

Hydraulic Link Clamp

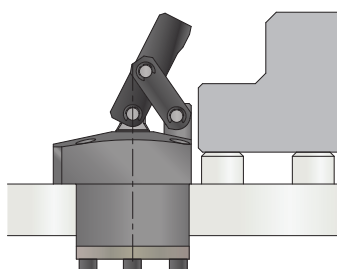
Model LKA Model TMA-2
Model LKC Model TMA-1
Model LKW
Model LJ/LM



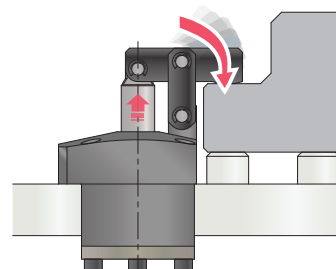
Compact Cylinder with Built-in Link Mechanism

Link design is not required.

Action Description

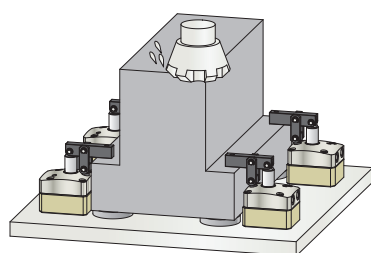


Released State

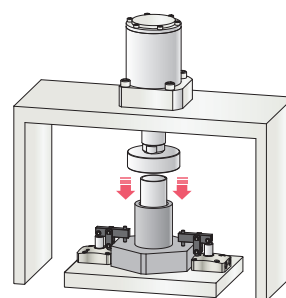


Locked State

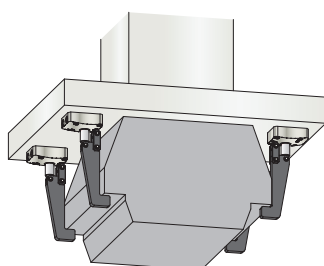
Application Examples



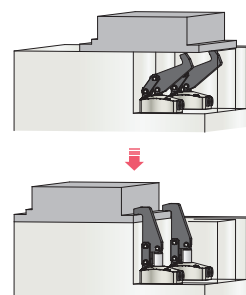
Machining



Press Fitting



Transfer • Gantry Loader



Interference Prevention



Link Clamp Quick Change Lever Option A

Model **LKA-A / LKC-A / LKW-A / LJ-A / LM-A**

Quickest Lever Setup Time Possible by One Bolt Exchange

• Quick Change Lever Option A is Suitable for Frequent Lever Change

When changing a standard lever, a special tool is required to install/remove a snap ring which fixes the lever pin and rod pin. Installation/Removal of the snap ring takes time and there is a possibility of deformation/loss of the snap ring.

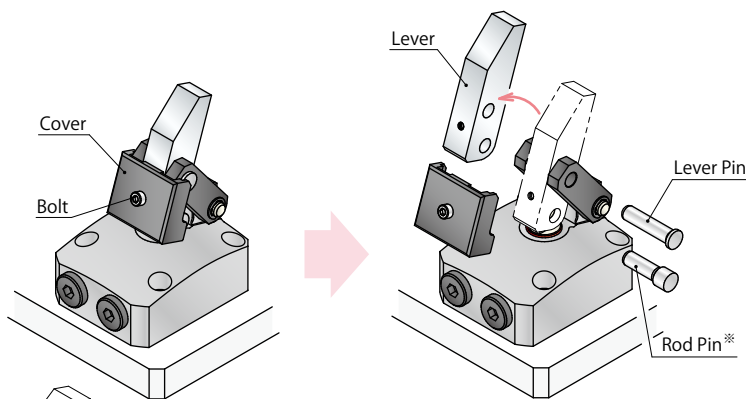
Option A, however, does not require snap rings or special tools, but only one wrench and bolt which is suitable especially for frequent lever change.



• Lever Removal Procedure

Loosen the bolt on the cover top and remove the cover.
(The bolt does not fall from the cover.)

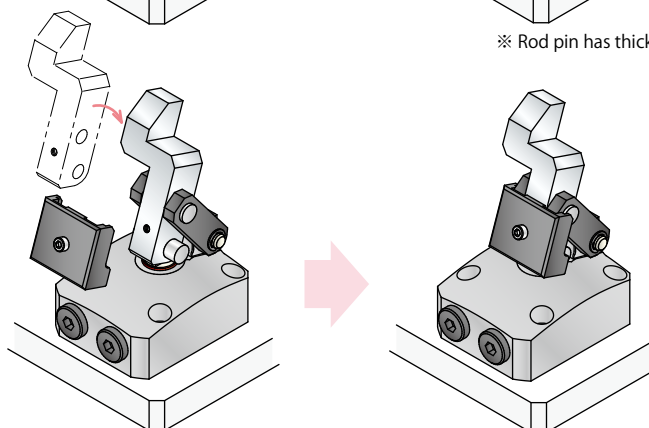
Pull out the rod pin and the lever pin, and remove the cover.



• Lever Installation Procedure

Set another lever and insert the rod pin and the lever pin. (The pins can also be inserted from the other side.)

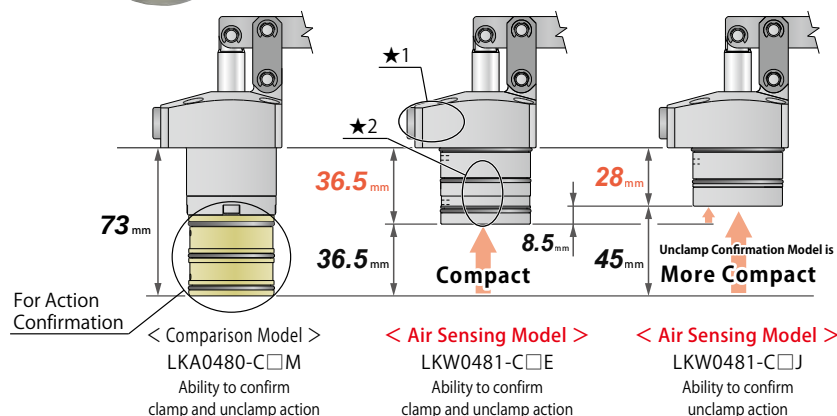
Set the cover and tighten the bolt.
Lever installation is now completed.



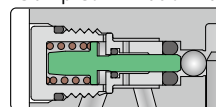
Air Sensing Link Clamp

Model **LKW**

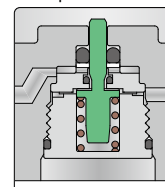
Clamp-unclamp confirmation with built-in air catch sensor for smaller footprint fixtures.



★1
Clamp Confirmation Valve



★2
Unclamp Confirmation Valve



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

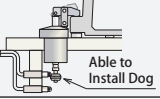
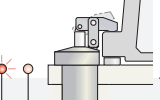
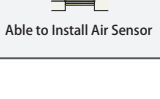
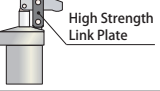
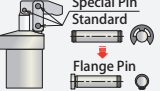
VFL/VFM
VFJ/VFK

Pull Stud Clamp

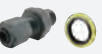
FP
FQ

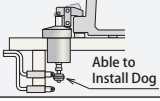
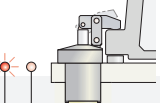
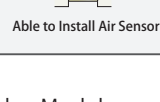
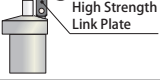
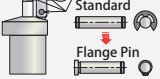
Customized
Spring Cylinder

DWA/DWB

Low Pressure Model MAX. 7MPa		 Model LKA → P.611	 Model LKC → P.637	 Model LKW → P.651
Classification		Double Action	Double Action Compact	Double Action Built-in Sensing Valve
Operating Pressure Range		0.5 ~ 7MPa	0.5 ~ 7MPa	0.5 ~ 7MPa
Standard Model		External Dimensions → P.623	External Dimensions → P.645	—
Action Confirmation	Double End Rod Option for Dog 	External Dimensions → P.625	—	—
	Air Sensing Manifold Option 	External Dimensions → P.627	—	—
	Air Sensing Piping Option 	External Dimensions → P.629	—	—
	Built-in Sensing Valve Model	—	—	External Dimensions → P.665
Option	Quick Change Lever Option A 	External Dimensions → P.631	External Dimensions → P.647	External Dimensions → P.671
	High Strength Link Plate Option 	Allowable offset increases. (External dimension is the same as standard model.)	Allowable offset increases. (External dimension is the same as standard model.)	Allowable offset increases. (External dimension is the same as standard model.)
	Flange Pin with C-type Circlip 	★	★	★
Accessories	Lever 	LZK-L LZK-W → P.636	LZK-L LZK-W → P.650	LZK-L LZK-W → P.674
	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 TMA-2 → P.691	 Model TMA-1 → P.703	 Model TMV-2
Classification		Double Action	Single Action (Spring Release)	Double Action with Action Confirmation
Operating Pressure Range		3.5 ~ 35MPa	3.5 ~ 35MPa	3.5 ~ 35MPa
Accessories	Lever 	LZ-LJ3 LZ-LJ2 → P.702	LZ-LJ3 LZ-LJ2 → P.714	Further information on the website.
	Manifold Block 	TMZ-2MB → P.1337	TMZ-1MB → P.1337	
	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 LJ/LM → P.675	 Model LKK	 Model LKV
Classification			Single Action (Spring Release)	Double Action 360° Rotatable Lever	Double Action 1-Port Sensing
Operating Pressure Range			2.5 ~ 7MPa	0.5 ~ 7MPa	1 ~ 7MPa
Standard Model			External Dimensions → P.683		
Action Confirmation	Double End Rod Option for Dog	 Able to Install Dog	—	Further information on the website.	Further information on the website.
	Air Sensing Manifold Option		—		
	Air Sensing Piping Option	 Able to Install Air Sensor	—		
	Built-in Sensing Valve Model		—		
Option	Quick Change Lever Option A		External Dimensions → P.685		
	High Strength Link Plate Option	 High Strength Link Plate	—		
	Flange Pin with C-type Circlip	 Special Pin Standard Flange Pin	—		
Accessories	Lever		LZ-LJ1, LZ-LJ2 LZK-W → P.688		
	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 Link Clamp Hydraulic Double Action

Model **LKE**

2 sizes smaller with equivalent clamping force. Mechanical lock and hydraulic pressure allow for strong clamping and holding force. Refer to P. 53 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

Air Sensing Link Clamp

Model **LKW**

Low Pressure (0.5 ~ 7MPa)

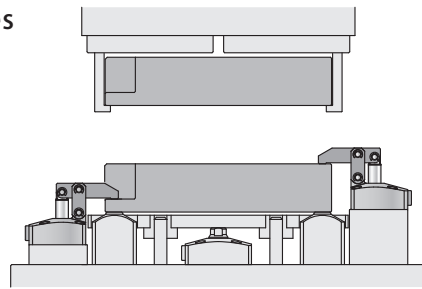
Ideal for automated equipment,
with the built-in action confirmation valve.



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• Cautions (Common)	P.1355
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• Notes on Handling • Maintenance/Inspection • Warranty	

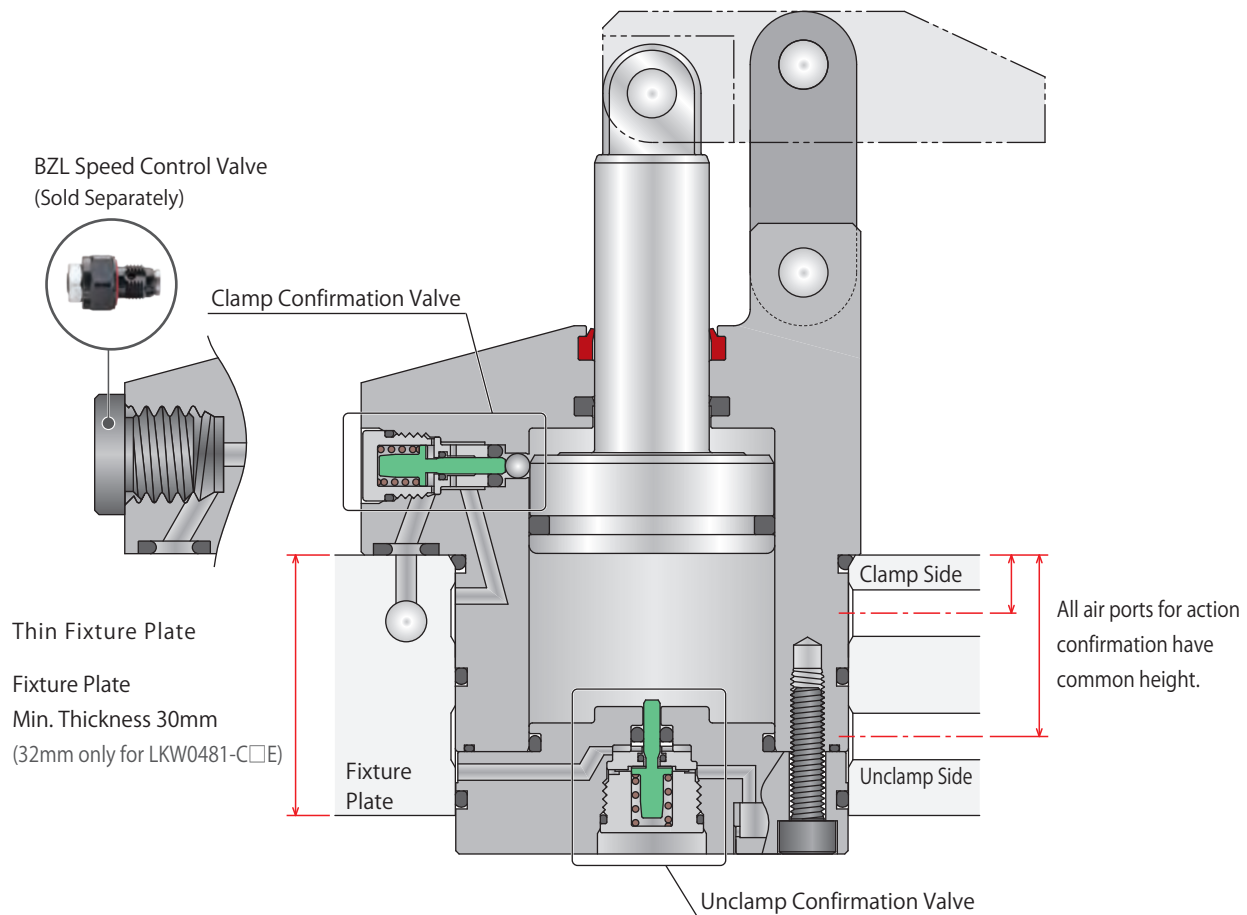
Application Examples



For automated setup
requiring action confirmation

Cross Section

※ This drawing shows clamp - unclamp confirmation model (LKW-C□E).

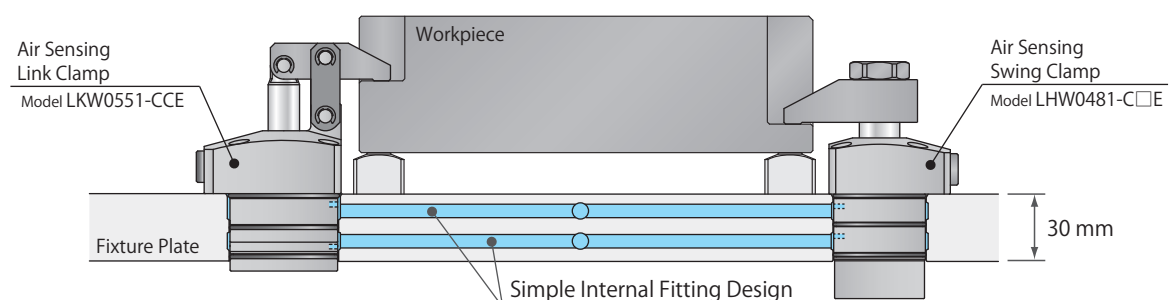


- Action confirmation allows for safe and secure loading and unloading of workpieces.
- Built-in sensing valves enable for thinner fixture designing.
Zero air leakage when the valve is closed. Air sensor with limited flow rate is available.

Simpler Internal Fitting Design

Common air port height for action confirmation allows for simpler circuit designing as shown below.

- When using different sizes of link clamps (Model LKW-C□E).
- When using link clamp (Model LKW-C□E) in combination with swing clamp (Model LHW-C□E).



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

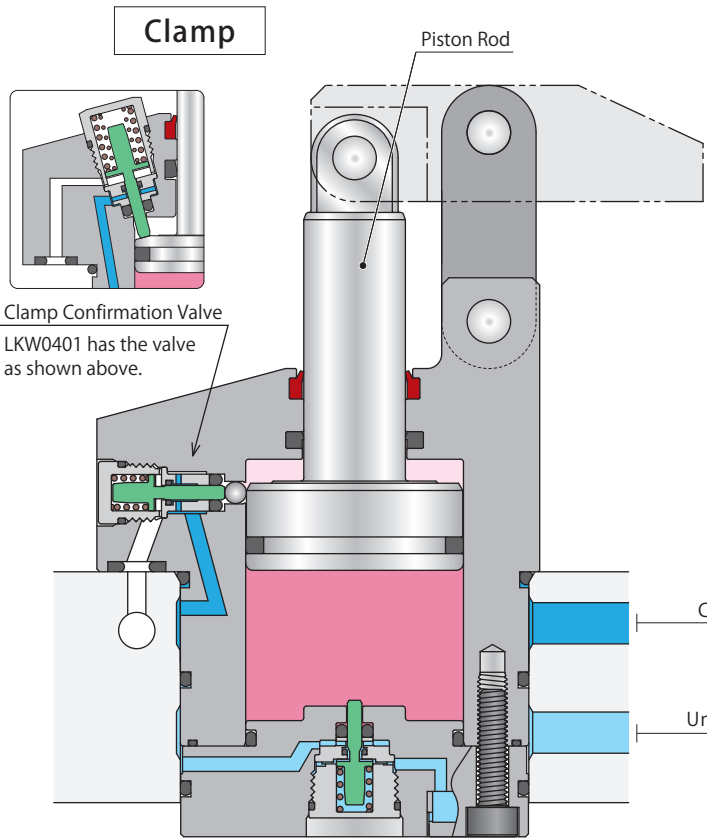
Pull Stud Clamp

FP
FQ

Customized Spring Cylinder

DWA/DWB

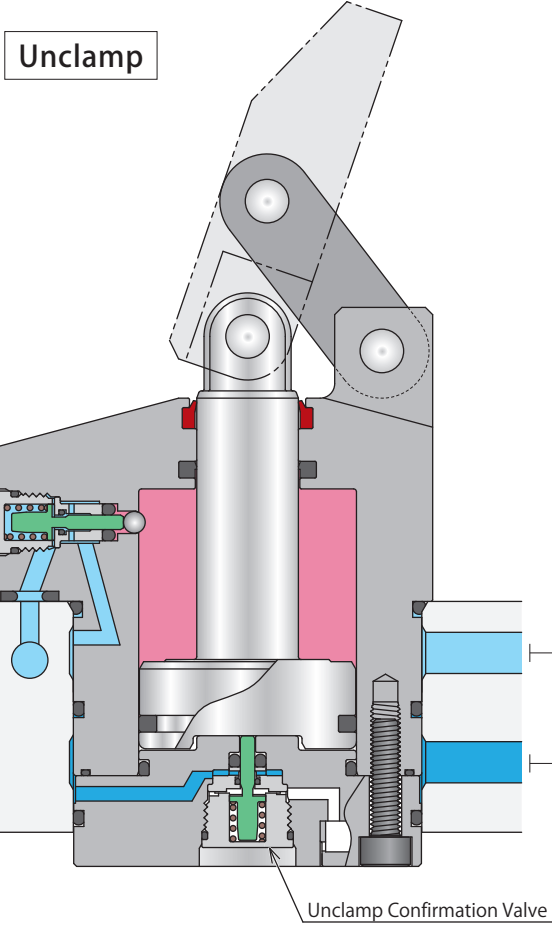
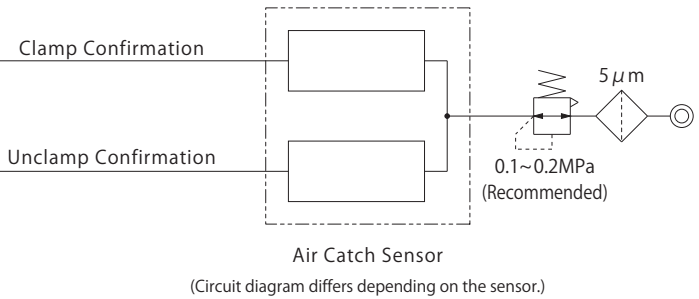
Action Description ※ This drawing shows clamp - unclamp action confirmation model (LKW-C□E).



