Dear Valued Customers,

KOSMEK
Harmony in Innovation

SEP, 2014

Model Change Announcement
Reducing Valve (BM Model)

To Whom It May Concern,

We are sending this notice to inform our customers the BM Model Reducing Valve will be replaced by the NEW BMA Model. The BMA Model features a more compact body with a larger range of operating pressure on incoming & outgoing ports. BM5020 or equivalent has an allowable minimum pressure difference enabling reduction to a larger range of pressure. The former BM Model has gained favor in our line of valves over the years. Customers have asked for a larger range of pressure and we listened. Please consider the BMA Model in future designs. We thank you for your understanding.

Yours Sincerely,

Kosmek, Ltd. & Kosmek USA, Ltd.

Notes

1. Changed Points

- Model Name (BM ⇒ BMA)
- Larger Range of Operating Pressure on Incoming/Outgoing Side
- Allowable Minimum Pressure Difference (Only for BM5020 or equivalent)
- Minimum Passage Area (Approximately 2.5 times larger)
- External Dimensions

Former Model No. (BM)		BM5020	BM5030	BM5050	BM5070
Incoming Supply Pressure	MPa	3.5 ～ 7.0	6.0 ～ 30.0	10.0 ～ 30.0	17.0 ～ 30.0
Outgoing Set Pressure	MPa	2.0 ～ 4.0	3.0 ～ 7.0	7.0 ～ 14.0	14.0 ～ 20.0
Allowable Min. Pressure Difference※	MPa	1.5	3.0	3.0	3.0
Min. Passage Area	mm^2	9.4			
		⇓	⇓	⇓	⇓
New Model No. (BMA)		BMA2030	BMA2050		BMA2070
Incoming Supply Pressure	MPa	2.0 ～ 7.0	6.0 ～ 30.0		9.0 ～ 30.0
Outgoing Set Pressure	MPa	1.0 ～ 6.0	3.0 ～ 14.0		6.0 ～ 27.0
Allowable Min. Pressure Difference※	MPa	1.0	3.0		3.0
Min. Passage Area	mm^2	23.3			

Note ※ Allowable minimum pressure difference shows the minimum difference between incoming and outgoing pressure.

2. Compatibility

'BM50☐0-0G' is compatible with 'BMA20☐0-G'.
'BM50☐0-0/0K' and 'BMA20☐-0/0K' have different piping positions.
Please check the attached document for details.

3. Replacement Period

The sale of the new BMA Model begins Sep, 2014.
The production of the former BM Model ends Sep, 2014.
The sales of spare parts for 'BM50☐0-0' and 'BM50☐0-0K' will be continued.
Please select BMA Model for replacement.

We wish you all the best in your future business.

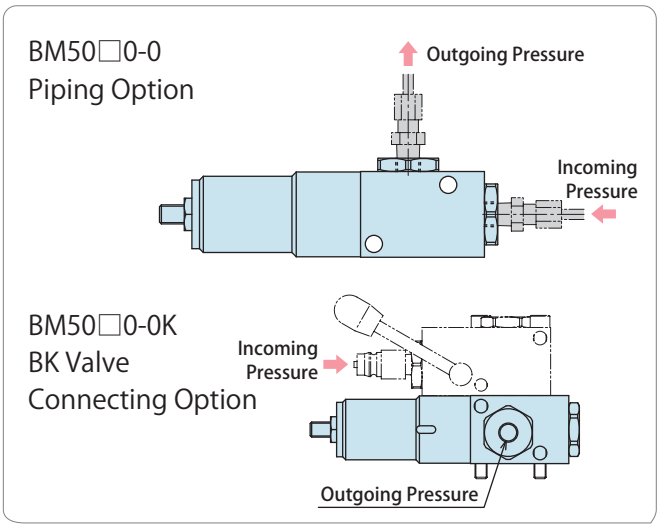
Thank you.

BM50□0-0/0K (Piping/BK Valve Connecting Option) External Dimensions • Old/New Model No. List

