KOSMEK WORK CLAMPING SYSTEMS

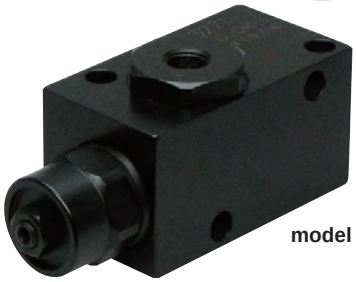
KWCS

New

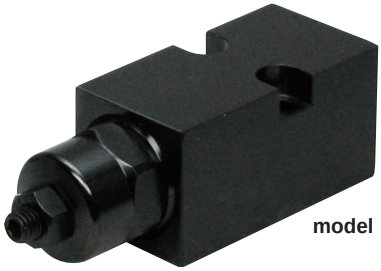
VALVE / ACCESSORIES

Non Leak Valve	model BK
Sequence Valve	model BLS/BLG
Pressure Balance Valve	model BLB
Non Leak Reducing Valve	model BM
Pressure Indicator	model JKA/JKB
Non Leak Booster Valve	model BU
Accumlator	model JSS
Non Leak Pilot Relief Valve	model BP
Reservoir	model JPB
Coupler Switch	model PS
Pressure Gauge	model JGA/JGB
Manifold Block	model JX

model **BK**

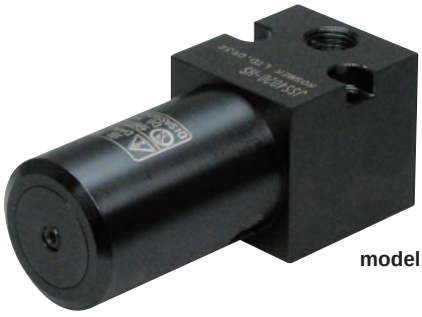


model **BLS**



model **BLG**

model **BM**

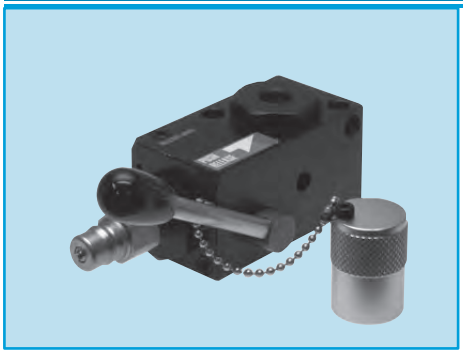


model **JSS**

KOSMEK

Harmony in Innovation

Non Leak Valve



EXPLANATION

Manual disconnect non leak check valve.
Maintains jig pressure when even disconnected from hydraulic source.

MODEL CODE

BK 2 2 1 3 – 0 GA
(1 2 3 4 5)

1 Port size
2 : equivalent to Rc1/4
3 : equivalent to Rc3/8 *1

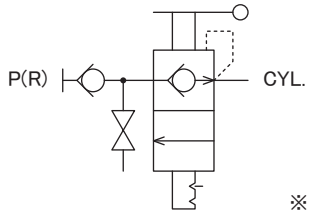
2 Operating pressure range
2 : 2.0～ 7.0 MPa
5 : 7.0～30.0 MPa

3 Handle position [See P(R) port side]
1 : Right handle (Standard)
2 : Left handle *1

4 Design No.

5 Piping type [See P(R) port side]
Blank : Piping type (Rc thread)
GA : Left side manifold type (Only for right handle) *1
GB : Bottom manifold type *1
GC : Right side manifold type (Only for left handle) *1
GS : BLS,BLB and BM valve stack option *1

CIRCUIT SYMBOLS



※ A filter is built in each port.

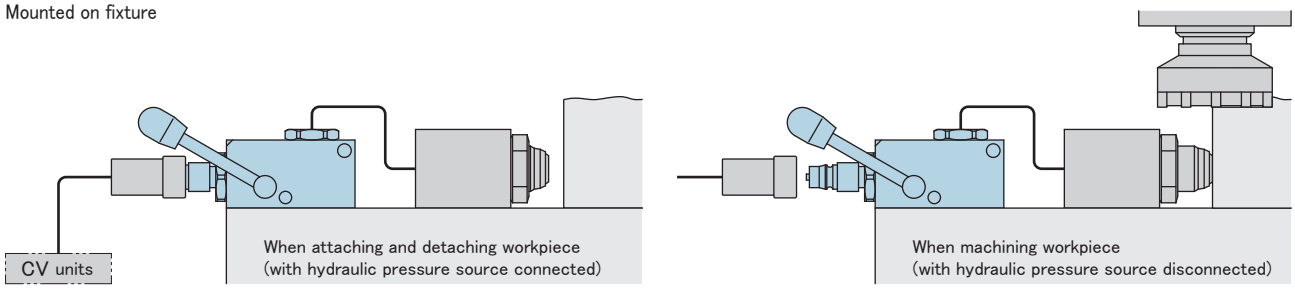
SPECIFICATIONS

Model		BK22□3	BK25□3	BK32□3
Operating pressure	MPa	2.0 ～ 7.0	7.0 ～ 30.0	2.0 ～ 7.0
Design pressure	MPa	10.5	37.5	10.5
Min. passage area	mm^2	17.0	14.2	30.0
Operating temperature	℃	0 ～ 70		
Fluid to be used		General hydraulic oil equivalent to ISO-VG-32		
Applicable coupler socket type*2		2HS	2HS	3HS
Weght	kg	1.4		

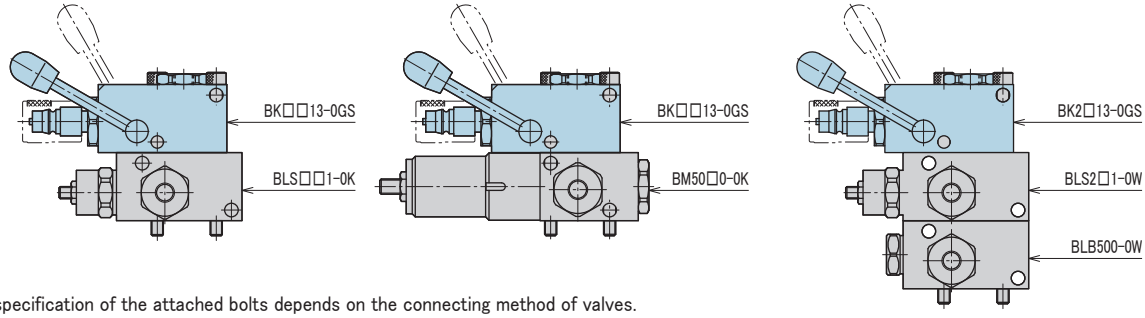
Remarks
*1. Produced after an order received.
If you place an order, ask delivery time in advance.
*2. Nitto Koki quick coupler.

APPLICATIONS

Mounted on fixture



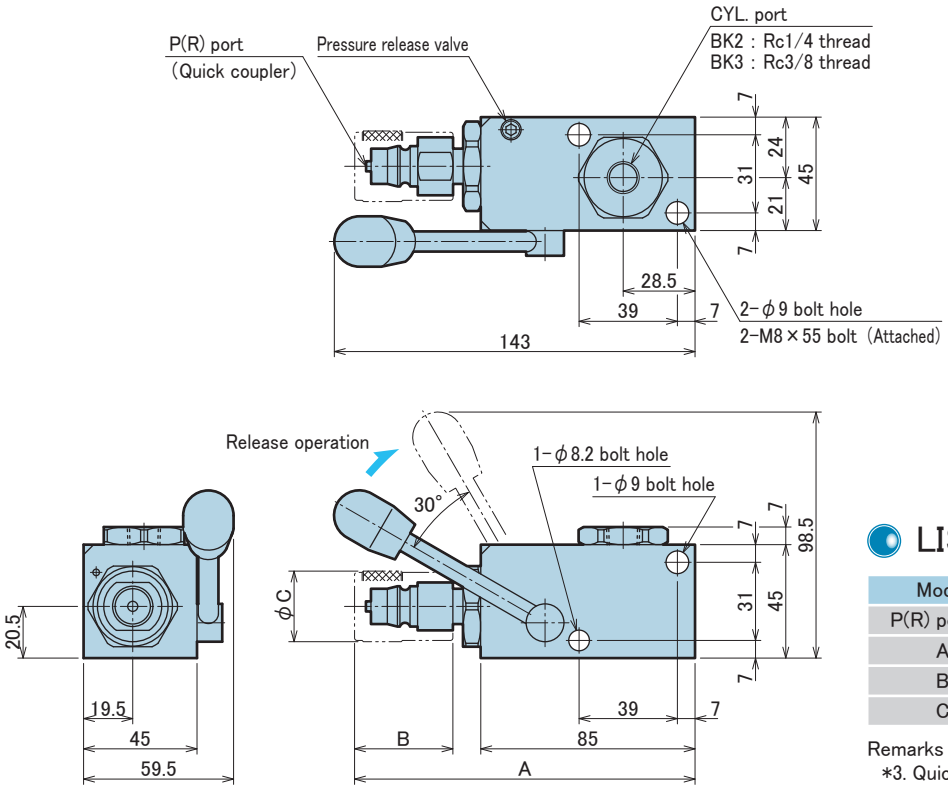
Combined type on valves (Combined with sequence / reducing valve)



※ The specification of the attached bolts depends on the connecting method of valves.

OUTLINE DIMENSIONS

BK□□13-0 ※ BK□□23-0 is identical but handle is on left side.



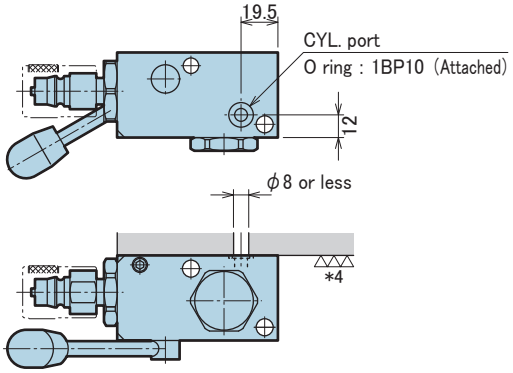
LIST OF DIMENSIONS

Model	BK2□13	BK3213
P(R) port *3	2HP	3HP
A	135	144
B	39	46
C	28	33

Remarks
*3. Quick coupler plug type is female by Nitto Koki.

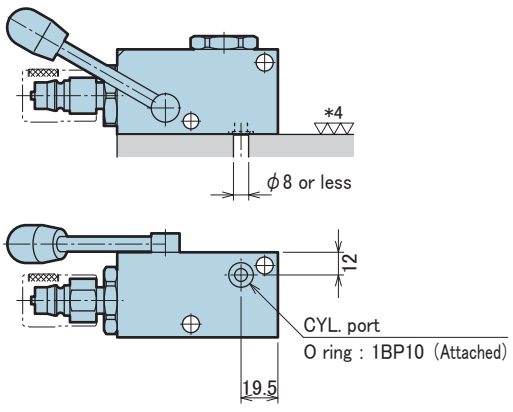
BK□□13-0GA

※ Please refer to BK□□13-0 for other dimensions.



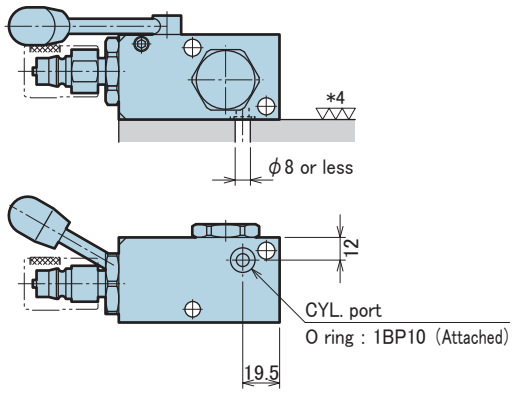
BK□□13-0GB

※ Please refer to BK□□13-0 for other dimensions.



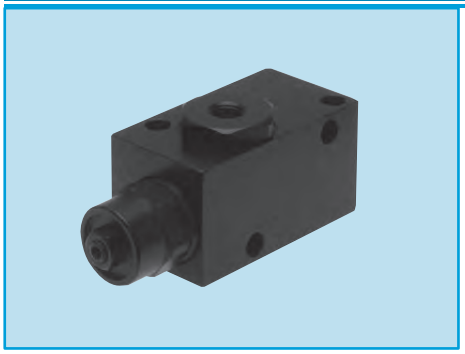
BK□□23-0GC

※ Please refer to BK□□13-0 for other dimensions.



