

spirax sarco

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CH Issue 3

PM6 Stainless Steel Piston Actuated Modulating Control Valves

Description

The PM6 is a 2-port pneumatically actuated modulating stainless steel control valve designed for use on steam, water, air, oil, gases and vacuum applications. As standard it is fitted with a PEEK plug seal for operation up to 180°C, and both the body and shaped-plug have undergone a hardening treatment.

Valves are available with one of two sizes of actuator:

Type 2 (63 mm) and **Type 3** (90 mm) with the following action:

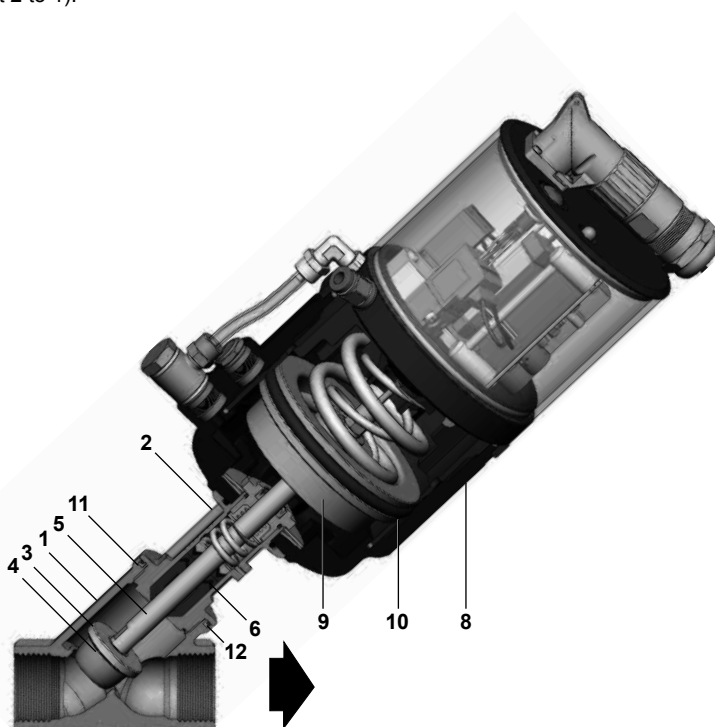
- **NC (Normally Closed)** - Designed for flow under the seat (port 2 to 1).

Valves are available with the following fail safe options:

C - Closed	The valve fails in the closed position
M - Maintained	The valve fails in the last known operating position

Materials

No.	Part	Material
1	Body	Stainless steel AISI 316L
2	Bonnet	Stainless steel AISI 316L
3	Plug	Stainless steel AISI 316L
4	Valve plug seal	PEEK
5	Valve stem	Stainless steel AISI 316L
6	Stem seals	PTFE + Carbographite
7	Stem 'O' ring (Not shown)	FKM
8	Actuator housing	30% glass filled polyamide
9	Piston	Aluminium
10	Piston 'O' ring	NBR
11	Gasket	PTFE
12	'O' ring	FKM



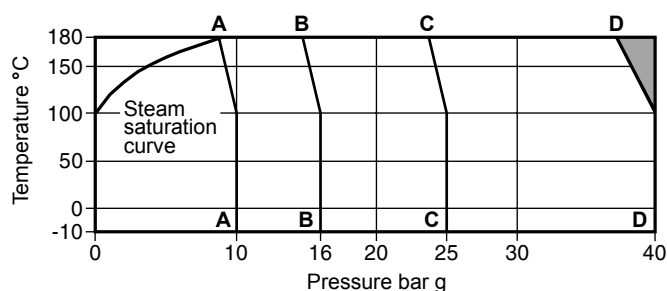
Sizes, pipe connections and actuator combinations

