



Hydraulic pilot control valves and Feed units

TECHNICAL CATALOGUE



Additional information

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

WARNING!

All specifications of this catalogue 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.**

2nd edition July 2018

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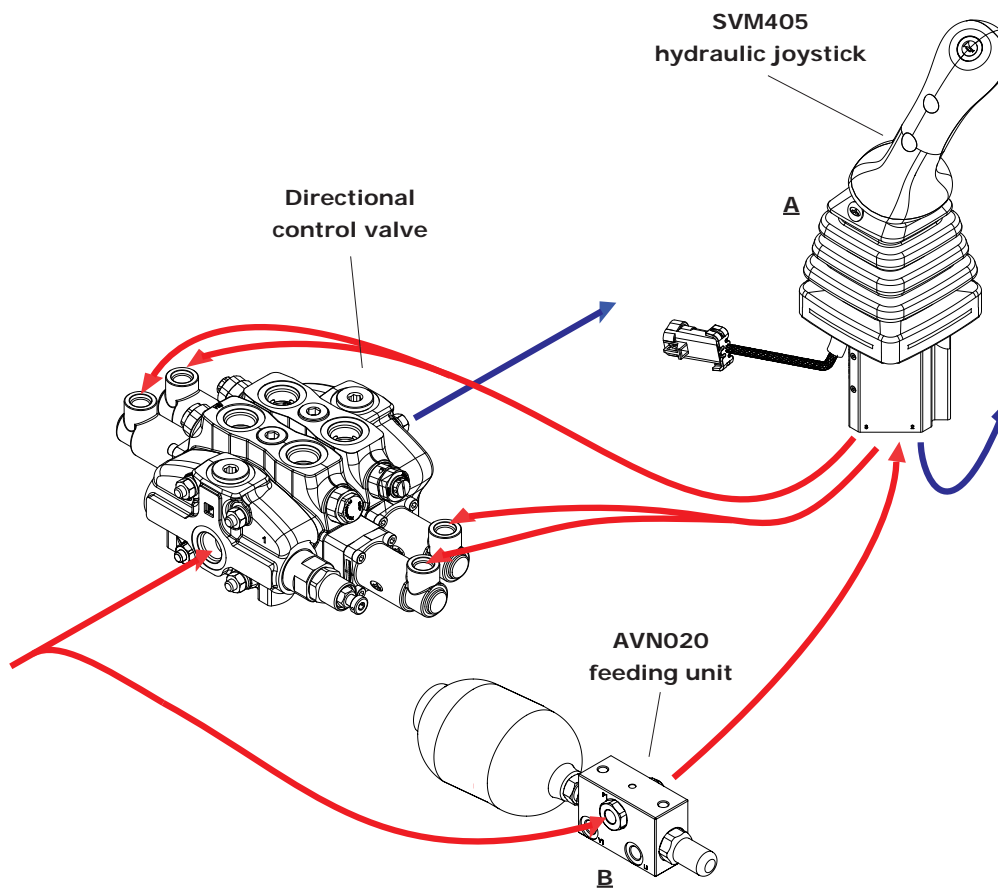
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System description

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 46mm²/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 ³ /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 ² /s - <i>from 15 to 75 cSt</i>
Viscosity	min.	12 mm ² /s - <i>12 cSt</i>
	max.	400 mm ² /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	

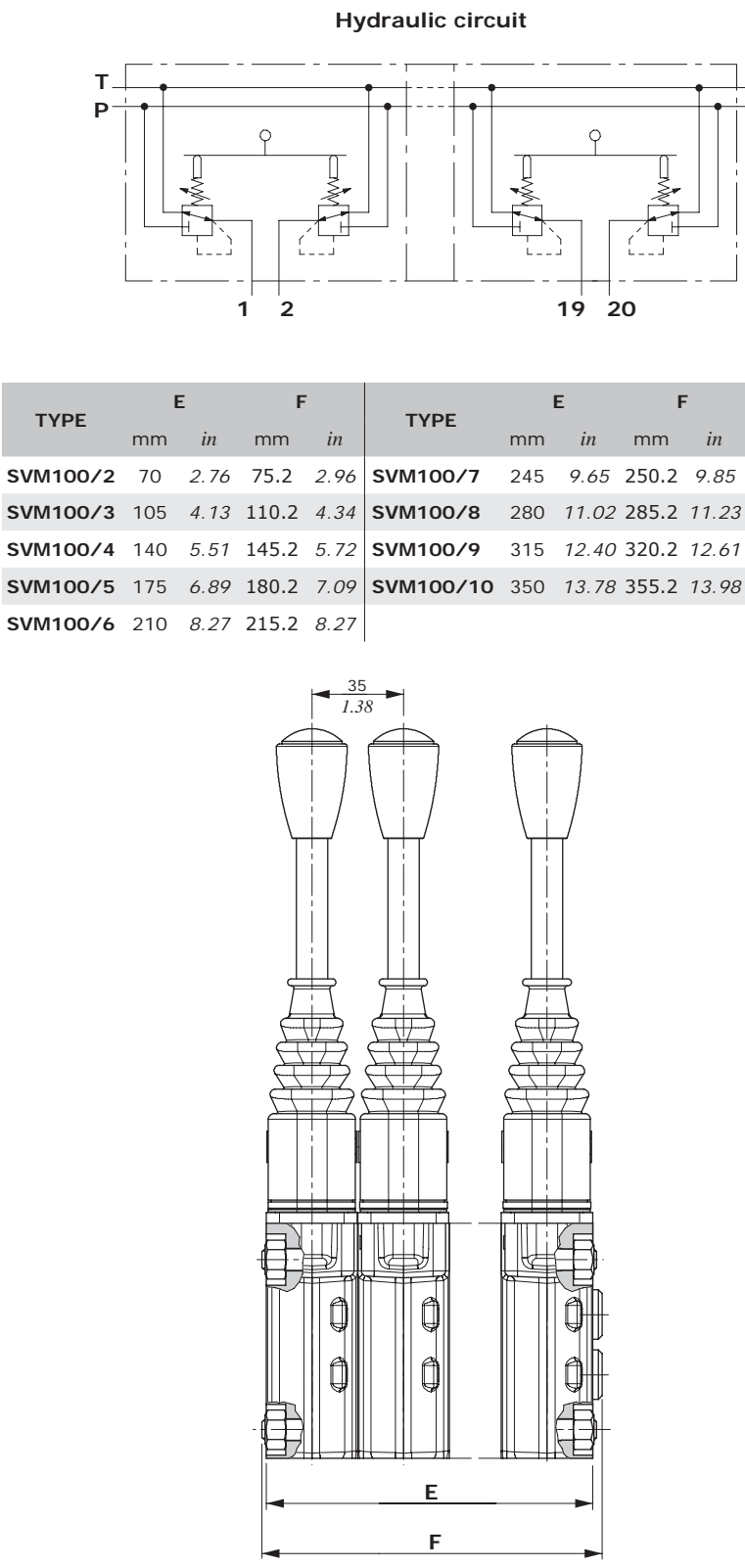
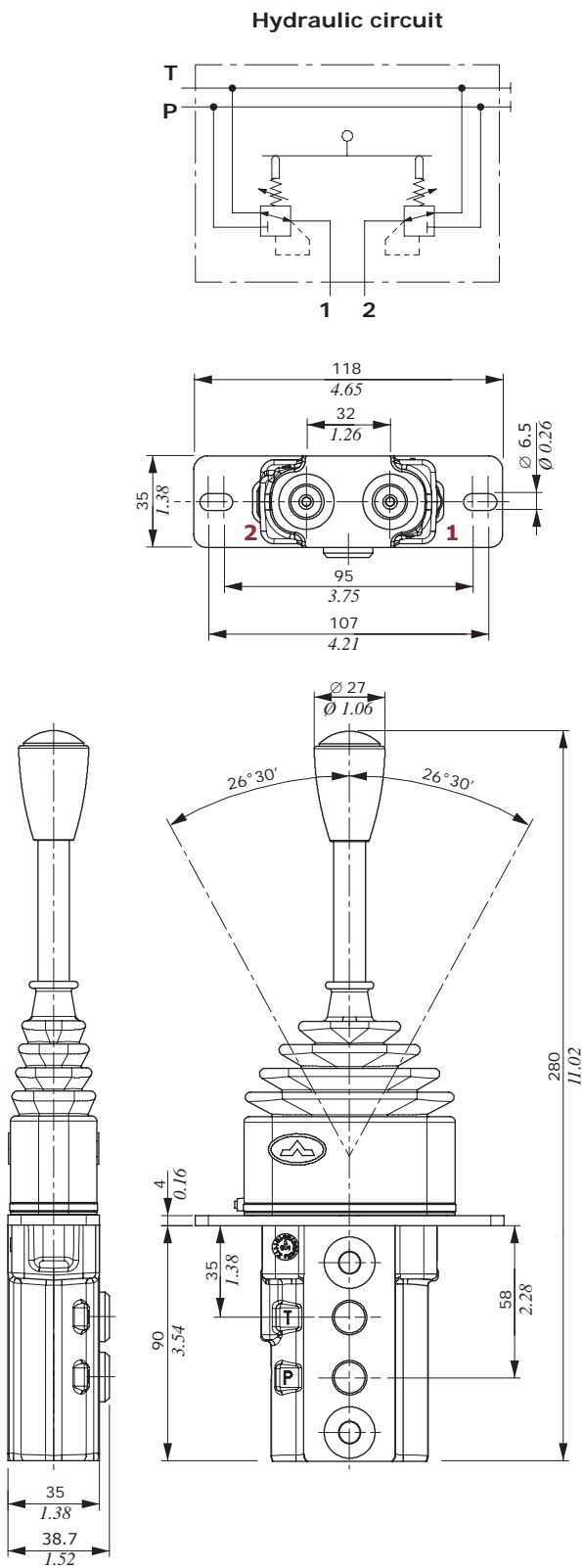
PORT THREADING

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.	SVM100/n version Multiple function configuration with side P and T ports.
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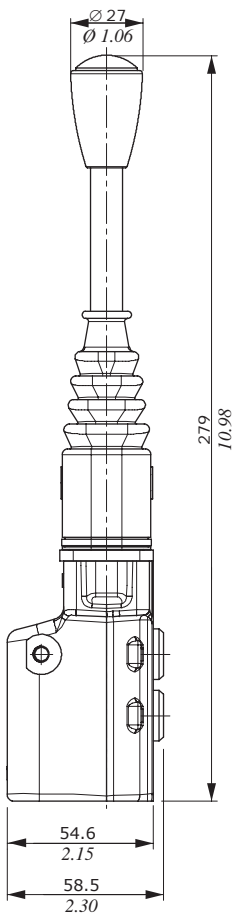
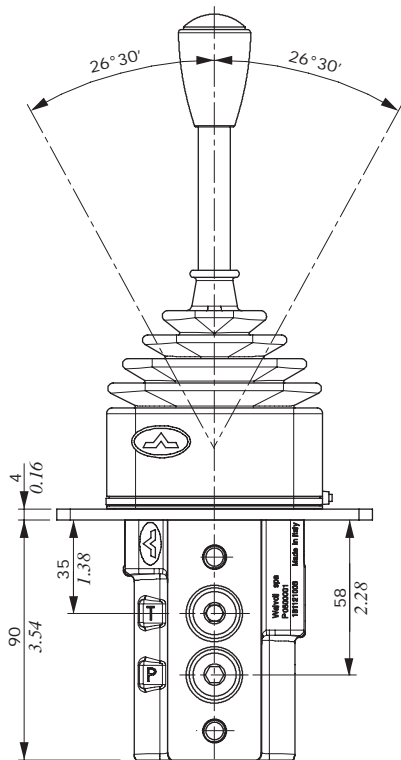
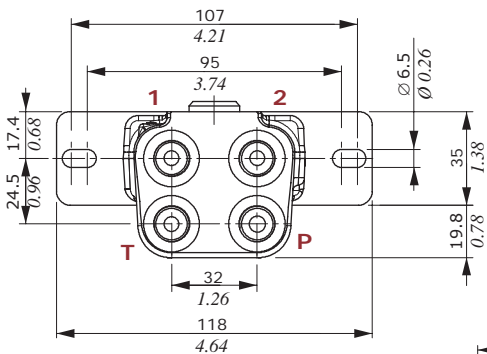
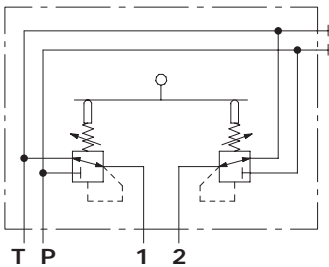


Dimensions and hydraulic circuit

SVM101 version

Single function configuration with bottom P and T ports.

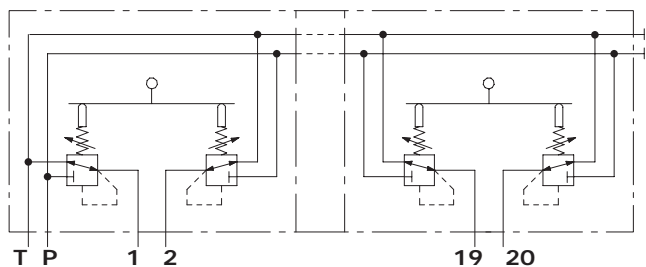
Hydraulic circuit



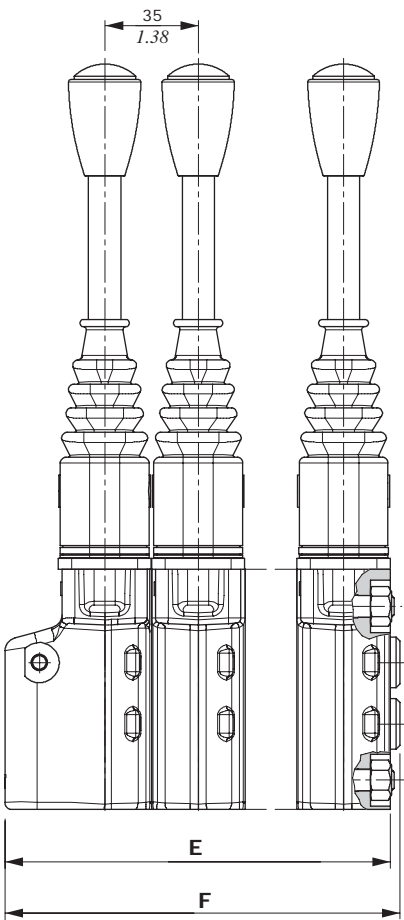
SVM101/n version

Multiple function configuration with bottom P and T ports.

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

description for 1st section: repeat the choice for following sections 2nd section Last section (max.10)

SVM100 / N - B / 01 G3 - 00001A - 0 0 001 A / /

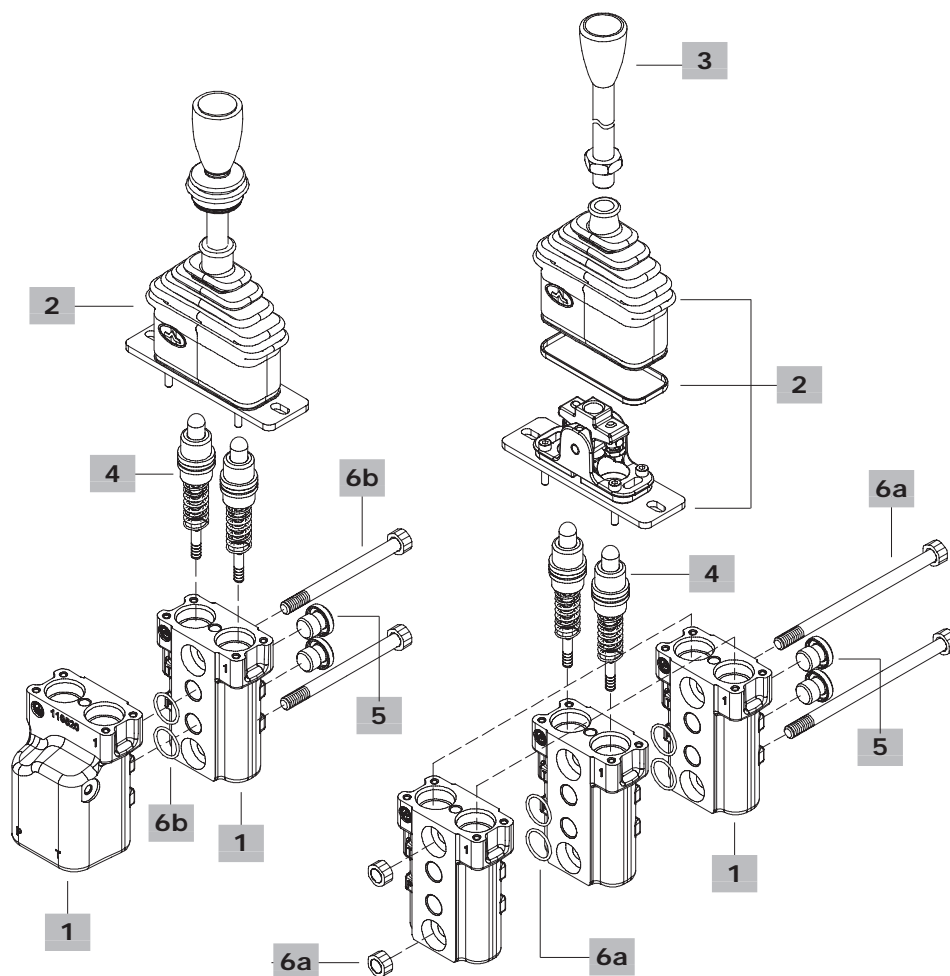
1 1 2 3 4 4.1 4.2 4.1 4.3

Substitute with number of sections

4

SVM101 / N - B / 02G3 - 00001A - 00001A / /

1 1 2



1 Body kit *

TYPE	CODE	DESCRIPTION
SVM100-B	3CO3122300	With side P and T ports
SVM101-B	3CO3122310	With bottom P and T ports

2 Control option

Complete with rubber bellow and fixing wrapper

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

02G3	5CIN102000	With detent in neutral position, spring return in neutral position and type G knob; can not be used on two adjacent sections
03G3	5CIN103000	With friction and neutral sensing, G knob
03E3	5CIN103005	As previous, E knob, 15° bending rod
03JL3	5CIN103004	As previous, L knob with version microswitch
10G3	5CIN110000	With friction and detent in neutral, G knob; can not be used on two adjacent sections
11G3	5CIN111000	Detent in 3 positions, G knob; can not be used on two adjacent sections
16G3	5CIN116000	With operation microswitch (NO), neutral sensing, spring return in neutral position, G knob
20G3	5CIN120000	Detent in position 1 and 2, friction, neutral sensing, G knob
22G3	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
Without switch:		
G3	5AST271218G	Ogival with portlight, straight rod (Standard)
G3(15)	5AST371227G	Ogival with portlight, 15° bending rod
G3(30)	5AST371228G	Ogival with portlight, 30° bending rod
E	5AST371214E	Spherical with portlight, 15° bending rod

With switch:

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

TYPE	CODE	DESCRIPTION
JJ3	5AST271218J	With spring return push-button switch
JM3	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
0	Standard

4.2 Typology of curves

TYPE	DESCRIPTION
0	With step
1	Without step
2	Piecewise with step
3	Piecewise without step

4.3 Curve identification

Progressive number, see tables from page 25

4.4 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>

5 Closing plugs *

CODE	DESCRIPTION
3XTAP719150	G1/4 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

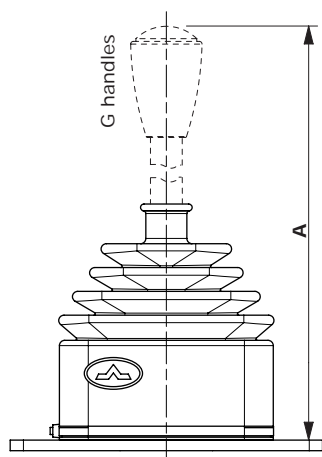
NOTE (*) – Codes are referred to **BSP** thread.

Configuration option

Controls without handlevers

Controls type

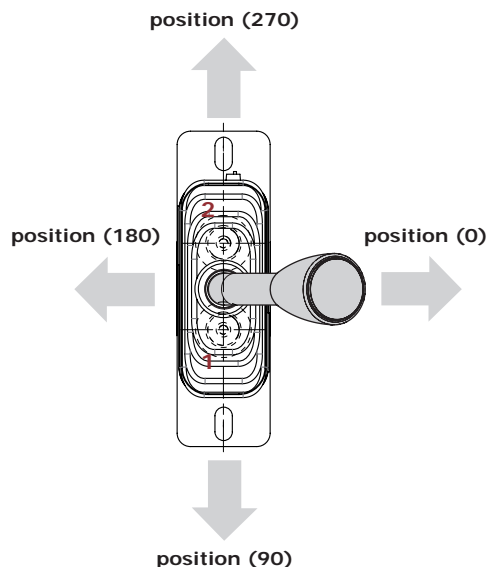
- 01:** Spring return to neutral position
05: With detent in pos. 1 and spring return in neutral position
06: With detent in pos. 2 and spring return in neutral position
07: With detent in pos. 1 and 2; spring return in neutral position



handlever type	A	
	mm	in
G3 straight rod	186	7.32
G3 15° bending rod	184	7.24
G3 30° bending rod	176	6.93
E 15° bending rod	186	7.32
JJ3 straight rod	190	7.48

Controls type

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



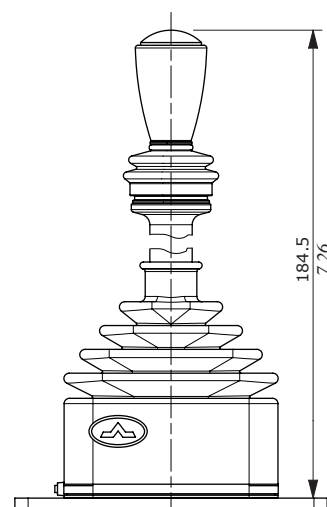
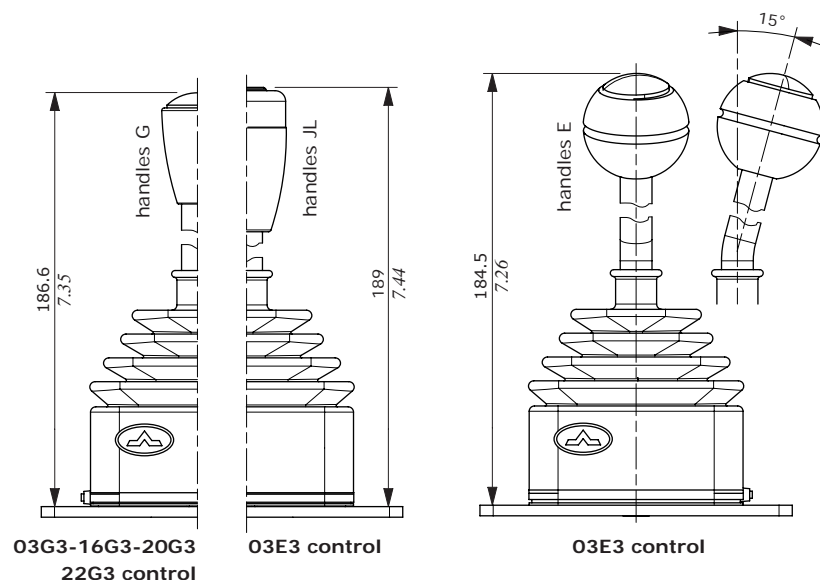
Controls with handlevers

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

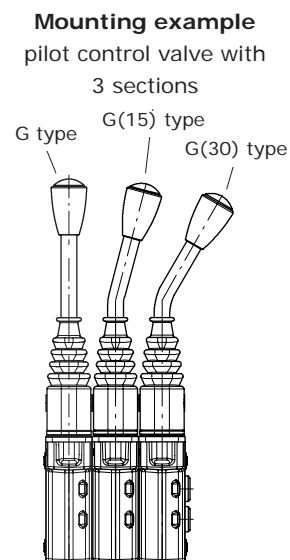
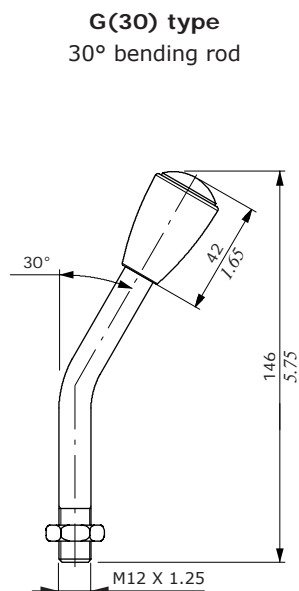
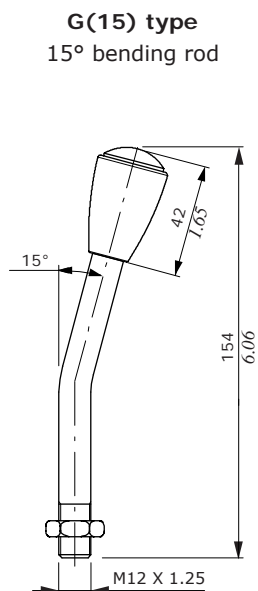
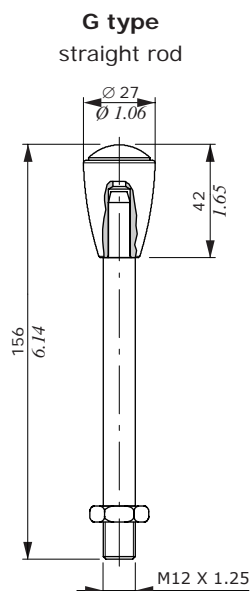


Configuration option

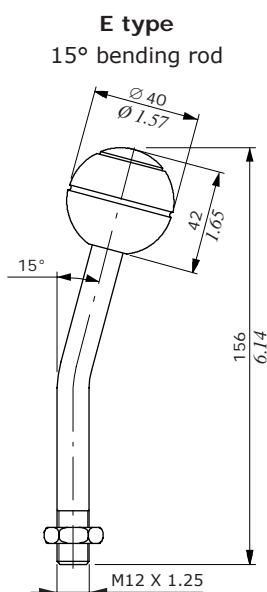
Standard handlevers without microswitch

G type

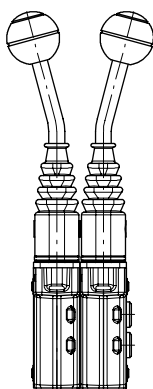
Ogival handles with customizable portlight. It's possible to insert labels with specific machine functions (for example: lifting function).

**E type**

Customizable handle as type G.



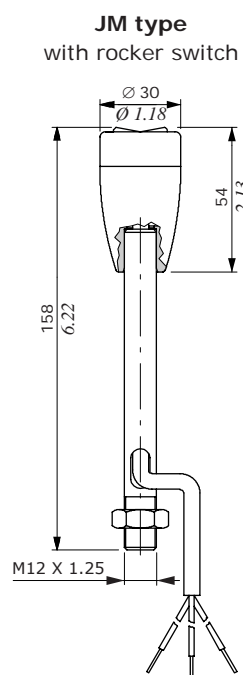
Mounting example
pilot control valve with
2 sections



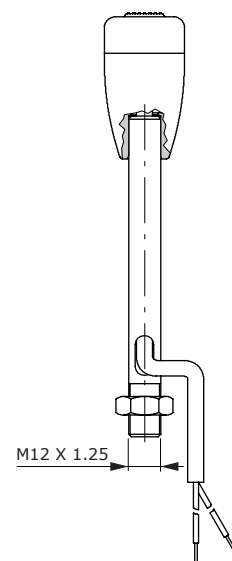
Standard handlevers with microswitch

J type

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



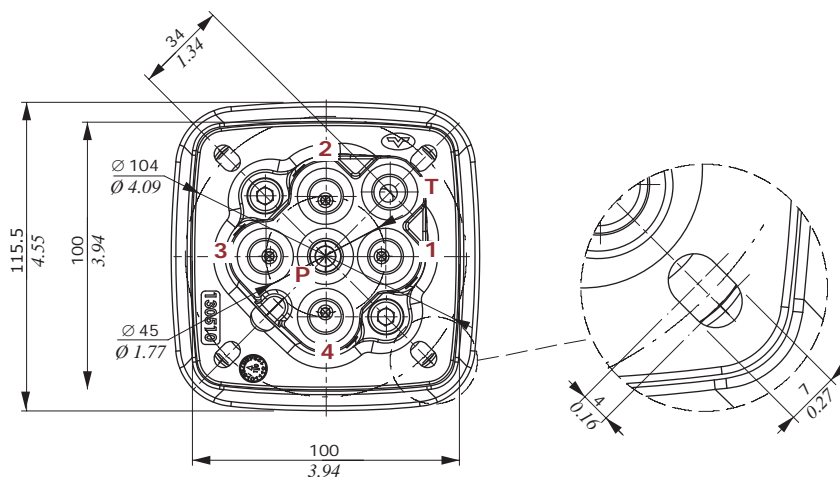
JJ type
with push-button switch



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

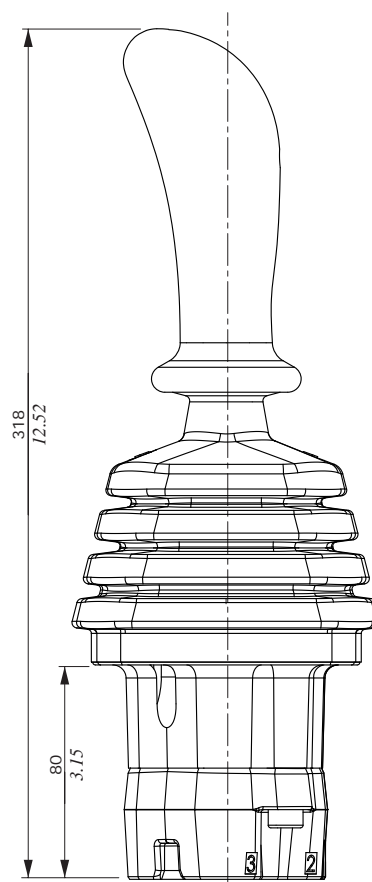
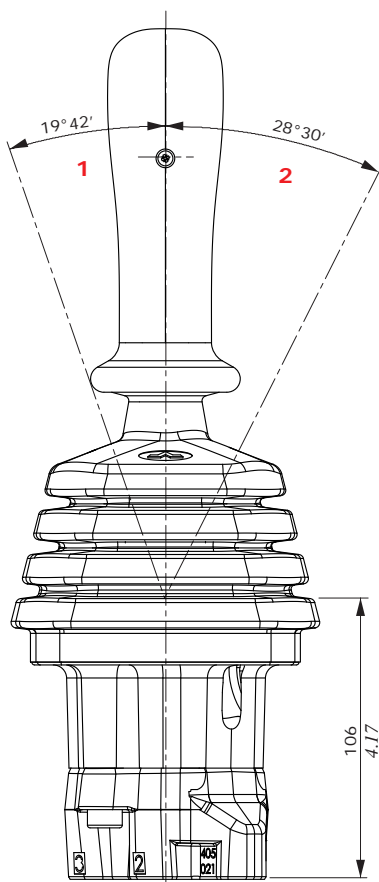
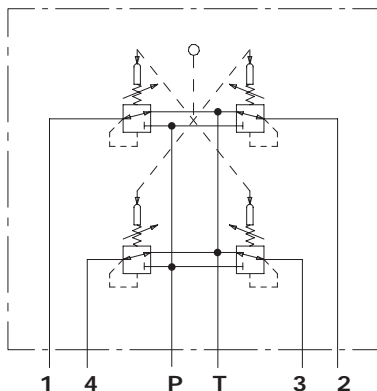
Dimensions and hydraulic circuit

