Hydraulic Unit

5ℓ / 10ℓ Tank

Model CPB /CPD/CPC/CPE
Model CQC/CQE

Converts Factory Compressed Air into Hydraulic Pressure.

Compact Hydraulic Unit Composed of Pump, Non-Leak Valve, Pressure Relief Valve, Pressure Switch and Oil Tank

Applicable Product Models

GA GD GBB GBC GBE GBF GBP GBQ GHA
RA RQA

- **Energy Saving**

  The pump drives (consumes the air pressure) only during pressurization. After the pressurization, air pressure and hydraulic pressure reach equilibrium and the pump stops.
  Air consumption is zero after the pressurization is completed.

- **Maintains Hydraulic Pressure with Non-Leak Valve**

  Non-leak valve (BA valve) maintains hydraulic pressure even when air supply is stopped. This prevents a die fall.

- **Maintains Set Pressure with Pressure Relief Valve** ※ Only when selecting the pressure relief valve.

  Set pressure: 25MPa is maintained by Pressure Relief Valve (BR valve) even when hydraulic pressure increases during press machine operation.

- **Pressure Supply when Hydraulic Pressure Decreases**

  The pump drives and supplies pressure when the hydraulic pressure in the circuit decreases because of temperature reduction etc. This ensures a constant clamping force.

- **A Wide Range of Variations**

  Select a tank from 5ℓ and 10ℓ and a pump from four variations for the most suitable hydraulic unit according to the clamp system.

Model No. Indication

C P B M 0 0 0 - 2GH - 1 - ☐

1 2 3 4 5 6 7 8

1 Unit

P : For Small/Medium Clamp (5ℓ Tank)
Q : For Large Clamp (10ℓ Tank)

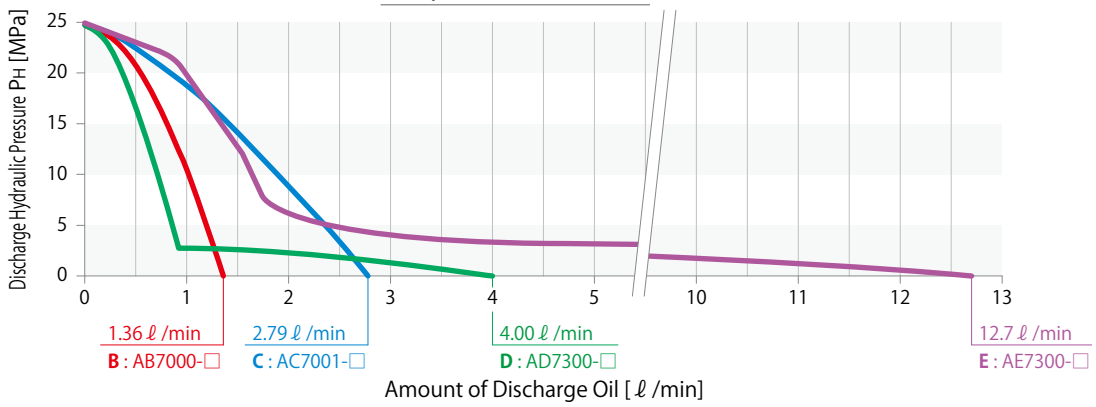
Notes :
1. Only 2 Pump Model **C** : AC pump and **E** : AE pump can be installed on **Q** : For Large Clamp Unit (10ℓ Tank).
2. Please refer to Model CP/CR (P.071) for 2ℓ Tank.

2 Pump Model

B : AB Pump
D : AD Pump
C : AC Pump
E : AE Pump

Note :
1. **B** : AB Pump and **D** : AD Pump can be selected only when selecting 1 Unit **P** : For Small/Medium Clamp (5ℓ Tank).

