



Manual

PMV Positioner P-1200, P-1220



Manufacturers declaration

in compliance with EC directive 89/392/EEC, annex IIB.

We hereby confirm that the appliances described in this sheet has been manufactured in compliance with applicable standards and is intended for installation in a machine/application, and that commissioning is strictly prohibited until evidence has been provided that the machine/application in question is also in compliance with EC directive 89/392/EEC.

This manufacturers declaration is applicable to the following PMV positioners:
P1200, P1220.

Hersteller-Erklärung

im Sinne der EG-Richtlinie 89/392/EWG, Anhang IIB.

Hiermit erklären wir, daß die in diesen Blatt beschriebenen Geräte entsprechend den gültigen Normen gebaut und zum Einbau in eine Maschine oder Applikation bestimmt sind, sowie daß deren Inbetriebnahme so lange untersagt ist, bis festgestellt wurde, daß diese Maschine/Applikation ebenfalls der EG-Richtlinie 89/392/EWG.

Diese Herstellererklärung hat für folgende PMV-Stellungsregler Gültigkeit:
P1200, P1220.

Déclaration de fabricant

au sens de la directive de la 89/392/CEE, annexe IIB.

Nous déclarons par la présente que les appareils décrits sur cette page sont construits en conformité avec les normes en vigueur et qu'ils sont destinés à être montés dans une machine ou une application, nous déclarons également que leur mise en service est interdite tant qu'il n'a pas été constaté que cette machine/application satisfait également à la directive CE 89/392/CEE.

Cette déclaration de fournisseur est valable pour les types d'appareils PMV suivants:
P1200, P1220.



Mr. Roland Wedebrand
Executive Vice President, Palmstiernas Instrument AB

PMV Positioner storage and handling procedures

PMV Positioners are precision instruments which should be stored and handled accordingly to avoid problems or damage.

Appropriate precautions should be taken to protect units while in storage.

Warehouse storage

Stored in original PMV shipping containers, units should be stored in an environmentally controlled area, i.e. clean, cool (15–26°C, 60–80°F) and dry, out of direct sunlight or weather exposure.

Field storage

Note: Once air supply to the positioner is connected and turned on, internal air bleed will prevent the ingress of moisture and protect the unit from corrosion. It is recommended that the air supply be left on at all times.

- If units are installed immediately, turn, and leave on, the air supply.
- If positioner must be stored outdoors, tighten all covers which may loosened in shipment, make sure all open enclosure entry points are sealed.

Positioners should be wrapped and sealed air and watertight with desiccant inside the plastic, units should be securely covered with an opaque cover and not exposed to direct sunlight, rain or snow.

Potential damage mechanism

When units are stored in hot, humid climates, the daily heating/cooling cycle will cause air to expand/contract and be drawn in and out of the positioner housing.

Dependent on the local temperature variations, humidity, dew points and the time in storage condensation could occur and accumulate inside causing erratic operation or failure due to water or corrosion. The potential for condensation damage is especially high in southern climates and aggravated if units are exposed to direct sunlight.

For further assistance, please contact your nearest PMV office.

Air preparation

The PMV Positioner can work with supply pressure up to 10 bar (150 psi). In order to obtain a satisfactory operation and high reliability, the pilot valve should be fed with "clean" air, free from oil and water. By connecting the air supply to the positioner via a filter which is placed as close to the positioner as possible, the required air quality is received.

For larger pressure variations of the supply air, a pressure regulator should be mounted between filter and positioner in order to eliminate the fluctuation.

2. To adjust the Control Pressure Range

2.1 General

The top end of the spring (38) is provided with an adjusting nut (42). The effective length of the spring can be varied by turning the spring (38) relative to the nut (42). For any fixed control range the actuator will move more if the effective length of the spring (38) is increased.

- A. Long travel
- B. Short travel

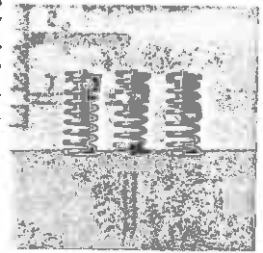


Figure 2

After the spring length has been adjusted, the spring guide (43) must be turned in relation to the nut (42) so that its underside is just in contact with the end of the spring (38).

