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SM-8359-A

INSTRUCTION MANUAL

PRESSURE REDUCING VALVE

SPACER TYPE

CMF$\frac{1}{2}$ -SR

- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

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For Safety Use

To use this product safely, basic knowledge of pneumatic equipment, including materials, piping, electrical system and mechanism, is required (ISO 4414 *1, JIS B 8370 *2).

We do not bear any responsibility for accidents caused by any person without such knowledge or arising from improper operation.

Our customers use this product for a very wide range of applications, and we cannot keep track of all of them. Depending on operating conditions, the product may fail to operate to maximum performance, or cause an accident. Thus, before placing an order, examine whether the product meets your application, requirements, and how to use it.

This product incorporates many functions and mechanisms to ensure safety. However, improper operation could result in an accident. To prevent such accidents, **read this operation manual carefully for proper operation.**

Observe the cautions on handling described in this manual, as well as the following instructions:

⚠ CAUTION

- Do not touch electric wiring connections (exposed live parts): this will cause an electric shock. During wiring, keep the power off. Also, do not touch these live parts with wet hands.

*1) ISO 4414 : Pneumatic fluid power ··· Recommendations for the application of equipment to transmission and control systems.

*2) JIS B 8370 : General rule for pneumatic systems

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CMF1-SR
CMF2-SR
Pressure Reducing Valve
Spacer type
Manual No. SM-8359 -A

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1. PRODUCTS

1.1 General Outline and Characteristics

This spacer type pressure reduction valve is to be utilized as an intermediate spacer when ISO size solenoid valves are to be individually reduced the pressure.

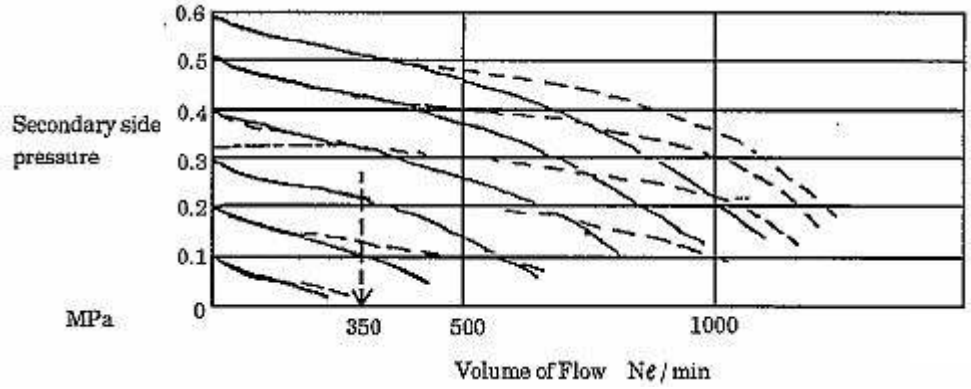
1.2 Specifications

Designation	CMF1-SR P-T05	CMF1-SR A-T05C	CMF1-SR B-T05C	CMF2-SR P-T05	CMF2-SR A-T05C	CMF2-SR B-T05C
Reduction Port	P	A	B	P	A	B
Range of Prime pressure MPa	0.1～0.97					
Range of Secondary pressure MPa	0.1～0.85					
Range of Working temperature ℃	5～60					
Applicable solenoid valve	PV5G-6-FG-S PV5G-6-FG-D PV5G-6-FIG-D			PV5G-8-FG-S PV5G-8-FG-D PV5G-8-FIG-D		
Weight kg	0.5			1.4		
Accuracy of Pressure gage	3.0 class, JIS B 7505					

1.3 Flow Characteristics

1) Prime side pressure 0.7MPa
2) ——————— Flow characteristics of P port reduction
3) - - - - - - - - - - - - - - - - - Flow characteristics of A, B port reduction