Pump Performance Curve



3 Pressure Code

M : Working Pressure 25MPa, Pressure Switch Set Pressure INC. 17.6MPa, DEC. 2.94MPa
N : Working Pressure 25MPa, Pressure Switch Set Pressure INC. 17.6MPa, DEC. 2.94MPa with Pressure Relief Valve ※1

4 Fluid Code

0 : General Hydraulic Oil
G : Water•Glycol (Iron Tank)
S : Silicon Oil
F : Fatty Acid Ester

5 Design No.

0 : Revision Number

6 Circuit Symbol (Indicate with the number of circuits and circuit symbol.)

G : For Clamp Single Solenoid Valve
H : For Die Lifter Single Solenoid Valve
PP : For Double-Acting Clamp Double Solenoid Valve (2 stations)
R : With Pressure Relief Valve ※1

Notes : ※1. Select the hydraulic unit with pressure relief valve when using hydraulic clamps under high temperature or large temperature change since there may be pressure fluctuation caused by temperature change.
1. For **R** : Pressure Relief Valve 3 Pressure Code is "**N**".

7 Voltage Code

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

8 Option

Blank : Standard
C : +Common
D : Digital Pressure Sensor
E : Without Filter Regulator
F : Manual-Drain Filter Regulator
G : With Primary Pressure Gauge
H : With Piping Block on the Left
J : With Air Regulator
K0 : With Pressure Gauge for Each Circuit (Without Primary Pressure Gauge)
K1 : With Color Displayed Pressure Gauge for Each Circuit (Without Primary Pressure Gauge)
KG0 : With Pressure Gauge for Each Circuit (With Primary Pressure Gauge)
KG1 : With Color Displayed Pressure Gauge for Each Circuit (With Primary Pressure Gauge)
L : With Pressure Switch Light
N : Piping Port NPT Thread, Pressure Gauge in both PSI/MPa ※2
P : Pressure Gauge in both PSI/MPa
Q0 : With Oil Level Switch (ON when Oil Level Drops)
Q1 : With Oil Level Switch (OFF when Oil Level Drops)
T : Iron Tank (CP☐☐: only 5ℓ tank can be selected.) ※3

Notes:
※2. When selecting 8 Option N : Piping Port NPT Thread, dimensions in the specification sheet and other documents are in inches.
※3. Iron Tank is the standard option for CQ☐: 10ℓ Tank.
1. Please contact us for specifications and external dimensions for these options.
2. The external dimensions for five circuits and six circuits are different. Please contact us for detail.

Specifications

Model No.			CPBM	CPBN	CPDM	CPDN	CPCM	CPCN	CPEM	CPEN	CQCM	CQCN	CQEM	CQEN
Working Hydraulic Pressure		MPa	25											
Withstanding Pressure		MPa	37											
Tank Capacity		ℓ	5 ℓ (Actual Amount for Use 3.7 ℓ : H.L.5 ℓ -L.L.1.3 ℓ) ※1								10 ℓ (Actual Amount for Use 7 ℓ : H.L.10 ℓ -L.L.3 ℓ)			
Operating Temperature		℃	0 ~ 70											
Use Frequency			20 Cycles / Day or less Pressure Rising Time : Less than 2.5 min. / Cycle											
Main Components	Pump	Model No.	AB7000-□		AD7300-□		AC7001-□		AE7300-□		AC7001-□		AE7300-□	
		Set Discharge Pressure MPa	25	22.5	25	22.5	25	22.5	25	22.5	25	22.5	25	22.5
		Discharge Oil under No Load ℓ/min	1.36	1.32	4.00	3.74	2.79	2.70	12.7	12.5	2.79	2.70	12.7	12.5
		Set Air Pressure MPa	0.45	0.41	0.45	0.41	0.47	0.43	0.47	0.43	0.47	0.43	0.47	0.43
		Air Consumption m^3(normal)/min	max. 0.4		max. 0.4		max. 1.0		max. 1.0		max. 1.0		max. 1.0	
	Suction Filter	Model No.	JF1030		JF1030		JF1030		JF1040		JF1030		JF1040	
		Filtration Degree	174 μm (100 Mesh)											
	Non-Leak Valve	Model No.	BA5011-0	BA5011-0 BA5R11-0	BA5011-0	BA5011-0 BA5R11-0	BA5011-0	BA5011-0 BA5R11-0	BA5011-0 -Z00101	BA5011-0 -Z00101 BA5R11-0 -Z00102	BA5001-0	BA5001-0 BA5R01-0	BA5001-0 -Z00107	BA5001-0 -Z00107 BA5R01-0 -Z00108
	Pressure Switch (For Clamp)	Model No.	JBA2700-0G											
		Operation Mode/Set Pressure MPa	Pressure Increase Detection / INC. 17.6											
	Pressure Switch (For Die Lifter)	Model No.	JBA0700-0G											
		Operation Mode/Set Pressure MPa	Pressure Decrease Detection / DEC. 2.94											
	Pressure Relief Valve	Model No.	-	BR5N11-0	-	BR5N11-0	-	BR5N11-0	-	BR5N11-0	-	BR5N11-0	-	BR5N11-0
		Set Pressure MPa	-	25^{+2}_{0}	-	25^{+2}_{0}	-	25^{+2}_{0}	-	25^{+2}_{0}	-	25^{+2}_{0}	-	25^{+2}_{0}