Clamp (Supplying hydraulic pressure to clamp port)

The piston rod ascends and clamps the workpiece.
※ Only for LKW0401, if releasing the lock pressure at this state, the piston rod may move with the built-in spring force.

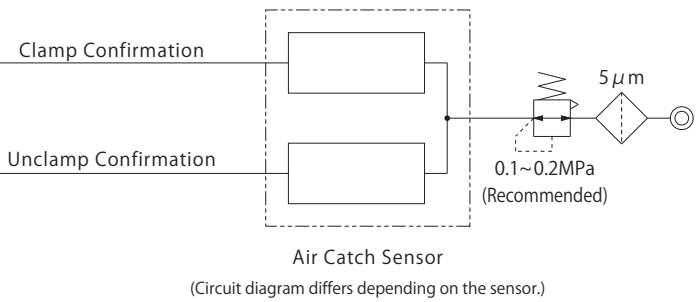
Hydraulic Pressure		Air Catch Sensor	
Clamp Side	Unclamp Side	Clamp Confirmation	Unclamp Confirmation
ON	OFF	ON	OFF



Unclamp (Supplying hydraulic pressure to unclamp port)

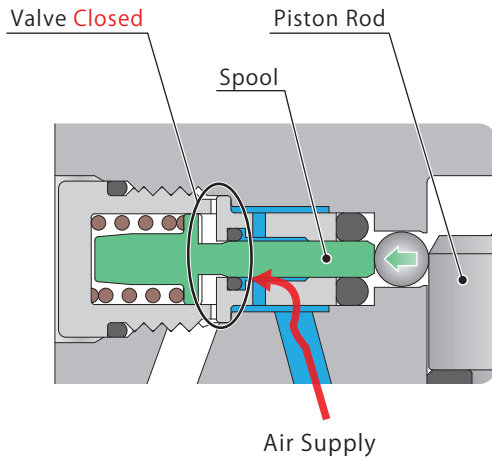
The piston rod descends.
※ If releasing the release pressure at this state, the piston rod may move with the built-in spring force.

Hydraulic Pressure		Air Catch Sensor	
Clamp Side	Unclamp Side	Clamp Confirmation	Unclamp Confirmation
OFF	ON	OFF	ON



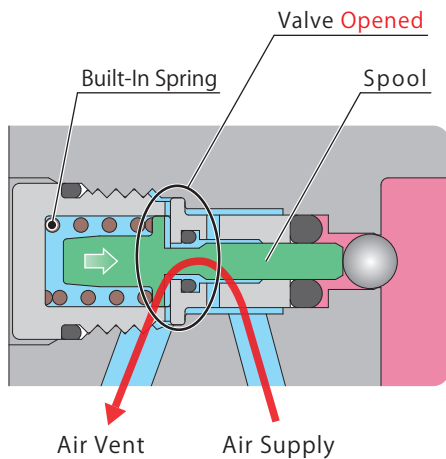
Clamp Confirmation Valve

Hyd. Pressure to Clamp Port Air Catch Sensor **ON**



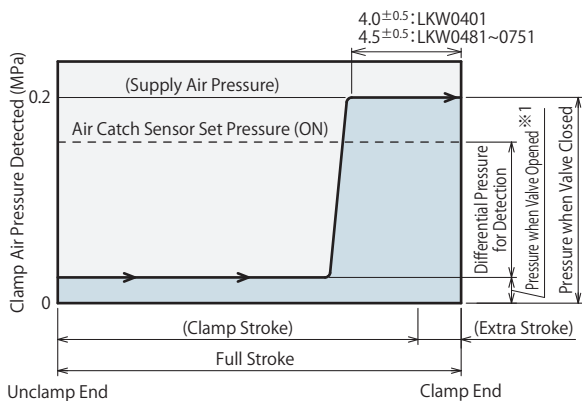
The spool is pushed back by the piston rod, and the valve is closed.

Hyd. Pressure to Unclamp Port Air Catch Sensor **OFF**



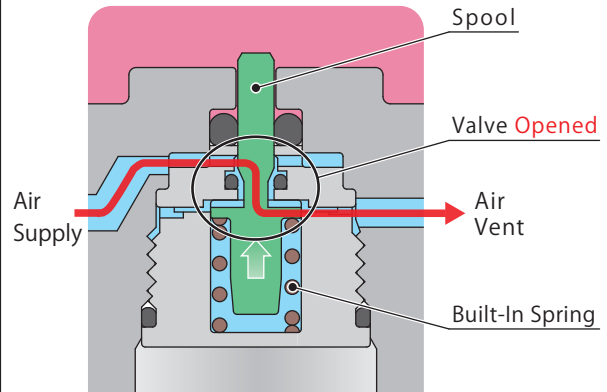
The spool is pushed forward by the built-in spring, and the valve is opened.

Sensing Chart for Clamp Confirmation



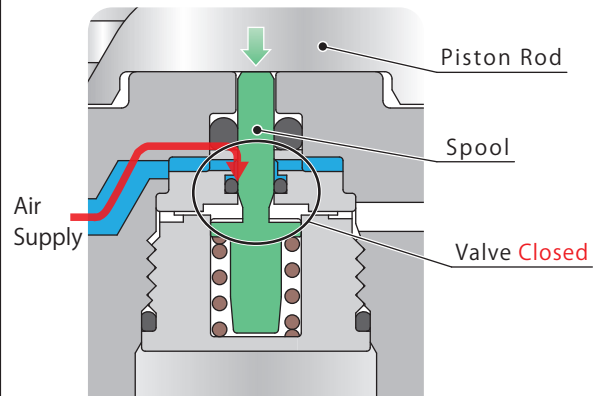
Unclamp Confirmation Valve

Hyd. Pressure to Clamp Port Air Catch Sensor **OFF**



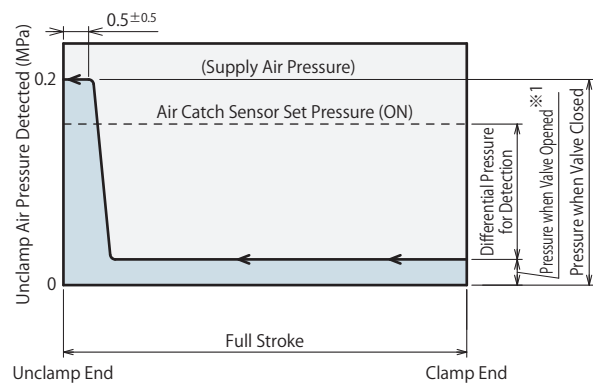
The spool is pushed forward by the built-in spring, and the valve is opened.

Hyd. Pressure to Unclamp Port Air Catch Sensor **ON**



The spool is pushed back by the piston rod, and the valve is closed.

Sensing Chart for Unclamp Confirmation



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
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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

※ 1. The sensor pressure for opening the valve depends on the sensor.

With air sensor with large air flow, the sensor pressure for opening the valve is higher and the differential pressure for detection is lower.

● Action Description (Air Sensing Chart Explanation)

Action confirmation can be conducted by detecting differential pressure with the built-in valve for air catch sensor.

Applicable Model

LKW 048 1 - C

R
L

E
H
J

Blank
A
H
K

5 Sensing Valve

E : Clamp - Unclamp Confirmation (Both)
H : Clamp Confirmation Only
J : Unclamp Confirmation Only

Air Catch Sensor

- Air catch sensor is required in order to conduct the action confirmation.

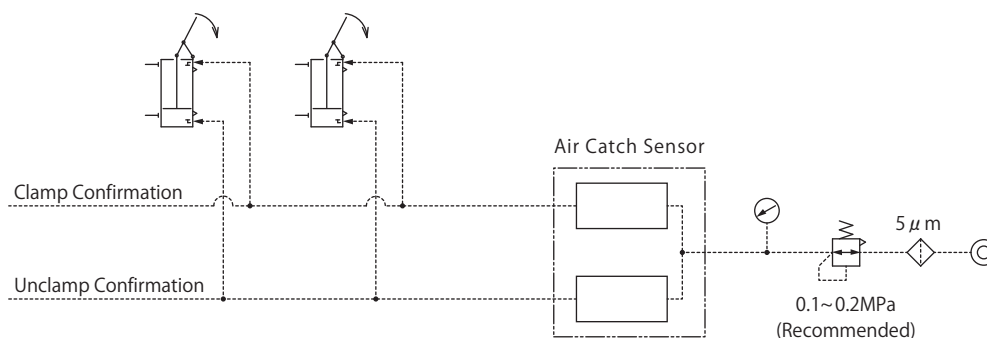
Sensing can be done by the air catch sensor with small air flow (recommended models are in the chart below).

Recommended Operating Air Pressure : 0.1~0.2MPa

Recommended Air Catch Sensor

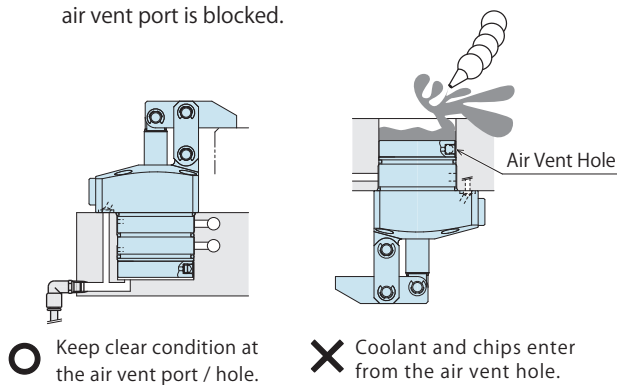
Manufacturer	SMC	CKD
Name	Air Catch Sensor	Gap Switch
Model No.	ISA3-G	GPS3-E

- Please refer to manufacturer's catalog or other documents for the details about the air catch sensor.
- The air pressure to the air catch sensor should be 0.1~0.2MPa.
- Please keep supplying air pressure when in use.
- Refer to the drawing below for the air circuit structure.

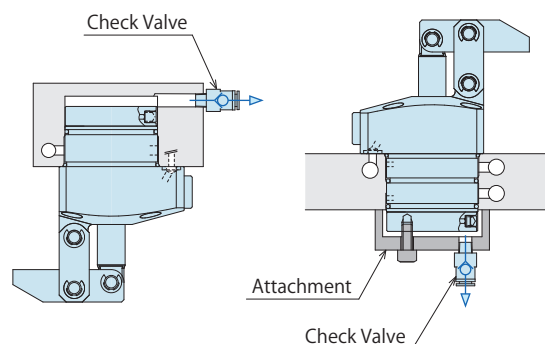


Notes for Design • Installation • Use

- Please keep clear condition at the air vent port / vent hole, and prevent coolant and chips from entering the port / hole. The air sensor can malfunction if the air vent port is blocked.



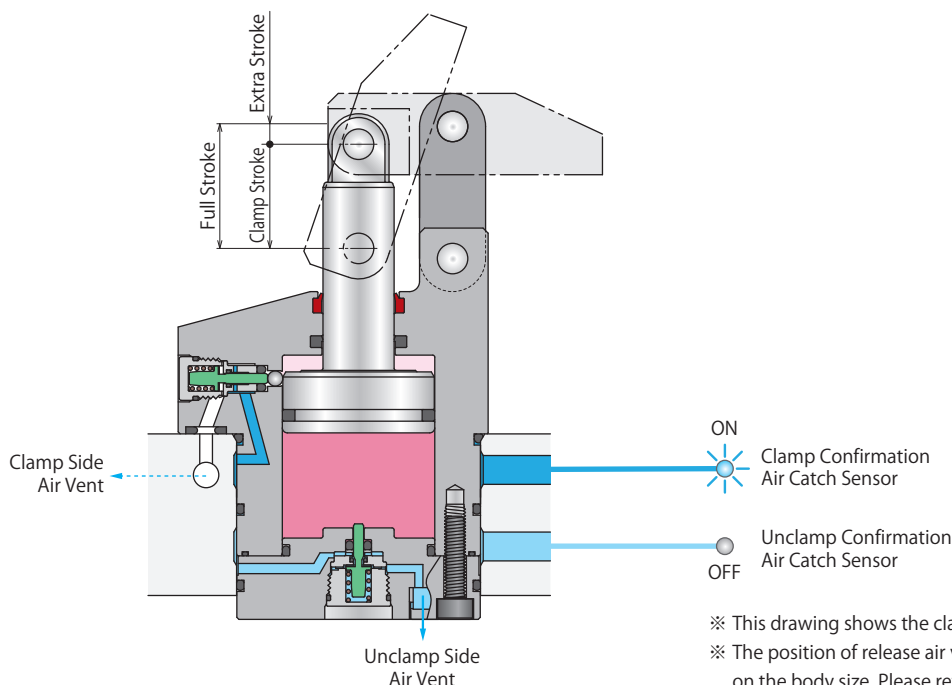
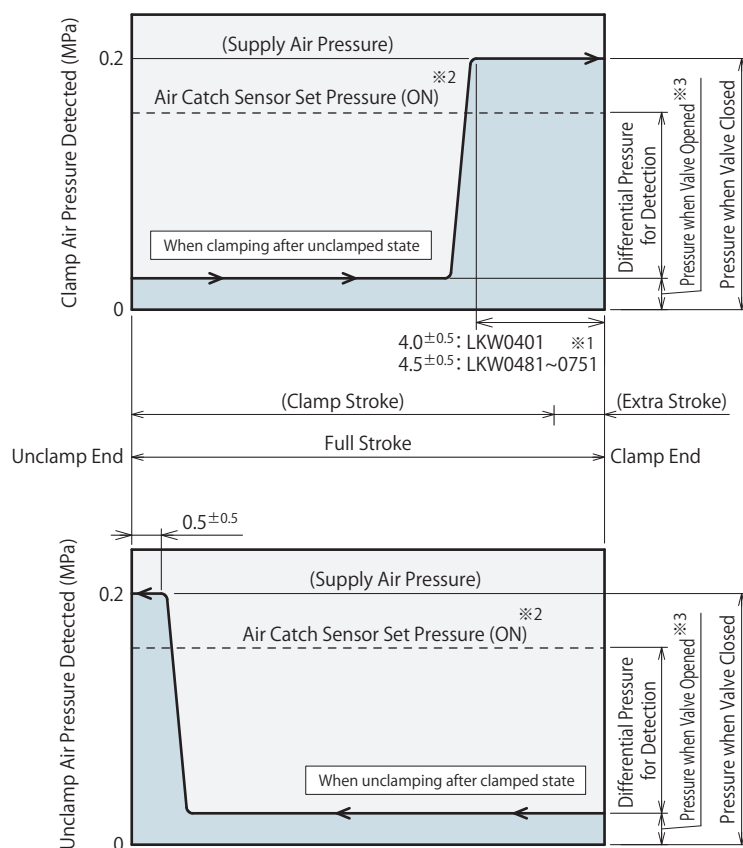
- Prevention of Contaminants to the Air Vent Port / Vent Hole
Coolant and chips can be prevented by setting a check valve with low cracking pressure. (Recommended check valve: SMC-made series AKH, cracking pressure: 0.005MPa)



- Keep supplying air pressure to the air port when in use.

Air Sensing Chart

Number Directly Connected to Clamp: 1



※ This drawing shows the clamped state.

※ The position of release air vent port varies depending on the body size. Please refer to external dimensions.

Notes :

- The sensing chart shows the relationship between the stroke and detection circuit air pressure.
 - The specifications may vary depending on the air circuit. The length of hose should be as short as possible. (Suggest shorter than 5m)
 - The sensing valve symbol  : Clamp Confirmation Only. The sensing valve symbol  : Unclamp Confirmation Only.
- ※1. There is a certain tolerance with regard to the position where the pressure for closing the valve is reached depending on the sensor structure. (Refer to the sensing chart.)
- ※2. The location of a signal from air sensor output varies depending on the sensor setting.
- ※3. The sensor pressure for opening the valve depends on the sensor.

With air sensor with large air flow, the sensor pressure for opening the valve is higher and the differential pressure for detection is lower.

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

Hole Clamp

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Swing Clamp

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

Link Clamp

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

Work Support

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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

LKW **048** **1** - **C** **R** **E** -

1
2
3
4
5
6

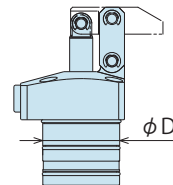
1 Body Size

040 : $\phi D=40\text{mm}$ **065** : $\phi D=65\text{mm}$

048 : $\phi D=48\text{mm}$ **075** : $\phi D=75\text{mm}$

055 : $\phi D=55\text{mm}$

※ Outer diameter (ϕD) of the cylinder.



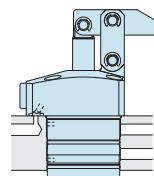
2 Design No.

1 : Revision Number

3 Piping Method

C : Gasket Option (With G Thread Plug)

※ Speed control valve (BZL) is sold separately.
Please refer to P.947.



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

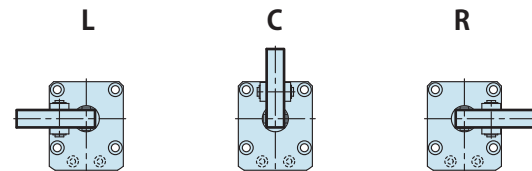
4 Lever Direction

L : Left

C : Center

R : Right

※ The images show the lever direction when the piping port is placed in front of you.



5 Sensing Valve

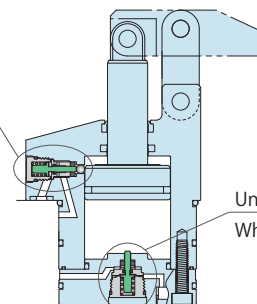
E : Clamp - Unclamp Confirmation (Both)

H : Clamp Confirmation Only

J : Unclamp Confirmation Only

Clamp Confirmation Valve
When Selecting **E, H**

Unclamp Confirmation Valve
When Selecting **E, J**



6 Option

Blank : None (Standard)

A : Quick Change Lever Option A

H : High Strength Link Plate (Increase in Allowable Offset)

K : Flange Pin with C Type Circlip

※ Please contact us for a combination of options.