Remarks
*4. Roughness of mounting surface (O ring seal surface) should be 6.3S or less.

Sequence Valve



EXPLANATION

Sequence valve operates multiple actuators in sequence to perform positioning and to prevent deformation.

MODEL CODE

BLS [2][5][1] – 0 [W] [(5.0MPa)]

[1] [2] [3] [4] [5]

1 Port size

2 : equivalent to Rc1/4
3 : equivalent to Rc3/8

2 Sequence operating pressure control range

3 : 1.0～ 4.0 MPa
5 : 3.0～ 8.0 MPa
7 : 8.0～ 20.0 MPa

3 Design No.

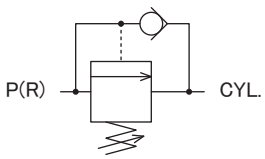
4 Piping type

Blank : Piping type(Rc thread)
G : Manifold type(O ring seals for P port) *1
J : Piping type(SAE thread)
K : BK connecting type(See 1 page) *1
W : BK and BLB valve stack option(See 1 page) *1 *2

5 Set pressure(Set value for sequence operaing pressure) *3 *4 *5

Example : (5.0MPa)(700PSI)

CIRCUIT SYMBOLS



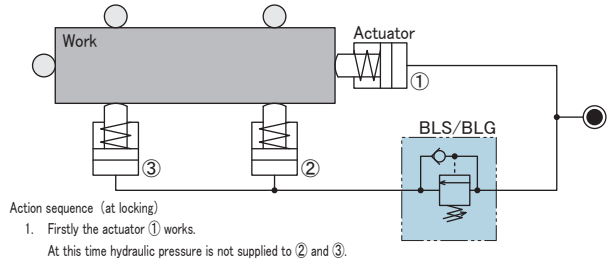
※ A filter is built in each port.

SPECIFICATIONS

Model		BLS□31	BLS□51	BLS□71
Actuating pressure range	MPa	1.0 ～ 4.0	3.0 ～ 8.0	8.0 ～ 20.0
Operating pressure	MPa	2.0 ～ 30.0		
Design pressure	MPa	37.5		
Adjusting screw turn ratio	MPa/Rev	0.7	1.0	2.6
Cracking pressure	MPa	0.01		
Min. passage area	mm^2	P(R)→CYL. : 7 / CYL.→P(R) : 27		
Operating temperature	℃	0 ～ 70		
Fluid to be used		General hydraulic oil equivalent to ISO-VG-32		
Weight	kg	1.2		

Remarks
*1. Produced after an order received.
If you place an order, ask delivery time in advance.
*2. W option only available with 1/4 port.
*3. Write the set pressure accurately including unit.
*4. Provide difference of more than 1MPa between operating and setting pressure.
*5. When using a number of BLS sequence valve in parallel, provide each set pressure with a pressure difference more than 1MPa.
1. If the flow volume of primary pressure side is too large, there is the possibility that the proper sequential peocedures would not work.
In this instance, use a flow control valve to adjust flow volume from the pressure source.

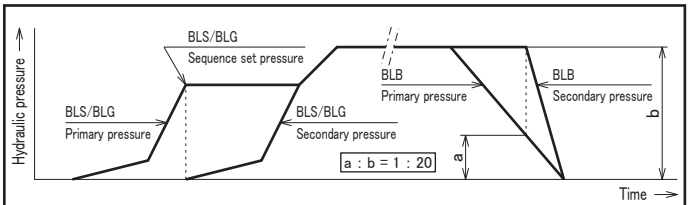
APPLICATIONS



Action sequence (at locking)
1. Firstly the actuator ① works.
At this time hydraulic pressure is not supplied to ② and ③.
2. When the pressure exceeds the set pressure of BLS, hydraulic pressure is supplied to ② and ③ to start the action.

Action sequence (at release)
1. When hydraulic pressure supply is shut off, the actuators ①,② and ③ are released at the same time.

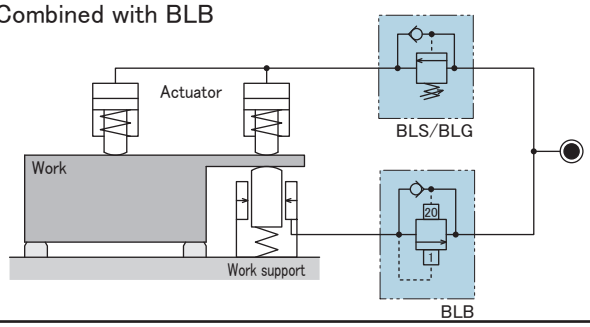
PERFORMANCE DESCRIPTION



BLS/BLG
When the P port (primary pressure) is pressurized to exceed the set up pressure of BLS and the valve is opened, then hydraulic pressure is supplied to the cylinder port (secondary pressure).

BLB
When the P port (primary pressure) is reduced to approximately 1/20 times the cylinder port (secondary pressure), reduction of the secondary pressure starts and the secondary pressure is reduced in proportion to the primary pressure.

Combined with BLB

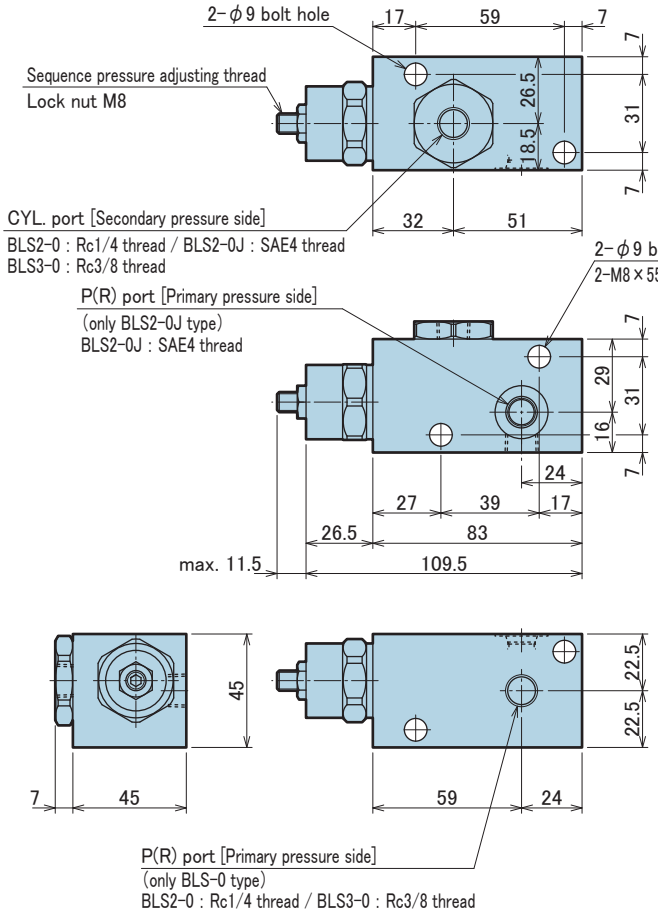


Action sequence (at locking)
1. Supply hydraulic pressure.
2. Hydraulic pressure that has passed BLB starts the support action of Work Support.
At this time, hydraulic pressure does not reach the actuator side because of BLS.
3. When hydraulic pressure inside the system has exceeded the set pressure of BLS, the hydraulic pressure is supplied to the actuator to lock a workpiece.

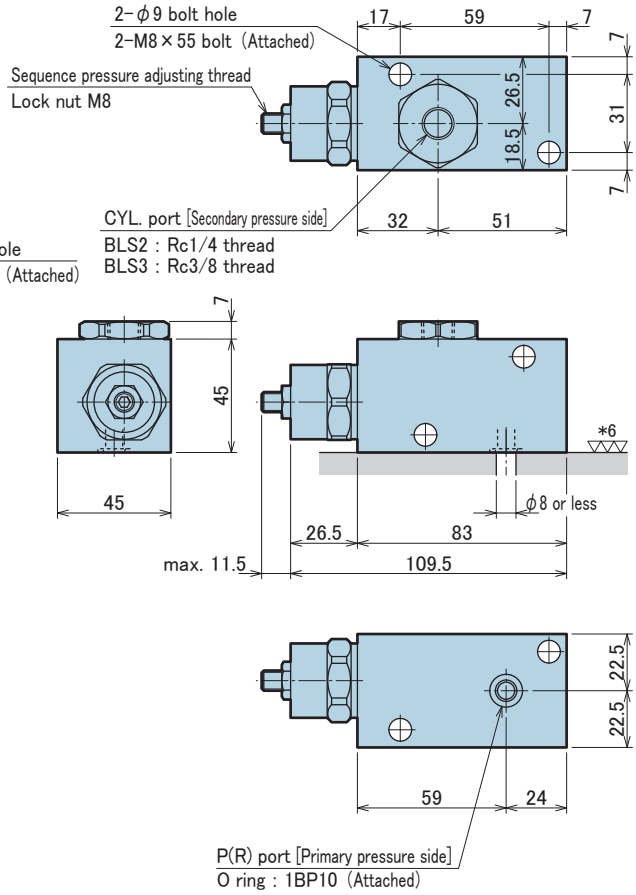
Action sequence (at release)
1. Shut off hydraulic pressure supply.
2. Pressure reduction of BLS starts right after the hydraulic pressure supply is shut off, and the actuator retracts to release the pressure.
3. BLB reduces hydraulic pressure inside Work Support in proportion to the pressure difference (1:20) between the primary side (P port) pressure drop and the secondary side (cylinder port) pressure. Therefore workpiece breakage and jig damage due to the remaining pressure can be prevented because the workpiece is released after the actuator thrust becomes zero.

OUTLINE DIMENSIONS

BLS□□1-0 / BLS□□1-0J

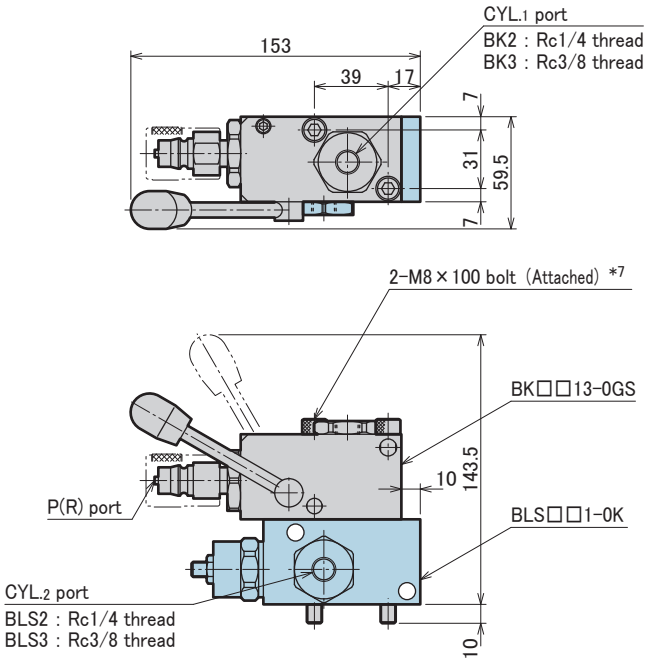


BLS□□1-0G



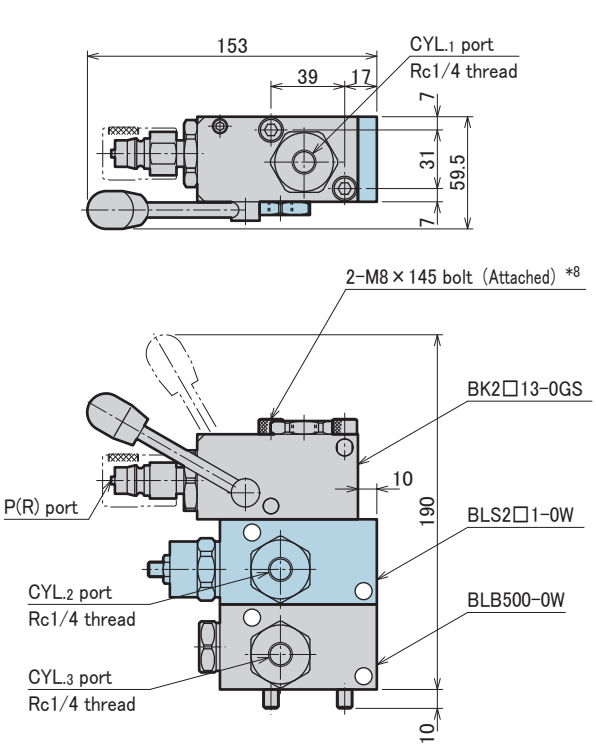
Remarks
*6. Roughness of mounting surface (O ring seal surface) should be 6.3S or less.

