

New

Wireless Sensing Clamp Hydraulic Single Acting Swing Clamp / Link Clamp

Hyd. Lock / Spring Release



Swing Clamp
model **LGM**



Link Clamp
model **LJM**

Wirelessly Detect Unclamp Position

No External Power Supply

Required for Sensor

NEW

Hyd. Lock / Spring Release

PAT.P.

Wireless Sensing Clamp



Hydraulic Single Acting Swing Clamp

model **LGM**

Hydraulic Single Acting Link Clamp

model **LJM**

Wirelessly Detect Unclamp Position

No External Power Supply Required for Sensor



Individual Detection

Separate unclamp detection is possible for each clamp.



Waterproof Rating

Equivalent to IPX7

※ Shows the protection level of the sensor.



**Response Time
0.1sec.**

Quick Response*

※ Compared with our conventional air sensing clamps.

Minimized Number of Ports

Solution to fixture port shortage.



Conventional Fixture[※] : Multiple Ports

Hydraulic Port × 1, Air Port × 1, (Vent Port × 1)

※Using our conventional air sensing clamp (model LJV)

Lower Design • Fixture Cost

Design & machining costs for sensing ports are not required.

※ Image compared with our conventional air sensing clamps.



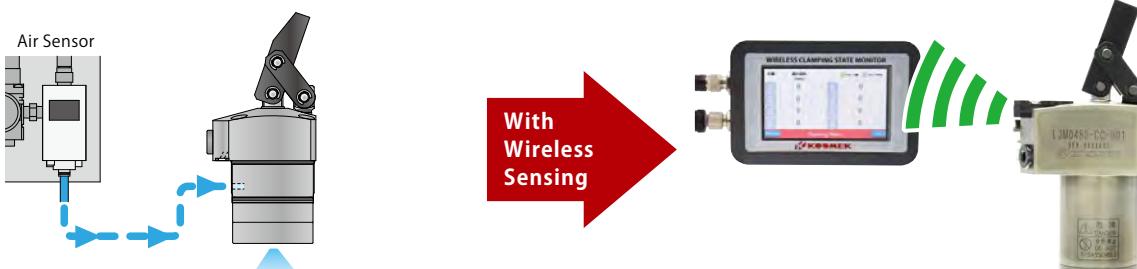
Conventional[※] sensing function needed design and machining costs for ports.

※ For conventional models, please see the "Changes in Sensing Clamps" .

Fixture is simplified.

Zero Air Consumption

Detect unclamp position via wireless communication.



Consumes air for detection.

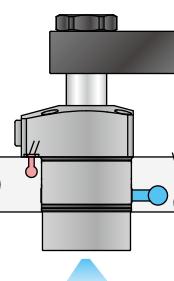
※Using our conventional air sensing clamp

Detects wirelessly,
zero air consumption.

Changes in Sensing Clamps

Conventional Air Sensor Model

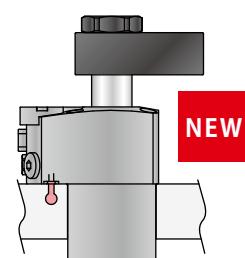
Model



Air Consumption

Low

Wireless Sensing Model



No Air Port

Zero

Please contact us when considering the wireless sensing clamp.

Wireless Sensing Link Clamp

Hydraulic Single Action

Model **LJM**

Hyd. Lock / Spring Release



Wirelessly Detect Unclamp Position.
Number of Ports is Reduced.

No External Power Supply Required for Sensor

PAT.P.

Detects unclamp position wirelessly.

Receiver

Position : Outside Machine

Repeater

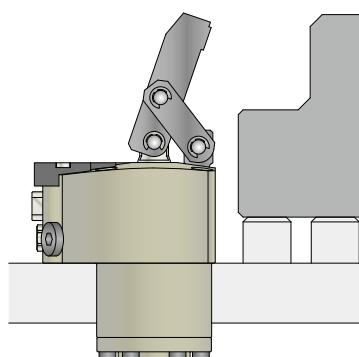
Position : Near Fixture
Inside the Processing Machine

Clamp

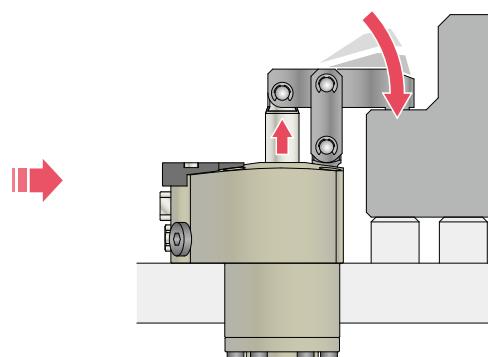
Position : Fixture



Action Description



Unclamped State



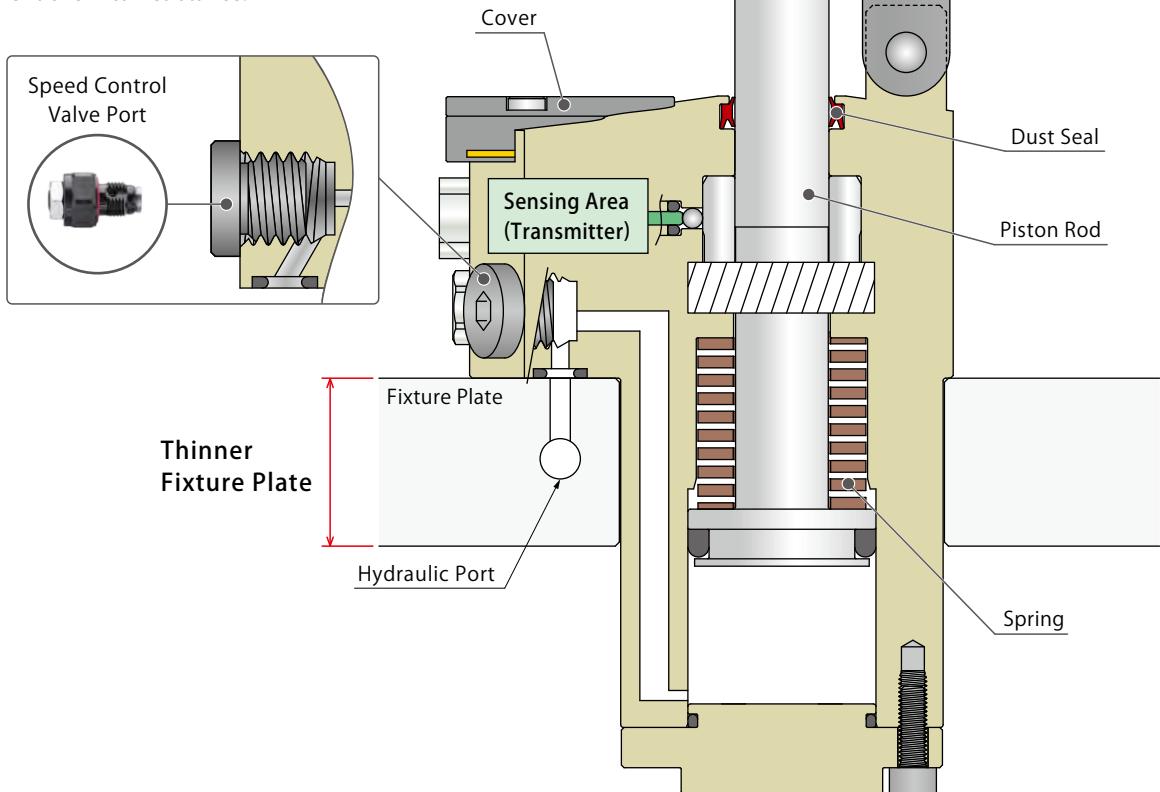
Clamped State

● Cross Section

※ This drawing shows Model LJM-C□-B□.

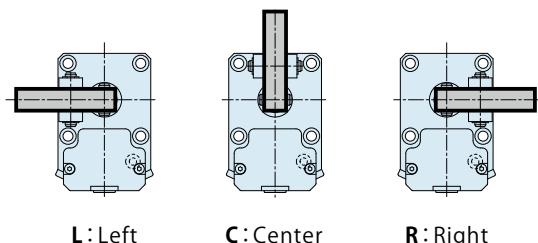
Excellent Coolant Resistance

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



Direct Mount Speed Control Valve

Speed control valve with air bleeding function can be directly mounted to the product.
(Speed control valve is sold separately.)



Lever in Three Directions Available

Lever positioning is available in three directions;
L : Left, C : Center, R : Right as seen from the port side.

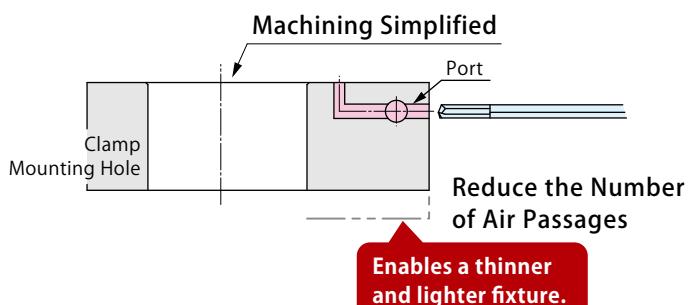
Zero Air Consumption

Detects unclamp position via wireless communication.
Unlike our conventional air sensing clamps, air for action confirmation is not required.