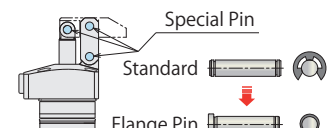
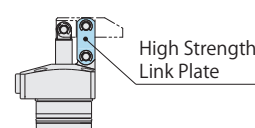
Blank

A



H

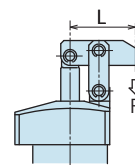
K



Specifications

Model No.		LKW0401-C□□-□	LKW0481-C□□-□	LKW0551-C□□-□	LKW0651-C□□-□	LKW0751-C□□-□
Cylinder Area for Clamping	cm ²	5.31	7.07	9.62	15.9	23.8
Cylinder Inner Diameter ※ ¹	mm	26	30	35	45	55
Rod Diameter ※ ¹	mm	12	14	16	20	22
Clamping Force (Calculation Formula) ※ ²	kN	$F = \frac{7.64 \times P}{L - 16}$	$F = \frac{11.76 \times P}{L - 18.5}$	$F = \frac{18.18 \times P}{L - 21}$	$F = \frac{35.06 \times P}{L - 24.5}$	$F = \frac{64.14 \times P}{L - 30}$
Cylinder Capacity	Clamp	10.9	16.6	25.0	46.9	83.2
	Unclamp	8.6	13.0	19.8	37.7	69.8
Full Stroke	mm	20.5	23.5	26	29.5	35
Clamp Stroke	mm	17.5	20.5	23	26.5	32
Extra Stroke	mm	3	3	3	3	3
Maximum Operating Pressure	MPa	7.0				
Minimum Operating Pressure ※ ³	MPa	0.5				
Withstanding Pressure	MPa	10.5				
Recommended Operating Air Pressure		0.1 ~ 0.2				
Recommended Air Catch Sensor		ISA3-G (SMC) / GPS3-E (CKD)				
Operating Temperature	°C	0 ~ 70				
Weight ※ ⁴	5 Sensing Valve E, H	0.8	1.2	1.6	2.7	3.8
	5 Sensing Valve J	0.7	1.1	1.6	2.7	3.8

- Notes : ※ 1. Clamping force cannot be calculated from the cylinder inner diameter and rod diameter.
Please refer to the clamping force curve.
- ※ 2. F : Clamping Force (kN), P : Supply Hydraulic Pressure (MPa),
L : Distance between the piston center and the clamping point (mm).
- ※ 3. Minimum pressure to operate the clamp without load.
- ※ 4. It shows the weight of single clamp without link 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

Clamping Force Curve

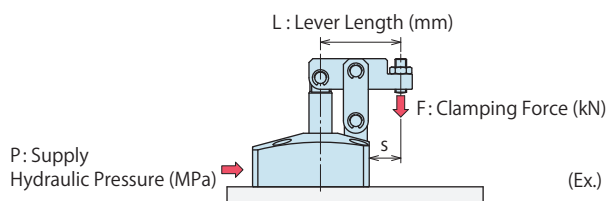
Applicable Model

LKW

1 - C

L	C	R	E	H	J	Blank
						A
						H
						K

1 Body Size



(Ex.) In case of LKW0481 :

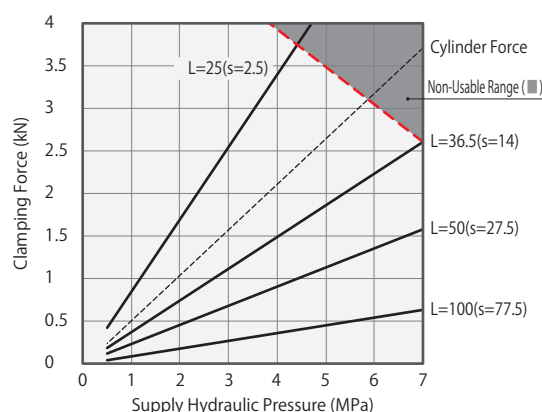
When supply hydraulic pressure P is 5.0MPa and lever length L is 42mm, clamping force becomes about 2.6kN.

Notes :

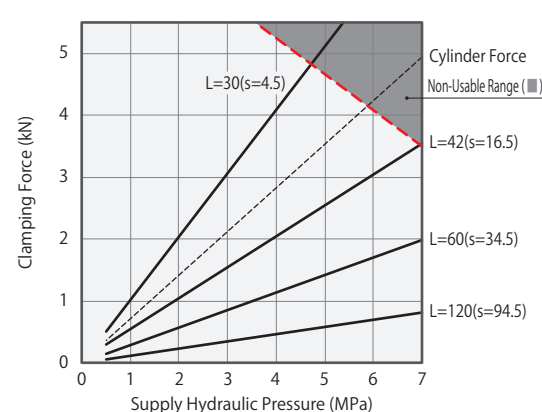
1. Tables and graphs show the relationship between the clamping force (kN) and supply hydraulic pressure (MPa).
2. Cylinder force (when L=0) cannot be calculated from the calculation formula of clamping force.
3. Clamping force in the non-usable range may cause damage and fluid leakage.

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

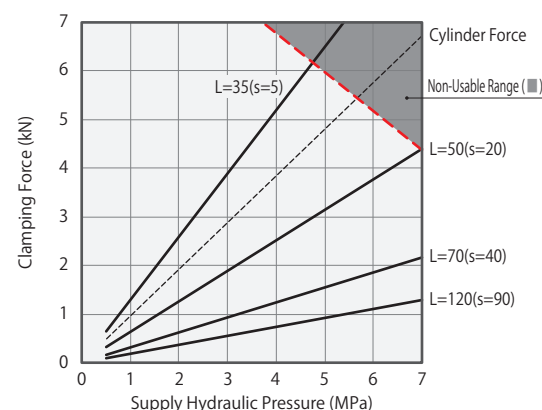
LKW0401		Clamping Force Calculation Formula ※1 (kN) $F = (7.64 \times P) / (L - 16)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (■)	Min. Lever Length (L) (mm)
		L=25	L=30	L=36.5	L=40	L=50	L=60	L=80	L=100		
7	3.8			2.7	2.3	1.6	1.3	0.9	0.7		36.5
6.5	3.5			2.5	2.1	1.5	1.2	0.8	0.6		34
6	3.2			2.3	2.0	1.4	1.1	0.8	0.6		32
5.5	3.0		3.1	2.2	1.8	1.3	1.0	0.7	0.6		29
5	2.7		2.8	2.0	1.6	1.2	0.9	0.6	0.5		27
4.5	2.4	3.9	2.5	1.8	1.5	1.1	0.8	0.6	0.5		26
4	2.2	3.4	2.2	1.6	1.3	0.9	0.7	0.5	0.4		24
3.5	1.9	3.0	2.0	1.4	1.2	0.8	0.7	0.5	0.4		23
3	1.6	2.6	1.7	1.2	1.0	0.7	0.6	0.4	0.3		23
2.5	1.4	2.2	1.4	1.0	0.8	0.6	0.5	0.3	0.3		23
2	1.1	1.7	1.1	0.8	0.7	0.5	0.4	0.3	0.2		23
1.5	0.8	1.3	0.9	0.6	0.5	0.4	0.3	0.2	0.2		23
1	0.6	0.9	0.6	0.4	0.4	0.3	0.2	0.2	0.1		23
0.5	0.3	0.5	0.3	0.2	0.2	0.2	0.1	0.1	0.1		23
Max. Operating Pressure (MPa)		4.5	5.8	7.0	7.0	7.0	7.0	7.0	7.0		



LKW0481		Clamping Force Calculation Formula ※1 (kN) $F = (11.76 \times P) / (L - 18.5)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (■)	Min. Lever Length (L) (mm)
		L=30	L=35	L=42	L=50	L=60	L=80	L=100	L=120		
7	5.0			3.6	2.7	2.0	1.4	1.1	0.9		42
6.5	4.6			3.3	2.5	1.9	1.3	1.0	0.8		39
6	4.3			3.1	2.3	1.8	1.2	0.9	0.7		36
5.5	3.9		4.0	2.8	2.1	1.6	1.1	0.8	0.7		34
5	3.6		3.6	2.6	1.9	1.5	1.0	0.8	0.6		32
4.5	3.2	4.7	3.3	2.3	1.7	1.3	0.9	0.7	0.6		30
4	2.9	4.1	2.9	2.1	1.5	1.2	0.8	0.6	0.5		28
3.5	2.5	3.6	2.5	1.8	1.4	1.0	0.7	0.6	0.5		26
3	2.2	3.1	2.2	1.6	1.2	0.9	0.6	0.5	0.4		26
2.5	1.8	2.6	1.8	1.3	1.0	0.8	0.5	0.4	0.3		26
2	1.5	2.1	1.5	1.1	0.8	0.6	0.4	0.3	0.2		26
1.5	1.1	1.6	1.1	0.8	0.6	0.5	0.3	0.3	0.2		26
1	0.8	1.1	0.8	0.6	0.4	0.3	0.2	0.2	0.2		26
0.5	0.4	0.6	0.4	0.3	0.2	0.2	0.1	0.1	0.1		26
Max. Operating Pressure (MPa)		4.8	5.9	7.0	7.0	7.0	7.0	7.0	7.0		



LKW0551		Clamping Force Calculation Formula ※1 (kN) $F = (18.18 \times P) / (L - 21)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (■)	Min. Lever Length (L) (mm)
		L=35	L=40	L=50	L=60	L=70	L=80	L=100	L=120		
7	6.8			4.4	3.3	2.6	2.2	1.7	1.3		50
6.5	6.3			4.1	3.1	2.5	2.1	1.5	1.2		46
6	5.8			3.8	2.8	2.3	1.9	1.4	1.2		43
5.5	5.3		5.3	3.5	2.6	2.1	1.7	1.3	1.1		39
5	4.9		4.8	3.2	2.4	1.9	1.6	1.2	1.0		37
4.5	4.4	5.9	4.4	2.9	2.1	1.7	1.4	1.1	0.9		34
4	3.9	5.2	3.9	2.6	1.9	1.5	1.3	1.0	0.8		32
3.5	3.4	4.6	3.4	2.2	1.7	1.3	1.1	0.9	0.7		30
3	2.9	3.9	2.9	1.9	1.4	1.2	1.0	0.7	0.6		30
2.5	2.5	3.3	2.4	1.6	1.2	1.0	0.8	0.6	0.5		30
2	2.0	2.6	2.0	1.3	1.0	0.8	0.7	0.5	0.4		30
1.5	1.5	2.0	1.5	1.0	0.7	0.6	0.5	0.4	0.3		30
1	1.0	1.3	1.0	0.7	0.5	0.4	0.4	0.3	0.2		30
0.5	0.5	0.7	0.5	0.4	0.3	0.2	0.2	0.2	0.1		30
Max. Operating Pressure (MPa)		4.8	5.7	7.0	7.0	7.0	7.0	7.0	7.0		



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

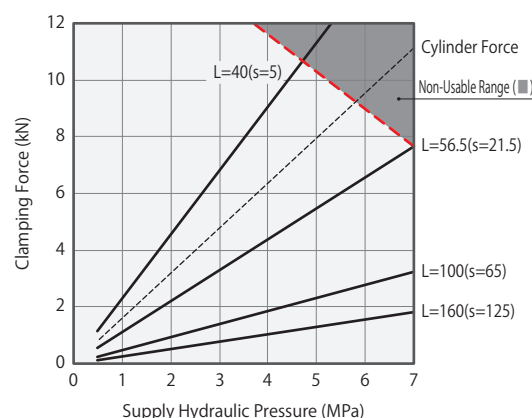
Pull Stud Clamp

FP
FQ

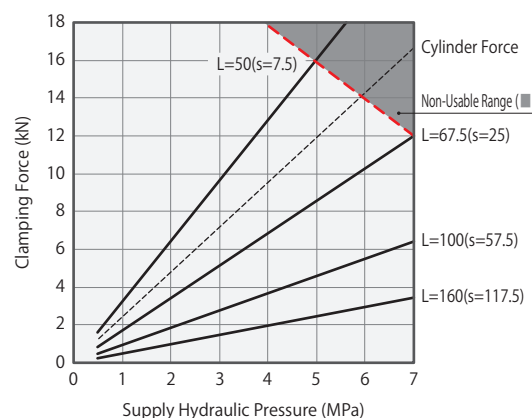
Customized Spring Cylinder

DWA/DWB

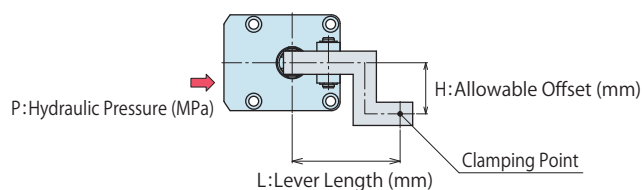
LKW0651		Clamping Force Calculation Formula ※1 (kN) $F = (35.06 \times P) / (L - 24.5)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN)								Non-Usable Range (■)	Min. Lever Length (L) (mm)
		L=40	L=50	L=56.5	L=80	L=100	L=120	L=140	L=160		
7	11.2			7.7	4.5	3.3	2.6	2.2	1.9		56.5
6.5	10.4			7.2	4.2	3.1	2.4	2.0	1.7		52
6	9.6		8.3	6.6	3.8	2.8	2.3	1.9	1.6		48
5.5	8.8		7.6	6.1	3.5	2.6	2.1	1.7	1.5		45
5	8.0		6.9	5.5	3.2	2.4	1.9	1.6	1.3		42
4.5	7.2	10.2	6.2	5.0	2.9	2.1	1.7	1.4	1.2		39
4	6.4	9.1	5.5	4.4	2.6	1.9	1.5	1.3	1.1		37
3.5	5.6	8.0	4.9	3.9	2.3	1.7	1.3	1.1	1.0		35
3	4.8	6.8	4.2	3.3	1.9	1.4	1.2	1.0	0.8		35
2.5	4.0	5.7	3.5	2.8	1.6	1.2	1.0	0.8	0.7		35
2	3.2	4.6	2.8	2.2	1.3	1.0	0.8	0.7	0.6		35
1.5	2.4	3.4	2.1	1.7	1.0	0.7	0.6	0.5	0.4		35
1	1.6	2.3	1.4	1.1	0.7	0.5	0.4	0.4	0.3		35
0.5	0.8	1.2	0.7	0.6	0.4	0.3	0.2	0.2	0.2		35
Max. Operating Pressure (MPa)		4.8	6.3	7.0	7.0	7.0	7.0	7.0	7.0		



LKW0751		Clamping Force Calculation Formula ※1 (kN) $F = (64.14 \times P) / (L - 30)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN)								Non-Usable Range (■)	Min. Lever Length (L) (mm)
		L=50	L=60	L=67.5	L=80	L=100	L=120	L=140	L=160		
7	16.7			12.0	9.0	6.5	5.0	4.1	3.5		67.5
6.5	15.5			11.2	8.4	6.0	4.7	3.8	3.3		63
6	14.3		12.9	10.3	7.7	5.5	4.3	3.5	3.0		58
5.5	13.1		11.8	9.5	7.1	5.1	4.0	3.3	2.8		54
5	11.9	16.1	10.7	8.6	6.5	4.6	3.6	3.0	2.5		51
4.5	10.7	14.5	9.7	7.7	5.8	4.2	3.3	2.7	2.3		48
4	9.6	12.9	8.6	6.9	5.2	3.7	2.9	2.4	2.0		45
3.5	8.4	11.3	7.5	6.0	4.5	3.3	2.5	2.1	1.8		43
3	7.2	9.7	6.5	5.2	3.9	2.8	2.2	1.8	1.5		43
2.5	6.0	8.1	5.4	4.3	3.3	2.3	1.8	1.5	1.3		43
2	4.8	6.5	4.3	3.5	2.6	1.9	1.5	1.2	1.0		43
1.5	3.6	4.9	3.3	2.6	2.0	1.4	1.1	0.9	0.8		43
1	2.4	3.3	2.2	1.8	1.3	1.0	0.8	0.6	0.5		43
0.5	1.2	1.7	1.1	0.9	0.7	0.5	0.4	0.3	0.3		43
Max. Operating Pressure (MPa)		5.0	6.3	7.0	7.0	7.0	7.0	7.0	7.0		



● Allowable Offset Graph (Option · · · Blank : Standard)



Ex.) In case of LKW0481-C□□-□ :

When supply hydraulic pressure P is 5.0MPa and lever length L is 80mm, allowable offset becomes about 10mm.

Applicable Model

LKW 1 - C L C R E H J - Blank A K

1 Body Size

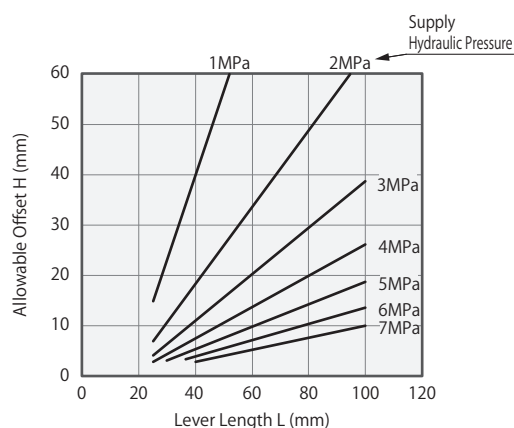
6 Option Blank (or A / K)

Notes :

1. Tables and graphs show the relationship between the lever length and the allowable offset according to the supply hydraulic pressure.
2. Using the lever beyond allowable offset may cause deformation, seizure and fluid leakage etc.
3. The tables and graphs are only for reference. The design should be carried out with allowance fully taken into consideration.

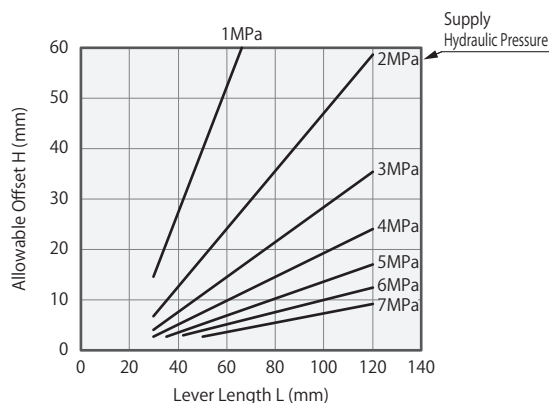
LKW0401-C□□-□

Hydraulic Pressure (MPa)	Allowable Offset H (mm)								Non-Usable Range (■)
	Lever Length L (mm)								
	L=25	L=30	L=36.5	L=40	L=50	L=60	L=80	L=100	
7				3	4	5	8	10	
6.5			3	3	5	6	9	12	
6			3	4	5	7	10	14	
5.5		3	4	5	6	8	12	16	
5		3	5	5	8	10	14	19	
4.5		4	5	6	9	12	17	22	
4	3	4	6	7	11	14	20	26	
3.5	3	5	8	9	13	17	24	32	
3	4	6	9	11	16	20	30	39	
2.5	5	8	12	14	20	26	37	49	
2	7	11	16	18	26	34	49	60	
1.5	10	15	22	26	36	47	60	60	
1	15	23	34	40	57	60	60	60	



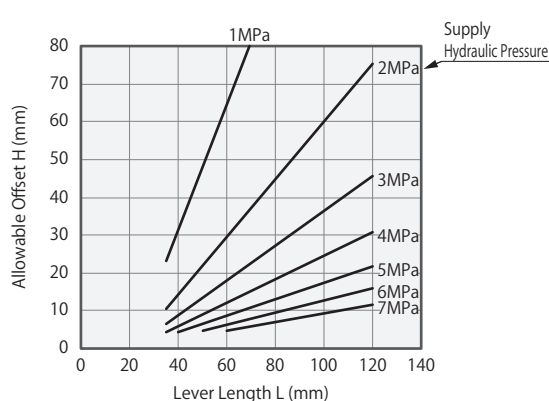
LKW0481-C□□-□

Hydraulic Pressure (MPa)	Allowable Offset H (mm)							Non-Usable Range (■)
	Lever Length L (mm)							
	L=30	L=35	L=42	L=50	L=60	L=80	L=100	
7				3		6	7	9
6.5			2	3	4	6	9	11
6			3	4	5	8	10	12
5.5		2	3	5	6	9	12	15
5		3	4	5	7	10	14	17
4.5		3	5	6	8	12	16	20
4	3	4	6	7	10	15	19	24
3.5	3	5	7	9	12	18	23	29
3	4	6	8	11	15	22	29	36
2.5	5	7	10	14	18	27	36	45
2	7	10	14	18	24	36	47	59
1.5	9	13	19	25	33	50	60	60
1	14	21	30	40	52	60	60	60



