{+0.020}	6 ^{+0.038} _{+0.020}	8 ^{+0.047} _{+0.025}	8 ^{+0.047} _{+0.025}
EA (Nominal × Pitch)	M4×0.7	M4×0.7	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25	M10×1.5	M12×1.75
SA	20	24	27	32	36	40	46	55	62
SB	12.5	14.5	15	16	18.5	20	23.5	25	30.5
SC (Nominal × Pitch × Depth)	M4×0.7×7	M4×0.7×7	M5×0.8×8	M5×0.8×8	M6×1×11	M6×1×11	M8×1.25×13	M10×1.5×15	M10×1.5×15
JA	3.5	3.5	3.5	3.5	3.5	4.5	4.5	4.5	4.5
JB	14	14	14	14	14	19	19	22	22
G-Thread Plug Option -C	G1/8	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8
O-ring (Option -C)	1BP5	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7	1BP7
Pin for Stopper and Phasing	φ2.5(m6)×6	φ3(m6)×8	φ4(m6)×10	φ4(m6)×12	φ4(m6)×14	φ6(m6)×14	φ6(m6)×16	φ8(m6)×20	φ8(m6)×22
Recommended Inner Diam. of Pipe ^{※7}	φ6	φ6	φ6	φ6	φ6	φ8	φ8	φ12	φ12
Hydraulic Port Option -S	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc3/8	Rc3/8
Cylinder Capacity cm ³	2.8	4.9	7.1	10.6	17	25.5	45.7	70.5	121.7
Weight ^{※8} kg									
LG	0.45	0.6	0.9	1.2	1.7	2.6	3.9	5.4	8.9
LT	0.25	0.4	0.6	0.8	1.2	1.8	2.8	-	-

Notes: ^{※7}. This is for reference. Adjust it depending on the number of clamps and/or the length of the pipe.

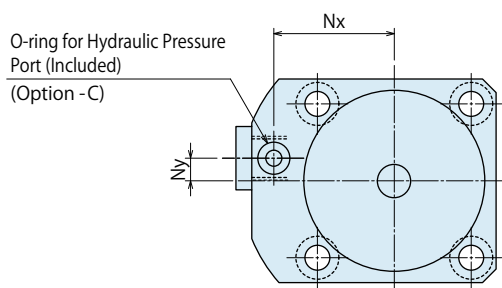
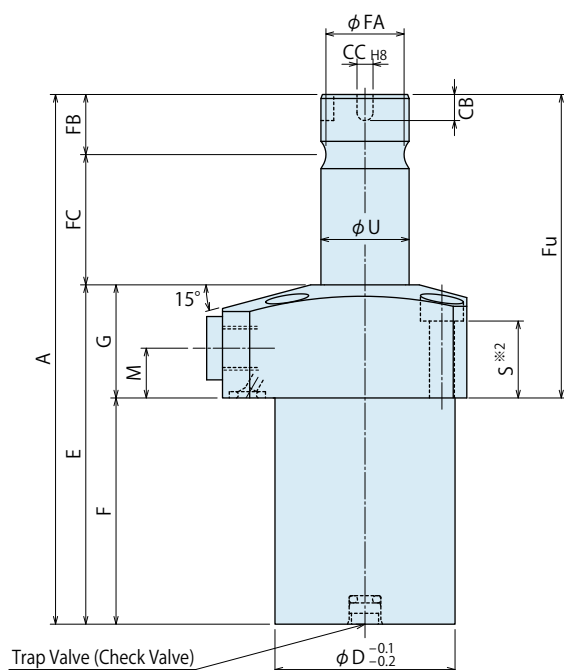
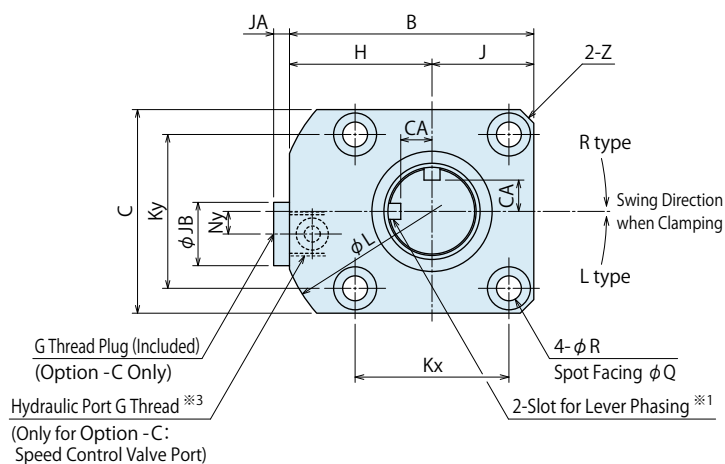
^{※8}. It shows the weight of single swing clamp without the tightening kit and swing lever.

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
LG/LT
TLA-2
TLB-2
TLA-1
Link Clamp
LKA
LKC
LKW
LJ/LM
TMA-2
TMA-1
Work Support
LD
LC
TNC
TC
Air Sensing Lift Cylinder
LLW
Linear Cylinder / Compact Cylinder
LL
LLR
LLU
DP
DR
DS
DT
Block Cylinder
DBA/DBC
Centering Vise
FVA
FVD
FVC
Control Valve
BZL
BZT
BZX/JZG
BZS
Pallet Clamp
VS/VT
Expansion Locating Pin
VFL/VFM
VFJ/VFK
Pull Stud Clamp
FP
FQ
Customized Spring Cylinder
DWA/DWB

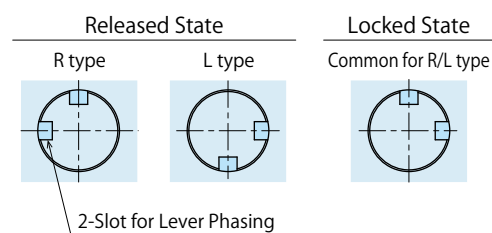
External Dimensions

C : Gasket Option (With G Thread Plug)

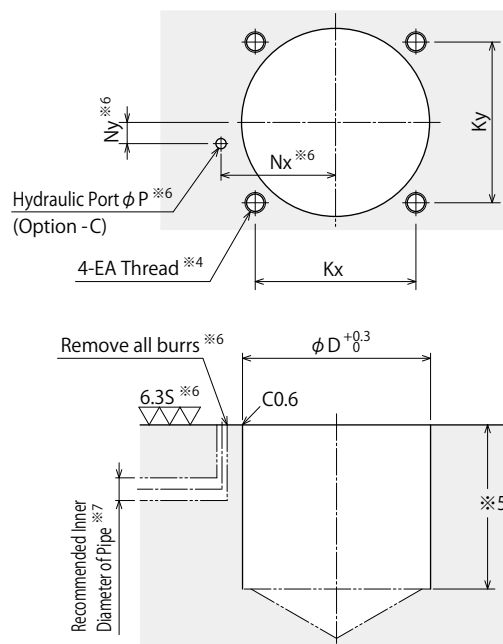
※ The drawing shows the released state of LG-CR-F and LT-CR-F.



※1. Slot for Lever Phasing



Machining Dimensions of Mounting Area



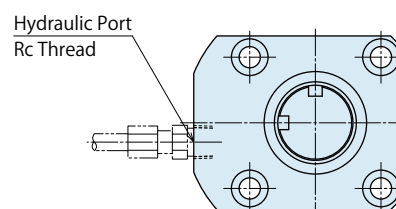
Notes :

- ※4. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
- ※5. The depth of the body mounting hole ϕD should be decided according to the mounting height referring to dimension 'F'.
- ※6. The machining dimension is for -C : Gasket Option.

Piping Method

S : Piping Option (Rc Thread)

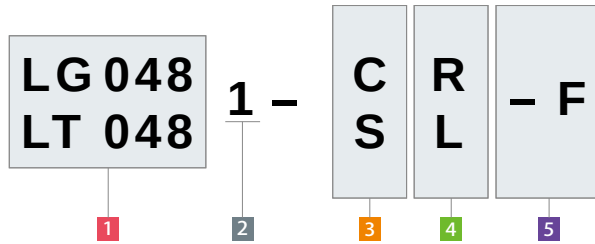
※ The drawing shows the released state of LG-SR-F and LT-SR-F.



Notes :

- ※2. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
- ※3. Speed control valve is sold separately. Please refer to P.947.
- 1. Please contact us if it has a combination with other options.

Model No. Indication



(Format Example : LG0901-SL-F, LT0551-CR-F)

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	LG0301-□□-F LT0301-□□-F	LG0361-□□-F LT0361-□□-F	LG0401-□□-F LT0401-□□-F	LG0481-□□-F LT0481-□□-F	LG0551-□□-F LT0551-□□-F	LG0651-□□-F LT0651-□□-F	LG0751-□□-F LT0751-□□-F	LG0901-□□-F	LG1051-□□-F
Full Stroke	10.5	12.5	13	14	16.5	18	21.5	23	28.5
Swing Stroke (90°)	4.5	4.5	5	6	6.5	8	9.5	11	12.5
Vertical Stroke	6	8	8	8	10	10	12	12	16
A	96.5	109.5	115	126	139.5	153	177.5	194	228.5
B	45.5	49	54	61	69	81	92	107	122
C	34	40	45	51	60	70	80	95	110
D	30	36	40	48	55	65	75	90	105
E	68	73	75	80	87	93	108	114	138
F	43	48	50	52	59	63	71	74	88
Fu	53.5	61.5	65	74	80.5	90	106.5	120	140.5
G	25	25	25	28	28	30	37	40	50
H	26	29	31.5	35.5	39	46	52	59.5	67
J	19.5	20	22.5	25.5	30	35	40	47.5	55
Kx	30	31.4	34	40	47	55	63	75	88
Ky	23	31.4	34	40	47	55	63	75	88
L	57	63	68	73	80	94	106	126	147
M	11	11	11	13	12	13	16	16	21
Nx	20.5	23.5	26	30	33.5	39.5	45	52.5	60
Ny	3	5	5	0	0	0	0	0	0
P	3	3	3	3	3	5	5	5	5
Q	7.5	7.5	9.5	9.5	11	11	14	17.5	20
R	4.5	4.5	5.5	5.5	6.8	6.8	9	11	14
S	15.5	18	17	18.5	17	18	22	22	29
U	12	15	18	22	25	30	35.5	45	55
Z (Chamfer)	C3	C2	C3	C3	(φ80)	(φ94)	(φ106)	(φ126)	(φ147)
CA	4	5	5.8	7.8	9	10	13.25	17.5	22.5
CB	4.25	5	6.5	6.5	7	9.5	9.5	13	13.5
CC	2.5 ^{+0.014} ₀	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	M4×0.7	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25	M10×1.5	M12×1.75
FA	10.5	13.5	16	19.5	22	26	31	39.5	48
FB	8	11	12.5	15	17	20	23	27.5	30
FC	20.5	25.5	27.5	31	35.5	40	46.5	52.5	60.5
JA	3.5	3.5	3.5	3.5	3.5	4.5	4.5	4.5	4.5
JB	14	14	14	14	14	19	19	22	22
G-Thread Plug	Option -C	G1/8	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8
O-ring (Option -C)	1BP5	1BP5	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7
Recommended Inner Diam. of Pipe ※7	φ6	φ6	φ6	φ6	φ6	φ8	φ8	φ12	φ12
Hydraulic Port	Option -S	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc3/8
Cylinder Capacity	cm ³	2.8	4.9	7.1	10.6	17	25.5	45.7	121.7
Weight	kg								
	LG	0.45	0.6	0.9	1.2	1.7	2.6	3.9	8.9
	LT	0.25	0.4	0.6	0.8	1.2	1.8	2.8	—

Note: ※7. This is for reference. Adjust it depending on the number of clamps and/or the length of the pipe.

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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

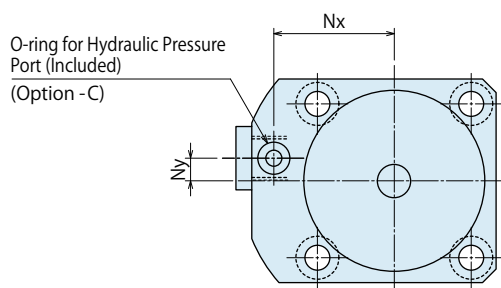
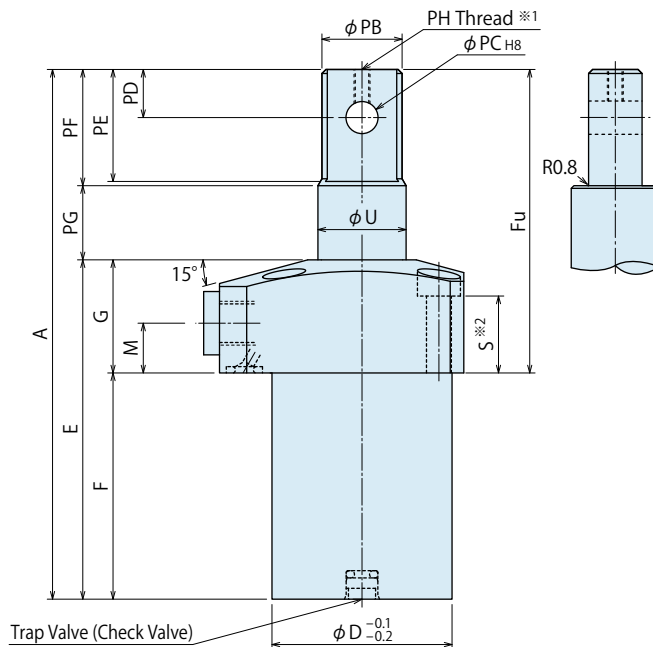
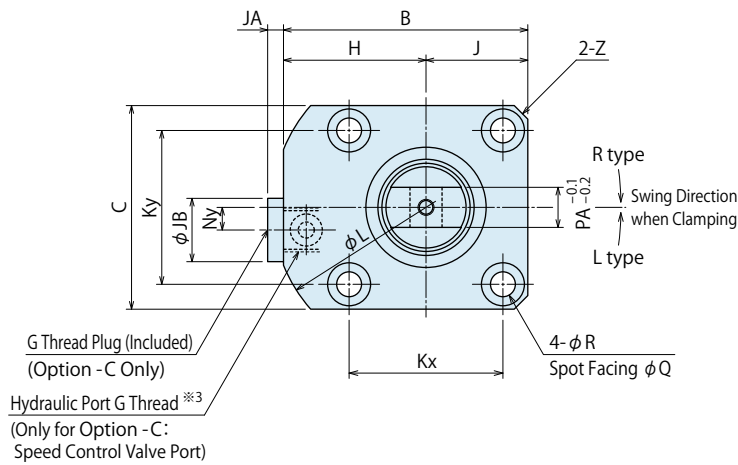
Customized Spring Cylinder

DWA/DWB

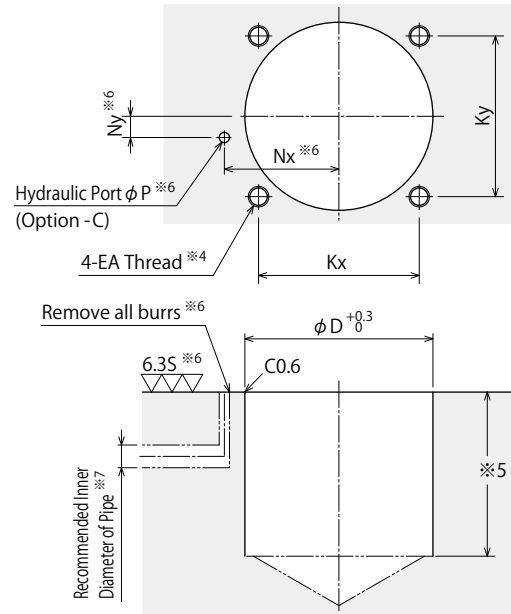
External Dimensions

C : Gasket Option (With G Thread Plug)

※ The drawing shows the released state of LG-C□-P and LT-C□-P.



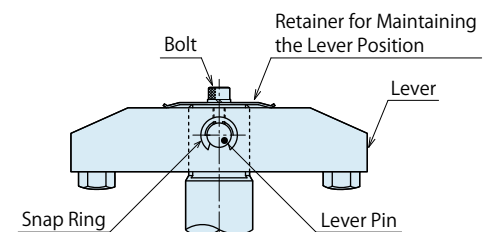
● Machining Dimensions of Mounting Area



Notes :

- ※4. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
- ※5. The depth of the body mounting hole ϕD should be decided according to the mounting height referring to dimension 'F'.
- ※6. The machining dimension is for -C : Gasket Option.

● Balance Lever Reference Drawing



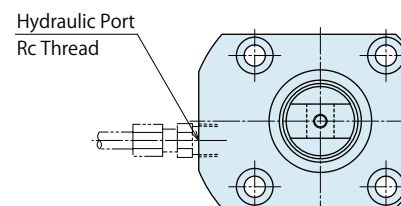
Note :

1. Lever, bolt, lever pin, snap ring and retainer for maintaining the lever position are not provided. Please design and prepare by Customer.

● Piping Method

S : Piping Option (Rc Thread)

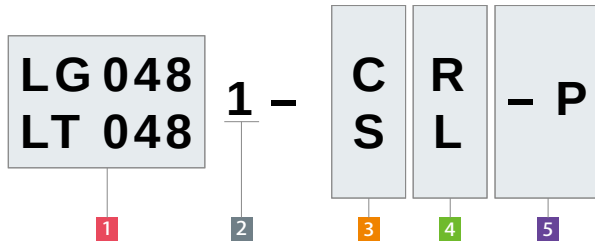
※ The drawing shows the released state of LG-S□-P and LT-S□-P.



Notes :

- ※1. Use the tapped hole (PH thread) on top of rod to attach a retainer for lever.
- ※2. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
- ※3. Speed control valve is sold separately. Please refer to P.947.
 - 1. Please contact us if it has a combination with other options.

Model No. Indication



(Format Example : LG0901-SL-P, LT0551-CR-P)

- 1 Body Material • Body Size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Option (When selecting P)

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	LG0301-□□-P LT0301-□□-P	LG0361-□□-P LT0361-□□-P	LG0401-□□-P LT0401-□□-P	LG0481-□□-P LT0481-□□-P	LG0551-□□-P LT0551-□□-P	LG0651-□□-P LT0651-□□-P	LG0751-□□-P LT0751-□□-P	LG0901-□□-P	LG1051-□□-P
Full Stroke	10.5	12.5	13	14	16.5	18	21.5	23	28.5
Swing Stroke (90°)	4.5	4.5	5	6	6.5	8	9.5	11	12.5
Vertical Stroke	6	8	8	8	10	10	12	12	16
A	95.5	103.5	111	121	137.5	145	171.5	185	223.5
B	45.5	49	54	61	69	81	92	107	122
C	34	40	45	51	60	70	80	95	110
D	30	36	40	48	55	65	75	90	105
E	68	73	75	80	87	93	108	114	138
F	43	48	50	52	59	63	71	74	88
Fu	52.5	55.5	61	69	78.5	82	100.5	111	135.5
G	25	25	25	28	28	30	37	40	50
H	26	29	31.5	35.5	39	46	52	59.5	67
J	19.5	20	22.5	25.5	30	35	40	47.5	55
Kx	30	31.4	34	40	47	55	63	75	88
Ky	23	31.4	34	40	47	55	63	75	88
L	57	63	68	73	80	94	106	126	147
M	11	11	11	13	12	13	16	16	21
Nx	20.5	23.5	26	30	33.5	39.5	45	52.5	60
Ny	3	5	5	0	0	0	0	0	0
P	3	3	3	3	3	5	5	5	5
Q	7.5	7.5	9.5	9.5	11	11	14	17.5	20
R	4.5	4.5	5.5	5.5	6.8	6.8	9	11	14
S	15.5	18	17	18.5	17	18	22	22	29
U	12	15	18	22	25	30	35.5	45	55
Z (Chamfer)	C3	C2	C3	C3	(φ80)	(φ94)	(φ106)	(φ126)	(φ147)
EA (Nominal × Pitch)	M4×0.7	M4×0.7	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25	M10×1.5	M12×1.75
PA	6	7	8	10	12	14	16	22	26
PB	11	13.5	16	20	23	28	33.5	43	53
PC	5 ^{+0.018} ₀	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	6.5	7	8	10	12	15	16.5	20	24
PE	14	15.5	20	23.5	29	30.5	38.5	44.5	53.5
PF	15	16	21	25	30.5	32	40	46	55
PG	12.5	14.5	15	16	20	20	23.5	25	30.5
PH (Nominal × Pitch)	M3×0.5	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	3.5	4.5	4.5	4.5	4.5
JB	14	14	14	14	14	19	19	22	22
G-Thread Plug	Option -C	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8
O-ring (Option -C)	1BP5	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7	1BP7
Recommended Inner Diam. of Pipe ^{※7}	φ6	φ6	φ6	φ6	φ6	φ8	φ8	φ12	φ12
Hydraulic Port	Option -S	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4	Rc1/4	Rc3/8	Rc3/8
Cylinder Capacity	cm ³	2.8	4.9	7.1	10.6	17	25.5	45.7	121.7
Weight	kg								
	LG	0.45	0.6	0.9	1.2	1.7	2.6	3.9	8.9
	LT	0.25	0.4	0.6	0.8	1.2	1.8	2.8	—

Notes: ※7. This is for reference. Adjust it depending on the number of clamps and/or the length of the pipe.