- A. Incorrect
- B. Correct

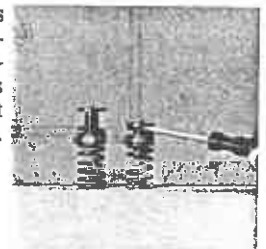


Figure 3

Installation

The supply air is to be connected to the port S. The control pressure must be connected to port I and the spring return actuator to port C.

1. To zero the positioner.

The zeroing screw is accessible from the outside.

Back off the screw (16) and move the cover (15) to one side.

Adjust by means of a screwdriver. The adjusting screw (37) is provided with a friction brake and need not therefore be locked after adjustment.

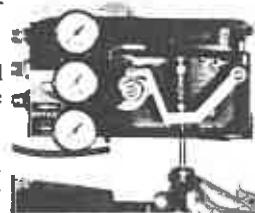


Figure 1

Position the cam as shown. The ball bearing (35) should not ride up on the inactive portion of the cam.



2.2 To increase the actuator travel

IMPORTANT: Always start from zero! Make zero adjustment (see 1. above). Adjust slowly the control pressure to the top value and check the movement of the actuator. Should you need more travel:

Back off the locking screw (39) which locks the spring (38) to the adjusting nut (42).

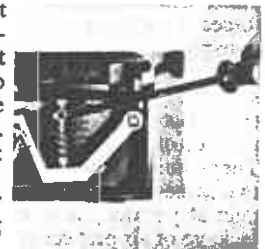


Figure 4

Turn the spring (38) clockwise to increase the effective length of the spring. Tighten the screw (39). (Figure 6.)



Figure 5

After making an adjustment of the effective spring length you must again start by making zero adjustments. Should large adjustments be necessary you must rearrange the position of nut (42) relative to the spring guide (43) in order to be able to make zero adjustments (see 2.1 above).

Back off the locking screw (41) which locks the adjusting nut (42) to the spring guide (43).

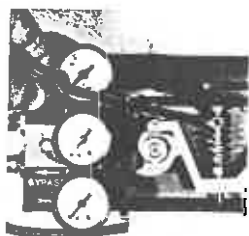


Figure 6

Back off the locking screw (41).

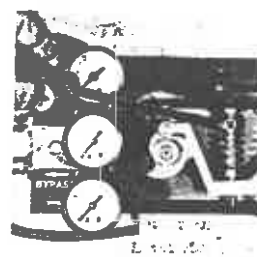


Figure 9

Turn the spring (38) and the nut (42) anticlockwise until the end of spring (38) is almost in contact with the flat of the top spring guide (43). See also 2.1 Figure 3 above.

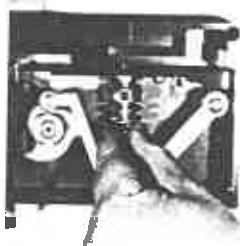


Figure 7

Turn the spring (38) and the nut (42) clockwise to allow space for the free end of the spring when reducing the amount of effective spring length.

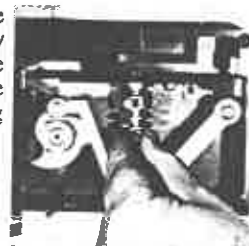


Figure 10

Tighten screw (41).

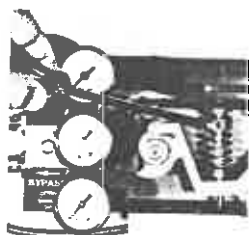


Figure 8

Tighten the screw (41) and back off screw (39).

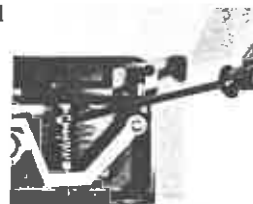


Figure 11

Be sure the control pressure is adjusted to minimum value. When the zero is correctly adjusted turn once more the control pressure slowly to top value and check the movement of the actuator. Make further adjustments if necessary - N.B. always go back and start from zero position.

2.3 To reduce the actuator level

IMPORTANT: Always start from zero! Make zero adjustment (see 1. above). Adjust the control pressure signal to the top value slowly and check the movement of the actuator. Should you need less travel:

Please notice: Should large adjustments be required you must rearrange the position of the nut (42) relative to the top spring guide (43) in order to be able to reduce the effective length of the spring (see 2.2 Figure 4).

Turn the spring (38) relative to the nut (42) anticlockwise for less effective spring.



Figure 12

Tighten the screw (39) and make zero adjustment (make sure the control pressure signal is at zero level). Adjust once more the control pressure signal to top level and check the movement of the actuator. Make further adjustments if necessary.