SVM400



NOTE: normally the pilot control valve is supplied with the handle oriented towards port nr. 4 (see page 20)

Hydraulic circuit

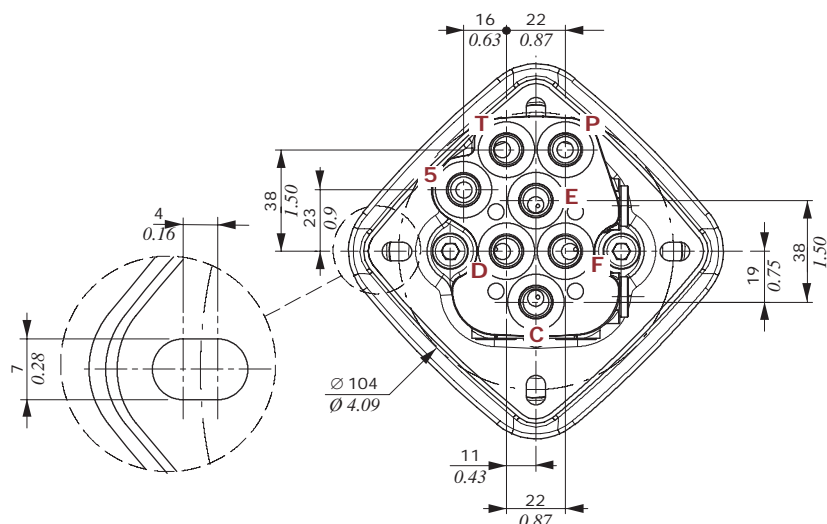


- 1 : Single work port
- 2 : Two simultaneous work ports

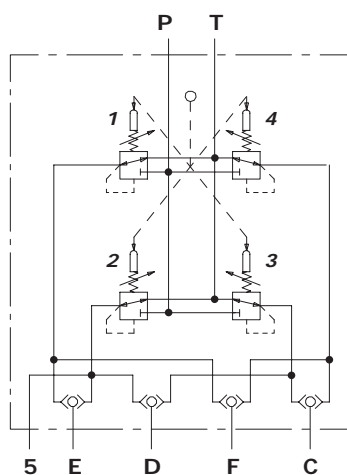
Dimensions and hydraulic circuit

SVM430

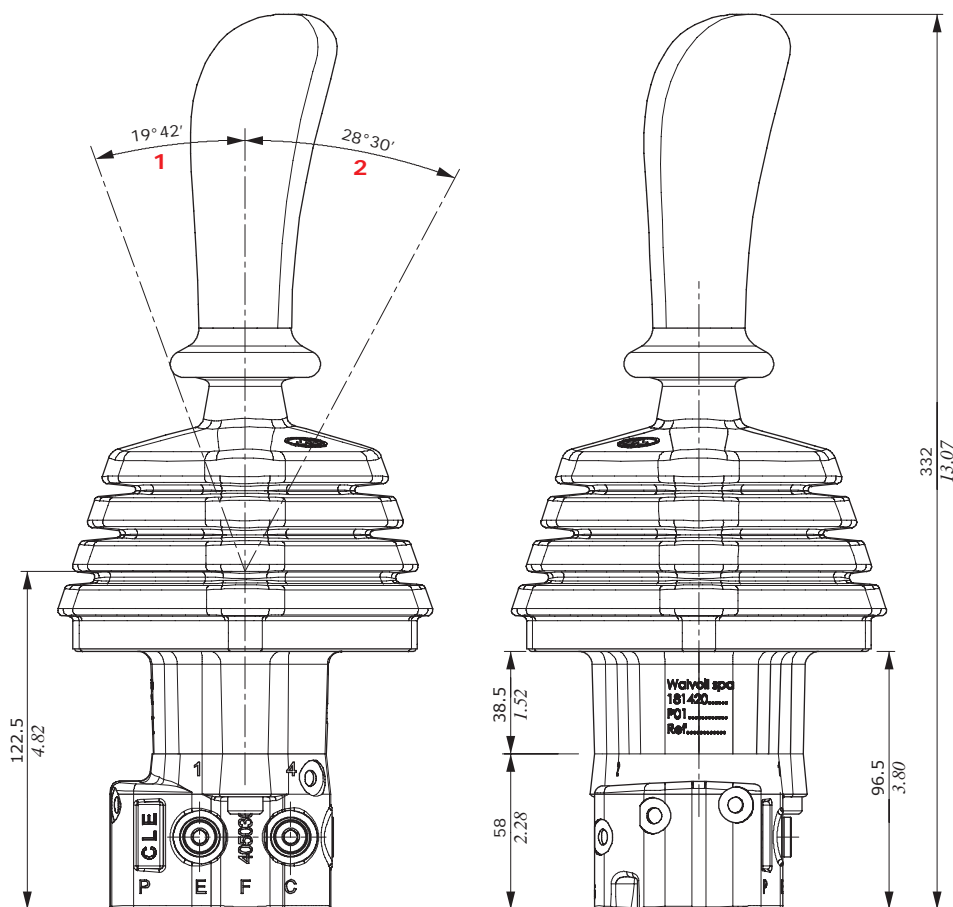
It's configured with pressure gauges (5) to get an additional output signal (ex. back-up alarm).



Hydraulic circuit



Work port 1 \Rightarrow EF port \Rightarrow right
 Work port 2 \Rightarrow ED port \Rightarrow back
 Work port 3 \Rightarrow CD port \Rightarrow left
 Work port 4 \Rightarrow CF port \Rightarrow forward

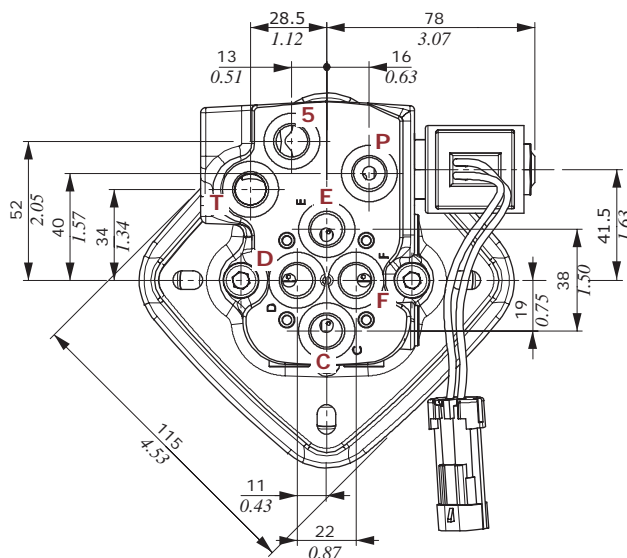


1 : Single work port
 2 : Two simultaneous work ports

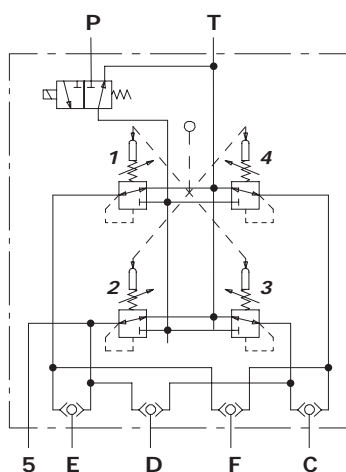
Dimensions and hydraulic circuit

SVM431

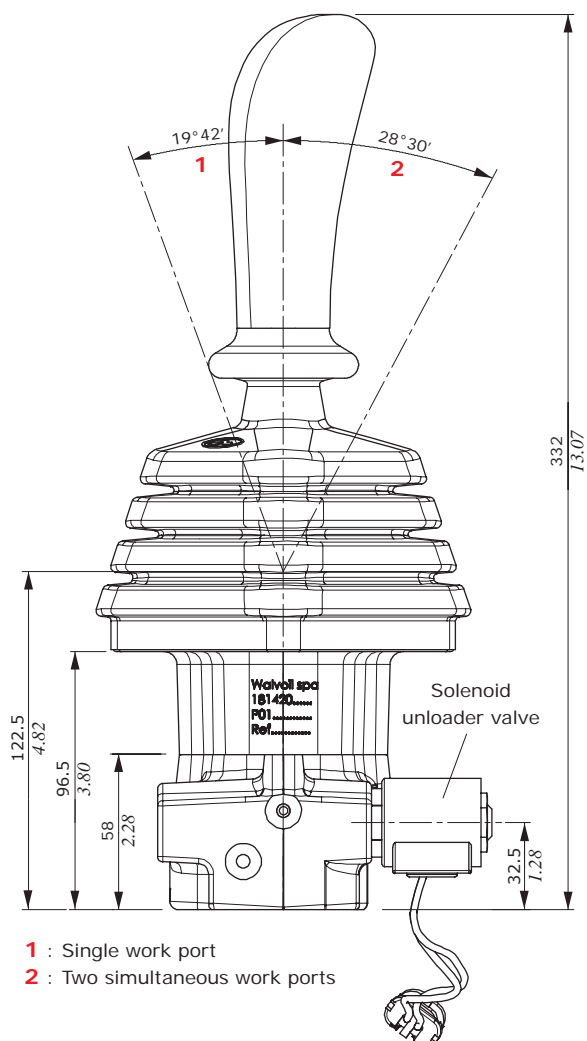
SVM431 it's configured with pressure gauges (5) to get an additional output signal with safety solenoid valve.



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**

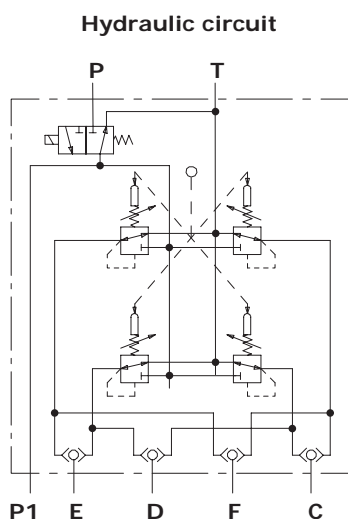
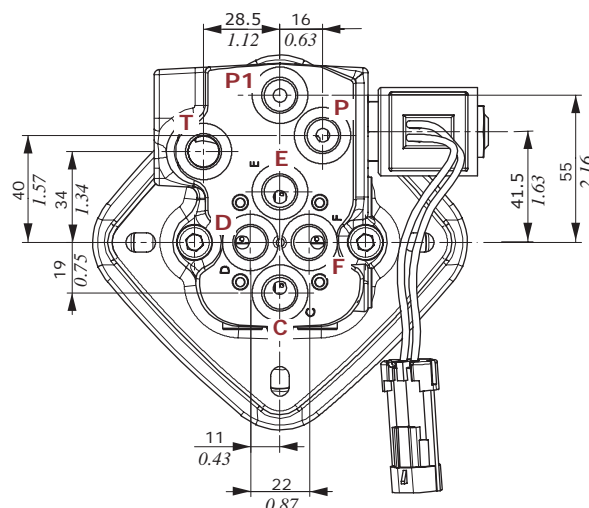


1 : Single work port
 2 : Two simultaneous work ports

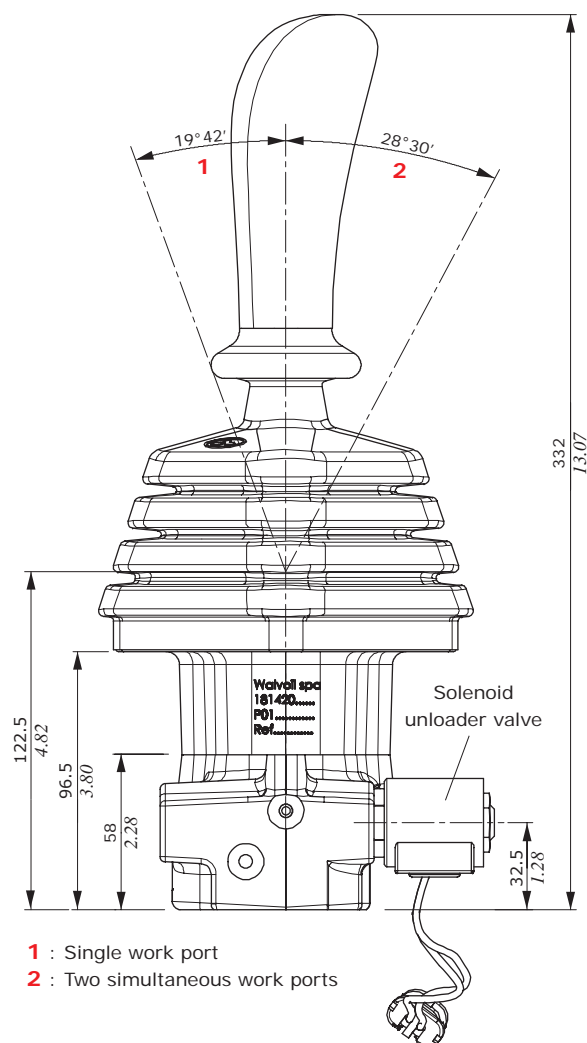
Dimensions and hydraulic circuit

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**



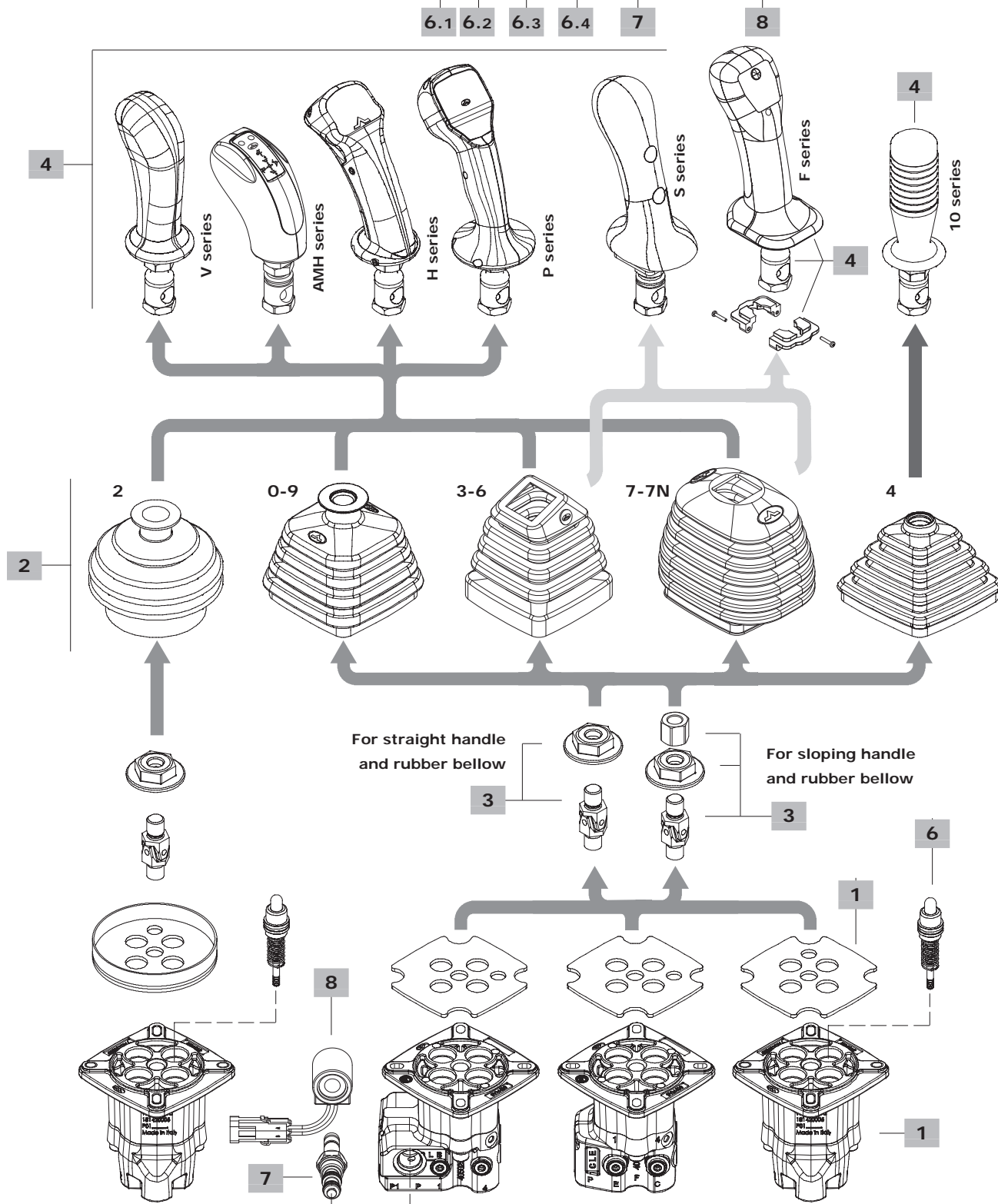
1 : Single work port
 2 : Two simultaneous work ports

Ordering codes

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

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

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



Ordering codes

1 Body kit *

TYPE	CODE	DESCRIPTION
SVM400/1-B	5C03422300	For rubber bellow square base
SVM400/3-B	5C03422300C	For rubber bellow circular base
SVM430/1-B	5C03432302	With auxiliary pressure gauge port, for rubber bellow square base
SVM431/1-B	5C03432310	With solenoid unloader valve and aux. pressure gauge port, for square base rubber bellow
SVM432/1-B	5C03432320	With solenoid unloader valve and auxiliary under-safety pressure gauge port, for square base rubber bellow

2 Rubber bellow

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

3 Control option

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

6 Pressure control curves

For list available see from page 25

6.1 Curve type

TYPE	DESCRIPTION
0	Standard

6.2 Typology of curves

TYPE	DESCRIPTION
0	With step
1	Without step
2	Piecewise with step
3	Piecewise without step

7 Solenoid unloader valve

TYPE	CODE	DESCRIPTION
ELN	2X4800100	Without emergency operation
ELT	2X4800200	With emergency operation

NOTE (*) – Codes are referred to **BSP** 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-OG4045-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

6.3 Curve identification

Progressive number, see tables from page 25

6.4 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>

8 Coil

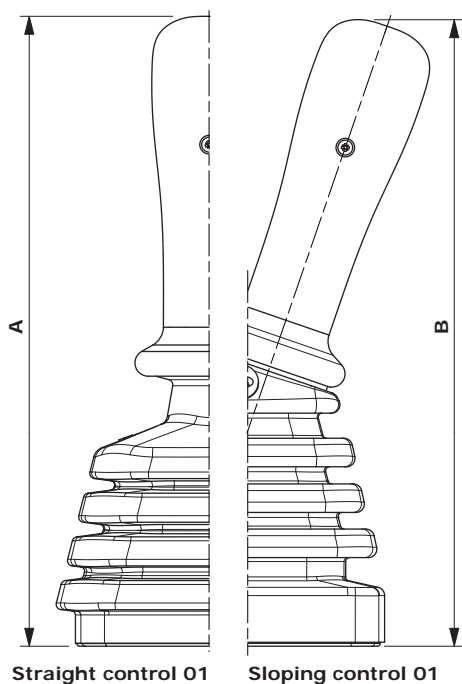
TYPE	CODE	DESCRIPTION
(D1F02)-12VDC	4SL6001200	12VDC, integrated Deutsch connector
(D1F02)-24VDC	4SL6002400	As previous 24VDC
(W1F02)-12VDC	4SL6001204	12VDC, WP Packard connector with flying leads (L = 210 mm - 8.27 in)

Configuration option-

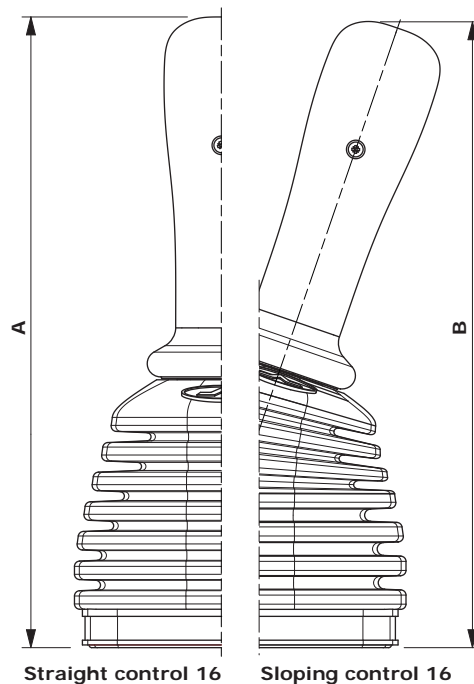
Control and handle options

Tipo 01: Spring return in neutral position.

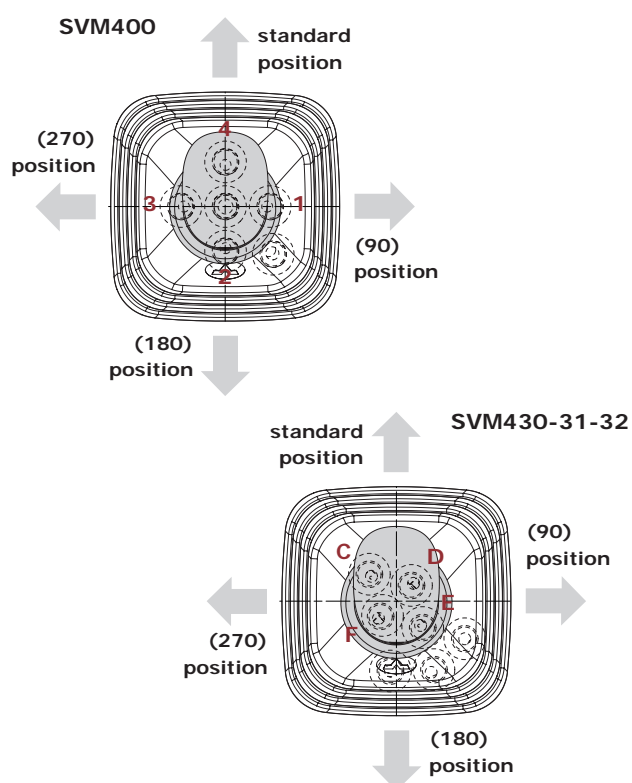
Tipo 16: With microswitches for movement detection on each port. It needs type 7 rubber bellow and special body: please contact our Sales Department.



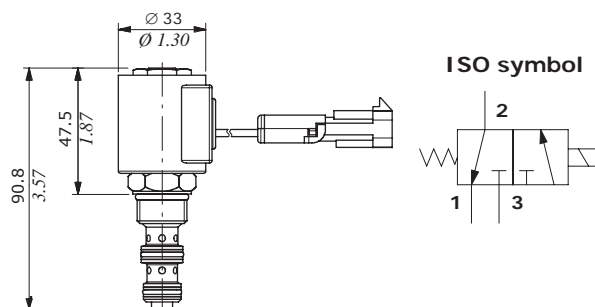
Type	A		B	
	mm	<i>in</i>	mm	<i>in</i>
V series	238	<i>9.71</i>	236	<i>9.29</i>
H series	236	<i>9.29</i>	234	<i>9.21</i>
P series	255	<i>10.04</i>	253	<i>9.96</i>
S series	251	<i>9.88</i>	248	<i>9.76</i>
10 series	222	<i>8.74</i>	/	



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 cm³/min a 207 bar
5 in³/min at 14.27 psi

on port 1 (energized coil) : 164 cm³/min at 207 bar
10 in³/min at 14.27 psi

COIL

Nominal voltage tolerance. : $\pm 15\%$

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

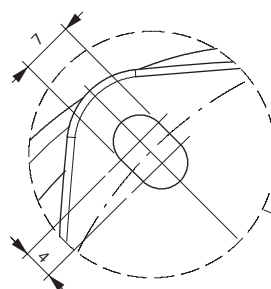
Dimensions and hydraulic circuit

Configuration with electromagnetic detent

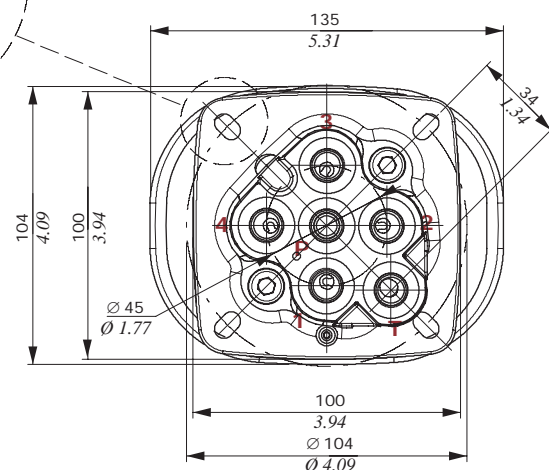
Features

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%

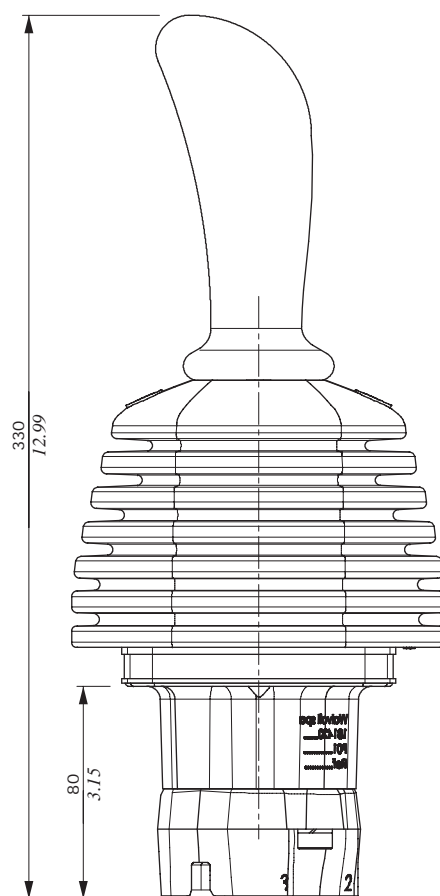
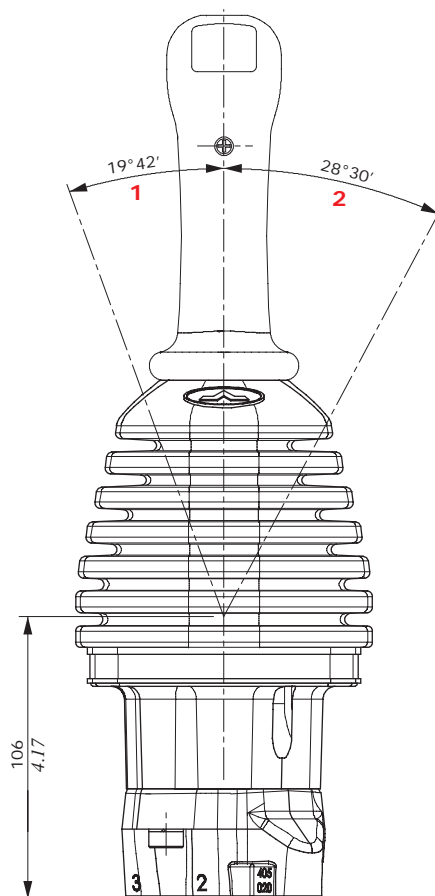
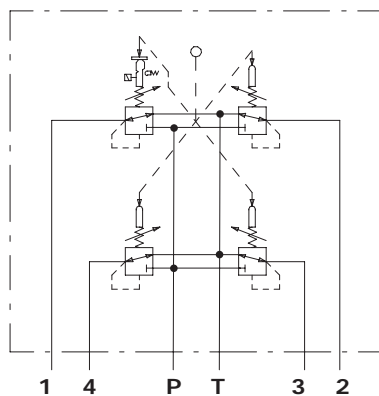


NOTE: normally the pilot control valve is supplied with the handle oriented towards port nr. 4 (see page 24)



Hydraulic circuit

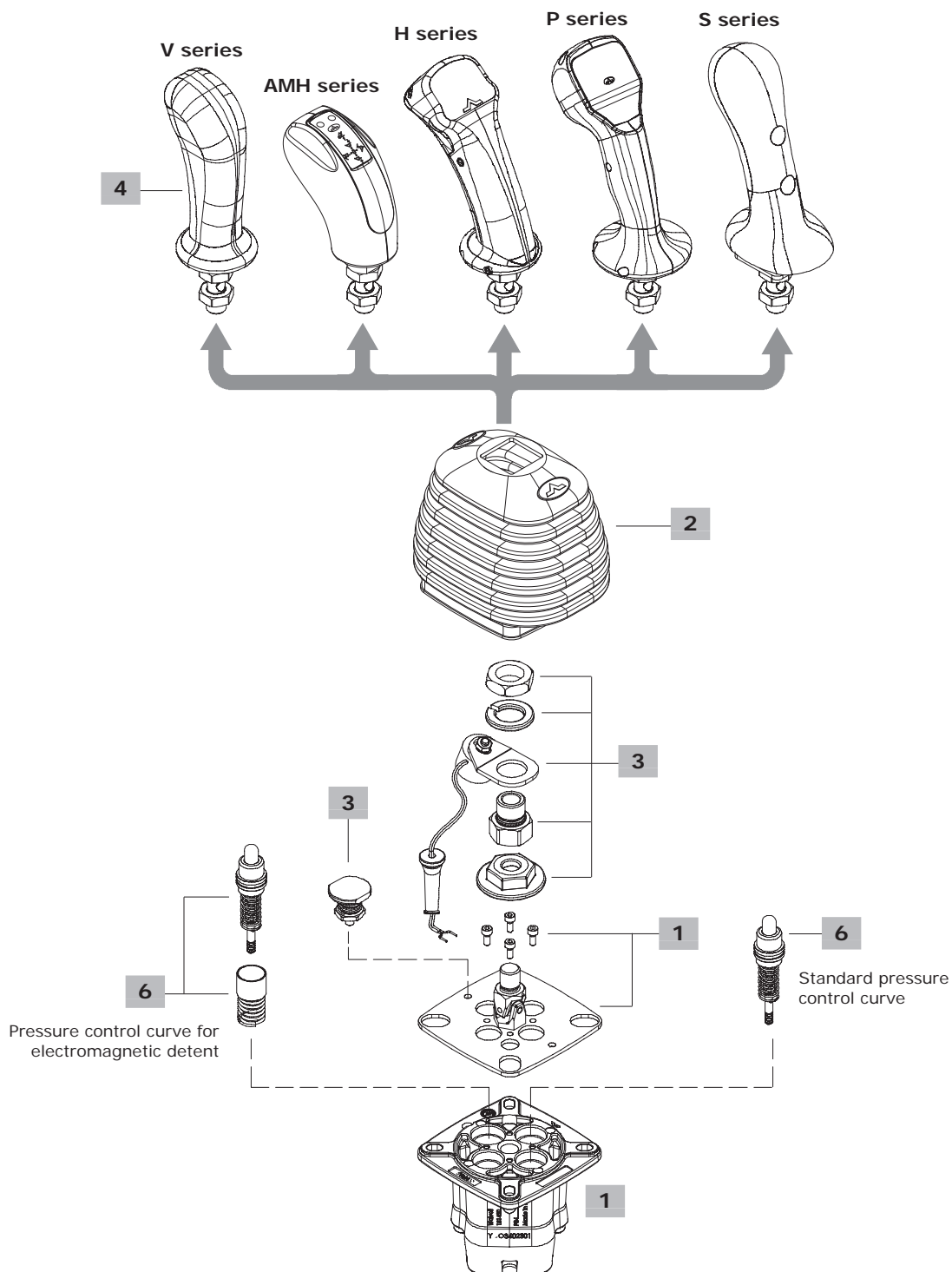
Example detent on working port 1



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

Ordering codes

Pressure control curve for electromagnetic detent										Standard pressure control curve				
SVM400-EMD1 / 7 1 - B / 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	Body is painted as standard, with one coat of primer black antirust paint
								6						



1 Body kit *

TYPE: **SVM400-EMD0/1-B** CODE: 5CO3422300
 DESCRIPTION: Without detent arrangement
 TYPE: **SVM400-EMD1/1-B** CODE: 5CO3402301
 DESCRIPTION: With detent arrangement on port 1
 TYPE: **SVM400-EMD(2-4)/1-B** CODE: 5CO3402306
 DESCRIPTION: With detent arrangement on ports 2 and 4

2 Rubber bellow

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

3 Detent configuration

Cables are supplied with wires with tin-plate terminals

TYPE	CODE	DESCRIPTION
01E0	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
(-)	STANDARD configuration, operation to work port 4: omitted in description
(90)	Mounted with 90° rotation step: operation to work port 1
(180)	Mounted with 180° rotation step: operation to work port 2
(270)	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
0	Standard
E	For electromagnetic detent, with pre-feeling

6.2 Typology of curves

TYPE	DESCRIPTION
0	With step
1	Without step
2	Piecewise with step
3	Piecewise without step

6.3 Curve identification

Progressive number, see tables from page 25

6.4 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>

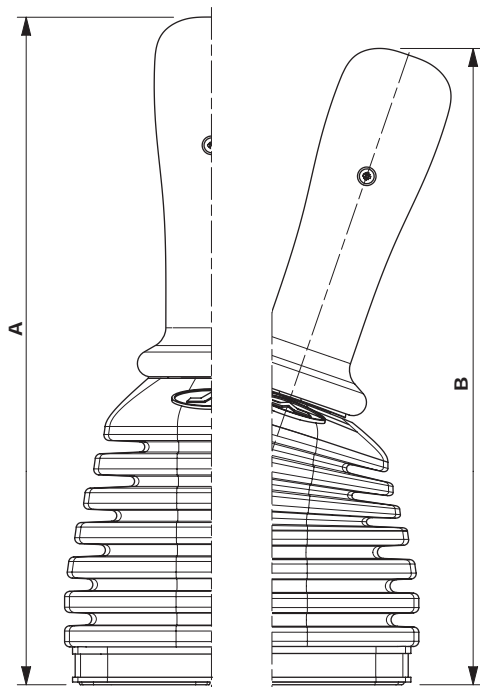
7 Connector

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 **BSP** thread.