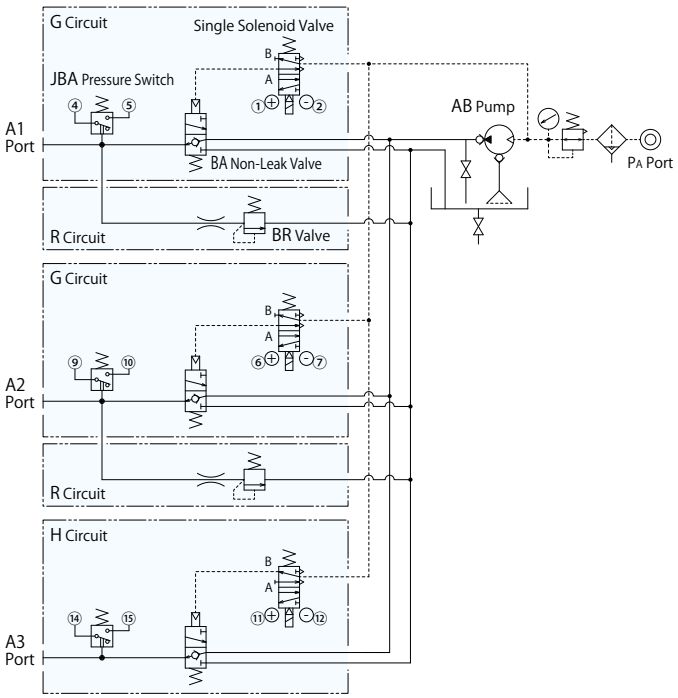
Notes:

※1. Iron Tank Capacity is 5 ℓ (Actual Amount for Use 2.9 ℓ : H.L. 5.1 ℓ -L.L. 2.2 ℓ).

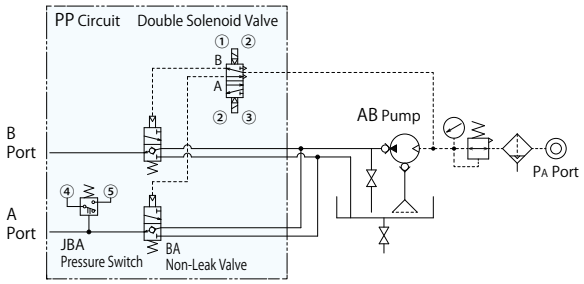
1. If hydraulic viscosity is higher than specified, action time will be longer. Please use equivalent hydraulic oil to ISO-VG-32.
2. If using it at low temperature, action time will be longer because the viscosity of hydraulic oil becomes higher.
3. When setting a pressure gauge to a hydraulic circuit, install a damper or use an oil-filled (glycerin) pressure gauge in order to prevent damage caused by pressure surging.
4. Provide enough space at the top of the unit taking into consideration the maintenance of the pump.