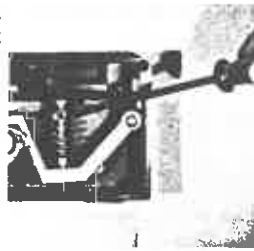


Figure 13

N.B. After adjustments are completed please make sure that screw (41) and (39) are securely fastened. (If these screws are not accessible, see Section 2.4 below).

4. To clean the valve body (52).

Unscrew the four screws (26) and remove the cover (24).

Remove the screw (23) and the indicator (22).

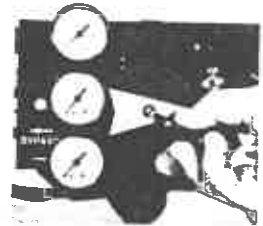


Figure 18

2.4. To turn the top spring guide (43) through 120°

The spring guide (43) can be fitted in three positions in relation to the balance arm (45). By compressing the spring (38), the spring guide (43) will be released from the balance arm (45), and the spring and spring guide can be turned through 120 degrees in either direction. The spring guide (43), nut (42) and spring (38) can thus always be fitted so that the locking screws (41) and (39) will be accessible.

Remove the nut (21) and the cam (20).

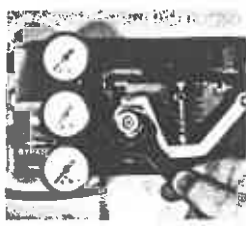


Figure 19

Pull the spool (51) out of the valve body (52). Wash the components and blow them clean and dry with compressed air. Check that ports S and C are clean. Some fittings incorporate filters which cannot be removed. Such fittings should be replaced if necessary.

If the positioner is fitted with a By-Pass:
Remove the two screws (6) and the by-pass body (7).

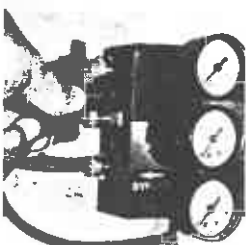


Figure 20

Check that spool (51) moves freely in the valve body (52). Check for wear and replace the valve body and spool (51+52) if necessary.

Check that O-rings (53) are in good condition. Fit the valve body (52) with the spool (51). Do not damage the spring blades on the tip of the balance arm (45). A pair of forecaps or a small screw driver will be of help.

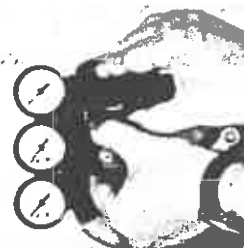


Figure 23

Remove the two screws (14) holding the valve body (52).

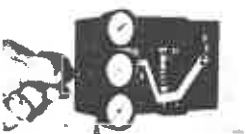


Figure 21

Fit the screw (14) and tighten the screws a little at a time.

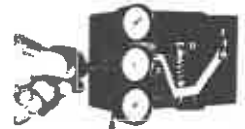


Figure 24

Carefully remove the valve body (52). Fit so that the spool (51) slides easily and does not bind against the tip of the balance arm (45)

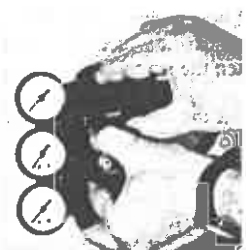


Figure 22

Check that the O-rings (13) are in good condition. Fit the by-pass body (7) by means of the two screws (6) and tighten the screws a little at a time.

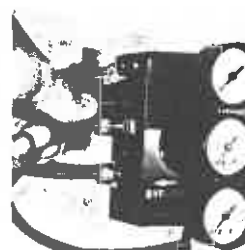


Figure 25

If the positioner is fitted with a by-pass:

Fit the cam (20) and the nut (21).

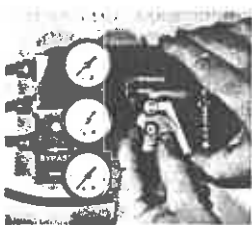


Figure 26

Position the cam as shown. The ball bearing (35) should not ride up on the inactive portion of the cam.



Figure 27

NOTE: The cam (20) will turn slightly with the nut (21) as it is tightened. Be sure to allow for that slight clockwise rotation.

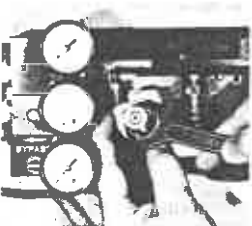


Figure 28

Adjust the zero setting by means of the screw (37).

