



Cert. No. LRQ 0963008

ISO 9001

# spirax sarco

## PM6

**TI-P373-17**  
 CH Issue 2

## 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:

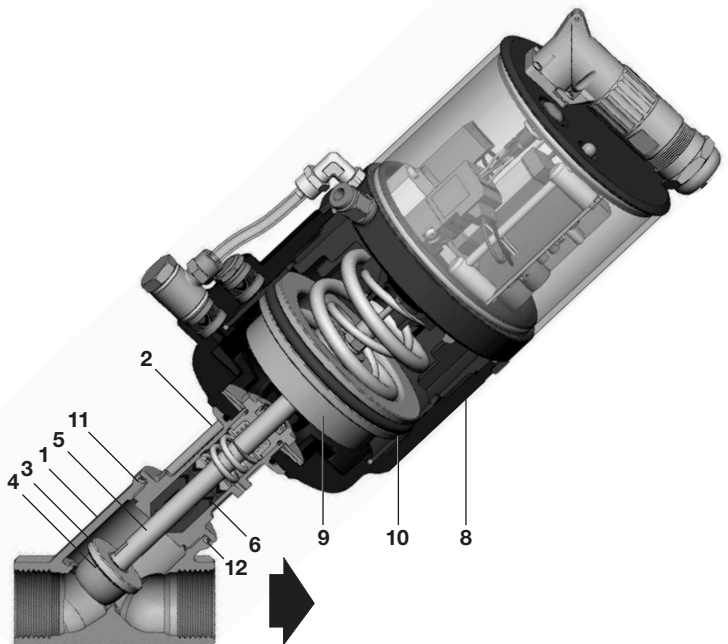
- **NC (Normally Closed)** - Designed for flow under the seat (port 2 to 1).

Valves are available with the following fail safe options:

<b>C - Closed</b>	The valve fails in the closed position
<b>M - Maintained</b>	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



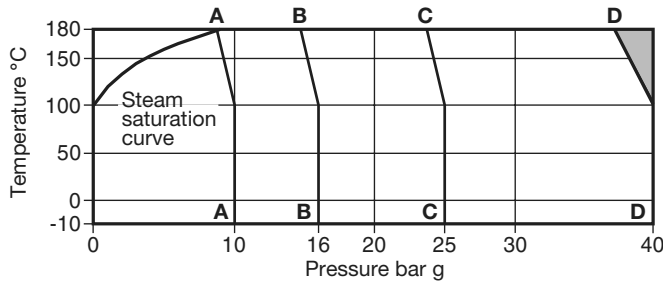
### Sizes, pipe connections and actuator combinations


Pipe connections	Valve type C	or Valve type M	Actuator type	DN15 1/2"	DN20 3/4"	DN25 1"	DN32 1 1/4"	DN40 1 1/2"	DN50 2"
Screwed to BSP or NPT	PM61GC	or PM61GM	-2NC	•	•				
	PM61GC	or PM61GM	-3NC			•	•	•	•
Butt weld to DIN 11850 pipe, ASME (ANSI) B 36.10/ISO 65 pipe or ISO 4200 pipe	PM62GC	or PM62GM	-2NC	•	•				
	PM62GC	or PM62GM	-3NC			•	•	•	•
Flanged to EN 1092 or ASME (ANSI) Class 150 (welded on flanges)	PM63GC	or PM63GM	-2NC	•	•				
	PM63GC	or PM63GM	-3NC			•	•	•	•
Socket weld to ASME (ANSI) 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 (ANSI) 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 (ANSI)	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		
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

<b>Leakage</b>	PEEK soft seal	ANSI class VI
<b>Flow characteristic</b>	Equal percentage	
<b>Flow direction</b>	Flow under seat	Port 2 to 1
<b>Pilot media</b>	Instrument quality air	60°C maximum
<b>Actuator rotation</b>	360°	
<b>Actuator type and size</b>	<b>Pilot connection</b>	
	<b>Maximum pilot pressure</b>	
	<b>Type 2</b> = 63 mm diameter	Push-in type to suit Ø6 mm pipe
<b>Type 3</b> = 90 mm diameter	Push-in type to suit Ø6 mm pipe	8 bar g

## Kvs values

Size	DN15	DN20	DN25	DN32	DN40	DN50
	½"	¾"	1"	1¼"	1½"	2"
<b>Kvs</b>	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:

