walvoil

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.

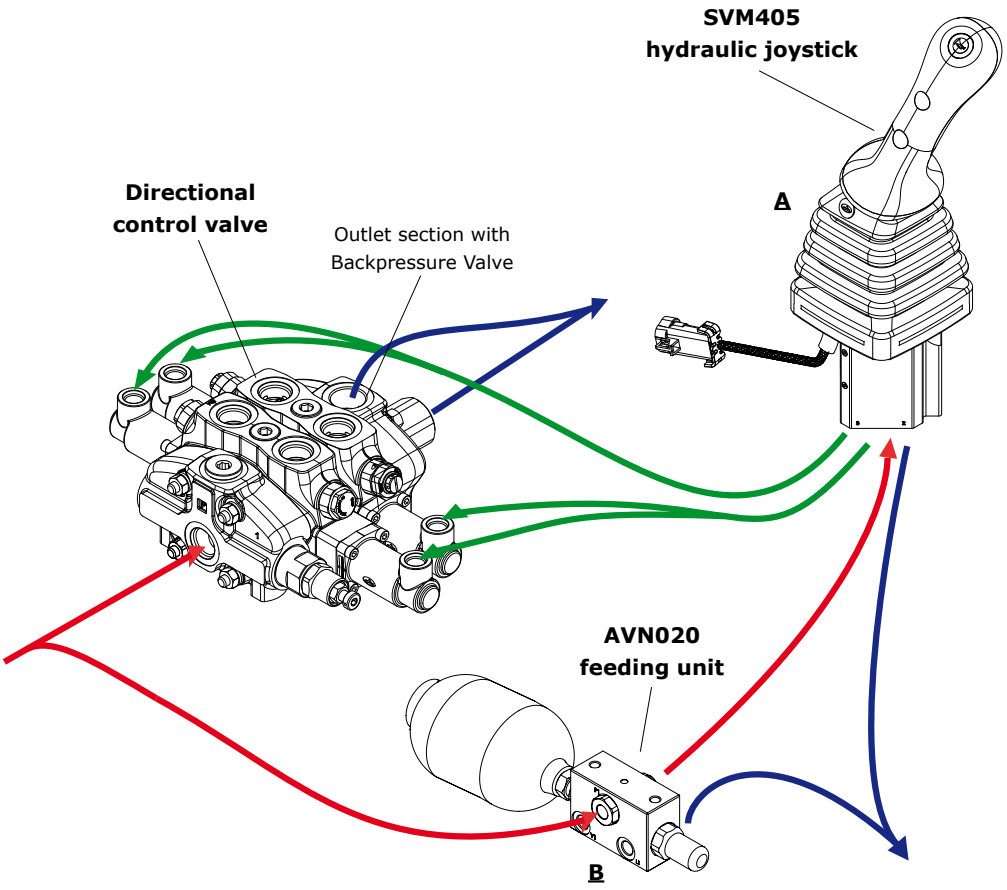
WALVOIL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN INCORRECT USE OF THE PRODUCT.

5th edition November 2021

Index

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 translation motors and hydrostatic transmission.

- SVM400-EMD
Single electromagnetic detent on all ports or double on opposite ports.

- SVM405
Configuration with damping system.

- SVM320
Hydraulic joystick with low operating effort.

2) Hydraulic joysticks with differential area

- SVM980
Hydraulic joystick, double function, with low operating effort and possibility to manage and regulate high flow rates.

3) 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.

4) 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.

- SVM702 - SVM710
Unit with single work port, handweel 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/SVM405/ SVM320

- 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 - *from 1.32 to 5.28 USgpm* (12 l/min for SVM320 - *3.17 USgpm for SVM320)*
Max. feeding pressure	on P inlet port	from 30 to 100 bar - *from 435 to 1450 psi*
Max. backpressure	on T outlet port	3 bar - *43.5 psi*
Max. hysteresis		0.5 bar - *7.25 psi*
Internal leakage (all ports)	at 30 bar - *435 psi*, P⇒T	from 2.5 to 4.5 cm³/min - *from 0.15 to 0.27 in3/min*
Fluid		Mineral oil
Fluid temperature	with NBR (BUNA-N) seals	from -10°C to 80°C - *from 14 °F to 176 °F*
Viscosity	operating range	from 15 to 75 mm²/s - *from 15 to 75 cSt*
	min.	12 mm²/s - *12 cSt*
	max.	400 mm²/s - *400 cSt*
Max. contamination level		-/15/12 - ISO 4406 - *NAS1638 class 6*
Ambient temperature	without electric devices	from -40°C to 60°C - *from 40 °F to 140 °F*
	with electric devices	from -20°C to 50°C - *from -4 °F to 122 °F*
Tie rod tightening torque (wrench 13)	only for SVM100-101	*24 Nm - 17.7 lbft*

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	*22.1*
Ports	G 1/4	7/16-20 (SAE 4)	30	*22.1*
T Outlet	G 1/4	7/16-20 (SAE 4)	30	*22.1*

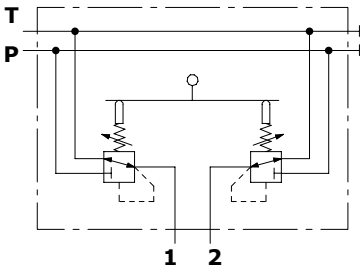
NOTE – These torques are recommended. Assembly tightening torque depends on many factors, including lubrification, coating and surface finishing. The manufacturer has to be consulted.

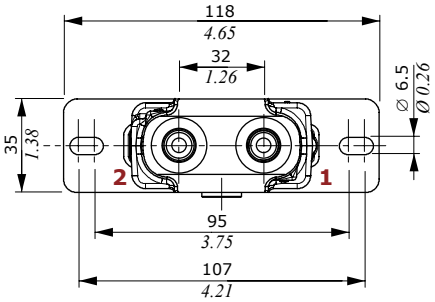
Dimensions and hydraulic circuit

Single acting version

Single function configuration with side P and T ports.

Hydraulic circuit

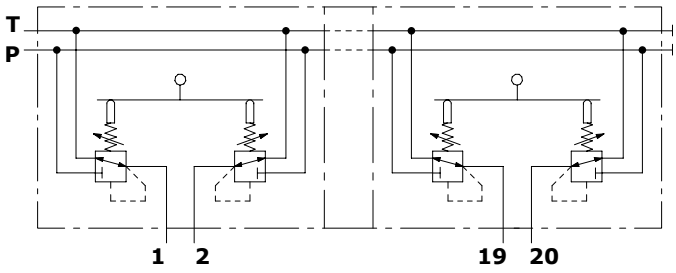




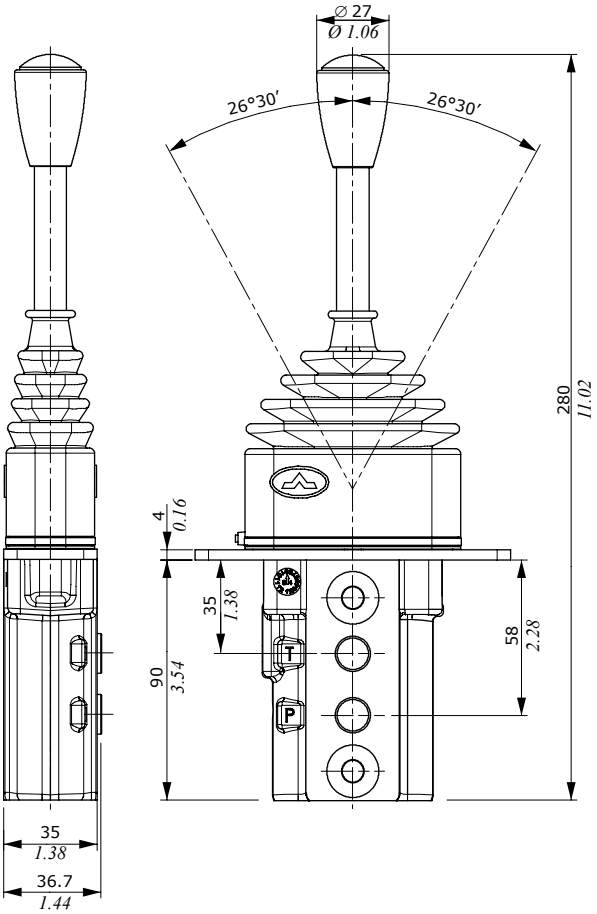
SVM100/n version

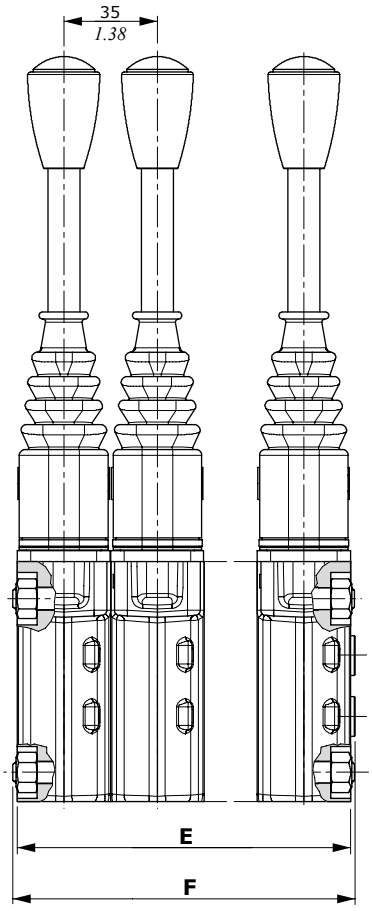
Multiple function configuration with side P and T ports.

Hydraulic circuit



TYPE	E		F		TYPE	E		F	
	mm	*in*	mm	*in*		mm	*in*	mm	*in*
SVM100/2	70	*2.76*	73.2	*2.88*	**SVM100/7**	245	*9.65*	248.2	*9.77*
SVM100/3	105	*4.13*	108.2	*4.26*	**SVM100/8**	280	*11.02*	283.2	*11.15*
SVM100/4	140	*5.51*	143.2	*5.64*	**SVM100/9**	315	*12.40*	318.2	*12.53*
SVM100/5	175	*6.89*	178.2	*7.02*	**SVM100/10**	350	*13.78*	353.2	*13.91*
SVM100/6	210	*8.27*	213.2	*8.39*					



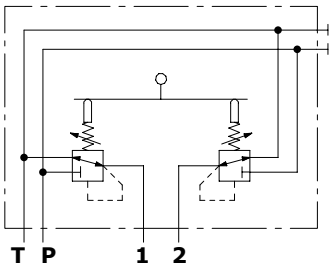


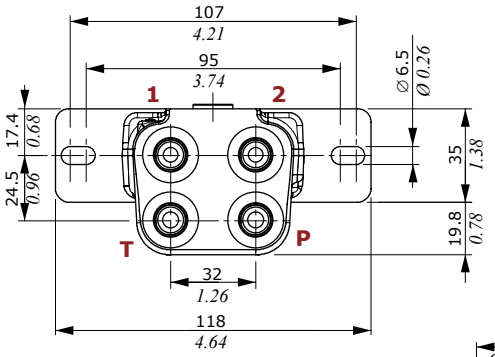
Dimensions and hydraulic circuit

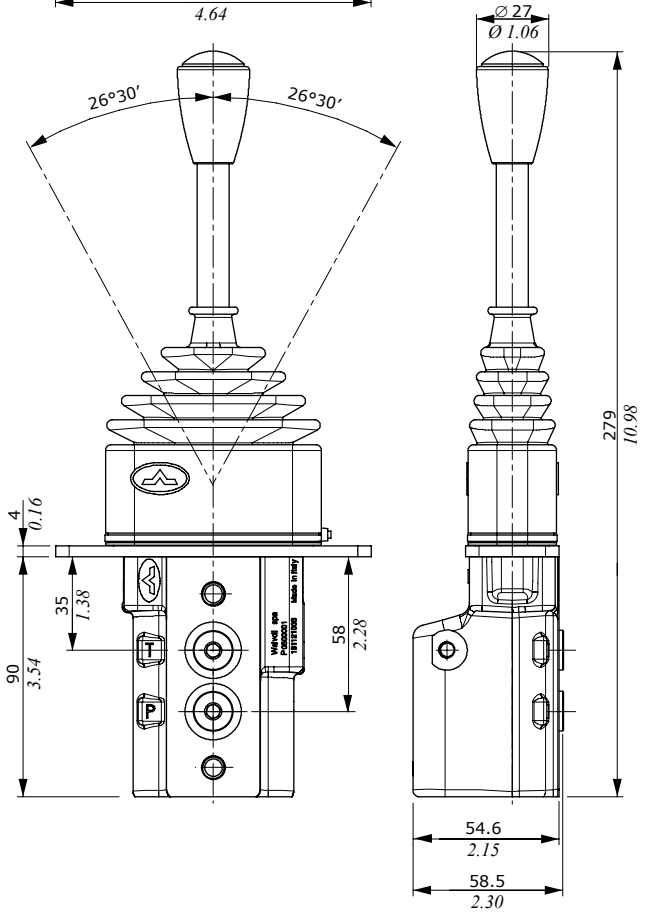
SVM101 version

Single function configuration with bottom P and T ports.

Hydraulic circuit



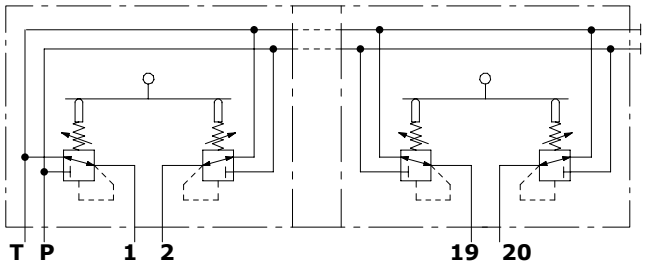




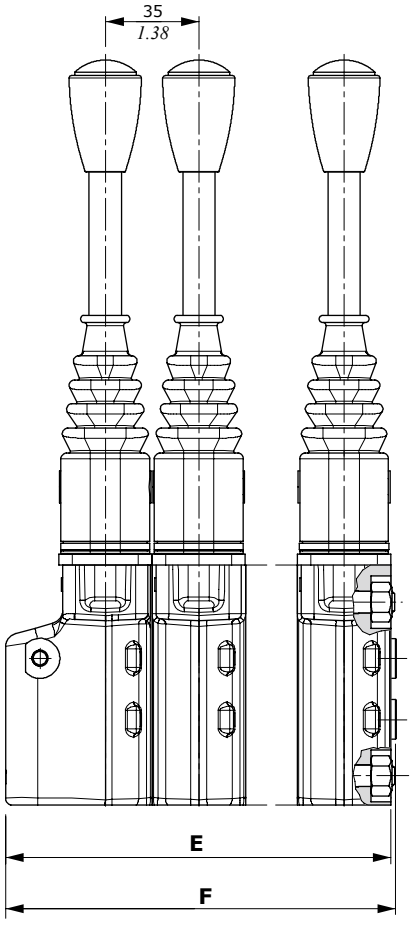
SVM101/n version

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*	91.3	*3.59*	**SVM101/7**	264.6	*10.42*	266.3	*10.48*
SVM101/3	124.6	*4.91*	126.3	*4.97*	**SVM101/8**	299.6	*11.79*	301.3	*11.86*
SVM101/4	159.6	*6.28*	161.3	*6.35*	**SVM101/9**	334.6	*13.17*	336.3	*13.24*
SVM101/5	194.6	*7.66*	196.3	*7.72*	**SVM101/10**	369.6	*14.55*	371.3	*14.62*
SVM101/6	229.6	*9.04*	231.3	*9.11*					



Ordering codes

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

SVM100 / N - S / 01 G3 (....) - 00001A - 0 0 001 A / ..... / .....

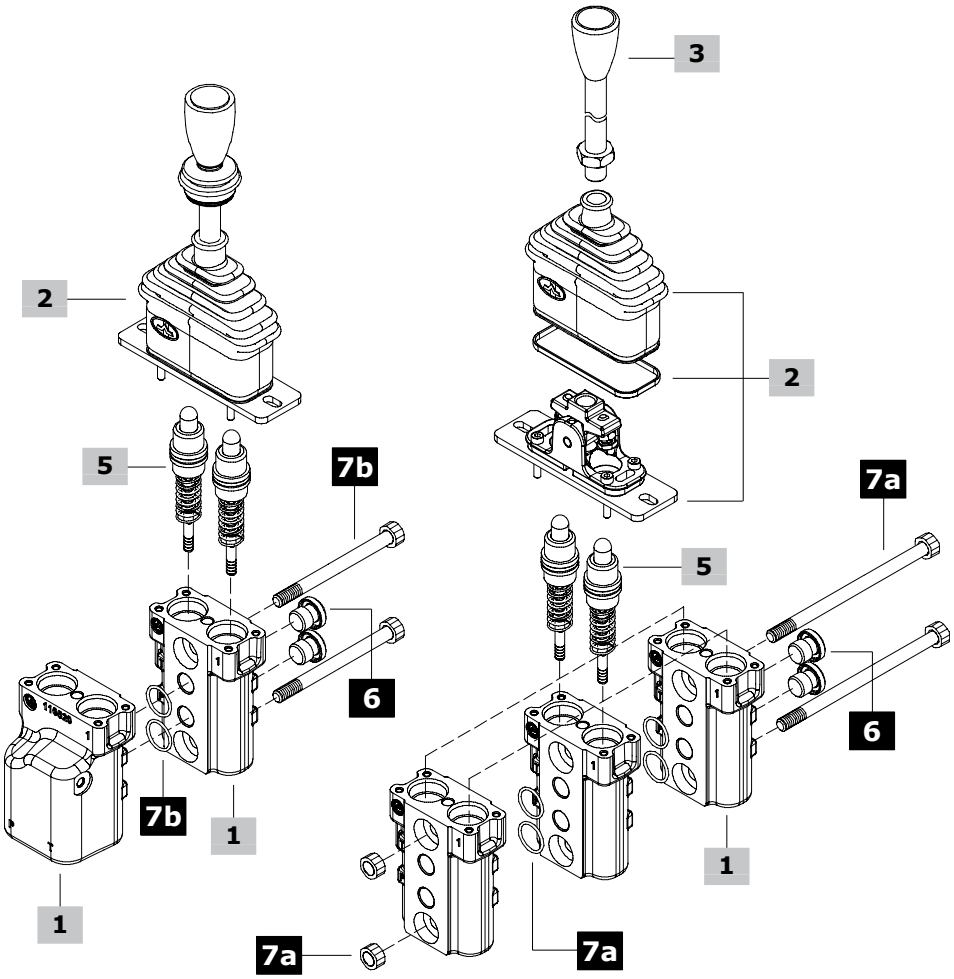
1		1	2	3	4	5	5.1	5.2	5.1	5.3

Substitute with number of sections

5

SVM101 / N - S / 02G3 - 00001A - 00001A / ..... / .....

1		1	2



Ordering codes

1 Body kit *

TYPE	CODE	DESCRIPTION
SVM100-S	3CO3122700	With side P and T ports
SVM101-S	3CO3122710	With bottom P and T ports

2 Control option

Complete with rubber bellow and fixing wrapper

Without handlever (for standard handlever see 3)

TYPE	CODE	DESCRIPTION
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.

TYPE	CODE	DESCRIPTION
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 one, E knob, 15° bending rod
03JL3	5CIN103004	As previous one, JL knob
10G3	5CIN110000	With friction and detent in neutral position, 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 (NO) microswitch operation in either directions, neutral sensing, spring return in neutral position, G knob
16TM3G3	5CIN116005	With (NC) microswitch operation in either directions, spring return in neutral position, G knob, Heavy Duty configuration
16TM1G3	5CIN116004	As 16TM3G3, microswitch operation with lever towards port 1
16TM2G3	5CIN116004	As 16TM3G3, microswitch operation with lever towards port 2
20G3	5CIN120000	Detent in position 1 and 2, friction, neutral sensing, G knob
22G3	5CIN122000	With (NO) microswitch operation in either directions, friction, G knob

3 Standard handlevers

Without microswitch:

TYPE	CODE	DESCRIPTION
G3	5AST271218G	Ogival with portlight, straight rod (STANDARD)
G3(15)	5AST371227G	Ogival with portlight, 15° sloping rod
G3(30)	5AST371228G	Ogival with portlight, 30° sloping rod
E	5AST371215E	Spherical with portlight, 15° sloping rod

With microswitch:Not available with control type 07-16-20-22

CAUTION: for assembly requirements these handlevers, if ordered as a spare parts, will be supplied complete with rubber bellow

TYPE	CODE	DESCRIPTION
JJ3	5AST271218J	With spring return
JM3	5AST271218M	With detent rocker switch

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

4 Handle position

Only for sploping rod

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

5 Pressure control curves

For list available see from page 27

5.1 Curve type

TYPE	DESCRIPTION
0	Standard

5.2 Typology of curves

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

5.3 Curve identification

Progressive number

5.4 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 137.8 to 276.1 N - *from 31 to 62.07 lbf*

6 Closing plugs *

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

7b Assembling kit for SVM100

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

CODE	DESCRIPTION	CODE	DESCRIPTION
5TIR108073	For SVM100/2	5TIR108248	For SVM100/7
5TIR108108	For SVM100/3	5TIR108283	For SVM100/8
5TIR108143	For SVM100/4	5TIR108319	For SVM100/9
5TIR108178	For SVM100/5	5TIR108353	For SVM100/10
5TIR108213	For SVM100/6		

7b Assembling kit for SVM101

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

CODE	DESCRIPTION	CODE	DESCRIPTION
5TIR108050	For SVM101/2	5TIR108225	For SVM101/7
5TIR108085	For SVM101/3	5TIR108261	For SVM101/8
5TIR108122	For SVM101/4	5TIR108295	For SVM101/9
5TIR108156	For SVM101/5	5TIR108330	For SVM101/10
5TIR108190	For SVM101/6		

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

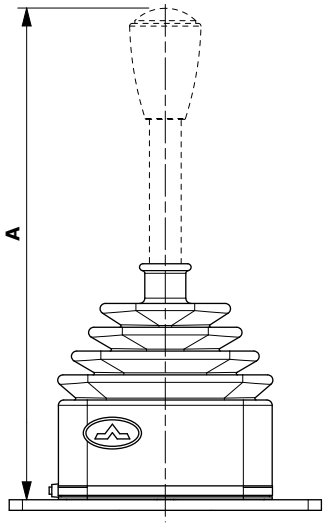
Configuration option

Controls without handlevers

Controls type

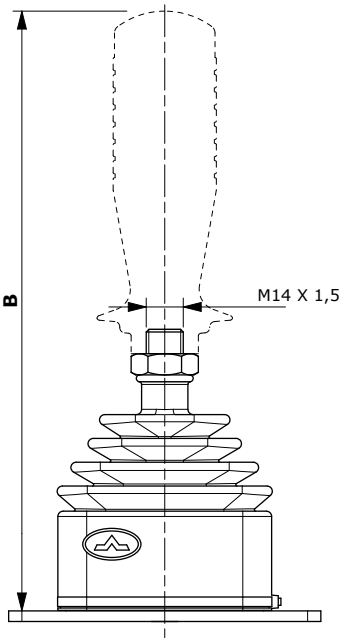
01: Spring return to neutral position
05: With detent in position 1 and spring return in neutral position
06: With detent in position 2 and spring return in neutral position
07: With detent in positions 1 and 2; spring return in neutral position
03S: With friction and neutral sensing, arranged for handles with M14x1.5 thread (see the "handles and handlevers" catalogue)

01-05-06-07 type



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*

03S type



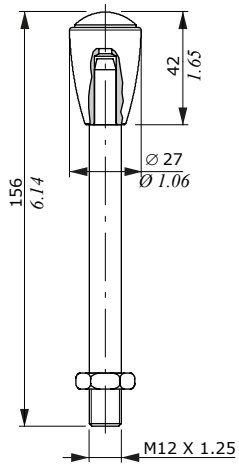
Handle type	B	
	mm	*in*
10 series	229	*9.02*
V type	243	*9.57*
H type	241	*9.49*
P type	259	*10.20*
AMH type	200	*7.87*

Handlevers

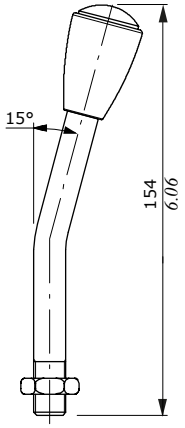
Without microswitch

G type: Ogival knob with customizable portlight. It's possible to insert labels with specific machine functions (for example: lifting function): please contact our Sales Department.
E type: Spherical handle customizable as G type.

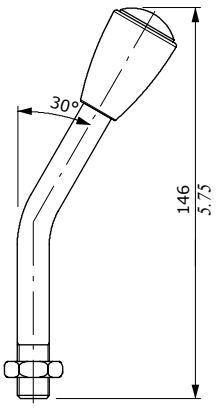
G type
straight rod



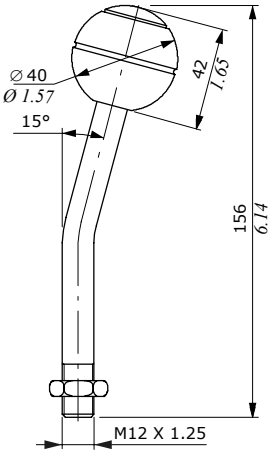
G(15) type
15° sloping rod



G(30) type
30° sloping rod



E type
15° sloping rod



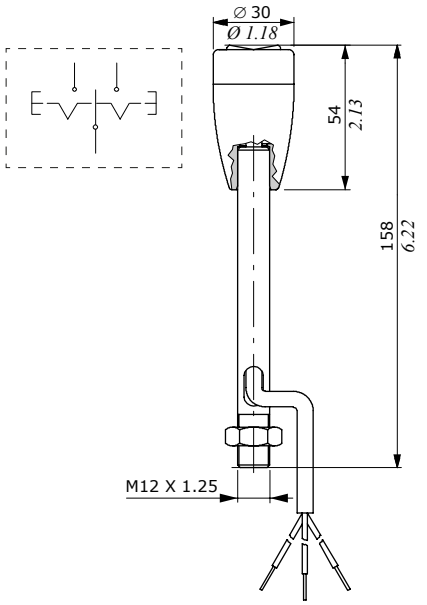
Configuration option

Handlevers

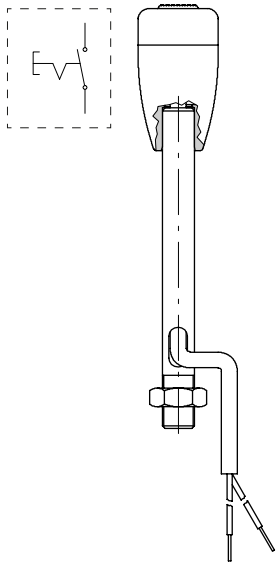
With microswitch

JM type: Ogival knob, small dimensions, available with detent rocker microswitch.
JJ type: As previous one, available with spring return push-button microswitch.
For technical features see catalogue D1WWEH01I.

JM type

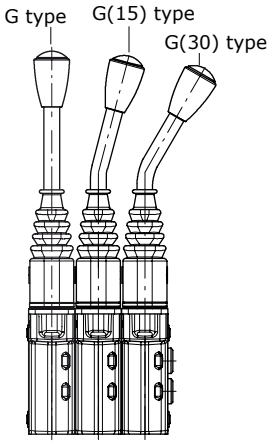


JJ type

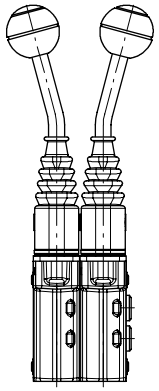


Mounting and orientation examples

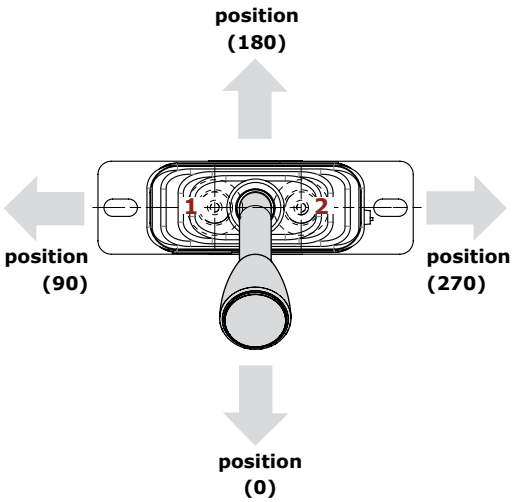
G type
on 3 sections
pilot control valve



E type
on 2 sections
pilot control valve



Sloping rod position



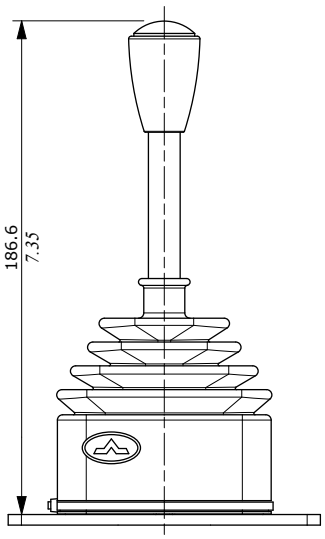
Configuration option

Controls with handlevers

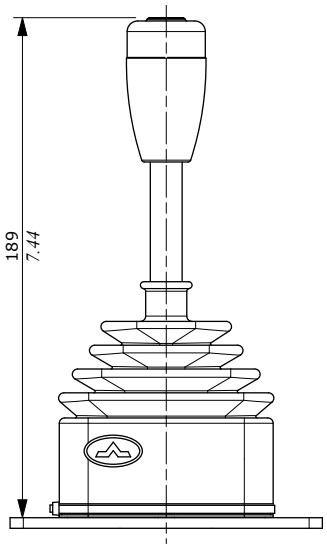
Without microswitch

02G3: With detent in neutral position; it can not be used on two adjacent sections.
03G3: With friction: stop in any positions and neutral sensing. Ogival with portlight G type knob.
03E3: As type 03G3 control, E knob and 15° bending rod.
03JL3: As type 03G3 control, JL knob with spring return microswitch push-button.
10G3: With friction and detent in neutral position; it can not be used on two adjacent sections.
11G3: Detent in neutral position, 1 and 2; it can not be use in adjacent sections.
20G3: With friction, stop in any positions and neutral sensing, with detent in positions 1 and 2.

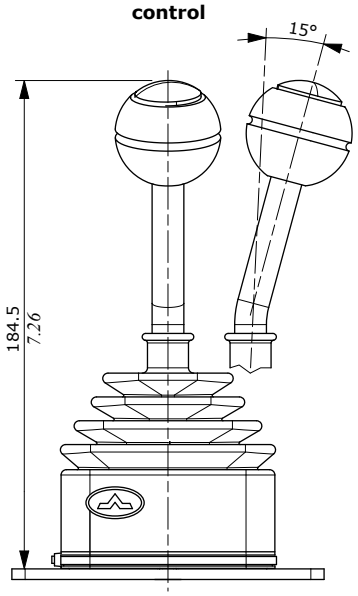
03G3-20G3 control



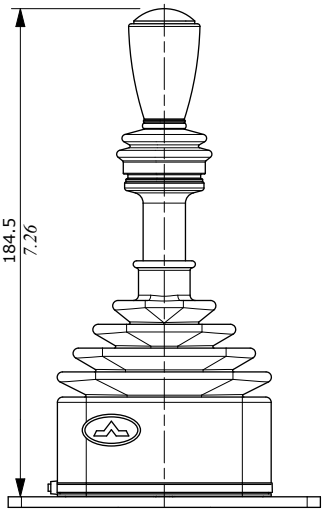
03JL3 control



03E3 control



02G3-10G3-11G3 control



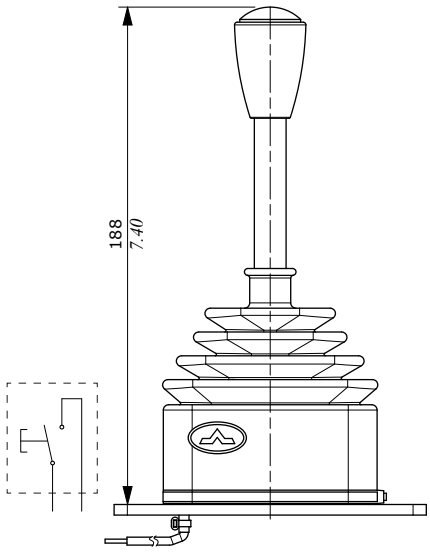
Configuration option

Controls with handlevers

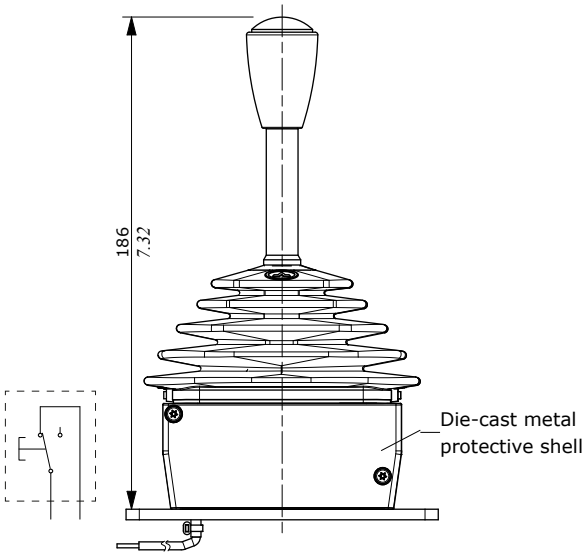
Controls with microswitch

16G3(NO): With (NO) microswitch operation in either directions, neutral sensing, spring return in neutral position.
16TM3G3(NC):With (NC) microswitch operation in either directions, protective shell and dust-proof seals
16TM1G3(NC):With NC) microswitch operation towards port 1, protective shell and dust-proof seals
16TM2G3(NC):With (NC) microswitch operation towards port 2, protective shell and dust-proof seals
22G3(NO): With (NO) microswitch operation in either directions and friction (stop in any position)