Circuit Symbol

● Circuit symbol in case of CPBN0□0-2GRH-5.



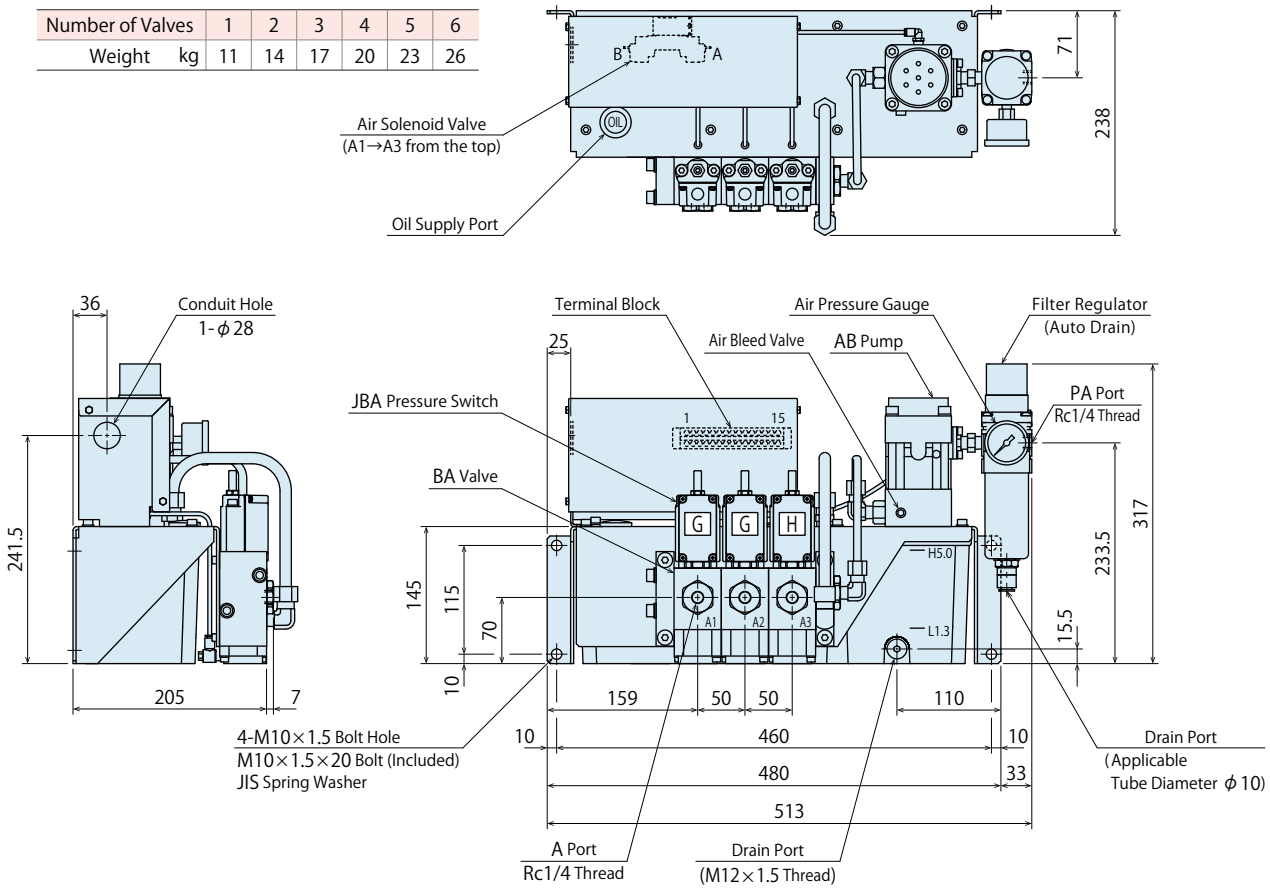
● Circuit symbol in case of CPBN0□0-PP-5.



External Dimensions : CPB

※ This drawing shows CPBM000-2GH standard model.
Please contact us for external dimensions for options.

