



# Hydraulic pilot control valves and Feed units

TECHNICAL CATALOG



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#### **Additional information**

This catalog shows the product in the most standard configurations.  
Please contact our Sales Dpt. for more detailed information or special requests.

#### **WARNING!**

All specifications of this catalog refer to the standard product at this date.  
Walvoil, oriented to a continuous improvement, reserves the right to  
discontinue, modify or revise the specifications, without notice.

**WALVOIL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN  
INCORRECT USE OF THE PRODUCT.**

3<sup>rd</sup> edition February 2020

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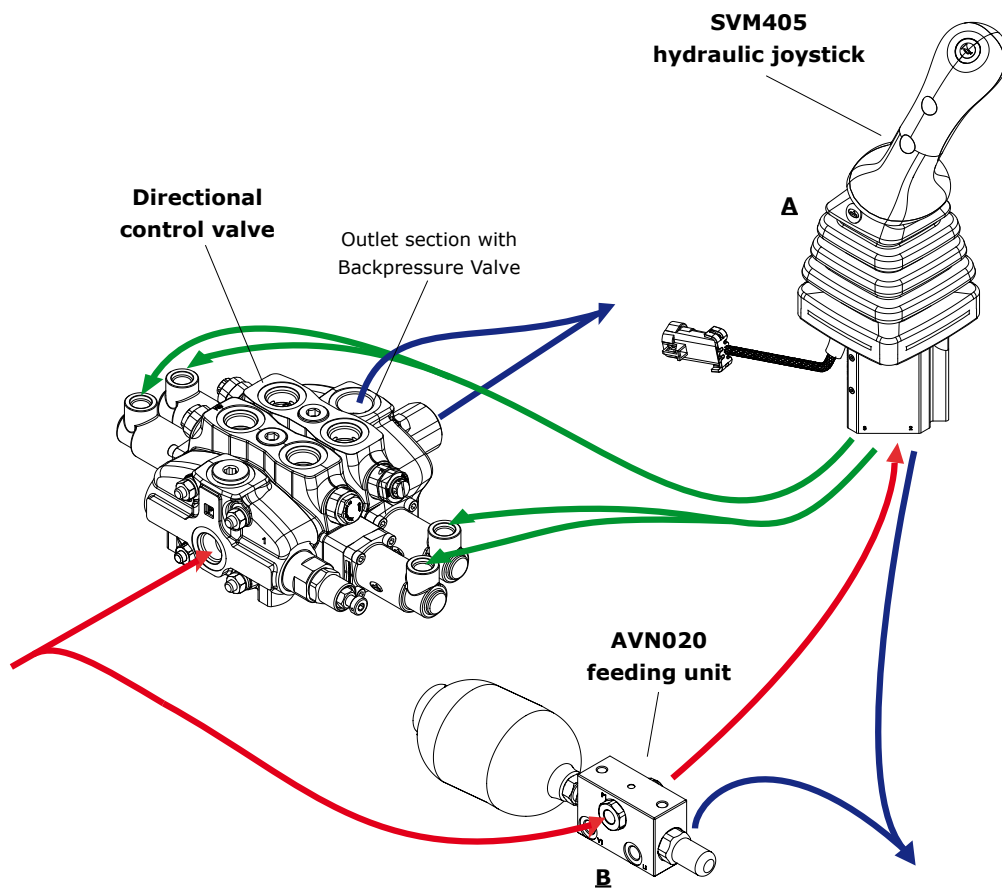
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## System description

This is an ideal hydraulic proportional remote control system when max. movement precision and long-lasting reliability are required.

The system needs a secondary circuit with low pressure pilotage, fed separately by a dedicated pump and in derivation to the primary one. In this last case, it is necessary to include a feeding unit with eventual accumulator for emergency interventions into the circuit.



### A - SVM hydraulic pilot control valve

Walvoil offers a wide range of hydraulic control valves.

The main product lines are:

#### 1) Hydraulic joysticks

##### - SVM100 - SVM101

Hydraulic joysticks, single function available with wide range of handles. Hydraulic control valves available single or assembled from 1 to 10 sections.

##### - SVM400

Hydraulic joystick, double function available with wide range of handles. Single lever joystick to control two directional control valve working sections.

##### - SVM430 series (SVM430 - SVM431 - SVM432)

Special version operation of hydrostatic transmission.

##### - SVM400-EMD

Single electromagnetic detent on all ports or double on opposite ports.

##### - SVM405

Configuration with damping system.

#### 2) Hydraulic joysticks with electromagnetic detent

##### - SVM150

Hydraulic joystick, single axis with electromagnetic detent available in every acting directions. It can be assembled up to 5 sections.

##### - SVM450

Hydraulic joystick, double axis available with a wide range of handles. It can be configured with up to 3 electromagnetic detents.

##### - SVM600

Combined joystick single axis-double axis for three working sections. It can be configured with up to 4 electromagnetic detents.

#### 3) Hydraulic joysticks with pedal and other actuations

##### - SVM510 - SVM520 - SVM521

Pedal joystick to control one or two directional control valve working sections, reduced dimensions and weight.

##### - SVM500 series

Pedal hydraulic pilot valves, available in different configurations. High sensitivity and low force, reduced weight. For agricultural machines and earth moving machines.

##### - SVM540

Double pedal hydraulic pilot valves for mini-excavator application.

##### - SVM701 - SVM710

Unit with single work port, handwheel or pusher operating.

### B - Feed unit and accessories

Feed unit can be chosen between two distinct series available:

#### 1) AVN020

2 way series with or without unloader valve

#### 2) FU series

Range from 1 to 4 stages, with or without hydraulic accumulator.





## SVM hydraulic joysticks

### SVM100-SVM101 / SVM400 / SVM430 series

- Single and double function
- Special configuration for hydrostatic transmission
- Wide range of handles available

### Working conditions

This catalogue shows technical specifications and diagrams measured through mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

|                                       |                                  |                                                                         |
|---------------------------------------|----------------------------------|-------------------------------------------------------------------------|
| Nominal flow rating                   |                                  | from 5 to 20 l/min - <i>from 1.32 to 5.28 USgpm</i>                     |
| Max. feeding pressure                 | on P inlet port                  | from 30 to 100 bar - <i>from 435 to 1450 psi</i>                        |
| Max. backpressure                     | on T outlet port                 | 3 bar - <i>43.5 psi</i>                                                 |
| Max. hysteresis                       |                                  | 0.5 bar - <i>7.25 psi</i>                                               |
| Internal leakage (all ports)          | at 30 bar - <i>435 psi</i> , P⇒T | from 2.5 to 4.5 cm <sup>3</sup> /min - <i>from 0.15 to 0.27 in3/min</i> |
| Fluid                                 |                                  | Mineral oil                                                             |
| Fluid temperature                     | with NBR (BUNA-N) seals          | from -10°C to 80°C - <i>from 14 °F to 176 °F</i>                        |
|                                       | operating range                  | from 15 to 75 mm <sup>2</sup> /s - <i>from 15 to 75 cSt</i>             |
| Viscosity                             | min.                             | 12 mm <sup>2</sup> /s - <i>12 cSt</i>                                   |
|                                       | max.                             | 400 mm <sup>2</sup> /s - <i>400 cSt</i>                                 |
| Max. contamination level              |                                  | -/15/12 - ISO 4406 - <i>NAS1638 class 6</i>                             |
| Ambient temperature                   | without electric devices         | from -40°C to 60°C - <i>from 40 °F to 140 °F</i>                        |
|                                       | with electric devices            | from -20°C to 50°C - <i>from -4 °F to 122 °F</i>                        |
| Tie rod tightening torque (wrench 13) | only for SVM100-101              | 24 Nm - <i>17.7 lbft</i>                                                |

NOTE - for different conditions please contact our Sales Dpt.

### REFERENCE STANDARD

|                               |     | BSP                 | UN-UNF            |
|-------------------------------|-----|---------------------|-------------------|
| THREAD ACCORDING TO           |     | ISO 228/1           | ISO 263           |
|                               |     | BS 2779             | ANSI B1.1 unified |
| CAVITY DIMENSION ACCORDING TO | ISO | 1179                | 11926             |
|                               | SAE |                     | J11926            |
|                               | DIN | 3852-2 shape X or Y |                   |

### PORT THREADING

| PORTS    | Threads         |                    | Fitting tightening torque |       |
|----------|-----------------|--------------------|---------------------------|-------|
|          | UNI EN ISO 1179 | UNI EN ISO 11926-2 | Nm                        | lbft  |
| P Inlet  | G 1/4           | 7/16-20 (SAE 4)    | 30                        | 22.13 |
| Ports    | G 1/4           | 7/16-20 (SAE 4)    | 30                        | 22.13 |
| T Outlet | G 1/4           | 7/16-20 (SAE 4)    | 30                        | 22.13 |

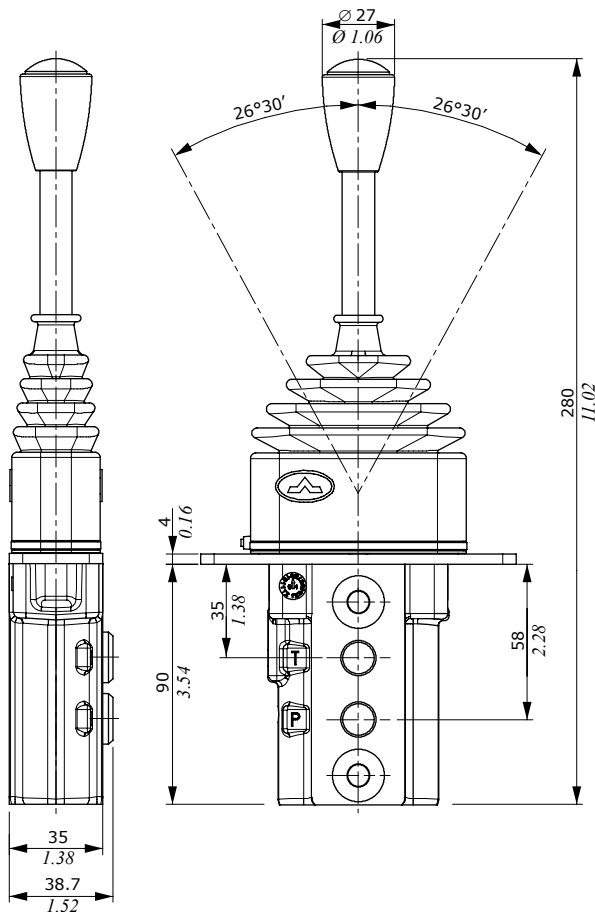
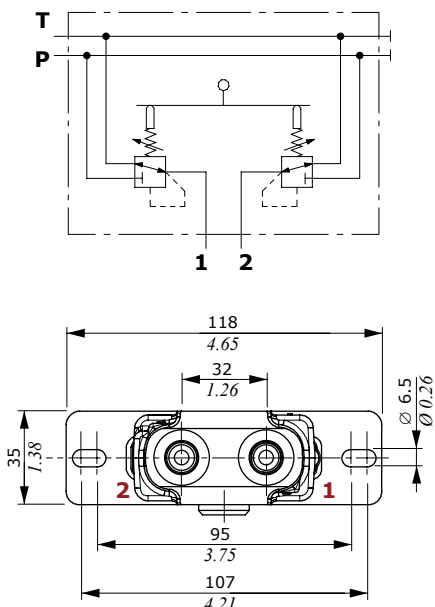
NOTE - These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finishing. The manufacturer has to be consulted.

Dimensions and hydraulic circuit

Single acting version

Single function configuration with side P and T ports.

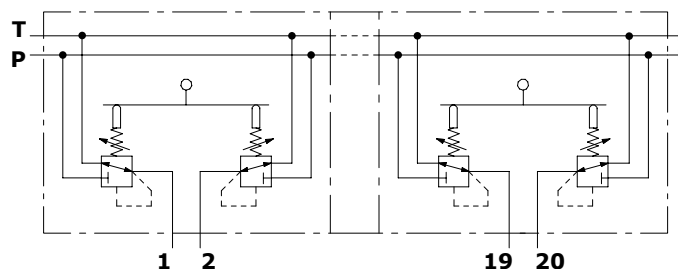
Hydraulic circuit



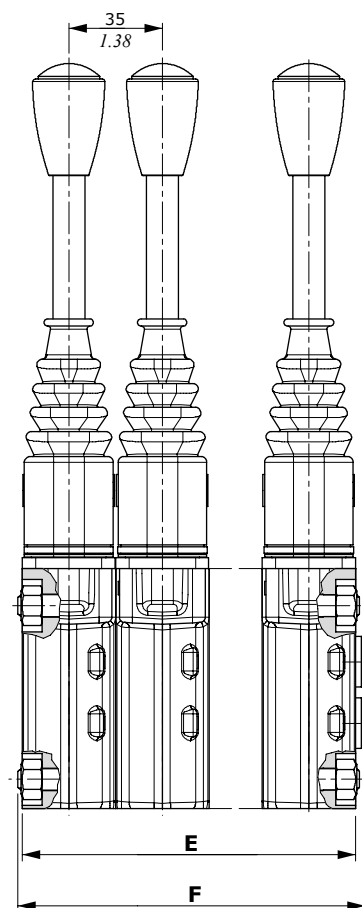
SVM100/n version

Multiple functions configuration with side P and T ports.

Hydraulic circuit



| TYPE     | E   |      | F     |      | TYPE      | E   |       | F     |       |
|----------|-----|------|-------|------|-----------|-----|-------|-------|-------|
|          | mm  | in   | mm    | in   |           | mm  | in    | mm    | in    |
| SVM100/2 | 70  | 2.76 | 75.2  | 2.96 | SVM100/7  | 245 | 9.65  | 250.2 | 9.85  |
| SVM100/3 | 105 | 4.13 | 110.2 | 4.34 | SVM100/8  | 280 | 11.02 | 285.2 | 11.23 |
| SVM100/4 | 140 | 5.51 | 145.2 | 5.72 | SVM100/9  | 315 | 12.40 | 320.2 | 12.61 |
| SVM100/5 | 175 | 6.89 | 180.2 | 7.09 | SVM100/10 | 350 | 13.78 | 355.2 | 13.98 |
| SVM100/6 | 210 | 8.27 | 215.2 | 8.27 |           |     |       |       |       |

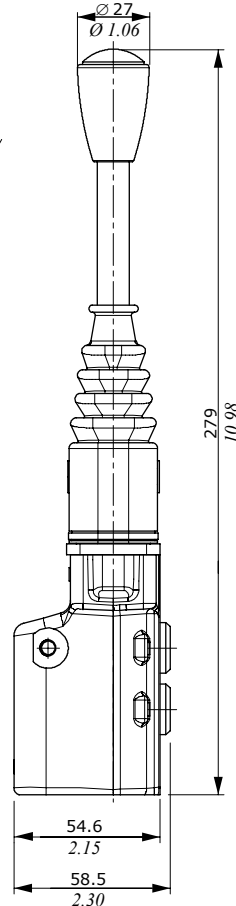
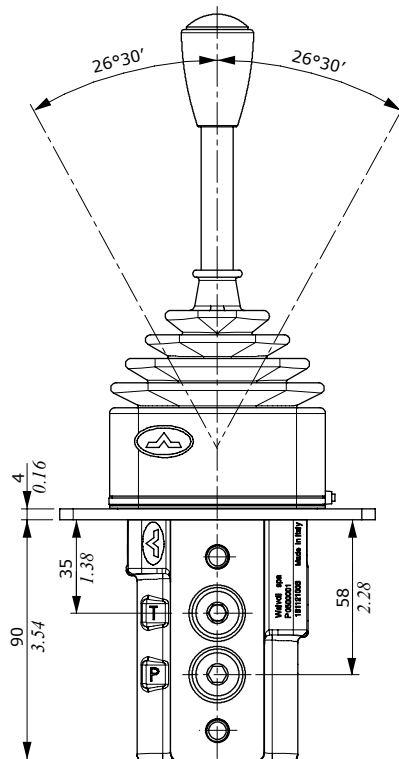
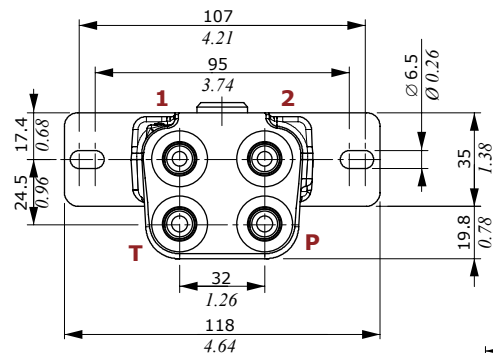
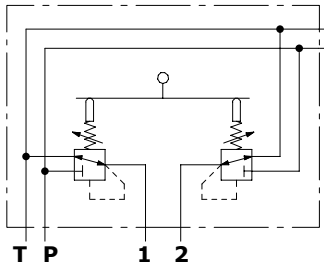


## SVM101/n version

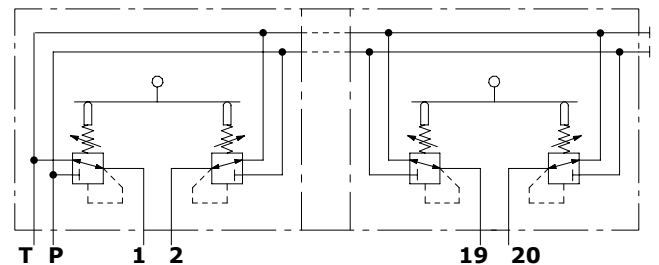
Single function configuration with bottom P and T ports.

Multiple functions configuration with bottom P and T ports.

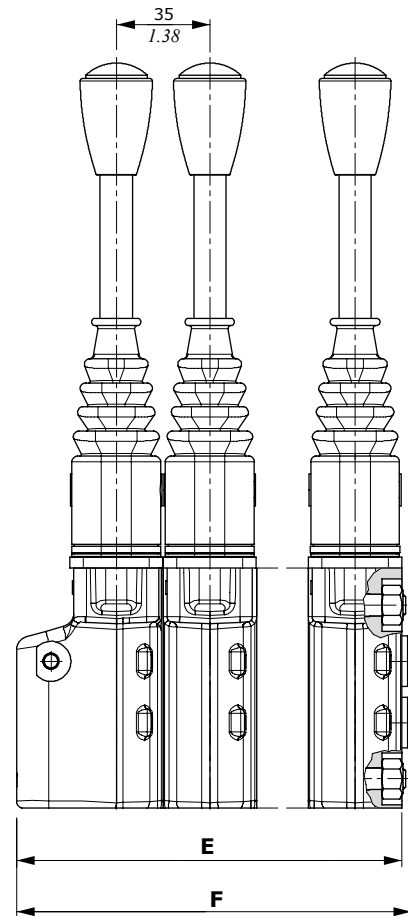
## Hydraulic circuit



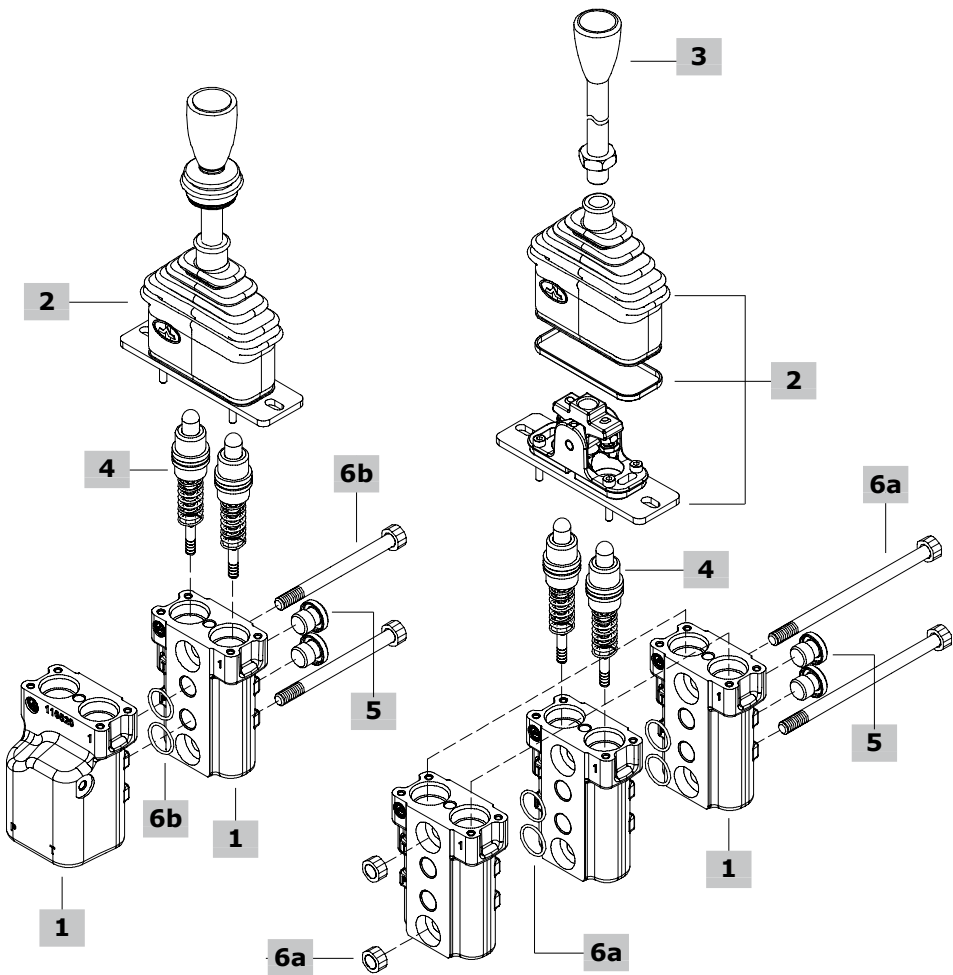
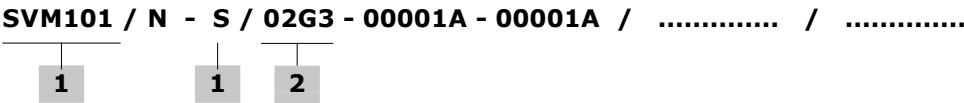
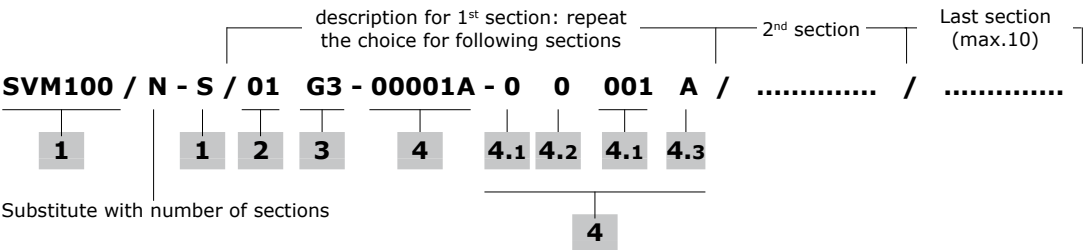
## Hydraulic circuit



| TYPE     | E     |      | F     |      | TYPE      | E     |       | F     |       |
|----------|-------|------|-------|------|-----------|-------|-------|-------|-------|
|          | mm    | in   | mm    | in   |           | mm    | in    | mm    | in    |
| SVM101/2 | 89.6  | 3.53 | 93.3  | 3.67 | SVM101/7  | 264.6 | 10.42 | 268.3 | 10.56 |
| SVM101/3 | 124.6 | 4.91 | 128.3 | 5.05 | SVM101/8  | 299.6 | 11.79 | 303.3 | 11.94 |
| SVM101/4 | 159.6 | 6.28 | 163.3 | 6.43 | SVM101/9  | 334.6 | 13.17 | 338.3 | 13.32 |
| SVM101/5 | 194.6 | 7.66 | 198.3 | 7.81 | SVM101/10 | 369.6 | 14.55 | 373.3 | 14.70 |
| SVM101/6 | 229.6 | 9.04 | 233.3 | 9.18 |           |       |       |       |       |



Ordering codes



**1 Body kit \***

| TYPE            | CODE       | DESCRIPTION               |
|-----------------|------------|---------------------------|
| <b>SVM100-S</b> | 3C03122700 | With side P and T ports   |
| <b>SVM101-S</b> | 3C03122710 | With bottom P and T ports |

**2 Control option**

Complete with rubber bellow and fixing wrapper

| TYPE                                                    | CODE       | DESCRIPTION                                                             |
|---------------------------------------------------------|------------|-------------------------------------------------------------------------|
| <b>Without handlever (for standard handlever see 3)</b> |            |                                                                         |
| <b>01</b>                                               | 5CIN101000 | Spring return to neutral position                                       |
| <b>03S</b>                                              | 5CIN103008 | With friction and neutral sensing, for 10, V, H, P and S series handles |
| <b>05</b>                                               | 5CIN105000 | With detent in pos. 1 and spring return in neutral position             |
| <b>06</b>                                               | 5CIN106000 | With detent in pos. 2 and spring return in neutral position             |
| <b>07</b>                                               | 5CIN107000 | With detent in pos. 1 and 2; spring return in neutral position          |

**Controls with handlevers**

For assembling reasons, the under listed control kits must be supplied complete with handle. Please contact our Sales Department for use with different handles.

|              |            |                                                                                                                              |
|--------------|------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>02G3</b>  | 5CIN102000 | With detent in neutral position, spring return in neutral position and type G knob; can not be used on two adjacent sections |
| <b>03G3</b>  | 5CIN103000 | With friction and neutral sensing, G knob                                                                                    |
| <b>03E3</b>  | 5CIN103005 | As previous, E knob, 15° bending rod                                                                                         |
| <b>03JL3</b> | 5CIN103004 | As previous, L knob with version microswitch                                                                                 |
| <b>10G3</b>  | 5CIN110000 | With friction and detent in neutral, G knob; can not be used on two adjacent sections                                        |
| <b>11G3</b>  | 5CIN111000 | Detent in 3 positions, G knob; can not be used on two adjacent sections                                                      |
| <b>16G3</b>  | 5CIN116000 | With operation microswitch (NO), neutral sensing, spring return in neutral position, G knob                                  |
| <b>20G3</b>  | 5CIN120000 | Detent in position 1 and 2, friction, neutral sensing, G knob                                                                |
| <b>22G3</b>  | 5CIN122000 | With operation microswitch (NO), friction, G knob                                                                            |

**3 Standard handlevers**

The pilot control valve is fitted with G3 handlever (less switches). Here below are listed the available handlevers configurations.

| TYPE                   | CODE        | DESCRIPTION                                    |
|------------------------|-------------|------------------------------------------------|
| <b>Without switch:</b> |             |                                                |
| <b>G3</b>              | 5AST271218G | Ogival with portlight, straight rod (Standard) |
| <b>G3(15)</b>          | 5AST371227G | Ogival with portlight, 15° bending rod         |
| <b>G3(30)</b>          | 5AST371228G | Ogival with portlight, 30° bending rod         |
| <b>E</b>               | 5AST371215E | Spherical with portlight, 15° bending rod      |

**With switch:**

CAUTION: Not available with pilot control valve type 07-16-20-22

| TYPE       | CODE        | DESCRIPTION                           |
|------------|-------------|---------------------------------------|
| <b>JJ3</b> | 5AST271218J | With spring return push-button switch |
| <b>JM3</b> | 5AST271218M | With 3 pos. detent rocker switch      |

For J handle specifications see the "handles and handlevers" catalogue

**4 Pressure control curves**

For list available see from page 25

**4.1 Curve type**

| TYPE     | DESCRIPTION |
|----------|-------------|
| <b>0</b> | Standard    |

**4.2 Typology of curves**

| TYPE     | DESCRIPTION            |
|----------|------------------------|
| <b>0</b> | With step              |
| <b>1</b> | Without step           |
| <b>2</b> | Piecewise with step    |
| <b>3</b> | Piecewise without step |

**4.3 Curve identification**

Progressive number, see tables from page 25

**4.4 Return springs**

| TYPE     | DESCRIPTION                                                        |
|----------|--------------------------------------------------------------------|
| <b>M</b> | Operation range from 18 to 25.5 N - <i>from 4.04 to 5.73 lbf</i>   |
| <b>A</b> | Operation range from 23 to 35.2 N - <i>from 5.17 to 7.91 lbf</i>   |
| <b>B</b> | Operation range from 23 to 68.1 N - <i>from 5.17 to 15.31 lbf</i>  |
| <b>C</b> | Operation range from 89 to 176 N - <i>from 20 to 39.56 lbf</i>     |
| <b>D</b> | Operation range from 110 to 220 N - <i>from 24.73 to 49.46 lbf</i> |
| <b>E</b> | Operation range from 138 to 276 N - <i>from 31 to 62.04 lbf</i>    |

**5 Closing plugs \***

| CODE        | DESCRIPTION                            |
|-------------|----------------------------------------|
| 3XTAP814120 | SAE4 plug for upper ports (n. 2 plugs) |

**6a Assembling kit for SVM100**

Only for SVM100/2 or higher: this kit contains tie rods, nuts and O-ring seal.

| CODE       | DESCRIPTION                  |
|------------|------------------------------|
| 5TIR108073 | Assembling kit for SVM100/2  |
| 5TIR108108 | Assembling kit for SVM100/3  |
| 5TIR108143 | Assembling kit for SVM100/4  |
| 5TIR108178 | Assembling kit for SVM100/5  |
| 5TIR108213 | Assembling kit for SVM100/6  |
| 5TIR108248 | Assembling kit for SVM100/7  |
| 5TIR108283 | Assembling kit for SVM100/8  |
| 5TIR108319 | Assembling kit for SVM100/9  |
| 5TIR108353 | Assembling kit for SVM100/10 |

**6b Assembling kit for SVM101**

Only for SVM101/2 or higher: this kit contains tie rods, nuts and O-ring seal.

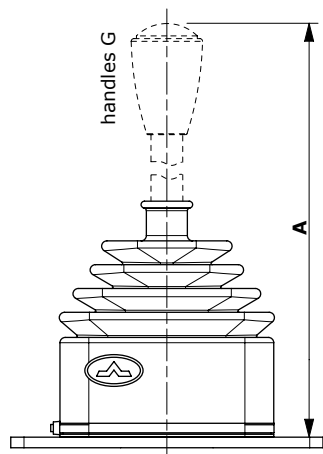
| CODE       | DESCRIPTION                  |
|------------|------------------------------|
| 5TIR108050 | Assembling kit for SVM101/2  |
| 5TIR108085 | Assembling kit for SVM101/3  |
| 5TIR108122 | Assembling kit for SVM101/4  |
| 5TIR108156 | Assembling kit for SVM101/5  |
| 5TIR108190 | Assembling kit for SVM101/6  |
| 5TIR108225 | Assembling kit for SVM101/7  |
| 5TIR108261 | Assembling kit for SVM101/8  |
| 5TIR108295 | Assembling kit for SVM101/9  |
| 5TIR108330 | Assembling kit for SVM101/10 |

NOTE (\*) – Codes are referred to **UN-UNF** thread.

## Configuration option

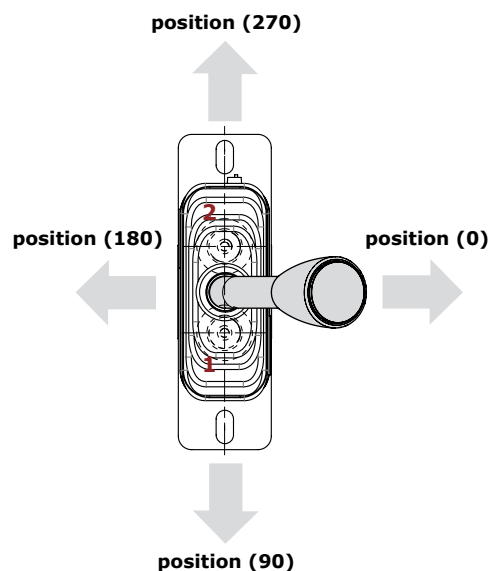
## Controls without handlevers

## Controls type

**01:** Spring return to neutral position**05:** With detent in pos. 1 and spring return in neutral position**06:** With detent in pos. 2 and spring return in neutral position**07:** With detent in pos. 1 and 2; spring return in neutral position

| handlever type            | A   |      |
|---------------------------|-----|------|
|                           | mm  | in   |
| <b>G3 straight rod</b>    | 186 | 7.32 |
| <b>G3 15° bending rod</b> | 184 | 7.24 |
| <b>G3 30° bending rod</b> | 176 | 6.93 |
| <b>E 15° bending rod</b>  | 186 | 7.32 |
| <b>JJ3 straight rod</b>   | 190 | 7.48 |

## Controls type

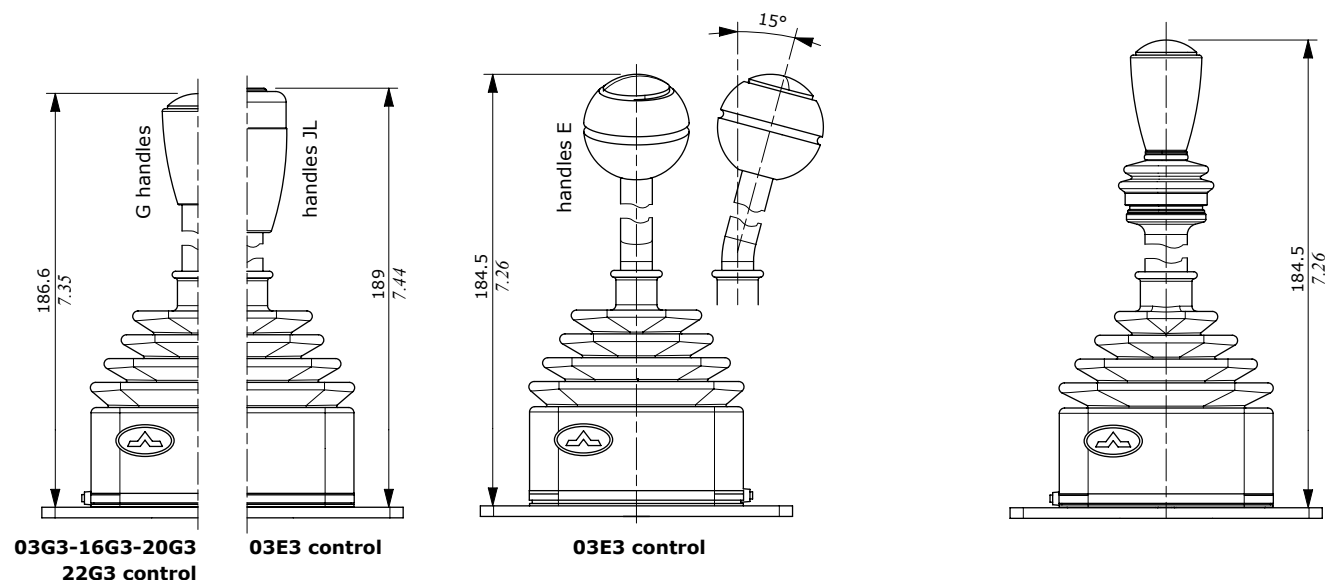
**03S:** With friction and neutral sensing, for 10, V, H, P and S series handles

## Controls with handlevers

## Controls type

**03G3:** With friction and neutral sensing, ogival with portlight, G knob**03E3:** As 03G3 control, E knob and 15° bending rod**03JL3:** As 03G3 control, L knob with operation microswitch**16G3:** With operation microswitch (NO), neutral sensing, spring return in neutral position, G knob**20G3:** Detent in position 1 and 2, friction, neutral sensing, G knob**22G3:** With operation microswitch (NO), friction, G knob

## Controls type

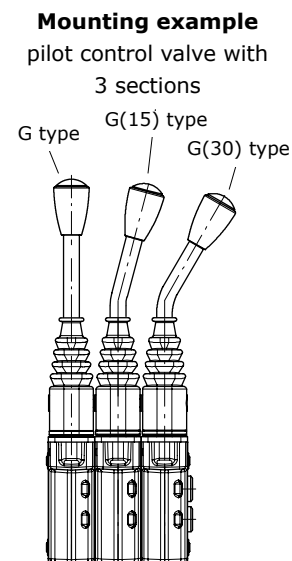
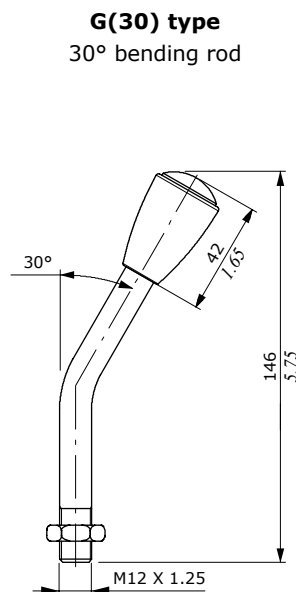
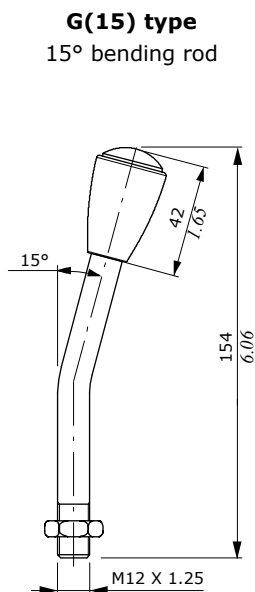
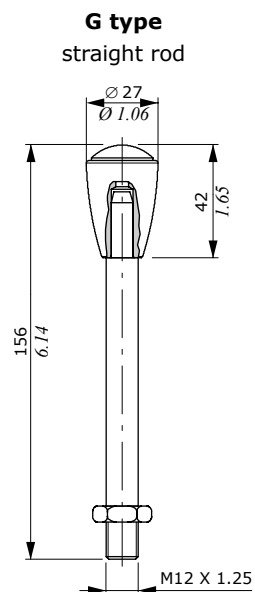
**02G3:** With detent and spring return in neutral position, type G knob; can not be used on two adjacent sections**10G3:** With friction and detent in neutral position, G knob; can not be used on two adjacent sections**11G3:** Detent in 3 positions, G knob; can not be used on two adjacent sections

## Configuration option

## Standard handlevers without microswitch

**G type**

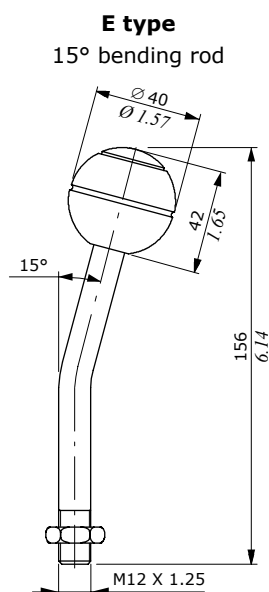
Ogival handles with customizable portlight. It's possible to insert labels with specific machine functions (for example: lifting function).



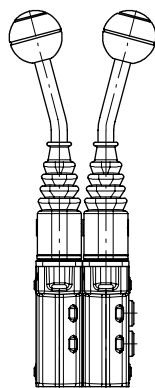
## Standard handlevers with microswitch

**E type**

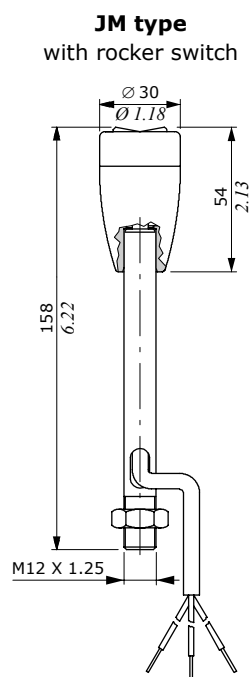
Customizable handle as type G.



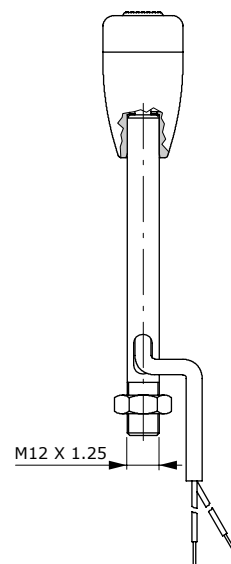
**Mounting example**  
pilot control valve with  
2 sections

**J type**

Ogival handle, small dimensions, available with rocker switch and push-button.

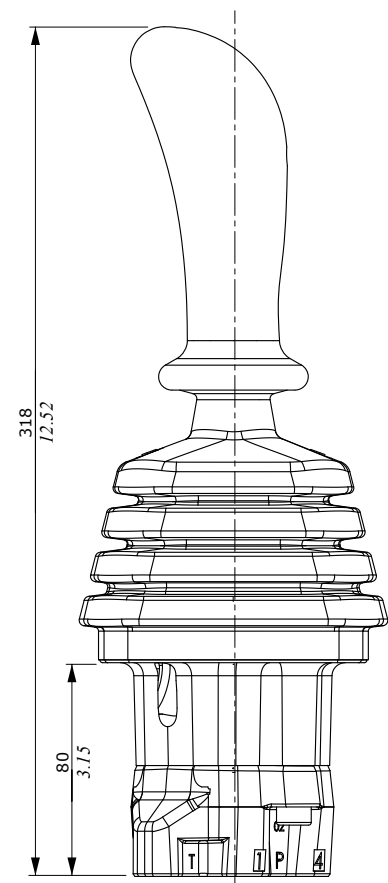
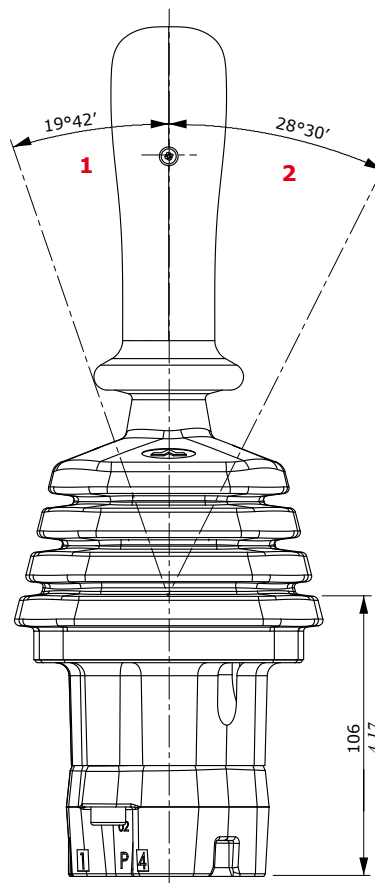
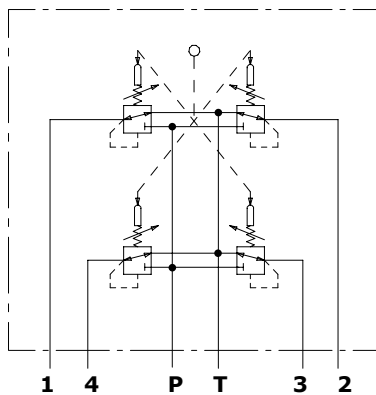
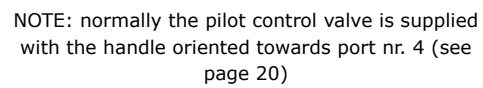


**JJ type**  
with push-button switch



Note: for J Handle features see "handles and handlevers" catalog

## SVM400

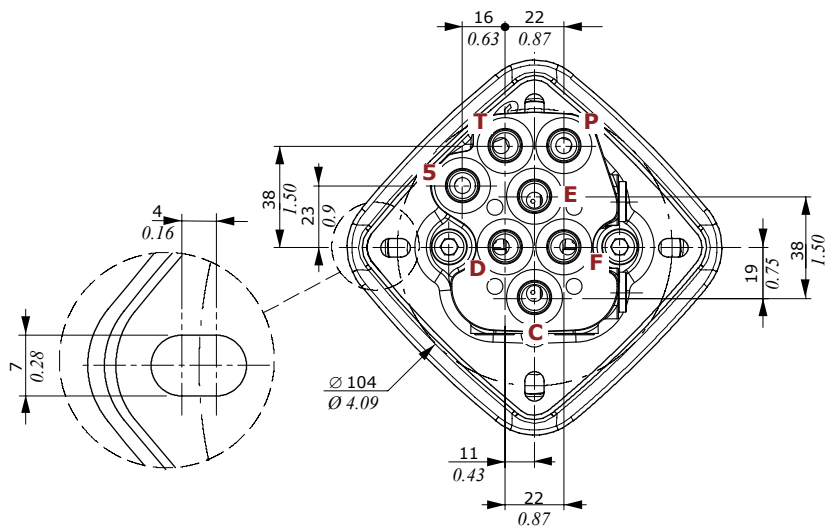


**1** : Single work port  
**2** : Two simultaneous work ports

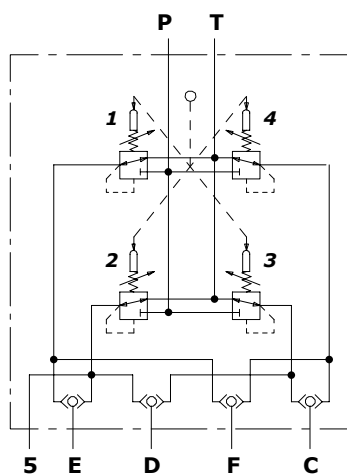
## Dimensions and hydraulic circuit

## SVM430

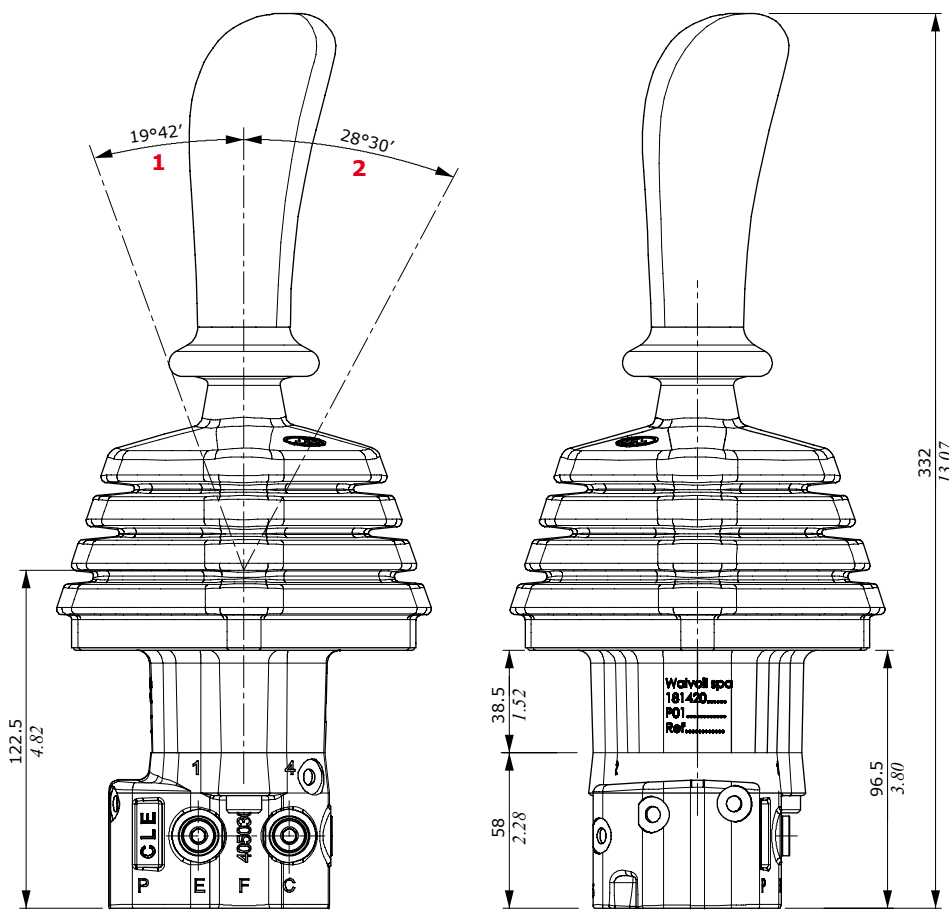
It's configured with pressure gauges (5) to get an additional output signal (ex. back-up alarm).