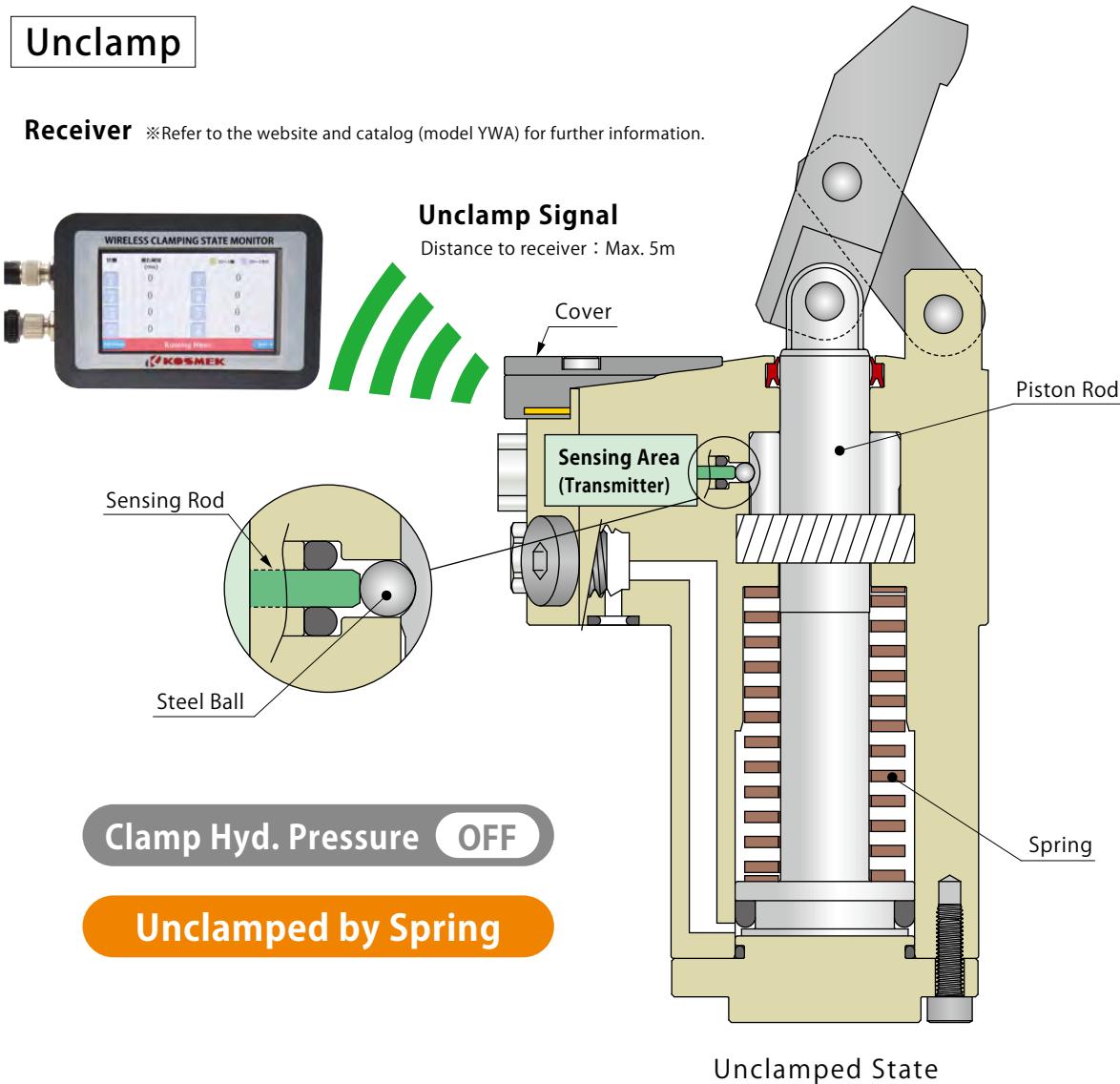


Minimized Number of Ports • Simple Machining

Integrating ports allows for reducing the number of ports for Rotary Joint and machining for air passage of fixture plate, and simplifying the machining of mounting hole, etc.



● Action Description (Internal Structure) ※ The figure shows Model LJM-C□-B□.



■ Unclamp (During Hydraulic Pressure Supply OFF)

When hydraulic supply is turned off, the piston rod descends by spring.



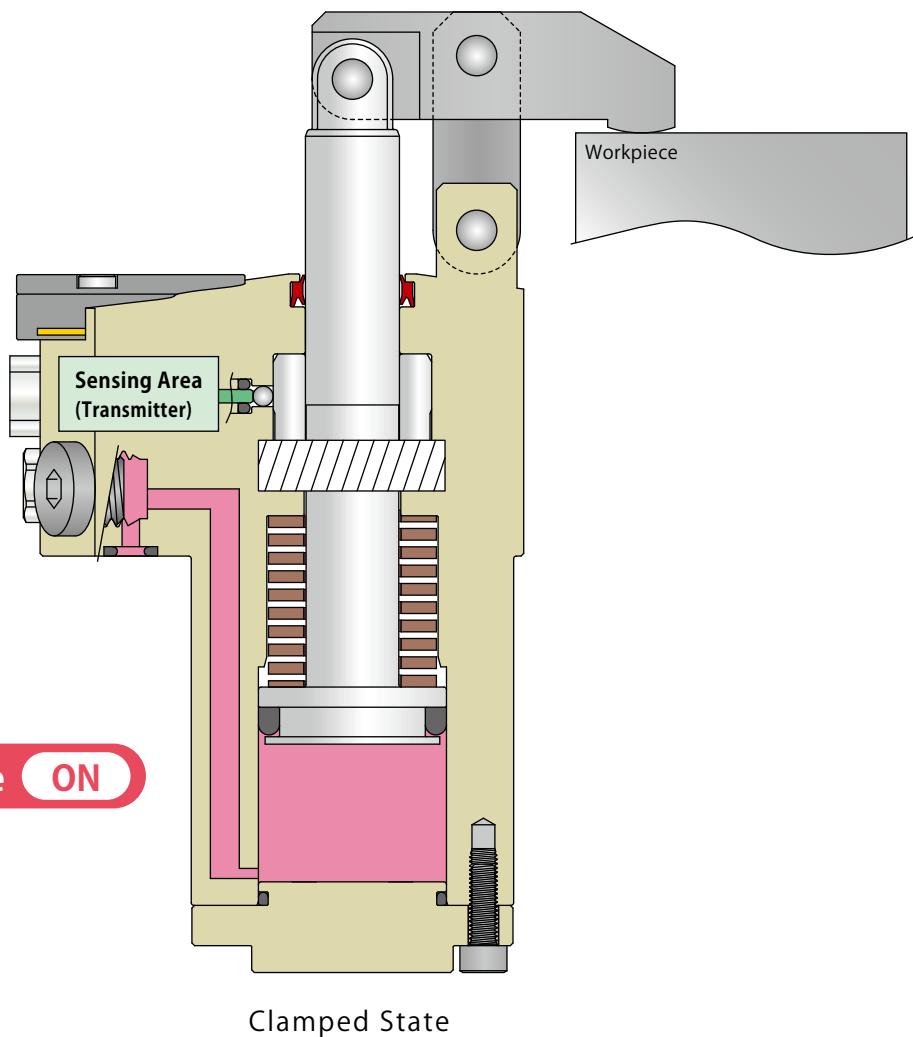
When the piston rod pushes the sensing rod via the steel ball at the end of unclamp stroke, an unclamp signal is transmitted from the sensing area.

Connecting Multiple Wireless Sensing Clamps

When using multiple wireless sensing clamps, provide an unclamp operating time difference of 100msec (0.1 sec.) or more.

Please check the operating time at the receiver, and adjust the operating time with the speed control valve if it is within 100msec. Otherwise, signals cannot be received properly due to radio interference.

Clamp



■ Clamp (During Hydraulic Pressure Supply to Clamping Port)

The piston rod ascends to clamp the workpiece.

Model No. Indication

LJM 048 0 - C C - B03

1 2 3 4 5

1 Body Size

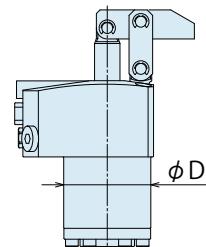
048 : $\phi D=48\text{mm}$

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

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

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

※ Outer diameter (ϕD) of the cylinder.



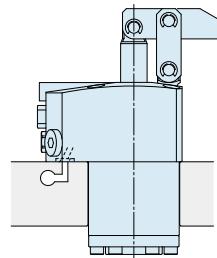
2 Design No.

0 : Revision Number

3 Piping Method

C : Gasket Option (With G Thread Plug)

※ Speed control valve (BZL) is sold separately.
Please refer to P. 35.



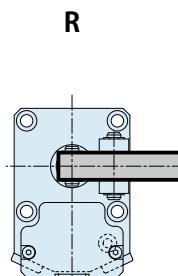
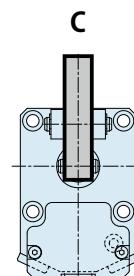
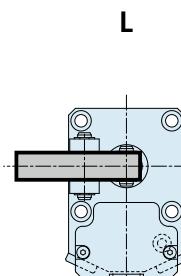
With G Thread Plug
Able to attach speed control valve

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 Available Country : Frequency

※ There are restrictions on countries where the product can be used according to
radio regulations. Please follow the regulatory requirements of each country.