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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

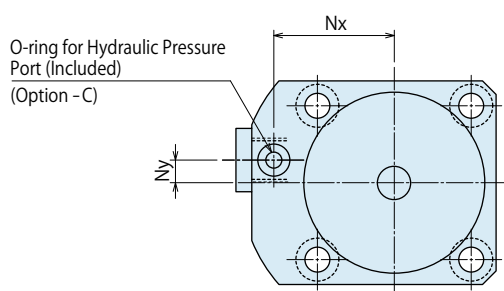
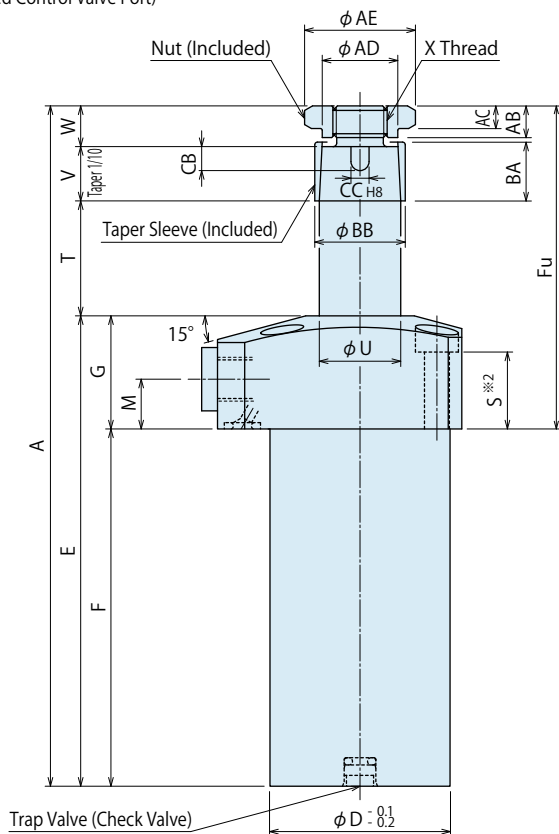
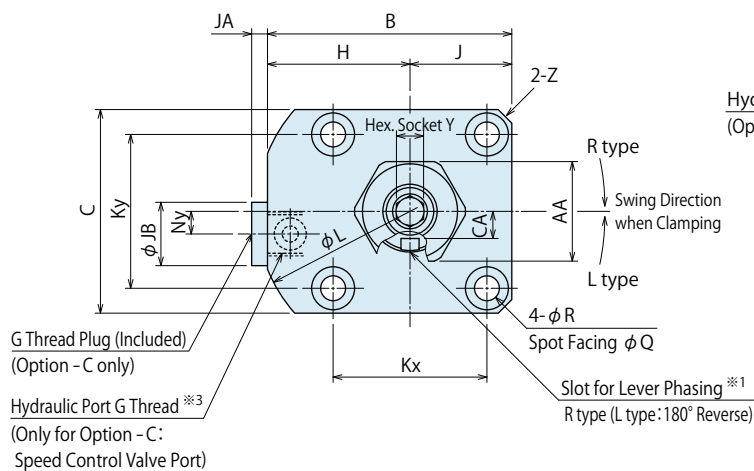
Customized Spring Cylinder

DWA/DWB

External Dimensions

C : Gasket Option (With G Thread Plug)

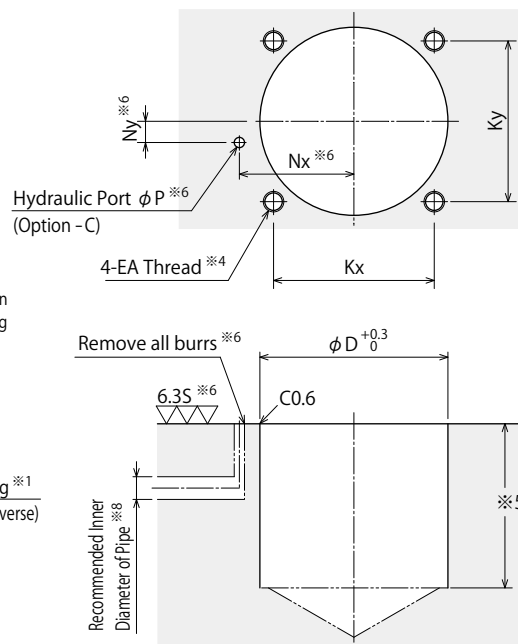
※ The drawing shows the released state of LG-CR-Q15.



Notes :

- ※1. The slot for lever phasing faces the port side when locked.
- ※2. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
- ※3. Speed control valve is sold separately. Please refer to P.947.
- 1. Please contact us if it has a combination with other options.

Machining Dimensions of Mounting Area



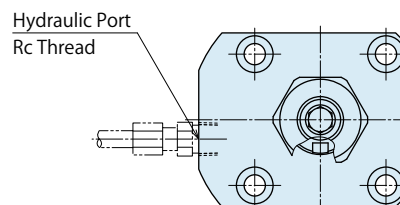
Notes :

- ※4. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
- ※5. The depth of the body mounting hole ϕD should be decided according to the mounting height referring to dimension 'F'.
- ※6. The machining dimension is for -C : Gasket Option.

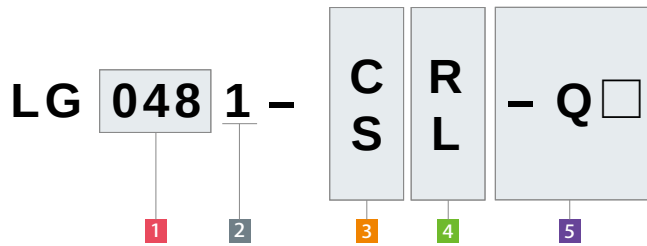
Piping Method

S : Piping Option (Rc Thread)

※ The drawing shows the released state of LG-SR-Q15.



Model No. Indication



(Format Example : LG0361-SL-Q15, LG0651-CR-Q15)

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.※7	LG0361-□□-Q15	LG0401-□□-Q15	LG0481-□□-Q15	LG0551-□□-Q15	LG0651-□□-Q15
Full Stroke	22.5	24	26	27	29
Swing Stroke (90°)	7.5	9	11	12	14
Vertical Stroke	15	15	15	15	15
A	139.5	150.5	163	181.5	187
B	49	54	61	69	81
C	40	45	51	60	70
D	36	40	48	55	65
E	99	103.5	110	120.5	124
F	74	78.5	82	92.5	94
Fu	65.5	72	81	89	93
G	25	25	28	28	30
H	29	31.5	35.5	39	46
J	20	22.5	25.5	30	35
Kx	31.4	34	40	47	55
Ky	31.4	34	40	47	55
L	63	68	73	80	94
M	11	11	13	12	13
Nx	23.5	26	30	33.5	39.5
Ny	5	5	0	0	0
P	3	3	3	3	5
Q	7.5	9.5	9.5	11	11
R	4.5	5.5	5.5	6.8	6.8
S	18	17	18.5	17	18
T	24.5	26	28	29	31
U	15	18	22	25	30
V	9	12	14	20	20
W	7	9	11	12	12
X(Nominal × Pitch)	M10×1	M12×1.5	M16×1.5	M18×1.5	M22×1.5
Y	4	5	6	8	10
Z(Chamfer)	C2	C3	C3	(φ80)	(φ94)
AA	19	22	24	30	36
AB	5.8	7	9	10	10
AC	4	5	6	7	7
AD	13.8	16.6	20.5	22.9	27.9
AE	21.2	24.5	26.5	33	40
BA	9.5	13	15	21	21
BB	17	20	25	28	34
CA	5	6	8	9	11
CB	4	5.3	5.3	5.3	7.5
CC	3 ^{+0.014} ₀	4 ^{+0.018} ₀	4 ^{+0.018} ₀	4 ^{+0.018} ₀	6 ^{+0.018} ₀
EA(Nominal × Pitch)	M4×0.7	M5×0.8	M5×0.8	M6×1	M6×1
JA	3.5	3.5	3.5	3.5	4.5
JB	14	14	14	14	19
G-Thread Plug Option -C	G1/8	G1/8	G1/8	G1/8	G1/4
O-ring (Option -C)	1BP5	1BP5	1BP5	1BP5	1BP7
Recommended Inner Diam. of Pipe ※8	φ6	φ6	φ6	φ6	φ8
Hydraulic Port Option -S	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/4
Cylinder Capacity cm ³	8.9	13.2	19.6	27.8	41.1
Weight ※9 kg	0.7	1.1	1.4	2.1	3

Notes : ※7. Refer to P.538C/538D for unlisted option : Q20/Q30.

※8. This is for reference. Adjust it depending on the number of clamps and/or the length of the pipe.

※9. It shows the weight 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

LG/LT

TLA-2

TLB-2

TLA-1

Link Clamp

LKA

LKC

LKW

LJ/LM

TMA-2

TMA-1

Work Support

LD

LC

TNC

TC

Air Sensing
Lift Cylinder

LLW

Linear Cylinder /
Compact Cylinder

LL

LLR

LLU

DP

DR

DS

DT

Block Cylinder

DBA/DBC

Centering Vise

FVA

FVD

FVC

Control Valve

BZL

BZT

BZX/JZG

BZS

Pallet Clamp

VS/VT

Expansion
Locating Pin

VFL/VFM

VFJ/VFK

Pull Stud Clamp

FP

FQ

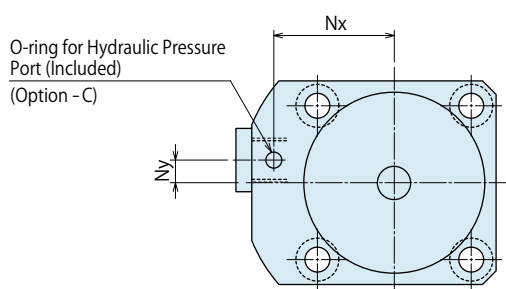
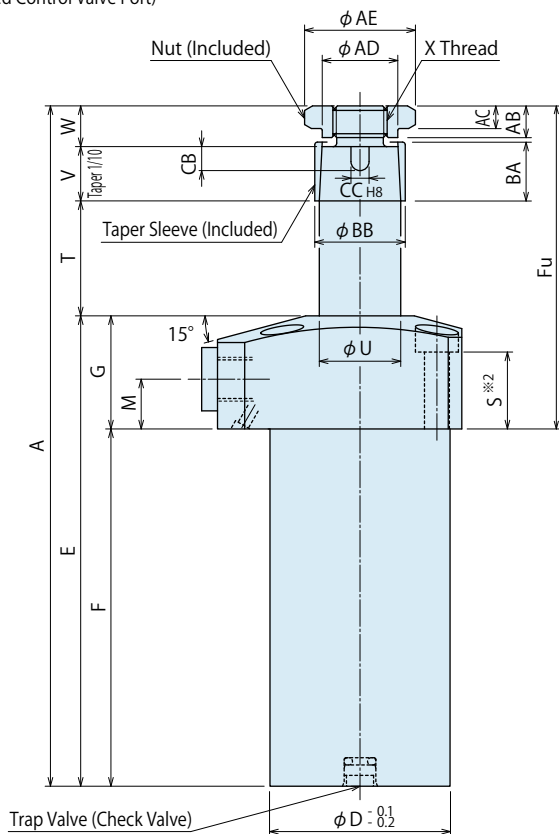
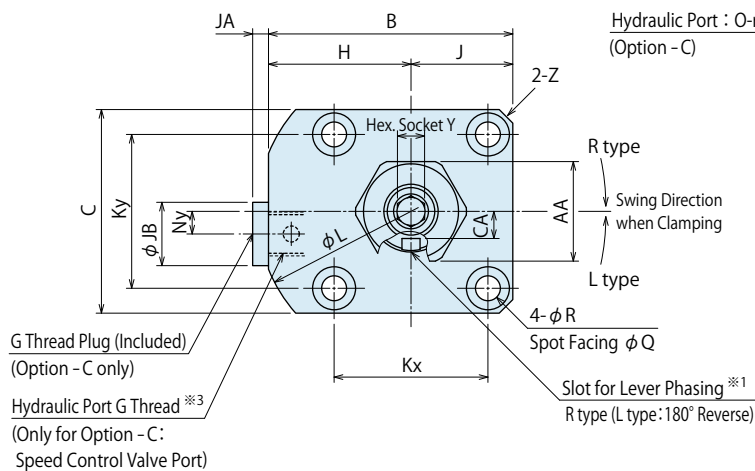
Customized
Spring Cylinder

DWA/DWB

External Dimensions

C : Gasket Option (With G Thread Plug)

※ The drawing shows the released state of LG-CR-Q20/30.

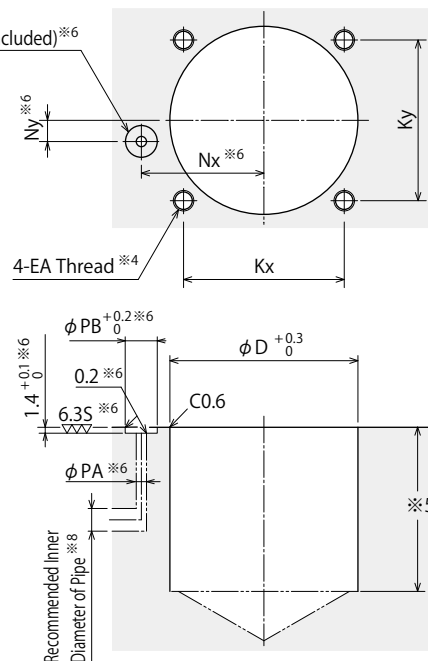


Notes :

- ※1. The slot for lever phasing faces the port side when locked.
- ※2. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
- ※3. Speed control valve is sold separately. Please refer to P.947.
- 1. Please contact us if it has a combination with other options.

Machining Dimensions of Mounting Area

Prepare O-ring slot for gasket on the mounting side since it is not on the body. O-ring is included.



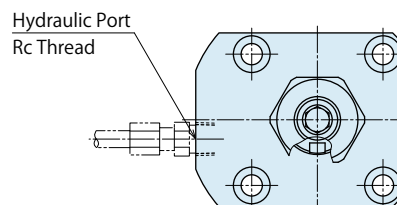
Notes :

- ※4. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
- ※5. The depth of the body mounting hole φ D should be decided according to the mounting height referring to dimension 'F'.
- ※6. The machining dimension is for -C : Gasket Option.

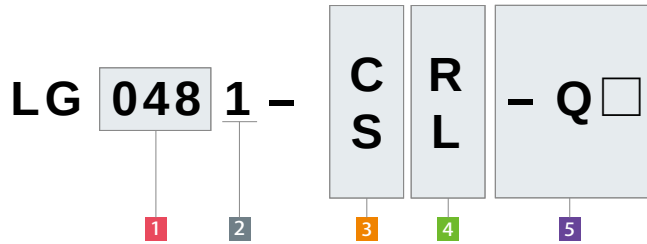
Piping Method

S : Piping Option (Rc Thread)

※ The drawing shows the released state of LG-SR-Q20/30.



Model No. Indication



(Format Example : LG0401-SL-Q30, LG0751-CR-Q20)

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No. ※7	LG0401-□□-Q30	LG0481-□□-Q30	LG0551-□□-Q30	LG0651-□□-Q30	LG0751-□□-Q20	LG0751-□□-Q30
Full Stroke	39	41	42	44	35	45
Swing Stroke (90°)	9	11	12	14	15	15
Vertical Stroke	30	30	30	30	20	30
A	204.5	216	231.5	244.5	234	268
B	54	61	69	81	92	
C	45	51	60	70	80	
D	40	48	55	65	75	
E	142.5	148	155.5	166.5	157	181
F	117.5	120	127.5	136.5	120	144
Fu	87	96	104	108	114	124
G	25	28	28	30	37	
H	31.5	35.5	39	46	52	
J	22.5	25.5	30	35	40	
Kx	34	40	47	55	63	
Ky	34	40	47	55	63	
L	68	73	80	94	106	
M	11	13	12	13	16	
Nx	26	30	33.5	39.5	45	
Ny	5	0	0	0	0	
PA	3	3	3	5	5	5
PB	8	8	8	10	10	10
Q	9.5	9.5	11	11	14	
R	5.5	5.5	6.8	6.8	9	
S	17	18.5	17	18	22	
T	41	43	44	46	37	47
U	18	22	25	30	35.5	
V	12	14	20	20	26	
W	9	11	12	12	14	
X(Nominal × Pitch)	M12×1.5	M16×1.5	M18×1.5	M22×1.5	M28×1.5	
Y	5	6	8	10	10	
Z(Chamfer)	C3	C3	(φ80)	(φ94)	(φ106)	
AA	22	24	30	36	41	
AB	7	9	10	10	12	
AC	5	6	7	7	8	
AD	16.6	20.5	22.9	27.9	32.8	
AE	24.5	26.5	33	40	45	
BA	13	15	21	21	27	
BB	20	25	28	34	40	
CA	6	8	9	11	14	
CB	5.3	5.3	5.3	7.5	7.5	
CC	4 ^{+0.018} ₀	4 ^{+0.018} ₀	4 ^{+0.018} ₀	6 ^{+0.018} ₀	6 ^{+0.018} ₀	
EA(Nominal × Pitch)	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25	
JA	3.5	3.5	3.5	4.5	4.5	
JB	14	14	14	19	19	
G-Thread Plug Option - C	G1/8	G1/8	G1/8	G1/4	G1/4	
O-ring (Option - C)	1BP5	1BP5	1BP5	1BP7	1BP7	
Recommended Inner Diam. of Pipe ※8	φ6	φ6	φ6	φ8	φ8	
Hydraulic Port Option - S	Rc1/8	Rc1/8	Rc1/8	Rc1/4	Rc1/4	
Cylinder Capacity cm ³	21.4	30.9	43.2	62.3	74.5	95.7
Weight ※9 kg	1.4	1.8	2.5	3.7	4.8	5.3

Notes : ※7. Refer to P.538A/538B for unlisted option : Q15.

※8. This is for reference. Adjust it depending on the number of clamps and/or the length of the pipe.

※9. It shows the weight 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

LG/LT

TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing
Lift Cylinder

LLW

Linear Cylinder /
Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion
Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

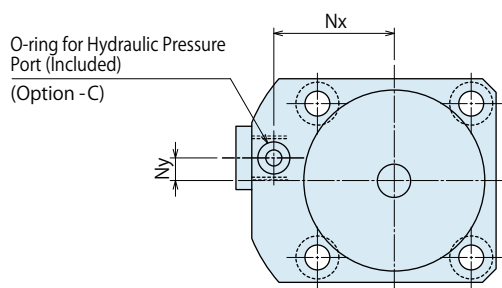
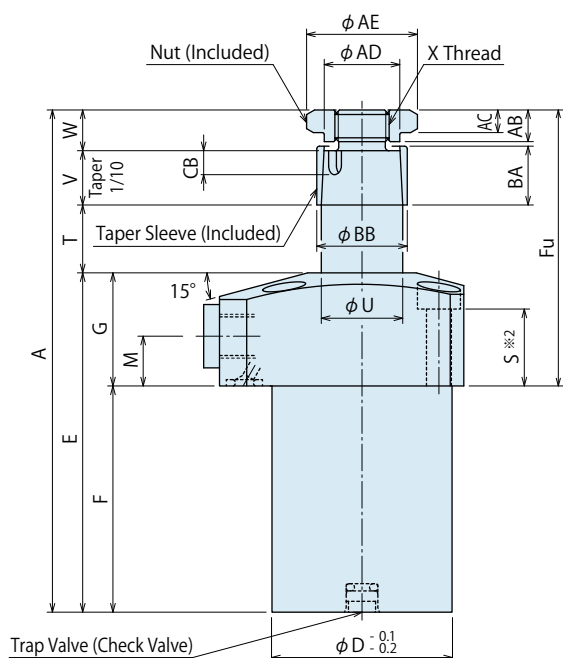
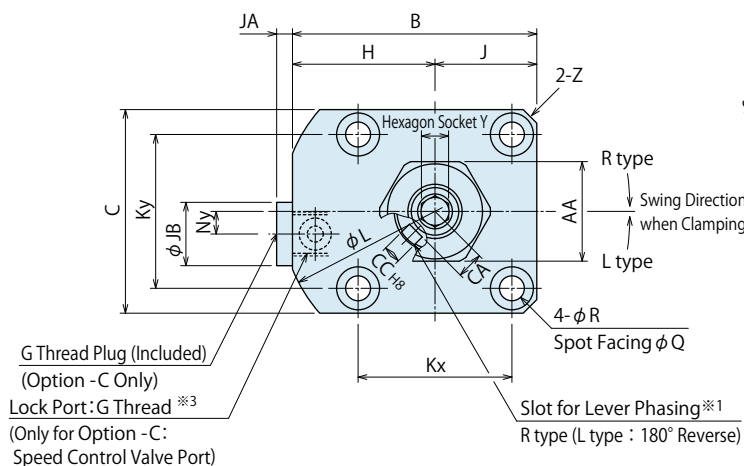
Customized
Spring Cylinder

DWA/DWB

External Dimensions

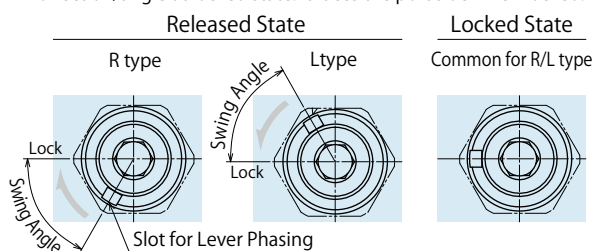
C : Gasket Option (G Thread Plug)

※ The drawing shows the released state of LG-CR-Y and LT-CR-Y.

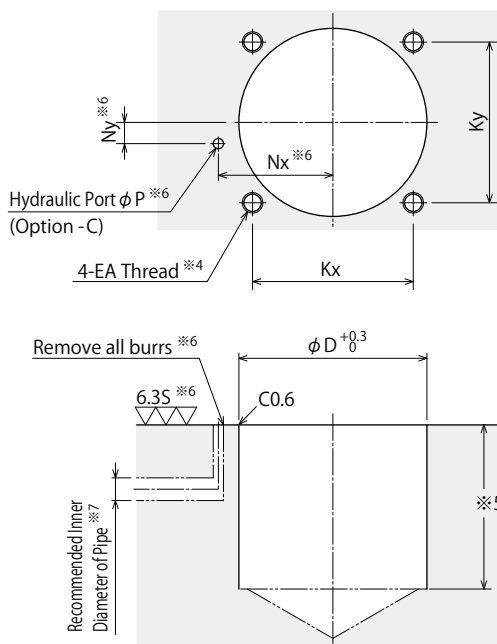


※1. Slot for Lever Phasing

The slot position at released state differs depending on the swing direction/angle at locked state. It faces the port side when locked.



Machining Dimensions of Mounting Area



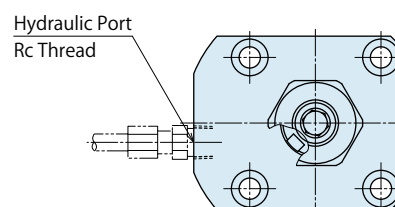
Notes :

- ※4. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
- ※5. The depth of the body mounting hole φD should be decided according to the mounting height referring to dimension 'F'.
- ※6. The machining dimension is for -C : Gasket Option.

