

High-Power Link Clamp

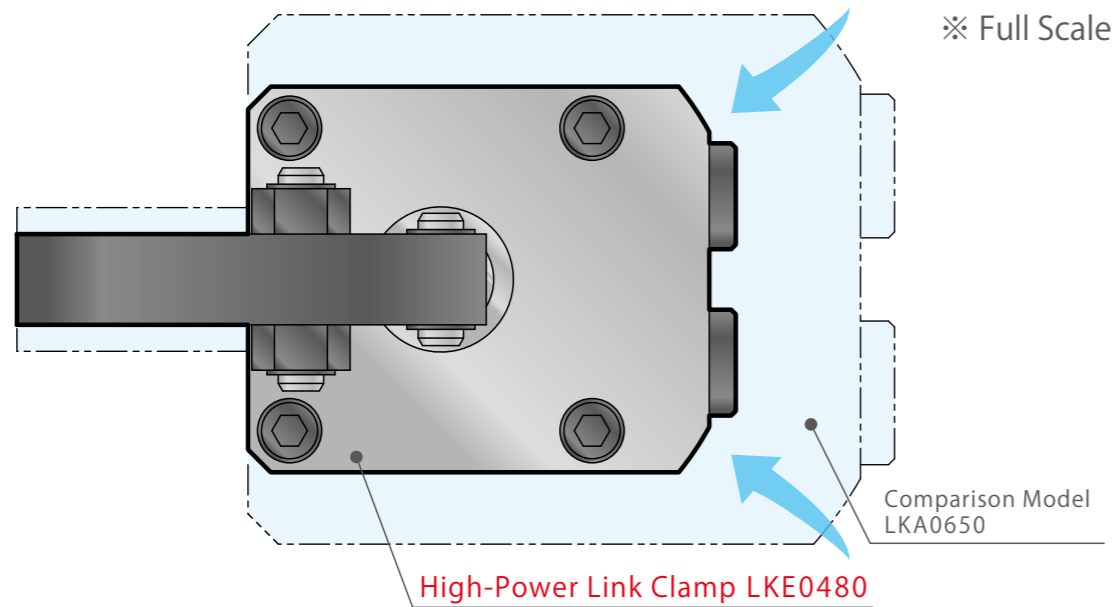
Hydraulic Double Action

Model LKE



Mechanical Locking System with Hydraulic Force PAT.

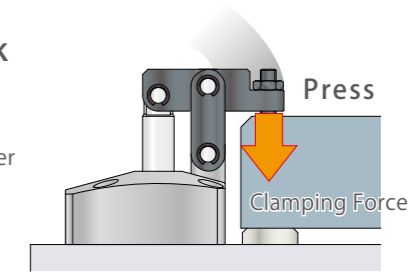
Equivalent clamping force, **2 sizes smaller!!**



	Hydraulic Link Clamp (Comparison Model) Model LKA0650		New High-Power Link Clamp Model LKE0480	
Clamping Force ※ Hydraulic Pressure at 4MPa	4.4 kN (Lever Length : 56.5mm)	Holding Force Newly Added	4.3 kN (Lever Length : 42mm)	(Holding Force 5.5 kN)
Mass ※ Weight of the clamp without clamp lever	2.2 kg	36% Lighter	1.4 kg	
Projected Area	5670 mm ² (81×70mm)	45% Smaller	3111 mm ² (61×51mm)	
Cylinder Capacity	Lock Side: 46.9 cm ³ Release Side: 37.7 cm ³	53% Less Volume	Lock Side: 21.0 cm ³ Release Side: 17.5 cm ³	
Exterior Body Diameter	65.0 mm	26% Smaller	48.0 mm	

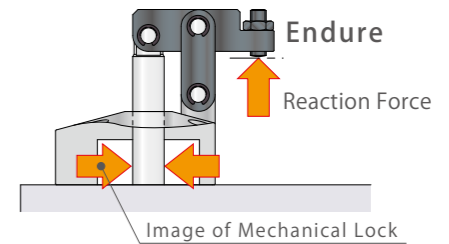
- Strong Clamping Force with Mechanical Lock**

The mechanical locking system and hydraulic force allows the LKE model to exert **a maximum of 2.4 times** greater clamping force than the same size as the comparison model LKA.



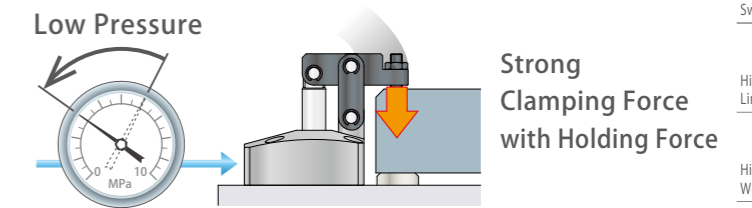
- Holding Force**

Holding force is the force that endures reaction force (load), not the force that presses a workpiece. The high holding force enables heavy load machining and high accurate machining.



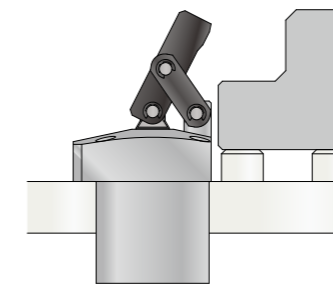
- Energy-Saving**

LKE exerts high output force even with low pressure. The compact cylinder enables energy-saving by using less amount of oil.

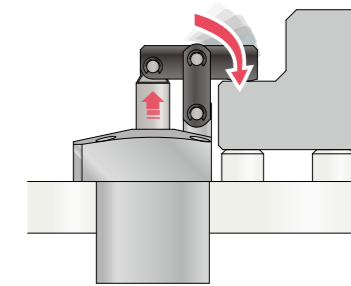


Action Description

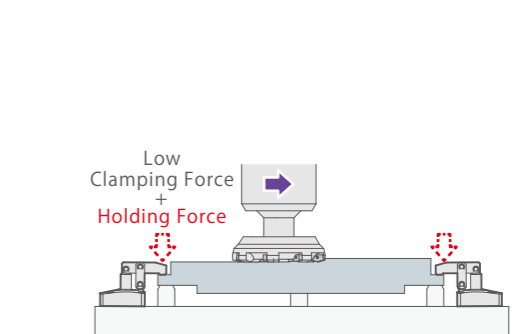
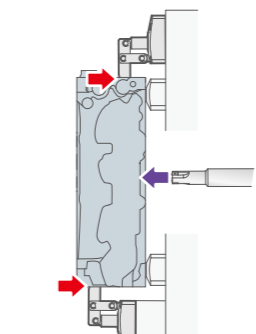
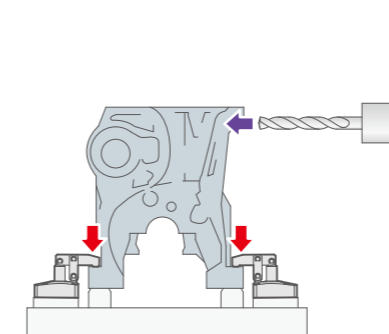
Release Hydraulic Pressure : ON
Lock Hydraulic Pressure : OFF



Release Hydraulic Pressure : OFF
Lock Hydraulic Pressure : ON



Application Examples



Holding force enables machining workpiece without deformation.

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

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

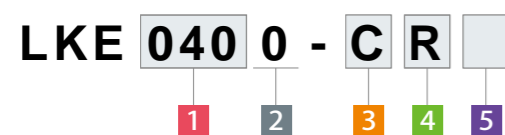
Rodless Hollow Pneumatic Work Support

WNA

High-Power Pneumatic Pallet Clamp

WVS

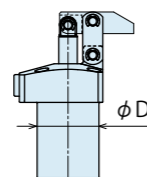
Model No. Indication



1 Body Size

- 030 : φD=30mm 048 : φD=48mm
- 036 : φD=36mm 055 : φD=55mm
- 040 : φD=40mm

※ Outer diameter (φD) of the cylinder.



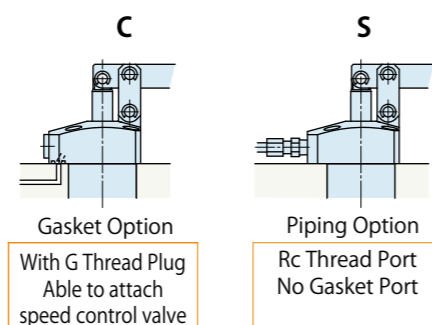
2 Design No.

0 : Revision Number

3 Piping Method

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

※ Speed control valve (BZL) is sold separately. Please refer to P.891.
 ※ Meter-in circuit should be used for speed control.

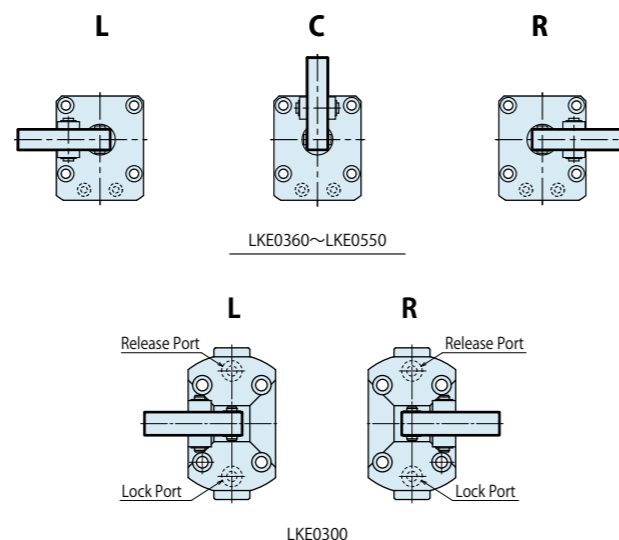


4 Lever Direction

- L : Left
- C : Center
- R : Right

※ For LKE0360~0550: Indicates lever directions seen from piping port side.

※ For LKE0300: Please be careful with the positions of release/lock ports when selecting the lever direction.



5 Action Confirmation Method

- Blank : None (Standard)
 - M : Air Sensing Manifold Option
 - N : Air Sensing Piping Option
- Only when selecting 1 Body Size 040/048/055.

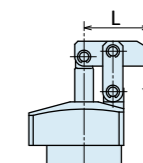


Specifications

Model No.	LKE0300-□□□	LKE0360-□□□	LKE0400-□□□	LKE0480-□□□	LKE0550-□□□		
Cylinder Force (at 5MPa)	kN	2.6	3.5	4.8	7.6	11.6	
Clamping Force ^{※1} (Calculation Formula)	kN	$F = \frac{5.80 \times P}{L-12.5}$	$F = \frac{9.02 \times P}{L-14.5}$	$F = \frac{13.82 \times P}{L-16}$	$F = \frac{25.41 \times P}{L-18.5}$	$F = \frac{43.93 \times P}{L-21}$	
Holding Force ^{※1} (Calculation Formula)	kN	$F_k = \frac{9.47 \times P}{L-12.5}$	$F_k = \frac{14.31 \times P}{L-14.5}$	$F_k = \frac{21.71 \times P}{L-16}$	$F_k = \frac{38.99 \times P}{L-18.5}$	$F_k = \frac{69.84 \times P}{L-21}$	
Full Stroke	mm	15.5	17.5	19.5	22.5	25	
(Breakdown)	Idle Stroke	mm	13	14.5	16	18.5	21
	Lock Stroke ^{※2}	mm	2.5	3	3.5	4	4
Cylinder Capacity	Lock	cm ³	4.6	7.3	11.5	21.0	33.6
	Release	cm ³	3.8	5.9	9.3	17.5	28.6
Cylinder Inner Diameter ^{※3}	mm	18	22	26	32	38	
Rod Diameter ^{※3}	mm	8	10	12	14	16	
Max. Operating Pressure	MPa					6.0	
Min. Operating ^{※4}	MPa	5 Blank Selected				0.5	
Pressure	MPa	5 M/N Selected				-	1.0
Withstanding Pressure	MPa					9.0	
Operating Temperature	°C					0 ~ 70	
Usable Fluid						General Hydraulic Oil Equivalent to ISO-VG-32	
Mass ^{※5}	kg	5 Blank Selected	0.5	0.7	0.9	1.4	1.9
		5 M Selected	-	-	1.0	1.6	2.1
		5 N Selected	-	-	1.2	1.8	2.3

Notes:

- ※ 1. F : Clamping Force (kN), Fk : Holding Force (kN), P : Supply Hydraulic Pressure (MPa), L : Distance between the piston center and the clamping point (mm).
It might be within the non-usable range depending on the value of P and L, please check the clamping force curve on P.57 and holding force curve on P.59.
- ※ 2. The specification value of cylinder force, clamping force and holding force is fulfilled only when clamping within the lock stroke range. (The specification value is not fulfilled when clamping within the range of idle stroke.)
- ※ 3. Clamping force cannot be calculated from the cylinder inner diameter and rod diameter. Please refer to the clamping force curve.
- ※ 4. Minimum pressure to operate the clamp without load.
- ※ 5. Mass of single clamp without the link lever.



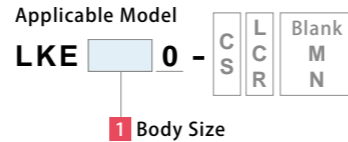
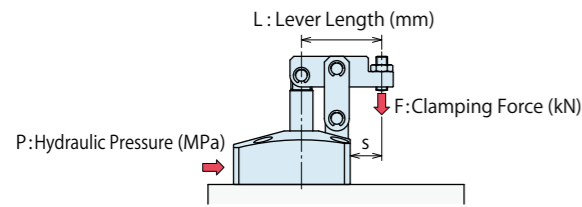
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High-Power Series

- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others
- High-Power Hydraulic Swing Clamp LHE
- High-Power Hydraulic Link Clamp LKE
- High-Power Pneumatic Hole Clamp SWE
- High-Power Pneumatic Swing Clamp WHE
- High-Power Pneumatic Link Clamp WCE
- High-Power Pneumatic Work Support WNC
- Rodless Hollow Pneumatic Work Support WNA
- High-Power Pneumatic Pallet Clamp WVS

Clamping Force Curve

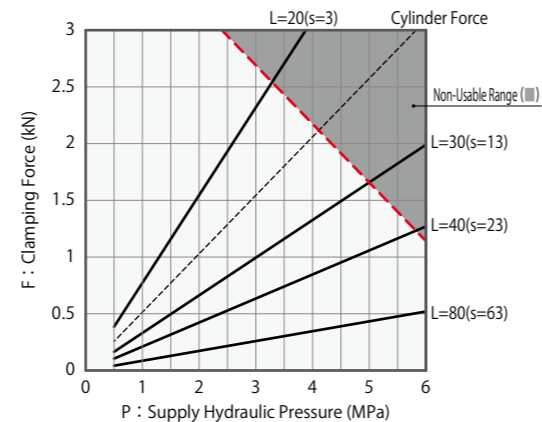


(Example) When using LKE0360
Supply Hydraulic Pressure 3.0MPa, Lever Length L=33.5mm,
Clamping force is about 1.4kN.