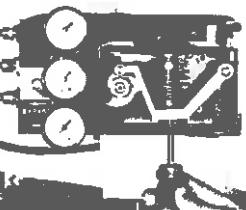


Figure 29

5. To replace the membrane (58)

Remove the four screws (54) and lift off the cover (55).

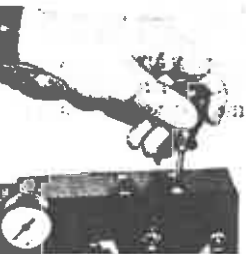


Figure 30

Loosen the membrane assembly (56,57,58,59).

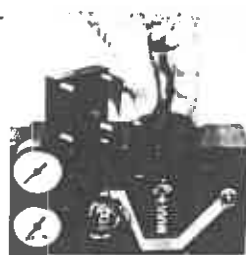


Figure 31

Remove the screw (56) and the membrane (58) will come loose. Exchange the membrane.

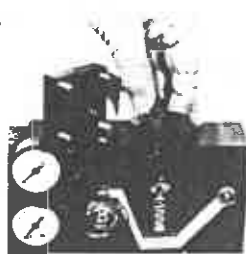
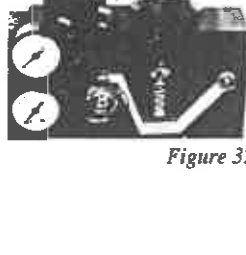


Figure 32

Fit the new membrane assembly and make sure that the retainer (59) enters the guiding note in the balance arm (45).



Make sure the O-rings (60) is in a good condition and fit the cover (55).

Tighten the screws (54).

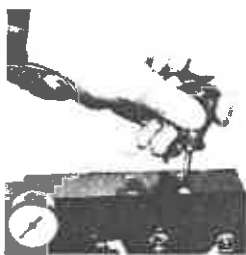


Figure 33

6. To zero the indicator (22)

Loosen the four screws (26) and remove the cover (24). The indicator (22) is secured to the spindle (1) by means of the screw (23). The tip of the spindle (1) is knurled to get a good grip of the indicator.

Loosen the screw (23) and adjust the indicator (22). Tighten the screw (23).

Fit the cover and tighten the screws (26).

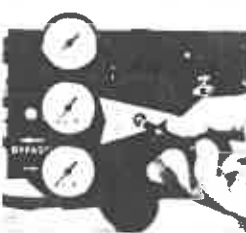
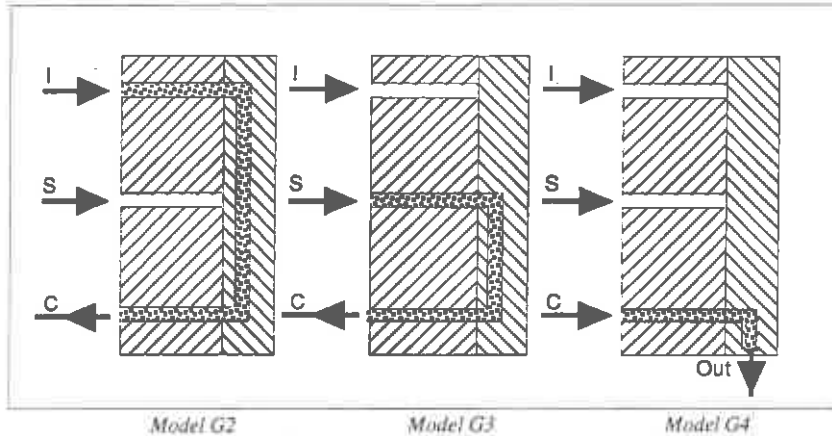


Figure 34

To activate the BY-PASS



The PMV BY-PASS



Model G2

Model G3

Model G4

The PMV BY-PASS is available in three models:

The Model G2 by-pass will, when activated, connect the Instrument air directly to the actuator. The Supply air is shut off. This model can be used when the Instrument air pressure is sufficient to operate the actuator (e.g. low pressure diaphragm type actuators).

The Model G3 by-pass will, when activated, connect the Supply air directly to the actuator. The Instrument air is shut off. With a pressure regulator in the Supply air line you can control the high pressure type actuator.

The Model G4 by-pass will, when activated, ventilate the actuator. The Instrument air and the Supply air will be shut off. This model is used when you want to manually operate the actuator.

To activate the by-pass:

Loosen the screw (12) just enough to...