LKW0551-C□□-□

Hydraulic Pressure (MPa)	Allowable Offset H (mm)								Non-Usable Range (■)
	Lever Length L (mm)								
	L=35	L=40	L=50	L=60	L=70	L=80	L=100	L=120	
7				5	6	7	9	12	
6.5			4	5	7	8	11	14	
6			5	6	8	10	13	16	
5.5			5	7	9	11	15	19	
5		4	6	9	11	13	17	22	
4.5		5	8	10	13	15	21	26	
4	4	6	9	12	15	18	25	31	
3.5	5	7	11	15	18	22	30	37	
3	6	9	13	18	23	27	36	46	
2.5	8	11	17	23	28	34	46	57	
2	11	14	22	30	37	45	60	75	
1.5	15	20	31	41	52	62	80	80	
1	23	31	48	65	80	80	80	80	

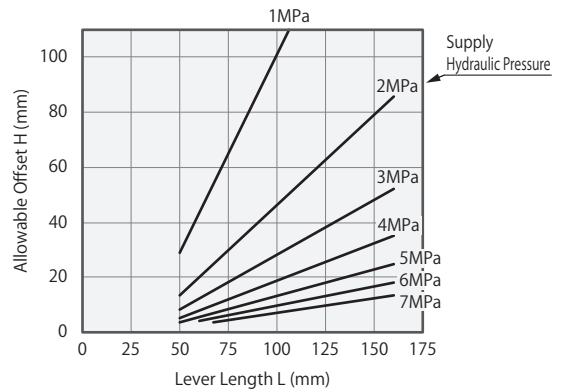
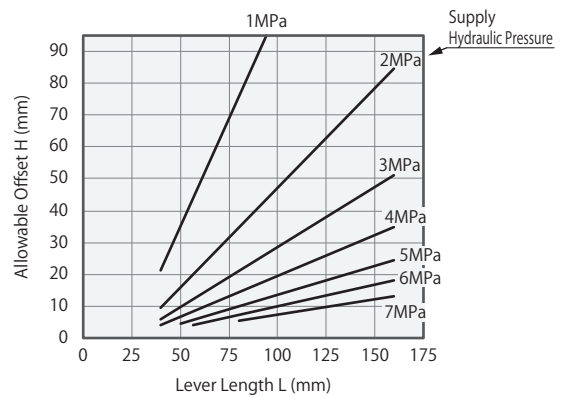


LKW0651-C□□-□

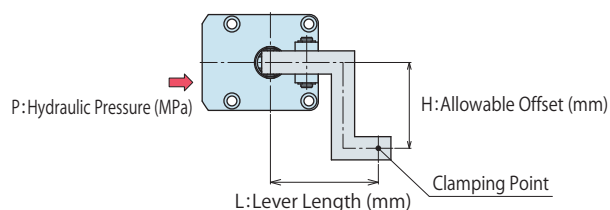
Hydraulic Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range (■)							
	Lever Length L (mm)							
	L=40	L=50	L=56.5	L=80	L=100	L=120	L=140	L=160
7	■	■	■	5	7	9	11	13
6.5	■	■	■	4	6	9	11	13
6	■	■	■	4	7	10	13	15
5.5	■	4	5	9	12	15	18	21
5	■	5	6	10	14	17	21	25
4.5	3	5	7	12	16	20	25	29
4	4	7	8	14	19	24	30	35
3.5	5	8	10	17	23	29	36	42
3	6	10	12	21	29	36	44	51
2.5	7	12	15	26	36	46	55	65
2	10	16	20	35	47	60	72	85
1.5	13	22	28	48	66	83	101	118
1	21	35	44	76	103	130	157	185

LKW0751-C□□-□

Hydraulic Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range (■)							
	Lever Length L (mm)							
	L=50	L=60	L=67.5	L=80	L=100	L=120	L=140	L=160
7	■	■	■	5	7	9	11	13
6.5	■	■	■	5	6	8	11	13
6	■	4	5	7	10	13	15	18
5.5	■	5	6	8	11	15	18	21
5	4	6	7	10	13	17	21	25
4.5	5	7	9	11	16	20	25	30
4	5	8	10	14	19	24	30	35
3.5	7	10	12	16	23	29	36	42
3	8	12	15	20	28	36	44	52
2.5	10	15	19	25	35	45	56	66
2	13	20	25	33	46	60	73	86
1.5	18	28	35	46	65	83	101	120
1	29	43	54	72	101	130	159	188



● Allowable Offset Graph (Option · · · H : High Strength Link Plate)



Ex.) In case of LKW0481-C□□-H :
When supply hydraulic pressure P is 5.0MPa and lever length L is 80mm, allowable offset becomes about 46mm.

Applicable Model

LKW 1 - C L E H - H

1 Body Size 6 Option H

Notes :

1. Tables and graphs show the relationship between the lever length and the allowable offset according to the supply hydraulic pressure.
2. Using the lever beyond allowable offset may cause deformation, seizure and fluid leakage etc.
3. The tables and graphs are only for reference. The design should be carried out with allowance fully taken into consideration.

LKW0401-C□□-H

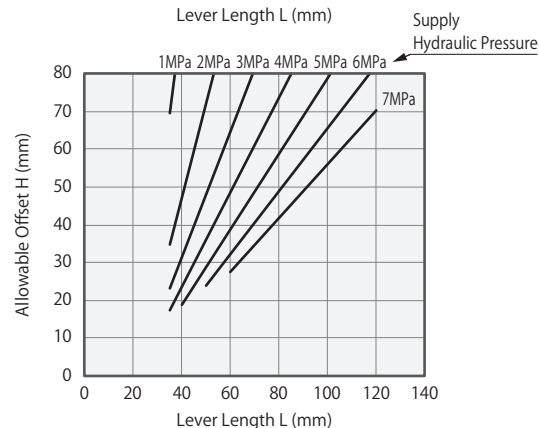
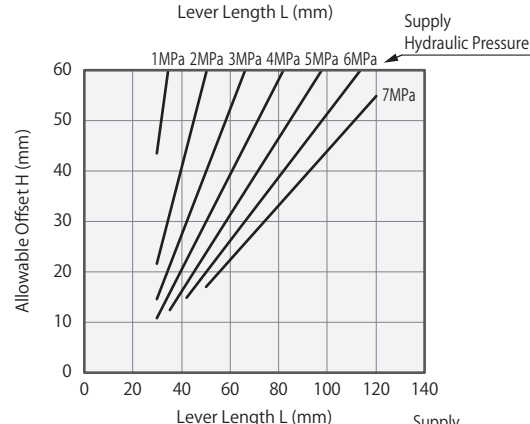
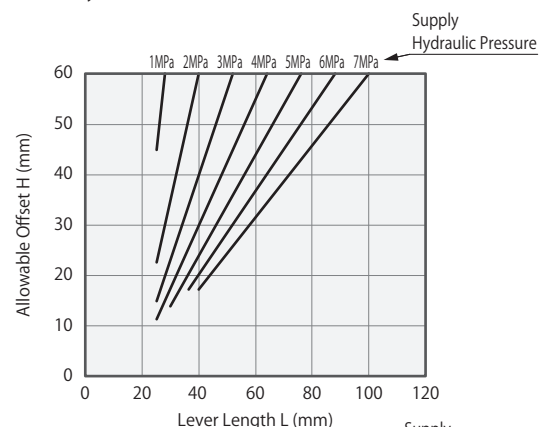
Hydraulic Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range (■)							
	Lever Length L (mm)							
	L=25	L=30	L=36.5	L=40	L=50	L=60	L=80	L=100
7				17	24	31	46	60
6.5				16	18	26	34	49
6				17	20	28	37	53
5.5		13	19	22	31	40	58	60
5		14	20	24	34	44	60	60
4.5		16	23	27	38	49	60	60
4	11	17	26	30	42	55	60	60
3.5	13	20	29	34	48	60	60	60
3	15	23	34	40	57	60	60	60
2.5	18	28	41	48	60	60	60	60
2	22	35	51	60	60	60	60	60
1.5	30	47	60	60	60	60	60	60
1	45	60	60	60	60	60	60	60

LKW0481-C□□-H

Hydraulic Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range (■)							
	Lever Length L (mm)							
	L=30	L=35	L=42	L=50	L=60	L=80	L=100	L=120
7				17	22	33	44	55
6.5				14	18	24	36	47
6				15	20	26	39	51
5.5		11	16	22	29	42	56	60
5		12	18	24	31	46	60	60
4.5		14	20	26	35	52	60	60
4	11	16	22	30	39	58	60	60
3.5	12	18	25	34	45	60	60	60
3	14	21	30	40	52	60	60	60
2.5	17	25	36	48	60	60	60	60
2	22	31	44	60	60	60	60	60
1.5	29	42	59	60	60	60	60	60
1	43	60	60	60	60	60	60	60

LKW0551-C□□-H

Hydraulic Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range (■)							
	Lever Length L (mm)							
	L=35	L=40	L=50	L=60	L=70	L=80	L=100	L=120
7				28	35	42	56	70
6.5				22	30	37	45	60
6				24	32	41	49	65
5.5				26	35	44	53	71
5		19	29	39	49	59	79	80
4.5		21	32	43	54	65	80	80
4	17	24	36	48	61	73	80	80
3.5	20	27	41	55	70	80	80	80
3	23	31	48	65	80	80	80	80
2.5	28	38	58	78	80	80	80	80
2	35	47	72	80	80	80	80	80
1.5	46	63	80	80	80	80	80	80
1	70	80	80	80	80	80	80	80



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

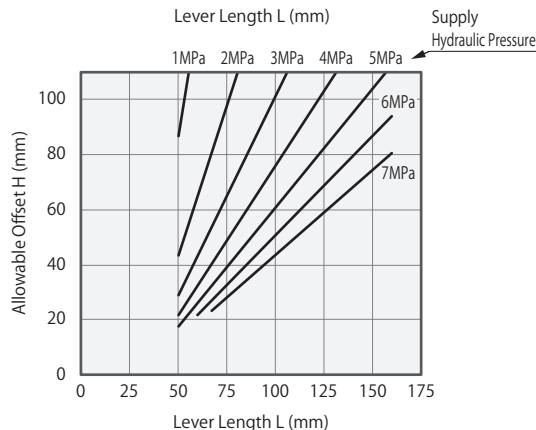
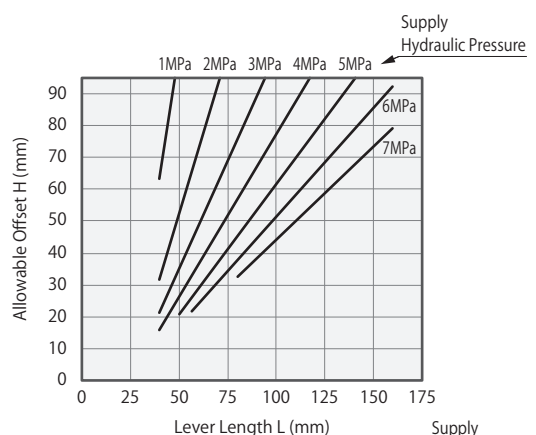
DWA/DWB

LKW0651-C□□-H

Hydraulic Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range (■)							
	Lever Length L (mm)							
	L=40	L=50	L=56.5	L=80	L=100	L=120	L=140	L=160
7	■	■	■	32	44	56	67	79
6.5	■	■	■	20	35	47	60	73
6	■	■	■	22	38	51	65	79
5.5	■	19	24	41	56	71	86	95
5	■	21	26	45	62	78	94	95
4.5	14	23	29	50	69	87	95	95
4	16	26	33	57	77	95	95	95
3.5	18	30	37	65	88	95	95	95
3	21	35	44	76	95	95	95	95
2.5	25	42	52	91	95	95	95	95
2	32	52	65	95	95	95	95	95
1.5	42	70	87	95	95	95	95	95
1	63	95	95	95	95	95	95	95

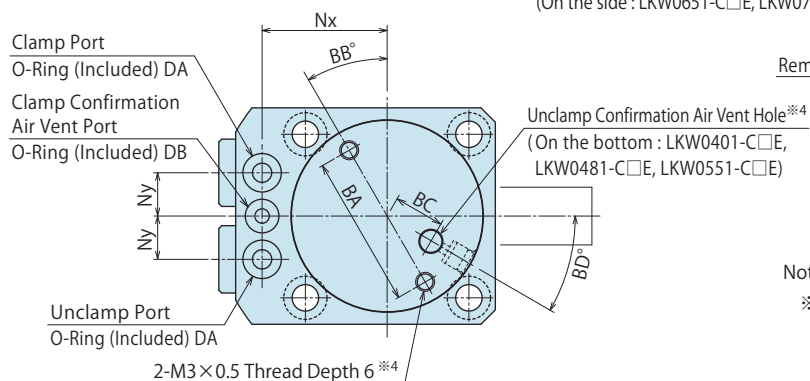
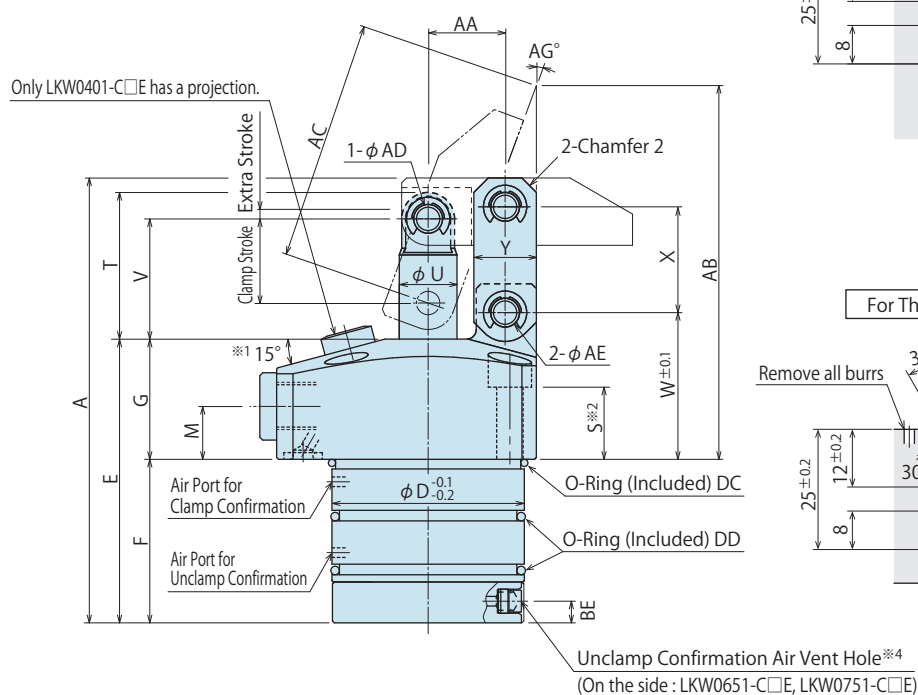
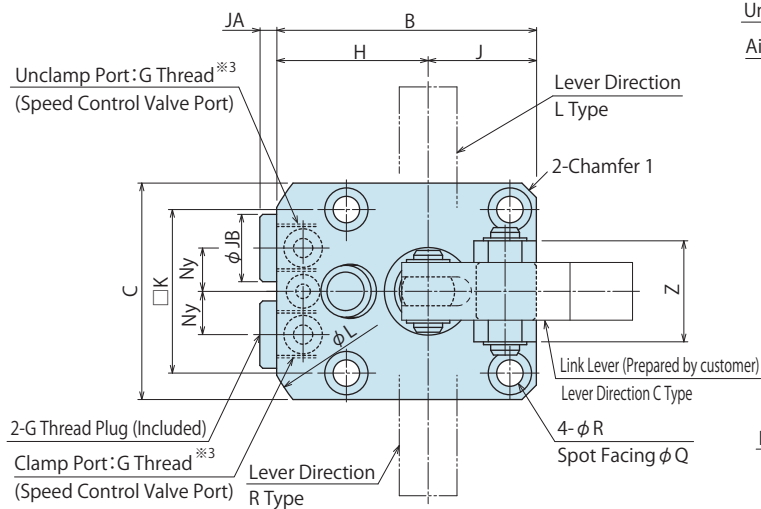
LKW0751-C□□-H

Hydraulic Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range (■)							
	Lever Length L (mm)							
	L=50	L=60	L=67.5	L=80	L=100	L=120	L=140	L=160
7	■	■	■	31	43	56	68	80
6.5	■	■	■	25	33	47	60	73
6	■	22	27	36	51	65	79	94
5.5	■	24	30	39	55	71	87	102
5	17	26	32	43	61	78	95	110
4.5	19	29	36	48	67	87	106	110
4	22	32	41	54	76	97	110	110
3.5	25	37	46	62	87	110	110	110
3	29	43	54	72	101	110	110	110
2.5	35	52	65	87	110	110	110	110
2	43	65	81	108	110	110	110	110
1.5	58	87	108	110	110	110	110	110
1	87	110	110	110	110	110	110	110

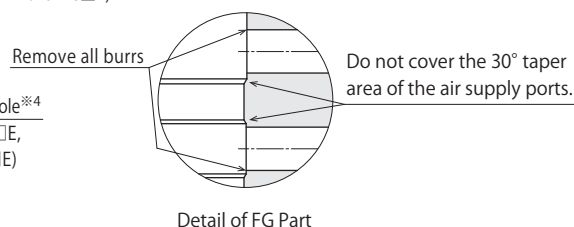
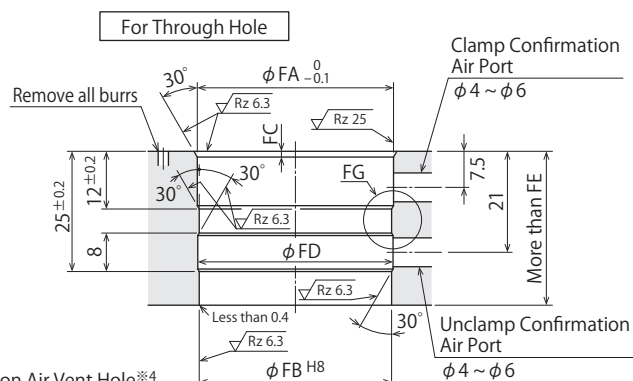
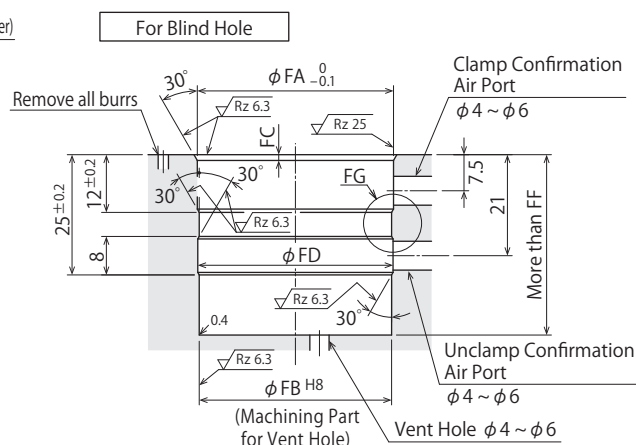
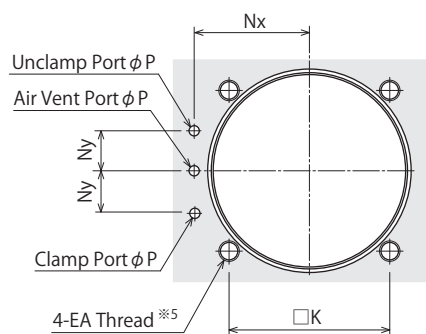


External Dimensions (Clamp - Unclamp Confirmation)

※ The drawing shows the clamped state of LKW-CCE.



Machining Dimensions of Mounting Area



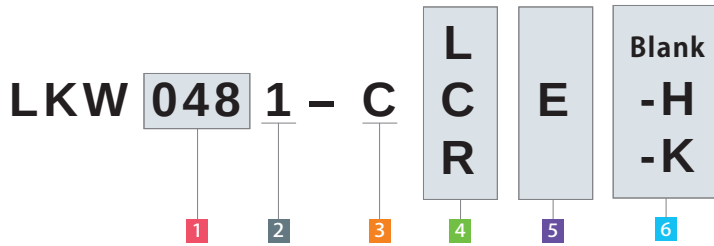
Note :

※5. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimensions 'S'.