Piping Method

S : Piping Option (Rc Thread)

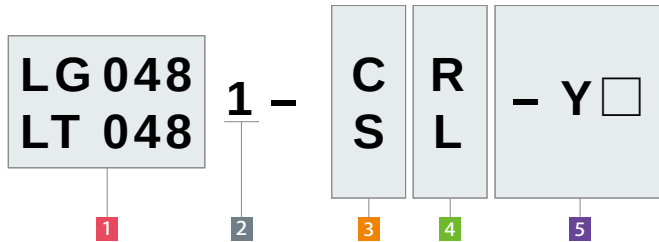
※ The drawing shows the released state of LG-SR-Y and LT-SR-Y.



Notes :

- ※2. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
- ※3. Speed control valve is sold separately. Please refer to P.947.
- 1. Please contact us if it has a combination with other options.

● Model No. Indication



(Format Example : LG0901-SL-Y45, LT0551-CR-Y30)

- 1 Body Material • Body Size
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping
- 5 Option (When selecting -Y□)

● External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.		LG0301-□□-Y□			LG0361-□□-Y□			LG0401-□□-Y□			LG0481-□□-Y□			LG0551-□□-Y□			LG0651-□□-Y□			LG0751-□□-Y□			LG0901-□□-Y□			LG1051-□□-Y□					
		Y30	Y45	Y60	Y30	Y45	Y60	Y30	Y45	Y60	Y30	Y45	Y60	Y30	Y45	Y60	Y30	Y45	Y60	Y30	Y45	Y60	Y30	Y45	Y60	Y30	Y45	Y60			
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	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°	30°	45°	60°			
Full Stroke		8.1	8.7	9.3	10.2	10.8	11.3	10.3	11	11.7	10.9	11.7	12.4	13	13.9	14.8	13.8	14.8	15.9	16.5	17.7	19	17.3	18.7	20.1	22	23.6	25.2			
Swing Stroke		2.1	2.7	3.3	2.2	2.8	3.3	2.3	3	3.7	2.9	3.7	4.4	3	3.9	4.8	3.8	4.8	5.9	4.5	5.7	7	5.3	6.7	8.1	6	7.6	9.2			
Vertical Stroke		6			8			8			8			10			10			12			12			16					
A		93.1	93.7	94.3	101.2	101.8	102.3	108.3	109	109.7	117.9	118.7	119.4	134	134.9	135.8	140.8	141.8	142.9	166.5	167.7	169	179.3	180.7	182.1	217	218.6	220.2			
B		45.5			49			54			61			69			81			92			107			122					
C		34			40			45			51			60			70			80			95			110					
D		30			36			40			48			55			65			75			90			105					
E		68			73			75			80			87			93			108			114			138					
F		43			48			50			52			59			63			71			74			88					
Fu		50.1	50.7	51.3	53.2	53.8	54.3	58.3	59	59.7	65.9	66.7	67.4	75	75.9	76.8	77.8	78.8	79.9	95.5	96.7	98	105.3	106.7	108.1	129	130.6	132.2			
G		25			25			25			28			28			30			37			40			50					
H		26			29			31.5			35.5			39			46			52			59.5			67					
J		19.5			20			22.5			25.5			30			35			40			47.5			55					
Kx		30			31.4			34			40			47			55			63			75			88					
Ky		23			31.4			34			40			47			55			63			75			88					
L		57			63			68			73			80			94			106			126			147					
M		11			11			11			13			12			13			16			16			21					
Nx		20.5			23.5			26			30			33.5			39.5			45			52.5			60					
Ny		3			5			5			0			0			0			0			0			0					
P		3			3			3			3			3			5			5			5			5					
Q		7.5			7.5			9.5			9.5			11			11			14			17.5			20					
R		4.5			4.5			5.5			5.5			6.8			6.8			9			11			14					
S		15.5			18			17			18.5			17			18			22			22			29					
T		10.1	10.7	11.3	12.2	12.8	13.3	12.3	13	13.7	12.9	13.7	14.4	15	15.9	16.8	15.8	16.8	17.9	18.5	19.7	21	19.3	20.7	22.1	24	25.6	27.2			
U		12			15			18			22			25			30			35.5			45			55					
V		9			9			12			14			20			20			26			32			38					
W		6			7			9			11			12			12			14			14			17					
X (Nominal × Pitch)		M8×1			M10×1			M12×1.5			M16×1.5			M18×1.5			M22×1.5			M28×1.5			M36×1.5			M45×1.5					
Y		3			4			5			6			8			10			10			14			14					
Z (Chamfer)		C3			C2			C3			C3			(φ80)			(φ94)			(φ106)			(φ126)			(φ147)					
AA		14			19			22			24			30			36			41			50			60					
AB		4.8			5.8			7			9			10			10			12			12			15					
AC		3			4			5			6			7			7			8			8			10					
AD		10.9			13.8			16.6			20.5			22.9			27.9			32.8			41.7			51.1					
AE		15.5			21.2			24.5			26.5			33			40			45			55			66					
BA		9.5			9.5			13			15			21			21			27			33			39					
BB		13.5			17			20			25			28			34			40			49			60					
CA		4			5			6			8			9			11			14			18			22.5					
CB		4			4			5.3			5.3			5.3			7.5			7.5			9.5			9.5					
CC		3 ^{+0.014 0}			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			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			3.5			4.5			4.5			4.5			4.5					
JB		14			14			14			14			14			19			19			22			22					
G-Thread Plug	Option -C	G1/8			G1/8			G1/8			G1/8			G1/8			G1/4			G1/4			G3/8			G3/8					
O-ring (Option -C)		1BP5			1BP5			1BP5			1BP5			1BP5			1BP7			1BP7			1BP7			1BP7					
Recommended Inner Diam. of Pipe ^{*7}		φ6			φ6			φ6			φ6			φ6			φ8			φ8			φ12			φ12					
Hydraulic Port	Option -S	Rc1/8			Rc1/8			Rc1/8			Rc1/8			Rc1/8			Rc1/4			Rc1/4			Rc3/8			Rc3/8					
Cylinder Capacity	cm ³	2.2	2.3	2.5	4.0	4.3	4.5	5.7	6.1	6.4	8.2	8.8	9.4	13.4	14.3	15.2	19.6	21.0	22.5	35.1	37.7	40.4	53	57.3	61.6	94	100.8	107.7			
Weight ^{*8}	kg	LG			0.45			0.6			0.9			1.2			1.7			2.6			3.9			5.4			8.9		
	IT	0.25			0.4			0.6			0.8			1.2			1.8			2.8			-			-					

Taper Lock Lever Design Dimensions

※ Reference for designing taper lock swing lever.

Corresponding Model No.

LG 1 - CS RL - Blank
Q
Y

1 Body Size

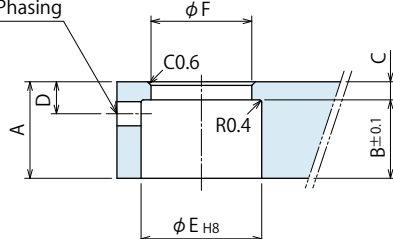
5 Option
Blank/Q/Y

LT 1 - CS RL - Blank
Y

1 Body Size

5 Option
Blank/Y

Pin Hole for
Lever Phasing
(ϕG)



Corresponding Model No.	LG0301	LG0361	LG0401	LG0481	LG0551	LG0651	LG0751	LG0901	LG1051
A	12	12	16	19	25	25	32	38	45
B	9.5	9.5	13	15	21	21	27	33	39
C	2.5	2.5	3	4	4	4	5	5	6
D	4.3	4.3	5.3	6.3	6.3	7.5	8.5	9.5	10.5
E	13.5 ^{+0.027} ₀	17 ^{+0.027} ₀	20 ^{+0.033} ₀	25 ^{+0.033} ₀	28 ^{+0.033} ₀	34 ^{+0.039} ₀	40 ^{+0.039} ₀	49 ^{+0.039} ₀	60 ^{+0.046} ₀
F	11 ^{+0.15} ₀	13.9 ^{+0.15} ₀	16.7 ^{+0.15} ₀	20.6 ^{+0.15} ₀	23 ^{+0.15} ₀	28 ^{+0.15} ₀	32.9 ^{+0.20} ₀	41.8 ^{+0.20} ₀	51.2 ^{+0.20} ₀
G	3	3	4	4	4	6	6	8	8

Notes :

- Swing lever should be designed with its length according to performance curve.
- If the swing lever is not in accordance with the dimension shown above, performance may be degraded and damage can occur.
- ※1. The pin hole (ϕG) for determining the lever phase should be added, if necessary.
- ※2. Phasing pin is not included. Prepare it separately.
- ※3. Refer to Design Dimensions of Quick Change Lever Option A for -A (Quick Change Lever Option A). Refer to Design Dimensions of Quick Change Lever Option F for -F (Quick Change Lever Option F). For -P (Balance Lever Option), it should be designed by customer.

Quick Change Lever Option A Design Dimensions

※ Reference for designing Quick Change Swing Lever Option A.

Corresponding Model No.

LG 1 - CS RL - A

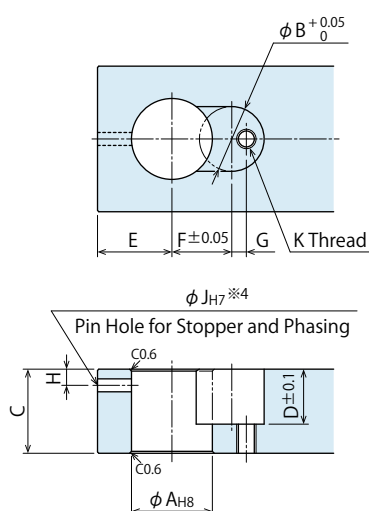
1 Body Size

5 Option A

LT 1 - CS RL - A

1 Body Size

5 Option A



Corresponding Model No.	LG0301-A	LG0361-A	LG0401-A	LG0481-A	LG0551-A	LG0651-A	LG0751-A	LG0901-A	LG1051-A
A	12 ^{+0.027} ₀	15 ^{+0.027} ₀	18 ^{+0.027} ₀	22 ^{+0.033} ₀	25 ^{+0.033} ₀	30 ^{+0.033} ₀	35.5 ^{+0.039} ₀	45 ^{+0.039} ₀	55 ^{+0.046} ₀
B	10.5	12	15	18	20	24	28	36	46
C	14	17	19	23	26	29	35	43	50
D	9.5	11	13	15.5	17	19	21	28	33
E	10.5	13	16	20	23	25	29	38	45
F	10.75	12.5	15	16.5	18.5	20.5	25	31	33.5
G	1.25	2	2.5	4	4.5	6.5	6.5	9	14
H	2.5	3	4	4	4	6	6	8	8
J	2.5 ^{+0.010} ₀	3 ^{+0.010} ₀	4 ^{+0.012} ₀	4 ^{+0.012} ₀	4 ^{+0.012} ₀	6 ^{+0.012} ₀	6 ^{+0.012} ₀	8 ^{+0.015} ₀	8 ^{+0.015} ₀
K	M4×0.7	M4×0.7	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25	M10×1.5	M10×1.5
Pin for Stopper and Phasing	$\phi 2.5(m6) \times 6$	$\phi 3(m6) \times 8$	$\phi 4(m6) \times 10$	$\phi 4(m6) \times 12$	$\phi 4(m6) \times 14$	$\phi 6(m6) \times 14$	$\phi 6(m6) \times 16$	$\phi 8(m6) \times 20$	$\phi 8(m6) \times 22$

Notes :

- Swing lever should be designed with its length according to performance curve.
- If the swing lever is not in accordance with the dimension shown above, performance may be degraded and damage can occur.
- Tightening Kit (LZH□-W) for Quick Change Lever Option A is sold separately.
- ※4. The pin hole for stopper and phasing (ϕJ) should be appropriately machined according to the slot for lever phasing on the clamp body. Pin for stopper and phasing (prepared by customer) is used as phasing when mounting the lever and as stopper when removing the lever. If you are not using a pin for stopper and phasing, a stopper is required to remove the lever.

Quick Change Lever Option F Design Dimensions

※ Reference for designing Quick Change Swing Lever Option F.

Corresponding Model No.

LG 1 - C R L - **F**

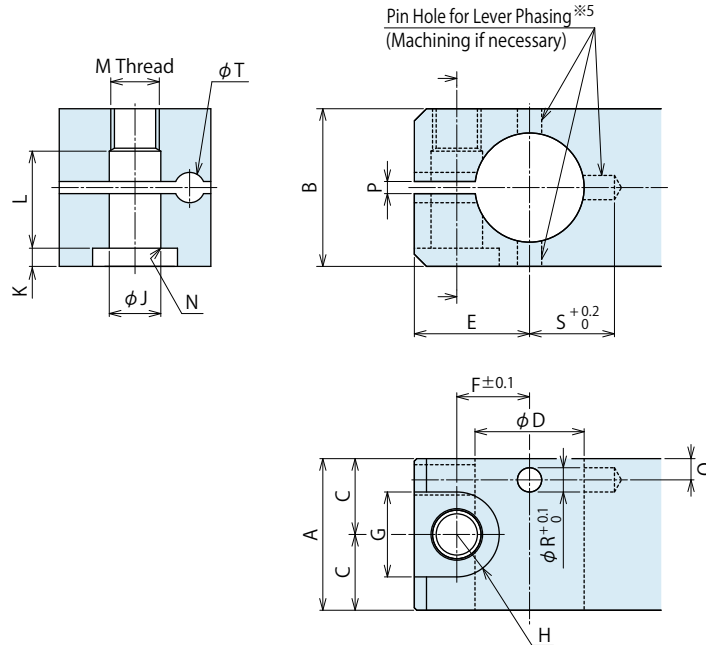
1 Body Size

5 Option F

LT 1 - C R L - **F**

1 Body Size

5 Option F



(mm)

Corresponding Model No.	LG0301-F LT0301-F	LG0361-F LT0361-F	LG0401-F LT0401-F	LG0481-F LT0481-F	LG0551-F LT0551-F	LG0651-F LT0651-F	LG0751-F LT0751-F	LG0901-F	LG1051-F
A	16	22	25	30	34	40	46	55	60
B	19	22	26	32	36	45	53	70	82
C	8	11	12.5	15	17	20	23	27.5	30
D	12 ⁰ _{-0.016}	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	13	15	19	23	26.5	31.5	36.5	46	55
F	7.75	9.75	12	14.75	17	20	23.5	29.75	36
G	10	11	14	17.5	20	23	26	32	39
H	R5	R5.5	R7	R8.75	R10	R11.5	R13	R16	R19.5
J	5.5	6.5	8.5	10.5	12.5	14.5	16.5	21	25
K	1.5	2	3	4	4	5	7	9	11
L	11.5	13.5	16	18	22	26.5	31	42	46
M	M5×0.8	M6×1	M8×1	M10×1.25	M12×1.5	M14×1.5	M16×1.5	M20×2	M24×2
N	C0.4	C0.4	C0.6	C0.6	C1	C1	C1	C1	C1
P	2	2	2	2	2	2	2	2	2
Q	2.25	2.5	3.5	3.5	4	5.5	5.5	7.5	8
R	2.5	3	4	4	4	6	6	8	8
S	10.5	13.5	14	18	19.5	24.5	27.75	38	45
T	2.9	3.4	4.5	4.5	4.5	6.5	6.5	9	9
Phasing Pin (Reference) ^{※6}	φ2.5×6	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 curve.
- If the swing lever is not in accordance with the dimension shown above, performance may be degraded and damage can occur.
- Tightening Bolt (LZH□-B) for Quick Change Lever Option F is sold separately.

※5. The pin hole (φR) for determining the lever phase should be added, if necessary.

※6. Phasing pin is not included. Prepare it 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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing
Lift Cylinder

LLW

Linear Cylinder /
Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion
Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

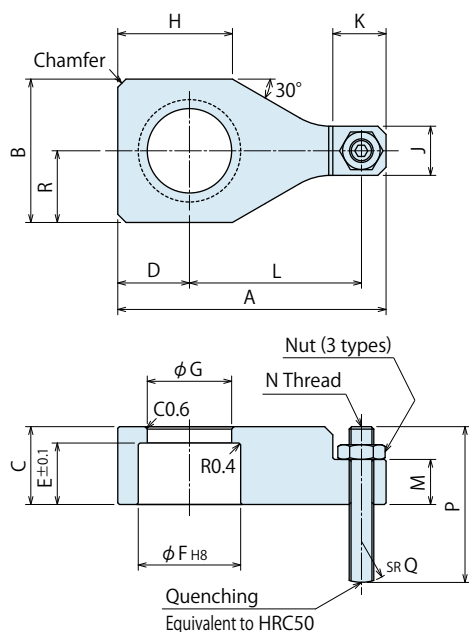
FP
FQ

Customized
Spring Cylinder

DWA/DWB

Accessories : Material Swing Lever for Taper Lock Option

Model No. Indication

LZ 040 0 – LE1
Size
(Refer to the table.)Design No.
(Revision Number)

Model No.	LZ0300 -LE1	LZ0360 -LE1	LZ0400 -LE1	LZ0481 ^{※2} -LE1	LZ0550 -LE1	LZ0650 -LE1	LZ0750 -LE1	LZ0900 -LE1	LZ1050 -LE1
Corresponding Model No. ^{※1}	LG0301 LT0301	LG0361 LT0361	LG0401 LT0401	LG0481 LT0481	LG0551 LT0551	LG0651 LT0651	LG0751 LT0751	LG0901	LG1051
A	44	50	56.5	65.5	77	91.5	105	127	152
B	19	26	28	35	38	50	58	75	90
C	12	12	16	19	25	25	32	38	45
D	9.5	13	14	17.5	19	25	29	38	45
E	9.5	9.5	13	15	21	21	27	33	39
F	13.5 ^{+0.027} ₀	17 ^{+0.027} ₀	20 ^{+0.033} ₀	25 ^{+0.033} ₀	28 ^{+0.033} ₀	34 ^{+0.039} ₀	40 ^{+0.039} ₀	49 ^{+0.039} ₀	60 ^{+0.046} ₀
G	11 ^{+0.15} ₀	13.9 ^{+0.15} ₀	16.7 ^{+0.15} ₀	20.6 ^{+0.15} ₀	23 ^{+0.15} ₀	28 ^{+0.15} ₀	32.9 ^{+0.20} ₀	41.8 ^{+0.20} ₀	51.2 ^{+0.20} ₀
H	17.5	22.5	24	28	34	40	47	53	65
J	8	10	12	12	17	19	22	27	32
K	10	11	13	13	17	22	25	31	38
L	30	32	36.5	42	50	56.5	65	75	90
M	7	7.5	10	11	15	13	16	22	27
N	M4×0.7	M5×0.8	M6×1	M6×1	M8×1.25	M10×1.5	M12×1.75	M16×2	M20×2.5
P	18	28	33	38	42	47	52	56	65
Q	8	8	10	10	15	20	30	45	60
R	9.5	13	14	17.5	19	25	29	37.5	45
Chamfer	C1	C1	C1	C1	C1	C3	C4	C10	C16

Notes :

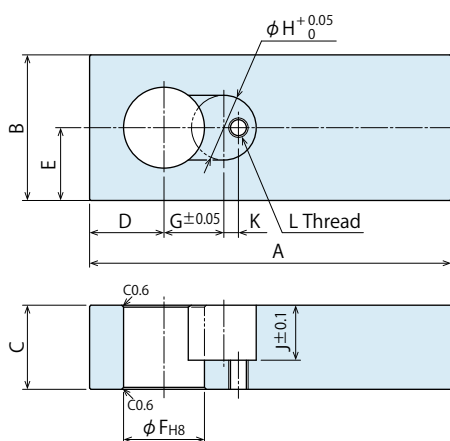
- Material : S45C Surface Finishing : Alkaline Blackening
- When determining the phase, refer to taper lock lever design dimensions for each model for the additional machining.

※1. Refer to Accessory of Quick Change Lever Option A for -A (Quick Change Lever Option A). Refer to Accessory of Quick Change Lever Option F for -F (Quick Change Lever Option F). For -P (Balance Lever Option), it should be designed by customer.

※2. The design number is 1 only for LZ048.

Accessories : Material Swing Lever for Quick Change Lever Option A

Model No. Indication

LZH 040 0 – A
Size
(Refer to the table.)Design No.
(Revision Number)

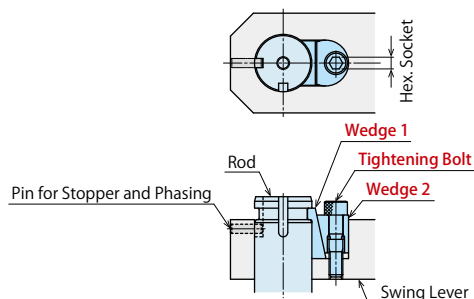
Model No.	LZH0300 -A	LZH0360 -A	LZH0400 -A	LZH0480 -A	LZH0550 -A	LZH0650 -A	LZH0750 -A	LZH0900 -A	LZH1050 -A
Corresponding Model No.	LG0301-A LT0301-A	LG0361-A LT0361-A	LG0401-A LT0401-A	LG0481-A LT0481-A	LG0551-A LT0551-A	LG0651-A LT0651-A	LG0751-A LT0751-A	LG0901-A	LG1051-A
A	90	120	145	160	170	175	185	220	270
B	21	26	32	40	45	50	58	75	90
C	14	17	19	23	26	29	35	43	50
D	10.5	13	16	20	23	25	29	38	45
E	10.5	13	16	20	22.5	25	29	37.5	45
F	12 ^{+0.027} ₀	15 ^{+0.027} ₀	18 ^{+0.027} ₀	22 ^{+0.033} ₀	25 ^{+0.033} ₀	30 ^{+0.033} ₀	35.5 ^{+0.039} ₀	45 ^{+0.039} ₀	55 ^{+0.046} ₀
G	10.75	12.5	15	16.5	18.5	20.5	25	31	33.5
H	10.5	12	15	18	20	24	28	36	46
J	9.5	11	13	15.5	17	19	21	28	33
K	1.25	2	2.5	4	4.5	6.5	6.5	9	14
L	M4×0.7	M4×0.7	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25	M10×1.5	M10×1.5

Notes :

- Material : S50CH Surface Finishing : Alkaline Blackening
- If necessary, the front end should be additionally machined and finished.
- The pin hole for stopper and lever phasing should be additionally machined by referring to Quick Change Lever Option A Design Dimensions.
- Tightening Kit (LZH□-W) for Quick Change Lever Option A is sold separately.