BLS□□1-0K



Remarks
*7. The BK combination type uses M8×100 bolts (provided).
But without M8×55 bolts and M8×145 bolts.

BLS2□1-0W



Remarks
*8. The BK and BLB combination type uses M8×145 bolts (provided).
But without M8×55 bolts and M8×100 bolts.

Compact sequence valve (Manifold mount only) model BLG

NEW

EXPLANATION

Compact, manifold mount only, sequence valve to operate multiple actuators in sequence to perform positioning and prevent deformation.

※Regarding the application and performance of circuit, refer to BLS (on page3) .

MODEL CODE

BLG28 [3][0] – 0 [G] [(5.0MPa)]

1 2 3 4

1 Sequence operating pressure control range

3 : 1.0～ 6.0 MPa

6 : 5.0～ 18.0 MPa

2 Design No.

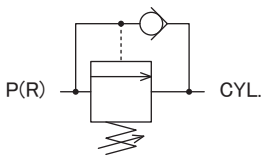
3 Piping type *1

G : Manifold type

4 Set pressure (set value for sequence operating pressure) *2 *3 *4

Example : (5.0MPa) (700PSI)

CIRCUIT SYMBOLS



※ A filter is built in each port.

SPECIFICATIONS

Model		BLG2830	BLG2860
Adjusting range of sequence valve actuating pressure	MPa	1.0 ～ 6.0	5.0 ～ 18.0
Operating pressure	MPa	2.0 ～ 35.0	6.0 ～ 35.0
Adjusting screw turn ratio	MPa/Rev	1.0	2.8
Cracking pressure	MPa	0.01	
Min. passage area	mm^2	P(R)→CYL. : 8.7 / CYL.→P(R) : 10.2	
Operating temperature	℃	0 ～ 70	
Fluid to be used		General hydraulic oil equivalent to ISO-VG-32	
Weight	kg	0.6	

Remarks

*1. Hydraulic connecting method is only G option (manifold) .
Select BLS if a piping option is necessary.

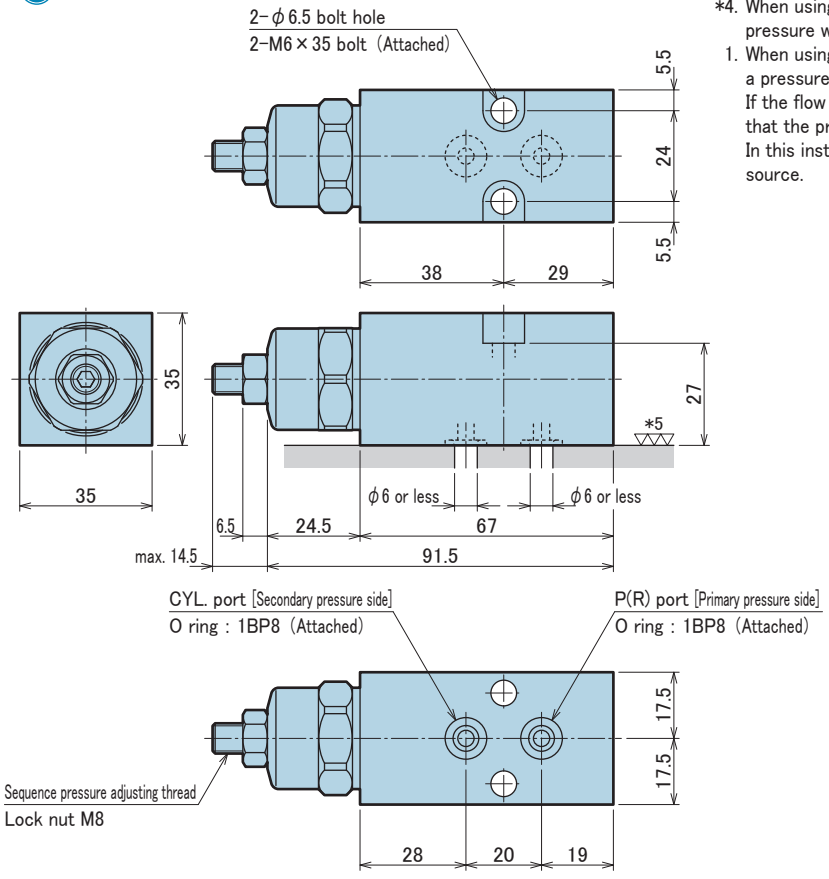
*2. Write the set pressure accurately including unit.

*3. Provide difference of more than 1MPa between operating and setting pressure.

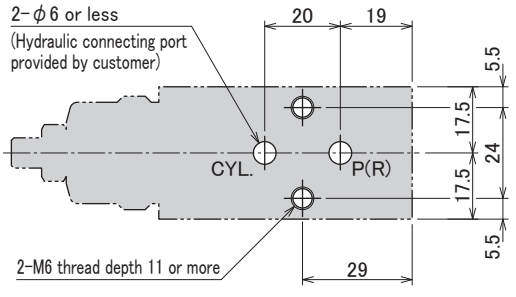
*4. When using a number of BLS sequence valve in parallel, provide each set pressure with a pressure difference more than 1MPa.

1. When using multiple BLG valves in parallel, provide each set pressure with a pressure difference of more than 1MPa.
If the flow volume of primary pressure side is too large, there is the possibility that the proper sequential procedures would not work.
In this instance, use a flow control valve to adjust flow volume from the presure source.

OUTLINE DIMENSIONS



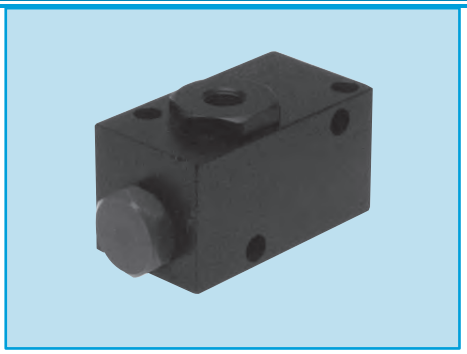
DIMENSIONS FOR MOUNTING AREA



Remarks

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

Pressure Balance Valve model BLB



EXPLANATION

Pressure balance valve actuated in sequence to prevent workpiece deformation during when the actuator is used in opposition to a workpiece.

※Regarding the application and performance of circuit, refer to BLS (on page3) .

MODEL CODE

BLB50 [0] – 0 [W]

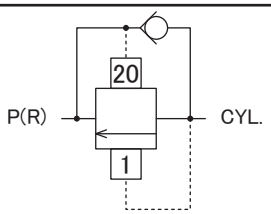
1 2

1 Design No.

2 Piping type

Blank : Piping type (standard)
W : BK and BLS valve stack option

CIRCUIT SYMBOLS



※ A filter is built in CYL. port.
Since a filter is not built in the P(R) port, sufficiently perform flushing of piping and fitting to prevent foreign substances such as chips from entering the circuit.

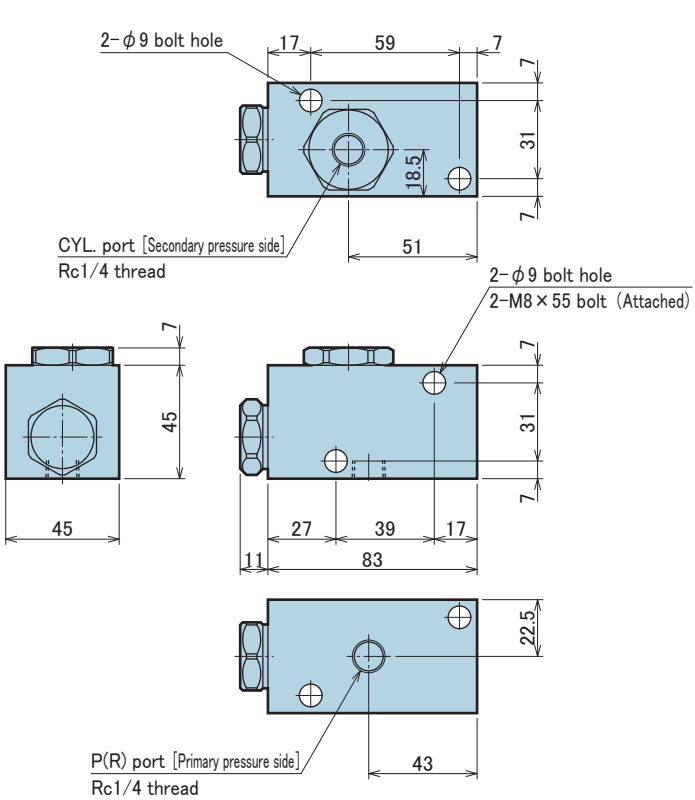
SPECIFICATIONS

Model		BLB500
Operating pressure	MPa	2.0 ～ 30.0
Design pressure	MPa	37.5
Min. passage area	mm^2	4.6
Operating temperature	℃	0 ～ 70
Fluid to be used		General hydraulic oil equivalent to ISO-VG-32
Weight	kg	1.2

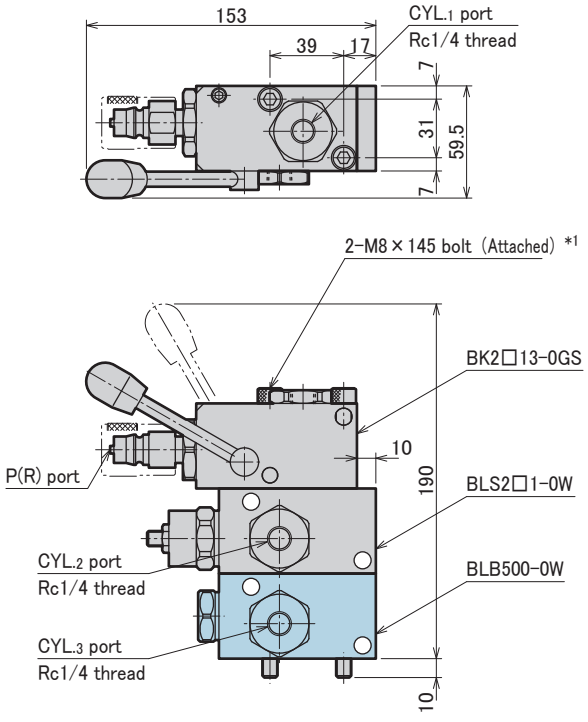
Remarks
1. All types shall be produced after an order received.
If you place an order, ask delivery time in advance.

OUTLINE DIMENSIONS

BLB500-0

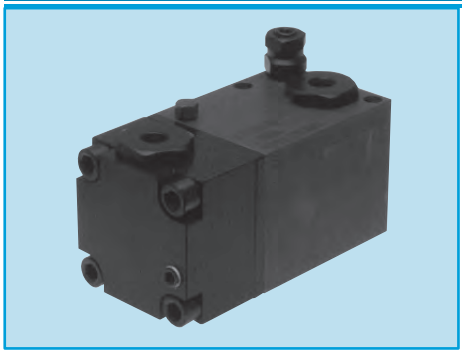


BLB500-0W



Remarks
*1. The BK and BLB combination type uses M8×145 bolts (provided) .
but without M8×55 bolts and M8×100 bolts.

Non Leak Booster Valve



EXPLANATION

BU booster valve is an in-line, compact pressure boosting unit.
Secondary pressure is automatically generated utilizing primary pressure.
Three types of boosting ratios (2.2, 3, and 6 times) are available.
Since a check valve is built in, the unit is the non-leak type.
Primary and secondary pressure will not equalize over time.