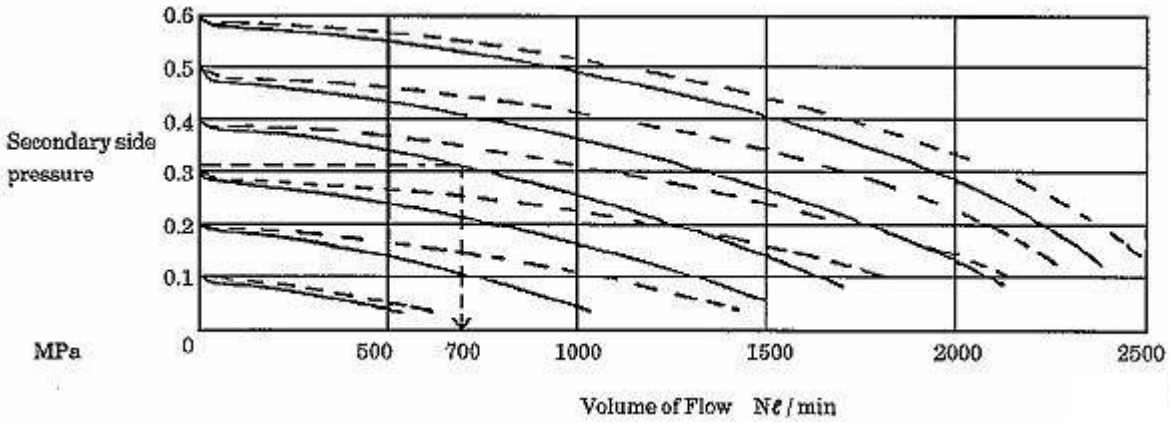
CMF1-SR



How to read the chart:

With the flow at P port is zero when setting secondary pressure to 0.4 MPa while the pressure loss is 0.08MPa (actual secondary pressure is, therefore, 0.32MPa), the volume of flow is 350Nl/min.

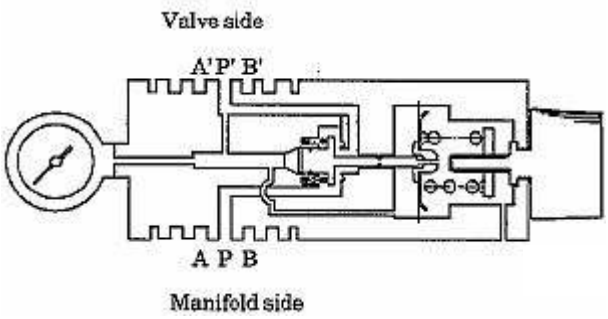
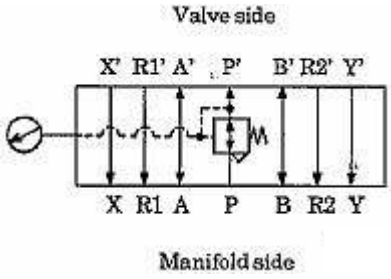
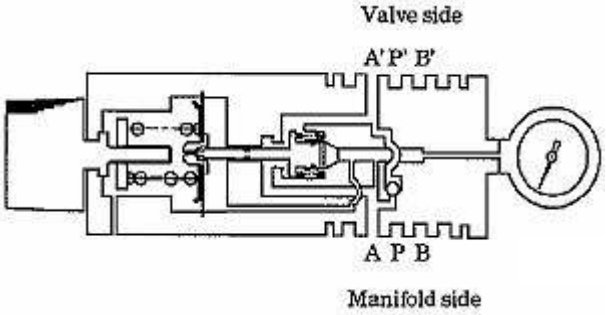
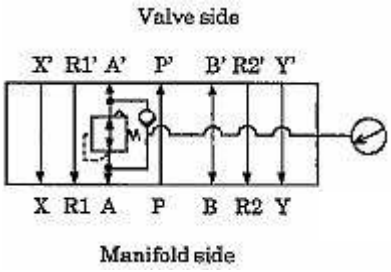
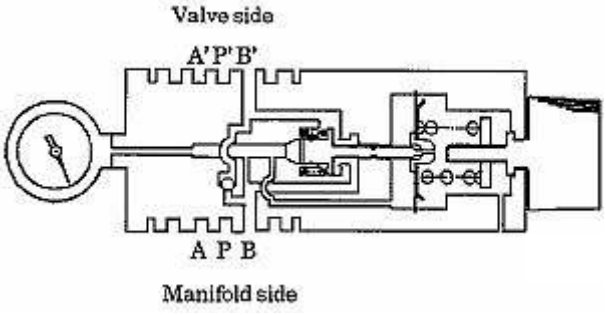
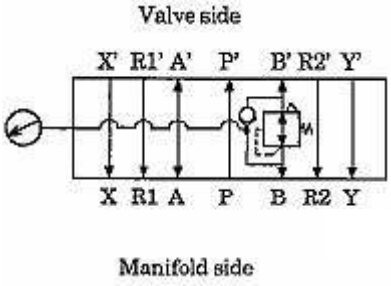
CMF2-SR



How to read the chart:

With the flow at P port is zero when setting secondary pressure to 0.4 MPa while the pressure loss is 0.08MPa (actual secondary pressure is, therefore, 0.32MPa), the volume of flow is 700Nl/min.