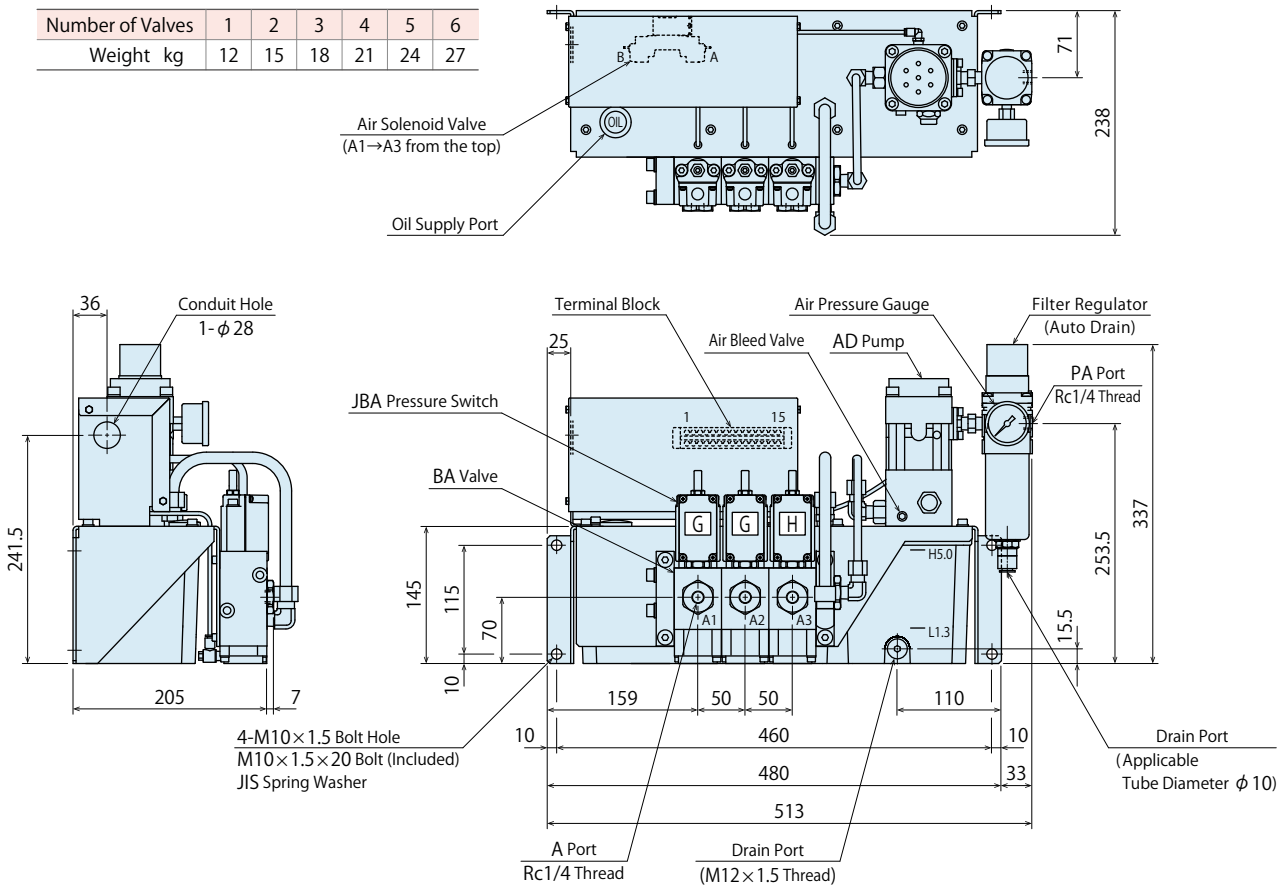
Number of Valves	1	2	3	4	5	6
Weight kg	11	14	17	20	23	26



External Dimensions : CPD

※ This drawing shows CPDM000-2GH standard model.
Please contact us for external dimensions for options.