Notes :

- ※ 1. Flange inclination angle is 12° only for LKW0651.
 - ※ 2. Mounting bolts are not provided with the product.
Please prepare them according to the mounting height referring to dimension 'S'.
 - ※ 3. Speed control valve is sold separately. Please refer to P.947 for detail.
 - ※ 4. Please keep clear condition at the air vent hole, and prevent coolant and chips from entering the hole.
If exposed to coolant and chips, use M3 thread of the bottom and install an attachment to prevent contamination, but do not block the air vent hole.
1. Please use the provided pin (equivalent to φ ADf6, φ AEf6, HRC60) as mounting pin for lever.

Model No. Indication



(Format Example : LKW0481-CCE, LKW0551-CLE-H)

- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Lever Direction
- 5 Sensing Valve
(E : Clamp - Unclamp Confirmation)
- 6 Option (Blank / H / K)

Notes :

1. For option -H, the material of link plate has higher intensity than that of standard plate, and the form of chamfering 2 is round.
2. For option -K, flange pin is used as link pin (3 parts) and C type circlip is used as stop ring.

External Dimensions and Machining Dimensions of Mounting (mm)

Model No.	LKW0401-C□E-□	LKW0481-C□E-□	LKW0551-C□E-□	LKW0651-C□E-□	LKW0751-C□E-□
Full Stroke	20.5	23.5	26	29.5	35
Clamp Stroke	17.5	20.5	23	26.5	32
Extra Stroke	3	3	3	3	3
A	92.5	103.5	110.5	124.5	145.5
B	54	61	69	81	94.5
C	45	51	60	70	85
D	40	48	55	65	75
E	59	64.5	65	70.5	78.5
F	34	36.5	37	40.5	41.5
G	25	28	28	30	37
H	31.5	35.5	39	46	52
J	22.5	25.5	30	35	42.5
K	34	40	47	55	63
L	72	81	88	106	116
M	11	12	12	13	16
Nx	26	30	33.5	39.5	45
Ny	9	11	12	15	16
P	3	3	3	5	5
Q	9	9	11	11	14
R	5.5	5.5	6.8	6.8	9
S	15	16	13.5	16	17.5
T	30.5	35	37.5	45	55
U	12	14	16	20	22
V	25	29	31.5	37	45
W	30.5	34.5	35.5	39	48
X	22	26	30	35.5	43.5
Y	13	13	16	19	25
Z	21	24	28	37	40
Chamfer 1	C3	C3	C3	C4	C10
Chamfer 2	C3	C3	C3	C5	C5
AA	16	18.5	21	24.5	30
AB	77.7	92.4	101.9	111.4	130.8
AC	50.2	61.2	71.7	78.7	90.8
AD	6	6	6	8	10
AE	6	6	8	10	12
AG	20.2	18.9	19.9	20.5	21.4
BA	31.6	38	43	54	64
BB	0°	0°	0°	0°	30°
BC	R 10.5	R 10.5	R 10.5	—	—
BD	30°	30°	30°	30°	22.5°
BE	—	—	—	5	5
EA (Nominal×Pitch)	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25
FA	40.8	49	56	66	76
FB	40 ^{+0.039} ₀	48 ^{+0.039} ₀	55 ^{+0.046} ₀	65 ^{+0.046} ₀	75 ^{+0.046} ₀
FC	1.2	1.2	1.5	1.5	1.5
FD	40.6	48.6	55.6	65.6	75.6
FE	30	32	30	30	30
FF	34.5	37	37.5	41	42
JA	3.5	3.5	3.5	4.5	4.5
JB	14	14	14	19	19
Clamp Port : G Thread	G1/8	G1/8	G1/8	G1/4	G1/4
Unclamp Port : G Thread					
O-Ring	DA	1BP5	1BP5	1BP7	1BP7
	DB	AS568-007(90°)	1BP5	1BP7	1BP7
	DC	38×1.5 (Internal Diameter × Wire Diameter)	AS568-031(70°)	AS568-034(70°)	AS568-037(70°)
	DD	AS568-028(70°)	AS568-031(70°)	AS568-033(70°)	AS568-039(70°)

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

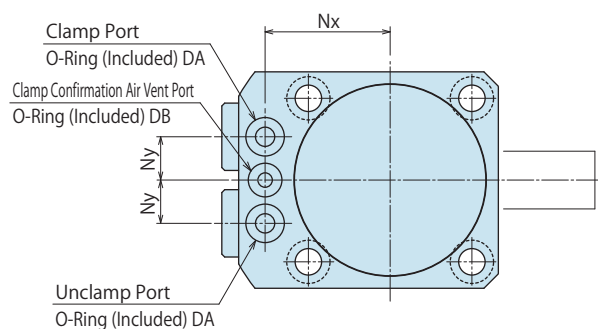
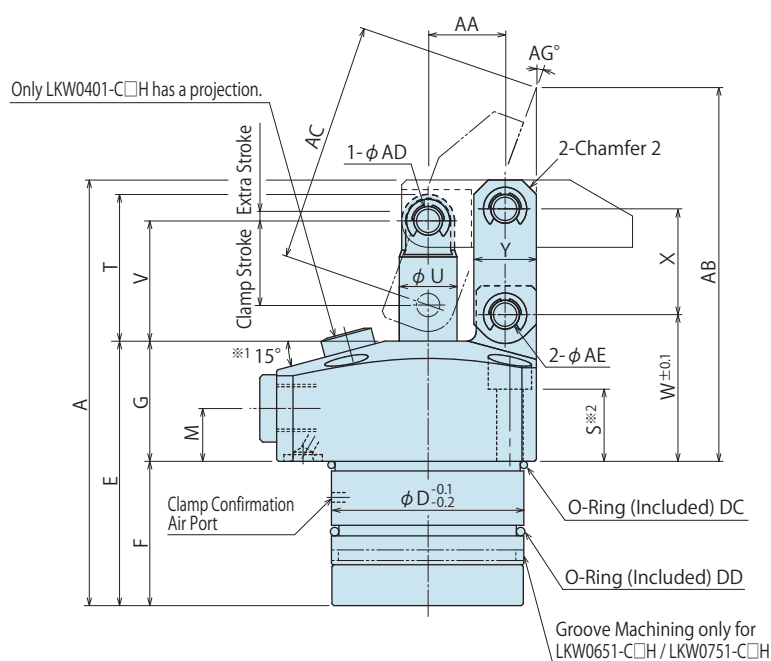
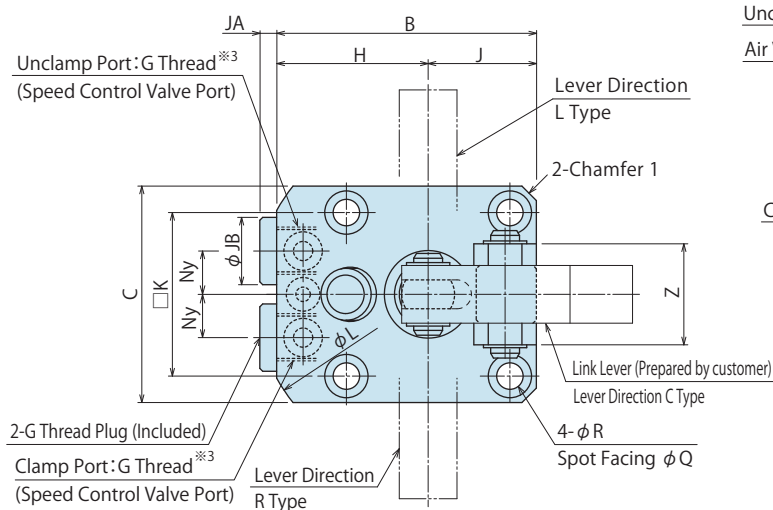
FP
FQ

Customized Spring Cylinder

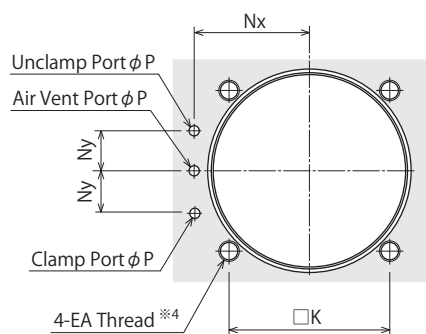
DWA/DWB

External Dimensions (Clamp Confirmation Only)

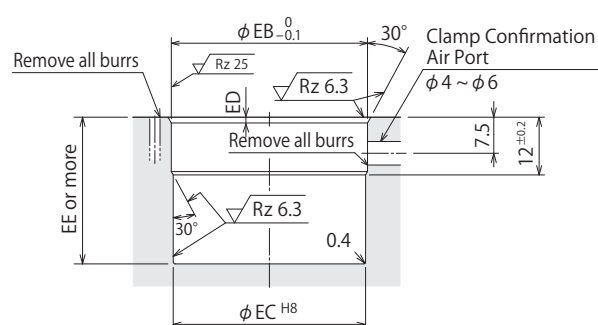
※The drawing shows the clamped state of LKW-CCH.



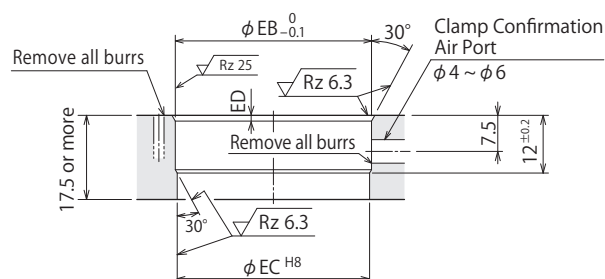
Machining Dimensions of Mounting Area



For Blind Hole



For Through Hole



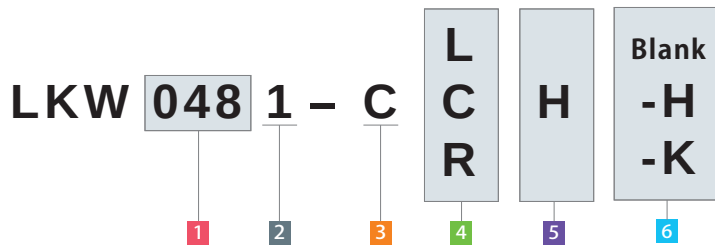
Note :

- ※4. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimensions 'S'.

Notes :

- ※1. Flange inclination angle is 12° only for LKW0651.
- ※2. Mounting bolts are not provided with the product.
Please prepare them according to the mounting height referring to dimension 'S'.
- ※3. Speed control valve is sold separately. Please refer to P.947 for detail.
1. Please use the provided pin (equivalent to φADf6, φAEf6, HRC60) as mounting pin for lever.

● Model No. Indication



(Format Example : LKW0481-CCH, LKW0551-CLH-H)

- 1** Body Size
- 2** Design No.
- 3** Piping Method
- 4** Lever Direction
- 5** Sensing Valve
(H : Clamp Confirmation Only)
- 6** Option (Blank / H / K)

Notes :

- For option -H, the material of link plate has higher intensity than that of standard plate, and the form of chamfering 2 is round.
- For option -K, flange pin is used as link pin (3 parts) and C type circlip is used as stop ring.

● External Dimensions and Machining Dimensions of Mounting (mm)

Model No.	LKW0401-C□H-□	LKW0481-C□H-□	LKW0551-C□H-□	LKW0651-C□H-□	LKW0751-C□H-□
Full Stroke	20.5	23.5	26	29.5	35
Clamp Stroke	17.5	20.5	23	26.5	32
Extra Stroke	3	3	3	3	3
A	88.5	99.5	109	124.5	145.5
B	54	61	69	81	94.5
C	45	51	60	70	85
D	40	48	55	65	75
E	55	60.5	63.5	70.5	78.5
F	30	32.5	35.5	40.5	41.5
G	25	28	28	30	37
H	31.5	35.5	39	46	52
J	22.5	25.5	30	35	42.5
K	34	40	47	55	63
L	72	81	88	106	116
M	11	12	12	13	16
Nx	26	30	33.5	39.5	45
Ny	9	11	12	15	16
P	3	3	3	5	5
Q	9	9	11	11	14
R	5.5	5.5	6.8	6.8	9
S	15	16	13.5	16	17.5
T	30.5	35	37.5	45	55
U	12	14	16	20	22
V	25	29	31.5	37	45
W	30.5	34.5	35.5	39	48
X	22	26	30	35.5	43.5
Y	13	13	16	19	25
Z	21	24	28	37	40
Chamfer 1	C3	C3	C3	C4	C10
Chamfer 2	C3	C3	C3	C5	C5
AA	16	18.5	21	24.5	30
AB	77.7	92.4	101.9	111.4	130.8
AC	50.2	61.2	71.7	78.7	90.8
AD	6	6	6	8	10
AE	6	6	8	10	12
AG	20.2	18.9	19.9	20.5	21.4
EA (Nominal × Pitch)	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25
EB	40.8	49	56	66	76
EC	40 ^{+0.039} ₀	48 ^{+0.039} ₀	55 ^{+0.046} ₀	65 ^{+0.046} ₀	75 ^{+0.046} ₀
ED	1.2	1.2	1.5	1.5	1.5
EE	30.5	33	36	41	42
JA	3.5	3.5	3.5	4.5	4.5
JB	14	14	14	19	19
Clamp Port : G Thread Unclamp Port : G Thread	G1/8	G1/8	G1/8	G1/4	G1/4
O-Ring	DA	1BP5	1BP5	1BP5	1BP7
	DB	AS568-007(90°)	1BP5	1BP5	1BP7
	DC	38×1.5 (Internal Diameter × Wire Diameter)	AS568-031(70°)	AS568-034(70°)	AS568-037(70°)
	DD	AS568-028(70°)	AS568-031(70°)	AS568-033(70°)	AS568-036(70°)

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

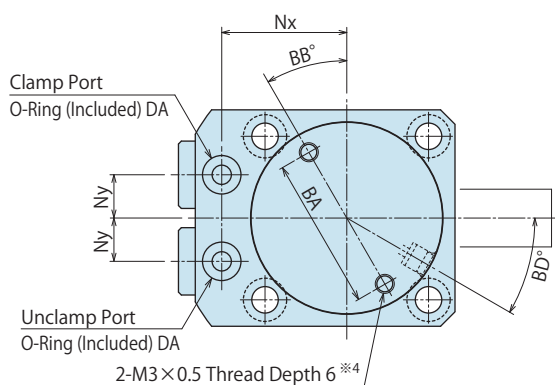
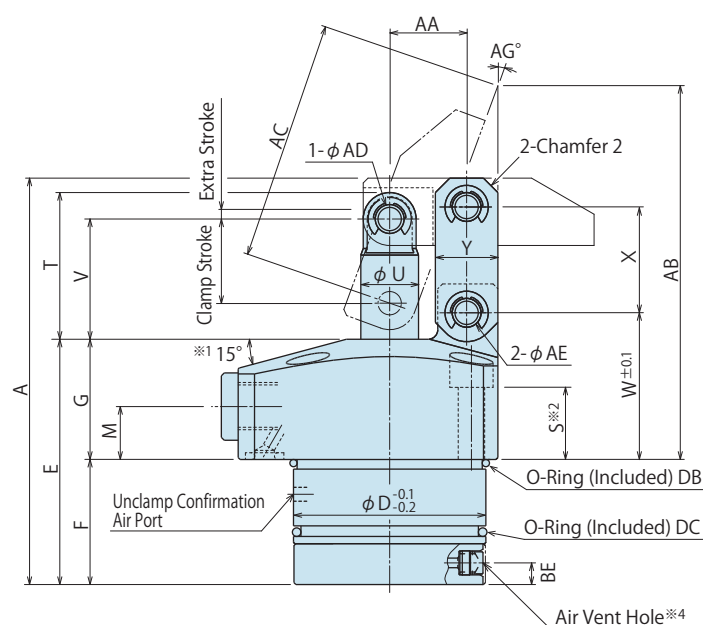
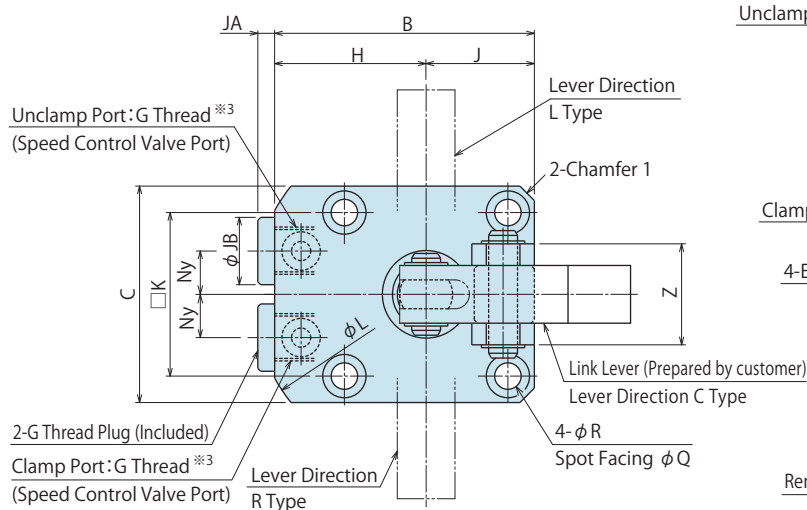
FP
FQ

Customized Spring Cylinder

DWA/DWB

External Dimensions (Unclamp Confirmation Only)

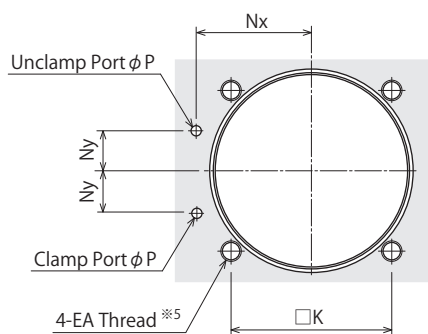
※The drawing shows the clamped state of LKW-CCJ.



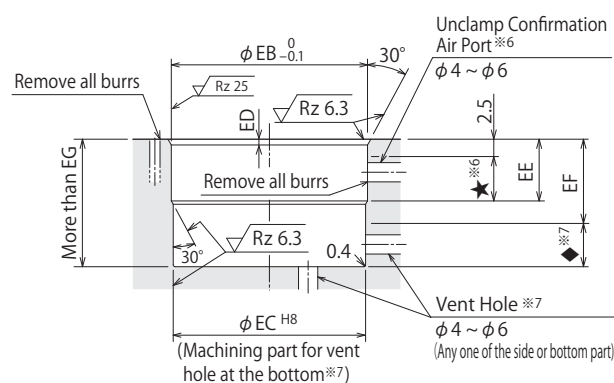
Notes :

- ※ 1. Flange inclination angle is 12° only for LKW0651.
 - ※ 2. Mounting bolts are not provided with the product.
Please prepare them according to the mounting height referring to dimension 'S'.
 - ※ 3. Speed control valve is sold separately. Please refer to P.947 for detail.
 - ※ 4. Please keep clear condition at the air vent hole, and prevent coolant and chips from entering the hole.
If exposed to coolant and chips, use M3 thread of the bottom and install an attachment to prevent contamination, but do not block the air vent hole.
1. Please use the provided pin (equivalent to φADf6, φAEf6, HRC60) as mounting pin for lever.