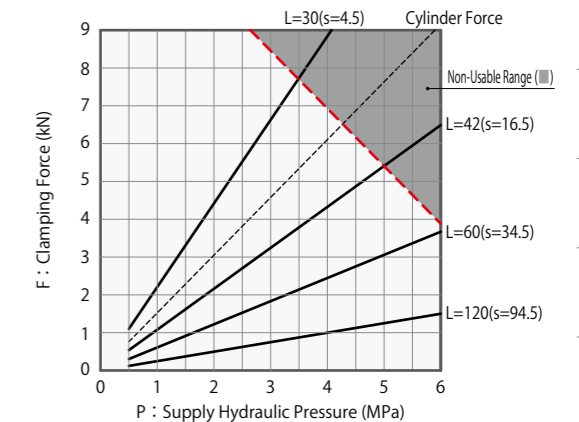
Notes :

- Tables and graphs shown are the relationships between the clamping force (kN) and supply hydraulic pressure (MPa).
 - Cylinder force (when L=0) cannot be calculated with the formula of clamping force.
 - Clamping force indicates the value when the lever locks a workpiece in horizontal position.
 - The clamping force varies depending on the lever length. Set the supply hydraulic pressure suitable to the lever length.
 - Using in the non-usable range may damage the clamp and lead to fluid leakage.
- ※1. F : Clamping Force (kN), P : Supply Hydraulic Pressure (MPa), L : Lever Length (mm).

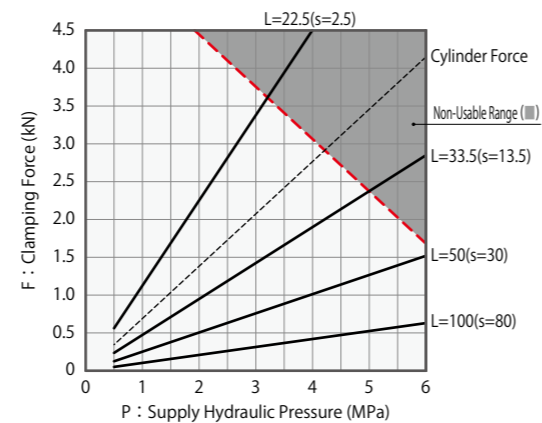
LKE0300		Clamping Force Calculation Formula ^{※1} (kN) $F = (5.80 \times P) / (L - 12.5)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (mm)	Min. Lever Length (L) (mm)
		L=20	L=25	L=30	L=40	L=50	L=60	L=80	L=100		
6	3.1					0.9	0.7	0.5	0.4	43	
5.5	2.8					1.2	0.9	0.7	0.5	35	
5	2.6			1.7	1.1	0.8	0.6	0.4	0.3	30	
4.5	2.3			1.5	0.9	0.7	0.5	0.4	0.3	26	
4	2.1		1.9	1.3	0.8	0.6	0.5	0.3	0.3	23	
3.5	1.8		1.6	1.2	0.7	0.5	0.4	0.3	0.2	21	
3	1.6	2.3	1.4	1.0	0.6	0.5	0.4	0.3	0.2	19	
2.5	1.3	1.9	1.2	0.8	0.5	0.4	0.3	0.2	0.2	17	
2	1.0	1.5	0.9	0.7	0.4	0.3	0.2	0.2	0.1	17	
1.5	0.8	1.2	0.7	0.5	0.3	0.2	0.2	0.1	0.1	17	
1	0.5	0.8	0.5	0.3	0.2	0.2	0.1	0.1	0.1	17	
0.5	0.3	0.4	0.2	0.2	0.1	0.1	0.1	0.0	0.0	17	
Max. Operating Pressure (MPa)		3.7	4.3	5.0	5.8	6.0	6.0	6.0	6.0		



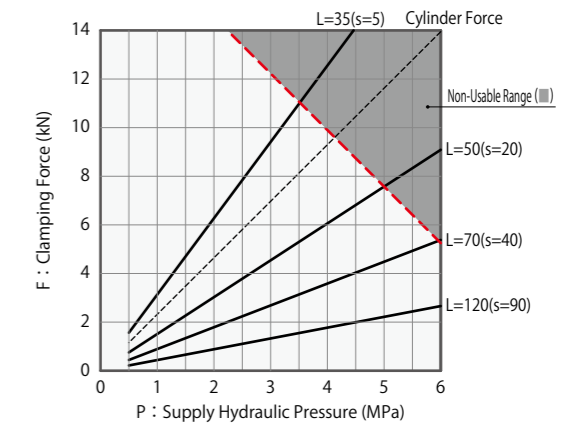
LKE0480		Clamping Force Calculation Formula ^{※1} (kN) $F = (25.41 \times P) / (L - 18.5)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (mm)	Min. Lever Length (L) (mm)
		L=30	L=35	L=42	L=50	L=60	L=80	L=100	L=120		
6	9.2					3.7	2.5	1.9	1.5	58	
5.5	8.4					4.4	3.4	2.3	1.7	49	
5	7.6				5.4	4.0	3.1	2.1	1.6	42	
4.5	6.9				4.9	3.6	2.8	1.9	1.4	37	
4	6.1			6.2	4.3	3.2	2.4	1.7	1.2	33	
3.5	5.3		7.7	5.4	3.8	2.8	2.1	1.4	1.1	30	
3	4.6	6.6	4.6	3.2	2.4	1.8	1.2	0.9	0.8	28	
2.5	3.8	5.5	3.9	2.7	2.0	1.5	1.0	0.8	0.6	26	
2	3.1	4.4	3.1	2.2	1.6	1.2	0.8	0.6	0.5	26	
1.5	2.3	3.3	2.3	1.6	1.2	0.9	0.6	0.5	0.4	26	
1	1.5	2.2	1.5	1.1	0.8	0.6	0.4	0.3	0.3	26	
0.5	0.8	1.1	0.8	0.5	0.4	0.3	0.2	0.2	0.1	26	
Max. Operating Pressure (MPa)		3.5	4.7	5.0	5.6	6.0	6.0	6.0	6.0		



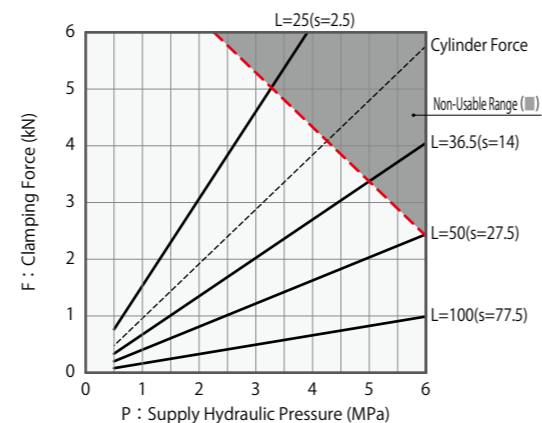
LKE0360		Clamping Force Calculation Formula ^{※1} (kN) $F = (9.02 \times P) / (L - 14.5)$									
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (mm)	Min. Lever Length (L) (mm)
		L=22.5	L=27.5	L=33.5	L=40	L=50	L=60	L=80	L=100		
6	4.2					1.5	1.2	0.8	0.6	47	
5.5	3.8					1.9	1.4	1.1	0.8	39	
5	3.5					1.8	1.3	1.0	0.7	34	
4.5	3.1				2.1	1.6	1.1	0.9	0.6	29	
4	2.8		2.8	1.9	1.4	1.0	0.8	0.6	0.4	26	
3.5	2.4		2.4	1.7	1.2	0.9	0.7	0.5	0.4	24	
3	2.1	3.4	2.1	1.4	1.1	0.8	0.6	0.4	0.3	22	
2.5	1.7	2.8	1.7	1.2	0.9	0.6	0.5	0.3	0.3	20	
2	1.4	2.3	1.4	0.9	0.7	0.5	0.4	0.3	0.2	20	
1.5	1.0	1.7	1.0	0.7	0.5	0.4	0.3	0.2	0.2	20	
1	0.7	1.1	0.7	0.5	0.4	0.3	0.2	0.1	0.1	20	
0.5	0.4	0.6	0.3	0.2	0.2	0.1	0.1	0.1	0.1	20	
Max. Operating Pressure (MPa)		3.2	4.2	5.0	5.6	6.0	6.0	6.0	6.0		



LKE0550		Clamping Force Calculation Formula ^{※1} (kN) $F = (43.93 \times P) / (L - 21)$												
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (mm)	Min. Lever Length (L) (mm)			
		L=35	L=40	L=50	L=60	L=70	L=80	L=100	L=120					
6	14.0							4.5	3.3	2.7	71			
5.5	12.8							6.2	4.9	4.1	3.1	2.4	59	
5	11.6					7.6	5.6	4.5	3.7	2.8	2.2	50		
4.5	10.5					6.8	5.1	4.0	3.4	2.5	2.0	44		
4	9.3				9.2	6.1	4.5	3.6	3.0	2.2	1.8	39		
3.5	8.1	11.0	8.1	5.3	3.9	3.1	2.6	1.9	1.6	35				
3	7.0	9.4	6.9	4.5	3.4	2.7	2.2	1.7	1.3	32				
2.5	5.8	7.8	5.8	3.8	2.8	2.2	1.9	1.4	1.1	30				
2	4.7	6.3	4.6	3.0	2.3	1.8	1.5	1.1	0.9	30				
1.5	3.5	4.7	3.5	2.3	1.7	1.3	1.1	0.8	0.7	30				
1	2.3	3.1	2.3	1.5	1.1	0.9	0.7	0.6	0.4	30				
0.5	1.2	1.6	1.2	0.8	0.6	0.4	0.4	0.3	0.2	30				
Max. Operating Pressure (MPa)		3.5	4.1	5.0	5.6	6.0	6.0	6.0	6.0					



LKE0400		Clamping Force Calculation Formula ^{※1} (kN) $F = (13.82 \times P) / (L - 16)$											
Hydraulic Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Lever Length L (mm)								Non-Usable Range (mm)	Min. Lever Length (L) (mm)		
		L=25	L=30	L=36.5	L=40	L=50	L=60	L=80	L=100				
6	5.8					2.4	1.9	1.3	1.0	50			
5.5	5.3					2.2	1.7	1.2	0.9	42			
5	4.8					2.9	2.0	1.6	1.1	37			
4.5	4.3					3.0	2.6	1.8	1.4	1.0	0.7	32	
4	3.8				3.9	2.7	2.3	1.6	1.3	0.9	0.7	29	
3.5	3.4				3.5	2.4	2.0	1.4	1.1	0.8	0.6	26	
3	2.9		4.6	3.0	2.0	1.7	1.2	0.9	0.6	0.5	0.4	24	
2.5	2.4	3.8	2.5	1.7	1.4	1.0	0.8	0.5	0.4	23			
2	1.9	3.1	2.0	1.3	1.2	0.8	0.6	0.4	0.3	23			
1.5	1.4	2.3	1.5	1.0	0.9	0.6	0.5	0.3	0.2	23			
1	1.0	1.5	1.0	0.7	0.6	0.4	0.3	0.2	0.2	23			
0.5	0.5	0.8	0.5	0.3	0.3	0.2	0.2	0.1	0.1	23			
Max. Operating Pressure (MPa)		3.3	4.2	5.0	5.3	6.0	6.0	6.0	6.0				



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LHE

High-Power Hydraulic Link Clamp
LKE

High-Power Pneumatic Hole Clamp
SWE

High-Power Pneumatic Swing Clamp
WHE

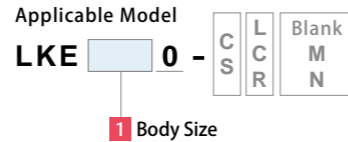
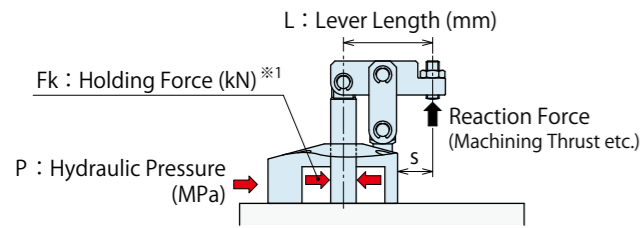
High-Power Pneumatic Link Clamp
WCE

High-Power Pneumatic Work Support
WNC

Rodless Hollow Pneumatic Work Support
WNA

High-Power Pneumatic Pallet Clamp
WVS

Holding Force Curve

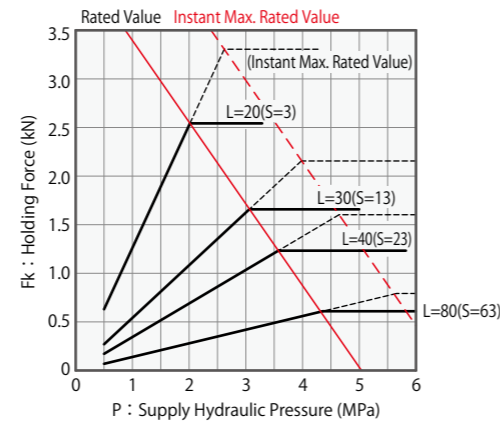


(Example) When using LKE0360
Supply Hydraulic Pressure 3.0MPa, Lever Length L=33.5mm,
Holding force is about 2.3kN.

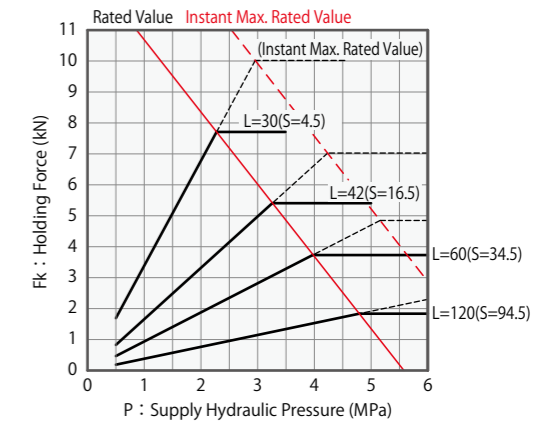
Notes :

- ※1. Holding force is the force that counters the reaction force in the clamping state, and differs from clamping force. Please keep in mind that it can produce displacement depending on lever rigidity even if the reaction force is lower than holding force. (If slight displacement is also not allowed, please keep the reaction force beyond clamp force from being applied.)
 - ※2. Fk : Holding Force (kN), P : Supply Hydraulic Pressure (MPa), L : Lever Length (mm)
When holding force calculated value exceeds the rated value, holding force will be constant from the point of intersection with the rated value.
- Tables and graphs shown are the relationships between the holding force (kN) and supply hydraulic pressure (MPa).
 - Holding force indicates the ability when the lever locks a workpiece in horizontal position.
 - Holding force varies depending on the lever length and supply hydraulic pressure.
 - The reaction force beyond holding force shown in the graph can cause deformation, galling and fluid leakage.
 - Repetitive use at the range of instant maximum rated value will shorten the product life.