## Hydraulic circuit



Work port 1 ⇒ EF port ⇒ **right**  
 Work port 2 ⇒ ED port ⇒ **back**  
 Work port 3 ⇒ CD port ⇒ **left**  
 Work port 4 ⇒ CF port ⇒ **forward**

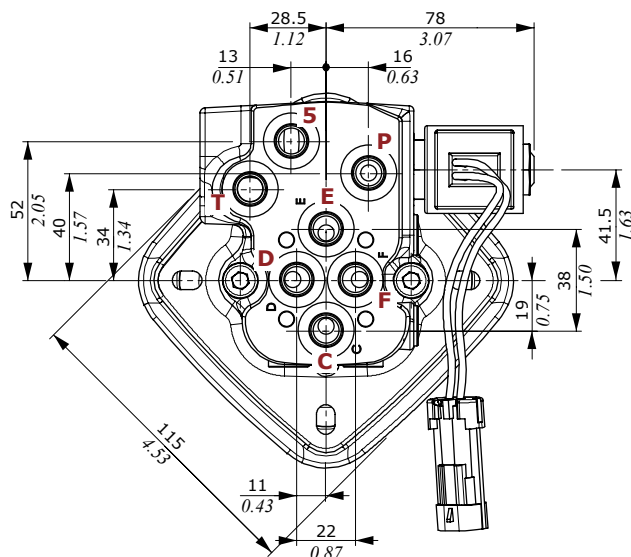


1 : Single work port  
 2 : Two simultaneous work ports

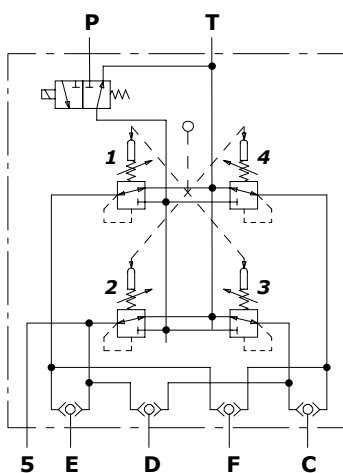
## Dimensions and hydraulic circuit

### SVM431

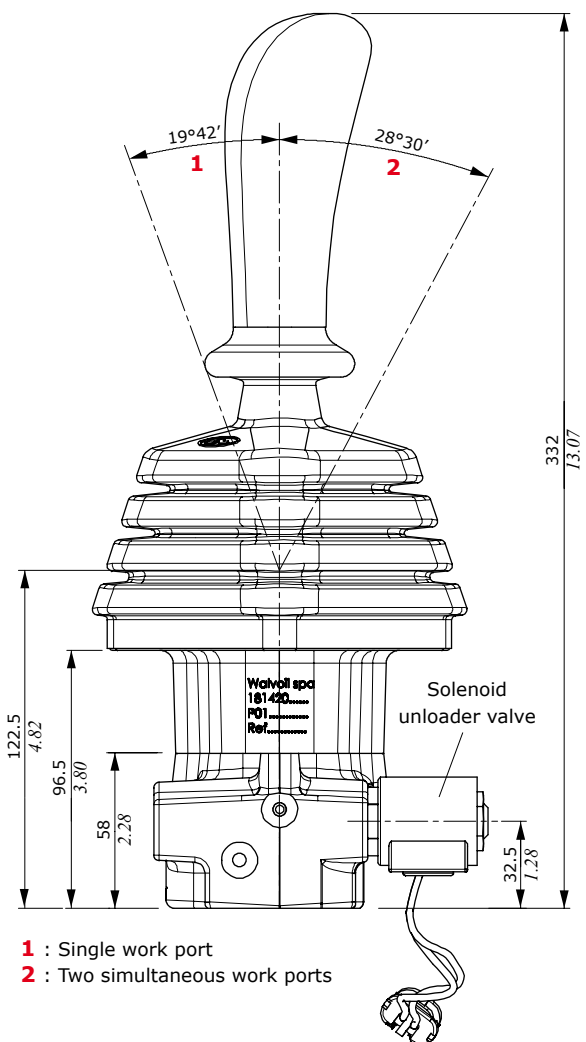
SVM431 it's configured with pressure gauges (5) to get an additional output signal with safety solenoid valve.



### Hydraulic circuit



Work port 1 ⇒ EF port ⇒ **right**  
 Work port 2 ⇒ ED port ⇒ **back**  
 Work port 3 ⇒ CD port ⇒ **left**  
 Work port 4 ⇒ CF port ⇒ **forward**

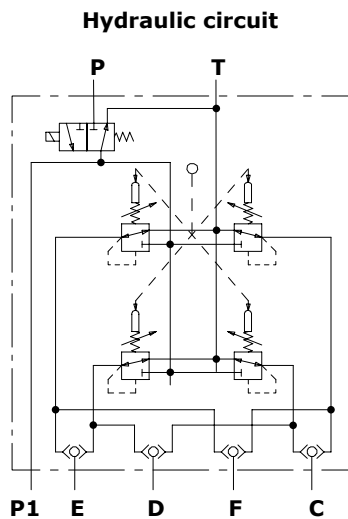
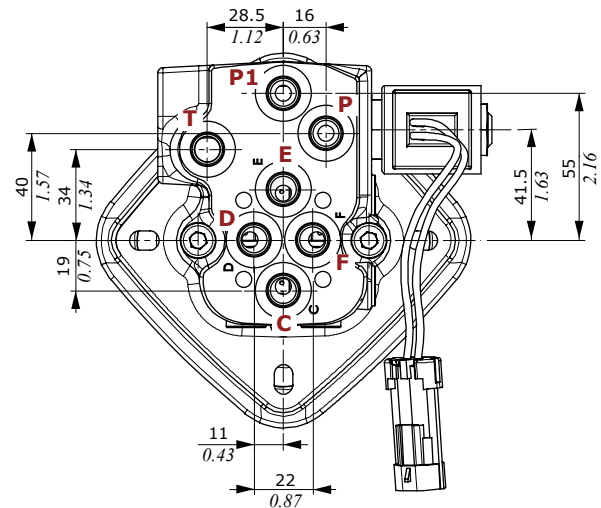


**1** : Single work port  
**2** : Two simultaneous work ports

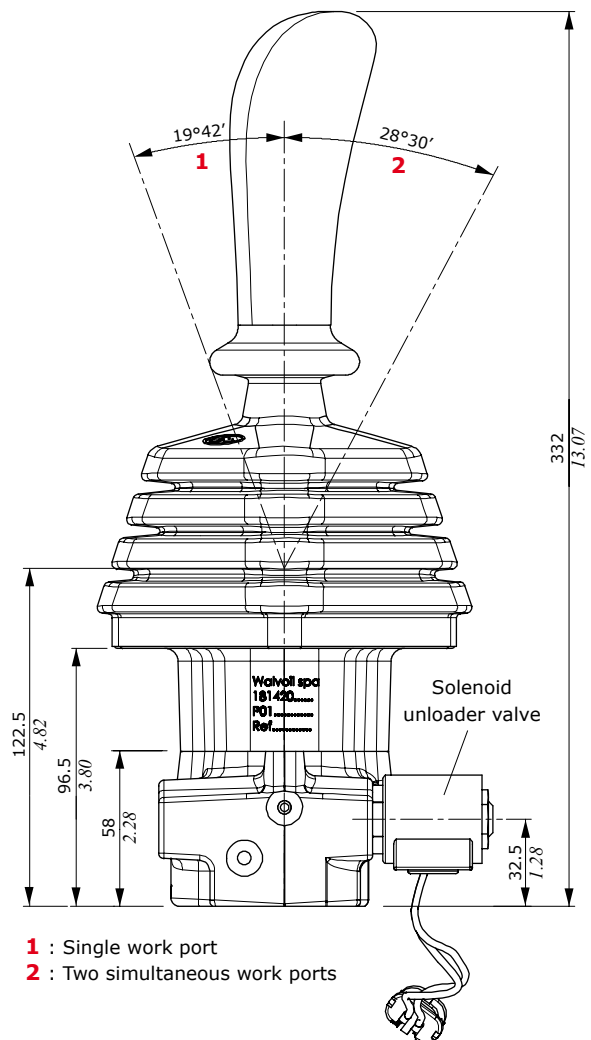
## Dimensions and hydraulic circuit

## SVM432

SVM432 it's configured with solenoid unloader valve and auxiliary under safety pressure gauge port (P1).



Work port 1 ⇒ EF port ⇒ **right**  
 Work port 2 ⇒ ED port ⇒ **back**  
 Work port 3 ⇒ CD port ⇒ **left**  
 Work port 4 ⇒ CF port ⇒ **forward**



### Ordering codes

SVM400 / 0 1 - S / 01 V009 (90) - 0 0 001 A X 4 - <CRVN>

1

2

1

3

4

5

6

Body is painted as standard, with one coat of primer black antirust paint

SVM431 / 0 1 - S / 01 V009 (90) - 0 0 001 A - ELN (W1F02)-12VDC - <CRVN>

6.1

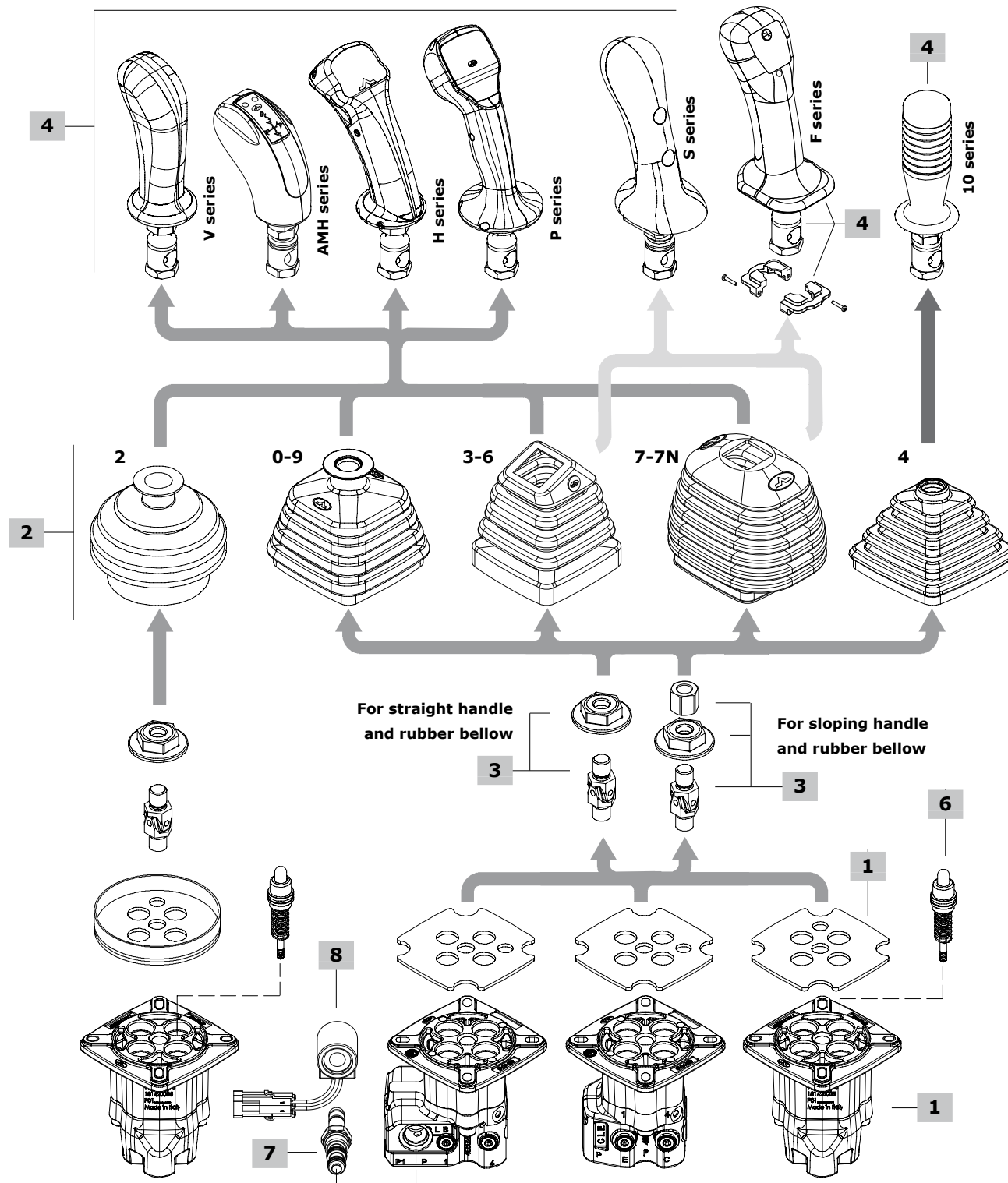
6.2

6.3

6.4

7

8



**1 Body kit \***

| TYPE              | CODE        | DESCRIPTION                                                                                                |
|-------------------|-------------|------------------------------------------------------------------------------------------------------------|
| <b>SVM400/1-S</b> | 5CO3422700  | For rubber bellow square base                                                                              |
| <b>SVM400/3-S</b> | 5CO3422700C | For rubber bellow circular base                                                                            |
| <b>SVM430/1-S</b> | 5CO3432700  | With auxiliary pressure gauge port, for rubber bellow square base                                          |
| <b>SVM431/1-S</b> | 5CO3432710  | With solenoid unloader valve and aux. pressure gauge port, for square base rubber bellow                   |
| <b>SVM432/1-S</b> | 5CO3432720  | With solenoid unloader valve and auxiliary under-safety pressure gauge port, for rubber bellow square base |

**2 Rubber bellow**

| TYPE                           | CODE       | DESCRIPTION                                                                                 |
|--------------------------------|------------|---------------------------------------------------------------------------------------------|
| <b>Circular base</b>           |            |                                                                                             |
| <b>2</b>                       | 3SOF110100 | Straight type, circular base; it can be used with sloping handles                           |
| <b>Square/rectangular base</b> |            |                                                                                             |
| <b>0</b>                       | 3SOF111130 | Straight type, square base with logo                                                        |
| <b>3</b>                       | 3SOF111113 | Sloping type, square base; only for 19° sloping handles. Not available for type 16 control. |
| <b>6</b>                       | 3SOF111114 | As type 3 without logo. Not available for type 16 control.                                  |
| <b>7</b>                       | 3SOF111135 | Universal type, rectangular base. It can be used straight and 30° sloping in all directions |
| <b>7N</b>                      | 3SOF111137 | As type 7 without logo                                                                      |
| <b>9</b>                       | 3SOF111131 | As type 0 without logo                                                                      |
| <b>4</b>                       | 3SOF111100 | Straight type, square base                                                                  |

**3 Control option**

| TYPE                                                                                 | CODE     | DESCRIPTION                                              |
|--------------------------------------------------------------------------------------|----------|----------------------------------------------------------|
| <b>Spring return in neutral position</b>                                             |          |                                                          |
| <b>01</b>                                                                            | 5CIN4003 | For V, H, P, S series handles and straight rubber bellow |
|                                                                                      | 5CIN4001 | For V, H, P, S series handles and sloping rubber bellow  |
| <b>01GP</b>                                                                          | 5CIN4002 | For 10 series handles                                    |
| <b>With microswitches for movement detection on each port.</b>                       |          |                                                          |
| It needs type 7 rubber bellow and special body: please contact our Sales Department. |          |                                                          |
| <b>16</b>                                                                            | 5CIN4023 | For V, H, P, S series handles and straight rubber bellow |
|                                                                                      | 5CIN4021 | For V, H, P, S series handles and sloping rubber bellow  |
| <b>16GP</b>                                                                          | 5CIN4022 | For 10 series handles                                    |

**6 Pressure control curves**

For list available see from page 25

**6.1 Curve type**

| TYPE     | DESCRIPTION |
|----------|-------------|
| <b>0</b> | Standard    |

**6.2 Typology of curves**

| TYPE     | DESCRIPTION            |
|----------|------------------------|
| <b>0</b> | With step              |
| <b>1</b> | Without step           |
| <b>2</b> | Piecewise with step    |
| <b>3</b> | Piecewise without step |

**7 Solenoid unloader valve**

| TYPE       | CODE      | DESCRIPTION                 |
|------------|-----------|-----------------------------|
| <b>ELN</b> | 2X4800100 | Without emergency operation |
| <b>ELT</b> | 2X4800200 | With emergency operation    |

NOTE (\*) – Codes are referred to **UN-UNF** thread.

**4 Handles**

Some handles as examples are listed below: for technical specifications and full range of handles and other types of joint see the "Handles and hand levers" catalogue.

**V series handle**

TYPE: **V007** CODE: 5IMP030070  
DESCRIPTION: Without switches with sloping 19° left joint

**AMH series handle**

TYPE: **AMH0400A9-6R2035-7R2035-8R2035-9R2035-(E2)**  
CODE: 2IM3000004 DESCRIPTION: 4 push buttons with spring return, protection diode, with straight joint

**H series handle**

TYPE: **HA029-ORD040-2RD040-4RD040**  
CODE: 2IM4100109 DESCRIPTION: 2 push buttons with spring return, "dead man" switch, with straight joint

**P series handle**

TYPE: **PZTA4100D9-ORD035-3R1D035-4R1D035-5R1D035-6R1D035-WN130035** CODE: 2IM8600007  
DESCRIPTION: 1 proportional roller, 4 push buttons with spring return, "dead man" switch, with straight joint

**F series handle**

TYPE: **F02F-02R(1=8)**  
CODE: 320000017+430533039+430033299  
DESCRIPTION: 2 front and 2 rear push buttons with spring return + sloping 15° joint + adapter kit

**S series handle**

TYPE: **SZTA8-0G4045-XG122045**  
CODE: 2IM5310003  
DESCRIPTION: 1 proportional roller and front push button, with sloping 19° right joint

**10 series handle**

TYPE: **X9C/C** CODE: 5IMP200040  
DESCRIPTION: Upper push button, with straight joint

**5 Handle position**

| TYPE         | DESCRIPTION                                                                        |
|--------------|------------------------------------------------------------------------------------|
| <b>(-)</b>   | STANDARD configuration, operation to work port 4:<br><b>omitted in description</b> |
| <b>(90)</b>  | Mounted with 90° rotation step: operation to work port 1                           |
| <b>(180)</b> | Mounted with 180° rotation step: operation to work port 2                          |
| <b>(270)</b> | Mounted with 270° rotation step: operation to work port 3                          |

**6.3 Curve identification**

Progressive number, see tables from page 25

**6.4 Return springs**

| TYPE     | DESCRIPTION                                                        |
|----------|--------------------------------------------------------------------|
| <b>M</b> | Operation range from 18 to 25.5 N - <i>from 4.04 to 5.73 lbf</i>   |
| <b>A</b> | Operation range from 23 to 35.2 N - <i>from 5.17 to 7.91 lbf</i>   |
| <b>B</b> | Operation range from 23 to 68.1 N - <i>from 5.17 to 15.31 lbf</i>  |
| <b>C</b> | Operation range from 89 to 176 N - <i>from 20 to 39.56 lbf</i>     |
| <b>D</b> | Operation range from 110 to 220 N - <i>from 24.73 to 49.46 lbf</i> |
| <b>E</b> | Operation range from 138 to 276 N - <i>from 31 to 62.04 lbf</i>    |

**8 Coil**

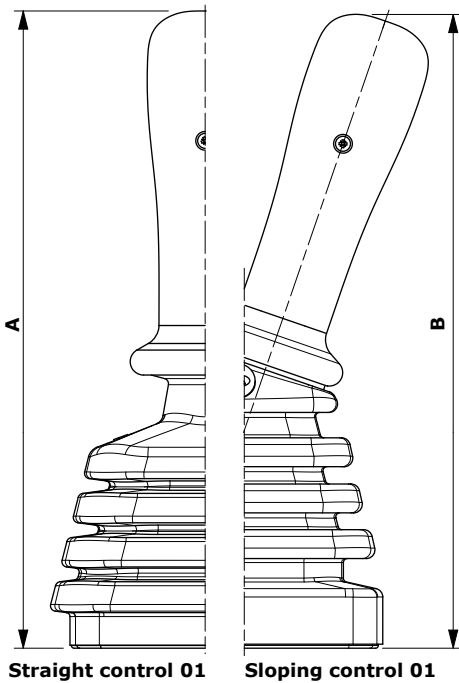
| TYPE                 | CODE       | DESCRIPTION                                                          |
|----------------------|------------|----------------------------------------------------------------------|
| <b>(D1F02)-12VDC</b> | 4SL6001200 | 12VDC, integrated Deutsch connector                                  |
| <b>(D1F02)-24VDC</b> | 4SL6002400 | As previous 24VDC                                                    |
| <b>(W1F02)-12VDC</b> | 4SL6001204 | 12VDC, WP Packard connector with flying leads (L = 210 mm - 8.27 in) |

Configuration option

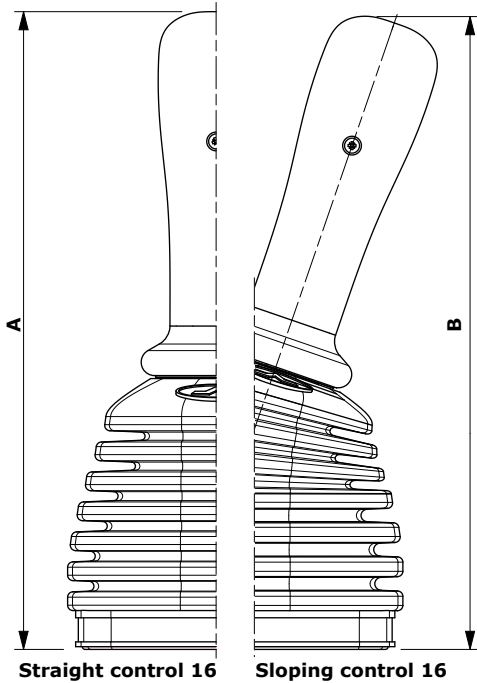
Control and handle options

**Tipo 01:** Spring return in neutral position.

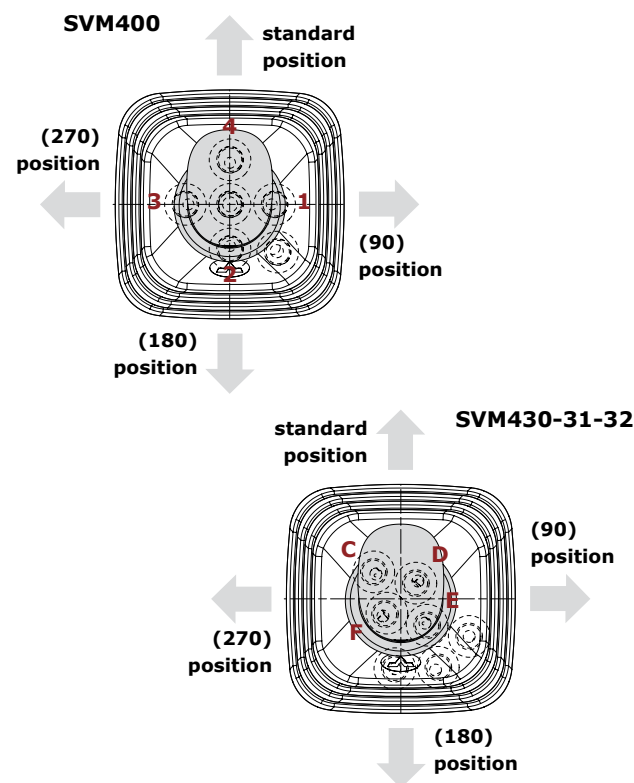
**Tipo 16:** With microswitches for movement detection on each port. It needs type 7 rubber bellow and special body: please contact Sales Department.



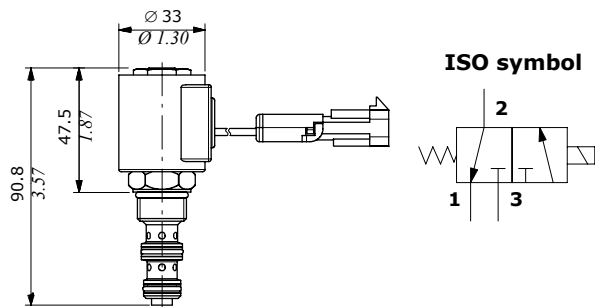
| Type      | A   |       | B   |      |
|-----------|-----|-------|-----|------|
|           | mm  | in    | mm  | in   |
| V series  | 238 | 9.71  | 236 | 9.29 |
| H series  | 236 | 9.29  | 234 | 9.21 |
| P series  | 255 | 10.04 | 253 | 9.96 |
| S series  | 251 | 9.88  | 248 | 9.76 |
| 10 series | 222 | 8.74  | /   | /    |



Handles positions



Solenoid unloader valve



Features

SOLENOID VALVE

Nominal pressure. . . . . : 207 bar - 14.27 psi  
maximum internal leakage  
on port 3 (de-energized coil) . . . : 82 cm<sup>3</sup>/min a 207 bar  
5 in<sup>3</sup>/min at 14.27 psi  
on port 1 (energized coil) . . . . . : 164 cm<sup>3</sup>/min a 207 bar  
10 in<sup>3</sup>/min at 14.27 psi

COIL

Nominal voltage tolerance. . . . . : ±15%  
Power rating . . . . . : 14.7 W  
Max. operating current . . . . . : 1.22 A a 12 VDC  
0.61 A a 24 VDC  
Coil insulation . . . . . : Class H  
Weather protection (EN 60529) . . . : IP65 \*  
Insertion . . . . . : 100%  
(\* ) with connector correctly fitted and O-ring protection

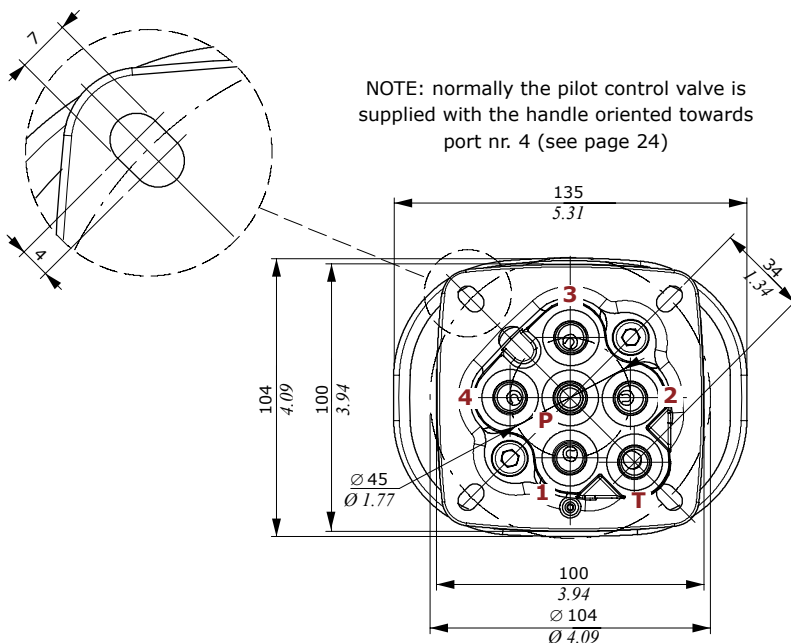
## Dimensions and hydraulic circuit

Configuration with electromagnetic detent

## Features

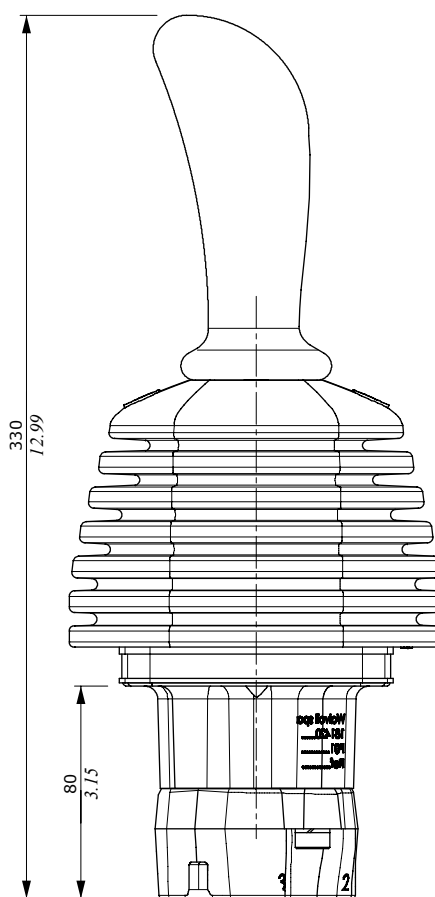
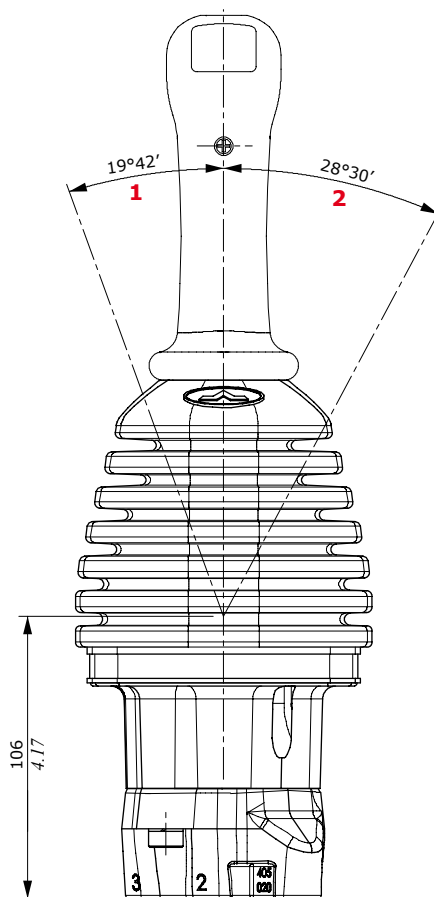
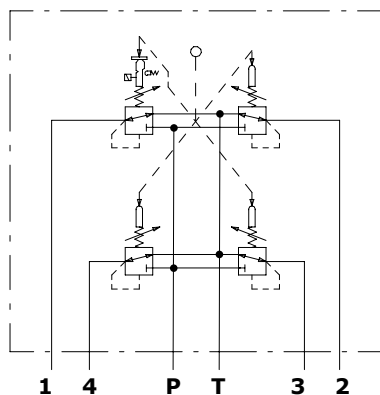
## ELECTROMAGNET

|                                     |                   |
|-------------------------------------|-------------------|
| Nominal voltage tolerance . . . . . | : $\pm 10\%$      |
| Power rating . . . . .              | : 8 W - 12 VDC    |
|                                     | : 7.4 W - 24 VDC  |
| Nominal current . . . . .           | : 0.66 A - 12 VDC |
|                                     | : 0.3 A - 24VDC   |
| Coil insulation . . . . .           | : Class H         |
| Weather protection . . . . .        | : IP65            |
| Insertion . . . . .                 | : 100%            |



## Hydraulic circuit

Example detent on working port 1



1 : Single work port  
2 : Two simultaneous work ports

Ordering codes

SVM400-EMD1 / 7 1 - S / 01E15 (....) V00G (90) (....) - E 0 001 M - 00001M X 3 - 12VDC - <CRVN>

1

2

1

3

8

4

5

7

6.1

6.2

6.3

6.4

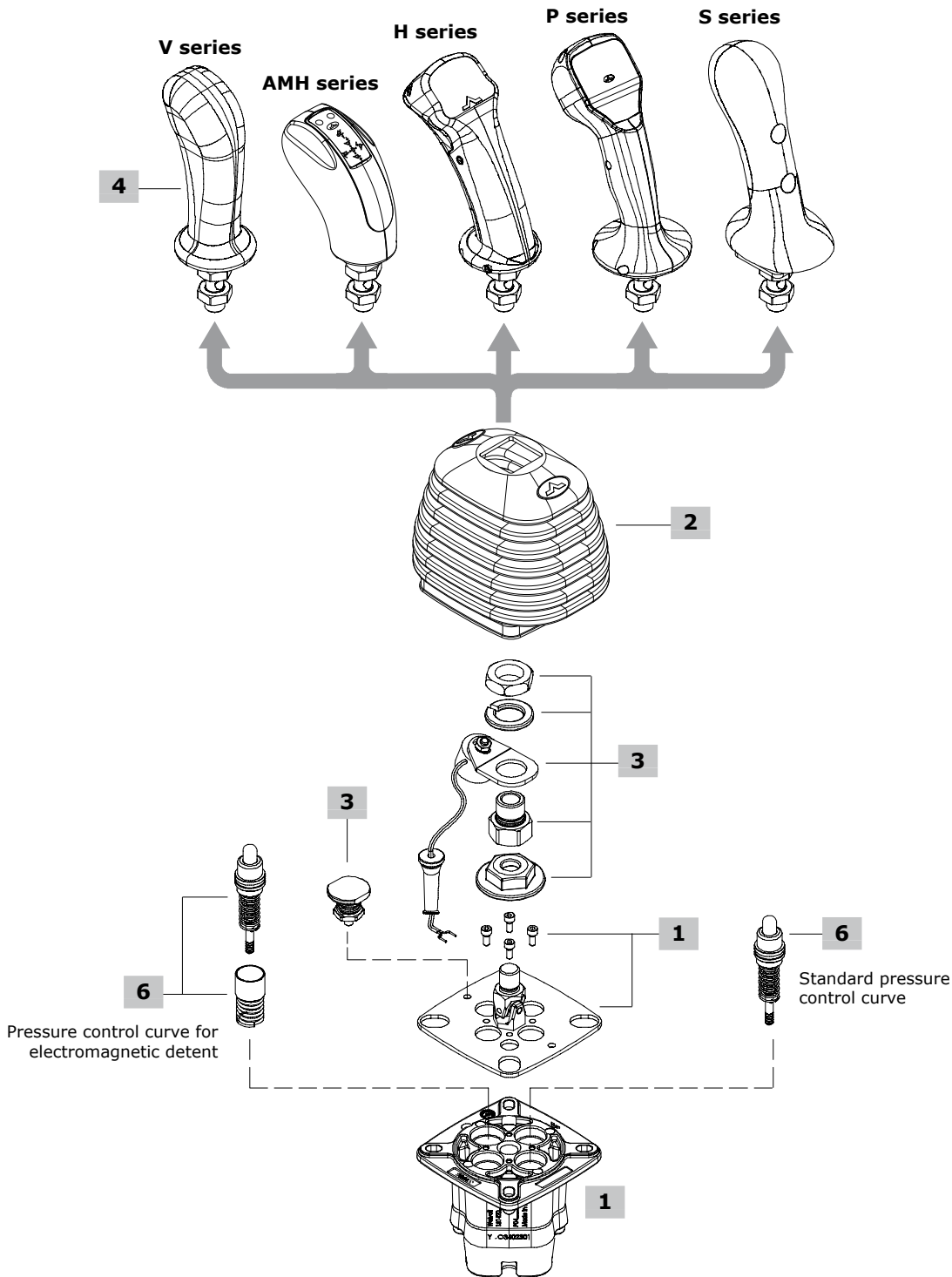
6

3

Pressure control curve  
for electromagnetic detent

Standard pressure  
control curve

Body is painted as  
standard, with one  
coat of primer black  
antirust paint



**1 Body kit \***

TYPE: **SVM400-EMD0/1-S** CODE: 5CO3422700  
 DESCRIPTION: Without detent arrangement  
 TYPE: **SVM400-EMD1/1-S** CODE: 5CO3402701  
 DESCRIPTION: With detent arrangement on port 1  
 TYPE: **SVM400-EMD(2-4)/1-S** CODE: 5CO3402706  
 DESCRIPTION: With detent arrangement on ports 2 and 4

**2 Rubber bellow**

| TYPE      | CODE       | DESCRIPTION                                                                                                              |
|-----------|------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>7</b>  | 3SOF111135 | Universal type, rectangular base. It's fitted with adapter and it can be used straight and 30° sloping in all directions |
| <b>7N</b> | 3SOF111137 | As type 7 without logo                                                                                                   |

**3 Detent configuration**

Cables are supplied with wires with tin-plate terminals

| TYPE        | CODE       | DESCRIPTION                   |
|-------------|------------|-------------------------------|
| <b>01E0</b> | 5CIN401E00 | Spring return, without detent |

**Detent on port 1**

**01E15** 5CIN401E12 12 VDC - Spring return

**01E15** 5CIN4E401100 24 VDC - Spring return

**Detent on ports 1, 3 or 2, 4**

**01E25** 5CIN401E22DT 12 VDC - Spring return

**01E25** 5CIN4E401200 24 VDC - Spring return

NOTE: For detent on different ports please contact our Sales Department.

**4 Impugnature**

Some handles as examples are listed below: for technical specifications and full range of handles and other types of joint see the "Handles and hand levers" catalogue.

**V series handle**

TYPE: **V007** CODE: 5IMP030070

DESCRIPTION: Without switches with sloping 19° left joint **S series handle**

TYPE: **SZTA8-0G4045-XG122045**

CODE: 2IM5310003

DESCRIPTION: 1 proportional roller and front push button, with sloping 19° right joint

**5 Handle position**

| TYPE         | DESCRIPTION                                                                        |
|--------------|------------------------------------------------------------------------------------|
| <b>(-)</b>   | STANDARD configuration, operation to work port 4:<br><b>omitted in description</b> |
| <b>(90)</b>  | Mounted with 90° rotation step: operation to work port 1                           |
| <b>(180)</b> | Mounted with 180° rotation step: operation to work port 2                          |
| <b>(270)</b> | Mounted with 270° rotation step: operation to work port 3                          |

**6 Pressure control curves**

For list available see from page 25

**6.1 Curve type**

| TYPE     | DESCRIPTION                                  |
|----------|----------------------------------------------|
| <b>0</b> | Standard                                     |
| <b>E</b> | For electromagnetic detent, with pre-feeling |

**6.2 Typology of curves**

| TYPE     | DESCRIPTION            |
|----------|------------------------|
| <b>0</b> | With step              |
| <b>1</b> | Without step           |
| <b>2</b> | Piecewise with step    |
| <b>3</b> | Piecewise without step |

**6.3 Curve identification**

Progressive number, see tables from page 25

**6.4 Return springs**

| TYPE     | DESCRIPTION                                                        |
|----------|--------------------------------------------------------------------|
| <b>M</b> | Operation range from 18 to 25.5 N - <i>from 4.04 to 5.73 lbf</i>   |
| <b>A</b> | Operation range from 23 to 35.2 N - <i>from 5.17 to 7.91 lbf</i>   |
| <b>B</b> | Operation range from 23 to 68.1 N - <i>from 5.17 to 15.31 lbf</i>  |
| <b>C</b> | Operation range from 89 to 176 N - <i>from 20 to 39.56 lbf</i>     |
| <b>D</b> | Operation range from 110 to 220 N - <i>from 24.73 to 49.46 lbf</i> |
| <b>E</b> | Operation range from 138 to 276 N - <i>from 31 to 62.04 lbf</i>    |

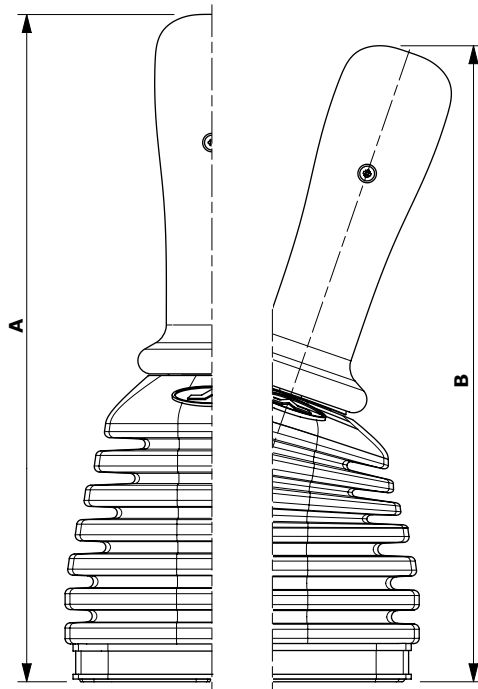
**7 Connector**

Configurations with detent or microswitch are provided with wires with tin-plate terminals. For connectors please contact our Sales Department

NOTE (\*) – Codes are referred to **UN-UNF** thread.

