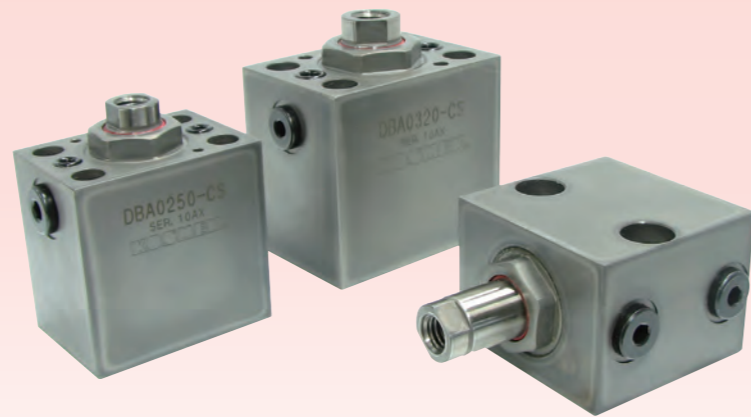


# Block Cylinder

Model DBA  
Model DBC



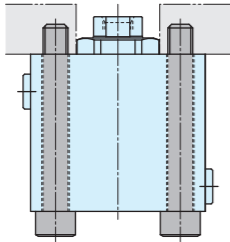
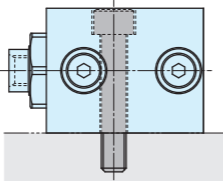


## Simple and Easily Mounted Linear Cylinder

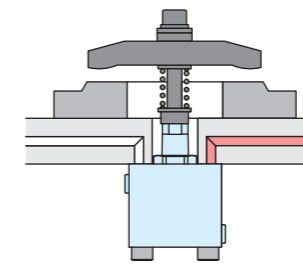
Stroke: 25mm, 50mm

### • Double-Acting Linear Cylinder

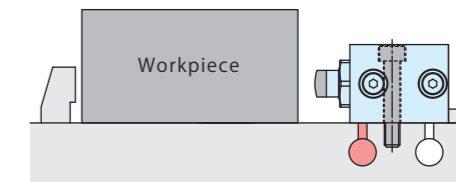
Body Size: 4 options, Mounting Method: 2 options, Piping Method: 2 options, Stroke: 25mm, 50mm  
Hydraulic double-acting linear cylinder can be used with low to high pressure.

Double Action MAX. 35MPa	 Model <b>DBA</b> → P.919	 Model <b>DBC</b> → P.921
Classification	Double-Acting Linear Cylinder Bolt Up Mounting	Double-Acting Linear Cylinder Side Mounting
Pressure Range	1 ~ 35MPa	1 ~ 35MPa
Mounting Method		
Accessories	BZL, BZX, JZG, BZS ※ For BZL and BZS, pressure range is 1~7MPa. ※ For BZX, pressure range is 1~25MPa. → P.947	BZL, BZX, JZG, BZS ※ For BZL and BZS, pressure range is 1~7MPa. ※ For BZX, pressure range is 1~25MPa.