MODEL CODE

BU50 [2][0] – 0 [J] [(10.5MPa)]
1 2 3 4

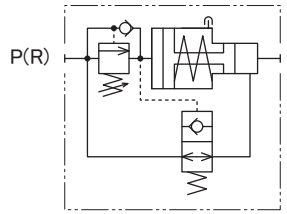
1 Boosting ratio
2 : 2.2 times
3 : 3.0 times
6 : 6.0 times

2 Design No.

3 Piping type
Blank : Piping type(Rc thread)
J : Piping type(SAE thread)

4 Primary supply pressure *1
Example : (10.5MPa)(1500PSI)

CIRCUIT SYMBOLS



※ A filter is built in each port.

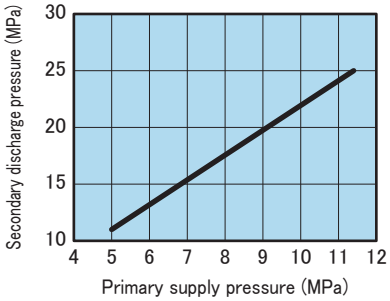
SPECIFICATIONS

Model	BU5020	BU5030	BU5060
Boosting ratio *2	1 : 2.2	1 : 3	1 : 6
Primary supply pressure MPa	5.0 ~ 11.4	3.0 ~ 8.4	1.5 ~ 4.2
Set sequence pressure *3 MPa	4.0 ~ 9.1	2.3 ~ 6.7	1.1 ~ 3.2
Secondary discharge pressure MPa	11.0 ~ 25.0	9.0 ~ 25.2	9.0 ~ 25.2
Design pressure MPa	37.5		
Discharge volume in boosting process *4 cm^3	30	23	12
Min. passage area mm^2	14.1		
Operating temperature ℃	0 ~ 70		
Fluid to be used	General hydraulic oil equivalent to ISO-VG-32		
Weight kg	4.4		

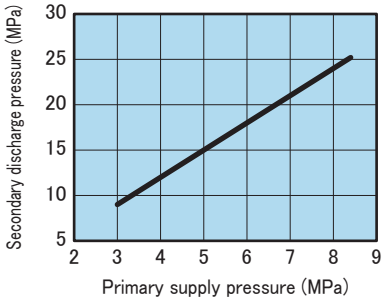
Remarks
1. All types shall be produced after an order received.
If you place an order, ask delivery time in advance.
*1. Write the primary supply pressure accurately including unit.
*2. Boosting ratio is subject to small change depending on packing resistance and spring force.
*3. Set sequence pressure is 0.7 ~ 0.8 times primary supply pressure.
*4. It shows oil volume discharged for boosting pressure after exceeding the set sequence pressure.

PERFORMANCE GRAPH

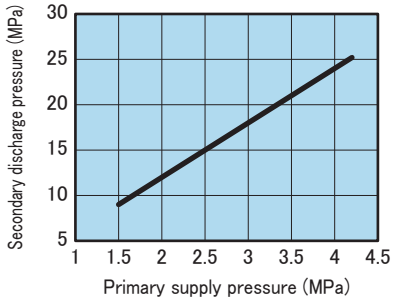
BU5020



BU5030



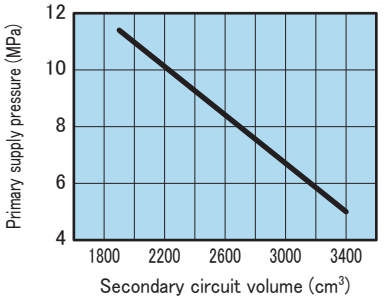
BU5060



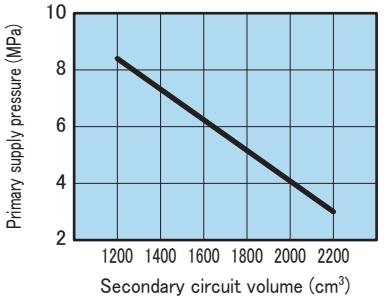
APPROXIMATE VOLUME POSSIBLE TO BOOST

※ Since BU is of booster type, it has a limitation in the volume of secondary circuit possible to boost.

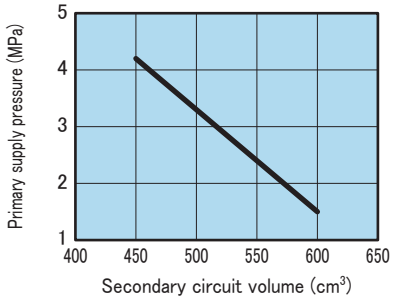
BU5020



BU5030



BU5060

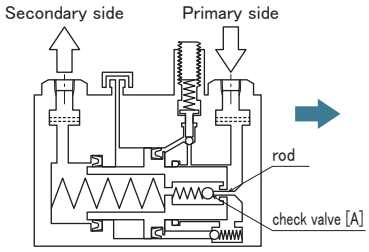


Remarks
1. Performance graph conditions : All piping material shall be steel. Air bleeding from circuit shall be completely finished, and workpiece and attachment (lever) shall be securely fastened.)

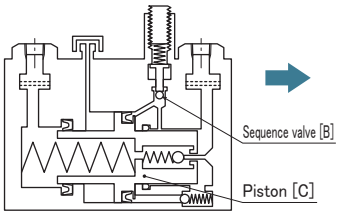
DESCRIPTION OF PERFORMANCE

remove box that says “at supplied”

○Charging process

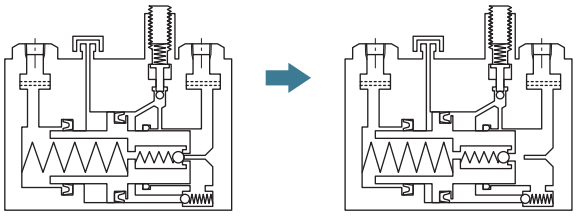


① Check valve [A] is always kept in “Open” position by a rod. (Primary pressure flows to secondary side through check valve [A])



② When the pressure reaches the set value of sequence, sequence valve [B] opens.
③ The primary pressure having passed through sequence valve [B] moves piston [C] ahead.

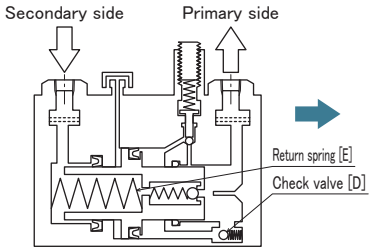
○Boosting process



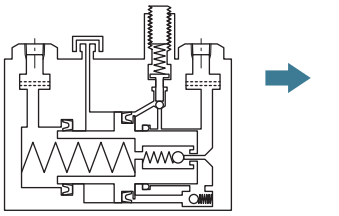
④ When piston [C] moves ahead a little, check valve [A] comes off from the rod to close by itself. Up to this time primary and secondary pressure are same.
⑤ When check valve [A] closes, secondary circuit becomes closed circuit, and pressure is boosted according to area ratio of piston [C].
⑥ Piston [C] stops at the time the area and the pressure are balanced.
⑦ Pressure boosting is finished.

remove box that says “at discharged”

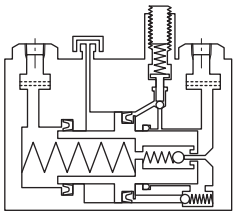
○Discharge process



① When primary pressure is discharged, check valve [D] opens. (Sequence valve [B] closes almost simultaneously.)
② Piston [C] is pushed back by secondary pressure and return spring [E], and secondary pressure drops.

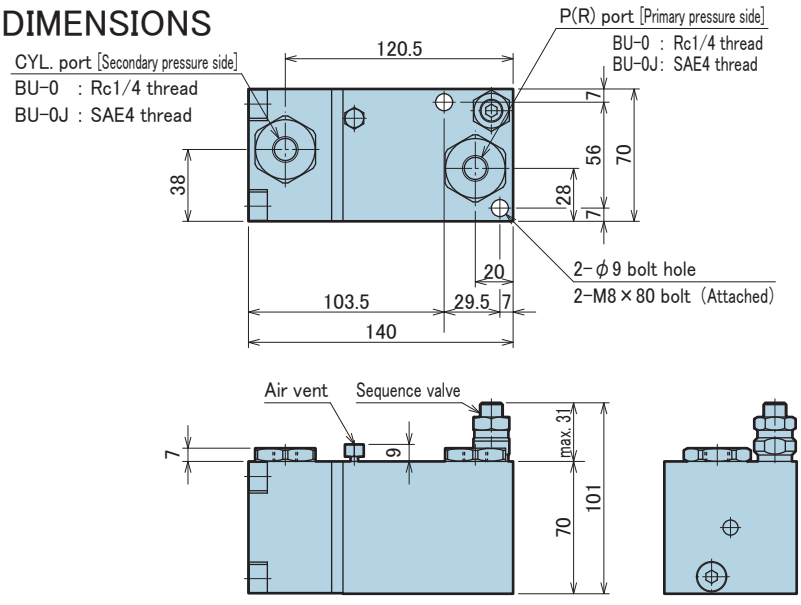


③ Check valve [A] is opened pushed by the rod at the time just before piston [C] finishing moving back. (Released discharge oil from secondary side actuator is discharged through check valve [A].)



④ When the secondary pressure is completely discharged and the piston [C] fully moves back, check valve [D] closes.
⑤ Discharge is finished.

OUTLINE DIMENSIONS



NOTE OF OPERATION

1. When oil feed rate to primary side is large, BU may not be operated normally.
   Install a throttle valve with check valve just upstream of primary port or adjust flow rate at hydraulic pressure source.
2. A large amount of air mixed in secondary circuit may result in boosting failure. If it happens, sufficiently remove air from the circuit.
3. Extremely large volume of secondary circuit may result in boosting failure. Refer to the secondary side volume shown in the specifications.
4. Application of hose to secondary circuit may result in insufficient boosting because the volume changes during boosting.
   Apply steel piping as much as possible referring to the discharge rate for boosting process shown in the specifications.
5. Installation of an accumulator in secondary circuit may result in boosting failure by the similar reason. Select the accumulator referring to the discharge rate for boosting process shown in the specifications.
   If it is impossible to install an accumulator in the secondary circuit, installation in the primary side is recommended.
6. Installation of a pressure gauge is recommended. Installation of a pressure gauge in the secondary circuit allows the boosting condition to be clearly shown.
7. Do not use a flow control valve between the BU and actuators.

Non Leak Reducing Valve

model BM

EXPLANATION

Non leak reducing valve to partially reduce hydraulic circuit pressure of a fixture. It is possible to use in the circuit while disconnected from the pressure source.

MODEL CODE

BM50 [3] [0] – 0 [G] [(5–25MPa)]

1 2 3 4

1 Reducing pressure setting range

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

2 Design No.

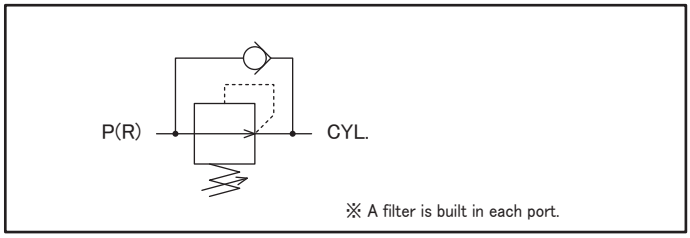
3 Piping type

Blank : Piping type (Rc thread)
G : Manifold type
J : Piping type (SAE thread)
K : BK valve stack option *1 *2

4 Set pressure (secondary pressure set value – Primary supply pressure value) *3

Example : (5–25MPa) (700–3500PSI)

CIRCUIT SYMBOLS



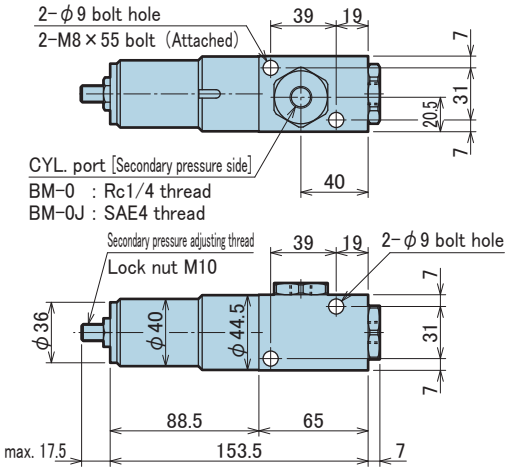
CPECIFICATIONS

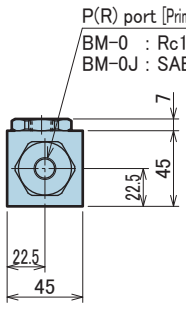
Model	BM5020	BM5030	BM5050	BM5070
Primary supply pressure MPa	3.5 ～ 7.0	6.0 ～ 30.0	10.0 ～ 30.0	17.0 ～ 30.0
Secondary pressure MPa	2.0 ～ 4.0	3.0 ～ 7.0	7.0 ～ 14.0	14.0 ～ 20.0
Allowable minimum pressure difference*4 MPa	1.5	3.0	3.0	3.0
Design pressure MPa	10.5	37.5	37.5	37.5
Min. passage area mm^2	9.4			
Operating temperature ℃	0 ～ 70			
Fluid to be used	General hydraulic oil equivalent to ISO-VG-32			
Weight kg	1.7			

Remarks
*1. Produced after an order received.
If you place an order, ask delivery time in advance.
*2. K (BK connecting option) , refer to BK valve (on page1) . Ask us for details before purchase.
*3. Write the normal pressure accurately including unit.
*4. Allowable minimum pressure difference shows the difference between primary and secondary pressure.