Comparison of External Dimensions on this sheet shows,

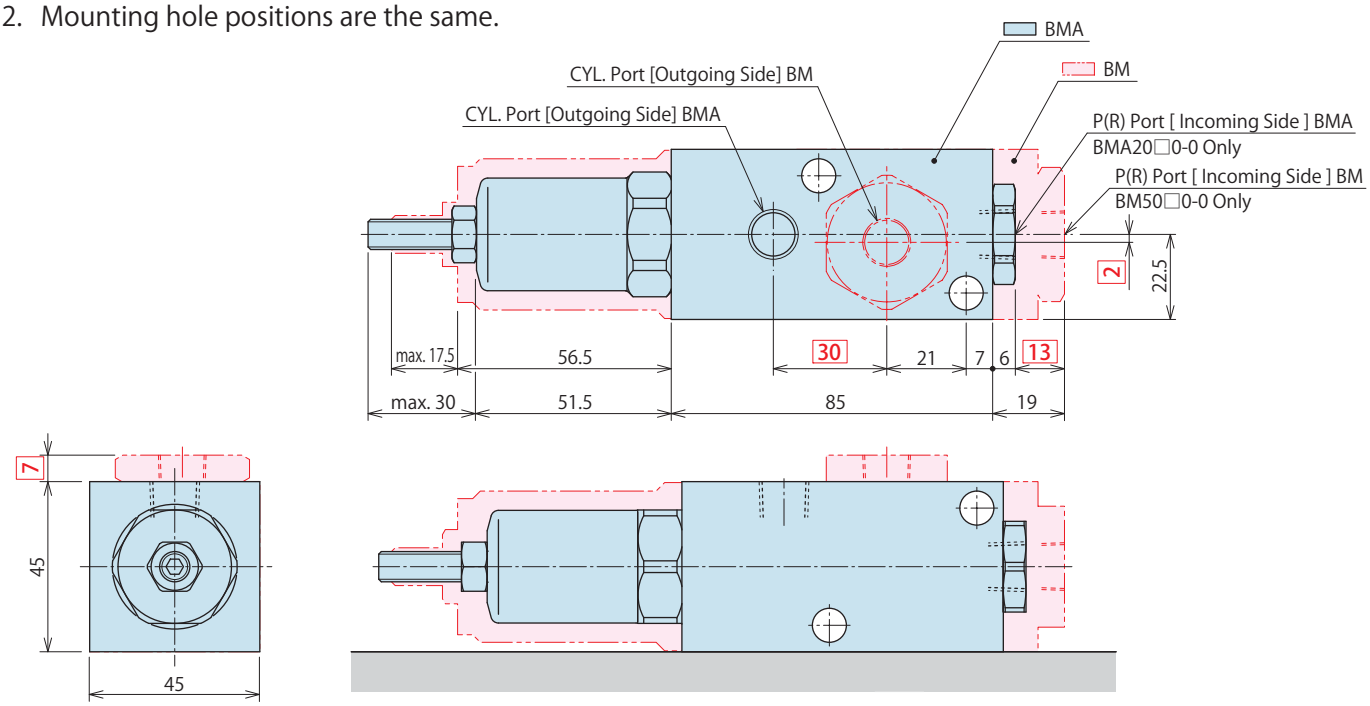
Piping Method [Blank] : Piping Option

Piping Method [K] : BK Valve Connecting Option



'BM50□0-0/0K' and 'BMA20□-0/0K' have different piping positions.
The sales of spare parts for 'BM50□0-0' and 'BM50□0-0K' will be continued.
Please select model BMA for replacement.

1. Positions of piping ports are different. (The different values are marked with □.)
2. Mounting hole positions are the same.



New/Old Model No. List

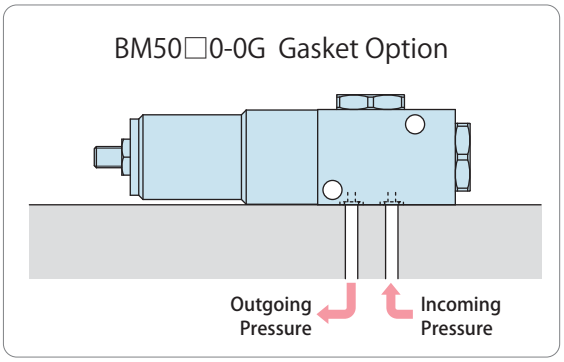
Old Model No. (BM)		New Model No. (BMA)
BM5020-0	→	BMA2030-0
BM5030-0	→	BMA2050-0
BM5050-0	→	
BM5070-0	→	BMA2070-0

Old Model No. (BM)		New Model No. (BMA)
BM5020-0K	→	BMA2030-0K
BM5030-0K	→	BMA2050-0K
BM5050-0K	→	
BM5070-0K	→	BMA2070-0K

BM50□0-0G (Gasket Option)
External Dimensions • Old/New Model No. List

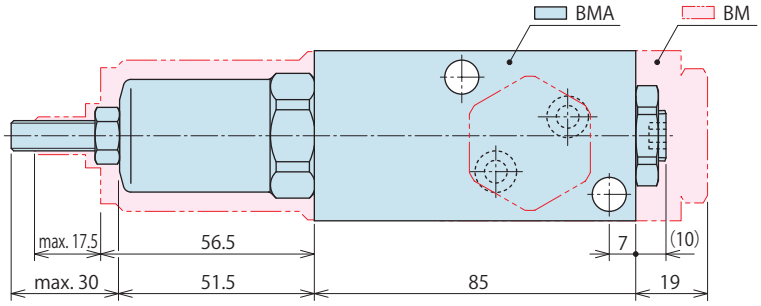
Comparison of External Dimensions on this sheet shows,

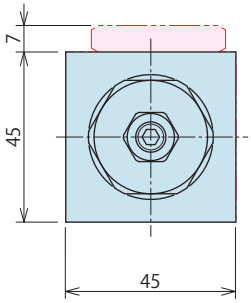
Piping Method [G]：Gasket Option

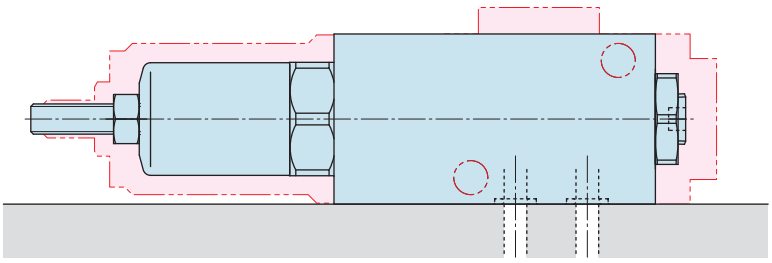


'BM50□0-0G' is compatible with 'BMA20□0-G'.