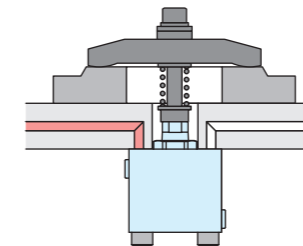
### Application Examples



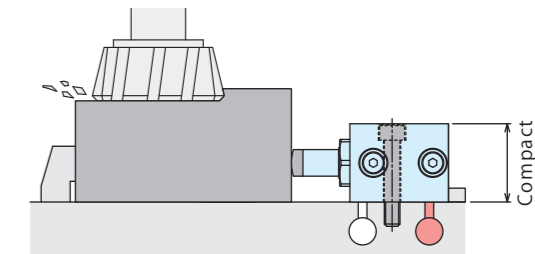
Released (Pushed) State



Released (Pulled) State



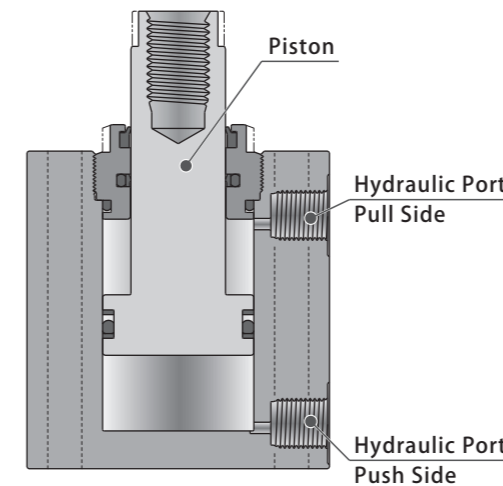
Locked (Pulled) State



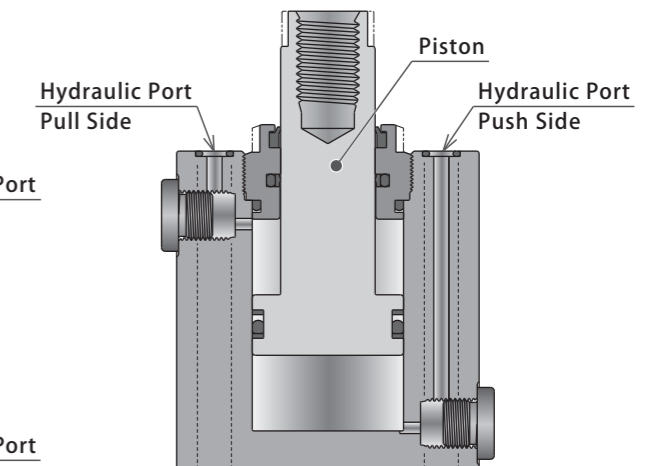
Locked (Pushed) State

### Cross Section

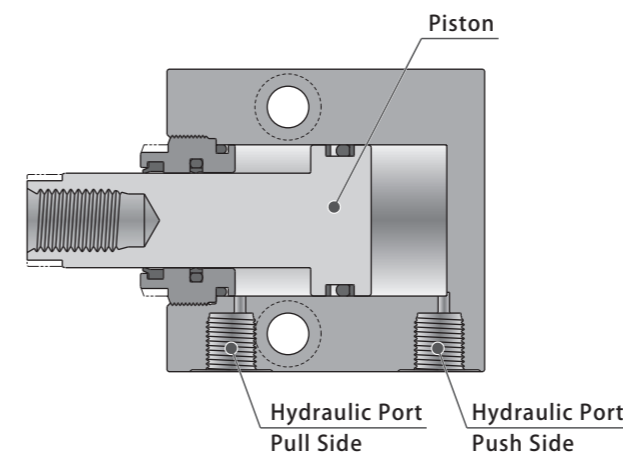
DBA □ 0-B □ : Piping Option



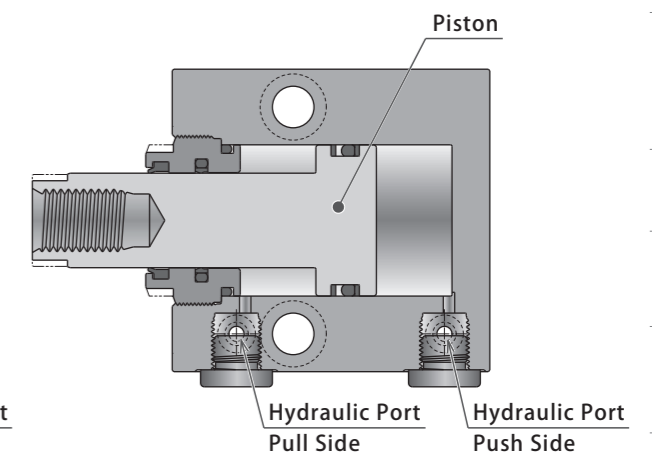
DBA □ 0-C □ : Gasket Option



DBC □ 0-B □ : Piping Option



DBC □ 0-C □ : Gasket Option



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

- Hole Clamp
  - SFA
  - SFC
- Swing Clamp
  - LHA
  - LHC
  - LHS
  - LHW
  - LG/LT
  - TLA-2
  - TLB-2
  - TLA-1

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

- Work Support
  - LD
  - LC
  - TNC
  - TC

- Air Sensing Lift Cylinder
  - LLW

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

### Block Cylinder

- DBA/DBC**
- Centering Vise
  - FVA
  - FVD
  - FVC

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

- Pallet Clamp
  - VS/VT

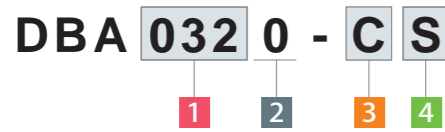
- Expansion Locating Pin
  - VFL/VFM
  - VFJ/VFK

- Pull Stud Clamp
  - FP
  - FQ

- Customized Spring Cylinder
  - DWA/DWB

Model No. Indication

Bolt Up Mounting Model



1 Cylinder Inner Diameter

- 025 : Cylinder Inner Diameter  $\phi$  25
- 032 : Cylinder Inner Diameter  $\phi$  32
- 040 : Cylinder Inner Diameter  $\phi$  40
- 050 : Cylinder Inner Diameter  $\phi$  50

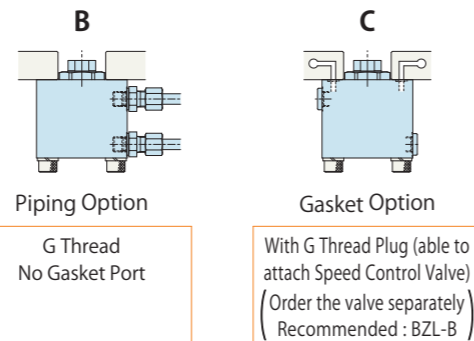
2 Design No.