Number of Valves	1	2	3	4	5	6
Weight kg	12	15	18	21	24	27



Cautions

Installation Notes (Cautions for Hydraulic Series)

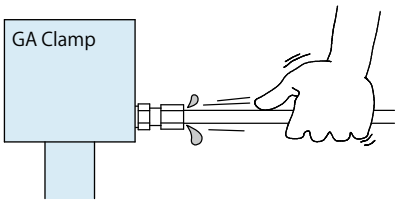
1) Check the Usable Fluid
- Please use the appropriate fluid by referring to the Hydraulic Fluid List.
- If viscosity grade of hydraulic oil is higher than ISO-VG-32, action time becomes longer.
- If using it at low temperature, action time will be longer because the viscosity of hydraulic oil becomes higher.

2) Procedure before Piping
- Pipelines, piping connectors and others should be cleaned by thorough flushing.
- Dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
- Our products except some valves are not equipped with protective function that prevents contamination.

3) Applying Sealing Tape
- Wrap with tape 1 to 2 times following the screw direction.
- Pieces of the sealing tape can lead to fluid 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.

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

Hydraulic Fluid List

ISO Viscosity Grade ISO-VG-32

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

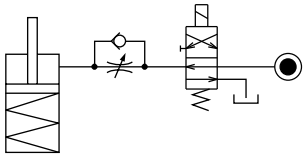
Note : Please contact manufacturers when customers require products in the list above.

Notes on Hydraulic Cylinder Speed Control Unit

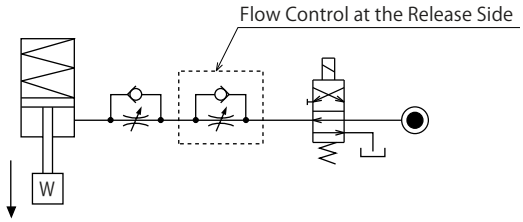
Please pay attention to the cautions below. Design the hydraulic circuit for controlling the action speed of hydraulic cylinder. Improper circuit design may lead to malfunctions and damages. Please review the circuit design in advance.

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.



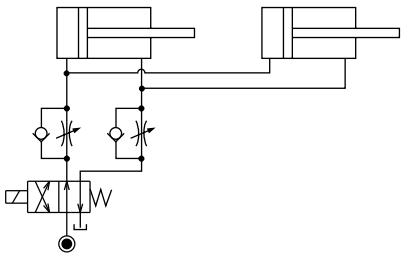
Accelerated clamping speed by excessive hydraulic flow to the cylinder may sustain damage. In this case add flow control to regulate flow.



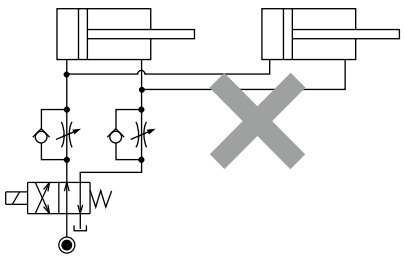
Flow Control Circuit for Double Acting Cylinder

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.

【Meter-out Circuit】

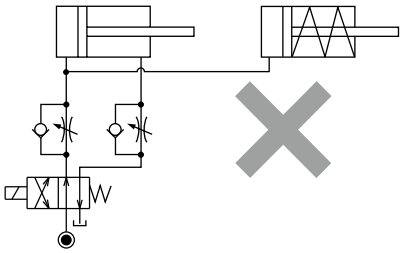


【Meter-in Circuit】



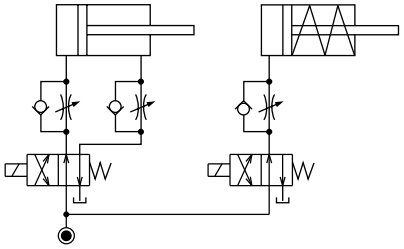
In the case of meter-out circuit, the hydraulic circuit should be designed with the following points.

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.