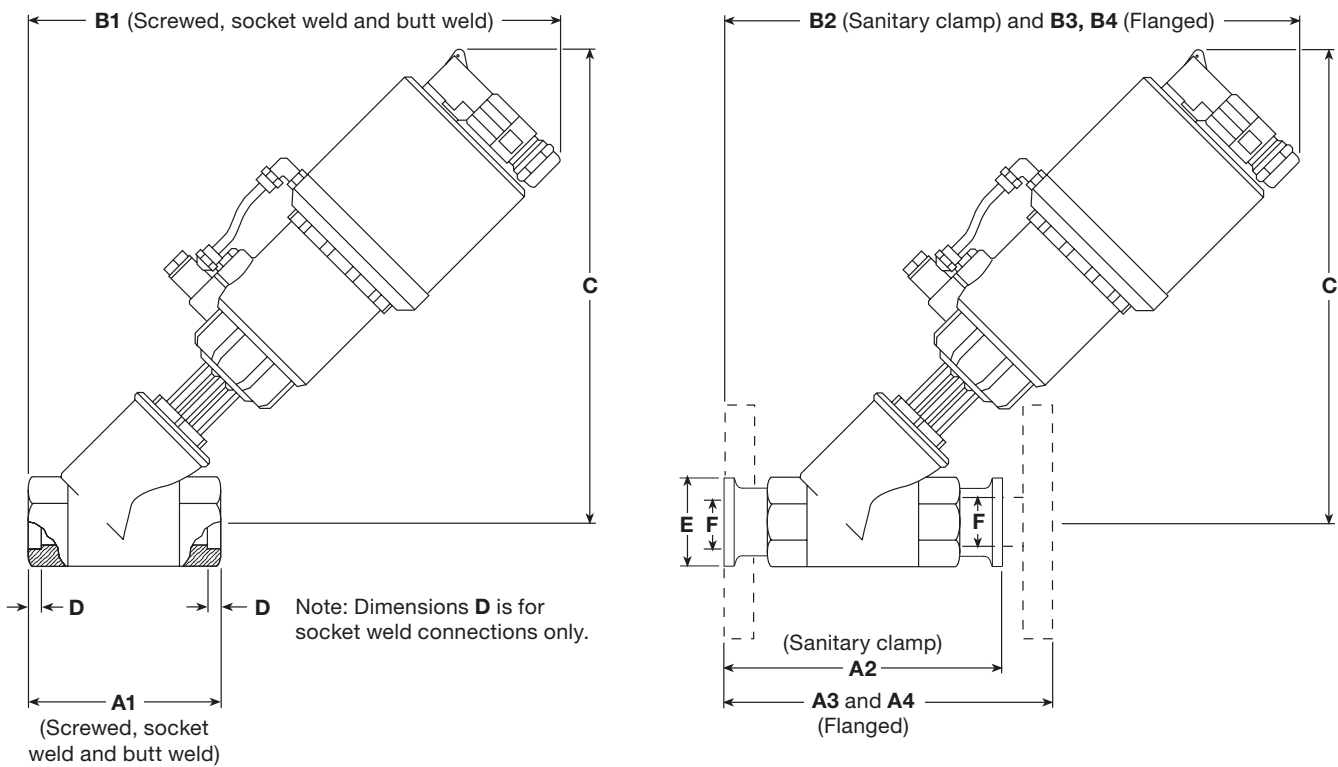
- Maximum differential pressure for saturated steam service is 9 bar g.
- Sanitary clamp connections are limited to PN10 pressure rating.
- ASME (ANSI) flange connections are limited to ASME 150 pressure rating.

Model	Valve size	Actuator diameter (mm)	Flow direction (port 2 to 1)	* Maximum differential pressure (bar)	Pilot pressure	
					Minimum (bar)	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
PM6_GC-3NC and PM6_GM-3NC	DN25 - (1")	90	under seat	14	4.5	8
	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					Flanged					
		A1	B1	C	D †	Weight	EN 1092 A3	ASME 150 A4	EN 1092 B3	ASME 150 B4	C	Weight
DN15 - 1/2"	2 (63 mm)	65	294	269.0	5	2.4	130	139.7	323	321	292	3.8
DN20 - 3/4"	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 - 1 1/4"	3 (90 mm)	110	329	292.5	10	3.7	180	184.2	359	357	316	7.3
DN40 - 1 1/2"	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 - 1/2"	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 - 3/4"	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 - 1 1/4"	3 (90 mm)	159	353.5	292.5	50.5	33.7	4.1	-	-	-	-	-	-
DN40 - 1 1/2"	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

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

**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.