0 : Revision Number

3 Piping Method

- B : Piping Option (G Thread)
- C : Gasket Option (With G Thread Plug)

※ Speed control valve (BZL) is sold separately.  
The valve (BZL) can be used only when operating pressure is 7MPa or less.  
Please refer to P.947.



4 Stroke Code

- S : Full Stroke 25mm
- M : Full Stroke 50mm

Specifications

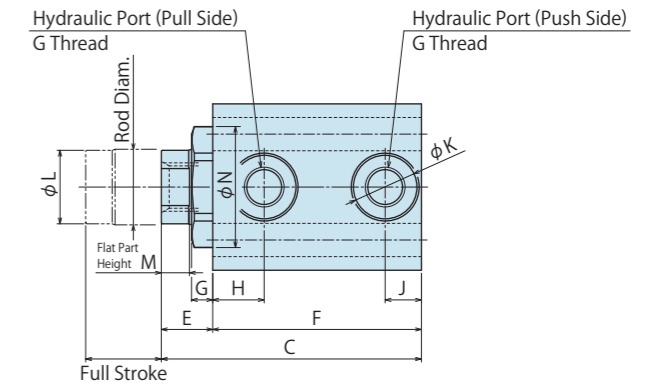
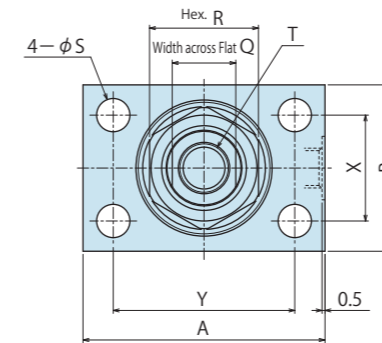
Model No.	DBA0250		DBA0320		DBA0400		DBA0500		
	S	M	S	M	S	M	S	M	
Stroke Code	S	M	S	M	S	M	S	M	
Full Stroke	mm		mm		mm		mm		
Cylinder Area	Push	4.9	8.0		12.6		19.6		
	Pull	2.9	4.9		7.7		11.6		
Cylinder Force	Push	$P \times 0.49$		$P \times 0.80$		$P \times 1.26$		$P \times 1.96$	
	Pull	$P \times 0.29$		$P \times 0.49$		$P \times 0.77$		$P \times 1.16$	
Cylinder Capacity	Push	12.3	24.5	20.1	40.2	31.4	62.8	49.1	98.2
	Pull	7.3	14.5	12.3	24.5	19.1	38.3	29.0	58.0
Cylinder Inner Diameter	mm $\phi$ 25		mm $\phi$ 32		mm $\phi$ 40		mm $\phi$ 50		
Rod Diameter	mm $\phi$ 16		mm $\phi$ 20		mm $\phi$ 25		mm $\phi$ 32		
Max. Operating Pressure	MPa 35.0								
Min. Operating Pressure	MPa 1.0								
Withstanding Pressure	MPa 42.0								
Operating Temperature	$^{\circ}\text{C}$ 0 ~ 70								
Usable Fluid	General Hydraulic Oil Equivalent to ISO-VG-32								
Weight	kg	1.1	1.5	1.7	2.3	2.3	3.0	3.8	5.0

Note : 1. The symbol of cylinder force (calculation formula) shows P: Supply Hydraulic Pressure (MPa).