16G3(NO)-22G3(NO) control

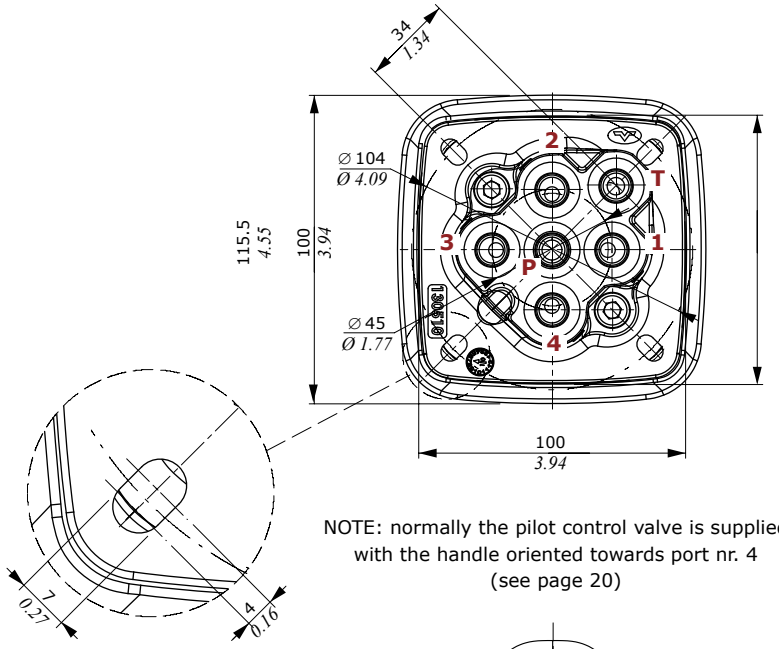


16TM3G3(NC)-16TM1G3(NC)-16TM2G3(NC) control

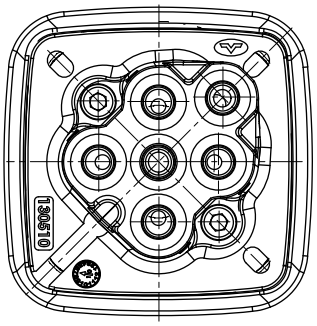


Dimensions and hydraulic circuit

SVM400

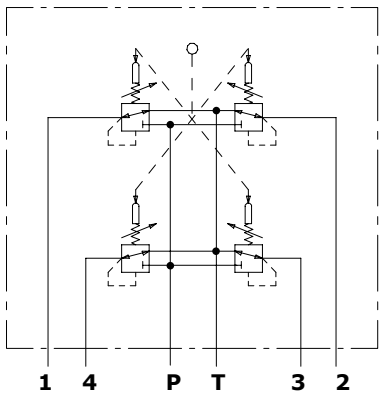


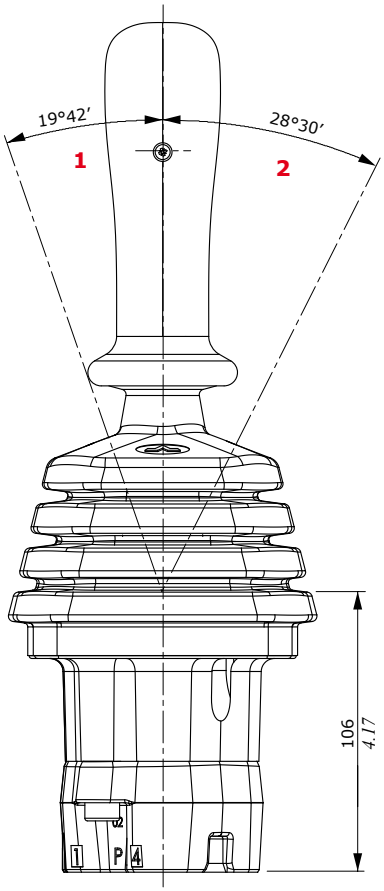
Configuration with one open ring

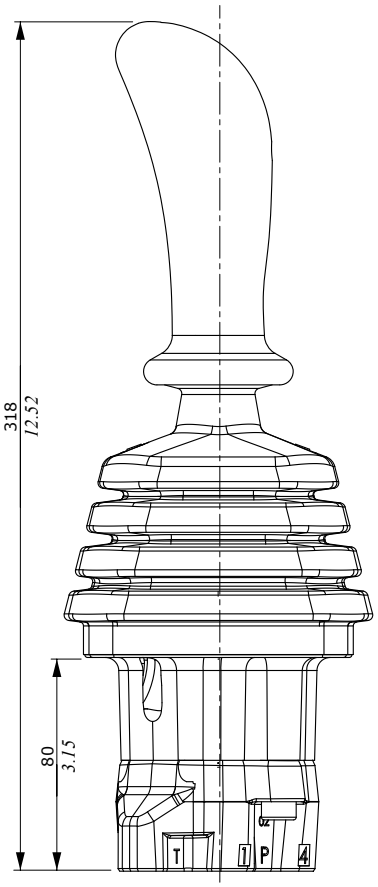


NOTE: normally the pilot control valve is supplied with the handle oriented towards port nr. 4 (see page 20)

Hydraulic circuit





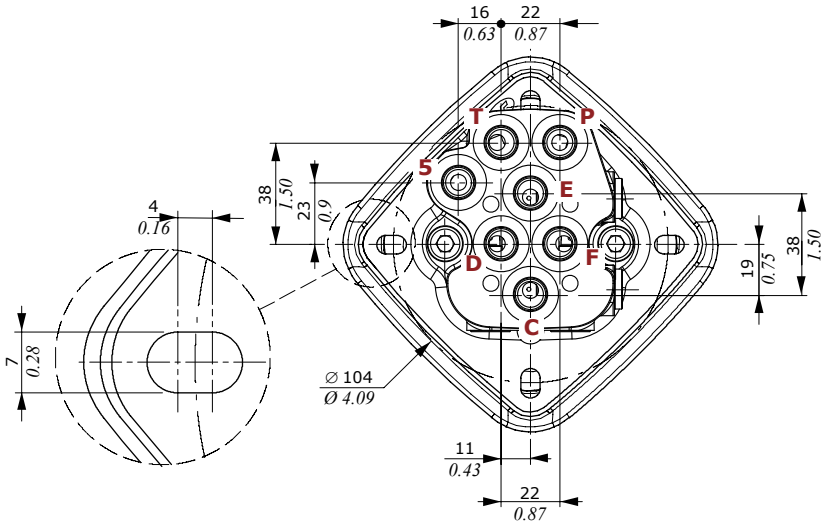


1 : Single work port
2 : Two simultaneous work ports

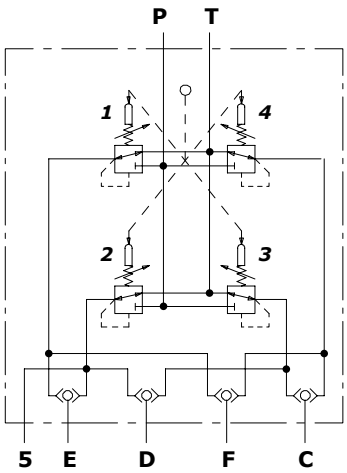
Dimensions and hydraulic circuit

SVM430

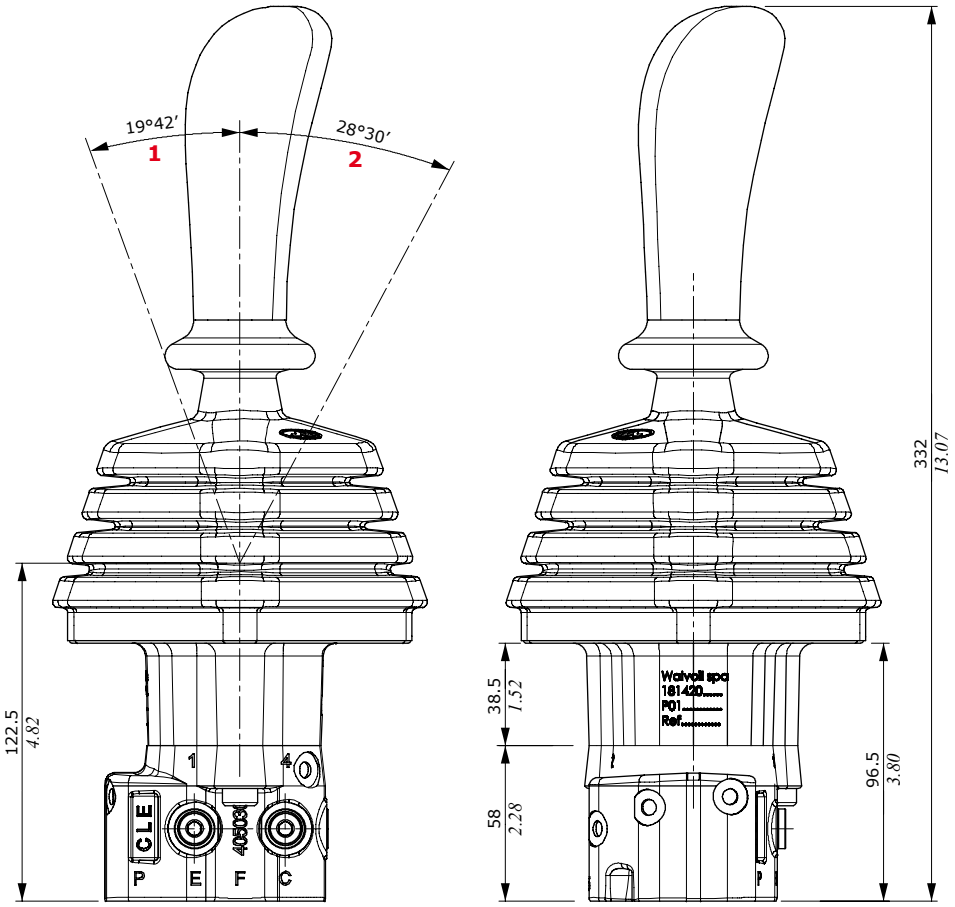
It's configured with pressure gauges (5) to get an additional output signal (ex. back-up alarm).



Hydraulic circuit



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

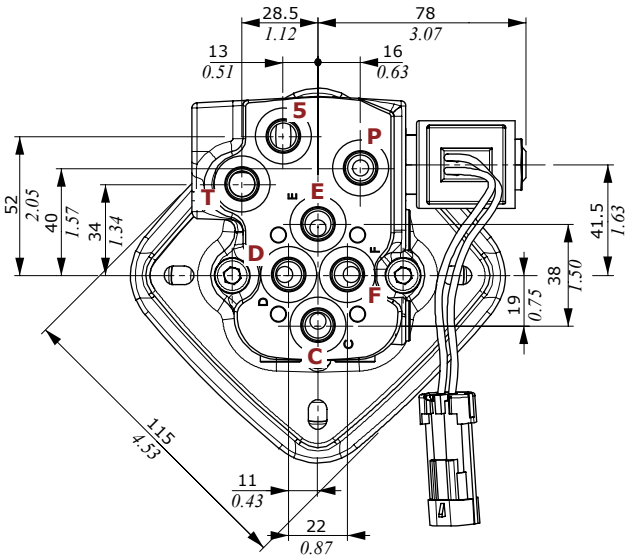


1 : Single work port
2 : Two simultaneous work ports

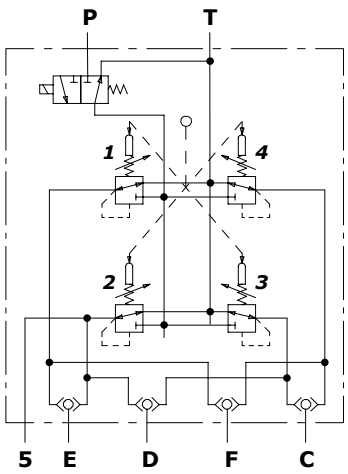
Dimensions and hydraulic circuit

SVM431

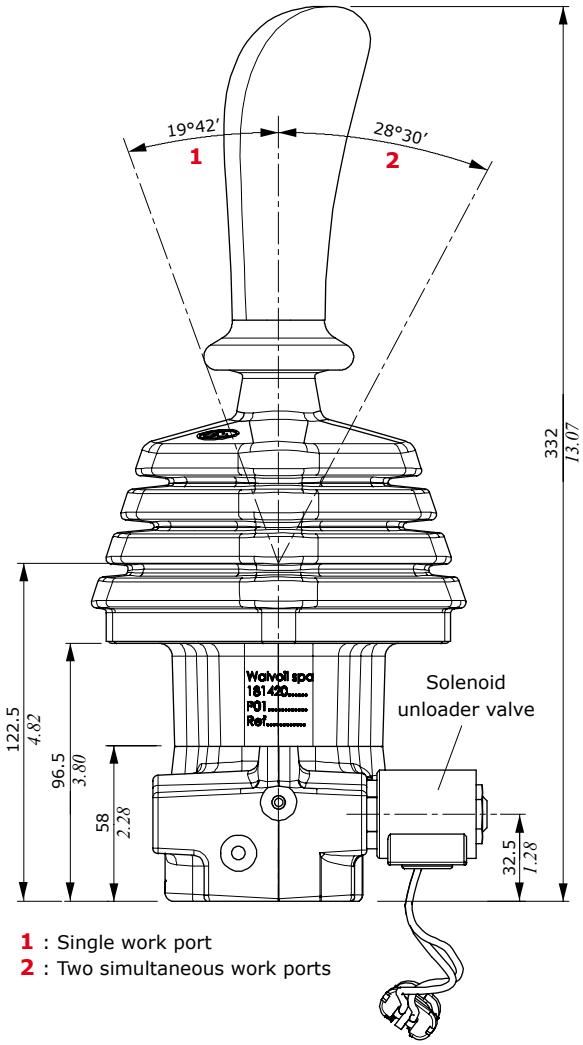
SVM431 it's configured with pressure gauges (5) to get an additional output signal with safety solenoid valve.



Hydraulic circuit



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

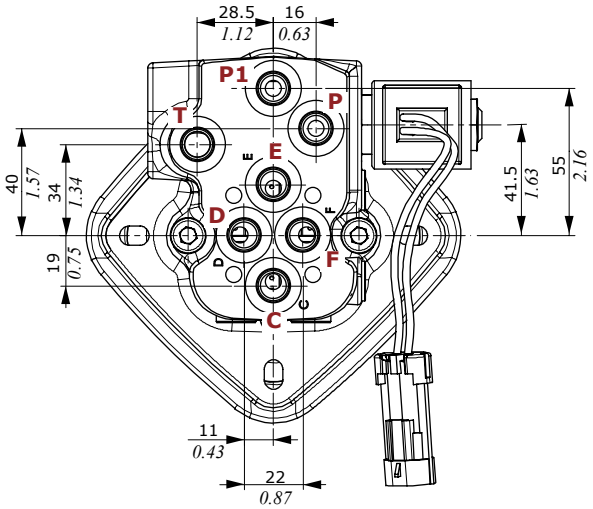


1 : Single work port
2 : Two simultaneous work ports

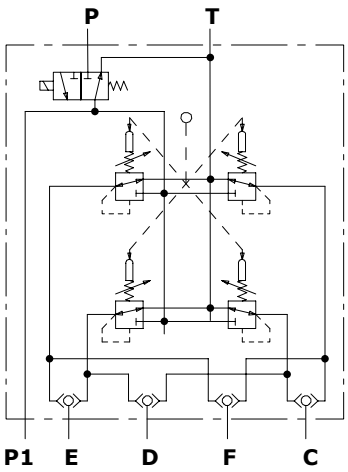
Dimensions and hydraulic circuit

SVM432

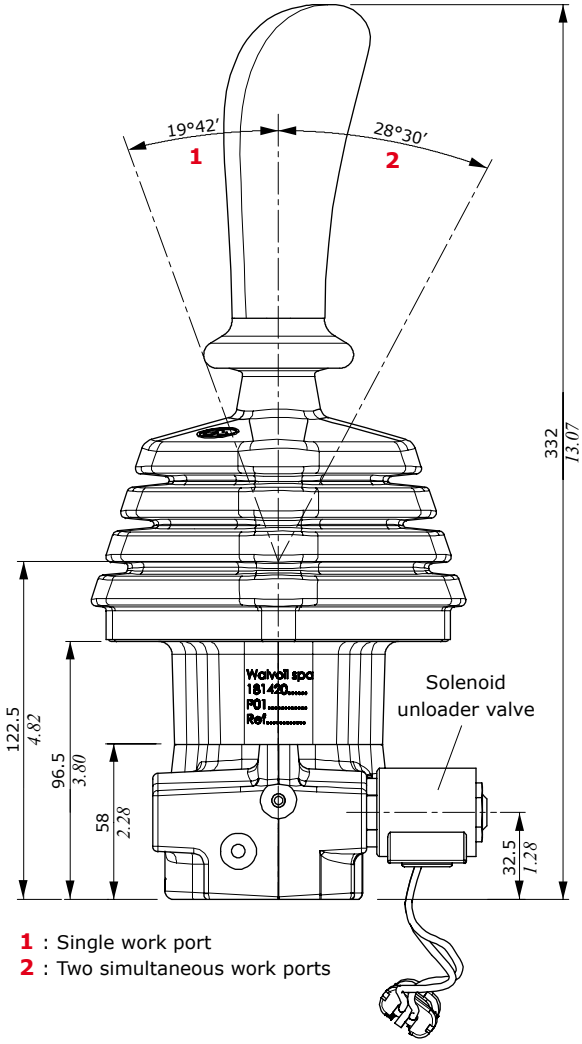
SVM432 it's configured with solenoid unloader valve and auxiliary under safety pressure gauge port (P1).



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

Ordering codes

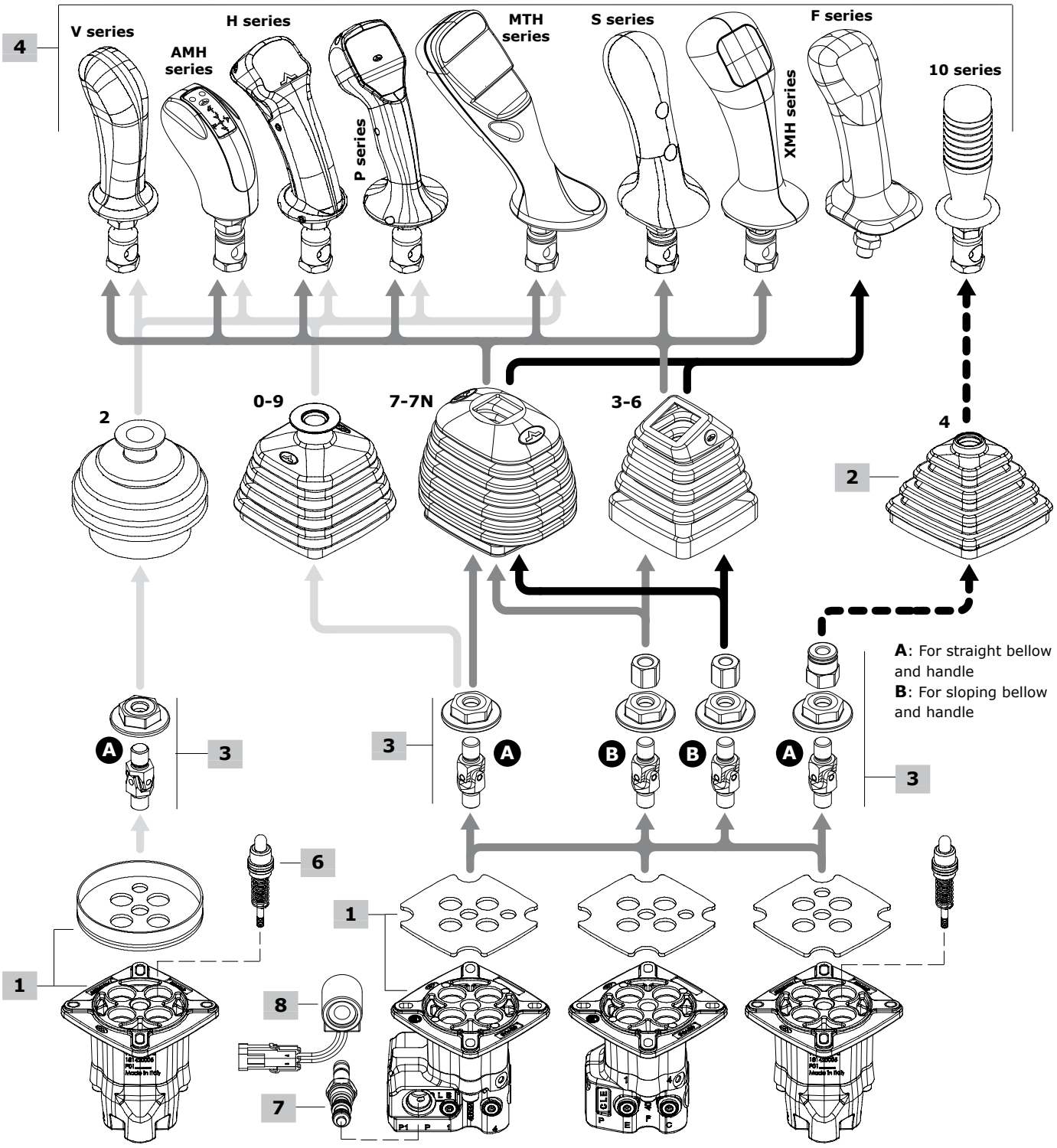
SVM400 / 0 1 - S / 01 V009 (90) - 0 0 001 A X 4 - <CRVN>

1 2 1 3 4 5 6

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

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

6.1 6.2 6.3 6.4 7 8



Ordering codes

1 Body kit *

TYPE	CODE	DESCRIPTION
With arrangement for circular base rubber bellow		
SVM400/3-S	5CO3422700C	For circular base rubber bellow
With arrangement for square base rubber bellow		
SVM400/1-S	5CO3422700	For square base rubber bellow
SVM400/1-S	5CO3422702	As previous one, arranged for control type 16
SVM400/1A-S	5CO3422705	For square base rubber bellow, with one open ring
SVM430/1-S	5CO3432700	With auxiliary pressure gauge port
SVM431/1-S	5CO3432710	With auxiliary pressure gauge port and solenoid unloader valve
SVM432/1-S	5CO3432720	With auxiliary under-safety pressure gauge port and solenoid unloader valve

2 Rubber bellow

TYPE	CODE	DESCRIPTION
Circular base type		
2	3SOF110100	Straight type; it can be used with sloping handles
Square base type		
0	3SOF111130	Straight type with logo
3	3SOF111113	Sloping type with logo, 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	General purpose type with logo; it can be used straight or up to 30° sloping in all directions
7N	3SOF111137	As type 7 without logo.
9	3SOF111131	As type 0 without logo.
4	3SOF111100	Straight type

3 Control option

TYPE	CODE	DESCRIPTION
With spring return in neutral position		
01	5CIN4003	For handles with straight rubber bellow (not for Series 10 and F handles)
	5CIN4001	For handles with sloping rubber bellow (not for Series 10 and F handles)
01GP	5CIN4002	For series 10 handles
01	5CIN401F00	For series F handles
With microswitches for movement detection on each port: It needs type 7/7N rubber bellow and dedicated body kit (see ch.1)		
16	5CIN4023	For handles with straight rubber bellow (not for Series 10 and F handles)
	5CIN4021	For handles with sloping rubber bellow (not for Series 10 and F handles

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 handlevers" catalogue.

V series handle
TYPE: **V007-(Q)** CODE:5IMP030071
DESCRIPTION Without switches, with sloping 19° left joint and square seat bellow adapter

AMH series handle
TYPE: **AMH0400A9-6R2035(T)-7R2035(T)-8R2035(T)-9R2035(T)-(E2)** CODE: 2IM3000004
DESCRIPTION: 4 spring return push-buttons, protection diode, flying leads, straight joint and square seat bellow adapter

H series handle
TYPE: **HA029-0RD040-2RD040-4RD040** CODE: 2IM4100109
DESCRIPTION: 2 microswitch push-buttons on the operator side, "dead man" switch, flying leads, straight joint, for circular seat bellow

P series handle
TYPE: **PZTA4100D9-0RD035-3R1D035-4R1D035-5R1D035-6R1D035-WN130035** CODE: 2IM8600007
DESCRIZIONE: 1 proportional roller and 4 spring return push-buttons on operator side,"dead man" switch, flying leads, straight joint for circular seat bellow

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

4(bis) Handles

MTH series handle
TYPE: **MTH-R00-ZTM31009-00-3N2035-5R2035-6N2035-7N2035-8N2035-DY2035-WG130035-(D2F12)**
CODE: 2IM2000012
DESCRIPTION: 1 proportional roller and 3 spring return push-buttons on the operator side, 3 push buttons on the opposite side, straight joint, for circular seat bellow, Deutsch connector

XMH series handle
TYPE: **XMHZTA21008-2G2035-4G2035-7G2035-VG171035**
CODE: 2IM1000004
DESCRIPTION: 1 proportional roller and 2 spring return push-buttons on the opetrator side, 1 push button with spring return on the opposite side, Deutsch connector, 19° sloping right joint, for square seat bellow

S series handle
TYPE: **SZTA8-0G4045-XG122045** CODE: 2IM5310003
DESCRIPTION: With prop. roller on the operator side and spring return push-button on the opposite side, 19° sloping right joint, for square seat bellow

F series handle
TYPE: **F02F-02R(1=8)** CODE: 320000251
DESCRIPTION: 2 microswitch push-buttons on the operator side and 2 on the opposite side, flying leads, 15° sloping joint, square seat bellow adapter, requires dedicated control

5 Handle position

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

6 Pressure control curves

For list available see from page 27

6.1 Curve type

TYPE	DESCRIPTION
0	Standard

6.2 Typology of curves

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

6.3 Curve identification

Progressive number

6.4 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 137.8 to 276.1 N - *from 31 to 62.07 lbf*

7 Solenoid unloader valve

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

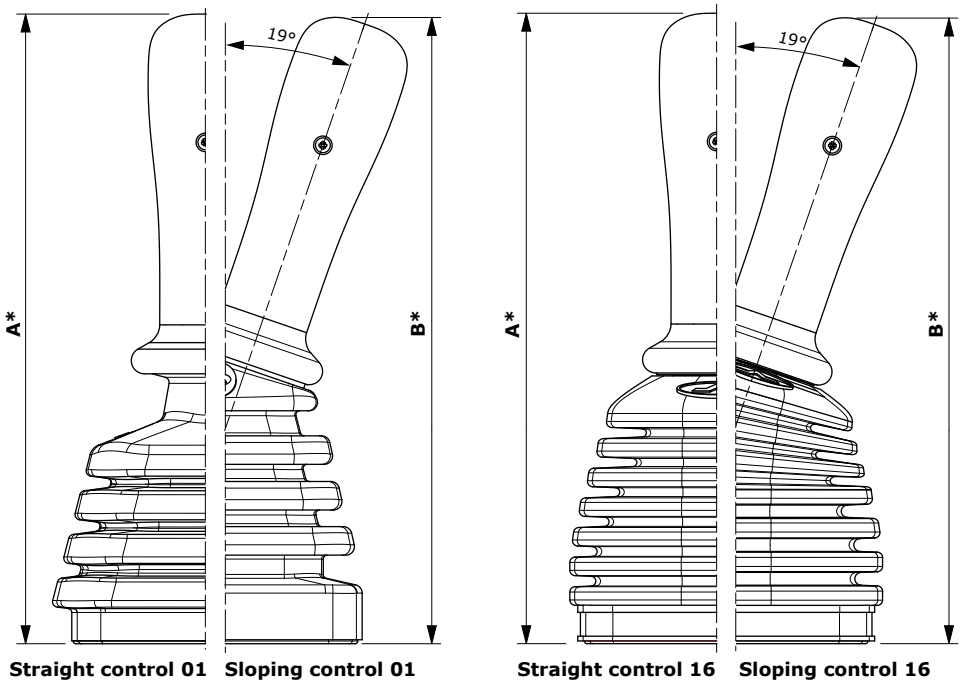
8 Coil

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

Configuration option

Control and handle options

01 type: Spring return in neutral position.
16 type: With microswitches for movement detection on each port. It needs type 7 rubber bellow and special body: please contact our Sales Department.

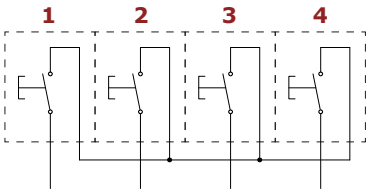


Straight control 01 | Sloping control 01 | Straight control 16 | Sloping control 16

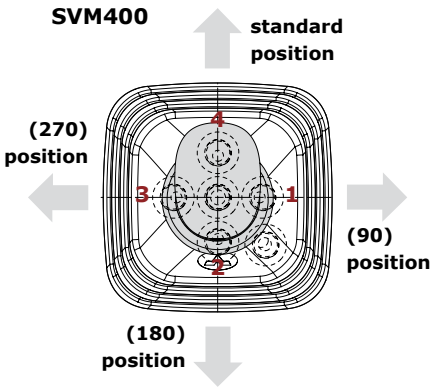
Type	A*		B*	
	mm	*in*	mm	*in*
V series	238	*9.71*	236	*9.29*
AMH series	194	*7.64*	194	*7.64*
H series	236	*9.29*	234	*9.21*
P series	255	*10.04*	253	*9.96*
MTH series	262	*10.31*	250	*9.84*
S series	251	*9.88*	248	*9.76*
XMH series	260	*10.24*	256	*10.08*
F series	242	*9.52*	238	*9.37*
10 series	222	*8.74*	/	/

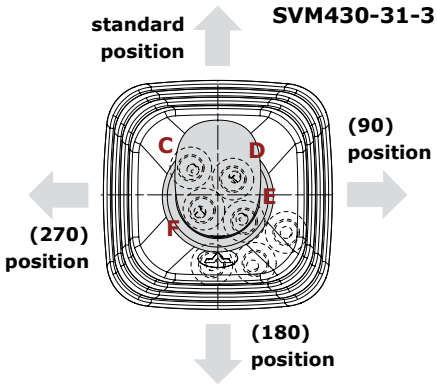
(*) The overall dimensions are indicative

Control type 16 electrical diagram

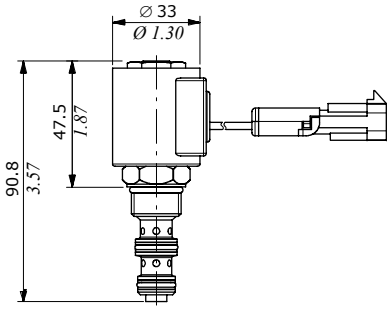


Handles positions

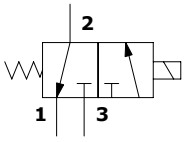




Solenoid unloader valve



ISO symbol



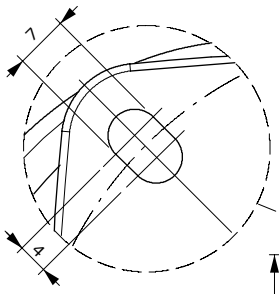
Features

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 a 207 bar
10 in3/min at 14.27 psi

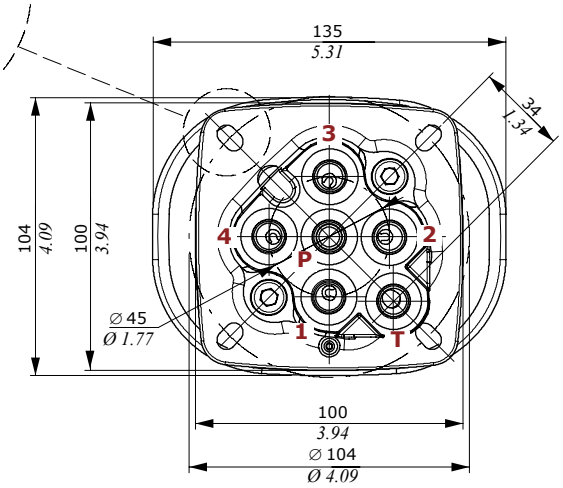
COIL
Nominal voltage tolerance . . . . . : ±15%
Power rating . . . . . : 14.7 W
Max. operating current . . . . . : 1.22 A a 12 VDC
0.61 A a 24 VDC
Coil insulance . . . . . : Class H
Weather protection (EN 60529) . . . : IP65 *
Insertion . . . . . : 100%
(*) with connector correctly fitted and O-ring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

Dimensions and hydraulic circuit

Configuration with electromagnetic detent



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



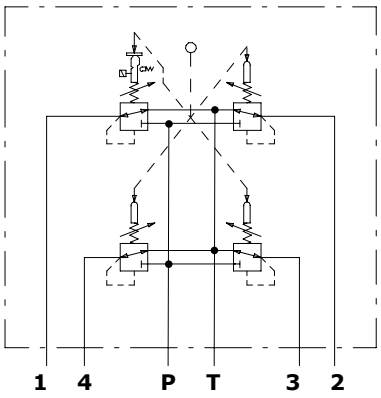
Features

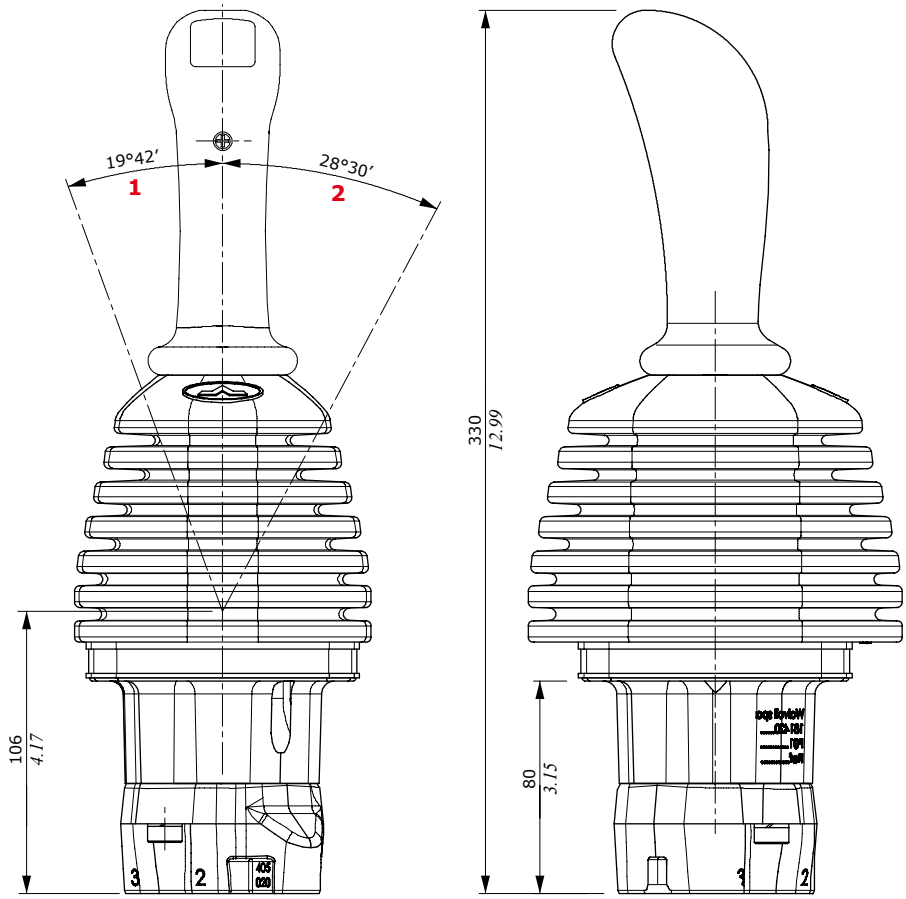
ELECTROMAGNET

Nominal voltage tolerance	: ±10%
Power rating	: 8 W - 12 VDC
	: 7.4 W - 24 VDC
Nominal current	: 0.66 A - 12 VDC
	: 0.3 A - 24VDC
Coil insulance	: Class H
Weather protection	: IP65
Insertion	: 100%

Hydraulic circuit

Example detent on working port 1





1 : Single work port
2 : Two simultaneous work ports

Ordering codes

Pressure control curve for electromagnetic detent

Standard pressure control curve

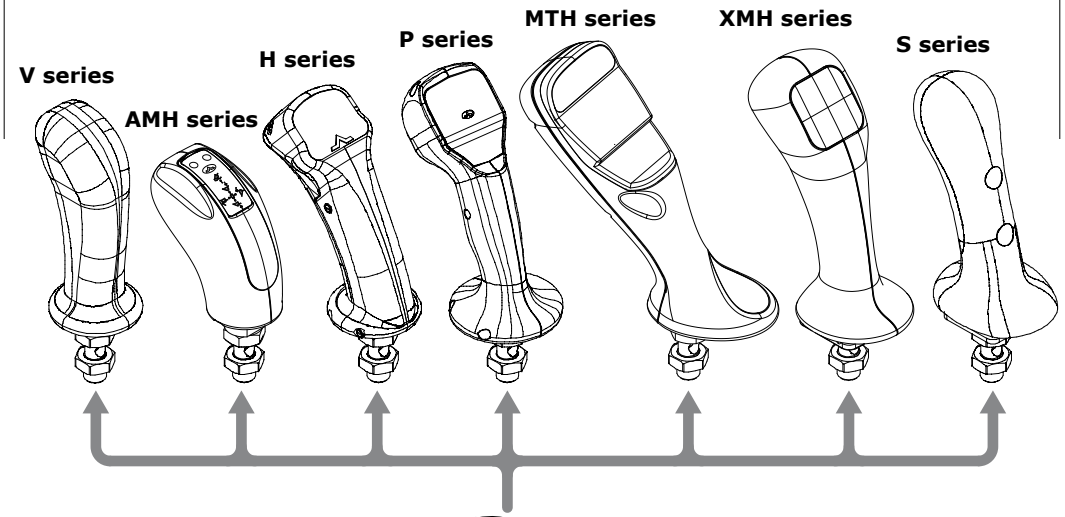
SVM400-EMD1 / 7 1 - S / 01E15 (....) V00G (90) (....) - E 0 001 M - 00001M X 3 - 12VDC - <CRVN>

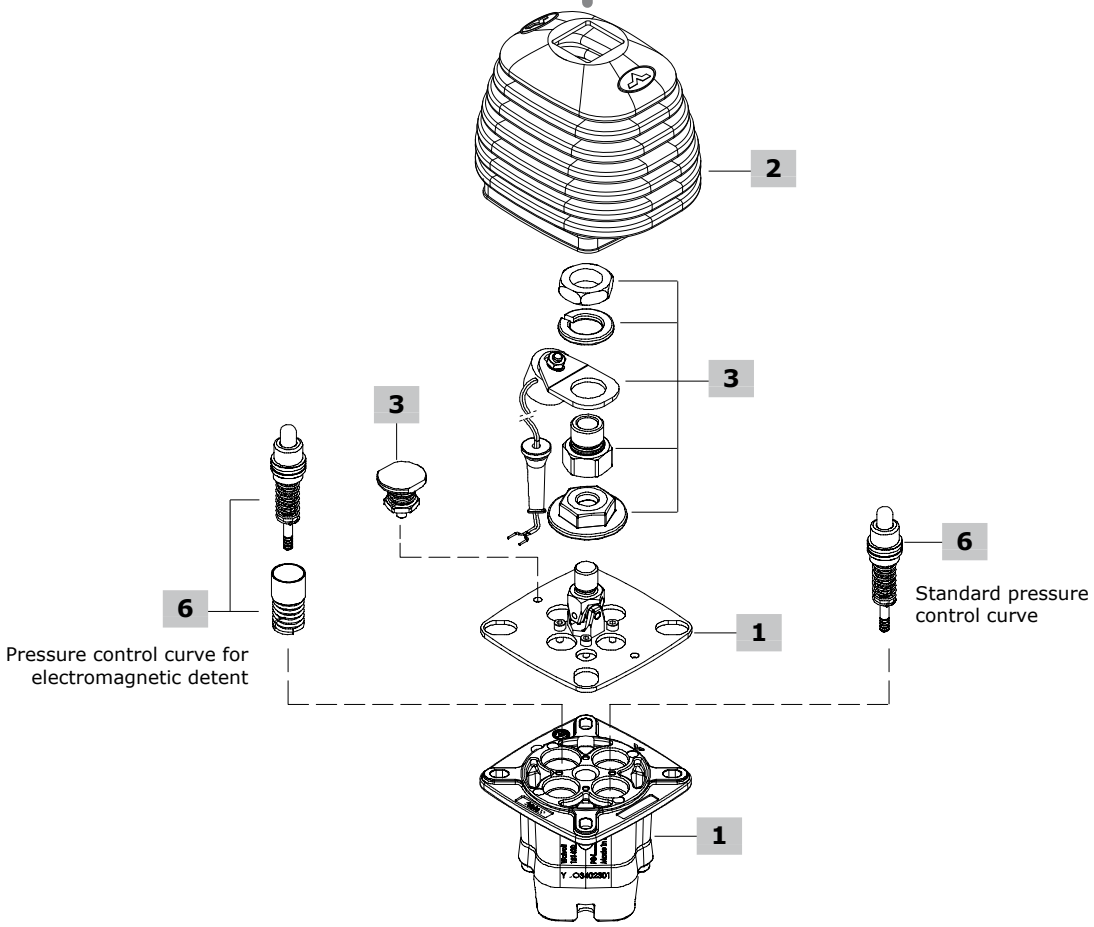
1	2	1	3	7	4	5	7	6.1	6.2	6.3	6.4	6	3

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

6

4





Ordering codes

1 Body kit *

TYPE: **SVM400-EMD0/1-S** CODE: 5CO3422700
DESCRIPTION: Without detent arrangement
TYPE: **SVM400-EMD1/1-S** CODE: 5CO3402701
DESCRIPTION: With detent arrangement on port 1
TYPE: **SVM400-EMD6/1-S** CODE: 5CO3402706
DESCRIPTION: With detent arrangement on ports 2 and 4

2 Rubber bellow

7	3SOF111135	Universal type, rectangular base. With logo 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	5CIN401E22	12 VDC - Spring return
01E25	5CIN4E401200	24 VDC - Spring return

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

6 Pressure control curves

For list available see from page 25

6.1 Curve type

TYPE	DESCRIPTION
0	Standard, without electromagnetic detent
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,

6.4 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*

7 Connector

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

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 handlevers" catalogue.