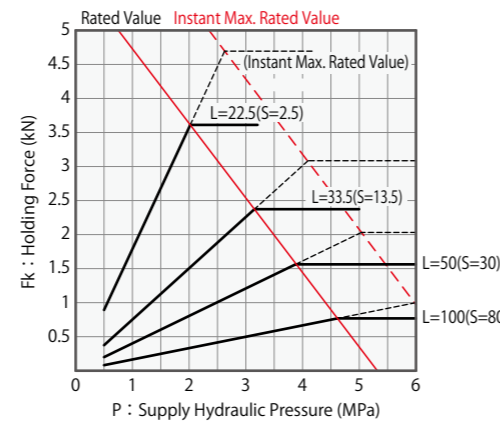
Hydraulic Pressure(MPa)	Holding Force Calculation Formula ^{※2} (kN) (Holding Force ≤ Rated Value)							
	Fk = $\frac{9.47 \times P}{L - 12.5}$							
	Holding Force (kN) Non-Usable Range (■) Lever Length L (mm)							
	L=20	L=25	L=30	L=40	L=50	L=60	L=80	L=100
6				1.0	0.8	0.6	0.5	
5.5				1.2	1.0	0.8	0.6	0.5
5			1.7	1.2	1.0	0.8	0.6	0.5
4.5			1.7	1.2	1.0	0.8	0.6	0.5
4		2.1	1.7	1.2	1.0	0.8	0.6	0.4
3.5		2.1	1.7	1.2	0.9	0.7	0.5	0.4
3	2.5	2.1	1.6	1.0	0.8	0.6	0.4	0.3
2.5	2.5	1.9	1.4	0.9	0.6	0.5	0.4	0.3
2	2.5	1.5	1.1	0.7	0.5	0.4	0.3	0.2
1.5	1.9	1.1	0.8	0.5	0.4	0.3	0.2	0.2
1	1.3	0.8	0.5	0.3	0.3	0.2	0.1	0.1
0.5	0.6	0.4	0.3	0.2	0.1	0.1	0.1	0.1
Pressure at the intersection with rated value (MPa)	2.0	2.7	3.1	3.6	3.9	4.1	4.3	4.5



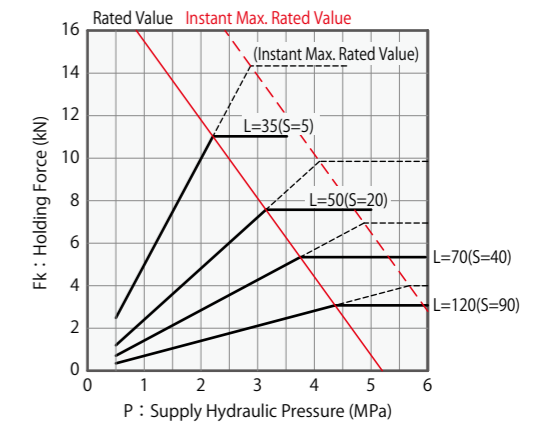
Hydraulic Pressure(MPa)	Holding Force Calculation Formula ^{※2} (kN) (Holding Force ≤ Rated Value)							
	Fk = $\frac{38.99 \times P}{L - 18.5}$							
	Holding Force (kN) Non-Usable Range (■) Lever Length L (mm)							
	L=30	L=35	L=42	L=50	L=60	L=80	L=100	L=120
6					3.8	2.8	2.2	1.8
5.5				4.5	3.8	2.8	2.2	1.8
5			5.5	4.5	3.8	2.8	2.2	1.8
4.5			5.5	4.5	3.8	2.8	2.2	1.7
4		6.6	5.5	4.5	3.8	2.5	1.9	1.5
3.5	7.8	6.6	5.5	4.3	3.3	2.2	1.7	1.3
3	7.8	6.6	5.0	3.7	2.8	1.9	1.4	1.2
2.5	7.8	5.9	4.1	3.1	2.3	1.6	1.2	1.0
2	6.8	4.7	3.3	2.5	1.9	1.3	1.0	0.8
1.5	5.1	3.5	2.5	1.9	1.4	1.0	0.7	0.6
1	3.4	2.4	1.7	1.2	0.9	0.6	0.5	0.4
0.5	1.7	1.2	0.8	0.6	0.5	0.3	0.2	0.2
Pressure at the intersection with rated value (MPa)	2.3	2.8	3.3	3.6	4.0	4.4	4.6	4.8



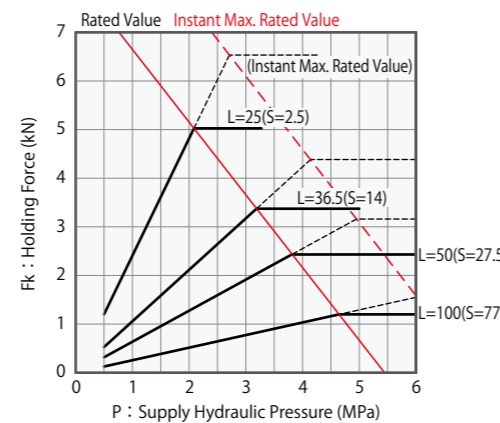
Hydraulic Pressure(MPa)	Holding Force Calculation Formula ^{※2} (kN) (Holding Force ≤ Rated Value)							
	Fk = $\frac{14.31 \times P}{L - 14.5}$							
	Holding Force (kN) Non-Usable Range (■) Lever Length L (mm)							
	L=22.5	L=27.5	L=33.5	L=40	L=50	L=60	L=80	L=100
6				1.6	1.3	1.0	0.8	
5.5				2.0	1.6	1.3	1.0	0.8
5				2.0	1.6	1.3	1.0	0.8
4.5			2.4	2.0	1.6	1.3	1.0	0.8
4		3.0	2.4	2.0	1.6	1.3	0.9	0.7
3.5		3.0	2.4	2.0	1.4	1.1	0.8	0.6
3	3.6	3.0	2.3	1.7	1.2	0.9	0.7	0.5
2.5	3.6	2.8	1.9	1.4	1.0	0.8	0.5	0.4
2	3.6	2.2	1.5	1.1	0.8	0.6	0.4	0.3
1.5	2.7	1.7	1.1	0.8	0.6	0.5	0.3	0.3
1	1.8	1.1	0.8	0.6	0.4	0.3	0.2	0.2
0.5	0.9	0.6	0.4	0.3	0.2	0.2	0.1	0.1
Pressure at the intersection with rated value (MPa)	2.0	2.7	3.2	3.5	3.9	4.1	4.4	4.6



Hydraulic Pressure(MPa)	Holding Force Calculation Formula ^{※2} (kN) (Holding Force ≤ Rated Value)							
	Fk = $\frac{69.84 \times P}{L - 21}$							
	Holding Force (kN) Non-Usable Range (■) Lever Length L (mm)							
	L=35	L=40	L=50	L=60	L=70	L=80	L=100	L=120
6						4.7	3.7	3.1
5.5				6.3	5.3	4.7	3.7	3.1
5			7.6	6.3	5.3	4.7	3.7	3.1
4.5			7.6	6.3	5.3	4.7	3.7	3.1
4		9.6	7.6	6.3	5.3	4.7	3.5	2.8
3.5	11.0	9.6	7.6	6.3	5.0	4.1	3.1	2.5
3	11.0	9.6	7.2	5.4	4.3	3.6	2.7	2.1
2.5	11.0	9.2	6.0	4.5	3.6	3.0	2.2	1.8
2	10.0	7.4	4.8	3.6	2.9	2.4	1.8	1.4
1.5	7.5	5.5	3.6	2.7	2.1	1.8	1.3	1.1
1	5.0	3.7	2.4	1.8	1.4	1.2	0.9	0.7
0.5	2.5	1.8	1.2	0.9	0.7	0.6	0.4	0.4
Pressure at the intersection with rated value (MPa)	2.2	2.6	3.2	3.5	3.8	3.9	4.2	4.4



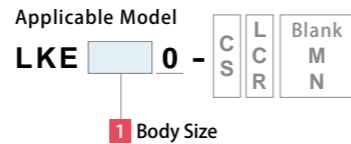
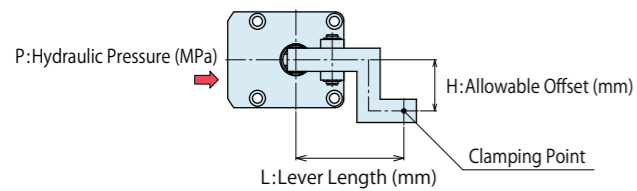
Hydraulic Pressure(MPa)	Holding Force Calculation Formula ^{※2} (kN) (Holding Force ≤ Rated Value)							
	Fk = $\frac{21.71 \times P}{L - 16}$							
	Holding Force (kN) Non-Usable Range (■) Lever Length L (mm)							
	L=25	L=30	L=36.5	L=40	L=50	L=60	L=80	L=100
6				2.4	2.0	1.5	1.2	
5.5				2.4	2.0	1.5	1.2	
5				3.1	2.4	2.0	1.5	1.2
4.5			3.4	3.1	2.4	2.0	1.5	1.2
4		4.2	3.4	3.1	2.4	2.0	1.4	1.0
3.5		4.2	3.4	3.1	2.2	1.7	1.2	0.9
3	5.1	4.2	3.2	2.7	1.9	1.5	1.0	0.8
2.5	5.1	3.9	2.6	2.3	1.6	1.2	0.8	0.6
2	4.8	3.1	2.1	1.8	1.3	1.0	0.7	0.5
1.5	3.6	2.3	1.6	1.4	1.0	0.7	0.5	0.4
1	2.4	1.6	1.1	0.9	0.6	0.5	0.3	0.3
0.5	1.2	0.8	0.5	0.5	0.3	0.2	0.2	0.1
Pressure at the intersection with rated value (MPa)	2.1	2.7	3.2	3.4	3.8	4.1	4.4	4.6



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

High-Power Hydraulic Swing Clamp
LHE
High-Power Hydraulic Link Clamp
LKE
High-Power Pneumatic Hole Clamp
SWE
High-Power Pneumatic Swing Clamp
WHE
High-Power Pneumatic Link Clamp
WCE
High-Power Pneumatic Work Support
WNC
Rodless Hollow Pneumatic Work Support
WNA
High-Power Pneumatic Pallet Clamp
WVS

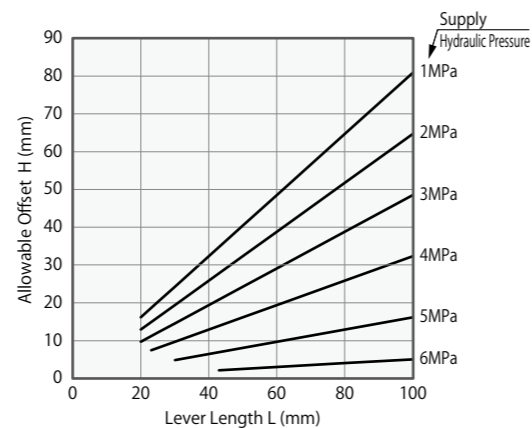
Allowable Offset Clamp Lever Graph



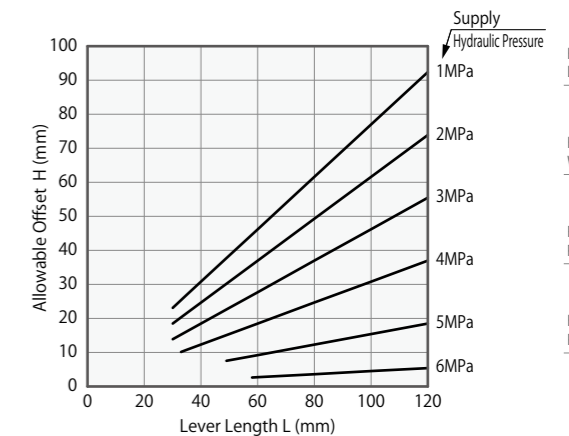
(Example) When using LKE0360
 Supply Hydraulic Pressure 3.0MPa, Lever Length L=33.5mm, Allowable Offset is about 15mm.

- Notes :
1. Tables and graphs shown are the relationships between the lever length (mm) for supply hydraulic pressure (MPa) and the allowable offset (mm).
 2. Using the lever beyond allowable offset may cause deformation, galling 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.

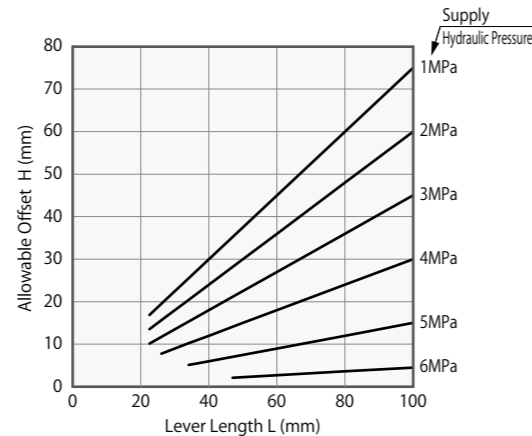
Hydraulic Pressure (MPa)	Allowable Offset H (mm)								Non-Usable Range (mm)
	Lever Length L (mm)								
	L=20	L=25	L=30	L=40	L=50	L=60	L=80	L=100	
6				3	3	4	5		
5.5				3	4	5	7	8	
5			5	7	8	10	13	16	
4.5			7	10	12	15	19	24	
4		8	10	13	16	19	26	32	
3.5		10	12	16	20	24	32	41	
3	10	12	15	19	24	29	39	49	
2.5	11	14	17	23	28	34	45	57	
2	13	16	19	26	32	39	52	65	
1.5	15	18	22	29	37	44	58	73	
1	16	20	24	32	41	49	65	81	



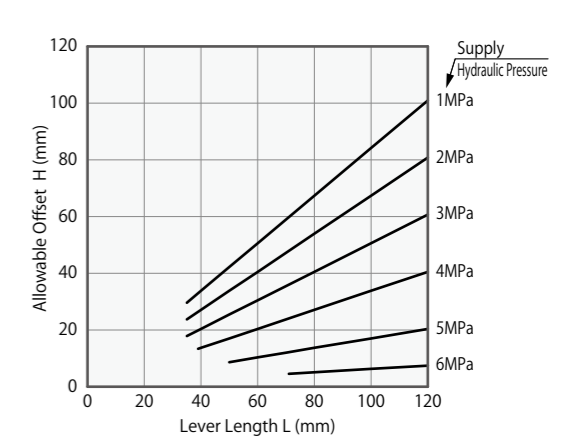
Hydraulic Pressure (MPa)	Allowable Offset H (mm)								Non-Usable Range (mm)
	Lever Length L (mm)								
	L=30	L=35	L=42	L=50	L=60	L=80	L=100	L=120	
6									
5.5				4	5	6	8	9	
5			6	8	9	12	15	18	
4.5			10	12	14	18	23	28	
4		11	13	15	18	25	31	37	
3.5	12	13	16	19	23	31	39	46	
3	14	16	19	23	28	37	46	55	
2.5	16	19	23	27	32	43	54	65	
2	18	22	26	31	37	49	62	74	
1.5	21	24	29	35	42	55	69	83	
1	23	27	32	39	46	62	77	92	