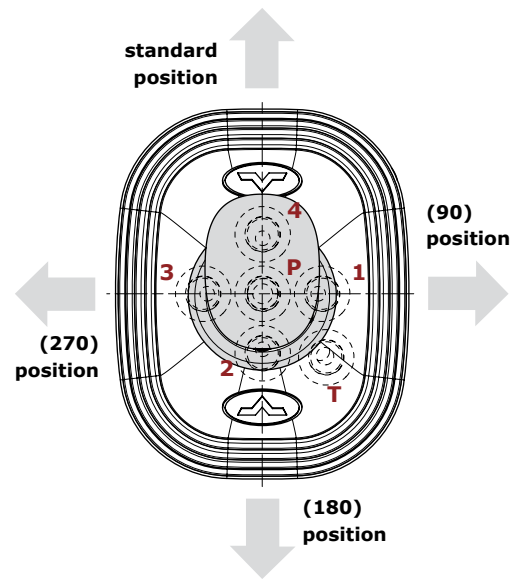
## Configuration option

### Handle options



| Type            | A   |       | B   |       |
|-----------------|-----|-------|-----|-------|
|                 | mm  | in    | mm  | in    |
| <b>V series</b> | 252 | 9.92  | 240 | 9.45  |
| <b>H series</b> | 250 | 9.84  | 240 | 9.45  |
| <b>P series</b> | 268 | 10.55 | 266 | 10.47 |
| <b>S series</b> | 266 | 10.47 | 261 | 10.27 |

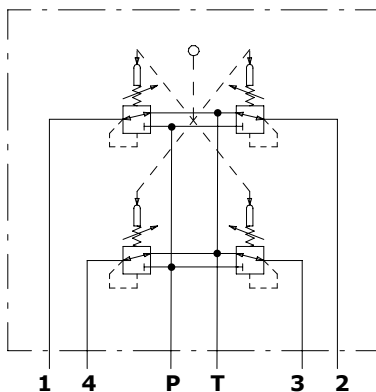
### Handle positions



## Detent configuration

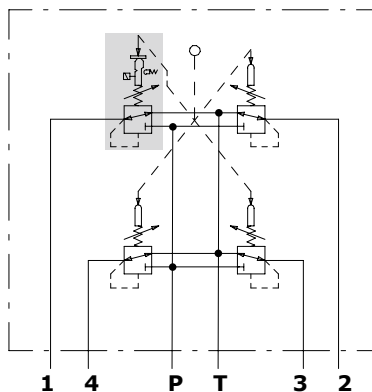
### 01E0 type

Spring return, without detent



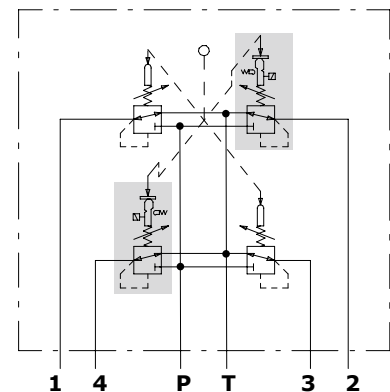
### 01E15 type

Single detent on port 1  
(detent on ports 2-3-4 on request),  
spring return

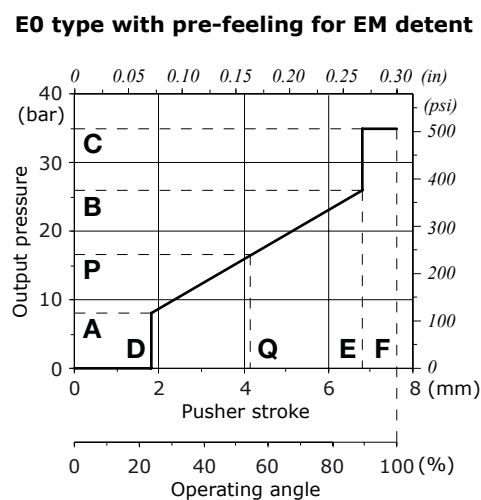
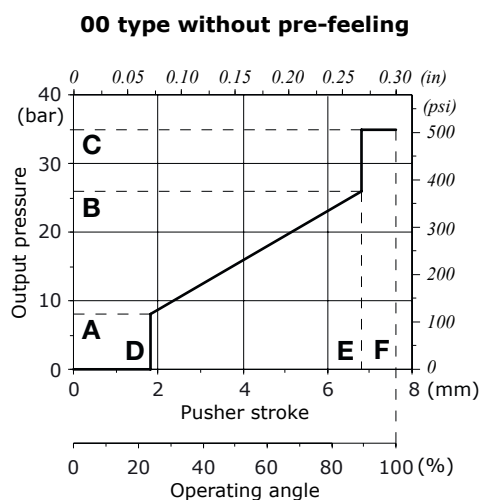


### 01E25 type

Detent on ports 2 and 4, spring return



## Control curves with step



| Curve description   |     | Pressure          |                        |             |             |             |                |     |       | Stroke |      |    |    |      |      |     |      | CODE <sup>(1)</sup>                                                |
|---------------------|-----|-------------------|------------------------|-------------|-------------|-------------|----------------|-----|-------|--------|------|----|----|------|------|-----|------|--------------------------------------------------------------------|
|                     |     | A                 |                        | P           |             | B           |                | C   |       | D      |      | Q  |    | E    |      | F   |      |                                                                    |
| Type                | Nr  | bar (±toll)       | psi (±toll)            | bar (±toll) | psi (±toll) | bar (±toll) | psi (±toll)    | bar | psi   | mm     | in   | mm | in | mm   | in   | mm  | in   |                                                                    |
| Without pre-feeling |     |                   |                        |             |             |             |                |     |       |        |      |    |    |      |      |     |      |                                                                    |
| 00                  | 019 | 0.5<br>(+1, -0.5) | 7.25<br>(+14.5, -7.25) |             |             | 11.4 (±1)   | 165.3 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400019A                                                         |
| 00                  | 022 | 1 (±0.5)          | 14.5 (±7.25)           |             |             | 8 (±1)      | 116.3 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40022A                                                         |
| 00                  | 023 | 2 (±0.5)          | 29 (±7.25)             |             |             | 11.5 (±1)   | 166.7 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40023A                                                         |
| 00                  | 047 | 2 (+3/0)          | 29 (+43.5/0)           |             |             | 70 (±4.5)   | 1015 (±65.2)   | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40047A<br>5CUR40047C                                           |
| 00                  | 065 | 2 (±0.5)          | 29 (±7.25)             |             |             | 20.5 (±1.5) | 297.25 (±21.7) | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40065A                                                         |
| 00                  | 066 | 2 (±0.5)          | 29 (±7.25)             |             |             | 23 (±1.5)   | 333.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40066B<br>5CUR40066C                                           |
| 00                  | 110 | 2 (±0.5)          | 29 (±7.25)             |             |             | 15 (±1)     | 217.5 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400110A                                                         |
| 00                  | 043 | 3.2 (±0.5)        | 46.4 (±7.25)           |             |             | 11.7 (±0.5) | 169.6 (±7.25)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400043A                                                         |
| 00                  | 010 | 3.25 (±0.5)       | 74.13 (±7.25)          |             |             | 14.8 (±1)   | 214.6 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40010A<br>5CUR40010M                                           |
| 00                  | 032 | 3.4 (±0.5)        | 49.3 (±7.25)           |             |             | 29.4 (±1)   | 426.3 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40032A<br>5CUR40032B<br>5CUR40032C                             |
| 00                  | 086 | 4 (±1)            | 58 (±14.5)             |             |             | 16.5 (±1)   | 239.2 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40086A<br>5CUR40086C                                           |
| 00                  | 073 | 4 (±0.5)          | 58 (±7.25)             |             |             | 18 (±1)     | 261 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400073A<br>5CR400073M                                           |
| 00                  | 020 | 4.3 (±0.5)        | 63.3 (±7.25)           |             |             | 15.2 (±1)   | 220.4 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40020A<br>5CUR40020B<br>5CUR40020C                             |
| 00                  | 004 | 4.9 (±0.5)        | 72.5 (± 7.25)          |             |             | 18.9 (±1)   | 274 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40004A<br>5CUR40004C<br>5CUR40004M                             |
| 00                  | 017 | 5 (±0.5)          | 72.5 (± 7.25)          |             |             | 12 (± 1)    | 174 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40017A<br>5CUR40017C                                           |
| 00                  | 028 | 5 (±1)            | 72.5 (± 14.5)          |             |             | 21 (±1.5)   | 304.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40028A<br>5CUR40028B<br>5CUR40028C<br>5CUR40028M               |
| 00                  | 071 | 5 (±1)            | 72.5 (±14.5)           |             |             | 17 (±1)     | 246.5 (±14.5)  | 35  | 507.5 | 1.35   | 0.05 |    |    | 6    | 0.23 | 7.3 | 0.29 | 5CUR40071A                                                         |
| 00                  | 075 | 5 (±0.5)          | 72.5 (± 7.25)          |             |             | 15 (±1.5)   | 217.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40075A<br>5CUR40075B<br>5CUR40075C<br>5CUR40075E<br>5CUR40075M |
| 00                  | 104 | 5.5 (±1)          | 79.75 (±14.5)          |             |             | 17 (±1)     | 246.5 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |    |    | 3.1  | 0.12 | 3.5 | 0.14 | 5CR400104A                                                         |
| 00                  | 115 | 5.5               |                        |             |             | 28.5        |                |     |       | 0.85   | 0.03 |    |    | 5.6  | 0.22 | 6.1 | 0.24 | 5CUR40115M                                                         |
| 00                  | 001 | 5.8 (±1)          | 84.1 (±14.5)           |             |             | 22 (±2)     | 319 (±29)      | 35  | 507.5 | 1.55   | 0.06 |    |    | 7    | 0.27 | 7.5 | 0.29 | 5CUR40001A                                                         |

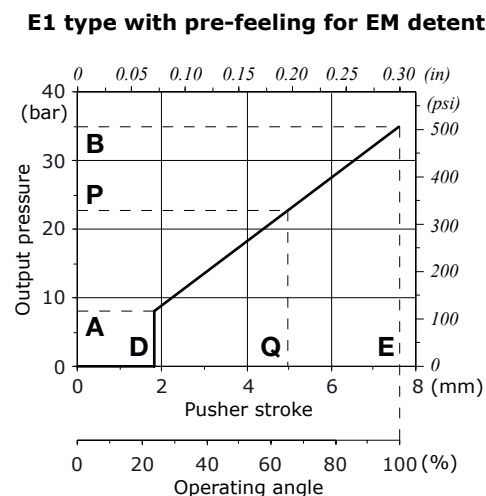
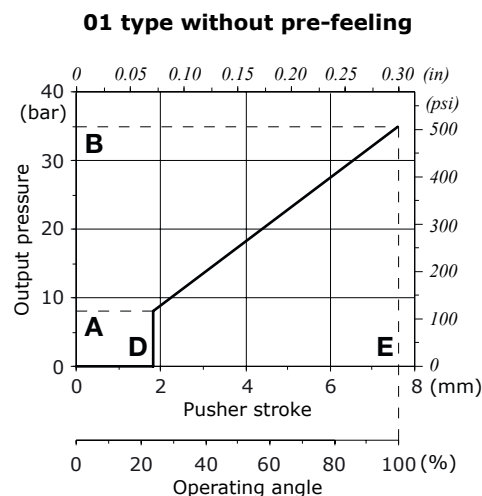
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## Control curves with step

| Curve description                           |     | Pressure    |               |             |                |             |                |     |       | Stroke |      |     |      |      |      |     |      | CODE <sup>(1)</sup>                                  |
|---------------------------------------------|-----|-------------|---------------|-------------|----------------|-------------|----------------|-----|-------|--------|------|-----|------|------|------|-----|------|------------------------------------------------------|
|                                             |     | A           |               | P           |                | B           |                | C   |       | D      |      | Q   |      | E    |      | F   |      |                                                      |
| Type                                        | Nr  | bar (±toll) | psi (±toll)   | bar (±toll) | psi (±toll)    | bar (±toll) | psi (±toll)    | bar | psi   | mm     | in   | mm  | in   | mm   | in   | mm  | in   |                                                      |
| 00                                          | 024 | 5.8 (±1)    | 84.1 (±14.5)  |             |                | 19 (±1.5)   | 275.5 (±21.7)  | 35  | 507.5 | 1.55   | 0.06 |     |      | 6.1  | 0.24 | 7.5 | 0.29 | 5CUR40024A<br>5CUR40024C                             |
| 00                                          | 033 | 5.8 (±0.5)  | 84.1 (± 7.25) |             |                | 19 (±1)     | 275.5 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40033A<br>5CUR40033B<br>5CUR40033C<br>5CUR40033M |
| 00                                          | 070 | 5.8 (±1)    | 84.1 (±14.5)  |             |                | 22.4 (±2)   | 324.8 (±29)    | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40070A<br>5CUR40070B<br>5CUR40070D<br>5CUR40070M |
| 00                                          | 087 | 5.8 (±0.5)  | 84.1 (±7.25)  |             |                | 17 (±1.5)   | 246.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40087A                                           |
| 00                                          | 021 | 6 (±0.5)    | 87 (±7.25)    |             |                | 16.3 (±1)   | 236.4 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400021A<br>5CR400021M                             |
| 00                                          | 105 | 6 (±0.5)    | 87 (±7.25)    |             |                | 20 (±1)     | 290 (±14.5)    | 35  | 507.5 | 0.6    | 0.02 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400105B                                           |
| 00                                          | 054 | 6.2 (±1)    | 89.9 (±14.5)  |             |                | 24.5 (±2)   | 355.25 (±29)   | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40054A                                           |
| 00                                          | 007 | 6.5 (±1)    | 94.25 (±14.5) |             |                | 36 (±2)     | 522 (±29)      | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400007A                                           |
| 00                                          | 026 | 6.5 (±0.5)  | 94.25 (±7.25) |             |                | 14 (±1)     | 203 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40026A<br>5CUR40026B<br>5CUR40026C               |
| 00                                          | 053 | 8 (±0.5)    | 116 (±7.25)   |             |                | 22.3 (±1)   | 323.3 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40053A                                           |
| 00                                          | 088 | 8 (±0.5)    | 116 (±7.25)   |             |                | 27 (±1.5)   | 391.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40088A<br>5CUR40088B<br>5CUR40088C<br>5CUR40088M |
| 00                                          | 089 | 8 (±0.5)    | 116 (±7.25)   |             |                | 28 (±1)     | 406 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40089A<br>5CUR40089C<br>5CUR40089D<br>5CUR40089M |
| 00                                          | 112 | 8 (±1.5)    | 116 (±21.7)   |             |                | 54 (±3.5)   | 783 (±50.75)   | 60  | 870   | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400112A                                           |
| 00                                          | 122 | 10 (±1)     | 145 (±14.5)   |             |                | 27 (±2)     | 391.5 (±29)    | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400122C                                           |
| 00                                          | 124 | 10 (±1)     | 145 (±14.5)   |             |                | 25 (±1.5)   | 362.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400124A                                           |
| 00                                          | 036 | 12 (±0.5)   | 174 (±7.25)   |             |                | 25 (±1)     | 362.5 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40036A                                           |
| 00                                          | 107 | 12 (±1)     | 174 (±14.5)   |             |                | 20 (±1)     | 290 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400107A                                           |
| 00                                          | 012 | 14 (±1)     | 203 (±14.5)   |             |                | 28.5 (±1.5) | 413.25 (±21.7) | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400012A                                           |
| 00                                          | 038 | 22 (±2)     | 319 (±29)     |             |                | 37 (±3)     | 536.5 (±43.5)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40038C<br>5CUR40038M                             |
| With Pre-feeding for electromagnetic detent |     |             |               |             |                |             |                |     |       |        |      |     |      |      |      |     |      |                                                      |
| E0                                          | 063 | 1.4 (±0.5)  | 20.3 (±7.25)  | 11.5 (±1)   | 166.75 (±14.5) | 12.8 (±1)   | 185.6 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4E063M                                           |
| E0                                          | 046 | 2 (±0.5)    | 29 (±7.25)    | 13 (±1)     | 188.5 (±14.5)  | 14.5 (±1)   | 210.2 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4E046M                                           |
| E0                                          | 096 | 3.5 (±0.5)  | 50.7 (±7.25)  | 15 (±0.5)   | 217.5 (± 7.25) | 16.5 (±1)   | 239.2 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR4E0096B                                           |
| E0                                          | B09 | 3.5 (±0.5)  | 50.7 (±7.25)  | 13.7 (±1)   | 198.65 (±14.5) | 15.1 (±1)   | 219 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4EB09A<br>5CUR4EB09M                             |
| E0                                          | 073 | 4 (±0.5)    | 58 (±7.25)    | 18 (±1)     | 261 (±14.5)    | 19.9 (±1)   | 288.55 (±14.5) | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR4E0073A                                           |
| E0                                          | 086 | 4 (±0.5)    | 58 (±7.25)    | 16.5 (±0.8) | 239.3 (±11.6)  | 18.2 (±1)   | 263.9 (±14.5)  | 30  | 435   | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4E086A<br>5CUR4E086M                             |
| E0                                          | 094 | 4 (±0.5)    | 58 (±7.25)    | 12.7 (±0.5) | 184.1 (±7.25)  | 13.8 (±1)   | 200.1 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4E094M<br>5CUR4E094B                             |
| E0                                          | 075 | 5 (±0.5)    | 72.5 (±7.25)  | 15 (±1)     | 217.5 (±14.5)  | 16.3 (±1.5) | 236.35 (±21.7) | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4E075A<br>5CUR4E075M                             |
| E0                                          | 033 | 5.8 (±0.5)  | 84.1 (±7.25)  | 19 (±1)     | 275.5 (±14.5)  | 20.8 (±1.5) | 301.6 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4E033B<br>5CUR4E033M                             |
| E0                                          | 087 | 5.8 (±0.5)  | 84.1 (±7.25)  | 17.8 (±1)   | 258.1 (±14.5)  | 19.4 (±1)   | 281.3 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4E087M                                           |
| E0                                          | 085 | 6 (±1)      | 87 (±14.5)    | 25 (±2)     | 362.5 (±29)    | 27.5 (±2)   | 398.75 (±29)   | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR4E0085M                                           |
| E0                                          | 088 | 8 (±0.5)    | 116 (±7.25)   | 27 (±1)     | 391.5 (±14.5)  | 29.5 (±1)   | 427.75 (±14.5) | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4E088M                                           |

<sup>(1)</sup> indicates the curve with the specific return spring  
For different curves please contact our Sales Department

## Control curves without step



| Curve description   |     | Pressure    |               |             |             |             |                | Stroke |      |    |    |     |      | CODE <sup>(1)</sup>                    |
|---------------------|-----|-------------|---------------|-------------|-------------|-------------|----------------|--------|------|----|----|-----|------|----------------------------------------|
|                     |     | A           |               | P           |             | B           |                | D      |      | Q  |    | E   |      |                                        |
| Type                | Nr  | bar (±toll) | psi (±toll)   | bar (±toll) | psi (±toll) | bar (±toll) | psi (±toll)    | mm     | in   | mm | in | mm  | in   |                                        |
| Without pre-feeling |     |             |               |             |             |             |                |        |      |    |    |     |      |                                        |
| 01                  | 148 | 0 (+0.5)    | 0 (±7.25)     |             |             | 13 (±1)     | 188.5 (±14.5)  | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40148B                             |
| 01                  | 151 | 0 (+1)      | 0 (±14.5)     |             |             | 41 (±2)     | 594.5 (±29)    | 1      | 0.04 |    |    | 5.4 | 0.21 | 5CR401151C                             |
| 01                  | 099 | 1 (±0.5)    | 14.5 (±7.25)  |             |             | 20 (±1.5)   | 290 (±21.7)    | 1.55   | 0.06 |    |    | 7.5 | 0.29 | 5CR401099A                             |
| 01                  | 131 | 1 (±1)      | 14.5 (±14.5)  |             |             | 15 (±1)     | 217.5 (±14.5)  | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40131A<br>5CUR40131C               |
| 01                  | 100 | 1.2 (±0.5)  | 17.4 (±7.25)  |             |             | 18.9 (±1)   | 274 (±14.5)    | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40100B<br>5CUR40100M               |
| 01                  | 163 | 1.4 (±0.5)  | 20.3 (±7.25)  |             |             | 11.5 (±1)   | 166.8 (±14.5)  | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40163A<br>5CUR40163M               |
| 01                  | 105 | 2 (±0.5)    | 29 (±7.25)    |             |             | 8 (±1)      | 116 (±14.5)    | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40105A                             |
| 01                  | 129 | 2 (±0.5)    | 29 (±7.25)    |             |             | 66 (±4)     | 957 (±58)      | 0.85   | 0.03 |    |    | 6.8 | 0.28 | 5CUR40129A                             |
| 01                  | 154 | 2 (±0.5)    | 29 (±7.25)    |             |             | 15 (±1)     | 217.5 (±14.5)  | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40154A<br>5CUR40154M               |
| 01                  | 138 | 2.5 (±0.5)  | 36.2 (±7.25)  |             |             | 13 (±1)     | 188.5 (±14.5)  | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40138A                             |
| 01                  | 143 | 3 (±0.5)    | 43.5 (±7.25)  |             |             | 25 (±1)     | 362.5 (±14.5)  | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40143A                             |
| 01                  | 127 | 3.4 (±0.5)  | 49.3 (±7.25)  |             |             | 12 (±1)     | 174 (±14.5)    | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40127A<br>5CUR40127B               |
| 01                  | 157 | 3.4 (±1)    | 49.3 (±14.5)  |             |             | 17.2 (±1)   | 249.4 (±14.5)  | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40157A<br>5CUR40157B               |
| 01                  | 114 | 4 (±0.5)    | 58 (±7.25)    |             |             | 10 (±1)     | 145 (±14.5)    | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40114A<br>5CUR40114B<br>5CUR40114M |
| 01                  | 126 | 4.5 (±0.7)  | 65.2 (±10.1)  |             |             | 30.7 (±1.5) | 445.1 (±21.7)  | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40126A                             |
| 01                  | 170 | 5 (±0.5)    | 72.5 (±7.25)  |             |             | 20 (±1)     | 290 (±14.5)    | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40170A<br>5CUR40170M               |
| 01                  | 175 | 5 (±0.5)    | 72.5 (±7.25)  |             |             | 16 (±1.5)   | 232 (±21.7)    | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40175A<br>5CUR40175D               |
| 01                  | 111 | 5.5 (±0.5)  | 88 (±7.25)    |             |             | 25.5 (±1)   | 370 (±14.5)    | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40111A<br>5CUR40111B<br>5CUR40111C |
| 01                  | 118 | 5.8 (±1)    | 84.1 (±14.5)  |             |             | 19.5 (±1.5) | 282.7 (±21.7)  | 1.55   | 0.06 |    |    | 7.5 | 0.29 | 5CUR40118A                             |
| 01                  | 135 | 5.8 (±0.5)  | 84.1 (±7.25)  |             |             | 23 (±1.5)   | 333.5 (±21.7)  | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40135A<br>5CUR40135M               |
| 01                  | 167 | 6 (±0.5)    | 87 (±7.25)    |             |             | 18 (±1)     | 261 (±14.5)    | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40167M                             |
| 01                  | 103 | 6 (±1)      | 87 (±14.5)    |             |             | 30 (±2.5)   | 435 (±36.2)    | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40103A<br>5CUR40103M               |
| 01                  | 106 | 6 (±1)      | 87 (±14.5)    |             |             | 40 (±2)     | 580 (±29)      | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40106A<br>5CUR40106B<br>5CUR40106C |
| 01                  | 095 | 6.5 (±0.5)  | 94.25 (±7.25) |             |             | 17.8 (±1)   | 258.1 (±14.5)  | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CR401095A                             |
| 01                  | 125 | 8 (±0.5)    | 116 (±7.25)   |             |             | 22.5 (±1)   | 326.25 (±14.5) | 0.85   | 0.03 |    |    | 7.6 | 0.30 | 5CUR40125M                             |

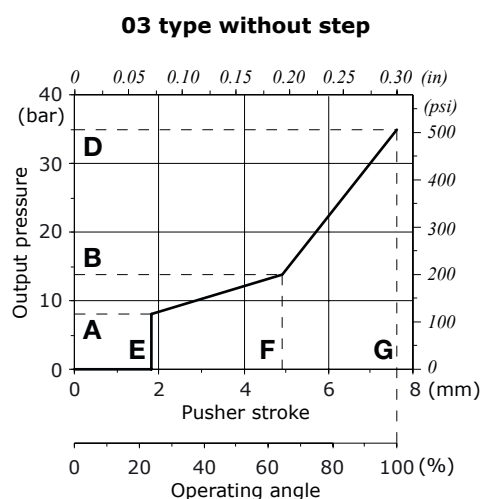
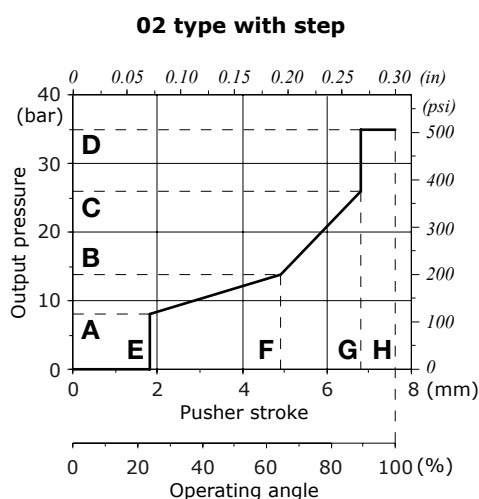
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## Control curves without step

| Curve description                           |     | Pressure    |               |             |                |             |                | Stroke |      |     |      |     |      | CODE <sup>(1)</sup> |
|---------------------------------------------|-----|-------------|---------------|-------------|----------------|-------------|----------------|--------|------|-----|------|-----|------|---------------------|
|                                             |     | A           |               | P           |                | B           |                | D      |      | Q   |      | E   |      |                     |
| Type                                        | Nr  | bar (±toll) | psi (±toll)   | bar (±toll) | psi (±toll)    | bar (±toll) | psi (±toll)    | mm     | in   | mm  | in   | mm  | in   |                     |
| 01                                          | 115 | 8.3 (±0.7)  | 120.3 (±10.1) |             |                | 22.5 (±1)   | 326.2 (±14.5)  | 0.85   | 0.03 |     |      | 7.6 | 0.30 | 5CUR40115M          |
| 01                                          | 159 | 10 (±0.5)   | 145 (±7.25)   |             |                | 28 (±1)     | 406 (±14.5)    | 0.85   | 0.03 |     |      | 7.6 | 0.30 | 5CUR401159A         |
| 01                                          | 090 | 12 (±1)     | 174 (±14.5)   |             |                | 18 (±1)     | 261 (±14.5)    | 0.85   | 0.03 |     |      | 7.6 | 0.30 | 5CR401090A          |
| 01                                          | 195 | 14 (±1)     | 203 (±14.5)   |             |                | 29.5 (±1.5) | 427.75 (±21.7) | 0.85   | 0.03 |     |      | 7.6 | 0.30 | 5CR401195A          |
| 01                                          | 144 | 35 (±2)     | 507.5 (±29)   |             |                | 70 (±3.5)   | 1015 (±50.7)   | 0.85   | 0.03 |     |      | 7.6 | 0.30 | 5CUR40144C          |
| With Pre-feeling for electromagnetic detent |     |             |               |             |                |             |                |        |      |     |      |     |      |                     |
| E1                                          | 103 | 6 (±1)      | 87 (±14.5)    | 30 (± 1.5)  | 435 (±21.7)    | 34.7 (±2)   | 503.1 (±29)    | 0.85   | 0.03 | 6.5 | 0.25 | 7.6 | 0.30 | 5CUR4E103M          |
| E1                                          | 156 | 3.4 (±0.5)  | 46.3 (±7.25)  | 14.5 (±1)   | 210.25 (±14.5) | 16.7 (±1)   | 242.15 (±14.5) | 0.85   | 0.03 | 6.5 | 0.25 | 7.6 | 0.30 | 5CUR4E156M          |

<sup>(1)</sup> indicates the curve with the specific return spring  
For different curves please contact our Sales Department

## Control curves piecewise with and without step



## Control curve with step

| Curve description |     | Pressure    |               |             |               |             |               |     |       | Stroke |      |     |      |      |      |     |      | CODE <sup>(1)</sup>      |
|-------------------|-----|-------------|---------------|-------------|---------------|-------------|---------------|-----|-------|--------|------|-----|------|------|------|-----|------|--------------------------|
|                   |     | A           |               | B           |               | C           |               | D   |       | E      |      | F   |      | G    |      | H   |      |                          |
| Type              | Nr  | bar (±toll) | psi (±toll)   | bar (±toll) | psi (±toll)   | bar (±toll) | psi (±toll)   | bar | psi   | mm     | in   | mm  | in   | mm   | in   | mm  | in   |                          |
| 02                | 210 | 1.5 (±1)    | 21.7 (±14.5)  | 7 (±1)      | 101.5 (±14.5) | 15 (±1)     | 217.5 (±14.5) | 35  | 507.5 | 0.85   | 0.03 | 5.7 | 0.22 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40210C               |
| 02                | 204 | 4.3 (±0.5)  | 62.3 (±7.25)  | 12 (±0.8)   | 174 (±11.6)   | 20.5 (±1)   | 297.2 (±14.5) | 35  | 507.5 | 0.85   | 0.03 | 5.7 | 0.22 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40204C               |
| 02                | 200 | 7 (±1)      | 101.5 (±14.5) | 13 (±1)     | 188.5 (±14.5) | 22 (±1)     | 319 (±14.5)   | 30  | 435   | 0.85   | 0.03 | 5.7 | 0.22 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40200A<br>5CUR40200M |

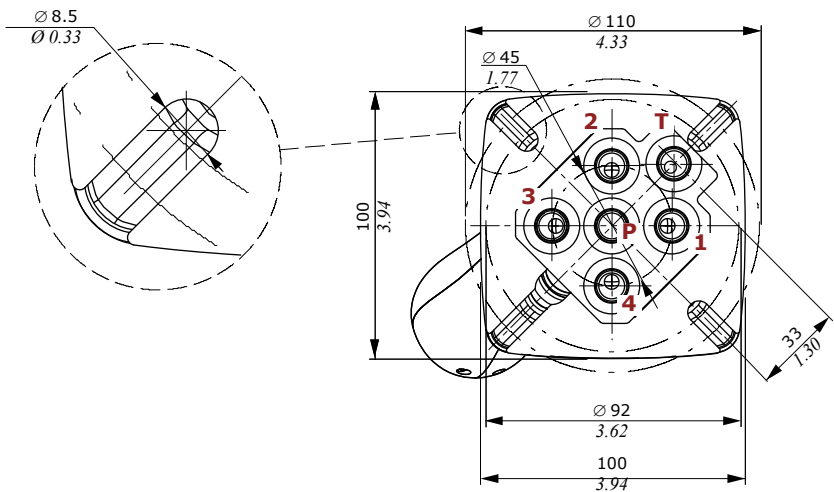
## Control curve without step

| Curve description |     | Pressure      |                      |             |                 |         |            | Stroke |      |     |      |     |      | CODE <sup>(1)</sup> |
|-------------------|-----|---------------|----------------------|-------------|-----------------|---------|------------|--------|------|-----|------|-----|------|---------------------|
|                   |     | A             |                      | B           |                 | D       |            | E      |      | F   |      | G   |      |                     |
| Type              | Nr  | bar (±toll)   | psi (±toll)          | bar (±toll) | psi (±toll)     | bar     | psi        | mm     | in   | mm  | in   | mm  | in   |                     |
| 03                | 311 | 1.2 (±0.5)    | 17.4 (±7.25)         | 14.7 (±2.5) | 213.15 (±36.25) | 22 (±2) | 319 (±29)  | 0.85   | 0.03 | 6.6 | 0.26 | 7.6 | 0.30 | 5CUR40311B          |
| 03                | 300 | 5.1 (±0.5)    | 73.95 (±7.25)        | 16 (±1.5)   | 232 (±21.75)    | 20 (±2) | 290 (±29)) | 0.85   | 0.03 | 6.6 | 0.26 | 7.6 | 0.30 | 5CUR40300A          |
| 03                | 302 | 6 (+0.5/-1.5) | 87<br>(+7.25/-21.75) | 12 (±1)     | 175 (±14.5)     | 22 (+2) | 320 (+29)  | 0.85   | 0.03 | 6.6 | 0.26 | 7.6 | 0.30 | 5CUR40302A          |
|                   |     |               |                      |             |                 |         |            |        |      |     |      |     |      | 5CUR40302C          |
|                   |     |               |                      |             |                 |         |            |        |      |     |      |     |      | 5CUR40302D          |

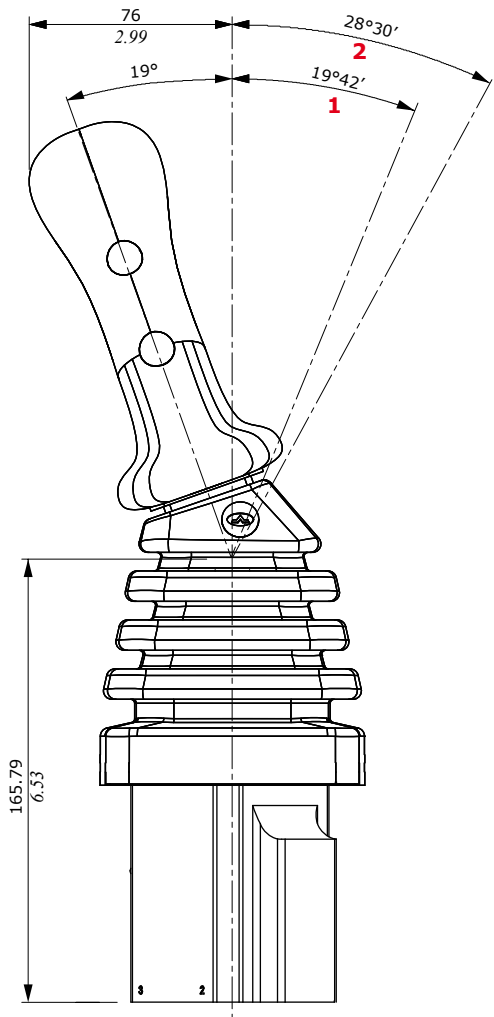
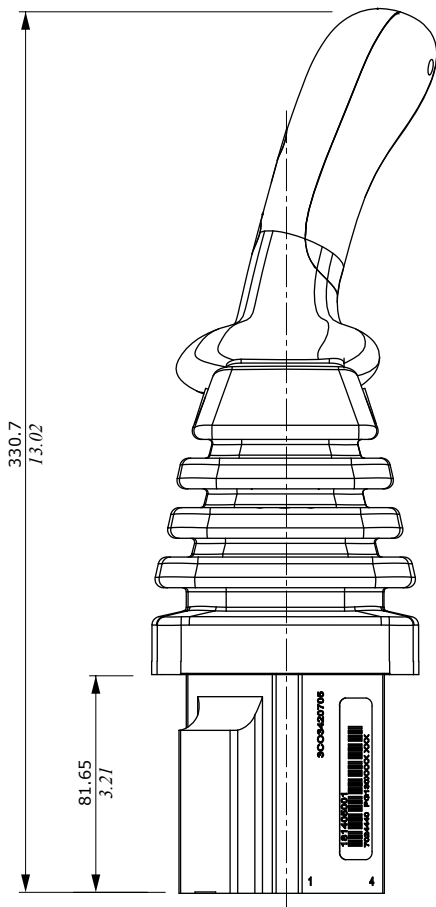
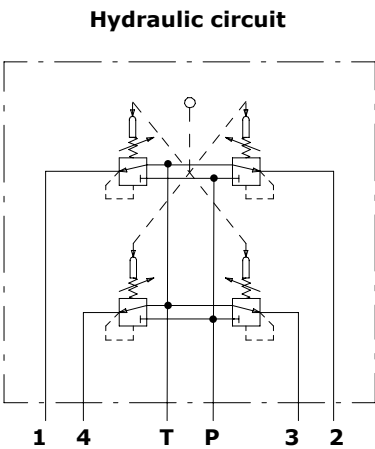
<sup>(1)</sup> indicates the curve with the specific spring  
For different curves please contact our Sales Department

Dimensions and hydraulic circuit

Configuration with damping system.



NOTE: normally the pilot control valve is supplied with the handle oriented towards port nr. 4 (see page 28)



1 : Single work port  
2 : Two simultaneous work ports

**SVM405 / 3 1 - S / 01 S108 (90) - 045(TM1M) - 0 0 089N M X 4 - <CRVN>**

6



**1 Body kit \***

| TYPE              | CODE       | DESCRIPTION                   |
|-------------------|------------|-------------------------------|
| <b>SVM405/1-S</b> | 5C03420705 | For rubber bellow square base |

**2 Rubber bellow**

| TYPE                              | CODE       | DESCRIPTION                                                                                |
|-----------------------------------|------------|--------------------------------------------------------------------------------------------|
| <b>For V, H, P series handles</b> |            |                                                                                            |
| <b>0</b>                          | 3SOF111130 | Straight type, square base with logo                                                       |
| <b>3</b>                          | 3SOF111113 | Sloping type, square base; only for 19° sloping handles. Not available for type 16 control |
| <b>6</b>                          | 3SOF111114 | As type 3 without logo. Not available for type 16 control                                  |

**3 Control option**

| TYPE                                                                                 | CODE     | DESCRIPTION                                              |
|--------------------------------------------------------------------------------------|----------|----------------------------------------------------------|
| <b>Spring return in neutral position</b>                                             |          |                                                          |
| <b>01</b>                                                                            | 5CIN4003 | For V, H, P, S series handles and straight rubber bellow |
|                                                                                      | 5CIN4001 | For V, H, P, S series handles and sloping rubber bellow  |
| <b>With microswitches for movement detection on each port.</b>                       |          |                                                          |
| It needs type 7 rubber bellow and special body: please contact our Sales Department. |          |                                                          |
| <b>16</b>                                                                            | 5CIN4023 | For V, H, P, S series handles and straight rubber bellow |
|                                                                                      | 5CIN4021 | For V, H, P, S series handles and sloping rubber bellow  |

**4 Handles**

Some handles as examples are listed below: for technical specifications and full range of handles and other types of joint see the "Handles and levers" catalogue.

**V series handle**

TYPE: **V007** CODE: 5IMP030070  
DESCRIPTION: Without switches with sloping 19° left joint

**AMH series handle**

TYPE: **AMH0400A9-6R2035-7R2035-8R2035-9R2035-(E2)**  
CODE: 2IM3000004 DESCRIPTION: 4 push buttons with spring return, protection diode, with straight joint

**H series handle**

TYPE: **HA029-ORD040-2RD040-4RD040**  
CODE: 2IM4100109 DESCRIPTION: 2 push buttons with spring return, "dead man" switch, with straight joint

**P series handle**

TYPE: **PZTA4100D9-ORD035-3R1D035-4R1D035-5R1D035-6R1D035-WN130035** CODE: 2IM8600007  
DESCRIPTION: 1 proportional roller, 4 push buttons with spring return, "dead man" switch, with straight joint

**F series handle**

TYPE: **F02F-02R(1=8)**  
CODE: 320000017+430533039+430033299  
DESCRIPTION: 2 front and 2 rear push buttons with spring return + sloping 15° joint + adapter kit

**S series handle**

TYPE: **SZTA8-0G4045-XG122045**  
CODE: 2IM5310003  
DESCRIPTION: 1 proportional roller and front push button, with sloping 19° right joint

**5 Handle position**

| TYPE         | DESCRIPTION                                                                           |
|--------------|---------------------------------------------------------------------------------------|
| <b>(-)</b>   | STANDARD configuration, cable operation on work port 4: <b>omitted in description</b> |
| <b>(90)</b>  | Mounted with 90° rotation step: cable operation on work port 1                        |
| <b>(180)</b> | Mounted with 180° rotation step: cable operation on work port 2                       |
| <b>(270)</b> | Mounted with 270° rotation step: cable operation on work port 3                       |

**6 Pressure control curves**

For list available see from page 33

**6.1 Curve type**

| TYPE     | DESCRIPTION |
|----------|-------------|
| <b>0</b> | Standard    |

**6.2 Typology of curves**

| TYPE     | DESCRIPTION  |
|----------|--------------|
| <b>0</b> | With step    |
| <b>1</b> | Without step |

**6.3 Curve identification**

Progressive number, see tables from page 33

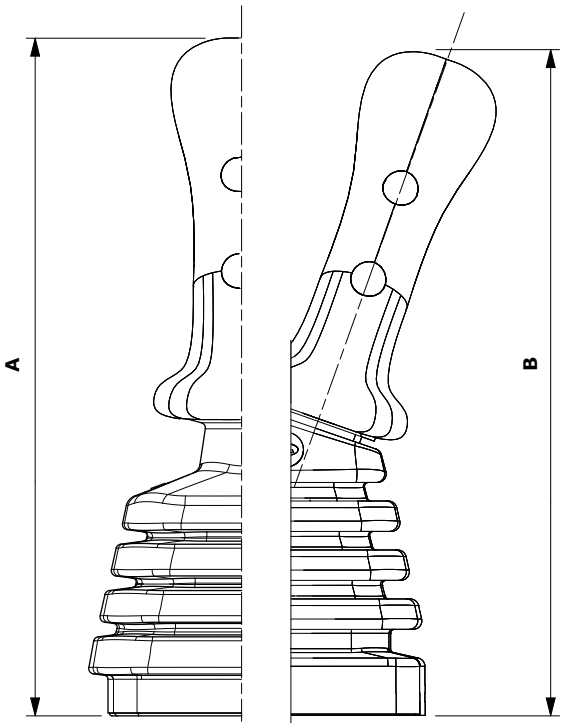
**6.4 Return springs**

| TYPE     | DESCRIPTION                                                        |
|----------|--------------------------------------------------------------------|
| <b>M</b> | Operation range from 18 to 25.5 N - <i>from 4.04 to 5.73 lbf</i>   |
| <b>A</b> | Operation range from 23 to 35.2 N - <i>from 5.17 to 7.91 lbf</i>   |
| <b>B</b> | Operation range from 23 to 68.1 N - <i>from 5.17 to 15.31 lbf</i>  |
| <b>C</b> | Operation range from 89 to 176 N - <i>from 20 to 39.56 lbf</i>     |
| <b>D</b> | Operation range from 110 to 220 N - <i>from 24.73 to 49.46 lbf</i> |
| <b>E</b> | Operation range from 138 to 276 N - <i>from 31 to 62.04 lbf</i>    |

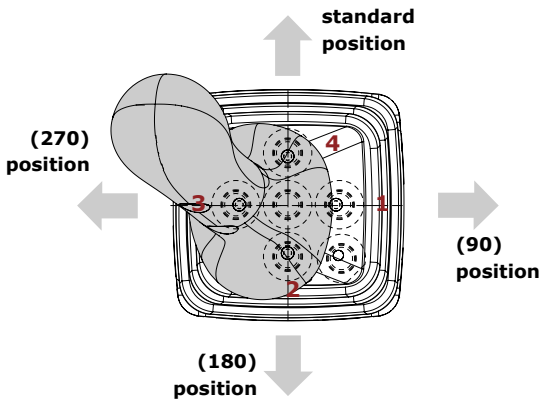
NOTE (\*) – Codes are referred to **UN-UNF** thread.

Configuration option

Handle options

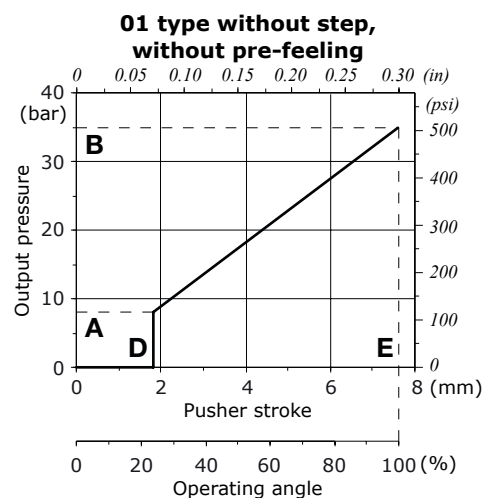
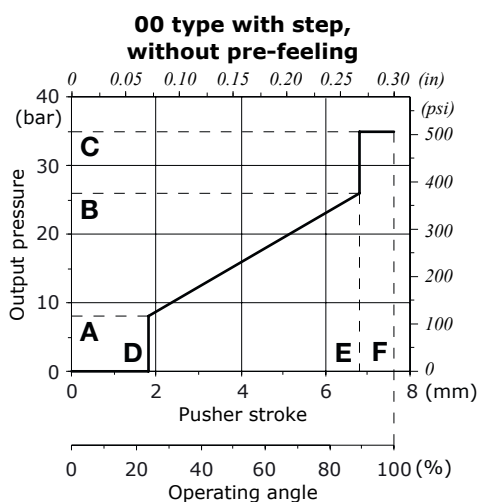


Handle positions



| Type     | A     |       | B     |       |
|----------|-------|-------|-------|-------|
|          | mm    | in    | mm    | in    |
| V series | 239.2 | 9.42  | 237.2 | 9.34  |
| H series | 237.2 | 9.34  | 235.2 | 9.26  |
| P series | 256.2 | 10.09 | 254.2 | 10.01 |
| S series | 252.2 | 9.93  | 249.2 | 9.81  |

## Control curves with and without step



## With step

| Curve description |     | Pressure    |               |             |                |     |       | Stroke |      |      |      |     |      | CODE <sup>(1)</sup>        |
|-------------------|-----|-------------|---------------|-------------|----------------|-----|-------|--------|------|------|------|-----|------|----------------------------|
|                   |     | A           |               | B           |                | C   |       | D      |      | E    |      | F   |      |                            |
| Type              | Nr  | bar (±toll) | psi (±toll)   | bar (±toll) | psi (±toll)    | bar | psi   | mm     | in   | mm   | in   | mm  | in   |                            |
| 00                | 073 | 4 (±1)      | 58 (±14.5)    | 18 (±1)     | 261 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400073NB<br>5CR010073NM |
| 00                | 020 | 4.3 (±0.5)  | 62.35 (±7.25) | 15.2 (±1)   | 220.4 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400020NM                |
| 00                | 004 | 4.9 (±0.5)  | 71.05 (±7.25) | 18.9 (±1)   | 274.05 (±14.5) | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400004NM                |
| 00                | 075 | 5 (±0.5)    | 72.5 (±7.25)  | 15 (±1.5)   | 217.5 (±21.75) | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400075NA<br>5CR400075NM |
| 00                | 028 | 5 (±1)      | 72.5 (±14.5)  | 21 (±1.5)   | 304.5 (±21.75) | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400028NM                |
| 00                | 087 | 5.8 (±0.5)  | 84.1 (±7.25)  | 17 (±1.5)   | 246.5 (±21.75) | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400087NM                |
| 00                | 033 | 5.8 (±0.5)  | 84.1 (±7.25)  | 19 (±1)     | 275.5 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400033NA<br>5CR400033NM |
| 00                | 070 | 5.8 (±1)    | 84.1 (±14.5)  | 22.4 (±2)   | 324.8 (±29)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400070NM                |
| 00                | 021 | 6 (±0.5)    | 87 (±7.25)    | 16.3 (±1)   | 236.35 (±14.5) | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400021NM                |
| 00                | 054 | 6.2 (±1)    | 89.9 (±14.5)  | 24.5 (±2)   | 355.25 (±29)   | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400054NM                |
| 00                | 026 | 6.5 (±0.5)  | 94.25 (±7.25) | 14 (±1)     | 203 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400026NM                |
| 00                | 123 | 6.5 (±0.5)  | 94.25 (±7.25) | 15.7 (±0.5) | 227.65 (±7.25) | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400123NB                |
| 00                | 098 | 7 (±0.5)    | 101.5 (±7.25) | 22.6 (±1.5) | 327.7 (±21.75) | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400098NM                |
| 00                | 088 | 8 (±0.5)    | 116 (±7.25)   | 27 (±1.5)   | 391.5 (±21.75) | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400088NM                |
| 00                | 089 | 8 (±0.5)    | 116 (±7.25)   | 28 (±1)     | 406 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400089NA<br>5CR400089NM |

<sup>(1)</sup> indicates the curve with the specific return spring

For different curves please contact our Sales Department

## Without step

| Curve description |     | Pressure    |               |             |                 | Stroke |      |     |      | CODE <sup>(1)</sup> |
|-------------------|-----|-------------|---------------|-------------|-----------------|--------|------|-----|------|---------------------|
|                   |     | A           |               | B           |                 | D      |      | E   |      |                     |
| Tipo              | Nr  | bar (±toll) | psi (±toll)   | bar (±toll) | psi (±toll)     | mm     | in   | mm  | in   |                     |
| 01                | 156 | 3.4 (±0.5)  | 49.3 (±7.25)  | 14.5 (±1.5) | 210.25 (±21.75) | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40156NM         |
| 01                | 111 | 5.5 (±1)    | 79.75 (±14.5) | 25.5 (±2)   | 369.75 (±29)    | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40111NA         |

<sup>(1)</sup> indicates the curve with the specific return spring

For different curves please contact our Sales Department

### Notes

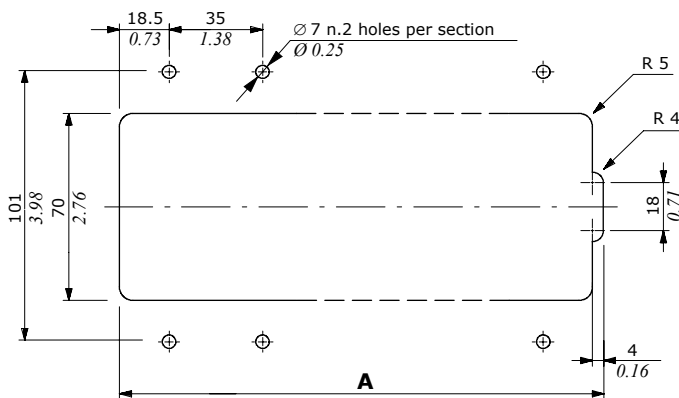
SVM pilot control valves assembled and tested as per the technical specification of this catalogue.

