

Non-Leak Valve Unit

Electrical Control Model

Model BC

Electrical direction control valve with non-leak valve

A variety of circuits and combination options.

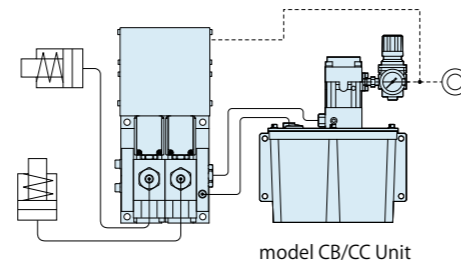
What is a non-leak valve unit (Electrical Control Model)?

It is an electrical directional control valve. It operates built-in non-leak valves by switching air solenoid valve electrically. Even if the pressure supply is cut off from the hydraulic power source, it maintains the pressure in outgoing side circuit.

Even if the hydraulic power source is cut off due to energy saving (Stop hydraulic supply to incoming side) or blackout etc., it holds the pressure and prevents a workpiece fall.

Application Examples

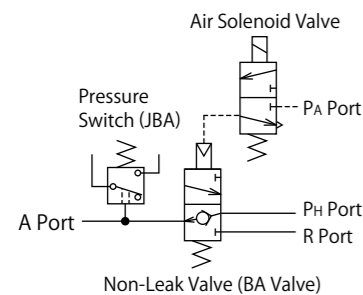
Control lock and release action of actuators electrically.



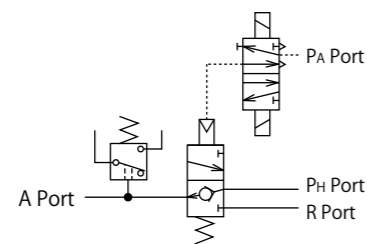
model CB/CC Unit

Circuit Symbol

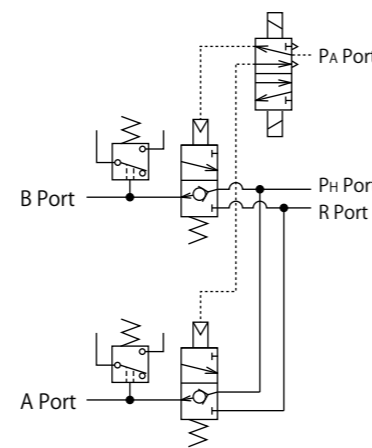
C Normal Open



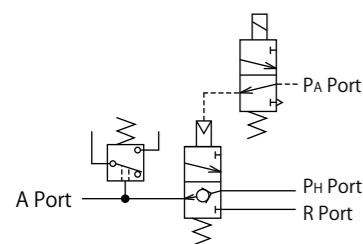
U Double Solenoid Valve Option



YY Exclusively used for Double Action Circuit



Z Normal Close



※ Filter is built in other than PA port and R port.

Model No. Indication

[Notice of Change in Model No. Indication] : 5 Common option has been added.
 When reordering a hydraulic unit including DC24V double solenoid valve, please place the order with the new model no.

BC00 4 1 - CC - 1 0 - (7.0MPa)

1 2 3 4 5 6 7 8 9

1 Pressure Code (Operating Pressure Range)

- 3 : 2.5~4.5MPa
- 4 : 4.0~7.0MPa
- 5 : 6.0~11.0MPa
- 6 : 10.0~17.5MPa
- 7 : 15.5~30.0MPa

2 Design No.

- 1 : Revision Number

3 Circuit Symbol

- C : Normal Open Single Solenoid Valve Control
 - Z : Normal Close Single Solenoid Valve Control
 - U : Double Solenoid Valve Control for Single Acting Circuit
 - YY : Double Solenoid Valve Control for Double Acting Circuit
- (Example) C, CZ, UU, UUY

※ Please contact us if a different circuit is needed other than those listed above.

4 Control Voltage

- 1 : AC100V (50/60Hz)
- 2 : AC200V (50/60Hz)
- 3 : AC110V (50/60Hz)
- 4 : AC220V (50/60Hz)
- 5 : DC24V

5 Common

Please specify only when selecting both 3 Double Solenoid Valve and 4 DC24V. Specifications other than the above will be indicated with Blank.

B : (-) Minus Common

A : (+) Plus Common

※ Products before the change of the Model No. Indication which is without this symbol are equivalent to B : Minus Common.

Ex. : BC0041-YY-50-(7.0MPa) is equivalent to BC0041-YY-5B0-(7.0MPa).