1.4 Internal structure of valves and air circuit diagrams

Model	Internal Structure	Air Circuit Diagrams
CMF※-SR-P-T05		
CMF※-SR-A-T05C		
CMF※-SR-B-T05C		

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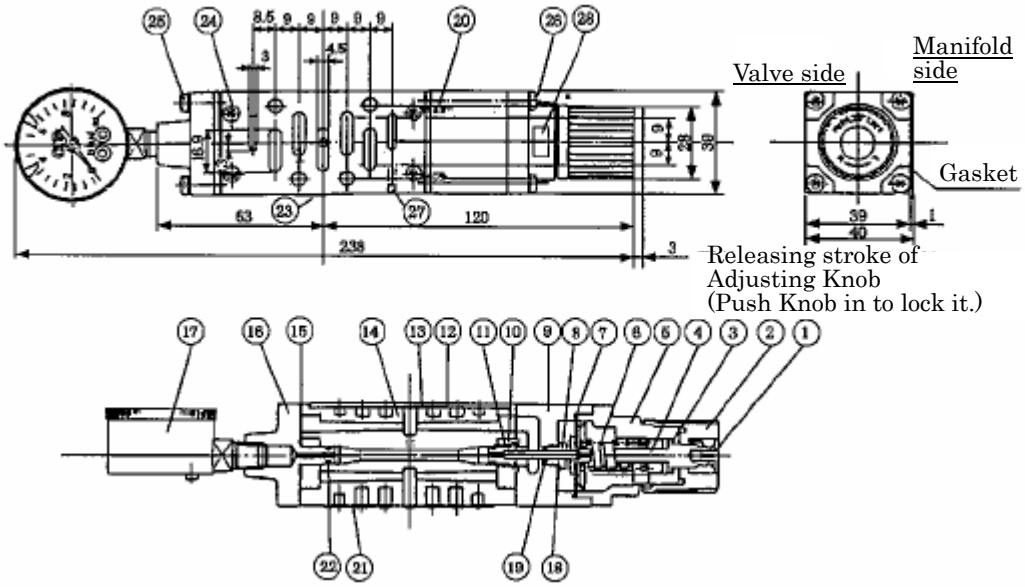
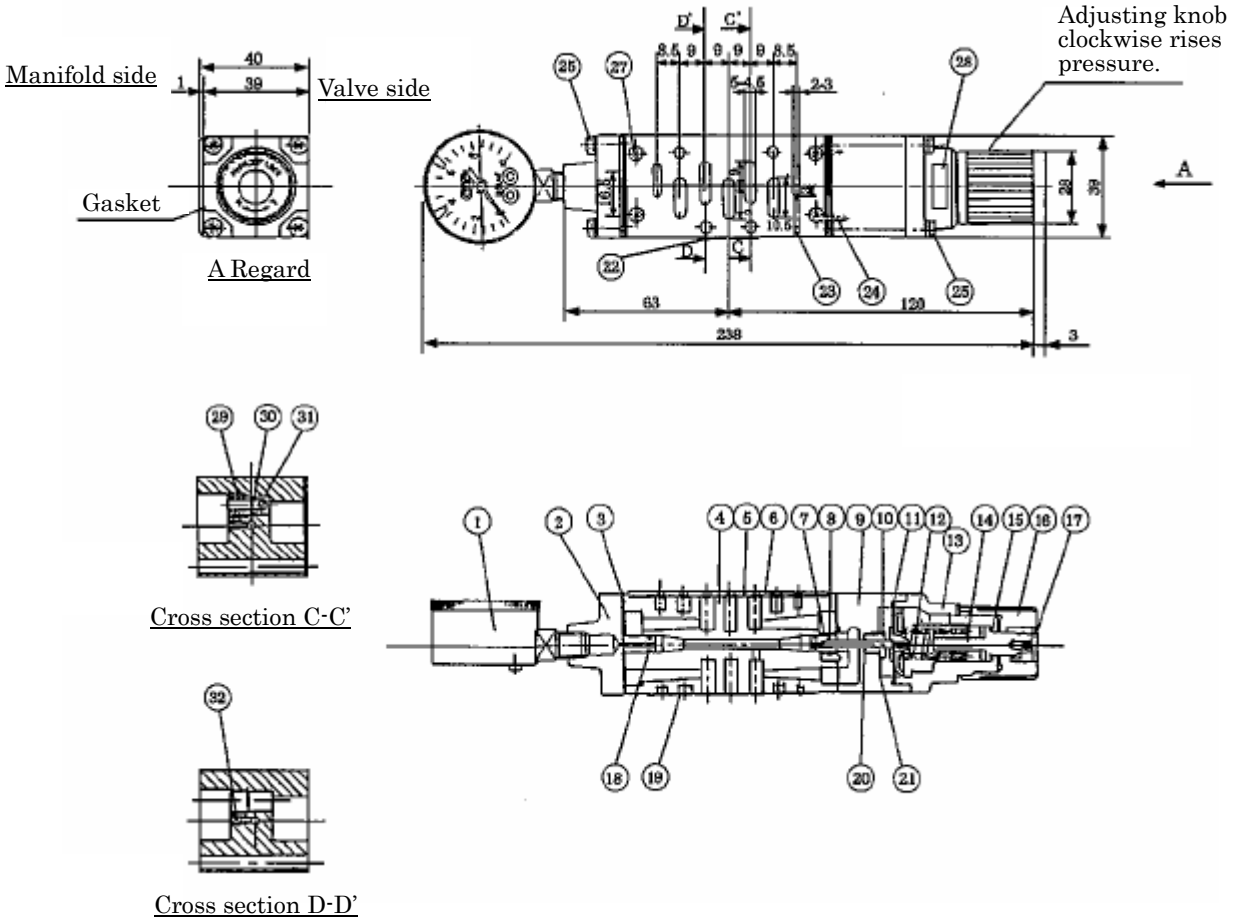
1.5 External Dimensions and Component Parts