V series handle
TYPE: **V007-(Q)**
CODE: 5IMP030071
DESCRIPTION: Without switches, with 19° sloping left joint and square seat bellow adapter

AMH series handle
TYPE: **AMHT0300A8-(Q)-6N2D035-7R2D035-8N2D035-(E1)**
CODE: 2IM3000007
DESCRIPTION: 3 spring return push-buttons on the operator side, flying wires, 19° sloping right joint, square seat bellow adapter

H series handle
TYPE: **HMB03G-(Q)-1R4040-4R3040-5R2040-(12VDC)**
CODE: 2IM4600051
DESCRIPTION:3 spring return push-buttons on the operator side, flying wires, straight joint, square seat bellow adapter

P series handle
TYPE: **PZMA1200B7-0R035-3Y2D035-WN130035-ZN130035-(SCHEDA 2PWM)-(TD2M)**
CODE: 2IM8700003
DESCRIPTION: 2 proportional rollers and 1 spring return push-button on the operator side, "dead man" switch, flying wires with Deutsch pins, 19° sloping left joint, square seat bellow adapter

MTH series handle
TYPE: **MTH-R00-ZTI4100(K)Y-00-1Y2035-2Y2035-3N2035-6N2035-ZN122035-MRZ035-(5VDC)-D2F12**
CODE: 2IM2000005
DESCRIPTION: 1 proportional roller and 4 spring return push-buttons on operator side, 1 FNR rocker on the opposite side, Deutsch connector, 9° sloping left joint, square seat bellow adapter

XMH series handle
TYPE: **XMHZTA21008-2G2035-4G2035-7G2035-VG171035**
CODE: 2IM000004
DESCRIPTION: 1 proportional roller and 2 spring return-push buttons on the operator side, 1 spring return push button on the opposite side, Deutsch connector, 19° sloping right joint, for square seat bellow

S series handle
TYPE: **SZTA8-0G4045-XG122045**
CODE: 2IM5310003
DESCRIPTION: With proportional roller on the operator side and spring return push-button on the opposite side, 19° sloping right joint, for square seat bellow

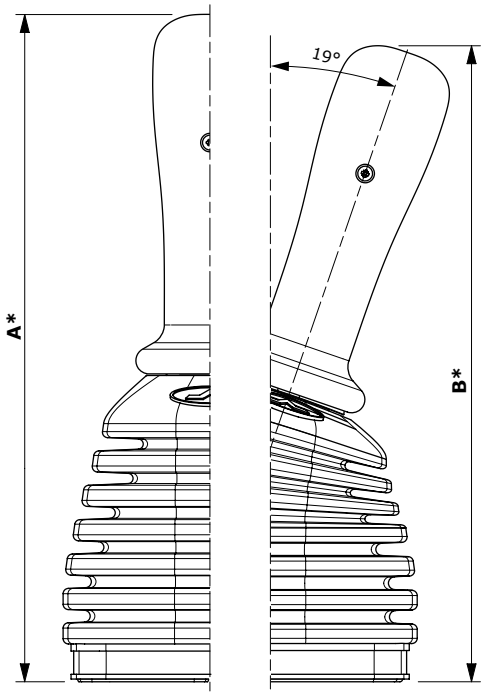
5 Handle position

TYPE	DESCRIPTION
(-)	STANDARD configuration, forwaed operation twards port 4: **omitted in description**
(90)	Mounted with 90° rotation step: forward operation towards port 1
(180)	Mounted with 180° rotation step: forward operation towards port 2
(270)	Mounted with 270° rotation step: forward operation towards port 3

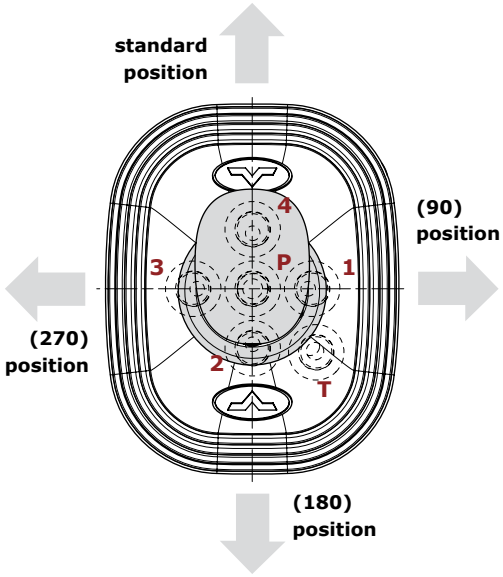
NOTE (*) – Codes are referred to **UN-UNF** thread.

Configuration option

Handle options



Handle positions



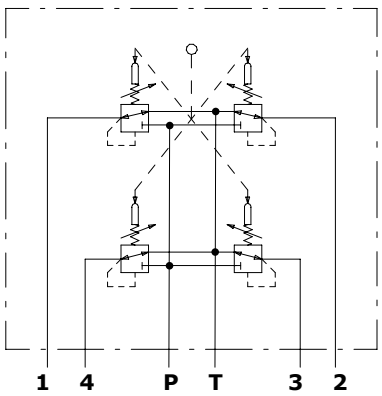
Type	A*		B*	
	mm	*in*	mm	*in*
V series	252	*9.92*	240	*9.45*
AMH series	209	*8.23*	201	*7.91*
H series	250	*9.84*	240	*9.45*
P series	268	*10.55*	266	*10.47*

Type	A*		B*	
	mm	*in*	mm	*in*
MTH series	275	*10.83*	271	*10.67*
S series	266	*10.47*	261	*10.27*
XMH series	275	*10.83*	264	*10.39*

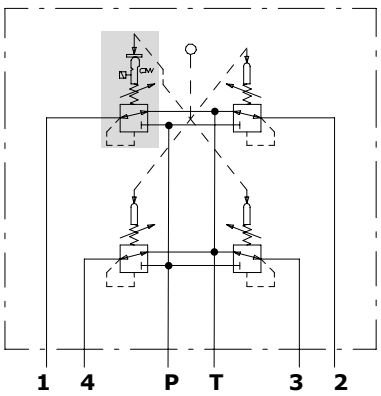
(*) The overall dimensions are indicative

Detent configuration

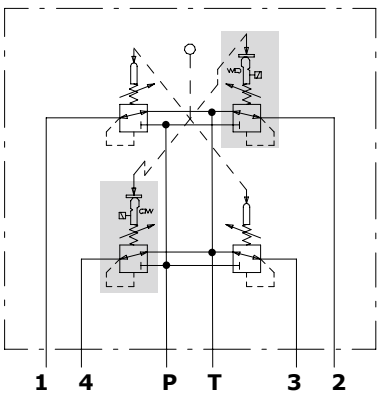
01E0 type
Spring return, without detent



01E15 type
Single detent on port 1
(detent on ports 2-3-4 on request),
spring return

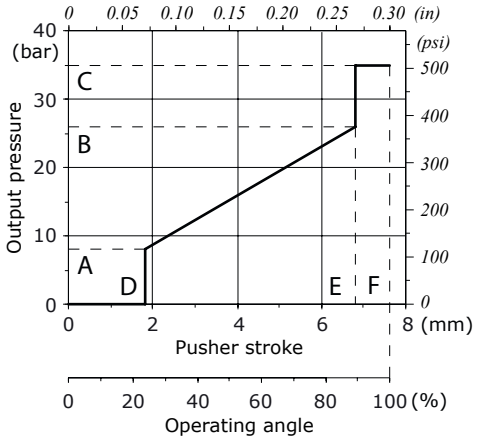


01E25 type
Detent on ports 2 and 4, spring return

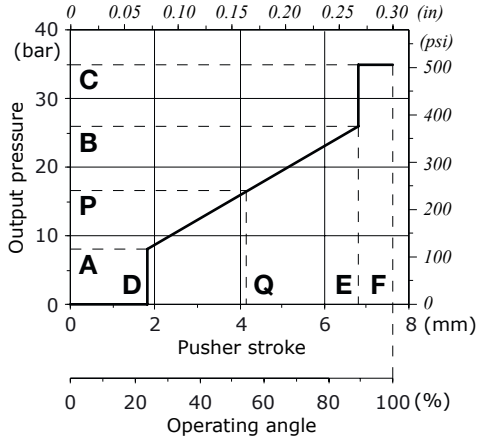


Control curves with step

00 type without pre-feeling



E0 type with pre-feeling for EM detent



Curve description		Pressure								Stroke								
		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*	CODE [1]
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)*	75	*1088*	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

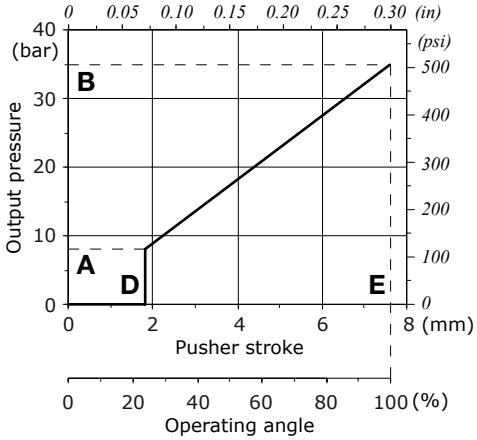
Control curves with step

Curve description		Pressure								Stroke								
		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*	CODE [1]
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
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 Pre-feeling for electromagnetic detent																		
E0	**063**	1.4 (±0.5)	*20.3 (±7.25)*	11.5 (±1)	*166.75 (±14.5)*	12.8 (±1)	*185.6 (±14.5)*	35	*507.5*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CUR4E063M
E0	**046**	2 (±0.5)	*29 (±7.25)*	13 (±1)	*188.5 (±14.5)*	14.5 (±1)	*210.2 (±14.5)*	35	*507.5*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CUR4E046M
E0	**096**	3.5 (±0.5)	*50.7 (±7.25)*	15 (±0.5)	*217.5 (± 7.25)*	16.5 (±1)	*239.2 (±14.5)*	35	*507.5*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CR4E0096B
E0	**B09**	3.5 (±0.5)	*50.7 (±7.25)*	13.7 (±1)	*198.65 (±14.5)*	15.1 (±1)	*219 (±14.5)*	35	*507.5*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CUR4EB09A 5CUR4EB09M
E0	**073**	4 (±0.5)	*58 (±7.25)*	18 (±1)	*261 (±14.5)*	19.9 (±1)	*288.55 (±14.5)*	35	*507.5*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CR4E0073A
E0	**086**	4 (±0.5)	*58 (±7.25)*	16.5 (±0.8)	*239.3 (±11.6)*	18.2 (±1)	*263.9 (±14.5)*	30	*435*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CUR4E086A 5CUR4E086M
E0	**094**	4 (±0.5)	*58 (±7.25)*	12.7 (±0.5)	*184.1 (±7.25)*	13.8 (±1)	*200.1 (±14.5)*	35	*507.5*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CUR4E094M 5CUR4E094B
E0	**075**	5 (±0.5)	*72.5 (±7.25)*	15 (±1)	*217.5 (±14.5)*	16.3 (±1.5)	*236.35 (±21.7)*	35	*507.5*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CUR4E075A 5CUR4E075M
E0	**033**	5.8 (±0.5)	*84.1 (±7.25)*	19 (±1)	*275.5 (±14.5)*	20.8 (±1.5)	*301.6 (±21.7)*	35	*507.5*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CUR4E033B 5CUR4E033M
E0	**087**	5.8 (±0.5)	*84.1 (±7.25)*	17.8 (±1)	*258.1 (±14.5)*	19.4 (±1)	*281.3 (±14.5)*	35	*507.5*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CUR4E087M
E0	**085**	6 (±1)	*87 (±14.5)*	25 (±2)	*362.5 (±29)*	27.5 (±2)	*398.75 (±29)*	35	*507.5*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CR4E0085M
E0	**088**	8 (±0.5)	*116 (±7.25)*	27 (±1)	*391.5 (±14.5)*	29.5 (±1)	*427.75 (±14.5)*	35	*507.5*	0.85	*0.03*	6.5	*0.25*	7.25	*0.28*	7.6	*0.30*	5CUR4E088M

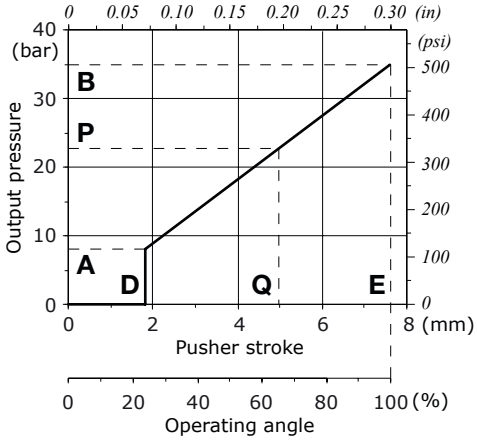
[1] Codes are referred to the curve with the specific return spring
For different curves please contact our Sales Department

Control curves without step

01 type without pre-feeling



E1 type with pre-feeling for EM detent



Curve description		Pressure						Stroke						
		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*	CODE [1]
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

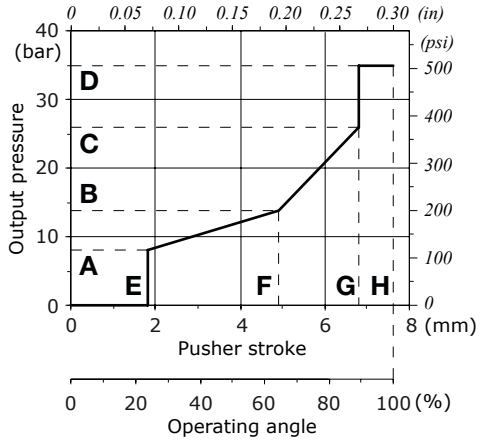
Control curves without step

Curve description		Pressure						Stroke						
		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*	CODE [1]
01	**115**	8.3 (±0.7)	*120.3 (±10.1)*			22.5 (±1)	*326.2 (±14.5)*	0.85	*0.03*			7.6	*0.30*	5CUR40115M
01	**159**	10 (±0.5)	*145 (±7.25)*			28 (±1)	*406 (±14.5)*	0.85	*0.03*			7.6	*0.30*	5CUR401159A
01	**090**	12 (±1)	*174 (±14.5)*			18 (±1)	*261 (±14.5)*	0.85	*0.03*			7.6	*0.30*	5CR401090A
01	**195**	14 (±1)	*203 (±14.5)*			29.5 (±1.5)	*427.75 (±21.7)*	0.85	*0.03*			7.6	*0.30*	5CR401195A
01	**144**	35 (±2)	*507.5 (±29)*			70 (±3.5)	*1015 (±50.7)*	0.85	*0.03*			7.6	*0.30*	5CUR40144C
With Pre-feeling for electromagnetic detent														
E1	**103**	6 (±1)	*87 (±14.5)*	30 (± 1.5)	*435 (±21.7)*	34.7 (±2)	*503.1 (±29)*	0.85	*0.03*	6.5	*0.25*	7.6	*0.30*	5CUR4E103M
E1	**156**	3.4 (±0.5)	*46.3 (±7.25)*	14.5 (±1)	*210.25 (±14.5)*	16.7 (±1)	*242.15 (±14.5)*	0.85	*0.03*	6.5	*0.25*	7.6	*0.30*	5CUR4E156M

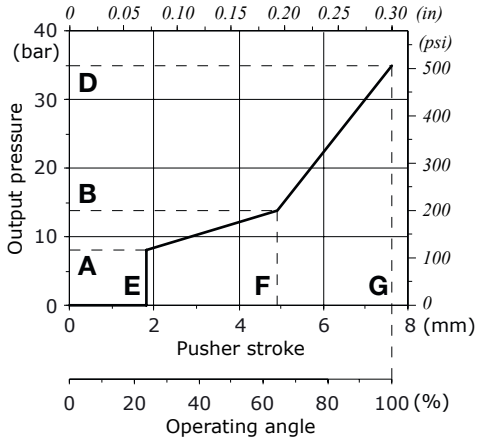
[1] Codes are referred to the curve with the specific return spring
For different curves please contact our Sales Department

Control curves piecewise with and without step

02 type with step



03 type without step



Control curve with step

Curve description		Pressure								Stroke								
		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*	CODE [1]
02	**210**	1.5 (±1)	*21.7 (±14.5)*	7 (±1)	*101.5 (±14.5)*	15 (±1)	*217.5 (±14.5)*	35	*507.5*	0.85	*0.03*	5.7	*0.22*	7.25	*0.28*	7.6	*0.30*	5CUR40210C
02	**204**	4.3 (±0.5)	*62.3 (±7.25)*	12 (±0.8)	*174 (±11.6)*	20.5 (±1)	*297.2 (±14.5)*	35	*507.5*	0.85	*0.03*	5.7	*0.22*	7.25	*0.28*	7.6	*0.30*	5CUR40204C
02	**200**	7 (±1)	*101.5 (±14.5)*	13 (±1)	*188.5 (±14.5)*	22 (±1)	*319 (±14.5)*	30	*435*	0.85	*0.03*	5.7	*0.22*	7.25	*0.28*	7.6	*0.30*	5CUR40200A 5CUR40200M

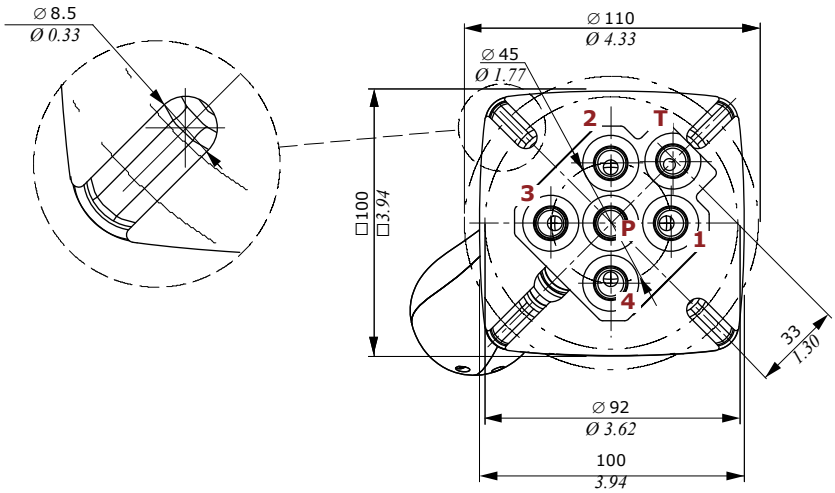
Control curve without step

Curve description		Pressure						Stroke						
		A		B		D		E		F		G		
Type	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	bar	*psi*	mm	*in*	mm	*in*	mm	*in*	CODE [1]
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 (+7.25/-21.75)*	12 (±1)	*175 (±14.5)*	22 (+2)	*320 (+29)*	0.85	*0.03*	6.6	*0.26*	7.6	*0.30*	5CUR40302A 5CUR40302C 5CUR40302D

[1] Codes are referred to the curve with the specific return spring
For different curves please contact our Sales Department

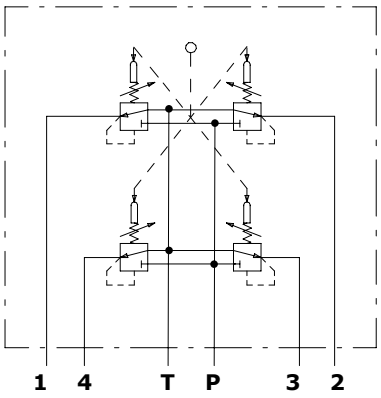
Dimensions and hydraulic circuit

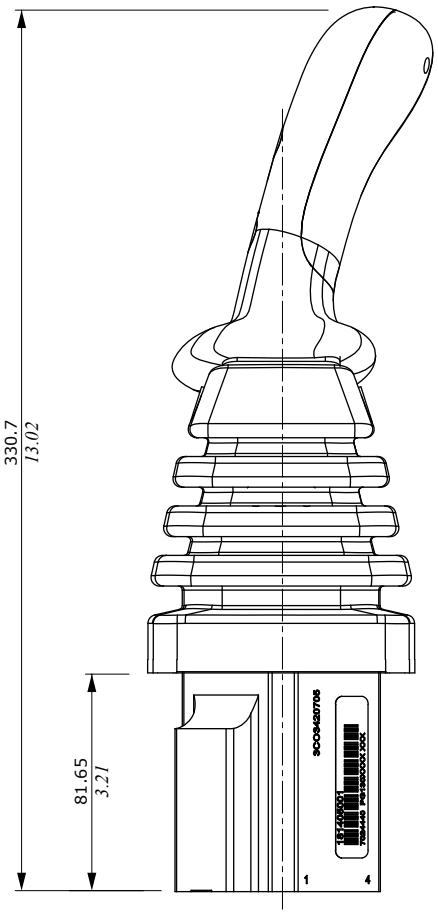
Configuration with damping system.

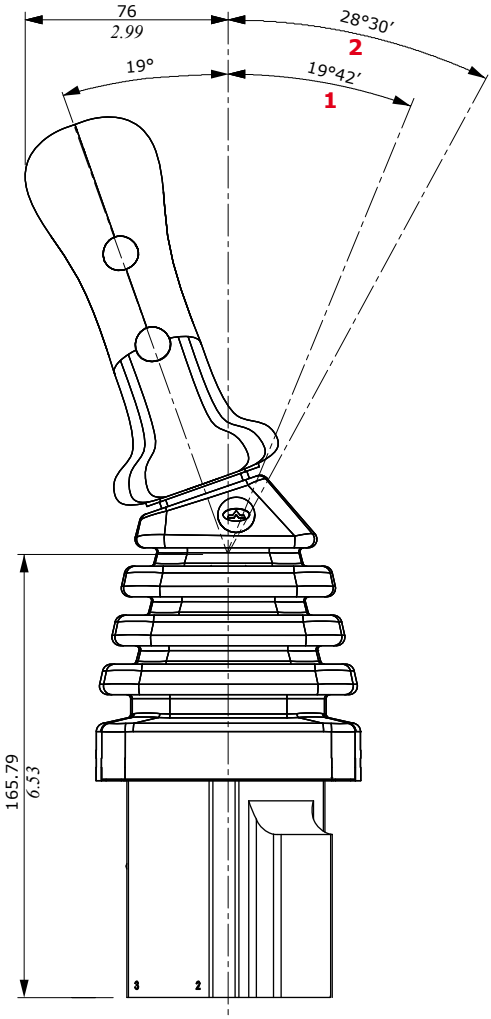


NOTE: normally the pilot control valve is supplied with the handle oriented towards port nr. 4 (see page 28)

Hydraulic circuit







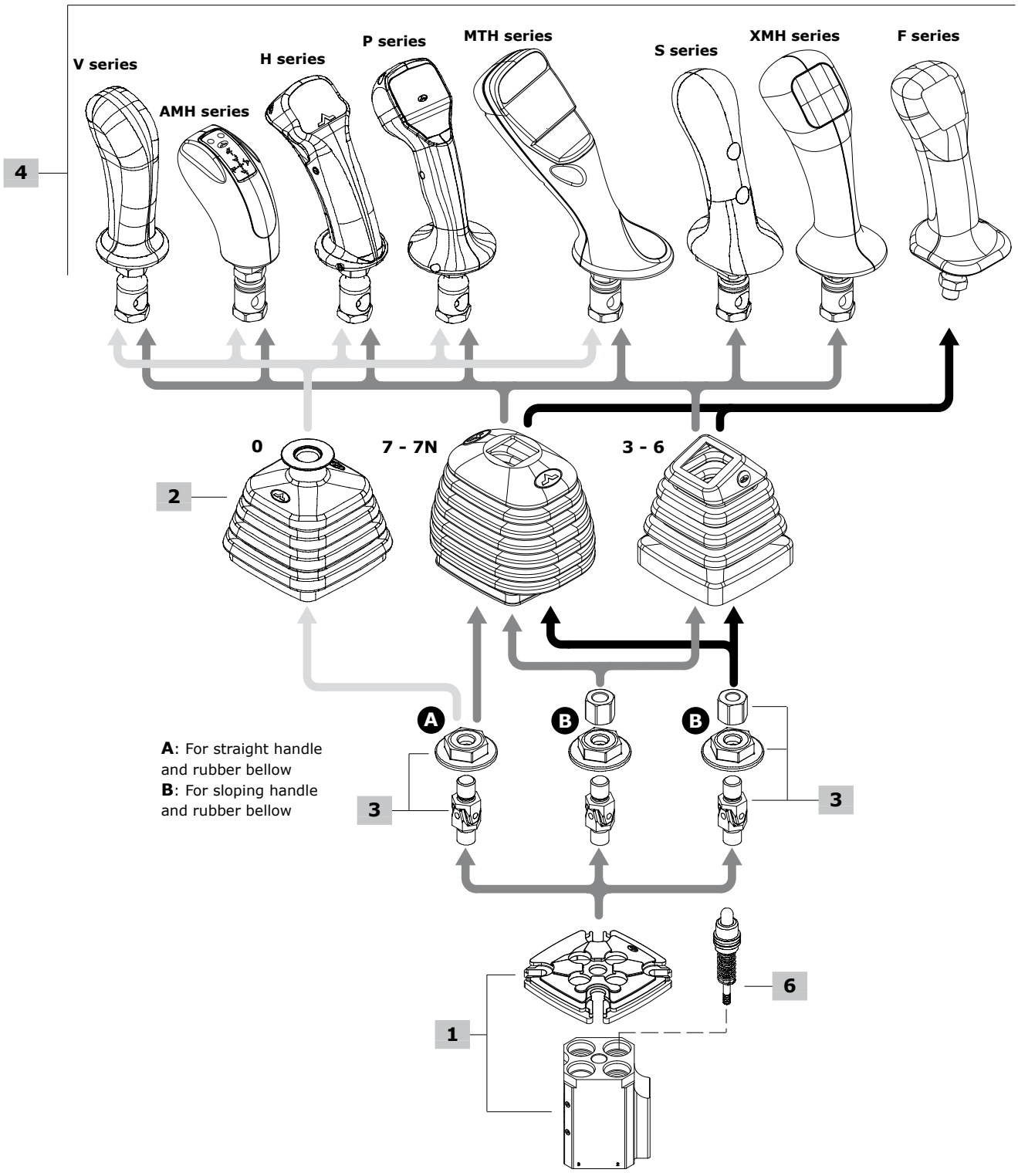
1 : Single work port
2 : Two simultaneous work ports

Ordering codes

SVM405	/	3	1 - S	/	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
SVM405/1A-S	5CO3420709	For rubber bellow square base

2 Rubber bellow

TYPE	CODE	DESCRIPTION
0	3SOF111130	Straight type, square base with logo: not available for type S and F
3	3SOF111113	Sloping type, square base with logo; only for 9° sloping handles. Not available for type 16 control
6	3SOF111114	As type 3 without logo. Not available for type 16 control
7	3SOF111135	General purpose type with logo; it can be used straight or up to 30° sloping in all directions
7N	3SOF111137	As type 7 without logo.

3 Control option

TYPE	CODE	DESCRIPTION
Spring return in neutral position		
01	5CIN4003	For handles with straight rubber bellow (not available for 10 and F series)
	5CIN4001	For handles with sloping rubber bellow (not available for 10 and S series)
01F	5CIN401F00	For F 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 handles with straight rubber bellow (not available for 10 and F series)
	5CIN4021	For handles with sloping rubber bellow (not available for 10 and S series)

6 Pressure control curves

For list available see from page 35

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

6.4 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 137.8 to 276.1 N - *from 31 to 62.07 lbf*

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 handlevers" catalogue.