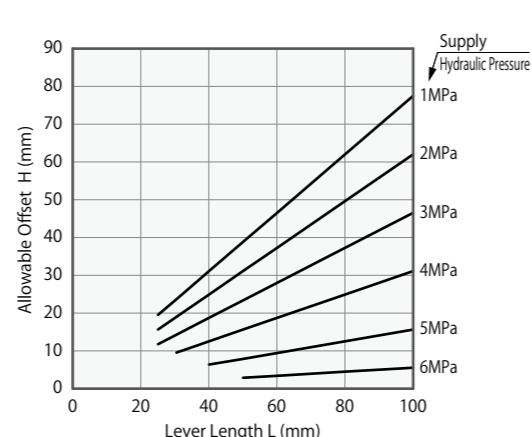
Hydraulic Pressure (MPa)	Allowable Offset H (mm)								Non-Usable Range (mm)
	Lever Length L (mm)								
	L=22.5	L=27.5	L=33.5	L=40	L=50	L=60	L=80	L=100	
6					2	3	4	5	
5.5				3	4	5	6	8	
5				6	8	9	12	15	
4.5			8	9	11	14	18	23	
4		8	10	12	15	18	24	30	
3.5		10	13	15	19	23	30	38	
3	10	12	15	18	23	27	36	45	
2.5	12	14	18	21	26	32	42	53	
2	14	17	20	24	30	36	48	60	
1.5	15	19	23	27	34	41	54	68	
1	17	21	25	30	38	45	60	75	



Hydraulic Pressure (MPa)	Allowable Offset H (mm)								Non-Usable Range (mm)
	Lever Length L (mm)								
	L=35	L=40	L=50	L=60	L=70	L=80	L=100	L=120	
6							5	6	7
5.5				5	6	7	8	10	
5			8	10	12	13	17	20	
4.5			13	15	18	20	25	30	
4		13	17	20	24	27	34	40	
3.5	15	17	21	25	29	34	42	50	
3	18	20	25	30	35	40	50	60	
2.5	21	24	29	35	41	47	59	71	
2	24	27	34	40	47	54	67	81	
1.5	26	30	38	45	53	60	76	91	
1	29	34	42	50	59	67	84	101	



Hydraulic Pressure (MPa)	Allowable Offset H (mm)						Non-Usable Range (mm)		
	Lever Length L (mm)								
	L=25	L=30	L=36.5	L=40	L=50	L=60	L=80	L=100	
6					3	3	4	5	
5.5					4	5	6	8	
5				6	8	9	12	15	
4.5			8	9	12	14	19	23	
4		9	11	12	15	19	25	31	
3.5		12	14	15	19	23	31	39	
3	12	14	17	19	23	28	37	46	
2.5	14	16	20	22	27	32	43	54	
2	15	19	23	25	31	37	50	62	
1.5	17	21	25	28	35	42	56	70	
1	19	23	28	31	39	46	62	77	



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

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

Rodless Hollow Pneumatic Work Support

WNA

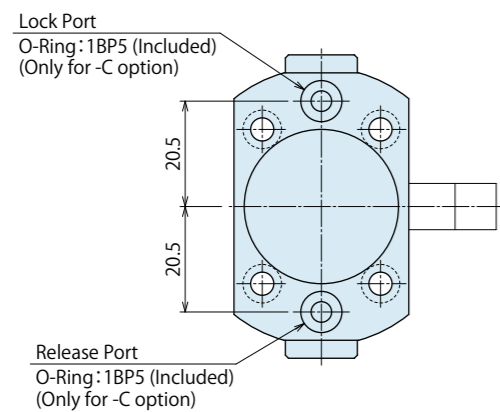
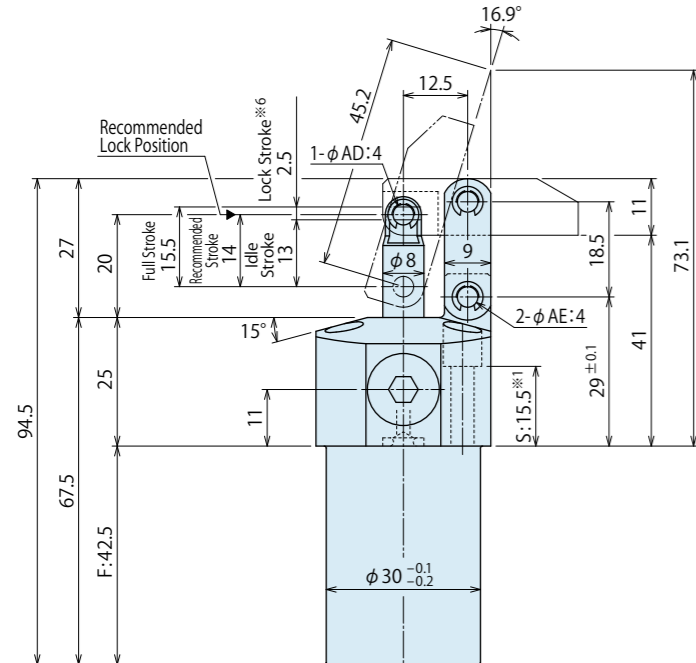
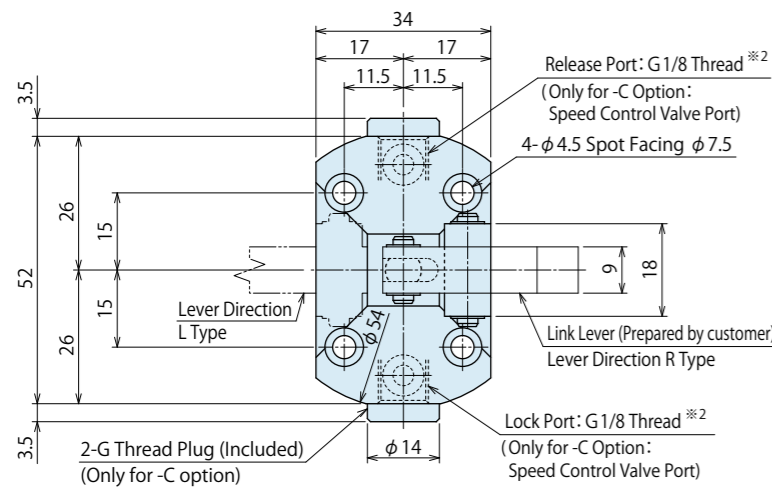
High-Power Pneumatic Pallet Clamp

WVS

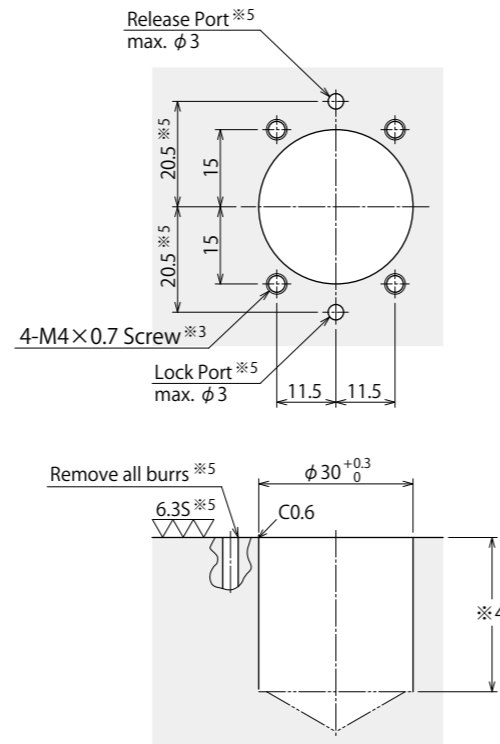
External Dimensions (LKE0300-□□)

C : Gasket Option (Speed Control Valve Attachable/With G Thread Plug)

※ The drawing shows the locked state of LKE0300-CR.



Machining Dimensions of Mounting Area



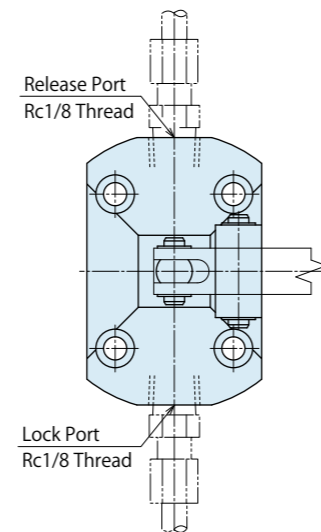
Notes:

- ※3. M4×0.7 tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S': 15.5.
- ※4. The depth of the body mounting hole $\phi 30$ should be decided according to the mounting height referring to dimension 'F': 42.5.
- ※5. The machining dimension is for -C: Gasket Option.

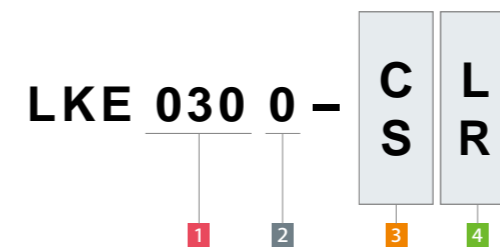
Piping Method

S : Piping Option (Rc Thread)

※ The drawing shows the locked state of LKE0300-SR.



Model No. Indication



(Format Example : LKE0300-CL, LKE0300-SR)

- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Lever Direction
- 5 Action Confirmation Method (When selecting Blank)

Dimensions

Model No.	LKE0300-□□
Full Stroke	15.5
(Breakdown) Idle Stroke	13
Lock Stroke	2.5
Recommended Stroke	14
Mass	kg 0.5

Notes: ※6. The specification value of cylinder force, clamping force and holding force is fulfilled only when clamping within the lock stroke range. (The specification value is not fulfilled when clamping within the idle stroke range.)

※7. Mass of single clamp without the link lever.

Notes:

- ※1. Mounting bolts are not provided with the product. Please prepare them according to the mounting height referring to dimension 'S' : 15.5.
- ※2. Speed control valve is sold separately. Please refer to P.891.
 - 1. Please use the attached pin (equivalent to $\phi AD:4 f6$, $\phi AE:4 f6$, HRC60) as the mounting pin for lever.

High-Power Series

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

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

Rodless Hollow Pneumatic Work Support

WNA

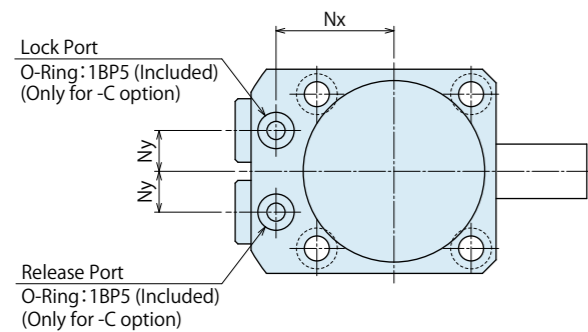
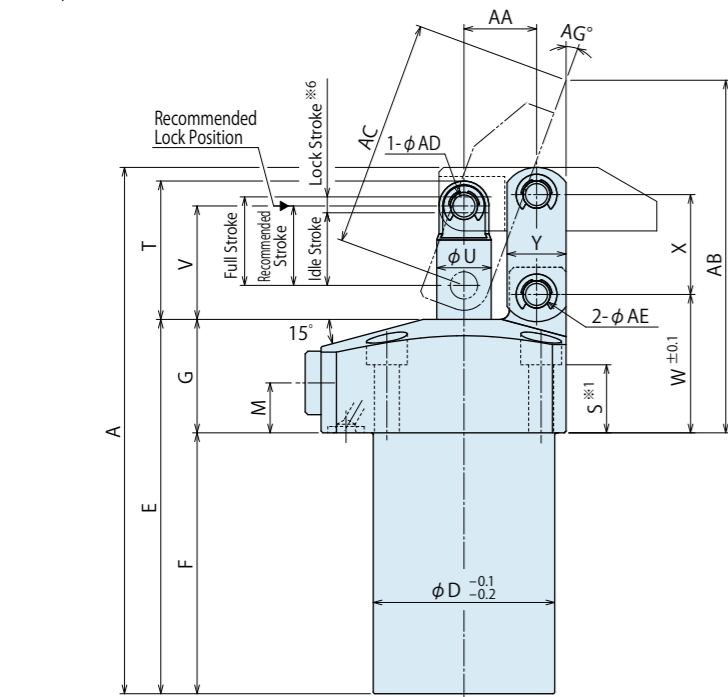
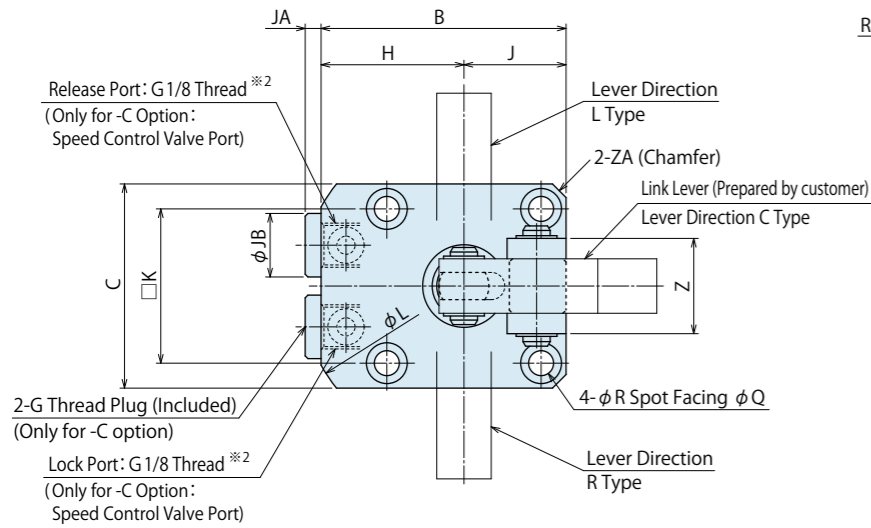
High-Power Pneumatic Pallet Clamp

WVS

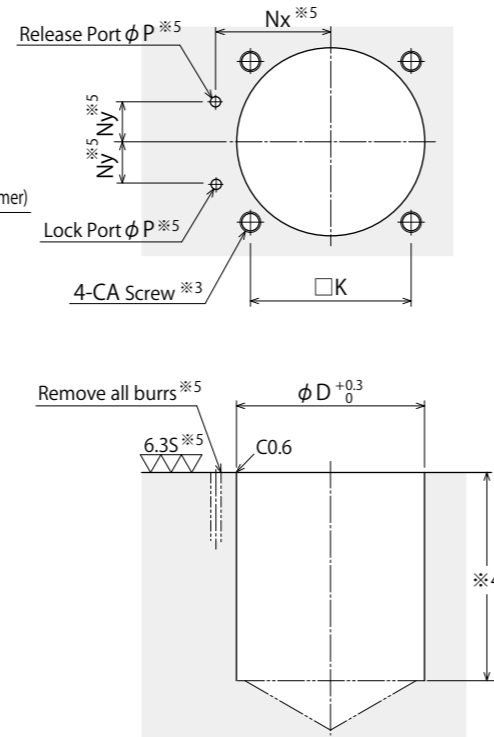
External Dimensions (LKE0360/0400/0480/0550-□□)

C : Gasket Option (Speed Control Valve Attachable/With G Thread Plug)

※ The drawing shows the locked state of LKE□□-CC.