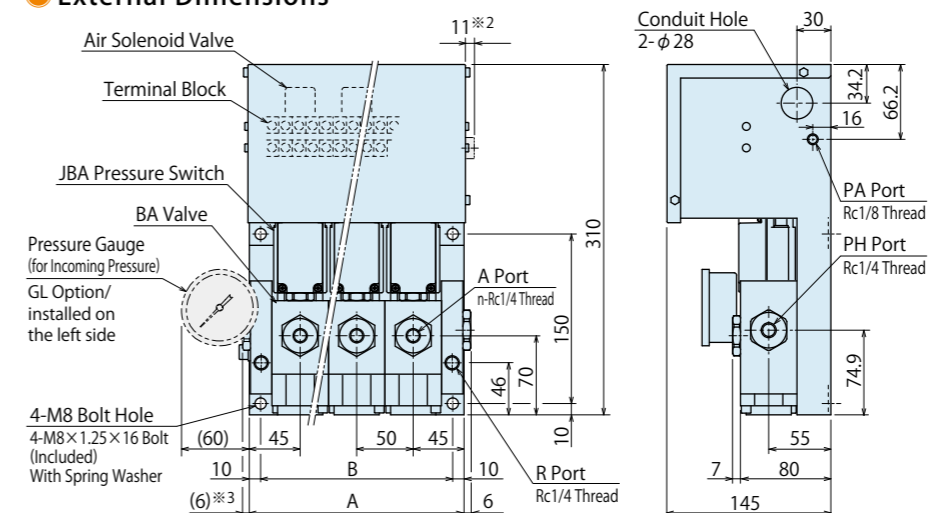
Specifications

Model No.	BC0031	BC0041	BC0051	BC0061	BC0071
Operating Pressure Range MPa	2.5 ~ 4.5	4.0 ~ 7.0	6.0 ~ 11.0	10.0 ~ 17.5	15.5 ~ 30.0
Withstanding Pressure ^{※1} MPa	10.5			37.5	
Non-Leak Valve Part Number	BA2011-0			BA5011-0	
Pressure Switch Part Number	JBA0700-0G-Z0020G	JBA0700-0G		JBA2700-0G	
Operating Temperature °C	0 ~ 70				
Usable Fluid	General Hydraulic Oil Equivalent to ISO-VG-32 (It depends on fluid code.)				

Notes : ※1. It shows withstanding pressure without pressure gauge.

1. INC. (Pressure Increase Detection) of Pressure Switch (JBA) is set to 70% of operating pressure. Contact us for other set pressure.
2. For pressure gauge (for incoming pressure) option, piping ports are provided on both sides.

External Dimensions



		(mm)			
The Number of Valves (n)		1	2	3	4
A	Weight kg	90	140	190	240
B	Weight kg	70	120	170	220

Notes :

- ※2. When circuit symbol is U and YY.
- ※3. Dimension of valve unit with left side piping block option.

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

Air Sequence Valve

BWD

Hydraulic Non-Leak Coupler

BGA/BGB

BGC/BGD

BGP/BGS

BBP/BBS

BNP/BNS

BJP/BJS

BFP/BFS

Auto Coupler

JTA/JTB

JTC/JTD

JVA/JVB

JVC/JVD

JVE/JVF

JNA/JNB

JNC/JND

JLP/JLS

Rotary Joint

JR

Hydraulic Valve

BK

BEQ

BT

BLS/BLG

BLB

JSS/JS

JKA/JKB

BMA/BMG

AU/AU-M

BU

BP/JPB

BX

BEP/BSP

BH

BC

Air Hydraulic Unit

CV

CK

CP/CPB

CPC/CQC

CB

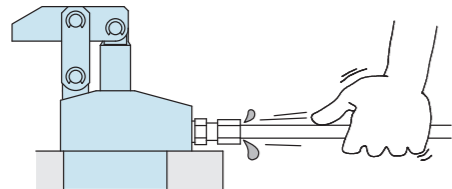
AB/AB-V

AC/AC-V

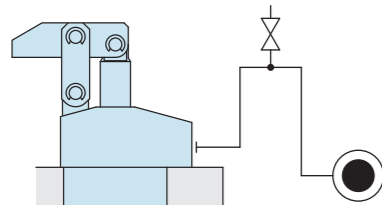
● Cautions

● 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	

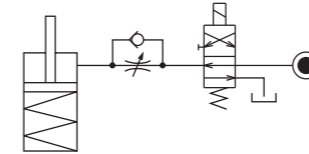
Note : Please contact manufacturers when customers require products in the list above.