1. The Same Mounting Hole Positions
2. The Same Hydraulic Port Positions
3. No Bolt Holes on the Side





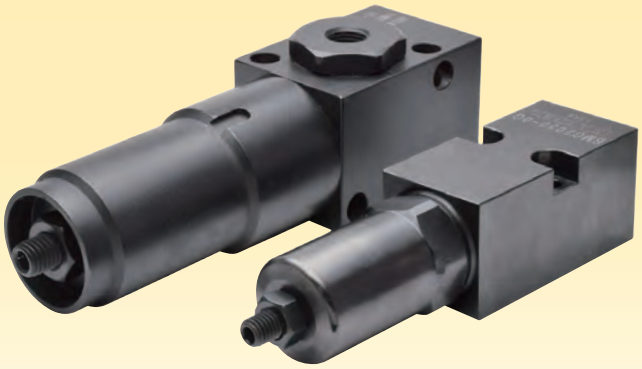


New/Old Model No. List

Old Model No. (BM)		New Model No. (BMA)
BM5020-0G	→	BMA2030-0G
BM5030-0G	→	BMA2050-0G
BM5050-0G	→	
BM5070-0G	→	BMA2070-0G

Reducing Valve

Model BM
Model BMG



Reducing valve does not need drain port and is used in circuit

The drain port for pressure reducing is not needed. It allows to reduce the number of circuits.

What is reducing valve?

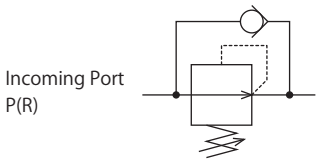
Non-leak reducing valve to partially reduce hydraulic circuit pressure of a fixture by pipe model reducing valve that doesn’ t need a drain port.

It is possible to design simple circuit and it is appropriate for quick change fixture.

Partial reducing pressure is easy without drain port.

※ Gasket option is available.

Circuit Symbol



※ Each port has a built-in filter.

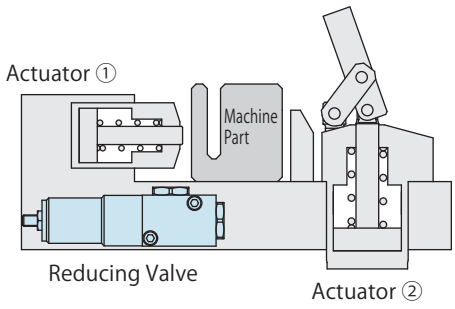
Model BM → P.947

NEW Model BMG → P.949

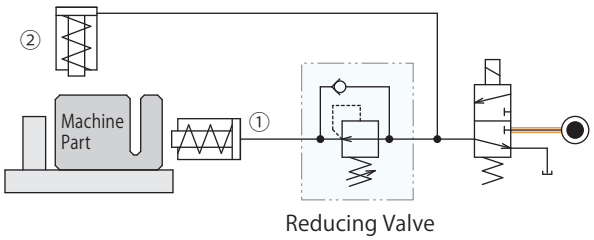
	Model BM				Model BMG		
Classification	Reducing Valve				Compact Reducing Valve		
Incoming Supply Pressure	3.5～7MPa	6～30MPa	10～30MPa	17～30MPa	2～7MPa	6～30MPa	9～30MPa
Outgoing Set Pressure	2～4MPa	3～7MPa	7～14MPa	14～20MPa	1～6MPa	3～14MPa	6～27MPa
Piping Method	Piping Option Gasket Option BK Connecting Option				Gasket Option		