Machining Dimensions of Mounting Area



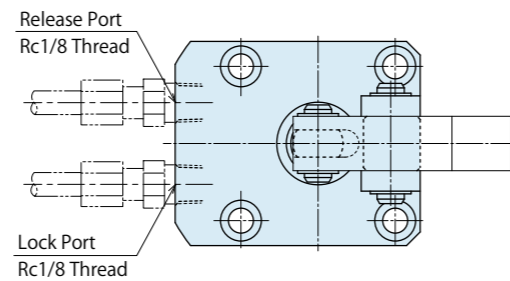
Notes:

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

Piping Method

S : Piping Option (Rc Thread)

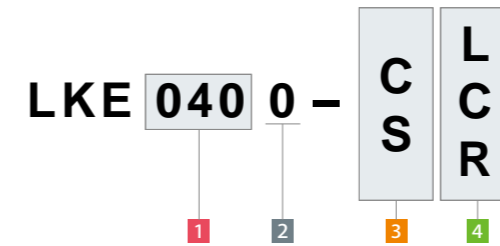
※ The drawing shows the locked state of LKE□□-SC.



Notes:

- ※1. Mounting bolts are not provided with the product. Please prepare them according to the mounting height referring to dimension 'S'.
- ※2. Speed control valve is sold separately. Please refer to P.891.
 - 1. Please use the attached pin (equivalent to φAD f6, φAE f6, HRC60) as the mounting pin for lever.

Model No. Indication



(Format Example : LKE0400-CC, LKE0550-SL)

- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Lever Direction
- 5 Action Confirmation Method (When selecting Blank)

External Dimensions and Machining Dimensions for Mounting

Model No.	LKE0360-□□	LKE0400-□□	LKE0480-□□	LKE0550-□□
Full Stroke	17.5	19.5	22.5	25
(Breakdown) Idle Stroke	14.5	16	18.5	21
Lock Stroke ※6	3	3.5	4	4
Recommended Stroke	16	17.5	20.5	23
A	105	117.5	133	145.5
B	49	54	61	69
C	40	45	51	60
D	36	40	48	55
E	74.5	82.5	92	98.5
F	49.5	57.5	64	70.5
G	25	25	28	28
H	29	31.5	35.5	39
J	20	22.5	25.5	30
K	31.4	34	40	47
L	66	72	81	88
M	11	11	12	12
Nx	23.5	26	30	33.5
Ny	8	9	11	12
P	max.3	max.3	max.3	max.3
Q	7.5	9	9	11
R	4.5	5.5	5.5	6.8
S	15.5	15	16	13.5
T	27	30.5	35	38
U	10	12	14	16
V	22.5	25	29	31.5
W	30	30.5	34.5	35.5
X	20	22	26	30
Y	11	13	14	18
Z	19	21	26	31
AA	14.5	16	18.5	21
AB	74.3	77.7	92.4	101.9
AC	47.3	50.2	61.2	71.7
AD	5	6	6	7
AE	5	6	7	8
AG	19.6	20.2	18.9	19.9
CA (Nominal×Pitch)	M4×0.7	M5×0.8	M5×0.8	M6×1
JA	3.5	3.5	3.5	3.5
JB	14	14	14	14
ZA (Chamfer)	C2	C3	C3	C3
Mass ※7 kg	0.7	0.9	1.4	1.9

- Notes: ※6. The specification value of cylinder force, clamping force and holding force is fulfilled only when clamping within the lock stroke range. (The specification value is not fulfilled when clamping within the idle stroke range.)
- ※7. Mass of single clamp without the link lever.

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

Rodless Hollow Pneumatic Work Support

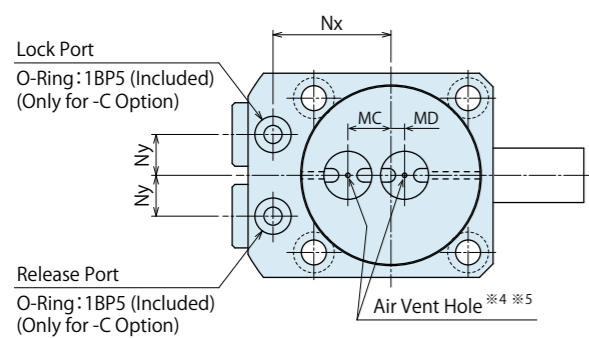
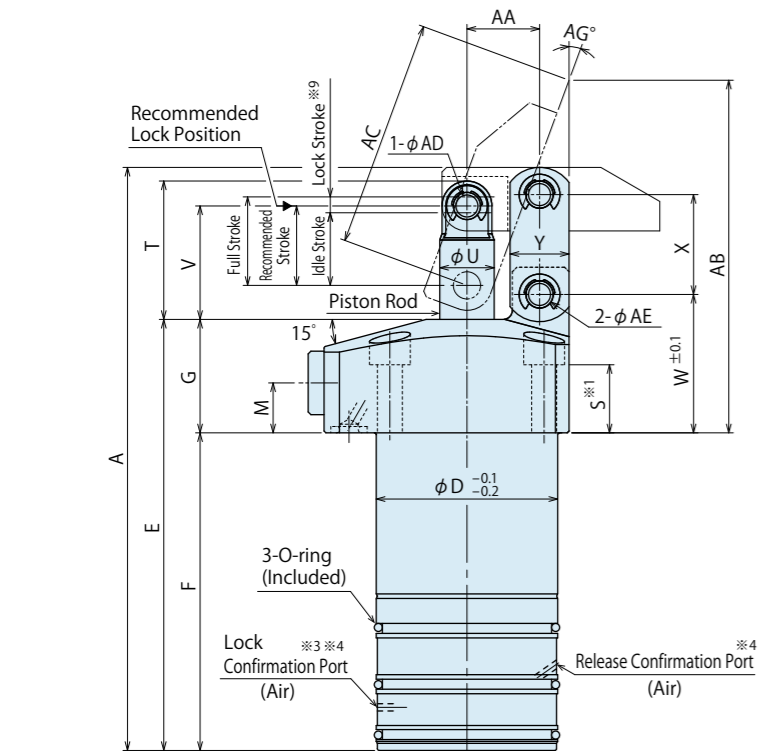
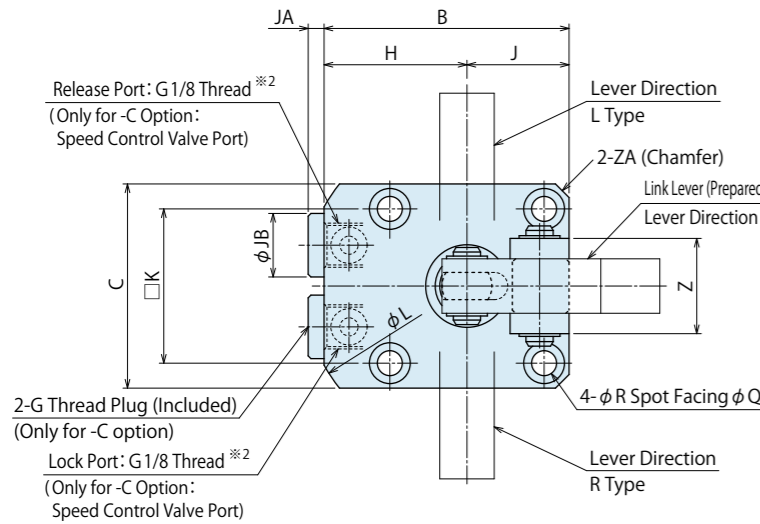
WNA

High-Power Pneumatic Pallet Clamp

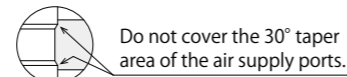
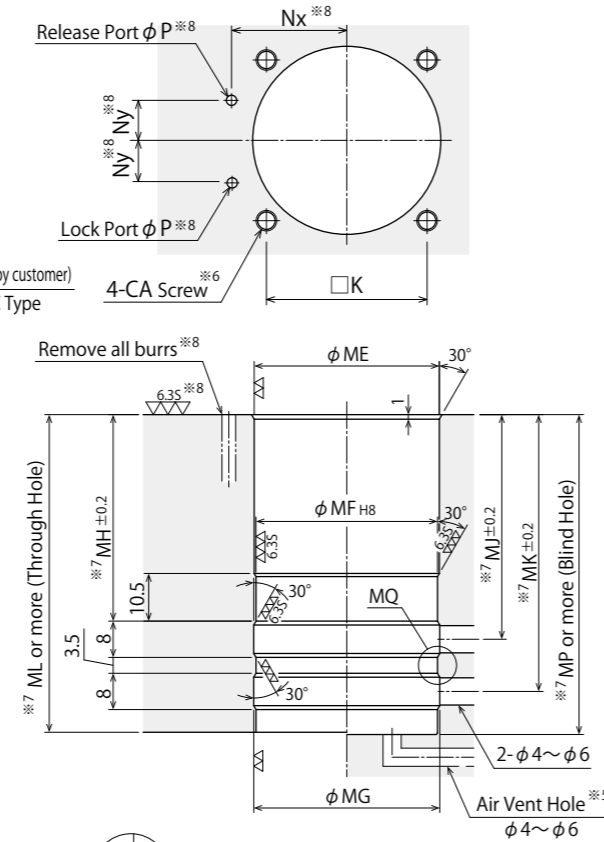
WVS

External Dimensions (LKE0400/0480/0550-□□M)

C : Gasket Option (Speed Control Valve Attachable/With G Thread Plug)
※ The drawing shows the locked state of LKE□-CCM.



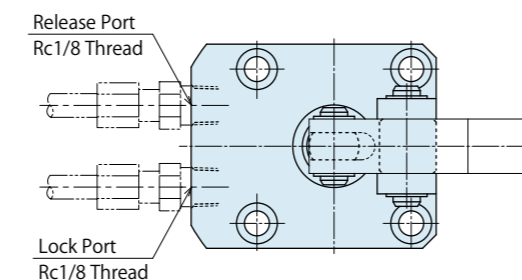
Machining Dimensions of Mounting Area



- Notes :
- ※5. Air vent hole must be open to the atmosphere, and prevent coolant and chips.
 - ※6. CA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
 - ※7. The dimensions indicate those under the flange.
 - ※8. The machining dimension is for -C: Gasket Option.

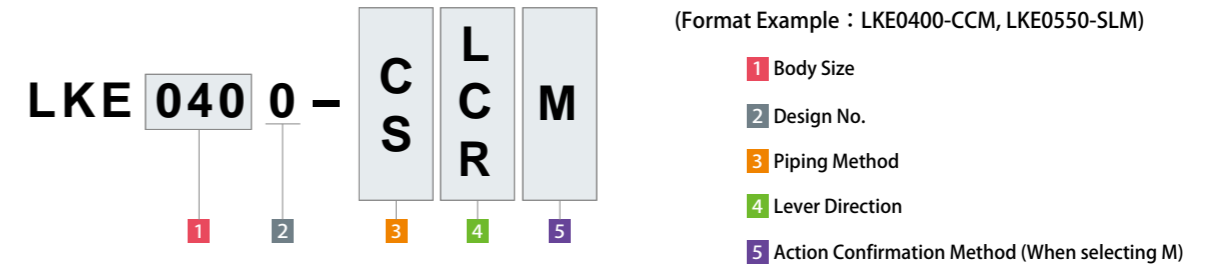
Piping Method

S : Piping Option (Rc Thread)
※ The drawing shows the locked state of LKE□-SCM.



- Notes :
- ※1. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
 - ※2. Speed control valve is sold separately. Please refer to P.891.
 - ※3. Lock confirmation is not the stroke check of piston rod but the action check of internal mechanical lock.
 - ※4. Mounting direction of air port and vent port is not as indicated in this drawing.
 1. Please use the attached pin (equivalent to φAD f6, φAE f6, HRC60) as the mounting pin for lever.
 2. Please refer to P. 71 for Air Sensing Chart.
 3. If releasing hydraulic pressure while in the release state, the piston rod can be shifted by internal spring force.

Model No. Indication



External Dimensions and Machining Dimensions for Mounting

Model No.	LKE0400-□□M	LKE0480-□□M	LKE0550-□□M
Full Stroke	19.5	22.5	25
(Breakdown)	Idle Stroke	16	18.5
	Lock Stroke ※9	3.5	4
Recommended Stroke	17.5	20.5	23
A	130	145.5	157.5
B	54	61	69
C	45	51	60
D	40	48	55
E	95	104.5	110.5
F	70	76.5	82.5
G	25	28	28
H	31.5	35.5	39
J	22.5	25.5	30
K	34	40	47
L	72	81	88
M	11	12	12
Nx	26	30	33.5
Ny	9	11	12
P	max.3	max.3	max.3
Q	9	9	11
R	5.5	5.5	6.8
S	15	16	13.5
T	30.5	35	38
U	12	14	16
V	25	29	31.5
W	30.5	34.5	35.5
X	22	26	30
Y	13	14	18
Z	21	26	31
AA	16	18.5	21
AB	77.7	92.4	101.9
AC	50.2	61.2	71.7
AD	6	6	7
AE	6	7	8
AG	20.2	18.9	19.9
CA (Nominal × Pitch)	M5 × 0.8	M5 × 0.8	M6 × 1
JA	3.5	3.5	3.5
JB	14	14	14
MC	9.5	10.5	12.5
MD	3	3	3.5
ME	40.8	49	56
MF	40 ^{+0.039} ₀	48 ^{+0.039} ₀	55 ^{+0.046} ₀
MG	40.6	48.6	55.6
MH	45.5	52	58
MJ	49.5	56	62
MK	61	67.5	73.5
ML	70	76.5	82.5
MP	70.5	77	83
ZA (Chamfer)	C3	C3	C3
3-O-ring	AS568-028(70)	AS568-031(70)	AS568-033(70)
Mass ※10	kg 1.0	1.6	2.1

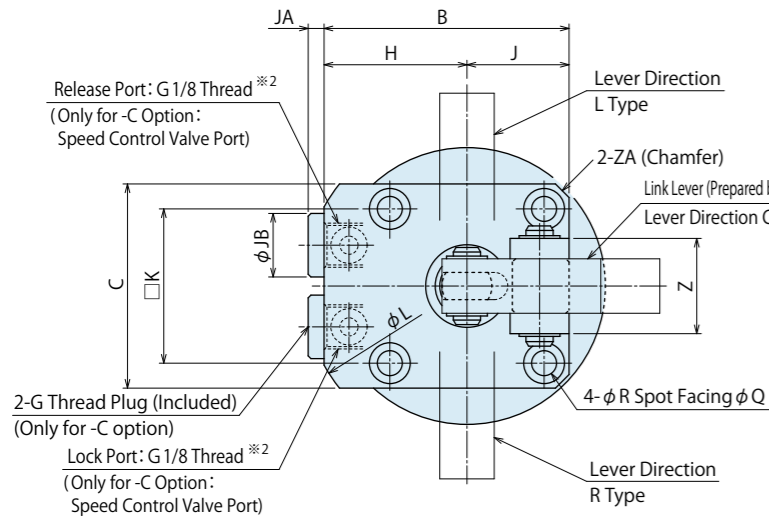
- Notes : ※ 9. The specification value of cylinder force, clamping force and holding force is fulfilled only when clamping within the lock stroke range. (The specification value is not fulfilled when clamping within the idle stroke range.)
※10. Mass of single clamp without the link lever.