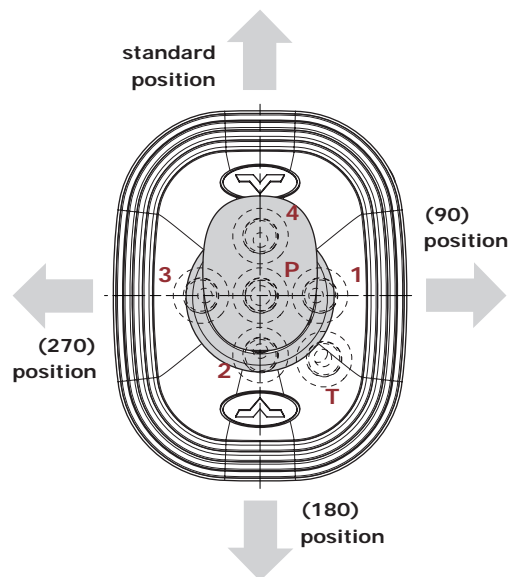
Configuration option

Handle options



Type	A		B	
	mm	in	mm	in
V series	252	9.92	240	9.45
H series	250	9.84	240	9.45
P series	268	10.55	266	10.47
S series	266	10.47	261	10.27

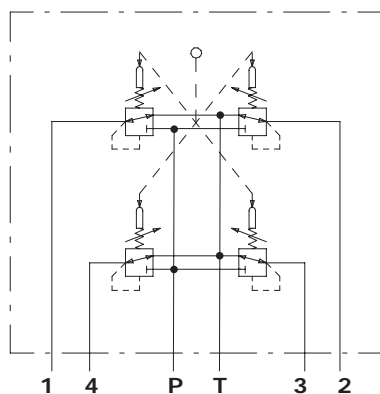
Handle positions



Detent configuration

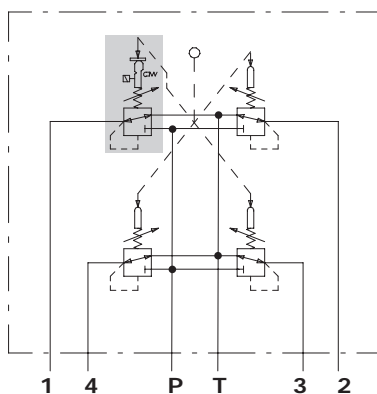
01E0 type

Spring return, without detent



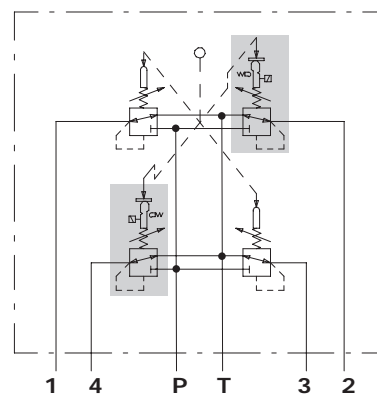
01E15 type

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



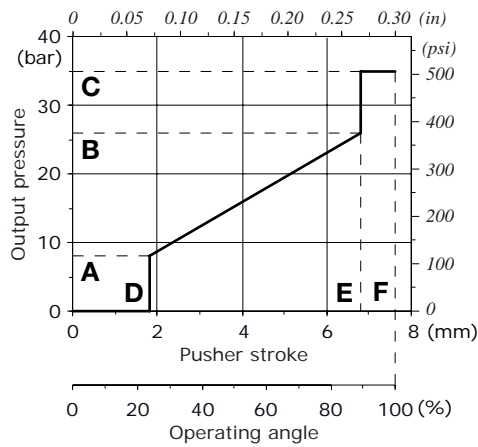
01E25 type

Detent on ports 2 and 4, spring return

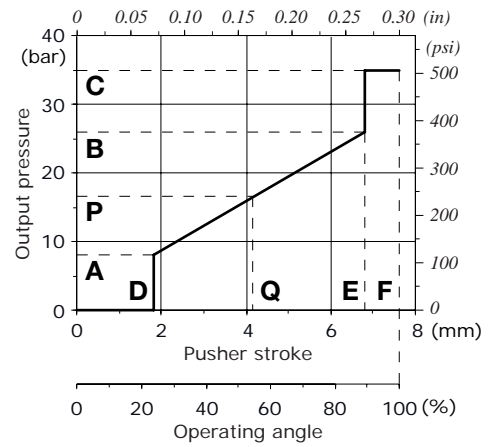


Control curves with step

00 type without pre-feeling



E0 type with pre-feeling for EM detent



Curve description		Pressure								Stroke								CODE ⁽¹⁾
		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 (+1, -0.5)	7.25 (+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 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 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 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 5CUR40032B 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 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 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 5CUR40020B 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 5CUR40004C 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 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 5CUR40028B 5CUR40028C 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 5CUR40075B 5CUR40075C 5CUR40075E 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

List continues in the next page

Control curves with step

Curve description		Pressure								Stroke								CODE ⁽¹⁾
		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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	

With Pre-feeding for electromagnetic detent

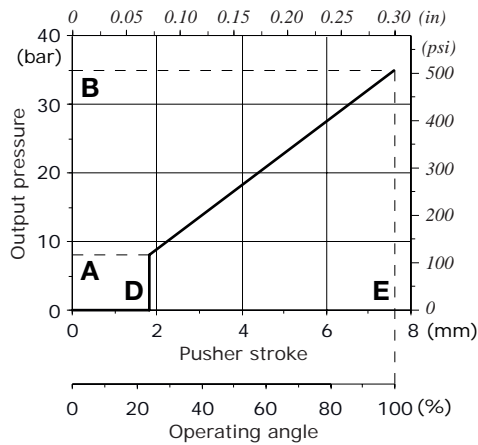
EO	063	1.4 (±0.5)	20.3 (±7.25)	11.5 (±1)	166.75 (±14.5)	12.8 (±1)	185.6 (±14.5)	35	507.5	0.85	0.03	6.5	0.25	7.25	0.28	7.6	0.30	5CUR4E063M
EO	046	2 (±0.5)	29 (±7.25)	13 (±1)	188.5 (±14.5)	14.5 (±1)	210.2 (±14.5)	35	507.5	0.85	0.03	6.5	0.25	7.25	0.28	7.6	0.30	5CUR4E046M
EO	096	3.5 (±0.5)	50.7 (±7.25)	15 (±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
EO	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 5CUR4EB09M
EO	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
EO	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 5CUR4E086M
EO	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 5CUR4E094B
EO	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 5CUR4E075M
EO	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 5CUR4E033M
EO	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
EO	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
EO	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

⁽¹⁾ indicates the curve with the specific return spring

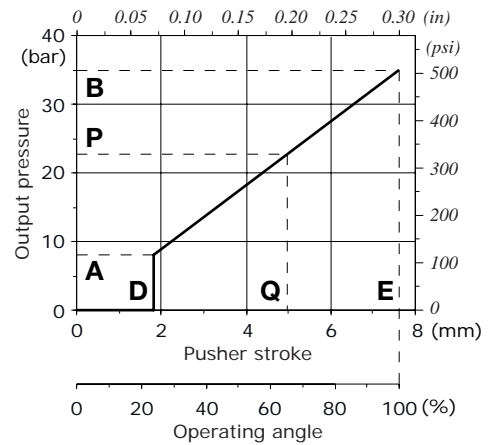
For different curves please contact our Sales Department

Control curves without step

01 type without pre-feeling



E1 type with pre-feeling for EM detent



Curve description		Pressure						Stroke						CODE ⁽¹⁾
		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 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 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 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 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 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 5CUR40157B
01	114	4 (±0.5)	58 (±7.25)			10 (±1)	145 (±14.5)	0.85	0.03			7.6	0.30	5CUR40114A 5CUR40114B 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 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 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 5CUR40111B 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 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 5CUR40103M
01	106	6 (±1)	87 (±14.5)			40 (±2)	580 (±29)	0.85	0.03			7.6	0.30	5CUR40106A 5CUR40106B 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

List continues in the next page

Control curves without step

Curve description		Pressure						Stroke						CODE ⁽¹⁾
		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

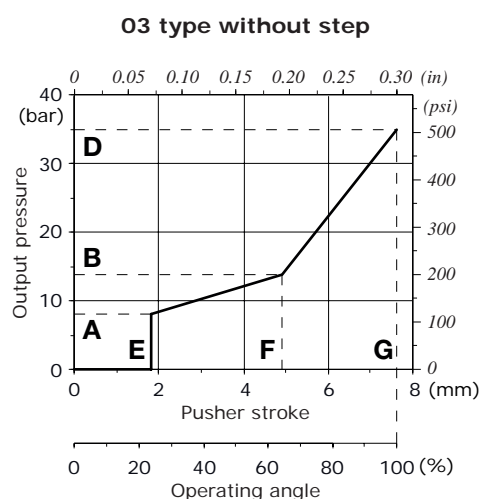
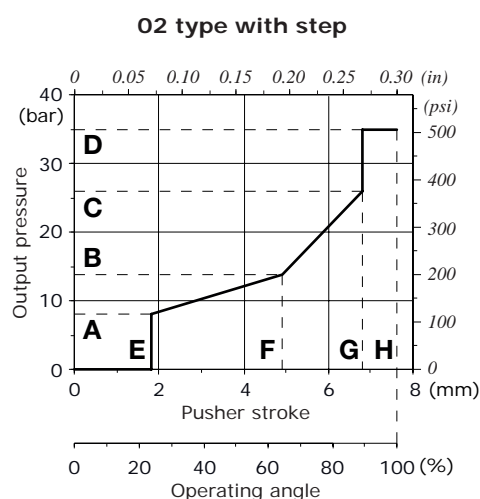
With Pre-feeling for electromagnetic detent

E1	103	6 (\pm 1)	87 (\pm 14.5)	30 (\pm 1.5)	435 (\pm 21.7)	34.7 (\pm 2)	503.1 (\pm 29)	0.85	0.03	6.5	0.25	7.6	0.30	5CUR4E103M
E1	156	3.4 (\pm 0.5)	46.3 (\pm 7.25)	14.5 (\pm 1)	210.25 (\pm 14.5)	16.7 (\pm 1)	242.15 (\pm 14.5)	0.85	0.03	6.5	0.25	7.6	0.30	5CUR4E156M

⁽¹⁾ 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 ⁽¹⁾
		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	
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	
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	

Control curve without step

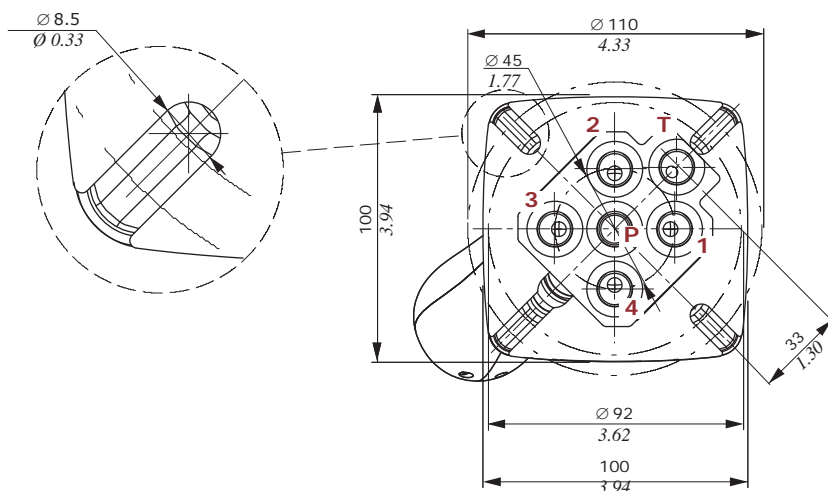
Curve description		Pressure						Stroke						CODE ⁽¹⁾
		A		B		D		E		F		G		
Type	Nr	bar (±toll)	psi (±toll)	bar (±toll)	psi (±toll)	bar	psi	mm	in	mm	in	mm	in	
03	311	1.2 (±0.5)	17.4 (±7.25)	14.7 (±2.5)	213.15 (±36.25)	22 (±2)	319 (±29)	0.85	0.03	6.6	0.26	7.6	0.30	5CUR40311B
03	300	5.1 (±0.5)	73.95 (±7.25)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

⁽¹⁾ indicates the curve with the specific spring

For different curves please contact our Sales Department

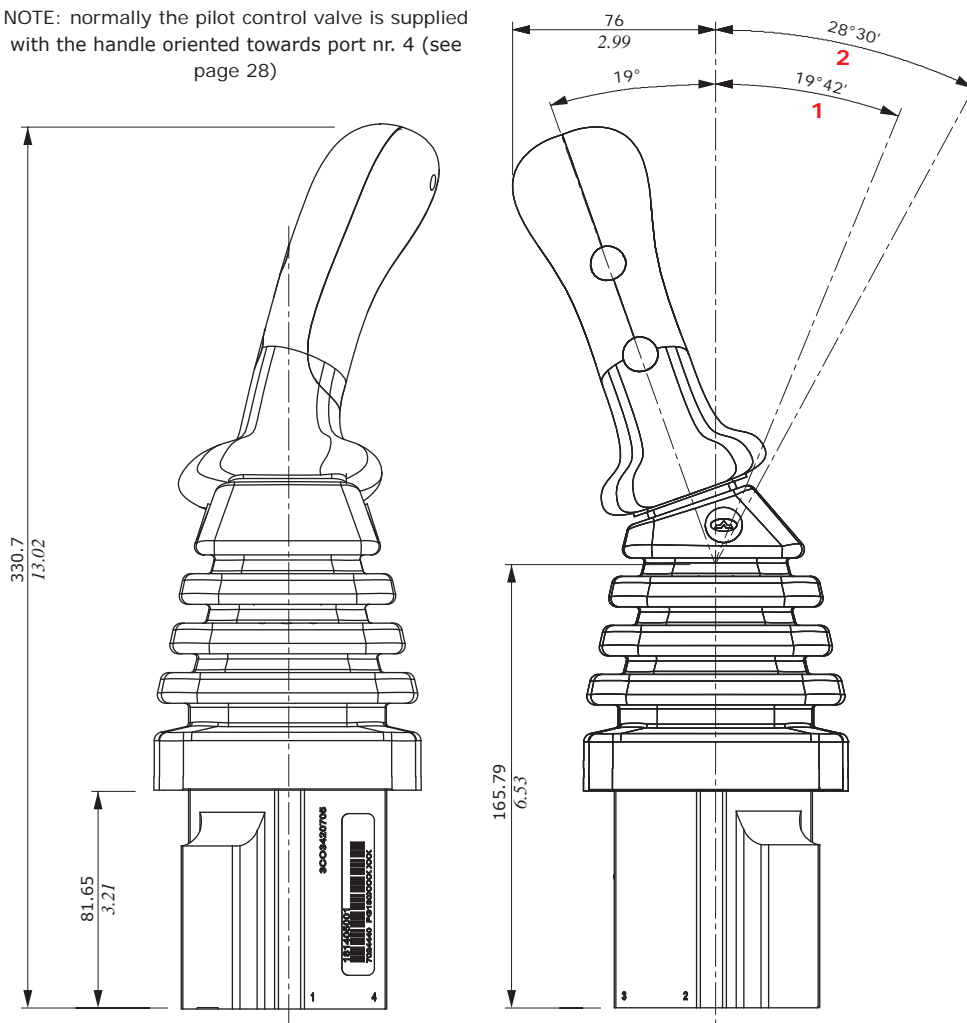
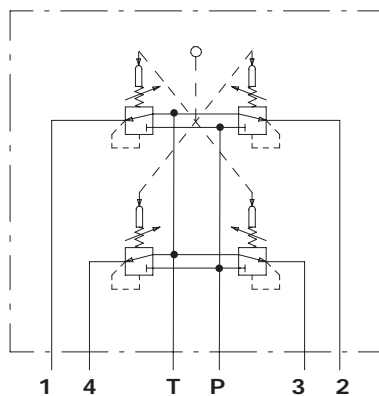
Dimensions and hydraulic circuit

Configuration with damping system.



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

Hydraulic circuit



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

Ordering codes

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

1

2

1

3

4

5

4

6.1

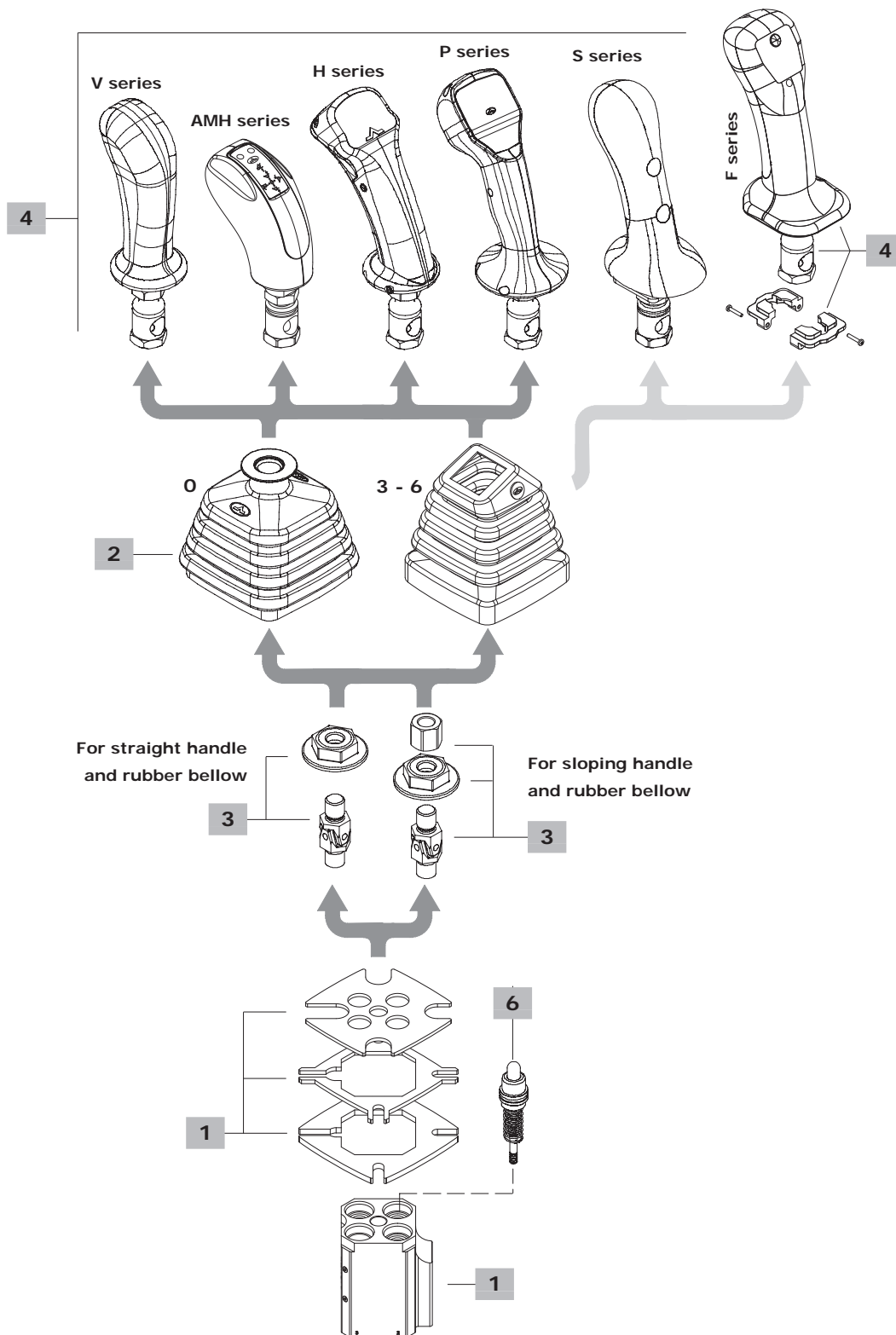
6.2

6.3

6.4

6

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



Ordering codes

1 Body kit *

TYPE	CODE	DESCRIPTION
SVM405/1-B	5C03420305	For rubber bellow square base

2 Rubber bellow

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

3 Control option

TYPE	CODE	DESCRIPTION
Spring return in neutral position		
01	5CIN4003	For V, H, P, S series handles and straight rubber bellow
	5CIN4001	For V, H, P, S series handles and sloping rubber bellow

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

16	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 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

5 Handle position

TYPE	DESCRIPTION
(-)	STANDARD configuration, cable operation on work port 4: omitted in description
(90)	Mounted with 90° rotation step: cable operation on work port 1
(180)	Mounted with 180° rotation step: cable operation on work port 2
(270)	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
0	Standard

6.2 Typology of curves

TYPE	DESCRIPTION
0	With step
1	Without step

6.3 Curve identification

Progressive number, see tables from page 33

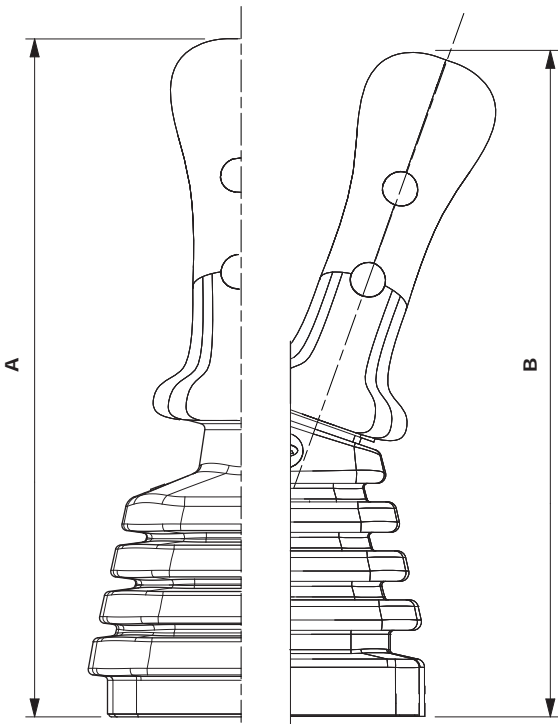
6.4 Return springs

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>

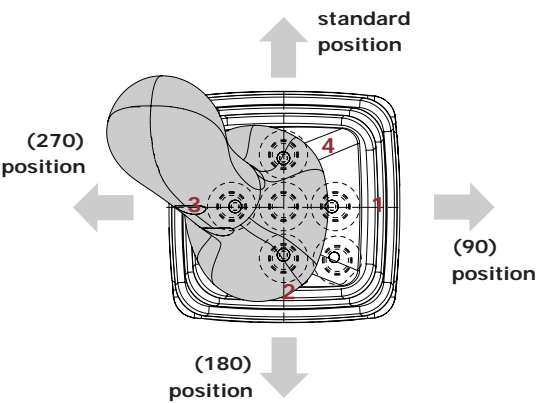
NOTE (*) – Codes are referred to **BSP** thread.

Configuration option

Handle options

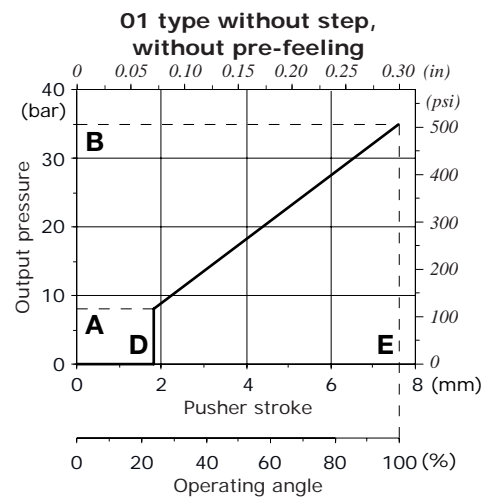
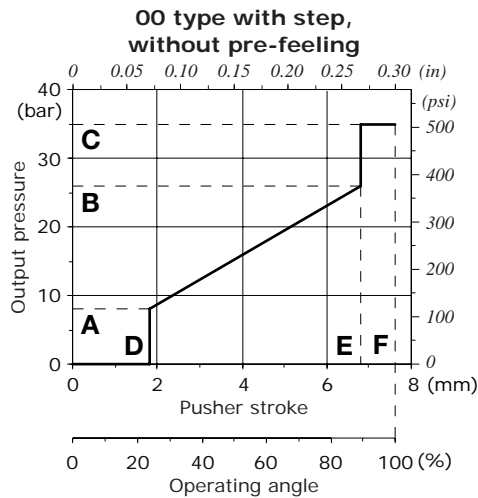


Handle positions



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 ⁽¹⁾
		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 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 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 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 5CR400089NM

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

Without step

Curve description		Pressure				Stroke				CODE ⁽¹⁾
Tipo	Nr	A		B		D		E		
		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

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

Notes

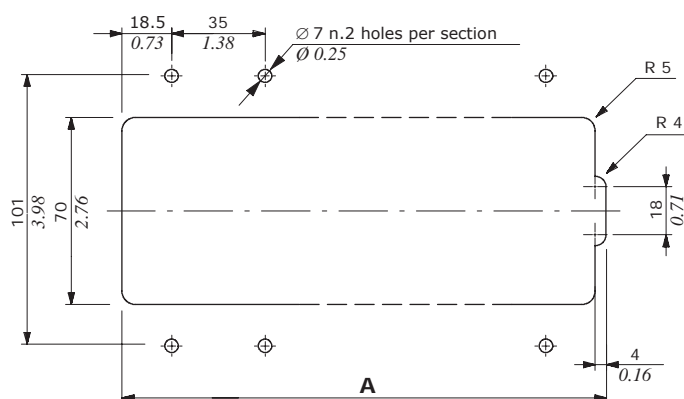
SVM pilot control valves assembled and tested as per the technical specification of this catalogue.

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 levers.

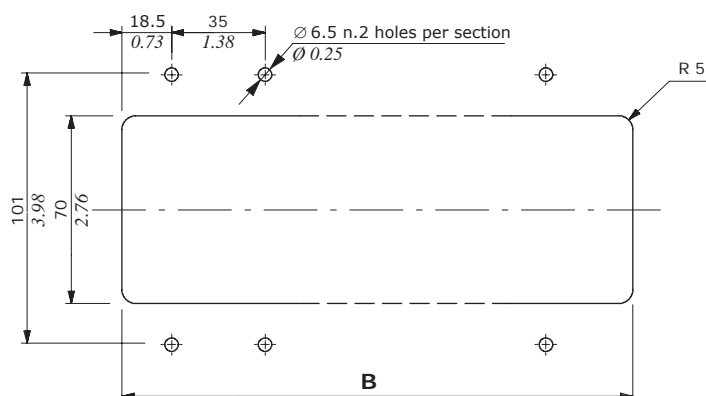
Panel cut out

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



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

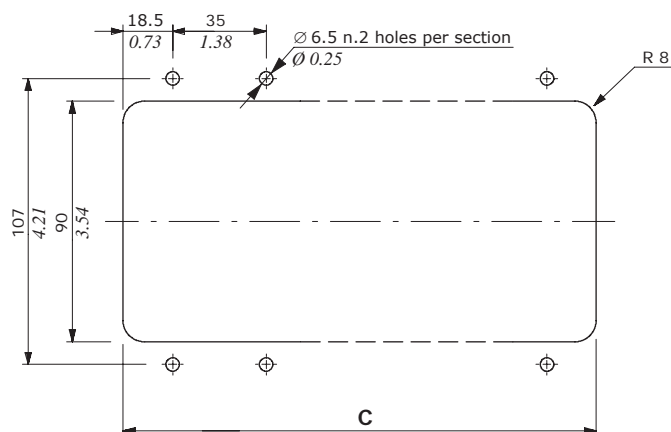
**SVM101 with lower P and T ports
Upper mounting**



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

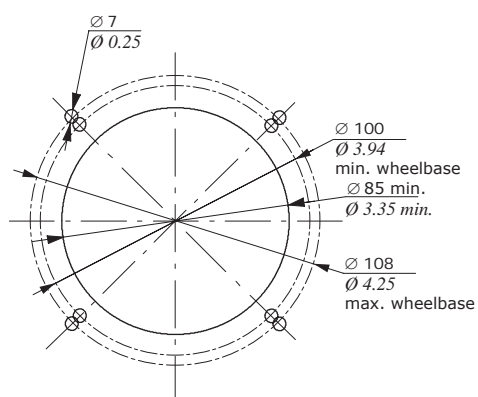
Panel cut out

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

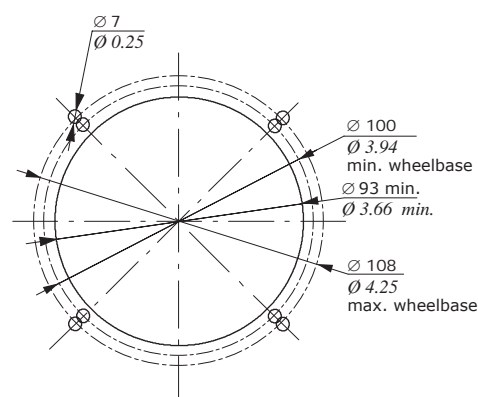


Tipo	C	
	mm	in
SVM100-101/1	37	1.46
SVM100-101/2	72	2.83
SVM100-101/3	107	4.21
SVM100-101/4	142	5.59
SVM100-101/5	177	6.97
SVM100-101/6	212	8.35
SVM100-101/7	247	9.72
SVM100-101/8	282	11.10
SVM100-101/9	317	12.48
SVM100-101/10	352	13.86

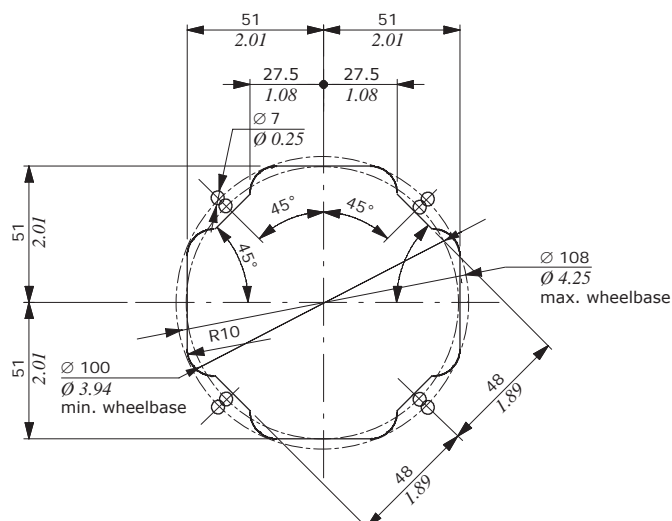
SVM400 - SVM400-EMD



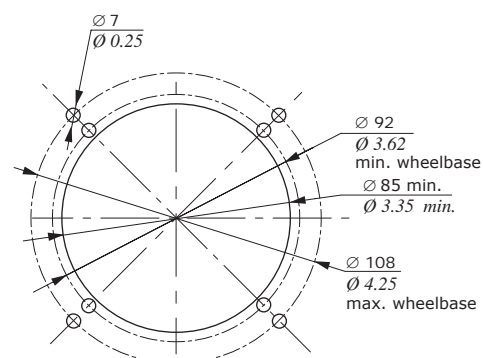
SVM430



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 46mm²/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	max 18 cm ³ /min - <i>1.10 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 ² /s - <i>from 15 to 75 cSt</i>
Viscosity	min.	12 mm ² /s - <i>12 cSt</i>
	max.	400 mm ² /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 SVM150	24 Nm - <i>17.7 lbft</i>

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	1179
	SAE	11926
	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.