Accessories : Tightening Kit for Quick Change Lever Option A

Model No. Indication

LZH 040 1 – W
Size
(Refer to the table.)Design No.
(Revision Number)

Tightening Kit for mounting Quick Change Lever Option A.

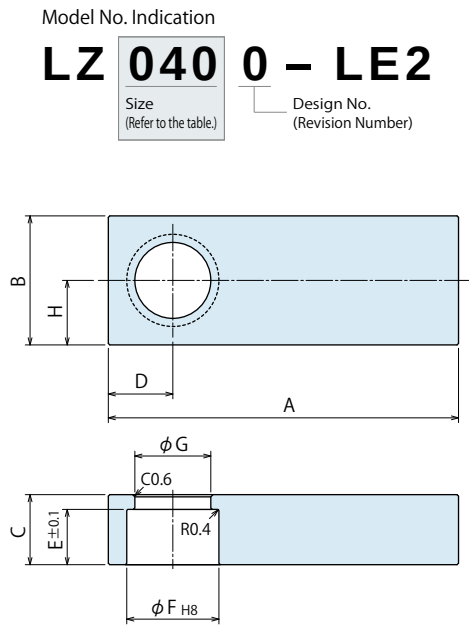
Sold separately from clamp body.

【Contents of Tightening Kit】

• Wedge 1 • Wedge 2 • Tightening Bolt

Model No.	LZH0301 -W	LZH0361 -W	LZH0401 -W	LZH0481 -W	LZH0551 -W	LZH0651 -W	LZH0751 -W	LZH0901 -W	LZH1051 -W
Corresponding Model No.	LG0301-A LT0301-A	LG0361-A LT0361-A	LG0401-A LT0401-A	LG0481-A LT0481-A	LG0551-A LT0551-A	LG0651-A LT0651-A	LG0751-A LT0751-A	LG0901-A	LG1051-A
Nominal×Pitch of Tightening Bolt	M4×0.7	M4×0.7	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25	M10×1.5	M10×1.5
Hex. Socket mm	2.5	2.5	3	3	4	4	5	6	6
Tightening Torque N·m	2.5	2.5	5.0	5.0	8.0	8.0	20	40	45

Accessories : Material Swing Lever for Taper Lock Option



Model No.	LZ0300 -LE2	LZ0360 -LE2	LZ0400 -LE2	LZ0481 ^{※4} -LE2	LZ0550 -LE2	LZ0650 -LE2	LZ0750 -LE2	LZ0900 -LE2	LZ1050 -LE2
Corresponding Model No. ^{※3}	LG0301 LT0301	LG0361 LT0361	LG0401 LT0401	LG0481 LT0481	LG0551 LT0551	LG0651 LT0651	LG0751 LT0751	LG0901	LG1051
A	79.5	85	90	95	100	120	125	180	250
B	19	26	28	35	38	50	58	75	90
C	12	12	16	19	25	25	32	38	45
D	9.5	13	14	17.5	19	25	29	38	45
E	9.5	9.5	13	15	21	21	27	33	39
F	13.5 ^{+0.027} ₀	17 ^{+0.027} ₀	20 ^{+0.033} ₀	25 ^{+0.033} ₀	28 ^{+0.033} ₀	34 ^{+0.039} ₀	40 ^{+0.039} ₀	49 ^{+0.039} ₀	60 ^{+0.046} ₀
G	11 ^{+0.15} ₀	13.9 ^{+0.15} ₀	16.7 ^{+0.15} ₀	20.6 ^{+0.15} ₀	23 ^{+0.15} ₀	28 ^{+0.15} ₀	32.9 ^{+0.20} ₀	41.8 ^{+0.20} ₀	51.2 ^{+0.20} ₀
H	9.5	13	14	17.5	19	25	29	37.5	45

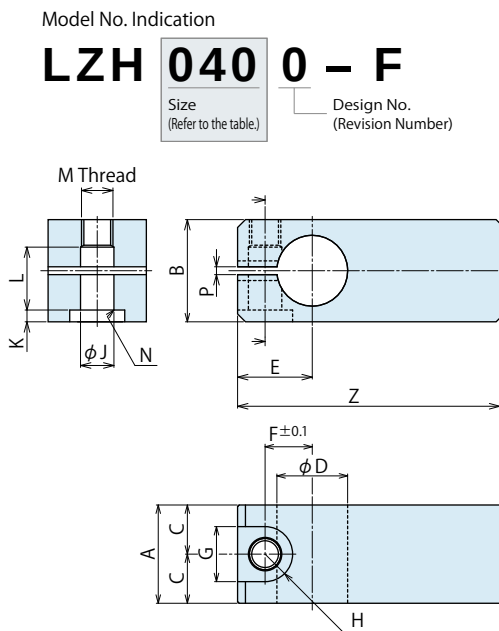
Notes :

1. Material : S45C Surface Finishing : Alkaline Blackening
2. If necessary, the front end should be additionally machined and finished.
3. When determining the phase, refer to taper lock lever design dimensions for each model for the additional machining.

※3. Refer to Accessory of Quick Change Lever Option A for -A (Quick Change Lever Option A). Refer to Accessory of Quick Change Lever Option F for -F (Quick Change Lever Option F). For -P (Balance Lever Option), it should be designed by customer.

※4. The design number is 1 only for LZ048.

Accessories : Material Swing Lever for Quick Change Lever Option F

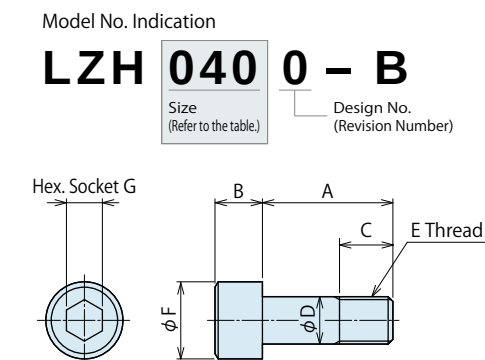


Model No.	LZH0300 -F	LZH0360 -F	LZH0400 -F	LZH0480 -F	LZH0550 -F	LZH0650 -F	LZH0750 -F	LZH0900 -F	LZH1050 -F
Corresponding Model No. ^{※1}	LG0301-F LT0301-F	LG0361-F LT0361-F	LG0401-F LT0401-F	LG0481-F LT0481-F	LG0551-F LT0551-F	LG0651-F LT0651-F	LG0751-F LT0751-F	LG0901-F	LG1051-F
A	16	22	25	30	34	40	46	55	60
B	19	22	26	32	36	45	53	70	82
C	8	11	12.5	15	17	20	23	27.5	30
D	12 ^{-0.016}	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	13	15	19	23	26.5	31.5	36.5	46	55
F	7.75	9.75	12	14.75	17	20	23.5	29.75	36
G	10	11	14	17.5	20	23	26	32	39
H	R5	R5.5	R7	R8.75	R10	R11.5	R13	R16	R19.5
J	5.5	6.5	8.5	10.5	12.5	14.5	16.5	21	25
K	1.5	2	3	4	4	5	7	9	11
L	11.5	13.5	16	18	22	26.5	31	42	46
M	M5×0.8	M6×1	M8×1	M10×1.25	M12×1.5	M14×1.5	M16×1.5	M20×2	M24×2
N	C0.4	C0.4	C0.6	C0.6	C1	C1	C1	C1	C1
P	2	2	2	2	2	2	2	2	2
Z	100	120	145	160	170	175	185	220	270

Notes :

1. Material : S50CH Surface Finishing : Alkaline Blackening
2. If necessary, the front end should be additionally machined and finished.
3. The pin hole for stopper and lever phasing should be additionally machined by referring to Quick Change Lever Option F Design Dimensions.
4. Tightening Bolt (LZH□-B) for Quick Change Lever Option F is sold separately.

Accessories : Tightening Bolts for Quick Change Lever Option F



Model No.	LZH0300 -B	LZH0360 -B	LZH0400 -B	LZH0480 -B	LZH0550 -B	LZH0650 -B	LZH0750 -B	LZH0900 -B	LZH1050 -B
Corresponding Model No. ^{※1}	LG0301-F LT0301-F	LG0361-F LT0361-F	LG0401-F LT0401-F	LG0481-F LT0481-F	LG0551-F LT0551-F	LG0651-F LT0651-F	LG0751-F LT0751-F	LG0901-F	LG1051-F
A	17.5	20	23	28	32	40	46	61	71
B	5	6	8	10	12	14	16	20	24
C	6.5	7	10	11	13	16	18	23	27
D	5	6	8	10	12	14	16	20	24
E	M5×0.8	M6×1	M8×1	M10×1.25	M12×1.5	M14×1.5	M16×1.5	M20×2	M24×2
F	8.5	10	13	16	18	21	24	30	36
G	4	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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing

Lift Cylinder
LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

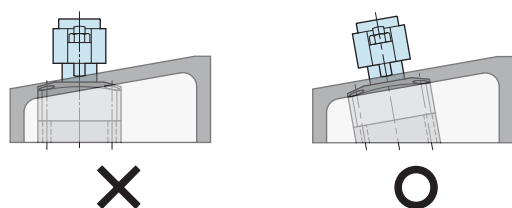
Customized Spring Cylinder

DWA/DWB

Cautions

Notes for Design

- Check Specifications
 - Please use each product according to the specifications.
- Notes for Circuit Design
 - Please read "Notes on Hydraulic Cylinder Speed Control Unit" for proper hydraulic circuit design. Improper circuit design may lead to malfunctions and damages. (Refer to P.1356)
 - Ensure there is no possibility of supplying hydraulic pressure to the lock port and the release port simultaneously.
- Swing lever should be designed to make the moment of inertia 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.
 - Set the allowable operation time after the moment of inertia is calculated. Refer to "Allowable Swing Time Graph" and make sure to operate clamps within the allowable operation time.
- Protect the exposed area of the piston rod when using on a welding fixture.
 - If spatter attaches to the sliding surface it could lead to malfunction and fluid leakage.
- When clamping on a sloped surface of the workpiece
 - Make sure the clamping surface and the mounting surface of the clamp are parallel.

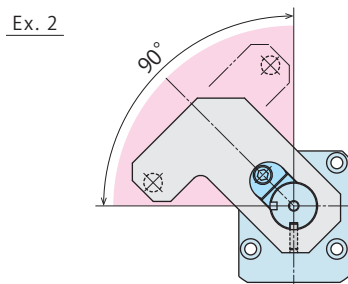
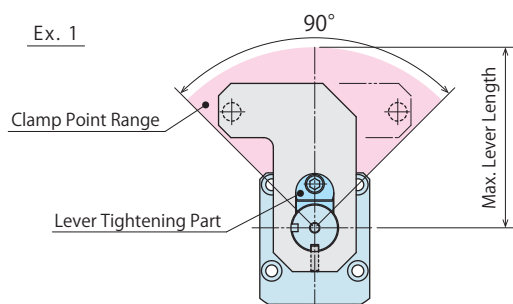


Notes for LHA-M/N, LHW

- 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.457.
 - Swing clamp with air sensing valve LHW : Refer to P.503.

When using an offset lever for Quick Change Lever Option A.

- Clamping point should be in the range of 90° towards lever tightening part.



Installation Notes

- Check the Usable Fluid
 - Please use the appropriate fluid by referring to the Hydraulic Fluid List (P.1355).
- Installation of the Product
 - When mounting the clamp, use hexagonal socket bolts as multiple bolt holes for mounting (with tensile strength of 12.9) and tighten them with the torque shown in the table below. Tightening with greater torque than recommended can dent the seating surface or break the bolt.

	Model No.	Thread Size	Tightening Torque (N·m)
LHA LHC LHS LHW	LHA0360 / LHC0360 LHS0360	M4×0.7	4.0
	LHA0400 / LHC0400 LHS0400 / LHW0401	M5×0.8	8.0
	LHA0480 / LHC0480 LHS0480 / LHW0481	M5×0.8	8.0
	LHA0550 / LHC0550 LHS0550 / LHW0551	M6×1	14
	LHA0650 / LHC0650 LHS0650 / LHW0651	M6×1	14
	LHA0750 LHS0750 / LHW0751	M8×1.25	33
	LHA0900 LHS0900	M10×1.5	65
	LHA1050 LHS1050	M12×1.75	114
	LG0301 / LT0301	M4×0.7	3.2
	LG0361 / LT0361	M4×0.7	3.2
LG LT	LG0401 / LT0401	M5×0.8	6.3
	LG0481 / LT0481	M5×0.8	6.3
	LG0551 / LT0551	M6×1	10
	LG0651 / LT0651	M6×1	10
	LG0751 / LT0751	M8×1.25	25
	LG0901	M10×1.5	58.8
	LG1051	M12×1.75	98
	TLA0401-2 / TLB0401-2 TLA0402-1	M5×0.8	6.9
	TLA0601-2 / TLB0601-2 TLA0602-1	M6×1	11.8
	TLA0801-2 / TLB0801-2 TLA0802-1	M6×1	11.8
TLA-2 TLB-2 TLA-1	TLA1001-2 / TLB1001-2 TLA1002-1	M8×1.25	25
	TLA1601-2 / TLB1601-2 TLA1602-1	M8×1.25	25
	TLA2001-2 / TLB2001-2 TLA2002-1	M10×1.5	58.8
	TLA2501-2 / TLB2501-2 TLA2502-1	M10×1.5	58.8
	TLA4001-2 / TLB4001-2 TLA4002-1	M12×1.75	98

3) Installation / Removal of the Swing Lever

- Oil or debris on the tightened parts of the lever, taper sleeve or piston rod may cause the rod to loosen. Please clean them thoroughly before installation.
- Tighten the tightening bolt of swing lever with the torque shown below. Tightening with greater torque than recommended can damage the bolt and lever tightening function.

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

	Model No.	Thread Size	Tightening Torque (N·m)
LHA LHC LHS LHW	LHA0360 / LHC0360 LHS0360	M14×1.5	21 ~ 25
	LHA0400 / LHC0400 LHS0400 / LHW0401	M16×1.5	33 ~ 40
	LHA0480 / LHC0480 LHS0480 / LHW0481	M20×1.5	54 ~ 65
	LHA0550 / LHC0550 LHS0550 / LHW0551	M22×1.5	84 ~ 100
	LHA0650 / LHC0650 LHS0650 / LHW0651	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
	LG0301 / LT0301	M8×1	8 ~ 10
	LG0361 / LT0361	M10×1	15 ~ 18
LG LT	LG0401 / LT0401	M12×1.5	24 ~ 29
	LG0481 / LT0481	M16×1.5	37 ~ 45
	LG0551 / LT0551	M18×1.5	59 ~ 71
	LG0651 / LT0651	M22×1.5	93 ~ 112
	LG0751 / LT0751	M28×1.5	147 ~ 177
	LG0901	M36×1.5	235 ~ 282
	LG1051	M45×1.5	300 ~ 360

LHA-F/LHS-F/LG-F/LT-F : Quick Change Lever Option F,

TLA-2/TLB-2/TLA-1 : Standard

	Model No.	Thread Size	Tightening Torque (N·m)
LHA-F LHS-F LG-F LT-F	LG0301-F / LT0301-F	M5×0.8	7.5
	LHA0360-F / LHS0360-F LG0361-F / LT0361-F	M6×1	14
	LHA0400-F / LHS0400-F LG0401-F / LT0401-F	M8×1	33
	LHA0480-F / LHS0480-F LG0481-F / LT0481-F	M10×1.25	65
	LHA0550-F / LHS0550-F LG0551-F / LT0551-F	M12×1.5	100 ~ 114
	LHA0650-F / LHS0650-F LG0651-F / LT0651-F	M14×1.5	160 ~ 180
	LHA0750-F / LHS0750-F LG0751-F / LT0751-F	M16×1.5	250 ~ 280
	LHA0900-F / LHS0900-F LG0901-F	M20×2	500 ~ 540
	LHA1050-F / LHS1050-F LG1051-F	M24×2	760 ~ 810
	TLA0401-2 / TLB0401-2 TLA0402-1	M6×1	13
TLA-2 TLB-2 TLA-1	TLA0601-2 / TLB0601-2 TLA0602-1	M8×1	32
	TLA0801-2 / TLB0801-2 TLA0802-1	M8×1	32
	TLA1001-2 / TLB1001-2 TLA1002-1	M10×1.25	63
	TLA1601-2 / TLB1601-2 TLA1602-1	M12×1.5	100
	TLA2001-2 / TLB2001-2 TLA2002-1	M14×1.5	160
	TLA2501-2 / TLB2501-2 TLA2502-1	M16×1.5	250
	TLA4001-2 / TLB4001-2 TLA4002-1	M20×2	500

LHA-A/LHC-A/LHS-A/LHW-A/LG-A/LT-A : Quick Change Lever Option A

	Model No.	Thread Size	Tightening Torque (N·m)
LHA-A LHC-A LHS-A LHW-A LG-A LT-A	LG0301-A / LT0301-A	M4×0.7	2.5
	LHA0360-A / LHC0360-A LHS0360-A LG0361-A / LT0361-A	M4×0.7	2.5
	LHA0400-A / LHC0400-A LHS0400-A / LHW0401-A LG0401-A / LT0401-A	M5×0.8	5.0
	LHA0480-A / LHC0480-A LHS0480-A / LHW0481-A LG0481-A / LT0481-A	M5×0.8	5.0
	LHA0550-A / LHC0550-A LHS0550-A / LHW0551-A LG0551-A / LT0551-A	M6×1	8.0
	LHA0650-A / LHC0650-A LHS0650-A / LHW0651-A LG0651-A / LT0651-A	M6×1	8.0
	LHA0750-A LHS0750-A / LHW0751-A LG0751-A / LT0751-A	M8×1.25	20
	LHA0900-A LHS0900-A LG0901-A	M10×1.5	40
	LHA1050-A LHS1050-A LG1051-A	M10×1.5	45

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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TCAir Sensing
Lift Cylinder

LLW

Linear Cylinder /
Compact CylinderLL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion
Locating PinVFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQCustomized
Spring Cylinder

DWA/DWB

Cautions

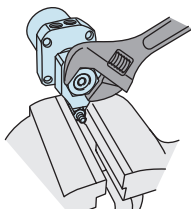
Installation Notes

In case of Taper Lock Lever

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.

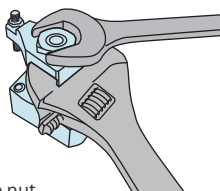
Installation Procedure

- ① With a clamp positioned to a jig, determine the lever position, and tighten the nut for fixing the lever (temporal tightening).



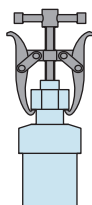
- ② Remove the clamp from the jig, fix the lever with a machine vise etc., and tighten the nut.

- ③ If tightening the nut with the clamp positioned to the jig, use a wrench to the hexagon part of piston rod, or fix the lever with a spanner. It is best to bring the lever to the middle of the swing stroke before tightening the nut.



Removal Procedure

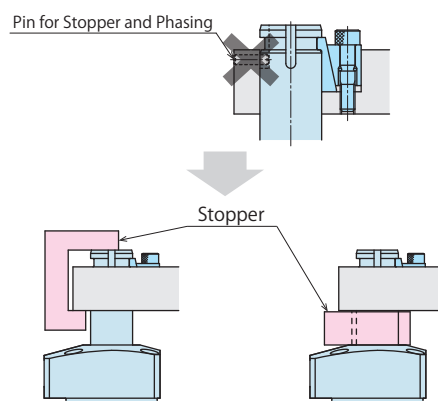
- ① While the clamp is on the jig or vise, use a hex wrench to bring the lever to the middle of the swing stroke and then loosen the nut.
- ② Loosen the nut after securing the lever two or three turns then remove the lever with a puller without any rotational torque applied on the piston rod.



In case of Quick Change Lever Option A

A pin for stopper and phasing (prepared by customer) is used for phasing when mounting the lever and as a stopper when removing the lever. If you are not using the pin for stopper and phasing, a stopper is required to remove the lever.

Stopper example for lever removal when not using the pin for stopper and phasing.

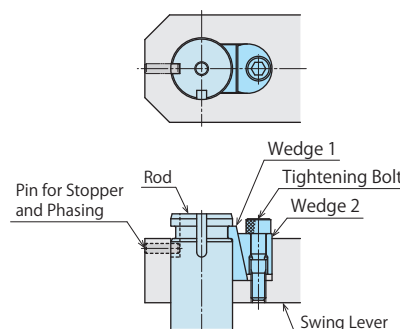


Installation Procedure

- ① Install in order of swing lever, wedge 1, wedge 2 to the rod.
- ② Pull the lever towards the wedge side and tighten the tightening bolt with the specified torque.

Removal Procedure

- ① By loosening the tightening bolt, the wedges are released and the lever can be removed.



4) Swing Speed Adjustment

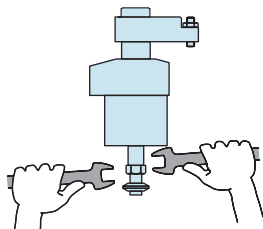
- Adjust the speed following "Allowable Swing Time Graph".
If the clamp operates too fast the parts will be worn out leading to premature damage and ultimately complete equipment failure.
- Please make sure to release air from the circuit before adjusting speed. It will be difficult to adjust the speed 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 product 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. Tightening torque of mounting screw is 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

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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TCAir Sensing
Lift Cylinder

LLW

Linear Cylinder /
Compact CylinderLL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion
Locating PinVFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQCustomized
Spring Cylinder

DWA/DWB

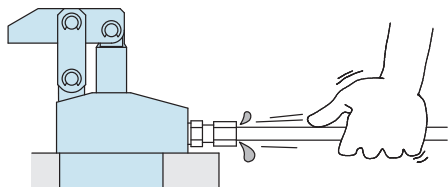
※ Please refer to P.1355 for common cautions.

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

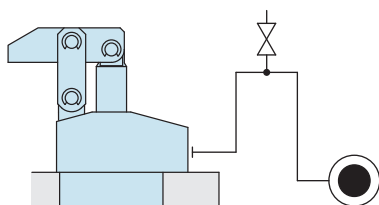
Cautions

● 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.
 - Please implement piping construction in a clear environment to prevent anything getting in products.
- 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 Shake 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 release 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

ISO Viscosity Grade ISO-VG-32		
Maker	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 : Please contact manufacturers when customers require products in the list above.