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

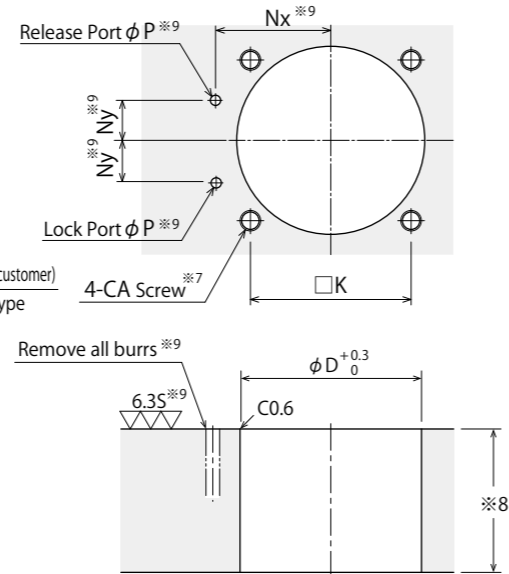
High-Power Hydraulic Swing Clamp
LHE
High-Power Hydraulic Link Clamp
LKE
High-Power Pneumatic Hole Clamp
SWE
High-Power Pneumatic Swing Clamp
WHE
High-Power Pneumatic Link Clamp
WCE
High-Power Pneumatic Work Support
WNC
Rodless Hollow Pneumatic Work Support
WNA
High-Power Pneumatic Pallet Clamp
WVS

External Dimensions (LKE0400/0480/0550-□□N)

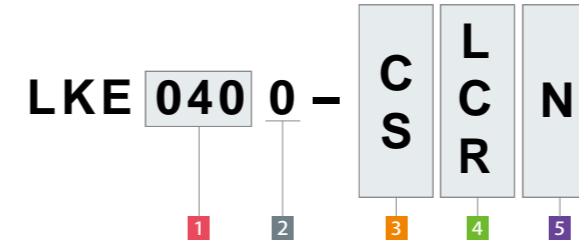
C : Gasket Option (Speed Control Valve Attachable/With G Thread Plug)
※ The drawing shows the locked state of LKE□-CCN.



Machining Dimensions of Mounting Area



Model No. Indication



(Format Example : LKE0400-CCN, LKE0550-SLN)

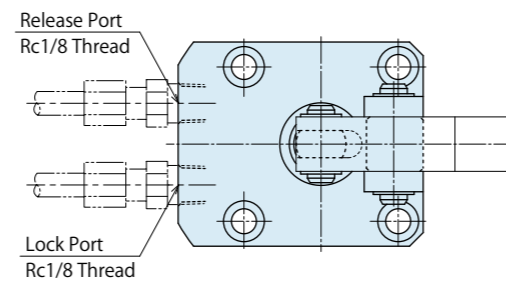
- 1 Body Size
- 2 Design No.
- 3 Piping Method
- 4 Lever Direction
- 5 Action Confirmation Method (When selecting N)

External Dimensions and Machining Dimensions for Mounting

Model No.	LKE0400-□□N	LKE0480-□□N	LKE0550-□□N
Full Stroke	19.5	22.5	25
(Breakdown)	Idle Stroke	16	18.5
	Lock Stroke ※10	3.5	4
Recommended Stroke	17.5	20.5	23
A	132	147.5	159.5
B	54	61	69
C	45	51	60
D	40	48	55
E	97	106.5	112.5
F	32	37.5	43.5
G	25	28	28
H	31.5	35.5	39
J	22.5	25.5	30
K	34	40	47
L	72	81	88
M	11	12	12
Nx	26	30	33.5
Ny	9	11	12
P	max.3	max.3	max.3
Q	9	9	11
R	5.5	5.5	6.8
S	15	16	13.5
T	30.5	35	38
U	12	14	16
V	25	29	31.5
W	30.5	34.5	35.5
X	22	26	30
Y	13	14	18
Z	21	26	31
AA	16	18.5	21
AB	77.7	92.4	101.9
AC	50.2	61.2	71.7
AD	6	6	7
AE	6	7	8
AG	20.2	18.9	19.9
CA (Nominal × Pitch)	M5 × 0.8	M5 × 0.8	M6 × 1
JA	3.5	3.5	3.5
JB	14	14	14
NA	61	69	76
NB	15	18	22
NC	40	41	41
ND	50	60	66
ZA (Chamfer)	C3	C3	C3
Mass ※11 kg	1.2	1.8	2.3

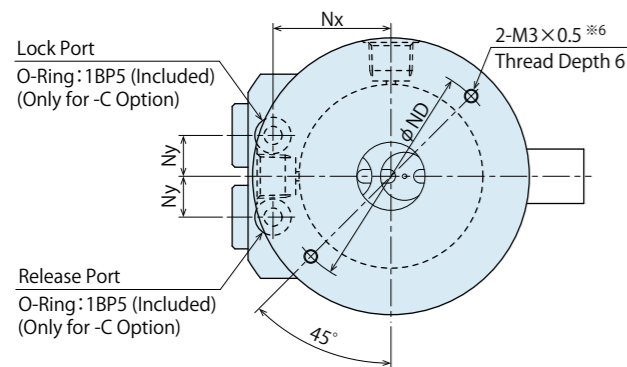
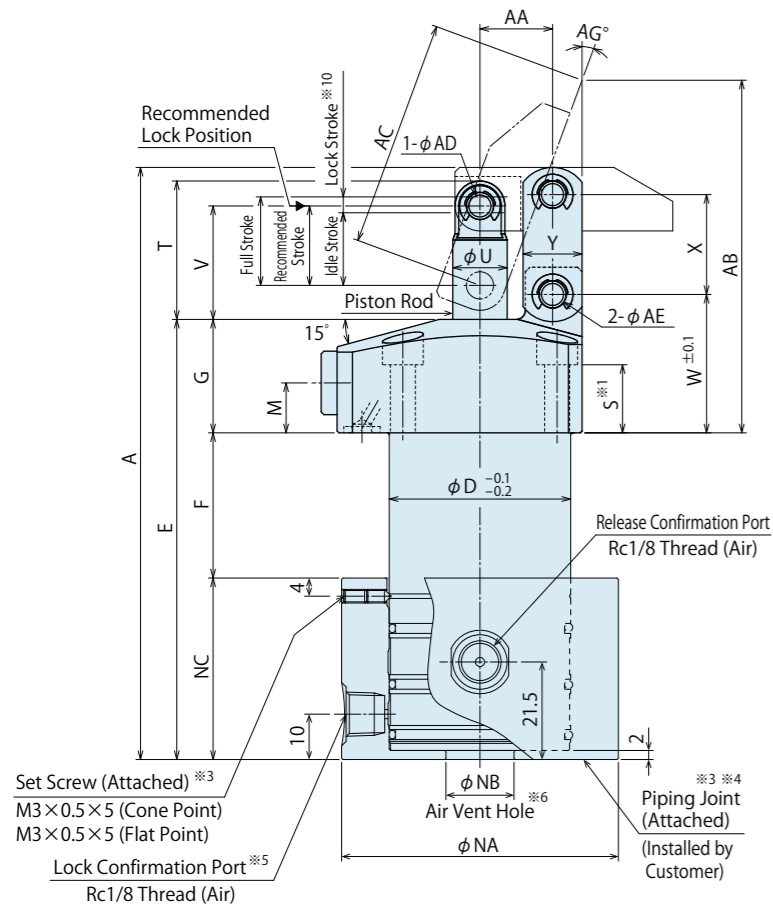
Piping Method

S : Piping Option (Rc Thread)
※ The drawing shows the locked state of LKE□-SCN.



Notes :

- ※1. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
- ※2. Speed control valve is sold separately. Please refer to P.891.
- ※3. Piping joint and set screw will be shipped as attachments. Make sure not to damage O-ring and insert the piping joint from the bottom of the cylinder and fix it with set screw. Mount the set screw with cone point first, and then flat point.
- ※4. For mounting piping joint, follow the longitudinal direction dimension as indicated in this drawing. If failed (not pushed enough), it causes air leaks, etc.
- ※5. Lock confirmation is not the stroke check of piston rod, but rather the action check of internal mechanical lock.
- ※6. Air vent hole must be open to the atmosphere, and prevent coolant and chips. If exposed to coolant and chips, use M3 screw of the bottom and install an attachment to prevent them, but do not block the air vent hole.
- ※7. CA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
- ※8. The depth of the body mounting hole φD should be less than 'Dimension F -1'.
- ※9. The machining dimension is for -C: Gasket Option.
 1. Please use the attached pin (equivalent to φAD f6, φAE f6, HRC60) as the mounting pin for lever.
 2. Please refer to P. 71 for Air Sensing Chart.
 3. If releasing hydraulic pressure at released state, the piston rod can be shifted by internal spring force.



Notes: ※10. The specification value of cylinder force, clamping force and holding force is fulfilled only when clamping within the lock stroke range. (The specification value is not fulfilled when clamping within the idle stroke range.)
※11. Mass of single clamp without the link lever.

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

High-Power Hydraulic Swing Clamp
LHE
High-Power Hydraulic Link Clamp
LKE
High-Power Pneumatic Hole Clamp
SWE
High-Power Pneumatic Swing Clamp
WHE
High-Power Pneumatic Link Clamp
WCE
High-Power Pneumatic Work Support
WNC
Rodless Hollow Pneumatic Work Support
WNA
High-Power Pneumatic Pallet Clamp
WVS

● Action Description (Air Sensing Chart Explanation)

Action confirmation can be conducted by detecting differential pressure with the air catch sensor.
 Release confirmation is the action confirmation of piston rod.
 Lock confirmation is not the stroke confirmation of piston rod, but the action confirmation of internal mechanical lock.

Applicable Model

LKE 040 0 - CS LCR MN

5 Action Confirmation Method : When selecting M/N

About Air Catch Sensor

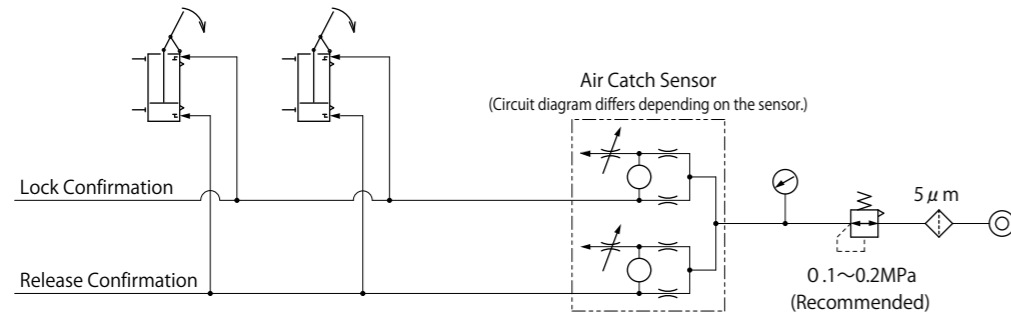
- Air catch sensor is required in order to conduct the action confirmation.
- Sensing can be done by the air catch sensor with small air flow (recommended models are in the chart below).

Recommended Operating Air Pressure : 0.1~0.2MPa

Recommended Air Catch Sensor

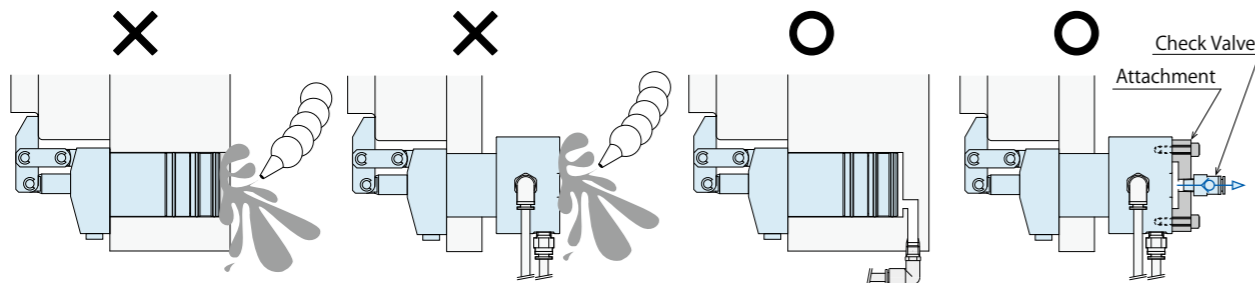
Maker	SMC	CKD
Name	Air Catch Sensor	Gap Switch
Model No.	ISA3-F, ISA3-G, ISA2-G	GPS2-05-15

- Please refer to maker's catalog, etc. for the detail of the air catch sensor.
- The air pressure to the air catch sensor should be 0.1~0.2MPa.
- When using the clamps, do not stop supplying air pressure.
- Refer to the drawing below for the air circuit construction.