CMF1-SR-P-T05



No.	Parts	Material	Qty	Remarks
1	Plate cover	ABS	1	
2	Adjusting knob	POM	1	
3	Slip ring	POM	1	
4	Adjusting screw ass'y		1	
5	Bonnet	Zinc alloy die casting	1	
6	Spring	Stainless steel	1	
7	Diaphragm ass'y		1	
8	Valve guide	Copper alloy	1	
9	Pilot valve	Aluminum alloy casting	1	
10	Valve ass'y		1	
11	Bottom spring	Stainless steel	1	
12	Plate	Aluminum alloy die casting	1	
13	Gasket	Nitrile rubber	1	
14	Body	Aluminum alloy die casting	1	
15	Gasket	Nitrile rubber	2	
16	Cap	Aluminum alloy casting	1	
17	Pressure gage		1	
18	Valve guide gasket	Nitrile rubber	1	
19	O ring	Nitrile rubber	1	
20	Spring pin	Stainless steel	2	
21	Gasket	Nitrile rubber	1	
22	O ring	Nitrile rubber	2	
23	Position name plate		1	
24	Countersunk screw	Steel	4	M3×6
25	Cross recessed flush screw	Steel	4	M4×16
26	Cross recessed flush screw	Steel	4	M4×40
27	Steel ball	Steel	1	
28	Model code name plate		1	

CMF1-SR-B-T05C
CMF1-SR-A-T05C
(Except the relative locations of pressure gage and adjusting knob look likely different, consistency of component parts resembles each other.)



※ Component parts list is posted on the preceding page.