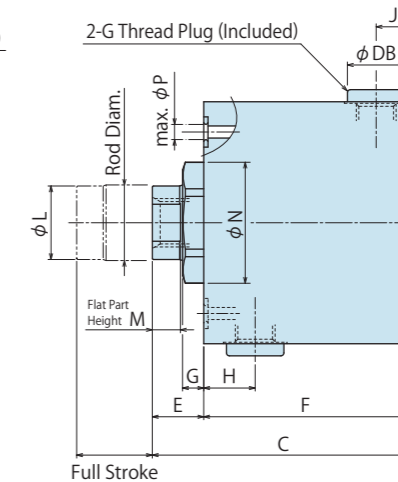
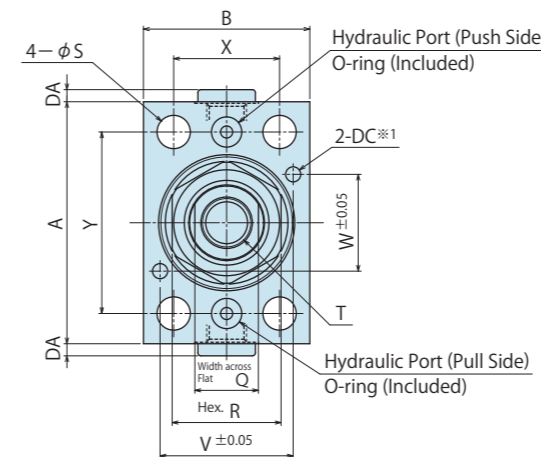


External Dimensions

DBA  $\square$  0-B  $\square$  : Piping Option



DBA  $\square$  0-C  $\square$  : Gasket Option



External Dimensions

Model No.	DBA0250		DBA0320		DBA0400		DBA0500	
	S	M	S	M	S	M	S	M
A	58		70		80		100	
B	42		50		55		65	
C	69	94	78	103	86	111	92	117
E	13		15		17		18	
F	56	81	63	88	69	94	74	99
G	6		6.5		7		7	
H	11.5		15		17		18	
J	9.5		10		12		13	
K	17.5		17.5		21		21	
L	15.5		19.5		24.3		31.3	
M	6.5		8		9.3		10.3	
N	26.5		33		40		50	
P	3		5		5		5	
Q	13		17		21		27	
R	24		30		36		46	
S	9		11		11		13.5	
T (Nominal×Pitch×Depth)	M10×1.5×15		M12×1.75×18		M16×2×23		M20×2.5×28	
V	32		38		44		52	
W	22		26		32		44	
X	26		30		35		42	
Y	42		50		60		76	
DA	3		3		4		4	
DB	14		14		19		19	
DC ※1	$\phi$ 3 Depth 5		$\phi$ 5 Depth 5		$\phi$ 5 Depth 5		$\phi$ 5 Depth 5	
Hydraulic Port	Option -B	G1/8	G1/8	G1/8	G1/4	G1/4	G1/4	G1/4
G Thread Plug	Option -C	G1/8	G1/8	G1/8	G1/4	G1/4	G1/4	G1/4
O-ring	Option -C	1BP5	1BP7	1BP7	1BP7	1BP7	1BP7	1BP7

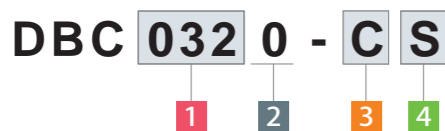
Notes : 1. Mounting surface roughness of -C: Gasket option should be 6.3S or better.  
※1. Cylinder can be positioned by using DC hole and spring pin.

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

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

Model No. Indication

Side Mounting Model



1 Cylinder Inner Diameter

- 025 : Cylinder Inner Diameter  $\phi$ 25
- 032 : Cylinder Inner Diameter  $\phi$ 32
- 040 : Cylinder Inner Diameter  $\phi$ 40
- 050 : Cylinder Inner Diameter  $\phi$ 50

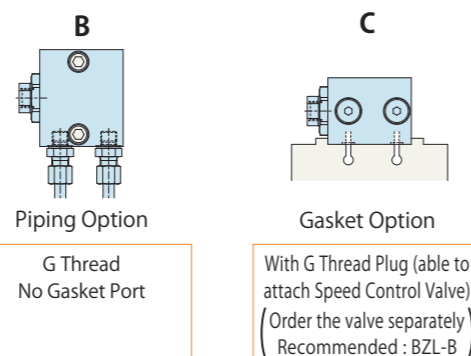
2 Design No.

- 0 : Revision Number

3 Piping Method

- B : Piping Option (G Thread)
- C : Gasket Option (With G Thread Plug)

※ Speed control valve (BZL) is sold separately.  
The valve (BZL) can be used only when operating pressure is 7MPa or less.  
Please refer to P.947.