Before the final installation on your equipment, follow the below recommendations:

- the pilot valves must be assembled in horizontal position: considering the mass of the kinematic and control kit, a max.angle of 20° is allowed;
- the feeding unit can be assembled in any position;keep it away from heat sources when it is equipped with accumulator;
- fix the devices with suitable screw, use the appropriate flange or drilling, after tightening check the seal and the safety of the assembly;
- verify the integrity of the contact between devices and fittings and eliminate any impurities;
- correctly connect the devices, do not reverse the P and T ports (see dimensional pages to determine the initials of the ports);
- in order to prevent the possibility of water entering the rubber bellow, do not use high pressure wash directly on the valve;
- prior to painting, ensure plastic port plugs are tightly in place;
- the electrical cables have not to be submitted to mechanical forces (ex. tension or torsion);
- use original handles and handlevers.

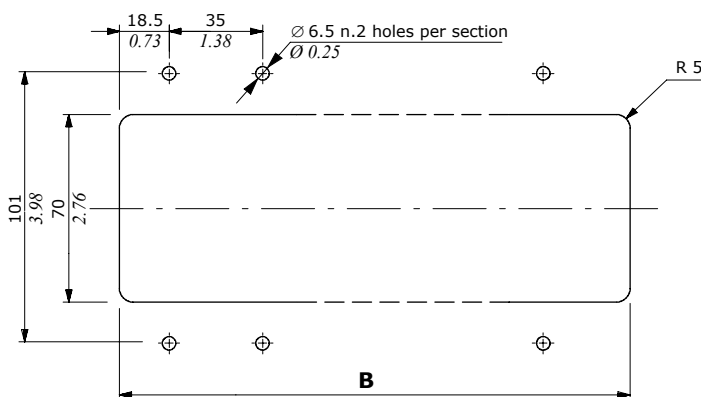
### Panel cut out

**SVM100 with side P and T ports  
Upper mounting**



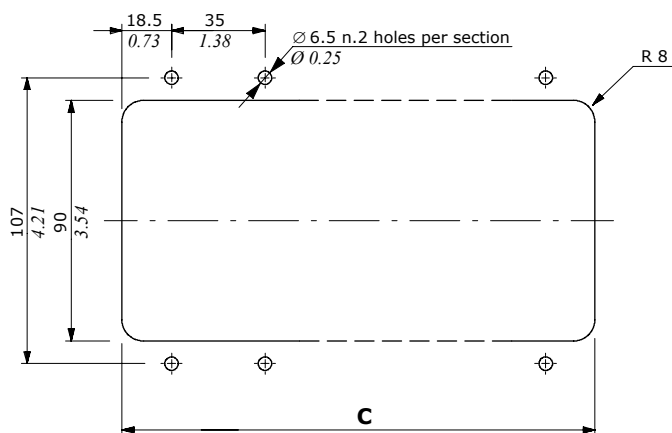
| Type             | A   |       |
|------------------|-----|-------|
|                  | mm  | in    |
| <b>SVM100/1</b>  | 41  | 1.61  |
| <b>SVM100/2</b>  | 76  | 2.99  |
| <b>SVM100/3</b>  | 111 | 4.37  |
| <b>SVM100/4</b>  | 146 | 5.75  |
| <b>SVM100/5</b>  | 181 | 7.12  |
| <b>SVM100/6</b>  | 216 | 8.50  |
| <b>SVM100/7</b>  | 251 | 9.88  |
| <b>SVM100/8</b>  | 286 | 11.36 |
| <b>SVM100/9</b>  | 321 | 12.64 |
| <b>SVM100/10</b> | 356 | 14.01 |

**SVM101 with lower P and T ports  
Upper mounting**

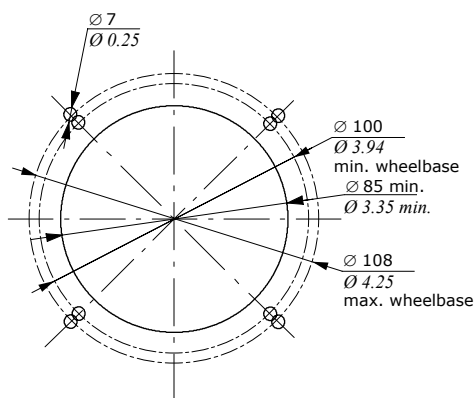
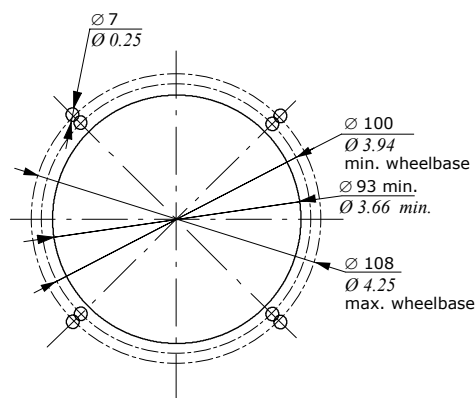
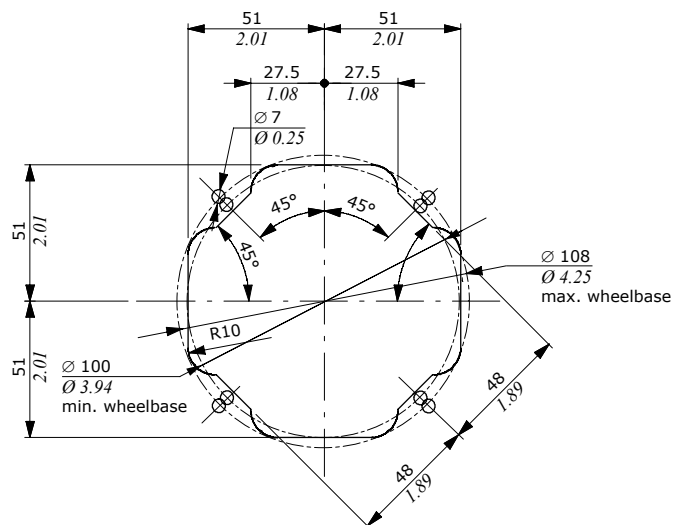
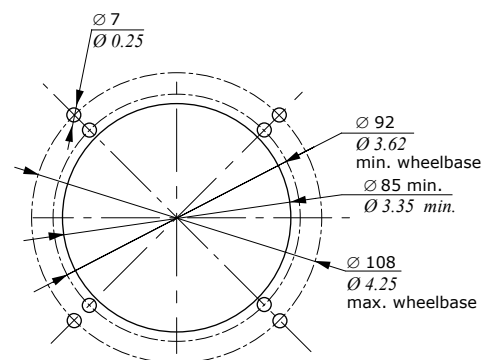


| Type             | B   |       |
|------------------|-----|-------|
|                  | mm  | in    |
| <b>SVM101/1</b>  | 61  | 2.40  |
| <b>SVM101/2</b>  | 96  | 3.78  |
| <b>SVM101/3</b>  | 129 | 5.08  |
| <b>SVM101/4</b>  | 159 | 6.26  |
| <b>SVM101/5</b>  | 191 | 7.52  |
| <b>SVM101/6</b>  | 224 | 8.82  |
| <b>SVM101/7</b>  | 257 | 10.12 |
| <b>SVM101/8</b>  | 291 | 11.46 |
| <b>SVM101/9</b>  | 325 | 12.79 |
| <b>SVM101/10</b> | 359 | 14.13 |

## Panel cut out

**SVM100-101 with upper and lower P and T ports**  
**Upper mounting**


| Tipo          | C   |       |
|---------------|-----|-------|
|               | mm  | in    |
| SVM100-101/1  | 37  | 1.46  |
| SVM100-101/2  | 72  | 2.83  |
| SVM100-101/3  | 107 | 4.21  |
| SVM100-101/4  | 142 | 5.59  |
| SVM100-101/5  | 177 | 6.97  |
| SVM100-101/6  | 212 | 8.35  |
| SVM100-101/7  | 247 | 9.72  |
| SVM100-101/8  | 282 | 11.10 |
| SVM100-101/9  | 317 | 12.48 |
| SVM100-101/10 | 352 | 13.86 |

**SVM400 - SVM400-EMD**

**SVM430**

**SVM431 - SVM432**

**SVM405**






## SVM hydraulic joysticks with electromagnetic detent

### SVM150 / SVM450 / SVM600

- Single, double and combined functions
- Wide range of handles available

### Working conditions

This catalogue shows technical specifications and diagrams measured through mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

|                                       |                          |                                                         |
|---------------------------------------|--------------------------|---------------------------------------------------------|
| Nominal flow rating                   |                          | from 5 to 20 l/min - from 1.32 to 5.28 USgpm            |
| Max. feeding pressure                 | on P inlet port          | from 30 to 100 bar - from 435 to 1450 psi               |
| Max. backpressure                     | on T outlet port         | 3 bar - 43.5 psi                                        |
| Max. hysteresis                       |                          | 0.5 bar - 7.25 psi                                      |
| Internal leakage (all ports)          | at 30 bar - 435 psi, P⇒T | max 18 cm <sup>3</sup> /min - 1.10 in <sup>3</sup> /min |
| Fluid                                 |                          | Mineral oil                                             |
| Fluid temperature                     | with NBR (BUNA-N) seals  | from -10°C to 80°C - from 14 °F to 176 °F               |
|                                       | operating range          | from 15 to 75 mm <sup>2</sup> /s - from 15 to 75 cSt    |
| Viscosity                             | min.                     | 12 mm <sup>2</sup> /s - 12 cSt                          |
|                                       | max.                     | 400 mm <sup>2</sup> /s - 400 cSt                        |
| Max. contamination level              |                          | -/15/12 - ISO 4406 - NAS1638 class 6                    |
| Ambient temperature                   | without electric devices | from -40°C to 60°C - from 40 °F to 140 °F               |
|                                       | with electric devices    | from -20°C to 50°C - from -4 °F to 122 °F               |
| Tie rod tightening torque (wrench 13) | only for SVM150          | 24 Nm - 17.7 lbft                                       |

NOTE - for different conditions please contact our Sales Department.

### REFERENCE STANDARD

|                               | BSP       | UN-UNF              |
|-------------------------------|-----------|---------------------|
| THREAD ACCORDING TO           | ISO 228/1 | ISO 263             |
|                               | BS 2779   | ANSI B1.1 unified   |
| CAVITY DIMENSION ACCORDING TO | ISO       | 11926               |
|                               | SAE       | J11926              |
|                               | DIN       | 3852-2 X or Y shape |

### PORT THREADING

| PORTS    | UNI EN ISO 1179 | Threads            |                 | Fitting tightening torque |       |
|----------|-----------------|--------------------|-----------------|---------------------------|-------|
|          |                 | UNI EN ISO 11926-2 |                 | Nm                        | lbft  |
|          |                 | SVM150             | SVM450-SVM600   |                           |       |
| P inlet  | G 1/4           | 7/16-20 (SAE 4)    | 9/16-18 (SAE 6) | 30                        | 22.13 |
| Ports    | G 1/4           | 7/16-20 (SAE 4)    | 9/16-18 (SAE 6) | 30                        | 22.13 |
| T outlet | G 1/4           | 7/16-20 (SAE 4)    | 9/16-18 (SAE 6) | 30                        | 22.13 |

NOTE - These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finishing. The manufacturer has to be consulted.

## Dimensions and hydraulic circuit

### Single axes version

Without detent or with detent on single working port or both working ports

## Features

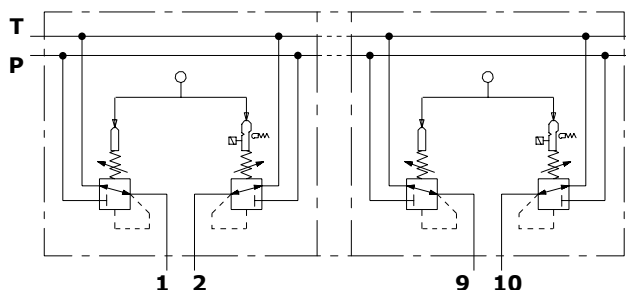
## ELECTROMAGNET

|                                     |                   |
|-------------------------------------|-------------------|
| Nominal voltage tolerance . . . . . | : ±10%            |
| Power rating . . . . .              | : 8.2 W           |
| Nominal current . . . . .           | : 0.69 A - 12 VDC |
|                                     | : 0.345 A - 24VDC |
| Coil insulation . . . . .           | : Class H         |
| Weather protection . . . . .        | : IP65            |
| Insertion . . . . .                 | : 100%            |

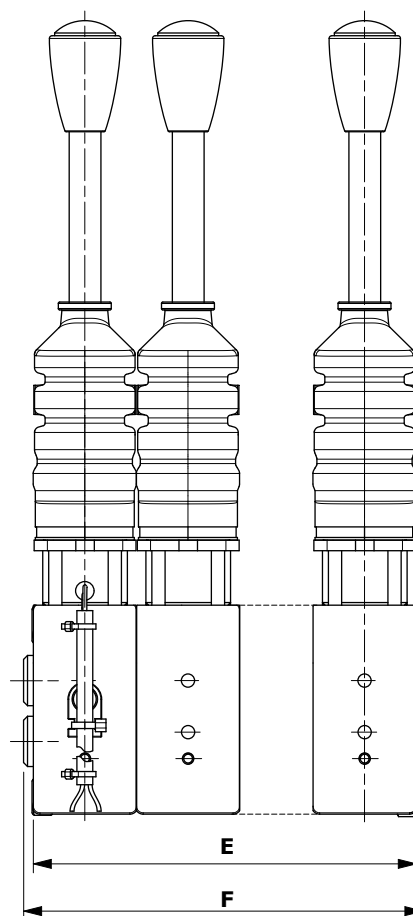
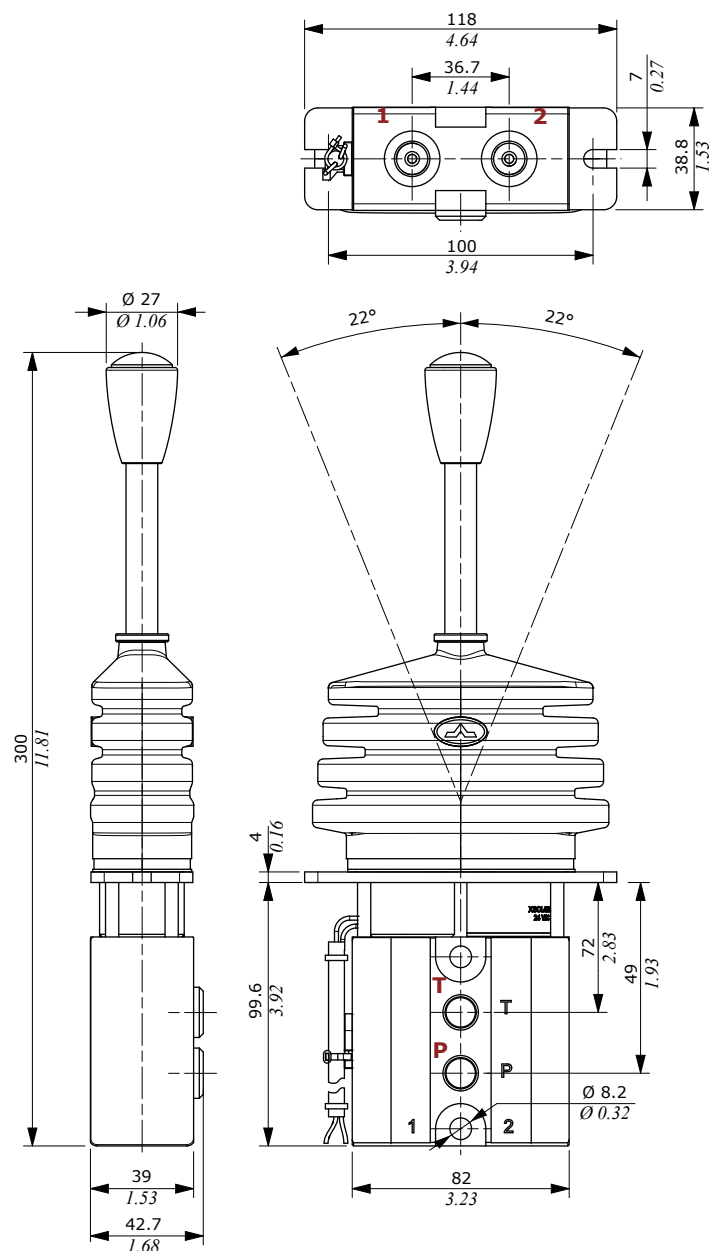
**SVM150/n version**

### Configuration up to 5 sections

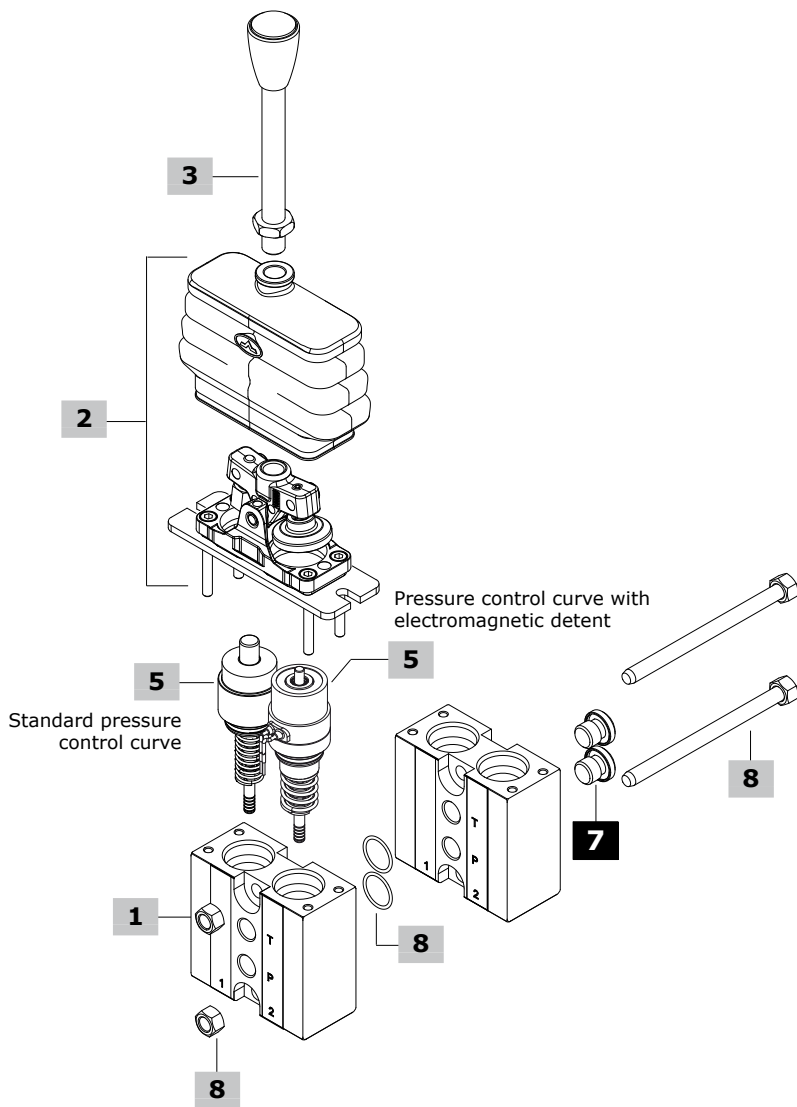
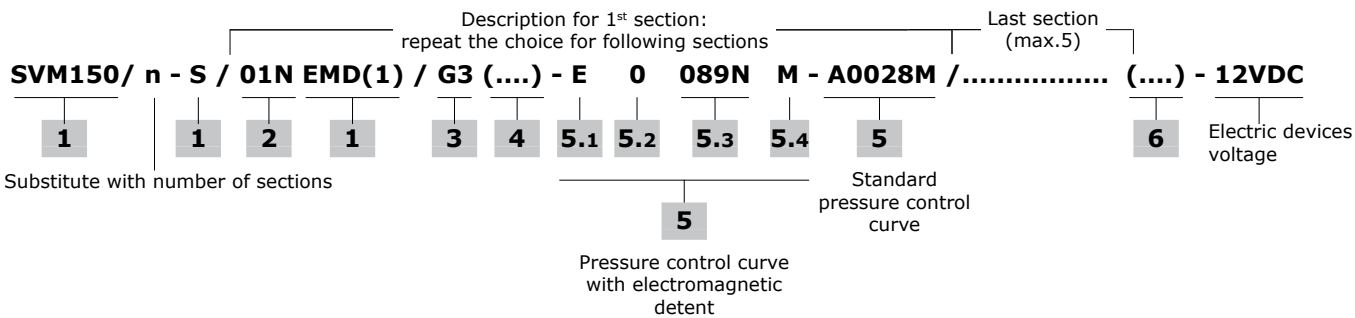
## Hydraulic circuit



| TIPO            | E   |             | F   |             |
|-----------------|-----|-------------|-----|-------------|
|                 | mm  | <i>in</i>   | mm  | <i>in</i>   |
| <b>SVM150/2</b> | 78  | <i>3.07</i> | 84  | <i>3.31</i> |
| <b>SVM150/3</b> | 117 | <i>4.61</i> | 123 | <i>4.84</i> |
| <b>SVM150/4</b> | 156 | <i>6.14</i> | 162 | <i>6.38</i> |
| <b>SVM150/5</b> | 195 | <i>7.68</i> | 201 | <i>7.91</i> |



Ordering codes



## Ordering codes

**1 Body kit \***

|                                                            |                  |
|------------------------------------------------------------|------------------|
| TYPE: <b>SVM150-S/EMD(0)</b>                               | CODE: 3C03132700 |
| DESCRIPTION: Body without detent                           |                  |
| TYPE: <b>SVM150-S/EMD(1)</b>                               | CODE: 3C03132701 |
| DESCRIZIONE: Body with detent arrangement on port 1        |                  |
| TYPE: <b>SVM150-S/EMD(2)</b>                               | CODE: 3C03132702 |
| DESCRIPTION: Body with detent arrangement on port 2        |                  |
| TYPE: <b>SVM150-S/EMD(1-2)</b>                             | CODE: 3C03132703 |
| DESCRIPTION: Body with detent arrangement on ports 1 and 2 |                  |

**2 Detent configuration**

Complete with rubber bellow and fixing wrapper

| TYPE           | CODE       | DESCRIPTION                                                                                                                        |
|----------------|------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>01N(0D)</b> | 5CIN1010DN | Spring return to neutral position, without detent arrangement                                                                      |
| <b>01N(1D)</b> | 5CIN1011DN | Spring return to neutral position, single detent arrangement; right or left position is defined by pressure control curve position |
| <b>01N(2D)</b> | 5CIN1012DN | Spring return to neutral position, double detent arrangement                                                                       |

NOTES: For detent arrangement on different ports, please contact our Sales Department.

The text between ( ) can be omitted from composition description.

**3 Standard handlevers**

| TYPE          | CODE        | DESCRIPTION                                    |
|---------------|-------------|------------------------------------------------|
| <b>G3</b>     | 5AST271218G | Ogival with portlight, straight rod (standard) |
| <b>G3(15)</b> | 5AST371217G | Ogival with portlight, 15° bending rod         |
| <b>G3(30)</b> | 5AST371226G | Ogival with portlight, 30° bending rod         |
| <b>E</b>      | 5AST371215E | Spherical with portlight, 15° bending rod      |

For features see page 41

**4 Handle position****Only for bending rod**

| TYPE         | DESCRIPTION                                 |
|--------------|---------------------------------------------|
| <b>(0)</b>   | Handlever oriented on P and T plugged ports |
| <b>(90)</b>  | Handlever oriented on port 1                |
| <b>(180)</b> | Handlever oriented on P and T open ports    |
| <b>(270)</b> | Handlever oriented on port 2                |

**5 Pressure control curves**

For list available see from page 51

**5.1 Curve type**

| TYPE     | DESCRIPTION                                    |
|----------|------------------------------------------------|
| <b>A</b> | Without pre-feeling, without solenoid          |
| <b>B</b> | With pre-feeling, without solenoid             |
| <b>C</b> | With solenoid 24VDC and pre-feeling            |
| <b>D</b> | With solenoid 24VDC, without pre-feeling       |
| <b>E</b> | With solenoid 12VDC, with pre-feeling          |
| <b>F</b> | With solenoid 12VDC, without pre-feeling       |
| <b>G</b> | With solenoid 24VDC and pre-feeling after step |

**5.2 Typology of curves**

| TYPE     | DESCRIPTION  |
|----------|--------------|
| <b>0</b> | With step    |
| <b>1</b> | Without step |

**5.3 Curve identification**

Progressive number, see tables from page 51

**5.4 Return springs**

| TYPE     | DESCRIPTION                                                        |
|----------|--------------------------------------------------------------------|
| <b>M</b> | Operation range from 18 to 25.5 N - <i>from 4.04 to 5.73 lbf</i>   |
| <b>A</b> | Operation range from 23 to 35.2 N - <i>from 5.17 to 7.91 lbf</i>   |
| <b>B</b> | Operation range from 23 to 68.1 N - <i>from 5.17 to 15.31 lbf</i>  |
| <b>C</b> | Operation range from 89 to 176 N - <i>from 20 to 39.56 lbf</i>     |
| <b>D</b> | Operation range from 110 to 220 N - <i>from 24.73 to 49.46 lbf</i> |
| <b>E</b> | Operation range from 138 to 276 N - <i>from 31 to 62.04 lbf</i>    |

**7 Connector**

Configurations with detent or microswitch are provided with wires with tin-plate terminals. For connectors please contact our Sales Department.

**7 Closing plugs \***

| CODE        | DESCRIPTION                                   |
|-------------|-----------------------------------------------|
| 3XTAP814120 | SAE4 plug for rear ports closing (n. 2 plugs) |

**8 Assembling kit**

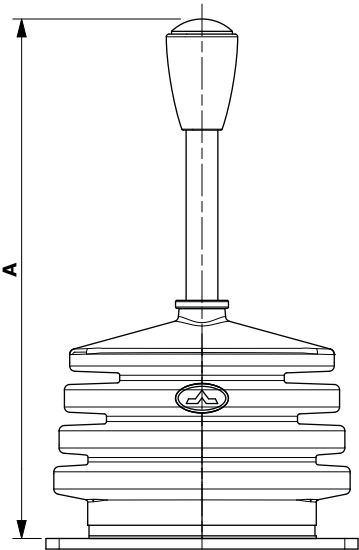
This kit contains tie rods, nuts and O-ring seals.

| CODE       | DESCRIPTION                 |
|------------|-----------------------------|
| 5TIR108081 | Assembling kit for SVM150/2 |
| 5TIR108127 | Assembling kit for SVM150/3 |
| 5TIR108159 | Assembling kit for SVM150/4 |
| 5TIR108199 | Assembling kit for SVM150/5 |

NOTE (\*) – Codes are referred to **UN-UNF** thread

Configuration option

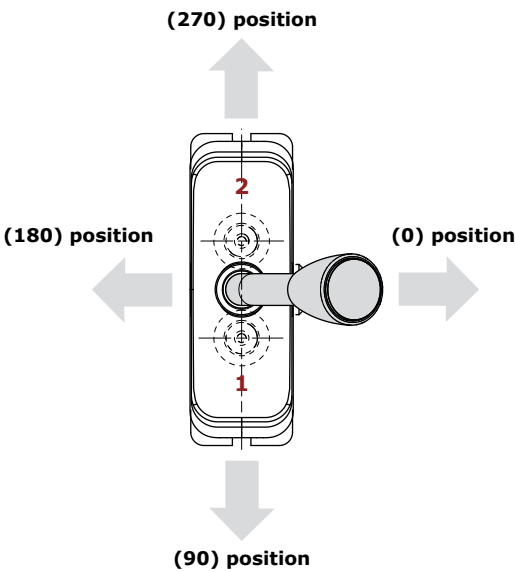
Handle option



| Handlever<br>Type | A   |      |
|-------------------|-----|------|
|                   | mm  | in   |
| G3 straight       | 196 | 7.72 |
| G3 15° sloping    | 184 | 7.24 |
| G3 30° sloping    | 176 | 6.23 |
| E 15° sloping     | 186 | 7.32 |

Handlever positions

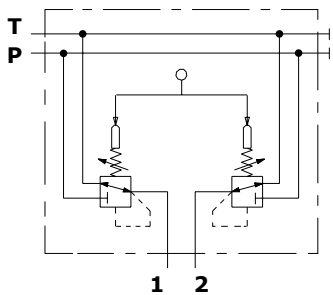
Orientation only for bending rod



Detent configuration

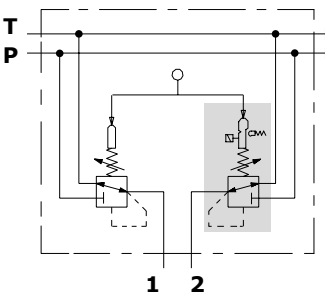
01/0D type

Spring return, without detent



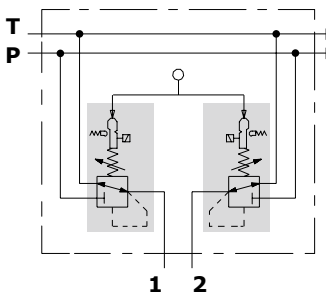
01/1D type

Single detent on port 2  
(detent on port 1 on request), spring  
return



01/2D type

Double detent on ports 1 and 2,  
spring return

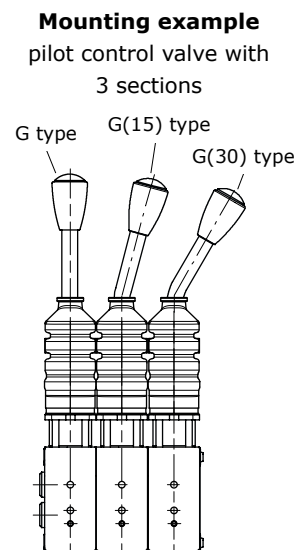
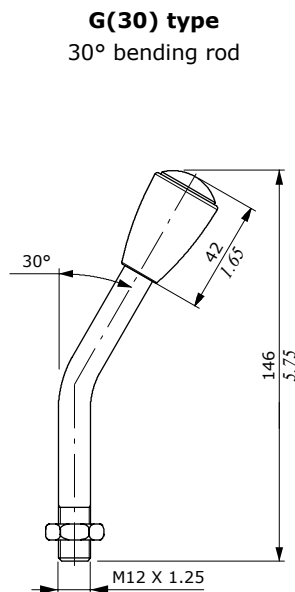
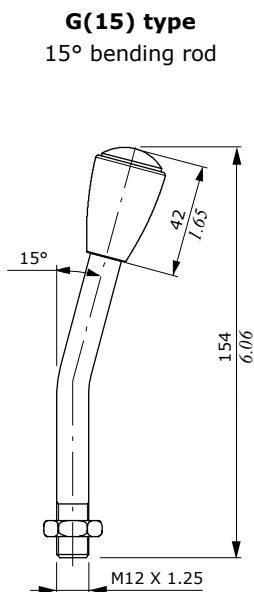
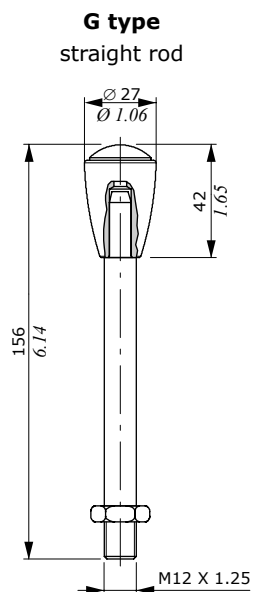


### Configuration option

#### Standard handlevers without microswitch

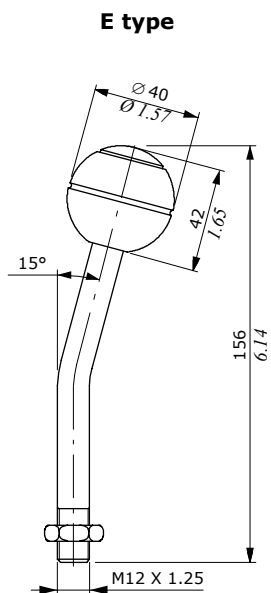
##### G type

Ogival handles with customizable portlight. It's possible to insert labels with specific machine functions (for example: lifting function).

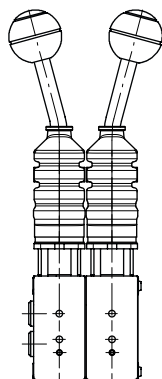


##### E type

Customizable handle as G type, 15° bending rod.



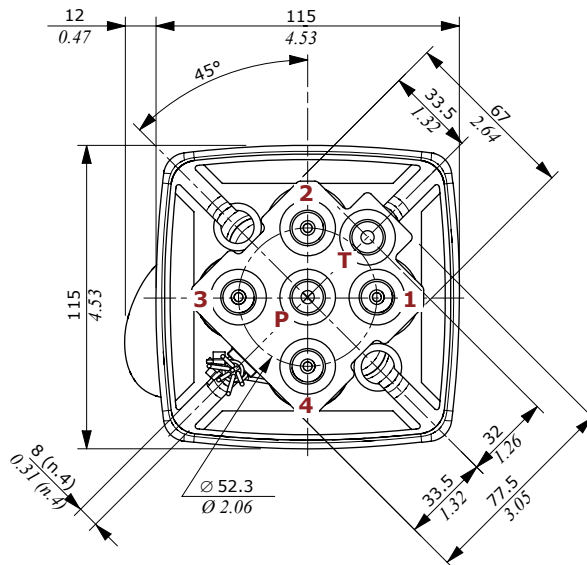
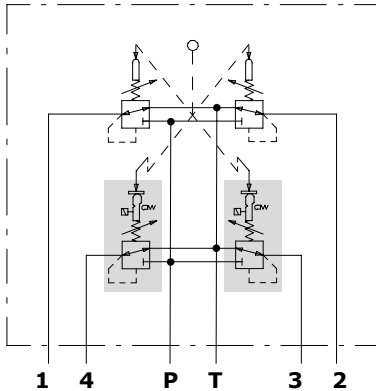
**Mounting example**  
pilot control valve with 2 sections



## Dimensions and hydraulic circuit

## hydraulic circuit

Example detent on working ports 3 e 4



**1** : Single work port  
**2** : Two simultaneous work ports

## Features

## ELECTROMAGNET

Nominal voltage tolerance :  $\pm 10\%$ 

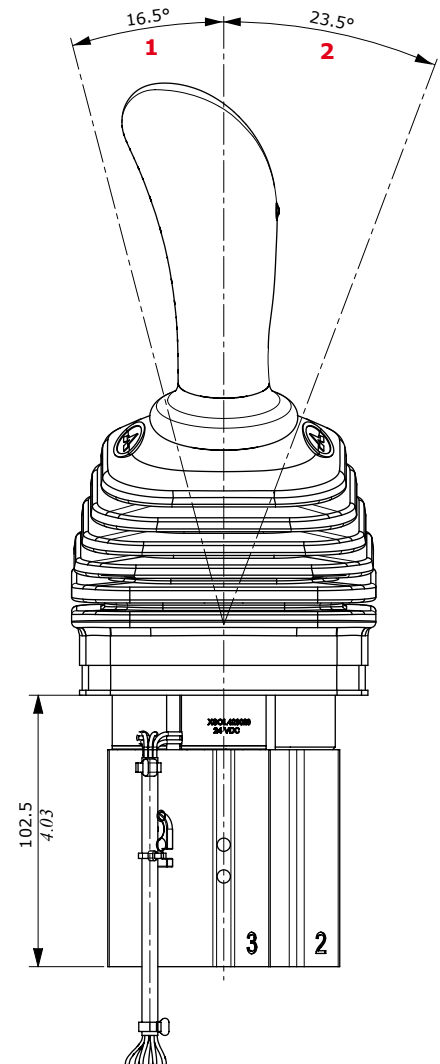
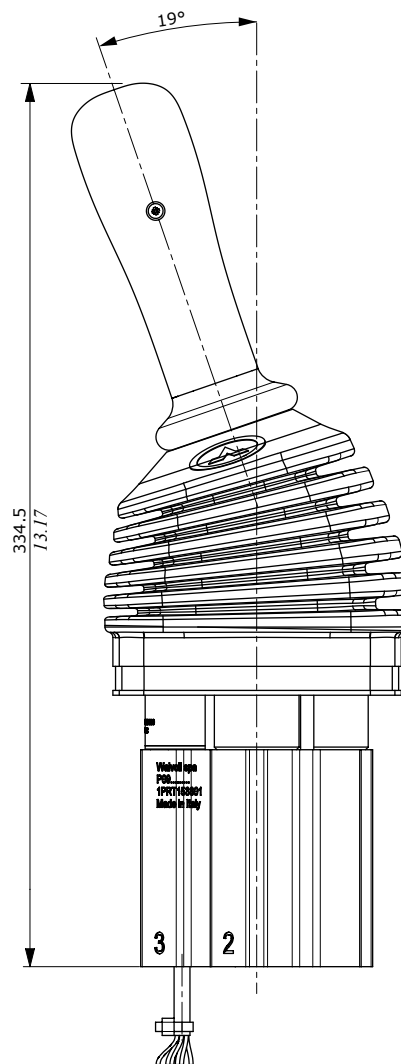
Power rating : 8.2 W

Nominal current : 0.69 A - 12 VDC  
0.345 A - 24 VDC

Coil insulation : Class H

Weather protection : IP65

Insertion : 100%



Ordering codes

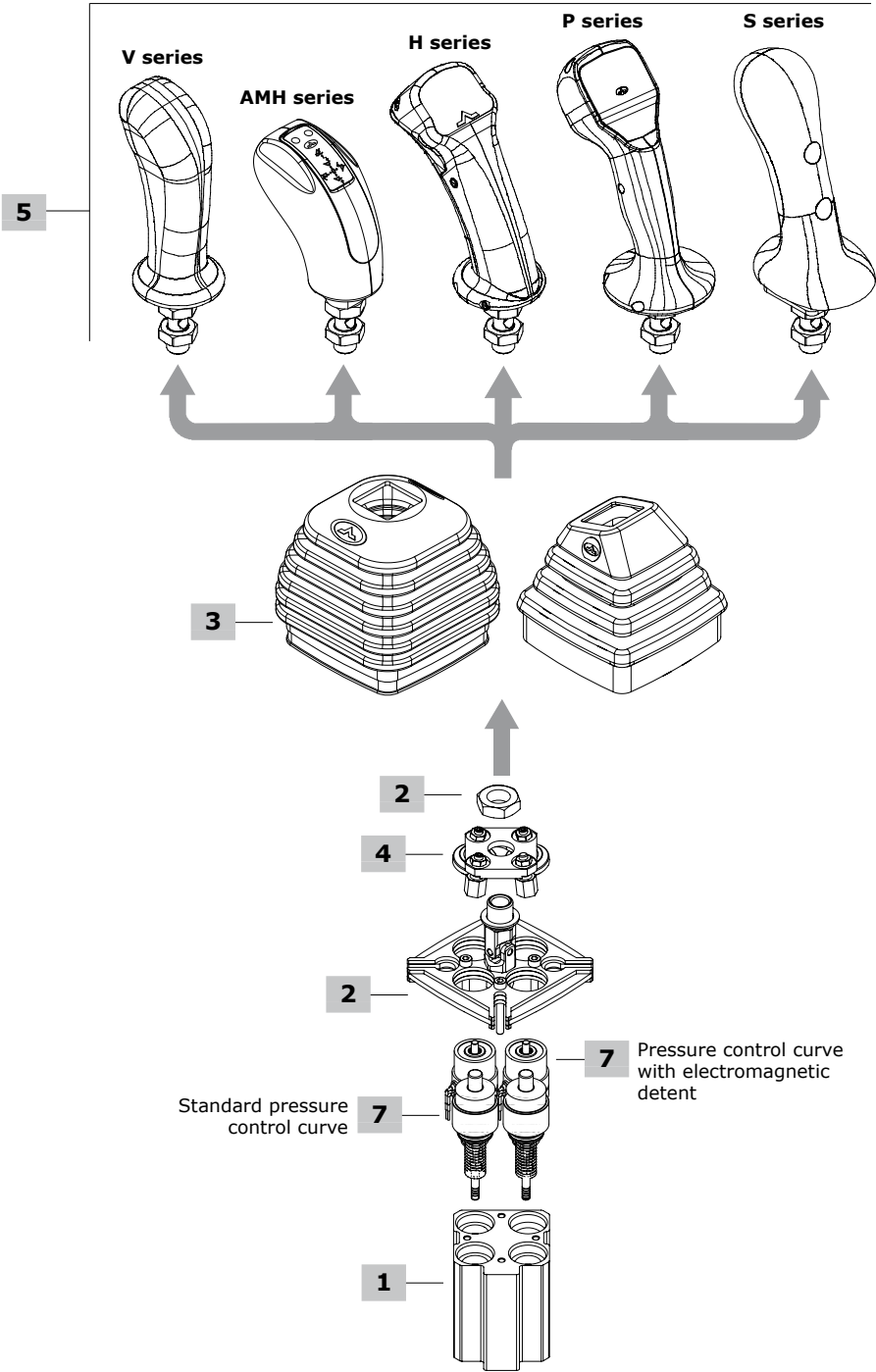
SVM450-EMD(3-4)/ 8N 1 - S / 01N - V007 (....) (....) - A 0 020 M-....-....-E0020NM - (....) - 12VDC

1 3 2 1 4 5 6 9 7.1 7.2 7.3 7.4 7 7 8

Standard pressure control curve

Pressure control curve with electromagnetic detent

Electric devices voltage



**1 Body kit \***

TYPE: **SVM450-EMD(3-4)/S6** CODE: 3CO3450701  
 DESCRIPTION: With detent arrangement on ports 3 and 4  
 TYPE: **SVM450-EMD(2-3-4)/S6** CODE: 3CO3450702  
 DESCRIPTION: With detent arrangement on ports 2, 3 and 4  
 TYPE: **SVM450-EMD(1-2-3)/S6** CODE: 3CO3450704  
 DESCRIPTION: With detent arrangement on ports 1, 2 and 3

**2 Flange kit**

| TYPE     | CODE       | DESCRIPTION |
|----------|------------|-------------|
| <b>1</b> | 5FLA410045 | Flange      |

**3 Rubber bellow**

| TYPE      | CODE       | DESCRIPTION                                                       |
|-----------|------------|-------------------------------------------------------------------|
| <b>8N</b> | 3SOF115115 | Universal type, square base with logo                             |
| <b>3</b>  | 3SOF111111 | Sloping type, square base with logo; only for 19° sloping handles |

**4 Detent configuration****With spring return in neutral position**

| TYPE           | CODE       | DESCRIPTION                         |
|----------------|------------|-------------------------------------|
| <b>01N(1D)</b> | 5CIN8011ND | Kinematic kit arranged for 1 detent |
| <b>01N(2D)</b> | 5CIN8012ND | Kinematic kit arranged for 2 detent |
| <b>01N(3D)</b> | 5CIN8013ND | Kinematic kit arranged for 3 detent |

NOTE: The text between ( ) can be omitted from description of composition

**5 Handles**

Some handles as examples are listed below: for technical specifications and full range of handles and other types of joint see the "Handles and levers" catalogue.