V series handle

TYPE: **V007-(Q)** CODE:5IMP030071

DESCRIPTION Without switches, with sloping 19° left joint and square seat bellow adapter

AMH series handle

TYPE: **AMHT030008-(Q)-6N2D035-7R2D035-8N2D035-(E1)**

CODE: 2IM3000007

DESCRIPTION: 3 spring return push-buttons, flying leads, sloping 19° right joint and square seat bellow adapter

H series handle

TYPE: **HMB03G-(Q)-1R4040-4R3040-5R2040-(12VDC)**

CODE: 2IM4600051

DESCRIPTION: 3 spring return push-buttons on the operator side, flying leads, straight joint, for circular seat bellow

P series handle

TYPE: **PZMA1200B7-0R035-3Y2D035-WN130035-ZN130035-(SCHEDA 2PWM)-(TD2M)** CODE: 2IM8700003

DESCRIZIONE: 2 proportional roller and 1 spring return push-button on operator side,"dead man" switch, flying leads with Deutsch pins, sloping 19° left joint and square seat bellow adapter

MTH series handle

TYPE: **MTH-R00-ZTI4100(K)Y-00-1Y2035-2Y2035-3N2035-6N2035-ZN122035-MRZ035-(5VDC)-D2F12**

CODE: 2IM2000005

DESCRIPTION: 1 proportional roller and 4 spring return push-buttons on the operator side, 1 FNR rocker switch on the opposite side, Deutsch connector, sloping 9° left joint and square seat bellow adapter

XMH series handle

TYPE: **XMHZTA21008-2G2035-4G2035-7G2035-VG171035**

CODE: 2IM1000004

DESCRIPTION: 1 proportional roller and 2 spring return push-buttons on the opetrator side, 1 push button with spring return on the opposite side, Deutsch connector, 19° sloping right joint, for square seat bellow

S series handle

TYPE: **SZTA8-0G4045-XG122045** CODE: 2IM5310003

DESCRIPTION: With proportional roller on the operator side and spring return push-button on the opposite side, 19° sloping right joint, for square seat bellow

F series handle

TYPE: **F02F-02R(1=8)** CODE: 320000251

DESCRIPTION: 2 microswitch push-buttons on the operator side and 2 on the opposite side, flying leads, 15° sloping joint, square seat bellow adapter, requires dedicated control

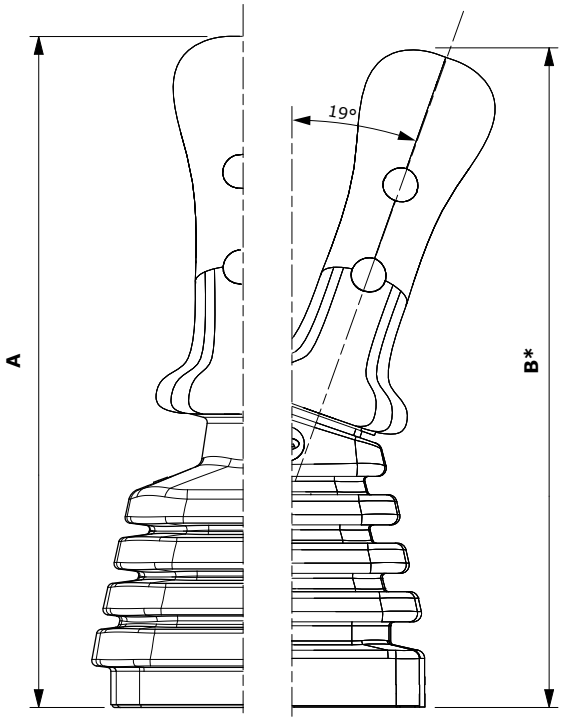
5 Handle position

TYPE	DESCRIPTION
(-)	STANDARD configuration, cable operation on work port 4: **omitted in description**
(90)	Mounted with 90° rotation step: forward operation towards port 1
(180)	Mounted with 180° rotation step: forward operation towards port 2
(270)	Mounted with 270° rotation step: forward operation towards port 3

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

Configuration option

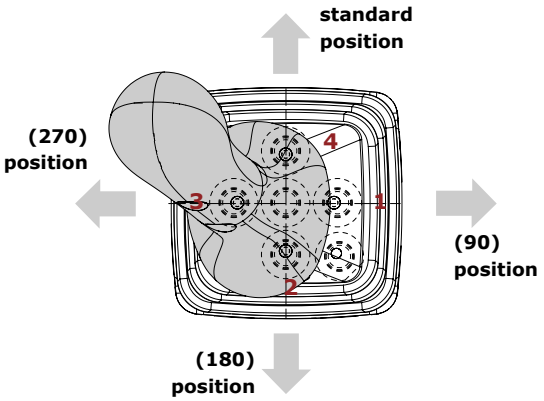
Handle options



Type	A*		B*	
	mm	*in*	mm	*in*
Serie V	242	*9.53*	235.5	*9.27*
Serie AMH	193	*7.60*	195	*7.68*
Serie H	235	*9.25*	233	*9.17*
Serie P	254	*10*	252	*9.92*
Serie MTH	261	*10.28*	249	*9.80*
Serie S	250	*9.84*	247	*9.72*
Serie XMH	259	*10.20*	255	*10.04*
Serie F	241	*9.49*	237	*9.33*

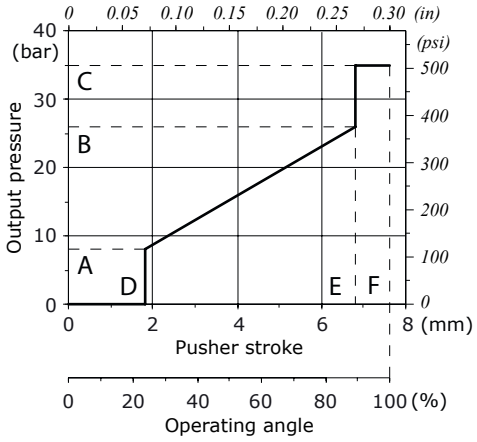
(*) The overall dimensions are indicative

Handle positions

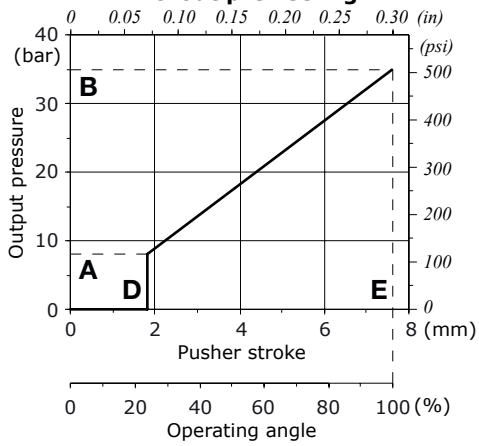


Control curves with and without step

00 type with step, without pre-feeling



01 type without step, without pre-feeling



With step

Curve description		Pressure						Stroke						
		A		B		C		D		E		F		
Type	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	bar	*psi*	mm	*in*	mm	*in*	mm	*in*	CODE [1]
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] Codes are referred to the curve with the specific return spring
For different curves please contact our Sales Department

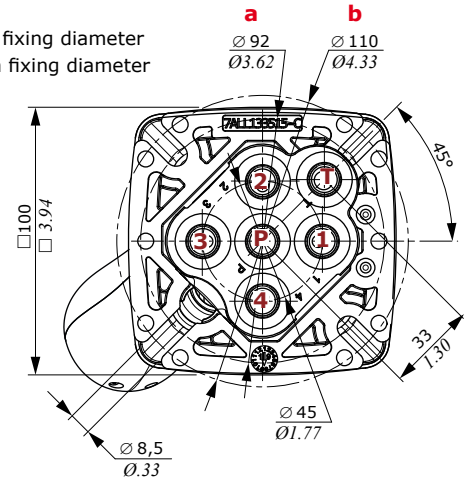
Without step

Curve description		Pressure				Stroke				
		A		B		D		E		
Tipo	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	mm	*in*	mm	*in*	CODE [1]
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] Codes are referred to the curve with the specific return spring
For different curves please contact our Sales Department

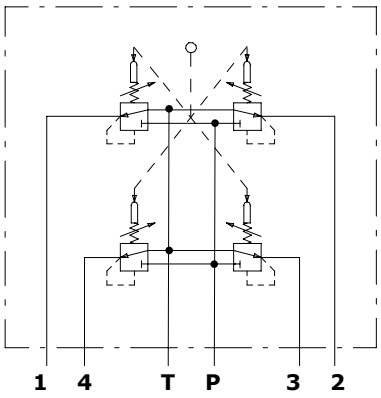
Dimensions and hydraulic circuit

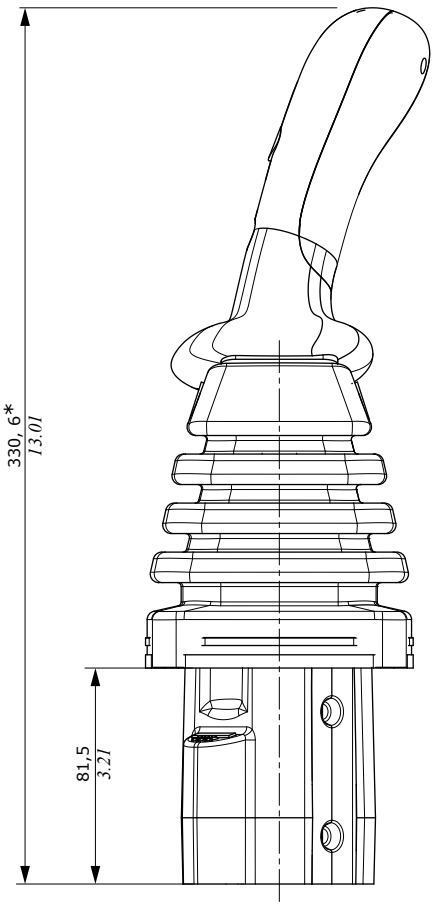
a : Minimum fixing diameter
b : Maximum fixing diameter



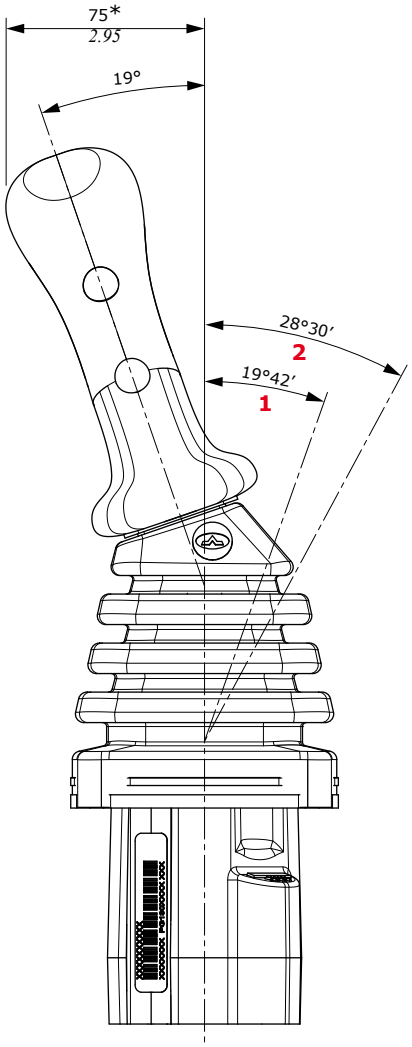
NOTE: normally the pilot control valve is supplied with the handle oriented towards port nr. 4 (see page 28)

Hydraulic circuit





(*) S type handle



1 : Single work port
2 : Two simultaneous work ports

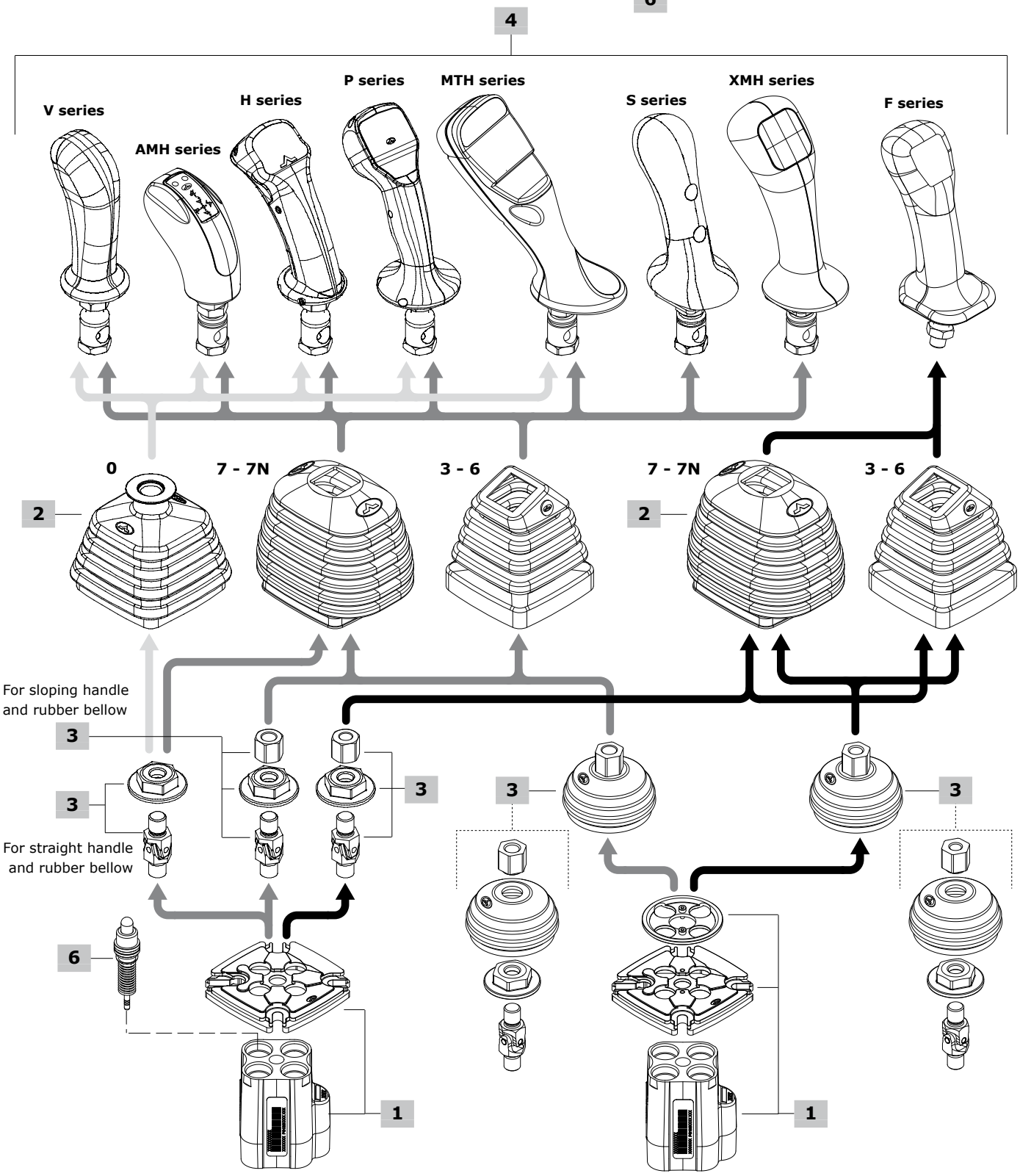
Ordering codes

SVM320 / 3 1 - S / 01 S108 (90) - 045(TM1M) - 0 0 089C 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
SVM320/1-S	5CO3320700	Body kit with cast iron body.
SVM320/1-S	5CO3320700C	As previous one, double rubber bellow arrangement

2 Rubber bellow

TYPE	CODE	DESCRIPTION
For single bellow		
0	3SOF111130	Straight type, square base with logo: not available for and F type handles
3	3SOF111113	Sloping type, square base with logo; only for 19° sloping handles
6	3SOF111114	As previous one, without logo
7	3SOF111135	Universal type, rectangular base, with logo. It can be used straight and 30° sloping in all directions
7N	3SOF111137	As previous one, without logo
For double bellow		
7N	3SOF111137	As previous one, without logo

3 Control option

TYPE	CODE	DESCRIPTION
Spring return in neutral position		
01	5CIN4003	For V, AMH, H, P MTH series handles with straight rubber bellow
	5CIN4001	For handles with sloping (3-6) or tilting (7-7N) rubber bellow
01F	5CIN401F00	As type 01 for F type handle
01SC	5CIN4050	With additional protective rubber bellow. Available for handles with sloping(3-6) or tilting (7-7N) rubber bellow Dedicated body kit is required Not available for F type handle
01SCF	5CIN405F00	As previous one for F type handle

6 Pressure control curves

For list available see from page 40

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

6.4 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 137.8 to 276.1 N - *from 31 to 62.07 lbf*

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 handlevers" catalogue.

V series handle

TYPE: **V007-(Q)** CODE:5IMP030071

DESCRIPTION Without switches, with sloping 19° left joint and square seat bellow adapter

AMH series handle

TYPE: **AMH0400A9-6R2035(T)-7R2035(T)-8R2035(T)-9R2035(T)-(E2)** CODE: 2IM3000004

DESCRIPTION: 4 spring return push-buttons, protection diode, flying leads, straight joint and square seat bellow adapter

H series handle

TYPE: **HA029-0RD040-2RD040-4RD040** CODE: 2IM4100109

DESCRIPTION: 2 microswitch push-buttons on the operator side, "dead man" switch, flying leads, straight joint, for circular seat bellow

P series handle

TYPE: **PZTA4100D9-0RD035-3R1D035-4R1D035-5R1D035-6R1D035-WN130035** CODE: 2IM8600007

DESCRIZIONE: 1 proportional roller and 4 spring return push-buttons on operator side,"dead man" switch, flying leads, straight joint for circular seat bellow

MTH series handle

TYPE: **MTH-R00-ZTM31009-00-3N2035-5R2035-6N2035-7N2035-8N2035-DY2035-WG130035-(D2F12)**

CODE: 2IM2000012

DESCRIPTION: 1 proportional roller and 3 spring return push-buttons on the operator side, 3 push buttons on the opposite side, straight joint, for circular seat bellow, Deutsch connector

XMH series handle

TYPE: **XMHZTA21008-2G2035-4G2035-7G2035-VG171035**

CODE: 2IM1000004

DESCRIPTION: 1 proportional roller and 2 spring return push-buttons on the opetrator side, 1 push button with spring return on the opposite side, Deutsch connector, 19° sloping right joint, for square seat bellow

S series handle

TYPE: **SZTA8-0G4045-XG122045** CODE: 2IM5310003

DESCRIPTION: With proportional roller on the operator side and spring return push-button on the opposite side, 19° sloping right joint, for square seat bellow

F series handle

TYPE: **F02F-02R(1=8)** CODE: 320000251

DESCRIPTION: 2 microswitch push-buttons on the operator side and 2 on the opposite side, flying leads, 15° sloping joint, square seat bellow adapter, requires dedicated control

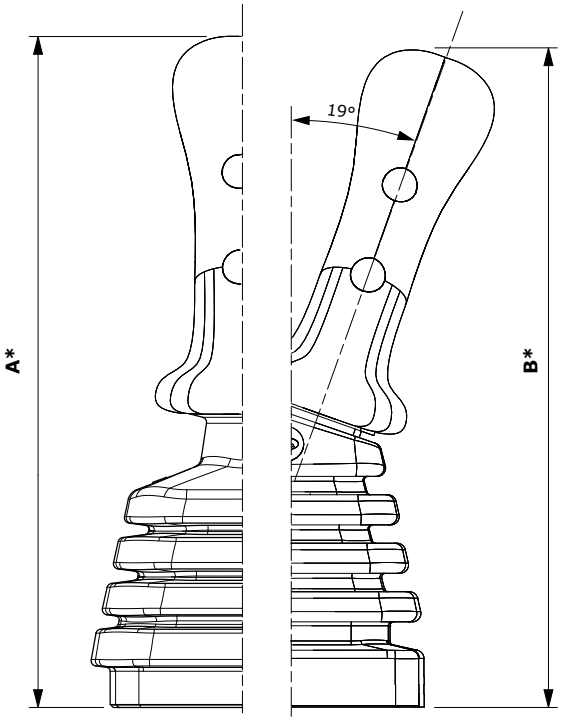
5 Handle position

TYPE	DESCRIPTION
(-)	STANDARD configuration, forward operation towards port 4: **omitted in description**
(90)	Mounted with 90° rotation step: forward operation towards port 1
(180)	Mounted with 180° rotation step: forward operation towards port 2
(270)	Mounted with 270° rotation step: forward operation towards port 3

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

Configuration option

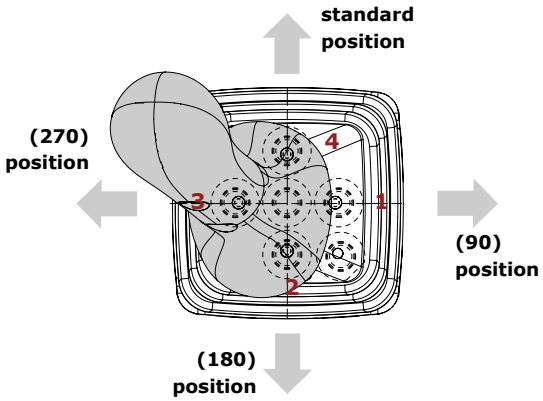
Handle options



Type	A*		B*	
	mm	*in*	mm	*in*
V series	237	*9.33*	235	*9.25*
AMH series	193	*7.60*	193	*7.60*
H series	235	*9.25*	233	*9.17*
P series	254	*10*	252	*9.92*
MTH series	261	*10.29*	249	*9.80*
S series	250	*9.84*	247	*9.72*
XMH series	259	*10.20*	255	*10.04*
F series	241	*9.49*	237	*9.33*

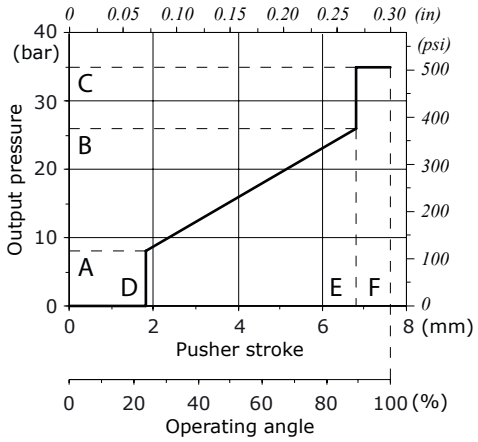
(*) The overall dimensions are indicative

Handle positions

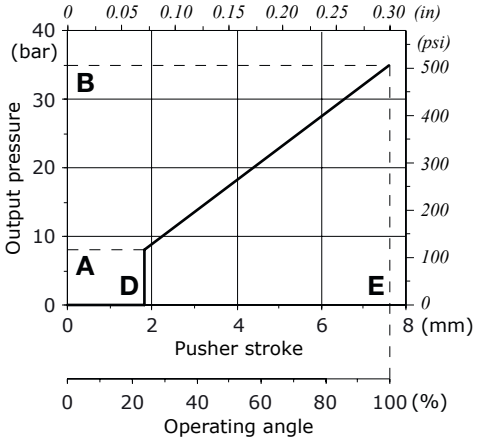


Control curves with and without step

00 type with step, without pre-feeling



01 type without step, without pre-feeling



With step

Curve description		Pressure						Stroke						
		A		B		C		D		E		F		
Type	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	bar	*psi*	mm	*in*	mm	*in*	mm	*in*	CODE [1]
00	**020**	4.3 (±0.5)	*62.4 (±7.25)*	15.2 (±1.5)	*220.4 (±21.75)*	35	*507.5*	0.85	*0.03*	7.25	*0.28*	7.6	*0.30*	5CR800020CA
00	**033**	5.8 (±0.5)	*84.1 (±7.25)*	19 (±1,5)	*275.5 (±21.75)*	35	*507.5*	0.85	*0.03*	7.25	*0.28*	7.6	*0.30*	5CR800033CM
00	**053**	8 (±1)	*116 (±14.5)*	22,3 (±1.5)	*323.35 (±21.75)*	35	*507.5*	0.85	*0.03*	7.25	*0.28*	7.6	*0.30*	5CR800053CM
00	**085**	6 (±1)	*87 (±14.5)*	25 (±1.5)	*362.5 (±21.75)*	35	*507.5*	0.85	*0.03*	7.2	*0.28*	7.6	*0.30*	5CR800085CM
00	**088**	8 (±1)	*116 (±14.5)*	27 (±1.5)	*391.5 (±21.75)*	35	*507.5*	0.85	*0.03*	7.25	*0.28*	7.6	*0.30*	5CR800088CA
00	**089**	7.5 (±0.75)	*108.75 (±10.87)*	28 (±2)	*84.1 (±29)*	35	*507.5*	0.85	*0.03*	7.25	*0.28*	7.6	*0.30*	5CR800089CM
00	**036**	12 (±0.5)	*174(±7.25)*	25 (±1)	*362.5 (±214.5)*	35	*507.5*	0.85	*0.03*	7.25	*0.28*	7.6	*0.30*	5CR800036CA

[1] Codes are referred to the curve with the specific return spring
For different curves please contact our Sales Department

Without step

Curve description		Pressure				Stroke				
		A		B		D		E		
Type	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	mm	*in*	mm	*in*	Code [1]
01	**111**	5,5 (±1)	*79.75 (±14.5)*	25,5 (±1,5)	*369.75 (±21.75)*	0,85	*0.03*	7,6	*0.30*	5CR801111CA
01	**197**	6 (±1)	*87 (±14.5)*	24,5 (±2)	*355.25 (±29)*	0,85	*0.03*	7,6	*0.30*	5CR801197CM
01	**198**	6,2 (±0,5)	*89.9 (±7.25)*	23,2(±1)	*336.4 (±14.5)*	0,85	*0.03*	7,6	*0.30*	5CR801198CM

[1] Codes are referred to the curve with the specific return spring
For different curves please contact our Sales Department

SVM hydraulic joystick with differential area

SVM980

- Low operating effort
- Possibility to manage and regulate high flow rates
- Cast iron body for high strength and reliability

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 - *from 1.32 to 5.28 USgpm*
Max. feeding pressure	on P inlet port	from 30 to 100 bar - *from 435 to 1450 psi*
Max. backpressure	on T outlet port	4 bar - *58 psi*
Max. hysteresis		0,5 bar - *7.25 psi*
Internal leakage (all ports)	at 30 bar - *435 psi*, P⇒T	max. 50 cm³/min - *3.05in3/min*
Fluid		Mineral oil
Fluid temperature	with NBR (BUNA-N) seals	from -10°C to 80°C - *from 14 °F to 176 °F*
Viscosity	operating range	from 15 to 75 mm²/s - *from 15 to 75 cSt*
	min.	3 mm²/s - *3 cSt*
	max.	400 mm²/s - *400 cSt*
Max. contamination level		-/18/15 - ISO 4406
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 Department.

REFERENCE STANDARD

		BSP	BSI	UN-UNF
THREAD ACCORDING TO		ISO 228/1	ISO 228/1	ISO 263
		BS 2779	BS 2779	ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO	1179	8434-1	11926
	SAE			J11926
	DIN	3852-2 X or Y shape		

PORT THREADING

PORTS	Threads			Fitting tightening torque	
	ISO 1179	ISO 8434-1	ISO 11926-2	Nm	*lbft*
P inlet	G 1/4	G 1/4	9/16-18 (SAE 6)	30	*22.13*
Ports	G 1/4	G 1/4	9/16-18 (SAE 6)	30	*22.13*
T outlet	G 1/4	G 1/4	9/16-18 (SAE 6)	30	*22.13*

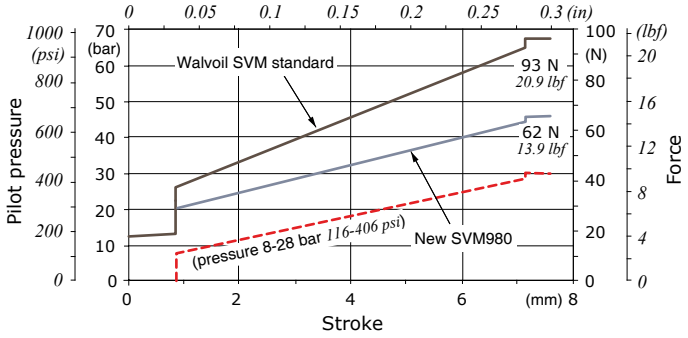
NOTE – These torques are recommended. Assembly tightening torque depends on many factors, including lubrification, coating and surface finishing. The manufacturer has to be consulted.

Features

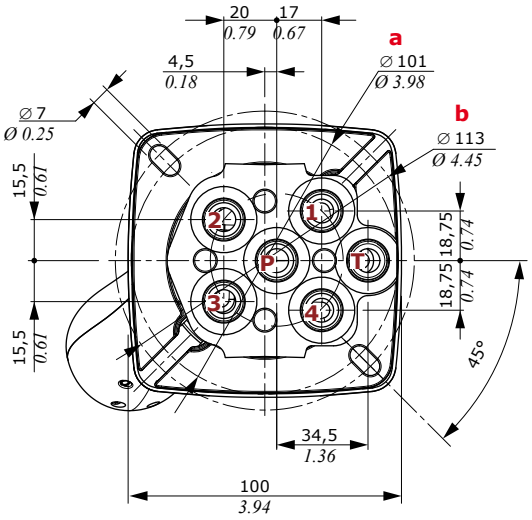
SVM980 is a new hydraulic joystick with differential area.
This product expands the range of the family by adding a unique product with at least two key features:

- **Original and patented project**
  New construction architecture that offers an innovative and patented product.
- **High reliability**
  The cast iron body and treated rod ensure long life, higher resistance to oil contamination and maintain characteristics (such as leakage) over the life of the joystick.
- **High operating comfort**
  Lowest operator actuation forces of the entire hydraulic joystick family.
- **High performance**
  The possibility to manage and regulate higher flow rates, thanks to the large diameters of the rods, a useful and necessary condition especially on large machines.
- **Versatility of configurations**
  Wide possibilities to complete and customize the hydraulic joystick, thanks to the compatibility with all the handles of the Walvoil range and modularity of the fixing flanges.

Comparison between SVM980 and SVM std.



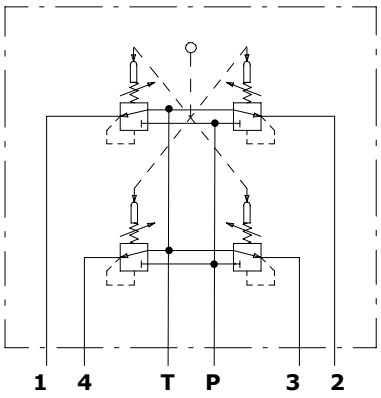
Dimensions and hydraulic circuit

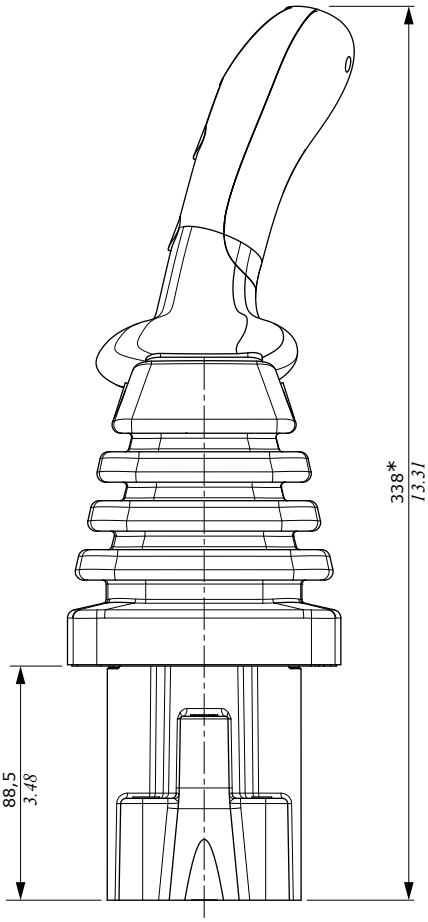


a : Minimum fixing diameter
b : Maximum fixing diameter

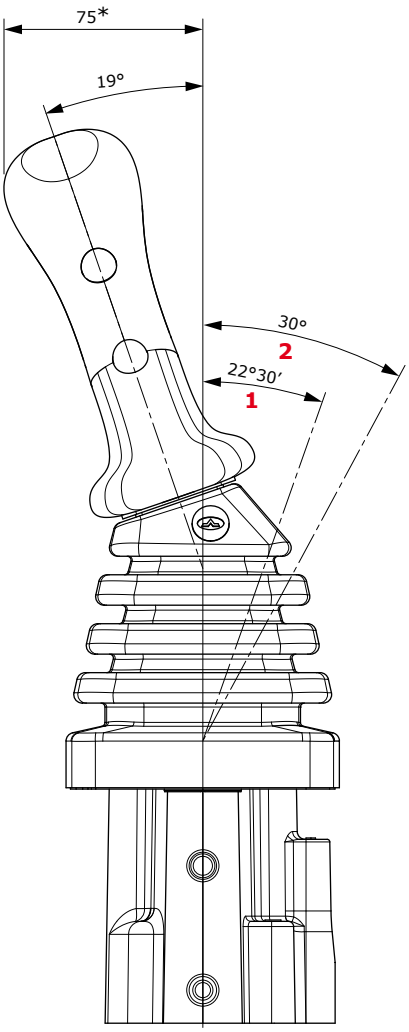
NOTE: normally the pilot control valve is supplied with the handle oriented towards ports nr. 3/4 (see page 28)

Hydraulic circuit





(*) S type handle



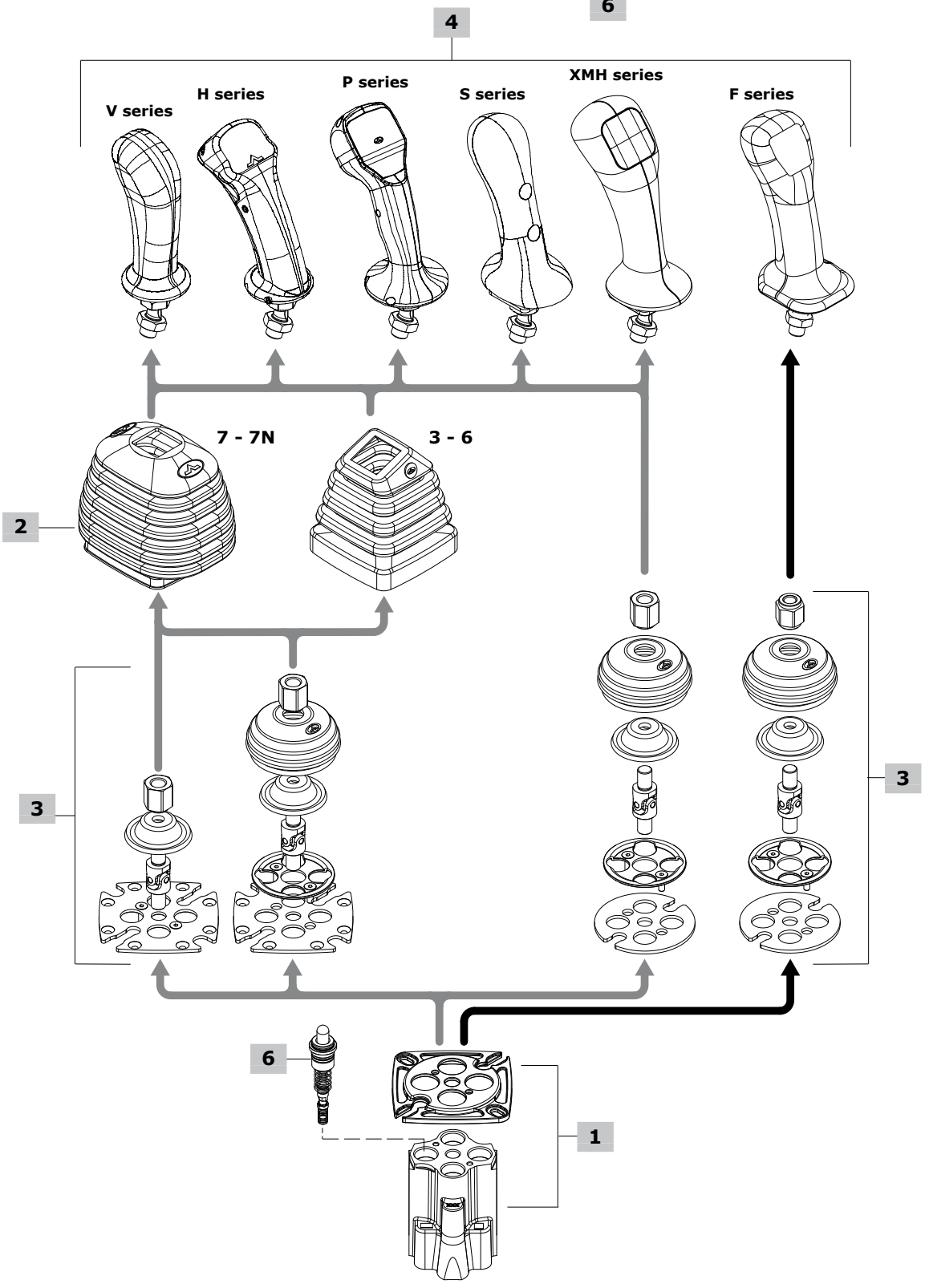
1 : Single work port
2 : Two simultaneous work ports

Ordering codes

SVM980	/	3	1-S	/	01SC	S108	(90)	-	045(TM1M)	-	0	0	89C	A	X	4	-	<CRVN>
1		2	1		3	4	5		4		6.1	6.2	6.3	6.4				

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

6



Ordering codes

1 Body kit *

TYPE	CODE	DESCRIPTION
SVM980/1-S	5CO3980700-C	Body kit with cast iron body, double rubber bellow arrangement

2 Rubber bellow

TYPE	CODE	DESCRIPTION
3	3SOF111113	Sloping type, square base with logo; only for 19° sloping handles
6	3SOF111114	As previous one without logo
7	3SOF111135	Universal type, rectangular base, with logo and it can be used straight and 30° sloping in all directions
7N	3SOF111137	As previous one without logo

3 Control option

TYPE	CODE	DESCRIPTION
01	5CIN9801-C	With spring return in neutral position, with additional protective rubber bellow
01SC	5CIN9800-C	With spring return in neutral position, without main rubber bellow, with only circular protective rubber bellow
01SCF	5CIN405F01	As previous one, for F type handle
01DS	5CIN9802-C	With spring return in neutral position, with circular protective rubber bellow and arrangement for main 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 handlevers" catalogue.