4 Stroke Code

- S : Full Stroke 25mm
- M : Full Stroke 50mm

Specifications

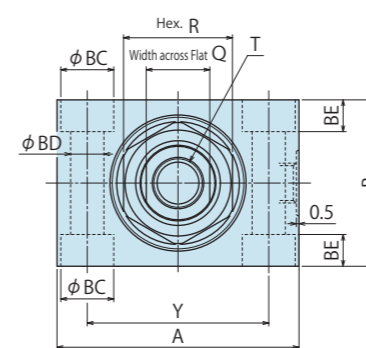
Model No.	DBC0250		DBC0320		DBC0400		DBC0500	
	S	M	S	M	S	M	S	M
Stroke Code	S	M	S	M	S	M	S	M
Full Stroke	mm		mm		mm		mm	
Cylinder Area	Push	4.9	8.0	12.6	19.6			
	Pull	2.9	4.9	7.7	11.6			
Cylinder Force	Push	$P \times 0.49$	$P \times 0.80$	$P \times 1.26$	$P \times 1.96$			
	Pull	$P \times 0.29$	$P \times 0.49$	$P \times 0.77$	$P \times 1.16$			
Cylinder Capacity	Push	12.3	24.5	20.1	40.2	31.4	62.8	49.1
	Pull	7.3	14.5	12.3	24.5	19.1	38.3	29.0
Cylinder Inner Diameter	mm		mm		mm		mm	
Rod Diameter	mm		mm		mm		mm	
Max. Operating Pressure	MPa							
Min. Operating Pressure	MPa							
Withstanding Pressure	MPa							
Operating Temperature	°C							
Usable Fluid	General Hydraulic Oil Equivalent to ISO-VG-32							
Weight	kg	1.1	1.5	1.7	2.3	2.3	3.0	3.8

Note : 1. The symbol of cylinder force (calculation formula) shows P: Supply Hydraulic Pressure (MPa).

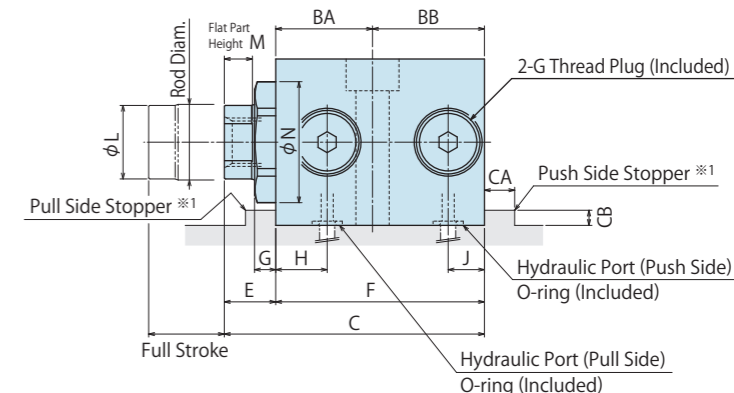
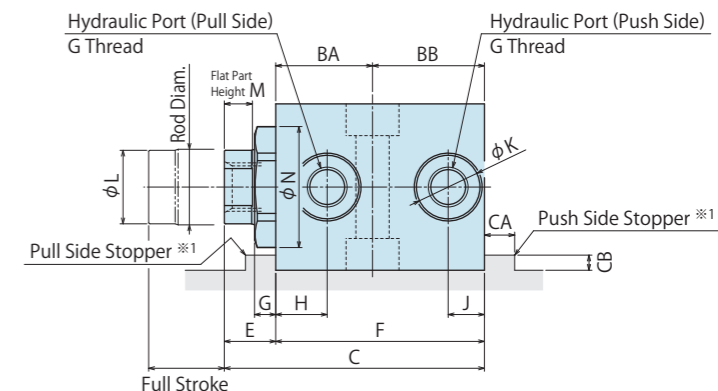
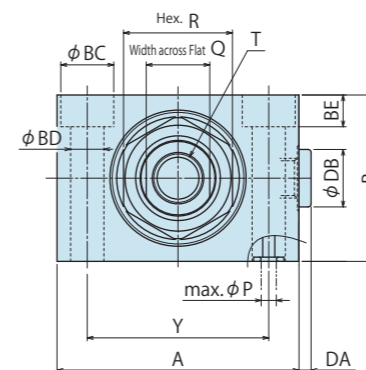