**V series handle**

TYPE: **V007** CODE: SIMP030070  
 DESCRIPTION: Without switches with sloping 19° left joint

**S series handle**

TYPE: **SZTA8-0G4045-XG122045**  
 CODE: 2IM5310003  
 DESCRIPTION: 1 proportional roller and front push button, with sloping 19° right joint

**6 Handle position**

| TYPE         | DESCRIPTION                                                                     |
|--------------|---------------------------------------------------------------------------------|
| <b>(-)</b>   | Standard configuration, operation to work port 4: <b>omitted in description</b> |
| <b>(90)</b>  | Mounted with 90° rotation step: operation to work port 1                        |
| <b>(180)</b> | Mounted with 180° rotation step: operation to work port 2                       |
| <b>(270)</b> | Mounted with 270° rotation step: operation to work port 3                       |

**7 Pressure control curves**

PFor list available see from page 51

**7.1 Curve type**

| TYPE     | DESCRIPTION                                    |
|----------|------------------------------------------------|
| <b>A</b> | Without pre-feeling, without solenoid          |
| <b>B</b> | With pre-feeling, without solenoid             |
| <b>C</b> | With solenoid 24VDC and pre-feeling            |
| <b>D</b> | With solenoid 24VDC, without pre-feeling       |
| <b>E</b> | With solenoid 12VDC, with pre-feeling          |
| <b>F</b> | With solenoid 12VDC, without pre-feeling       |
| <b>G</b> | With solenoid 24VDC and pre-feeling after step |

**7.2 Typology of curves**

| TYPE     | DESCRIPTION  |
|----------|--------------|
| <b>0</b> | With step    |
| <b>1</b> | Without step |

**7.3 Curve identification**

Progressive number, see tables from page 51

**7.4 Return springs**

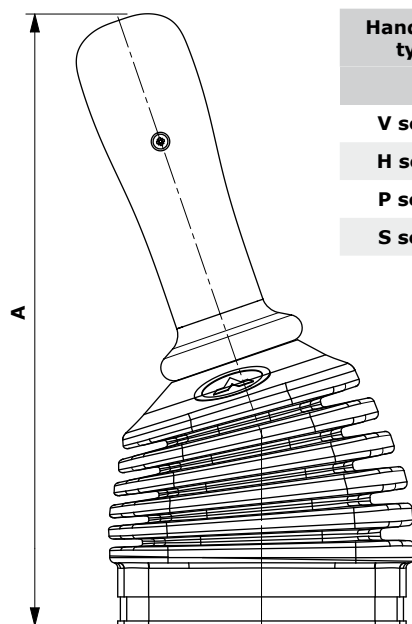
| TYPE     | DESCRIPTION                                                        |
|----------|--------------------------------------------------------------------|
| <b>M</b> | Operation range from 18 to 25.5 N - <i>from 4.04 to 5.73 lbf</i>   |
| <b>A</b> | Operation range from 23 to 35.2 N - <i>from 5.17 to 7.91 lbf</i>   |
| <b>B</b> | Operation range from 23 to 68.1 N - <i>from 5.17 to 15.31 lbf</i>  |
| <b>C</b> | Operation range from 89 to 176 N - <i>from 20 to 39.56 lbf</i>     |
| <b>D</b> | Operation range from 110 to 220 N - <i>from 24.73 to 49.46 lbf</i> |
| <b>E</b> | Operation range from 138 to 276 N - <i>from 31 to 62.04 lbf</i>    |

**8 Connector**

Configurations with detent or microswitch are provided with wires with tin-plate terminals. For connectors please contact our Sales Department.

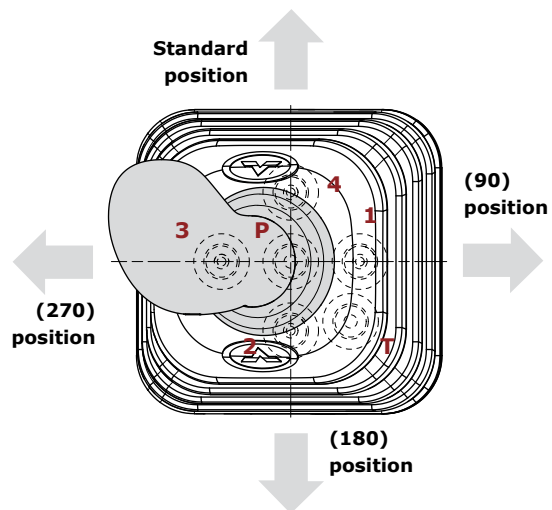
### Configuration option

#### Handle option



| Handlever type  | A   |       |
|-----------------|-----|-------|
|                 | mm  | in    |
| <b>V series</b> | 232 | 9.13  |
| <b>H series</b> | 250 | 9.84  |
| <b>P series</b> | 268 | 10.55 |
| <b>S series</b> | 266 | 10.47 |

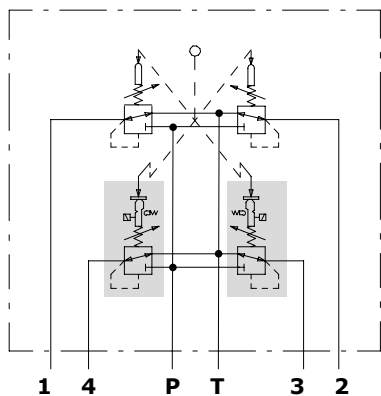
#### Handle positions



### Detent configuration

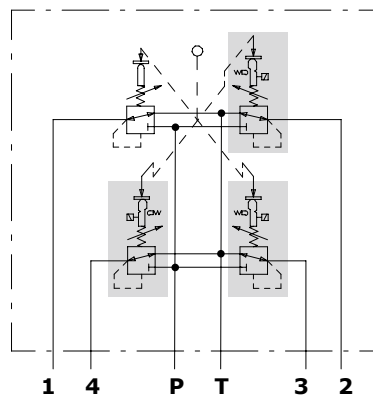
#### 01/2D type

Detent on ports 3 and 4, with spring return



#### 01/3D type

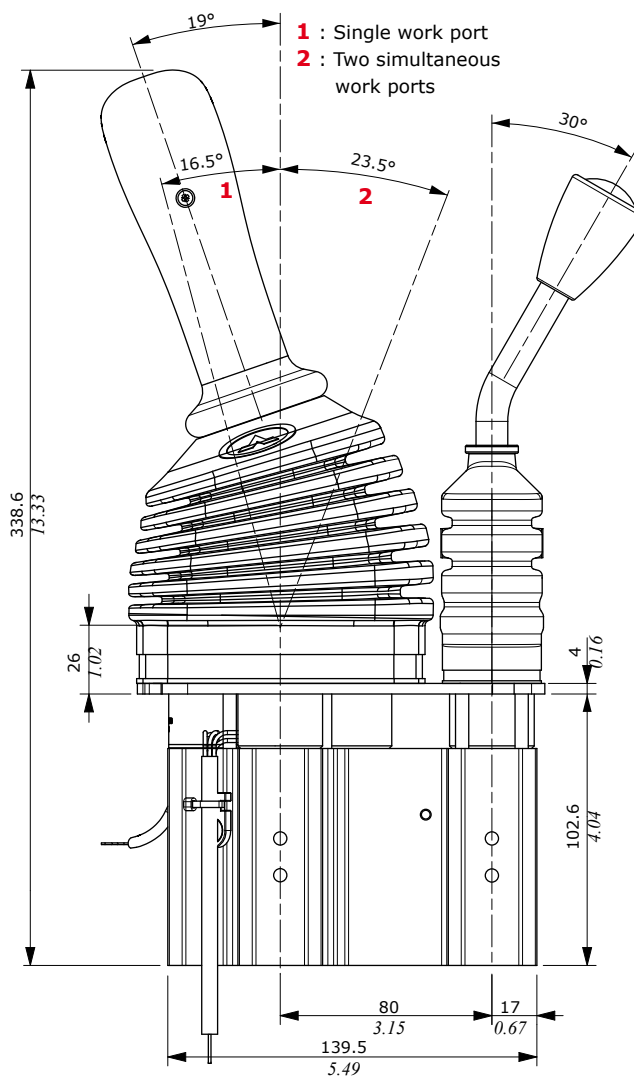
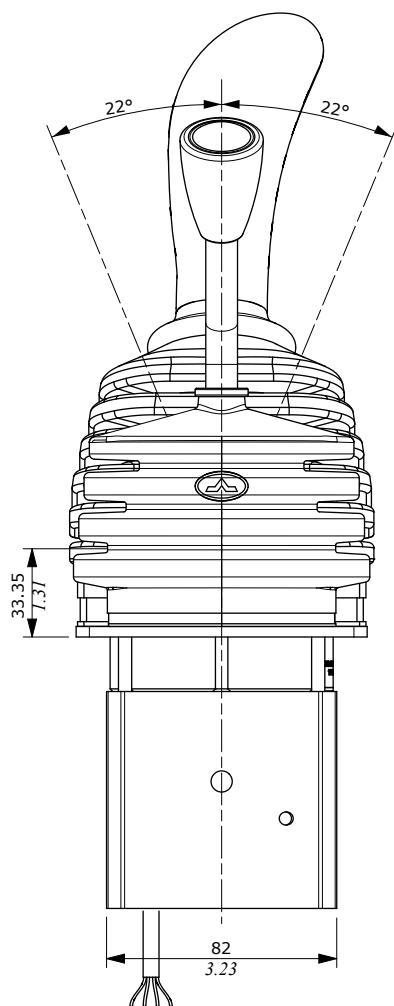
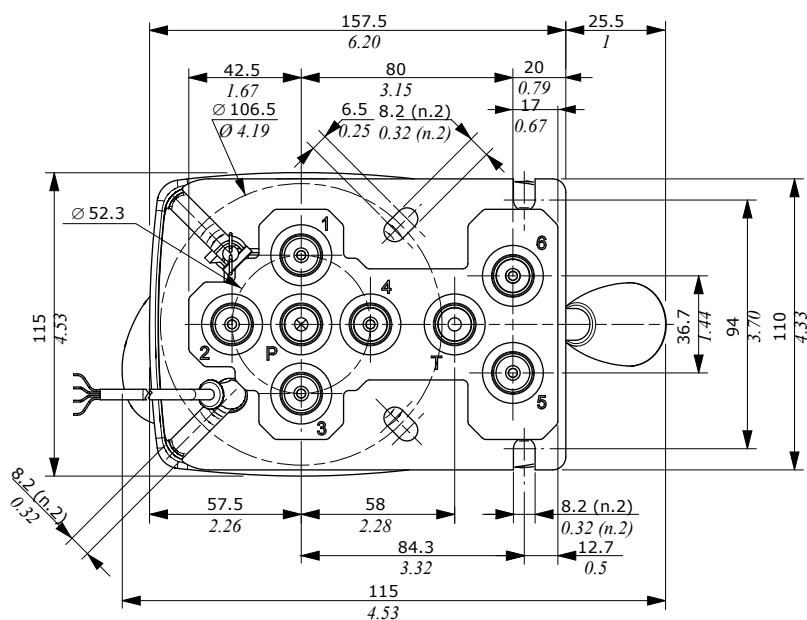
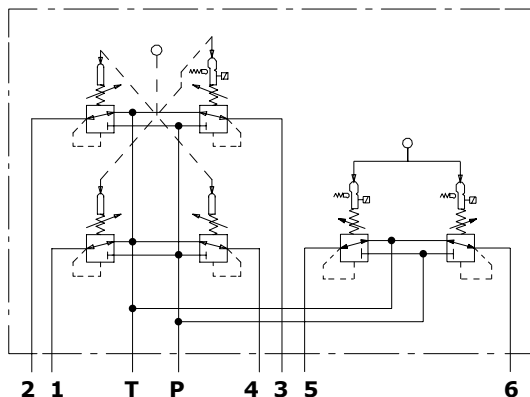
Detent on ports 2, 3 and 4 with spring return



## Dimensions and circuit hydraulic

## Hydraulic circuit

Example detent on working ports 3, 4 and 6



### Orderig codes

SVM600-EMD(2-3-5-6) / 8N - S / 01N - V007 (....) (....) - A 0 020 M - .... - .... - E0020NM /

1 3A 1 4A 5A 6A 9 7.1 7.2 7.3 7.4 7

control curves description

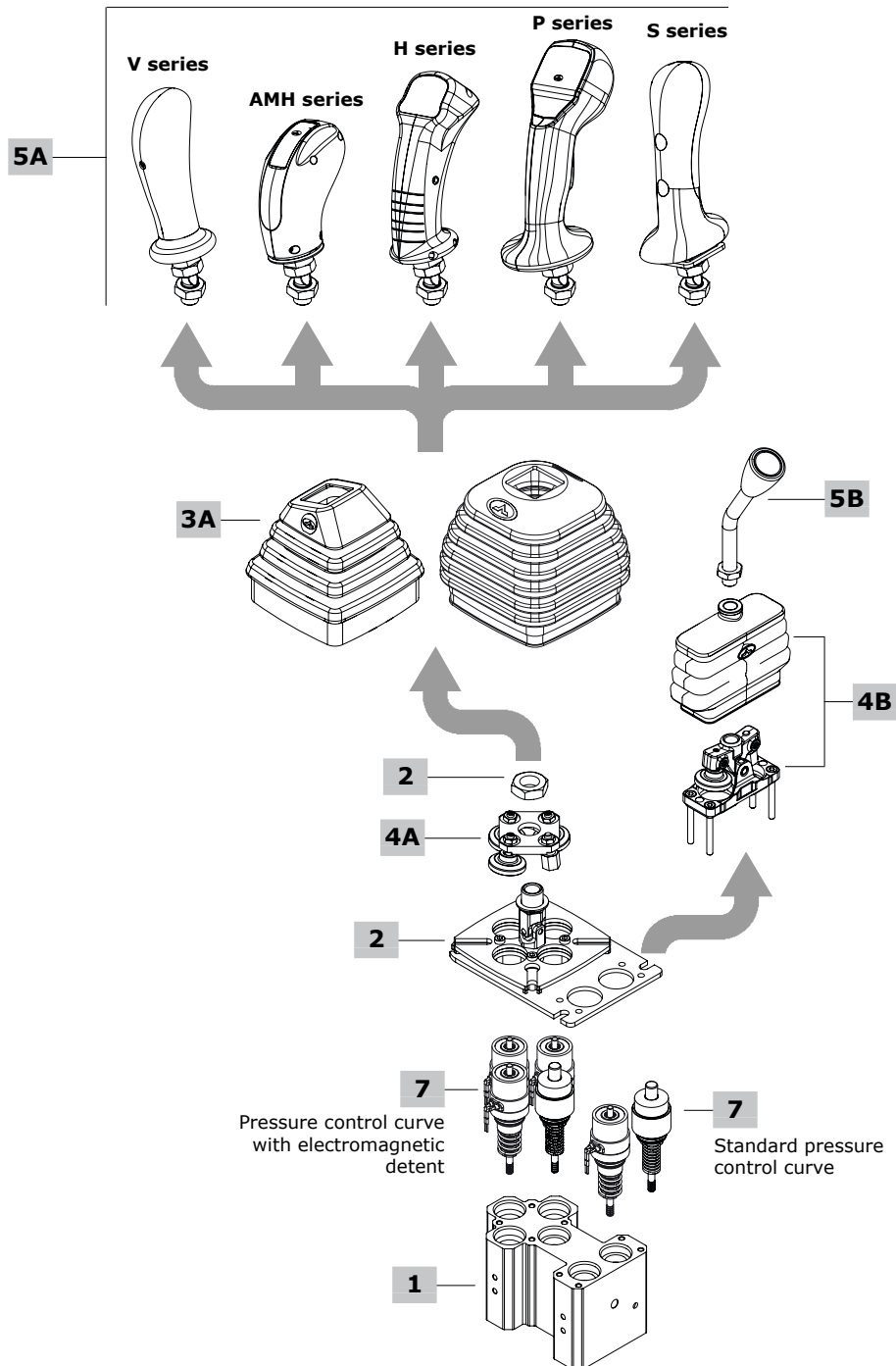
01N / G3(30) (0) - A0020M - E0020NM - (....) - 12VDC

4B 5B 6B 7 7 9

Electric devices voltage

Standard pressure control curve

Pressure control curve with electromagnetic detent



## Main options

**1 Body kit \***

|                                                             |                         |
|-------------------------------------------------------------|-------------------------|
| TYPE: <b>SVM600-EMD(2-3)/S</b>                              | CODE: <b>3C03600700</b> |
| DESCRIPTION: With detent arrangement on ports 2 and 3       |                         |
| TYPE: <b>SVM600-EMD(1-2-3)/S</b>                            | CODE: <b>3C03600701</b> |
| DESCRIPTION: With detent arrangement on ports 1, 2 and 3    |                         |
| TYPE: <b>SVM600-EMD(2-3-6)/S</b>                            | CODE: <b>3C03600702</b> |
| DESCRIPTION: With detent arrangement on ports 2, 3 and 6    |                         |
| TYPE: <b>SVM600-EMD(2-3-5-6)/S</b>                          | CODE: <b>3C03600704</b> |
| DESCRIPTION: With detent arrangement on ports 2, 3, 5 and 6 |                         |

**2 Flange kit**

| TYPE     | CODE       | DESCRIPTION       |
|----------|------------|-------------------|
| <b>1</b> | 5FLA411154 | Assembling flange |

**7 Pressure control curves**

PFor list available see from page 51

**7.1 Curve type**

| TYPE     | DESCRIPTION                                    |
|----------|------------------------------------------------|
| <b>A</b> | Without pre-feeling, without solenoid          |
| <b>B</b> | With pre-feeling, without solenoid             |
| <b>C</b> | With solenoid 24VDC and pre-feeling            |
| <b>D</b> | With solenoid 24VDC, without pre-feeling       |
| <b>E</b> | With solenoid 12VDC, with pre-feeling          |
| <b>F</b> | With solenoid 12VDC, without pre-feeling       |
| <b>G</b> | With solenoid 24VDC and pre-feeling after step |

**7.2 Typology of curves**

| TYPE     | DESCRIPTION  |
|----------|--------------|
| <b>0</b> | With step    |
| <b>1</b> | Without step |

**7.3 Curve identification**

Progressive number, see tables from page 51

**7.4 Return springs**

| TYPE     | DESCRIPTION                                                        |
|----------|--------------------------------------------------------------------|
| <b>M</b> | Operation range from 18 to 25.5 N - <i>from 4.04 to 5.73 lbf</i>   |
| <b>A</b> | Operation range from 23 to 35.2 N - <i>from 5.17 to 7.91 lbf</i>   |
| <b>B</b> | Operation range from 23 to 68.1 N - <i>from 5.17 to 15.31 lbf</i>  |
| <b>C</b> | Operation range from 89 to 176 N - <i>from 20 to 39.56 lbf</i>     |
| <b>D</b> | Operation range from 110 to 220 N - <i>from 24.73 to 49.46 lbf</i> |
| <b>E</b> | Operation range from 138 to 276 N - <i>from 31 to 62.04 lbf</i>    |

**9 Connector**

Configurations with detent or microswitch are provided with wires with tin-plate terminals. For connectors please contact our Sales Department.

## Joystick options

**3A Rubber bellow**

| TYPE      | CODE       | DESCRIPTION                                                          |
|-----------|------------|----------------------------------------------------------------------|
| <b>8N</b> | 3SOF115115 | Universal type, square base with logo                                |
| <b>3</b>  | 3SOF111111 | Sloping type, square base with logo;<br>only for 19° sloping handles |

**4A Detent configuration****With spring return in neutral position**

| TYPE           | CODE       | DESCRIPTION                          |
|----------------|------------|--------------------------------------|
| <b>01N(2D)</b> | 5CIN8012ND | Kinematic kit arranged for 2 detents |
| <b>01N(3D)</b> | 5CIN8013ND | Kinematic kit arranged for 3 detents |

NOTE: The text between ( ) is omitted from description of composition

**5A Handles**

Some handles as examples are listed below: for technical specifications and full range of handles and other types of joint see the "Handles and hand levers" catalogue.

**V series handle**

|                                                           |                  |
|-----------------------------------------------------------|------------------|
| TYPE: <b>V007</b>                                         | CODE: 5IMP030070 |
| DESCRIPTION: Without switches with sloping 19° left joint |                  |

**S series handle**

|                                                                                        |  |
|----------------------------------------------------------------------------------------|--|
| TYPE: <b>SZTA8-0G4045-XG122045</b>                                                     |  |
| CODE: 2IM5310003                                                                       |  |
| DESCRIPTION: 1 proportional roller and front push button, with sloping 19° right joint |  |

**6A Handle position**

| TYPE         | DESCRIPTION                                                               |
|--------------|---------------------------------------------------------------------------|
| <b>(-)</b>   | Standard config., operation to work port 4: <b>omitted in description</b> |
| <b>(90)</b>  | Mounted with 90° rotation step: operation to work port 1                  |
| <b>(180)</b> | Mounted with 180° rotation step: operation to work port 2                 |
| <b>(270)</b> | Mounted with 270° rotation step: operation to work port 3                 |

## Single acting options

**4B Control option**

Complete with rubber bellow (code 3SOF190783-C) and fixing wrapper

| TYPE           | CODE      | DESCRIPTION                                                                                                                        |
|----------------|-----------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>01N(0D)</b> | 5CIN1010D | Spring return to neutral position, without detent arrangement                                                                      |
| <b>01N(1D)</b> | 5CIN1011D | Spring return to neutral position, single detent arrangement; right or left position is defined by pressure control curve position |
| <b>01N(2D)</b> | 5CIN1012D | Spring return to neutral position, double detent arrangement                                                                       |

NOTE: The text between ( ) is omitted from description of composition

**5B Standard handlever**

| TYPE          | CODE        | DESCRIPTION                                                        |
|---------------|-------------|--------------------------------------------------------------------|
| <b>G3(30)</b> | 5AST371228G | Ogival with portlight, 30° bending rod<br>For features see page 42 |

**6B Handle position**

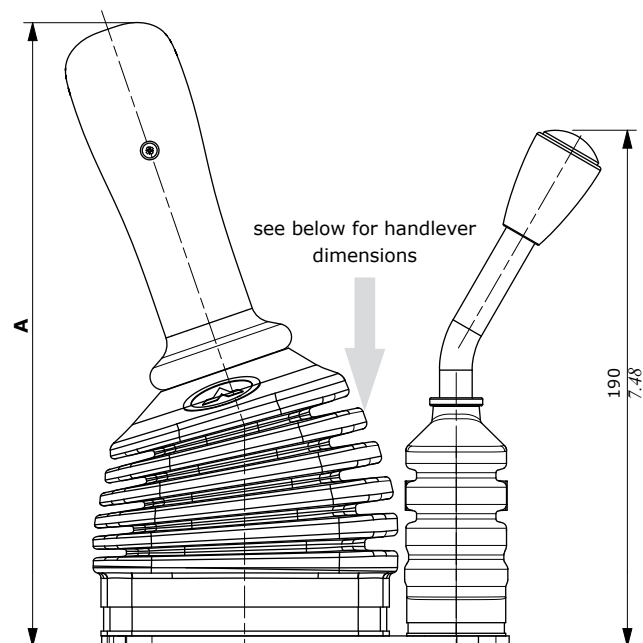
| TYPE         | DESCRIPTION                                 |
|--------------|---------------------------------------------|
| <b>(0)</b>   | Handlever oriented on P and T plugged ports |
| <b>(90)</b>  | Handlever oriented on port 5                |
| <b>(270)</b> | Handlever oriented on port 6                |

For different positions, please contact our Sales Department.

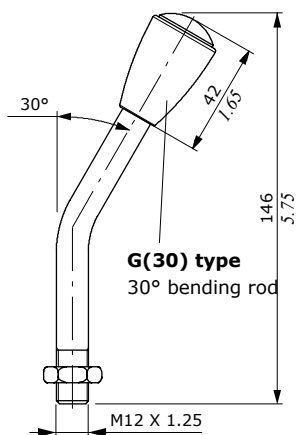
NNOTE (\*) – Codes are referred to **UN-UNF** thread

### Configuration option

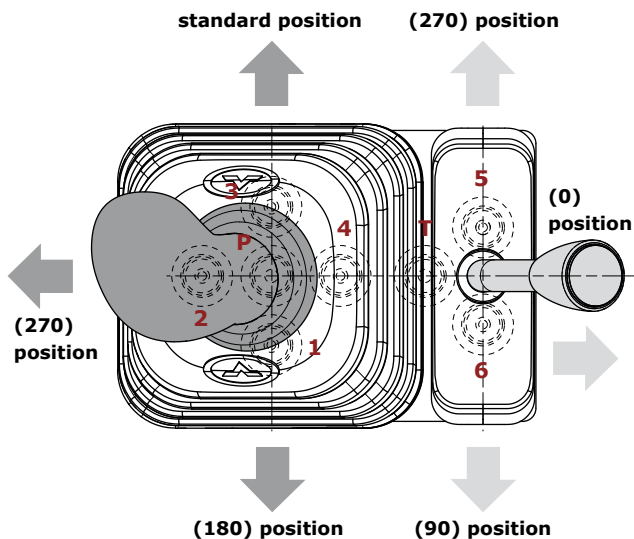
#### Handle and handlelever option



| handlever type | A   |       |
|----------------|-----|-------|
|                | mm  | in    |
| V series       | 232 | 9.13  |
| H series       | 250 | 9.84  |
| P series       | 268 | 10.55 |
| S series       | 266 | 10.47 |



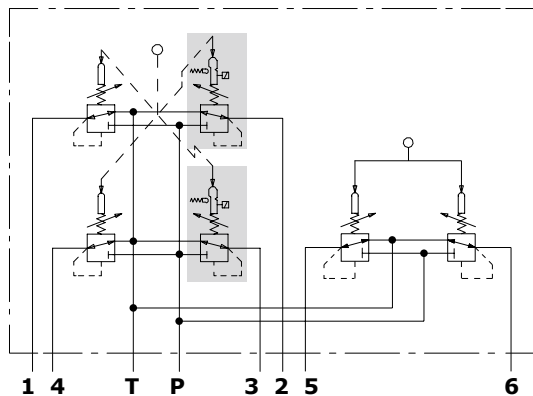
#### Handle and handlelever positions



### Detent configuration: examples

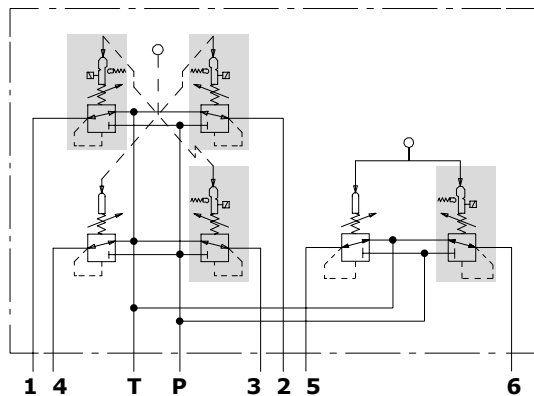
#### 01/2D type (joystick)

Detent on ports 2 and 3, with spring return

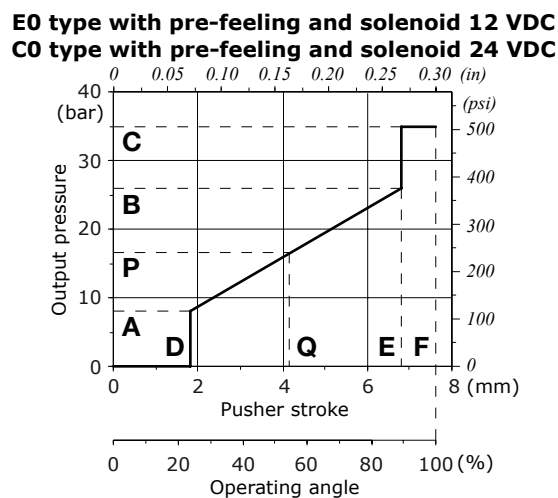
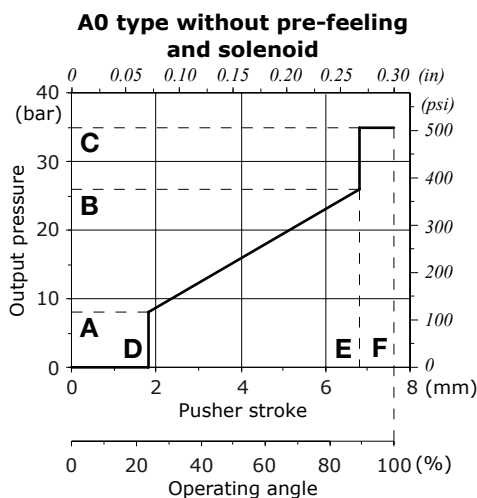


#### 01/3D type (joystick) + 01/1D (single acting)

Detent on ports 1, 2, 3 and 6, with spring return



## Control curves with step

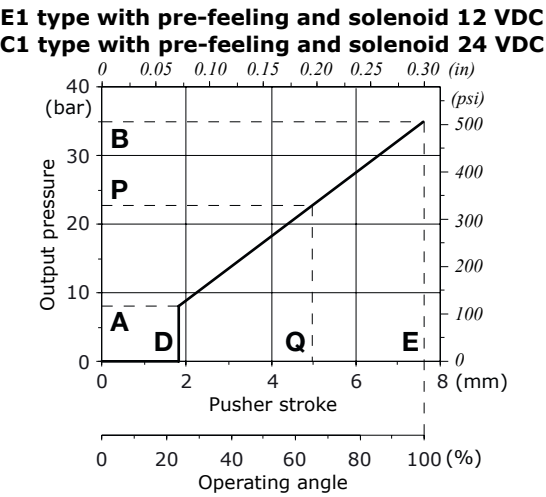
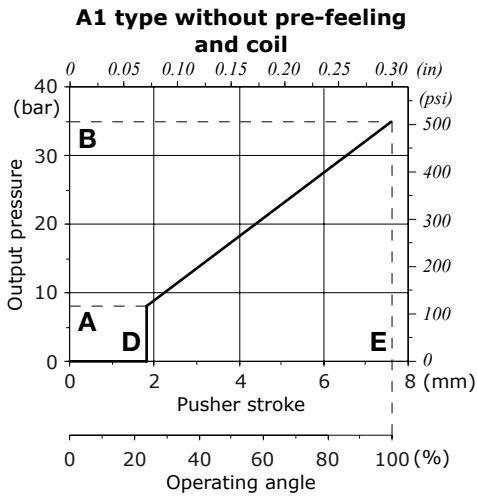


| Curve description                           |     | Pressure    |              |             |               |             |                |     |       | Stroke |      |     |      |      |      |     |      | CODE <sup>(1)</sup> |
|---------------------------------------------|-----|-------------|--------------|-------------|---------------|-------------|----------------|-----|-------|--------|------|-----|------|------|------|-----|------|---------------------|
|                                             |     | A           |              | P           |               | B           |                | C   |       | D      |      | Q   |      | E    |      | F   |      |                     |
| Type                                        | Nr  | bar (±toll) | psi (±toll)  | bar (±toll) | psi (±toll)   | bar (±toll) | psi (±toll)    | bar | psi   | mm     | (in) | mm  | (in) | mm   | (in) | mm  | (in) |                     |
| A0                                          | 011 | 3.5 (±1)    | 50.7 (±14.5) |             |               | 25 (±1.5)   | 362.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 099 | 3.6 (±1)    | 52.2 (±14.5) |             |               | 15.8 (±1)   | 229.1 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | B47 | 3.8 (±1)    | 55.1 (±14.5) |             |               | 16.7 (±1)   | 242.15 (±14.5) | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 086 | 4 (±1)      | 58 (±14.5)   |             |               | 16.5 (±1)   | 239.2 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 020 | 4.3 (±0.5)  | 62.3 (±7.25) |             |               | 15.2 (±1.5) | 220.4 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 028 | 5 (±1)      | 72.5 (±14.5) |             |               | 21 (±1.5)   | 304.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 075 | 5 (±0.5)    | 72.5 (±7.25) |             |               | 15 (±1.5)   | 22.5 (±21.7)   | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 077 | 5 (±1)      | 72.5 (±14.5) |             |               | 27 (±2)     | 391.5 (±29)    | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 119 | 5 (±1)      | 72.5 (±14.5) |             |               | 23.5 (±2)   | 340.7 (±29)    | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 001 | 5.8 (±0.5)  | 84.1 (±7.25) |             |               | 22 (±1.5)   | 319 (±21.7)    | 30  | 435   | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 033 | 5.8 (±0.5)  | 84.1 (±7.25) |             |               | 19.1 (±1)   | 276.9 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 085 | 6 (±1)      | 87 (±14.5)   |             |               | 25 (±1.5)   | 362.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 088 | 8 (±0.5)    | 116 (±7.25)  |             |               | 27 (±1.5)   | 391.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| A0                                          | 036 | 12 (±0.5)   | 174 (±7.25)  |             |               | 25 (±1)     | 362.5 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 |     |      | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| With Pre-feeling for electromagnetic detent |     |             |              |             |               |             |                |     |       |        |      |     |      |      |      |     |      |                     |
| C0                                          | B09 | 3.5 (±0.5)  | 50.7(±7.25)  | 13.7 (±1)   | 198.6 (±14.5) | 15.1 (±1)   | 218.9 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| E0                                          | B09 | 3.5 (±0.5)  | 50.7 (±7.25) | 13.7 (±1)   | 198.6 (±14.5) | 15.1 (±1)   | 218.9 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| C0                                          | 011 | 3.5 (±1)    | 50.7 (±14.5) | 25 (±1.5)   | 362.5 (±21.7) | 27.9 (±1.5) | 41.8 (±21.7)   | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| C0                                          | B47 | 3.8 (±1)    | 55.1 (±14.5) | 15.3 (±0.5) | 221.8 (±7.25) | 16.8 (±1)   | 243.6 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| E0                                          | 086 | 4 (±1)      | 58 (±14.5)   | 16.5 (±0.5) | 239.2 (±7.25) | 18.2 (±1)   | 263.9 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| C0                                          | 118 | 4 (±0.5)    | 58 (±7.25)   | 13 (±1)     | 188.5 (±14.5) | 16.1 (±1)   | 233.4 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| C0                                          | 020 | 4.3 (±1)    | 62.3 (±14.5) | 15.2 (±1)   | 220.4 (±14.5) | 16.6 (±1)   | 240.7 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| C0                                          | 028 | 5 (±1)      | 72.5 (±14.5) | 20 (±1.5)   | 290 (±21.7)   | 22 (±2)     | 319 (±29)      | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| C0                                          | 075 | 5 (±0.5)    | 72.5 (±7.25) | 15 (±1)     | 217.5 (±14.5) | 16.3 (±1.5) | 236.3 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| E0                                          | 075 | 5 (±0.5)    | 72.5 (±7.25) | 15 (±1)     | 217.5 (±14.5) | 16.3 (±1.5) | 236.3 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| C0                                          | 001 | 5.8 (±1)    | 84.1 (±14.5) | 22 (±1.5)   | 319 (±21.7)   | 24.2 (±2)   | 350.9 (±29)    | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| E0                                          | 033 | 5.8 (±0.5)  | 84.1 (±7.25) | 19 (±1)     | 275.5 (±14.5) | 20.8 (±1)   | 301.6 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| C0                                          | 070 | 5.8 (±1)    | 84.1 (±14.5) | 22.4 (±1.5) | 324.8 (±21.7) | 24.6 (±1.5) | 356.7 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| E0                                          | 085 | 6 (±1)      | 87 (±14.5)   | 25 (±2)     | 362.5 (±29)   | 27.5 (±2)   | 398.75 (±29)   | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| C0                                          | 088 | 8 (±0.5)    | 116 (±7.25)  | 27 (±1)     | 391.5 (±14.5) | 29.5 (±1)   | 427.75 (±14.5) | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |
| C0                                          | 036 | 12 (±1)     | 174 (±14.5)  | 25 (±1.5)   | 362.5 (±21.7) | 26.7 (±1.5) | 387.15 (±21.7) | 35  | 507.5 | 0.85   | 0.03 | 6.5 | 0.25 | 7.25 | 0.28 | 7.6 | 0.30 |                     |

<sup>(1)</sup> indicates the curve with the specific return spring

For different curves, please contact our Sales Department

Control curves without step



| Curve description                           |     | Pressure    |             |             |               |             |             | Stroke |      |     |     |     |      | CODE <sup>(1)</sup>      |
|---------------------------------------------|-----|-------------|-------------|-------------|---------------|-------------|-------------|--------|------|-----|-----|-----|------|--------------------------|
|                                             |     | A           |             | P           |               | B           |             | D      |      | Q   |     | E   |      |                          |
| Type                                        | Nr  | bar (±toll) | psi (±toll) | bar (±toll) | psi (±toll)   | bar (±toll) | psi (±toll) | mm     | in   | mm  | in  | mm  | in   |                          |
| A1                                          | 096 | 4 (±1)      | 58 (±14.5)  |             |               | 18 (±1)     | 261 (±14.5) | 0.85   | 0.03 |     |     | 7.6 | 0.30 | 5CR7A1096A<br>5CR7A1096M |
| With Pre-feeling for electromagnetic detent |     |             |             |             |               |             |             |        |      |     |     |     |      |                          |
| C1                                          | 141 | 4 (±1)      | 58 (±14.5)  | 12.8 (±1)   | 185.6 (±14.5) | 18 (±1)     | 261 (±14.5) | 1.55   | 0.06 | 5.1 | 0.2 | 7.5 | 0.29 | 5CR7C1141NM              |

<sup>(1)</sup> indicates the curve with the specific spring  
For different curves, please contact our Sales Department

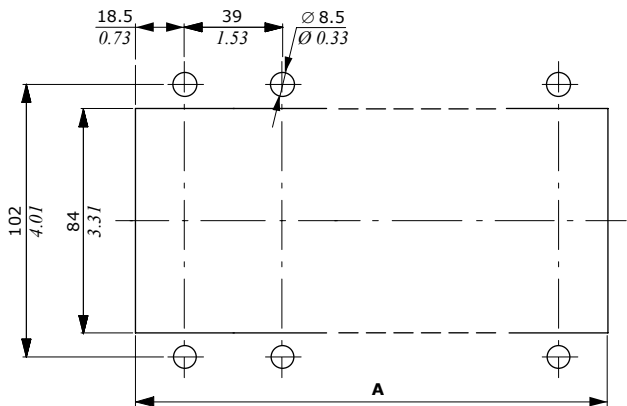
SVM pilot control valves assembled and tested as per the technical specification of this catalogue.

Before the final installation on your equipment, follow the below recommendations:

- the pilot valves must be assembled in horizontal position: considering the mass of the kinematic and control kit, a max.angle of 20° is allowed;
- the feeding unit can be assembled in any position;keep it away from heat sources when it is equipped with accumulator;
- fix the devices with suitable screw, use the appropriate flange or drilling, after tightening check the seal and the safety of the assembly;
- verify the integrity of the contact between devices and fittings and eliminate any impurities;
- correctly connect the devices, do not reverse the P and T ports (see dimensional pages to determine the initials of the ports);
- in order to prevent the possibility of water entering the rubber bellow, do not use high pressure wash directly on the valve;
- prior to painting, ensure plastic port plugs are tightly in place;
- the electrical cables have not to be submitted to mechanical forces (ex. tension or torsion);
- use original handles and hand levers.

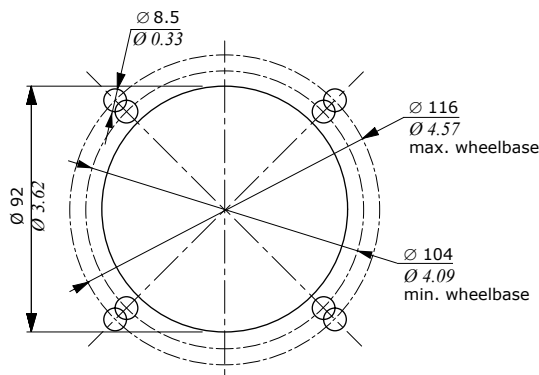
Panel cut out

SVM150

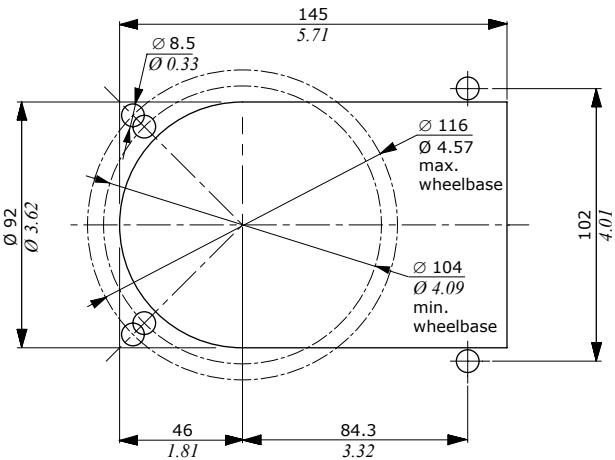


| Type     | A   |      |
|----------|-----|------|
|          | mm  | in   |
| SVM150/1 | 37  | 1.46 |
| SVM150/2 | 76  | 2.99 |
| SVM150/3 | 115 | 4.53 |
| SVM150/4 | 154 | 6.06 |
| SVM150/5 | 193 | 7.6  |

SVM450



SVM600







## SVM hydraulic joysticks with pedal and other actuators

### SVM510-SVM520-SVM521 / SVM500 series / SVM540 series / SVM701-SVM710

- Single and double function
- Damping option
- High sensitivity and low force
- Available with anti-slip rubber coated pedals

#### Working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

|                              |                          |                                                                               |
|------------------------------|--------------------------|-------------------------------------------------------------------------------|
| Nominal flow rating          |                          | from 5 to 20 l/min - from 1.32 to 5.28 USgpm                                  |
| Max. feeding pressure        | P on inlet port          | from 30 to 100 bar - from 435 to 1450 psi                                     |
| Max. backpressure            | T on outlet port         | 3 bar - 43.5 psi                                                              |
| Max. hysteresis              |                          | 0.5 bar - 7.25 psi                                                            |
| Internal leakage (all ports) | at 30 bar - 435 psi, P⇒T | from 2.5 to 4.5 cm <sup>3</sup> /min - from 0.15 to 0.27 in <sup>3</sup> /min |
| Fluid                        |                          | mineral oil                                                                   |
| Fluid temperature            | with NBR (BUNA-N) seals  | from -10°C to 80°C - from 14 °F to 176 °F                                     |
|                              | operating range          | from 15 to 75 mm <sup>2</sup> /s - from 15 to 75 cSt                          |
| Viscosity                    | min.                     | 12 mm <sup>2</sup> /s - 12 cSt                                                |
|                              | max.                     | 400 mm <sup>2</sup> /s - 400 cSt                                              |
| Max. contamination level     |                          | -/15/12 - ISO 4406 - NAS1638 class 6                                          |
| Ambient temperature          | without electric devices | from -40°C to 60°C - from 40 °F to 140 °F                                     |
|                              | with electric devices    | from -20°C to 50°C - from -4 °F to 122 °F                                     |

NOTE - for different conditions please contact Sales Dpt

#### REFERENCE STANDARD

|                               |     | BSP                 | UN-UNF            |
|-------------------------------|-----|---------------------|-------------------|
| THREAD ACCORDING TO           |     | ISO 228/1           | ISO 263           |
|                               |     | BS 2779             | ANSI B1.1 unified |
| CAVITY DIMENSION ACCORDING TO | ISO | 1179                | 11926             |
|                               | SAE |                     | J11926            |
|                               | DIN | 3852-2 shape X or Y |                   |

#### PORTS THREADING

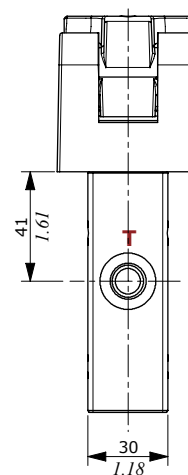
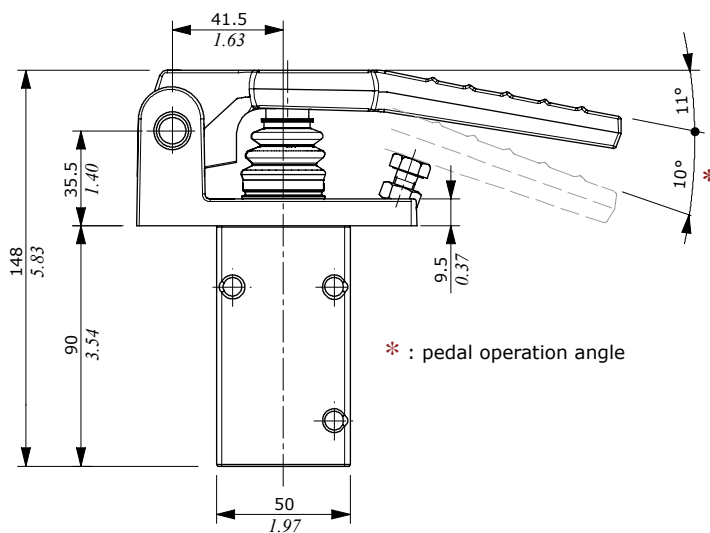
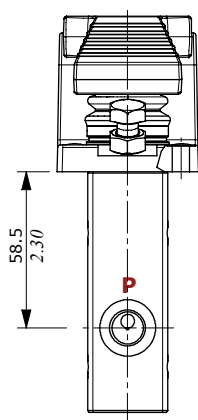
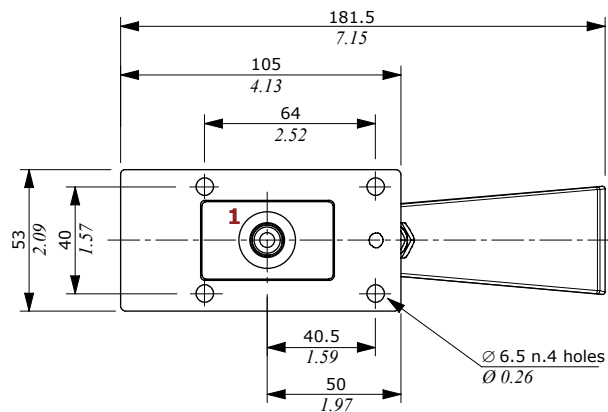
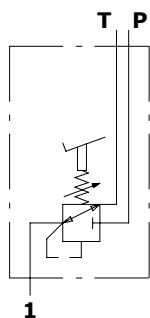
| PORTS    | Threads         |                    | Fitting tightening torque |        |
|----------|-----------------|--------------------|---------------------------|--------|
|          | UNI EN ISO 1179 | UNI EN ISO 11926-2 | Nm                        | lbf·ft |
| P inlet  | G 1/4           | 7/16-20 (SAE 4)    | 30                        | 22.13  |
| Ports    | G 1/4           | 7/16-20 (SAE 4)    | 30                        | 22.13  |
| T outlet | G 1/4           | 7/16-20 (SAE 4)    | 30                        | 22.13  |

NOTE - These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finishing. The manufacturer has to be consulted.

