

Control Piston Actuated Valve with Integrated Positioner

DN15 to DN50 – Stainless Steel

Valve Specifications	
Type: ZP flow always under seat 2 → 1	NC (Direct) / NO (Reverse)
Media	Water, oil, air, aggressive media, steam ¹
Media Temperature	-10 to +180 °C
Ambient Temperature	-10 to +60 °C
Pilot Media ²	Instrument air, inert gases (filtered with mesh 5 µ)
Body Material	Cast AISI 316L (CF3M), see Piston Actuated Valves Catalogue
Tube Material	AISI 316L (CF3M)
Process Connection	All connection types available for ON/OFF valve range in Stainless Steel
Bonnet Material	Cast AISI 316L (CF3M), see Piston Actuated Valves Catalogue
Actuator Body Material	Polyamide PA6 (reinforced fiberglass 30%)
Main Seal Material	PTFE
Flow Characteristic	Linear or equal-percentage
Positioner Specifications	
Power Supply	24 VDC ± 10%
Input Signal	4–20 mA, 0 to 5 / 10 V
Power Consumption	< 4W
Output	4–20 mA
Output Characteristics	Linear, EQ%, User Set (16 points)
Operating Temperature	-10 to 60 °C
Supply Pressure	Max 7 bar
Air Consumption	0 LPM
Filtering size	5 micron
Air Connection	G1/8" (Ø 6 mm tube)
Electrical Connection	Conduit M16 x 1.5 (with screw terminals)
Ingress Protection	IP67
Body Material	PPS
Cover Material	PC

Features and Benefits

Piston Actuated Valve

- Accuracy of control thanks to specifically trimmed plug profiles
- Universal design suitable for vacuum applications up to 10⁻² mbar
- Water-hammer free design
- Extended cycle life thanks to self-registering gland and chevron packing
- Optimized control characteristic with high flow rate and low pressure drop

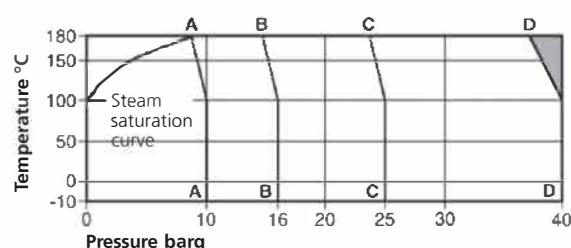
Smart Positioner Design Features (solenoid technology)

- Fail Freeze and Fail Safe function
- LCD display
- Feedback signal. 4-20 mA output option
- Auto calibration
- Low air consumption level
- Front panel pushbuttons for configuration



Valve Options	Code Examples
Main Seal material in Peek ¹	ZP*205SPWEK
Body and Shaped plug with hardening treatment ¹	ZP*205SPWEK
Positioner Options	
Fail Option: Safe (S) or Freeze (F)	SNG10S or SNG10F
Feedback output option: 4-20 mA (1)	SNG11S or SNG11F

¹ Seal in peek and hardened nickel plated body usually match together to improve valve life in severe applications



A – A PN10
B – B PN16 - ANSI 150
C – C PN25
D – D PN40

The product must not be used in this region or beyond the body design conditions (PN) quoted in the selection chart as damage to the internals will occur!

DN	Flow Rate ⁴ Equl% 1:25	Flow Rate ⁴ linear 1:25	Working Pressure ¹ Max.	Flow Direction	Pilot Pressure Min.	Pilot Pressure Max.	Actuator Ø	PN ³	Valve Code (* is the connection ref. to be selected in the coding table)		Positioner Code
[mm]	Kvs [m3/h]	Kvs [m3/h]	[barg]	[2 → 1]	[barg]	[barg]	[mm]	—	EQ%	Linear	Fail Safe, no feedback
15	4.5	4.9	16	Only under seat	4.5	7	63	40	ZP*205STWE0	ZP*205STWL0	SNG10S
20	8.7	8.7	16					40	ZP*206STXE0	ZP*206STXL0	
25	12.7	14.4	14					40	ZP*207LTYE0	ZP*207LTYL0	
32	20.4	22.8	12	Only under seat	4.5	7	90	25	ZP*208LTYE0	ZP*208LTYL0	
40	29.7	34.2	8					25	ZP*209LTKE0	ZP*209LTKL0	
50	36.3	39	6					16	ZP*210LTYE0	ZP*210LTYL0	