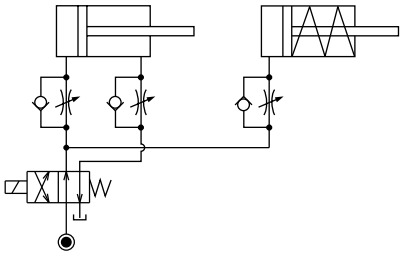


Refer to the following circuit when both the single acting cylinder and double acting cylinder are used together.

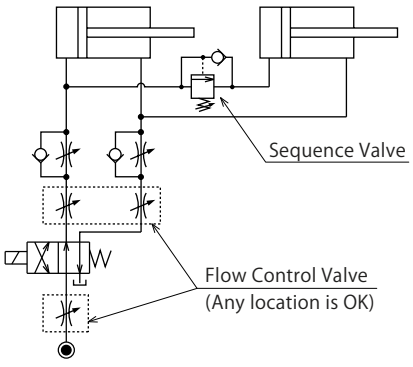
○ Separate the control circuit.



○ 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.



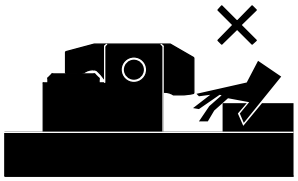
Cautions

Notes on Handling

1) It should be operated by qualified personnel.
- Hydraulic products, machines and devices 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 hydraulic and air 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.

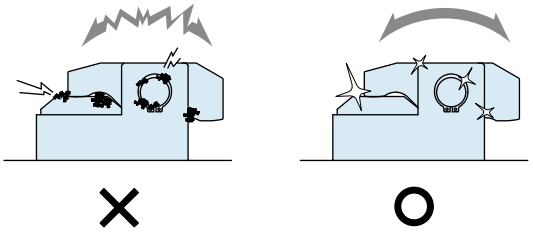


4) Do not disassemble or modify.
- If the product is taken apart or modified, the warranty will be voided even within the warranty period.

Maintenance・Inspection

1) Removal of the Product and Shut-off of Pressure Source
- Before removing the product, make sure that safety 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 product.
- If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning and fluid leakage.



3) If disconnecting by couplers, air bleeding should be carried out on a regular basis to avoid air mixed in the circuit.

4) Regularly tighten bolts, pipe line, mounting bolt, nut, snap ring, cylinder and others to ensure proper use.

5) Make sure the hydraulic fluid has not deteriorated.

6) Make sure there is a smooth action without an irregular noise.
- Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.

7) The products should be stored in the cool and dark place without direct sunshine or moisture.

8) Please contact us for overhaul and repair.

Warranty

1) Warranty Period

- The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.

2) Warranty Scope

- If the product is damaged or malfunctions during the warranty period due to faulty design, materials or workmanship, we will replace or repair the defective part at our expense.
  Defects or failures caused by the following are not covered.

① If the stipulated maintenance and inspection are not carried out.
② If the product is used while it is not suitable for use based on the operator's judgment, resulting in defect.
③ If it is used or operated in an inappropriate way by the operator. (Including damage caused by the misconduct of the third party.)
④ If the defect is caused by reasons other than our responsibility.
⑤ If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
⑥ Other caused by natural disasters or calamities not attributable to our company.
⑦ Parts or replacement expenses due to parts consumption and deterioration.
(Such as rubber, plastic, seal material and some electric components.)