Pipe connections	Valve type C or Valve type M	Actuator type	DN15 ½"	DN20 ¾"	DN25 1"	DN32 1¼"	DN40 1½"	DN50 2"
Screwed to BSP or NPT	PM61GC or PM61GM	-2NC	•	•				
	PM61GC or PM61GM	-3NC			•	•	•	•
Butt weld to DIN 11850 pipe, ASME B 36.10 / ISO 65 pipe or ISO 4200 pipe	PM62GC or PM62GM	-2NC	•	•				
	PM62GC or PM62GM	-3NC			•	•	•	•
Flanged to EN 1092 or ASME Class 150 (welded on flanges)	PM63GC or PM63GM	-2NC	•	•				
	PM63GC or PM63GM	-3NC			•	•	•	•
Socket weld to ASME B 36.10 / ISO 65 pipe	PM64GC or PM64GM	-2NC	•	•				
	PM64GC or PM64GM	-3NC			•	•	•	•
* Sanitary clamp to ISO 2852 or ASME BPE	PM65GC or PM65GM	-2NC	•	•				
	PM65GC or PM65GM	-3NC			•	•	•	•

* Notes:

1. DN32 is not available with ASME BPE end connections
2. Clamp and clamp gasket are not included

Pressure / temperature limits



The product **must not** be used in this region or beyond the body design conditions quoted in the table below as damage to the internals will occur.

A - A PN10
B - B PN16 and ASME 150
C - C PN25
D - D PN40

Body design conditions	Screwed, butt weld, socket weld and flanged EN 1092	DN15 - DN25 (½" - 1")	PN40
		DN32 and DN40 (1¼" - 1½")	PN25
		DN50 (2")	PN16
	Flanged ASME	DN15 - DN50 (½" - 2")	Class 150
	Sanitary clamp compatible connections	DN15 - DN50	PN10
Maximum design pressure		Refer to the graph above	
Maximum design temperature		180°C	
Minimum design temperature		-10°C	
Maximum operating pressure for saturated steam service		9 bar g @ 180°C	
Maximum operating temperature		180°C	
Minimum operating temperature		-10°C	
Ambient temperature limits		Maximum	60°C
		Minimum	-10°C
Maximum differential pressure		(see bottom of the page)	
Designed for a maximum cold hydraulic test pressure of:		1.5 x Maximum design pressure (PN rating)	
Maximum test pressure is equal to the maximum differential pressure			

Technical details

Leakage	PEEK soft seal	ASME Class VI
Flow characteristic	Equal percentage	
Flow direction	Flow under seat	Port 2 to 1
Pilot media	Instrument quality air	60°C maximum
Actuator rotation	360°	
Actuator type and size	Pilot connection	
	Maximum pilot pressure	
	Type 2 = 63 mm diameter	Push-in type to suit Ø6 mm pipe
	Type 3 = 90 mm diameter	Push-in type to suit Ø6 mm pipe

Kvs values

Size	DN15 ½"	DN20 ¾"	DN25 1"	DN32 1¼"	DN40 1½"	DN50 2"
Kvs	4.5	8.7	12.7	19.8	29.7	36.3

For conversion: $C_v (UK) = K_v \times 0.963$ $C_v (US) = K_v \times 1.156$

ΔPMX - Maximum differential pressures for PM6 piston actuated valves

* Notes:

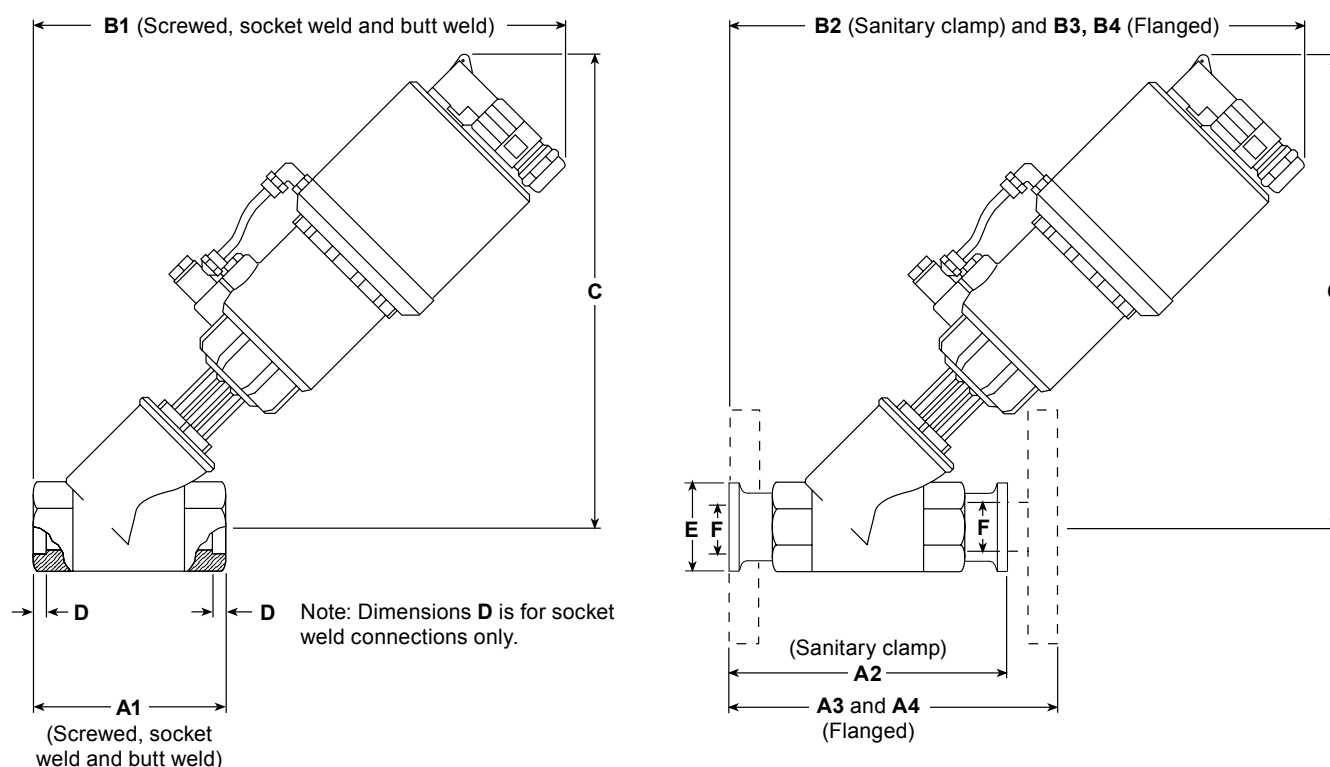
- Maximum differential pressure for saturated steam service is 9 bar g.
- Sanitary clamp connections are limited to PN10 pressure rating.
- ASME flange connections are limited to ASME 150 pressure rating.

Model	Valve size	Actuator diameter (mm)	Flow direction (port 2 to 1)	* Maximum differential pressure (bar)	Pilot pressure Minimum (bar)	Pilot pressure Maximum (bar)
PM6_GC-2NC and PM6_GM-2NC	DN15 - (½")	63	under seat	16	4.5	8
	DN20 - (¾")	63	under seat	16	4.5	8
	DN25 - (1")	90	under seat	14	4.5	8
PM6_GC-3NC and PM6_GM-3NC	DN32 - (1¼")	90	under seat	12	4.5	8
	DN40 - (1½")	90	under seat	8	4.5	8
	DN50 - (2")	90	under seat	6	4.5	8