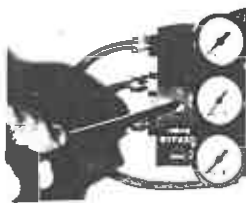


Figure 35

Tighten the screw (12).

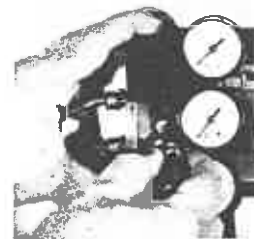


Figure 37

pull the bypass cover (9) far to the far left position.

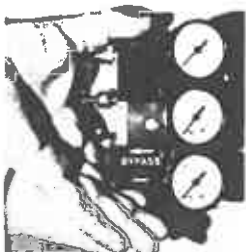
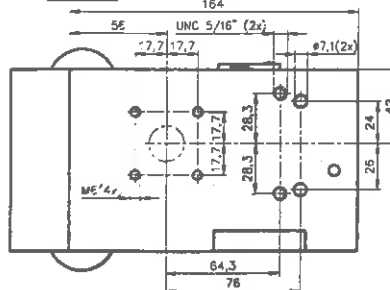
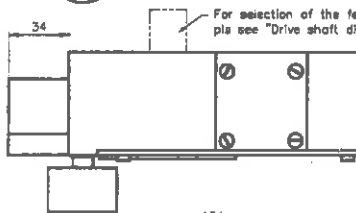
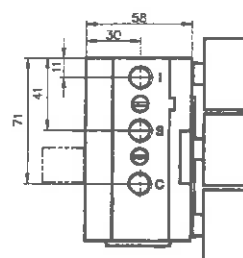
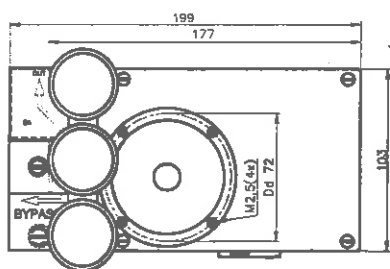
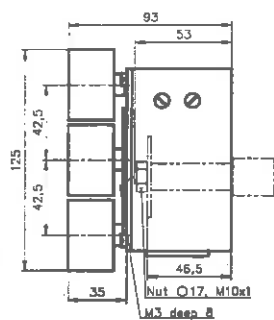
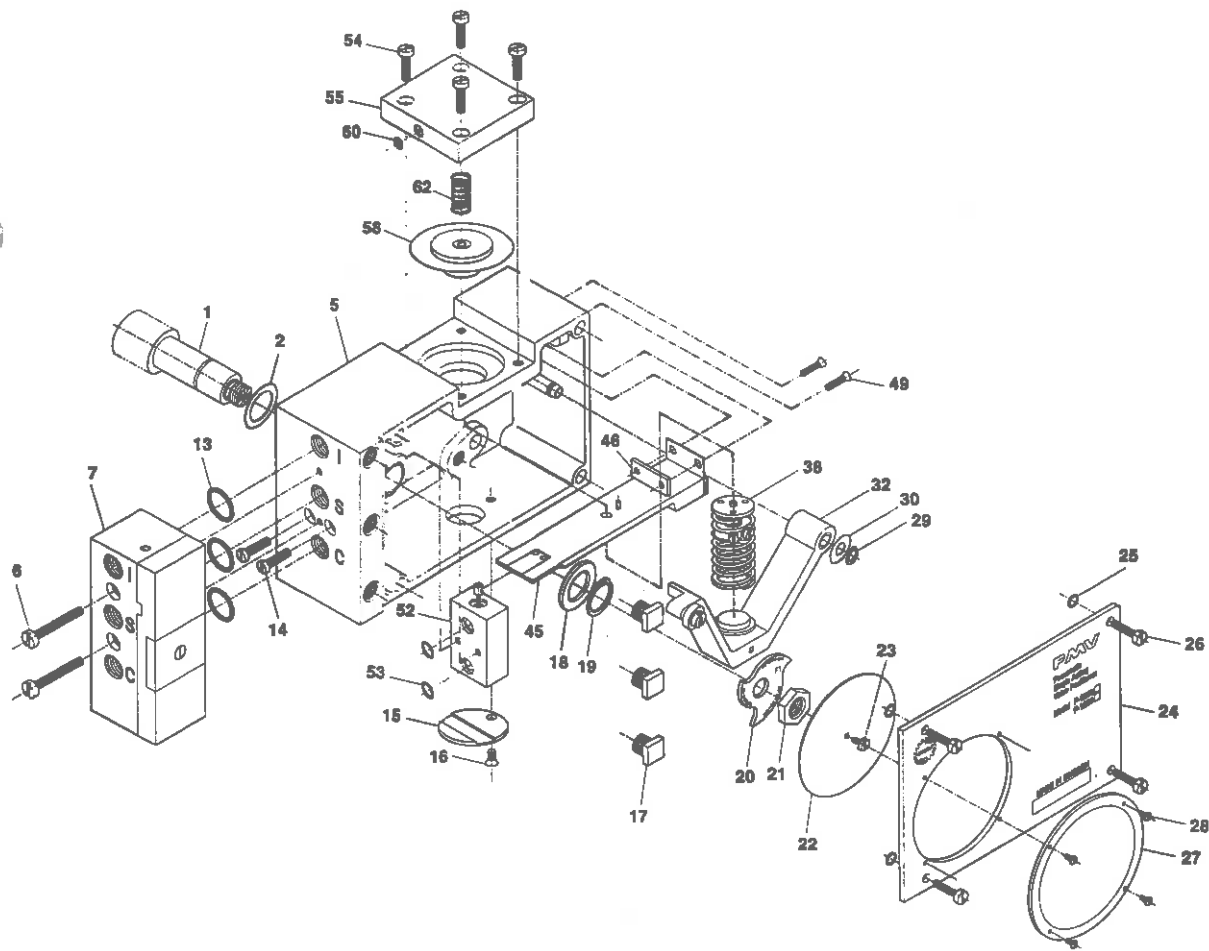