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

Sales Offices

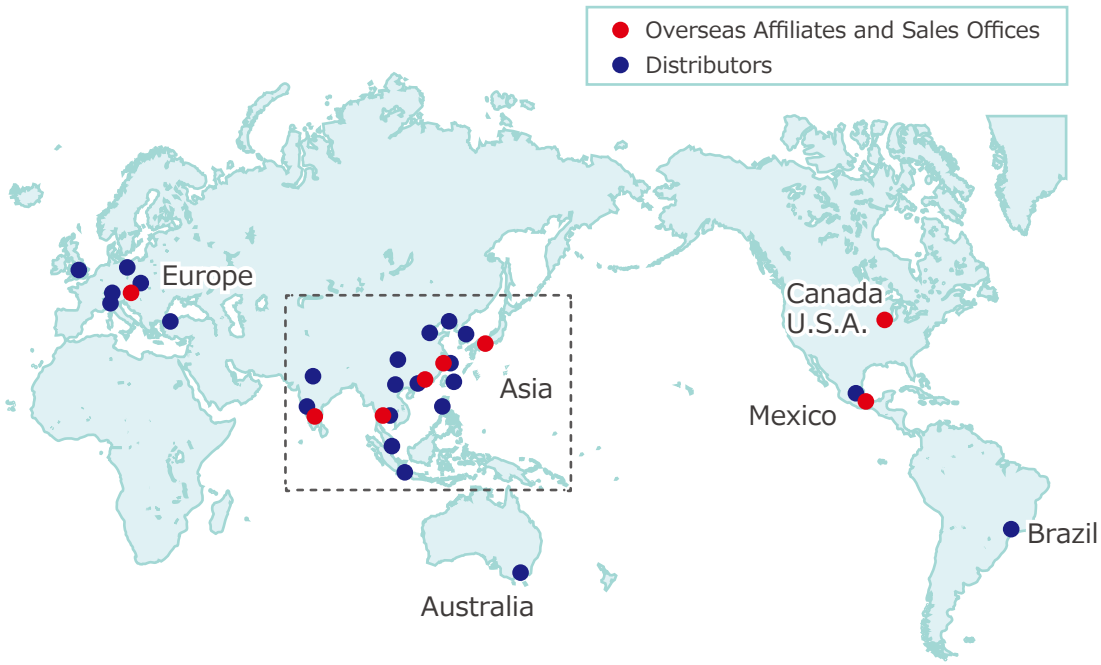
Sales Offices across the World

JAPAN HEAD OFFICE 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
United States of America SUBSIDIARY KOSMEK (USA) LTD.	**TEL. +1-630-620-7650**	FAX. +1-630-620-9015 650 Springer Drive, Lombard, IL 60148 USA
MEXICO REPRESENTATIVE OFFICE KOSMEK USA Mexico Office	**TEL. +52-442-161-2347**	Av. Santa Fe #103 int 59 Col. Santa Fe Juriquilla C.P. 76230 Queretaro, Qro Mexico
EUROPE SUBSIDIARY KOSMEK EUROPE GmbH	**TEL. +43-463-287587**	FAX. +43-463-287587-20 Schleppeplatz 2 9020 Klagenfurt am Wörthersee Austria
CHINA KOSMEK (CHINA) LTD. 考世美(上海)貿易有限公司	**TEL. +86-21-54253000**	FAX. +86-21-54253709 Room601, RIVERSIDE PYRAMID No.55, Lane21, Pusan Rd, Pudong Shanghai 200125, China 中国上海市浦东新区浦三路21弄55号银亿滨江中心601室 200125
INDIA BRANCH OFFICE KOSMEK LTD - INDIA	**TEL. +91-9880561695**	F 203, Level-2, First Floor, Prestige Center Point, Cunningham Road, Bangalore -560052 India
THAILAND REPRESENTATIVE OFFICE KOSMEK Thailand Representation Office	**TEL. +66-2-300-5132**	FAX. +66-2-300-5133 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
INDONESIA (Indonesia Exclusive Distributor) PT. Yamata Machinery	**TEL. +62-21-29628607**	FAX. +62-21-29628608 Delta Commercial Park I, Jl. Kenari Raya B-08, Desa Jayamukti, Kec. Cikarang Pusat Kab. Bekasi 17530 Indonesia

Sales Offices in Japan

Head Office Osaka Sales Office Overseas Sales	**TEL. 078-991-5162**	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

KOSMEK
Harmony in Innovation

● FOR FURTHER INFORMATION ON UNLISTED SPECIFICATIONS AND SIZES, PLEASE CALL US.
● SPECIFICATIONS IN THIS CATALOG ARE SUBJECT TO CHANGE WITHOUT NOTICE.

ISO 9001
JQA-QMA10823
KOSMEK HEAD OFFICE
JAB
CM009