Dimensions and weights (approximate) in mm and kg

Valve size	Actuator type and size	Screwed, socket weld and butt weld					EN 1092 A3	ASME 150 A4	Flanged		C	Weight
		A1	B1	C	D†	Weight			EN 1092 B3	ASME 150 B4		
DN15 - ½"	2 (63 mm)	65	294	269.0	5	2.4	130	139.7	323	321	292	3.8
DN20 - ¾"	2 (63 mm)	75	301	274.0	7	2.5	150	152.4	330	327	297	4.2
DN25 - 1"	3 (90 mm)	90	316	285.0	8	3.3	160	165.1	344	343	307	5.7
DN32 - 1¼"	3 (90 mm)	110	329	292.5	10	3.7	180	184.2	359	357	316	7.3
DN40 - 1½"	3 (90 mm)	120	334	297.5	12	3.9	200	203.2	361	361	319	8.2
DN50 - 2"	3 (90 mm)	150	352	306.5	16	4.6	230	228.6	384	384	330	10.4

† Dimension 'D' is for socket weld connections only.



Valve size	Actuator type and size	Sanitary clamp (to ISO 2852)						Sanitary clamp (ASME BPE)					
		A2	B2	C	E	F	Weight	A2	B2	C	E	F	Weight
DN15 - ½"	2 (63 mm)	102	313.0	269.0	34.0	17.2	2.5	102	313.0	269.0	25.0	9.4	2.5
DN20 - ¾"	2 (63 mm)	114	320.5	274.0	34.0	21.3	2.7	114	320.5	274.0	25.0	15.75	2.7
DN25 - 1"	3 (90 mm)	140	341.0	285.0	50.5	25.0	3.7	140	341.0	285.0	50.5	22.1	3.7
DN32 - 1¼"	3 (90 mm)	159	353.5	292.5	50.5	33.7	4.1	-	-	-	-	-	-
DN40 - 1½"	3 (90 mm)	159	353.5	297.5	64.0	40.0	4.5	159	353.5	297.5	50.5	34.8	4.5
DN50 - 2"	3 (90 mm)	190	372.0	306.5	64.0	51.0	5.3	190	372.0	306.5	64.0	47.5	5.3

Valve selection guide

Valve size	DN15 (½"), DN20 (¾"), DN25 (1"), DN32 (1¼"), DN40 (1½") and DN50 (2")	DN25
Valve type	P = Piston valve	P
Valve characteristic	M = Modulating	M
Body material	6 = Stainless steel	6
Connections	1 = Screwed BSP or NPT	3
	2 = Butt weld Note: state pipeline connection when ordering: - DIN 11850 pipe - ASME B 36.10 / ISO 65 pipe - ISO 4200 pipe	
	3 = Flanged EN 1092 or ASME Class 150 (welded on flanges)	
	4 = Socket weld ASME B 36.10 / ISO 65 pipe	
	5 = Sanitary clamp Note: state pipeline connection ISO 2852 or ASME BPE when ordering	
Valve plug seal	G = PEEK	G
Fail safe position	C = Closed	C
	M = Maintained	
Actuator type	2 = 63 mm diameter	2
	3 = 90 mm diameter	
Valve position	NC = Normally Closed	NC
Control signal	mA = 4 - 20 mA	mA

Note: Shaded areas represent fixed parameters

Valve selection guide example

DN25 PM6 3 G C - 2 NC - mA Flanged EN 1092 PN40

How to order

Example: 1 off Spirax Sarco DN25 PM63GC-2NC-mA stainless steel piston actuated modulating valve having flanged EN 1092 PN40 connections.

Spare parts

Electronic board spare kit

Transducer spare kit

Inlet microvalve spare kit

Outlet microvalve spare kit

A seal kit is available for all valve and actuator sizes comprising: Piston 'O' ring, stem 'O' ring, valve head seal, PEEK body seal and 'O' ring.

How to order spares

Always order spares by specifying the valve size, type and date code (given on the actuator label i.e. 120 = week 12, year 2000).

Example: 1 off Seal kit for a 1" PM61GC-2NC-mA, date code 120.

Safety information, installation and maintenance

For full details, see the Installation and Maintenance Instructions supplied with the product.

Installation note: These valves can be mounted in any orientation. The actuator can be rotated 360° in the direction indicated on the product label to facilitate easy pilot mounting connection.