

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 + 30% glass fiber |
| 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

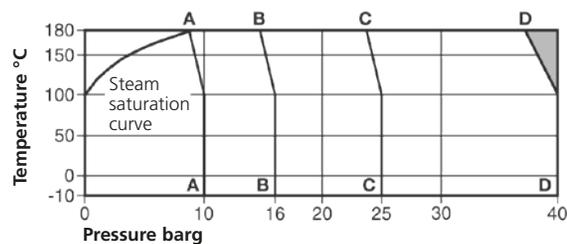


Smart Positioner Design Features (solenoid technology)

- 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*205SPWEEK |
| Body and Shaped plug with hardening treatment ¹ | ZP*205SPWEEK |
| 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 Equi% 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*205STWEO | ZP*205STWLO | SNG10S |
| 20 | 8.7 | 8.7 | 16 | | | | | 40 | ZP*206STXEO | ZP*206STXLO | |
| 25 | 12.7 | 14.4 | 14 | | | | | 40 | ZP*207LTYES | ZP*207LTYSLO | |
| 32 | 20.4 | 22.8 | 12 | Only under seat | 4.5 | 7 | 90 | 25 | ZP*208LTYES | ZP*208LTYSLO | |
| 40 | 29.7 | 34.2 | 8 | | | | | 25 | ZP*209LTKEO | ZP*209LTKLO | |
| 50 | 36.3 | 39 | 6 | | | | | 16 | ZP*210LTYES | ZP*210LTYSLO | |

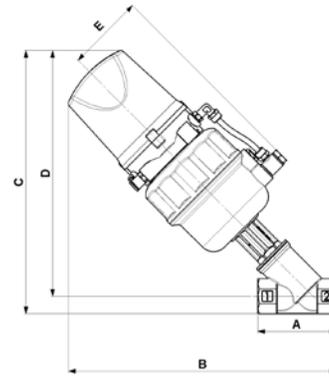
Notes:

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] | 286 | 292 | 306 | 318 | 323 | 341 | |
| C | [mm] | 278 | 286 | 299 | 313 | 321 | 336 | |
| D | [mm] | 265 | 270 | 279 | 289 | 293 | 320 | |
| E | [mm] | 75 | 75 | 90 | 90 | 90 | 90 | |
| 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] | 323 | 331 | 344 | 357 | 362 | 383 | |
| C | [mm] | 345 | 355 | 362 | 389 | 399 | 415 | |
| D | [mm] | 297 | 302 | 311 | 319 | 324 | 332 | |
| E | [mm] | 75 | 75 | 90 | 90 | 90 | 90 | |
| 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] | 321 | 328 | 342 | 355 | 361 | 382 | |
| C | [mm] | 341 | 351 | 365 | 377 | 387 | 409 | |
| D | [mm] | 297 | 302 | 311 | 319 | 324 | 332 | |
| E | [mm] | 75 | 75 | 90 | 90 | 90 | 90 | |
| Weight | [kg] | 3.3 | 3.7 | 5.2 | 6.8 | 7.7 | 9.9 | |

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.

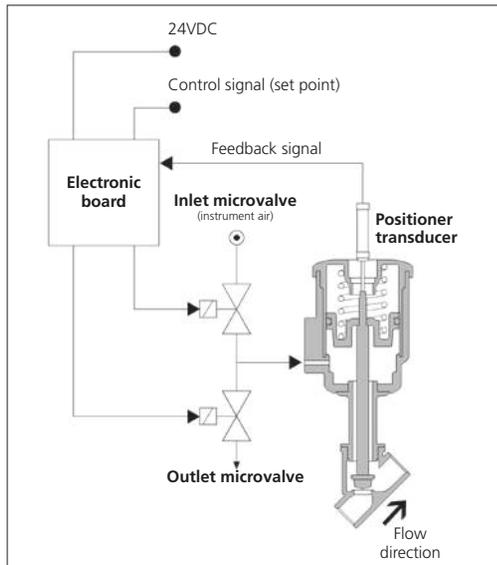
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Operating Principles and Description

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.

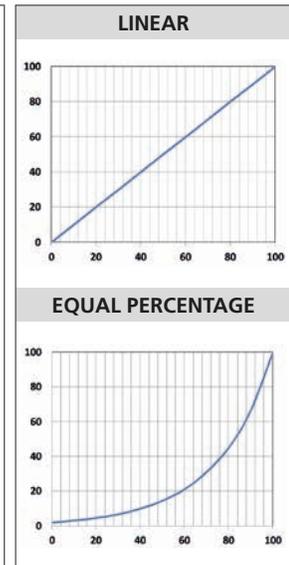
The proportionality between the stroke of the valve and the instantaneous flow is guaranteed by the special plug design: linear plug and equal percentage plug (Picture C) the graphs show an ideal curve, which cannot be reproduced exactly but varies according to the DN of the valve and the specific installation 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

Travel Switch

Technical Specifications

The travel switch detects the open position of the valve relaying back an electrical signal. The signal is provided by a magnetic sensor with a non contact switch (free NC, NO switch)

| Specifications | |
|--------------------------|---|
| Max. Switching Voltage | 500 V |
| Max. Switching Current | 0,5 A |
| Max. Switching Power | 30 W/VA |
| Max. Switching Frequency | 150 Hz |
| Contact Actuation Time | 4,5 ms |
| Repeatability | ± 0,3 mm |
| Temperature Limits | -25 to +100 °C |
| Protection Class | IP67 |
| Housing Material | Brass with electroless nickel plating treatment |
| Plug For Cable | 3x0,5 mm ² ; Ø 4-6 mm (DIN EN 60947/5/2) |



Notes

The option must be expressly requested upon order
It is available for actuators sizes Ø63 & Ø90 only (e.g. code RPG205TWI0)
It is available only assembled ex-factory
ATEX option not available

Stroke Regulator

Features and Benefits

With the stroke regulator the flow be can manually adjusted from 0% to 100% integrated position indicator. In normally open valves it can also be used as manual override. Aluminium knob.

Notes

This option must be expressly requested upon order
It is available for actuators sizes Ø63 & Ø90 only (e.g. code CG2055TWR0)
It is available only assembled ex-factory
Available also on ATEX piston valves