B03 : United States

B01 : Japan

B02 : China

Features	Cross Section	Action Description	Model No. / Specification	Performance Curve	External Dimensions	Lever Design Dimensions Accessory	Cautions
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Specifications

Model No.		LJM0480-C□-B□	LJM0550-C□-B□	LJM0650-C□-B□	LJM0750-C□-B□
Cylinder Area for Clamping	cm ²	6.2	9.1	13.9	21.2
Cylinder Inner Diameter ^{※1}	mm	28	34	42	52
Rod Diameter ^{※1}	mm	14	16	18	22
Clamping Force ^{※2} (Calculation Formula)	kN	$F = \frac{10.25 \times P - 5.62}{L - 18.5}$	$F = \frac{17.16 \times P - 7.49}{L - 21}$	$F = \frac{30.55 \times P - 12.13}{L - 24.5}$	$F = \frac{57.34 \times P - 24.93}{L - 30}$
Full Stroke	mm	23.5	26	29.5	35
Clamp Stroke	mm	20.5	23	26.5	32
Extra Stroke	mm	3	3	3	3
Return Spring Force	max. kN	0.36 0.17	0.44 0.24	0.58 0.33	0.96 0.49
Max. Operating Pressure	MPa	7			
Min. Operating Pressure ^{※3}	MPa	2.5			
Withstanding Pressure	MPa	10.5			
Operating Temperature	°C	0 ~ 70 (Sensing Area: ~ 60°C)			
Usable Fluid	General Hydraulic Oil Equivalent to ISO-VG-32				
Wireless Sensing (Unclamp Confirmation)	Frequency	5 When selecting B03 : 902MHz Band			
		5 When selecting B01 : 920MHz Band			
		5 When selecting B02 : 868MHz Band			
	Distance to Receiver	Max. 5m ^{※4}			
Sensing Position		ON from 2±0.5 mm before the unclamp end stroke.			
Waterproof Rating		Equal to IPX7 (When the cover of the sensing area is completely closed.)			

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

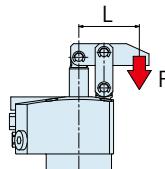
Please refer to the clamping force calculation formula and the clamping force curve.

^{※2}F : Clamping Force (kN), P : Supply Hydraulic Pressure (MPa), L : Distance between the piston center and the clamping point (mm).

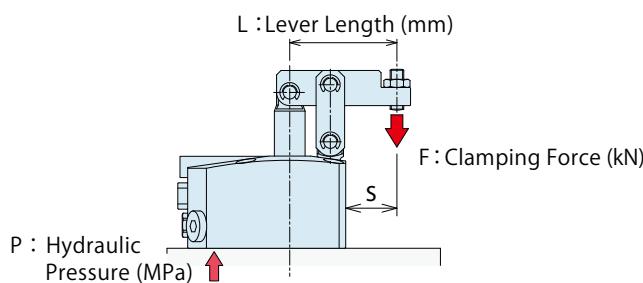
^{※3}Minimum pressure to operate the clamp without load.

^{※4}The maximum distance when there is no obstruction. Check the radio wave strength displayed on the receiver and consider the installation of the repeater. (Recommended Threshold Value:-85dBm)

1. Please refer to the external dimensions for cylinder capacity and product weight.



Clamping Force Curve



Applicable Model

LJM **0 - C** - **B03**
B01
B02

1 Body Size

(Ex.) In case of LJM0480 :

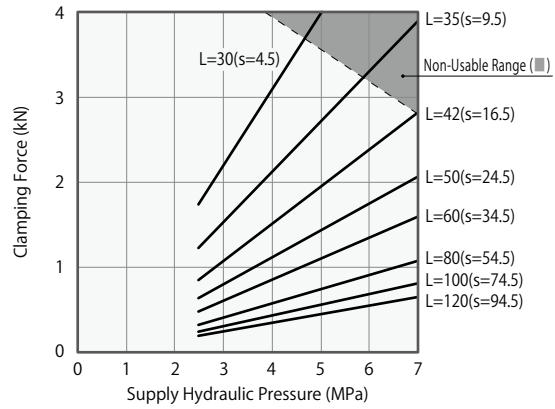
When supply hydraulic pressure P is 5.0MPa and lever length L is 42mm, clamping force becomes about 1.9kN.

Notes :

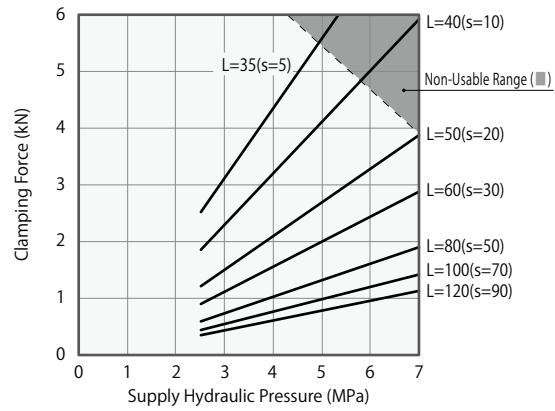
- Tables and graphs show the relationship between the clamping force (kN) and supply hydraulic pressure (MPa).
- Cylinder force (when L=0) cannot be calculated from the formula of clamping force.
- Clamping force in the non-useable range may cause damage and fluid leakage.

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

LJM0480		Clamping Force Calculation Formula ^{※1} (kN) $F = (10.25 \times P - 5.62) / (L - 18.5)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■) Min. Lever Length (L) (mm)									
		L=30	L=35	L=42	L=50	L=60	L=80	L=100	L=120	L (mm)	
7	4.0			2.8	2.1	1.6	1.1	0.8	0.7	42	
6.5	3.7			2.6	1.9	1.5	1.0	0.7	0.6	39	
6	3.4			2.4	1.8	1.3	0.9	0.7	0.6	36	
5.5	3.1		3.1	2.2	1.6	1.2	0.8	0.6	0.5	34	
5	2.7		2.8	1.9	1.4	1.1	0.7	0.6	0.4	31	
4.5	2.4	3.5	2.5	1.7	1.3	1.0	0.7	0.5	0.4	29	
4	2.1	3.1	2.1	1.5	1.1	0.9	0.6	0.4	0.3	28	
3.5	1.8	2.6	1.8	1.3	1.0	0.7	0.5	0.4	0.3	27	
3	1.5	2.2	1.5	1.1	0.8	0.6	0.4	0.3	0.2	26	
2.5	1.2	1.7	1.2	0.9	0.6	0.5	0.3	0.2	0.2	26	
Max. Operating Pressure (MPa)		4.7	5.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	



LJM0550		Clamping Force Calculation Formula ^{※1} (kN) $F = (17.16 \times P - 7.49) / (L - 21)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■) Min. Lever Length (L) (mm)									
		L=35	L=40	L=50	L=60	L=70	L=80	L=100	L=120	L (mm)	
7	5.9			3.9	2.9	2.3	1.9	1.4	1.1	50	
6.5	5.5			3.6	2.7	2.1	1.8	1.3	1.1	45	
6	5.0			3.3	2.4	1.9	1.6	1.2	1.0	41	
5.5	4.6	4.6		3.0	2.2	1.8	1.5	1.1	0.9	38	
5	4.1	4.1	2.7	2.0	1.6	1.3	1.0	0.8	0.6	36	
4.5	3.7	5.0	3.7	2.4	1.8	1.4	1.2	0.9	0.7	33	
4	3.2	4.4	3.2	2.1	1.6	1.2	1.0	0.8	0.6	31	
3.5	2.7	3.8	2.8	1.8	1.3	1.1	0.9	0.7	0.5	30	
3	2.3	3.1	2.3	1.5	1.1	0.9	0.7	0.6	0.4	30	
2.5	1.8	2.5	1.9	1.2	0.9	0.7	0.6	0.4	0.4	30	
Max. Operating Pressure (MPa)		4.9	5.8	7.0	7.0	7.0	7.0	7.0	7.0	7.0	



Wireless
Sensing Clamp

Accessory

Common
Cautions

Wireless Sensing
Hydraulic
Single Acting
Swing Clamp

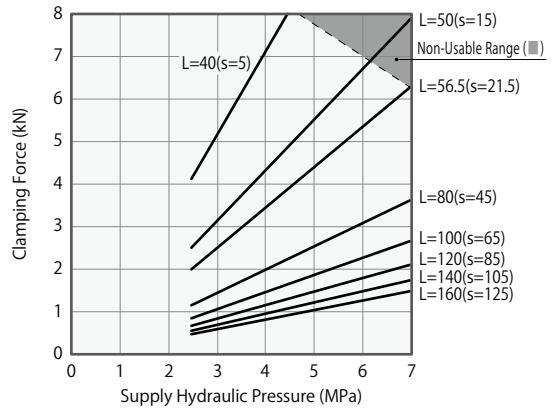
LGM

Wireless Sensing
Hydraulic
Single Acting
Link Clamp

LJM

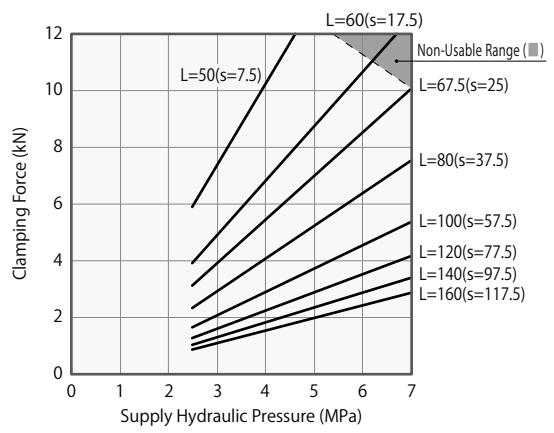
LJM0650 Clamping Force Calculation Formula^{※1}(kN) $F = (30.55 \times P - 12.13) / (L - 24.5)$