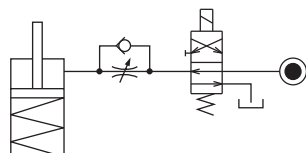
Notes on Hydraulic Cylinder Speed Control Unit



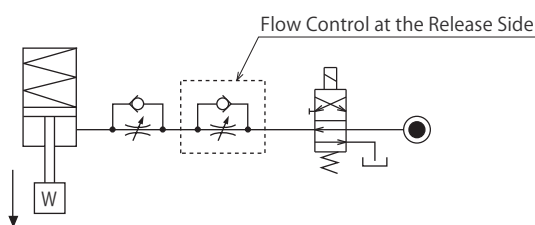
Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

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

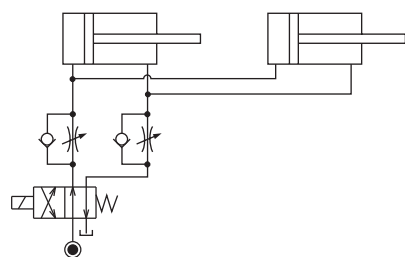
Flow control circuit for double acting cylinder should have meter-out circuits for both the lock and release sides. Meter-in control can have adverse effect by presence of air in the system.

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

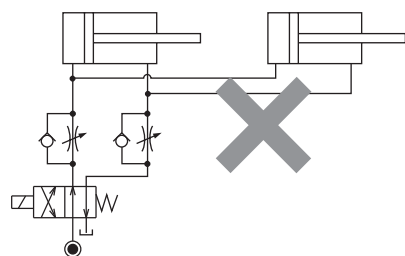
Refer to P.75 for speed adjustment of LKE.

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)

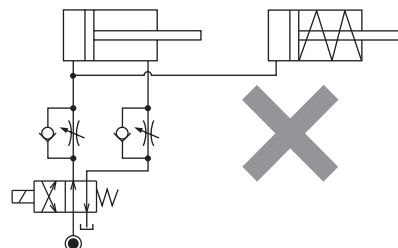


【Meter-in Circuit】(LKE/TMA/TLA must be controlled with meter-in.)



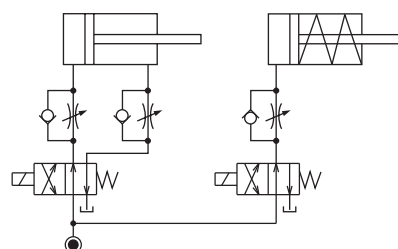
In the case of meter-out circuit, the hydraulic circuit should be designed with the following points.

- 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.

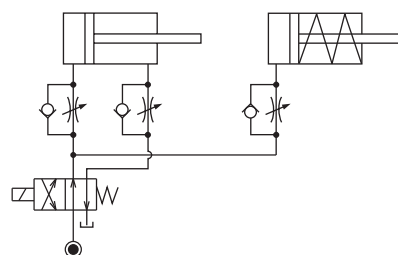


Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together.

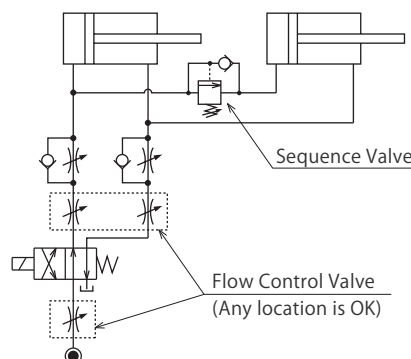
- Separate the control circuit.



- 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.



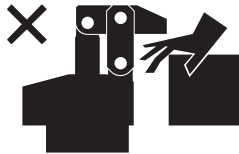
- ② In the case of meter-out circuit, the inner circuit pressure may increase during the cylinder action because of the fluid supply. The increase of the inner circuit pressure can be prevented by reducing the supplied fluid beforehand via the flow control valve. Especially when using sequence valve 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.



● Cautions

● Notes on Handling

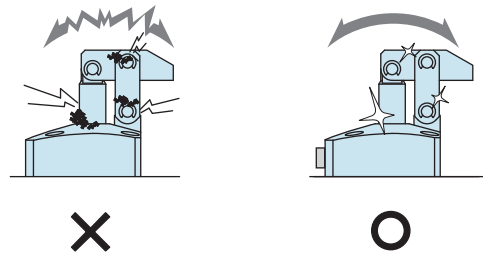
- 1) It should be operated by qualified personnel.
- The hydraulic machine and air compressor should be operated and maintained by qualified personnel.
- 2) Do not operate or remove the product unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared when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



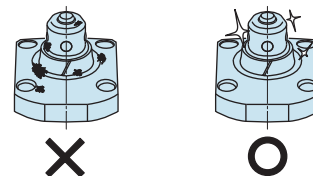
- 4) Do not disassemble or modify.
- If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

● Maintenance and Inspection

- 1) Removal of the Machine and Shut-off of Pressure Source
 - Before the machine is removed, make sure that safety devices and preventive devices are in place. Shut off the pressure and power source, and make sure no pressure exists in the air and hydraulic circuits.
 - 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 and fluid leakage.



- 3) Please clean out the reference surfaces on a regular basis (taper reference surface and seating surface) of the locating products. (VS/VT/VFL/VFM/VFJ/VFK/WVS/VWM/VWK/VX/VXE/VXF)
 - The locating products, except VX/VXE/VXF model, can remove contaminants with cleaning functions. However, hardened cutting chips, adhesive coolant and others may not be removed. Make sure there are no contaminants before installing a workpiece/pallet.
 - Continuous use with contaminant on components will lead to locating accuracy failure, malfunction and fluid leakage.



- 4) If disconnecting by couplers, air bleeding should be carried out on a regular basis to avoid air mixed in the circuit.
- 5) Regularly tighten nut, bolt, pin, cylinder, pipe line and others to ensure proper use.
- 6) Make sure the hydraulic fluid has not deteriorated.
- 7) Make sure there is a smooth action without an irregular 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](#)[Maintenance/
Inspection](#)[Warranty](#)**Company Profile**[Company Profile](#)[Our Products](#)[History](#)**Index**[Search by](#)[Alphabetical Order](#)**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 operated in an 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

Model BZS

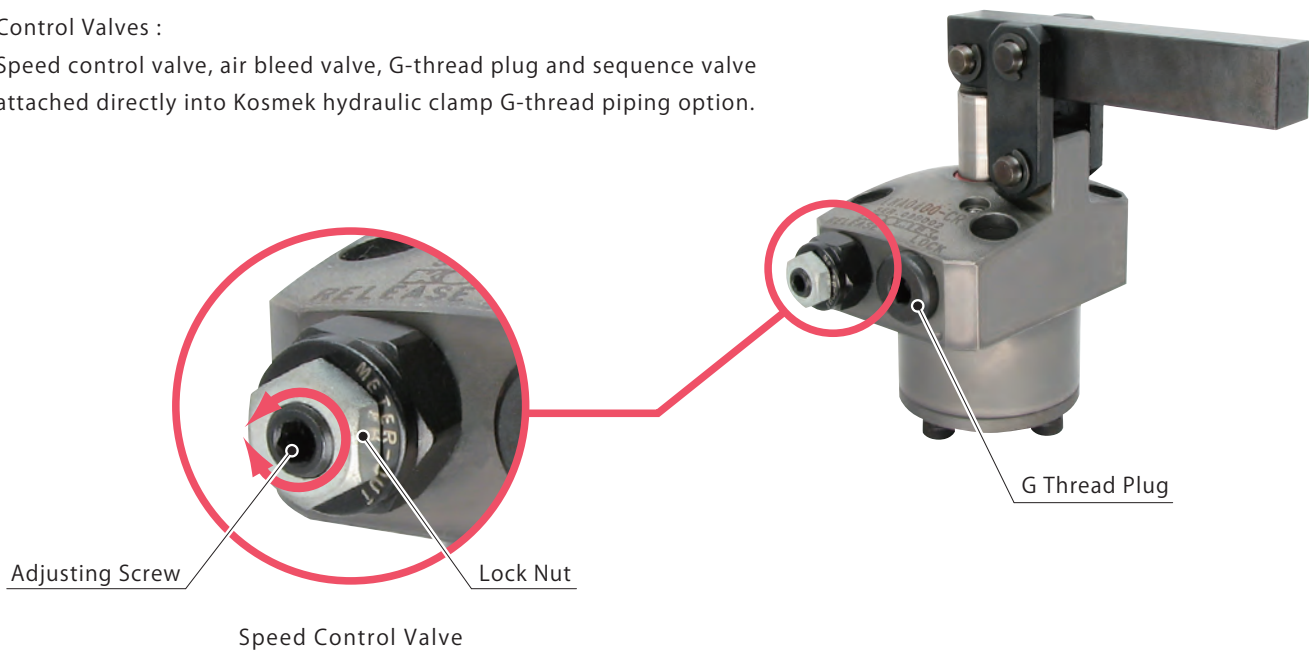


Directly-Attached Speed Control Valve, Air Bleed Valve, G-Thread Plug and Sequence Valve

• Directly Attached to Clamps

Control Valves :

Speed control valve, air bleed valve, G-thread plug and sequence valve attached directly into Kosmek hydraulic clamp G-thread piping option.



Speed Control Valve

Model BZL
Model BZT



Air Bleed Valve

Model BZX



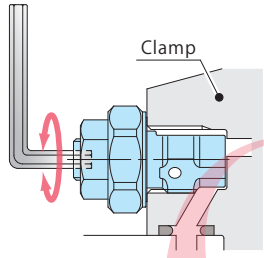
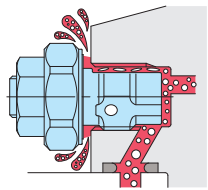
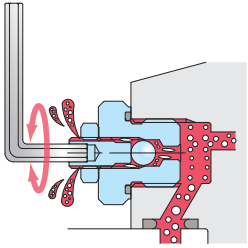
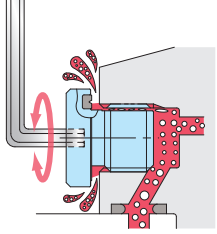
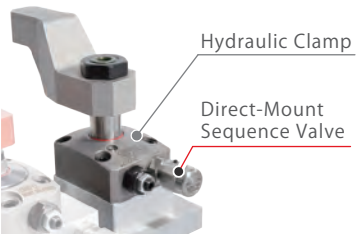
G Thread Plug

Model JZG



Direct-Mount Sequence Valve

Model BZS

	Operating Pressure Range	Action Description
Speed Control Valve (For Low Pressure) Model BZL → P.949	7MPa or less	Adjust the flow rate with a wrench. Able to adjust the clamping speed individually. 
Speed Control Valve (For High Pressure) Model BZT → P.953	35MPa or less	Air bleeding in the circuit is possible by loosening the speed control valve. 
Air Bleed Valve Model BZX → P.955	25MPa or less	Air bleeding in the circuit is possible by wrench. 
G Thread Plug Model JZG → P.957	35MPa or less	Air bleeding in the circuit is possible by loosening the G thread plug. 
Direct-Mount Sequence Valve Model BZS → P.959	7MPa or less	Sequence Valve directly attaches to KOSMEK hydraulic clamp's G-thread piping option. Controls the operating sequence of each actuator. 

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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

Customized Spring Cylinder

DWA/DWB

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

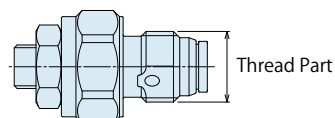
BZL 0 10 1 - B

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

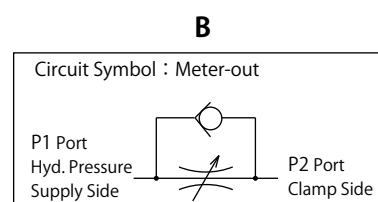
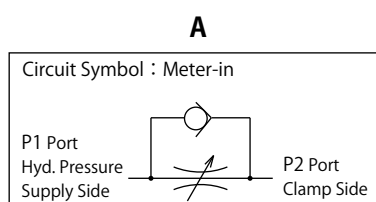


2 Design No.

- 1** : Revision Number

3 Control Method

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



Specifications

Model No.	BZL0101-A	BZL0201-A	BZL0301-A	BZL0101-B	BZL0201-B	BZL0301-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
Weight g	12	26	48	12	26	48

- Notes : 1. 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.
2. Do not attach a 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 (Double Action) Block Cylinder	DBC (Double Action) Block Cylinder	FVA (Double Action) Centering Vise	FVC (Double Action) Centering Vise	FVD (Double Action) Centering Vise	LC (Single Action) Work Support	LCW (Single Action) Work Support
BZL0101-A	(DBA0250-C□) (DBA0320-C□)	(DBC0250-C□) (DBC0320-C□)	(FVA0401) (FVA0631) (FVA1001)	(FVC0630)	(FVD1600) (FVD2500)	LC0263-C□-□ LC0303-C□□-□ LC0363-C□□-□ LC0403-C□□-□ LC0483-C□□-□ LC0553-C□□-□ LC0653-C□□-□	LCW0363-C□ LCW0403-C□ LCW0483-C□ LCW0553-C□ LCW0653-C□
BZL0101-B	DBA0250-C□ DBA0320-C□	DBC0250-C□ DBC0320-C□	FVA0401 FVA0631 FVA1001	FVC0630	FVD1600 FVD2500		
BZL0201-A	(DBA0400-C□) (DBA0500-C□)	(DBC0400-C□) (DBC0500-C□)		(FVC1000) (FVC1600)	(FVD4000)	LC0753-C□□-□ LC0903-C□□-□	
BZL0201-B	DBA0400-C□ DBA0500-C□	DBC0400-C□ DBC0500-C□		FVC1000 FVC1600	FVD4000		

Applicable Products

Model No.	LHA (Double Action) Swing Clamp	LHC (Double Action) Swing Clamp	LHD (Double Action) Swing Clamp	LHE (Double Action) High-Power Swing Clamp	LHS (Double Action) Swing Clamp	LHV (Double Action) Swing Clamp	LHW (Double Action) Swing Clamp	LT (Single Action) Swing Clamp	LG (Single Action) Swing Clamp
BZL0101-A	(LHA0360-C□□□)	(LHC0360-C□□□)	(LHD0400-C□□□)		(LHS0360-C□□□)	(LHV0400-C□□□)	(LHW0401-C□□□)	LT0301-C□□□	LG0301-C□□□
	(LHA0400-C□□□)	(LHC0400-C□□□)	(LHD0480-C□□□)		(LHS0400-C□□□)	(LHV0480-C□□□)	(LHW0481-C□□□)	LT0361-C□□□	LG0361-C□□□
	(LHA0480-C□□□)	(LHC0480-C□□□)	(LHD0550-C□□□)		(LHS0480-C□□□)	(LHV0550-C□□□)	(LHW0551-C□□□)	LT0401-C□□□	LG0401-C□□□
	(LHA0550-C□□□)	(LHC0550-C□□□)			(LHS0550-C□□□)			LT0481-C□□□	LG0481-C□□□
BZL0101-B	LHA0360-C□□□	LHC0360-C□□□	LHD0400-C□□□	LHE0300-C□	LHS0360-C□□□	LHV0400-C□□□	LHW0401-C□□□		
	LHA0400-C□□□	LHC0400-C□□□	LHD0480-C□□□	LHE0360-C□	LHS0400-C□□□	LHV0480-C□□□	LHW0481-C□□□		
	LHA0480-C□□□	LHC0480-C□□□	LHD0550-C□□□	LHE0400-C□	LHS0480-C□□□	LHV0550-C□□□	LHW0551-C□□□		
	LHA0550-C□□□	LHC0550-C□□□		LHE0480-C□	LHS0550-C□□□				
BZL0201-A	(LHA0650-C□□□)	(LHC0650-C□□□)			(LHS0650-C□□□)	(LHV0650-C□□□)	(LHW0651-C□□□)	LT0651-C□□□	LG0651-C□□□
	(LHA0750-C□□□)				(LHS0750-C□□□)	(LHV0750-C□□□)	(LHW0751-C□□□)	LT0751-C□□□	LG0751-C□□□
BZL0201-B	LHA0650-C□□□	LHC0650-C□□□			LHS0650-C□□□	LHV0650-C□□□	LHW0651-C□□□		
	LHA0750-C□□□				LHS0750-C□□□	LHV0750-C□□□	LHW0751-C□□□		
BZL0301-A	(LHA0900-C□□□)				(LHS0900-C□□□)				LG0901-C□□□
	(LHA1050-C□□□)				(LHS1050-C□□□)				LG1051-C□□□
BZL0301-B	LHA0900-C□□□				LHS0900-C□□□				
	LHA1050-C□□□				LHS1050-C□□□				

Model No.	LGV (Single Action) Swing Clamp	LKA (Double Action) Link Clamp	LKC (Double Action) Link Clamp	LKE (Double Action) High-Power Link Clamp	LKK (Double Action) Universal Clamp	LKV (Double Action) Link Clamp	LKW (Double Action) Link Clamp	LM (Single Action) Link Clamp	LJ (Single Action) Link Clamp
BZL0101-A	LGV0400-C□□□	(LKA0360-C□□□)	(LKC0400-C□□□)	LKE0300-C□	(LKK0360-C□□)	(LKV0400-C□□□)	(LKW0401-C□□□)	LM0300-C□	LJ0302-C□
	LGV0480-C□□□	(LKA0400-C□□□)	(LKC0480-C□□□)	LKE0360-C□	(LKK0400-C□□)	(LKV0480-C□□□)	(LKW0481-C□□□)	LM0360-C□	LJ0362-C□
	LGV0550-C□□□	(LKA0480-C□□□)	(LKC0550-C□□□)	LKE0400-C□	(LKK0480-C□□)	(LKV0550-C□□□)	(LKW0551-C□□□)	LM0400-C□	LJ0402-C□
		(LKA0550-C□□□)		LKE0480-C□	(LKK0550-C□□)			LM0480-C□	LJ0482-C□
BZL0101-B		LKA0360-C□□□	LKC0400-C□□□		LKK0360-C□	LKV0400-C□□□	LKW0401-C□□□		
		LKA0400-C□□□	LKC0480-C□□□		LKK0400-C□	LKV0480-C□□□	LKW0481-C□□□		
		LKA0480-C□□□	LKC0550-C□□□		LKK0480-C□	LKV0550-C□□□	LKW0551-C□□□		
		LKA0550-C□□□			LKK0550-C□				
BZL0201-A	LGV0650-C□□□	(LKA0650-C□□□)	(LKC0650-C□□□)		(LKK0650-C□□)	(LKV0650-C□□□)	(LKW0651-C□□□)	LM0650-C□	LJ0652-C□
	LGV0750-C□□□	(LKA0750-C□□□)			(LKK0750-C□□)	(LKV0750-C□□□)	(LKW0751-C□□□)	LM0750-C□	LJ0752-C□
BZL0201-B		LKA0650-C□□□	LKC0650-C□□□		LKK0650-C□	LKV0650-C□□□	LKW0651-C□□□		
		LKA0750-C□□□				LKV0750-C□□□	LKW0751-C□□□		
BZL0301-A		(LKA0900-C□□□)							LJ0902-C□
		(LKA1050-C□□□)							LJ1052-C□
BZL0301-B		LKA0900-C□□□							
		LKA1050-C□□□							

Model No.	LJV (Single Action) Link Clamp	LFW (Double Action) Link Clamp	LFA (Double Action) Link Clamp	LSA (Double Action) Side Clamp	LSE (Double Action) High-Power Side Clamp	LL (Double Action) Linear Cylinder	LLR (Double Action) Linear Cylinder	LLV (Double Action) Lift Cylinder	LLW (Double Action) Lift Cylinder
BZL0101-A	LJV0400-C□□□	(LFW0480-C□□)	(LFA0480-C□□)	(LSA0360-C□)	LSE0360-C□	(LL0360-C□□□)	(LLR0360-C□□□)	(LLV0360-C□□□)	(LLW0361-C□□□)
	LJV0480-C□□□	(LFW0550-C□□)	(LFA0550-C□□)			(LL0400-C□□□)	(LLR0400-C□□□)	(LLV0400-C□□□)	(LLW0401-C□□□)
	LJV0550-C□□□					(LL0480-C□□□)	(LLR0480-C□□□)	(LLV0480-C□□□)	(LLW0481-C□□□)
						(LL0550-C□□□)	(LLR0550-C□□□)		
BZL0101-B		LFW0480-C□□	LFA0480-C□□	LSA0360-C□		LL0360-C□□□	LLR0360-C□□□	LLV0360-C□□□	LLW0361-C□□□
		LFW0550-C□□	LFA0550-C□□			LL0400-C□□□	LLR0400-C□□□	LLV0400-C□□□	LLW0401-C□□□
						LL0480-C□□□	LLR0480-C□□□	LLV0480-C□□□	LLW0481-C□□□
						LL0550-C□□□	LLR0550-C□□□		
BZL0201-A	LJV0650-C□□□	(LFW0650-C□□)	(LFA0650-C□□)			(LL0650-C□□□)	(LLR0650-C□□□)		
	LJV0750-C□□□	(LFW0750-C□□)	(LFA0750-C□□)			(LL0750-C□□□)	(LLR0750-C□□□)		
BZL0201-B		LFW0650-C□□	LFA0650-C□□			LL0650-C□□□	LLR0650-C□□□		
		LFW0750-C□□	LFA0750-C□□			LL0750-C□□□	LLR0750-C□□□		
BZL0301-A						(LL0900-C□□□)	(LLR0900-C□□□)		
						(LL1050-C□□□)	(LLR1050-C□□□)		
BZL0301-B						LL0900-C□□□	LLR0900-C□□□		
						LL1050-C□□□	LLR1050-C□□□		

Note : 1. Flow control circuit for double acting cylinder should have meter-out circuits for both the lock and release sides (except model LKE/LSE). Meter-in circuits 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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