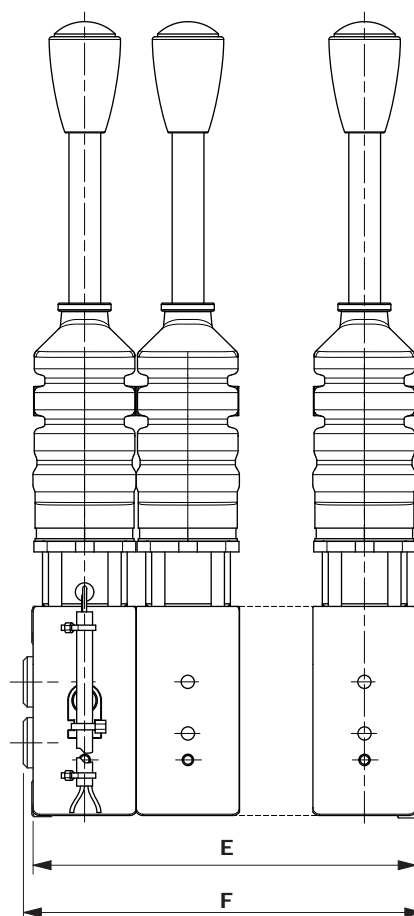
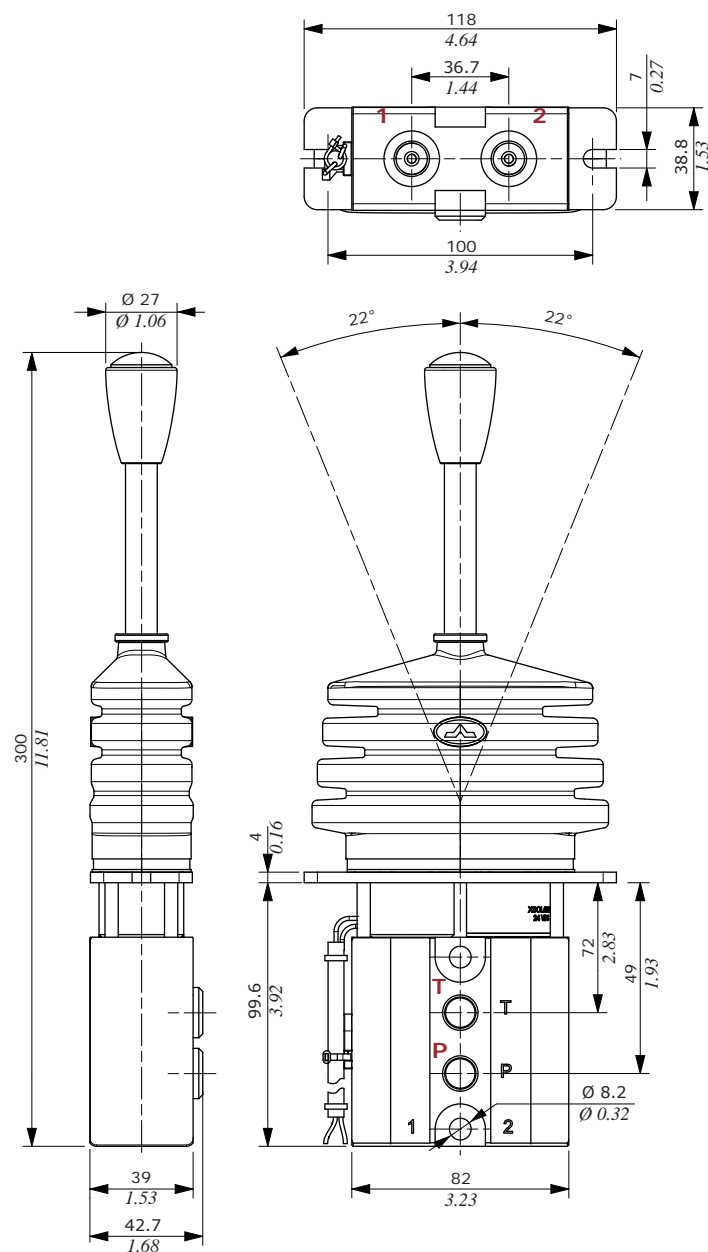
Single axes version

Features

Nominal voltage tolerance	: $\pm 10\%$
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%

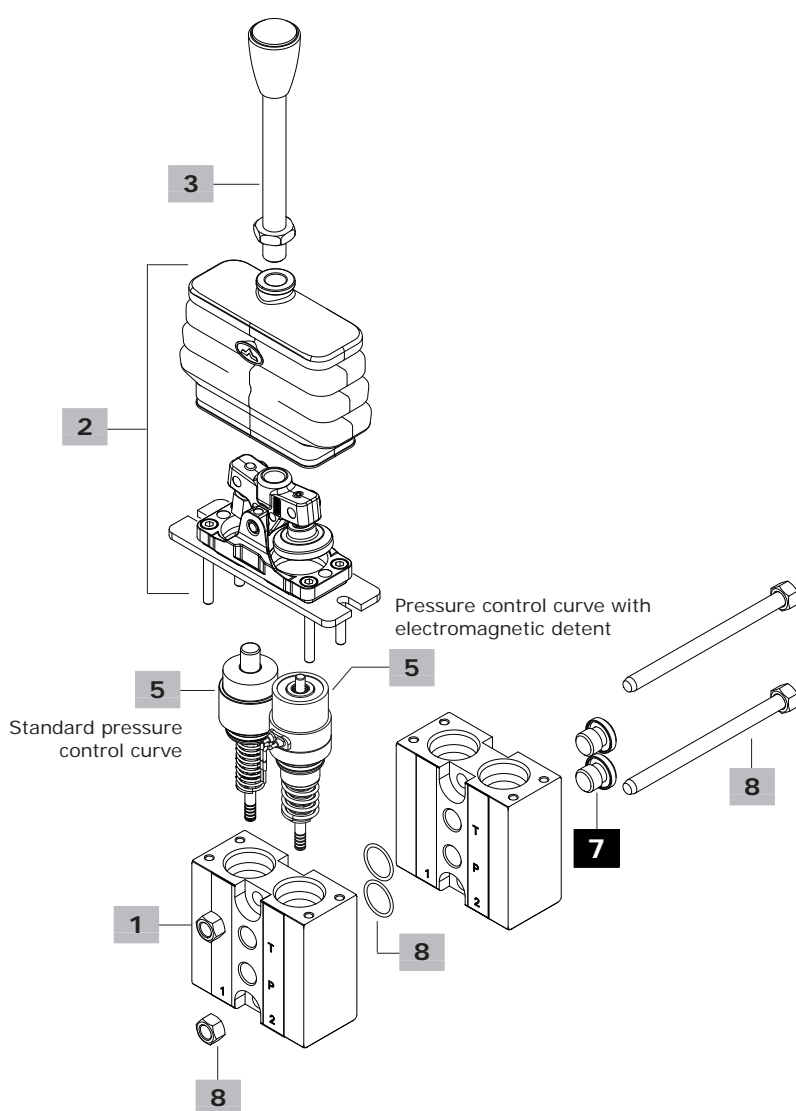
Configuration up to 5 sections

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



Ordering codes

Description for 1 st section: repeat the choice for following sections											Last section (max.5)											
SVM150/		n	-	B	/	01N	EMD(1)	/	G3	(....)	-	E	0	089N	M	-	A0028M	/	(....)	-	12VDC
1		1		2	1	3	4	5.1	5.2	5.3	5.4	5								6		
Substitute with number of sections					Pressure control curve with electromagnetic detent								Standard pressure control curve				Electric devices voltage					



Ordering codes

1 Body kit *

TYPE: SVM150-B/EMD(0)	CODE: 3CO3132300
DESCRIPTION: Body without detent	
TYPE: SVM150-B/EMD(1)	CODE: 3CO3132301
DESCRIZIONE: Body with detent arrangement on port 1	
TYPE: SVM150-B/EMD(2)	CODE: 3CO3132302
DESCRIPTION: Body with detent arrangement on port 2	
TYPE: SVM150-B/EMD(1-2)	CODE: 3CO3132303
DESCRIPTION: Body with detent arrangement on ports 1 and 2	

2 Detent configuration

Complete with rubber bellow and fixing wrapper

TYPE	CODE	DESCRIPTION
01N(0D)	5CIN1010DN	Spring return to neutral position, without detent arrangement
01N(1D)	5CIN1011DN	Spring return to neutral position, single detent arrangement; right or left position is defined by pressure control curve position
01N(2D)	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
G3	5AST271218G	Ogival with portlight, straight rod (standard)
G3(15)	5AST371217G	Ogival with portlight, 15° bending rod
G3(30)	5AST371226G	Ogival with portlight, 30° bending rod
E	5AST371215E	Spherical with portlight, 15° bending rod

For features see page 41

4 Handle position**Only for bending rod**

TYPE	DESCRIPTION
(0)	Handlever oriented on P and T plugged ports
(90)	Handlever oriented on port 1
(180)	Handlever oriented on P and T open ports
(270)	Handlever oriented on port 2

5 Pressure control curves

For list available see from page 51

5.1 Curve type

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

5.2 Typology of curves

TYPE	DESCRIPTION
0	With step
1	Without step

5.3 Curve identification

Progressive number, see tables from page 51

5.4 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>

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
3XTAP719150	G1/4 plug for rear ports closing (n. 2 plugs)

8 Assembling kit

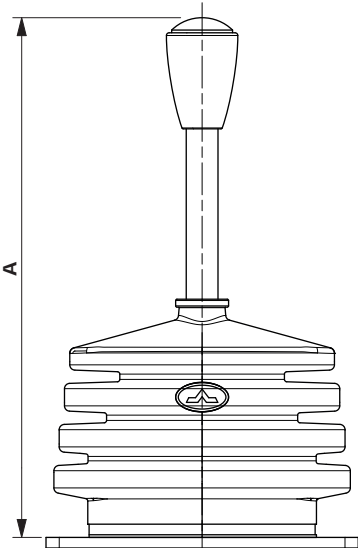
This kit contains tie rods, nuts and O-ring seals.

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 **BSP** thread

Configuration option

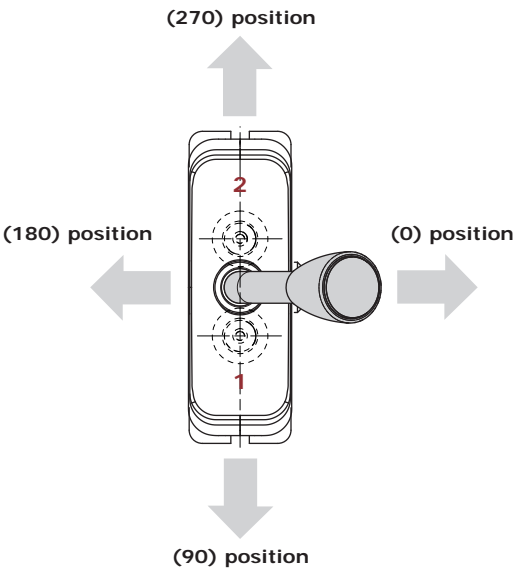
Handle option



Handlever 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

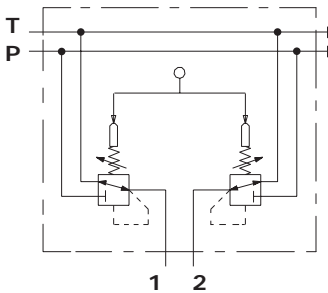
Orientation only for bending rod



Detent configuration

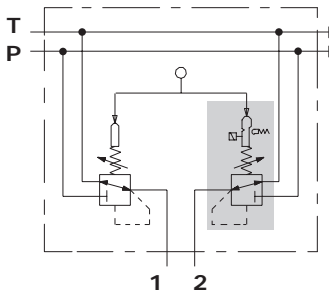
01/0D type

Spring return, without detent



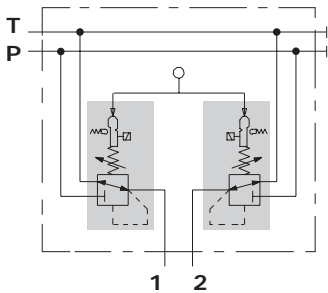
01/1D type

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

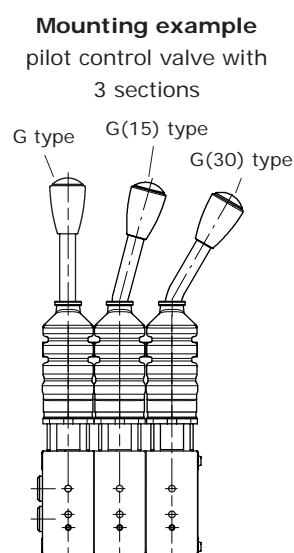
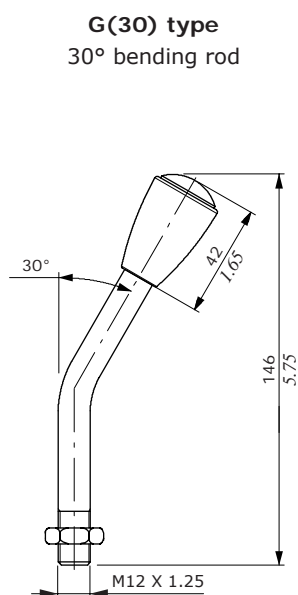
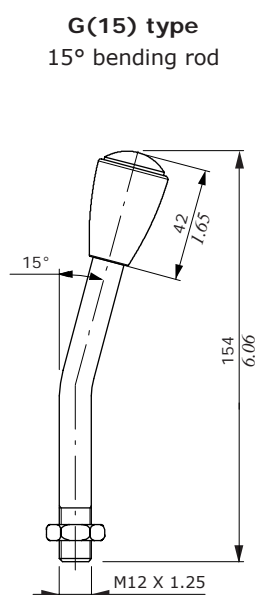
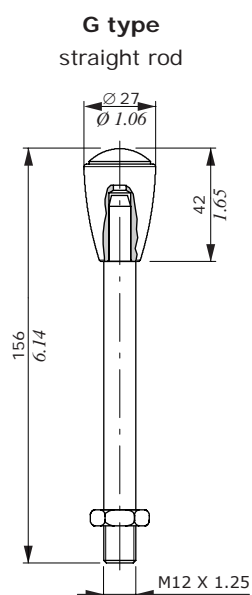


Ordering codes

Standard handlevers without microswitch

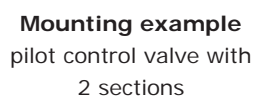
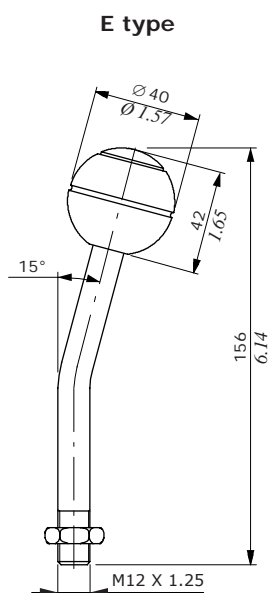
G type

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



E type

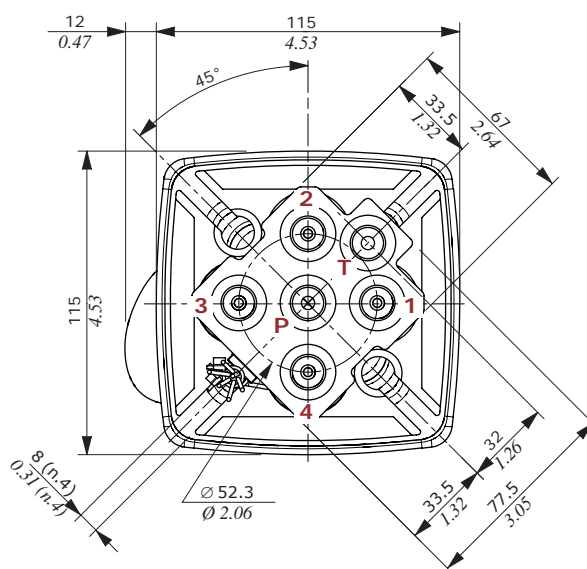
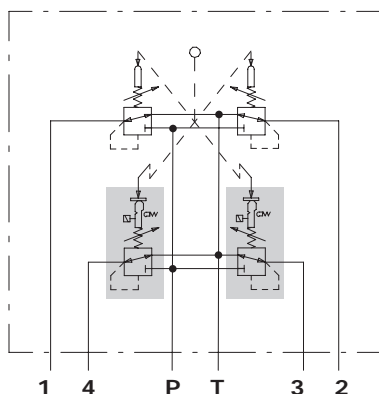
Customizable handle as G type, 15° bending rod.



Dimensions and hydraulic circuit

hydraulic circuit

Example detent on working ports 3 e 4

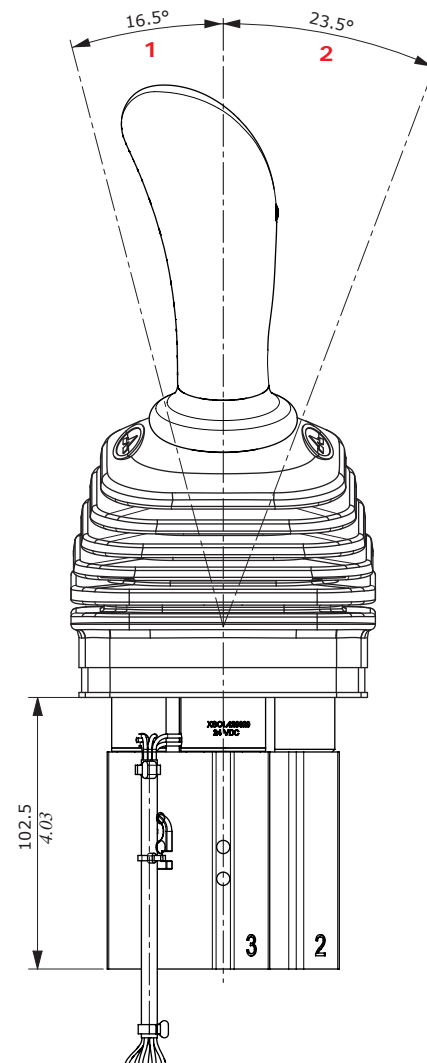
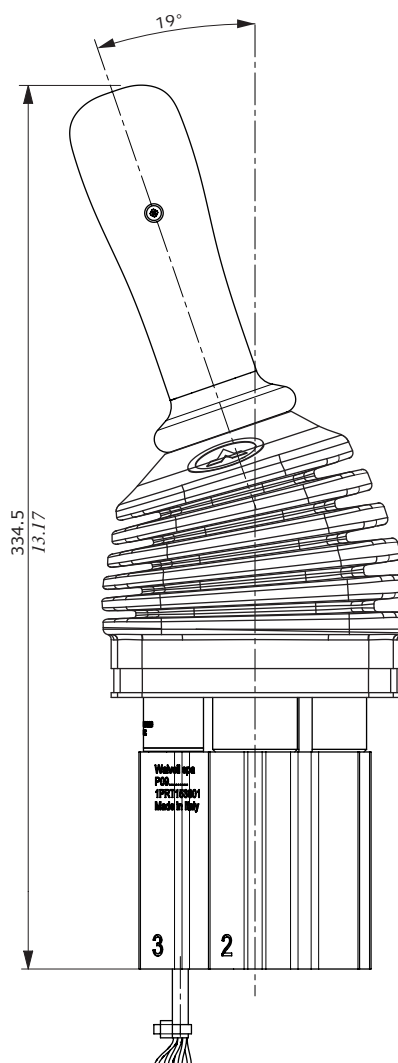


1 : Single work port
2 : Two simultaneous work ports

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 - B / 01N - V007 (....) (....) - A 0 020 M-.....-E0020NM - (....) - 12VDC

1

3

2

1

4

5

6

9

7.1

7.2

7.3

7.4

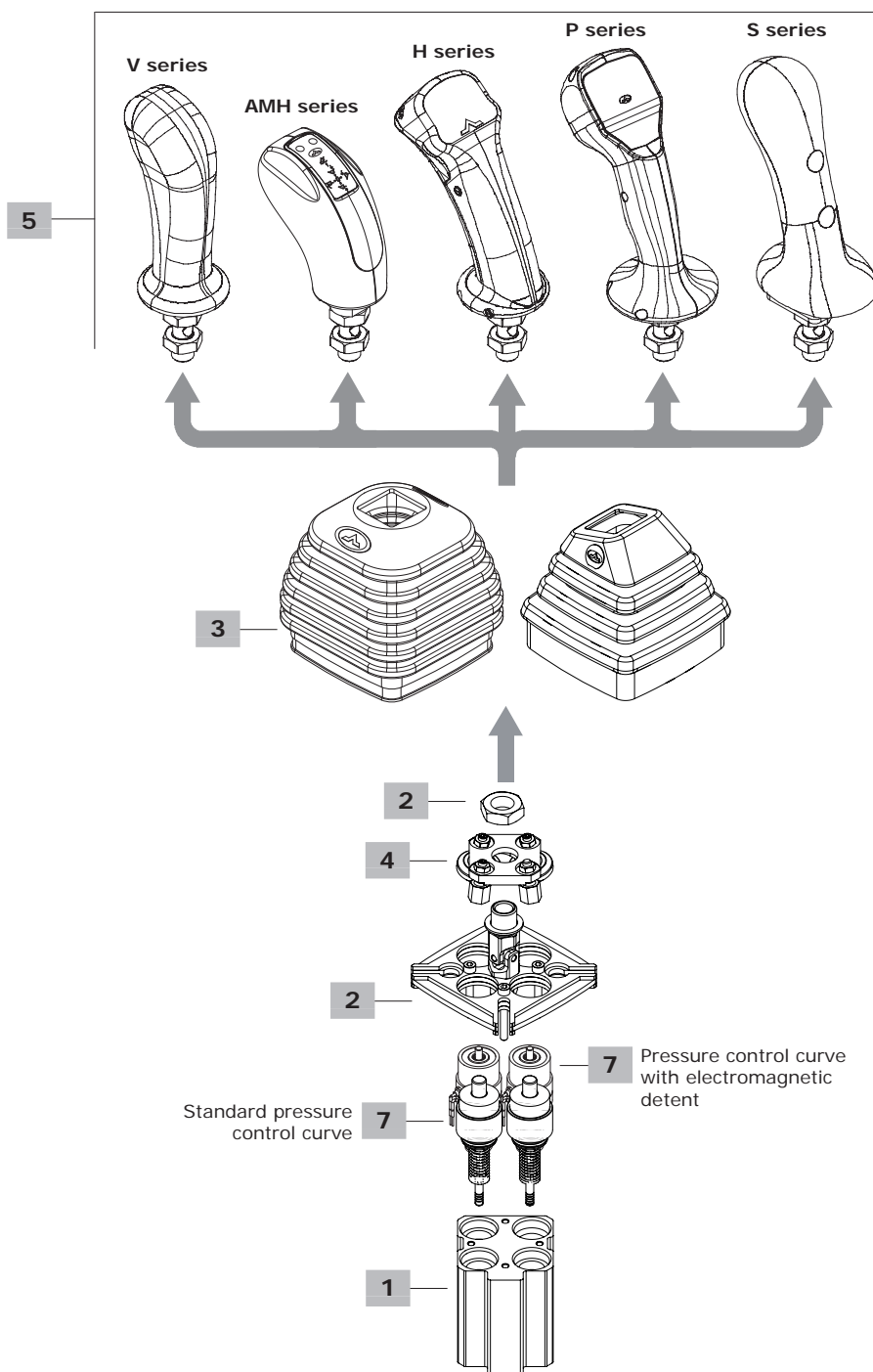
7

Pressure control curve
with electromagnetic
detent

7

Electric
devices
voltage

Standard pressure
control curve



1 Body kit *

TYPE: SVM450-EMD(4)/B	CODE: 3CO3450303
DESCRIPTION: With detent arrangement on port 4	
TYPE: SVM450-EMD(3-4)/B	CODE: 3CO3450301
DESCRIPTION: With detent arrangement on ports 3 and 4	
TYPE: SVM450-EMD(2-3-4)/B	CODE: 3CO3450302
DESCRIPTION: With detent arrangement on ports 2, 3 and 4	

2 Flange kit

TYPE	CODE	DESCRIPTION
1	5FLA410045	Flange

3 Rubber bellow

TYPE	CODE	DESCRIPTION
8N	3SOF115115	Universal type, square base with logo
3	3SOF111111	Sloping type, square base with logo; only for 19° sloping handles

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

TYPE	CODE	DESCRIPTION
01N(1D)	5CIN8011ND	Kinematic kit arranged for 1 detent
01N(2D)	5CIN8012ND	Kinematic kit arranged for 2 detent
01N(3D)	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 handlebars" catalogue.

V series handle

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

S series handle

TYPE: SZTA8-0G4045-XG122045
CODE: 21M5310003
DESCRIPTION: 1 proportional roller and front push button, with sloping 19° right joint

6 Handle position

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

7 Pressure control curves

PF for list available see from page 51

7.1 Curve type

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

7.2 Typology of curves

TYPE	DESCRIPTION
0	With step
1	Without step

7.3 Curve identification

Progressive number, see tables from page 51

7.4 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>

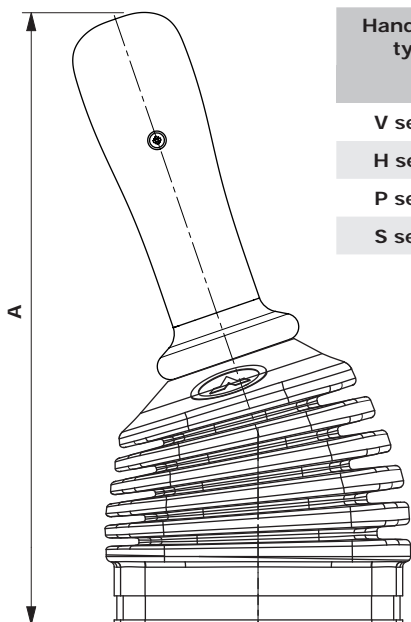
8 Connector

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 **BSP** thread.