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	9.2			6.3	3.6	2.7	2.1	1.7	1.5	56	
6.5	8.5			5.8	3.4	2.5	2.0	1.6	1.4	53	
6	7.8		6.7	5.3	3.1	2.3	1.8	1.5	1.3	49	
5.5	7.1		6.1	4.9	2.8	2.1	1.6	1.3	1.2	46	
5	6.4		5.5	4.4	2.5	1.9	1.5	1.2	1.0	43	
4.5	5.7	8.1	4.9	3.9	2.3	1.7	1.3	1.1	0.9	40	
4	5.0	7.1	4.3	3.4	2.0	1.5	1.2	1.0	0.8	37	
3.5	4.3	6.1	3.7	3.0	1.7	1.3	1.0	0.8	0.7	35	
3	3.6	5.1	3.1	2.5	1.4	1.1	0.8	0.7	0.6	35	
2.5	2.9	4.1	2.5	2.0	1.2	0.9	0.7	0.6	0.5	35	
Max. Operating Pressure (MPa)	4.5	6.1	7.0	7.0	7.0	7.0	7.0	7.0	7.0		

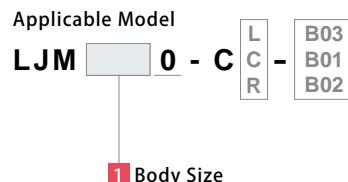
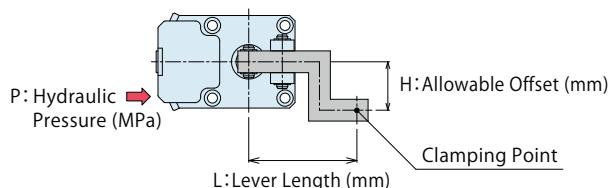


LJM0750 Clamping Force Calculation Formula^{※1}(kN) $F = (57.34 \times P - 24.93) / (L - 30)$

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	13.9			10.0	7.5	5.4	4.2	3.4	2.9	67	
6.5	12.8			9.3	7.0	5.0	3.9	3.2	2.7	63	
6	11.8		10.6	8.5	6.4	4.6	3.5	2.9	2.5	58	
5.5	10.7		9.7	7.7	5.8	4.1	3.2	2.6	2.2	54	
5	9.6		8.7	7.0	5.2	3.7	2.9	2.4	2.0	51	
4.5	8.6	11.7	7.8	6.2	4.7	3.3	2.6	2.1	1.8	48	
4	7.5	10.2	6.8	5.5	4.1	2.9	2.3	1.9	1.6	45	
3.5	6.5	8.8	5.9	4.7	3.5	2.5	2.0	1.6	1.4	43	
3	5.4	7.4	4.9	3.9	2.9	2.1	1.6	1.3	1.1	43	
2.5	4.3	5.9	3.9	3.2	2.4	1.7	1.3	1.1	0.9	43	
Max. Operating Pressure (MPa)	4.8	6.2	7.0	7.0	7.0	7.0	7.0	7.0	7.0		



Allowable Offset Graph



(Ex.) In case of LJM0480 :

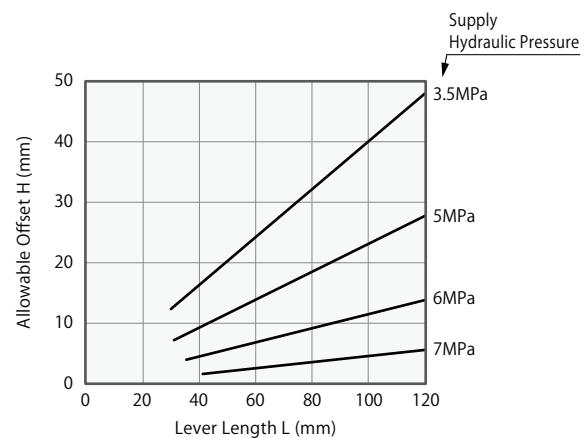
When supply hydraulic pressure P is 5.0MPa and lever length L is 80mm, allowable offset becomes about 19mm.

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.

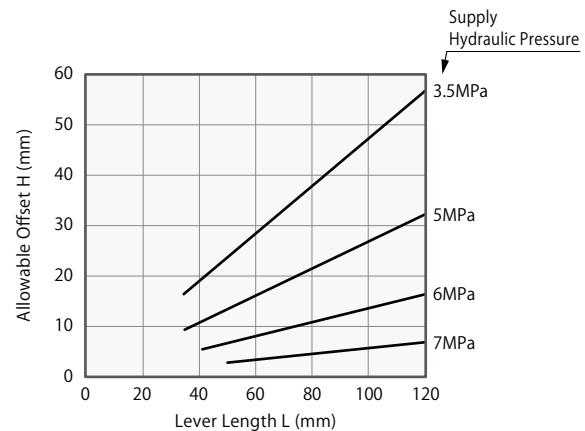
LJM0480

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	■	■	2	2	3	4	5	6
6	■	4	5	6	7	9	12	14
5	7	8	10	12	14	19	23	28
3.5	13	15	17	20	24	32	40	48



LJM0550

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	■	■	3	3	4	5	6	7
6	■	6	7	8	10	11	13	16
5	9	11	13	16	19	22	27	32
3.5	17	19	24	28	33	38	47	57



Wireless
Sensing Clamp

Accessory

Common
Cautions

Wireless Sensing
Hydraulic
Single Acting
Swing Clamp

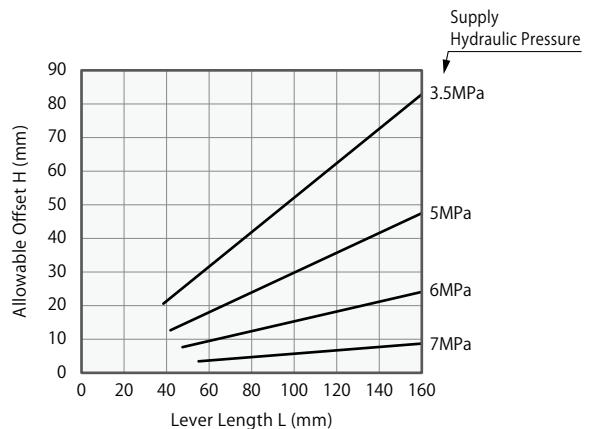
LGM

Wireless Sensing
Hydraulic
Single Acting
Link Clamp

LJM

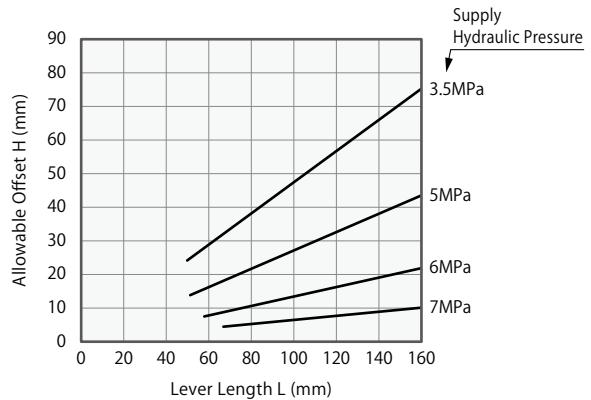
LJM0650

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			4	5	6	7	8	9
6		8	9	12	15	18	21	24
5		15	17	24	30	36	42	48
3.5	21	27	30	42	52	62	73	83



LJM0750

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	5	7	8	9	10
6		8	9	11	14	16	19	22
5		16	18	22	27	33	38	44
3.5	24	29	33	38	47	57	66	75