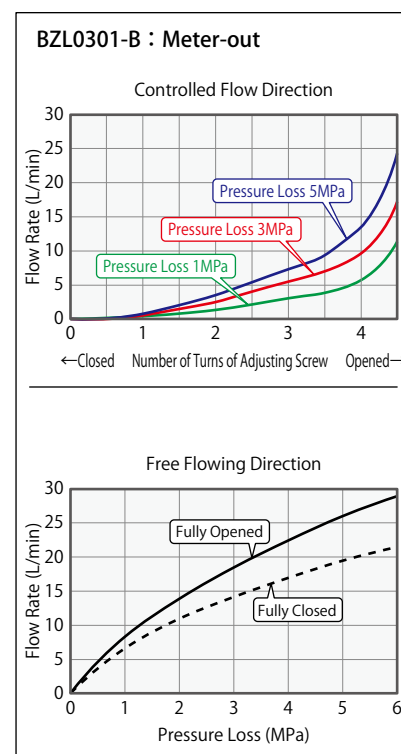
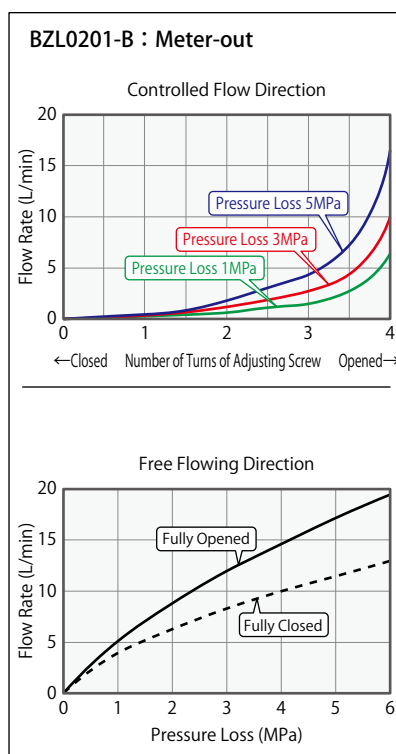
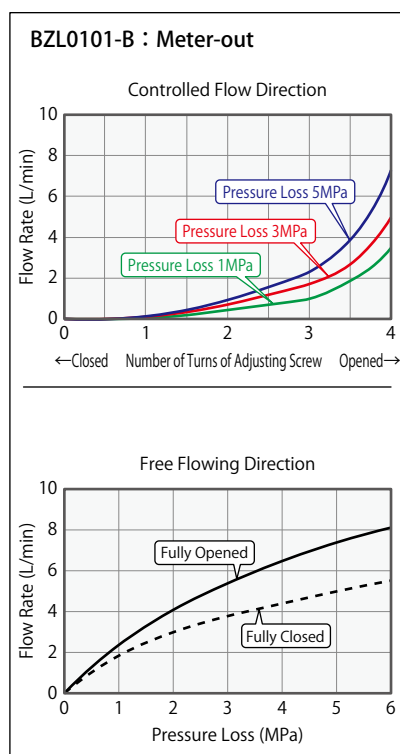
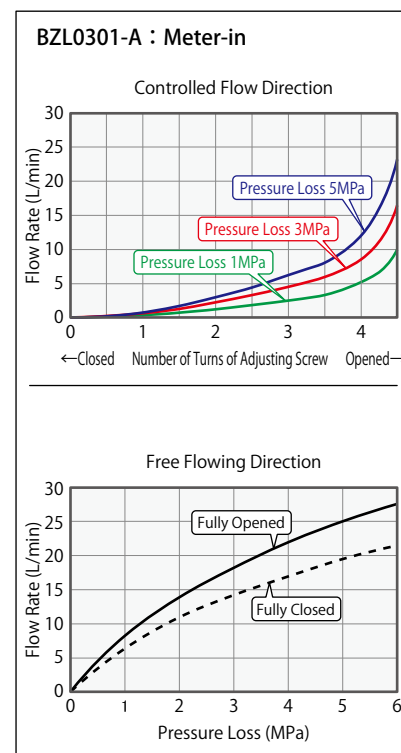
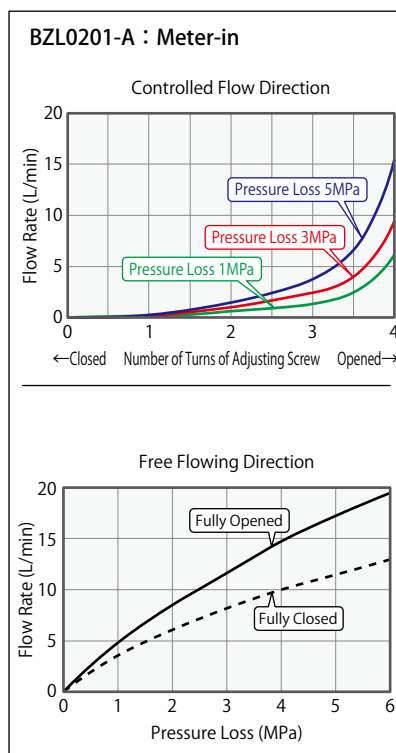
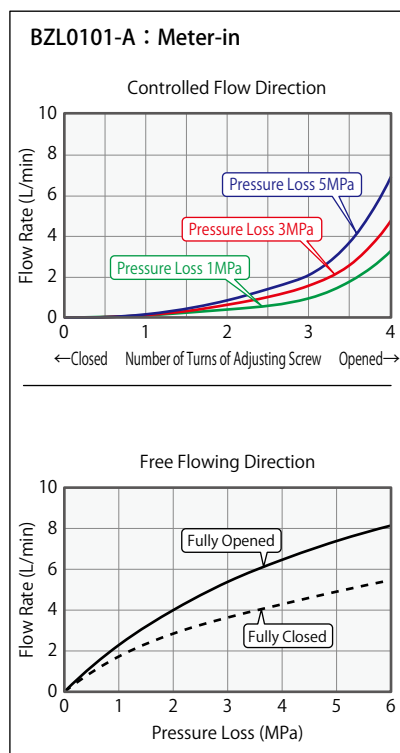
Pull Stud Clamp

FP
FQ

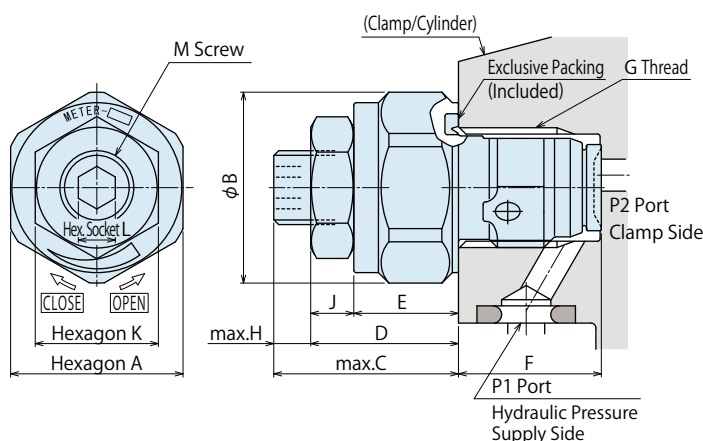
Customized Spring Cylinder

DWA/DWB

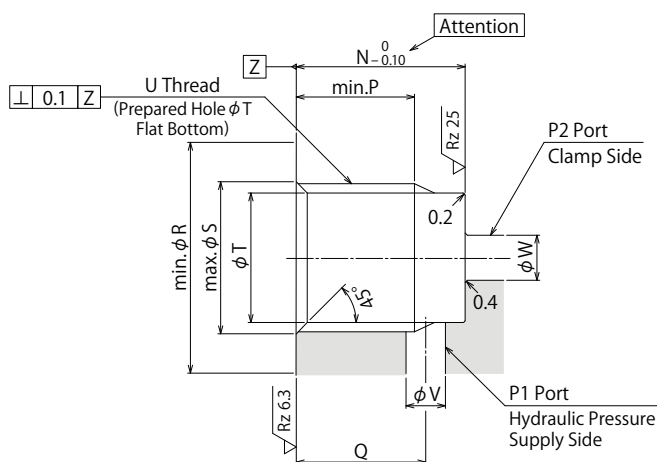
● Flow Rate Graph < Hydraulic Fluids ISO-VG32 (25~35°C) >



External Dimensions



Machining Dimensions of Mounting Area



Notes :

1. Since the $\sqrt{Rz 6.3}$ area is sealing part, be careful not to damage it.
2. Since the $\sqrt{Rz 12.5}$ area is the metal sealing part of BZL, be careful not to damage it. (Especially when deburring)
3. No cutting chips or burr should be at the tolerance part of machining hole.
4. As shown in the drawing, P1 port is used as the hydraulic supply side and P2 port as the clamp side.
5. If mounting plugs or fittings with G thread specification available in the market, the dimension '※1' should be 12.5.

Notes

1. Please read "Notes on Hydraulic Cylinder Speed Control Unit" for proper hydraulic circuit design.
Improper circuit design may lead to malfunctions and damages. (Refer to P.1356)
2. It is dangerous to release the air 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.	BZL0101-□	BZL0201-□	BZL0301-□
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 (Nominal×Pitch)	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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

Customized Spring Cylinder

DWA/DWB

Model No. Indication (Air Bleed Valve)

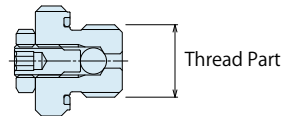
BZX0 **1** **0**

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.

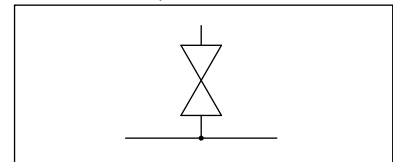
- 0** : Revision Number

Specifications

Model No.	BZX010	BZX020	BZX030
Max. Operating Pressure MPa	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
Weight g	12	23	36

- Notes :
- Do not over-loosen the plug during air venting.
(Do not loosen further than 2 turns from the fully closed position.)
 - Air bleeding under high pressure is dangerous. It must be done under lower pressure.
(For reference : the minimum operation pressure range of the product within the circuit)
 - Refer to the machining dimensions of BZL mounting area when installing BZX into a hydraulic circuit.

Circuit Symbol



Applicable Products

Model No.	DBA (Double Action) Block Cylinder	DBC (Double Action) Block Cylinder	FVA (Double Action) Centering Vise	FVC (Double Action) Centering Vise	FVD (Double Action) Centering Vise	LC (Single Action) Work Support	LCW (Single Action) Work Support	TC (Single Action) Work Support
BZX010	DBA0250-C□	DBC0250-C□	FVA0401	FVC0630	FVD1600	LC0263-C□-□	LCW0363-C□	TC0403-C□-□-□
	DBA0320-C□	DBC0320-C□	FVA0631		FVD2500	LC0303-C□□-□	LCW0403-C□	TC0483-C□-□-□
			FVA1001			LC0363-C□□-□	LCW0483-C□	TC0553-C□-□-□
						LC0403-C□□-□	LCW0553-C□	TC0653-C□-□-□
						LC0483-C□□-□	LCW0653-C□	TC0753-C□-□-□
						LC0553-C□□-□		
						LC0653-C□□-□		
BZX020	DBA0400-C□	DBC0400-C□		FVC1000	FVD4000	LC0753-C□□-□		
	DBA0500-C□	DBC0500-C□		FVC1600		LC0903-C□□-□		

● Applicable Products

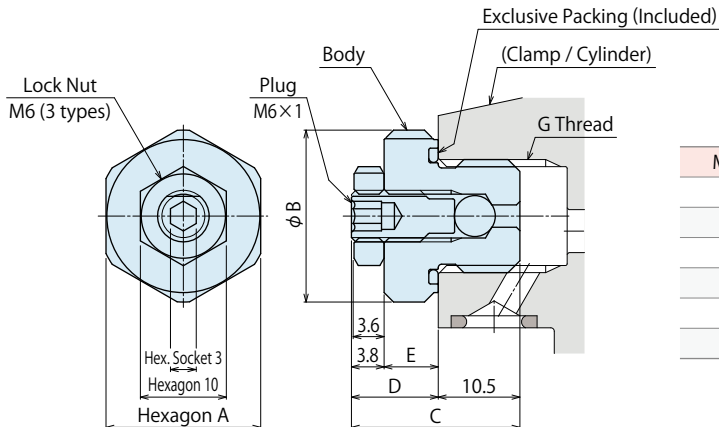
Model No.	LHA (Double Action) Swing Clamp	LHC (Double Action) Swing Clamp	LHD (Double Action) Swing Clamp	LHE (Double Action) High-Power Swing Clamp	LHS (Double Action) Swing Clamp	LHV (Double Action) Swing Clamp	LHW (Double Action) Swing Clamp	LT (Single Action) Swing Clamp	LG (Single Action) Swing Clamp
BZX010	LHA0360-C□□□	LHC0360-C□□□	LHD0400-C□□□	LHE0300-C□	LHS0360-C□□□	LHV0400-C□□□	LHW0401-C□□□	LT0301-C□□□	LG0301-C□□□
	LHA0400-C□□□	LHC0400-C□□□	LHD0480-C□□□	LHE0360-C□	LHS0400-C□□□	LHV0480-C□□□	LHW0481-C□□□	LT0361-C□□□	LG0361-C□□□
	LHA0480-C□□□	LHC0480-C□□□	LHD0550-C□□□	LHE0400-C□	LHS0480-C□□□	LHV0550-C□□□	LHW0551-C□□□	LT0401-C□□□	LG0401-C□□□
	LHA0550-C□□□	LHC0550-C□□□		LHE0480-C□	LHS0550-C□□□			LT0481-C□□□	LG0481-C□□□
BZX020	LHA0650-C□□□	LHC0650-C□□□			LHS0650-C□□□	LHV0650-C□□□	LHW0651-C□□□	LT0651-C□□□	LG0651-C□□□
	LHA0750-C□□□				LHS0750-C□□□	LHV0750-C□□□	LHW0751-C□□□	LT0751-C□□□	LG0751-C□□□
BZX030	LHA0900-C□□□				LHS0900-C□□□				LG0901-C□□□
	LHA1050-C□□□				LHS1050-C□□□				LG1051-C□□□

Model No.	LGV (Single Action) Swing Clamp
BZX010	LGV0400-C□□
	LGV0480-C□□
	LGV0550-C□□
BZX020	LGV0650-C□□
	LGV0750-C□□
BZX030	

Model No.	LKA (Double Action) Link Clamp	LKC (Double Action) Link Clamp	LKE (Double Action) High-Power Link Clamp	LKK (Double Action) Universal Clamp	LKV (Double Action) Link Clamp	LKW (Double Action) Link Clamp	LM (Single Action) Link Clamp	LJ (Single Action) Link Clamp	LJV (Single Action) Link Clamp
BZX010	LKA0360-C□□□	LKC0400-C□□□	LKE0300-C□	LKK0360-C□□	LKV0400-C□□□	LKW0401-C□□□	LM0300-C□	LJ0302-C□	LJV0400-C□□□
	LKA0400-C□□□	LKC0480-C□□□	LKE0360-C□	LKK0400-C□□	LKV0480-C□□□	LKW0481-C□□□	LM0360-C□	LJ0362-C□	LJV0480-C□□□
	LKA0480-C□□□	LKC0550-C□□□	LKE0400-C□	LKK0480-C□□	LKV0550-C□□□	LKW0551-C□□□	LM0400-C□	LJ0402-C□	LJV0550-C□□□
	LKA0550-C□□□		LKE0480-C□	LKK0550-C□□			LM0480-C□	LJ0482-C□	
BZX020	LKA0650-C□□□	LKC0650-C□□□		LKK0650-C□□	LKV0650-C□□□	LKW0651-C□□□	LM0650-C□	LJ0652-C□	LJV0650-C□□□
	LKA0750-C□□□				LKV0750-C□□□	LKW0751-C□□□	LM0750-C□	LJ0752-C□	LJV0750-C□□□
BZX030	LKA0900-C□□□							LJ0902-C□	
	LKA1050-C□□□							LJ1052-C□	

Model No.	LFW (Double Action) Link Clamp	LFA (Double Action) Link Clamp	LSA (Double Action) Side Clamp	LSE (Double Action) High-Power Side Clamp	LL (Double Action) Linear Cylinder	LLR (Double Action) Linear Cylinder	LLV (Double Action) Lift Cylinder	LLW (Double Action) Lift Cylinder	TTA (Double Action) Linear Cylinder
BZX010	LFW0480-C□□	LFA0480-C□□	LSA0360-C□	LSE0360-C□	LL0360-C□□□	LLR0360-C□□□	LLV0360-C□□□	LLW0361-C□□□	TTA0360-C□□□
	LFW0550-C□□	LFA0550-C□□			LL0400-C□□□	LLR0400-C□□□	LLV0400-C□□□	LLW0401-C□□□	TTA0400-C□□□
					LL0480-C□□□	LLR0480-C□□□	LLV0480-C□□□	LLW0481-C□□□	TTA0480-C□□□
					LL0550-C□□□	LLR0550-C□□□			TTA0550-C□□□
BZX020	LFW0650-C□□	LFA0650-C□□			LL0650-C□□□	LLR0650-C□□□			TTA0650-C□□□
	LFW0750-C□□	LFA0750-C□□			LL0750-C□□□	LLR0750-C□□□			
BZX030					LL0900-C□□□	LLR0900-C□□□			
					LL1050-C□□□	LLR1050-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

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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

Customized Spring Cylinder

DWA/DWB

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

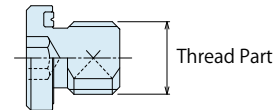
JZG0 **1** **0**

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	Female Thread Side Material : Steel	10	25	35
	Female Thread Side Material : Aluminum (For LT/LM※1)	8	20	28
Weight	g	7	15	23

Notes : 1. Air bleeding under high pressure is dangerous. It must be done under lower pressure.

(For reference : the minimum operation pressure range of the product within the circuit)

2. Refer to the machining dimensions of BZL mounting area when installing JZG into a hydraulic circuit.

※1. Body material of LT/LM is aluminum alloy, so install it with the tightening torque for aluminum.

Applicable Products

Model No.	LHA (Double Action) Swing Clamp	LHC (Double Action) Swing Clamp	LHD (Double Action) Swing Clamp	LHE (Double Action) High-Power Swing Clamp	LHS (Double Action) Swing Clamp	LHV (Double Action) Swing Clamp	LHW (Double Action) Swing Clamp	LT (Single Action) Swing Clamp	LG (Single Action) Swing Clamp
JZG010	LHA0360-C□□□	LHC0360-C□□□	LHD0400-C□□□	LHE0300-C□	LHS0360-C□□□	LHV0400-C□□□	LHW0401-C□□□	LT0301-C□□□	LG0301-C□□□
	LHA0400-C□□□	LHC0400-C□□□	LHD0480-C□□□	LHE0360-C□	LHS0400-C□□□	LHV0480-C□□□	LHW0481-C□□□	LT0361-C□□□	LG0361-C□□□
	LHA0480-C□□□	LHC0480-C□□□	LHD0550-C□□□	LHE0400-C□	LHS0480-C□□□	LHV0550-C□□□	LHW0551-C□□□	LT0401-C□□□	LG0401-C□□□
	LHA0550-C□□□	LHC0550-C□□□		LHE0480-C□	LHS0550-C□□□			LT0481-C□□□	LG0481-C□□□
JZG020	LHA0650-C□□□	LHC0650-C□□□		LHE0550-C□	LHS0650-C□□□	LHV0650-C□□□	LHW0651-C□□□	LT0651-C□□□	LG0651-C□□□
	LHA0750-C□□□				LHS0750-C□□□	LHV0750-C□□□	LHW0751-C□□□	LT0751-C□□□	LG0751-C□□□
JZG030	LHA0900-C□□□				LHS0900-C□□□				LG0901-C□□□
	LHA1050-C□□□				LHS1050-C□□□				LG1051-C□□□

Model No.	LGV (Single Action) Swing Clamp	DBA (Double Action) Block Cylinder	DBC (Double Action) Block Cylinder	FVA (Double Action) Centering Vise	FVC (Double Action) Centering Vise	FVD (Double Action) Centering Vise	LC (Single Action) Work Support	LCW (Single Action) Work Support	TC (Single Action) Work Support
JZG010	LGV0400-C□□□	DBA0250-C□	DBC0250-C□	FVA0401	FVC0630	FVD1600	LC0263-C□□□	LCW0363-C□	TC0403-C□□□
	LGV0480-C□□□	DBA0320-C□	DBC0320-C□	FVA0631		FVD2500	LC0303-C□□□	LCW0403-C□	TC0483-C□□□
	LGV0550-C□□□			FVA1001			LC0363-C□□□	LCW0483-C□	TC0553-C□□□
							LC0403-C□□□	LCW0553-C□	TC0653-C□□□
							LC0483-C□□□	LCW0653-C□	TC0753-C□□□
JZG020	LGV0650-C□□□	DBA0400-C□	DBC0400-C□		FVC1000	FVD4000	LC0753-C□□□		
	LGV0750-C□□□	DBA0500-C□	DBC0500-C□		FVC1600		LC0903-C□□□		

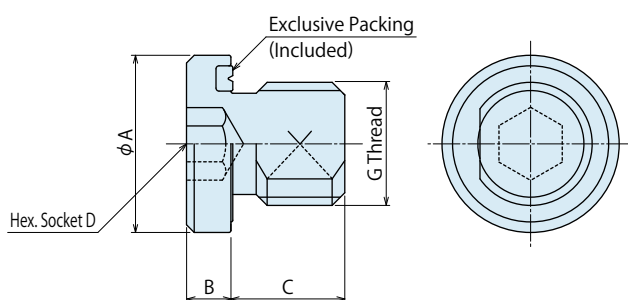
Applicable Products

Model No.	LKA (Double Action) Link Clamp	LKC (Double Action) Link Clamp	LKE (Double Action) High-Power Link Clamp	LKK (Double Action) Universal Clamp	LKV (Double Action) Link Clamp	LKW (Double Action) Link Clamp	LM (Single Action) Link Clamp	LJ (Single Action) Link Clamp	LJV (Single Action) Link Clamp
JZG010	LKA0360-C□□□	LKC0400-C□□□	LKE0300-C□	LKK0360-C□	LKV0400-C□□□	LKW0401-C□□□	LM0300-C□	LJ0302-C□	LJV0400-C□□□
	LKA0400-C□□□	LKC0480-C□□□	LKE0360-C□	LKK0400-C□	LKV0480-C□□□	LKW0481-C□□□	LM0360-C□	LJ0362-C□	LJV0480-C□□□
	LKA0480-C□□□	LKC0550-C□□□	LKE0400-C□	LKK0480-C□	LKV0550-C□□□	LKW0551-C□□□	LM0400-C□	LJ0402-C□	LJV0550-C□□□
	LKA0550-C□□□		LKE0480-C□	LKK0550-C□			LM0480-C□	LJ0482-C□	
JZG020	LKA0650-C□□□	LKC0650-C□□□		LKK0650-C□	LKV0650-C□□□	LKW0651-C□□□	LM0650-C□	LJ0652-C□	LJV0650-C□□□
	LKA0750-C□□□				LKV0750-C□□□	LKW0751-C□□□	LM0750-C□	LJ0752-C□	LJV0750-C□□□
JZG030	LKA0900-C□□□							LJ0902-C□	
	LKA1050-C□□□							LJ1052-C□	