External Dimensions

DBC□0-B□ : Piping Option



DBC□0-C□ : Gasket Option



External Dimensions

Model No.	DBC0250		DBC0320		DBC0400		DBC0500	
	S	M	S	M	S	M	S	M
Stroke Code	S	M	S	M	S	M	S	M
A	58		70		80		100	
B	42		50		55		65	
C	69	94	78	103	86	111	92	117
E	13		15		17		18	
F	56	81	63	88	69	94	74	99
G	6		6.5		7		7	
H	11.5		15		17		18	
J	9.5		10		12		13	
K	17.5		17.5		21		21	
L	15.5		19.5		24.3		31.3	
M	6.5		8		9.3		10.3	
N	26.5		33		40		50	
P	3		5		5		5	
Q	13		17		21		27	
R	24		30		36		46	
T (Nominal×Pitch×Depth)	M10×1.5×15		M12×1.75×18		M16×2×23		M20×2.5×28	
Y	42		50		60		76	
BA	23		27		32		34	
BB	33	58	36	61	37	62	40	65
BC	14		17.5		17.5		20	
BD	9		11		11		13.5	
BE	8.5		10.5		10.5		12.5	
CA	8		8		10		13	
CB	4		5		5		5	
DA	3		3		4		4	
DB	14		14		19		19	
Hydraulic Port	Option -B	G1/8	G1/8	G1/8	G1/4	G1/4	G1/4	G1/4
G Thread Plug	Option -C	G1/8	G1/8	G1/8	G1/4	G1/4	G1/4	G1/4
O-ring	Option -C	1BP5	1BP7	1BP7	1BP7	1BP7	1BP7	1BP7

Notes : 1. Mounting surface roughness of -C: Gasket option should be 6.3S or better.

※ 1. When using it with push side pressure more than 15MPa and pull side pressure more than 25MPa, install the stopper as shown in the drawing.

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

- Hole Clamp
- SFA
- SFC

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

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

- Work Support
- LD
- LC
- TNC
- TC

- Air Sensing Lift Cylinder
- LLW

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

- Block Cylinder
- DBA/DBC

- Centering Vise
- FVA
- FVD
- FVC

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

- Pallet Clamp
- VS/VT

- Expansion Locating Pin
- VFL/VFM
- VFJ/VFK

- Pull Stud Clamp
- FP
- FQ

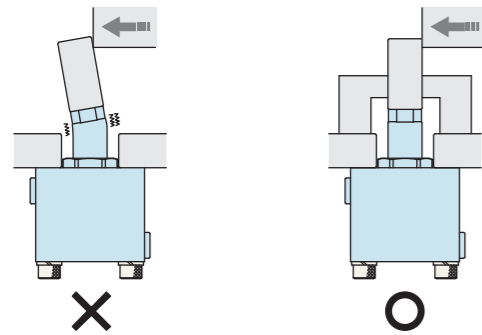
- Customized Spring Cylinder
- DWA/DWB

**Cautions**

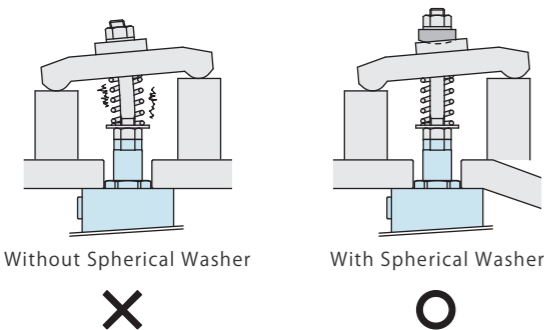
● Notes for Design

- 1) Check Specifications
  - Please use each product according to the specifications.
- 2) Notes for Circuit Design
  - Please read "Notes on Hydraulic Cylinder Speed Control Unit" for proper hydraulic circuit design. Improper circuit design may lead to malfunctions and damages. (Refer to P.1356)
  - Ensure there is no possibility of supplying hydraulic pressure to the push side and the pull side simultaneously.
- 3) Notes for Pipe Design
  - It is recommended to select as large diameter pipes as possible. The back pressure is proportional to the pipe size, so if the pipes are small the release and lock times will be longer.
- 4) When using on a welding fixture, the exposed area of piston rod should be protected.
  - If spatter attaches to the sliding surface it could lead to malfunction and fluid leakage.
- 5) The Load Direction Given to the Piston Rod
  - Make sure no force is applied to the piston rod except from the axial direction. Usage like the one shown in the figure below will apply a large bending stress to the piston rod and must be avoided.

In case a load is applied except from the axial direction

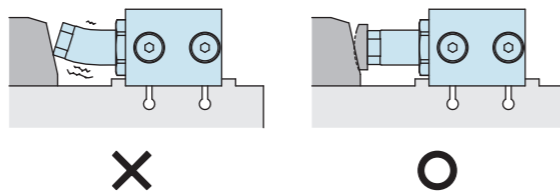


When clamping workpieces of different heights



- 6) When Clamping on a Sloped Surface of a Workpiece
  - When clamping an inclined surface, make sure that the clamping area is level when looking from the cylinder side. The clamping surface and the cylinder mounting surface should be parallel. A workpiece may move and a piston rod may slip when a cylinder is used on an inclined surface. (When the workpiece is a casting, it is recommended that a spiked attachment be used for a cylinder on draft angle.)