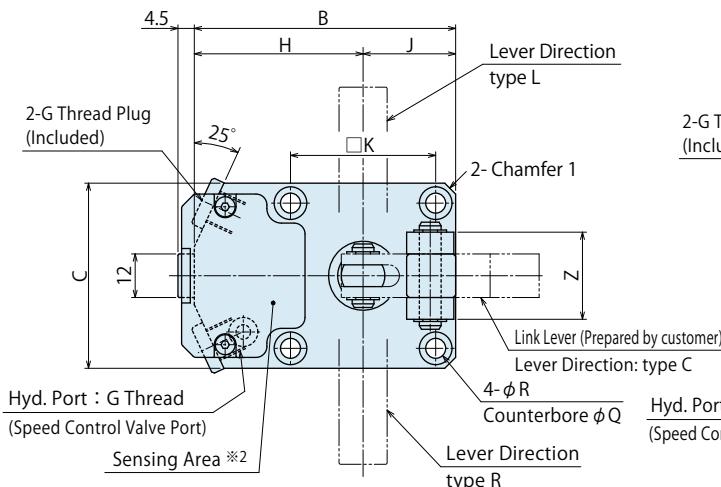


External Dimensions

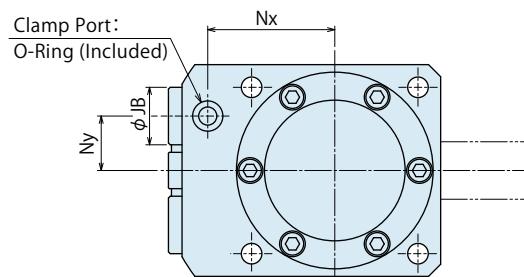
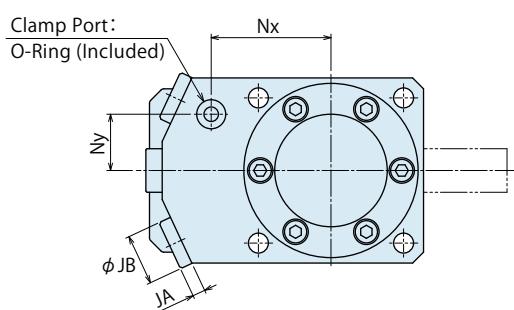
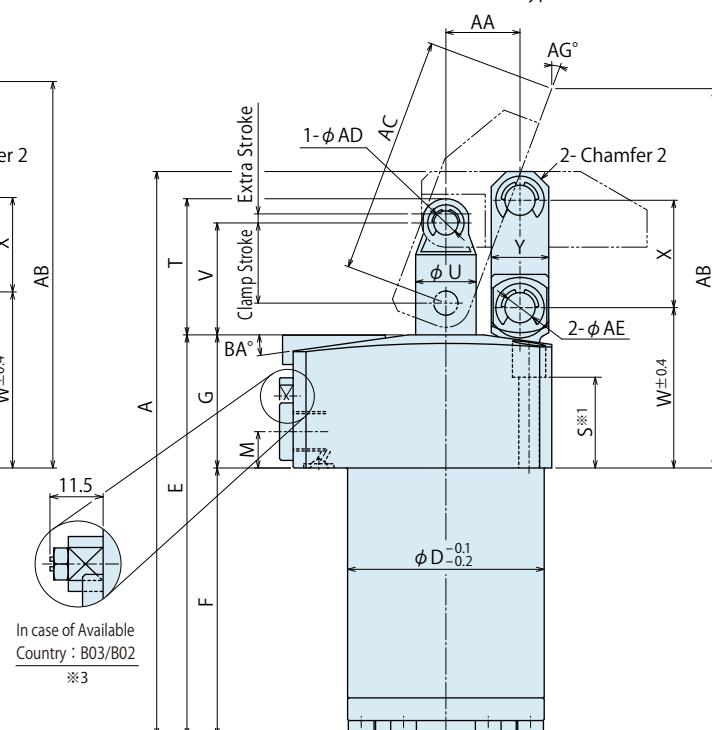
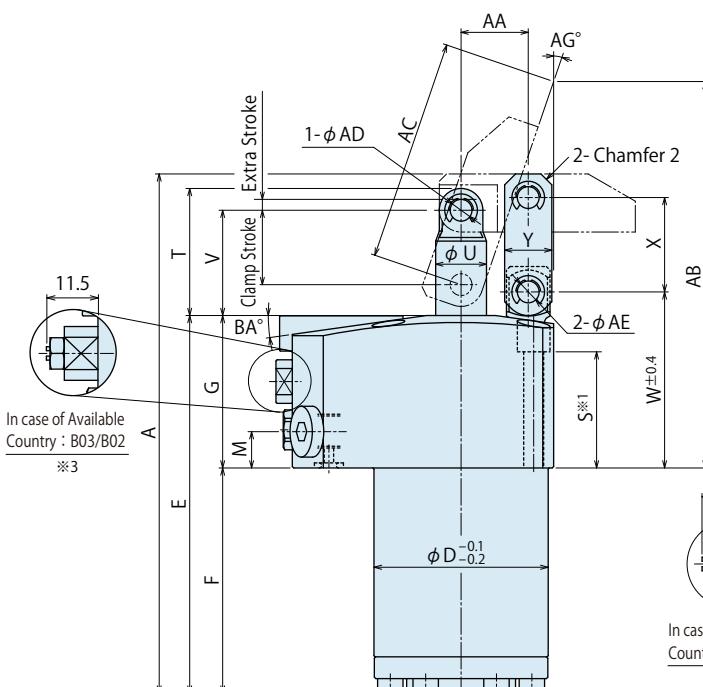
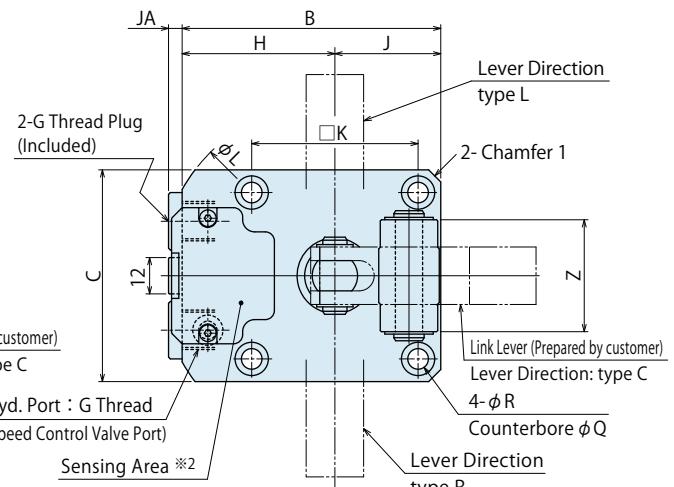
C : Gasket Option (With G Thread Plug)

※ The drawing shows the clamped state of LJM-CC-B□.

LJM0480-C□-B□ / LJM0550-C□-B□



LJM0650-C□-B□ / LJM0750-C□-B□



Notes :

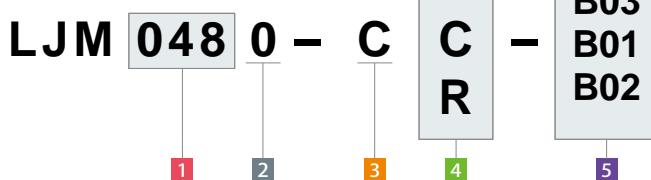
※1. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.

※2. Do not cover the top surface of the sensing area with metal objects (chips, sludge, etc.). It may obstruct radio wave transmission.

※3. Please refer to P.33 "Notes for Design 2) Radio Regulations" .

1. Please use the attached pin (equivalent to $\phi ADF6$, $\phi AEf6$, HRC60) as the mounting pin for lever.
2. Speed control valve is sold separately. Please refer to P.35. It is necessary to provide an unclamp operation time difference of at least 100 msec. For adjusting the unclamp operation, please use a speed control valve (meter-out).

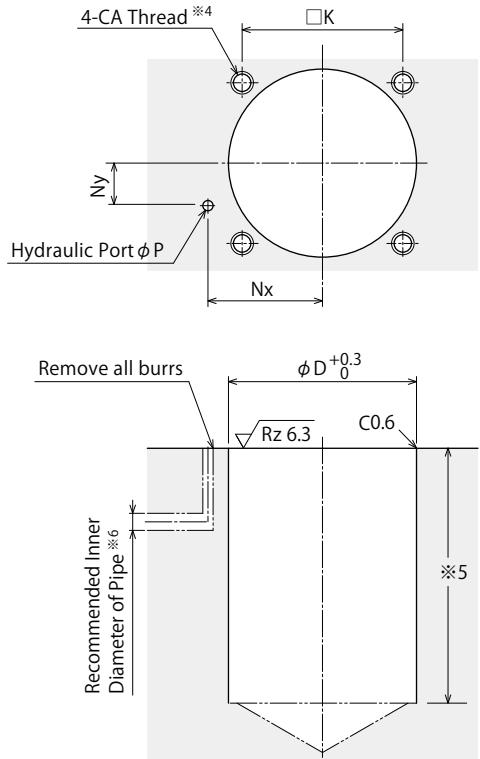
Model No. Indication



(Format Example : LJM0550-CC-B03, LJM0750-CR-B03)

- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Lever Direction
- 5 Available Country : Frequency

Machining Dimensions of Mounting Area



Notes :

- ※4. CA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
- ※5. The depth of the body mounting hole ϕD should be decided according to the mounting height referring to dimension 'F'.

External Dimensions and Machining Dimensions for Mounting

Model No.	LJM0480-C□-B□	LJM0550-C□-B□	LJM0650-C□-B□	LJM0750-C□-B□
Full Stroke	23.5	26	29.5	35
Clamp Stroke	20.5	23	26.5	32
Extra Stroke	3	3	3	3
A	143	163	186.5	217
B	72	78	85.5	95.8
C	51	60	70	85
D	48	55	65	75
E	104	117.5	132.5	150
F	62	75.5	88.5	106
G	42	42	44	44
H	46.5	48	50.5	53.3
J	25.5	30	35	42.5
K	40	47	55	63
L	–	–	116	122
M	10	10	12	12
Nx	33	34.5	42	45
Ny	15.5	16	18	19
P	3	3	5	5
Q	9	10.5	11	14
R	5.5	6.8	6.8	9
S	32	30	30	27
T	35	37.5	45	55
U	14	16	18	22
V	29	31.5	37	45
W	48.5	49.5	53	55
X	26	30	35.5	43.5
Y	13	16	19	25
Z	21	28	37	40
Chamfer 1	C3	C3	C4	C10
Chamfer 2	C3	C3	C5	C5
AA	18.5	21	24.5	30
AB	106.5	115.9	125.4	137.8
AC	61.2	71.7	78.7	90.8
AD	6	6	8	10
AE	6	8	10	12
AG [°]	18.9	19.9	20.5	21.4
BA [°]	8	8	8	11
CA (Nominal × Pitch)	M5×0.8	M6×1	M6×1	M8×1.25
JA	3.5	3.5	4.5	4.5
JB	14	14	19	19
Hyd. Port:G Thread	G1/8	G1/8	G1/4	G1/4
O-ring	OR NBR-90 P5-N	OR NBR-90 P5-N	OR NBR-90 P7-N	OR NBR-90 P7-N
Inner Diam. of Pipe ^{※6}	φ6	φ6	φ8	φ8
Clamp Cylinder Capacity cm ³	14.5	23.6	40.9	74.3
Weight ^{※7}	kg	1.8	2.3	3.6
				5.3

Notes :

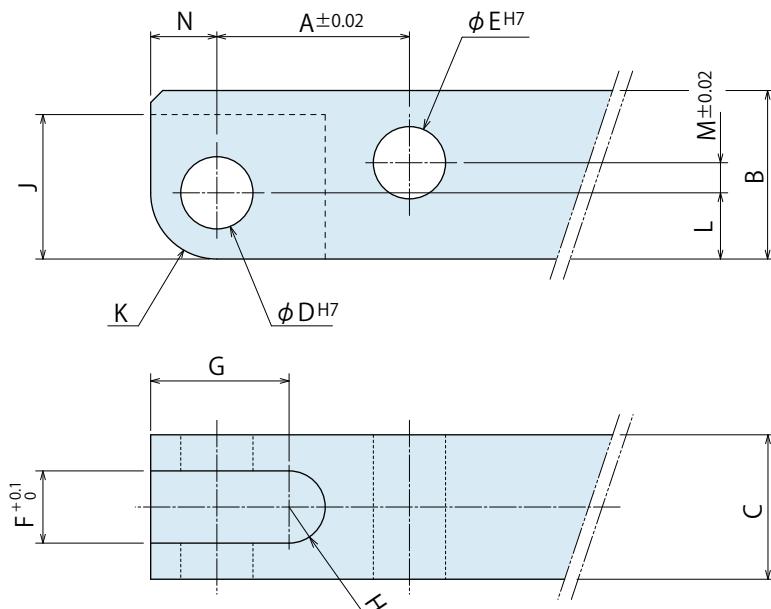
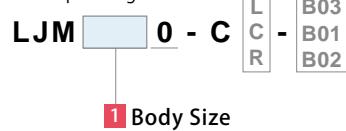
※6. This is for reference. Adjust it depending on the number of clamps and/or the length of the pipe.