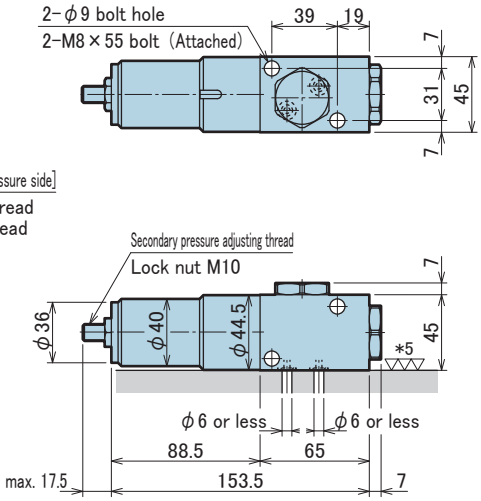
OUTLINE DIMENSIONS

BM50□0-0 / BM50□0-0J

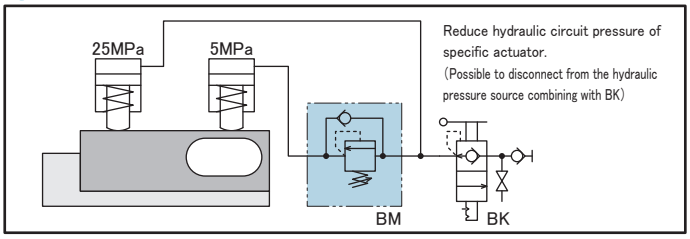


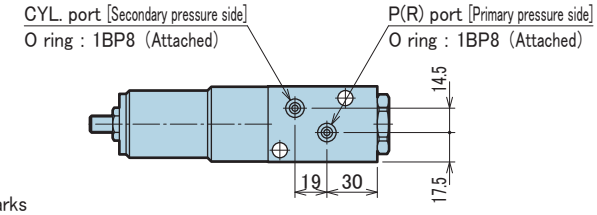


BM50□0-0G



APPLICATIONS

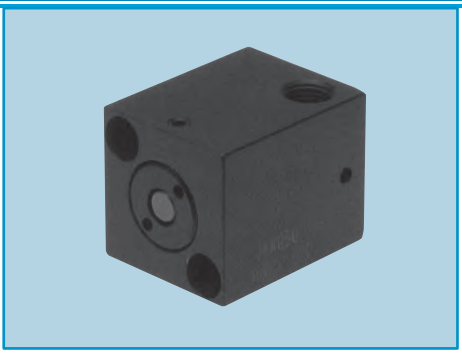




Remarks
*5. Roughness of mounting surface (O ring seal surface) should be 6.3S or less.

Pressure Indicator

model JK



EXPLANATION

Detects circuit pressure of a jig disconnected from the hydraulic pressure source by using a built-in actuator to contact a limit switch.

MODEL CODE

JK [A] 0 [3] [0] – 0 [S] [(5.5MPa)]

1 2 3 4 5

1 Mounting direction

A : Horizontal mounting
B : Vertical mounting

2 Set pressure code

3 : 4.5～ 9.5MPa
5 : 9.5～ 15.0MPa
7 : 15.0～ 22.0MPa

3 Design No.

4 Piping type

G : Manifold type
S : Piping type (Rc thread)

5 Pressure set value *1 *2

Example : (5.5MPa) (800PSI)

CIRCUIT SYMBOLS

※ Since a filter is not built in each port, sufficiently perform flushing of piping and fitting to prevent foreign substances such as chips from entering the circuit.

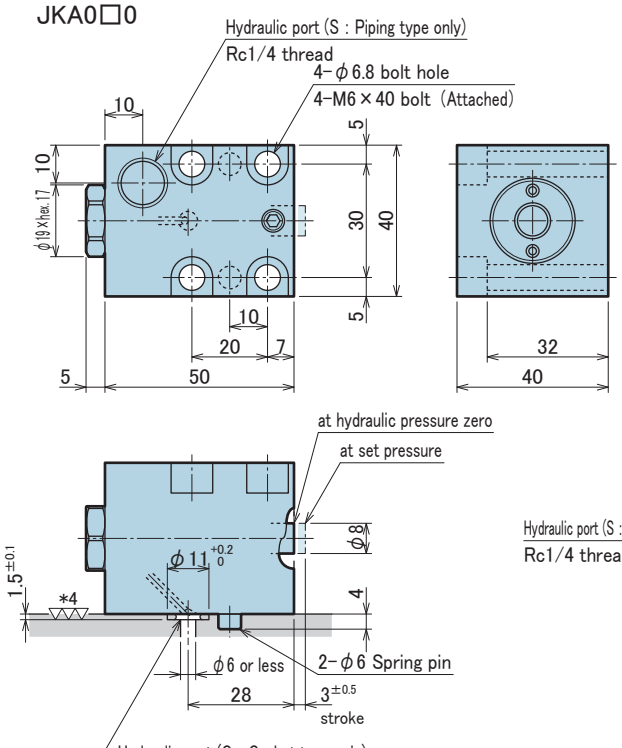
CPECIFICATIONS

Model		JK□030	JK□050	JK□070
Set pressure range	MPa	4.5 ～ 9.5	9.5 ～ 15.0	15.0 ～ 22.0
Design pressure	MPa	37.5		
Pressure change*3	MPa/mm	0.65	1.38	2.55
Operating temperature	℃	0 ～ 70		
Fluid to be used		General hydraulic oil equivalent to ISO-VG-32		
Weight	kg	0.5		

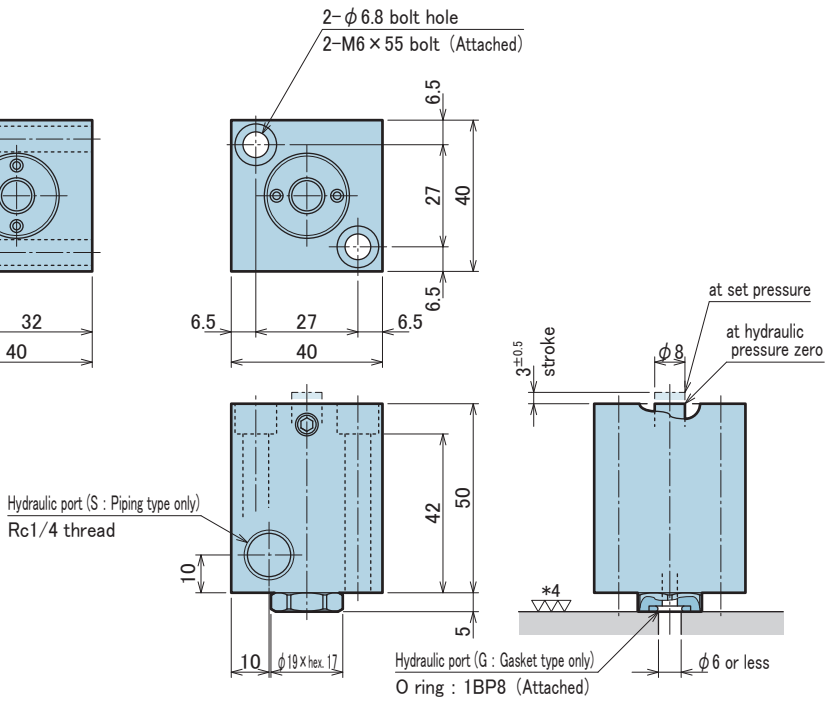
Remarks
1. All types shall be produced after an order received.
If you place an order, ask delivery time in advance.
*1. Indicator rod is at full stroke (3±0.5mm) when set pressure is reached.
*2. Write the normal pressure accurately.
*3. Pressure drop of amount shown will cause indicator rod to retract by 1mm.

OUTLINE DIMENSIONS

JKA0□0



JKB0□0



Remarks
*4. Roughness of mounting surface (O ring seal surface) should be 6.3S or less.

Spring Type Accumulator

EXPLANATION

Spring type accumulator to absorb pressure fluctuation caused by temperature change to a jig circuit disconnected from the pressure source.
Compact body size. Wide range of available operating specifications.

MODEL CODE

JSS 2 02 0 – H G S B
1 2 3 4 5 6 7

1 Standard operating pressure
See SPECIFICATIONS.

2 Amount of oil discharge
02 : 2.5cm^3
05 : 5.0cm^3
10 : 10.0cm^3

3 Design No.

4 Mounting direction
H : Horizontal mounting
V : Vertical mounting

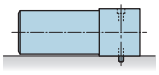
5 Gasket port
Blank : No manifold port
G : Manifold type

6 Piping type (G : Combination with manifold mount available.)
Blank : No piping port
C : Piping type (G thread)
S : Piping type (Rc thread)

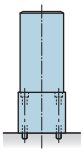
7 Piping direction
(Only H : Horizontal mounting and S : Piping type (Rc thread), C : Piping type (G thread)
A : Top piping type
B : Side piping type

CIRCUIT SYMBOLS

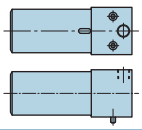
※ Since a filter is not built in each port, sufficiently perform flushing of piping and fitting to be connecting to prevent foreign substances such as chips from entering the circuit.



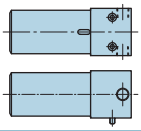
H : Horizontal mounting



V : Vertical mounting



A : Top piping type



B : Side piping type

SPECIFICATIONS

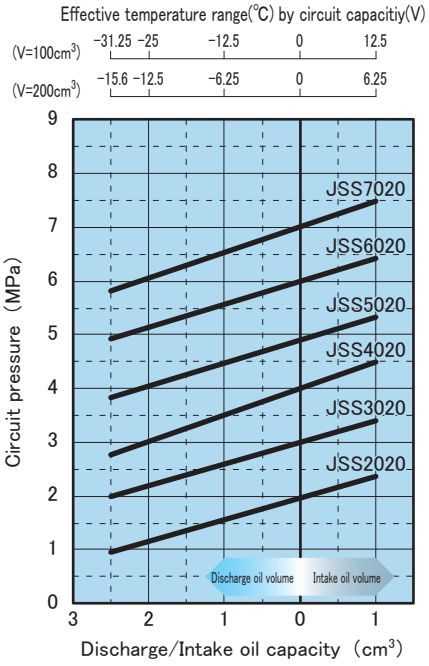
Model		JSS2020	JSS2050	JSS2100	JSS3020	JSS3050	JSS3100	JSS4020	JSS4050	JSS4100
Standard operating pressure	MPa		2.0			3.0			4.0	
Design pressure	MPa					14.0				
Discharge capacity	cm^3	2.5	5.0	10.0	2.5	5.0	10.0	2.5	5.0	10.0
Intake capacity	cm^3	1.0	2.0	4.0	1.0	2.0	4.0	1.0	2.0	4.0
Compression factor (β) *1	MPa/cm^3	0.40	0.31	0.16	0.40	0.33	0.17	0.49	0.37	0.18
Operating temperature	℃					0 ～ 70				
Fluid to be used						General hydraulic oil equivalent to ISO-VG-32				
Weight	kg	0.8	1.0	1.7	0.8	1.1	1.7	0.8	1.1	2.0

Model		JSS5020	JSS5050	JSS5100	JSS6020	JSS6050	JSS6100	JSS7020	JSS7050	JSS7100
Standard operating pressure	MPa		5.0			6.0			7.0	
Design pressure	MPa					14.0				
Discharge capacity	cm^3	2.5	5.0	10.0	2.5	5.0	10.0	2.5	5.0	10.0
Intakecapacity	cm^3	1.0	2.0	4.0	1.0	2.0	4.0	1.0	2.0	4.0
Compression factor (β) *1	MPa/cm^3	0.43	0.34	0.17	0.43	0.36	0.21	0.48	0.40	0.27
Operating temperature	℃					0 ～ 70				
Fluid to be used						General hydraulic oil equivalent to ISO-VG-32				
Weight	kg	1.4	1.8	2.9	1.5	1.9	3.0	1.7	2.0	3.4

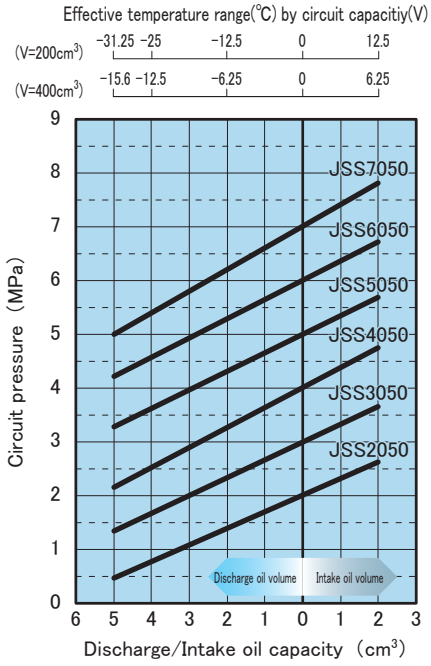
Remarks
*1. Compression factor (β) means a pressure change (MPa) per 1cm^3 charge in oil volume.