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No.	Parts	Material	Qty	Remarks
1	Pressure gage		1	
2	Cap	Aluminum alloy casting	1	
3	Gasket	Nitrile rubber	2	
4	Body	Aluminum alloy die casting	1	
5	Gasket	Nitrile rubber	1	
6	Plate	Aluminum alloy die casting	1	
7	Bottom spring	Stainless steel	1	
8	Valve ass'y		1	
9	Pilot valve	Aluminum alloy casting	1	
10	Valve guide	Copper alloy	1	
11	Diaphragm ass'y		1	
12	Spring	Stainless steel	1	
13	Bonnet	Zinc alloy die casting	1	
14	Adjusting screw nut	Copper alloy	1	
15	Slip ring	POM	1	
16	Adjusting knob	POM	1	
17	Plate cover	ABS	1	
18	O ring	Nitrile rubber	2	
19	Gasket	Nitrile rubber	1	
20	O ring	Nitrile rubber	1	
21	Valve guide gasket	Nitrile rubber	1	
22	Position name plate		1	
23	Steel ball	Steel	2	
24	Spring pin	Stainless steel	2	
25	Cross recessed flush screw	Steel	4	M4×18
26	Cross recessed flush screw	Steel	4	M4×40
27	Countersunk screw	Steel	4	M3×6
28	Model code name plate		1	
29	Check valve	Aluminum alloy	1	
30	O ring	Nitrile rubber	1	
31	Ball	Fluoro rubber	1	
32	Socket head screw	Steel	1	M4×8

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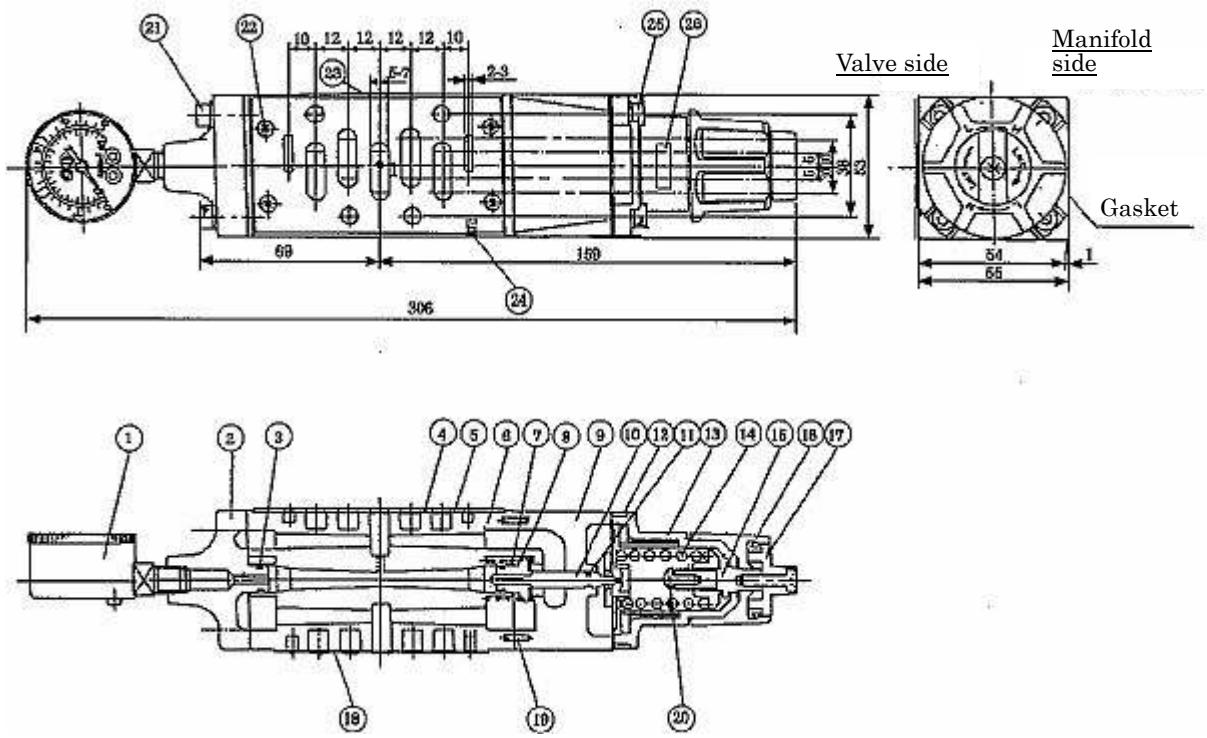
CMF2-SR-P-T05