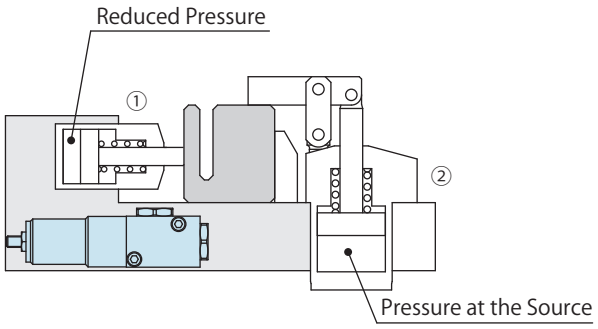
Action Description

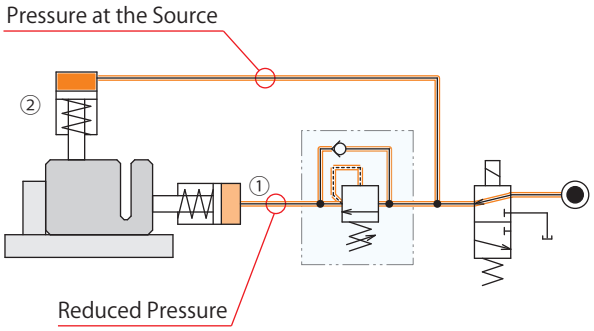
Images



Circuit Example







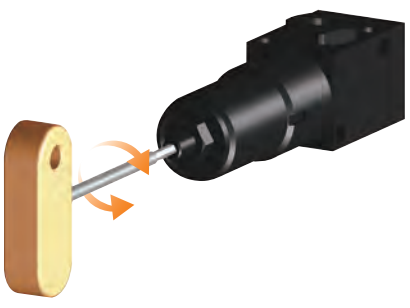
	Operation Sequence	Remarks
When clamping	Hydraulic pressure is ON.	
	Supply hydraulic pressure to actuator ① and ②.	
	Raise the pressure up to the outgoing side set pressure.	
	The valve of reducing valve closes and then supply the outgoing side set pressure to actuator ①.	There is differential pressure between outgoing side pressure and incoming side pressure (please refer to specification).
	The pressure going into actuator ② raise up to the original pressure and lock completes.	
	Machining process	
When releasing	Hydraulic pressure is OFF.	
	The actuators ①,② are released at the same time.	When incoming side pressure reduces, check valve of reducing valve opens.
	Release action completed.	

Adjustable Set Pressure

Set hydraulic pressure can be changed per one turn. (MPa/Rev)

Model No.	BM5020-0□□	BM5030-0□□	BM5050-0□□	BM5070-0□□
Set Pressure per One Turn (Reference)	0.4～0.5	0.8～0.9	1.9～2.2	3.2～3.7

Model No.	BMG2030-0G	BMG2050-0G	BMG2070-0G
Set Pressure per One Turn (Reference)	0.3	1.2	3.8



Notes
1. The set pressure value is set according to the model code.
2. The value varies depending on the incoming port pressure.
3. Pressure increases by turning clockwise and decreases by turning anti-clockwise.

Model No. Indication

BM50 3 0 - 0 G (5-25MPa)

1 2 3 4

1 Outgoing Side Set Pressure

2: 2.0 ～ 4.0MPa
3: 3.0 ～ 7.0MPa
5: 7.0 ～ 14.0MPa
7: 14.0 ～ 20.0MPa

2 Design No.

0 : Revision Number

3 Piping Method

Blank : Piping Option (Rc-1/4 Thread)
G : Gasket Option
K : BK Valve Connecting Option (Rc1/4 Thread in Outgoing Port) ※1

Notes ※1. Please refer to BK page for the information of K (BK Stack Model).
Please contact us for the detail of dimensions.

4 Set Pressure (Outgoing Set Pressure - Incoming Supply Pressure)

Please indicate the set pressure when ordering.
(Please inform us with proper unit symbols.)

※ 1 Allowable minimum pressure difference shows the minimum difference between incoming and outgoing pressure.

Entry Example

Outgoing：5MPa Incoming：25MPa Setting → **(5.0-25.0MPa)**
Outgoing：725PSI Incoming：3625PSI Setting → **(725-3625PSI)**