V series handle

TYPE: **V007-(Q)** CODE:5IMP030071

DESCRIPTION Without switches, with sloping 19° left joint, square seat bellow adapter

H series handle

TYPE: **HTA048-(Q)-0R040-2Y1040-3R1040-4N2040-5V2040**

CODE: 2IM4700007

DESCRIPTION: 4 spring return push-buttons on the operator side, "dead man" switch, flying leads, sloping 19° right joint, square seat bellow adapter

P series handle

TYPE: **PZMA1200B7-0R035-3Y2D035-WN130035-ZN130035-(SCHEDA 2PWM)-(TD2M)** CODE: 2IM8700003

DESCRIZIONE: 2 proportional roller and 1 spring return push-button on operator side,"dead man" switch, flying leads with Deutsch pins, sloping 19° left joint, square seat bellow adapter

XMH series handle

TYPE: **XMHZTA21008-2G2035-4G2035-7G2035-VG171035**

CODE: 2IM1000004

DESCRIPTION: 1 prop. roller and 2 spring return push-buttons on the opetrator side, 1 push button with spring return on the opposite side, Deutsch connector, 19° sloping right joint, for square seat bellow

S series handle

TYPE: **SZTA8-0G4045-XG122045** CODE: 2IM5310003

DESCRIPTION: With proportional roller on the operator side and spring return push-button on the opposite side, 19° sloping right joint, for square seat bellow

F series handle

TYPE: **F02F-02R(1=8)** CODE: 320000251

DESCRIPTION: 2 microswitch push-buttons on the operator side and 2 on the opposite side, flying leads, 15° sloping joint, square seat bellow adapter, requires dedicated control

5 Handle position

TYPE	DESCRIPTION
(-)	STANDARD configuration, forward operation on work port 3/4: **omitted in description**
(90)	Mounted with 90° rotation step: forward operation towards ports 4-1
(180)	Mounted with 180° rotation step: forward operation towards ports 1-2
(270)	Mounted with 270° rotation step: forward operation towards ports 2-3

6 Pressure control curves

For list available see from page 47

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

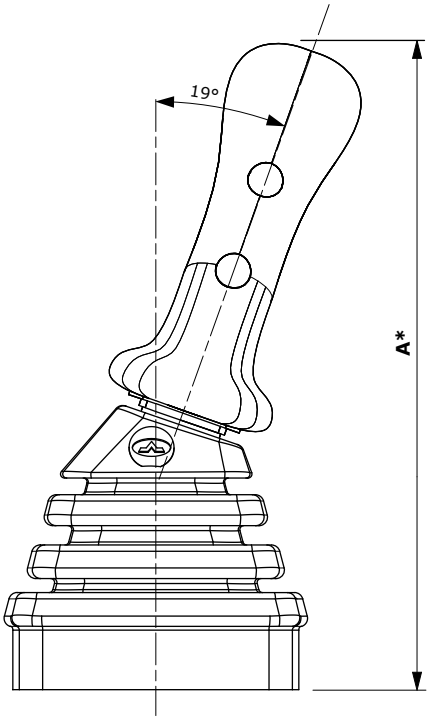
6.4 Return springs

TYPE	DESCRIPTION
A	Operation range from 23 to 35.2 N - *from 5.17 to 7.91 lbf*

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

Configuration option

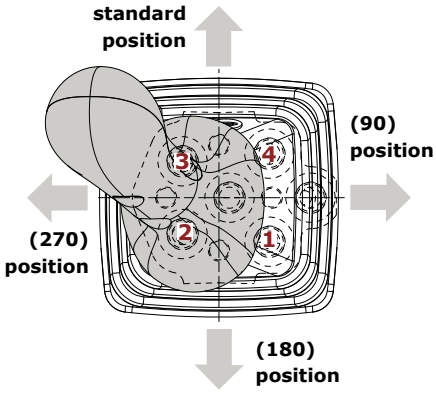
Handle options



Type	A*	
	mm	*in*
V series	238	*9.37*
H series	236	*9.29*
P series	255	*10.04*
S series	250	*9.84*
XMH series	258	*10.16*
F series	240	*9.45*

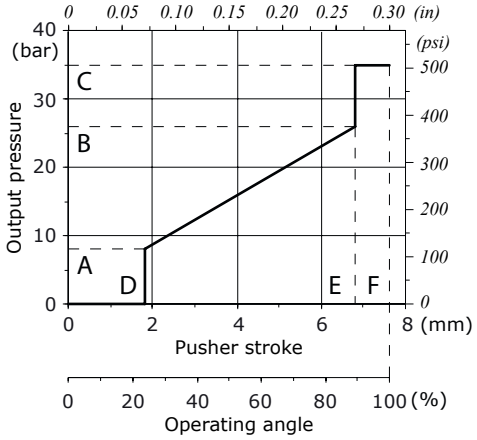
(*) The overall dimensions are indicative

Handle positions

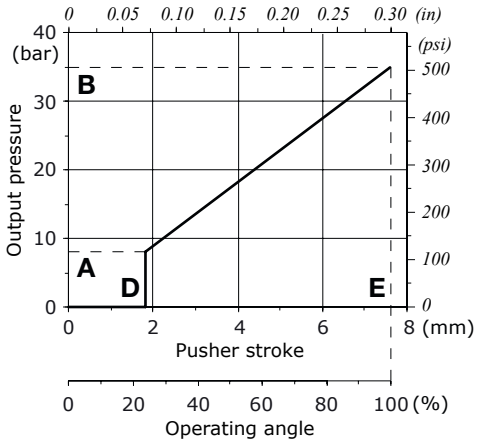


Control curves with and without step

00 type with step, without pre-feeling



01 type without step, without pre-feeling



With step

Curve description		Pressure						Stroke						
		A		B		C		D		E		F		
Type	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	bar	*psi*	mm	*in*	mm	*in*	mm	*in*	CODE [1]
0	**028C**	5 (±1)	*72.5 (±14.5)*	21 (±1)	*304.5 (±14.5)*	35	*507.5*	1.1	*0.04*	6.4	*0.25*	7	*0.28*	5CR980028CA-C
0	**093C**	5 (±0.5)	*72.5 (±7.25)*	26 (±1)	*377 (±14.5)*	35	*507.5*	1.1	*0.04*	8	*0.31*	8.6	*0.34*	5CR980093CA-C
0	**135C**	5.4 (±1)	*78.3 (±14.5)*	20 (±1.5)	*290 (±21.75)*	35	*507.5*	1.1	*0.04*	6.4	*0.25*	7	*0.28*	5CR980135CA-C
0	**133C**	5.8 (±0.5)	*84.1 (±7.25)*	22 (±1)	*319 (±14.5)*	35	*507.5*	1.1	*0.04*	6.4	*0.25*	7	*0.28*	5CR980133CA-C
0	**001C**	5.8 (±0.5)	*84.1 (±7.25)*	22 (±1)	*319 (±14.5)*	35	*507.5*	1.1	*0.04*	8	*0.31*	8.6	*0.34*	5CR980001CA-C
0	**111C**	6 (±0.5)	*87 (±7.25)*	25 (±1)	*362.5 (±14.5)*	35	*507.5*	1.1	*0.04*	8	*0.31*	8.6	*0.34*	5CR980111CA-C
0	**131C**	7 (±0.5)	*101.5 (±7.25)*	25.7 (±1)	*84.1 (±14.5)*	35	*507.5*	1.1	*0.04*	8	*0.31*	8.6	*0.34*	5CR980131CA-C
0	**132C**	8 (±1)	*116 (±14.5)*	28 (±1.5)	*406 (±21.75)*	35	*507.5*	1.1	*0.04*	6.4	*0.25*	7	*0.28*	5CR980132CA-C
0	**089C**	8 (+0.4/-0.7)	*116 (+5.8/-10.15)*	28 (+1.4/-0.8)	*406 (+20.3/-11.6)*	35	*507.5*	1.1	*0.04*	8	*0.31*	8.6	*0.34*	5CR980089CA-C

[1] Codes are referred to the curve with the specific return spring
For different curves please contact our Sales Department

Without step

Curve description		Pressure				Stroke				
		A		B		D		E		
Type	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	mm	*in*	mm	*in*	CODE [1]
1	**135C**	5,8 (±0,5)	*79.75 (±14.5)*	23 (±1,5)	*369.75 (±21.75)*	1,1	*0.03*	8,6	*0.30*	5CR981135CA-C
1	**172C**	7 (±0,5)	*87 (±14.5)*	23,5 (±1,5)	*355.25 (±29)*	1,1	*0.03*	7	*0.30*	5CR981172CA-C
1	**199C**	7,4 (±0,5)	*89.9 (±7.25)*	23,5 (±1)	*336.4 (±14.5)*	1,1	*0.03*	7	*0.30*	5CR981199CA-C

[1] Codes are referred to the curve with the specific return spring
For different curves please contact our Sales Department

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 - *from 1.32 to 5.28 USgpm*
Max. feeding pressure	on P inlet port	from 30 to 100 bar - *from 435 to 1450 psi*
Max. backpressure	on T outlet port	3 bar - *43.5 psi*
Max. hysteresis		0.5 bar - *7.25 psi*
Internal leakage (all ports)	at 30 bar - *435 psi*, P⇒T	from 2.5 to 4.5 cm³/min - *from 0.15 to 0.27 in3/min*
Fluid		Mineral oil
Fluid temperature	with NBR (BUNA-N) seals	from -10°C to 80°C - *from 14 °F to 176 °F*
Viscosity	operating range	from 15 to 75 mm²/s - *from 15 to 75 cSt*
	min.	12 mm²/s - *12 cSt*
	max.	400 mm²/s - *400 cSt*
Max. contamination level		-/15/12 - ISO 4406 - *NAS1638 class 6*
Ambient temperature	without electric devices	from -40°C to 60°C - *from 40 °F to 140 °F*
	with electric devices	from -20°C to 50°C - *from -4 °F to 122 °F*
Tie rod tightening torque (wrench 13)	only for SVM150	*24 Nm - 17.7 lbft*

NOTE - for different conditions please contact our Sales Department.

REFERENCE STANDARD

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

PORT THREADING

PORTS		Threads		Fitting tightening torque	
	UNI EN ISO 1179	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 lubrification, coating and surface finishing. The manufacturer has to be consulted.

Dimensions and hydraulic circuit

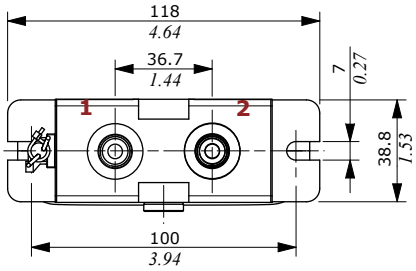
Single axis type

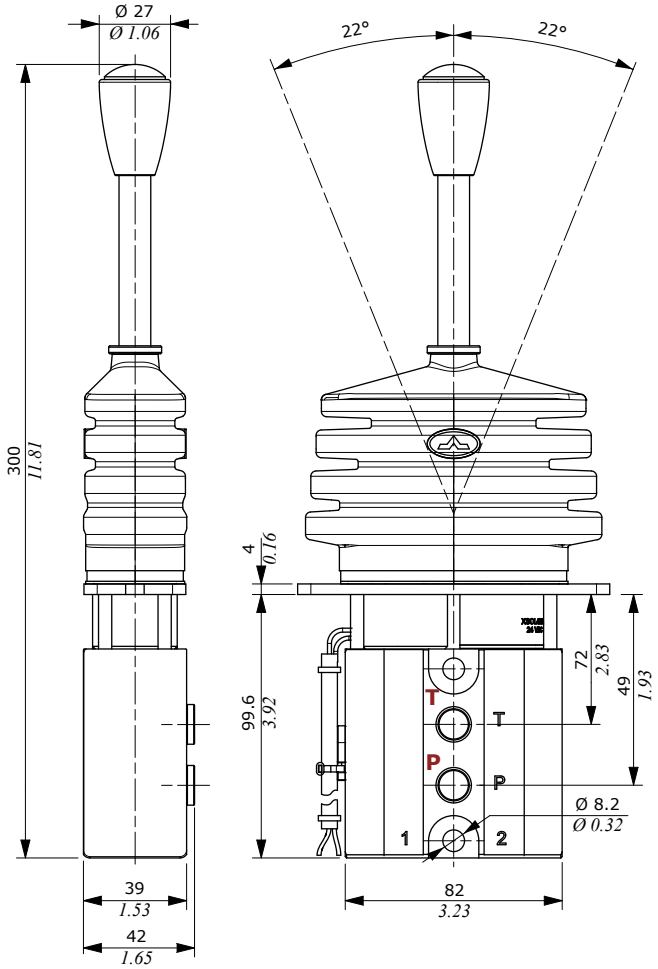
Without detent or with detent on single working port or both working ports

Features

ELECTROMAGNET

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

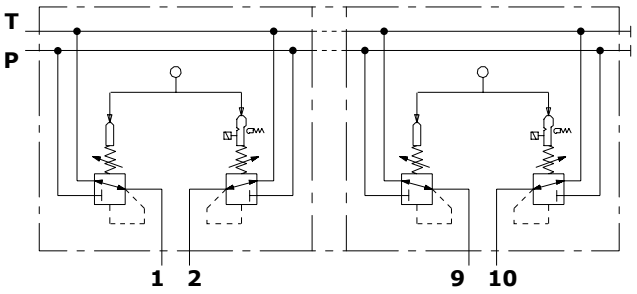




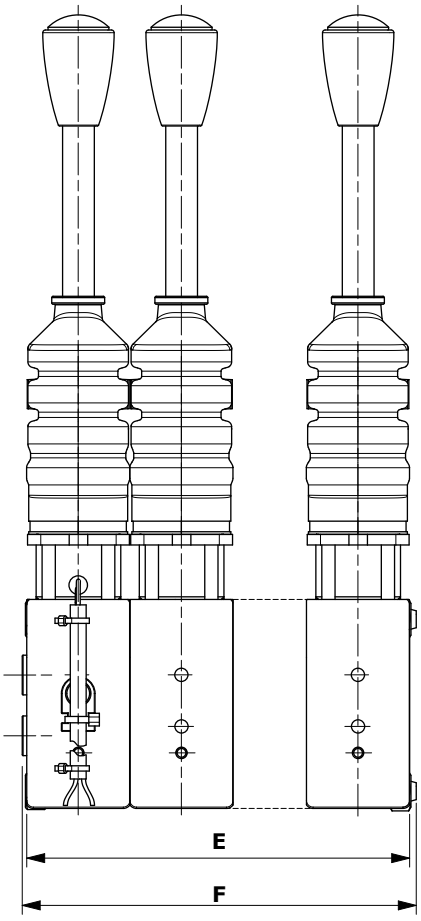
SVM150/n type

Multiple function configuration; up to 5 sections

Hydraulic circuit



TYPE	E		F	
	mm	*in*	mm	*in*
SVM150/2	78	*3.07*	82	*3.23*
SVM150/3	117	*4.61*	121	*4.75*
SVM150/4	156	*6.14*	160	*6.30*
SVM150/5	195	*7.68*	199	*7.83*



Ordering codes

Description for 1st section:
repeat the choice for following sections

Last section
(max.5)

SVM150/ n - S / 01N EMD(1) / G3 (....) - E 0 089N M - A0028M /..... (....) - 12VDC

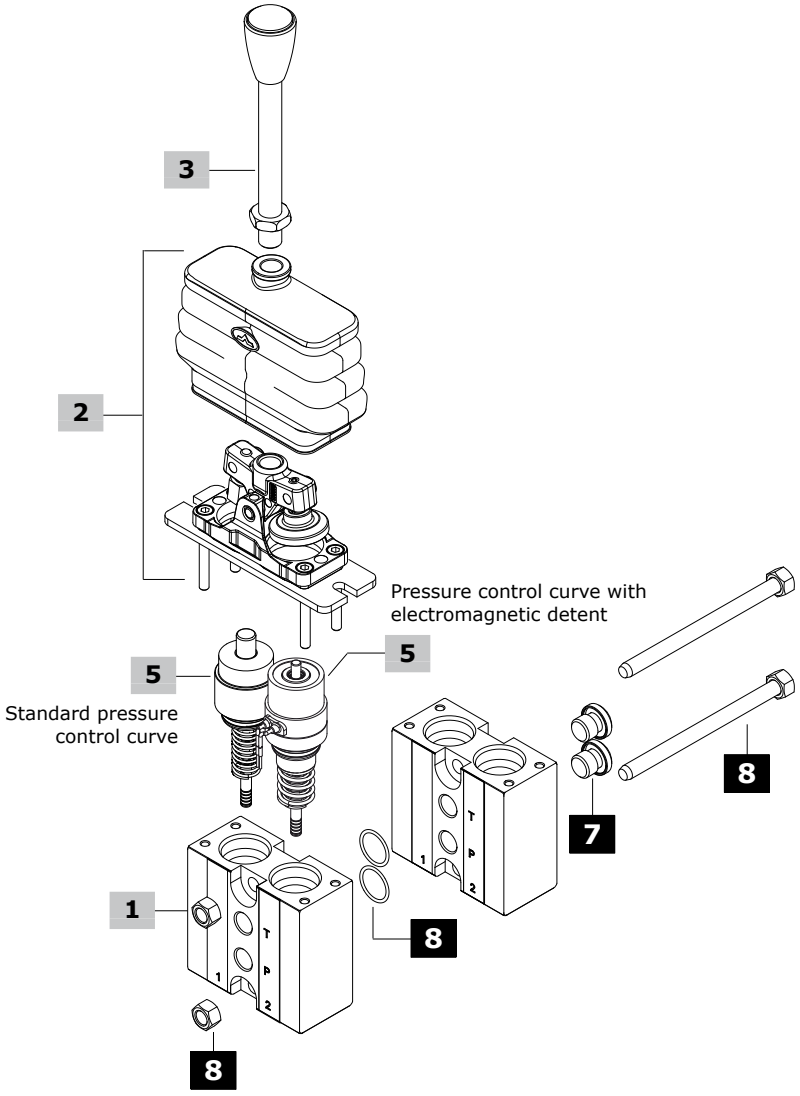
1	1	2	1	3	4	5.1	5.2	5.3	5.4	5	6

1 — Substitute with number of sections

5 — Pressure control curve with electromagnetic detent

5 — Standard pressure control curve

6 — Electric devices voltage



Ordering codes

1 Body kit *

TYPE: **SVM150-S/EMD(0)** CODE: 5CO3132700
DESCRIPTION: Body without detent
TYPE: **SVM150-S/EMD(1)** CODE: 5CO3132701
DESCRIZIONE: Body with detent arrangement on port 1
TYPE: **SVM150-S/EMD(2)** CODE: 5CO3132702
DESCRIPTION: Body with detent arrangement on port 2
TYPE: **SVM150-S/EMD(1-2)** CODE: 5CO3132703
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)	5CIN10110ND	Spring return to neutral position, single detent arrangement; right or left position is defined by pressure control curve position
01N(2D)	5CIN10120ND	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)	5AST371227G	Ogival with portlight, 15° sloping rod
G3(30)	5AST371228G	Ogival with portlight, 30° sloping rod
E	5AST371215E	Spherical with portlight, 15° sloping rod

4 Handle position

Only for sloping rod

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

5 Pressure control curves

For list available see from page 63

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,

5.4 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*

6 Connector

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

7 Closing plugs *

CODE	DESCRIPTION
3XTAP814120	SAE 4 plug for rear ports closing (n. 2 plugs)

8 Assembling kit

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

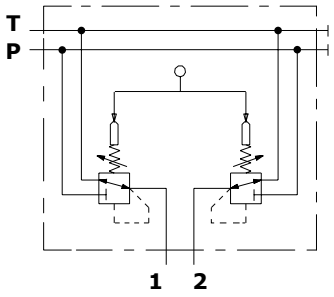
CODE	DESCRIPTION
5TIR108081	Assembling kit for SVM150/2
5TIR108127	Assembling kit for SVM150/3
5TIR108159	Assembling kit for SVM150/4
5TIR108199	Assembling kit for SVM150/5

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

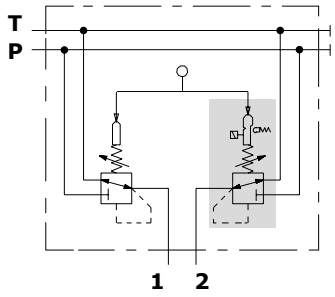
Configuration option

Detent configuration

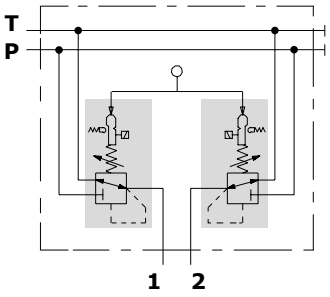
01/0D type
Spring return, without detent



01/1D type
Single detent on port 2 (detent on port 1 on request), spring return



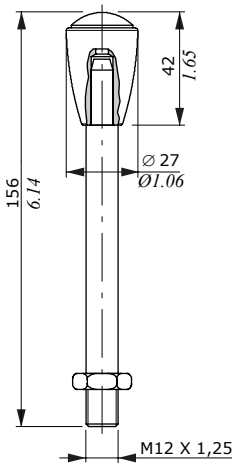
01/2D type
Double detent on ports 1 and 2, spring return



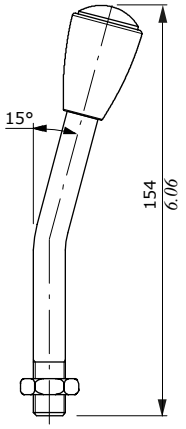
Standard handlevers

G type: Ogival handles with customizable portlight. It's possible to insert labels with specific machine functions (for example: lifting function): please contact our Sales Department.
E type: Spherical handle customizable as G type.

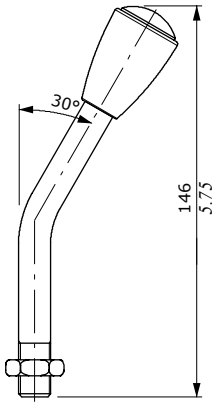
G type
straight rod



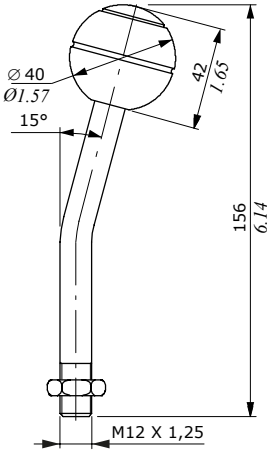
G(15) type
15° sloping rod

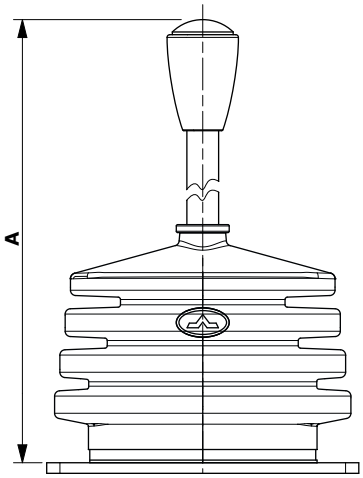


G(30) type
30° sloping rod



E type
15° sloping. rod





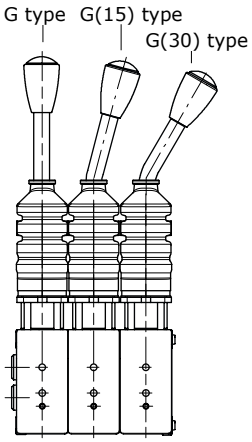
Handlever Type	A	
	mm	*in*
G3 straight	196	*7.72*
G3 15° sloping	184	*7.24*
G3 30° sloping	176	*6.23*
E 15° sloping	186	*7.32*

Configuration option

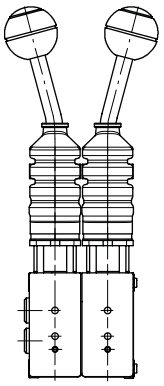
Standard handlevers

Mounting and orientation examples

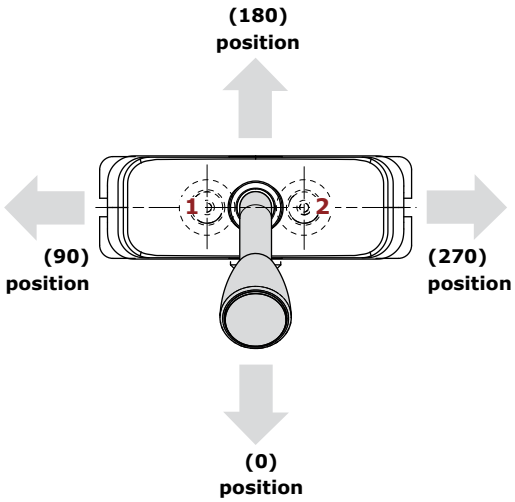
G type
pilot control valve with 3 sections



E type
pilot control valve with 2 sections



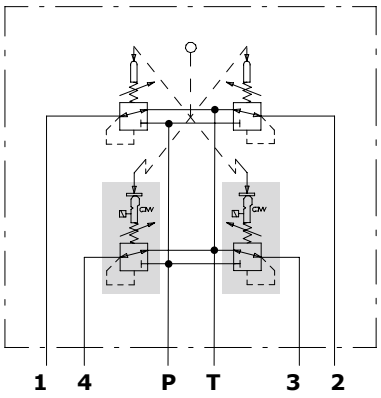
Sloping rod position

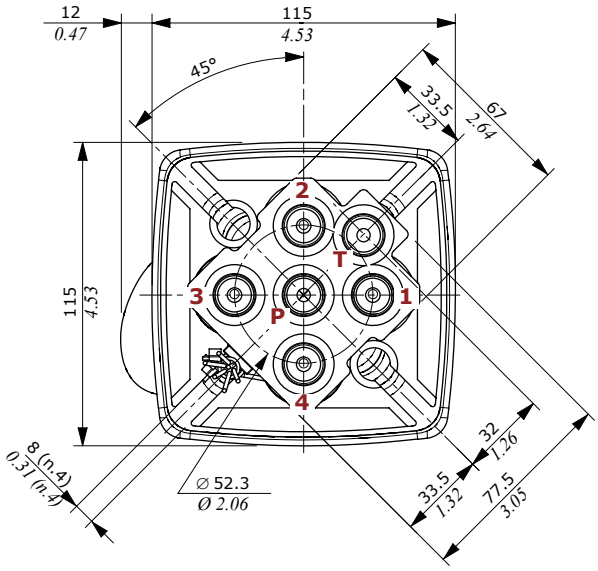


Dimensions and hydraulic circuit

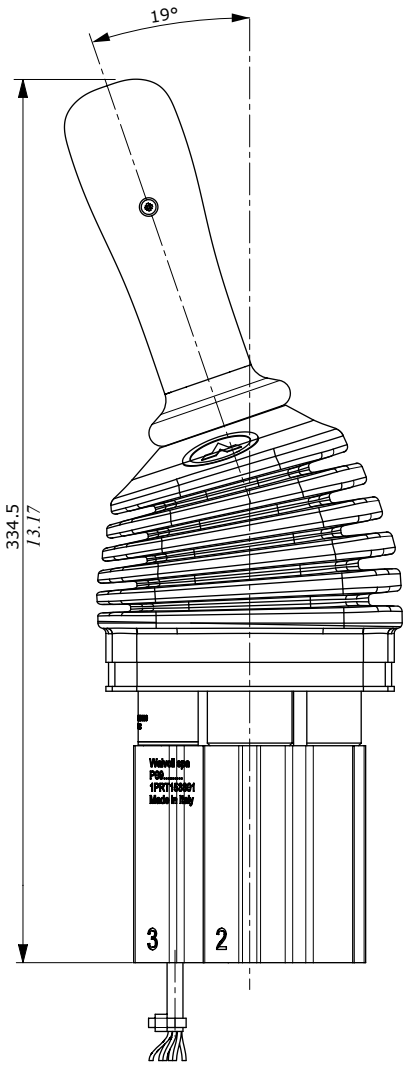
hydraulic circuit

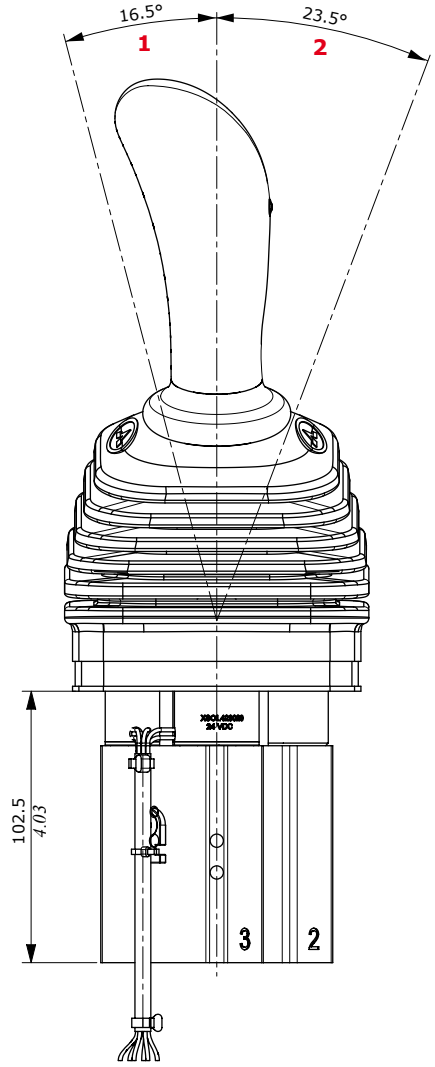
Example detent on working ports 3 e 4





1 : Single work port
2 : Two simultaneous work ports





Features

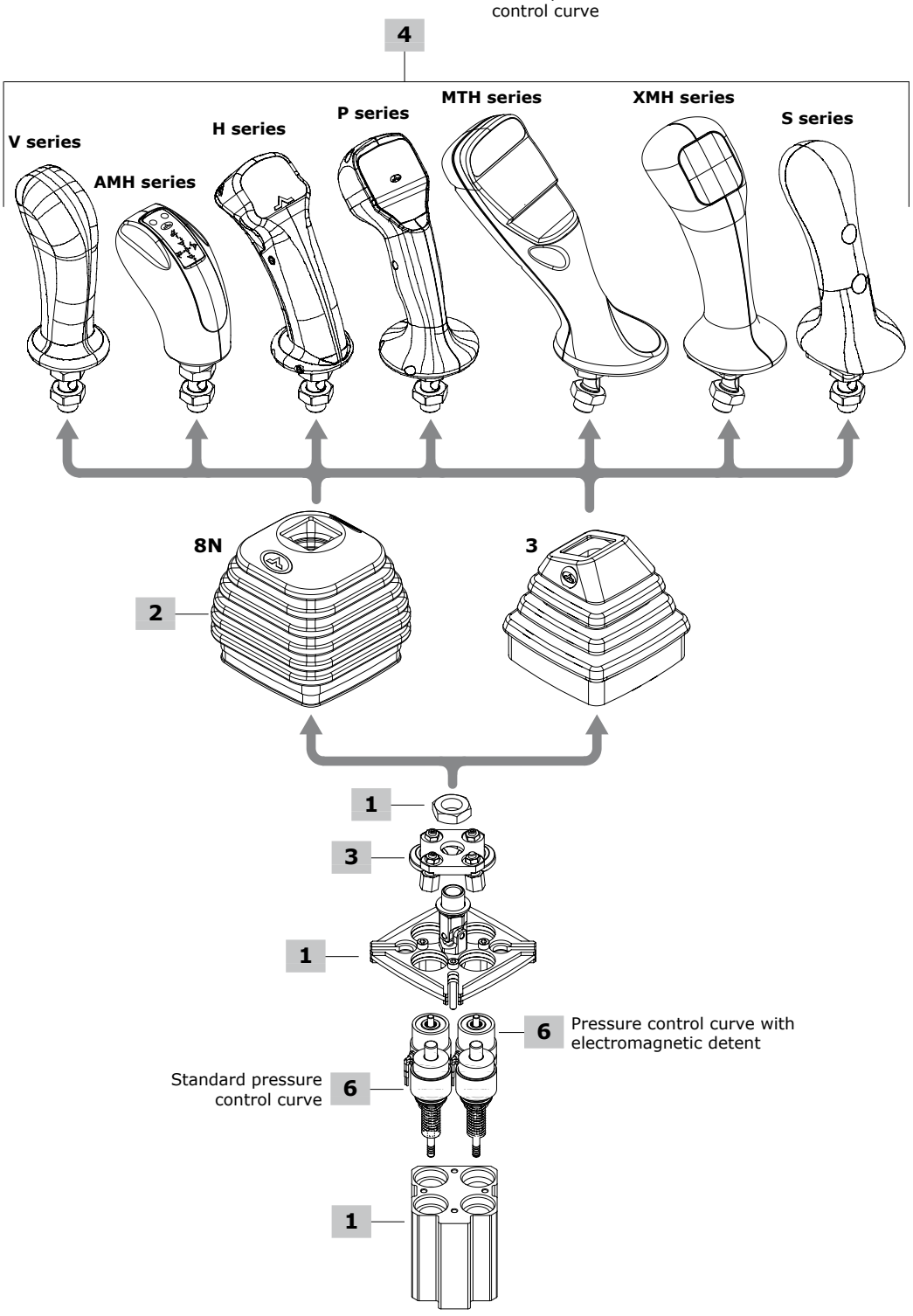
ELECTROMAGNET

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

Ordering codes

SVM450-EMD(3-4)/ 8N 1 - S6 / 01N - V007 (....) - A 0 020 M-....-....-E0020NM - (....) - 12VDC

- **1**
- **2** 1 1
- **3**
- **4**
- **5**
- **6** (6.1 6.2 6.3 6.4) — Standard pressure control curve
- **6** — Pressure control curve with electromagnetic detent
- **7** — Electric devices voltage



Ordering codes

1 Body kit with flange *

TYPE: **SVM450-EMD(4)/S6** CODE: 5CO3450703
DESCRIPTION: With detent arrangement on port 4
TYPE: **SVM450-EMD(3-4)/S6** CODE: 5CO3450701
DESCRIPTION: With detent arrangement on ports 3 and 4
TYPE: **SVM450-EMD(2-3-4)/S6** CODE: 5CO3450702
DESCRIPTION: With detent arrangement on ports 2, 3 and 4

2 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

3 Detent configuration

With spring return in neutral position

TYPE	CODE	DESCRIPTION
01N(1D)	5CIN8011ND	Control kit arranged for 1 detent
01N(2D)	5CIN8012ND	Control kit arranged for 2 detent
01N(3D)	5CIN8013ND	Control kit arranged for 3 detent

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

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 handlevers" catalogue.