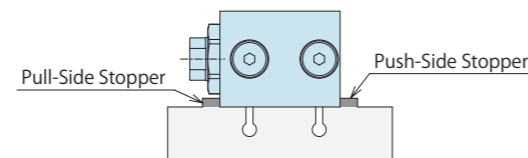
When clamping an inclined surface



- 7) Installation of the Speed Control Valve
  - Speed control valves for low pressure listed below are available for DBA□0-C□, DBC□0-C□ piping model. **Speed control valve for high pressure (BZT) cannot be used.**

Model No.	Speed Control Valve Model No.	Max. Operating Pressure when using BZL
DBA/DBC0250-C□	BZL0100-B	7MPa
DBA/DBC0320-C□	BZL0100-B	7MPa
DBA/DBC0400-C□	BZL0200-B	7MPa
DBA/DBC0500-C□	BZL0200-B	7MPa

- 8) DBC : Installation of the Stopper
  - Install the push-side stopper when using the product with push-side pressure more than 15MPa. Install the pull-side stopper when using the product with pull-side pressure more than 25MPa. Refer to the external dimensions for the stopper dimensions.

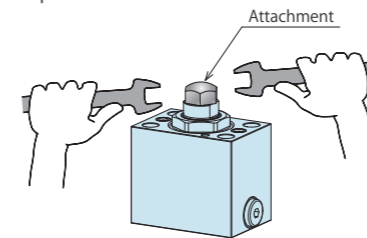


● Installation Notes

- 1) Check the Usable Fluid
  - Please use the appropriate fluid by referring to the Hydraulic Fluid List (P.1355).
- 2) Installation of the Cylinder
  - When mounting the cylinder, use four hexagonal socket bolts (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.	Nominal×Pitch	Number of Mounting Bolts	Tightening Torque (N·m)
DBA0250	M8×1.25	4	25
DBA0320	M10×1.5	4	50
DBA0400	M10×1.5	4	50
DBA0500	M12×1.75	4	80
DBC0250	M8×1.25	2	25
DBC0320	M10×1.5	2	50
DBC0400	M10×1.5	2	50
DBC0500	M12×1.75	2	80

- 3) Installation / Removal of Attachment
  - When installing or removing an attachment, always use a wrench on the piston rod to keep it from turning, and tighten it with the torque shown below.



Model No.	Thread Size	Tightening Torque (N·m)
DBA/DBC0250	M10×1.5	50
DBA/DBC0320	M12×1.75	100
DBA/DBC0400	M16×2	200
DBA/DBC0500	M20×2.5	315

- 4) Speed Adjustment
  - Adjust the rod operating speed less than 100mm/sec both the push and pull operation. If the cylinder 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.

※ Please refer to P.1355 for common cautions. • Installation Notes • Hydraulic Fluid List • Notes on Hydraulic Cylinder Speed Control Circuit • Notes on Handling • Maintenance/Inspection • Warranty

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

● Cautions

● 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.

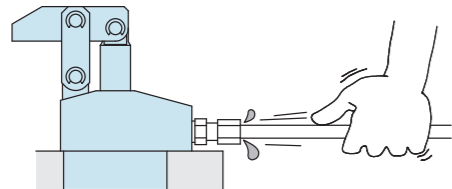
3) Applying Sealing Tape

- 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.

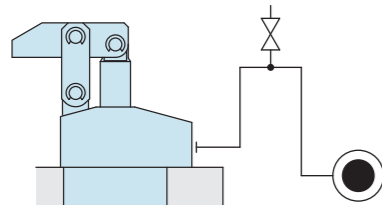
4) Air Bleeding of the Hydraulic Circuit

- 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

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	

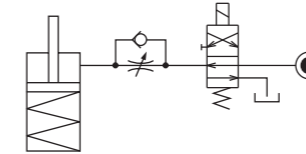
Note : Please contact manufacturers when customers require products in the list above.

● Notes on Hydraulic Cylinder Speed Control Unit

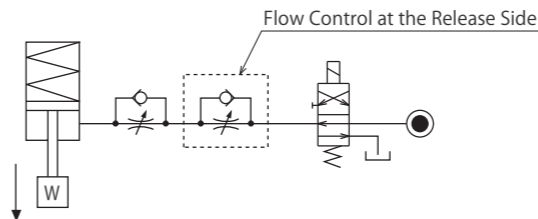
⚠ Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

● Flow Control Circuit for Single Acting Cylinder

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



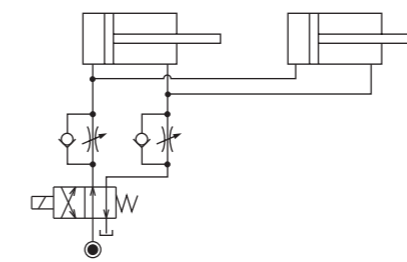
Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow. (Please add flow control to release flow if the lever weight is put on at the time of release action when using swing clamps.)