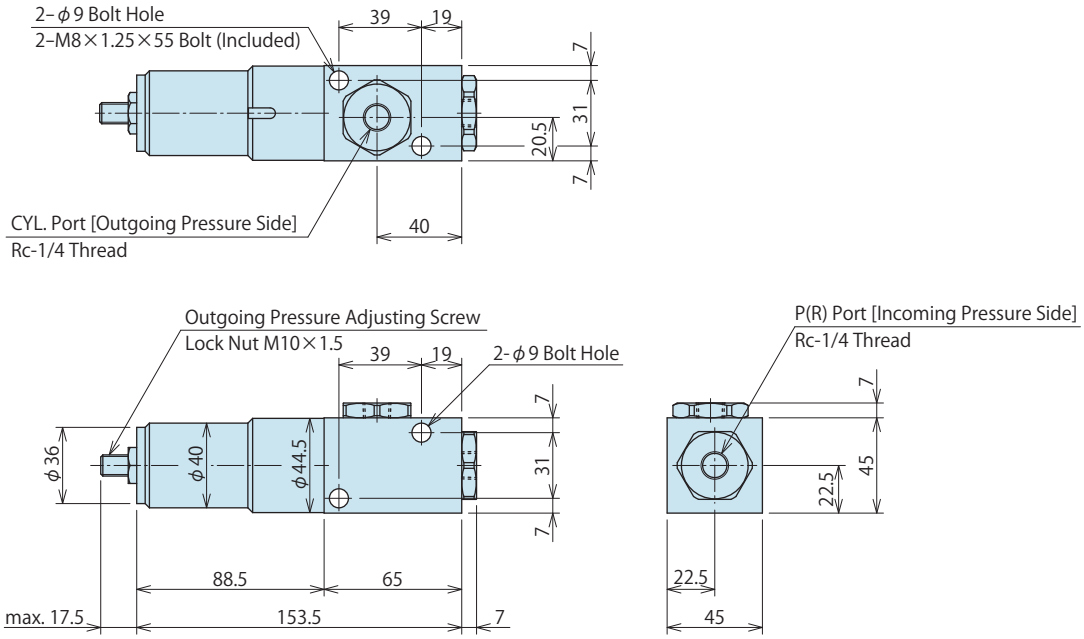
Specifications

Model No.	BM5020-0□□	BM5030-0□□	BM5050-0□□	BM5070-0□□
Incoming Supply Pressure MPa	3.5 ～ 7.0	6.0 ～ 30.0	10.0 ～ 30.0	17.0 ～ 30.0
Outgoing Set Pressure MPa	2.0 ～ 4.0	3.0 ～ 7.0	7.0 ～ 14.0	14.0 ～ 20.0
Allowable Minimum Pressure Difference ※2 MPa	1.5	3.0	3.0	3.0
Withstanding Pressure MPa	10.5	37.5	37.5	37.5
Min. Passage Area mm^2	9.4			
Operating Temperature ℃	0 ～ 70			
Usable Fluid	General Hydraulic Oil Equivalent to ISO-VG-32			
Mass kg	1.7			

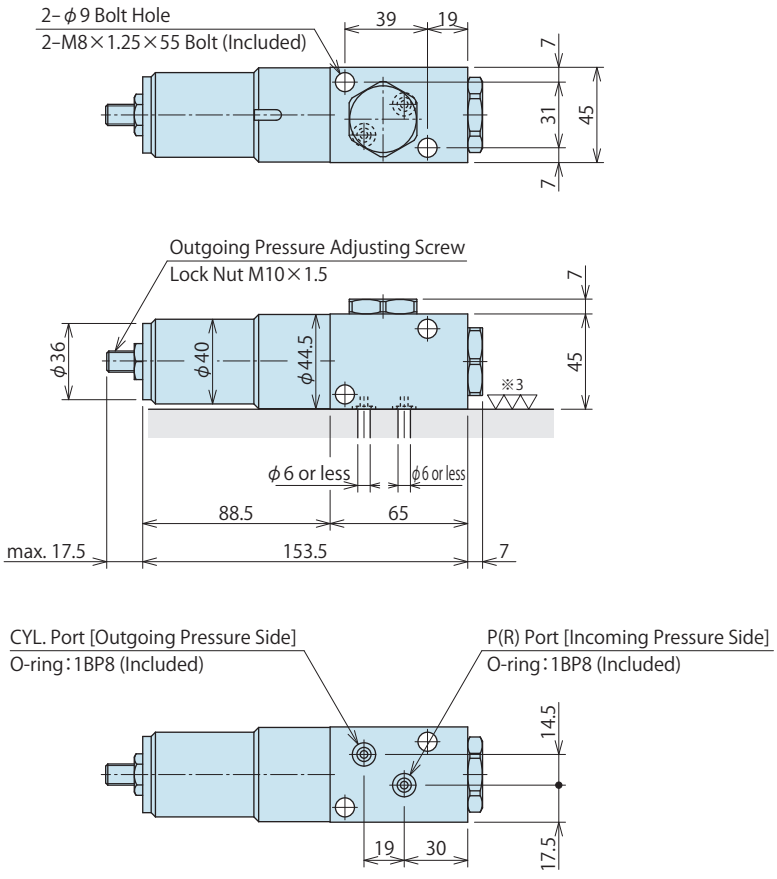
Note ※2. Allowable minimum pressure difference shows the minimum difference between incoming and outgoing pressure.

External Dimensions

BM50□0-0□ ※ This drawing shows piping method (blank) :piping option



BM50□0-0G□ ※ This drawing shows piping method (G): gasket option.



Note

※3. Roughness of mounting surface (O-ring seal surface) should be 6.3S or less.

Model No. Indication

BMG20 5 0 - 0 G (5-25MPa)

1 2 3 4

1 Outgoing Side Set Pressure

3: 1.0 ～ 6.0MPa

5: 3.0 ～ 14.0MPa

7: 6.0 ～ 27.0MPa

2 Design No.

0 : Revision Number

3 Piping Method ※1

G : Gasket Option

Note ※1. Only G (Gasket Option) is available for BMG.
Select BM if connecting with couplers etc.

4 Set Pressure (Outgoing Set Pressure - Incoming Supply Pressure)

Please indicate the set pressure when ordering.
(Please inform us with proper unit symbols.)

※ Allowable minimum pressure difference shows the minimum difference between incoming and outgoing pressure.