Figure 36

Material specification

No	Part No	Description	Swedish standard	British standard	Comments
1	—	Spindle	Stainless steel SIS 142346	BS 303 S 21	C1, PMV std.
2	11997	Washer	Nylon	Nylon	
5	—	Housing	Back-anodized alum. SIS 144253	BS LM 9	Not available
6	12002	Screw	Zincified steel		
7	—	By-pass	Back-anodized alum. SIS 144104	BS H 9	
13	12009	O-ring	Neoprene	Neoprene	
14	12010	Screw	Zincified steel		
15	11648	Cover	Back-anodized alum. SIS 144212	BS H 30	
16	12011	Screw	Zincified steel		
17	12047	Plug	PVC plastic		
18	12053	Washer	Stainless steel SIS 142346	BS 303 S 21	
19	12054	Circlip	Steel		
20	11606	Cam	Anodized aluminium	BS H 15	F1, PMV std.
21	19008	Nut	Stainless steel SIS 142333	BS 303 S 21	
22	—	Indicator	Polycarbonate plastic		
23	23431	Screw	Zincified steel		
24	—	Front cover	Back-anodized alum. SIS 144007	BS 1 B	
25	12291	O-ring	Neoprene	Neoprene	
26	12029	Screw	Zincified steel		
27	—	Cover	Polycarbonate plastic		
28	23430	Screw	Stainless steel SIS 142346	BS 303 S 21	
29	12032	Circlip	Steel		
30	12033	Washer	Stainless steel		
32	11543	Lower arm assy.	Anodized aluminium		Assembly
38	13447	Spring assy.	Stainless steel		Assembly
45	11640	Balance arm assy.	Back-anodized aluminium		Assembly
46	11643	Spring retainer	Zincified steel		
49	12675	Screw	Zincified steel		
52	13434	Pilot valve, 3.5 mm	Brass with stainless steel inserts		Assembly
52	13435	Pilot valve, 5.0 mm	Brass with stainless steel inserts		Assembly
53	12093	O-ring	Neoprene	Neoprene	
54	12029	Screw	Zincified steel		
55	11550	Cover	Back-anodized alum. SIS 144104	BS H 9	
58	11555	Membrane assy.	Acrylnitril-Butadien-Caouthchouc		Assembly
60	12291	O-ring	Neoprene	Neoprene	
62	11312	Spring	Stainless steel		



Order information:
A3 for G 1/4"-19 male connectors
A4 for 1/4"-18 NPT male connectors

Gauges (optional):
0-250 kPa (0-35 psi) I-port, PMV P/N 11204
0-1 MPa (0-150 psi) S and C-port, PMV P/N 11205

Bypass (optional):
G2 for C to I, PMV P/N 11201
G3 for C to S, PMV P/N 11202
G4 for C to free outlet, PMV P/N 11203