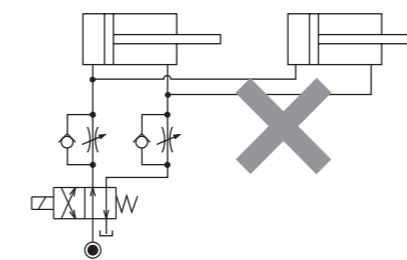
● Flow Control Circuit for Double Acting Cylinder

Flow control circuit for double acting cylinder should have meter-out circuits for both the lock and release sides. Meter-in control can have adverse effect by presence of air in the system. However, in the case of controlling LKE, TMA, TLA, both lock side and release side should be meter-in circuit. Refer to P.75 for speed adjustment of LKE. For TMA and TLA, if meter-out circuit is used, abnormal high pressure is created, which causes oil leakage and damage.

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

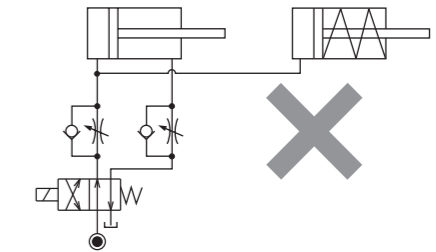


【Meter-in Circuit】 (LKE/TMA/TLA must be controlled with meter-in.)

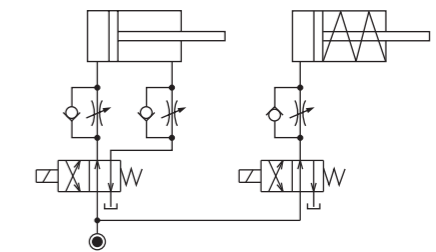


In the case of meter-out circuit, the hydraulic circuit should be designed with the following points.

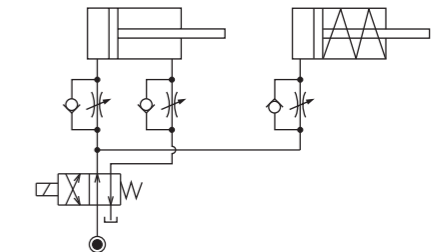
- ① Single acting components should not be used in the same flow control circuit as the double acting components. The release action of the single acting cylinders may become erratic or very slow.



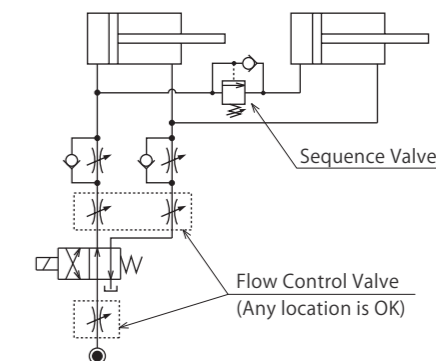
Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together.  
○ Separate the control circuit.



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



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



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● Notes on Handling

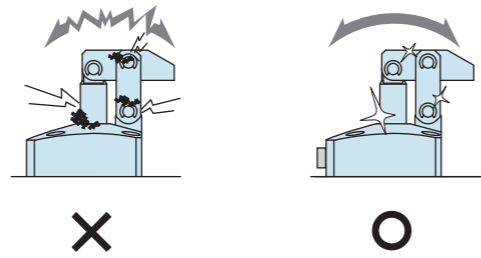
- 1) It should be operated by qualified personnel.
  - The hydraulic machine and air compressor should be operated and maintained by qualified personnel.
- 2) Do not operate or remove the product unless the safety protocols are ensured.
  - ① The machine and equipment can only be inspected or prepared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



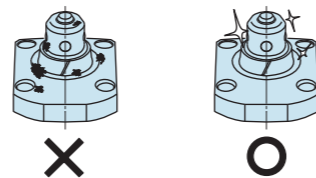
- 4) Do not disassemble or modify.
  - If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

● Maintenance and Inspection

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



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



- 4) If disconnecting by couplers, air bleeding should be carried out on a regular basis to avoid air mixed in the circuit.
- 5) Regularly tighten nut, bolt, pin, cylinder, pipe line and others to ensure proper use.
- 6) Make sure the hydraulic fluid has not deteriorated.
- 7) Make sure there is a smooth action without an irregular noise.
  - Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.
- 8) The products should be stored in the cool and dark place without direct sunshine or moisture.
- 9) Please contact us for overhaul and repair.

● 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.



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