※7. It shows the weight of single link clamp without the link lever.

● Link Lever Design Dimensions

※ Reference for designing a link lever.

Corresponding Model No.



● Calculation List of Link Lever Design Dimension

Corresponding Model No.	LJM0480-C□-B□	LJM0550-C□-B□	LJM0650-C□-B□	LJM0750-C□-B□	(mm)
A	18.5	21	24.5	30	
B	16	20	25	32	
C	12 _{-0.3}	16 _{-0.3}	19 _{-0.3}	22 _{-0.3}	
D	6 ^{+0.012} ₀	6 ^{+0.012} ₀	8 ^{+0.015} ₀	10 ^{+0.015} ₀	
E	6 ^{+0.012} ₀	8 ^{+0.015} ₀	10 ^{+0.015} ₀	12 ^{+0.018} ₀	
F	6	8	10	11	
G	13	12.5	16	20	
H	R3	R4	R5	R5.5	
J	13	13	17.5	22	
K	R6	R6	R8	R10	
L	6	6	8	10	
M	3.5	6	7.5	9.5	
N	6	6	8	10	

Notes :

1. Link lever should be designed with its length according to performance curve.
2. If the link lever is not in accordance with the dimension shown above, performance may be degraded and damage can occur.
3. Please 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.)

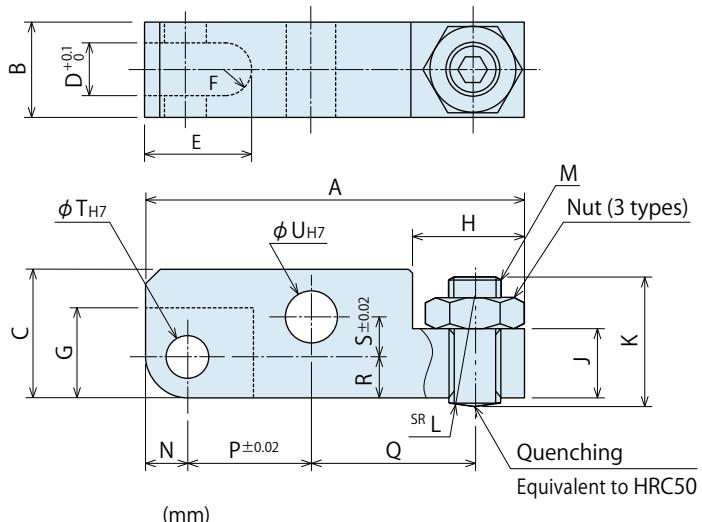
Accessory : Link Lever (LZ-LJ1)

Model No. Indication

LZ 048 0 - LJ1

Size
(Refer to the table.)

Design No.
(Revision Number)



Model No.	LZ0480-LJ1	LZ0550-LJ1	LZ0650-LJ1	LZ0750-LJ1
Corresponding Model No.	LJM0480	LJM0550	LJM0650	LJM0750
A	54	64	74.5	88.5
B	12 _{-0.3}	16 _{-0.3}	19 _{-0.3}	22 _{-0.3}
C	16	20	25	32
D	6	8	10	11
E	16	16.5	21	25.5
F	R3	R4	R5	R5.5
G	13	13	17.5	22
H	13	17	22	25
J	8	10	13	16
K	18	22	27	31
L	10	15	20	30
M	M6×1	M8×1.25	M10×1.5	M12×1.75
N	6	6	8	10
P	18.5	21	24.5	30
Q	23.5	29	32	37.5
R	6	6	8	10
S	3.5	6	7.5	9.5
T	6 ^{+0.012}	6 ^{+0.012}	8 ^{+0.015}	10 ^{+0.015}
U	6 ^{+0.012}	8 ^{+0.015}	10 ^{+0.015}	12 ^{+0.018}

Notes :

1. Material : S45C
Surface Finishing : Alkaline Blackening
2. If necessary, the front end should be additionally machined and finished.
3. Please use the attached pin (equivalent to ϕ ADf6, ϕ AEf6, HRC60) as the lever mounting pin.

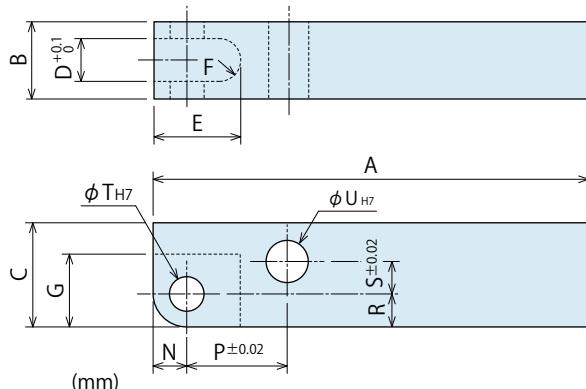
Accessory : Link Lever (LZ-LJ2)

Model No. Indication

LZ 048 0 - LJ2

Size
(Refer to the table.)

Design No.
(Revision Number)



Model No.	LZ0480-LJ2	LZ0550-LJ2	LZ0650-LJ2	LZ0750-LJ2
Corresponding Model No.	LJM0480	LJM0550	LJM0650	LJM0750
A	85	90	105	110
B	12 _{-0.3}	16 _{-0.3}	19 _{-0.3}	22 _{-0.3}
C	16	20	25	32
D	6	8	10	11
E	16	16.5	21	25.5
F	R3	R4	R5	R5.5
G	13	13	17.5	22
N	6	6	8	10
P	18.5	21	24.5	30
R	6	6	8	10
S	3.5	6	7.5	9.5
T	6 ^{+0.012}	6 ^{+0.012}	8 ^{+0.015}	10 ^{+0.015}
U	6 ^{+0.012}	8 ^{+0.015}	10 ^{+0.015}	12 ^{+0.018}

Notes :

1. Material : S45C
Surface Finishing : Alkaline Blackening
2. If necessary, the front end should be additionally machined and finished.
3. Please use the attached pin (equivalent to ϕ ADf6, ϕ AEf6, HRC60) as the lever mounting pin.

● Cautions

● Notes for Design

- 1) Check Specifications
● Please use each product according to the specifications.

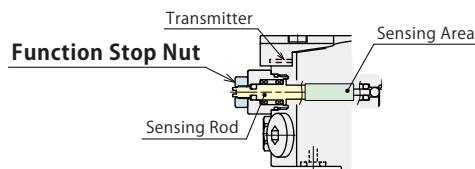
- 2) Radio Regulations
● There are restrictions on countries where the product can be used according to radio regulations. Please follow the regulatory requirements of each country. LJM□-C□-B03 can be used in United States.

Regarding LJM□-C□-B03/B02

- At shipment, the signal transmission is in a disabled state, with the function stop nut attached. When enabling signal transmission, please remove the "function stop nut" before use.

Signal Transmission Function OFF Setting

- If it is absolutely necessary to operate this product in a country other than the available country, please disable the signal transmission function using the following settings.
By attaching the "function stop nut" and fixing the sensing rod to prevent movement, the signal transmission function can be stopped.



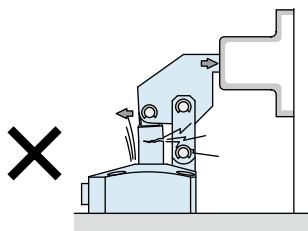
※ 5 Available Country : B01 does not support this function.
(Please contact us separately if necessary.)

3) 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.40)

4) 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.

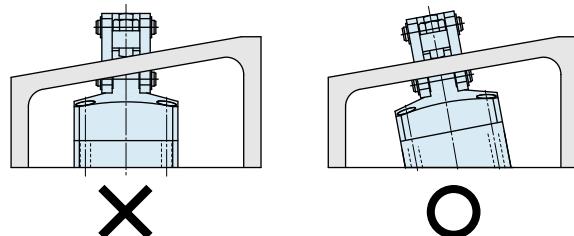


- If offset load is applied on the link part, use it within the allowable range of "Allowable Offset Graph".

5) 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.

- 6) When clamping on a sloped surface of the workpiece
● Make sure the clamping surface and the mounting surface of the clamp are parallel.



7) 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.

● Notes for Usage

- 1) Do not cover the top surface of the sensing area with metal objects (chips, sludge, etc.). It may obstruct radio wave transmission. The cover is made of plastic material and should be protected from chips.