Entry Example

Outgoing：5MPa Incoming：25MPa Setting → **(5.0-25.0MPa)**

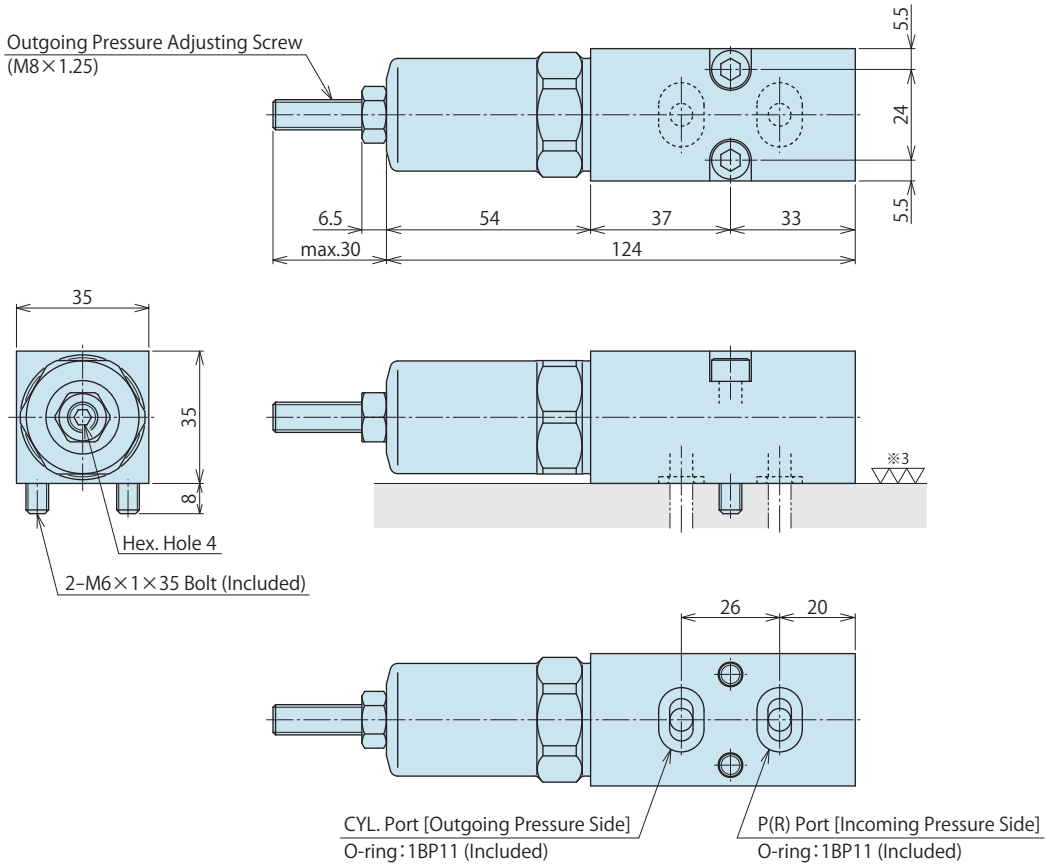
Outgoing：725PSI Incoming：3625PSI Setting → **(725-3625PSI)**

Specifications

Model No.	BMG2030-0G	BMG2050-0G	BMG2070-0G
Incoming Supply Pressure MPa	2.0 ～ 7.0	6.0 ～ 30.0	9.0 ～ 30.0
Outgoing Set Pressure MPa	1.0 ～ 6.0	3.0 ～ 14.0	6.0 ～ 27.0
Allowable Minimum Pressure Difference ※2 MPa	1.0	3.0	3.0
Withstanding Pressure MPa	10.5	37.5	37.5
Min. Passage Area mm^2	23.3		
Operating Temperature ℃	0 ～ 70		
Usable Fluid	General Hydraulic Oil Equivalent to ISO-VG-32		
Mass kg	0.8		

Note ※2. Allowable minimum pressure difference shows the minimum difference between incoming and outgoing pressure.

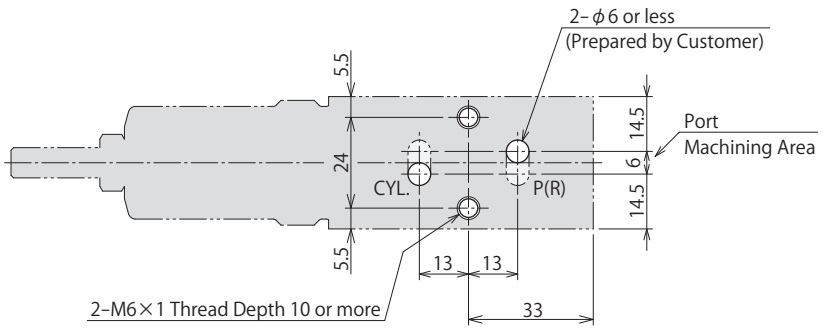
External Dimensions



Note

※3. Roughness of mounting surface (O ring seal surface) should be 6.3S or less.

Mounting Part Machining Drawing



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.

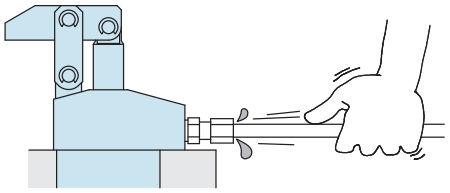
3) Applying Sealing Tape

- 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.

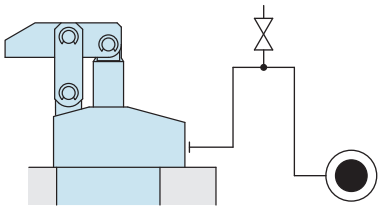
4) Air Bleeding of the Hydraulic Circuit

- 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

ISO Viscosity Grade ISO-VG-32

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

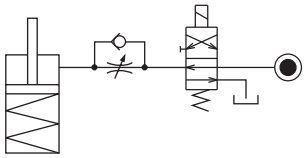
Note As it may be difficult to purchase the products as shown in the table from overseas, please contact the respective manufacturer.