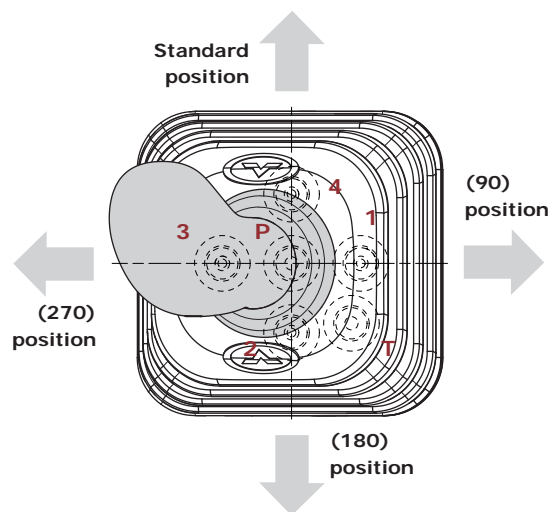
Configuration option

Handle 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

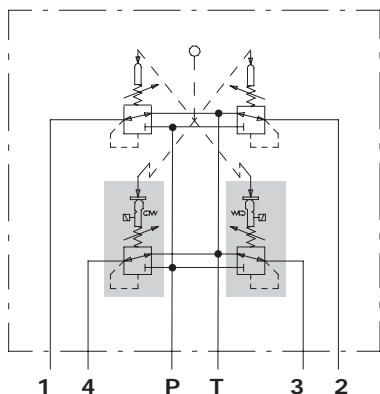
Handle positions



Detent configuration

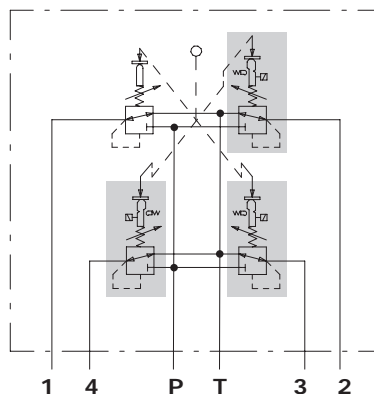
01/2D type

Detent on ports 3 and 4, with spring return



01/3D type

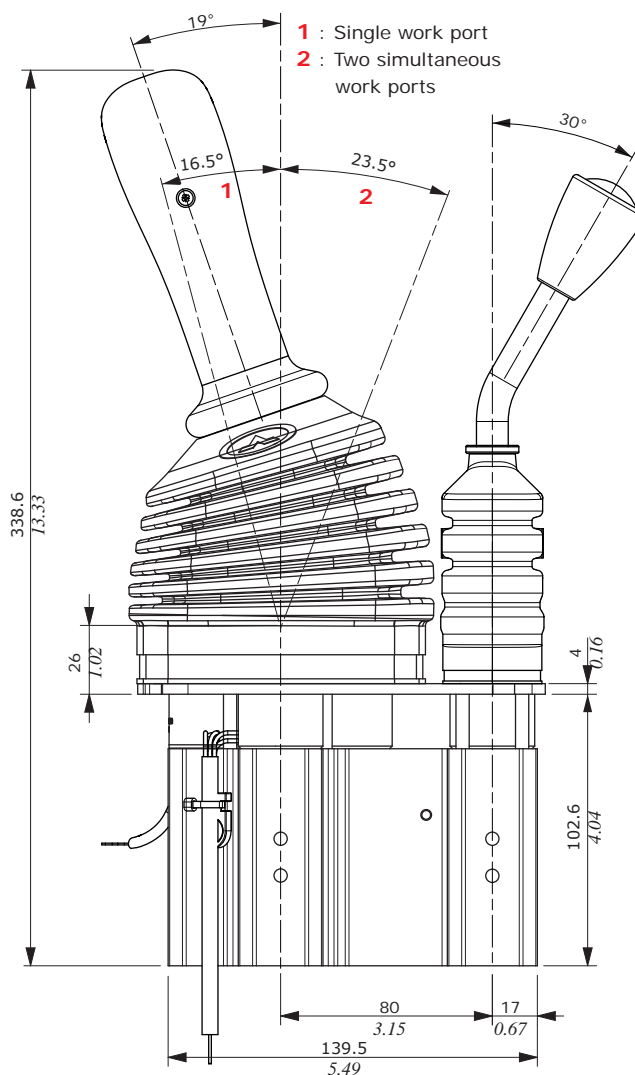
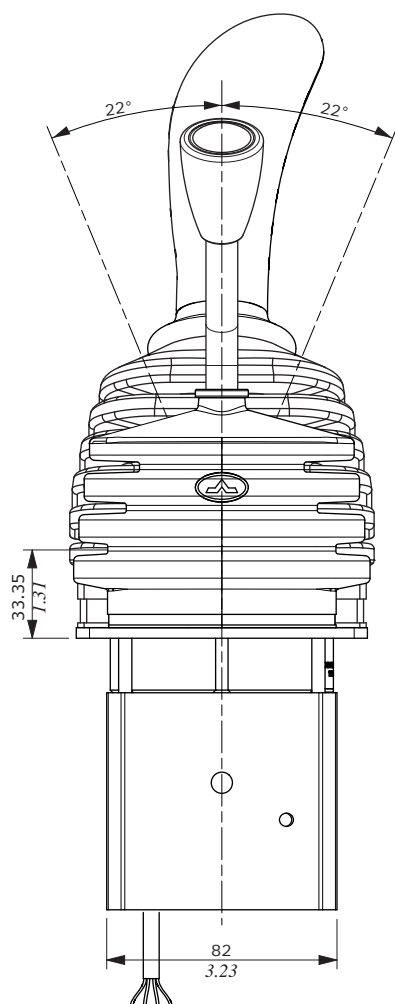
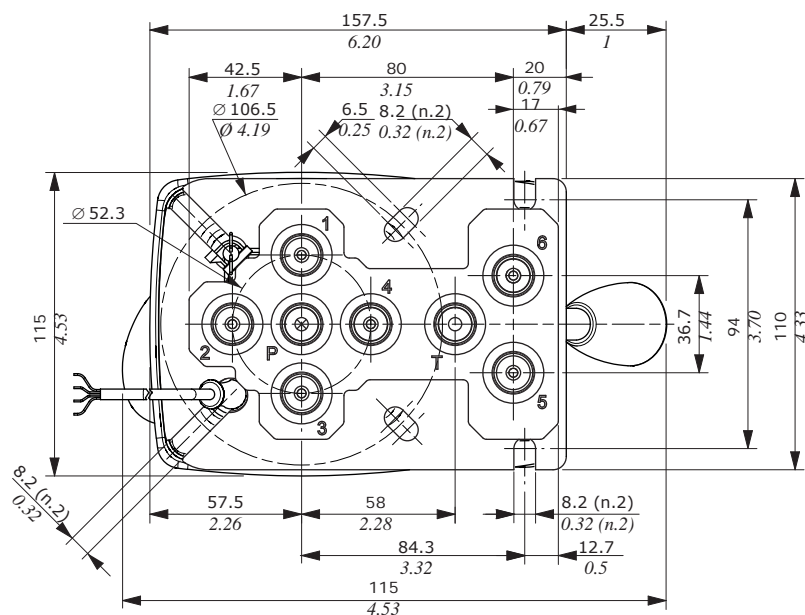
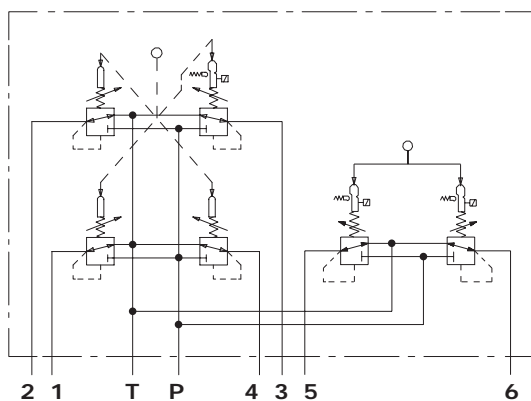
Detent on ports 2, 3 and 4 with spring return



Dimensions and circuit hydraulic

Hydraulic circuit

Example detent on working ports 3, 4 and 6



Orderig codes

SVM600-EMD(2-3-5-6) / 8N - B / 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

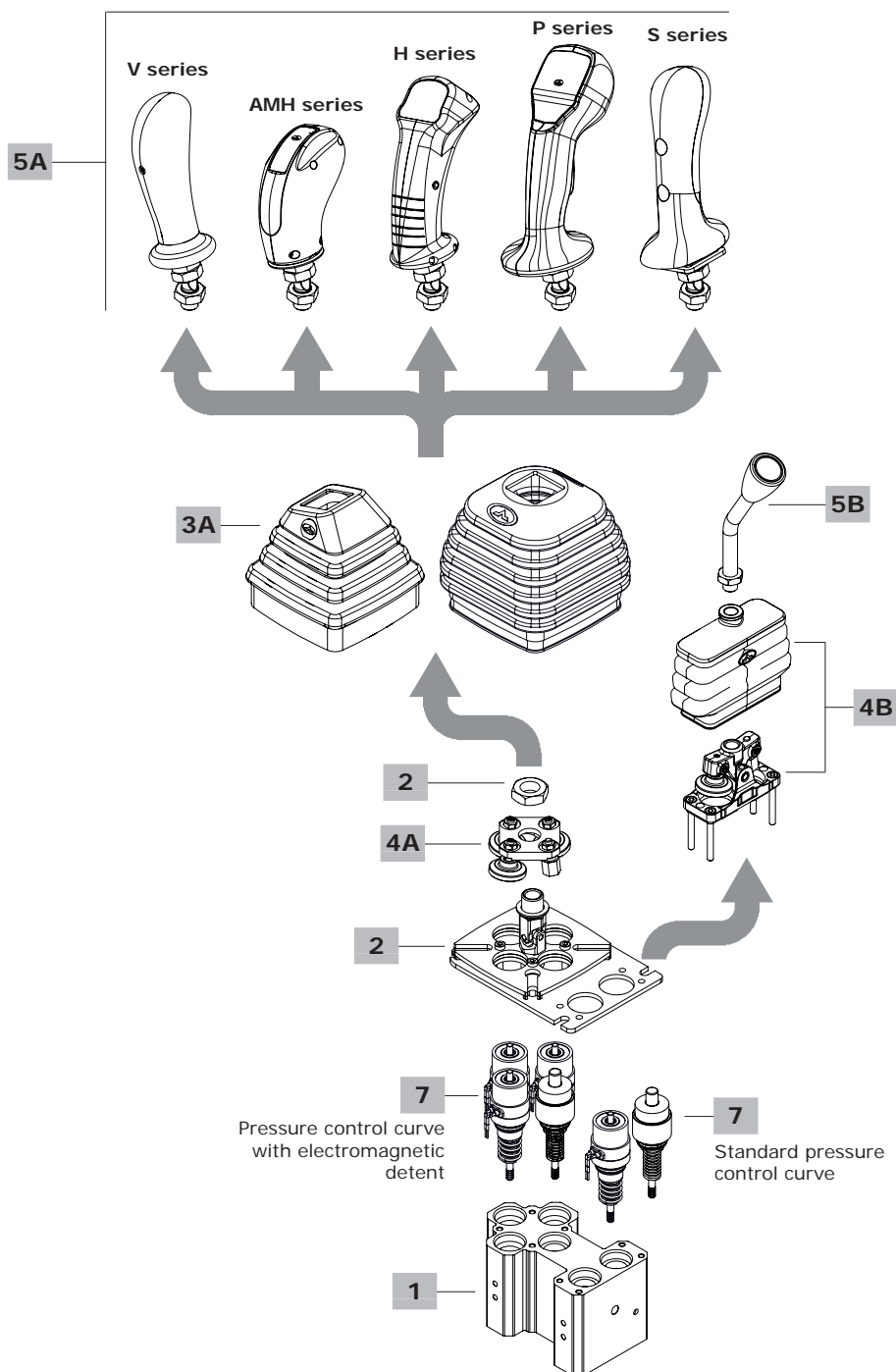
01N / G3(30) (0) - A0020M - E0020NM - (....) - 12VDC

4B 5B 6B 7 7 9

Electric devices voltage

7 Standard pressure control curve

Pressure control curve with electromagnetic detent



Main options

1 Body kit *

TYPE: SVM600-EMD(2-3)/B	CODE: 3C03600300
DESCRIPTION: With detent arrangement on ports 2 and 3	
TYPE: SVM600-EMD(3-5)/B	CODE: 3C03600305
DESCRIPTION: With detent arrangement on ports 3 and 5	
TYPE: SVM600-EMD(1-2-3)/B	CODE: 3C03600301
DESCRIPTION: With detent arrangement on ports 1, 2 and 3	
TYPE: SVM600-EMD(2-3-6)/B	CODE: 3C03600302
DESCRIPTION: With detent arrangement on ports 2, 3 and 6	
TYPE: SVM600-EMD(3-5-6)/B	CODE: 3C03600307
DESCRIPTION: With detent arrangement on ports 3, 5 and 6	
TYPE: SVM600-EMD(2-3-5-6)/B	CODE: 3C03600304
DESCRIPTION: With detent arrangement on ports 2, 3, 5 and 6	
TYPE: SVM600-EMD(1-2-3-5)/B	CODE: 3C03600306
DESCRIPTION: With detent arrangement on ports 1, 2, 3 and 5	

2 Flange kit

TYPE	CODE	DESCRIPTION
1	5FLA411154	Assembling flange

7 Pressure control curves

PFor list available see from page 51

7.1 Curve type

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

7.2 Typology of curves

TYPE	DESCRIPTION
0	With step
1	Without step

7.3 Curve identification

Progressive number, see tables from page 51

7.4 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

9 Connector

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

NNOTE (*) – Codes are referred to **BSP** thread.

Joystick options

3A Rubber bellow

TYPE	CODE	DESCRIPTION
8N	3SOF115115	Universal type, square base with logo
3	3SOF111111	Sloping type, square base with logo; only for 19° sloping handles

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

TYPE	CODE	DESCRIPTION
01N(2D)	5CIN8012ND	Kinematic kit arranged for 2 detents
01N(3D)	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 handlevers" 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	

6A Handle position

TYPE	DESCRIPTION
(-)	Standard config., operation to work port 4: omitted in description
(90)	Mounted with 90° rotation step: operation to work port 1
(180)	Mounted with 180° rotation step: operation to work port 2
(270)	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
01N(0D)	5CIN1010D	Spring return to neutral position, without detent arrangement
01N(1D)	5CIN1011D	Spring return to neutral position, single detent arrangement; right or left position is defined by pressure control curve position
01N(2D)	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
G3(30)	5AST371228G	Oval with portlight, 30° bending rod For features see page 42

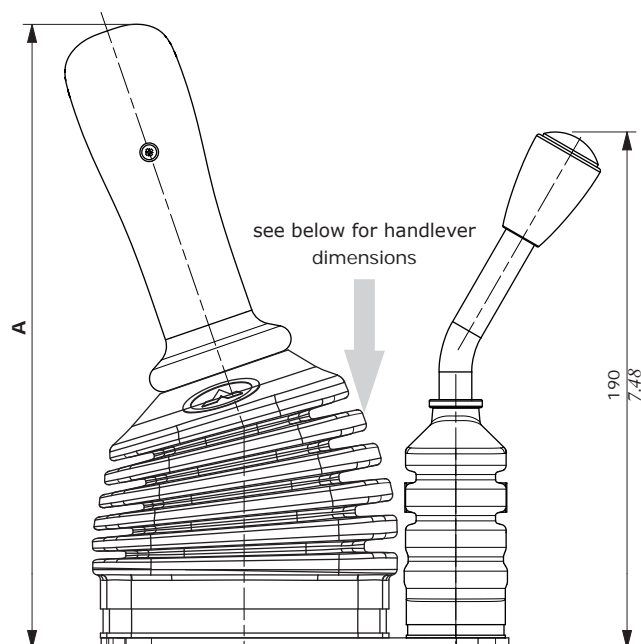
6B Handle position

TYPE	DESCRIPTION
(0)	Handlever oriented on P and T plugged ports
(90)	Handlever oriented on port 5
(270)	Handlever oriented on port 6

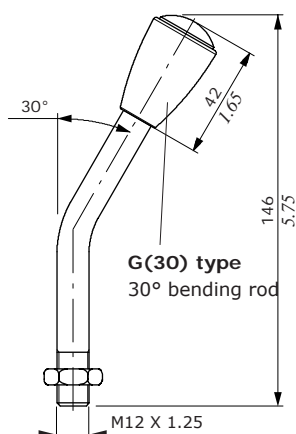
For different positions, please contact our Sales Department.

Configuration option

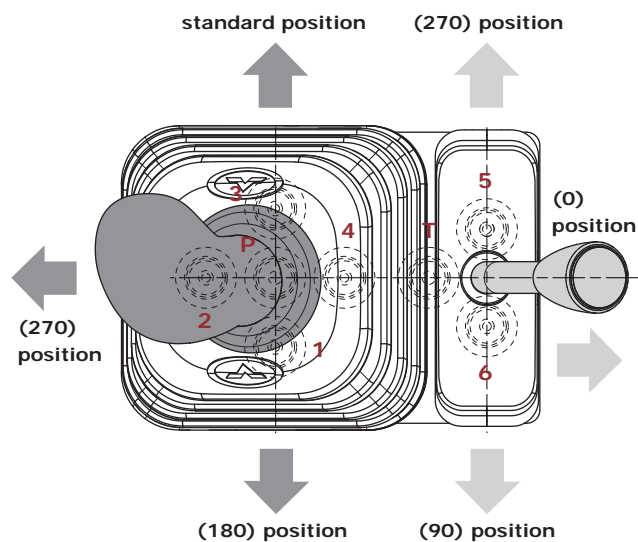
Handle and handlever option



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



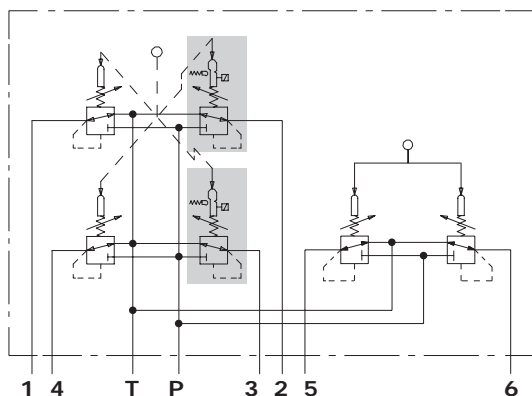
Handle and handlever positions



Detent configuration: examples

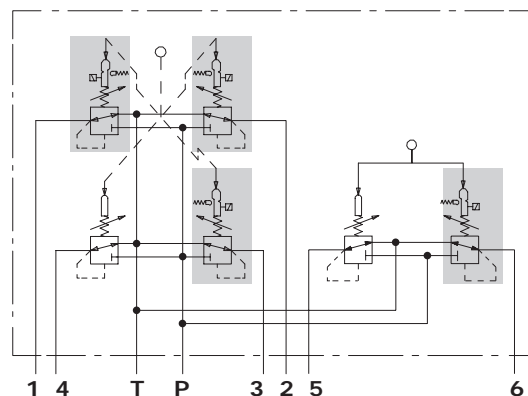
01/2D type (joystick)

Detent on ports 2 and 3, with spring return

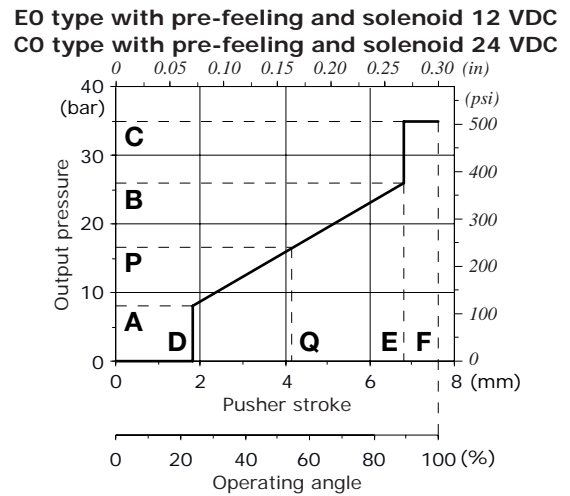
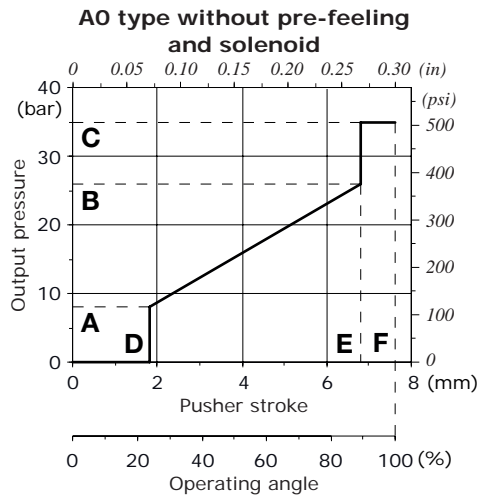


01/3D type (joystick) + 01/1D (single acting)

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



Control curves with step



Curve description		Pressure								Stroke								CODE ⁽¹⁾
		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	

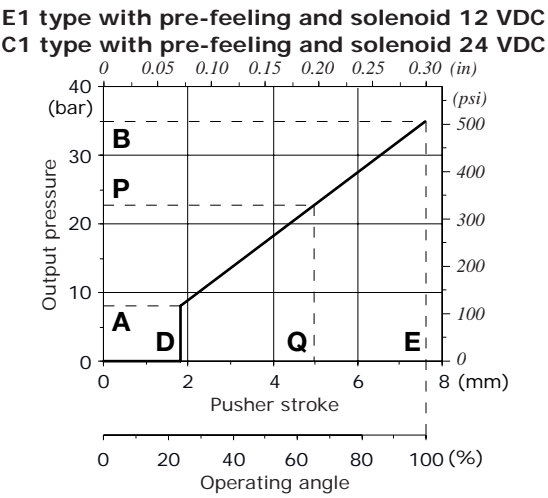
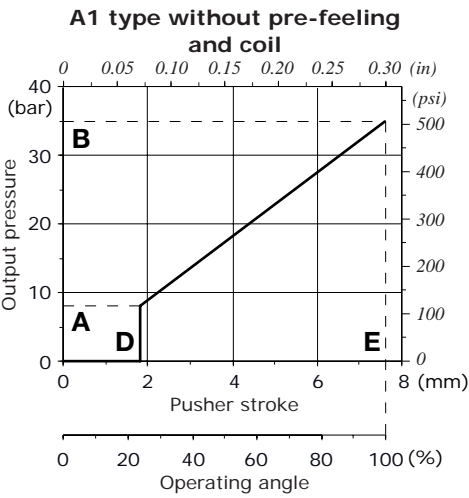
With Pre-feeling for electromagnetic detent

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	5CR7C0B09NM
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	5CR7E0B09NM
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	5CR7C0011NM
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	5CR7C0347NM
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	5CR7E0086NM
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	5CR7C0118NM
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	5CR7C0020NM
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	5CR7C0028NM
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	5CR7C0075NA 5CR7C0075NB
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	5CR7E0075NB
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	5CR7C0001NM
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	5CR7E0033NB 5CR7E0033NM
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	5CR7C0070NM
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	5CR7E0085NM
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	5CR7C0088NM
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	5CR7C0036NA

⁽¹⁾ indicates the curve with the specific return spring

For different curves, please contact our Sales Department

Control curves without step



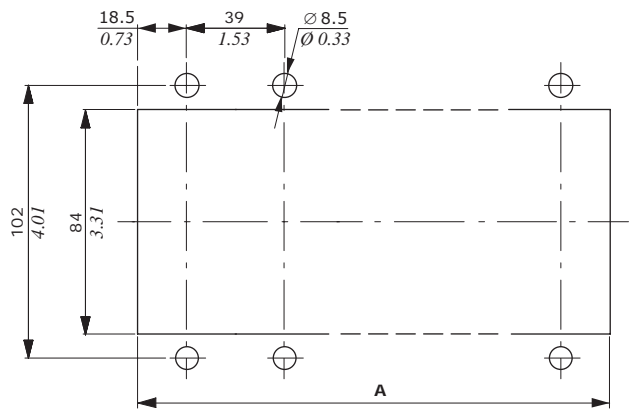
Curve description		Pressure						Stroke						CODE ⁽¹⁾
Type	Nr	A		P		B		D		Q		E		
		bar (±toll)	psi (±toll)	bar (±toll)	psi (±toll)	bar (±toll)	psi (±toll)	mm	in	mm	in	mm	in	
A1	096	4 (±1)	58 (±14.5)			18 (±1)	261 (±14.5)	0.85	0.03			7.6	0.30	5CR7A1096A 5CR7A1096M
With Pre-feeling for electromagnetic 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

⁽¹⁾ 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.

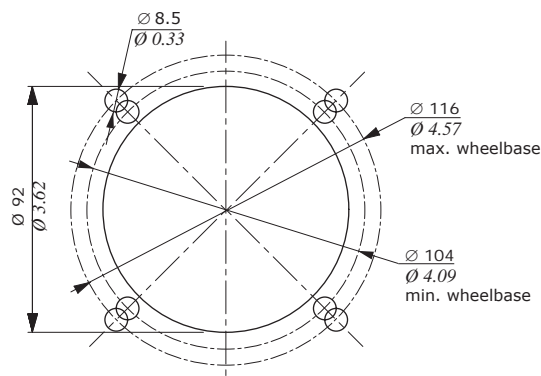
Panel cut out

SVM150

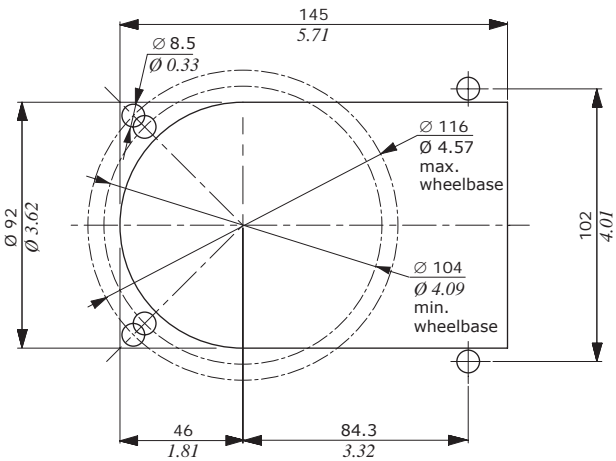


Type	A	
	mm	in
SVM150/1	37	1.46
SVM150/2	76	2.99
SVM150/3	115	4.53
SVM150/4	154	6.06
SVM150/5	193	7.6

SVM450



SVM600







SVM hydraulic joysticks with pedal and other actuations

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 46mm²/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	P on inlet port	from 30 to 100 bar - <i>from 435 to 1450 psi</i>
Max. backpressure	T on 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 ³ /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 ² /s - <i>from 15 to 75 cSt</i>
Viscosity	min.	12 mm ² /s - <i>12 cSt</i>
	max.	400 mm ² /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>

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

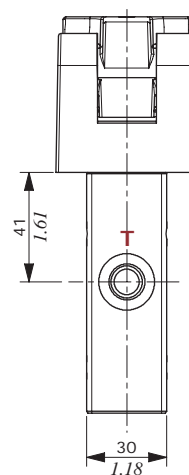
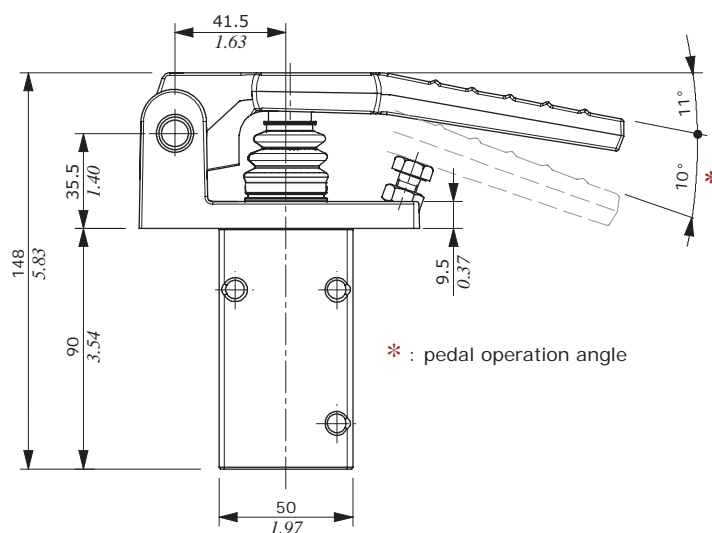
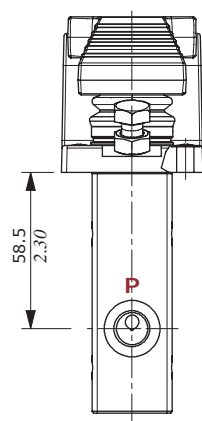
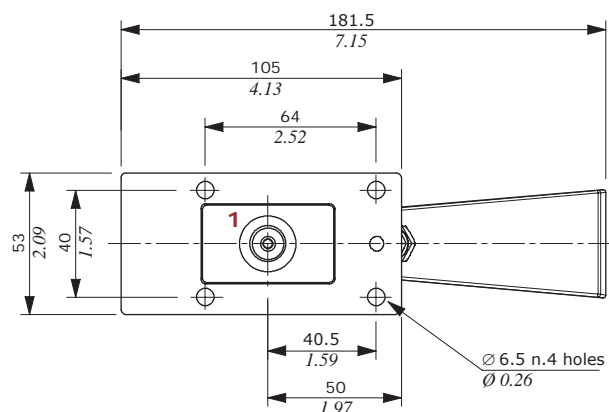
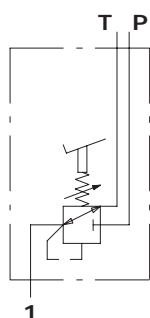
PORTS	Threads		Fitting tightening torque	
	UNI EN ISO 1179	UNI EN ISO 11926-2	Nm	lbft
P inlet	G 1/4	7/16-20 (SAE 4)	30	22.13
Ports	G 1/4	7/16-20 (SAE 4)	30	22.13
T outlet	G 1/4	7/16-20 (SAE 4)	30	22.13

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

SVM510 version

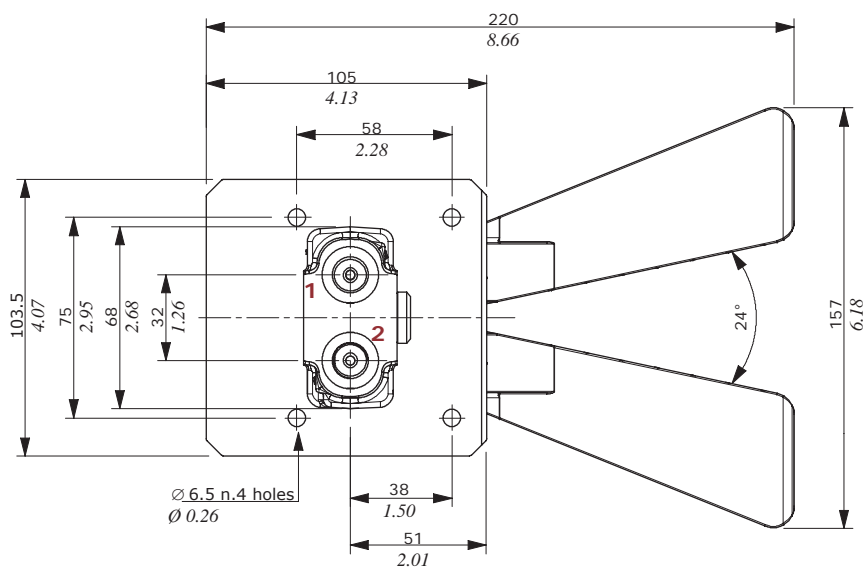
Hydraulic circuit



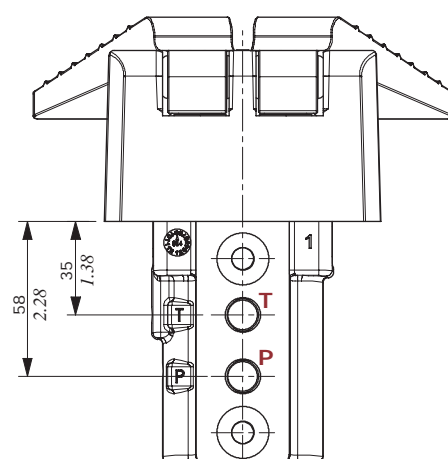
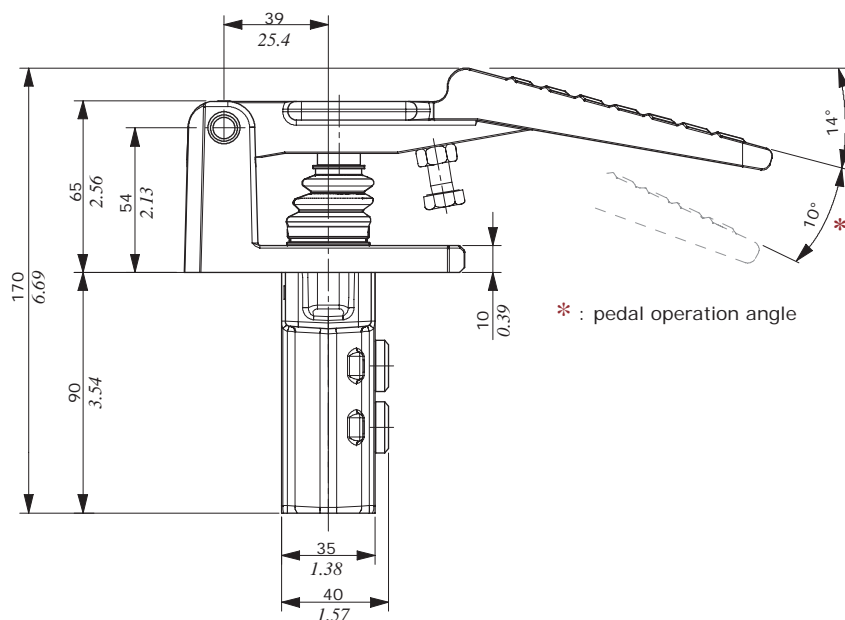
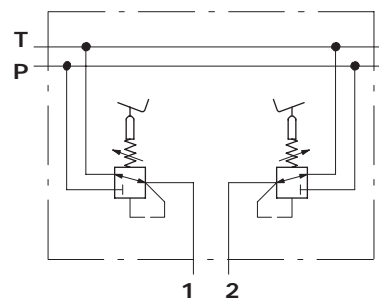
Dimensions and hydraulic circuit

SVM520 version

Configuration with side P and T ports.