PERFORMANCE CURVE

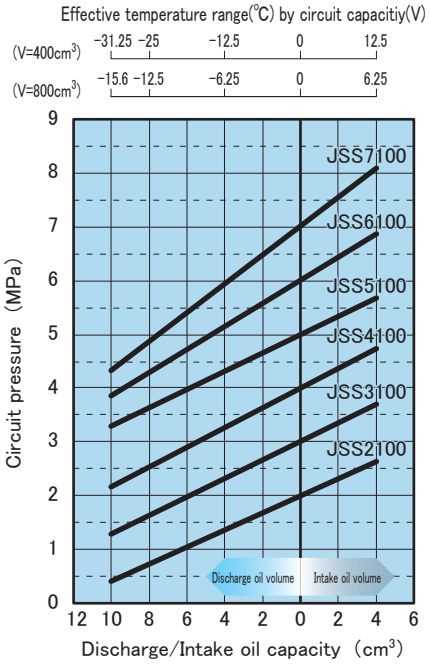
JSS□020



JSS□050



JSS□100



HOW TO READ THE CHARACTERISTIC DIAGRAM

Requirements (reference example)

Clamp used	LHA0650×4	(Lock cylinder capacity for each : 26.7cm³)
Piping	I.D.φ6×2m	(Pipe capacity per 1m : 28.3cm³)
Valve capacity	20cm³	
Temperature change : ΔT	−20℃	
Operating pressure : P	4.0MPa	
Thermal expansion coefficient : α	8×10^{-4}	

Selection method

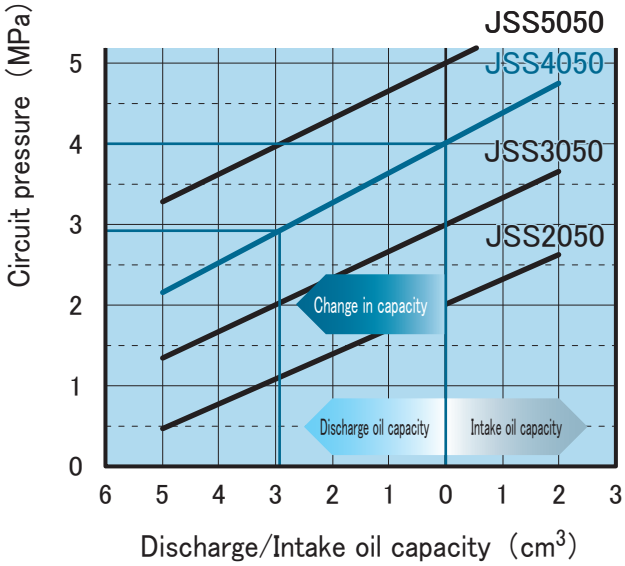
1. Calculate jig circuit capacity (V)
   Clamp capacity + Pipe capacity + Valve capacity
   V = (26.7×4) + (28.3×2) + 20 = 183.4 cm³

2. Calculate change in capacity (ΔV)
   Jig circuit capacity (V) x Thermal expansion coefficient (α)
   x Amount of temperature change (ΔT)
   $\Delta V = 183.4\times(8\times10^{-4})\times(-20) = -2.93$ cm³

3. Select accumulator type
   Operating pressure (P)= 4.0MPa select JSS4□□□
   Change in capacity (ΔV)= −2.93cm³ select JSS4050
   (If the required discharge capacity is greater than shown on the graph, select larger accumulator [e.g. JSS4100])

4. Check the accumulator characteristics (using the graph on the right)
   Pressure after temperature change (−20℃) : 2.92MPa
   Residual oil discharge margin : 2.07cm³

5. Select the attachment and piping methods.

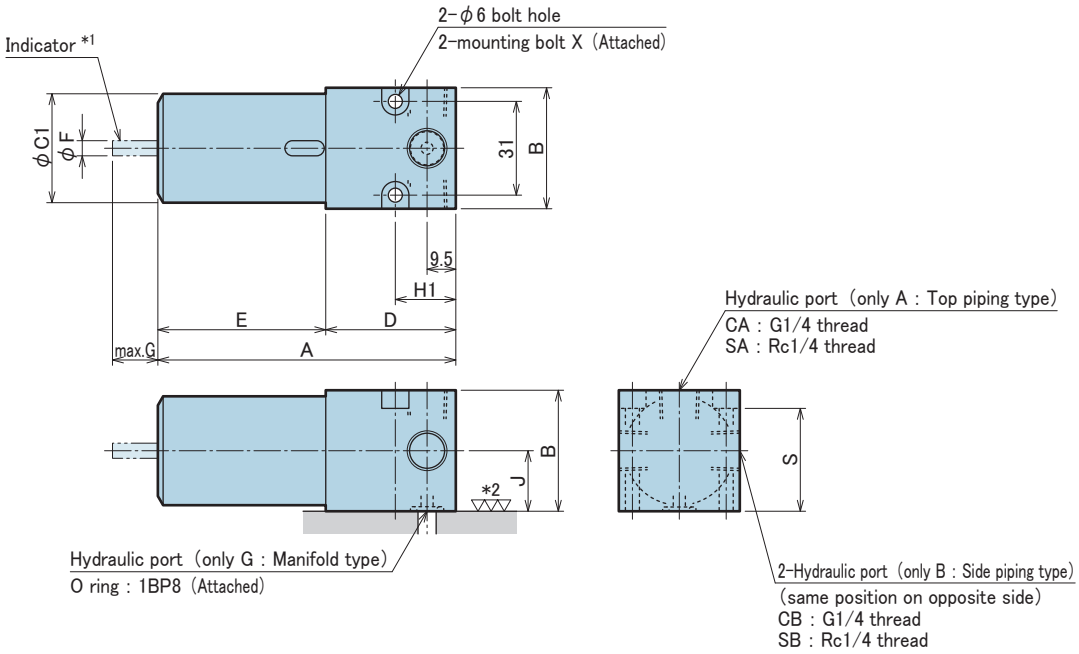


Remarks
1. When marking your selection, make an allowance for the oil capacity taking the spring force deviation into consideration.
【Rough guide for allowance : JSS□020···0.5cm³、JSS□050···1.0cm³、JSS□100···1.5cm³】