● Installation Notes

- 1) Check the Usable Fluid
- Please use the appropriate fluid by referring to the Hydraulic Fluid List (P.39).
- 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.	Mounting Bolt Size	Tightening Torque (N·m)
LJM0480	M5×0.8	6.9
LJM0550	M6×1	11.8
LJM0650	M6×1	11.8
LJM0750	M8×1.25	24.5

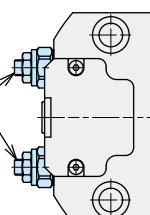
3) Speed Adjustment

- Adjust the speed so that the operating time is within 1 sec. 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.
- When using multiple wireless sensing clamps / linear cylinders, provide an operating time difference of 100msec or more. Simultaneous operation may cause radio interference, which may result in failure to receive unclamp signals properly. For adjusting the unclamp operation, please use a speed control valve (meter-out).
- For clamping speed adjustment, install a speed control valve (meter-in) for each clamp.
- To adjust the speed of both unclamping and clamping operations, install one speed control valve BZL□-A (meter-in) and one BZL□-B (meter-out) on the two G-thread sections of the clamp body, respectively. Installation position is flexible; speed adjustment is possible regardless of which side it is installed to. Furthermore, when adjusting either the unclamping or clamping speed, it can be adjusted regardless of the installation position.

Speed Controller

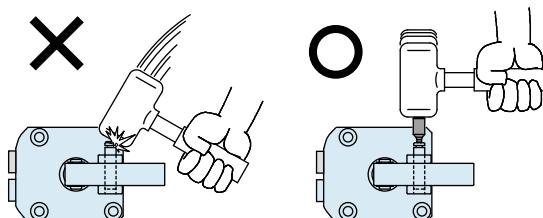
For clamping operation adjustment : BZL□-A (meter-in)
For unclamping operation adjustment: BZL□-B (meter-out)

* The installation position is optional



4) Installation / Removal of the Link Lever

- When inserting a 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.



5) Initial Connection Settings for the Receiver

During setup, it is necessary to perform the initial connection settings between the clamp and the receiver. (For detailed instructions, refer to the instruction manual of receiver YWA.)

6) Cautions for Repeater Installation

The maximum distance between the clamp and the receiver is 5 meters. Check the radio wave strength displayed on the receiver and consider the installation of the repeater.

(Recommended Threshold : -85dBm)

It is recommended to install the repeater in locations such as the upper part inside the processing machine, where it is less likely to be exposed to coolant or chips.

Guidelines for Repeater Installation

- ① When the receiver cannot be installed at a height of 2 meters or more.
- ② When there is a radio wave obstruction between the clamp and the receiver.
- ③ When the clamp and the receiver are more than 3 meters apart.

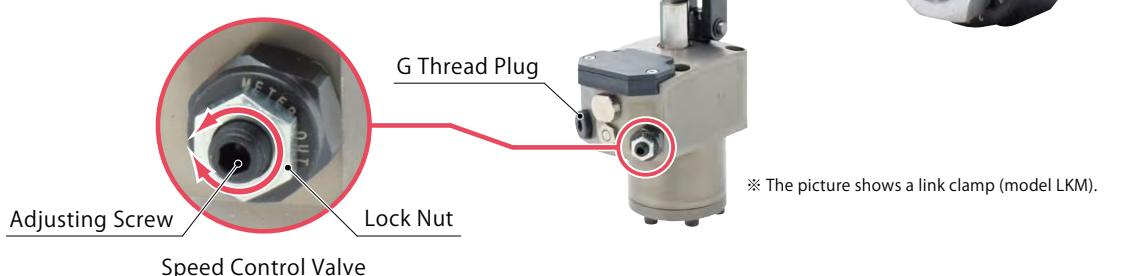
※ Please refer to P.39 for common cautions.

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

Speed Control Valve (For Low Pressure)

Directly Mounted to Clamps / Cylinders

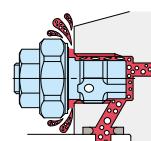
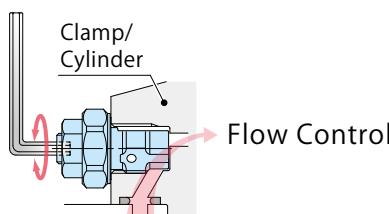
Speed Control Valve (model BZL) attaches directly to KOSMEK hydraulic clamp with piping method: type C.



Action Description

Control the flow with a wrench. Able to change the operating speed of a clamp/cylinder individually.

Able to release the air in the circuit by loosening the Speed Control Valve.



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

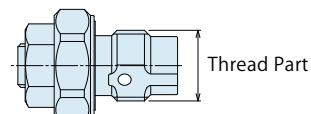
BZL 0 10 1 - B

1 2 3

1 G Thread Size

10 : Thread Part G1/8A Thread

20 : Thread Part G1/4A Thread



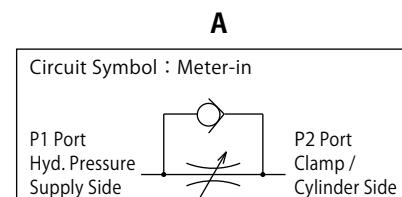
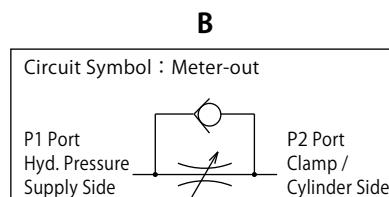
2 Design No.

1 : Revision Number

3 Control Method

B : Meter-out

A : Meter-in



● Specifications

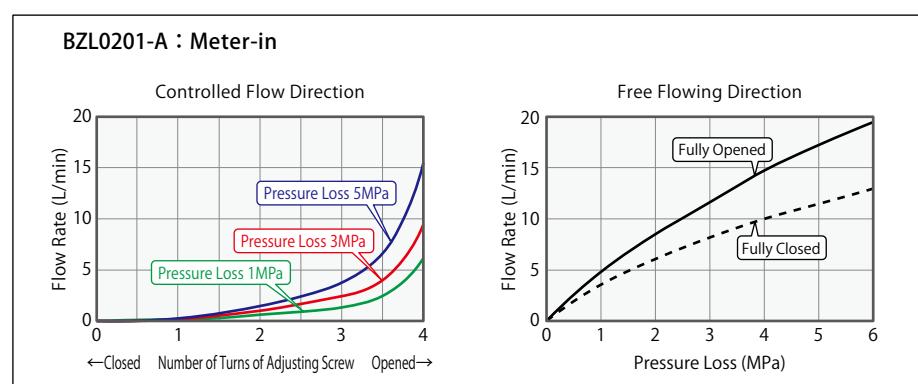
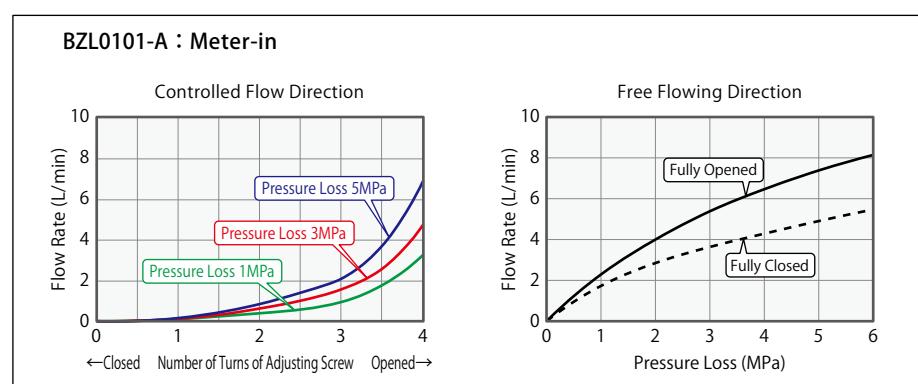
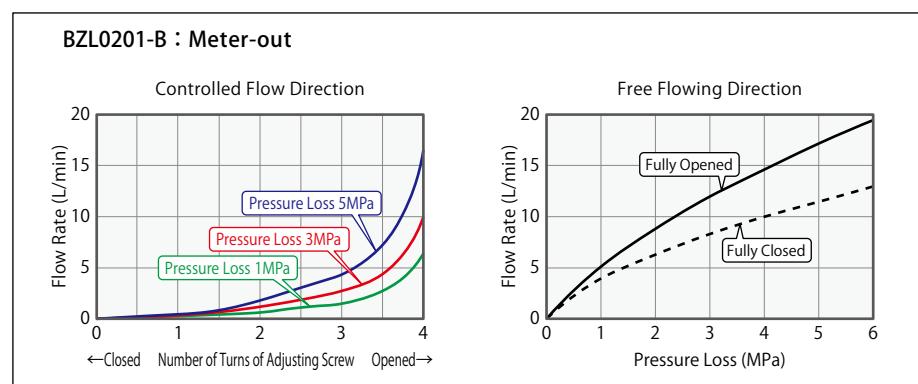
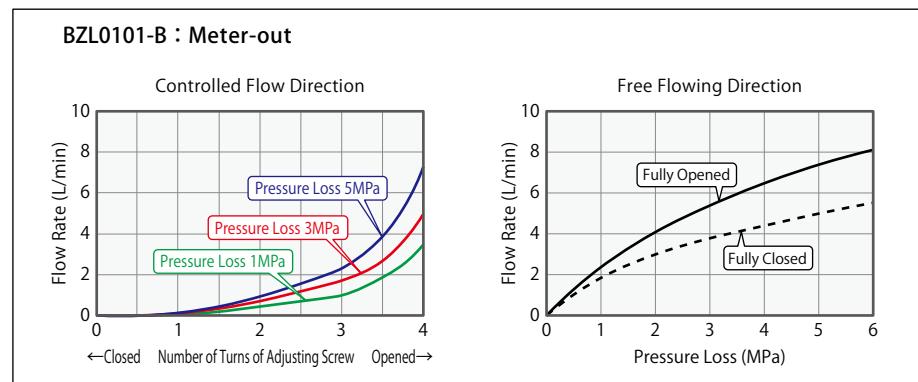
Model No.	BZL0101-B	BZL0201-B	BZL0101-A	BZL0201-A
Max. Operating Pressure	MPa		7	
Withstanding Pressure	MPa		10.5	
Control Method	Meter-out		Meter-in	
G Thread Size	G1/8A		G1/4A	G1/4A
Cracking Pressure	MPa	0.12		0.04
Max. Passage Area	mm ²	2.6	5.0	2.6
Usable Fluid	°C	0 ~ 70		
Operating Temperature		General Hydraulic Oil Equivalent to ISO-VG-32		
Tightening Torque for Main Body	N·m	10	25	10
Weight	g	12	26	12
				26

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/cylinders.
 Flow control will not be made because the bottom depth difference of G thread makes metal seal insufficient.