● Notes on Hydraulic Cylinder Speed Control Unit

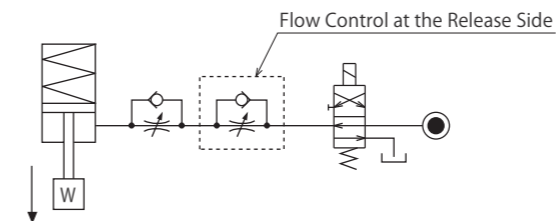
⚠ Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

- 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.



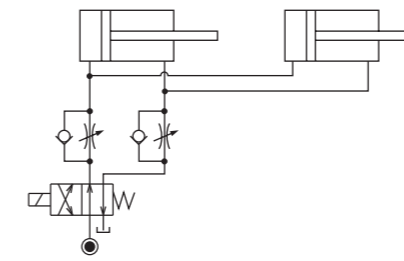
Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow. (Please add flow control to release flow if the lever weight is put on at the time of release action when using swing clamps.)



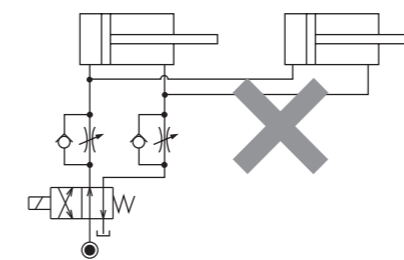
- Flow Control Circuit for Double Acting Cylinder

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.

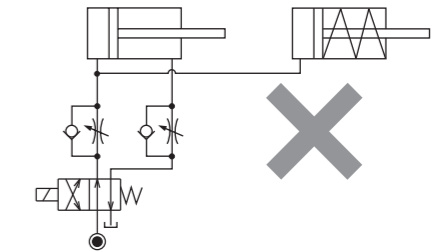
【Meter-out Circuit】 (Except LKE/TMA/TLA)



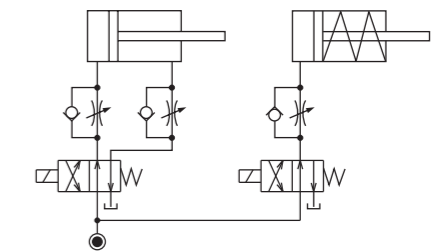
【Meter-in Circuit】 (LKE/TMA/TLA must be controlled with meter-in.)



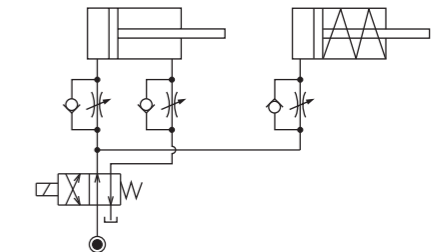
- ① Single acting components should not be used in the same flow control circuit as the double acting components. The release action of the single acting cylinders may become erratic or very slow.



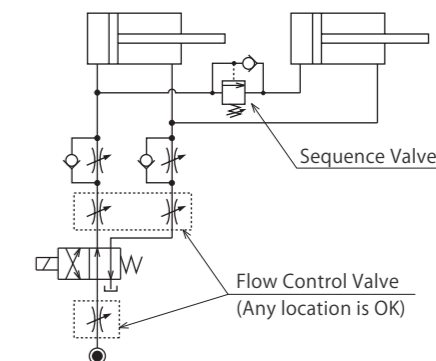
Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together. ○ Separate the control circuit.



- 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.



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

Cautions
Installation Notes (For Hydraulic Series)
Hydraulic Fluid List
Notes on Hydraulic Cylinder Speed Control Circuit
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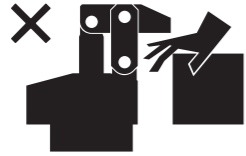
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● Notes on Handling

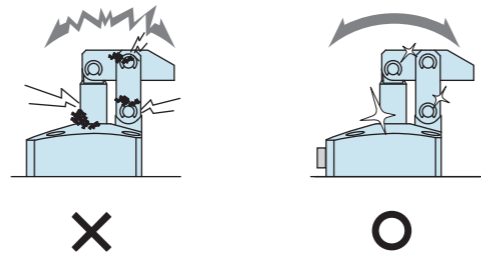
- 1) It should be operated by qualified personnel.
 - The hydraulic machine and air compressor should be operated and maintained by qualified personnel.
- 2) Do not operate or remove the product unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared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



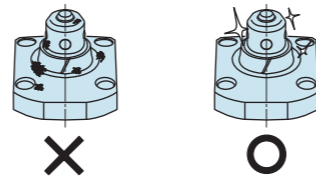
- 4) Do not disassemble or modify.
 - If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

● 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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