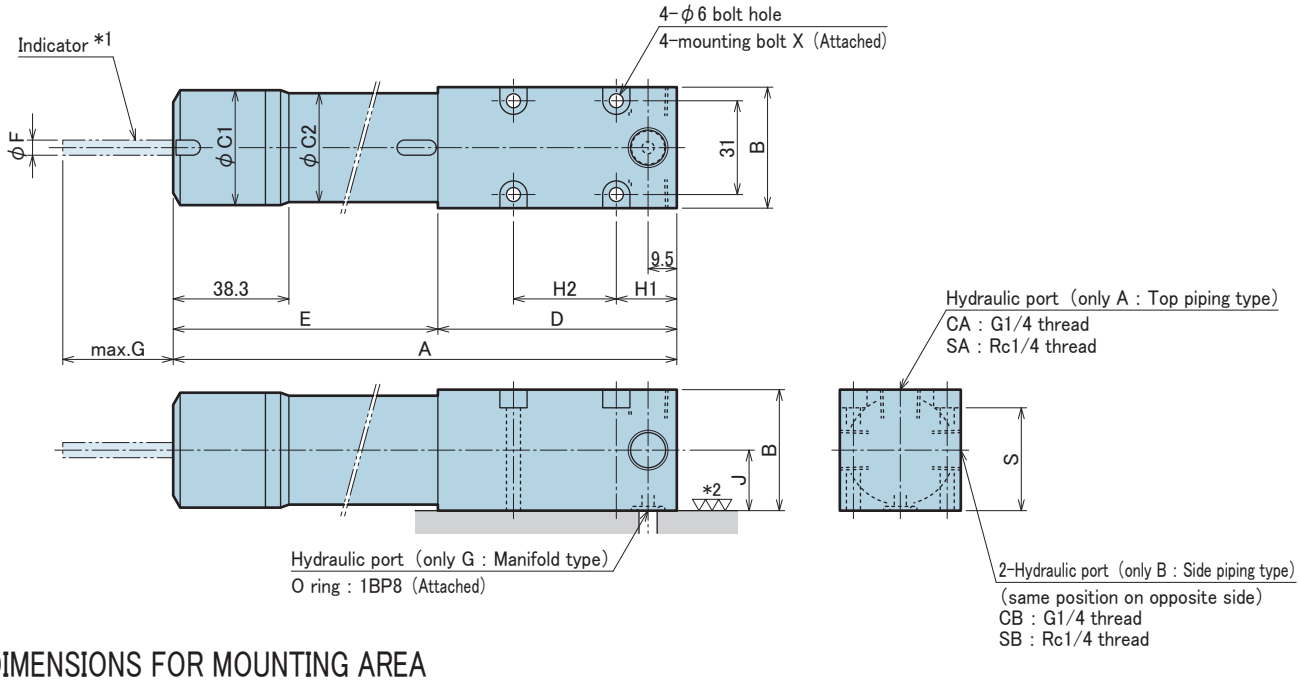
Spring Type Accumulator

OUTLINE DIMENSIONS

JSS□020-H、JSS□050-H

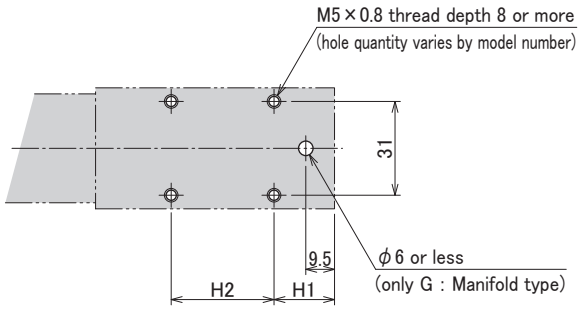


JSS□100-H

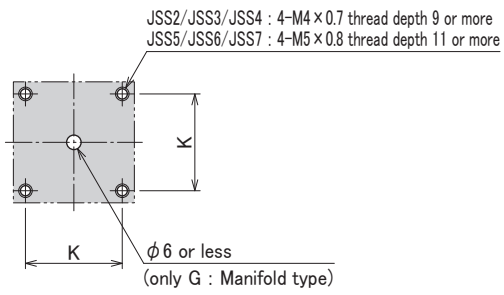


DIMENSIONS FOR MOUNTING AREA

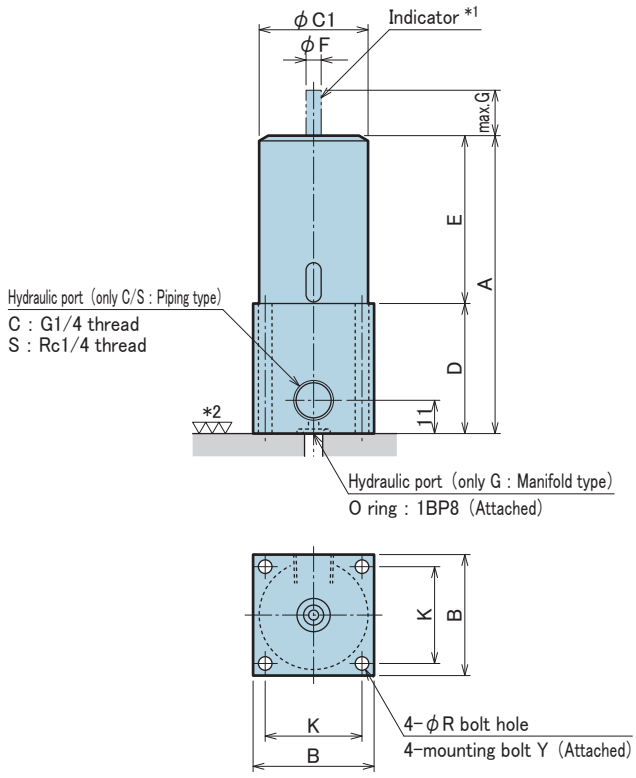
JSS□□□0-H



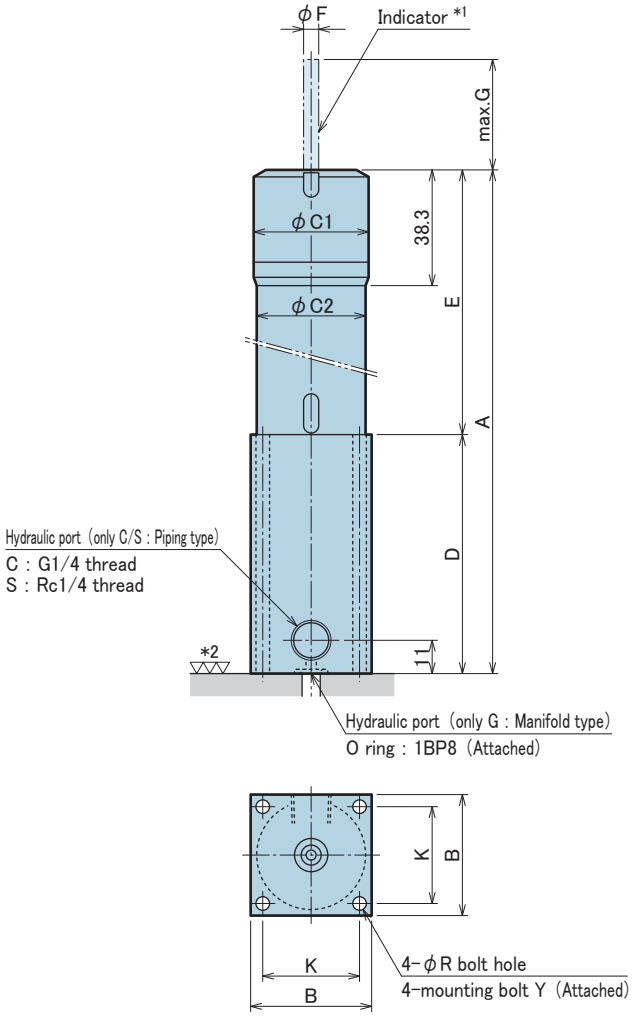
JSS□□□0-V



JSS□020-V、JSS□050-V



JSS□100-V

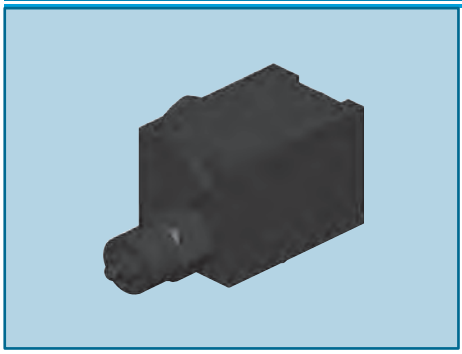


LIST OF OUTLINE DIMENSIONS & DIMENSIONS FOR MOUNTING AREA

Model	JSS2020 JSS3020 JSS4020	JSS2050 JSS3050 JSS4050	JSS2100 JSS3100 JSS4100	JSS5020 JSS6020 JSS7020	JSS5050 JSS6050 JSS7050	JSS5100 JSS6100 JSS7100
A	98.5	136.5	241.5	128.5	164.5	275.5
B	40	40	40	50	50	50
C1	36	36	38	46	46	48
C2	–	–	36	–	–	46
D	43	55	79	43	55	79
E	55.5	81.5	162.5	85.5	109.5	196.5
F	5	5	5	6	6	6
G *1	15	27	49	15	27	49
H1	20	20	20	20	20	20
H2	–	–	34	–	–	34
J	20	20	20	25	25	25
K	32	32	32	40	40	40
R	4.5	4.5	4.5	5.5	5.5	5.5
S	34	34	34	44	44	44
mounting bolt X	M5×0.8×40	M5×0.8×40	M5×0.8×40	M5×0.8×50	M5×0.8×50	M5×0.8×50
mounting bolt Y	M4×0.7×50	M4×0.7×60	M4×0.7×85	M5×0.8×50	M5×0.8×65	M5×0.8×85

Remarks
*1. Indicator extends proportionally to pressure. Be aware of max. G dimension during design.
*2. Roughness of mounting surface (O ring seal surface) should be 6.3S or less.

Non Leak Pilot Relief Valve model BP



EXPLANATION

Pressure of a jig circuit disconnected from the hydraulic pressure source can be reduced to the set pressure only by pilot operation.

MODEL CODE

BP 203 0 – 0 G (2.5MPa)

1 2 3 4

1 Type code

203 : See SPECIFICATIONS.
507 : See SPECIFICATIONS.

2 Design No.

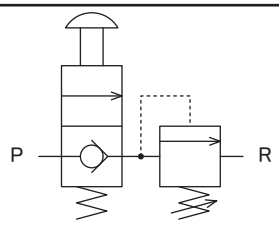
3 Piping type

Blank : Piping type (Rc thread)
G : Manifold type

4 Set pressure (Relief pressure set valve) *1

Example : (2.5MPa) (350PSI)

CIRCUIT SYMBOLS



※A filter is built in P port.
Since a filter is not built in the R port, sufficiently perform flushing of piping and fitting to prevent foreign substances such as chips from entering the circuit.

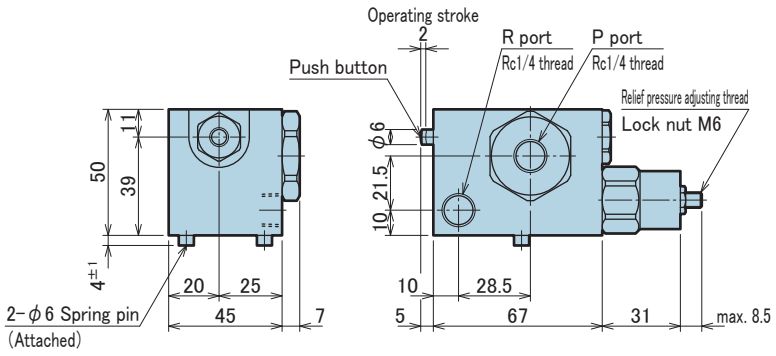
SPECIFICATIONS

Model		BP2030	BP5070
Operating pressure*2	MPa	2.0 ～ 7.0	7.0 ～ 30.0
Relief pressure*3	MPa	1.5 ～ 5.0	5.0 ～ 15.0
Design pressure	MPa	10.5	37.5
Pilot operating force*4	kN	0.06 ～ 0.22	0.22 ～ 1.00
Min. passage area	mm^2	9.1	
Operating temperature	℃	0 ～ 70	
Fluid to be used		General hydraulic oil equivalent to ISO-VG-32	
Weight	kg	1.4	

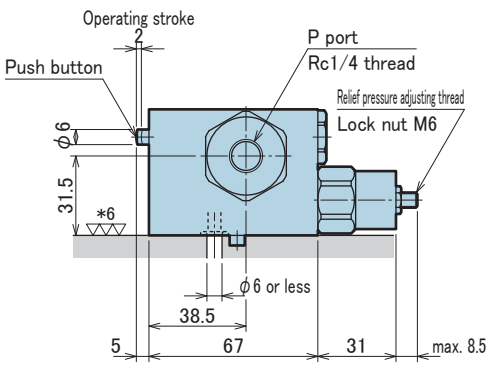
Remarks
1. All types shall be produced after an order received. If you place an order, ask delivery time in advance.
*1. Write the normal pressure accurately including unit.
*2. Operating pressure shows initial operating pressure.
*3. Relief pressure shows pressure after operating pilot.
*4. Set the pilot operating force at more than minimum operating force (Operating pressure ×0.032) and less than 1.5kN.

OUTLINE DIMENSIONS

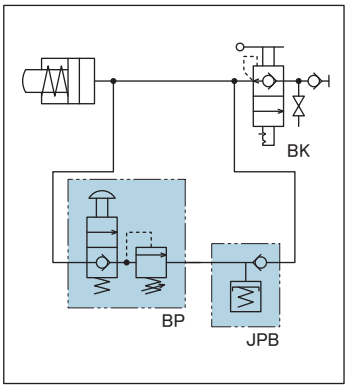
BP□0□0-0

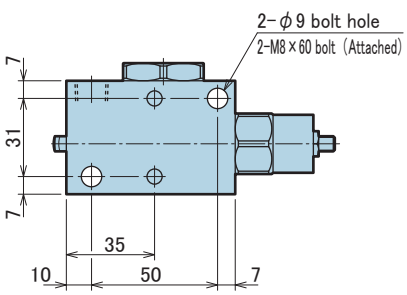


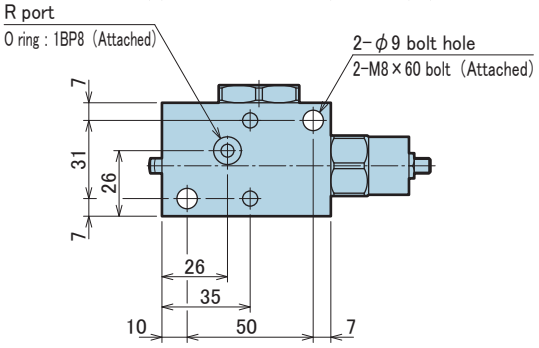
BP□0□0-0G *5



APPLICATIONS



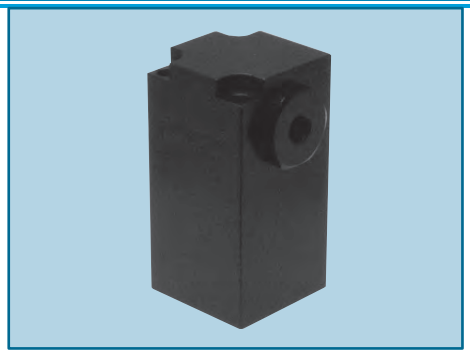




Remarks
*5. For BP□0□0-0G dimensions not listed, refer to BP□0□0-0.
*6. Roughness of mounting surface (O ring seal surface) should be 6.3S or less.

Reservoir

model JPB



EXPLANATION

Reservoir tank with non leak check valve to temporarily contain drain oil. Used in combination with the BP valve.

MODEL CODE

JPB 5 4 0 – 0 P

1 2 3 4

1 Pressure code

2 : 2.0～ 7.0MPa
5 : 5.0～ 30.0MPa

2 Tank capacity *1

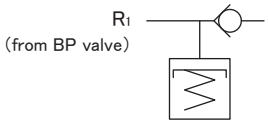
4 : 40cm^3
6 : 60cm^3

3 Design No.

4 Piping type

P : BP connecting type
S : Piping type (Rc thread)

CIRCUIT SYMBOLS



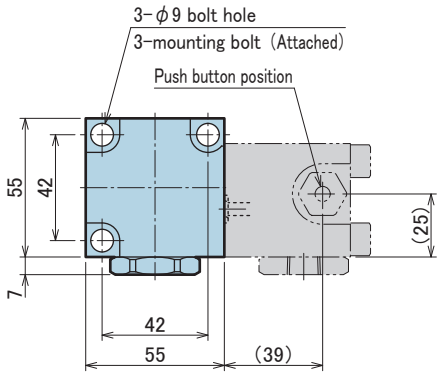
※ A filter is built in R2 port.
Since a filter is not built in the R1 port, sufficiently perform flushing of piping and fitting to be connecting to prevent foreign substances such as chips from entering the circuit.