Hydraulic circuit

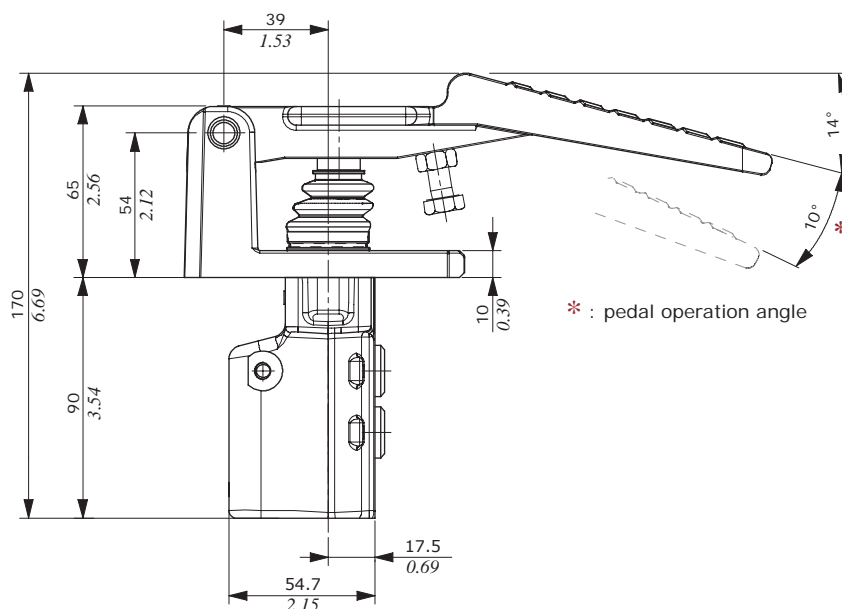
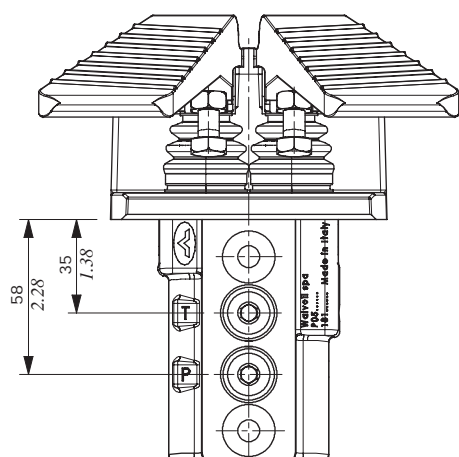
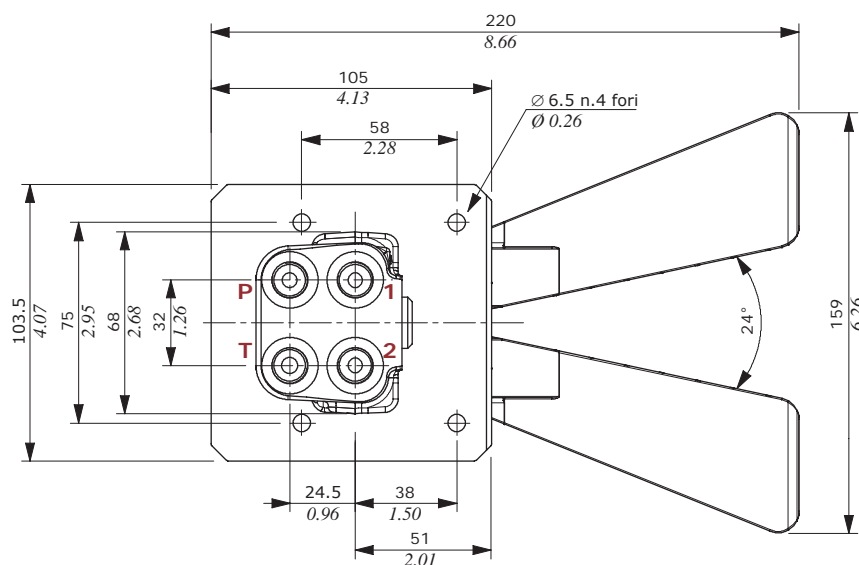
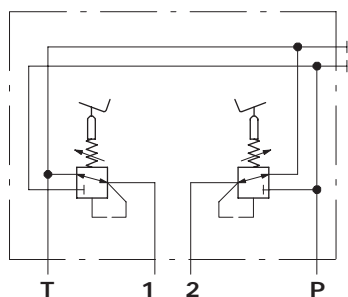


Dimensions and hydraulic circuit

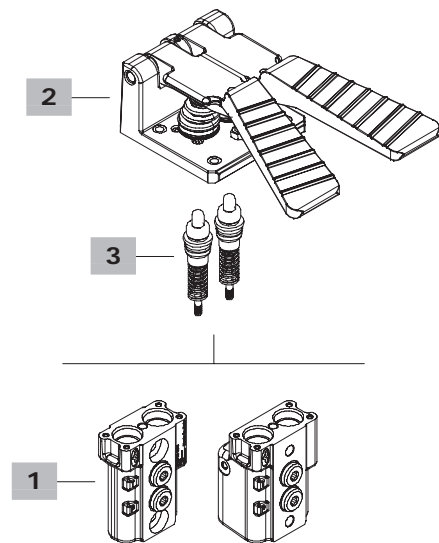
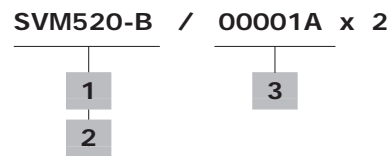
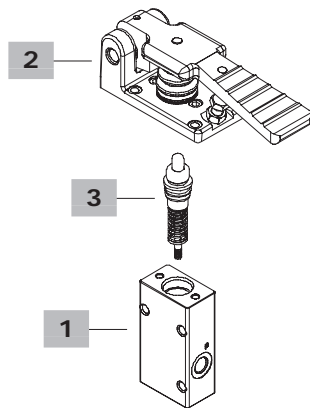
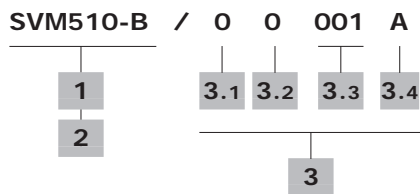
SVM521 version

Configuration with bottom P and T ports.

Hydraulic circuit



* : pedal operation angle



1 Body kit *

TYPE	CODE	DESCRIPTION
SVM510-B	3C03710300	Single pedal configuration
SVM520-B	3C03122300	Double pedal configuration with side P and T ports
SVM521-B	3C03122310	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

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 - 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

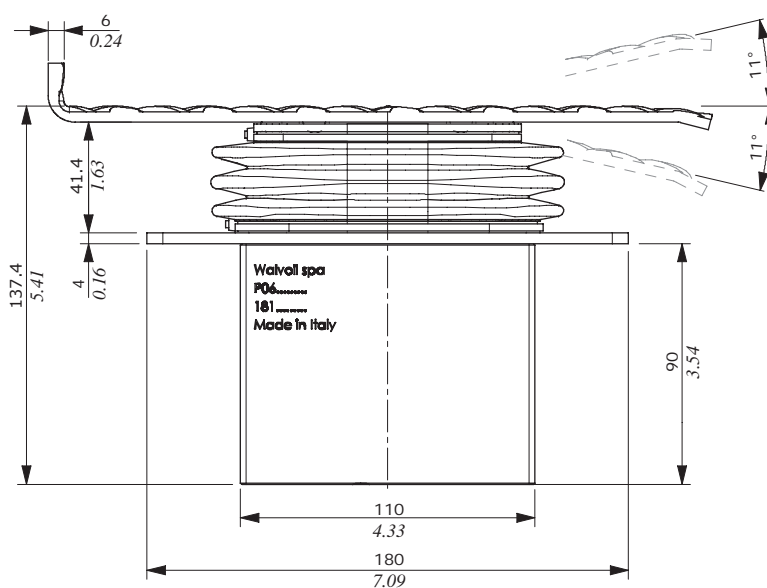
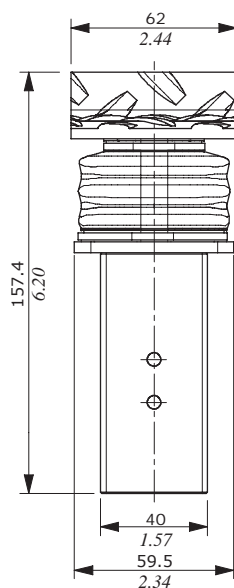
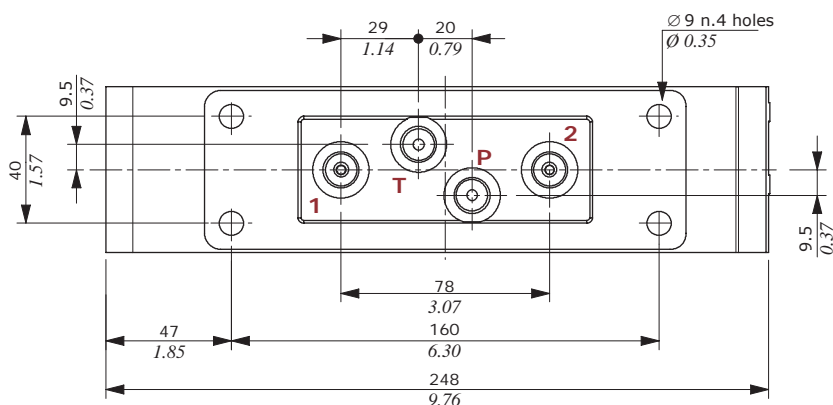
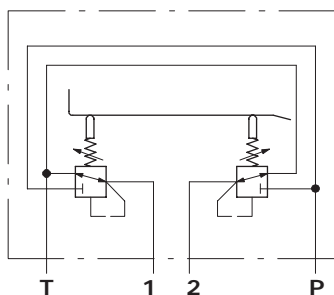
NOTE (*) – Codes are referred to **BSP** thread.

Dimensions and hydraulic circuit

SVM500 version

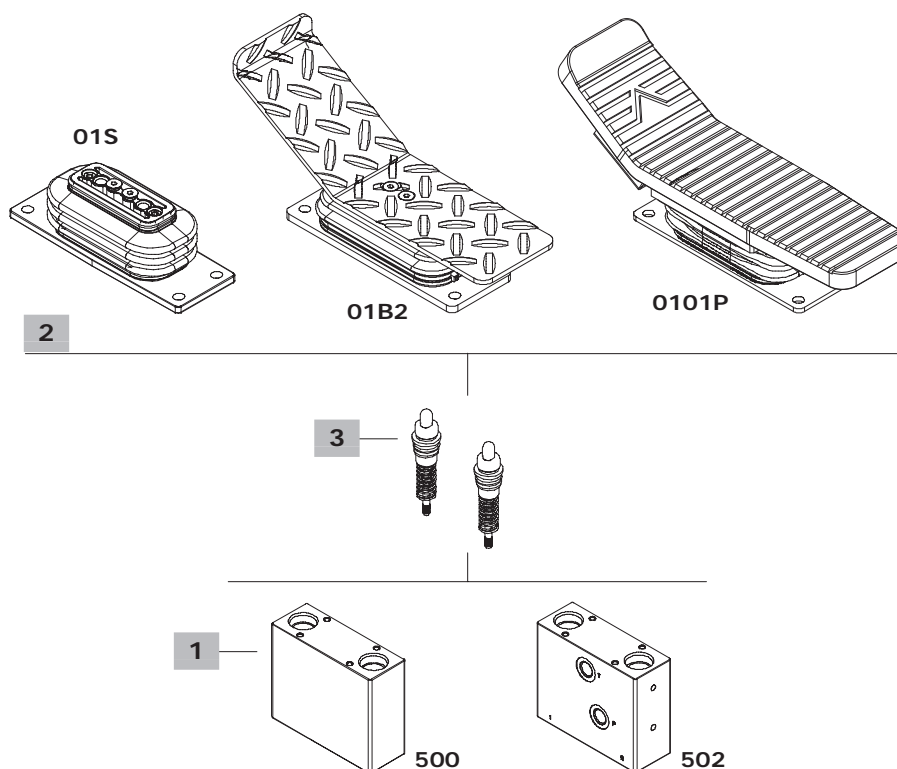
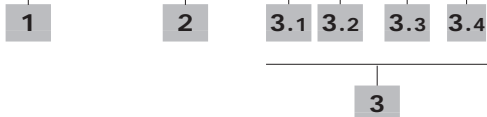
Configuration with lower ports.

Hydraulic circuit



Ordering codes

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

**1 Body kit ***

TYPE	CODE	DESCRIPTION
SVM500-B	3C03510300	Configuration with lower ports
SVM502-B	3C03510320	Configuration with side P and T ports, lower 1 and 2 ports

2 Pedal control options page 63

TYPE	CODE	DESCRIPTION
01S	5CIN5001S	With spring return in neutral position and with rubber bellow, without pedal
01F	5CIN5001F	As 01S flat pedal
01B1	5CIN5001B1	As 01S 154° bent pedal
01B2	5CIN5001B2	As 01S 150° bent pedal
0101P	5CIN500101P	As type 01S with 150° bent pedal and anti-slip rubber coating
0102P	5CIN500102P	As type 01S with 150° bent and 30° tilted pedal, short type; anti-slip rubber coating
0103P	5CIN500103P	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
0	Standard
D	With Damping

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

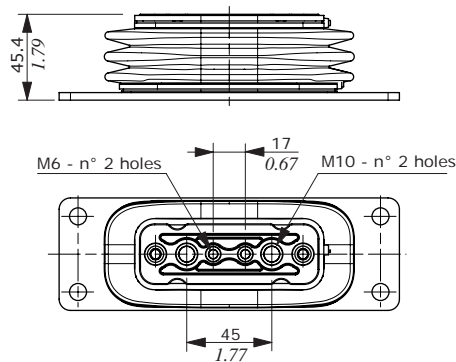
TYPE	DESCRIPTION
M	Operation range from 18 to 25.5 N - from 4.04 to 5.73 lbf
A	Operation range from 23 to 35.2 N - from 5.17 to 7.91 lbf
B	Operation range from 23 to 68.1 N - from 5.17 to 15.31 lbf
C	Operation range from 89 to 176 N - from 20 to 39.56 lbf
D	Operation range from 110 to 220 N - from 24.73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

NOTE (*) – Codes are referred to **BSP** thread.

Control options

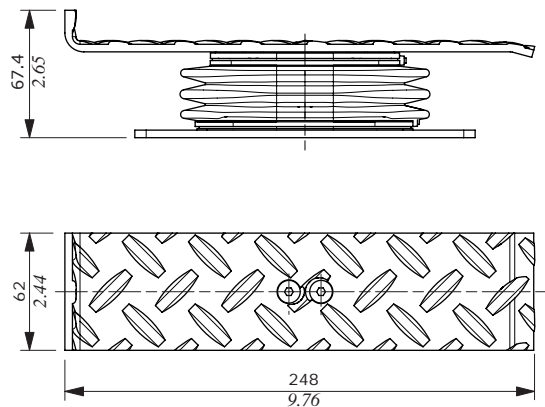
01S type

With spring return in neutral position, without pedal.



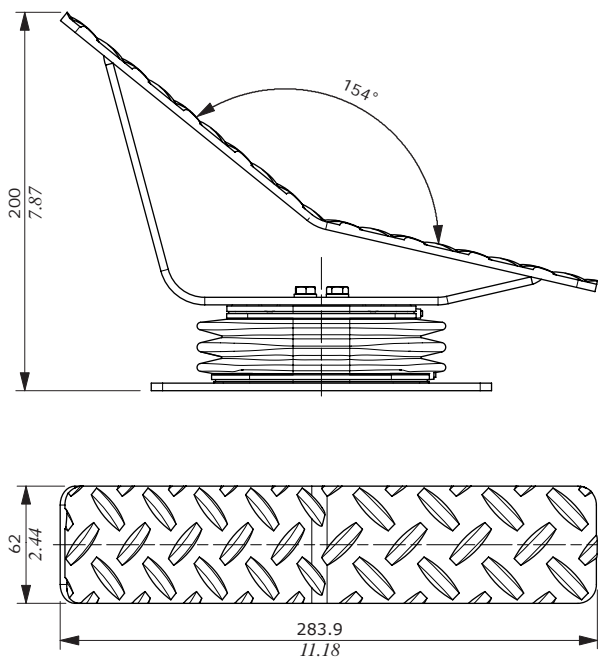
01F type

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



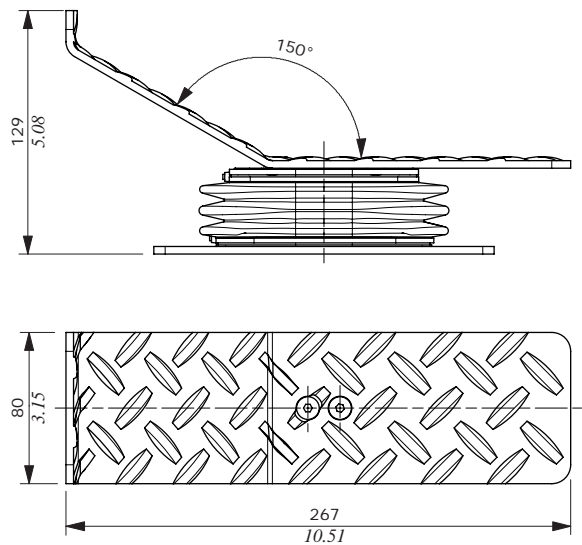
01B1 type

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



01B2 type

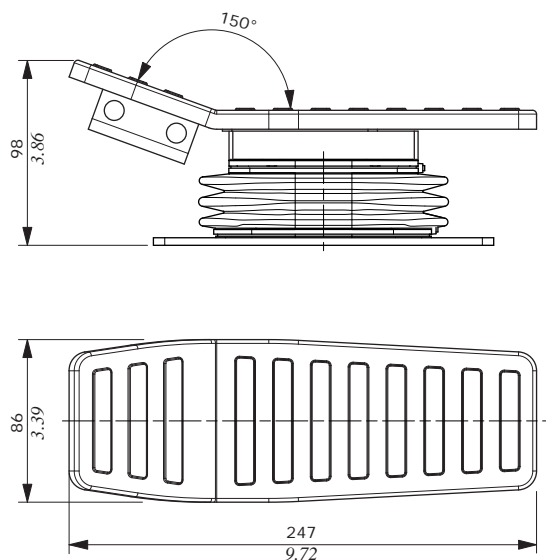
With spring return in neutral position.
Profiled pedal with corrugated sheet, white galvanized.



Control options

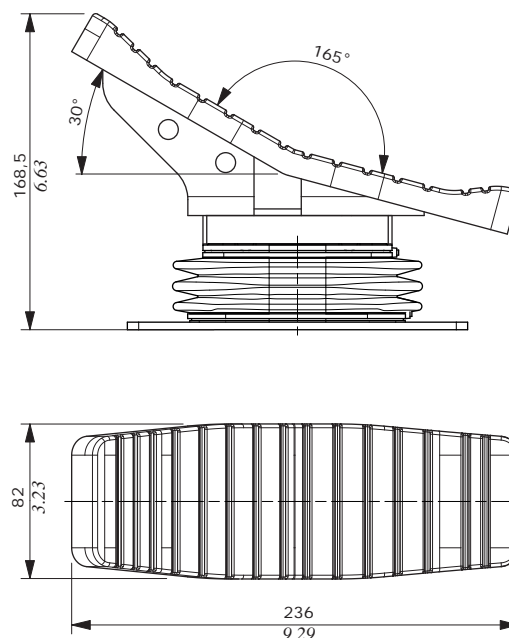
0101P type

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



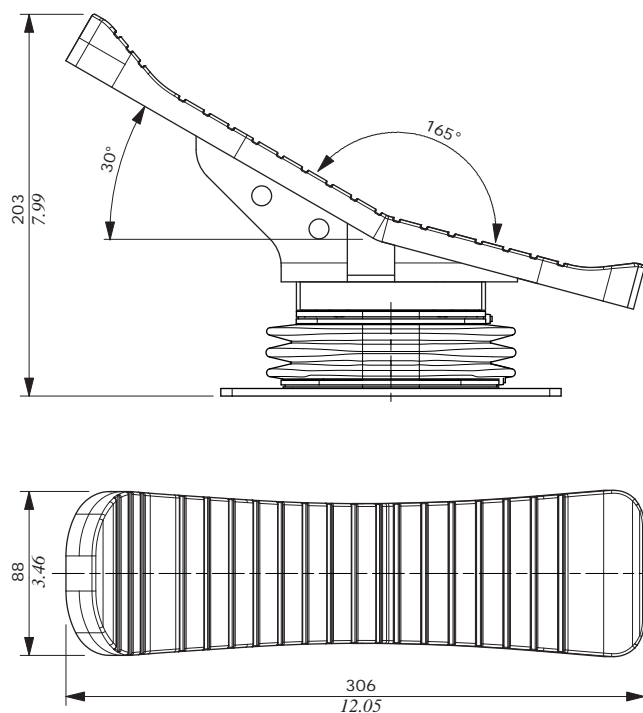
Tipo 0102P

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



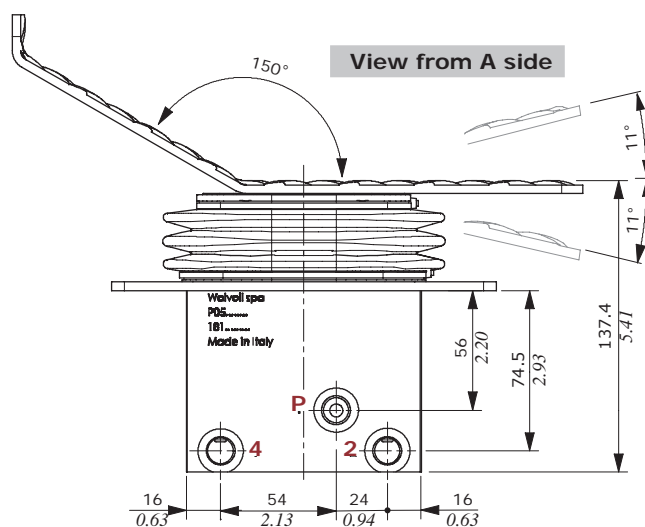
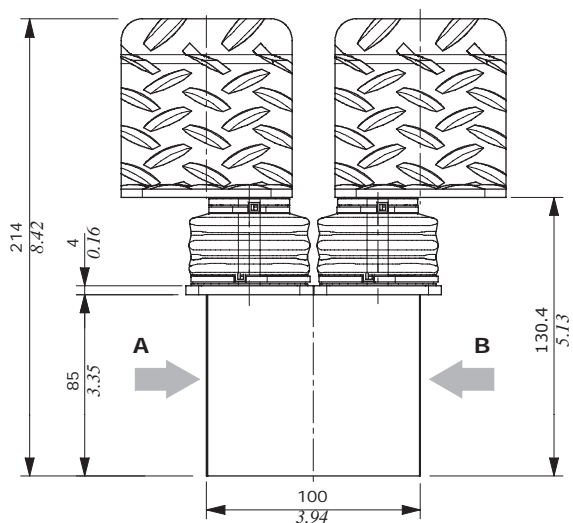
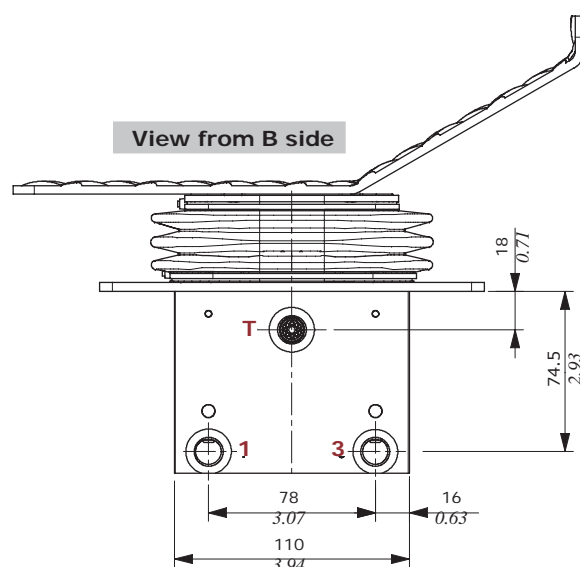
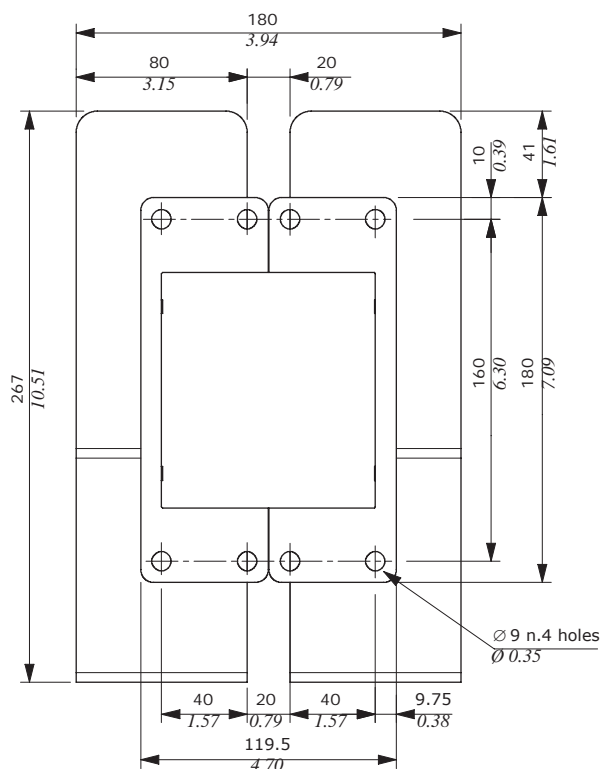
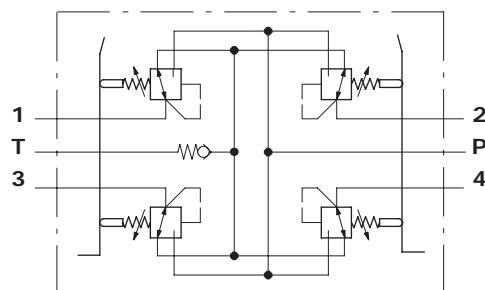
0103P type

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



SVM540

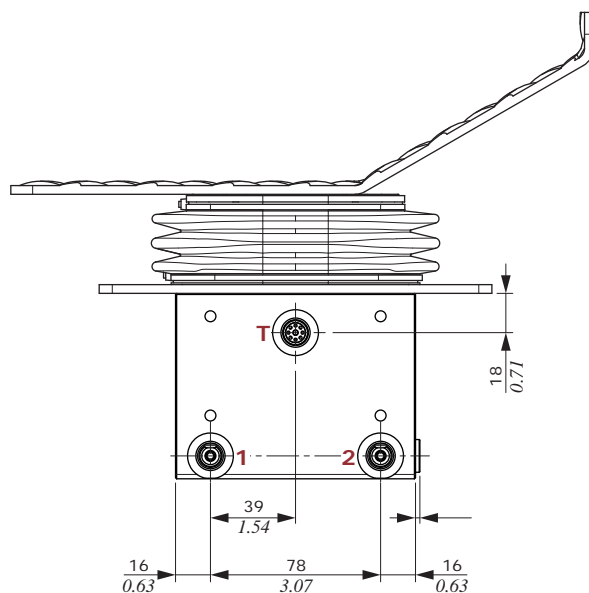
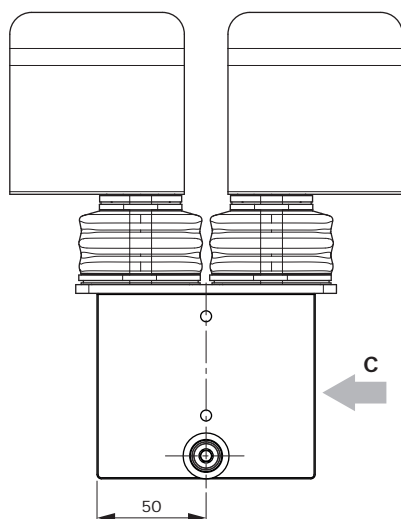
Hydraulic circuit



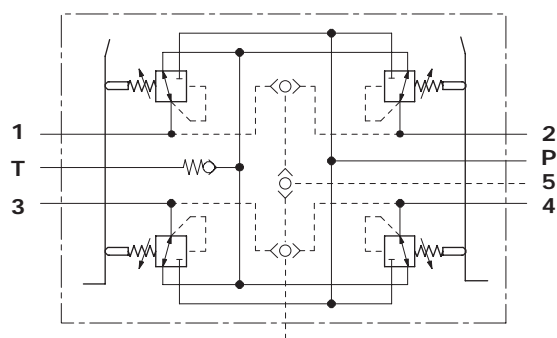
Dimensions and hydraulic circuit

SVM546

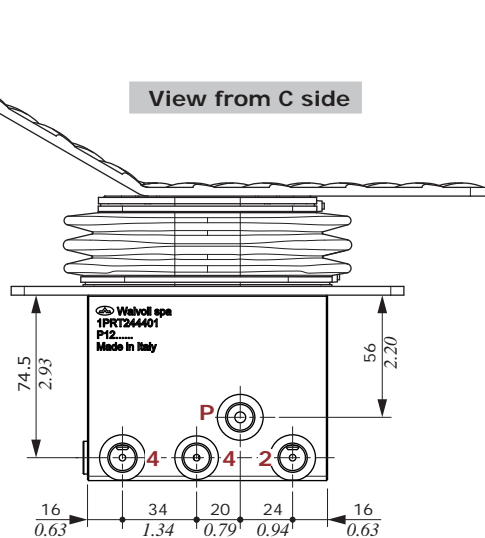
Double pedal configuration provided of damping system for swing reduction, with shuttle valves and auxiliary port.