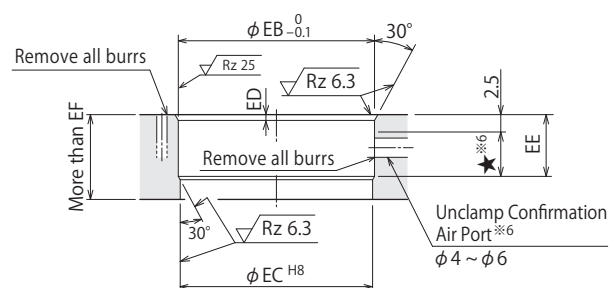
Machining Dimensions of Mounting Area



For Blind Hole



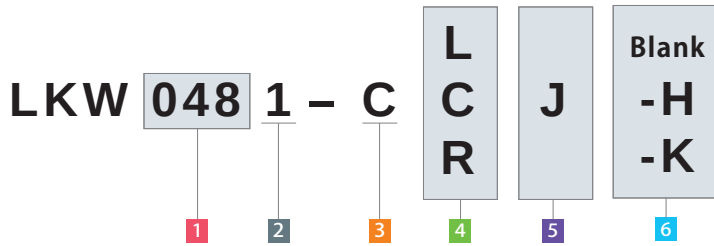
For Through Hole



Notes :

- ※ 5. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimensions 'S'.
- ※ 6. Prepare the air port for unclamp confirmation within the range of ★ mark.
- ※ 7. Prepare the vent hole at either side or bottom.
When machining the vent hole at the side, it should be prepared within the range of ◆ mark.
When machining the vent hole at the bottom, it should be prepared within the range of φEC.

Model No. Indication



(Format Example : LKW0481-CCJ, LKW0551-CLJ-H)

- 1

Body Size
- 2

Design No.
- 3

Piping Method
- 4

Lever Direction
- 5

Sensing Valve
(J : Unclamp Confirmation Only)
- 6

Option (Blank / H / K)

Notes :

- For option -H, the material of link plate has higher intensity than that of standard plate, and the form of chamfering 2 is round.
- For option -K, flange pin is used as link pin (3 parts) and C type circlip is used as stop ring.

External Dimensions and Machining Dimensions of Mounting (mm)

Model No.	LKW0401-C□J-□	LKW0481-C□J-□	LKW0551-C□J-□	LKW0651-C□J-□	LKW0751-C□J-□	
Full Stroke	20.5	23.5	26	29.5	35	
Clamp Stroke	17.5	20.5	23	26.5	32	
Extra Stroke	3	3	3	3	3	
A	84.5	95	104	121.5	144.5	
B	54	61	69	81	94.5	
C	45	51	60	70	85	
D	40	48	55	65	75	
E	51	56	58.5	67.5	77.5	
F	26	28	30.5	37.5	40.5	
G	25	28	28	30	37	
H	31.5	35.5	39	46	52	
J	22.5	25.5	30	35	42.5	
K	34	40	47	55	63	
L	72	81	88	106	116	
M	11	12	12	13	16	
Nx	26	30	33.5	39.5	45	
Ny	9	11	12	15	16	
P	3	3	3	5	5	
Q	9	9	11	11	14	
R	5.5	5.5	6.8	6.8	9	
S	15	16	13.5	16	17.5	
T	30.5	35	37.5	45	55	
U	12	14	16	20	22	
V	25	29	31.5	37	45	
W	30.5	34.5	35.5	39	48	
X	22	26	30	35.5	43.5	
Y	13	13	16	19	25	
Z	21	24	28	37	40	
Chamfer 1	C3	C3	C3	C4	C10	
Chamfer 2	C3	C3	C3	C5	C5	
AA	16	18.5	21	24.5	30	
AB	77.7	92.4	101.9	111.4	130.8	
AC	50.2	61.2	71.7	78.7	90.8	
AD	6	6	6	8	10	
AE	6	6	8	10	12	
AG	20.2	18.9	19.9	20.5	21.4	
BA	31.6	38	43	54	64	
BB	0°	0°	0°	0°	30°	
BD	30°	30°	30°	30°	22.5°	
BE	4.5	4.5	4.5	5	5	
EA (Nominal × Pitch)	M5×0.8	M5×0.8	M6×1	M6×1	M8×1.25	
EB	40.8	49	56	66	76	
EC	40 ^{+0.039 0}	48 ^{+0.039 0}	55 ^{+0.046 0}	65 ^{+0.046 0}	75 ^{+0.046 0}	
ED	1.2	1.2	1.5	1.5	1.5	
EE	12	14	16.5	23	24.5	
EF	17.5	19.5	22	28.5	30	
EG	26.5	28.5	31	38	41	
JA	3.5	3.5	3.5	4.5	4.5	
JB	14	14	14	19	19	
Clamp Port:G Thread Unclamp Port:G Thread		G1/8	G1/8	G1/8	G1/4	
O-Ring	DA	1BP5	1BP5	1BP5	1BP7	
	DB	38×1.5 (Internal Diameter × Wire Diameter)	AS568-031(70°)	AS568-034(70°)	AS568-037(70°)	AS568-040(70°)
	DC	AS568-028(70°)	AS568-031(70°)	AS568-033(70°)	AS568-036(70°)	AS568-039(70°)

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 (Quick Change Lever Option A)

※ The drawing shows the clamped state of LKW-□-A.

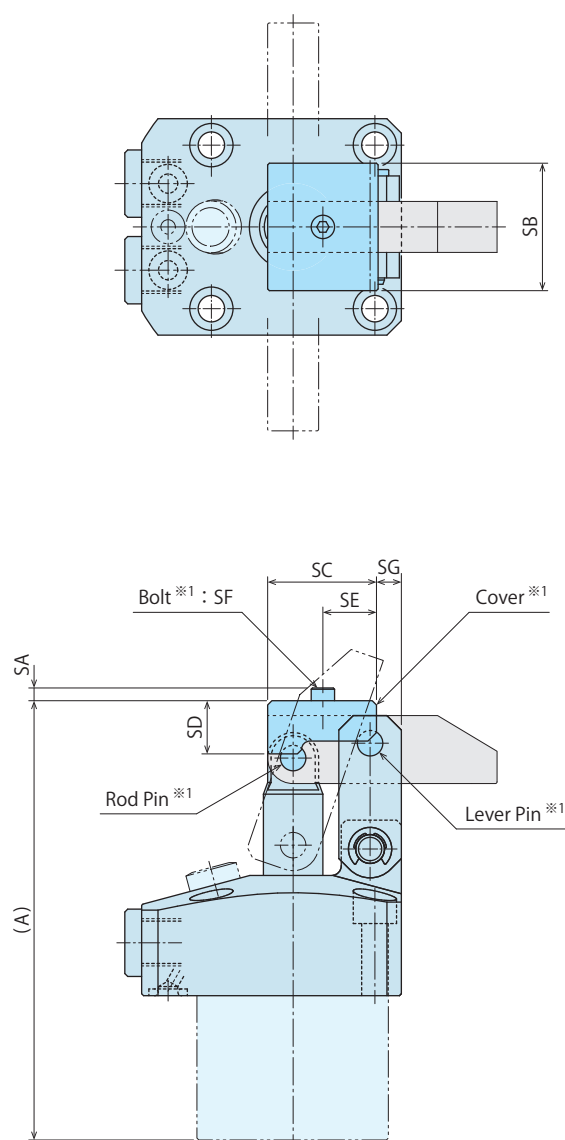
This drawing shows the dimensions of -A : Quick Change Lever part only.

Please refer to the following page for unlisted dimensions: the clamp body dimensions and the mounting part machining dimensions.

LKW-E (Clamp • Unclamp Confirmation) : P.665

LKW-H (Clamp Confirmation) : P.667

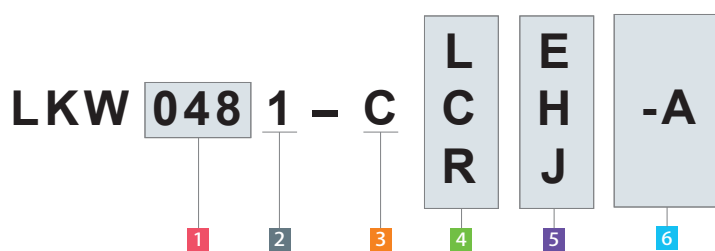
LKW-J (Unclamp Confirmation) : P.669



Note :

※ 1. Tightening Kit (LZK□-W) including the cover (with bolt), rod pin and lever pin is sold separately.

Model No. Indication



(Format Example : LKW0481-CC□-A, LKW0551-CL□-A)

- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Lever Direction
- 5 Sensing Valve
- 6 Option A

Note :

- In case of 6 Option A, unlike Blank/H/K, the lever mounting pin is not included. The dimensions of clamp main body are the same as Blank/H/K.

External Dimensions and Machining Dimensions of Mounting

(mm)

Model No.	LKW0401-C□□-A	LKW0481-C□□-A	LKW0551-C□□-A	LKW0651-C□□-A	LKW0751-C□□-A
Full Stroke	20.5	23.5	26	29.5	35
Clamp Stroke	17.5	20.5	23	26.5	32
Extra Stroke	3	3	3	3	3
A	LKW-C□E-A	95.7	106.7	115	129
	LKW-C□H-A	91.7	102.7	113.5	129
	LKW-C□J-A	87.7	98.2	108.5	126
SA	3	3	3	4	4
SB	26	30	35	45	50
SC	24	26	29	34.5	43
SD	11.5	13	17	20	25
SE	12.5	13	16.5	18.5	23
SF	M3×0.5×6	M3×0.5×6	M3×0.5×8	M4×0.7×8	M4×0.7×10
SG	4	5.5	7	8.5	9.5

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

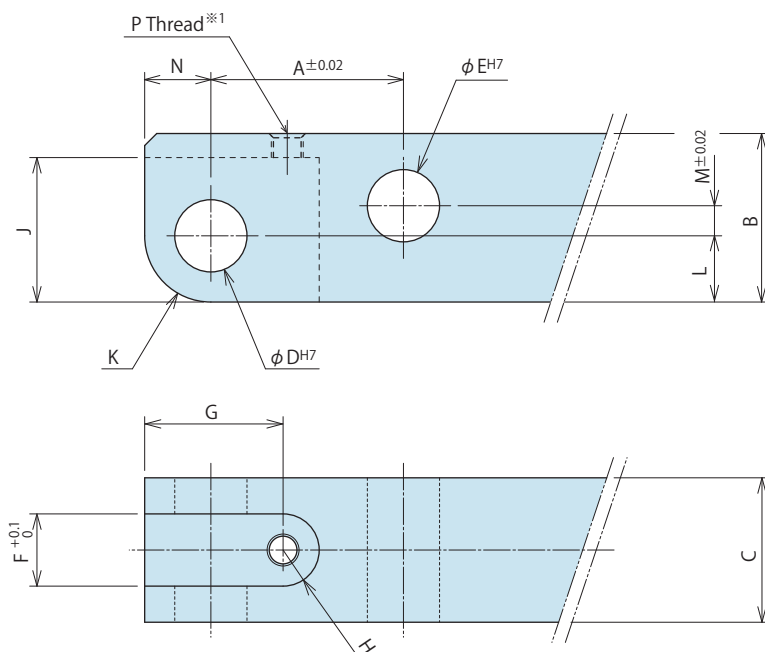
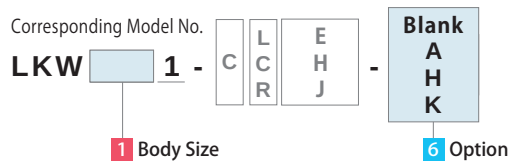
FP
FQ

Customized
Spring Cylinder

DWA/DWB

Link Lever Design Dimension

※ Reference for designing link lever.



Calculation List of Link Lever Design Dimension

(mm)

Corresponding Model No.	LKW0401	LKW0481	LKW0551	LKW0651	LKW0751
A	16	18.5	21	24.5	30
B	14	16	20	25	32
C	12 ⁰ _{-0.2}	12 ⁰ _{-0.3}	16 ⁰ _{-0.3}	19 ⁰ _{-0.3}	22 ⁰ _{-0.3}
D	6 ^{+0.012} ₀	6 ^{+0.012} ₀	6 ^{+0.012} ₀	8 ^{+0.012} ₀	10 ^{+0.015} ₀
E	6 ^{+0.012} ₀	6 ^{+0.012} ₀	8 ^{+0.012} ₀	10 ^{+0.015} ₀	12 ^{+0.015} ₀
F	6	6	8	10	11
G	11.5	13	12.5	16	20
H	R3	R3	R4	R5	R5.5
J	12	13	13	17.5	22
K	R5.5	R6	R6	R8	R10
L	5.5	6	6	8	10
M	2.5	3.5	6	7.5	9.5
N	5.5	6	6	8	10
P (Nominal × Depth) ^{※1}	M3×0.5 Through	M3×0.5 Through	M3×0.5×6	M4×0.7 Through	M4×0.7×7

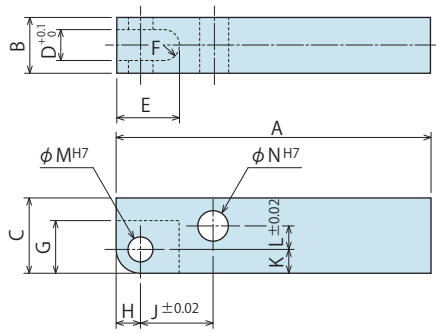
Notes :

- Please design the link lever length according to the performance curve.
- If the link lever is not in accordance with the dimension shown above, performance may be degraded and damage can occur.
- For **6** Option **Blank/H/K**, use the attached pin (equivalent to φADf6, φAEf6, HRC60) as the lever mounting pin.
(Refer to external dimensions of the clamp body for the dimensions of φAD, φAE.)
- For **6** Option **A**, the lever mounting pin is not included in the clamp.

Please order Tightening Kit for Quick Change Lever Option A (LZK□-W).

※1. Machining of P Thread is required only when using Tightening Kit for Quick Change Lever Option A (LZK□-W).

Accessory : Material Link Lever



Model No. Indication

LZK 048 0 - L

Size (Refer to the table.) Design No. (Revision Number)

Model No.	LZK0400-L	LZK0480-L	LZK0550-L	LZK0650-L	LZK0750-L
Corresponding Model No.	LKW0401	LKW0481	LKW0551	LKW0651	LKW0751
A	75	85	90	105	110
B	12 ⁰ _{-0.2}	12 ⁰ _{-0.3}	16 ⁰ _{-0.3}	19 ⁰ _{-0.3}	22 ⁰ _{-0.3}
C	14	16	20	25	32
D	6	6	8	10	11
E	14.5	16	16.5	21	25.5
F	R3	R3	R4	R5	R5.5
G	12	13	13	17.5	22
H	5.5	6	6	8	10
J	16	18.5	21	24.5	30
K	5.5	6	6	8	10
L	2.5	3.5	6	7.5	9.5
M	6 ^{+0.012} ₀	6 ^{+0.012} ₀	6 ^{+0.012} ₀	8 ^{+0.015} ₀	10 ^{+0.015} ₀
N	6 ^{+0.012} ₀	6 ^{+0.012} ₀	8 ^{+0.015} ₀	10 ^{+0.015} ₀	12 ^{+0.018} ₀

Notes :

- Material S45C Surface Finishing : Alkaline Blackening
- If necessary, the front end should be additionally machined and finished.
- For [6] Option **Blank/H/K**, use the attached pin (equivalent to $\phi ADf6$, $\phi Aef6$, HRC60) as the lever mounting pin.
- For [6] Option **A**, the lever mounting pin is not included in the clamp.
Please order Tightening Kit for Quick Change Lever Option A (LZK□-W).
- When using Tightening Kit for Quick Change Lever Option A (LZK□-W), a tapped hole should be additionally machined.
Refer to the link lever design dimensions (P Thread part) for additional machining.

Accessories : Tightening Kit for Quick Change Lever Option A

Model No. Indication

LZK 040 0 - W

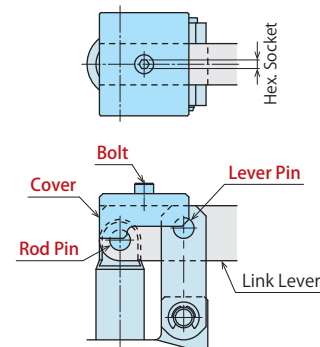
Size (Refer to the table.) Design No. (Revision Number)

Tightening Kit for mounting Quick Change Lever Option A.

Sold separately from clamp body.

【Contents of Tightening Kit】

- Cover (with Bolt)
- Rod Pin
- Lever Pin



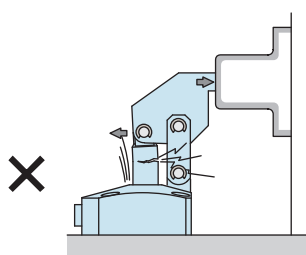
Model No.	LZK0400-W	LZK0480-W	LZK0550-W	LZK0650-W	LZK0750-W
Corresponding Model No.	LKW0401-□-A	LKW0481-□-A	LKW0551-□-A	LKW0651-□-A	LKW0751-□-A
Nominal×Pitch of Bolt	M3×0.5	M3×0.5	M3×0.5	M4×0.7	M4×0.7
Hex. Socket mm	2.5	2.5	2.5	3	3
Tightening Torque N·m	1.3	1.3	1.3	3.2	3.2

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

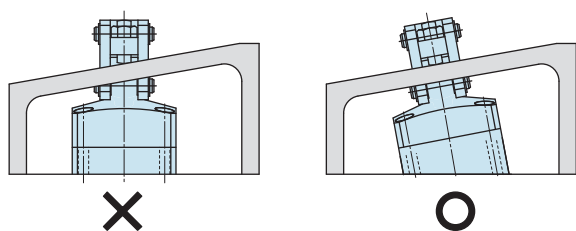
Cautions

Notes for Design

- 1) Check Specifications
 - Please use each product according to the specifications.
- 2) 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.
- 3) Notes for Link Lever Design
 - Make sure no force is applied to the piston rod except from the axial direction. The usage like the one shown in the drawing below will apply a large bending stress to the piston rod and must be avoided.



- If offset load is applied on the link part, use it within the allowable range of "Allowable Offset Graph".
- 4) 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.
 - 5) When clamping on a sloped surface of the workpiece
 - Make sure the clamping surface and the mounting surface of the clamp are parallel.



- 6) When using in a dry environment
 - The link pin can be dried out. Grease it periodically or use a special pin. Contact us for the specifications of special pins.
- 7) Notes for LKA-M/N, LKW
 - When using air sensing link clamp (LKA-M/N, LKW), make sure to check the Notes for Design • Installation • Use (Pages shown below).
 - Link clamp with air sensing option LKA-M/N : Refer to P.633.
 - Link clamp with air sensing valve LKW : Refer to P.655.

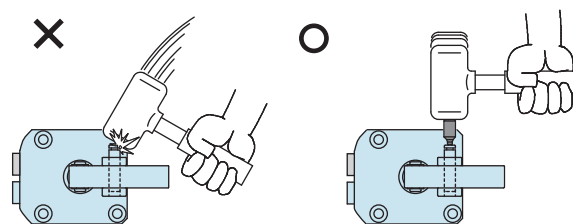
Installation Notes

- 1) Check the Usable Fluid
 - Please use the appropriate fluid by referring to the Hydraulic Fluid List (P.1355).
- 2) 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)
LKA LKC LKW	LKA0360	M4×0.7	4.0
	LKA0400	M5×0.8	8.0
	LKC0400/LKW0401	M5×0.8	8.0
	LKA0480	M5×0.8	8.0
	LKC0480/LKW0481	M5×0.8	8.0
	LKA0550	M6×1	14
	LKC0550/LKW0551	M6×1	14
	LKA0650	M6×1	14
	LKC0650/LKW0651	M6×1	14
	LKA0750/LKW0751	M8×1.25	33
LJ/LM	LKA0900	M10×1.5	65
	LKA1050	M12×1.75	114
	LJ0302/LM0300	M4×0.7	3.2
	LJ0362/LM0360	M4×0.7	3.2
	LJ0402/LM0400	M5×0.8	6.3
	LJ0482/LM0480	M5×0.8	6.3
	LJ0552/LM0550	M6×1	10
	LJ0652/LM0650	M6×1	10
	LJ0752/LM0750	M8×1.25	25
	LJ0902	M10×1.5	58.8
TMA	LJ1052	M12×1.75	98
	TMA0250	M5×0.8	6.9
	TMA0400	M5×0.8	6.9
	TMA0600	M6×1	11.8
	TMA1000	M8×1.25	25
	TMA1600	M10×1.5	58.8
	TMA2500	M12×1.75	98
	TMA3200	M12×1.75	98

Installation / Removal of the Link Lever

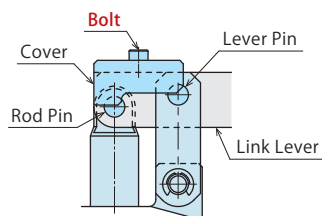
- When inserting the link pin, do not hit the pin directly with a hammer. When using a hammer to insert the pin, always use a cover plate with a smaller diameter than the spring ring groove on the pin.