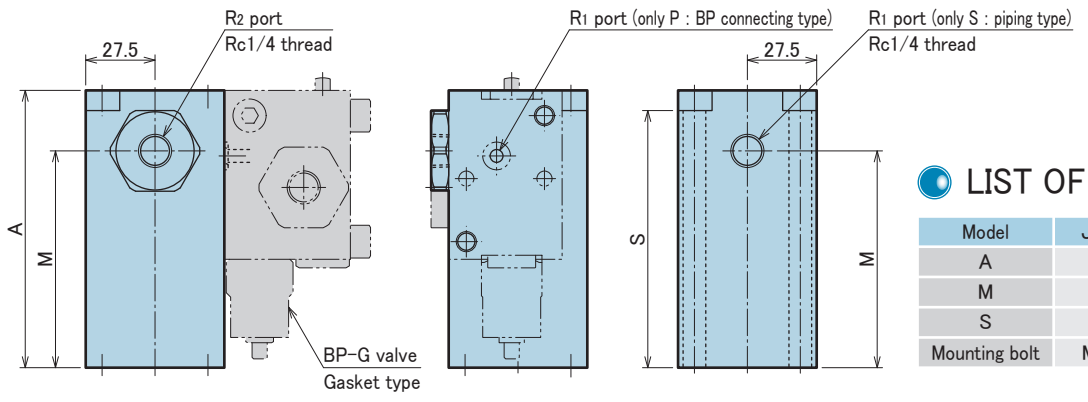
SPECIFICATIONS

Model		JPB240	JPB260	JPB540	JPB560
Operating pressure*2	MPa	2.0 ～ 7.0		5.0 ～ 30.0	
Design pressure*2	MPa	10.5		37.5	
Tank capacity*1	cm^3	40.0	60.0	40.0	60.0
Circuit capacity*1	cm^3	800 or less	800 ～ 1200	800 or less	800 ～ 1200
Operating temperature	℃	0 ～ 70			
Fluid to be used		General hydraulic oil equivalent to ISO-VG-32			
Weight	kg	2.1	2.2	2.1	2.2

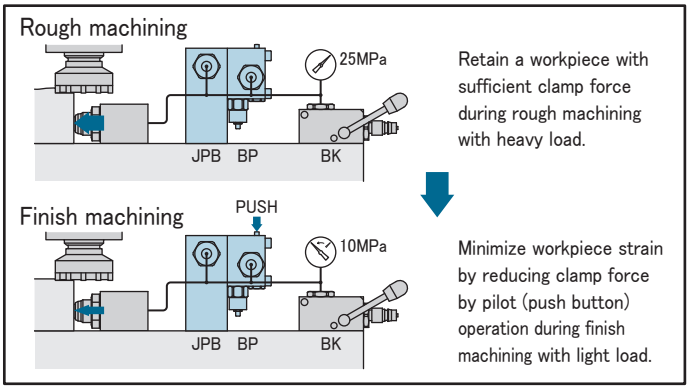
Remarks
1. All types shall be produced after an order received.
If you place an order, ask delivery time in advance.
*1. Select the tank capacity based on the circuit capacity to be used.
*2. Operating and design pressure are the values at the R2 port.
(See CIRCUIT SYMBOLS)

OUTLINE DIMENSIONS





APPLICATIONS

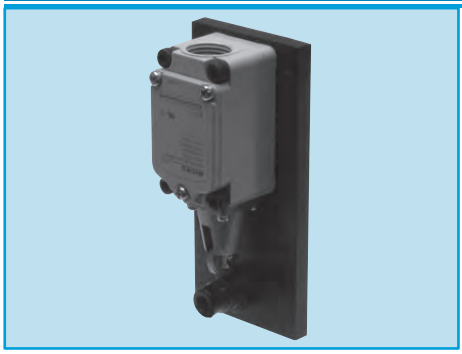


LIST OF DIMENSIONS

Model	JPB□40	JPB□60
A	110	126
M	86	102
S	102	118
Mounting bolt	M8×115	M8×130

Coupler Switch

model PS



EXPLANATION

Provides interlocking between a jig and a jig transport system by an electrical signal to ensure disconnection of hydraulic power supply hose from the jig.
Used in conjunction with BK non-leak valve.

MODEL CODE

PS 010 1 – H

1 2 3

1 Coupler size

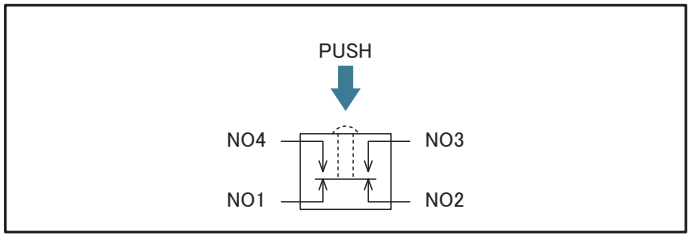
010 : 2HS(Nitto Koki) for Rc1/4 thread
071 : 3HS(Nitto Koki) for Rc3/8 thread *1

2 Design No.

3 Switch maker

H : manufactured by Yamatake(standard)
T : manufactured by Omron(special) *1

CIRCUIT SYMBOLS(LIMIT SWITCH)

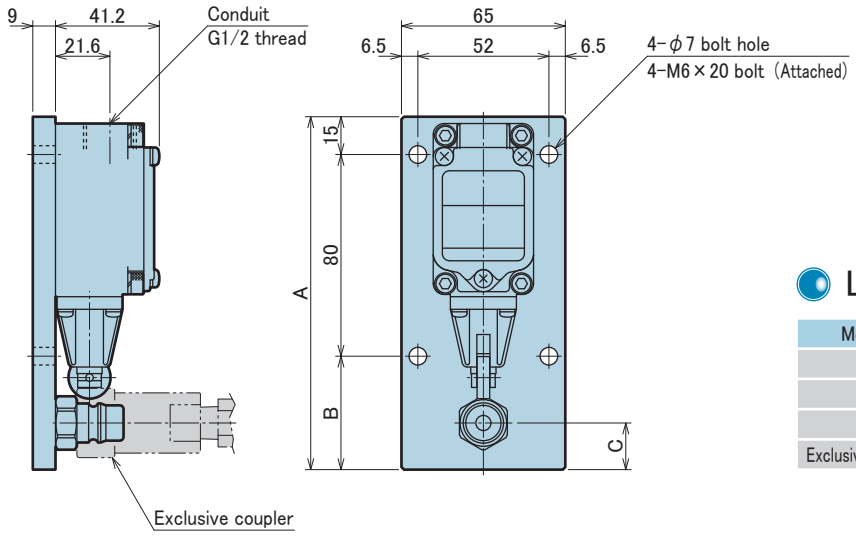


SPECIFICATIONS

Model	PS0101	PS0711
Limit switch model	5LS1-J (Yamatake)	
Electric rating	10A-125, 250, 480VAC	
	0.8A-115VDC	
	0.4A-230VDC	
	0.1A-550VDC	
Circuit type	2-circuit dual shutoff type (1a1b)	
Compatible coupler type*2	2HS	3HS
Weight kg	0.9	

Remarks
*1. Produced after an order received.
If you place an order, ask delivery time in advance.
*2. Select an applicable coupler having the same specifications as the BK valve.

OUTLINE DIMENSIONS



LIST OF DIMENSIONS

Model	PS0101	PS0711
A	140	145
B	45	50
C	18.5	21
Exclusive coupler	2HS	3HS

Pressure Gauge / Manifold Block

model JG/JX

EXPLANATION

Indicates pressure of hydraulic circuit.
Glycerin filled for anti-vibration.

SPECIFICATIONS

Model		JG□161	JG□251	JG□401	JG□601
Max. range*2	MPa	16.0	25.0	40.0	60.0
Accuracy		JIS class 1.6			
Weight	kg	0.2			

Remarks
*1. Produced after an order received.
If you place an order, ask delivery time in advance.
*2. Products with PSI unit are not available. We recommend you purchase locally.

MODEL CODE

JG [A] [25] [1]
1 2 3

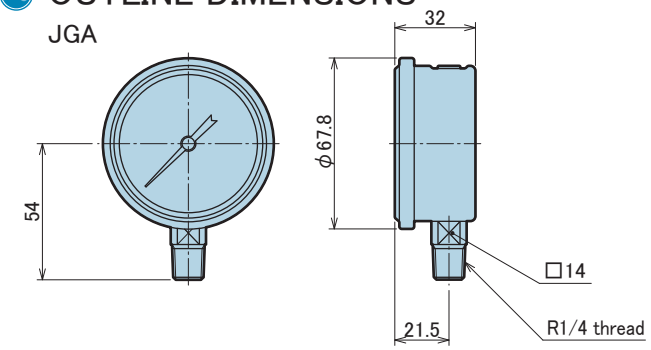
1 Mounting direction
A : Vertical mounting(Bottom port type)
B : Horizontal mounting(Back port type)

2 Max. indicating pressure *2
16 : 16.0 MPa *1
25 : 25.0 MPa
40 : 40.0 MPa
60 : 60.0 MPa *1

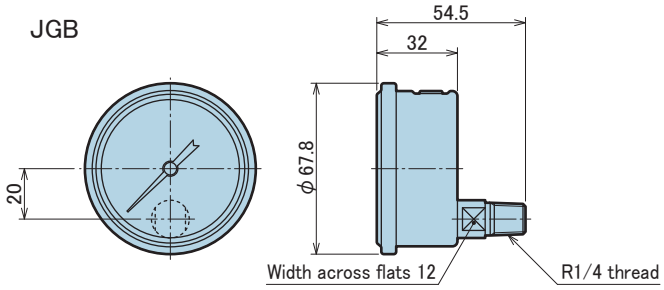
3 Design No.

OUTLINE DIMENSIONS

JGA



JGB



MODEL CODE

JX [4] 021
1

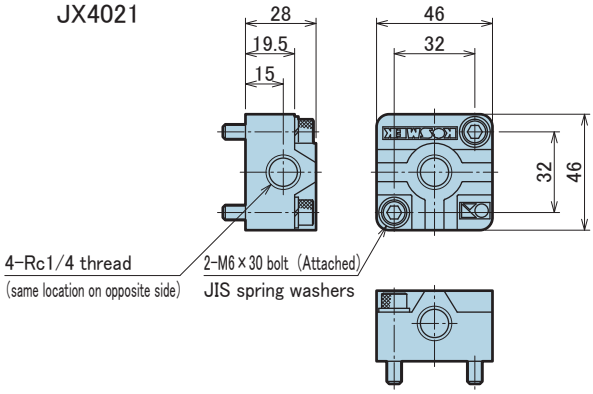
1 The number of the port ※ See OUTLINE DIMENSIONS.

EXPLANATION

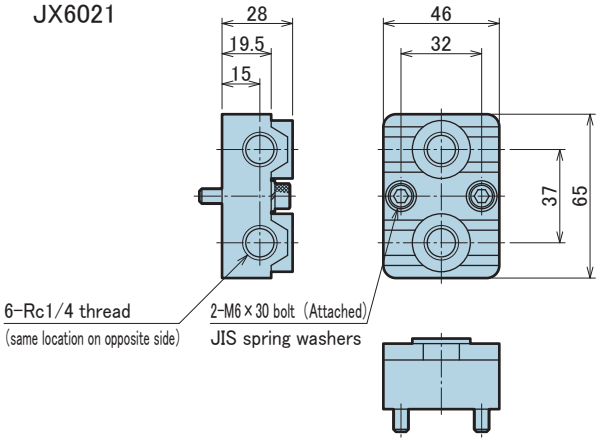
Split a single circuit into multiple branches.

OUTLINE DIMENSIONS

JX4021



JX6021



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