No.	Parts	Material	Qty	Remarks
1	Pressure gage		1	
2	Cap	Aluminum alloy die casting	1	
3	O ring	Nitrile rubber	2	
4	Plate gasket	Nitrile rubber	1	
5	Plate	Aluminum alloy die casting	1	
6	Body	Aluminum alloy die casting	1	
7	Body gasket	Nitrile rubber	2	
8	Bottom spring	Stainless steel	1	
9	Pilot valve	Aluminum alloy die casting	1	
10	Valve ass'y		1	
11	O ring	Nitrile rubber	1	
12	Diaphragm ass'y		1	
13	Cover	Aluminum alloy die casting	1	
14	Pressure adjusting spring	Steel	1	
15	Adjusting screw ass'y		1	
16	Adjusting knob	ABS	1	
17	Lock knob	ABS	1	
18	Subplate gasket	Nitrile rubber	1	
19	Spring pin	Steel	2	
20	Cross recessed truss head screw	Steel	1	
21	Socket head bolt	Steel	4	M5×20
22	Countersunk screw	Steel	4	M3×6
23	Position name plate		1	
24	Steel ball	Steel	1	
25	Socket head bolt	Steel	4	M5×55
26	Model code name plate		1	

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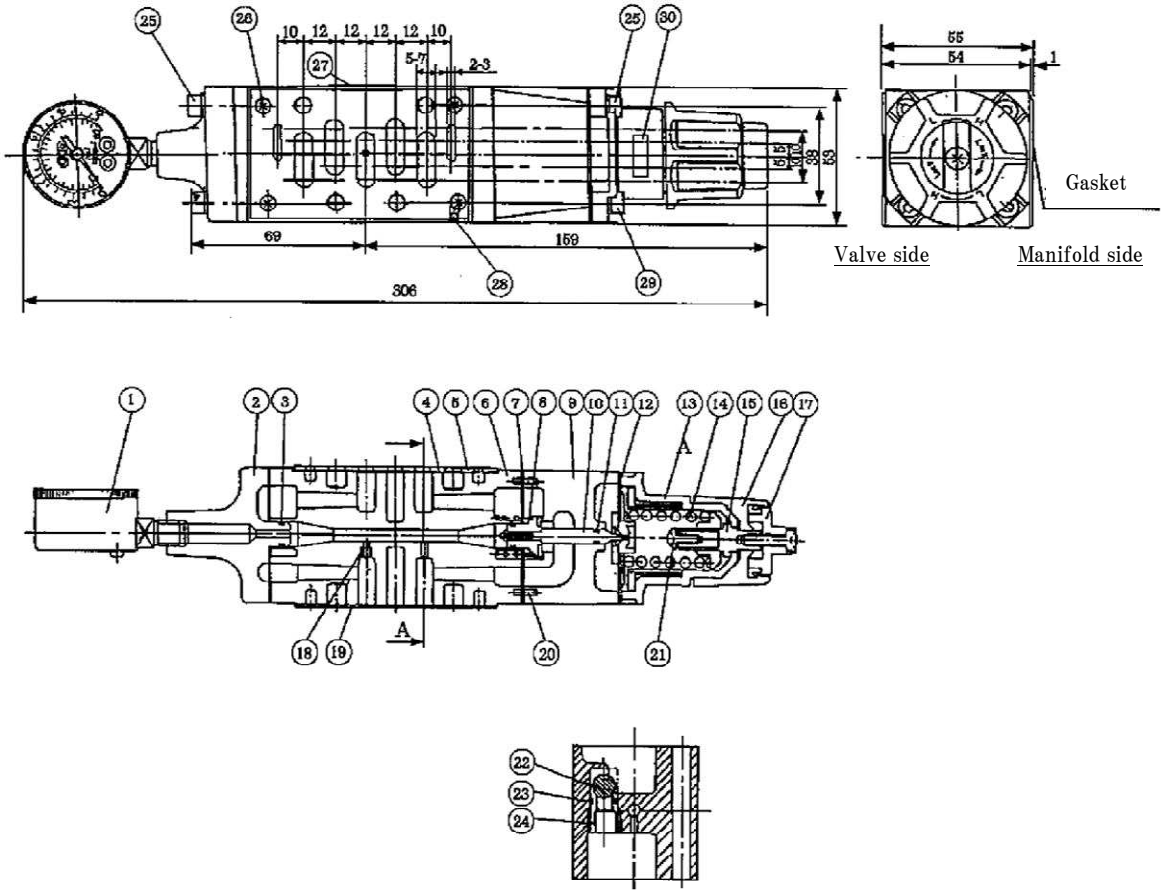
CMF2-SR-B-T05C
CMF2-SR-A-T05C

(Except the relative locations of pressure gage and adjusting knob look likely different,
Consistency of component parts resembles each other.)