### Dimensions and hydraulic circuit

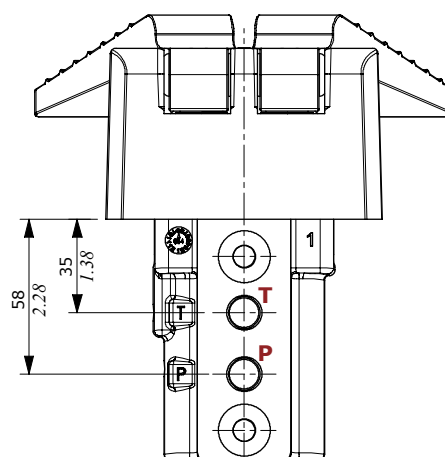
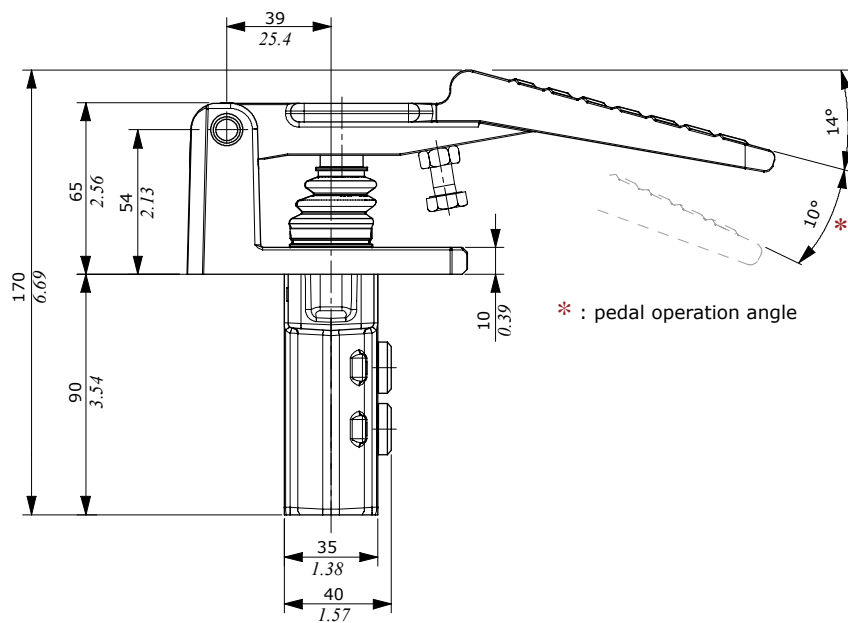
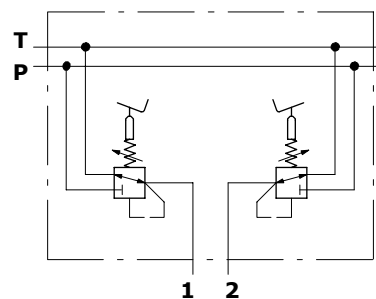
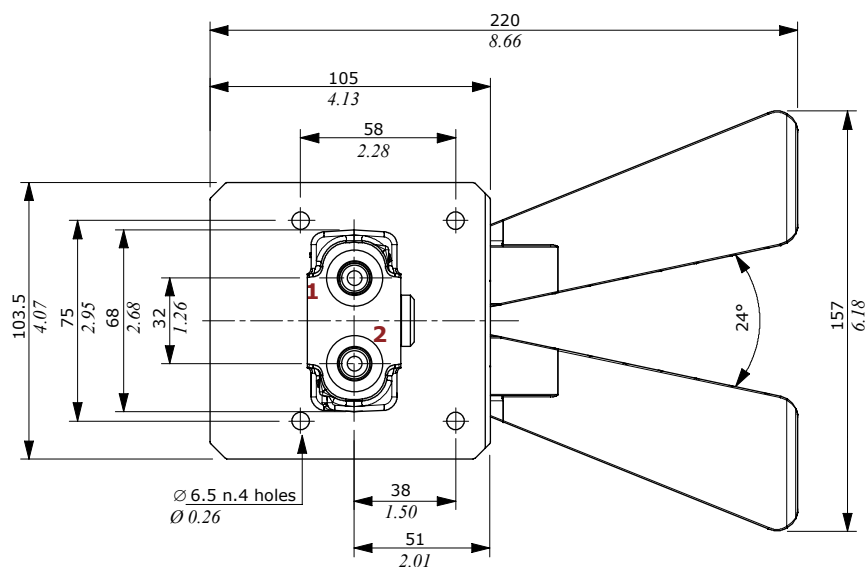
#### SVM510 version

##### Hydraulic circuit



## SVM520 version

### Hydraulic circuit

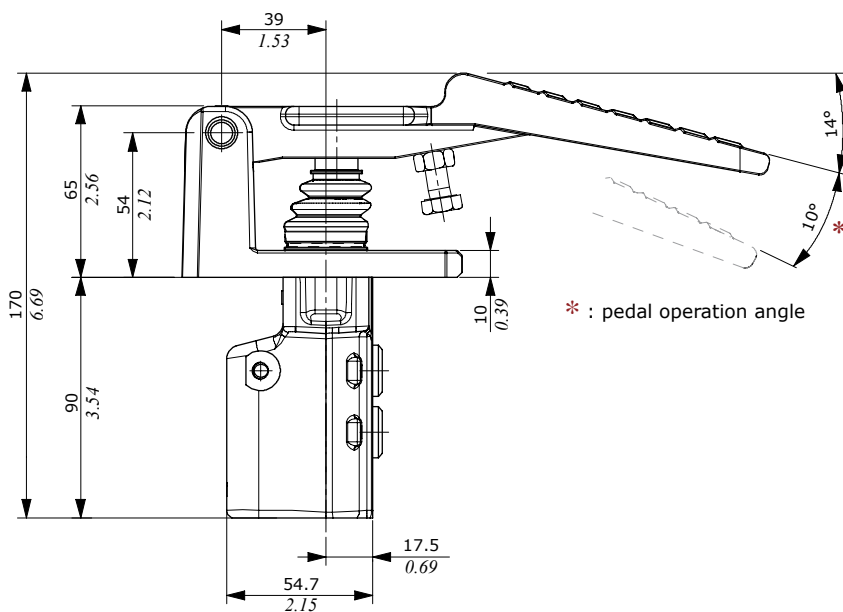
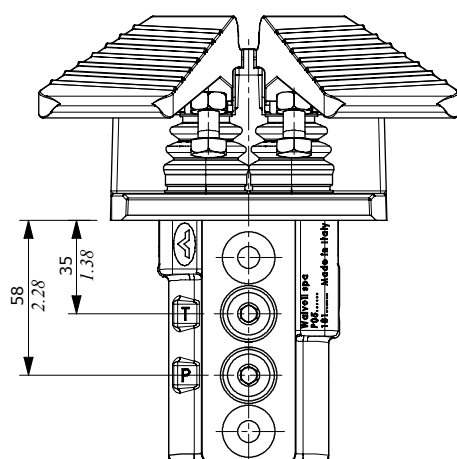
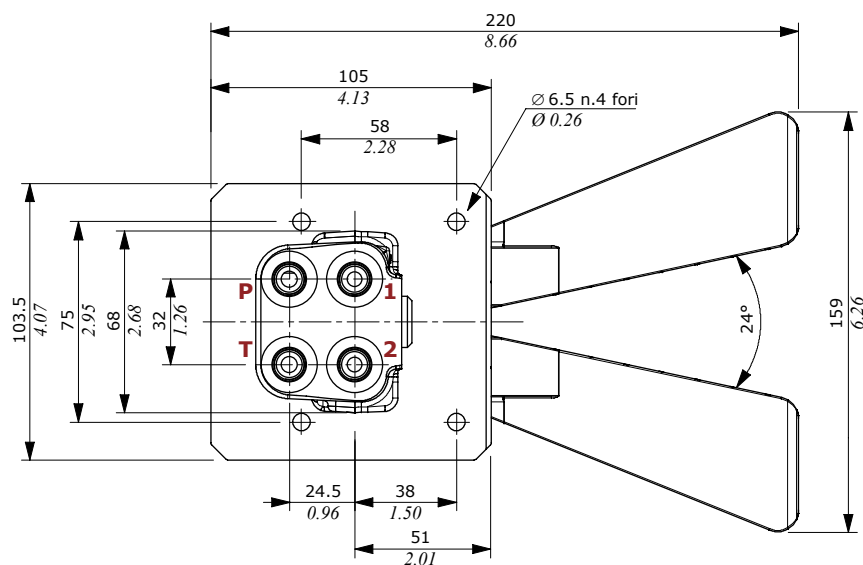
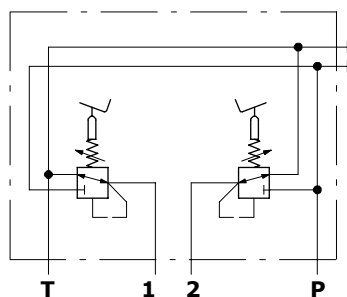


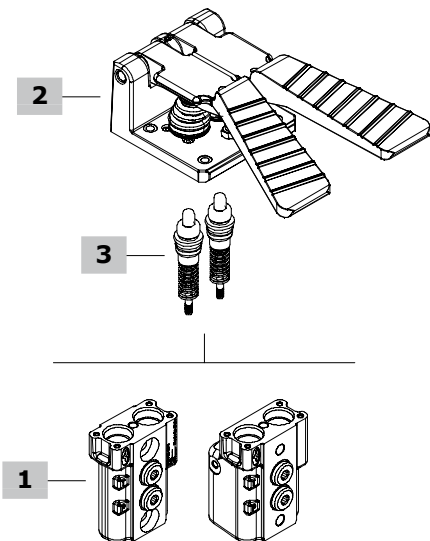
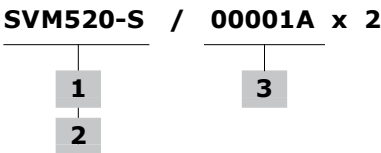
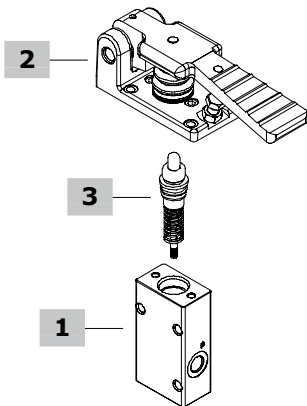
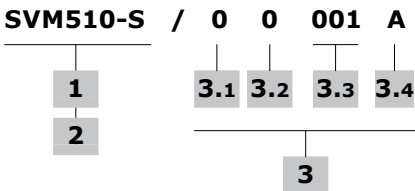
### Dimensions and hydraulic circuit

#### SVM521 version

Configuration with bottom P and T ports.

#### Hydraulic circuit





1 Body kit \*

| TYPE     | CODE       | DESCRIPTION                                          |
|----------|------------|------------------------------------------------------|
| SVM510-S | 3C03710700 | Single pedal configuration                           |
| SVM520-S | 3C03122700 | Double pedal configuration with side P and T ports   |
| SVM521-S | 3C03122710 | Double pedal configuration with bottom P and T ports |

2 Operating pedal

| TYPE       | CODE     | DESCRIPTION                |
|------------|----------|----------------------------|
| SVM510     | 5CIN5003 | Single pedal operating kit |
| SVM520/521 | 5CIN5002 | Double pedal operating kit |

3 Pressure control curves

For configuration and list available see from page 72

3.1 Curve type

| TYPE | DESCRIPTION  |
|------|--------------|
| 0    | Standard     |
| D    | With Damping |

3.2 Typology of curves

| TYPE | DESCRIPTION |
|------|-------------|
| 0    | With step   |

3.3 Curve identification

Progressive number, see tables from page 72

3.4 Return springs

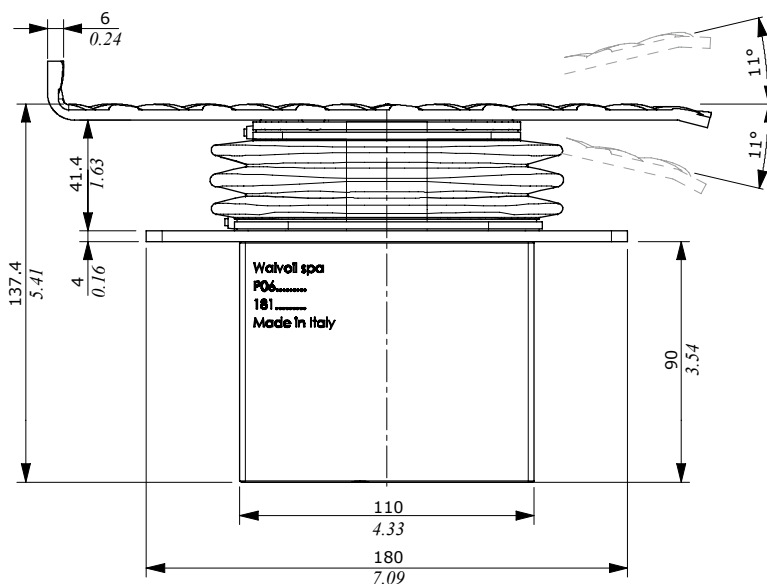
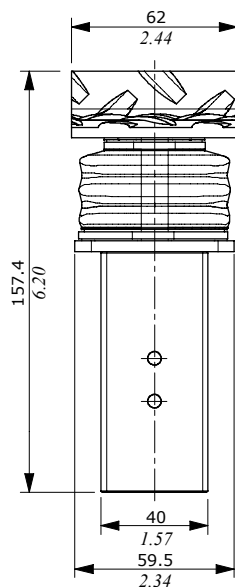
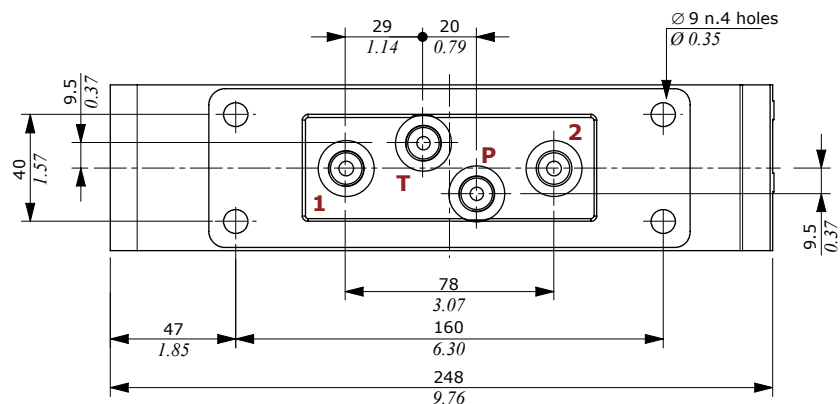
| TYPE | DESCRIPTION                                                 |
|------|-------------------------------------------------------------|
| M    | Operation range from 18 to 25.5 N - from 4.04 to 5.73 lbf   |
| A    | Operation range from 23 to 35.2 N - from 5.17 to 7.91 lbf   |
| B    | Operation range from 23 to 68.1 N - from 5.17 to 15.31 lbf  |
| C    | Operation range from 89 to 176 N - from 20 to 39.56 lbf     |
| D    | Operation range from 110 to 220 N - from 24.73 to 49.46 lbf |
| E    | Operation range from 138 to 276 N - from 31 to 62.04 lbf    |

NOTE (\*) – Codes are referred to UN-UNF thread.

## SVM500 version

Configuration with lower ports.

The diagram shows a Wheatstone bridge circuit. It consists of four resistors arranged in a diamond shape. The left and right resistors are variable, indicated by a diagonal arrow through each. A central branch connects the two nodes between the resistors, containing a galvanometer symbol (a circle with a vertical line and a horizontal arrow). The circuit is connected to a DC voltage source, represented by a battery symbol on the left and a terminal labeled 'P' on the right. Below the bridge, there are labels 'T', '1', '2', and 'P' corresponding to different points or components.

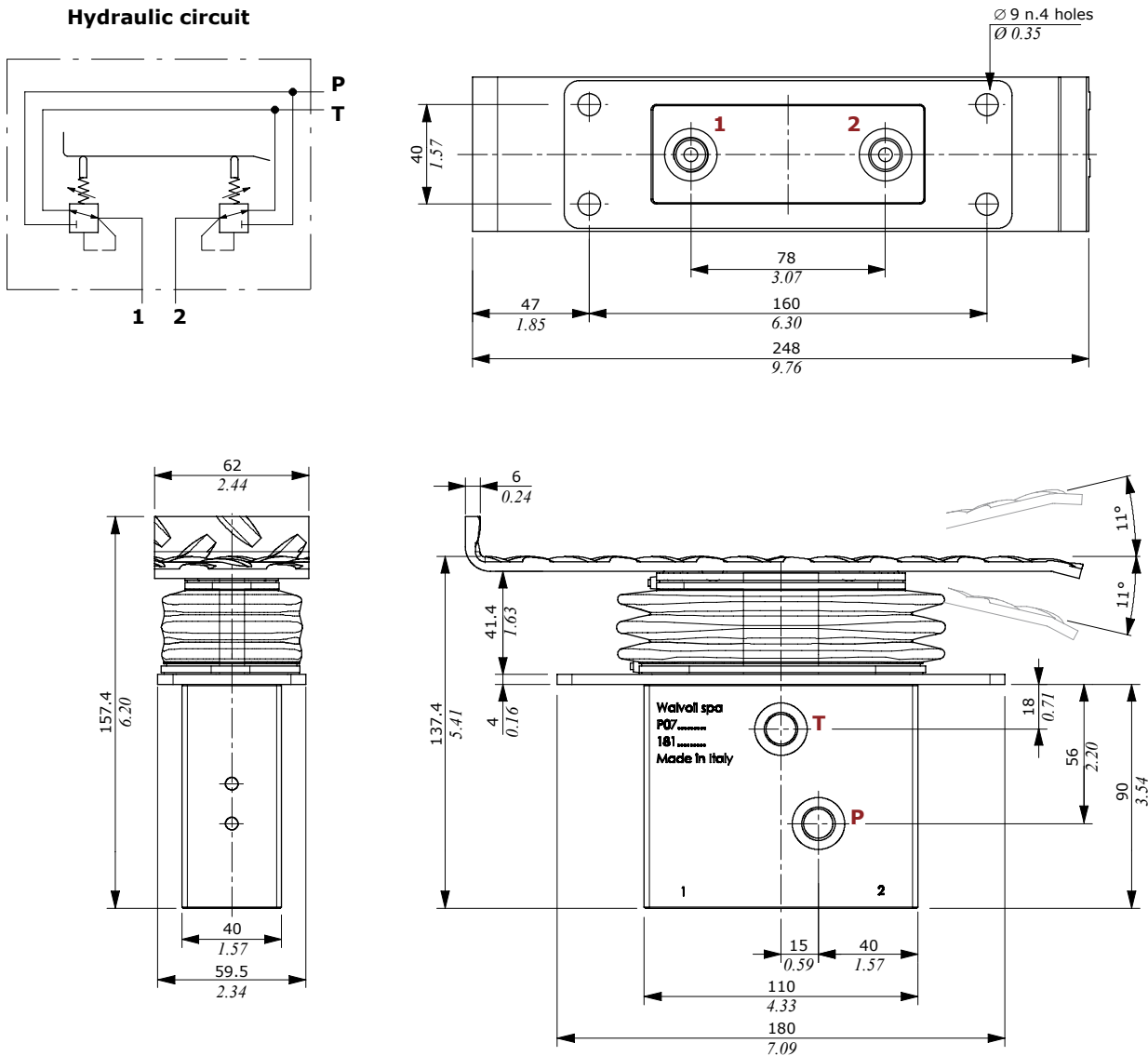


Dimensions and hydraulic circuit

SVM502 version

Configuration with side P and T ports, lower 1 and 2 ports.

Hydraulic circuit



### Ordering codes

SVM500-S / 01 F - 0 0 001 A x 2

1

2

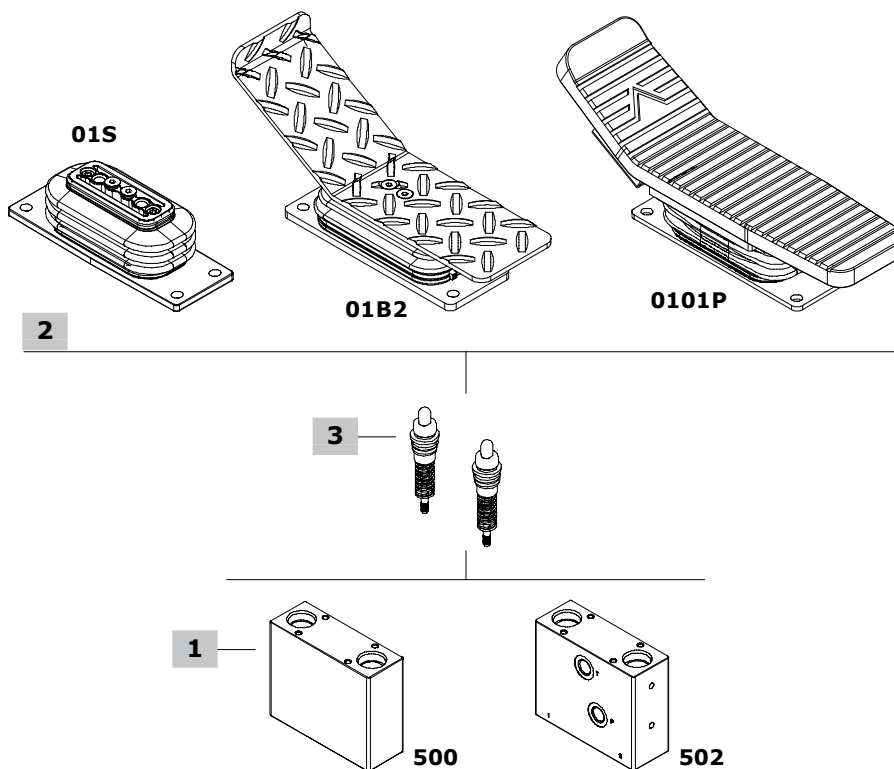
3.1

3.2

3.3

3.4

3



#### 1 Body kit \*

| TYPE            | CODE       | DESCRIPTION                                                |
|-----------------|------------|------------------------------------------------------------|
| <b>SVM500-S</b> | 3C03510700 | Configuration with lower ports                             |
| <b>SVM502-S</b> | 3C03510720 | Configuration with side P and T ports, lower 1 and 2 ports |

#### 2 Pedal control options page 63

| TYPE         | CODE         | DESCRIPTION                                                                           |
|--------------|--------------|---------------------------------------------------------------------------------------|
| <b>01S</b>   | 5CIN5001S    | With spring return in neutral position and with rubber bellow, without pedal          |
| <b>01F</b>   | 5CIN5001F    | As 01S flat pedal                                                                     |
| <b>01B1</b>  | 5CIN5001B1   | As 01S 154° bent pedal                                                                |
| <b>01B2</b>  | 5CIN5001B2   | As 01S 150° bent pedal                                                                |
| <b>0101P</b> | 5CIN50001P00 | As type 01S with 150° bent pedal and anti-slip rubber coating                         |
| <b>0102P</b> | 5CIN50002P00 | As type 01S with 150° bent and 30° tilted pedal, short type; anti-slip rubber coating |
| <b>0103P</b> | 5CIN50003P00 | As type 01S with 150° bent and 30° tilted pedal, long type; anti-slip rubber coating  |

#### 3 Pressure control curves

For configuration and list available see from page 72

#### 3.1 Curve type

| TYPE     | DESCRIPTION  |
|----------|--------------|
| <b>0</b> | Standard     |
| <b>D</b> | With Damping |

#### 3.2 Typology of curves

| TYPE     | DESCRIPTION  |
|----------|--------------|
| <b>0</b> | With step    |
| <b>1</b> | Without step |

#### 3.3 Curve identification

Progressive number, see tables from page 72

#### 3.4 Return springs

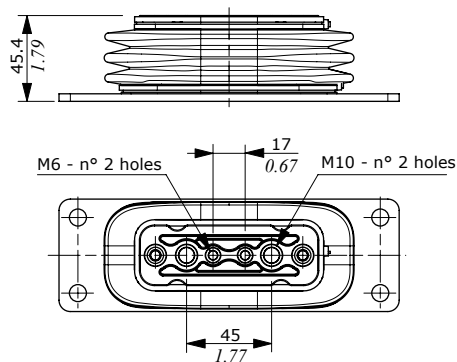
| TYPE     | DESCRIPTION                                                 |
|----------|-------------------------------------------------------------|
| <b>M</b> | Operation range from 18 to 25.5 N - from 4.04 to 5.73 lbf   |
| <b>A</b> | Operation range from 23 to 35.2 N - from 5.17 to 7.91 lbf   |
| <b>B</b> | Operation range from 23 to 68.1 N - from 5.17 to 15.31 lbf  |
| <b>C</b> | Operation range from 89 to 176 N - from 20 to 39.56 lbf     |
| <b>D</b> | Operation range from 110 to 220 N - from 24.73 to 49.46 lbf |
| <b>E</b> | Operation range from 138 to 276 N - from 31 to 62.04 lbf    |

NOTE (\*) - Codes are referred to **UN-UNF** thread.

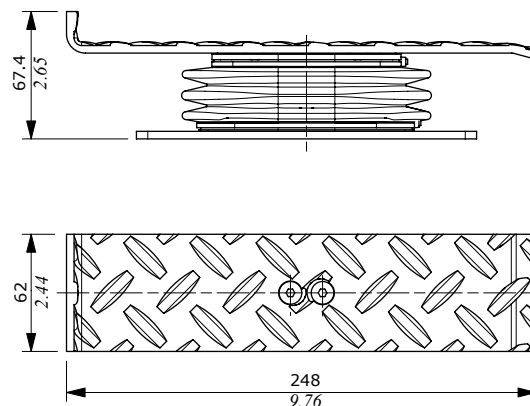
## Control options

**01S type**

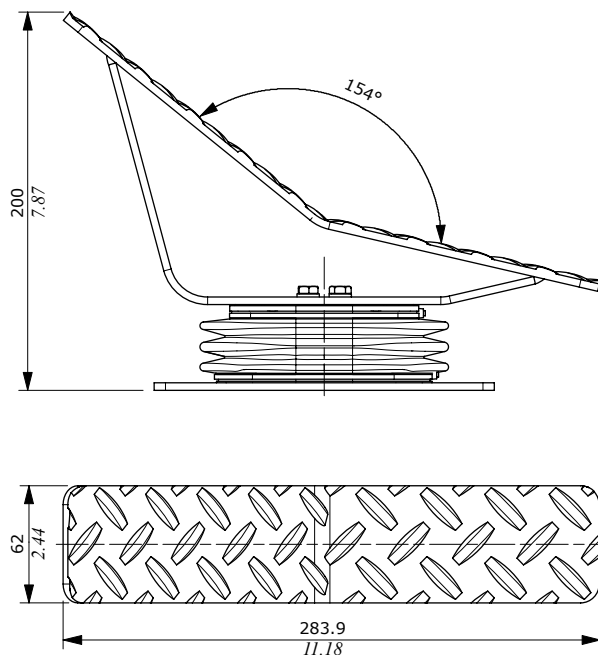
With spring return in neutral position, without pedal.

**01F type**

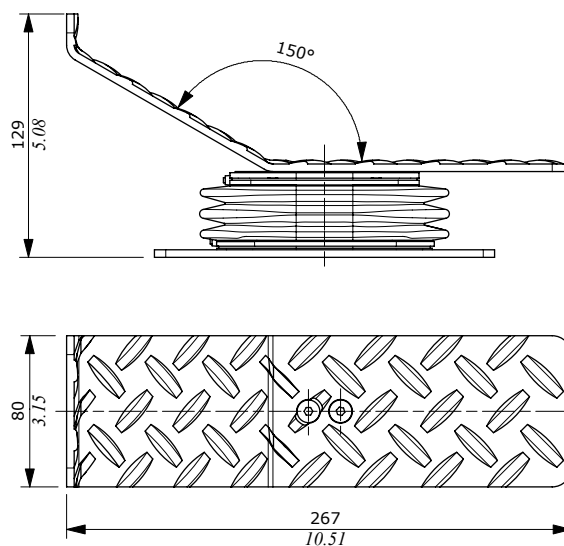
With spring return in neutral position.  
Flat pedal with corrugated sheet, white galvanized.

**01B1 type**

With spring return in neutral position.  
Profiled pedal with corrugated sheet, white galvanized.

**01B2 type**

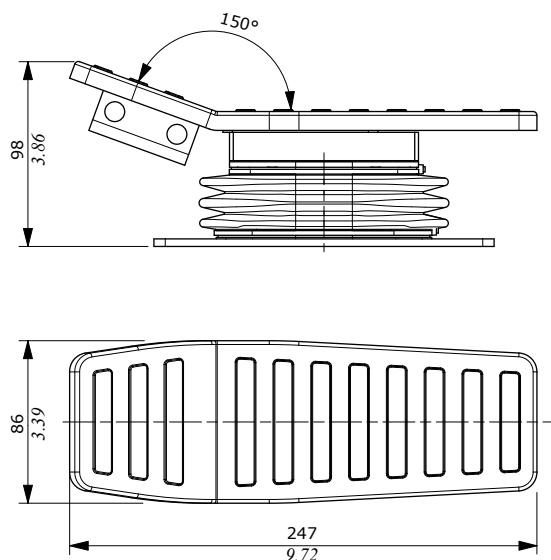
With spring return in neutral position.  
Profiled pedal with corrugated sheet, white galvanized.



### Control options

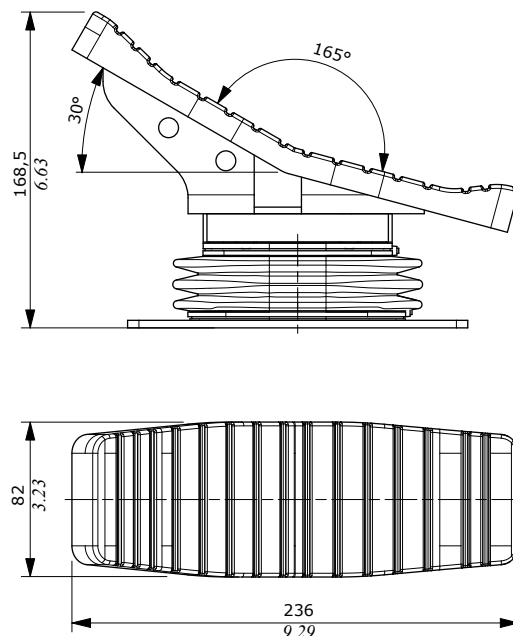
#### 0101P type

With spring return in neutral position.  
Flat and shaped pedal with anti-slip rubber coating.



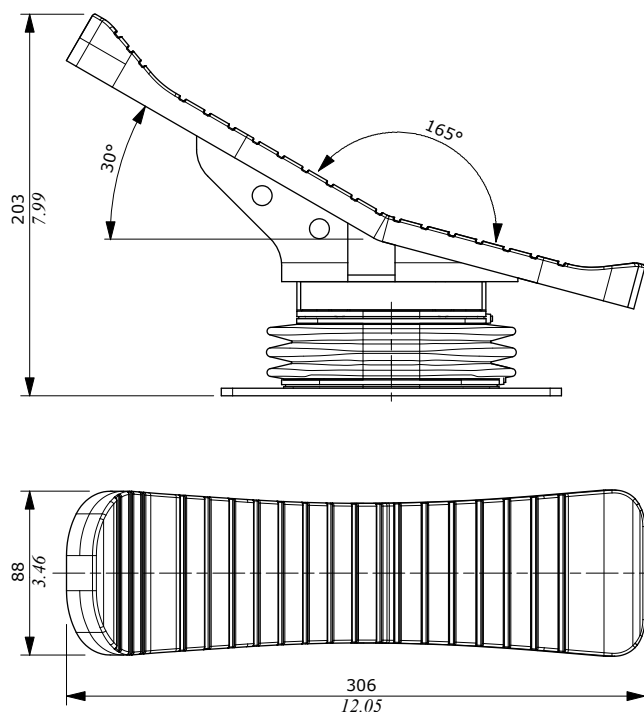
#### Tipo 0102P

With spring return in neutral position.  
Tilted and shaped pedal with anti-slip rubber coating, short model.



#### 0103P type

With spring return in neutral position.  
Tilted and shaped pedal with anti-slip rubber coating, long model.

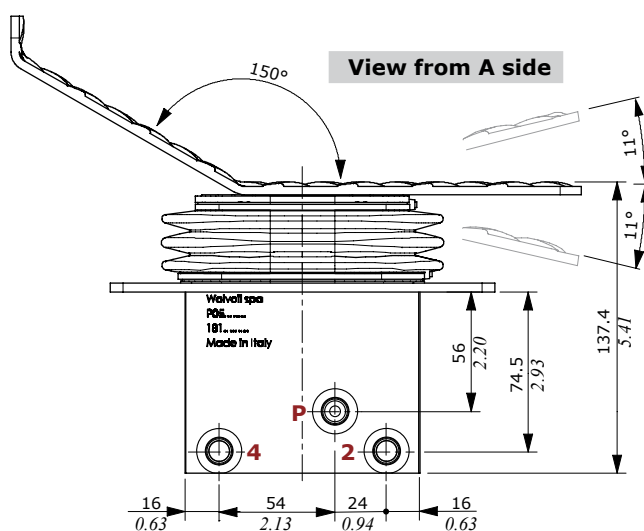
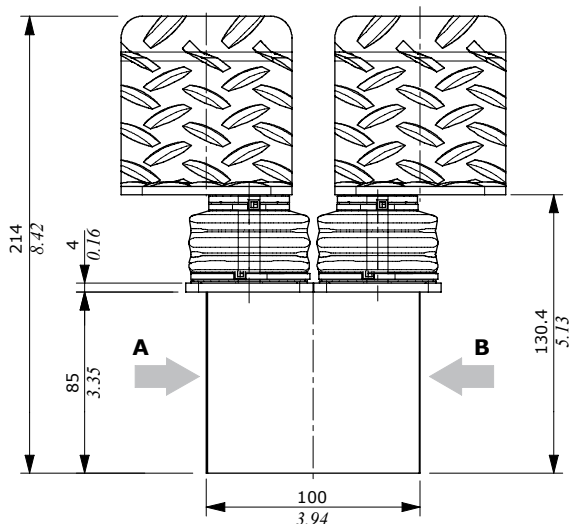
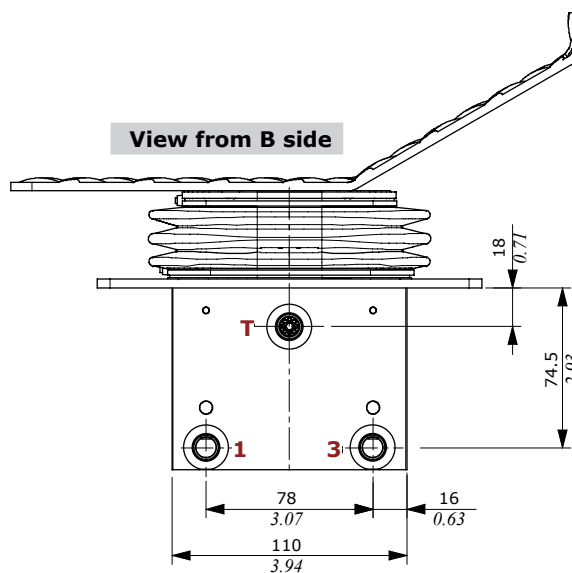
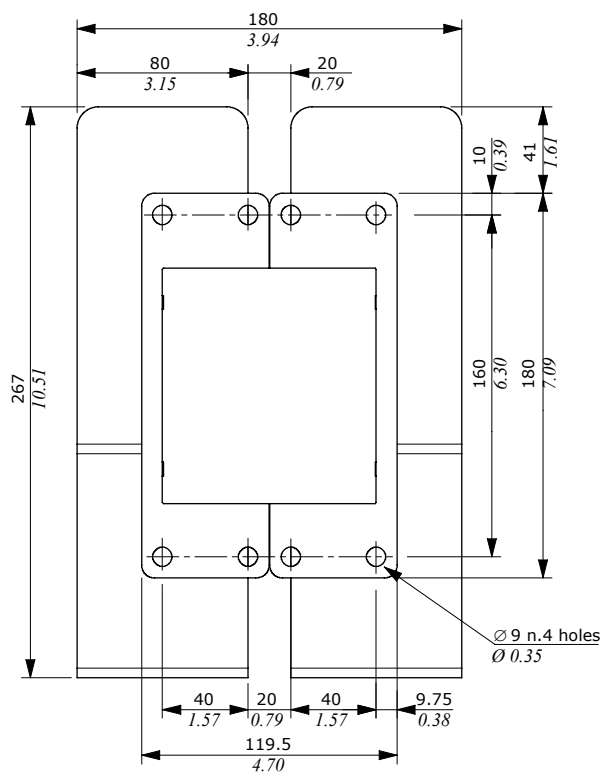
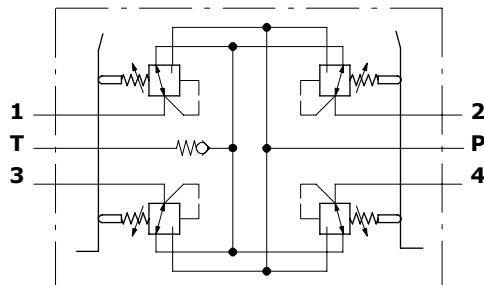


## Dimensions and hydraulic circuit

## SVM540

Double pedal configuration provided of damping system for swing reduction.

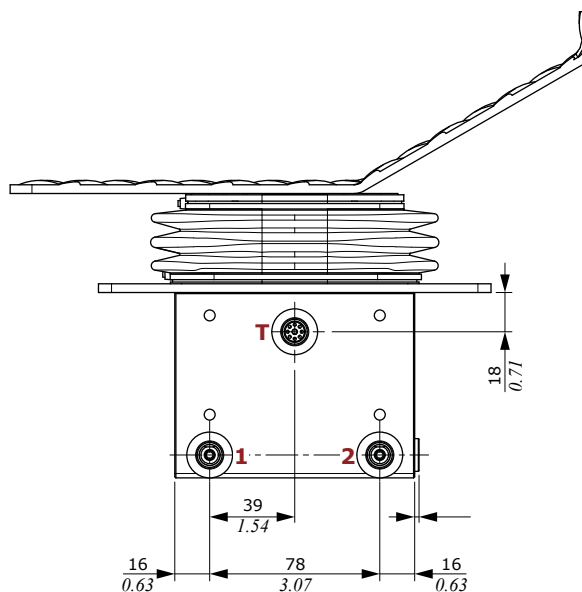
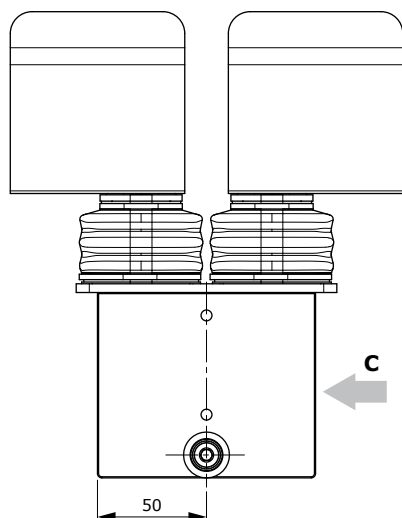
Hydraulic circuit



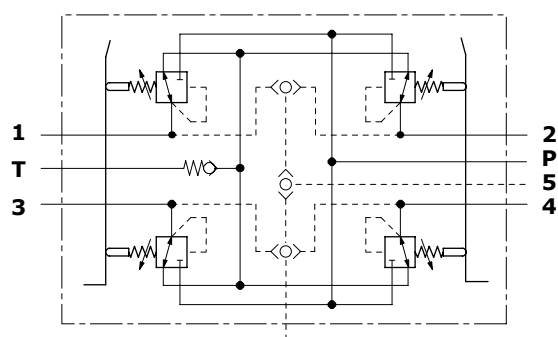
### Dimensions and hydraulic circuit

#### SVM546

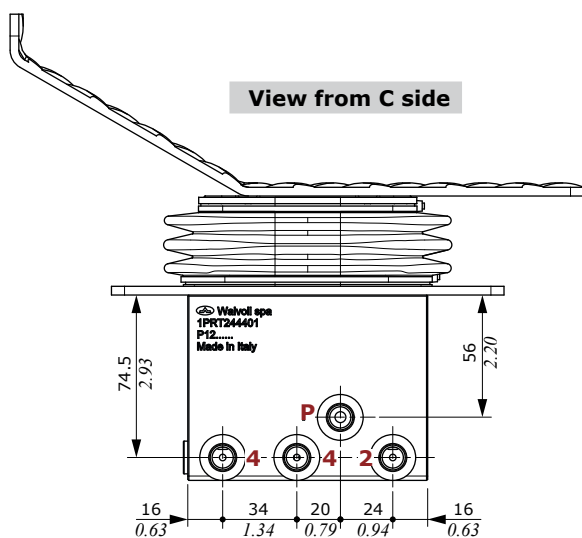
Double pedal configuration provided of damping system for swing reduction, with shuttle valves and auxiliary port.



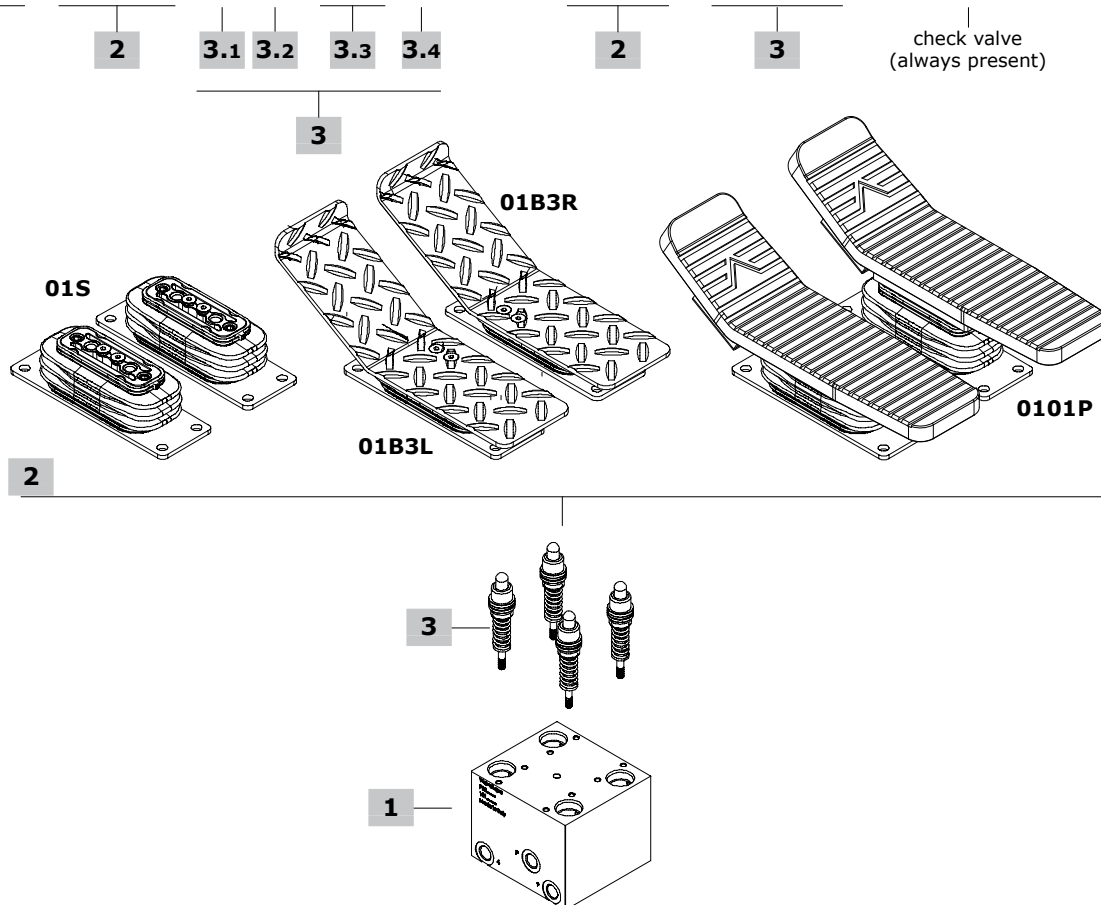
#### Hydraulic circuit



#### View from C side



SVM540-S / 01 B3L - D 0 006N C X 2 / 01 B3R - D0006NC X 2 - VR

**1 Body kit \***

| TYPE            | CODE        | DESCRIPTION                                                                  |
|-----------------|-------------|------------------------------------------------------------------------------|
| <b>SVM540-S</b> | 5CO3540700  | Pilot control valve body with check valve                                    |
| <b>SVM546-S</b> | 5CO3546700A | Pilot control valve body with check valve, shuttle valves and auxiliary port |

**2 Control options** **page 68**

| TYPE         | CODE         | DESCRIPTION                                                                           |
|--------------|--------------|---------------------------------------------------------------------------------------|
| <b>01S</b>   | 5CIN5001S    | With spring return in neutral position and with rubber bellow, without pedal          |
| <b>01B3L</b> | 5CIN5001B3L  | As type 01S with 150° bent left pedal                                                 |
| <b>01B3R</b> | 5CIN5001B3R  | As previous, right pedal                                                              |
| <b>0101P</b> | 5CIN50001P01 | As type 01S with 150° bent pedal and anti-slip rubber coating                         |
| <b>0102P</b> | 5CIN50002P01 | As type 01S with 150° bent and 30° tilted pedal, short type; anti-slip rubber coating |
| <b>0103P</b> | 5CIN50003P01 | s type 01S with 150° bent and 30° tilted pedal, long type; anti-slip rubber coating   |

**3 Pressure control curves**

For configuration and list available see from page 72

**3.1 Curve type**

| TYPE     | DESCRIPTION  |
|----------|--------------|
| <b>0</b> | Standard     |
| <b>D</b> | With Damping |

**3.2 Typology of curves**

| TYPE     | DESCRIPTION  |
|----------|--------------|
| <b>0</b> | With step    |
| <b>1</b> | Without step |

**3.3 Curve identification**

Progressive number, see tables from page 72

**3.4 Return springs**

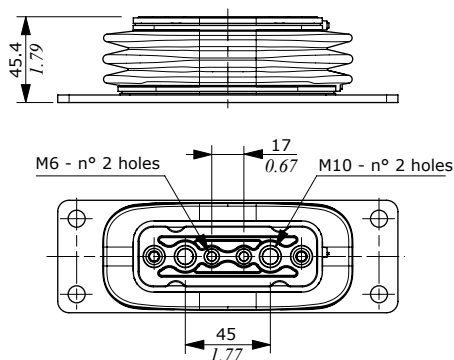
| TYPE     | DESCRIPTION                                                        |
|----------|--------------------------------------------------------------------|
| <b>M</b> | Operation range from 18 to 25.5 N - <i>from 4.04 to 5.73 lbf</i>   |
| <b>A</b> | Operation range from 23 to 35.2 N - <i>from 5.17 to 7.91 lbf</i>   |
| <b>B</b> | Operation range from 23 to 68.1 N - <i>from 5.17 to 15.31 lbf</i>  |
| <b>C</b> | Operation range from 89 to 176 N - <i>from 20 to 39.56 lbf</i>     |
| <b>D</b> | Operation range from 110 to 220 N - <i>from 24.73 to 49.46 lbf</i> |
| <b>E</b> | Operation range from 138 to 276 N - <i>from 31 to 62.04 lbf</i>    |

NOTE (\*) – Codes are referred to **UN-UNF** thread.