V series handle
TYPE: **V007-(Q)** CODE:5IMP030071
DESCRIPTION Without switches, with sloping 19° left joint and square seat bellow adapter

AMH series handle
TYPE: **AMHT030008-(Q)-6N2D035-7R2D035-8N2D035-(E1)**
CODE: 2IM3000007
DESCRIPTION: 3 spring return push-buttons, flying leads, sloping 19° right joint and square seat bellow adapter

H series handle
TYPE: **HMB03G-(Q)-1R4040-4R3040-5R2040-(12VDC)**
CODE: 2IM4600051
DESCRIPTION: 3 spring return push-buttons on the operator side, flying leads, straight joint, for circular seat bellow

P series handle
TYPE: **PZMA1200B7-0R035-3Y2D035-WN130035-ZN130035-(SCHEDA 2PWM)-(TD2M)** CODE: 2IM8700003
DESCRIZIONE: 2 proportional roller and 1 spring return push-button on operator side,"dead man" switch, flying leads with Deutsch pins, sloping 19° left joint and square seat bellow adapter

MTH series handle
TTYPE: **MTH-R00-ZTI4100(K)Y-00-1Y2035-2Y2035-3N2035-6N2035-ZN122035-MRZ035-(5VDC)-D2F12**
CODE: 2IM2000005
DESCRIPTION: 1 proportional roller and 4 spring return push-buttons on the operator side, 1 FNR rocker switch on the opposite side, Deutsch connector, sloping 9° left joint and square seat bellow adapter

XMH series handle
TYPE: **XMHZTA21008-2G2035-4G2035-7G2035-VG171035**
CODE: 2IM1000004
DESCRIPTION: 1 proportional roller and 2 spring return push-buttons on the opetrator side, 1 push button with spring return on the opposite side, Deutsch connector, 19° sloping right joint, for square seat bellow

S series handle
TYPE: **SZTA8-0G4045-XG122045** CODE: 2IM5310003
DESCRIPTION: With proportional roller on the operator side and spring return push-button on the opposite side, 19° sloping right joint, for square seat bellow

5 Handle position

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

6 Pressure control curves

For list available see from page 63

6.1 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

6.2 Typology of curves

TYPE	DESCRIPTION
0	With step
1	Without step

6.3 Curve identification

Progressive number

6.4 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*

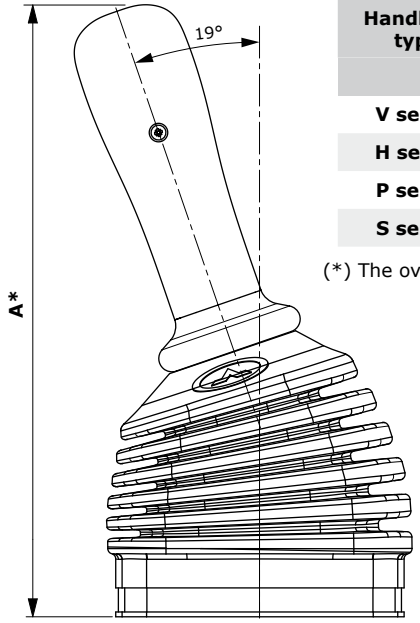
7 Connector

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

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

Configuration option

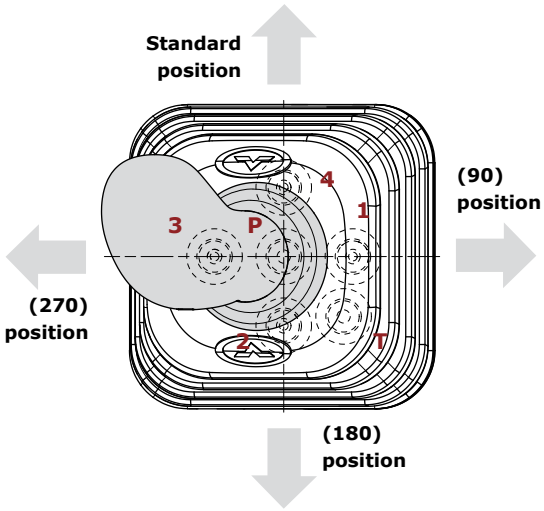
Handle option



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*

(*) The overall dimension is indicative

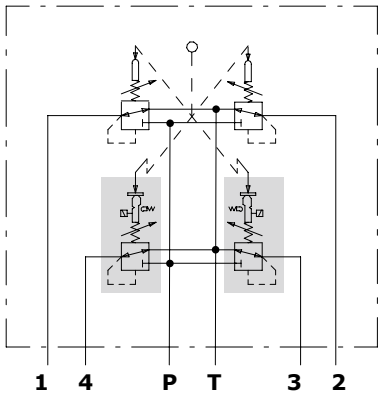
Handle positions



Detent configuration

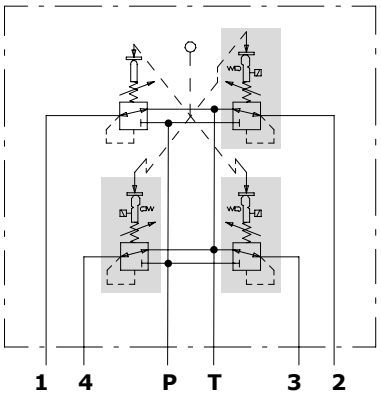
01/2D type

Detent on ports 3 and 4, with spring return



01/3D type

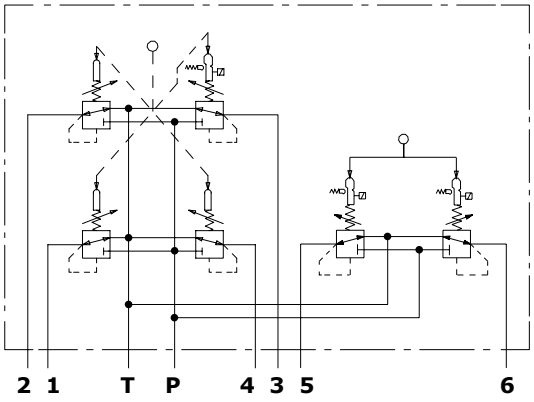
Detent on ports 2, 3 and 4 with spring return

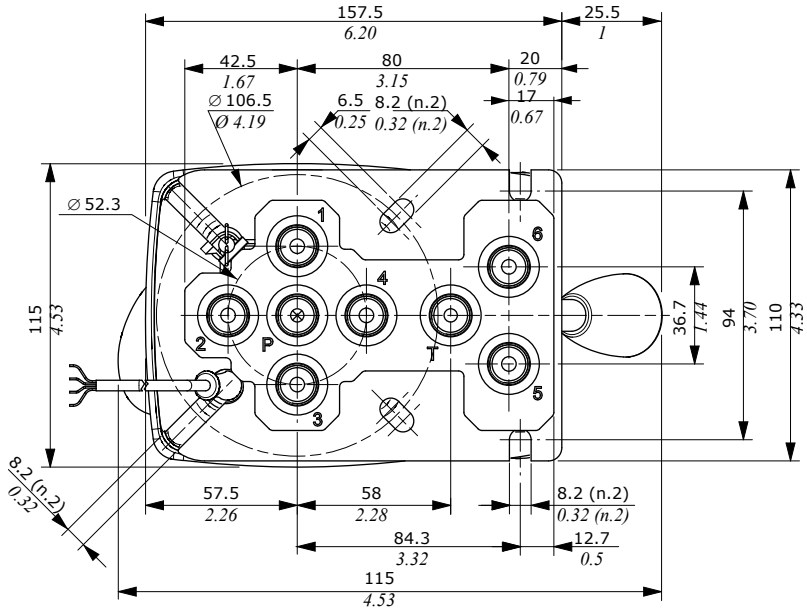


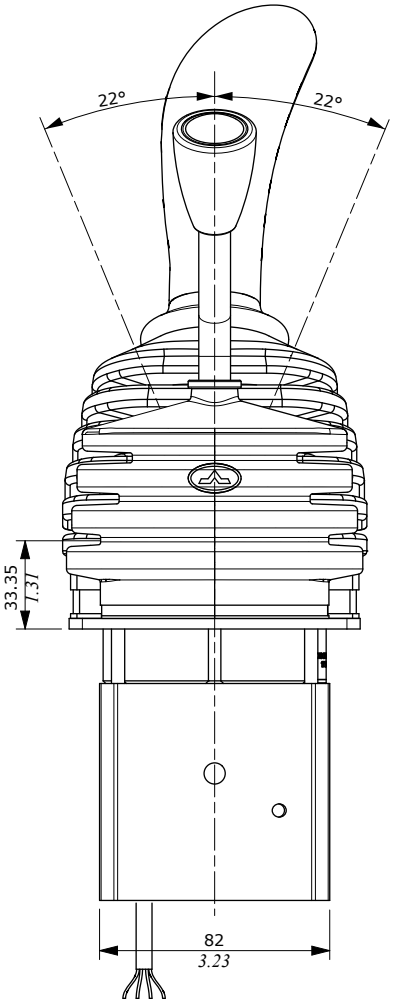
Dimensions and circuit hydraulic

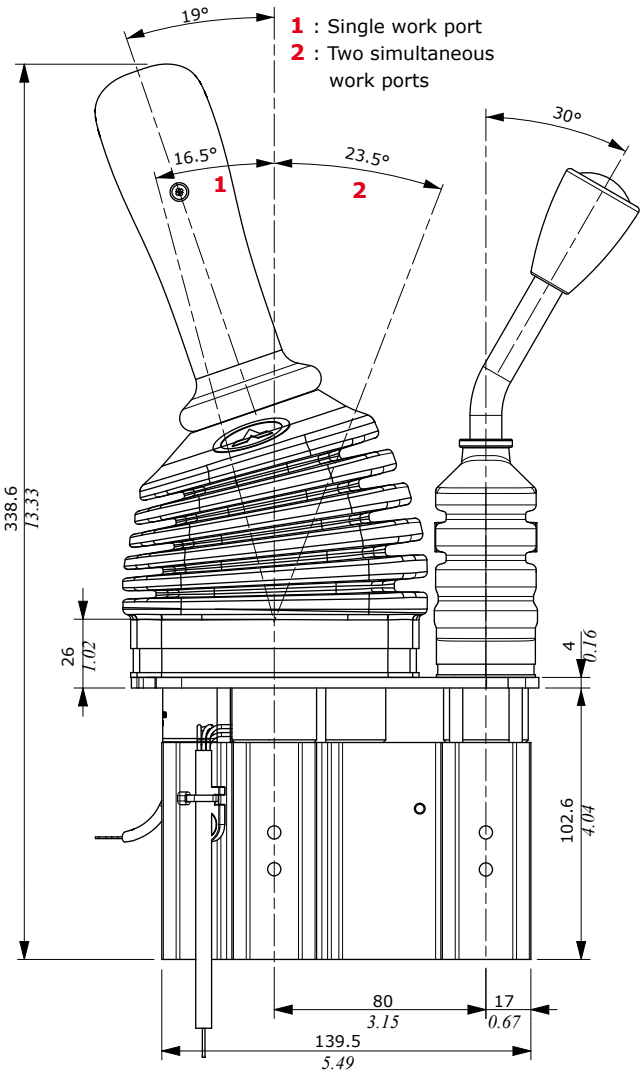
Hydraulic circuit

Example detent on working ports 3, 4 and 6









Ordering codes

control curves description

SVM600-EMD(2-3-5-6) / 8N - S6 / 01N - V007 (....) - A 0 020 M - .... - .... - E0020NM / 01N

1 — 2A — 1 — 3A — 4A — 5A — 6.1 — 6.2 — 6.3 — 6.4 — 6 — 3B

6 Standard pressure control curve

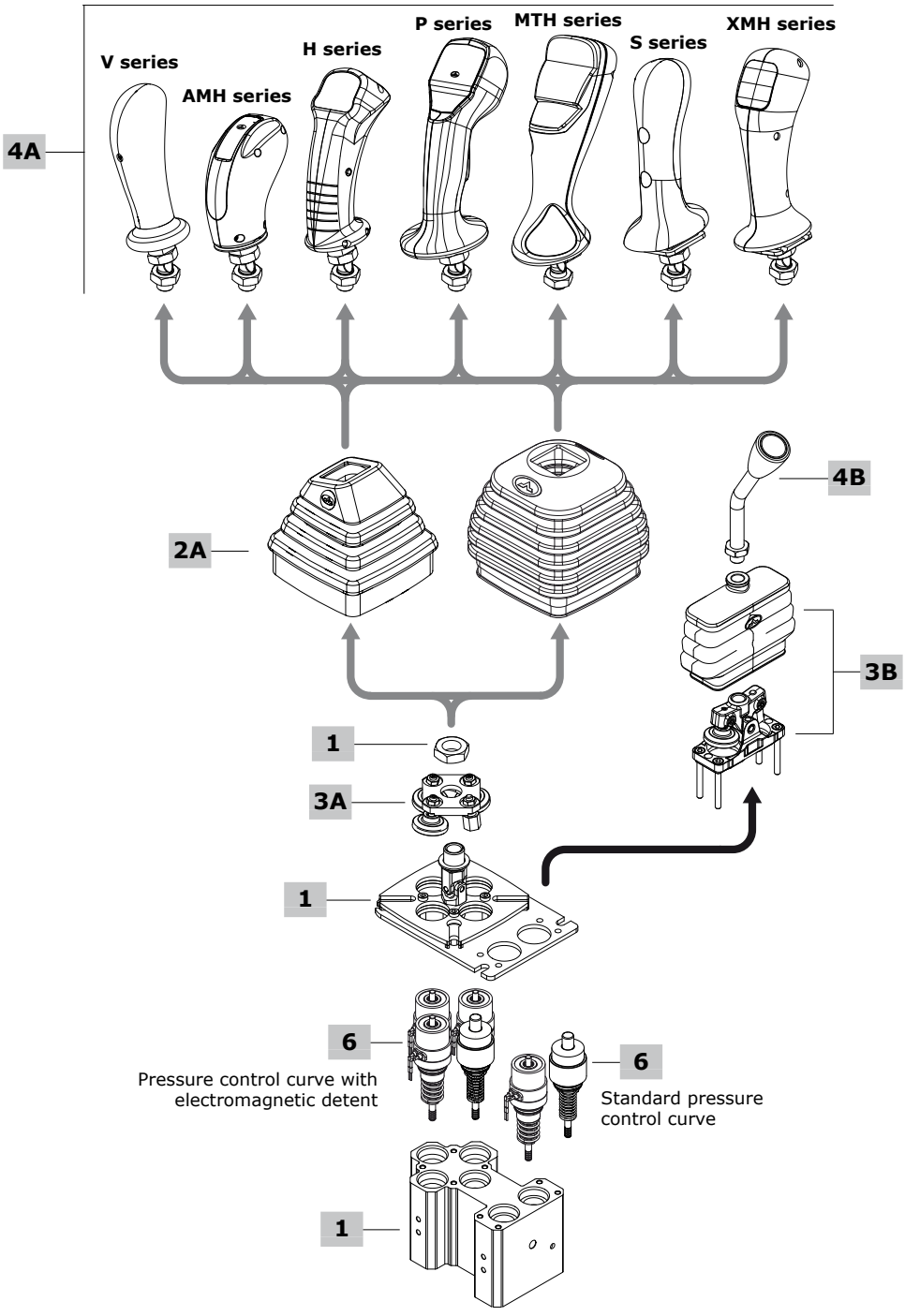
Pressure control curve with electro-magnetic detent

control curves description

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

4B — 5B — 6 — 6 — 7

Electric devices voltage



Ordering codes

Main options

1 Body kit with flange *

TYPE: **SVM600-EMD(2-3)/S6** CODE: 5CO3600700
DESCRIPTION: With detent arrangement on ports 2 and 3
TYPE: **SVM600-EMD(1-2-3)/S6** CODE: 5CO3600701
DESCRIPTION: With detent arrangement on ports 1, 2 and 3
TYPE: **SVM600-EMD(2-3-6)/S6** CODE: 5CO3600702
DESCRIPTION: With detent arrangement on ports 2, 3 and 6
TYPE: **SVM600-EMD(1-2-3-6)/S6** CODE: 5CO3600704
DESCRIPTION: With detent arrangement on ports 1, 2, 3 and 6

6 Pressure control curves

For list available see from page 63

6.1 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

6.2 Typology of curves

TYPE	DESCRIPTION
0	With step
1	Without step

6.3 Curve identification

Progressive number

6.4 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*

7 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 **UN-UNF** thread.

Joystick options

2A 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

3A Detent configuration

With spring return in neutral position

TYPE	CODE	DESCRIPTION
01N(2D)	5CIN8012ND	Control kit arranged for 2 detents
01N(3D)	5CIN8013ND	Control kit arranged for 3 detents

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

4A 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-(Q)** CODE:5IMP030071
DESCRIPTION Without switches, with sloping 19° left joint and square seat bellow adapter

S series handle
TYPE: **SZTA8-0G4045-XG122045** CODE: 2IM5310003
DESCRIPTION: With proportional roller on the operator side and spring return push-button on the opposite side, 19° sloping right joint, for square seat bellow

5A Handle position

TYPE	DESCRIPTION
(-)	Standard configuration, forward operation toward port 4: **omitted in description**
(180)	Mounted with 180° rotation step: forward operation towards port 2
(270)	Mounted with 270° rotation step: forward operation towards port 3

Single acting options

3B Control option

Complete with rubber bellow (code 3SOF190783-C) 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

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

4B Standard handlever

TYPE	CODE	DESCRIPTION
G3(30)	5AST371228G	Ogival with portlight, 30° bending rod For features see page 42

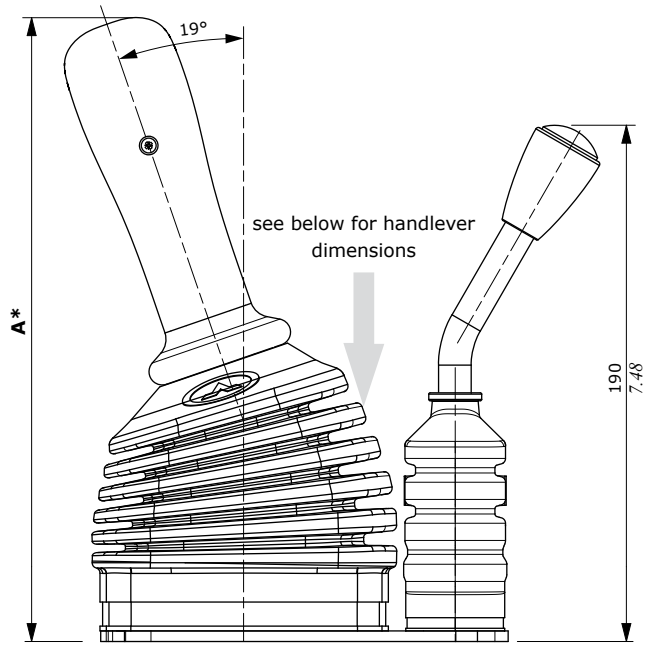
5B Handle position

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

For different positions, please contact our Sales Department.

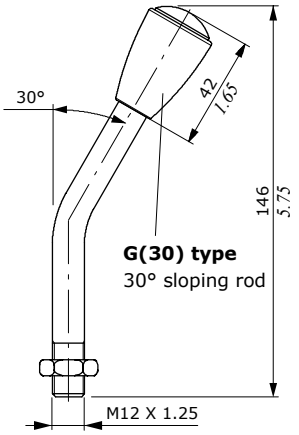
Configuration option

Handle options

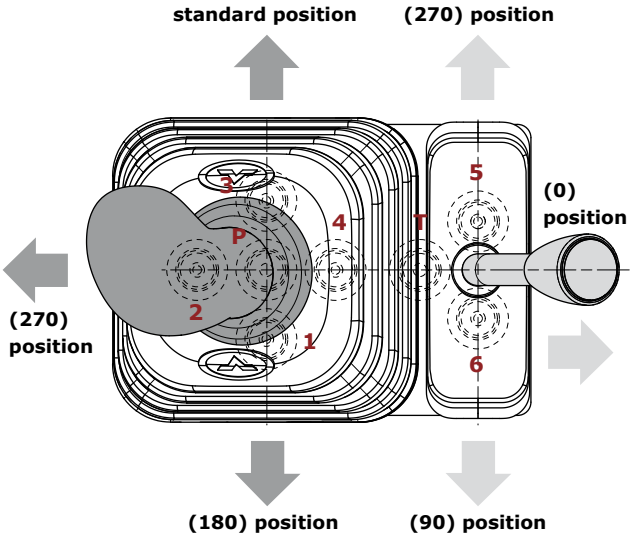


Handlever type	A*	
	mm	*in*
V series	232	*9.13*
H series	250	*9.84*
P series	268	*10.55*
S series	266	*10.47*

(*) The overall dimension is indicative



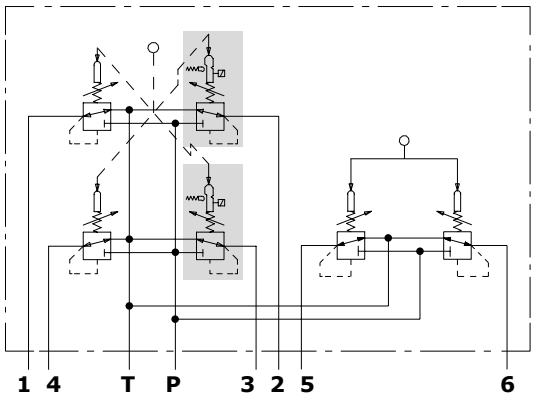
Handle and handlever positions



Detent configuration: examples

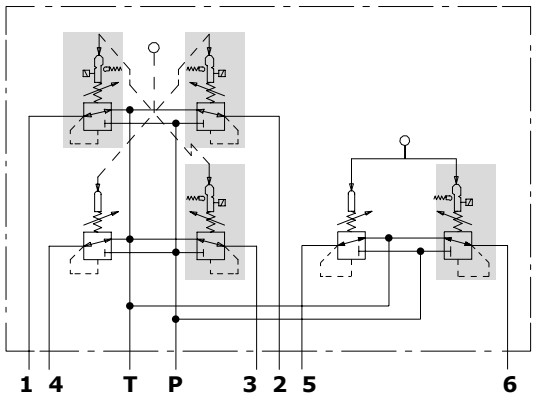
01/2D type (joystick)

Detent on ports 2 and 3, with spring return



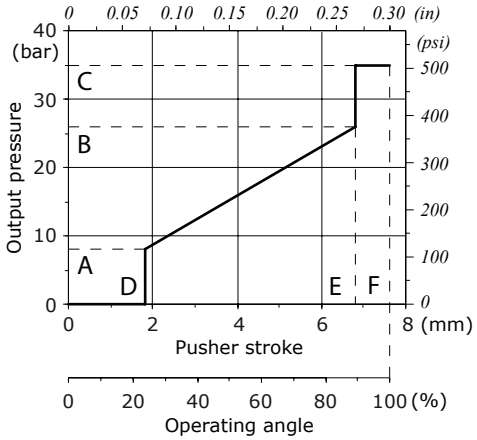
01/3D type (joystick) + 01/1D (single acting)

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

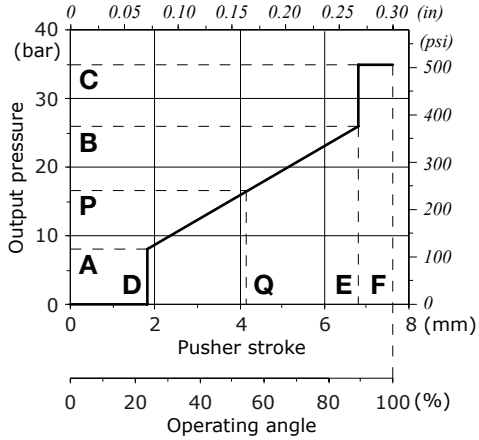


Control curves with step

A0 type without pre-feeling and solenoid



E0 type with pre-feeling and solenoid 12 VDC
C0 type with pre-feeling and solenoid 24 VDC

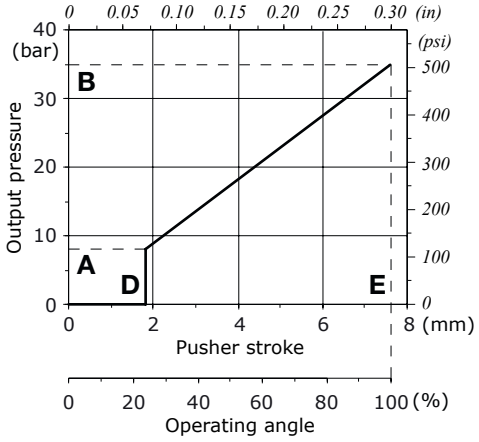


Curve description		Pressure								Stroke								
		A		P		B		C		D		Q		E		F		
Type	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	bar	*psi*	mm	*(in)*	mm	*(in)*	mm	*(in)*	mm	*(in)*	CODE [1]
A0	**011**	3.5 (±1)	*50.7 (±14.5)*			25 (±1.5)	*362.5 (±21.7)*	35	*507.5*	0.85	*0.03*			7.25	*0.28*	7.6	*0.30*	5CR7A0011M
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*	5CR7A0099M
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*	5CR7A0B47M
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*	5CR7A0086M
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*	5CR7A0020M
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*	5CR7A0028M
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*	5CR7A0075A
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*	5CR7A0077M
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*	5CR7A0119M
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*	5CR7A0001M
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*	5CR7A0033B
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*	5CR7A0085A
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*	5CR7A0088M
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*	5CR7A0036A
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

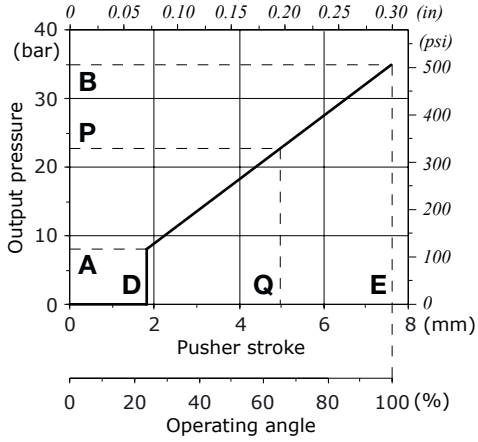
[1] Codes are referred to the curve with the specific return spring
For different curves, please contact our Sales Department

Control curves without step

A1 type without pre-feeling and solenoid



E1 type with pre-feeling and solenoid 12 VDC
C1 type with pre-feeling and solenoid 24 VDC



Curve description		Pressure						Stroke						
		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*	CODE [1]
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]Codes are referred to the curve with the specific return spring
For different curves, please contact our Sales Department

SVM hydraulic joysticks with pedal and other actuations

SVM510-SVM520-SVM521 / SVM500 series / SVM540 series / SVM702-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 - *from 1.32 to 5.28 USgpm*
Max. feeding pressure	P on inlet port	from 30 to 100 bar - *from 435 to 1450 psi*
Max. backpressure	T on outlet port	3 bar - *43.5 psi*
Max. hysteresis		0.5 bar - *7.25 psi*
Internal leakage (all ports)	at 30 bar - *435 psi*, P⇒T	from 2.5 to 4.5 cm³/min - *from 0.15 to 0.27 in3/min*
Fluid		mineral oil
Fluid temperature	with NBR (BUNA-N) seals	from -10°C to 80°C - *from 14 °F to 176 °F*
Viscosity	operating range	from 15 to 75 mm²/s - *from 15 to 75 cSt*
	min.	12 mm²/s - *12 cSt*
	max.	400 mm²/s - *400 cSt*
Max. contamination level		-/15/12 - ISO 4406 - *NAS1638 class 6*
Ambient temperature	without electric devices	from -40°C to 60°C - *from 40 °F to 140 °F*
	with electric devices	from -20°C to 50°C - *from -4 °F to 122 °F*

NOTE - for different conditions please contact Sales Dpt

REFERENCE STANDARD

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

PORTS THREADING

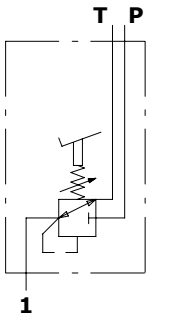
PORTS	Threads		Fitting tightening torque	
	UNI EN ISO 1179	UNI EN ISO 11926-2	Nm	*lbft*
P inlet	G 1/4	7/16-20 (SAE 4)	30	*22.13*
Ports	G 1/4	7/16-20 (SAE 4)	30	*22.13*
T outlet	G 1/4	7/16-20 (SAE 4)	30	*22.13*

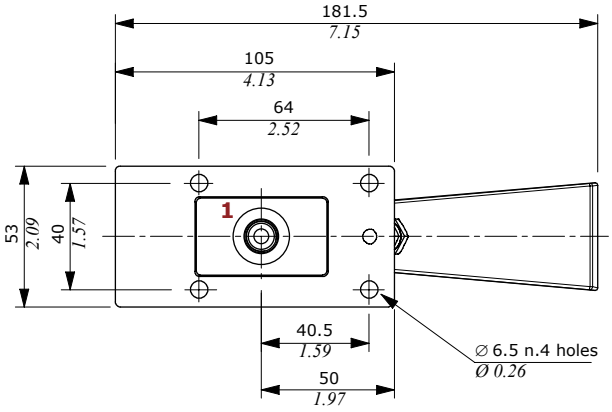
NOTE – These torques are recommended. Assembly tightening torque depends on many factors, including lubrification, coating and surface finishing. The manufacturer has to be consulted.

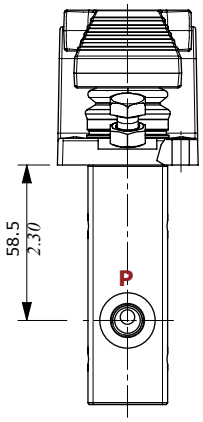
Dimensions and hydraulic circuit

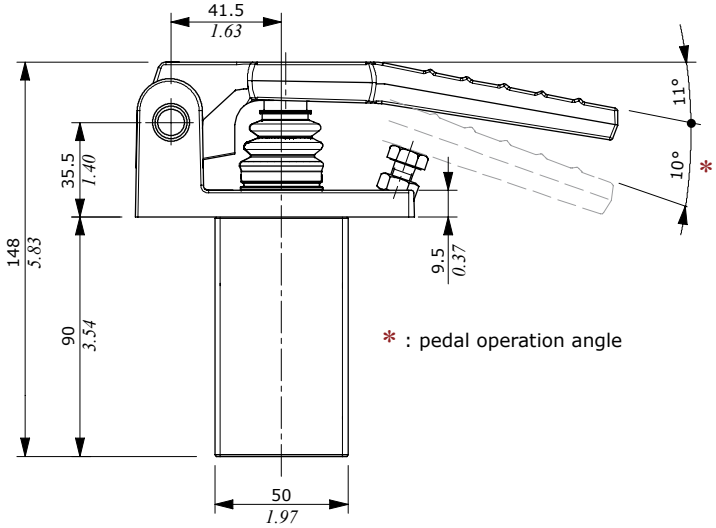
SVM510 type

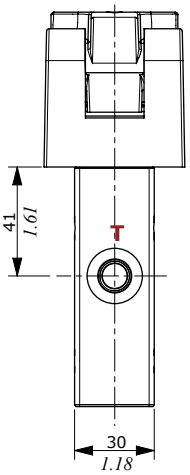
Hydraulic circuit







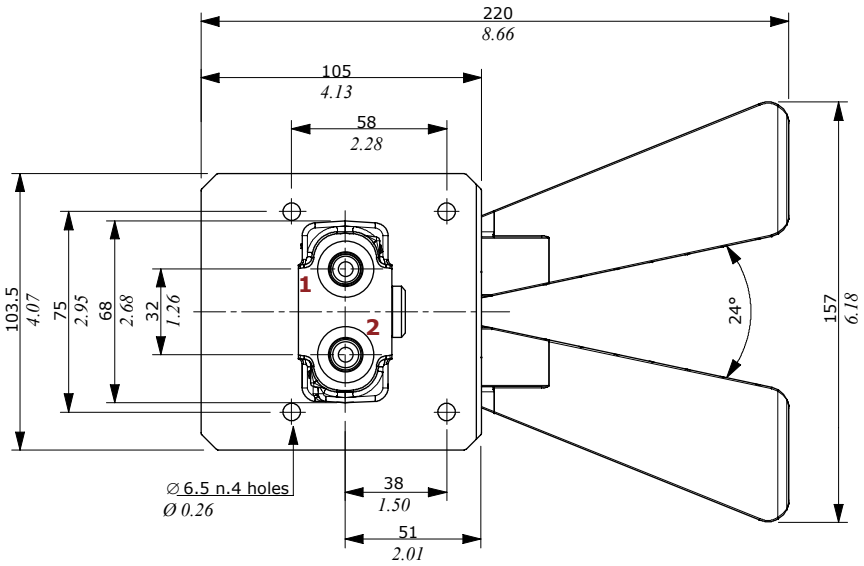




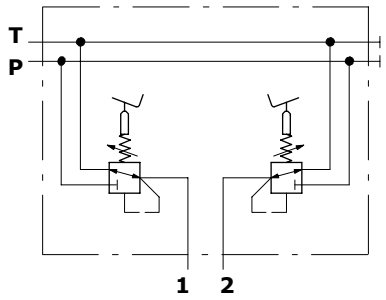
Dimensions and hydraulic circuit

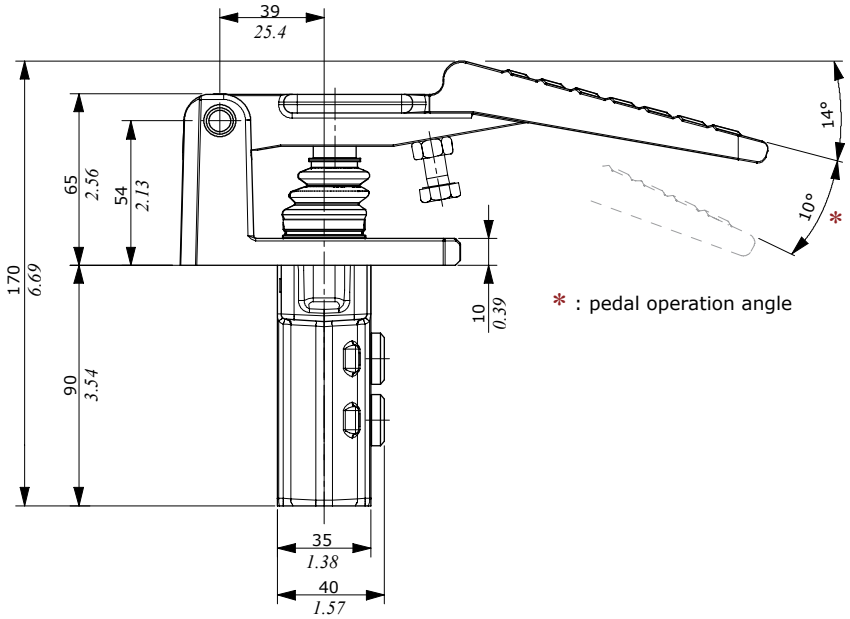
SVM520 type

Configuration with side P and T ports.