Notes for Design · Use · Installation

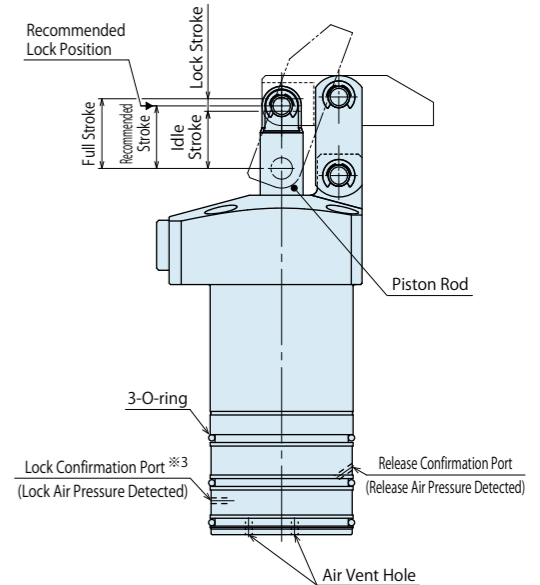
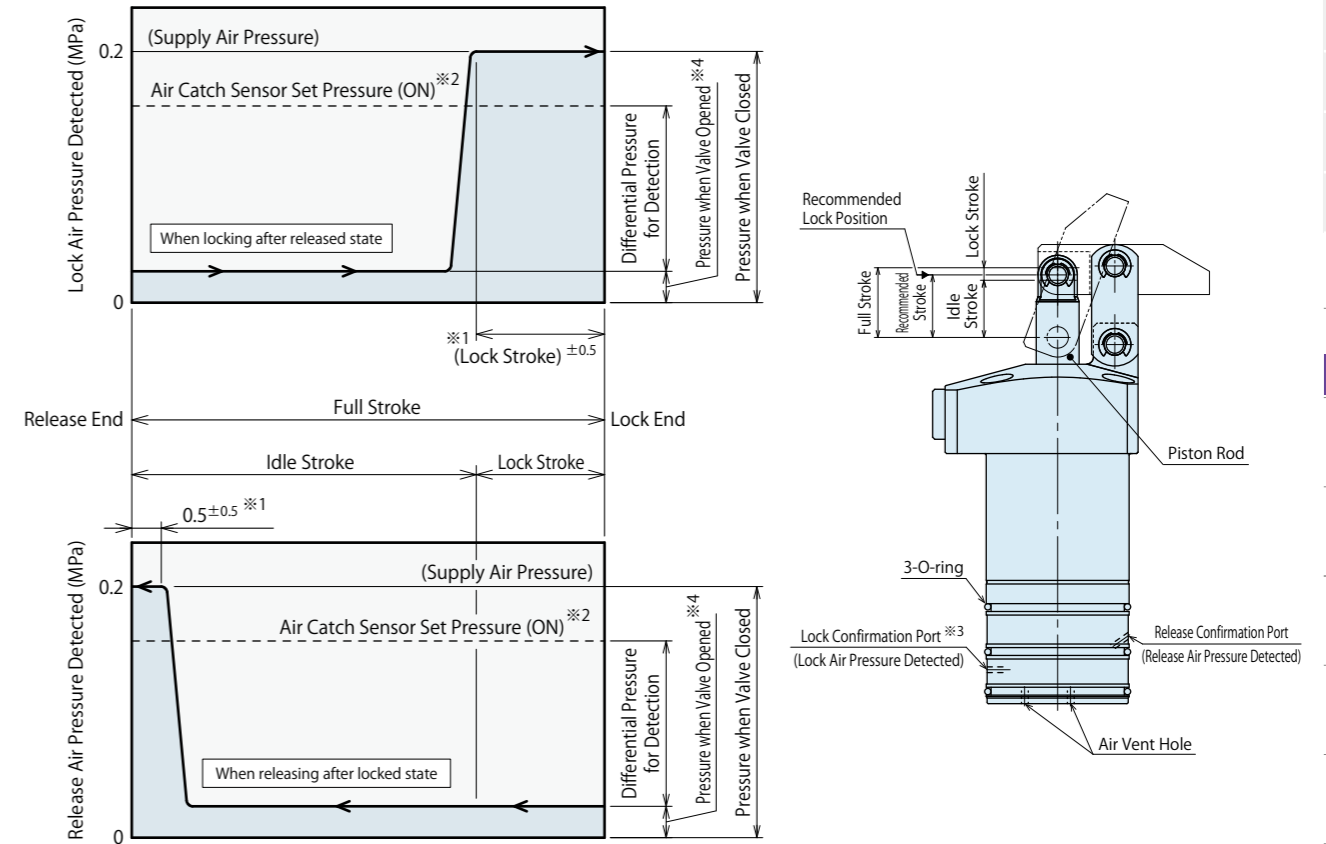
- Air vent hole must be open to the atmosphere, and prevent coolant and chips from entering the air vent hole. The air catch sensor can malfunction if the air vent hole is blocked.
- Prevention of Foreign Substance to the Air Vent Hole
Coolant and chips can be prevented by setting a check valve with low cracking pressure. (Recommended check valve: SMC-made series AKH, cracking pressure: 0.005MPa)



- Continuously supply air pressure to the air port when in use.
- Apply adequate amounts of grease on O-ring of the clamp before installation.
O-ring can be twisted or damaged in the dry state.
If too much amount of grease is applied, the air catch sensor can malfunction due to overflow grease blocking the detection port.

Air Sensing Chart

Number Directly Connected to Clamp: 1, Air Catch Sensor ISA3-F, Supply Air Pressure 0.2MPa



Notes :

1. Sensing chart shown is the relationship between the stroke and detection circuit air pressure.
2. The specifications may vary depending on the air circuit. The hose length should be as short as possible. (Less than 5m)
3. If releasing hydraulic pressure at released state, the piston rod can be shifted by internal spring force.
- ※1. There is a certain tolerance with regard to the position where the pressure for closing the valve is reached depending on the clamp structure. (Refer to the sensing chart.)
- ※2. The position where the air catch sensor has ON signal output varies depending on the sensor setting.
- ※3. Lock confirmation is an action confirmation of the mechanical lock. The air catch sensor pressure increase may be behind piston rod action.
- ※4. 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.

	(mm)		
Model No.	LKE0400-□□M/N	LKE0480-□□M/N	LKE0550-□□M/N
Full Stroke	19.5	22.5	25
(Breakdown)	Idle Stroke	16	21
	Lock Stroke	3.5	4
Recommended Stroke	17.5	20.5	23

High-Power Series

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

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

Rodless Hollow Pneumatic Work Support

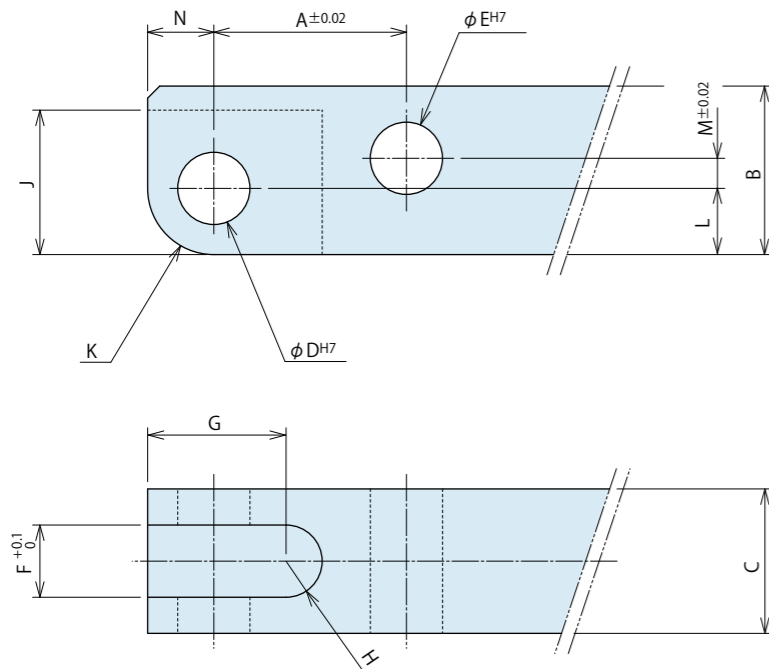
WNA

High-Power Pneumatic Pallet Clamp

WVS

● Link Lever Design Dimensions

※ Reference for designing link lever.



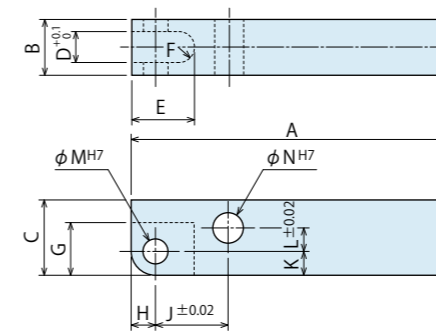
● Link Lever Design Dimension List

Corresponding Model No.	LKE0300	LKE0360	LKE0400	LKE0480	LKE0550
A	12.5	14.5	16	18.5	21
B	11	12.5	15.5	18	21.5
C	9 ⁰ _{-0.1}	10 ⁰ _{-0.2}	12 ⁰ _{-0.3}	12 ⁰ _{-0.3}	16 ⁰ _{-0.3}
D	4 ^{+0.012} ₀	5 ^{+0.012} ₀	6 ^{+0.012} ₀	6 ^{+0.012} ₀	7 ^{+0.015} ₀
E	4 ^{+0.012} ₀	5 ^{+0.012} ₀	6 ^{+0.012} ₀	7 ^{+0.015} ₀	8 ^{+0.015} ₀
F	4.5	5	6	6	8
G	8.5	10	11.5	13	13
H	R2.25	R2.5	R3	R3	R4
J	8.5	10	12	13	13.5
K	R4	R4.5	R5.5	R6	R6
L	4	4.5	5.5	6	6
M	2.5	2.5	2.5	3.5	6
N	4	4.5	5.5	6	6

Notes :

- Please design the link lever length according to the performance curve.
- If a link lever is produced with different dimension from the table above, clamping force and holding force will not fulfill the specification and may cause deformation, galling and poor operation.
- Please use the attached pin (equivalent to φAD f6, φAE f6, HRC60) as the mounting pin for lever. (Please refer to each external dimension of LKE for the dimensions φAD and φAE.)

● Accessories : Material Link Lever



Model No. Indication

LZK 040 0 - L2

Size (Refer to the table.)

Design No. (Revision Number)

(mm)

Model No.	LZK0300-L2	LZK0360-L2	LZK0400-L2	LZK0480-L2	LZK0550-L2
Corresponding Model No.	LKE0300	LKE0360	LKE0400	LKE0480	LKE0550
A	50	65	75	85	90
B	9 ⁰ _{-0.1}	10 ⁰ _{-0.2}	12 ⁰ _{-0.3}	12 ⁰ _{-0.3}	16 ⁰ _{-0.3}
C	11	12.5	15.5	18	21.5
D	4.5	5	6	6	8
E	8.5	12.5	14.5	16	17
F	R2.25	R2.5	R3	R3	R4
G	8.5	10	12	13	13.5
H	4	4.5	5.5	6	6
J	12.5	14.5	16	18.5	21
K	4	4.5	5.5	6	6
L	2.5	2.5	2.5	3.5	6
M	4 ^{+0.012} ₀	5 ^{+0.012} ₀	6 ^{+0.012} ₀	6 ^{+0.012} ₀	7 ^{+0.015} ₀
N	4 ^{+0.012} ₀	5 ^{+0.012} ₀	6 ^{+0.012} ₀	7 ^{+0.015} ₀	8 ^{+0.015} ₀

Notes: 1. Material : S50CH

- If necessary, the front end should be additionally machined.
- Please use the attached pin (equivalent to φAD f6, φAE f6, HRC60) as the mounting pin for lever. (Please refer to each external dimension of LKE for the dimensions φAD and φAE.)

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

Rodless Hollow Pneumatic Work Support

WNA

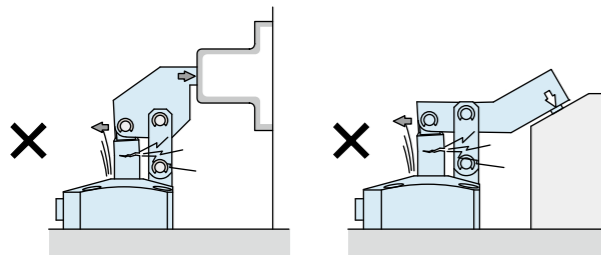
High-Power Pneumatic Pallet Clamp

WVS

Cautions

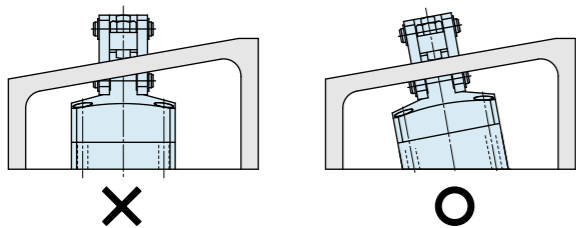
Notes for Design

- 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" to assist with proper hydraulic circuit designing. Improper circuit design may lead to malfunctions and damages. (Refer to P.1238)
 - Ensure there is no possibility of supplying hydraulic pressure to the lock and release ports simultaneously.
- 3) Notes for Link Lever Design
 - Make sure no force except for the axial direction is applied to the piston rod. The usage like the one shown in the drawing below will apply a large bending stress to the piston rod and must be avoided.



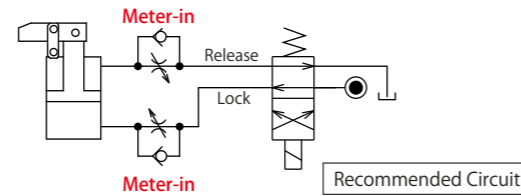
- If offset load is applied on the link part, use it within the allowable range of "Allowable Offset Graph".

- 4) When using on a welding fixture, the exposed area of piston rod should be protected.
 - If spatter gets onto the sliding surface it could lead to malfunction and fluid leakage.
- 5) When clamping on a sloped surface of the workpiece
 - Make sure the clamp surface and mounting surface of the clamp are parallel.

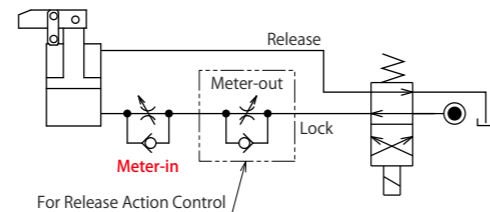


- 6) When using in a dry environment
 - The link pin may dry out. Grease it periodically or use a special pin. Contact us for the specifications of special pins.

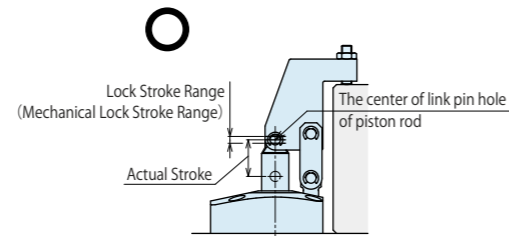
- 7) Speed Adjustment
 - If the clamp operates too fast the parts will wear out and leads to damage more quickly leading to complete equipment failure. For speed adjustment, please install the speed controller (meter-in) on the lock port side and adjust the locking action to be about 0.5~1.0 seconds.



For multiple clamps operating simultaneously, please install the speed controller (meter-in) to each clamp. Also, when load is applied to the release action direction during release action, adjust the speed by installing the speed controller (meter-out) on the lock port side.



- 8) The specification value is not fulfilled when clamping out of the lock stroke (mechanical lock stroke) range.
 - When the center of link pin hole of piston rod clamps out of the lock stroke range, the mechanical lock function does not work. As a result, the specification value of clamping force and holding force will not be fulfilled.

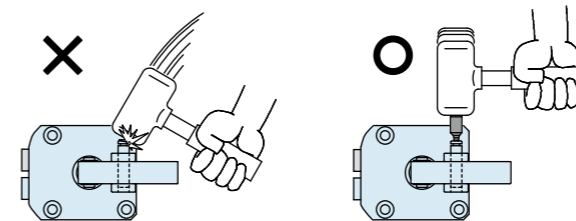


The actual stroke of the piston that ascends from release-end to lock-end should be designed to have the same value as the recommended lock position listed on the external dimensions. (The specification value is fulfilled since the center of link pin hole of piston rod is within the lock stroke (mechanical lock stroke) range.)

- 9) Notes for LKE-M/N (Air Sensing Option)
 - Make sure to check the Notes for Design · Installation · Use on P.71.

Installation Notes

- 1) Check the fluid to use.
 - Please use the appropriate fluid by referring to the Hydraulic Fluid List (P.1237).
 - 2) Installation of the Product
 - When mounting the clamp, use hexagon socket bolts as multiple bolt holes for mounting (with tensile strength of 12.9) and tighten them with the torque shown in the chart below. Tightening with greater torque than recommended can depress the seating surface or break the bolt.
- | Model No. | Thread Size | Tightening Torque (N·m) |
|-----------|-------------|-------------------------|
| LKE0300 | M4×0.7 | 4.0 |
| LKE0360 | M4×0.7 | 4.0 |
| LKE0400 | M5×0.8 | 8.0 |
| LKE0480 | M5×0.8 | 8.0 |
| LKE0550 | M6×1 | 14 |
- 3) 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.