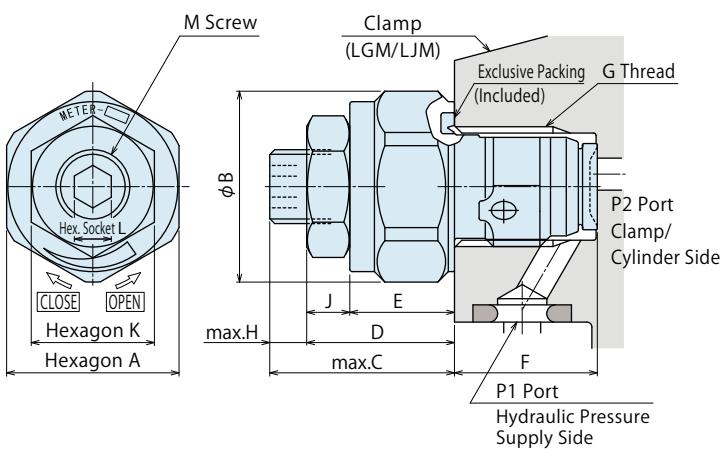
● Applicable Products

Model No.	LGM (Single Action) Swing Clamp	LJM (Single Action) Link Clamp
BZL0101-□	LGM0480-C□-B□	LJM0480-C□-B□
	LGM0550-C□-B□	LJM0550-C□-B□
BZL0201-□	LGM0650-C□-B□	LJM0650-C□-B□
	LGM0750-C□-B□	LJM0750-C□-B□

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



External Dimensions



Model No.	BZL0101-□	BZL0201-□	(mm)
A	14	18	
B	15.5	20	
C	15	16	
D	12	13	
E	8.5	9.5	
F	(11.6)	(15.1)	
G	G1/8	G1/4	
H	3	3	
J	3.5	3.5	
K	10	10	
L	3	3	
M (Nominal×Pitch)	M6×0.75	M6×0.75	

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.40)
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.)

● Cautions

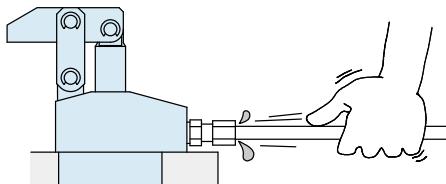
● Installation Notes (For Hydraulic Series)

- 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.

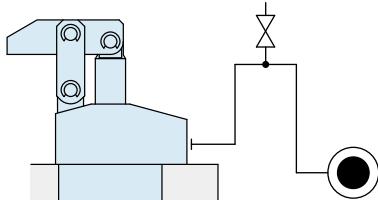
- ① Reduce hydraulic pressure to less than 2MPa.
- ② Loosen the cap nut of pipe fitting closest to the clamp by one full turn.
- ③ Shake the pipeline to loosen the outlet of pipe fitting.

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.

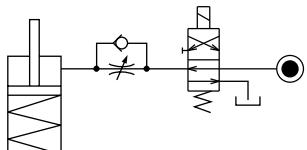
● Notes on Hydraulic Cylinder Speed Control Unit



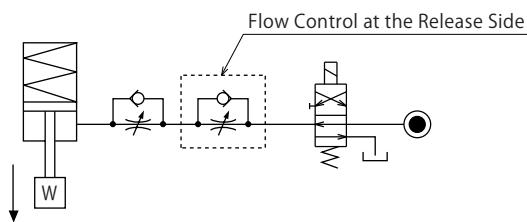
Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

● Speed Control Circuit for Single Acting Cylinder

For spring return single acting cylinders, restricting flow during release can extremely slow down or disturb release action. The preferred method is to control the flow during the lock action only. It is also preferred to provide a flow control valve at each actuator which has limited action speed (swing clamp, hydraulic compact cylinder, etc.)

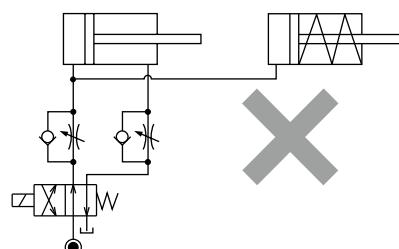


If the cylinder may be damaged by the load from the releasing action direction, provide the flow control valve to the releasing side as well. (Provide the flow control valve to the releasing side if the lever weight is applied during release action.)



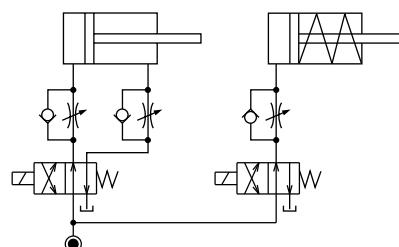
Single acting components should not be used in the same flow control circuit as the double acting components.

The release action of the single acting cylinders may become erratic or very slow.

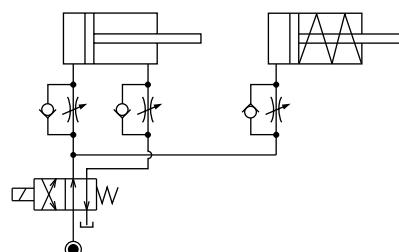


Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together.

○ Separate the control circuit.



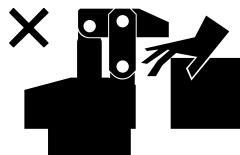
○ Reduce the influence of double acting cylinder control unit. However, due to the back pressure in tank line, single acting cylinder is activated after double acting cylinder works.



● Cautions

● Notes on Handling

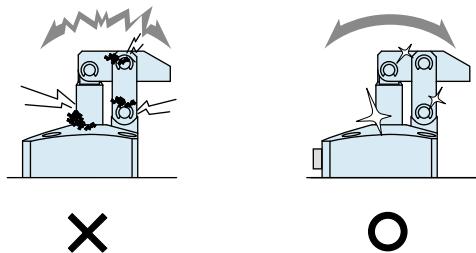
- 1) It should be operated by qualified personnel.
- Machines and devices with hydraulic and pneumatic products should be operated and maintained by qualified personnel.
- 2) Do not operate or remove the product unless the safety protocols are ensured.
 - ① Machines and devices can only be inspected 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 trouble/issue in the bolts and respective parts before restarting a machine or device.
- 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.
- 5) Do not cover the top surface of the sensing area with metal objects (chips, sludge, etc.).
 - It may obstruct radio wave transmission. The cover is made of plastic material and should be protected from chips.

● 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.
 - If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning and fluid leakage.



- 3) If disconnecting by couplers, air bleeding should be carried out on a regular basis to avoid air mixed in the circuit.
- 4) Regularly tighten pipe line, mounting bolt, nut, snap ring, cylinder and others to ensure proper use.
- 5) Make sure the hydraulic fluid has not deteriorated.
- 6) 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.
- 7) The products should be stored in the cool and dark place without direct sunshine or moisture.
- 8) Please contact us for overhaul and repair.

● 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.

Please refer to the separate catalog for the receiver and repeater.

Receiver



Model YWA

Repeater



Model YWB

Kosmek Website
<https://www.kosmek.com/>



KOSMEK LTD.

► <https://www.kosmek.com/>

HEAD OFFICE 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan 651-2241
TEL.+81-78-991-5162 FAX.+81-78-991-8787

United States of America SUBSIDIARY	KOSMEK (USA) LTD. 650 Springer Drive, Lombard, IL 60148 USA TEL. +1-630-620-7650 FAX. +1-630-620-9015
MEXICO REPRESENTATIVE OFFICE	KOSMEK USA Mexico Office Av. Loma Pinal de Amoles 320-piso PH oficina 504 interior 13, Vista Dorada, 76060 Santiago de Querétaro, Qro. Mexico TEL. +52-442-851-1377
EUROPE SUBSIDIARY	KOSMEK EUROPE GmbH Schleppenplatz 2 9020 Klagenfurt am Wörthersee Austria TEL. +43-463-287587 FAX. +43-463-287587-20
CHINA SUBSIDIARY	KOSMEK (CHINA) LTD. Room601, RIVERSIDE PYRAMID No.55, Lane21, Pusan Rd, Pudong Shanghai 200125, China TEL. +86-21-54253000
INDIA BRANCH OFFICE	KOSMEK LTD. - INDIA 4A/Old No:649, Ground Floor, 4th D cross, MM Layout, Kavalbyrasandra, RT Nagar, Bangalore -560032 India TEL.+91-9880561695
THAILAND REPRESENTATIVE OFFICE	KOSMEK Thailand Representation Office 67 Soi 58, RAMA 9 Rd, Phatthanakan, Suanluang, Bangkok 10250, Thailand TEL. +66-2-300-5132 FAX. +66-2-300-5133

- For Further Information on Unlisted Specifications and Sizes, Please call us.
- Specifications in this Leaflet are Subject to Change without Notice.