### Control options

#### 01S type

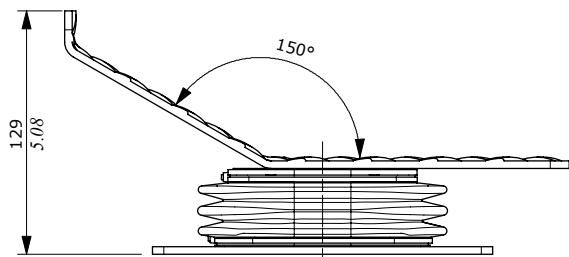
With spring return in neutral position without pedal.



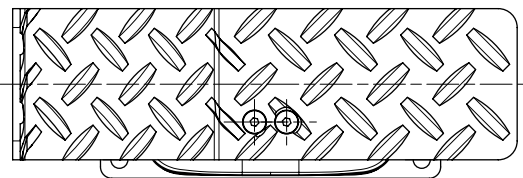
#### 01B3 type

With spring return in neutral position.

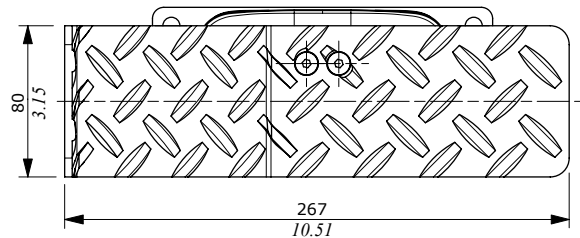
Flat and shaped pedal with corrugated sheet, white galvanized.



Right pedal 01B3R type



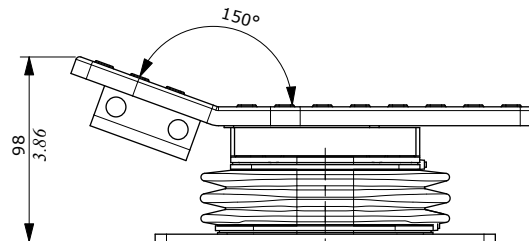
Left pedal 01B3L type



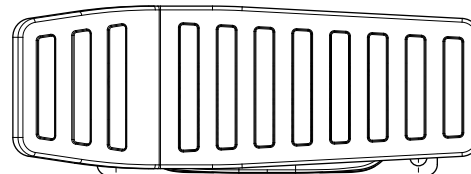
#### Tipo 0101P

With spring return in neutral position.

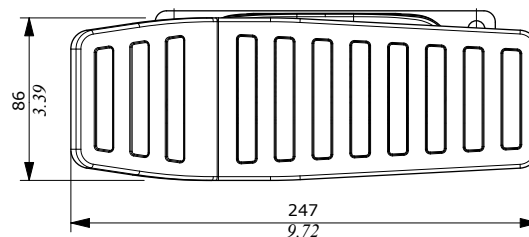
Flat and shaped pedal with anti-slip rubber coating.



0101P assembly on the right



0101P assembly on the left

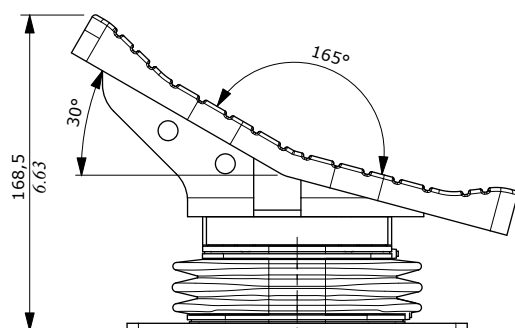


## Control options

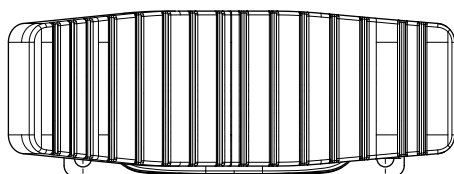
**Tipo 0102P**

With spring return in neutral position.

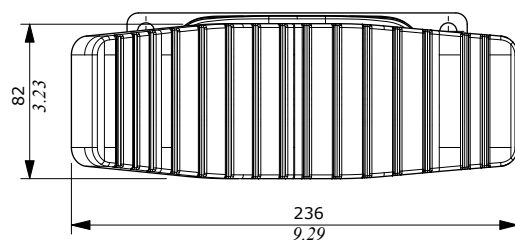
Tilted and shaped pedal with anti-slip rubber coating, short model



**0102P assembly on the right**

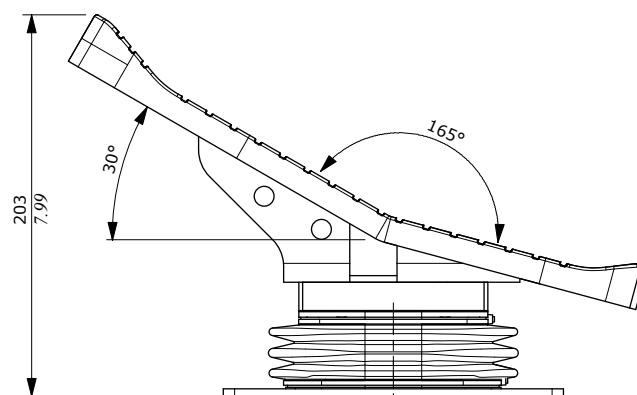


**0102P assembly on the left**

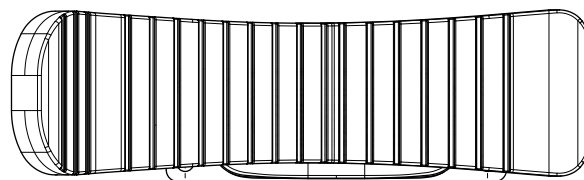
**Tipo 0103P**

With spring return in neutral position.

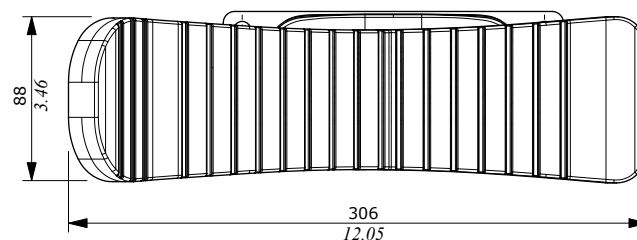
Tilted and shaped pedal with anti-slip rubber coating, long model



**0103P assembly on the right**



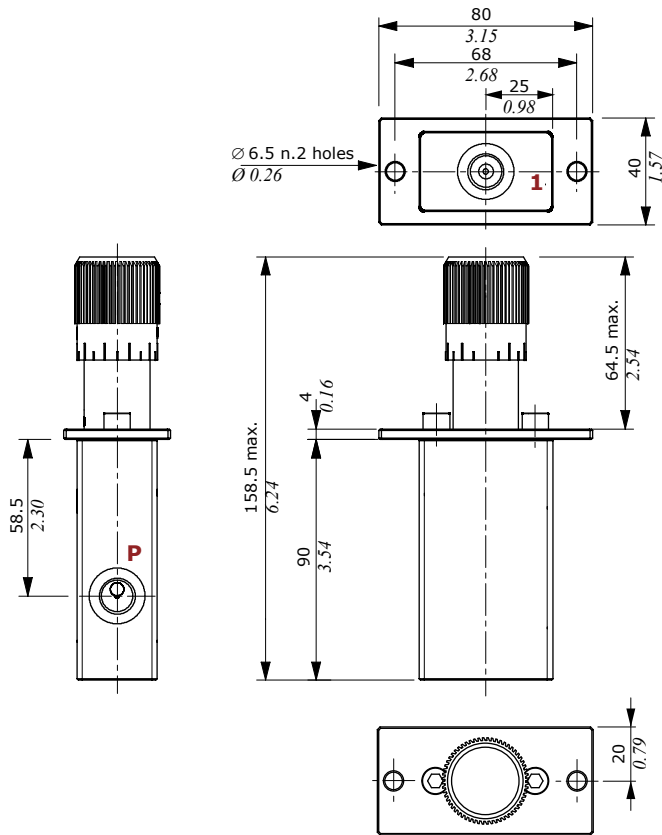
**0103P assembly on the left**



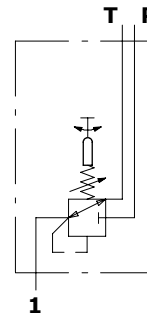
### Dimension and hydraulic circuit

#### SVM701 version

Configuration with handwheel operating.

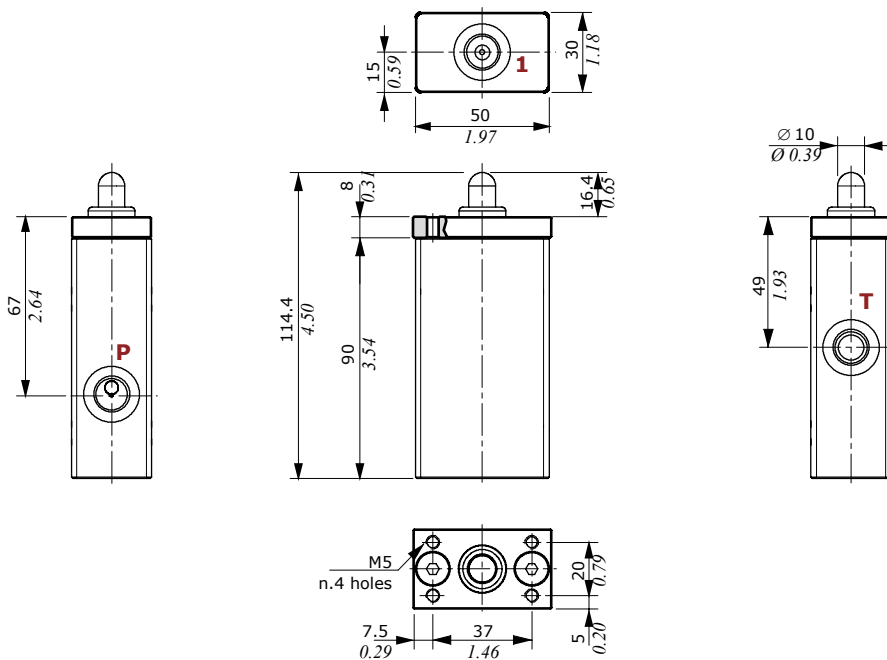


#### Hydraulic circuit

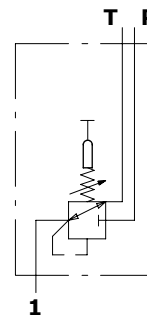


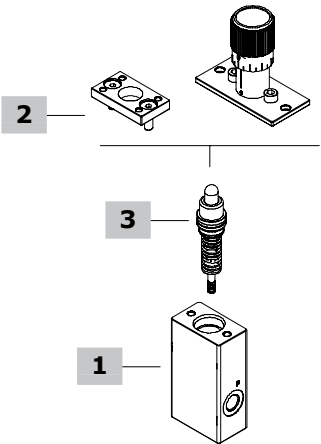
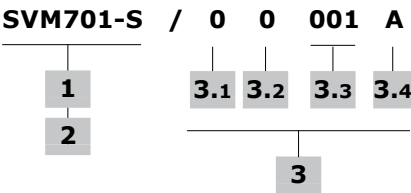
#### SVM710 version

Configuration with pusher operating.



#### Hydraulic circuit





1 Body kit \*

| TYPE       | CODE       | DESCRIPTION |
|------------|------------|-------------|
| SVM701-710 | 3CO3710700 | Body kit    |

2 Control option

| TYPE   | CODE     | DESCRIPTION                            |
|--------|----------|----------------------------------------|
| SVM701 | 5CIN7002 | With handweel operating                |
| SVM710 | 5CIN7011 | Pusher operating and protection flange |

3 Pressure control curves

For configuration and list available see from page 72

3.1 Curve type

| TYPE | DESCRIPTION |
|------|-------------|
| 0    | Standard    |

3.2 Typology of curves

| TYPE | DESCRIPTION  |
|------|--------------|
| 0    | With step    |
| 1    | Without step |

3.3 Curve identification

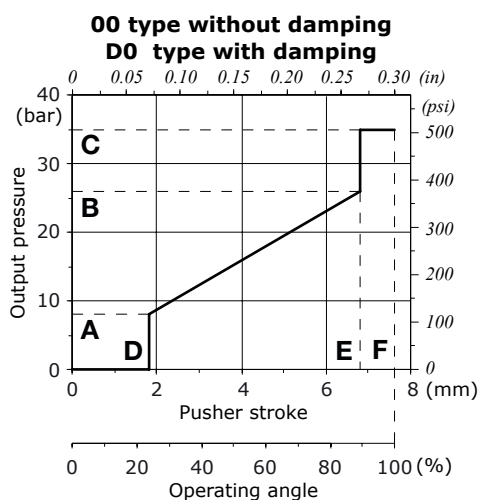
Progressive number, see tables from page 72

3.4 Return springs

| TYPE | DESCRIPTION                                                        |
|------|--------------------------------------------------------------------|
| M    | Operation range from 18 to 25.5 N - <i>from 4.04 to 5.73 lbf</i>   |
| A    | Operation range from 23 to 35.2 N - <i>from 5.17 to 7.91 lbf</i>   |
| B    | Operation range from 23 to 68.1 N - <i>from 5.17 to 15.31 lbf</i>  |
| C    | Operation range from 89 to 176 N - <i>from 20 to 39.56 lbf</i>     |
| D    | Operation range from 110 to 220 N - <i>from 24.73 to 49.46 lbf</i> |
| E    | Operation range from 138 to 276 N - <i>from 31 to 62.04 lbf</i>    |

NOTE (\*) – Codes are referred to UN-UNF thread.

### Control curves with step



| Curve description |     | Pressure         |                        |             |                |     |       | Stroke |      |      |      |     |      | CODE <sup>(1)</sup>                                                |
|-------------------|-----|------------------|------------------------|-------------|----------------|-----|-------|--------|------|------|------|-----|------|--------------------------------------------------------------------|
| Type              | Nr  | A                |                        | B           |                | C   |       | D      |      | E    |      | F   |      |                                                                    |
|                   |     | bar (±toll)      | psi (±toll)            | bar (±toll) | psi (±toll)    | bar | psi   | mm     | in   | mm   | in   | mm  | in   |                                                                    |
| Without damping   |     |                  |                        |             |                |     |       |        |      |      |      |     |      |                                                                    |
| 00                | 019 | 0.5<br>(+1 -0.5) | 7.25<br>(+14.5, -7.25) | 11.4 (±1)   | 165.3 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400019A                                                         |
| 00                | 022 | 1 (±0.5)         | 14.5 (±7.25)           | 8 (±1)      | 116.3 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40022A                                                         |
| 00                | 023 | 2 (±0.5)         | 29 (±7.25)             | 11.5 (±1)   | 166.7 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40023A                                                         |
| 00                | 047 | 2 (+3/0)         | 29 (+43.5/0)           | 70 (±4.5)   | 1015 (±65.2)   | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40047A<br>5CUR40047C                                           |
| 00                | 065 | 2 (±0.5)         | 29 (±7.25)             | 20.5 (±1.5) | 297.25 (±21.7) | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40065A                                                         |
| 00                | 066 | 2 (±0.5)         | 29 (±7.25)             | 23 (±1.5)   | 333.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40066B<br>5CUR40066C                                           |
| 00                | 110 | 2 (±0.5)         | 29 (±7.25)             | 15 (±1)     | 217.5 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400110A                                                         |
| 00                | 043 | 3.2 (±0.5)       | 46.4 (±7.25)           | 11.7 (±0.5) | 169.6 (±7.25)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400043A                                                         |
| 00                | 010 | 3.25 (±0.5)      | 74.13 (±7.25)          | 14.8 (±1)   | 214.6 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40010A<br>5CUR40010M                                           |
| 00                | 032 | 3.4 (±0.5)       | 49.3 (±7.25)           | 29.4 (±1)   | 426.3 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40032A<br>5CUR40032B<br>5CUR40032C                             |
| 00                | 086 | 4 (±1)           | 58 (±14.5)             | 16.5 (±1)   | 239.2 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40086A<br>5CUR40086C                                           |
| 00                | 020 | 4.3 (±0.5)       | 63.3 (±7.25)           | 15.2 (±1)   | 220.4 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40020A<br>5CUR40020B<br>5CUR40020C                             |
| 00                | 004 | 4.9 (±0.5)       | 72.5 (± 7.25)          | 18.9 (±1)   | 274 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40004A<br>5CUR40004C<br>5CUR40004M                             |
| 00                | 017 | 5 (±0.5)         | 72.5 (± 7.25)          | 12 (± 1)    | 174 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40017A<br>5CUR40017C                                           |
| 00                | 028 | 5 (±1)           | 72.5 (± 14.5)          | 21 (±1.5)   | 304.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40028A<br>5CUR40028B<br>5CUR40028C<br>5CUR40028M               |
| 00                | 071 | 5 (±1)           | 72.5 (±14.5)           | 17 (±1)     | 246.5 (±14.5)  | 35  | 507.5 | 1.35   | 0.05 | 6    | 0.23 | 7.3 | 0.29 | 5CUR40071A                                                         |
| 00                | 075 | 5 (±0.5)         | 72.5 (± 7.25)          | 15 (±1.5)   | 217.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40075A<br>5CUR40075B<br>5CUR40075C<br>5CUR40075E<br>5CUR40075M |
| 00                | 104 | 5.5 (±1)         | 79.75 (±14.5)          | 17 (±1)     | 246.5 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 3.1  | 0.12 | 3.5 | 0.14 | 5CR400104A                                                         |
| 00                | 115 | 5.5              |                        | 28.5        |                |     |       | 0.85   | 0.03 | 5.6  | 0.22 | 6.1 | 0.24 | 5CUR40115M                                                         |
| 00                | 001 | 5.8 (±1)         | 84.1 (±14.5)           | 22 (±2)     | 319 (±29)      | 35  | 507.5 | 1.55   | 0.06 | 7    | 0.27 | 7.5 | 0.29 | 5CUR40001A                                                         |
| 00                | 024 | 5.8 (±1)         | 84.1 (±14.5)           | 19 (±1.5)   | 275.5 (±21.7)  | 35  | 507.5 | 1.55   | 0.06 | 6.1  | 0.24 | 7.5 | 0.29 | 5CUR40024A<br>5CUR40024C                                           |

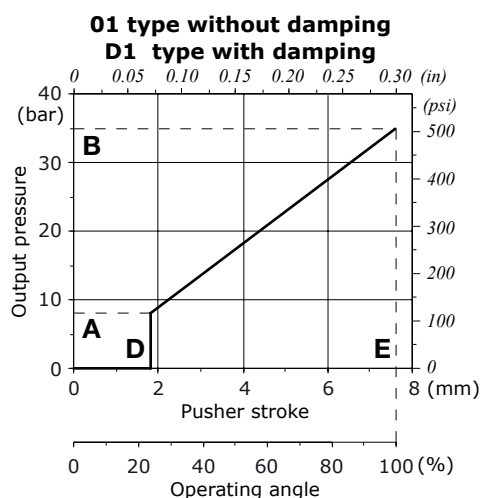
## Control curves with step

| Curve description |     | Pressure    |               |             |                |     |       | Stroke |      |      |      |     |      | CODE <sup>(1)</sup>                                  |
|-------------------|-----|-------------|---------------|-------------|----------------|-----|-------|--------|------|------|------|-----|------|------------------------------------------------------|
| Type              | Nr  | A           |               | B           |                | C   |       | D      |      | E    |      | F   |      |                                                      |
|                   |     | bar (±toll) | psi (±toll)   | bar (±toll) | psi (±toll)    | bar | psi   | mm     | in   | mm   | in   | mm  | in   |                                                      |
| 00                | 033 | 5.8 (±0.5)  | 84.1 (± 7.25) | 19 (±1)     | 275.5 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40033A<br>5CUR40033B<br>5CUR40033C<br>5CUR40033M |
| 00                | 070 | 5.8 (±1)    | 84.1 (±14.5)  | 22.4 (±2)   | 324.8 (±29)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40070A<br>5CUR40070B<br>5CUR40070D<br>5CUR40070M |
| 00                | 087 | 5.8 (±0.5)  | 84.1 (±7.25)  | 17 (±1.5)   | 246.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40087A                                           |
| 00                | 021 | 6 (±0.5)    | 87 (±7.25)    | 16.3 (±1)   | 236.4 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400021A<br>5CR400021M                             |
| 00                | 105 | 6 (±0.5)    | 87 (±7.25)    | 20 (±1)     | 290 (±14.5)    | 35  | 507.5 | 0.6    | 0.02 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400105B                                           |
| 00                | 054 | 6.2 (±1)    | 89.9 (±14.5)  | 24.5 (±2)   | 355.25 (±29)   | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40054A                                           |
| 00                | 007 | 6.5 (±1)    | 94.25 (±14.5) | 36 (±2)     | 522 (±29)      | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400007A                                           |
| 00                | 026 | 6.5 (±0.5)  | 94.25 (±7.25) | 14 (±1)     | 203 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40026A<br>5CUR40026B<br>5CUR40026C               |
| 00                | 053 | 8 (±0.5)    | 116 (±7.25)   | 22.3 (±1)   | 323.3 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40053A                                           |
| 00                | 088 | 8 (±0.5)    | 116 (±7.25)   | 27 (±1.5)   | 391.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40088A<br>5CUR40088B<br>5CUR40088C<br>5CUR40088M |
| 00                | 089 | 8 (±0.5)    | 116 (±7.25)   | 28 (±1)     | 406 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40089A<br>5CUR40089C<br>5CUR40089D<br>5CUR40089M |
| 00                | 112 | 8 (±1.5)    | 116 (±21.7)   | 54 (±3.5)   | 783 (±50.75)   | 60  | 870   | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400112A                                           |
| 00                | 122 | 10 (±1)     | 145 (±14.5)   | 27 (±2)     | 391.5 (±29)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400122C                                           |
| 00                | 124 | 10 (±1)     | 145 (±14.5)   | 25 (±1.5)   | 362.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400124A                                           |
| 00                | 036 | 12 (±0.5)   | 174 (±7.25)   | 25 (±1)     | 362.5 (±14.5)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR40036A                                           |
| 00                | 107 | 12 (±1)     | 174 (±14.5)   | 20 (±1)     | 290 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400107A                                           |
| 00                | 012 | 14 (±1)     | 203 (±14.5)   | 28.5 (±1.5) | 413.25 (±21.7) | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR400012A                                           |
| With damping      |     |             |               |             |                |     |       |        |      |      |      |     |      |                                                      |
| D0                | 020 | 4.3 (±0.5)  | 62.3 (±7.25)  | 15.2 (±1.5) | 220.4 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4D020C                                           |
| D0                | 004 | 4.9 (±0.5)  | 72.5 (± 7.25) | 18.9 (±1)   | 274 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR4D0004C                                           |
| D0                | 075 | 5 (±0.5)    | 72.5 (± 7.25) | 15 (±1.5)   | 217.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4D075C                                           |
| D0                | 028 | 5 (±1)      | 72.5 (± 14.5) | 21 (±1.5)   | 304.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CR7D0028NM                                          |
| D0                | 085 | 6 (±1)      | 87 (±14.5)    | 25 (±1.5)   | 362.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4D085C                                           |
| D0                | 088 | 8 (±0.5)    | 116 (±7.25)   | 27 (±1.5)   | 391.5 (±21.7)  | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4D088A<br>5CUR4D088C                             |
| D0                | 089 | 8 (±0.5)    | 116 (±7.25)   | 28 (±1)     | 406 (±14.5)    | 35  | 507.5 | 0.85   | 0.03 | 7.25 | 0.28 | 7.6 | 0.30 | 5CUR4D089C<br>5CUR4D089D                             |

<sup>(1)</sup> indicates the curve with the specific return spring

For different curves please contact our Sales Department

## Control curves without step



| Curve description |     | Pressure    |              |             |               | Stroke |      |     |      | CODE <sup>(1)</sup>                    |
|-------------------|-----|-------------|--------------|-------------|---------------|--------|------|-----|------|----------------------------------------|
|                   |     | A           |              | B           |               | D      |      | E   |      |                                        |
| Type              | Nr  | bar (±toll) | psi (±toll)  | bar (±toll) | psi (±toll)   | mm     | in   | mm  | in   |                                        |
| Without damping   |     |             |              |             |               |        |      |     |      |                                        |
| 01                | 148 | 0 (+0.5)    | 0 (±7.25)    | 13 (±1)     | 188.5 (±14.5) | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40148B                             |
| 01                | 151 | 0 (+1)      | 0 (±14.5)    | 41 (±2)     | 594.5 (±29)   | 1      | 0.04 | 5.4 | 0.21 | 5CR401151C                             |
| 01                | 099 | 1 (±0.5)    | 14.5 (±7.25) | 20 (±1.5)   | 290 (±21.7)   | 1.55   | 0.06 | 7.5 | 0.29 | 5CR401099A                             |
| 01                | 131 | 1           |              | 15          |               | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40131A<br>5CUR40131C               |
| 01                | 100 | 1.2 (±0.5)  | 17.4 (±7.25) | 18.9 (±1)   | 274 (±14.5)   | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40100B<br>5CUR40100M               |
| 01                | 163 | 1.4 (±0.5)  | 20.3 (±7.25) | 11.5 (±1)   | 166.8 (±14.5) | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40163A<br>5CUR40163M               |
| 01                | 105 | 2 (±0.5)    | 29 (±7.25)   | 8 (±1)      | 116 (±14.5)   | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40105A                             |
| 01                | 129 | 2 (±0.5)    | 29 (±7.25)   | 66 (±4)     | 957 (±58)     | 0.85   | 0.03 | 6.8 | 0.28 | 5CUR40129A                             |
| 01                | 154 | 2 (±0.5)    | 29 (±7.25)   | 15 (±1)     | 217.5 (±14.5) | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40154A<br>5CUR40154M               |
| 01                | 138 | 2.5 (±0.5)  | 36.2 (±7.25) | 13 (±1)     | 188.5 (±14.5) | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40138A                             |
| 01                | 143 | 3 (±0.5)    | 43.5 (±7.25) | 25 (±1)     | 362.5 (±14.5) | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40143A                             |
| 01                | 127 | 3.4 (±0.5)  | 49.3 (±7.25) | 12 (±1)     | 174 (±14.5)   | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40127A<br>5CUR40127B               |
| 01                | 157 | 3.4 (±1)    | 49.3 (±14.5) | 17.2 (±1)   | 249.4 (±14.5) | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40157A<br>5CUR40157B               |
| 01                | 114 | 4 (±0.5)    | 58 (±7.25)   | 10 (±1)     | 145 (±14.5)   | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40114A<br>5CUR40114B<br>5CUR40114M |
| 01                | 126 | 4.5 (±0.7)  | 65.2 (±10.1) | 30.7 (±1.5) | 445.1 (±21.7) | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40126A                             |
| 01                | 170 | 5 (±0.5)    | 72.5 (±7.25) | 20 (±1)     | 290 (±14.5)   | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40170A<br>5CUR40170M               |
| 01                | 175 | 5 (±0.5)    | 72.5 (±7.25) | 16 (±1.5)   | 232 (±21.7)   | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40175A<br>5CUR40175D               |
| 01                | 111 | 5.5 (±0.5)  | 88 (±7.25)   | 25.5 (±1)   | 370 (±14.5)   | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40111A<br>5CUR40111B<br>5CUR40111C |
| 01                | 118 | 5.8 (±1)    | 84.1 (±14.5) | 19.5 (±1.5) | 282.7 (±21.7) | 1.55   | 0.06 | 7.5 | 0.29 | 5CUR40118A                             |
| 01                | 135 | 5.8 (±0.5)  | 84.1 (±7.25) | 23 (±1.5)   | 333.5 (±21.7) | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40135A<br>5CUR40135M               |
| 01                | 167 | 6 (±0.5)    | 87 (±7.25)   | 18 (±1)     | 261 (±14.5)   | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40167M                             |
| 01                | 103 | 6 (±1)      | 87 (±14.5)   | 30 (±2.5)   | 435 (±36.2)   | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40103A<br>5CUR40103M               |
| 01                | 106 | 6 (±1)      | 87 (±14.5)   | 40 (±2)     | 580 (±29)     | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40106A<br>5CUR40106B<br>5CUR40106C |

## Control curves without step

| Curve description |     | Pressure    |               |             |                | Stroke |      |     |      | CODE <sup>(1)</sup> |
|-------------------|-----|-------------|---------------|-------------|----------------|--------|------|-----|------|---------------------|
|                   |     | A           |               | B           |                | D      |      | E   |      |                     |
| Type              | Nr  | bar (±toll) | psi (±toll)   | bar (±toll) | psi (±toll)    | mm     | in   | mm  | in   |                     |
| 01                | 095 | 6.5 (±0.5)  | 94.25 (±7.25) | 17.8 (±1)   | 258.1 (±14.5)  | 0.85   | 0.03 | 7.6 | 0.30 | 5CR401095A          |
| 01                | 115 | 8.3 (±0.7)  | 120.3 (±10.1) | 22.5 (±1)   | 326.2 (±14.5)  | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40115M          |
| 01                | 159 | 10 (±0.5)   | 145 (±7.25)   | 28 (±1)     | 406 (±14.5)    | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR401159A         |
| 01                | 090 | 12 (±1)     | 174 (±14.5)   | 18 (±1)     | 261 (±14.5)    | 0.85   | 0.03 | 7.6 | 0.30 | 5CR401090A          |
| 01                | 195 | 14 (±1)     | 203 (±14.5)   | 29.5 (±1.5) | 427.75 (±21.7) | 0.85   | 0.03 | 7.6 | 0.30 | 5CR401195A          |
| 01                | 144 | 35 (±2)     | 507.5 (±29)   | 70 (±3.5)   | 1015 (±50.7)   | 0.85   | 0.03 | 7.6 | 0.30 | 5CUR40144C          |
| Con smorzamento   |     |             |               |             |                |        |      |     |      |                     |
| D1                | 155 | 4.8 (±1)    | 69.6 (±14.5)  | 21.5 (±1.5) | 311.75 (±21.7) | 0.85   | 0.03 | 6.2 | 0.24 | 5CUR4D020C          |
| D1                | 103 | 6 (±1)      | 87 (±14.5)    | 30 (±2.5)   | 435 (±36.25)   | 0.85   | 0.03 | 7.6 | 0.30 | 5CR4D1103NC         |
| D1                | 091 | 7 (±1)      | 101.5 (±14.5) | 27 (±1)     | 391.5 (±14.5)  | 0.85   | 0.03 | 7.6 | 0.30 | 5CR4D1091NC         |

<sup>(1)</sup> Il codice indica la curva con molla di riferimento

Per kit con molle differenti, contattare il nostro Servizio Commerciale.

## Notes

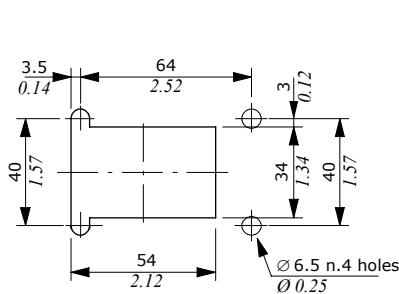
SVM pilot control valves assembled and tested as per the technical specification of this catalogue.

Before the final installation on your equipment, follow the below recommendations:

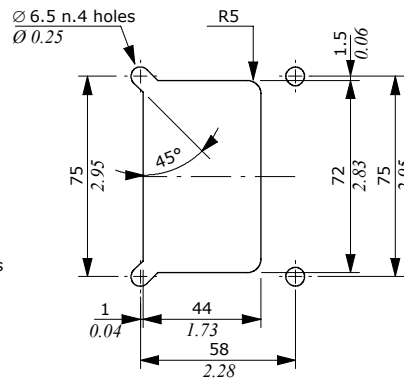
- the pilot valves must be assembled in horizontal position: considering the mass of the kinematic and control kit, a max. angle of 20° is allowed;
- the feeding unit can be assembled in any position; keep it away from heat sources when it is equipped with accumulator;
- fix the devices with suitable screw, use the appropriate flange or drilling, after tightening check the seal and the safety of the assembly;
- verify the integrity of the contact between devices and fittings and eliminate any impurities;
- correctly connect the devices, do not reverse the P and T ports (see dimensional pages to determine the initials of the ports);
- in order to prevent the possibility of water entering the rubber bellow, do not use high pressure wash directly on the valve;
- prior to painting, ensure plastic port plugs are tightly in place;
- the electrical cables have not to be submitted to mechanical forces (ex. tension or torsion);
- use original handles and hand levers.

## Panel cut out

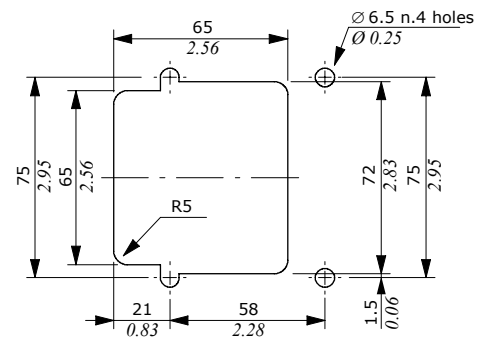
**SVM510**



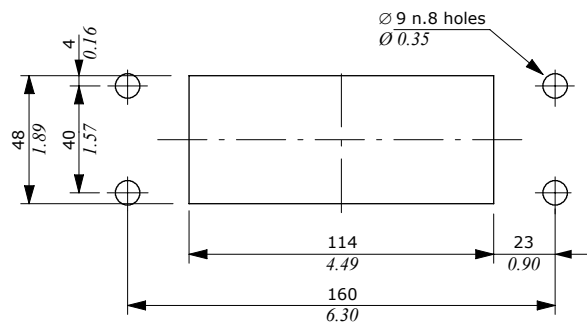
**SVM520**



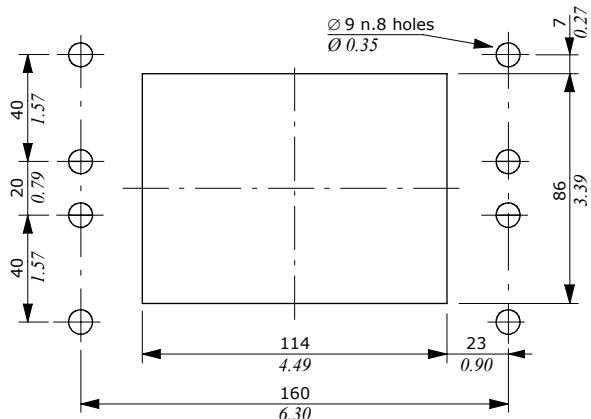
**SVM521**



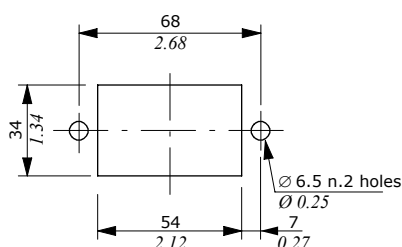
**SVM500**



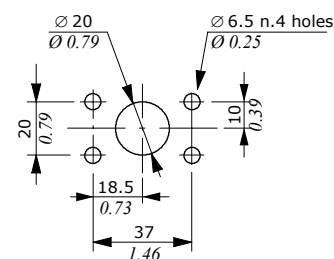
**SVM540**



**SVM701**



**SVM710**





## Feed units and accessories

- 2 Way series with or without unloader valve (AVN020)
- Range from 1 to 4 stages with and without accumulator
- Diverter valve for pilot hydraulic control system

### AVN020 working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

|                            |                          |                                                      |
|----------------------------|--------------------------|------------------------------------------------------|
| Max. pressure on inlet     | on inlet, P port         | 350 bar - 5075 psi                                   |
| Nominal secondary pressure |                          | 30 bar - 435 psi                                     |
| Flow rating range          |                          | from 5 to 20 l/min - from 1.32 to 5.28 USgpm         |
| Max. backpressure          | to outlet, T port        | 3 bar - 43.5 psi                                     |
| Fluid                      |                          | mineral oil                                          |
| Fluid temperature          | with NBR (BUNA-N) seals  | from -20°C to 80°C - from -4°F to 176°F              |
| Viscosity                  | operating range          | from 15 to 75 mm <sup>2</sup> /s - from 15 to 75 cSt |
|                            | min.                     | 12 mm <sup>2</sup> /s - 12 cSt                       |
|                            | max.                     | 400 mm <sup>2</sup> /s - 400 cSt                     |
| Max. contamination level   |                          | -/19/16 - ISO 4406 - NAS1638 class 10                |
| Ambient temperature        | without electric devices | from -40°C to 60°C - from 40°F to 140°F              |
|                            | with electric devices    | from -20°C to 50°C - from -4°F to 122°F              |

NOTE - for different conditions please contact Sales Dpt

### FU series working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

|                          |                          | FU/1                                                 | FU/2                 | FU/3                  | FU/4                 |
|--------------------------|--------------------------|------------------------------------------------------|----------------------|-----------------------|----------------------|
| Max. pressure on inlet   | on inlet P port          | 350 bar - 5075 psi                                   | 350 bar - 5075 psi   | 350 bar - 5075 psi    | 350 bar - 5075 psi   |
| Flow rating range        |                          | 60 l/min - 15.85 USgpm                               | 8 l/min - 2.11 USgpm | 10 l/min - 2.64 USgpm | 8 l/min - 2.11 USgpm |
| Fluid                    |                          | mineral oil                                          |                      |                       |                      |
| Fluid temperature        | with NBR (BUNA-N) seals  | from -20°C to 90°C - from -4°F to 194°F              |                      |                       |                      |
| Viscosity                | operating range          | from 15 to 75 mm <sup>2</sup> /s - from 15 to 75 cSt |                      |                       |                      |
|                          | min.                     | 20 mm <sup>2</sup> /s - 20 cSt                       |                      |                       |                      |
|                          | max.                     | 200 mm <sup>2</sup> /s - 200 cSt                     |                      |                       |                      |
| Max. contamination level |                          | 18/16/13 - ISO 4406 - NAS1638 class 10               |                      |                       |                      |
| Ambient temperature      | without electric devices | from -40°C to 60°C - from 40°F to 140°F              |                      |                       |                      |
|                          | with electric devices    | from -20°C to 50°C - from -4°F to 122°F              |                      |                       |                      |

NOTE - for different conditions, please contact our Sales Dpt

### DHV080 working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

|                                       |                                                        |
|---------------------------------------|--------------------------------------------------------|
| Nominal flow rating                   | 10 l/min - 2.64 Usqpm                                  |
| Nominal pressure                      | 100 bar - 1450 psi                                     |
| Internal leakage (100 bar - 1450 psi) | 10 cm <sup>3</sup> /min - 0.61 in <sup>3</sup> /min    |
| Fluid                                 | mineral oil                                            |
| Viscosity (operating range)           | from 12 to 400 mm <sup>2</sup> /s - from 12 to 400 cSt |
| Max. contamination range              | -/19/16 - ISO 4406 - NAS1638 class 10                  |
| Fluid temperature                     | from -20° C to 80°C - from -4° F to 176°F              |
| Ambient temperature                   | from -40° C to 60°C - from 40° F to 140°F              |
| Salt spray (fog) testing              | (ISO9227) 70 h                                         |

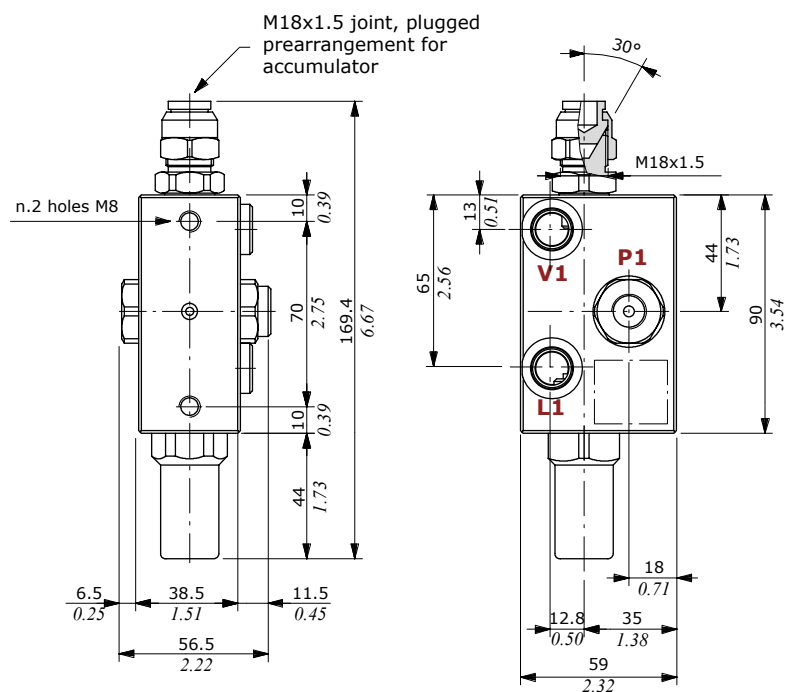
NOTE - for different conditions please contact Sales Dpt

### REFERENCE STANDARD

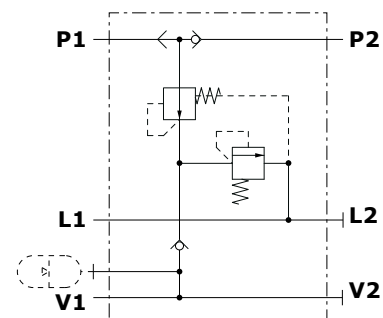
|                               |     | BSP                 | UN-UNF            |
|-------------------------------|-----|---------------------|-------------------|
| THREAD ACCORDING TO           |     | ISO 228/1           | ISO 263           |
|                               |     | BS 2779             | ANSI B1.1 unified |
| CAVITY DIMENSION ACCORDING TO | ISO | 1179                | 11926             |
|                               | SAE |                     | J11926            |
|                               | DIN | 3852-2 X or Y shape |                   |