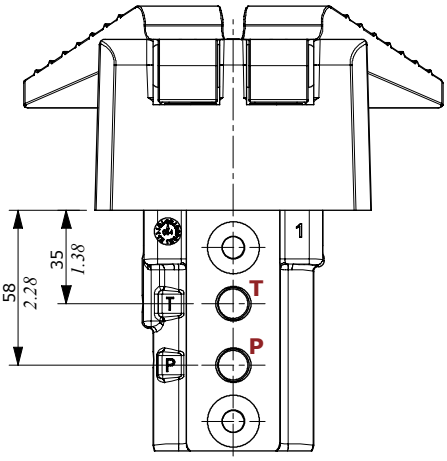


Hydraulic circuit





* : pedal operation angle

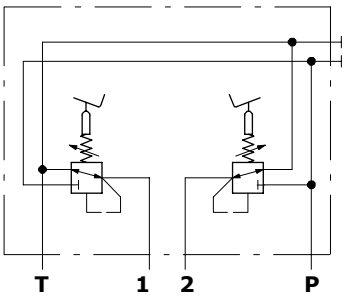


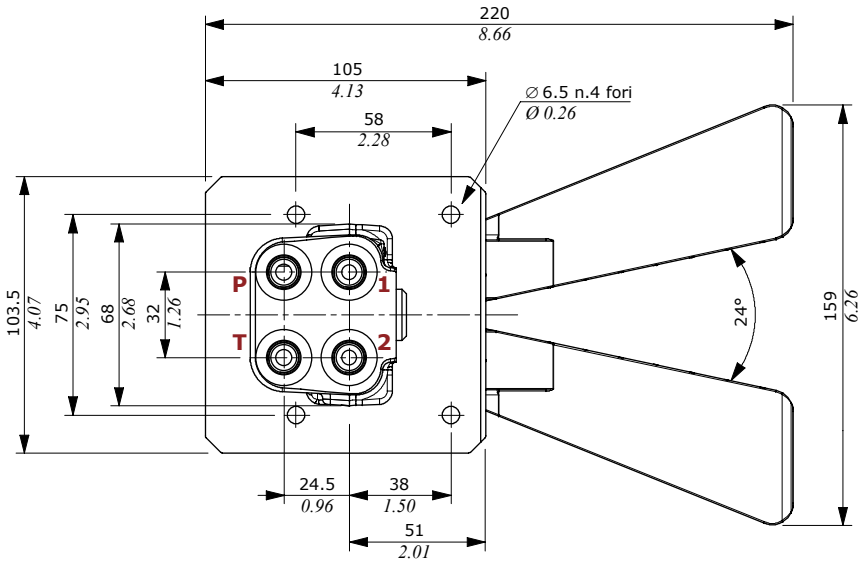
Dimensions and hydraulic circuit

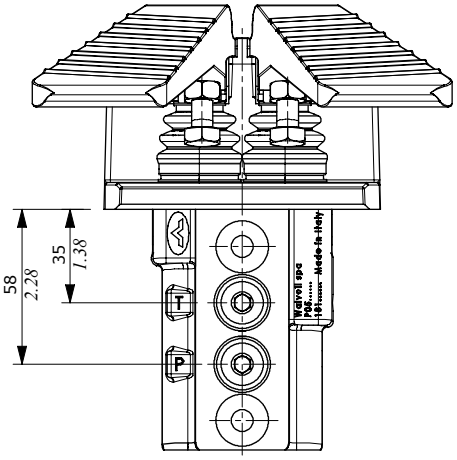
SVM521 type

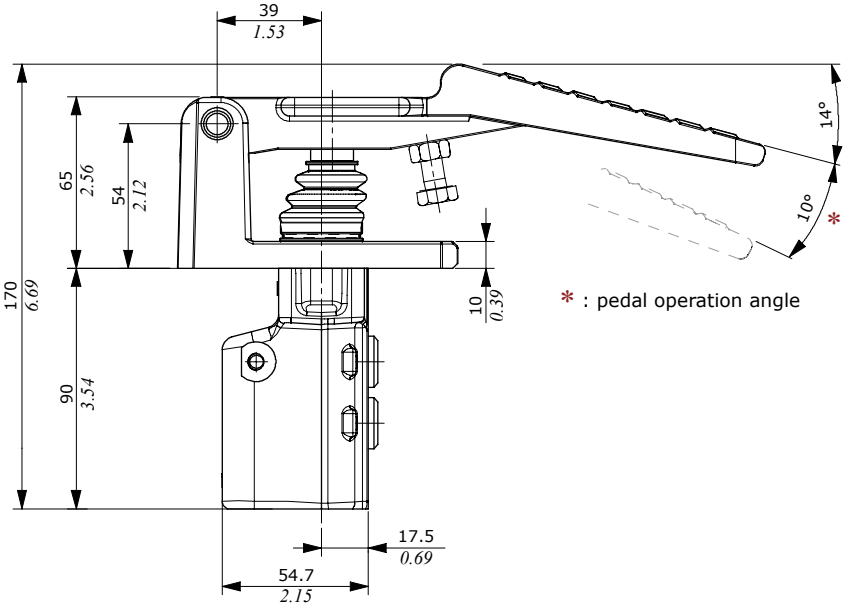
Configuration with bottom P and T ports.

Hydraulic circuit









* : pedal operation angle

Ordering codes

SVM510-S / 0 0 001 A

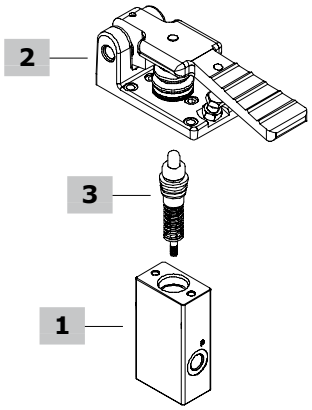
1 — 2

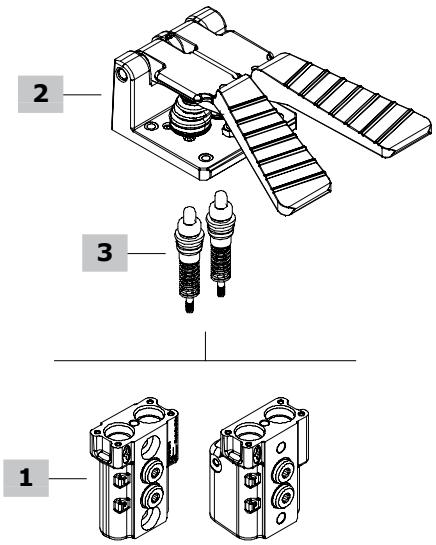
3.1 3.2 3.3 3.4 — 3

SVM520-S / 00001A x 2

1 — 2

3





1 Body kit *

TYPE	CODE	DESCRIPTION
SVM510-S	3CO3710700	Single pedal configuration
SVM520-S	3CO3122700	Double pedal configuration with side P and T ports
SVM521-S	3CO3122710	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 82

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,

3.4 Return springs

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

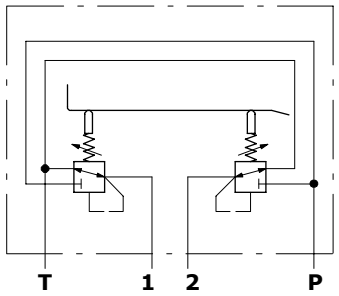
NOTE (*) – Codes are referred to **UN-UNF** thread.

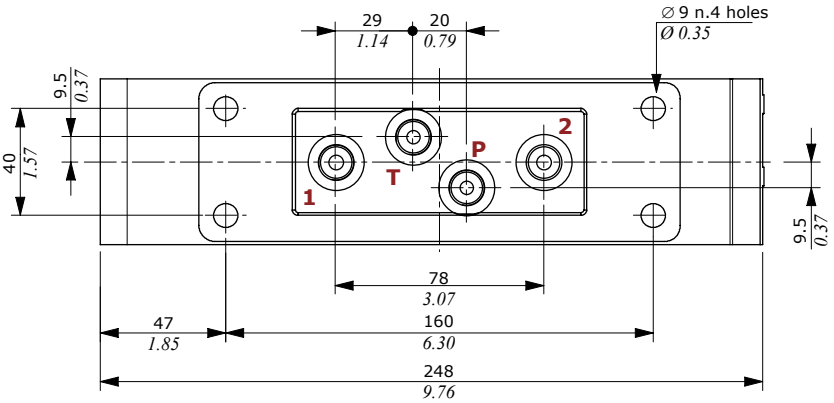
Dimensions and hydraulic circuit

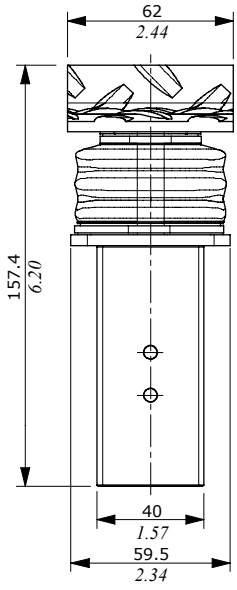
SVM500 type

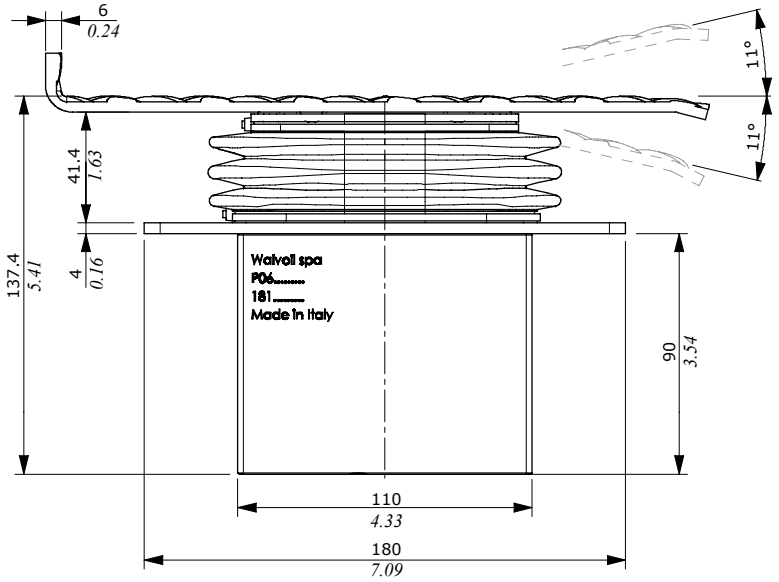
Configuration with lower ports.

Hydraulic circuit







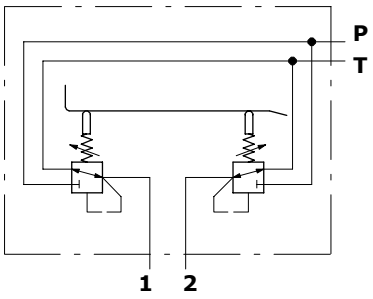


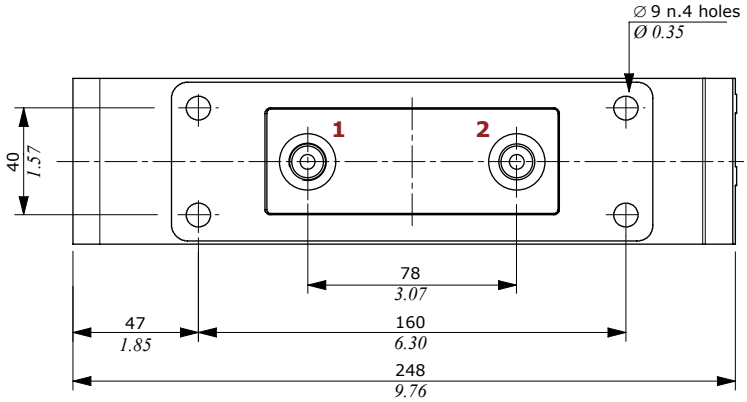
Dimensions and hydraulic circuit

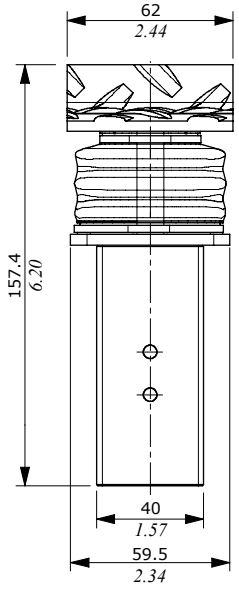
SVM502 type

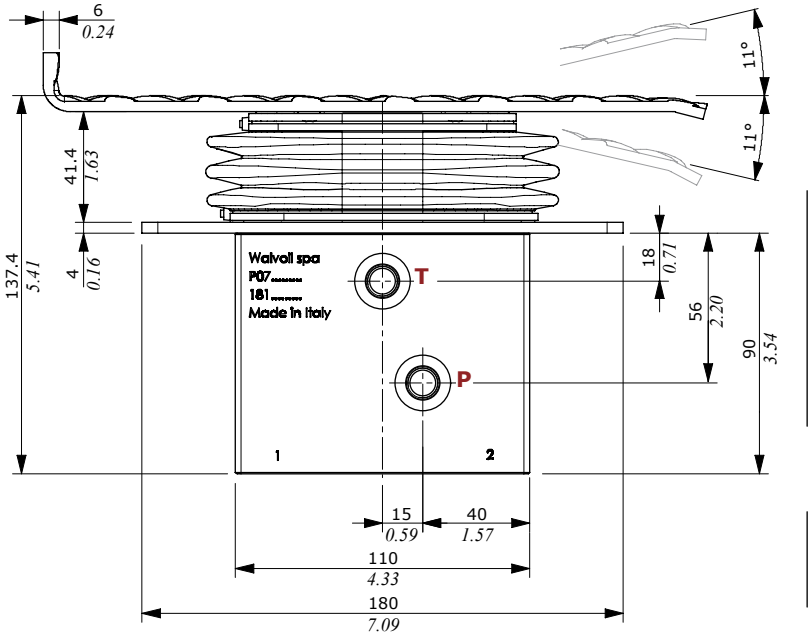
Configuration with side P and T ports, lower 1 and 2 ports.

Hydraulic circuit





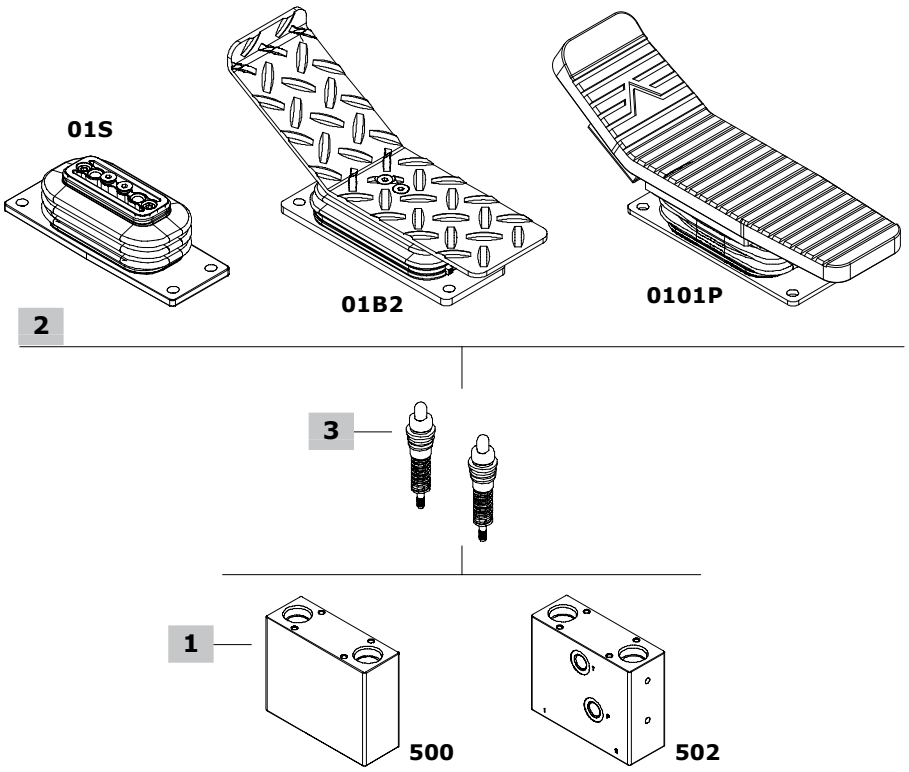




Ordering codes

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

1 — 2 — 3.1 3.2 3.3 3.4 — 3



1 Body kit *

TYPE	CODE	DESCRIPTION
SVM500-S	3CO3510700	Configuration with lower ports
SVM502-S	3CO3510720	Configuration with side P and T ports, lower 1 and 2 ports

2 Control options

TYPE	CODE	DESCRIPTION
01S	5CIN5001S	With spring return in neutral position and 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	5CIN50001P00	As type 01S with 150° bent pedal and anti-slip rubber coating
0102P	5CIN50002P00	As type 01S with 150° bent and 30° tilted pedal, short type; anti-slip rubber coating
0103P	5CIN50003P00	s type 01S with 150° bent and 30° tilted pedal, long type; anti-slip rubber coating

3 Pressure control curves

For configuration and list available see from page 82

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

3.4 Return springs

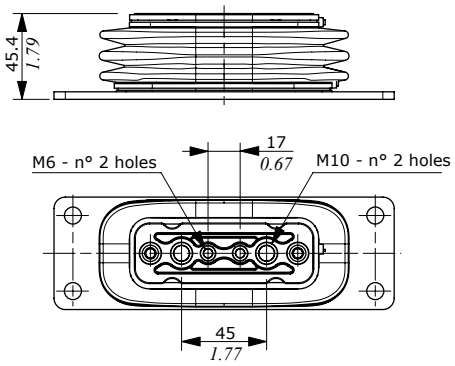
TYPE	DESCRIPTION
A	Operation range from 23 to 35.2 N - *from 5.17 to 7.91 lbf*
B	Operation range from 23 to 68.1 N - *from 5.17 to 15.31 lbf*
C	Operation range from 89 to 176 N - *from 20 to 39.56 lbf*
D	Operation range from 110 to 220 N - *from 24.73 to 49.46 lbf*
E	Operation range from 138 to 276 N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

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

Control options

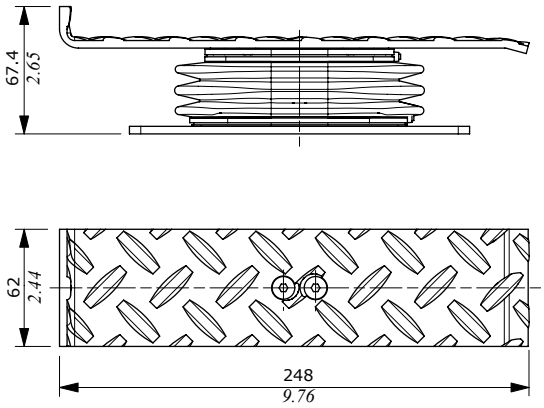
01S type

With spring return in neutral position, without pedal.



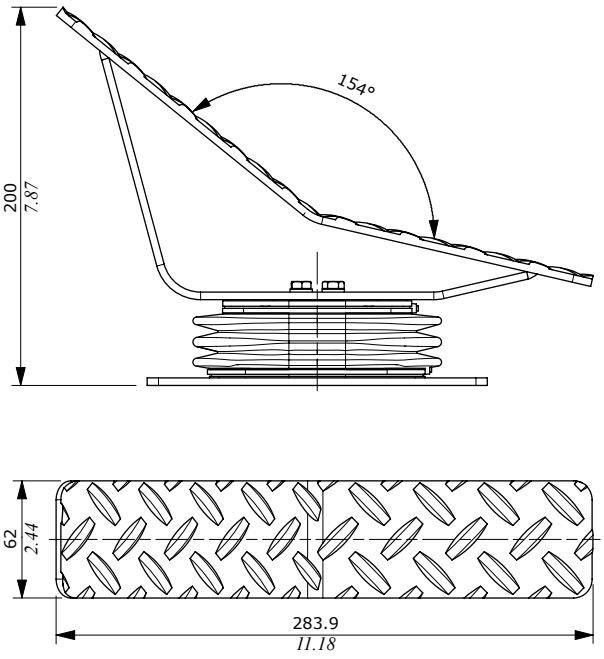
01F type

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



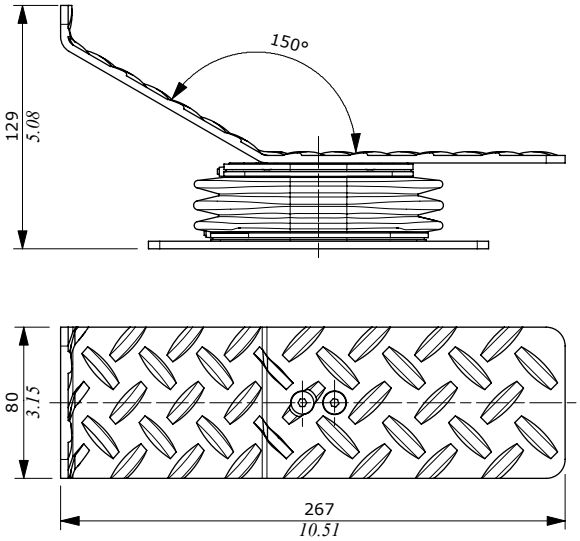
01B1 type

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



01B2 type

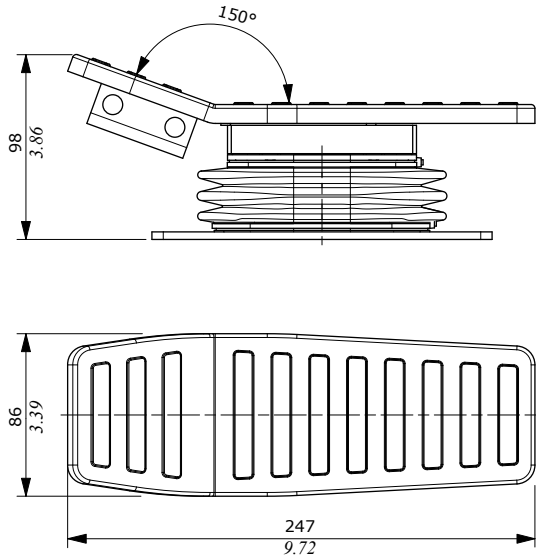
With spring return in neutral position.
Sloped pedal with corrugated sheet, white galvanized.



Control options

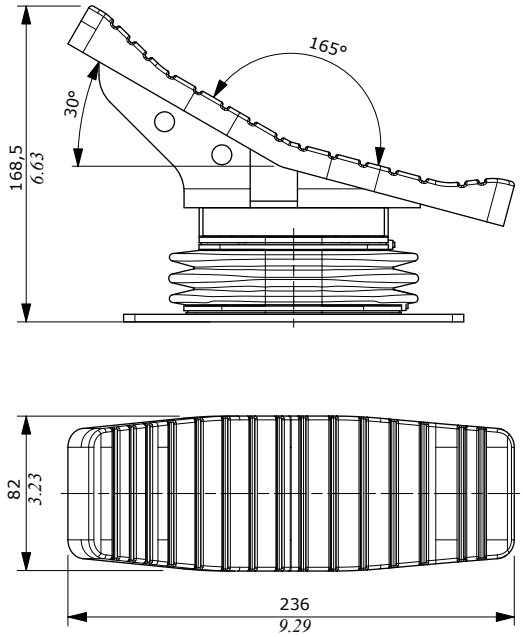
0101P type

With spring return in neutral position.
Bent pedal with anti-slip rubber coating.



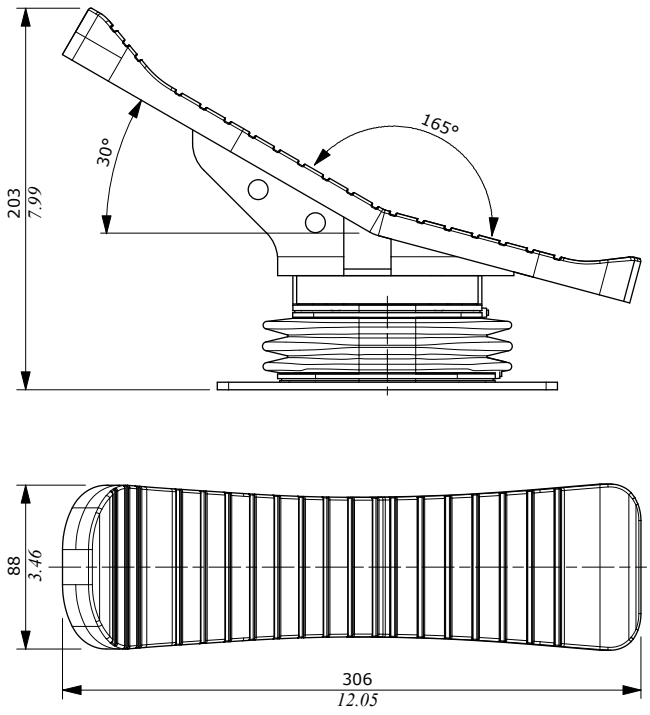
0102P type

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



0103P type

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

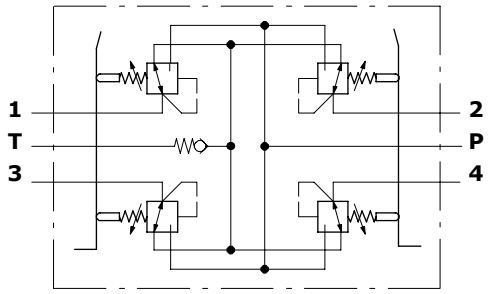


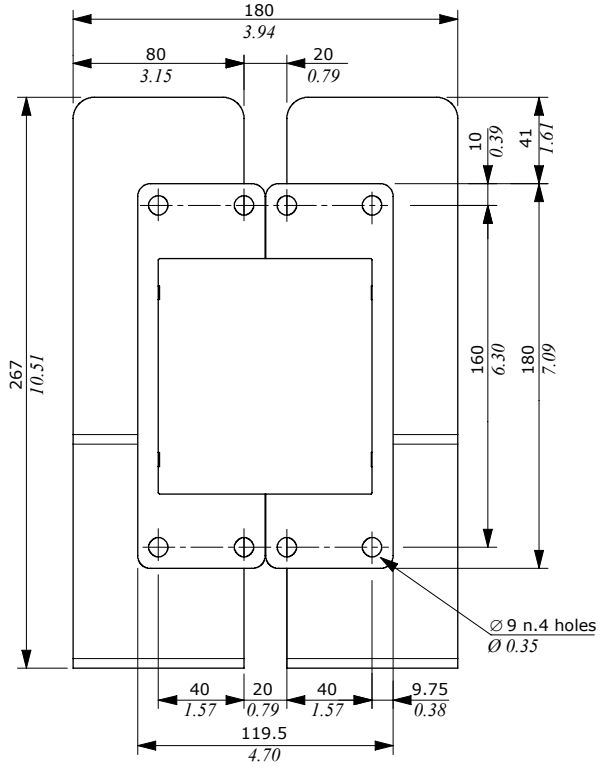
Dimensions and hydraulic circuit

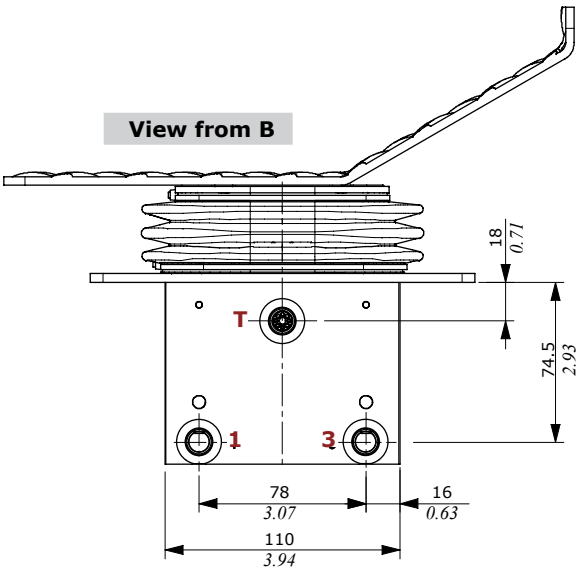
SVM540 type

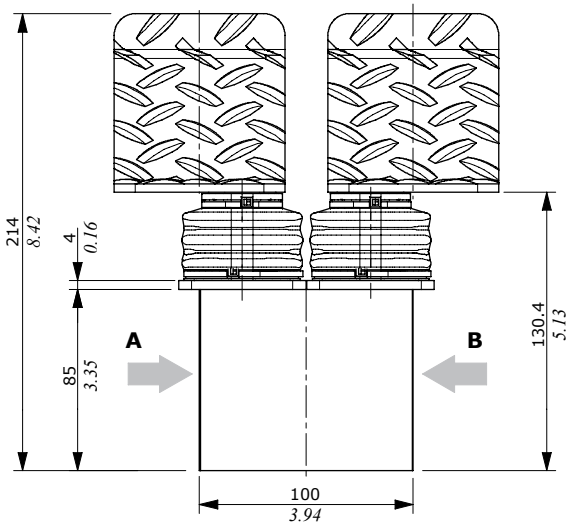
Double pedal configuration provided of damping system for swing reduction.

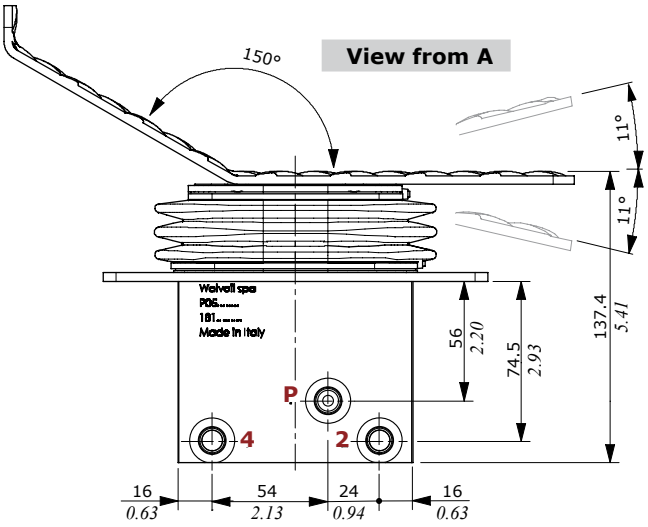
Hydraulic circuit







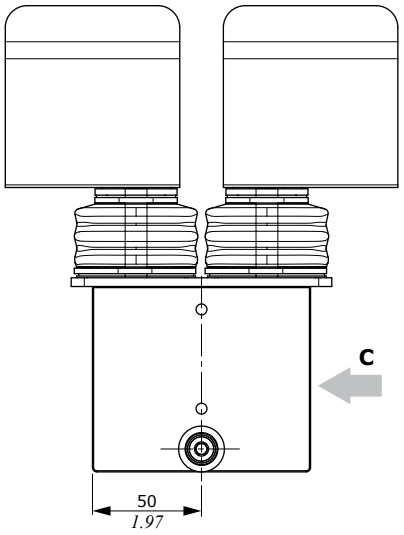


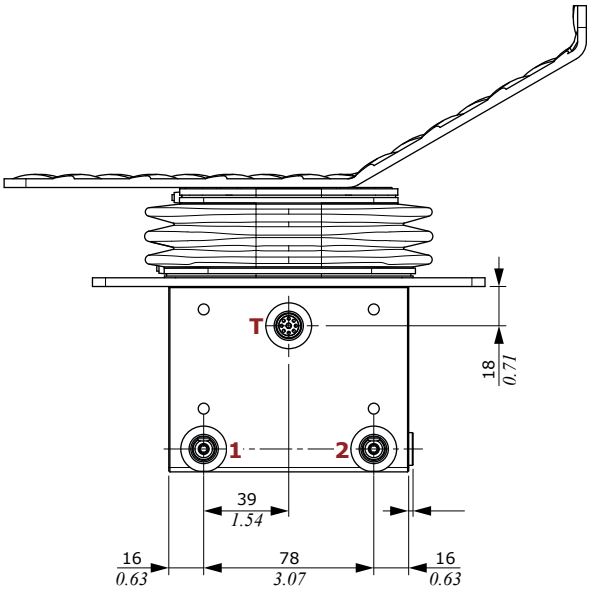


Dimensions and hydraulic circuit

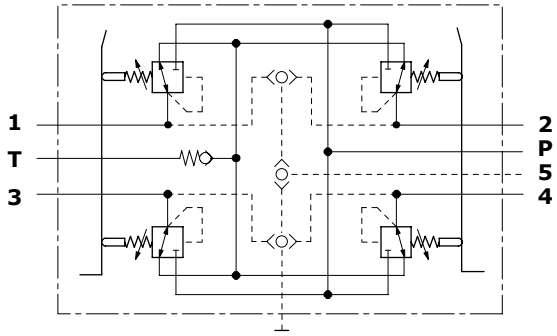
SVM546 version

Double pedal configuration provided of damping system for swing reduction, with shuttle valves and auxiliary port.
Dimensions are the same as SVM540 version.

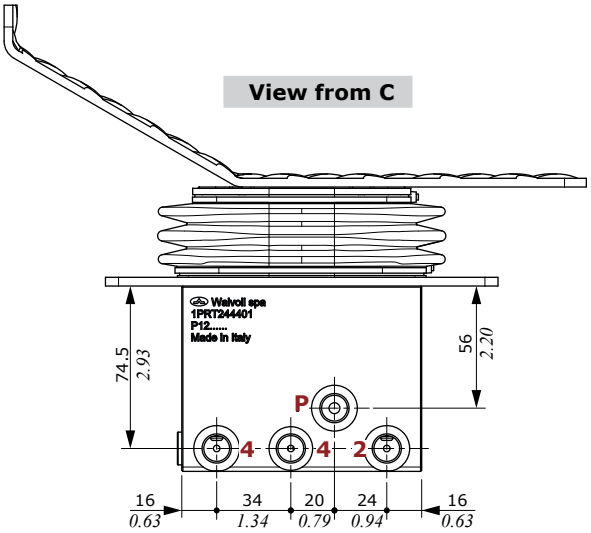




Hydraulic circuit



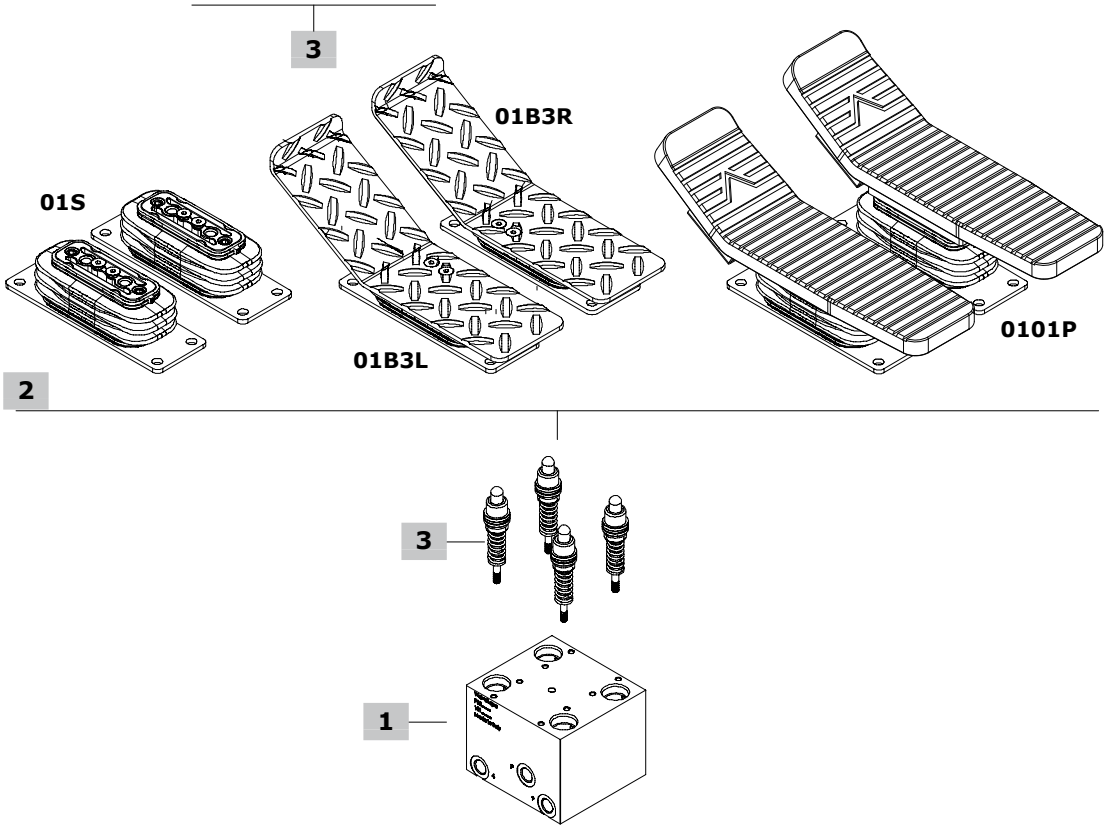
View from C



Ordering codes

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

1 | 2 | 3.1 | 3.2 | 3.3 | 3.4 | 2 | 3 | check valve (always present)



1 Body kit *

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

2 Control options

TYPE	CODE	DESCRIPTION
01S	5CIN5001S	With spring return in neutral position and rubber bellow, without pedal
01B3L	5CIN5001B3L	As type 01S with 150° bent left pedal
01B3R	5CIN5001B3R	As previous one, right pedal
0101P	5CIN50001P01	As type 01S with 150° bent pedal and anti-slip rubber coating
0102P	5CIN50002P01	As type 01S with 150° bent and 30° tilted pedal, short type; anti-slip rubber coating
0103P	5CIN50003P01	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 82

3.1 Curve type

TYPE	DESCRIPTION
D	With Damping

3.2 Typology of curves

TYPE	DESCRIPTION
0	With step
1	Without step

3.3 Curve identification

Progressive number

3.4 Return springs

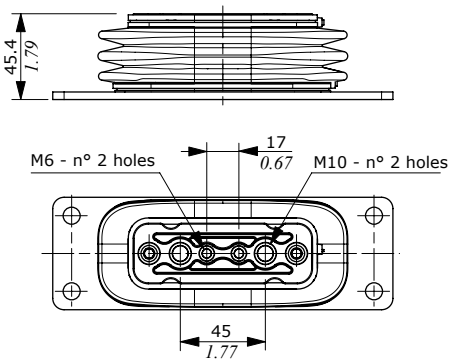
TYPE	DESCRIPTION
A	Operation range from 23 to 35.2 N - *from 5.17 to 7.91 lbf*
B	Operation range from 23 to 68.1 N - *from 5.17 to 15.31 lbf*
C	Operation range from 89 to 176 N - *from 20 to 39.56 lbf*
D	Operation range from 110 to 220 N - *from 24.73 to 49.46 lbf*
E	Operation range from 138 to 276 N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

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

Control options

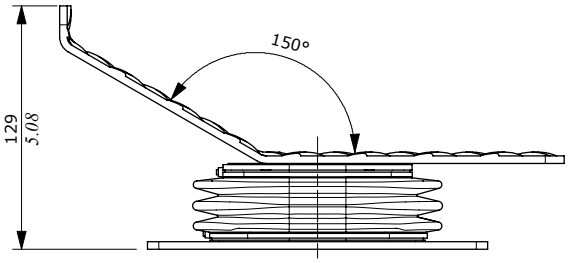
01S type

With spring return in neutral position without pedal.