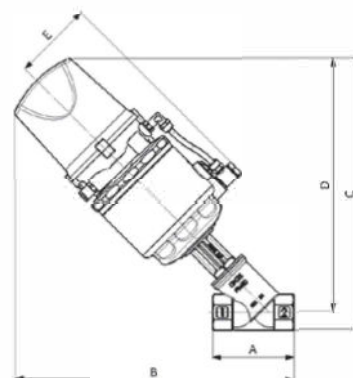
Notes:

1. Steam max. working pressure 10 bar (9 barg)
2. Please contact M&M sales department for other pilot media
3. PN 10 for all sizes with Clamp connection
4. Flow values shown in the selection table are subject to a tolerance of ±15%

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GAS - NPT - WELDED ENDS	Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
	Actuator	[mm]	Ø 63		Ø 90			
	A	[mm]	64	75	90	110	120	150
	B	[mm]	287	293	309	322	327	345
	C	[mm]	280	287	302	315	323	338
	D	[mm]	266	271	282	290	295	304
	Weight	[kg]	1.9	2	2.8	3.2	3.4	4.1



FLANGED EN1092-1	Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
	Actuator	[mm]	Ø 63		Ø 90			
	A	[mm]	130	150	160	180	200	230
	B	[mm]	325	332	345	360	365	386
	C	[mm]	347	356	368	392	403	418
	D	[mm]	299	303	315	322	327	335
	Weight	[kg]	3.3	3.7	5.2	6.8	7.7	9.9

FLANGED ANSI B16.5	Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
	Actuator	[mm]	Ø 63		Ø 90			
	A	[mm]	139.7	152.4	165.1	184.2	203.2	228.6
	B	[mm]	323	328	346	358	365	386
	C	[mm]	344	352	369	381	391	411
	D	[mm]	299	303	315	322	327	335
	Weight	[kg]	3.3	3.7	5.2	6.8	7.7	9.9

CLAMP ISO 2852	Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
	Actuator	[mm]	Ø 63		Ø 90			
	A	[mm]	102	114	140	159	159	190
	B	[mm]	306	313	334	347	347	365
	C	[mm]	283	288	307	315	327	338
	D	[mm]	266	271	282	290	295	304
	Weight	[kg]	2	2.2	3.2	3.6	4	4.8

CLAMP ASME BPE	Dimensions & Weights		DN15	DN20	DN25	DN32	DN40	DN50
	Actuator	[mm]	Ø 63		Ø 90			
	A	[mm]	102	114	140	/	159	190
	B	[mm]	306	313	334	/	347	385.3
	C	[mm]	280	287	307	/	323	331.5
	D	[mm]	266	271	282	/	295	304
	Weight	[kg]	2	2.2	3.2	/	4	4.8

Regulatory

The products listed below comply with the requirements of the European Pressure Equipment Directive 2014/68/EU and carry the CE mark when required. The products fall within the following Pressure Equipment Directive categories:

Valve Type	Bodies	Group 1 gases	Group 1 liquids and Group 2 other fluids
ZPG - ZPR - ZPN - ZPC - ZPP - ZPA - ZPD -	DN15 to DN25 (PN40)	SEP (art. 4.3)	SEP (art. 4.3)
	DN32 to DN40 (PN25)	Category I	SEP (art. 4.3)
	DN50 (PN16)	Category I	SEP (art. 4.3)

⚠ WARNING!

According to the European Pressure Equipment Directive 2014/68/UE, liquids whose saturated vapour pressure at the maximum allowable temperature is more than 0,5 barg shall be considered as gases.