- The following shows the tightening torque for the mounting bolt of the quick change lever option A.

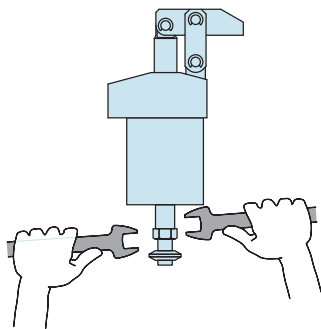
Quick Change Lever Option A

Model No.	Thread Size	Tightening Torque (N·m)
LKA0360-□□-A LJ0362-□□-A / LM0360-□□-A	M3×0.5	1.3
LKA0400-□□-A LKC0400-□□-A / LKW0401-□□-A LJ0402-□□-A / LM0400-□□-A	M3×0.5	1.3
LKA0480-□□-A LKC0480-□□-A / LKW0481-□□-A LJ0482-□□-A / LM0480-□□-A	M3×0.5	1.3
LKA0550-□□-A LKC0550-□□-A / LKW0551-□□-A LJ0552-□□-A / LM0550-□□-A	M3×0.5	1.3
LKA0650-□□-A LKC0650-□□-A / LKW0651-□□-A LJ0652-□□-A / LM0650-□□-A	M4×0.7	3.2
LKA0750-□□-A / LKW0751-□□-A LJ0752-□□-A / LM0750-□□-A	M4×0.7	3.2
LKA0900-□□-A	M5×0.8	6.3
LKA1050-□□-A	M5×0.8	6.3



4) 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)
LKA0360-□□D	M4×0.7	3.2
LKA0400-□□D	M6×1	10
LKA0480-□□D	M8×1.25	25
LKA0550-□□D	M8×1.25	25
LKA0650-□□D	M8×1.25	25
LKA0750-□□D	M10×1.5	50
LKA0900-□□D	M10×1.5	50
LKA1050-□□D	M10×1.5	50

5) Speed Adjustment

- Adjust the speed so that the total operating time is one second or more. 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.

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

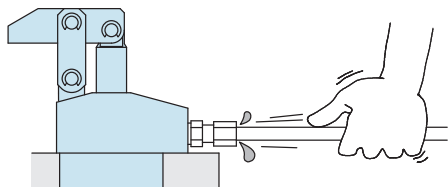
※ Please refer to P.1355 for common cautions.

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

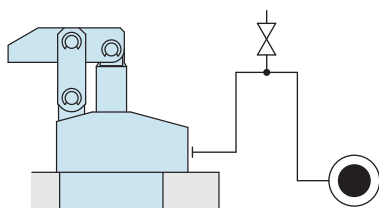
Cautions

● 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.

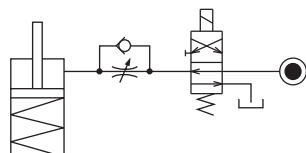
Notes on Hydraulic Cylinder Speed Control Unit



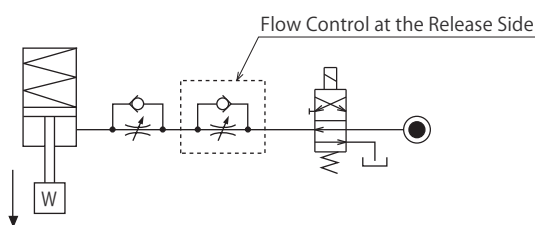
Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

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

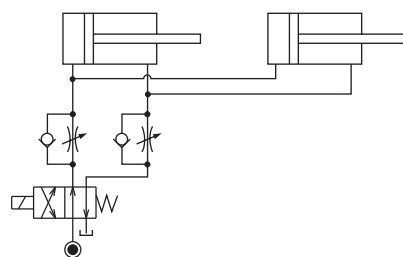
Flow control circuit for double acting cylinder should have meter-out circuits for both the lock and release sides. Meter-in control can have adverse effect by presence of air in the system.

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

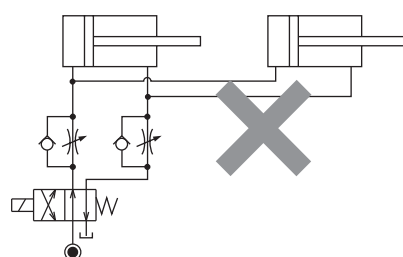
Refer to P.75 for speed adjustment of LKE.

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)

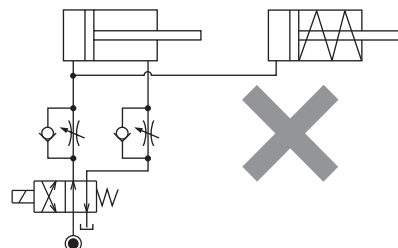


【Meter-in Circuit】 (LKE/TMA/TLA must be controlled with meter-in.)



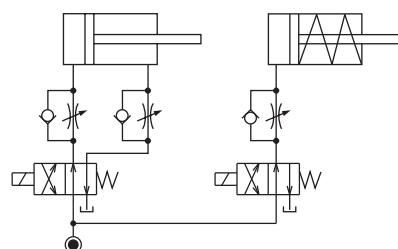
In the case of meter-out circuit, the hydraulic circuit should be designed with the following points.

- 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.

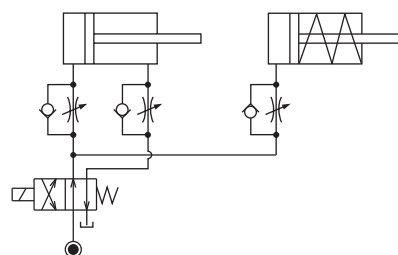


Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together.

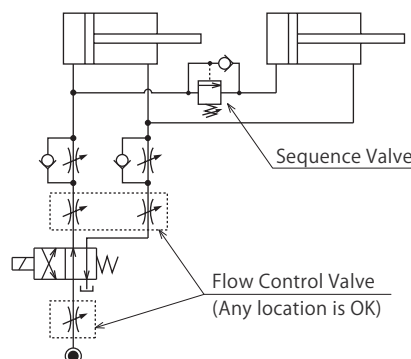
- Separate the control circuit.



- 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.



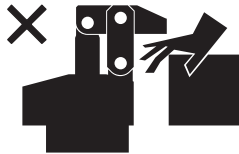
- ② In the case of meter-out circuit, the inner circuit pressure may increase during the cylinder action because of the fluid supply. The increase of the inner circuit pressure can be prevented by reducing the supplied fluid beforehand via the flow control valve. Especially when using sequence valve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

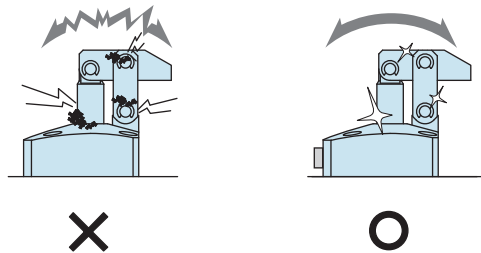
- 1) It should be operated by qualified personnel.
- The hydraulic machine and air compressor should be operated and maintained by qualified personnel.
- 2) Do not operate or remove the product unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared when 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.



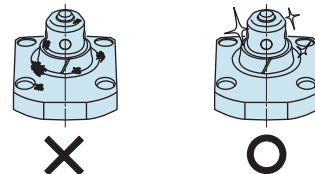
- 4) Do not disassemble or modify.
- If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

● 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

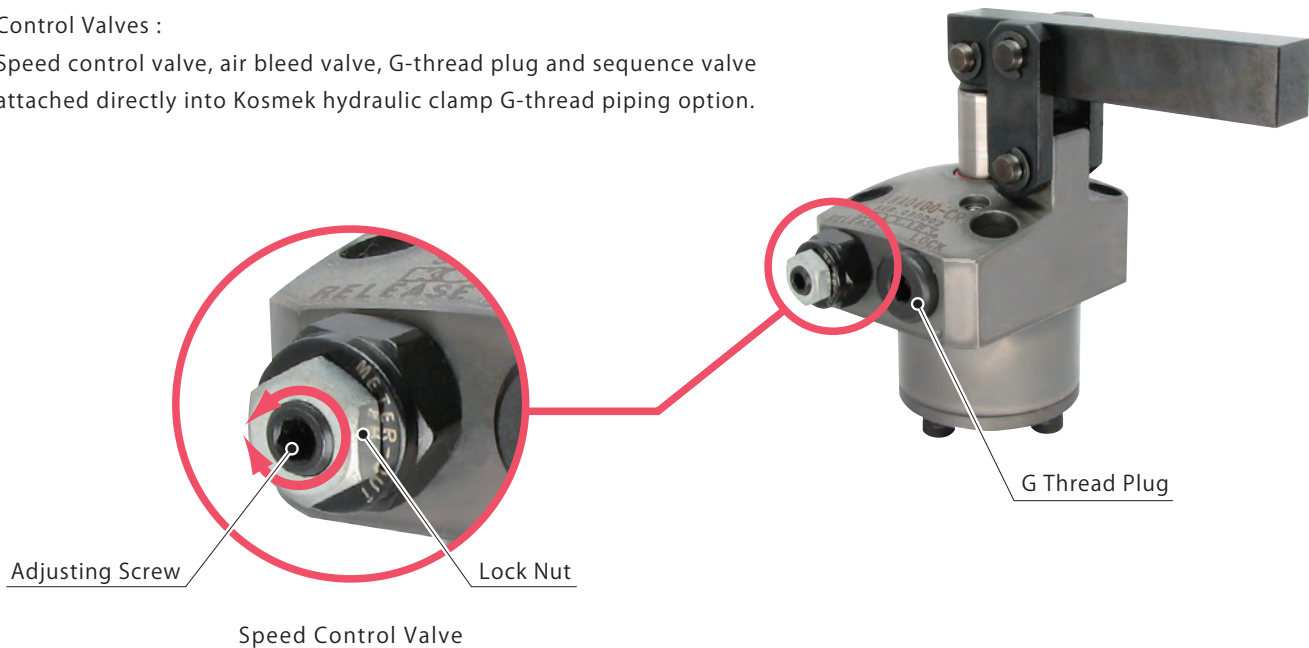


Directly-Attached Speed Control Valve, Air Bleed Valve, G-Thread Plug and Sequence Valve

• 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



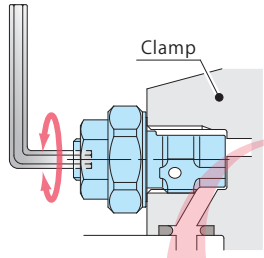
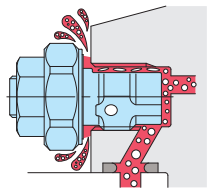
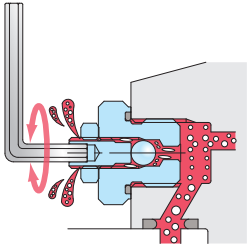
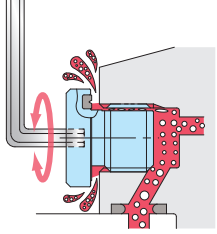
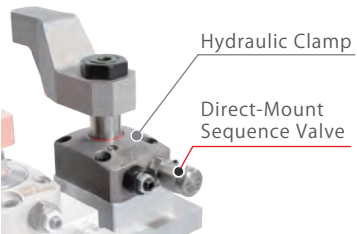
G Thread Plug

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)

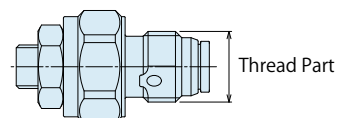
BZL 0 10 1 - B

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

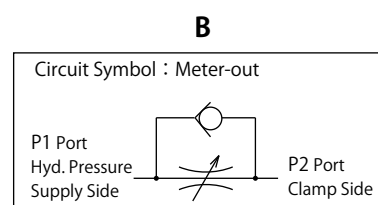
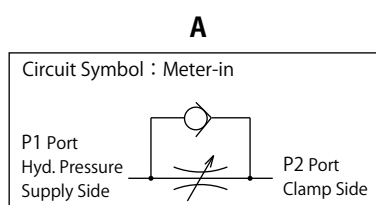


2 Design No.

- 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□□□) (LHA0400-C□□□) (LHA0480-C□□□) (LHA0550-C□□□)	(LHC0360-C□□□) (LHC0400-C□□□) (LHC0480-C□□□) (LHC0550-C□□□)	(LHD0400-C□□□) (LHD0480-C□□□) (LHD0550-C□□□)	/	(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□□□
BZL0101-B	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□□□	LHS0360-C□□□ LHS0400-C□□□ LHS0480-C□□□ LHS0550-C□□□	LHV0400-C□□□ LHV0480-C□□□ LHV0550-C□□□	LHW0401-C□□□ LHW0481-C□□□ LHW0551-C□□□	/	/
BZL0201-A	(LHA0650-C□□□) (LHA0750-C□□□)	(LHC0650-C□□□)	/	/	(LHS0650-C□□□) (LHS0750-C□□□)	(LHV0650-C□□□) (LHV0750-C□□□)	(LHW0651-C□□□) (LHW0751-C□□□)	LT0651-C□□□ LT0751-C□□□	LG0651-C□□□ LG0751-C□□□
BZL0201-B	LHA0650-C□□□ LHA0750-C□□□	LHC0650-C□□□	/	/	LHS0650-C□□□ LHS0750-C□□□	LHV0650-C□□□ LHV0750-C□□□	LHW0651-C□□□ LHW0751-C□□□	/	/
BZL0301-A	(LHA0900-C□□□) (LHA1050-C□□□)	/	/	/	(LHS0900-C□□□) (LHS1050-C□□□)	/	/	/	LG0901-C□□□ LG1051-C□□□
BZL0301-B	LHA0900-C□□□ LHA1050-C□□□	/	/	/	LHS0900-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□□□ 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□□□	(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□□□
BZL0101-B	/	LKA0360-C□□□ LKA0400-C□□□ LKA0480-C□□□ LKA0550-C□□□	LKC0400-C□□□ LKC0480-C□□□ LKC0550-C□□□	/	LKK0360-C□□□ LKK0400-C□□□ LKK0480-C□□□ LKK0550-C□□□	LKV0400-C□□□ LKV0480-C□□□ LKV0550-C□□□	LKW0401-C□□□ LKW0481-C□□□ LKW0551-C□□□	/	/
BZL0201-A	LGV0650-C□□□ LGV0750-C□□□	(LKA0650-C□□□) (LKA0750-C□□□)	(LKC0650-C□□□)	/	(LKK0650-C□□□)	(LKV0650-C□□□) (LKV0750-C□□□)	(LKW0651-C□□□) (LKW0751-C□□□)	LM0650-C□□□ LM0750-C□□□	LJ0652-C□□□ LJ0752-C□□□
BZL0201-B	/	LKA0650-C□□□ LKA0750-C□□□	LKC0650-C□□□	/	LKK0650-C□□□	LKV0650-C□□□ LKV0750-C□□□	LKW0651-C□□□ LKW0751-C□□□	/	/
BZL0301-A	/	(LKA0900-C□□□) (LKA1050-C□□□)	/	/	/	/	/	/	LJ0902-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□□□ LJV0480-C□□□ LJV0550-C□□□	(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□□□)
BZL0101-B	/	LFW0480-C□□□ LFW0550-C□□□	LFA0480-C□□□ LFA0550-C□□□	LSA0360-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□□□
BZL0201-A	LJV0650-C□□□ LJV0750-C□□□	(LFW0650-C□□□) (LFW0750-C□□□)	(LFA0650-C□□□) (LFA0750-C□□□)	/	/	(LL0650-C□□□) (LL0750-C□□□)	(LLR0650-C□□□) (LLR0750-C□□□)	/	/
BZL0201-B	/	LFW0650-C□□□ LFW0750-C□□□	LFA0650-C□□□ LFA0750-C□□□	/	/	LL0650-C□□□ LL0750-C□□□	LLR0650-C□□□ LLR0750-C□□□	/	/
BZL0301-A	/	/	/	/	/	(LL0900-C□□□) (LL1050-C□□□)	(LLR0900-C□□□) (LLR1050-C□□□)	/	/
BZL0301-B	/	/	/	/	/	LL0900-C□□□ LL1050-C□□□	LLR0900-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