Model No.	TLA-1 (Single Action) Swing Clamp	TLA-2 (Double Action) Swing Clamp	TLB-2 (Double Action) Swing Clamp	TLV-2 (Double Action) Swing Clamp	TMA-1 (Double Action) Link Clamp	TMA-2 (Double Action) Link Clamp	TMV-2 (Double Action) Link Clamp
JZG010	TLA0402-1C□	TLA0401-2C□□	TLB0401-2C□□	TLV0800-2C□□	TMA0250-1C□	TMA0250-2C□	TMV0400-2C□□
	TLA0602-1C□	TLA0601-2C□□	TLB0601-2C□□	TLV1000-2C□□	TMA0400-1C□	TMA0400-2C□	TMV0600-2C□□
	TLA0802-1C□	TLA0801-2C□□	TLB0801-2C□□	TLV1600-2C□□	TMA0600-1C□	TMA0600-2C□	TMV1000-2C□□
	TLA1002-1C□	TLA1001-2C□□	TLB1001-2C□□		TMA1000-1C□	TMA1000-2C□	
	TLA1602-1C□	TLA1601-2C□□	TLB1601-2C□□				
JZG020	TLA2002-1C□	TLA2001-2C□□	TLB2001-2C□□	TLV2000-2C□□	TMA1600-1C□	TMA1600-2C□	TMV1600-2C□□
	TLA2502-1C□	TLA2501-2C□□	TLB2501-2C□□		TMA2500-1C□	TMA2500-2C□	
	TLA4002-1C□	TLA4001-2C□□	TLB4001-2C□□		TMA3200-1C□	TMA3200-2C□	

Model No.	LFA (Double Action) Link Clamp	LFW (Double Action) Link Clamp	LSA (Double Action) Side Clamp	LSE (Double Action) High-Power Side Clamp	LL (Double Action) Linear Cylinder	LLR (Double Action) Linear Cylinder	LLV (Double Action) Lift Cylinder	LLW (Double Action) Lift Cylinder	TTA (Double Action) Linear Cylinder
JZG010	LFA0480-C□□	LFW0480-C□□	LSA0360-C□	LSE0360-C□	LL0360-C□□□	LLR0360-C□□□	LLV0360-C□□□	LLW0361-C□□□	TTA0360-C□□□
	LFA0550-C□□	LFW0550-C□□			LL0400-C□□□	LLR0400-C□□□	LLV0400-C□□□	LLW0401-C□□□	TTA0400-C□□□
					LL0480-C□□□	LLR0480-C□□□	LLV0480-C□□□	LLW0481-C□□□	TTA0480-C□□□
					LL0550-C□□□	LLR0550-C□□□			TTA0550-C□□□
JZG020	LFA0650-C□□	LFW0650-C□□			LL0650-C□□□	LLR0650-C□□□			TTA0650-C□□□
	LFA0750-C□□	LFW0750-C□□			LL0750-C□□□	LLR0750-C□□□			
JZG030					LL0900-C□□□	LLR0900-C□□□			
					LL1050-C□□□	LLR1050-C□□□			

External Dimensions



Model No.	(mm)		
	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

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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

Pull Stud Clamp

FP
FQ

Customized Spring Cylinder

DWA/DWB

PAT.P.

Direct-Mount Sequence Valve

Model BZS

Attaches directly into Kosmek hydraulic clamps G-thread piping option.
Easily and securely controls the operating sequence of actuators.



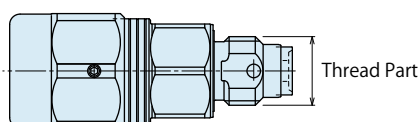
Model No. Indication

BZS 0 10 0

1 2

1 G Thread Size

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



2 Design No.

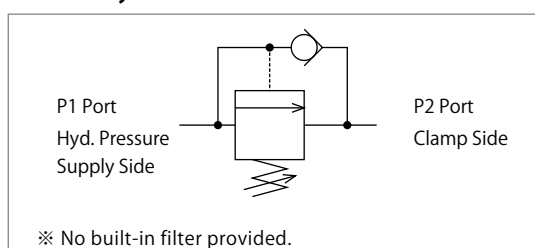
- 0** : Revision Number

Specifications

Model No.		BZS0100	BZS0200	BZS0300
Sequence Operating Pressure Adjustable Range	MPa	1.0 ~ 6.0		
Operating Pressure Range	MPa	2.0 ~ 7.0		
Withstanding Pressure	MPa	10.5		
G Thread Size		G1/8A	G1/4A	G3/8A
Cracking Pressure	MPa	0.03		
Adjusting Screw Turn Ratio:Reference	MPa/Rev	1.5	1.3	1.1
Min. Passage Area mm ²	P1 → P2	2.0	5.7	8.5
	P2 → P1	2.0	5.0	8.2
Usable Fluid	General Hydraulic Oil Equivalent to ISO-VG-32			
Operating Temperature	°C	0 ~ 70		
Tightening Torque	N·m	10	25	35
Weight	g	35	82	155

- Notes:
- Please mount to an actuator using Hex. E shown in External Dimensions on P.961A with the tightening torque shown in the list above. Insufficient or excessive tightening torque leads to malfunction.
 - Do not attach a used BZS to other clamps.
Sequence movement may not be done because the bottom depth difference of G thread makes metal sealing insufficient.
 - The difference between the set pressure and the supplying pressure should be 1MPa or more.
 - For using multiple sequence valves to operate cylinders in sequence, the difference of each set pressure should be 1MPa or more.
 - Depending on circuit system (actuator capacity, hydraulic pipe diameter, passage length, etc.), sometimes it is necessary to reduce hydraulic flow rate to achieve proper sequence movement. Make sure you are able to control flow rate.
(Since BZS is directly mounted on and used exclusively for one actuator, it is easily affected by hydraulic flow rate.)
 - Filter is not built in this product. Please note that contaminants such as cutting chips and sealing tapes entering into the product cause malfunction. Also when internal parts are damaged, it will not operate properly even after removing contaminants.

Circuit Symbol



What is a Sequence Valve?

The sequence valve controls the clamping and positioning sequence of multiple actuators.

When the incoming side pressure (P1 port) reaches the sequence setting pressure value, the pressure will be supplied to the outgoing side (P2 port). Refer to P.961B for the action description.

Applicable Products

Model No.	DBA (Double Action) Block Cylinder	DBC (Double Action) Block Cylinder	FVA (Double Action) Centering Vise	FVC (Double Action) Centering Vise	FVD (Double Action) Centering Vise	LHA (Double Action) Swing Clamp	LHC (Double Action) Swing Clamp	LHD (Double Action) Swing Clamp	LHE (Double Action) High-Power Swing Clamp
BZS0100	DBA0250-C□ DBA0320-C□	DBC0250-C□ DBC0320-C□	FVA0401 FVA0631 FVA1001	FVC0630	FVD1600 FVD2500	LHA0360-C□□□ LHA0400-C□□□ LHA0480-C□□□ LHA0550-C□□□	LHC0360-C□□□ LHC0400-C□□□ LHC0480-C□□□ LHC0550-C□□□	LHD0400-C□□□ LHD0480-C□□□ LHD0550-C□□□	LHE0300-C□ LHE0360-C□ LHE0400-C□ LHE0480-C□ LHE0550-C□
BZS0200	DBA0400-C□ DBA0500-C□	DBC0400-C□ DBC0500-C□		FVC1000 FVC1600※1	FVD4000	LHA0650-C□□□ LHA0750-C□□□	LHC0650-C□□□		
BZS0300						LHA0900-C□□□ LHA1050-C□□□			

Model No.	LHS (Double Action) Swing Clamp	LHV (Double Action) Swing Clamp	LHW (Double Action) Swing Clamp	LT (Single Action) Swing Clamp	LG (Single Action) Swing Clamp	LGV (Single Action) Swing Clamp	LKA (Double Action) Link Clamp	LKC (Double Action) Link Clamp	LKE (Double Action) High-Power Link Clamp
BZS0100	LHS0360-C□□□ LHS0400-C□□□ LHS0480-C□□□ LHS0550-C□□□	LHV0400-C□□□ LHV0480-C□□□ LHV0550-C□□□	LHW0401-C□□□ LHW0481-C□□□ LHW0551-C□□□	LT0301-C□□□ LT0361-C□□□ LT0401-C□□□ LT0481-C□□□ LT0551-C□□□	LG0301-C□□□ LG0361-C□□□ LG0401-C□□□ LG0481-C□□□ LG0551-C□□□	LGV0400-C□□□ LGV0480-C□□□ LGV0550-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□
BZS0200	LHS0650-C□□□ LHS0750-C□□□	LHV0650-C□□□ LHV0750-C□□□	LHW0651-C□□□ LHW0751-C□□□	LT0651-C□□□ LT0751-C□□□	LG0651-C□□□ LG0751-C□□□	LGV0650-C□□□ LGV0750-C□□□	LKA0650-C□□□ LKA0750-C□□□	LKC0650-C□□□	
BZS0300	LHS0900-C□□□ LHS1050-C□□□				LG0901-C□□□ LG1051-C□□□		LKA0900-C□□□ LKA1050-C□□□		

Model No.	LKK (Double Action) Universal Clamp	LKV (Double Action) Link Clamp	LKW (Double Action) Link Clamp	LM (Single Action) Link Clamp	LJ (Single Action) Link Clamp	LJV (Single Action) Link Clamp
BZS0100	LKK0360-C□ LKK0400-C□ LKK0480-C□ LKK0550-C□	LKV0400-C□□□ LKV0480-C□□□ LKV0550-C□□□	LKW0401-C□□□ LKW0481-C□□□ LKW0551-C□□□	LM0300-C□ LM0360-C□ LM0400-C□ LM0480-C□ LM0550-C□	LJ0302-C□ LJ0362-C□ LJ0402-C□ LJ0482-C□ LJ0552-C□	LJV0400-C□□□ LJV0480-C□□□ LJV0550-C□□□
BZS0200	LKK0650-C□	LKV0650-C□□□ LKV0750-C□□□	LKW0651-C□□□ LKW0751-C□□□	LM0650-C□ LM0750-C□	LJ0652-C□ LJ0752-C□	LJV0650-C□□□ LJV0750-C□□□
BZS0300					LJ0902-C□ LJ1052-C□	

Model No.	LFW (Double Action) Link Clamp	LFA (Double Action) Link Clamp	LSA (Double Action) Side Clamp	LSE (Double Action) High-Power Side Clamp	LL (Double Action) Linear Cylinder	LLR (Double Action) Linear Cylinder	LLV (Double Action) Lift Cylinder	LLW (Double Action) Lift Cylinder
BZS0100	LFW0480-C□□ LFW0550-C□□	LFA0480-C□□ LFA0550-C□□	LSA0360-C□	LSE0360-C□	LL0360-C□□□ LL0400-C□□□ LL0480-C□□□ LL0550-C□□□	LLR0360-C□□□ LLR0400-C□□□ LLR0480-C□□□ LLR0550-C□□□	LLV0360-C□□□ LLV0400-C□□□ LLV0480-C□□□	LLW0361-C□□□ LLW0401-C□□□ LLW0481-C□□□
BZS0200	LFW0650-C□□ LFW0750-C□□	LFA0650-C□□ LFA0750-C□□			LL0650-C□□□ LL0750-C□□□	LLR0650-C□□□ LLR0750-C□□□		
BZS0300					LL0900-C□□□ LL1050-C□□□	LLR0900-C□□□ LLR1050-C□□□		

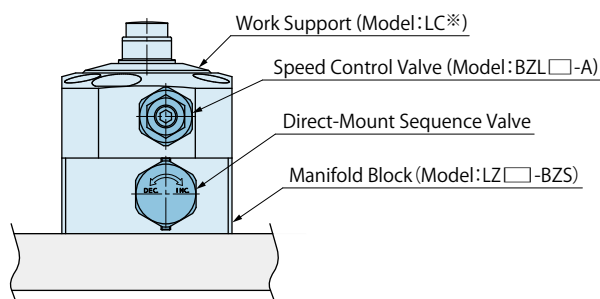
Note : ※1. It is not possible to install two BZS valves to FVC1000.

[In case of Work Support]

For using Direct-Mount Sequence Valve for Work Support (Model: LC※), mount Speed Control Valve (Model: BZL □ -A) on Work Support and mount Direct-Mount Sequence Valve on the Manifold Block as shown in the drawing below.

Please refer to P.962A for Manifold Block (Model: LZ □ -BZS).

※Please contact us when considering the installation to model LCW.



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
LG/LT
TLA-2
TLB-2
TLA-1

Link Clamp

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

Work Support

LD
LC
TNC
TC

Air Sensing Lift Cylinder

LLW

Linear Cylinder / Compact Cylinder

LL
LLR
LLU
DP
DR
DS
DT

Block Cylinder

DBA/DBC

Centering Vise

FVA
FVD
FVC

Control Valve

BZL
BZT
BZX/JZG
BZS

Pallet Clamp

VS/VT

Expansion Locating Pin

VFL/VFM
VFJ/VFK

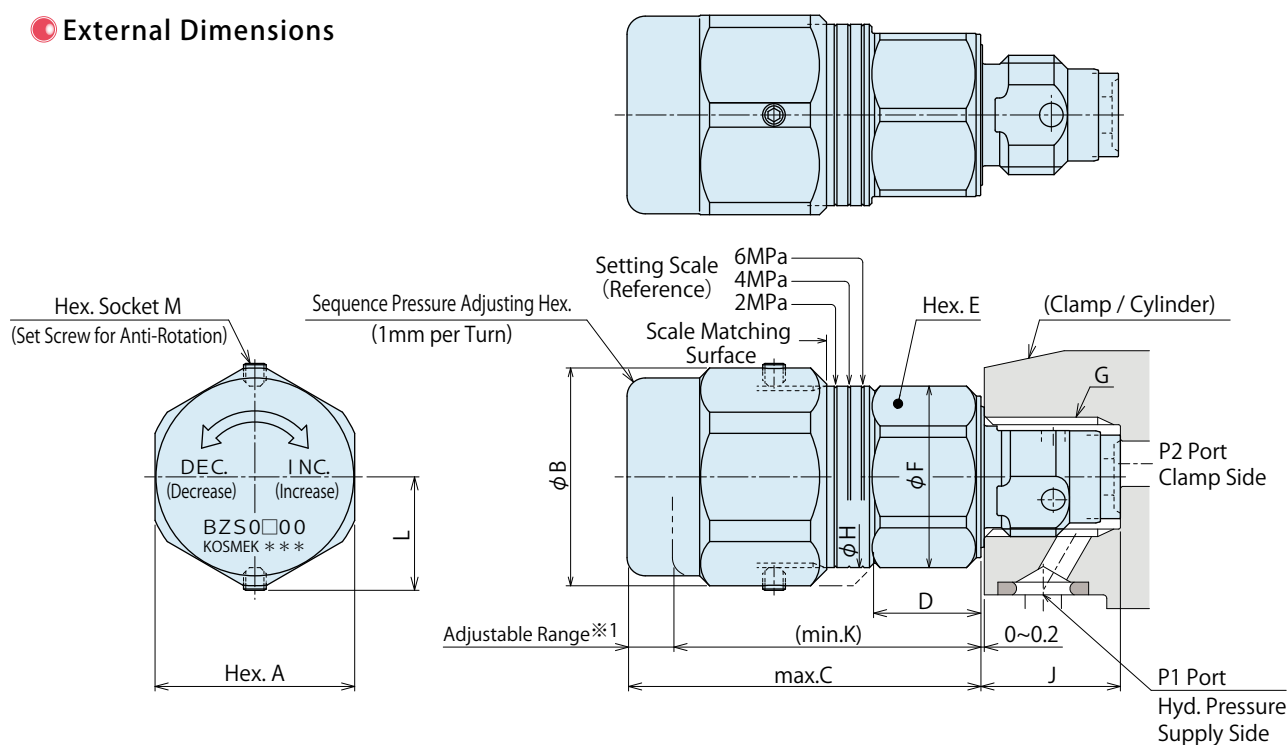
Pull Stud Clamp

FP
FQ

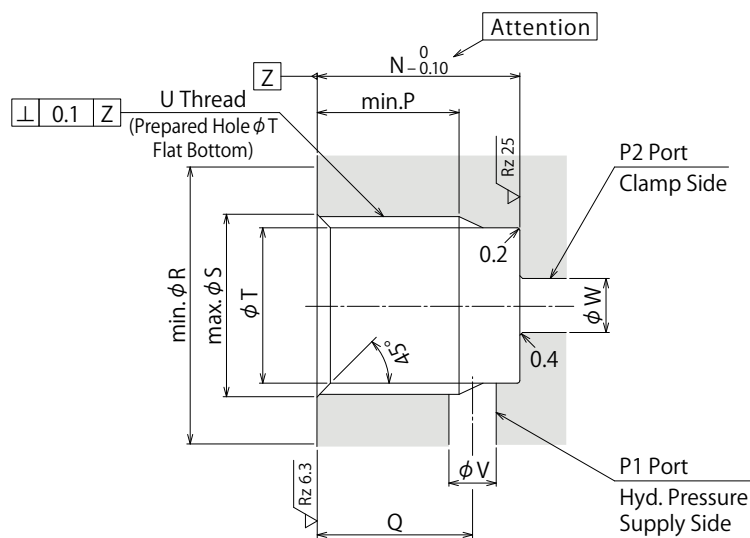
Customized Spring Cylinder

DWA/DWB

External Dimensions



Machining Dimensions of Mounting Area



(mm)

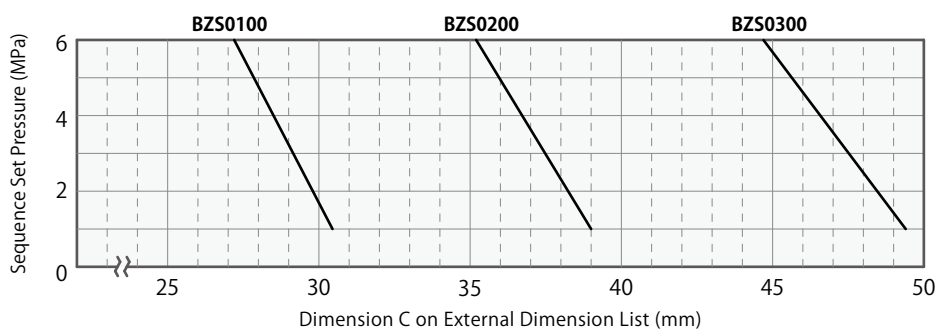
Model No.	BZS0100	BZS0200	BZS0300
A	16	22	27
B	17.5	24	29.5
C	30.5	39	49.5
D	7.5	12	15
E	14	18	22
F	15.5	20	24
G	G1/8	G1/4	G3/8
H	13.8	20	24
J ※2	(11.6)	(15.1)	(17.6)
K	(26.5)	(34)	(44)
L	9.5	12.5	15
M	1.3	1.3	1.5
N	11.5	15	17.5
P	8.5	11※3	13
Q	9	11.5	13
R (Flat Surface Area)	16	20.5	24.5
S	10	13.5	17
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

Notes:

- Since the $\sqrt{Rz 6.3}$ area is sealing part, be careful not to damage it.
 - Since the $\sqrt{Rz 12.5}$ area is the metal sealing part at the edge of BZS, 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.
- ※1. Use the sequence pressure adjusting hex. within the adjustable range of ※2 (the dimensions K~C in the above).
Please note that if it is loosened further than max. C, pressure adjusting hex. part and internal spring will come off.
- ※2. Dimension when mounted. (+0.5mm before mounted.)
- ※3. If mounting plugs or fittings with G thread specification available in the market, the dimension '※3' should be 12.5.

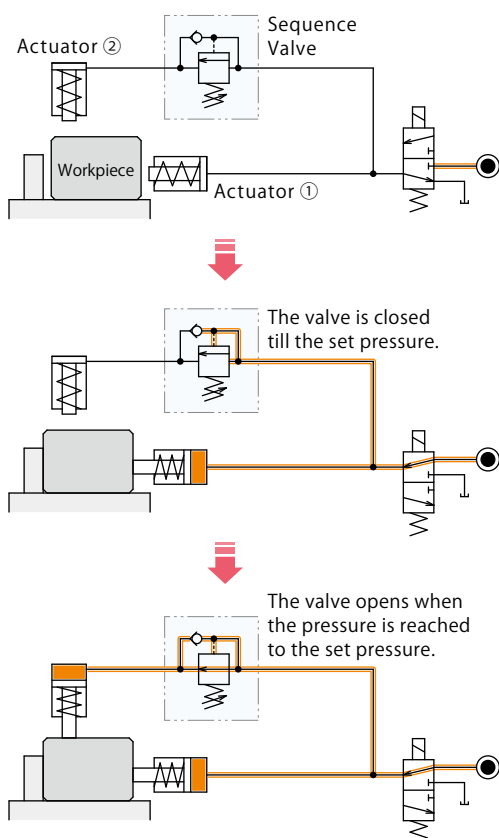
Cautions

1. Please design hydraulic circuit properly. Improper circuit design may lead to malfunctions and damages.
2. Filter is not built in this product. Be aware that contaminants such as cutting chips and sealing tapes entering into the product cause malfunction. Also when internal parts are damaged, it will not operate properly even after removing contaminants.
3. Depending on circuit system (actuator capacity, hydraulic pipe diameter, passage length, etc.), sometimes it is necessary to reduce hydraulic flow rate to achieve proper sequence movement. Make sure you are able to control flow rate.
(Since BZS is directly mounted on and used exclusively for one actuator, it is easily affected by hydraulic flow rate.)
4. The difference between the set pressure and the supplying pressure should be 1MPa or more.
5. For using multiple sequence valves to operate cylinders in sequence, the difference of each set pressure should be 1MPa or more.
6. For using multiple sequence valves to operate cylinders simultaneously, adjust them gradually by checking their actions.
7. Please keep in mind that the minimum passage area of each actuator will be decreased by mounting this product and thus operating time may become longer.
8. Please mount to an actuator using Hex. E shown in External Dimensions on P.961 with the tightening torque shown in the specification list on P.959. Insufficient or excessive tightening torque leads to malfunction.
9. Air bleeding is required as air mixed in the circuit causes malfunction.
10. At shipment, sequence pressure is not adjusted. Please adjust it by referring to the graph below. Install a pressure gauge on the circuit to check pressure as necessary. After adjustment, tighten one or more set screw for anti-rotation. (Tightening torque: 0.2N·m)



(This graph is a reference, and the values will not be guaranteed.)