Notes on Hydraulic Cylinder Speed Control Unit

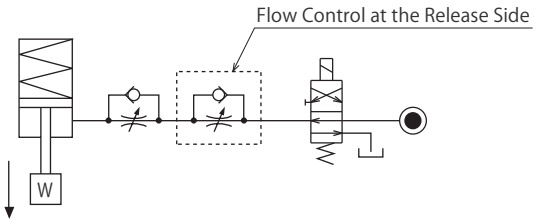
Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

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.



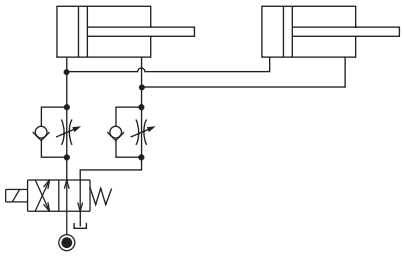
Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow. (Please add flow control to release flow if the lever weight is put on at the time of release action when using swing clamps.)



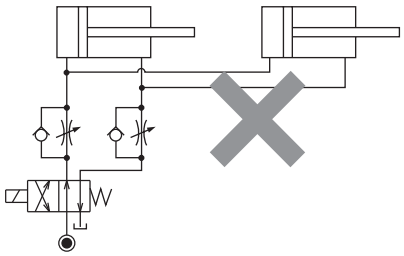
Flow Control Circuit for Double Acting Cylinder

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.47 for speed adjustment of LKE.
For TMA and TLA, if meter-out circuit is used, abnormal high pressure is created, which causes oil leakage and damage.

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

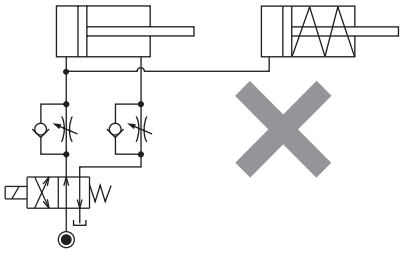


【Meter-in Circuit】(LKE/TMA/TLA must be controlled with meter-in.)



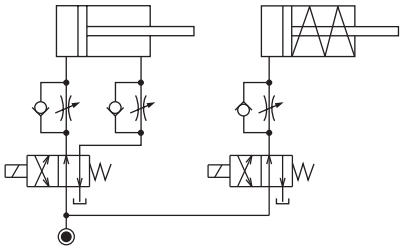
In the case of meter-out circuit, the hydraulic circuit should be designed with the following points.

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

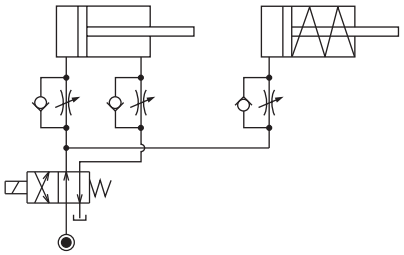


Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together.

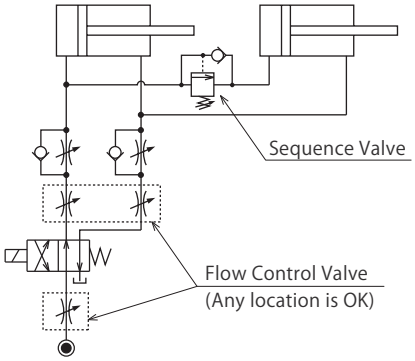
○ Separate the control circuit.



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



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



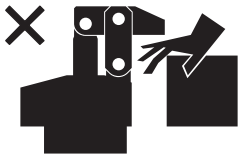
Cautions

Notes on Handling

1) It should be 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 clamps (cylinder) while clamps (cylinder) is working. Otherwise, your hands may be injured due to clinching.

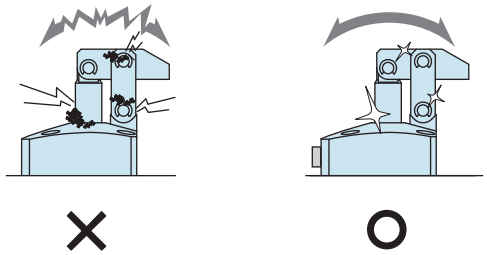


4) Do not disassemble or modify.
- If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

Maintenance and Inspection

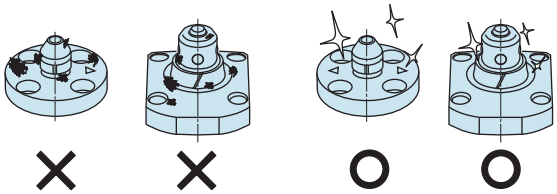
1) Removal of the Machine and Shut-off of Pressure Source
- Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
- Make sure there is no abnormality in the 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/VL/VM/VJ/VK/WVS/WM/WK/VX/VXF)

- Location products, except VX/VXF model, can remove contaminants with cleaning functions.
  When installing pallets makes 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.