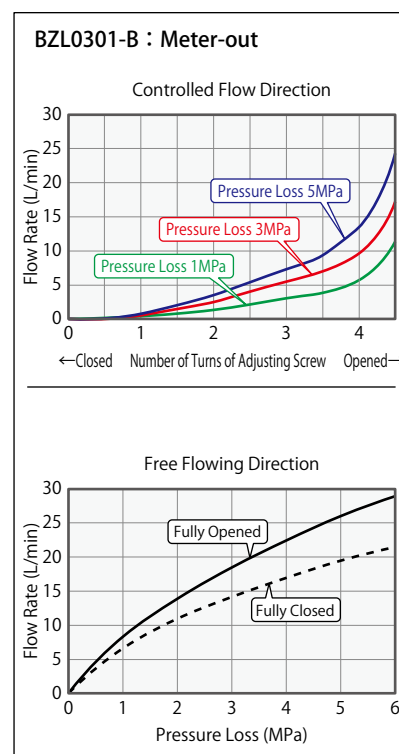
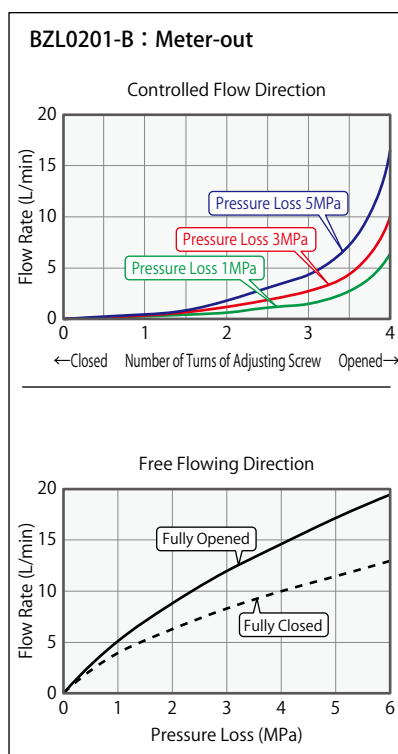
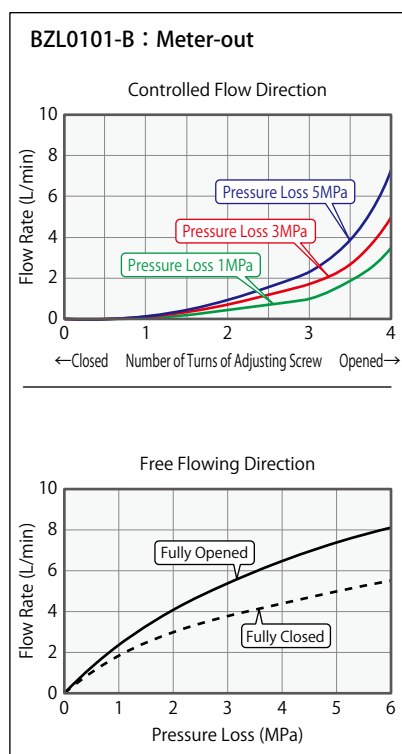
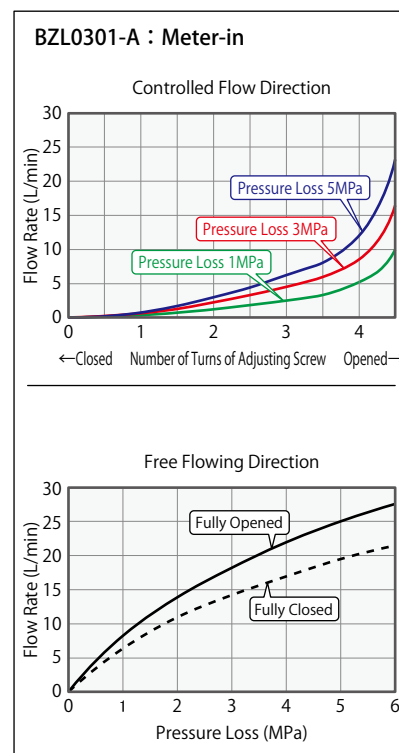
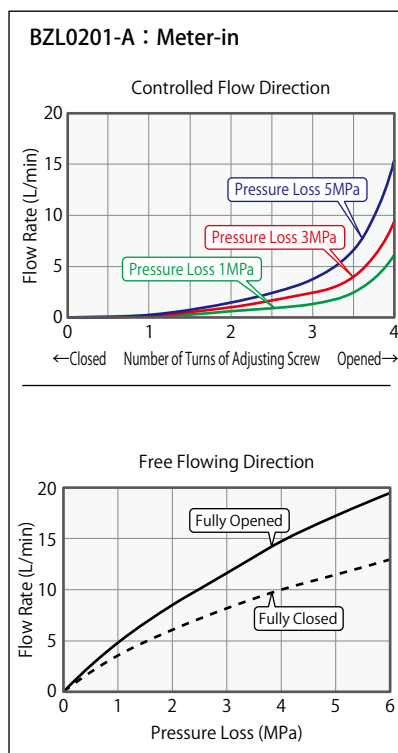
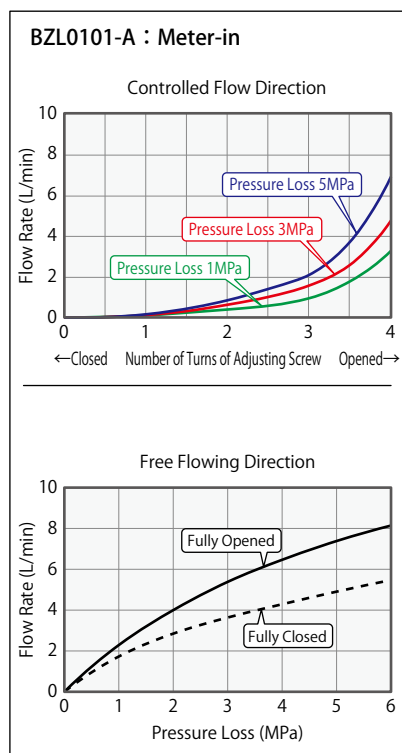
Pull Stud Clamp

FP
FQ

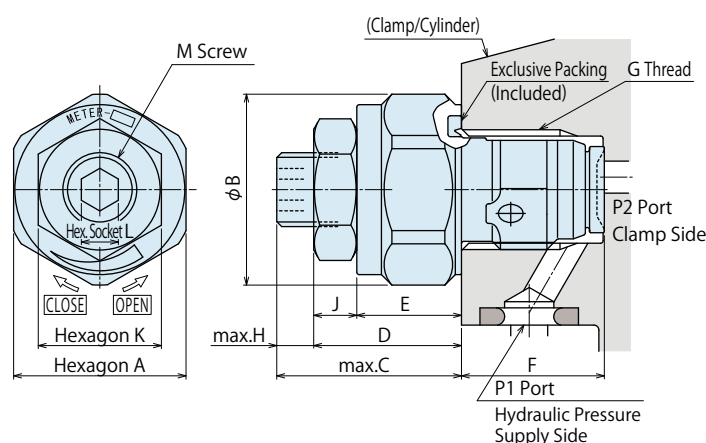
Customized Spring Cylinder

DWA/DWB

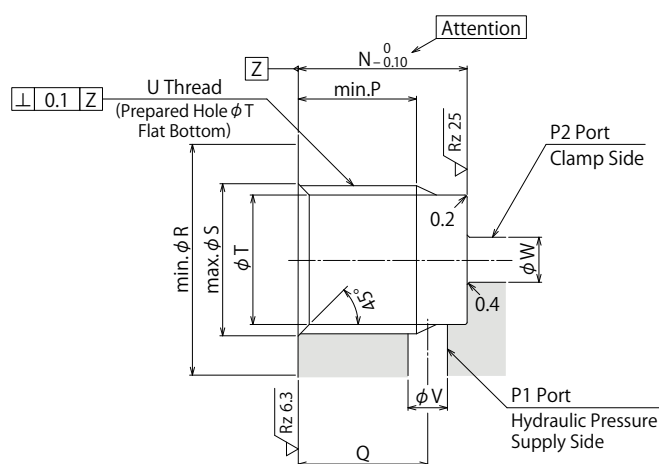
● Flow Rate Graph < Hydraulic Fluids ISO-VG32 (25~35°C) >



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 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

Model No. Indication (Air Bleed Valve)

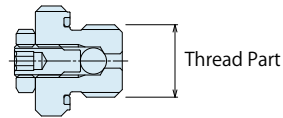
BZX0 **1** **0**

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.

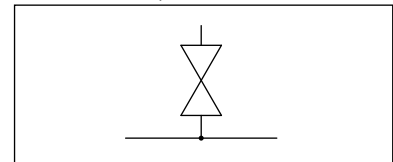
- 0** : Revision Number

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□□-□		
BZX020	DBA0400-C□	DBC0400-C□		FVC1000	FVD4000	LC0753-C□□-□		
	DBA0500-C□	DBC0500-C□		FVC1600		LC0903-C□□-□		

● Applicable Products

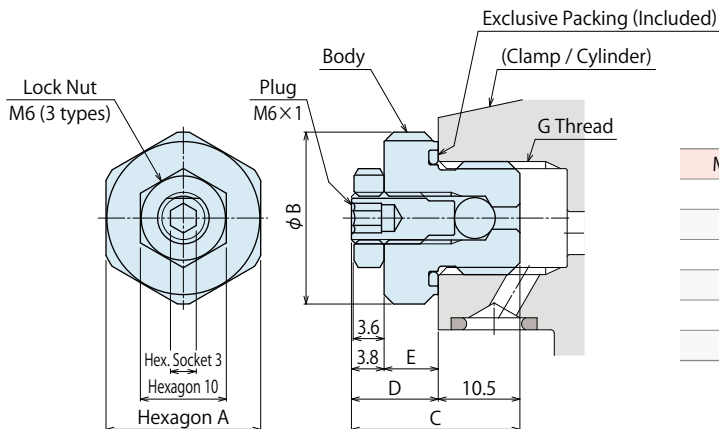
Model No.	LHA (Double Action) Swing Clamp	LHC (Double Action) Swing Clamp	LHD (Double Action) Swing Clamp	LHE (Double Action) High-Power Swing Clamp	LHS (Double Action) Swing Clamp	LHV (Double Action) Swing Clamp	LHW (Double Action) Swing Clamp	LT (Single Action) Swing Clamp	LG (Single Action) Swing 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.

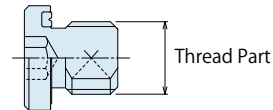
JZG0 **1** **0**

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□□□			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			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□□□	
							LC0553-C□□□			
JZG020	LGV0650-C□□	DBA0400-C□	DBC0400-C□		FVC1000	FVD4000	LC0753-C□□□			
	LGV0750-C□□	DBA0500-C□	DBC0500-C□				FVC1600	LC0903-C□□□		

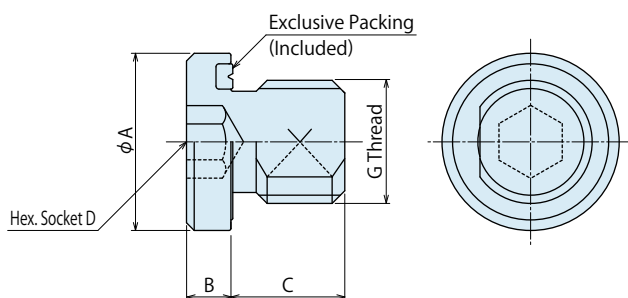
Applicable Products

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.



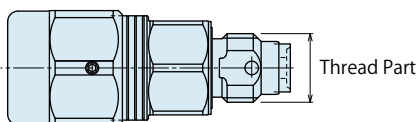
Model No. Indication

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.

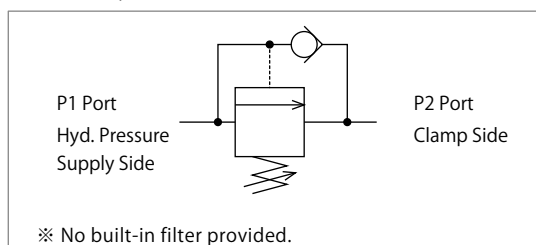
- 0** : Revision Number

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□□□		

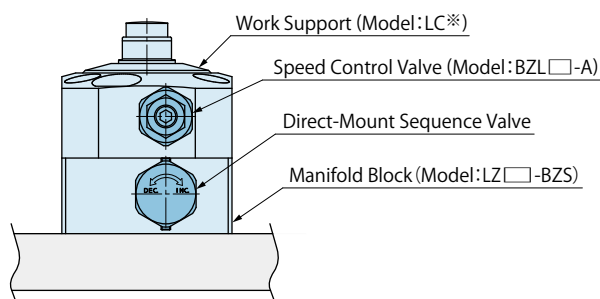
Note : ※1. It is not possible to install two BZS valves to FVC1000.

[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

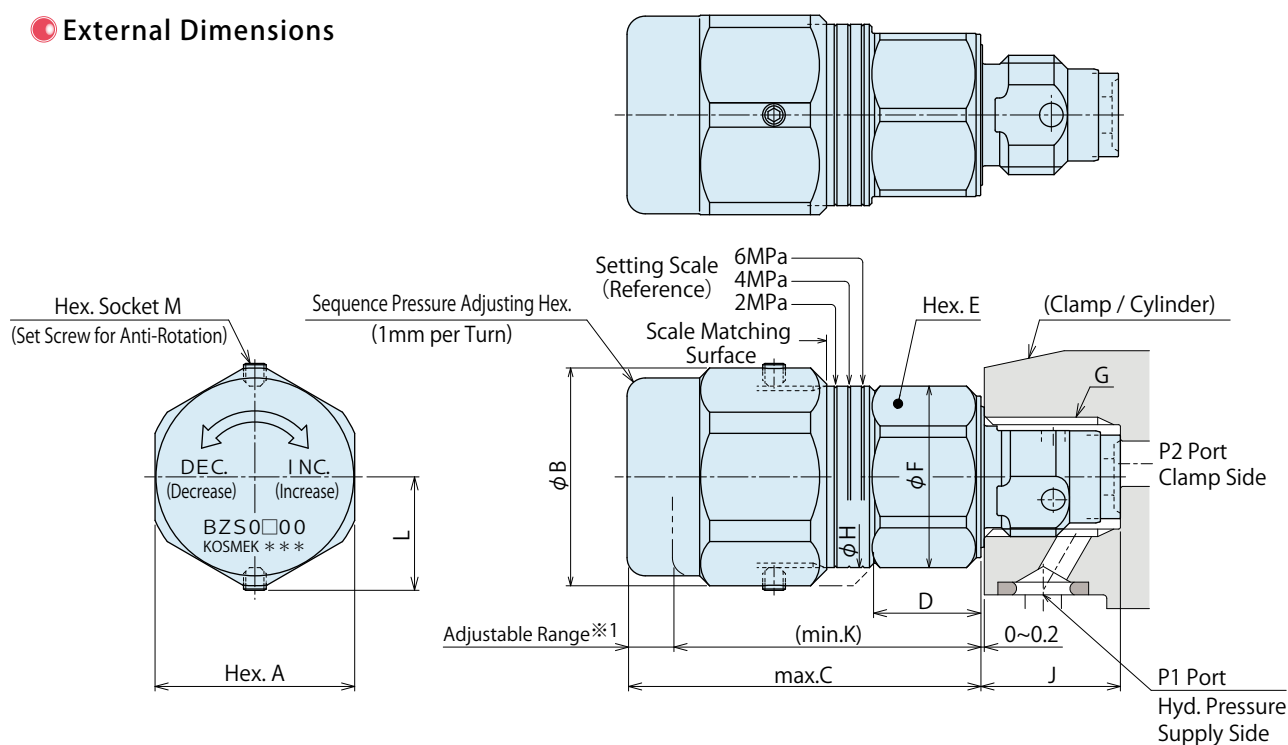
Pull Stud Clamp

FP
FQ

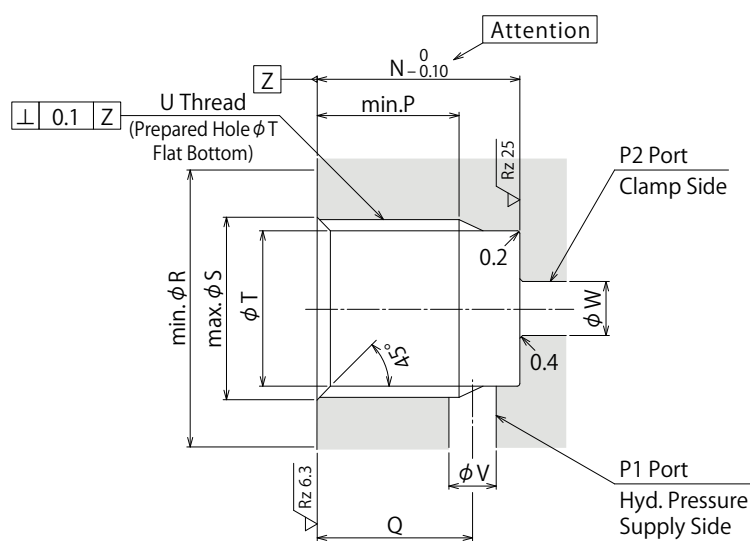
Customized

Spring Cylinder
DWA/DWB

External Dimensions



Machining Dimensions of Mounting Area



(mm)

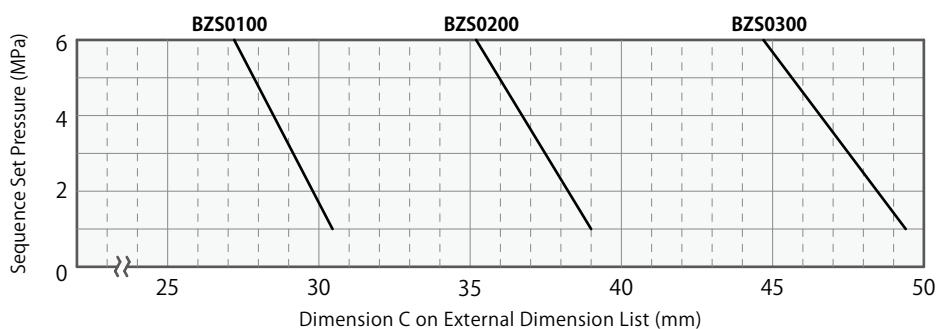
Model No.	BZS0100	BZS0200	BZS0300
A	16	22	27
B	17.5	24	29.5
C	30.5	39	49.5
D	7.5	12	15
E	14	18	22
F	15.5	20	24
G	G1/8	G1/4	G3/8
H	13.8	20	24
J ※2	(11.6)	(15.1)	(17.6)
K	(26.5)	(34)	(44)
L	9.5	12.5	15
M	1.3	1.3	1.5
N	11.5	15	17.5
P	8.5	11※3	13
Q	9	11.5	13
R (Flat Surface Area)	16	20.5	24.5
S	10	13.5	17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

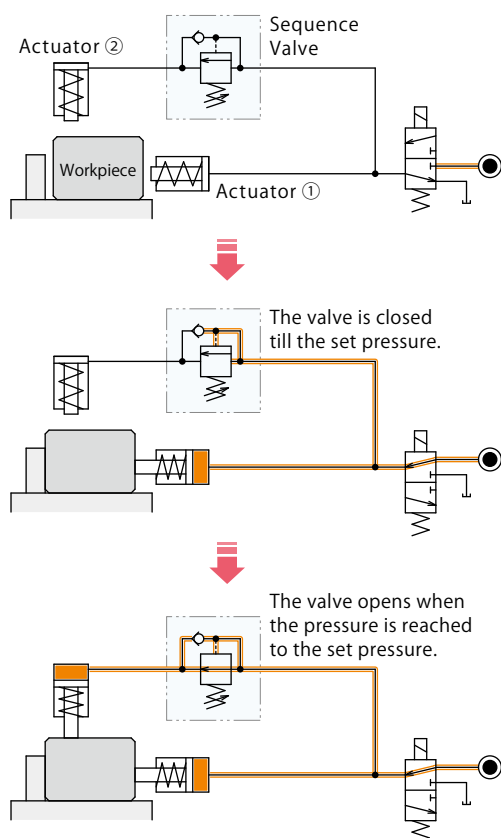
Cautions

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.		

Sales Offices

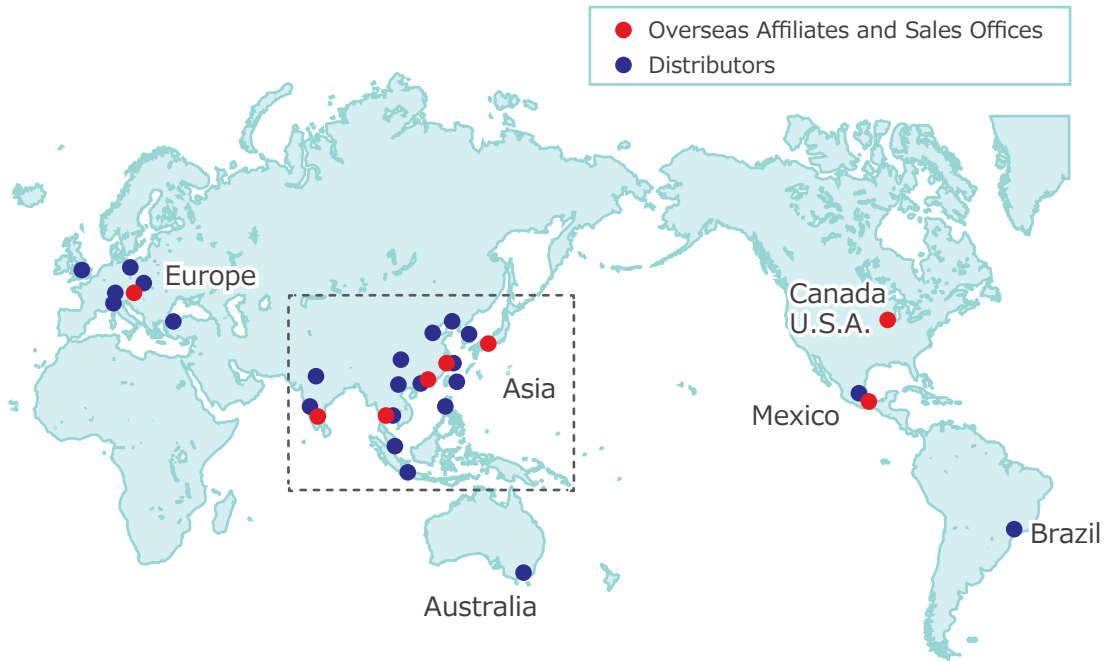
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Asia Detailed Map



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