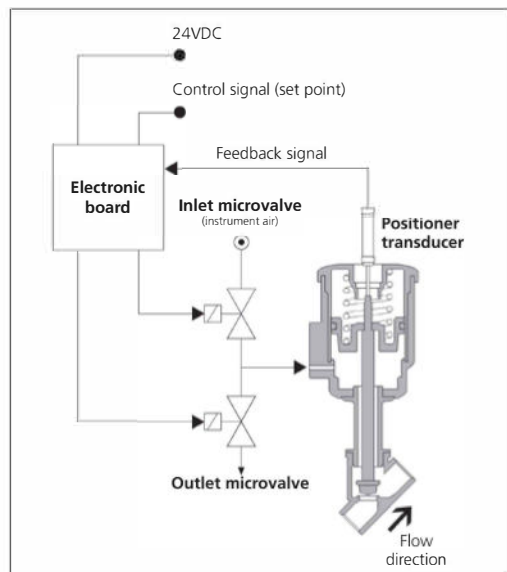
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Operating Principles and Description

M&M control piston actuated valves are operated by a compact pneumatic integrated positioner working in a closed loop. Picture A shows the operating layout: the set-point signal (coming from the control panel of the plant) is compared with the internal signal (feed-back) of the position sensor. When the two values don't match, the electronic system inside the valve operates two microvalves (which open or close the pilot air feeding) to change the stroke until both signals match.

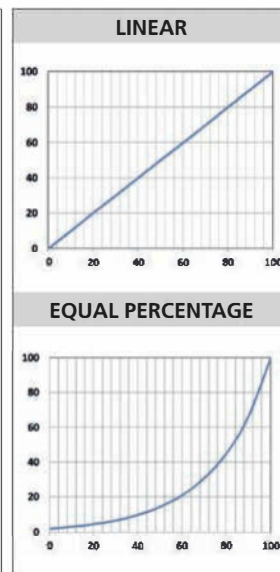
The proportionality between the stroke of the valve and the instantaneous flow is guaranteed by the special plug design: linear plug and equal percentage plug (Picture C) the graphs show an ideal curve, which cannot be reproduced exactly but varies according to the DN of the valve and the specific installation parameters. When fully closed the valve is leakage tight thanks to the soft seal, as in M&M standard on/off piston actuated valves (see Picture B).



Picture A



Picture B



Picture C

Coding chart

Valve type / function	Process connection*	Valve head (to match DN)	Main seal material	DN (mm)	Plug options	Special Features	Positioner
<div> <div>ZP</div> <div>Control Piston Valve fitted with positioner</div> </div>	<div>A</div> <div>Flange to ANSI B10.5</div> <div>C</div> <div>Clamp to ISO 2852</div> <div>D</div> <div>Flange to UNI EN 1092-1</div> <div>G</div> <div>Thread to ISO 228-1</div> <div>N</div> <div>Thread to NPT</div> <div>P</div> <div>Clamp ends to ASME BPE</div> <div>R</div> <div>Spigots to ISO 228-1</div> <div>W</div> <div>Butt weld ends to DIN11850-2</div>	<div>205S</div> <div>For DN15</div> <div>206S</div> <div>For DN20</div> <div>207L</div> <div>For DN25</div> <div>208L</div> <div>For DN32</div> <div>209L</div> <div>For DN40</div> <div>210L</div> <div>For DN50</div>	<div>T</div> <div>PTFE</div> <div>P</div> <div>PEEK</div>	<div>W</div> <div>DN15</div> <div>X</div> <div>DN20</div> <div>Y</div> <div>DN25</div> <div>Z</div> <div>DN32</div> <div>K</div> <div>DN40</div> <div>J</div> <div>DN50</div>	<div>E</div> <div>Equal %</div> <div>L</div> <div>Linear</div>	<div>O</div> <div>None</div> <div>K</div> <div>Nickel plating hardening treatment</div>	<div>SNG10S</div> <div>No feedback, Fail Safe</div> <div>SNG10F</div> <div>No feedback, Fail Freeze</div> <div>SNG11S</div> <div>Feedback 4-20mA, Fail Safe</div> <div>SNG11F</div> <div>Feedback 4-20mA, Fail Freeze</div>
ZP

Product coding example: ZPN205STWEK-SNG10S Control valve with NPT threaded connection, DN15, main seal in PTFE, equal% plug, fitted with smart linear positioner in fail safe configuration.