Sales Offices

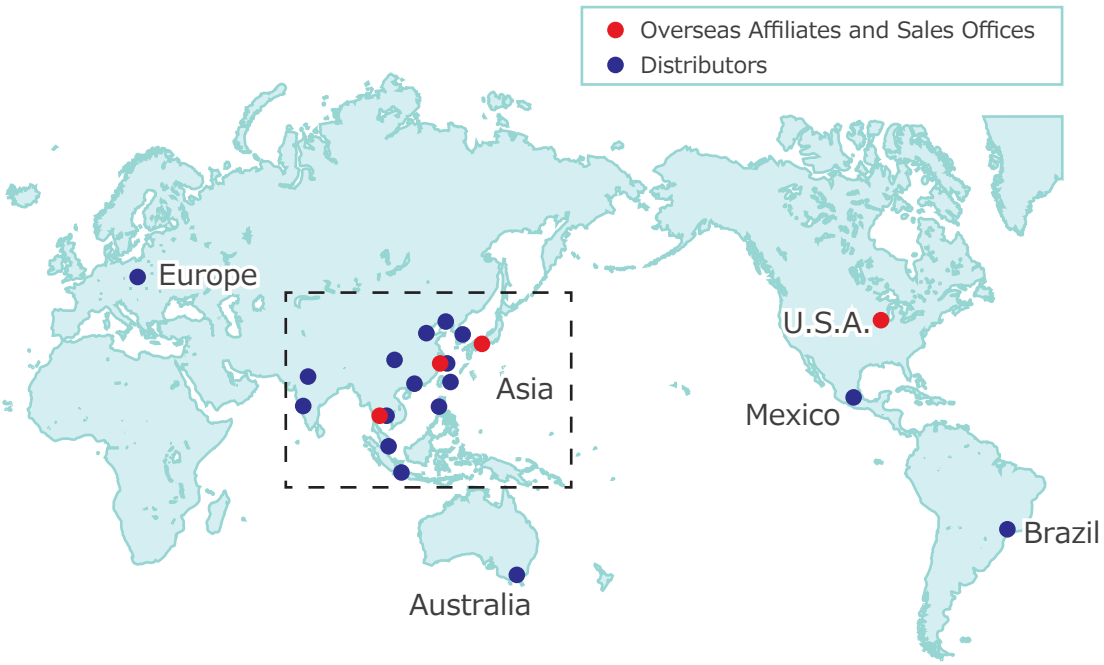
Sales Offices across the World

Japan Overseas Sales	**TEL. +81-78-991-5162**	FAX. +81-78-991-8787 KOSMEK LTD. 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan 651-2241 〒651-2241　兵庫県神戸市西区室谷2丁目1番5号
USA KOSMEK（USA）LTD.	**TEL. +1-630-241-3465**	FAX. +1-630-241-3834 1441 Branding Avenue, Suite 110, Downers Grove, IL 60515 USA
China KOSMEK（CHINA）LTD. 考世美(上海)貿易有限公司	**TEL.+86-21-54253000**	FAX.+86-21-54253709 21/F, Orient International Technology Building, No.58, Xiangchen Rd, Pudong Shanghai 200122., P.R.China 中国上海市浦东新区向城路58号东方国际科技大厦21F室 200122
Thailand Thailand Representative Office	**TEL. +66-2-715-3450**	FAX. +66-2-715-3453 67 Soi 58, RAMA 9 Rd., Suanluang, Suanluang, Bangkok 10250, Thailand
Taiwan (Taiwan Exclusive Distributor) Full Life Trading Co., Ltd. 盈生貿易有限公司	**TEL. +886-2-82261860**	FAX. +886-2-82261890 16F-4, No.2, Jian Ba Rd., Zhonghe District, New Taipei City Taiwan 23511 台湾新北市中和區建八路2號 16F－4（遠東世紀廣場）
Philippines (Philippines Exclusive Distributor) G.E.T. Inc, Phil.	**TEL.+63-2-310-7286**	FAX. +63-2-310-7286 Victoria Wave Special Economic Zone Mt. Apo Building, Brgy. 186, North Caloocan City, Metro Manila, Philippines 1427
Europe (Europe Exclusive Distributor) KOS-MECH GmbH	**TEL. +43-463-287587-10**	FAX. +43-463-287587-20 Schleppeplatz 2 9020 Klagenfurt Austria
Indonesia (Indonesia Exclusive Distributor) P.T PANDU HYDRO PNEUMATICS	**TEL. +62-21-5818632**	FAX. +62-21-5814857 Ruko Green Garden Blok Z-Ⅱ No.51 Rt.005 Rw.008 Kedoya Utara-Kebon Jeruk Jakarta Barat 11520 Indonesia

Sales Offices in Japan

Head Office Osaka Sales Office Overseas Sales	**TEL.078-991-5115**	FAX.078-991-8787 〒651-2241　兵庫県神戸市西区室谷2丁目1番5号
Tokyo Sales Office	**TEL.048-652-8839**	FAX.048-652-8828 〒331-0815　埼玉県さいたま市北区大成町4丁目81番地
Nagoya Sales Office	**TEL.0566-74-8778**	FAX.0566-74-8808 〒446-0076　愛知県安城市美園町2丁目10番地1
Fukuoka Sales Office	**TEL.092-433-0424**	FAX.092-433-0426 〒812-0006　福岡県福岡市博多区上牟田1丁目8-10-101

Global Network



Asia Detailed Map

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