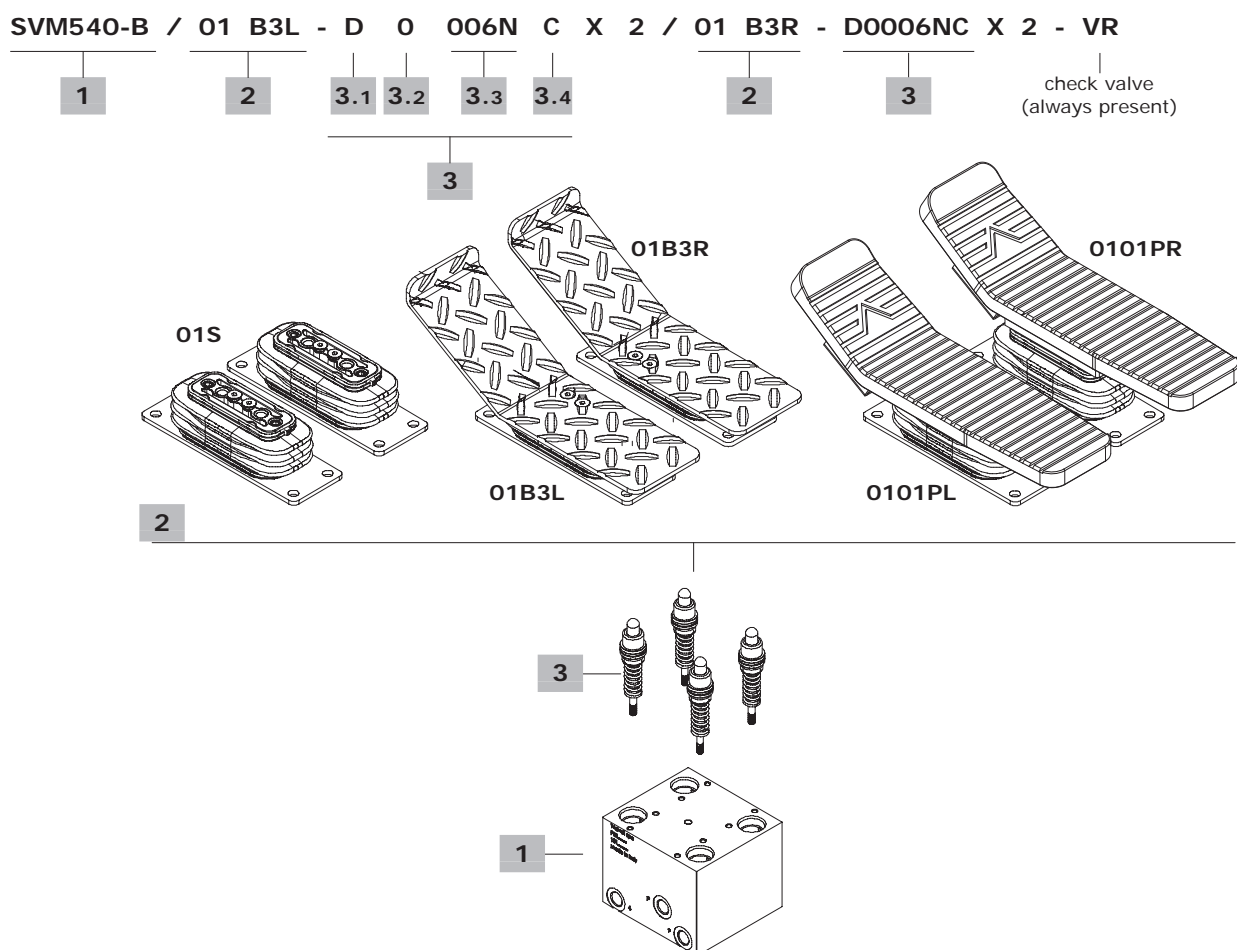


Hydraulic circuit



View from C side



**1 Body kit ***

TYPE	CODE	DESCRIPTION
SVM540-B	5CO3540300	Pilot control valve body with check valve
SVM546-B	5CO3546300A	Pilot control valve body with check valve, shuttle valves and auxiliary port

2 Control options page 68

TYPE	CODE	DESCRIPTION
01S	5CIN5001S	With spring return in neutral position and with rubber bellow, without pedal
01B3L	5CIN5001B3L	As type 01S with 150° bent left pedal
01B3R	5CIN5001B3R	As previous, right pedal
0101PL	5CIN500101PL	As type 01S with 150° bent left pedal and anti-slip rubber coating
0101PR	5CIN500101PR	As previous, right pedal
0102PL	5CIN500102PL	As type 01S with 150° bent and 30° tilted left pedal, short type; anti-slip rubber coating
0102PR	5CIN500102PR	As previous, right pedal
0103PL	5CIN500103PL	As type 01S with 150° bent and 30° tilted left pedal, long type; anti-slip rubber coating
0103PR	5CIN500103PR	As previous, right pedal

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
1	Without step

3.3 Curve identification

Progressive number, see tables from page 72

3.4 Return springs

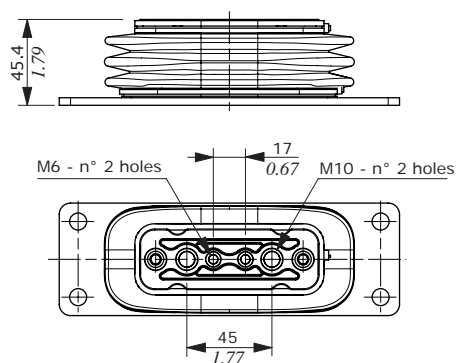
TYPE	DESCRIPTION
M	Operation range from 18 to 25.5 N - from 4.04 to 5.73 lbf
A	Operation range from 23 to 35.2 N - from 5.17 to 7.91 lbf
B	Operation range from 23 to 68.1 N - from 5.17 to 15.31 lbf
C	Operation range from 89 to 176 N - from 20 to 39.56 lbf
D	Operation range from 110 to 220 N - from 24.73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

NOTE (*) – Codes are referred to **BSP** thread.

Control options

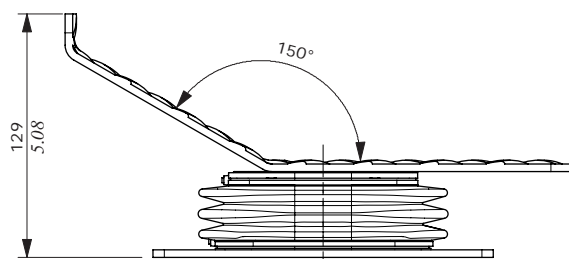
01S type

With spring return in neutral position without pedal.

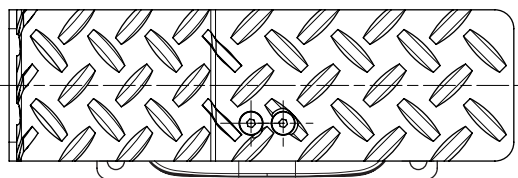


01B3 type

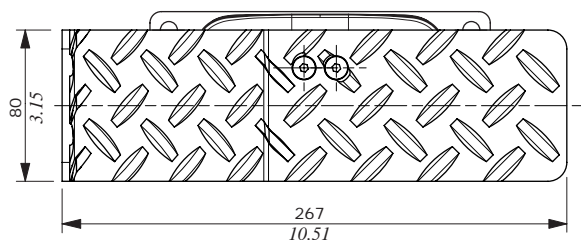
With spring return in neutral position.
Flat and shaped pedal with corrugated sheet, white galvanized.



Right pedal 01B3R type

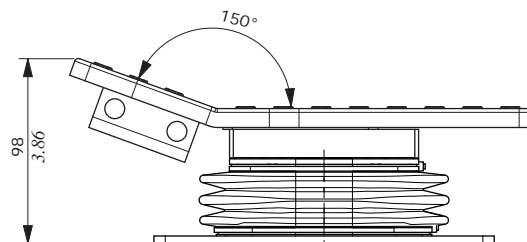


Left pedal 01B3L type

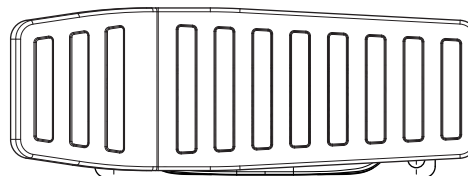


0101P type

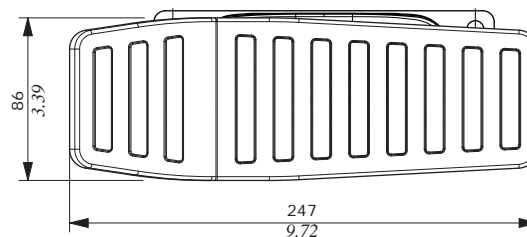
With spring return in neutral position.
Flat and shaped pedal with anti-slip rubber coating.



Right pedal 0101PR type



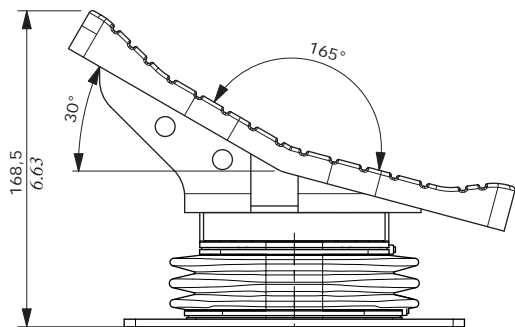
Left pedal 0101PL type



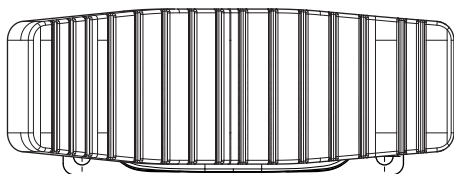
Control options

0102P type

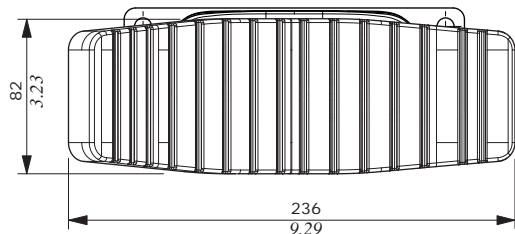
With spring return in neutral position.
Tilted and shaped pedal with anti-slip rubber coating, short model



Right pedal 0102PR type

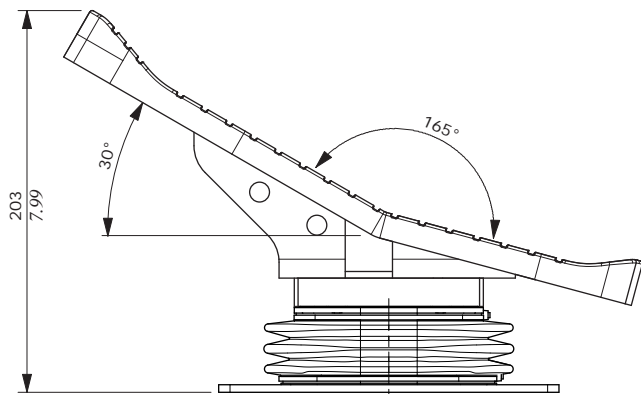


Left pedal 0102PL type

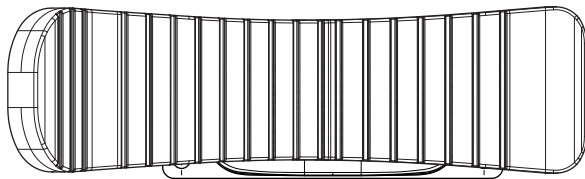


0103P type

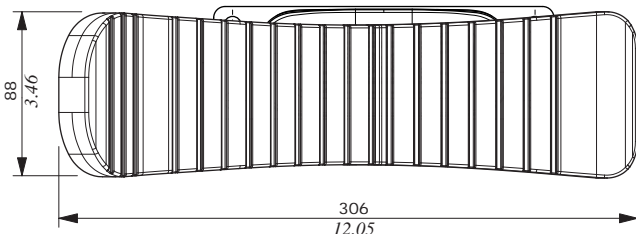
With spring return in neutral position.
Tilted and shaped pedal with anti-slip rubber coating, long model



Right pedal 0103PR type



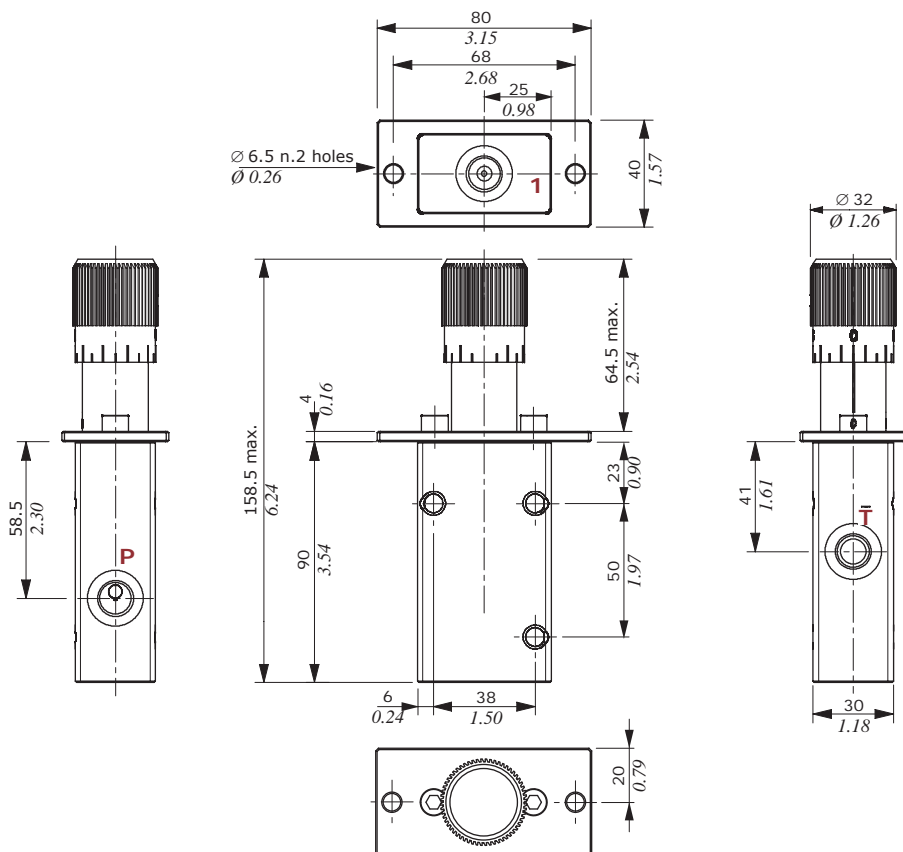
Left pedal 0103PL type



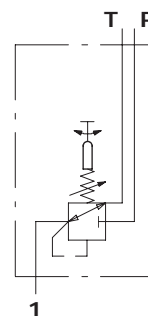
Dimension and hydraulic circuit

SVM701 version

Configuration with handwheel operating.

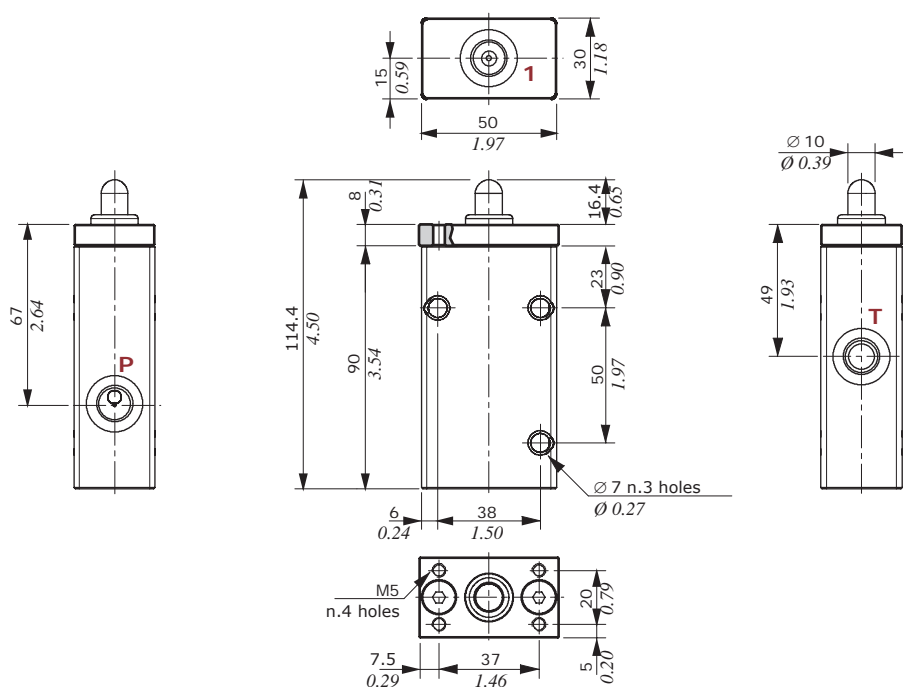


Hydraulic circuit

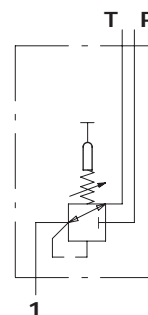


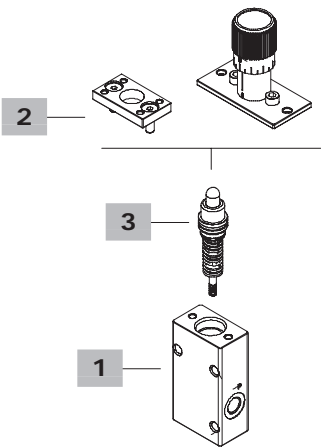
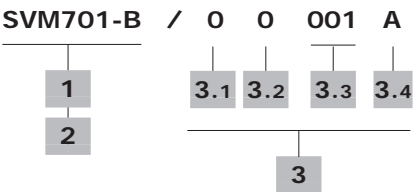
SVM710 version

Configuration with pusher operating.



Hydraulic circuit





1 Body kit *

TYPE	CODE	DESCRIPTION
SVM701-710	3C03710300	Body kit

2 Control option

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

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

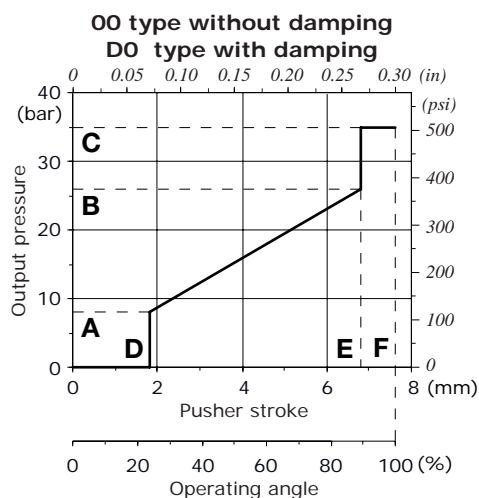
Progressive number, see tables from page 72

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 **BSP** thread.

Control curves with step



Curve description		Pressure						Stroke						CODE ⁽¹⁾
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 (+1, -0.5)	7.25 (+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 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 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 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 5CUR40032B 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 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 5CUR40020B 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 5CUR40004C 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 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 5CUR40028B 5CUR40028C 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 5CUR40075B 5CUR40075C 5CUR40075E 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 5CUR40024C

Control curves with step

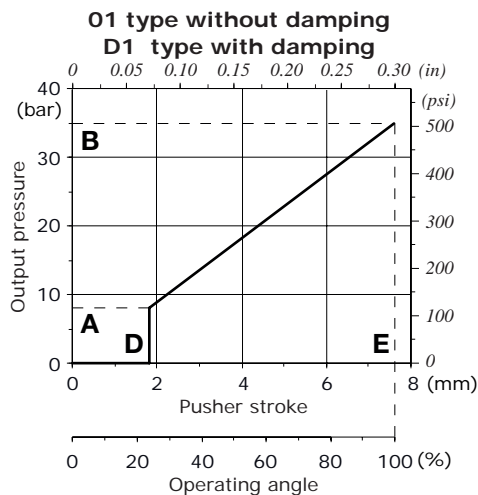
Curve description		Pressure						Stroke						CODE ⁽¹⁾
		A		B		C		D		E		F		
Type	Nr	bar (±toll)	psi (±toll)	bar (±toll)	psi (±toll)	bar	psi	mm	in	mm	in	mm	in	
00	033	5.8 (±0.5)	84.1 (±7.25)	19 (±1)	275.5 (±14.5)	35	507.5	0.85	0.03	7.25	0.28	7.6	0.30	5CUR40033A 5CUR40033B 5CUR40033C 5CUR40033M
00	070	5.8 (±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 5CUR40070B 5CUR40070D 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 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 5CUR40026B 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 5CUR40088B 5CUR40088C 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 5CUR40089C 5CUR40089D 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 5CUR40038M
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 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 5CUR4D089D

⁽¹⁾ indicates the curve with the specific return spring

For different curves please contact our Sales Department

List continues in the next page

Control curves without step



Curve description		Pressure				Stroke				CODE ⁽¹⁾
		A		B		D		E		
Type	Nr	bar (±toll)	psi (±toll)	bar (±toll)	psi (±toll)	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 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 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 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 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 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 5CUR40157B
01	114	4 (±0.5)	58 (±7.25)	10 (±1)	145 (±14.5)	0.85	0.03	7.6	0.30	5CUR40114A 5CUR40114B 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 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 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 5CUR40111B 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 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 5CUR40103M
01	106	6 (±1)	87 (±14.5)	40 (±2)	580 (±29)	0.85	0.03	7.6	0.30	5CUR40106A 5CUR40106B 5CUR40106C

List continues in the next page

Control curves without step

Curve description		Pressure				Stroke				CODE ⁽¹⁾
		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	125	8 (±0.5)	116 (±7.25)	22.5 (±1)	326.25 (±14.5)	0.85	0.03	7.6	0.30	5CUR40125M
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

⁽¹⁾ Il codice indica la curva con molla di riferimento

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

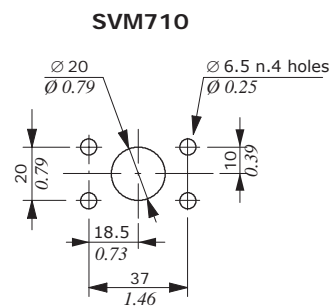
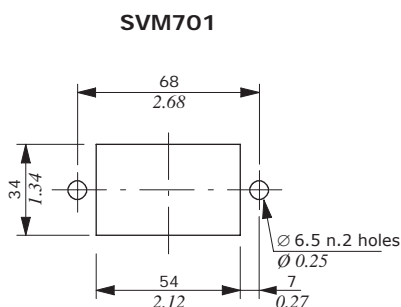
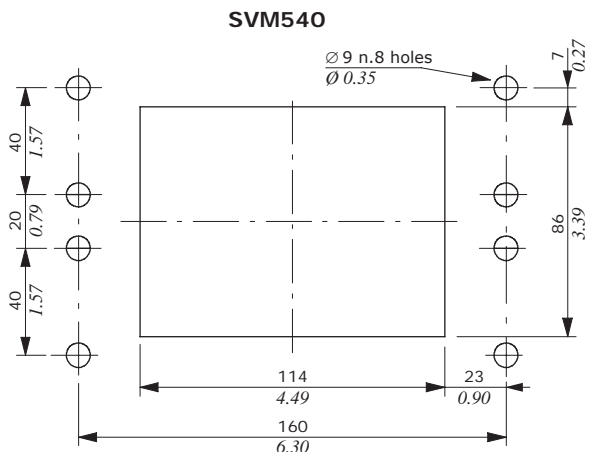
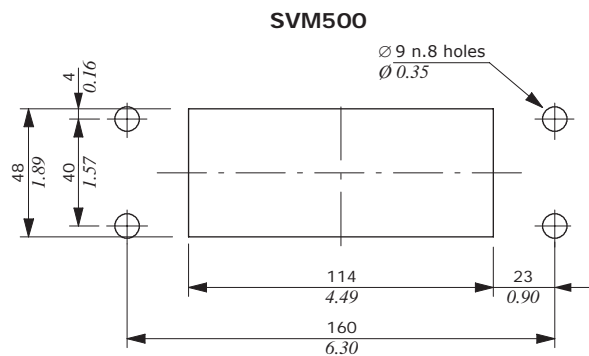
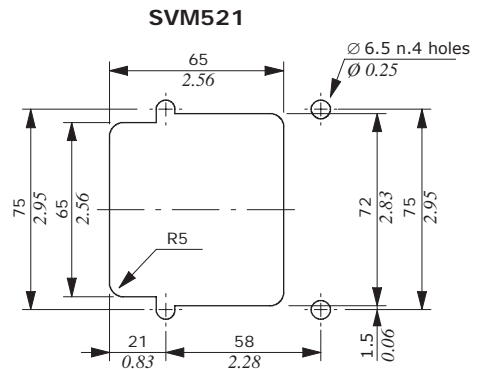
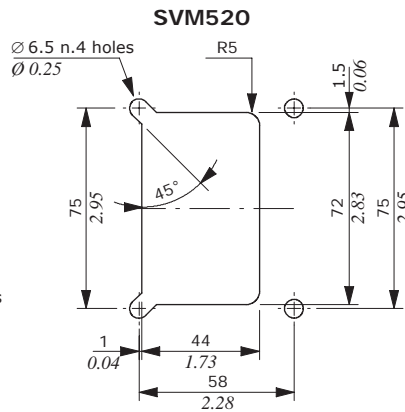
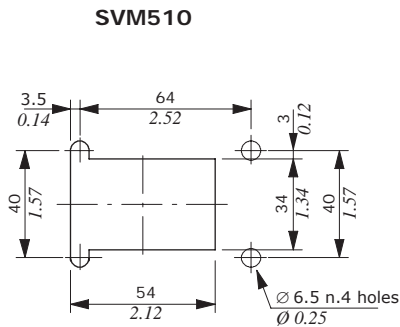
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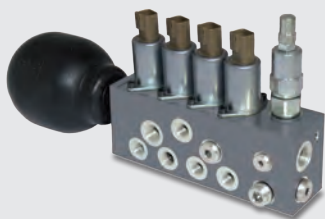
SVM pilot control valves assembled and tested as per the technical specification of this catalogue.

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 levers.

Panel cut out





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 46mm²/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 ² /s - from 15 to 75 cSt
	min.	12 mm ² /s - 12 cSt
	max.	400 mm ² /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 46mm²/s - 46 cSt viscosity at 40°C - 104°F temperature.

		FU/1	FU/2	FU/33
Max. pressure on inlet	on inlet P port	350 bar - 5075 psi	210 bar - 3045 psi	350 bar - 5075 psi
Flow rating range		60 l/min - 15.85 USgpm	12 l/min - 3.17 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 ² /s - from 15 to 75 cSt		
	min.	20 mm ² /s - 20 cSt		
	max.	200 mm ² /s - 200 cSt		
Max. contamination level		18/16/13 - 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 our Sales Dpt

DHV080 working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46mm²/s - 46 cSt viscosity at 40°C - 104°F temperature.

Nominal flow rating	10 l/min - 2.64 Us gpm
Nominal pressure	100 bar - 1450 psi
Internal leakage (100 bar - 1450 psi)	10 cm ³ /min - 0.61 in ³ /min
Fluid	mineral oil
Viscosity (operating range)	from 12 to 400 mm ² /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

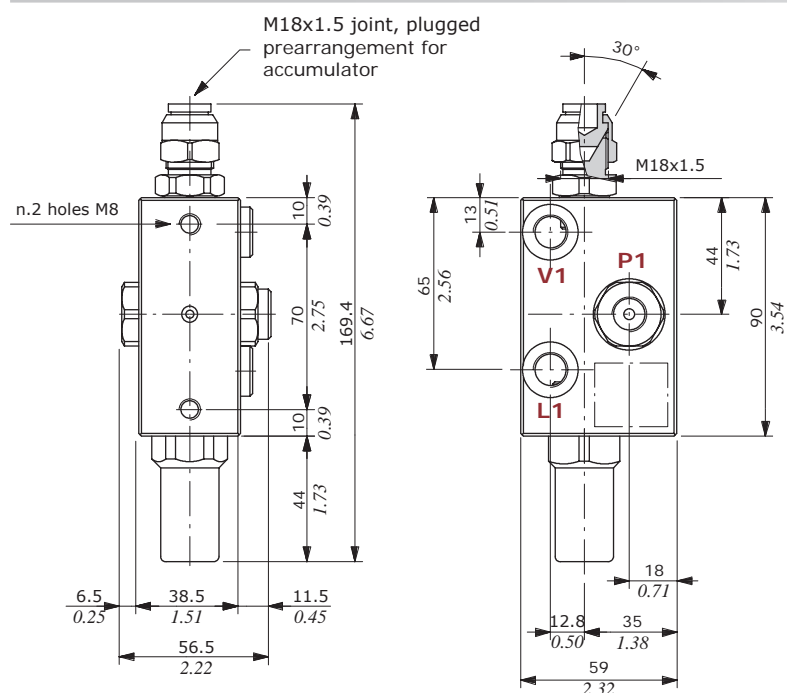
NOTE - for different conditions please contact Sales Dpt

REFERENCE STANDARD

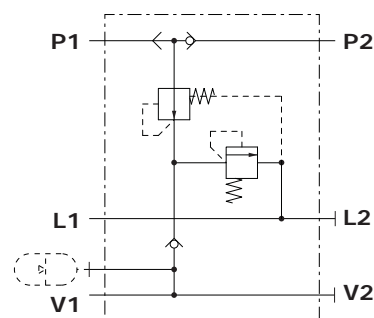
		BSP	UN-UNF
THREAD ACCORDING TO		ISO 228/1	ISO 263
		BS 2779	ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO	1179	11926
	SAE		J11926
	DIN	3852-2 X or Y shape	

AVN020 dimensions and hydraulic circuit

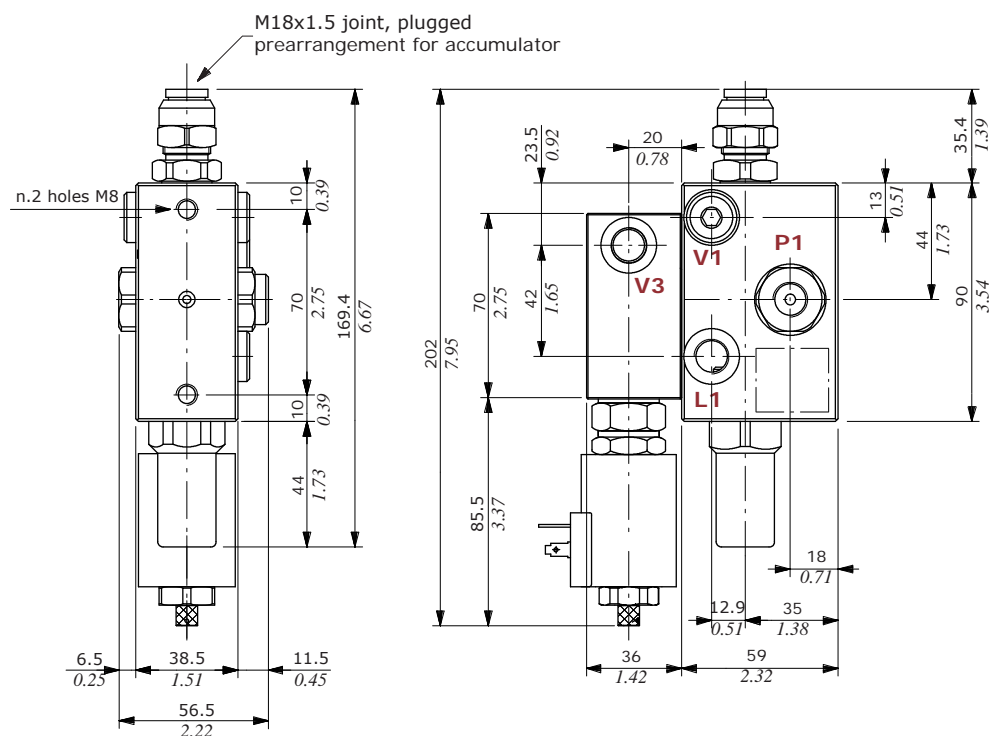
Version without unloader valve



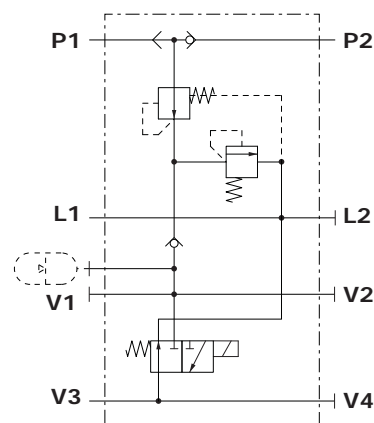
Hydraulic circuit



Version with unloader valve



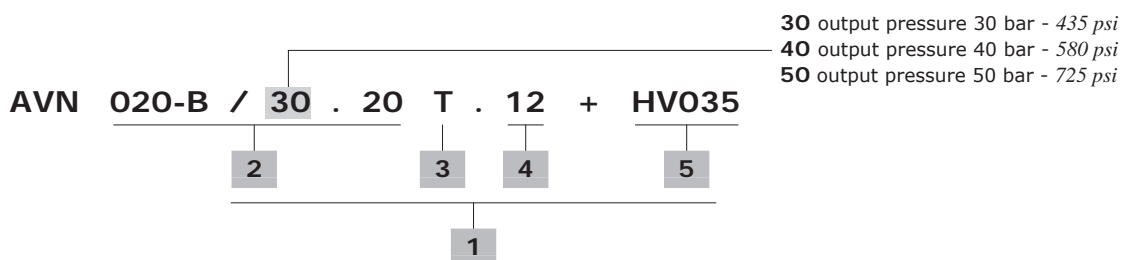
Hydraulic circuit



THREAD AND FITTING TIGHTENING TORQUES

Ports	Threads		Fitting tightening torque	
	BSP	UN-UNF	Nm	lbft
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-B/30.00** CODE: 180010001

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

TYPE: **AVN020-B/40.00** CODE: 180010002

DESCRIPTION: with 2 pressure ports, outlet pressure 40 bar - 580 psi

TYPE: **AVN020-B/50.00** CODE: 180010003

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

TYPE: **AVN020-B/30.20T.12** CODE: 180010011

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

2 Body kit *

TYPE	CODE	DESCRIPTION
020-B/00.20	5CO2902201	with 2 pressure ports

NOTE: outlet pressure 30, 40 and 50 bar - 435, 580, 725 psi

3 Unloader valve

TYPE	CODE	DESCRIPTION
T	0EJ08002043	With emergency screw

4 Coil

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

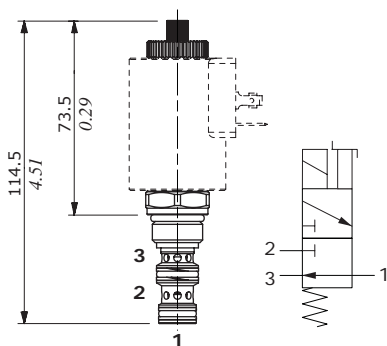
5 Optional accumulator

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

NOTE (*) – Codes are referred to **BSP** thread.