- 4) 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 wear out, it leads to damage and complete equipment failure.
 - Please make sure to release air from the circuit before adjusting speed. With air mixed in the circuit, it is not able to adjust the speed accurately.
 - Turn the speed control valve gradually from the low-speed side (small flow) to the high-speed side (large flow) to adjust the speed.

※ Please refer to P.1237 for common cautions. • Installation Notes • Hydraulic Fluid List • Notes on Hydraulic Cylinder Speed Control Circuit • Notes on Handling • Maintenance/Inspection • Warranty

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

Rodless Hollow Pneumatic Work Support

WNA

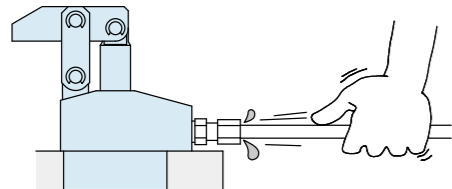
High-Power Pneumatic Pallet Clamp

WVS

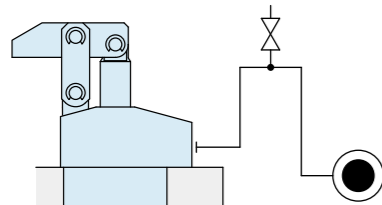
● Cautions

● Installation Notes (For Hydraulic Series)

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



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



5) Checking Looseness and Retightening

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

● Hydraulic Fluid List

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

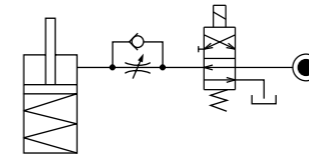
Note As it may be difficult to purchase the products as shown in the table from overseas, please contact the respective manufacturer.

● Notes on Hydraulic Cylinder Speed Control Unit

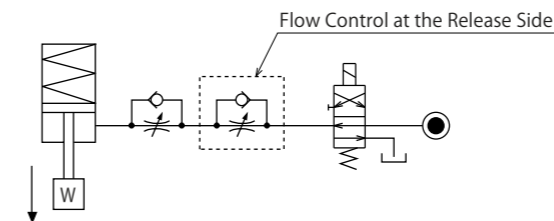
⚠ Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

- Flow Control Circuit for Single Acting Cylinder

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



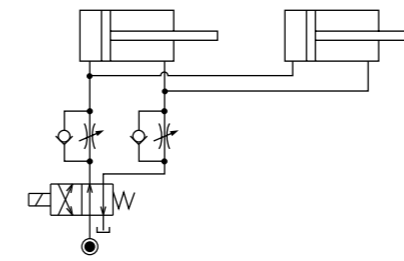
Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow. (Please add flow control to release flow if the lever weight is put on at the time of release action when using swing clamps.)



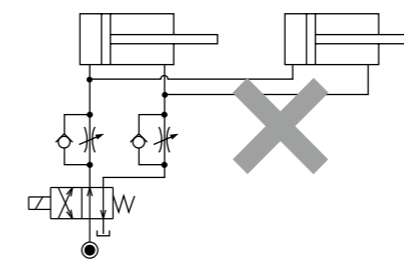
- Flow Control Circuit for Double Acting Cylinder

Flow control circuit for double acting cylinder should have meter-out circuits for both the lock and release sides. Meter-in control can have adverse effect by presence of air in the system. However, in the case of controlling LKE, TMA, TLA, both lock side and release side should be meter-in circuit. Refer to P.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.

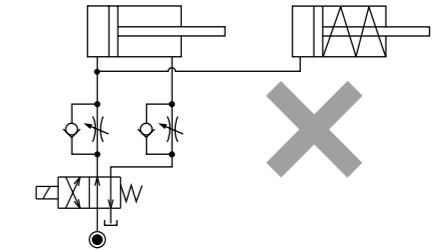
【Meter-out Circuit】 (Except LKE/TMA/TLA)



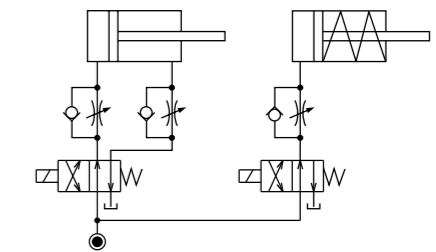
【Meter-in Circuit】 (LKE/TMA/TLA must be controlled with meter-in.)



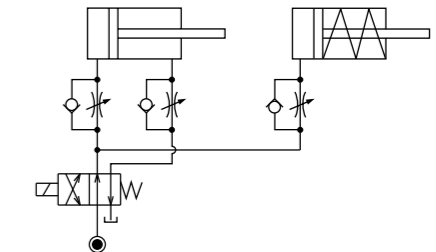
- ① Single acting components should not be used in the same flow control circuit as the double acting components. The release action of the single acting cylinders may become erratic or very slow.



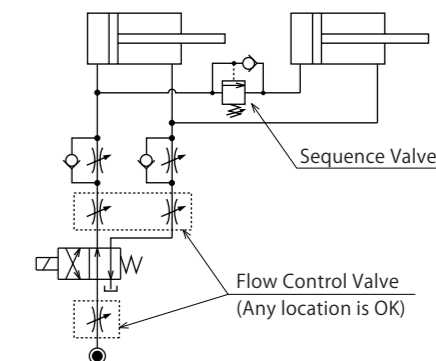
Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together. ○ Separate the control circuit.



- 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.



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Hydraulic Series
Valve / Coupler Hydraulic Unit
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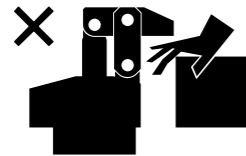
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● Notes on Handling

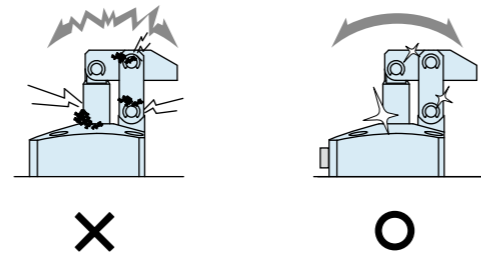
- 1) It should be handled by qualified personnel.
 - The hydraulic machine and air compressor should be handled and maintained by qualified personnel.
- 2) Do not handle or remove the machine unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared when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



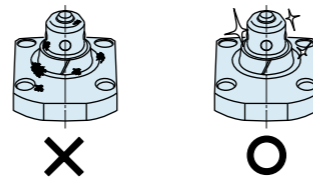
- 4) Do not disassemble or modify.
 - If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

● Maintenance and Inspection

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



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



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

● Warranty

- 1) Warranty Period
 - The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.
- 2) Warranty Scope
 - If the product is damaged or malfunctions during the warranty period due to faulty design, materials or workmanship, we will replace or repair the defective part at our expense. Defects or failures caused by the following are not covered.
 - ① If the stipulated maintenance and inspection are not carried out.
 - ② If the product is used while it is not suitable for use based on the operator's judgment, resulting in defect.
 - ③ If it is used or handled in inappropriate way by the operator. (Including damage caused by the misconduct of the third party.)
 - ④ If the defect is caused by reasons other than our responsibility.
 - ⑤ If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
 - ⑥ Other caused by natural disasters or calamities not attributable to our company.
 - ⑦ Parts or replacement expenses due to parts consumption and deterioration. (Such as rubber, plastic, seal material and some electric components.)

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



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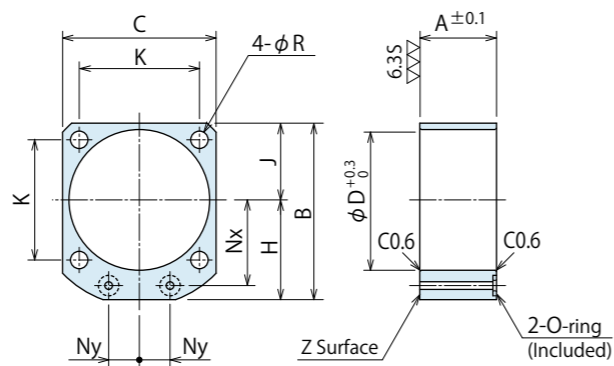
Manifold Block for WCA/WCE/WHA/WHE

Model No. Indication

WHZ 048 0 - MD

Size
(Refer to following table)

Design No.
(Revision Number)



(mm)

Model No.	WHZ0600-MD	WHZ0320-MD	WHZ0400-MD	WHZ0500-MD	WHZ0630-MD
Corresponding Item	WCE0602	WCA0321	WCA0401	WCA0501	WCA0631
Model Number	WHE0600	WHA0320	WHA0400	WHA0500	WHA0630
A	23	25	27	31	35
B	54	60	67	77	88.5
C	45	50	58	68	81
D	40	46	54	64	77
H	31.5	35	38	43	48
J	22.5	25	29	34	40.5
K	34	39	45	53	65
Nx	26	28	31	36	41
Ny	9	10	13	15	20
R	5.5	5.5	5.5	6.5	6.5
O-ring	1BP5	1BP7	1BP7	1BP7	1BP7
Mass kg	0.1	0.1	0.1	0.2	0.2

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

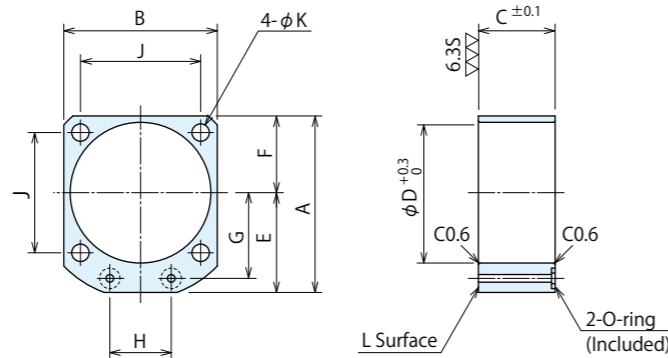
Manifold Block for LKA/LKC/LKE/LHA/LHC/LHE/LHS/LL

Model No. Indication

LZY 048 0 - MD

Size
(Refer to following table)

Design No.
(Revision Number)



(mm)

Model No.	LZY0360-MD	LZY0400-MD	LZY0480-MD	LZY0550-MD	LZY0650-MD	LZY0750-MD	LZY0900-MD	LZY1050-MD
Corresponding Item	LKA0360 / LKE0360	LKA0400 / LKC0400	LKA0480 / LKC0480	LKA0550 / LKC0550	LKA0650 / LKC0650	LKA0750	LKA0900	LKA1050
Model Number	LHA0360 / LHC0360	LHE0400 / LHA0400	LHE0480 / LHA0480	LHE0550 / LHA0550	LHE0650 / LHA0650	LHE0750	LHE0900	LHE1050
A	49	54	61	69	81	92	107	122
B	40	45	51	60	70	80	95	110
C	20	20	27	30	32	37	45	50
D	36	40	48	55	65	75	90	105
E	29	31.5	35.5	39	46	52	59.5	67
F	20	22.5	25.5	30	35	40	47.5	55
G	23.5	26	30	33.5	39.5	45	52.5	60
H	16	18	22	24	30	32	37	45
J	31.4	34	40	47	55	63	75	88
K	4.5	5.5	5.5	6.8	6.8	9	11	14
O-ring	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7	1BP7
Mass kg	0.2	0.2	0.3	0.4	0.5	0.8	1.2	1.7

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

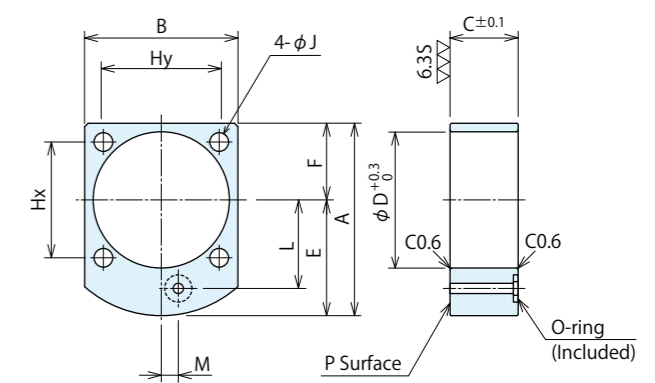
Manifold Block for LM/LJ/LT/LG

Model No. Indication

LZ 048 0 - MS

Size
(Refer to following table)

Design No.
(Revision Number)



(mm)

Model No.	LZ0300-MS	LZ0360-MS	LZ0400-MS	LZ0480-MS	LZ0550-MS	LZ0650-MS	LZ0750-MS	LZ0900-MS	LZ1050-MS
Corresponding Item	LT0301 / LG0301	LT036□ / LG036□	LT040□ / LG040□	LT048□ / LG048□	LT055□ / LG055□	LT065□ / LG065□	LT075□ / LG075□	LT090□	LT105□
Model Number	LM0300 / LJ0302	LM0360 / LJ0362	LM0400 / LJ0402	LM0480 / LJ0482	LM0550 / LJ0552	LM0650 / LJ0652	LM0750 / LJ0752	LJ0902	LJ1052
A	48	51.5	56.5	62	70	82	93	107	122
B	34	40	45	51	60	70	80	95	110
C	18	20	20	27	30	32	37	45	50
D	30	36	40	48	55	65	75	90	105
E	28.5	31.5	34	36.5	40	47	53	59.5	67
F	19.5	20	22.5	25.5	30	35	40	47.5	55
Hx	30	31.4	34	40	47	55	63	75	88
Hy	23	31.4	34	40	47	55	63	75	88
J	4.5	4.5	5.5	5.5	6.8	6.8	9	11	14
L	20.5	23.5	26	30	33.5	39.5	45	52.5	60
M	3	5	5	0	0	0	0	0	0
O-ring	1BP5	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7	1BP7
Mass kg	0.1	0.2	0.2	0.3	0.4	0.5	0.8	1.2	1.7

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

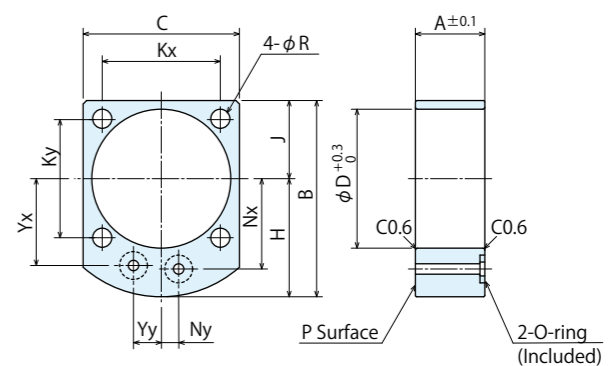
Manifold Block for LC/TC

Model No. Indication

LZ 048 0 - MP

Size
(Refer to following table)

Design No.
(Revision Number)



(mm)

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

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

- High-Power Series
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Screw Locator

VXF

Manual Expansion Locating Pin

VX

Manifold Block

WHZ-MD

LZY-MD

LZ-MS

LZ-MP

TMZ-1MB

TMZ-2MB

DZ-M

Manifold Block / Nut

DZ-R

DZ-C

DZ-P

DZ-B

LZ-S

LZ-SQ

TNZ-S

TNZ-SQ

WNZ-SQ

Pressure Switch

JBA

Pressure Gauge

JGA/JGB

Manifold

JX

Coupler Switch

PS

G-Thread Fitting