## AVN020 dimensions and hydraulic circuit

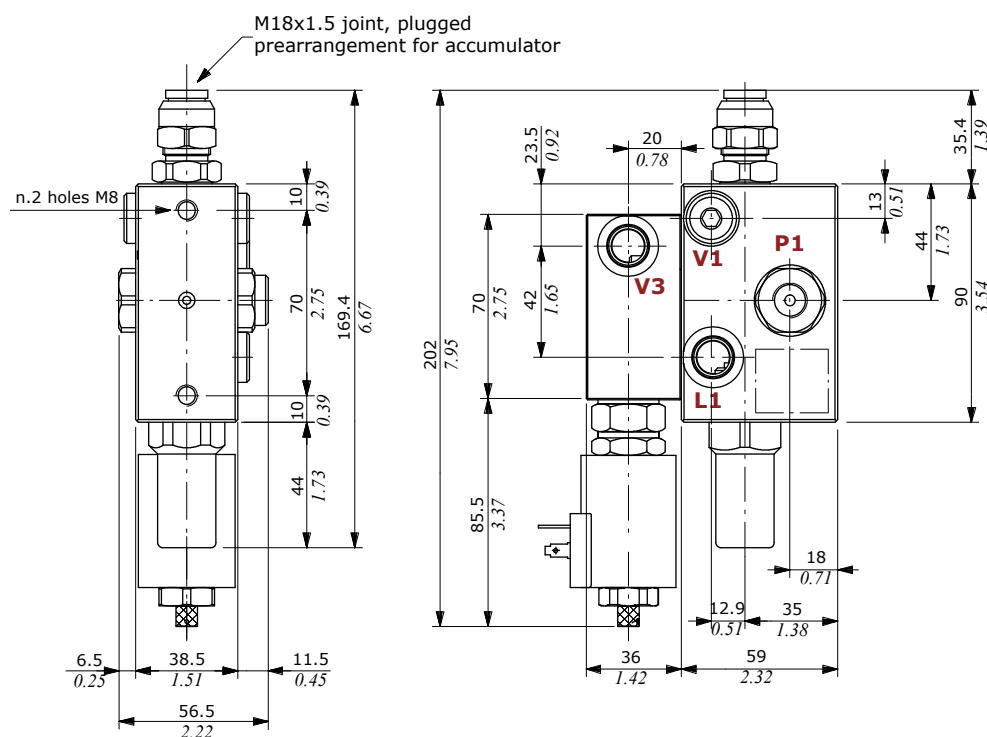
## Version without unloader valve



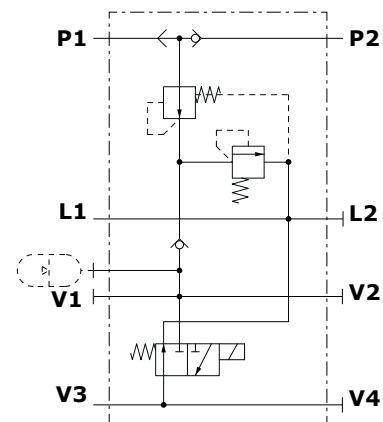
Hydraulic circuit



## Version with unloader valve



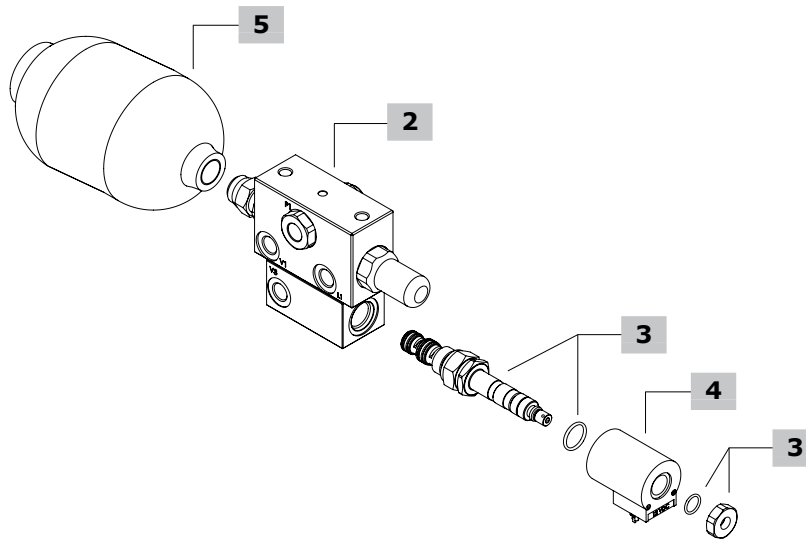
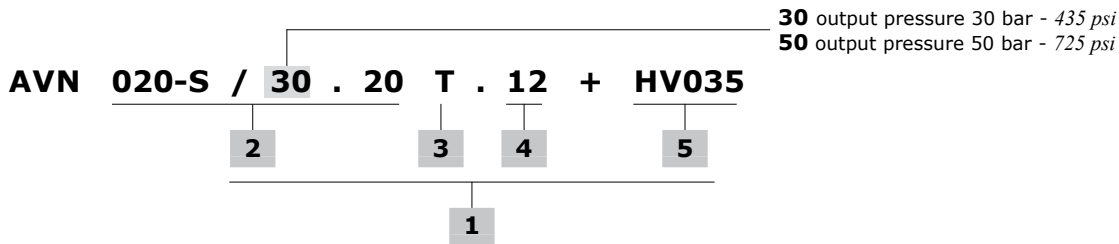
Hydraulic circuit



## THREAD AND FITTING TIGHTENING TORQUES

| Ports                        | Threads |                 | Fitting tightening torque |        |
|------------------------------|---------|-----------------|---------------------------|--------|
|                              | BSP     | UN-UNF          | Nm                        | lbf·ft |
| P1 inlet                     | G 1/4   | 9/16-18 (SAE 6) | 30                        | 22.13  |
| L1, L2, V1, V2, V3, V4 Ports | G 1/4   | 9/16-18 (SAE 6) | 30                        | 22.13  |

### AVN020 ordering codes



#### 1 Complete unit \*

##### Without unloader valve

TYPE: **AVN020-S/30.00** CODE: 180010006

DESCRIPTION: with 2 pressure ports, outlet pressure 30 bar - 435 psi

TYPE: **AVN020-S/50.00** CODE: 180010013

DESCRIZIONE: with 2 pressure ports, outlet pressure 50 bar - 725 psi

TYPE: **AVN020-S/30.20T.12** CODE: 180010012

DESCRIPTION: with 2 pressure ports, outlet pressure 30 bar - 435 psi, with unloader valve

#### 2 Body kit \*

| TYPE               | CODE       | DESCRIPTION           |
|--------------------|------------|-----------------------|
| <b>020-B/00.20</b> | 5CO2902201 | with 2 pressure ports |

NOTE: outlet pressure 30 and 50 bar - 435, 725 psi

#### 3 Unloader valve

| TYPE     | CODE        | DESCRIPTION          |
|----------|-------------|----------------------|
| <b>T</b> | 0EJ08002043 | With emergency screw |

#### 4 Coil

| TYPE                  | CODE       | DESCRIPTION                               |
|-----------------------|------------|-------------------------------------------|
| <b>12</b>             | 4SL3000120 | 12VDC, ISO4400 connector                  |
| <b>24</b>             | 4SL3000240 | As previous 24VDC                         |
| <b>12(JPT)</b>        | 4SL3000122 | 12VDC, AMP/JPT connector                  |
| <b>24(JPT)</b>        | 4SL3000248 | As previous 24VDC                         |
| <b>12(JPT+DIODO)</b>  | 4SL3001200 | 12VDC, AMP/JPT connector with diode       |
| <b>12(DT04)</b>       | 4SL3000130 | 12VDC, DEUTSCH/DT04 connector             |
| <b>24(DT04)</b>       | 4SL3000249 | As previous 24VDC                         |
| <b>12(DT04+DIODO)</b> | 4SL3000132 | 12VDC, DEUTSCH/DT04 connector, with diode |
| <b>24(DT04+DIODO)</b> | 4SL3000247 | As previous 24VDC                         |

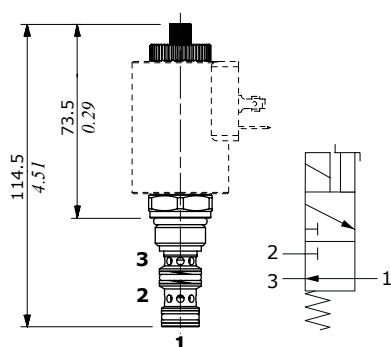
#### 5 Optional accumulator

| TYPE         | CODE         | DESCRIPTION                                           |
|--------------|--------------|-------------------------------------------------------|
| <b>HV035</b> | 2X280020340S | Capacity 350 cm <sup>3</sup> - 21.36 in <sup>3</sup>  |
| <b>HV050</b> | 2X280020500S | Capacity 500 cm <sup>3</sup> - 30.51 in <sup>3</sup>  |
| <b>HV075</b> | 4AC7742000   | Capacity 750 cm <sup>3</sup> - 45.77 in <sup>3</sup>  |
| <b>HV090</b> | 2X280020700S | Capacity 900 cm <sup>3</sup> - 54.92 in <sup>3</sup>  |
| <b>HV150</b> | 2X280021400S | Capacity 1500 cm <sup>3</sup> - 91.53 in <sup>3</sup> |

NOTE (\*) - Codes are referred to **UN-UNF** thread.

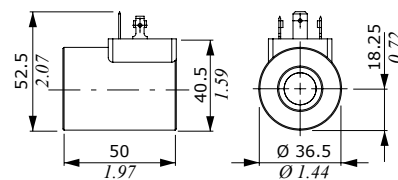
## –AVN020 Configuration options

## Solenoid unloader valve



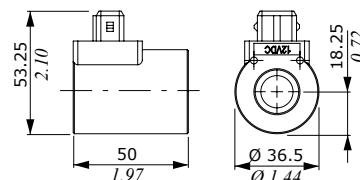
## ISO4400 connector

needs 4CN1009995 connector



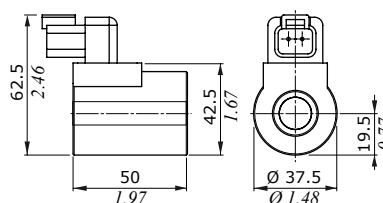
### AMP JPT connector

needs 5CON003 connector



## DEUTSCH DT04 connector

needs 5CON1410031 connector



## Features

## SOLENOID VALVE

Nominal flow . . . . . : 12 l/min - 3.17 US gpm

Max. pressure . . . . . : 50 bar - 725 psi

internal leakage: . . . . . : 4 cm<sup>3</sup>/min - 0.24 in<sup>3</sup>/min

COIL

Nominal voltage tolerance :  $\pm 10\%$

Power rating . . . . . : 21 W

Max. operating current . . . . . : 1.77 A - 12 VDC

: 0.89 A - 24VDC

Coil insulation . . . . . : Class F (155°C - 311°F)

Weather protection . . . . . : IP65 - ISO4400

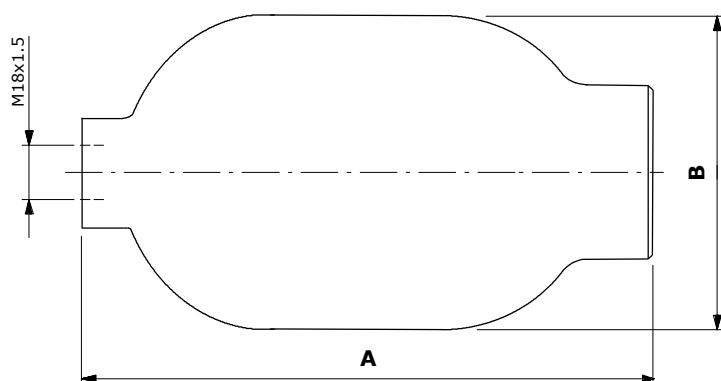
: IP69K - Deutsch DT

: IP65 - AMP JPT

Insertion.....: 100%

## Optional accumulators

With synthetic rubber membrane and steel body; Nitrogen accumulator precharged at 13 bar - 188 psi



| Type | Volume          |                 | A   |       | B   |      | Mass |       |
|------|-----------------|-----------------|-----|-------|-----|------|------|-------|
|      | cm <sup>3</sup> | in <sup>3</sup> | mm  | in    | mm  | in   | kg   | lb    |
| 035  | 350             | 21.35           | 153 | 6.02  | 99  | 3.90 | 3.7  | 8.16  |
| 050  | 500             | 30.51           | 199 | 7.83  | 118 | 4.64 | 4.35 | 9.59  |
| 075  | 750             | 45.77           | 199 | 7.83  | 118 | 4.64 | 4.8  | 10.58 |
| 090  | 900             | 54.92           | 215 | 8.46  | 118 | 4.64 | 4.8  | 10.58 |
| 150  | 1500            | 91.54           | 297 | 11.69 | 118 | 4.64 | 6.8  | 14.99 |

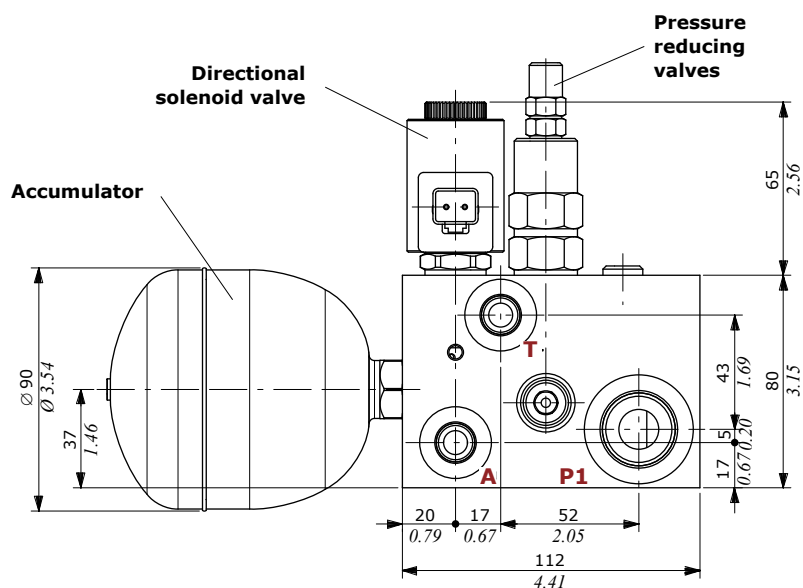
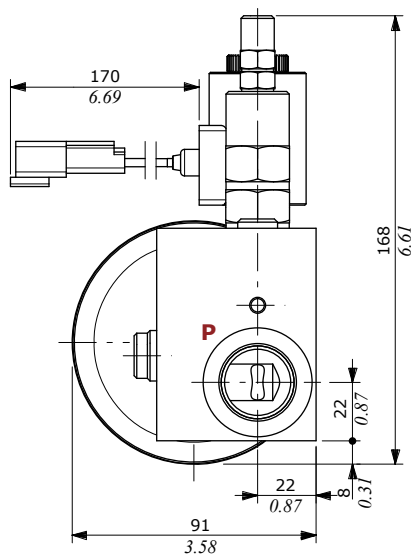
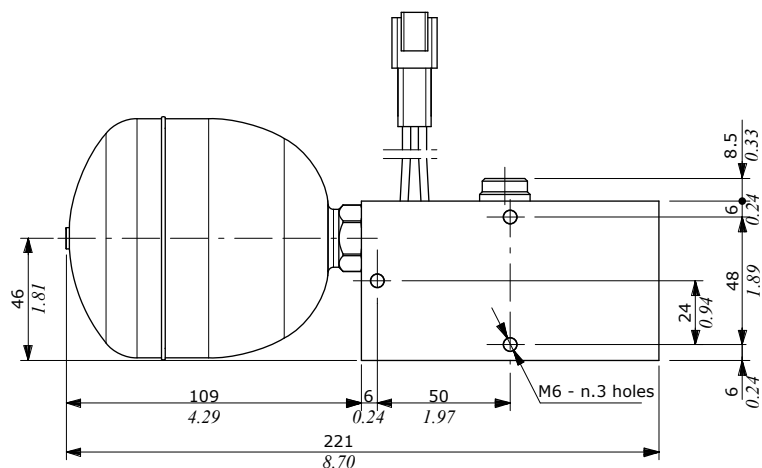
## – Installation

In order to ensure the correct working pressure at 10 bar - 145 psi, is required minimum pressure when starting.

The feed unit can be assembled in any position; keep it away from heat sources when accumulator is working.

### Type FU/1 - one stage

DESCRIPTION: one stage, with pressure reducing valve on inlet, 0.35 l accumulator and directional solenoid valve for the supply and control of the pressure line.



### Fitting tightening torque

*lbft*

48

22

22

22

82

## FU series configuration examples

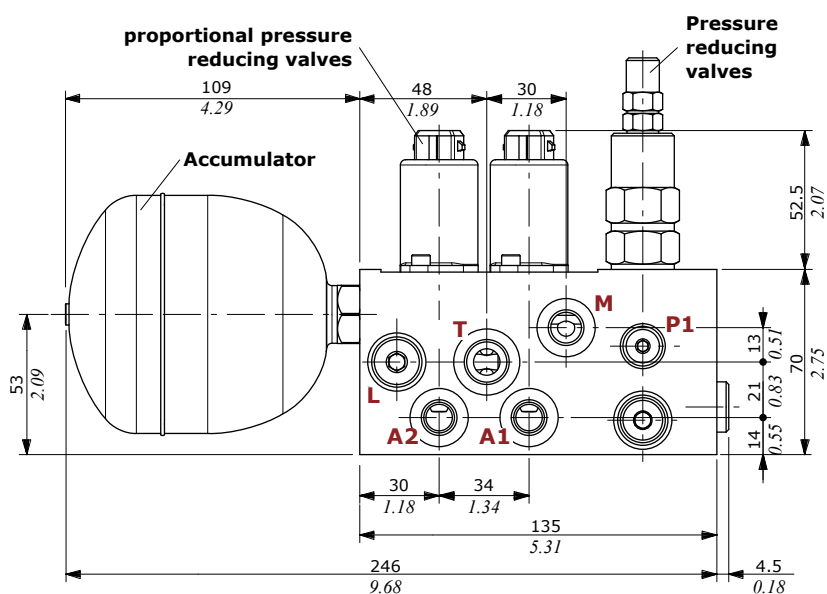
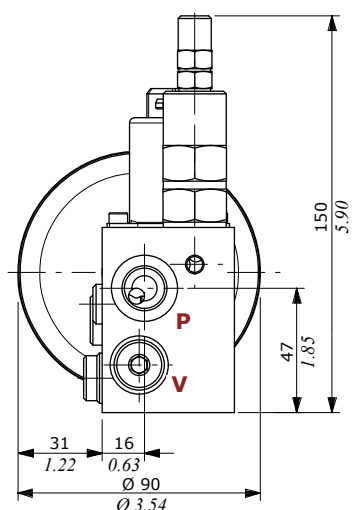
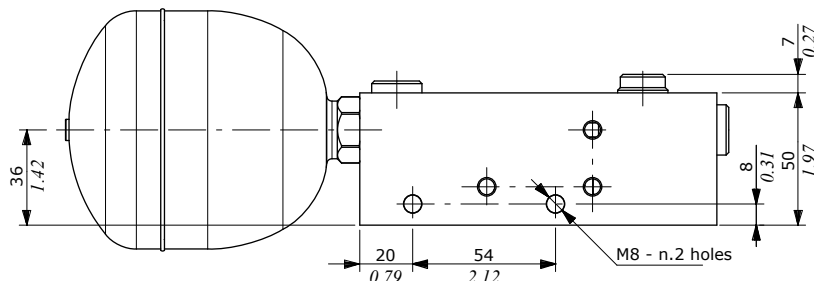
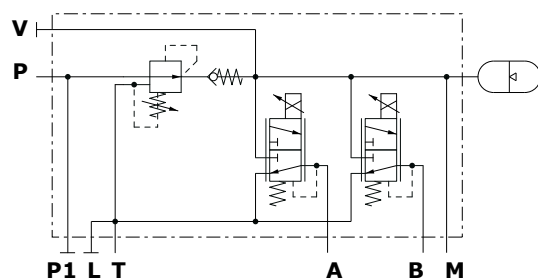
## Type FU/2 - two stages

CODE: 1992820001

TYPE: FU-AC(SAE6-11)-RB08A(35)-F-NV/2RPT2/PMA-P1-L-V-BSP-24VDC-&lt;TAP(P1LV)&gt;

DESCRIPTION: two stages, with pressure reducing valve on inlet, 0.35 l accumulator and 2 proportional pressure reducing valves for the supply and control of the pressure lines.

## Hydraulic circuit



## PORTS THREADING AND FITTINGS TIGHTENING TORQUE

| PORTS                  | Threads                        | Fitting tightening torque |      |
|------------------------|--------------------------------|---------------------------|------|
|                        | (different threads on request) | Nm                        | lbft |
| P Inlet                | BSP G 3/8                      | 42                        | 31   |
| P1 Inlet               | BSP G 1/8                      | 24                        | 17.7 |
| A, B, M, L, V Ports    | BSP G 1/4                      | 30                        | 22   |
| Outlet T               | BSP G 3/8                      | 42                        | 31   |
| Accumulator connection | 9/16-18 UNF (SAE 6)            | 30                        | 22   |

NOTE – These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finishing. The fittings manufacturer has to be consulted.

### FU series configuration examples

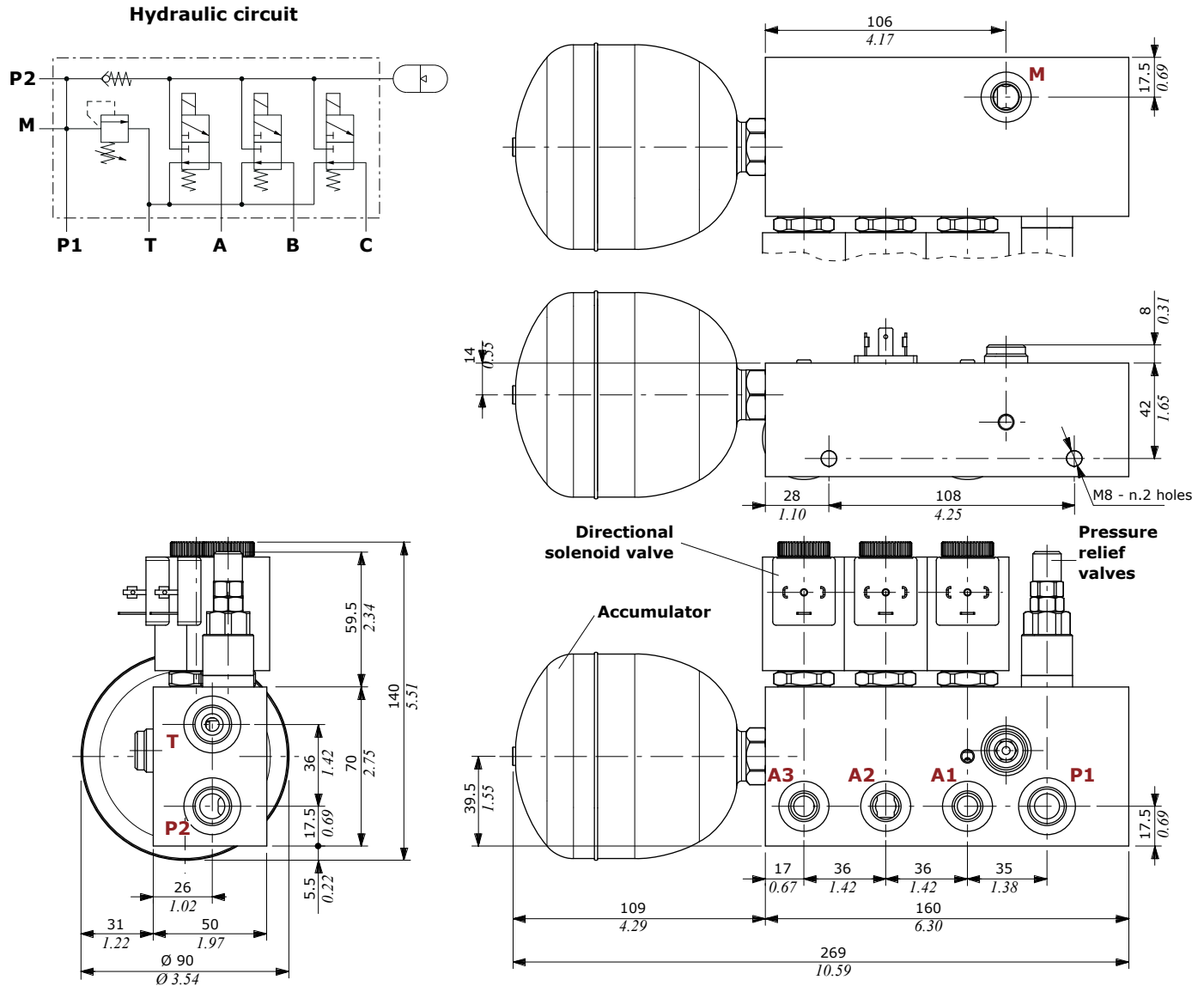
#### Type FU/3 - three stages

CODE: 1992830000

TYPE: FU-AC(SAE6-11)-NR-A-VMP5JN(TB.S-35)/3-EJ08F/PMI-P2-BSP-12VDC

DESCRIPTION: three stages, with pressure relief valve on inlet, 0.35 l accumulator and 3 directional solenoid valves for the supply and control of the pressure lines.

Hydraulic circuit



#### PORTS THREADING AND FITTINGS TIGHTENING TORQUE

| PORTS                  | Threads<br>(different threads on request) | Fitting tightening torque |      |
|------------------------|-------------------------------------------|---------------------------|------|
|                        |                                           | Nm                        | lbft |
| P1 inlet               | BSP G 3/8                                 | 42                        | 31   |
| P2 inlet               | BSP G 3/8                                 | 42                        | 31   |
| A1, A2, A3, M ports    | BSP G 1/4                                 | 30                        | 22   |
| T outlet               | BSP G 3/8                                 | 42                        | 31   |
| Accumulator connection | 9/16-18 UNF (SAE 6)                       | 30                        | 22   |

NOTE – These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finishing. The fittings manufacturer has to be consulted.

## FU series configuration examples

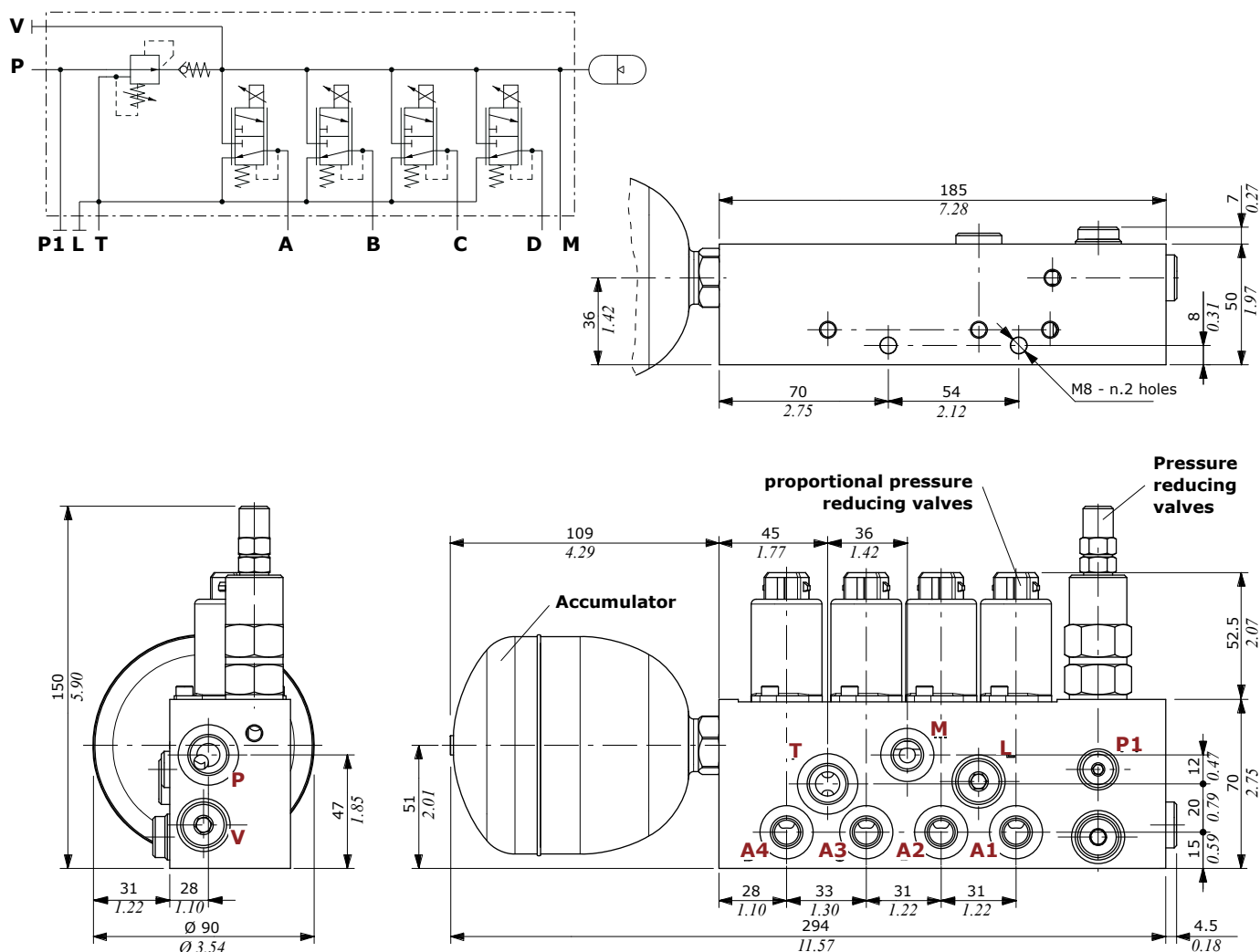
## Type FU/4 - four stages

CODE: 1992840000

TYPE: FU-AC(SAE6-11)-RB08A(35)-F-NV/4RPT2/PMA-P1-L-V-BSP-24VDC-&lt;TAP(P1LV)&gt;

DESCRIPTION: four stages, with pressure reducing valve on inlet, 0.35 l accumulator and 4 proportional pressure reducing valves for the supply and control of the pressure lines.

## Hydraulic circuit



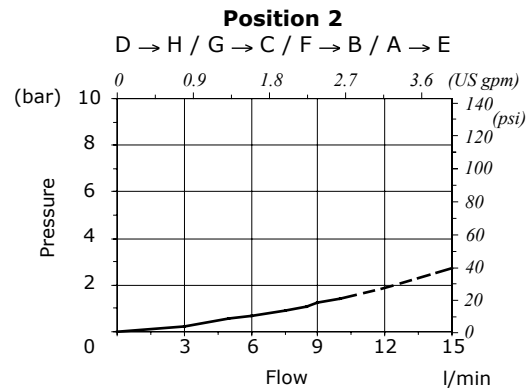
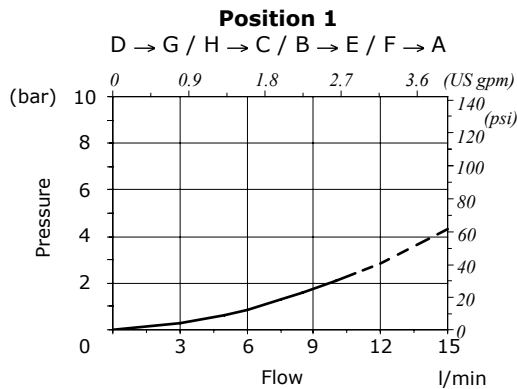
## PORTS THREADING AND FITTINGS TIGHTENING TORQUE

| PORTS                     | Threads<br>(different threads on request) | Fitting tightening torque |      |
|---------------------------|-------------------------------------------|---------------------------|------|
|                           |                                           | Nm                        | lbft |
| P inlet                   | BSP G 3/8                                 | 42                        | 31   |
| P1 inlet                  | BSP G 1/8                                 | 24                        | 17.7 |
| A, B, C, D, M, L, V ports | BSP G 1/4                                 | 30                        | 22   |
| T outlet                  | BSP G 3/8                                 | 42                        | 31   |
| Accumulator connection    | 9/16-18 UNF (SAE 6)                       | 30                        | 22   |

NOTE – These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finishing. The fittings manufacturer has to be consulted.

### DHV080 diverter valve

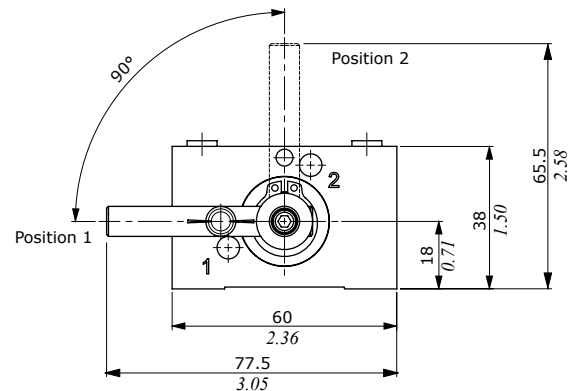
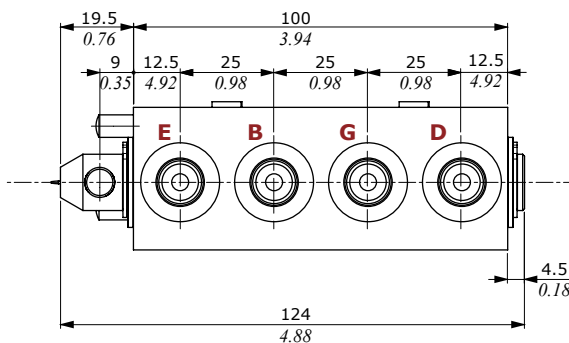
#### Pressure drop



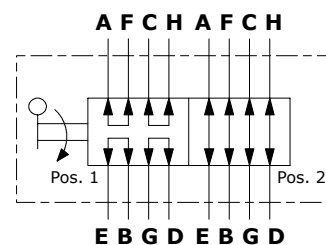
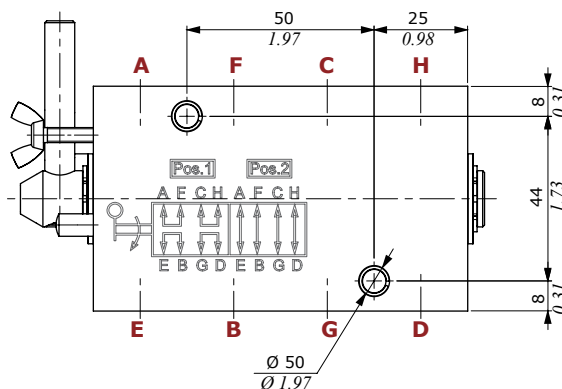
#### Dimensions and hydraulic circuit

The diverter valve is available in this configuration: **DHV080/8LN-SAE-<CVN>** code **140080002**

Supplied as standard, with one coat of primer black antirust.



#### Hydraulic circuit



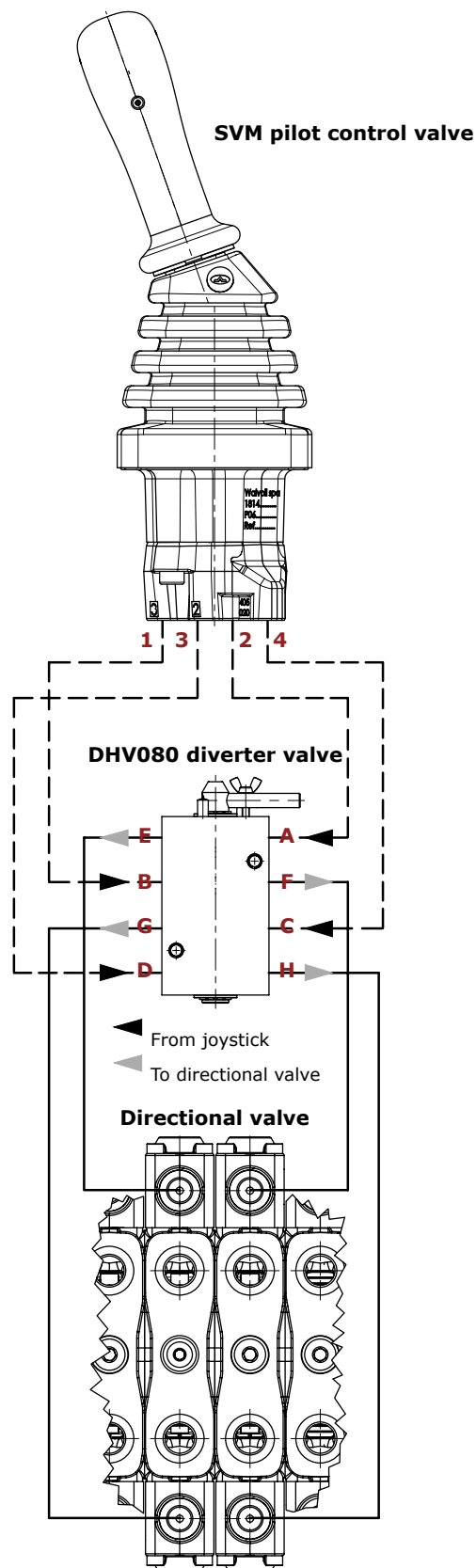
#### PORT THREADING AND FITTING TIGHTENING TORQUE

| PORTS                        | Threads |                       | Fitting tightening torque |       |
|------------------------------|---------|-----------------------|---------------------------|-------|
|                              | BSP     | UN-UNF                | Nm                        | lbft  |
| A, B, C, D, E, F, G, H ports | G 1/4   | 7/16-20 UNF-2B (SAE4) | 30                        | 22.13 |

NOTE – These torque are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish. The manufacturer shall be consulted.

## DHV080 diverter valve

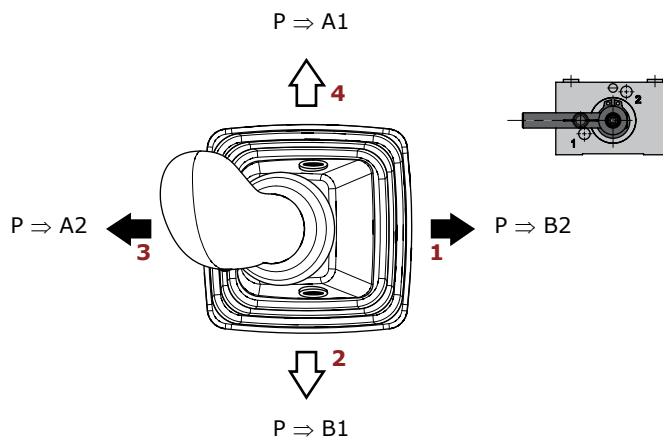
## Typical application



## Joystick movement

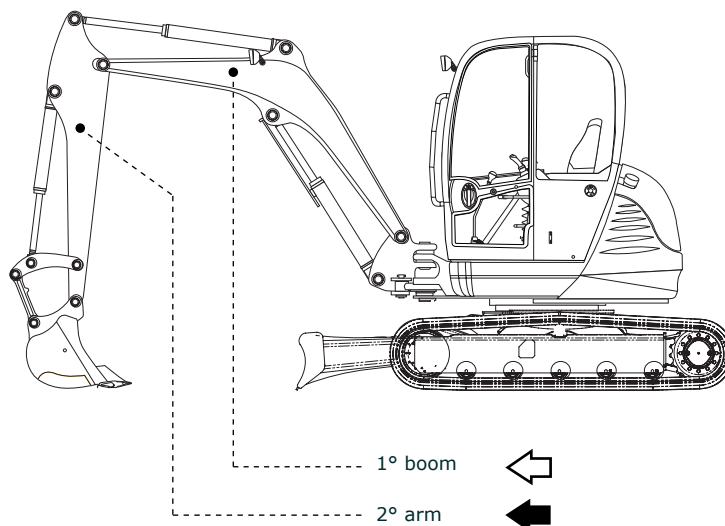
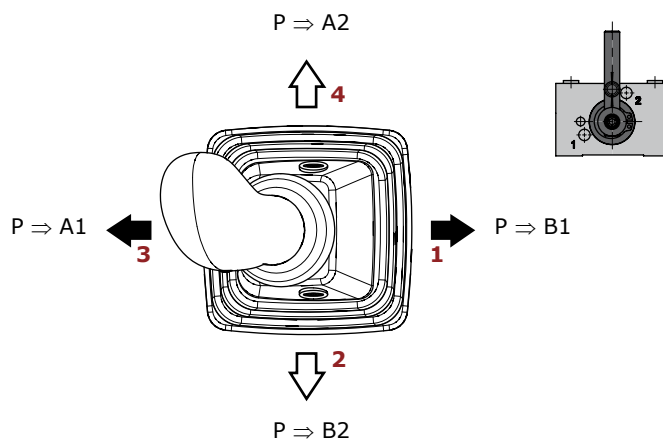
## Diverter valve in position 1

Backhoe configuration



## Diverter valve in position 2

Mini-excavator configuration



## Suggested pressure control curves for hydraulic controls

Below the suggested pressure control curves for hydraulic control operating on the directional control valves.  
The list is indicative; for more informations or different curves, please refer to the SVM chapters or ask to our Sales Department.

### For monoblock directional control valves

| Hydraulic controls Type | Code*      | SD5<br>SDM110            | SDM100                   | SDM140<br>DLM140         | SDM141                   | SD11  | SD14  | SD18  |
|-------------------------|------------|--------------------------|--------------------------|--------------------------|--------------------------|-------|-------|-------|
| 8IM                     | 5IDR205071 | 00026                    |                          |                          |                          |       |       |       |
|                         | 5IDR207700 |                          | 00088                    |                          |                          |       |       |       |
|                         | 5IDR208700 |                          |                          | 00033                    | 00033                    |       |       |       |
|                         | 5IDR210700 |                          |                          |                          |                          | 00070 | 00070 |       |
|                         | 5IDR220700 |                          |                          |                          |                          |       |       | 00070 |
| 13IM                    | 5IDR205730 | 00075 (VA)<br>E0094 (VB) |                          |                          |                          |       |       |       |
|                         | 5IDR208713 |                          |                          | 00075 (VA)<br>E0094 (VB) | 00075 (VA)<br>E0094 (VB) |       |       |       |
| 13IMS                   | 5IDR207750 |                          | 00053 (VA)<br>E0075 (VB) |                          |                          |       |       |       |

### For sectional directional control valves

| Hydraulic controls Type | Code*        | SD6   | DLS7  | SDS100 | SD8<br>SDS140            | DLS8  | SDS150                   | SDS180 | DLS180 | SD25                     | SDS400                   |
|-------------------------|--------------|-------|-------|--------|--------------------------|-------|--------------------------|--------|--------|--------------------------|--------------------------|
| 8IM                     | 5IDR206710   | 00075 |       |        |                          |       |                          |        |        |                          |                          |
|                         | 5IDR207700   |       |       | 00088  |                          |       |                          |        |        |                          |                          |
|                         | 5IDR208700   |       |       |        | 00033                    |       |                          |        |        |                          |                          |
|                         | 5IDR216710   |       |       |        |                          |       | 00033                    | 00033  |        |                          |                          |
|                         | 5IDR225770   |       |       |        |                          |       |                          |        |        | 00053                    |                          |
| 8IMS                    | 5IDR208700   |       |       |        |                          |       |                          |        |        |                          | 00028                    |
|                         | 5IDR207720   |       |       | 00088  |                          |       |                          |        |        |                          |                          |
| 8IMO                    | 5IDR208701   |       |       |        | 00033                    |       |                          |        |        |                          |                          |
|                         | 5IDR225700   |       |       |        |                          |       |                          |        |        | 00033                    |                          |
| 8IMOH                   | 5IDR216702-H |       |       |        |                          |       | 00033                    | 00033  |        |                          |                          |
| 8IMF3                   | 5IDR207010   |       | 00033 |        |                          |       |                          |        |        |                          |                          |
|                         | 5IDR207710   |       |       | 00088  |                          |       |                          |        |        |                          |                          |
|                         | 5IDR208720   |       |       |        |                          | 00021 |                          |        |        |                          |                          |
|                         | 5IDR216711   |       |       |        |                          |       |                          | 00033  |        |                          |                          |
| 13IM                    | 5IDR208713   |       |       |        | 00075 (VA)<br>E0075 (VB) |       |                          |        |        |                          |                          |
|                         | 5IDR208710   |       |       |        |                          |       |                          |        |        |                          | 00010 (VA)<br>E0096 (VB) |
| 13IMO                   | 5IDR225750   |       |       |        |                          |       |                          |        |        | 00075 (VA)<br>E0075 (VB) |                          |
| 13IMPOH                 | 5IDR216714   |       |       |        |                          |       | 00075 (VA)<br>E0075 (VB) |        |        |                          |                          |

Note (\*): Codes are referred to controls with UN-UNF threading

## Suggested pressure control curves for hydraulic controls

## For Load Sensing and Flow Sharing directional control valves

| Hydraulic controls<br>Type | Code*         | DPC130 | DPC200 | DPX050                | DPX100                                         | DPX160                |
|----------------------------|---------------|--------|--------|-----------------------|------------------------------------------------|-----------------------|
| 8IM                        | 5V08130870    | 00020  |        |                       |                                                |                       |
|                            | 5V08200870    |        | 00020  |                       |                                                |                       |
|                            | 5IDR20A700V   |        |        | 00089                 |                                                |                       |
| 8IMN                       | 5IDR204702V   |        |        |                       | 00089                                          |                       |
| 8IMX                       | 5IDR20A701V   |        |        | 00028                 |                                                |                       |
| 8IMXN                      | 5IDR204701V   |        |        |                       | 00054                                          |                       |
| 8IMOHN                     | 5IDR209704V-H |        |        |                       |                                                | 00089                 |
| 8IMF3                      | 5IDR20A702V   |        |        | 00089                 |                                                |                       |
| 8IMF3N                     | 5IDR204710V   |        |        |                       | 00089                                          |                       |
| 8IMXF3                     | 5IDR20A703V   |        |        | 00028                 |                                                |                       |
| 8IMXF3N                    | 5IDR204713V   |        |        |                       | 00054                                          |                       |
| 8IMOHF3N                   | 5IDR209705V-H |        |        |                       |                                                | 00089                 |
| 13IMP                      | 5IDR20A710V   |        |        | 00089 (VA)-E0086 (VB) |                                                |                       |
| 13IMS                      | 5IDR207750V   |        |        |                       | 00053 (VA)-E0075 (VB)<br>01098 (VA)-E0086 (VB) |                       |
| 13IMP                      | 5IDR209714V   |        |        |                       |                                                | 00073 (VA)-E0073 (VB) |

Note (\*): Codes are referred to controls with UN-UNF threading

Notes





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