※Component parts list is posted on the preceding page.

No.	Parts	Material	Qty	Remarks
1	Pressure gage		1	
2	Cap	Aluminum alloy die casting	1	
3	O-ring	Nitrile rubber	2	
4	Plate gasket	Nitrile rubber	1	
5	Plate	Aluminum alloy die casting	1	
6	Body	Aluminum alloy die casting	1	
7	Body gasket	Nitrile rubber	2	
8	Bottom spring	Stainless steel	1	
9	Pilot valve	Aluminum alloy die casting	1	
10	Valve ass'y		1	
11	O-ring	Nitrile rubber	1	
12	Diaphragm ass'y		1	
13	Cover	Zinc alloy die casting	1	
14	Pressure adjusting spring	Steel	1	
15	Adjusting screw ass'y		1	
16	Adjusting knob	ABS	1	
17	Lock knob	ABS	1	
18	Socket headed screw	Steel	1	M4×5
19	Sub-plate gasket	Nitrile rubber	1	
20	Spring pin	Steel	2	
21	Cross recessed truss head screw	Steel	1	
22	Ball	Fluoro rubber	1	
23	O-ring	Nitrile rubber	1	
24	Check valve	Aluminum alloy	1	
25	Socket head bolt	Steel	4	M5×20 w/washer
26	Countersunk screw	Steel	4	M3×6
27	Position name plate		1	
28	Steel ball	Steel	1	ϕ3
29	Socket head bolt	Steel	4	M5×55 w/washer
30	Model code name plate		1	

2. CAUTIONS

1) Beware that the service life of pressure gages at A port or B port for this type of pressure reducing valve is relatively short due to the broad and frequent fluctuations of pressure during operation.
Gages as maintenance components are available for purchase order.

2) Turning adjusting knob clockwise raises the secondary pressure while turning it Counterclockwise reduced the pressure.

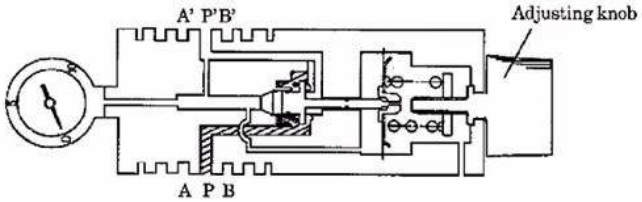
3) Be sure to give air flushing to pieces of pipe prior to connecting them with pneumatic equipment.

3. PRINCIPLE OF FUNCTION

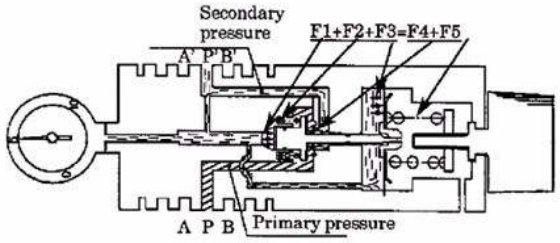
1) Each functional step of P port reduction valve. A port and B port reduction valve function identically.

※ P',A',B: Valve side
P,A,B : Manifold side

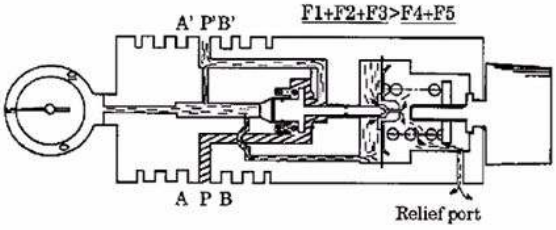
(1) When setting Adjusting knob free



(2) While supplying stabilized pressure upon setting pressure at 0.5MPa
Namely F1+F2+F3=F4+F5