Action Description



Operating Procedure		Note
Locking	Hydraulic pressure is ON.	
	Actuator ① is activated.	
	Pressure increases to the sequence operation set pressure.	The difference between the operating pressure and the sequence operation set pressure should be 1MPa or more.
	The sequence valve circuit opens.	
	Actuator ② is activated.	
Releasing	Locking action is completed.	
	Machining, etc.	
	Hydraulic pressure is OFF.	
	The actuators ① and ② are released almost simultaneously.	The check valve in the sequence valve opens when the incoming side pressure decreases.
Releasing action is completed.		

Manifold Block

Model WHZ-MD

Model LZY-MD

Model LZ-MS

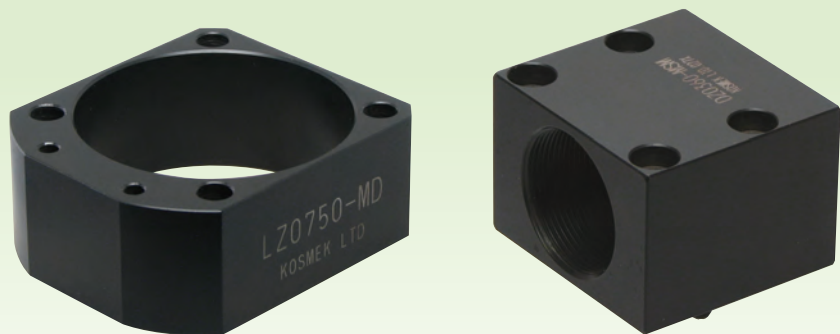
Model LZ-MP

Model TMZ-1MB

Model TMZ-2MB

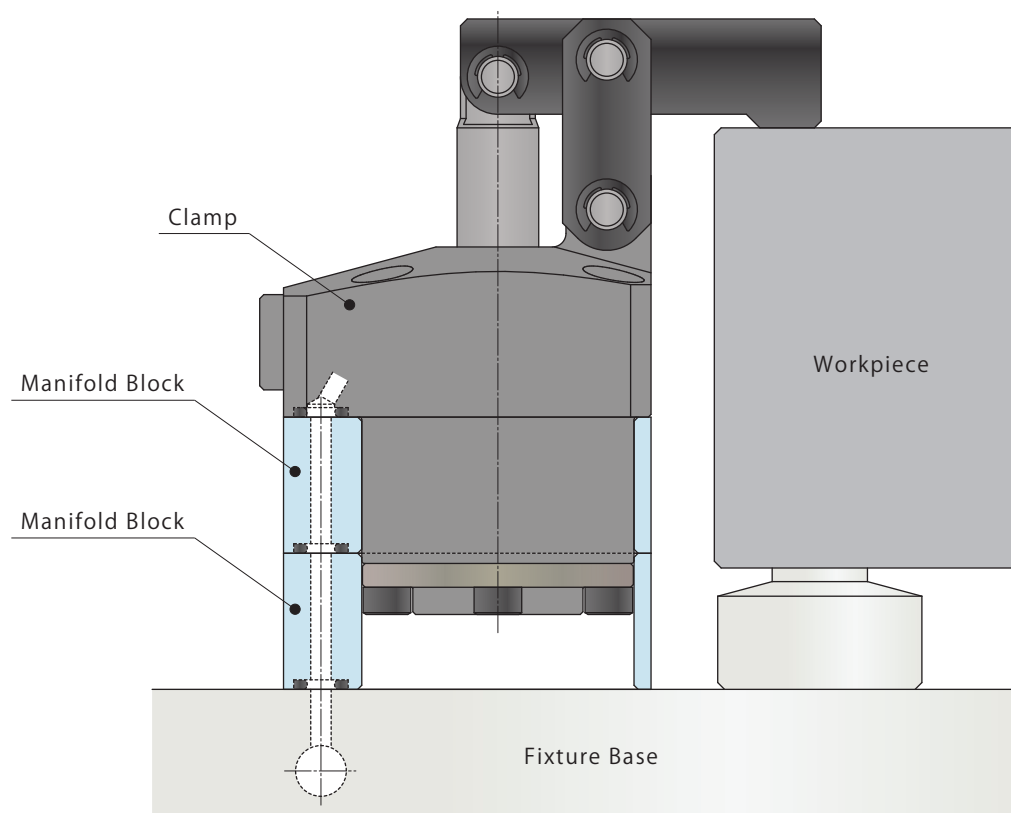
Model DZ-MG ☐

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 LJ Model LG Model LM Model LT
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/VXE

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

WNZ-SQ

TNZ-S

TNZ-SQ

Pressure Switch

JBA

Pressure Gauge

JGA/JGB

Manifold

JX

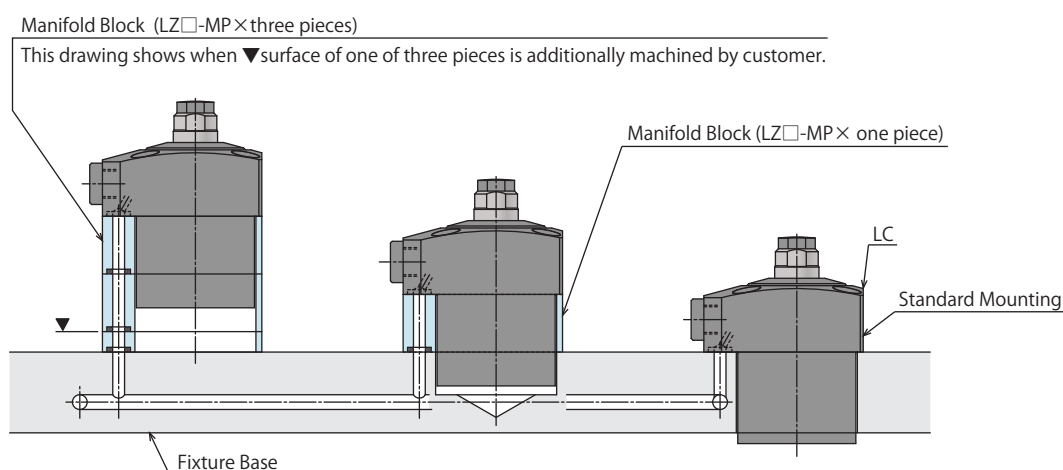
Coupler Switch

PS

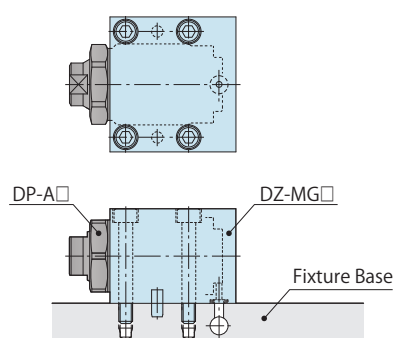
G-Thread Fitting

Application Examples

Work Support (LC) Application Example



Push Cylinder (DP) Application Example

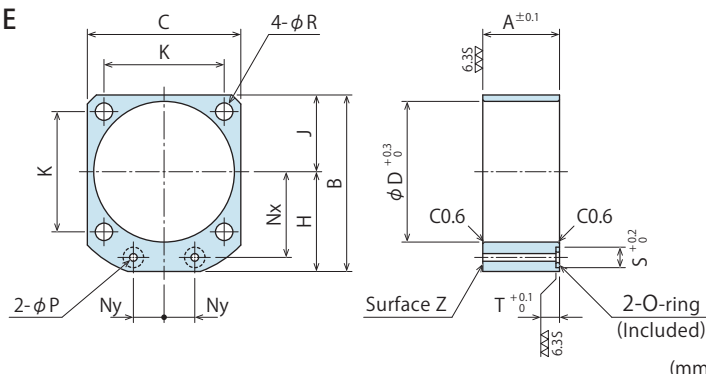


Manifold Block for WCA/WCE/WHA/WHE

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 Model No.	WCE0602 WHE0600	WCA0321 WHA0320	WCE1002 WHE1000	WCA0401 WHA0400	WCE1602 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
P	3	5	5	5	5
R	5.5	5.5	5.5	6.5	6.5
S	8	10	10	10	10
T	1.4	1.4	1.4	1.4	1.4
O-ring	1BP5	1BP7	1BP7	1BP7	1BP7
Weight kg	0.1	0.1	0.1	0.2	0.2

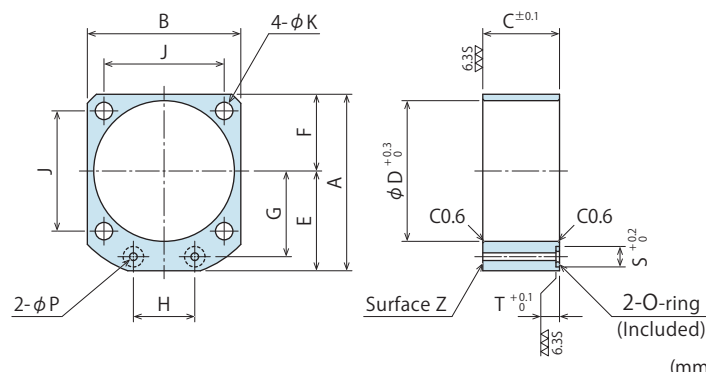
- Notes: 1. Material: A2017BE-T4 Surface Finishing: Zircon Finishing (Zirconium Chemical Conversion Treatment)
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the dimension A as a reference.
3. For other block thickness (dim. A), machine the surface Z or design a block referring to the drawing and apply surface treatment if necessary.

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 Model No.	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
P	3	3	3	3	5	5	5	5
S	8	8	8	8	10	10	10	10
T	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
O-ring	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7	1BP7
Weight kg	0.2	0.2	0.3	0.4	0.5	0.8	1.2	1.7

- Notes: 1. Material: S45C Surface Finishing: Alkaline Blackening
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the dimension C as a reference.
3. For other block thickness (dim. C), machine the surface Z or design a block referring to the drawing and apply surface treatment if necessary.

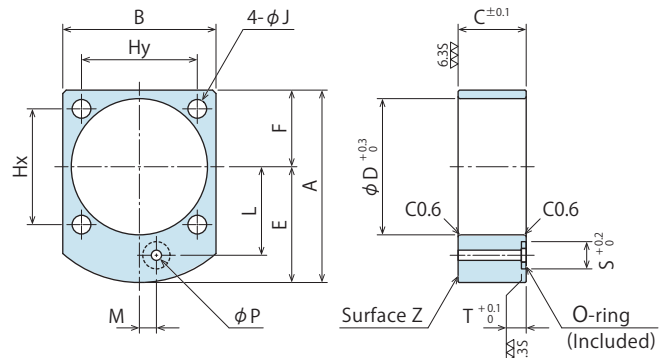
Manifold Block for LJ/LM/LG/LT

Model No. Indication

LZ 048 0 - MS

Size
(Refer to
following table)

Design No.
(Revision Number)



(mm)

Model No.	LZ0300-MS	LZ0360-MS	LZ0400-MS	LZ0480-MS	LZ0550-MS	LZ0650-MS	LZ0750-MS	LZ0900-MS	LZ1050-MS
Corresponding Model No.	LG0301 / LT0301 LJ0302 / LM0300	LG0361 / LT0361 LJ0362 / LM0360	LG0401 / LT0401 LJ0402 / LM0400	LG0481 / LT0481 LJ0482 / LM0480	LG0551 / LT0551 LJ0552 / LM0550	LG0651 / LT0651 LJ0652 / LM0650	LG0751 / LT0751 LJ0752 / LM0750	LG0901 / LT0901 LJ0902	LG1051 / LT1051 LJ1052
A	48	51.5	56.5	62	70	82	93	107	122
B	34	40	45	51	60	70	80	95	110
C	18	20	20	27	30	32	37	45	50
D	30	36	40	48	55	65	75	90	105
E	28.5	31.5	34	36.5	40	47	53	59.5	67
F	19.5	20	22.5	25.5	30	35	40	47.5	55
Hx	30	31.4	34	40	47	55	63	75	88
Hy	23	31.4	34	40	47	55	63	75	88
J	4.5	4.5	5.5	5.5	6.8	6.8	9	11	14
L	20.5	23.5	26	30	33.5	39.5	45	52.5	60
M	3	5	5	0	0	0	0	0	0
P	3	3	3	3	3	5	5	5	5
S	8	8	8	8	8	10	10	10	10
T	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
O-ring	1BP5	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7	1BP7
Weight kg	0.1	0.2	0.2	0.3	0.4	0.5	0.8	1.2	1.7

- Notes: 1. Material: S45C Surface Finishing: Alkaline Blackening
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the dimension C as a reference.
3. For other block thickness (dim. C), machine the surface Z or design a block referring to the drawing and apply surface treatment if necessary.

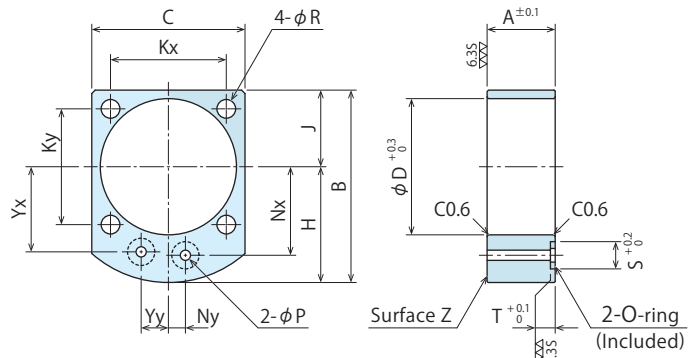
Manifold Block for LC/TC

Model No. Indication

LZ 048 0 - MP

Size
(Refer to
following table)

Design No.
(Revision Number)



(mm)

Model No.	LZ0260-MP	LZ0300-MP	LZ0360-MP	LZ0400-MP	LZ0480-MP	LZ0550-MP	LZ0650-MP	LZ0750-MP	LZ0900-MP
Corresponding Model No.	LC0262	LC0302	LC0362	LC0402 / TC0402	LC0482 / TC0482	LC0552 / TC0552	LC0652 / TC0652	LC0752 / TC0752	LC0902
A	18	18	20	20	27	30	32	37	45
B	43	48	51.5	56.5	62	70	82	93	107
C	29	34	40	45	51	60	70	80	95
D	26	30	36	40	48	55	65	75	90
H	26.5	28.5	31.5	34	36.5	40	47	53	59.5
J	16.5	19.5	20	22.5	25.5	30	35	40	47.5
Kx	25	30	31.4	34	40	47	55	63	75
Ky	21	23	31.4	34	40	47	55	63	75
Nx	18.5	20.5	23.5	26	30	33.5	39.5	45	52.5
Ny	3	3	5	5	0	0	0	0	0
R	3.4	4.5	4.5	5.5	5.5	6.8	6.8	9	11
Yx	18.5	20.5	23.5	25	28	31	37	42.5	50
Yy	7	7	8	8	11	13	14	15	15
P	3	3	3	3	3	3	5	5	5
S	8	8	8	8	8	8	10	10	10
T	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
O-ring	1BP5	1BP5	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7
Weight kg	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.8	1.2

- Notes: 1. Material: S45C Surface Finishing: Alkaline Blackening
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the dimension A as a reference.
3. For other block thickness (dim. A), machine the surface Z or design a block referring to the drawing and apply surface treatment if necessary.

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

Screw Locator
VXF/VXE
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
WNZ-SQ
TNZ-S
TNZ-SQ

Pressure Switch
JBA

Pressure Gauge
JGA/JGB

Manifold
JX

Coupler Switch
PS

G-Thread Fitting

Sales Offices

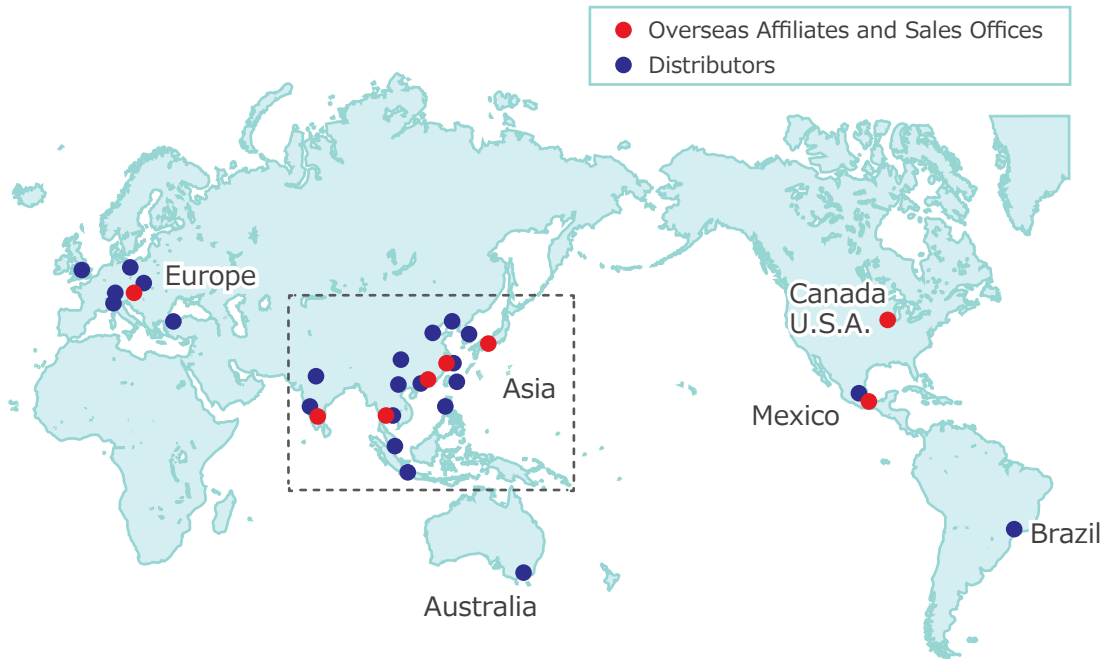
Sales Offices across the World

JAPAN HEAD OFFICE Overseas Sales	TEL. +81-78-991-5162	FAX. +81-78-991-8787
	KOSMEK LTD. 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan 651-2241 〒651-2241 兵庫県神戸市西区室谷2丁目1番5号	
United States of America SUBSIDIARY KOSMEK (USA) LTD.	TEL. +1-630-620-7650	FAX. +1-630-620-9015
	650 Springer Drive, Lombard, IL 60148 USA	
MEXICO REPRESENTATIVE OFFICE KOSMEK USA Mexico Office	TEL. +52-442-161-2347	
	Av. Santa Fe #103 int 59 Col. Santa Fe Juriquilla C.P. 76230 Queretaro, Qro Mexico	
EUROPE SUBSIDIARY KOSMEK EUROPE GmbH	TEL. +43-463-287587	FAX. +43-463-287587-20
	Schleppeplatz 2 9020 Klagenfurt am Wörthersee Austria	
CHINA KOSMEK (CHINA) LTD. 考世美(上海)贸易有限公司	TEL. +86-21-54253000	FAX. +86-21-54253709
	Room601, RIVERSIDE PYRAMID No.55, Lane21, Pusan Rd, Pudong Shanghai 200125, China 中国上海市浦东新区浦三路21弄55号银亿滨江中心601室 200125	
INDIA BRANCH OFFICE KOSMEK LTD - INDIA	TEL. +91-9880561695	
	F 203, Level-2, First Floor, Prestige Center Point, Cunningham Road, Bangalore -560052 India	
THAILAND REPRESENTATIVE OFFICE KOSMEK Thailand Representation Office	TEL. +66-2-300-5132	FAX. +66-2-300-5133
	67 Soi 58, RAMA 9 Rd., Suanluang, Suanluang, Bangkok 10250, Thailand	
TAIWAN (Taiwan Exclusive Distributor) Full Life Trading Co., Ltd. 盈生貿易有限公司	TEL. +886-2-82261860	FAX. +886-2-82261890
	16F-4, No.2, Jian Ba Rd., Zhonghe District, New Taipei City Taiwan 23511 台湾新北市中和區建八路2號 16F-4 (遠東世紀廣場)	
PHILIPPINES (Philippines Exclusive Distributor) G.E.T. Inc, Phil.	TEL. +63-2-310-7286	FAX. +63-2-310-7286
	Victoria Wave Special Economic Zone Mt. Apo Building, Brgy. 186, North Caloocan City, Metro Manila, Philippines 1427	
INDONESIA (Indonesia Exclusive Distributor) PT. Yamata Machinery	TEL. +62-21-29628607	FAX. +62-21-29628608
	Delta Commercial Park I, Jl. Kenari Raya B-08, Desa Jayamukti, Kec. Cikarang Pusat Kab. Bekasi 17530 Indonesia	

Sales Offices in Japan

Head Office Osaka Sales Office Overseas Sales	TEL. 078-991-5162	FAX. 078-991-8787
	〒651-2241 兵庫県神戸市西区室谷2丁目1番5号	
Tokyo Sales Office	TEL. 048-652-8839	FAX. 048-652-8828
	〒331-0815 埼玉県さいたま市北区大成町4丁目81番地	
Nagoya Sales Office	TEL. 0566-74-8778	FAX. 0566-74-8808
	〒446-0076 愛知県安城市美園町2丁目10番地1	
Fukuoka Sales Office	TEL. 092-433-0424	FAX. 092-433-0426
	〒812-0006 福岡県福岡市博多区上牟田1丁目8-10-101	

Global Network



Asia Detailed Map