–AVN020 Configuration options

Solenoid unloader valve



Features

SOLENOID VALVE

Nominal flow : 12 l/min - 3.17 US gpm

Max. pressure : 50 bar - 725 *psi*

internal leakage: : 4 cm³/min - 0.24 in³/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

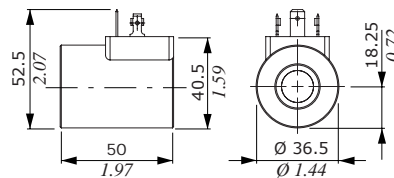
: IP69K - Deutsch DT

: IP65 - AMP JPT

Insertion : 100%

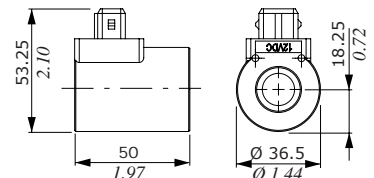
ISO4400 connector

needs 4CN1009995 connector



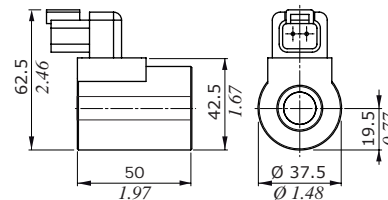
AMP JPT connector

needs 5CON003 connector



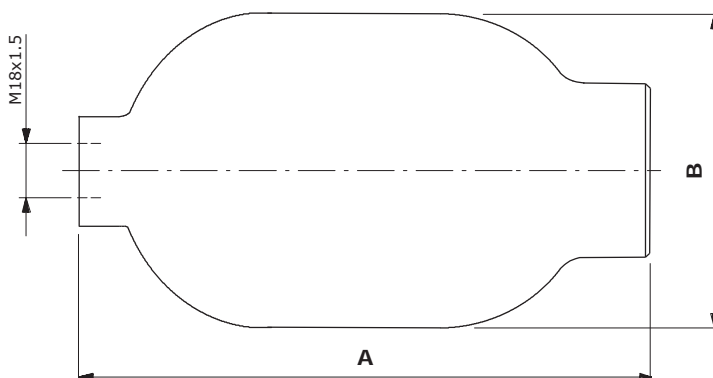
DEUTSCH DT04 connector

needs 5CON1410031 connector



Optional accumulators

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



Type	Volume		A		B		Mass	
	cm ³	in ³	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

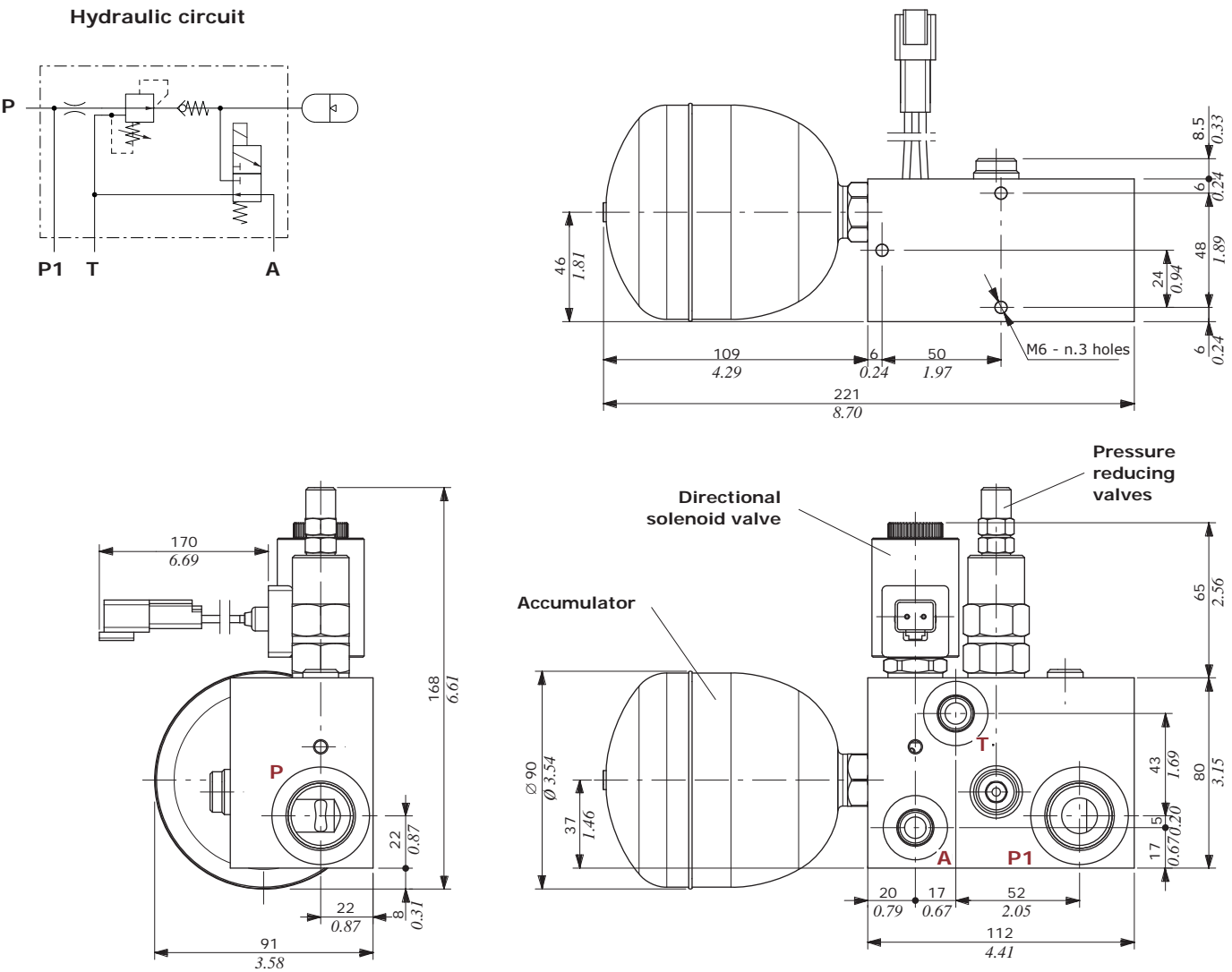
- Installation

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.

FU series configuration examples

Type FU/1 - one stage

CODE: 1992752200
TYPE: FU-AC(SAE6-11)-RB08A(35)-F-NV/1EJ08F4(L=170)/NPM-SAE6(AT)12(PP1)-12VDC
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.



PORTS THREADING AND FITTINGS TIGHTENING TORQUE			
PORTS	Threads	Fitting tightening torque	
	(different threads on request)	Nm	lbft
P, P1 inlet	1 1/16-12 UN (SAE 12)	65	48
A port	9/16-18 UNF (SAE 6)	30	22
T outlet	9/16-18 UNF (SAE 6)	30	22
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

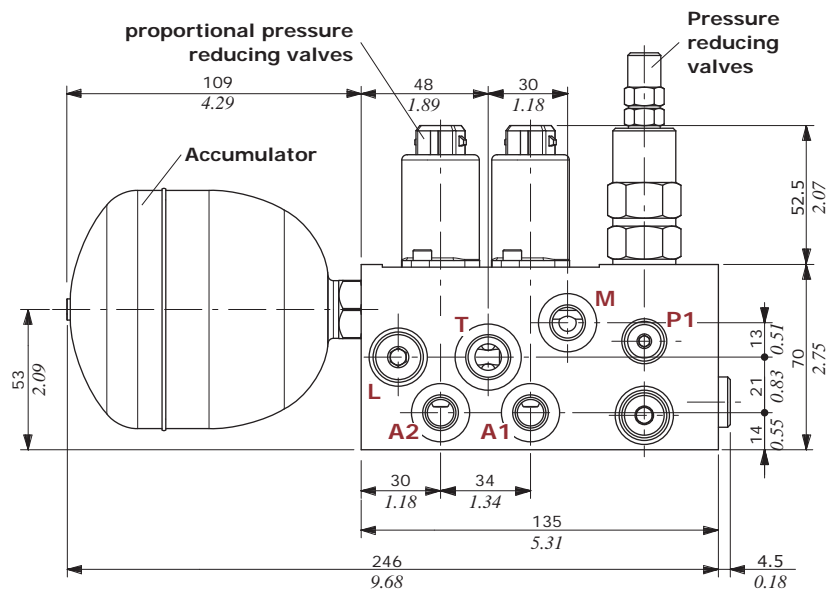
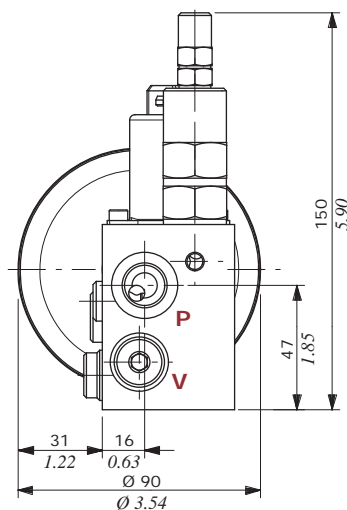
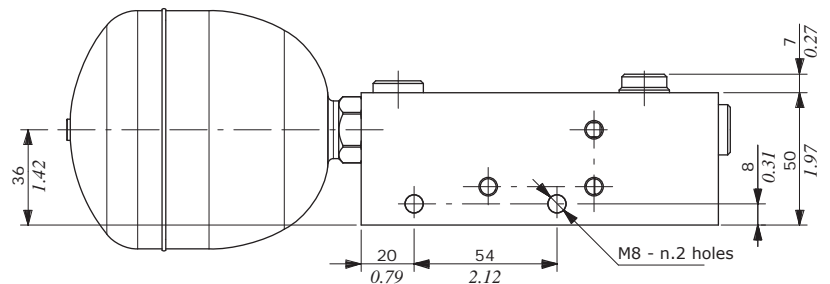
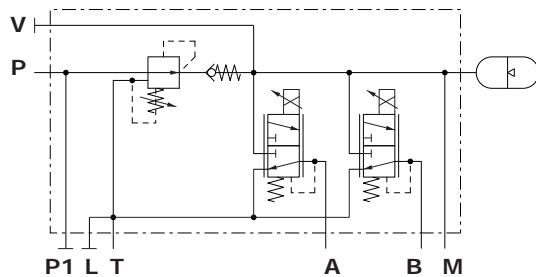
Type FU/2 - two stages

CODE: 1992820001

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

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 (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, 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

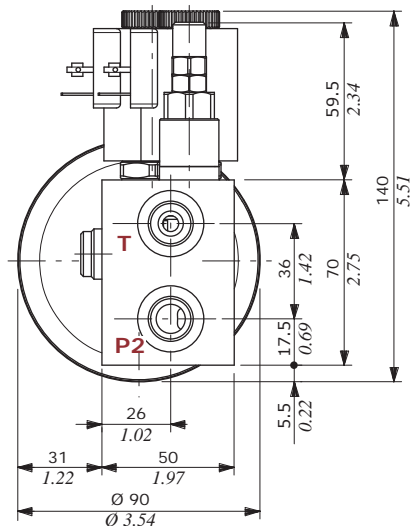
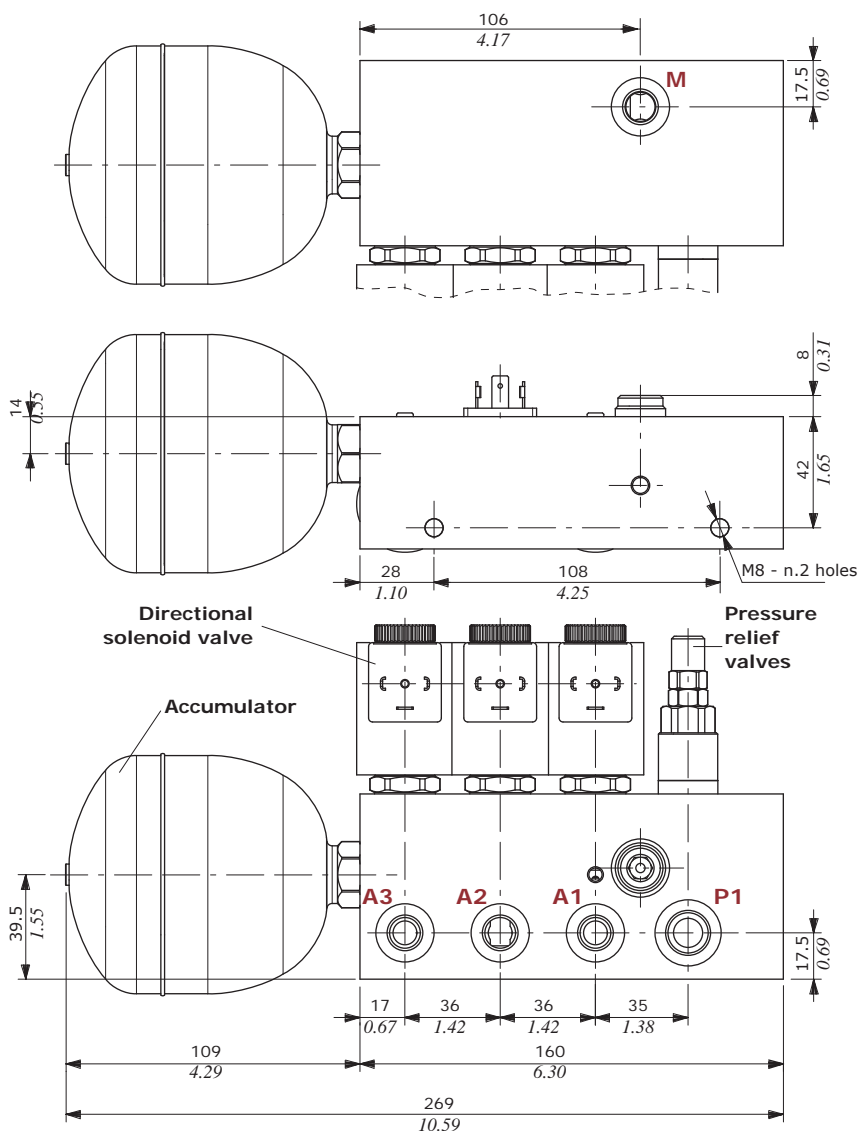
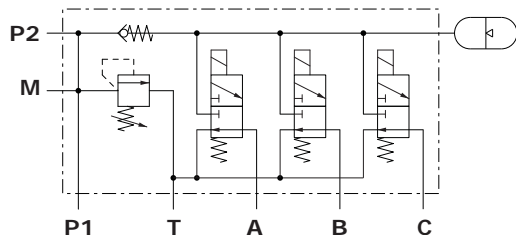
Type FU/3 - three stages

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 (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

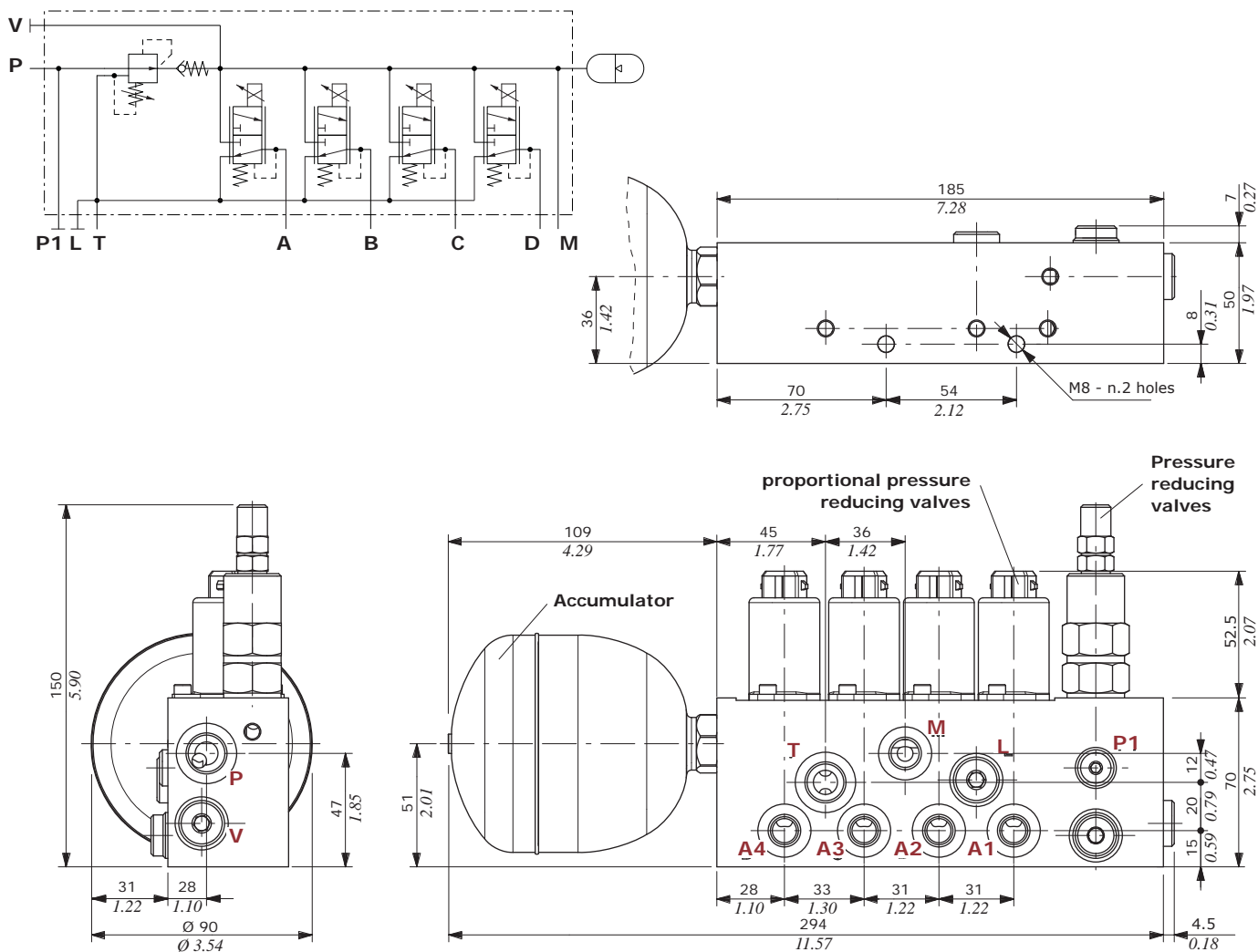
Type FU/4 - four stages

CODE: 1992840000

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

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



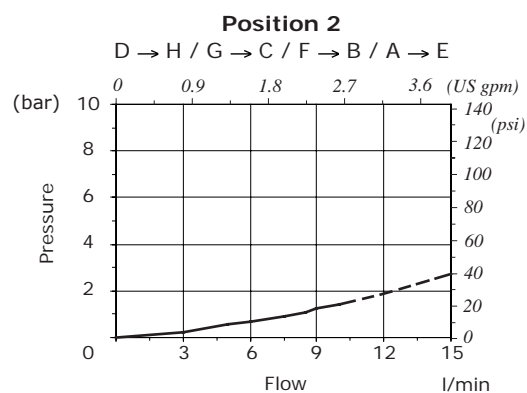
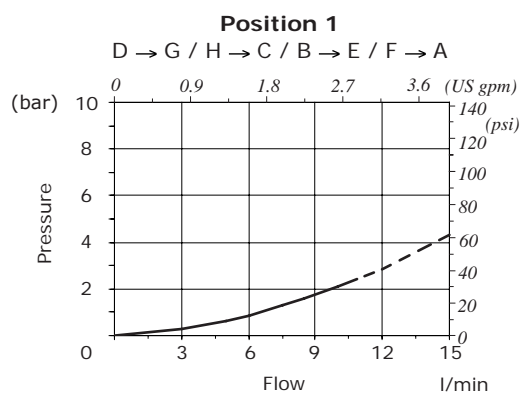
PORTS THREADINGS AND FITTING TIGHTENING TORQUE

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, 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

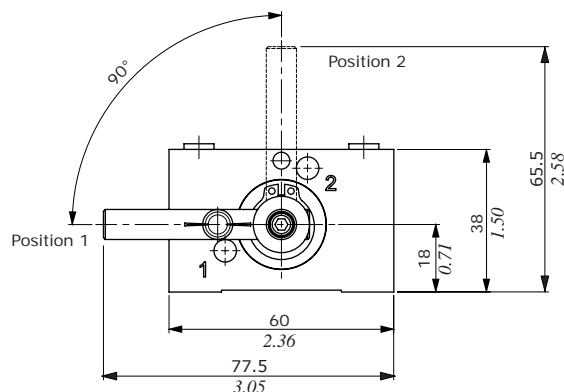
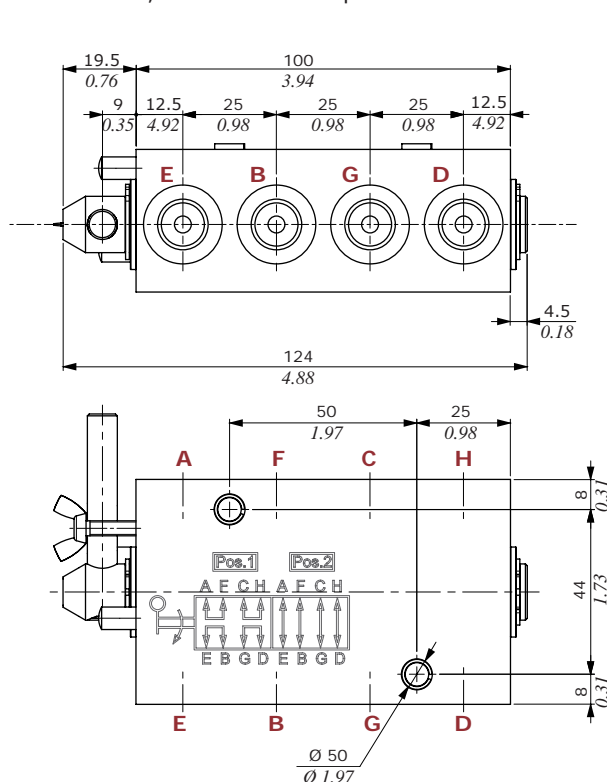
Pressure drop



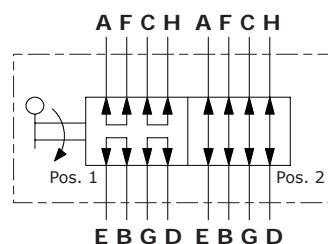
Dimensions and hydraulic circuit

The diverter valve is available in this configuration: **DHV080/8LN-BSP-<CVN>** code **140080000**

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



Hydraulic circuit



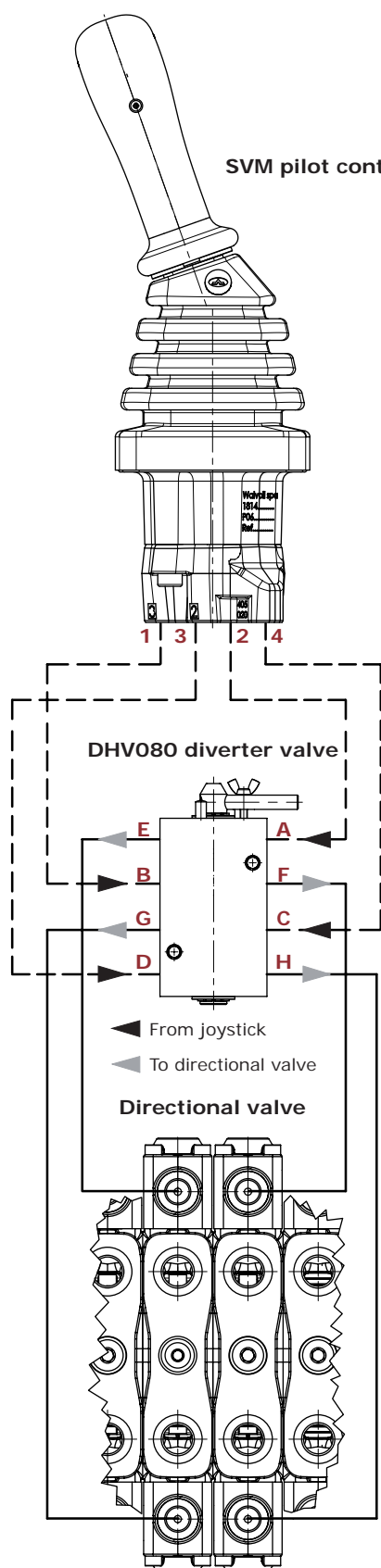
PORT THREADING AND FITTING TIGHTENING TORQUE

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

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

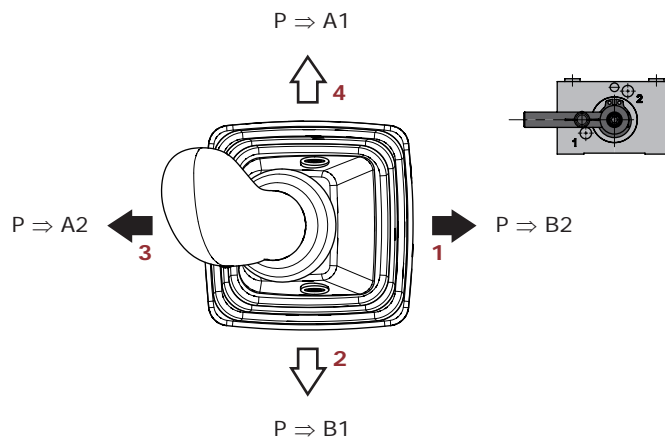
DHV080 diverter valve

Typical application

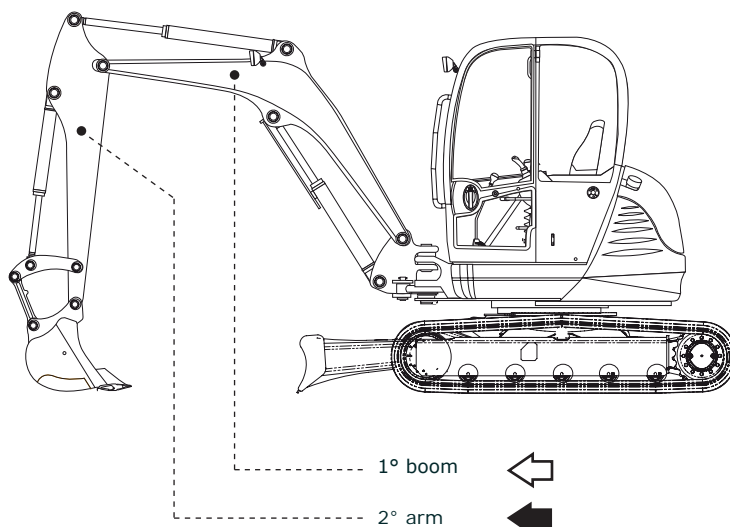
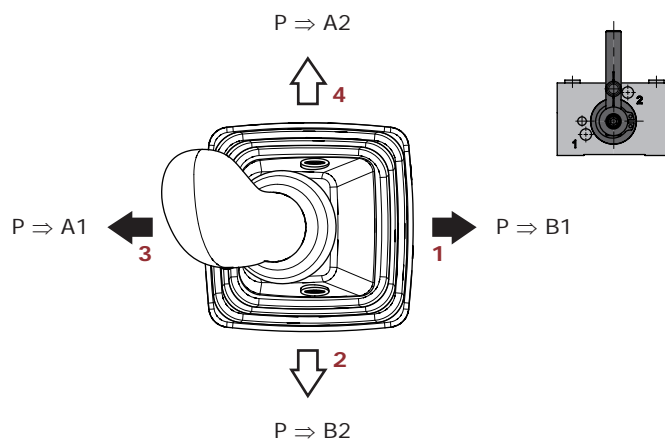


Joystick movement

Diverter valve in position 1
Backhoe configuration



Diverter valve in position 2
Mini-excavator configuration



Appendix

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 SDM110	SDM100	SDM140 DLM140	SDM141	SD11	SD14	SD18
8IM	5IDR205021	00026						
	5IDR207300		00088					
	5IDR208300			00033	00033			
	5IDR210000					00070	00070	
	5IDR220000							00070
13IM	5IDR205330	00075 (VA) E0094 (VB)						
	5IDR208214			00075 (VA) E0094 (VB)	00075 (VA) E0094 (VB)			
13IMS	5IDR207350		00053 (VA) E0075 (VB)					
13DM	5IDR208314			00075 (VA) E0075 (VB)	00075 (VA) E0075 (VB)			

For sectional directional control valves

Hydraulic controls Type	Code*	SD6	DLS7	SDS100	SD8 SDS140	DLS8	SDS150	SDS180	DLS180	SD25	SDS400
8IM	5IDR206010	00075									
	5IDR207300			00088							
	5IDR208300				00033						
	5IDR216300						00033	00033			
	5IDR225300									00053	
8IMS	5IDR20B300										00028
	5IDR207320			00088							
8IMO	5IDR208100				00033						
	5IDR225000									00033	
8IMOH	5IDR216300-H						00033	00033			
8IMF3	5IDR207000		00033								
	5IDR207310			00088							
	5IDR208220					00021					
	5IDR216303							00033			
13IM	5IDR216013							00033 (VA) E0075 (VB)			
	5IDR20B310										00010 (VA) E0096 (VB)
13IMS	5IDR207350		00053 (VA) E0075 (VB)								
13DM	5IDR208314				00075 (VA) E0075 (VB)						
13IMO	5IDR225350									00075 (VA) E0075 (VB)	
13IMPOH	5IDR216014-H						00075 (VA) E0075 (VB)				

Note (*): Codes are referred to controls with BSP threading

Suggested pressure control curves for hydraulic controls

For Load Sensing and Flow Sharing directional control valves

Hydraulic controls Type	Code*	DPC130	DPC200	DPX050	DPX100	DPX160
	5V08130800	00020				
8IM	5V08200801		00020			
	5IDR20A300V			00089		
8IMN	5IDR204304V				00089	
8IMNO	5IDR204305V				00089	
8IMX	5IDR20A301V			00028		
8IMXN	5IDR204303V				00054	
8IMOHN	5IDR209304V-H					00089
8IMF3	5IDR20A302V			00089		
8IMF3N	5IDR204314V				00089	
8IMXF3	5IDR20A303V			00028		
8IMXF3N	5IDR204313V				00054	
8IMOHF3N	5IDR209305V-H					00089
13IMP	5IDR20A310V			00089 (VA)-E0086 (VB)		
13IMS	5IDR207350V				00053 (VA)-E0075 (VB) 01098 (VA)-E0086 (VB)	
13IMOH	5IDR209303V-H					00089 (VA)-E0033 (VB)
13IMPOH	5IDR209014V					00073 (VA)-E0073 (VB)

Note (*): Codes are referred to controls with BSP threading

Notes



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