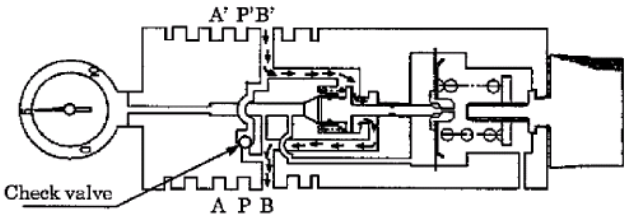


(3) When secondary pressure rose higher than set pressure
Namely F1+F2+F3>F4+F5

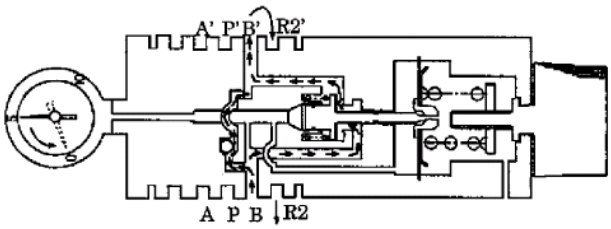


2) Each functional step of B port reduction valve. A port and B port reduction valve function identically.

(1) While supplying air to cylinder



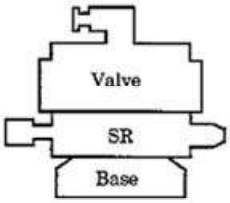
(2) While exhausting air from cylinder



4. INSTALLATION

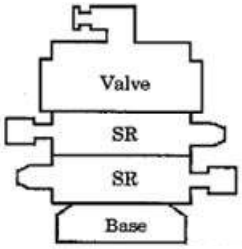
4-1. Overlaying spacers

1) Valve+SR



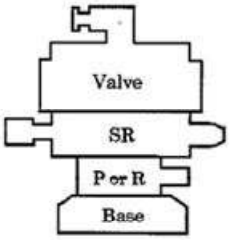
Setting bolt	
CMF1	CMF2
M5×75	M6×100

2) Valve+SR+SR



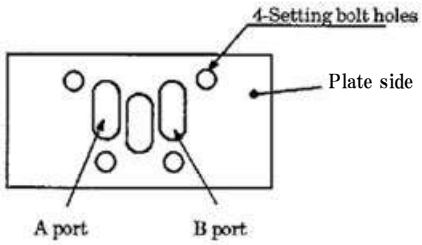
Setting bolt	
CMF1	CMF2
M5×115	M6×155

3) Valve+SR+P (Independent air supply spacer)



Setting bolt	
CMF1	CMF2
M5×105	M6×140

4-2. Directionality of SR Valve installation

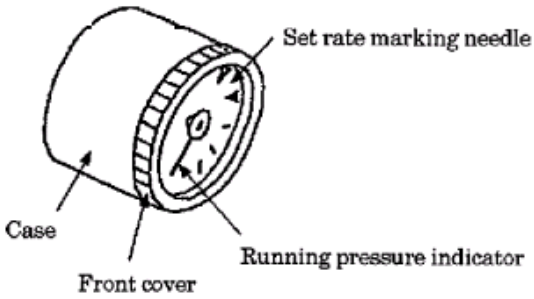


4-3. Pressure gage

The pressure gage is of two indicator needles built-in, one is to indicate running pressure and the other is to mark the limit-pressure .

Comply with the following procedures to set the marking needle of set-pressure.

1) Take out the front cover of the gage by turning cover ring counterclockwise then pulling out.
2) Move the green needle ring around the circumference until it matches to set rate.
   Carefully keep the dial face from leaving any scratch marks on it while setting the green needle.
3) Letting the knot on case mate with the notch on cover, turn the cover ring clockwise until it firmly holds cover.



5. MAINTENANCE

5-1. Cautions during assembling after disassembling

1) Carefully align valve ass'y with diaphragm ass'y.
2) Apply tightening torque of 3±0.2〔N･m〕. Excessive tightening may cause diaphragm breakage.
3) Apply Fluoro Grease over sliding parts.
4) Use seal tape over the thread on pressure gage so as to avoid air leakage.
   Refrain the tape approx. 2 pitches off the tip of male thread.

Discontinue

6. MODEL CODING