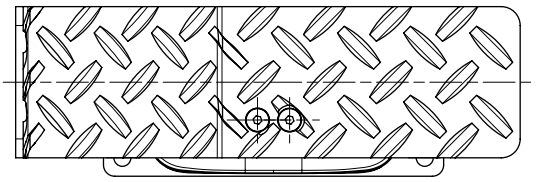


01B3 type

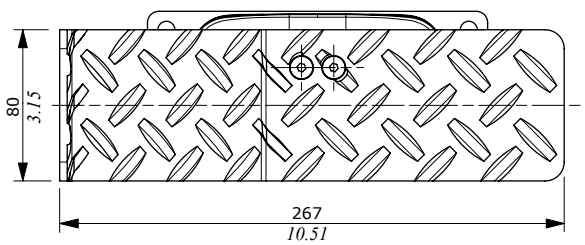
With spring return in neutral position.
Flat and shaped pedal with corrugated sheet, white galvanized.



Right pedal 01B3R type

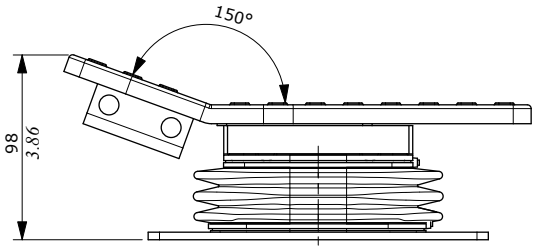


Left pedal 01B3L type

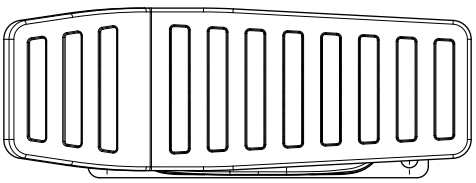


0101P type

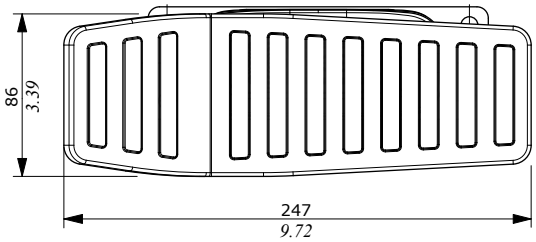
With spring return in neutral position.
Bent pedal with anti-slip rubber coating.



0101P assembly on the right



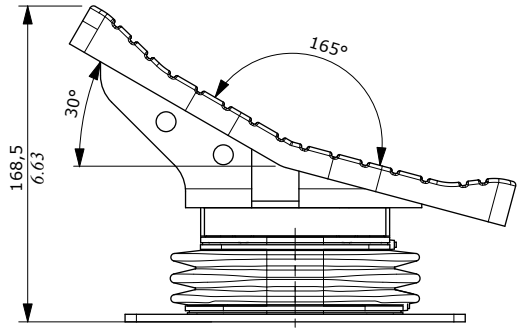
0101P assembly on the left



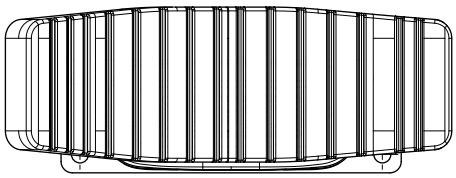
Control options

0102P type

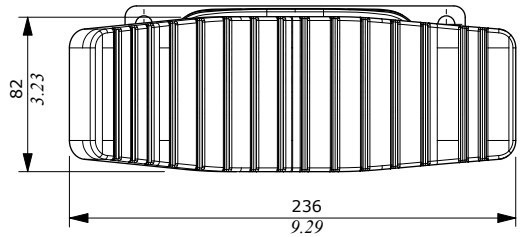
With spring return in neutral position.
Bent and tilted pedal with anti-slip rubber coating, short model



0102P assembly on the right

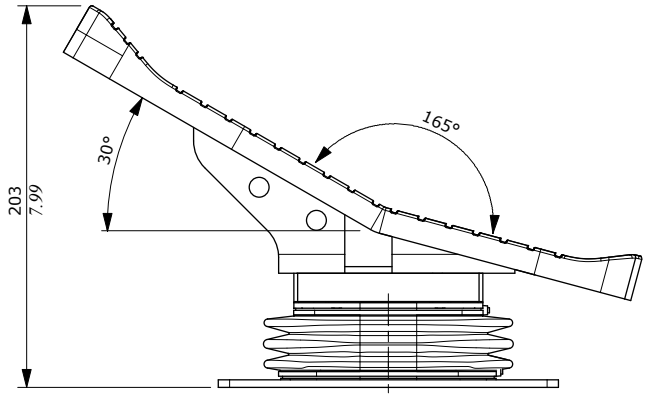


0102P assembly on the left

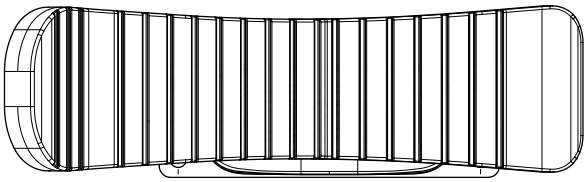


0103P type

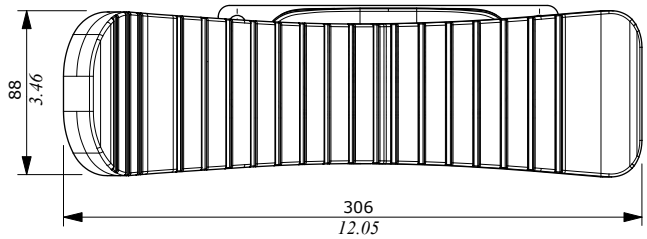
With spring return in neutral position.
Bent and tilted pedal with anti-slip rubber coating, long model



0103P assembly on the right



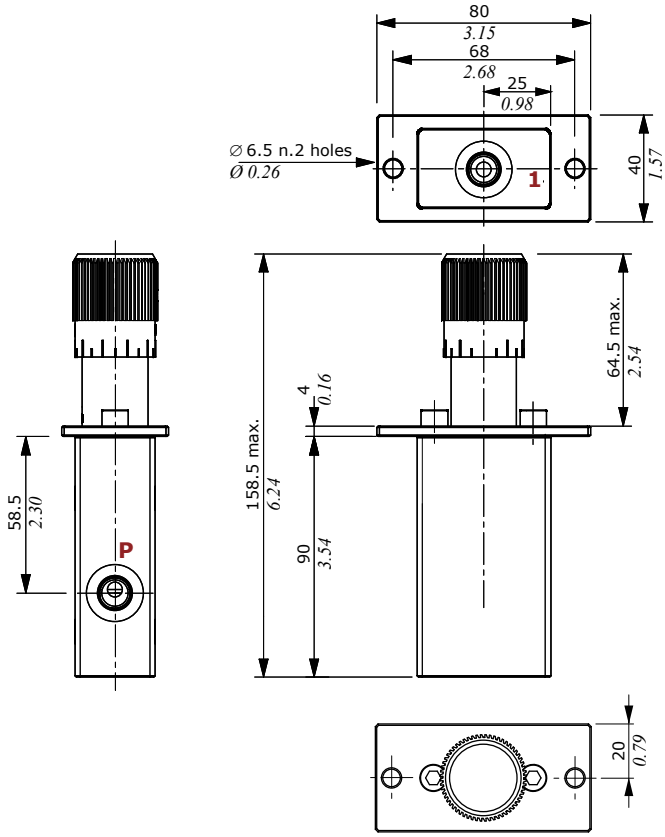
0103P assembly on the left



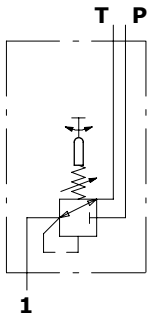
Dimension and hydraulic circuit

SVM702 type

Configuration with handweel operating.

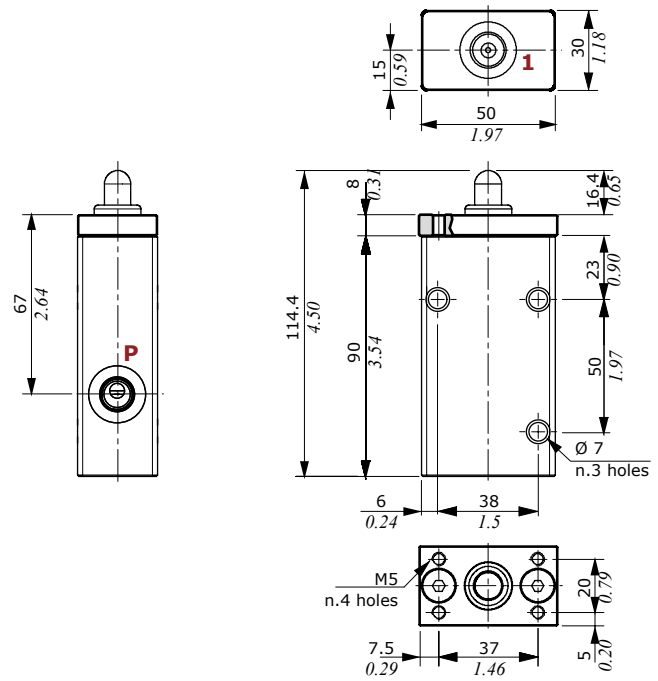


Hydraulic circuit

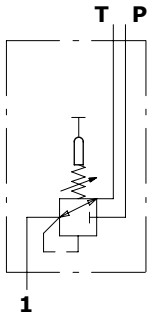


SVM710 type

Configuration with pusher operating.



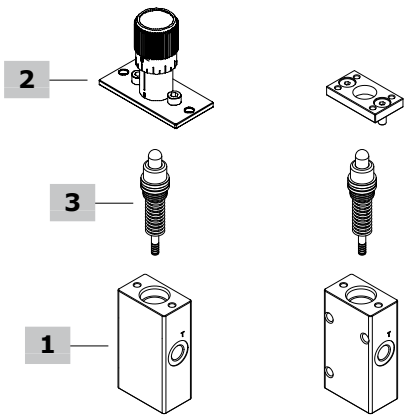
Hydraulic circuit



Ordering codes

SVM702-S / 0 0 001 A

1 — 2 — 3 — 3.1 — 3.2 — 3.3 — 3.4



SVM702 **SVM710**

1 Body kit *

TYPE	CODE	DESCRIPTION
SVM702-S	3CO3710700	Body kit
SVM710-S	3CO3710710	Body kit

2 Control option

TYPE	CODE	DESCRIPTION
SVM702	5CIN702000	With aluminum handweel operating
SVM710	5CIN7011	Pusher operating and protection flange

3 Pressure control curves

For configuration and list available see from page 82

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

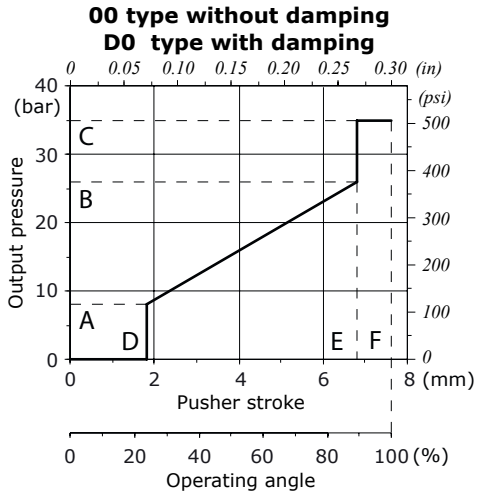
Progressive number

3.4 Return springs

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

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

Control curves with step



Curve description		Pressure						Stroke						
		A		B		C		D		E		F		
Type	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	bar	*psi*	mm	*in*	mm	*in*	mm	*in*	CODE [1]
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	**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

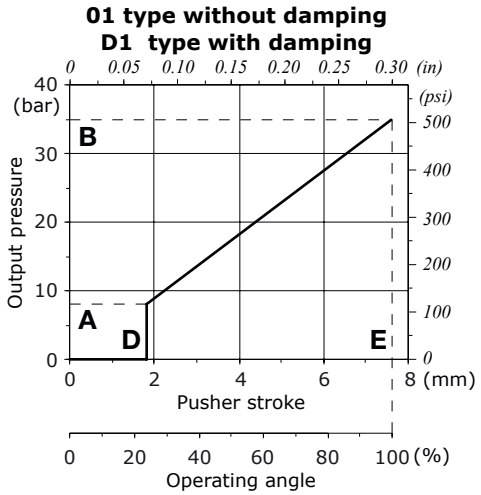
Control curves with step

Curve description		Pressure						Stroke						
		A		B		C		D		E		F		
Type	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	bar	*psi*	mm	*in*	mm	*in*	mm	*in*	CODE [1]
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
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] Codes are referred to 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				
		A		B		D		E		
Type	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	mm	*in*	mm	*in*	CODE [1]
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				
		A		B		D		E		
Type	Nr	bar (±toll)	*psi (±toll)*	bar (±toll)	*psi (±toll)*	mm	*in*	mm	*in*	CODE [1]
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
With damping										
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] Codes are referred to the curve with the specific return spring
For different curves please contact our Sales Department

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 mm²/s - *from 15 to 75 cSt*
	min.	12 mm²/s - *12 cSt*
	max.	400 mm²/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/3	FU/4
Max. pressure on inlet	on inlet P port	350 bar - *5075 psi*	210 bar - *3045 psi*	350 bar - *5075 psi*	350 bar - *5075 psi*
Flow rating range		60 l/min - *15.85 USgpm*	12 l/min - *3.17 USgpm*	10 l/min - *2.64 USgpm*	8 l/min - *2.11 USgpm*
Fluid		mineral oil			
Fluid temperature	with NBR (BUNA-N) seals	from -20°C to 90°C - *from -4°F to 194°F*			
Viscosity	operating range	from 15 to 75 mm²/s - *from 15 to 75 cSt*			
	min.	20 mm²/s - *20 cSt*			
	max.	200 mm²/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 Usgpm*
Nominal pressure	100 bar - *1450 psi*
Internal leakage *(100 bar - 1450 psi)*	10 cm³/min - *0.61 in3/min*
Fluid	mineral oil
Viscosity (operating range)	from 12 to 400 mm²/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

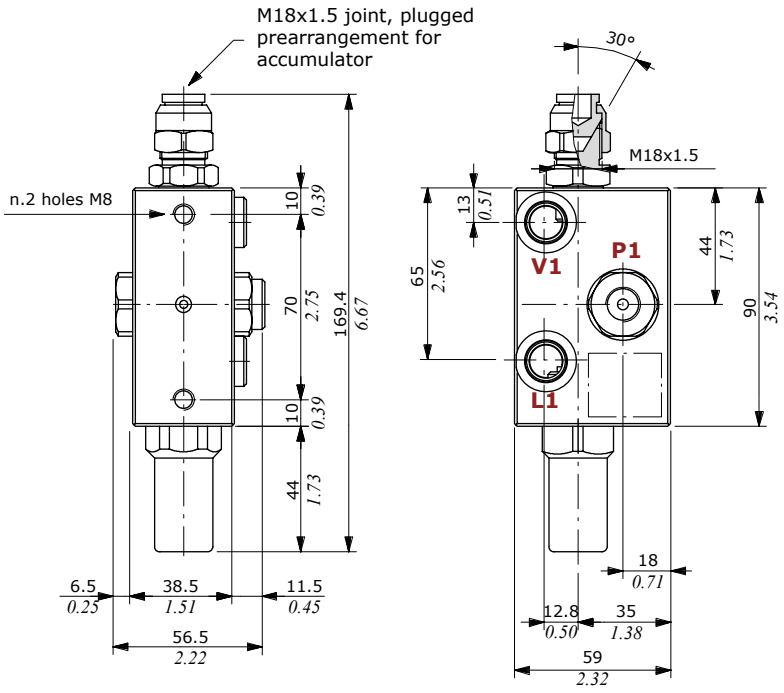
NOTE - for different conditions please contact Sales Dpt

REFERENCE STANDARD

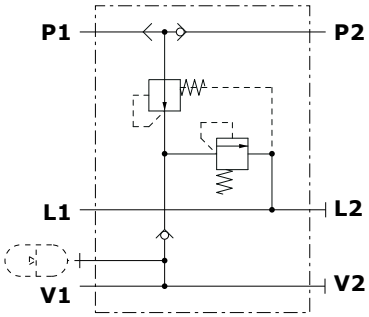
		BSP	UN-UNF
THREAD ACCORDING TO		ISO 228/1	ISO 263
		BS 2779	ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO	1179	11926
	SAE		J11926
	DIN	3852-2 X or Y shape	

AVN020 dimensions and hydraulic circuit

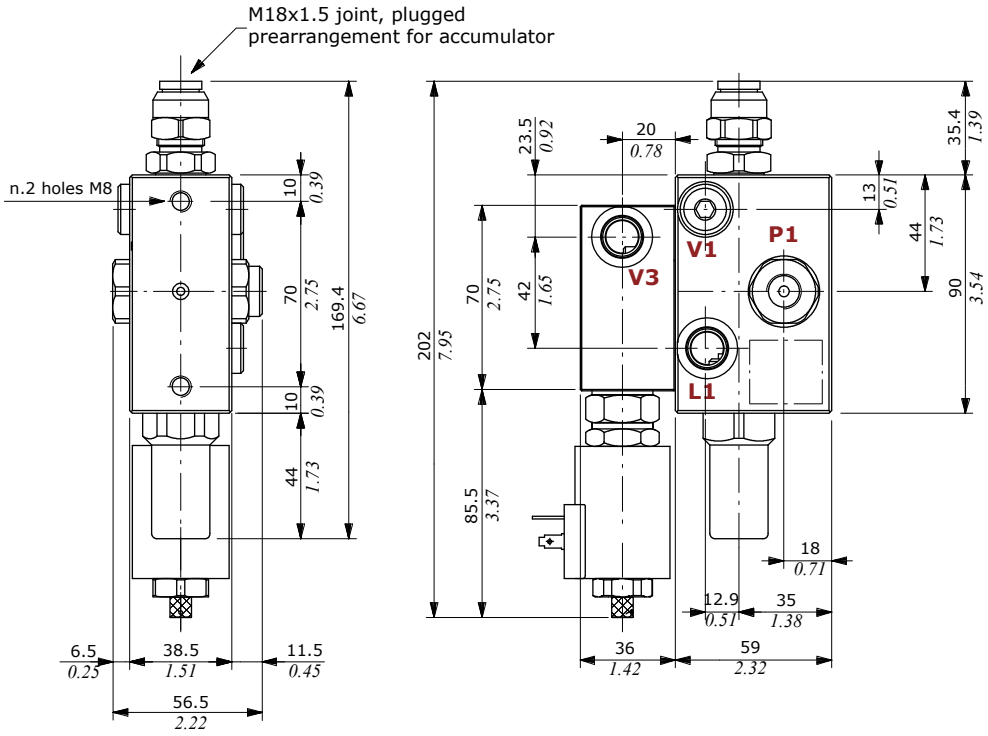
Configuration without unloader valve



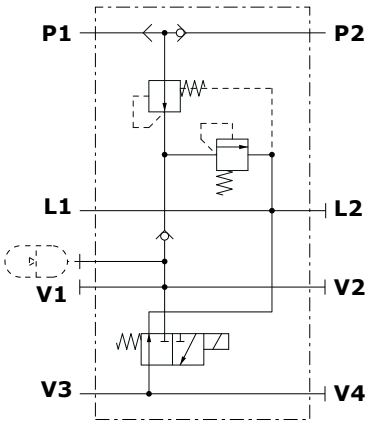
Hydraulic circuit



Configuration 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*

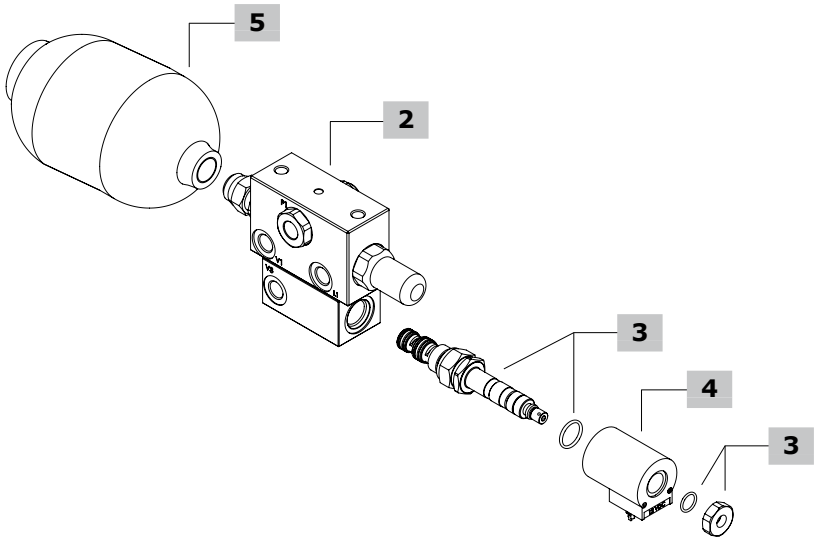
AVN020 ordering codes

30 output pressure 30 bar - *435 psi*
40 output pressure 40 bar - *580 psi*
50 output pressure 50 bar - *725 psi*

AVN 020-S / 30 . 20 T . 12 + HV035

2 3 4 5

1



1 Complete unit *

Without unloader valve

TYPE: **AVN020-S/30.00** CODE: 180010006
DESCRIPTION: with 2 pressure ports, outlet pressure 30 bar - *435 psi*
TYPE: **AVN020-S/40.00** CODE: 180010025
DESCRIPTION: with 2 pressure ports, outlet pressure 40 bar - *580 psi*
TYPE: **AVN020-S/50.00** CODE: 180010013
DESCRIPTION: with 2 pressure ports, outlet pressure 50 bar - *725 psi*
TYPE: **AVN020-S/30.20T.12** CODE: 180010012
DESCRIPTION: with 2 pressure ports, outlet pressure 30 bar- *435 psi,* with unloader valve

2 Body kit *

TYPE	CODE	DESCRIPTION
020-S/00.20	5CO2902702	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 screw type emergency

4 Coil

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

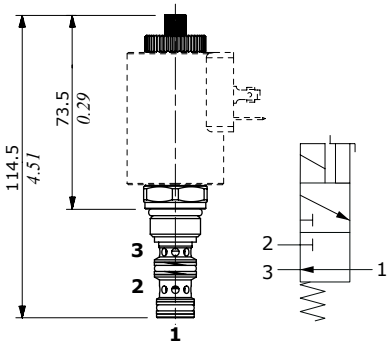
5 Optional accumulator

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*

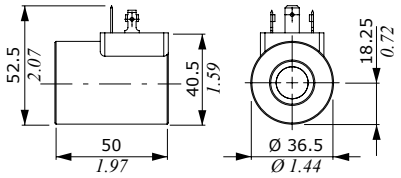
NOTE (*) – Codes are referred to **UN-UNF** thread.

AVN020 Configuration options

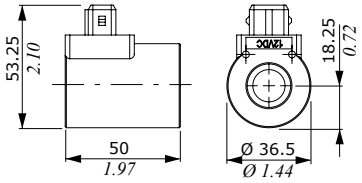
Solenoid unloader valve



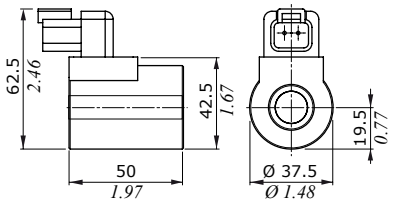
ISO4400 connector
needs 4CN1009995 connector



AMP JPT connector
needs 5CON003 connector



DEUTSCH DT04 connector
needs 5CON1410031 connector



Features

SOLENOID VALVE

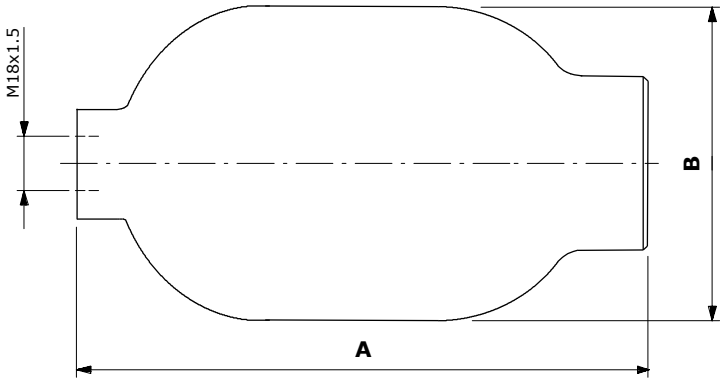
Nominal flow . . . . . : 12 l/min - *3.17 US gpm*
Max. pressure . . . . . : 50 bar - *725 psi*
internal leakage: . . . . . : 4 cm³/min - *0.24 in³/min*

COIL

Nominal voltage tolerance : ±10%
Power rating . . . . . : 21 W
Max. operating current . . . . . : 1.77 A - 12 VDC
: 0.89 A - 24VDC
Coil insulance . . . . . : Class F (155°C - *311°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
Insertion. . . . . : 100%

Optional accumulators

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



Type	Volume		A		B		Mass	
	cm³	*in³*	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

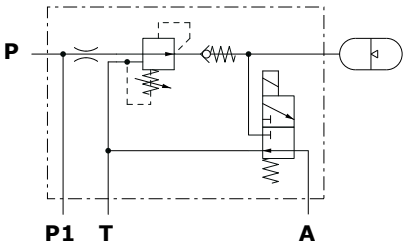
In order to ensure the correct working pressure at 10 bar - *145 psi,* is required minimum pressure when starting.
The feed unit can be assembled in any position; keep it away from heat sources when accumulator is working.

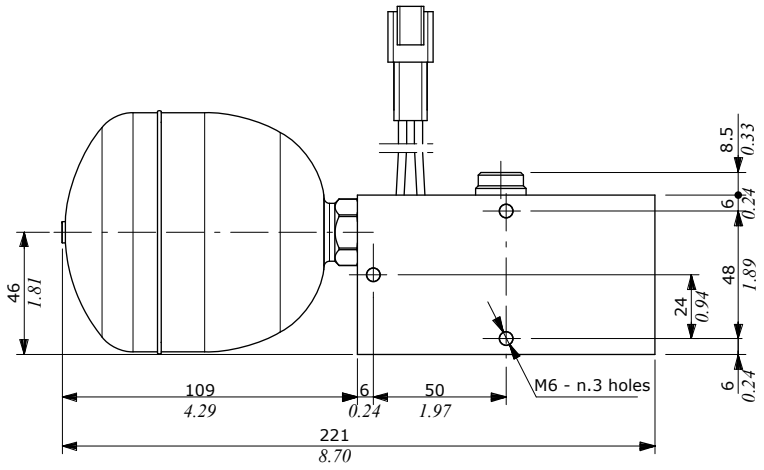
FU series configuration examples

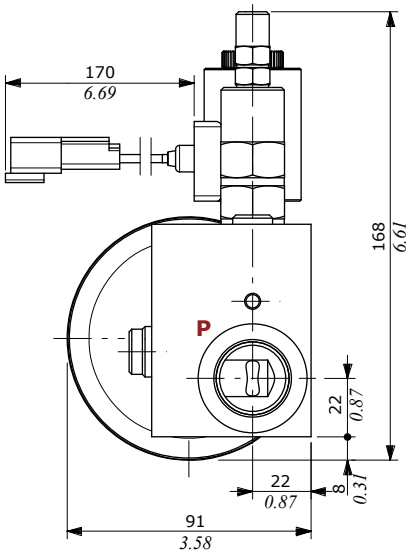
Type FU/1 - one stage

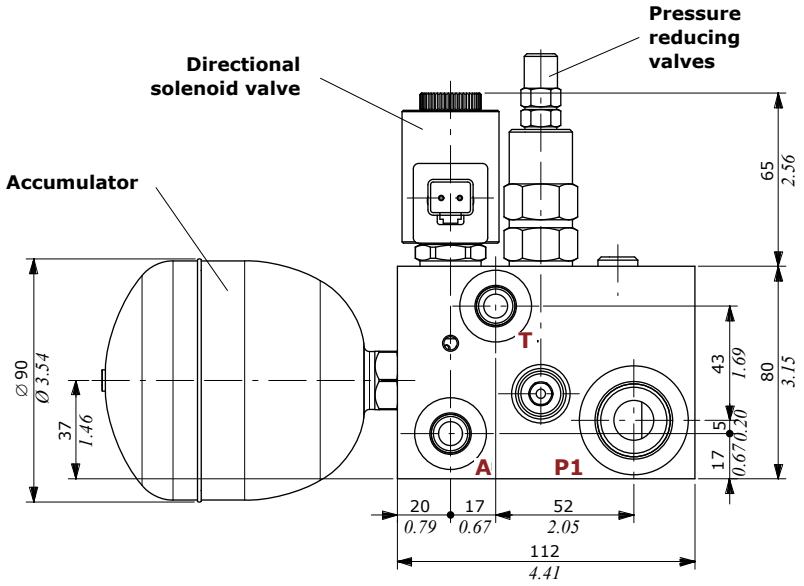
CODE: 1992752200
TYPE: FU-AC(SAE6-11)-RB08A(35)-F-NV/1EJ08F4(L=170)/NPM-SAE6(AT)12(PP1)-12VDC
DESCRIPTION: one stage, with pressure reducing valve on inlet, 0.35 l accumulator and 1 directional solenoid valve for the supply and control of the pressure line.

Hydraulic circuit









PORTS THREADING AND FITTINGS TIGHTENING TORQUE

PORTS	Threads (different threads on request)	Fitting tightening torque 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 lubrification, coating and surface finishing. The fittings manufacturer has to be consulted.

FU series configuration examples

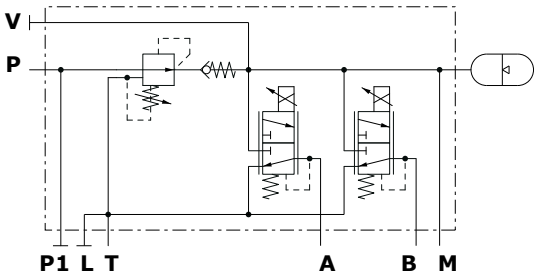
Type FU/2 - two stages

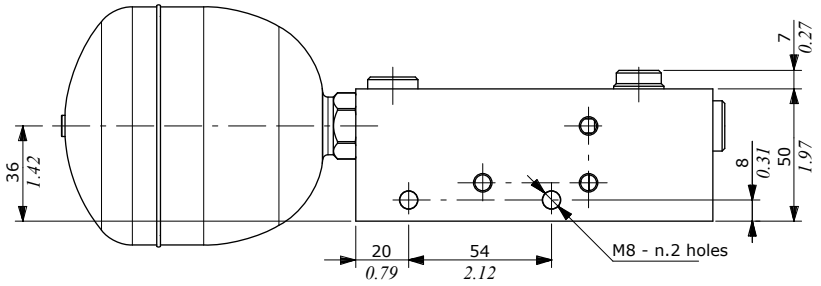
CODE: 1992820001

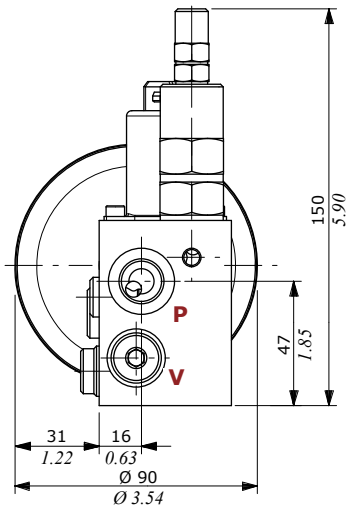
TYPE: FU-AC(SAE6-11)-RB08A(35)-F-NV/2RPT2/PMA-P1-L-V-BSP-24VDC-<TAP(P1LV)>

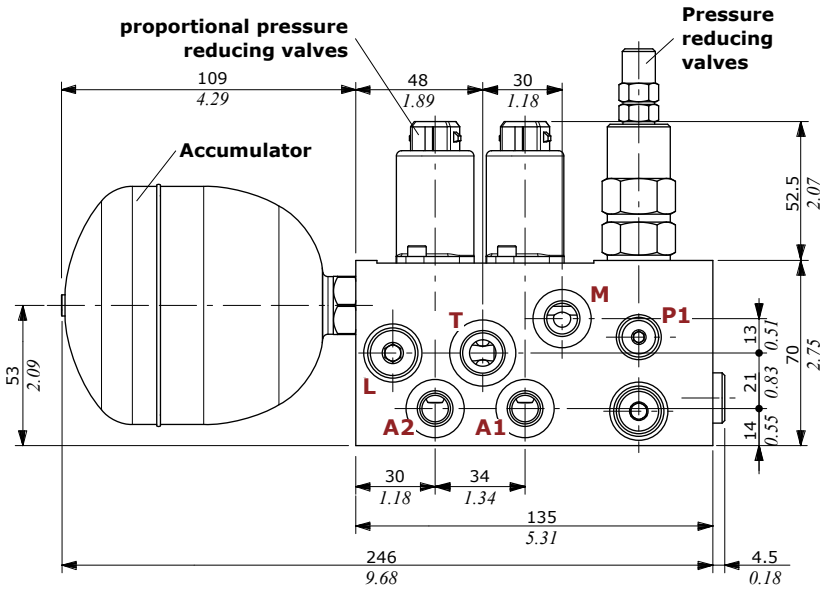
DESCRIPTION:two stages, with pressure reducing valve on inlet, 0.35 l accumulator and 2 proportional pressure reducing valves for the supply and control of the pressure lines.

Hydraulic circuit









PORTS THREADING AND FITTINGS TIGHTENING TORQUE

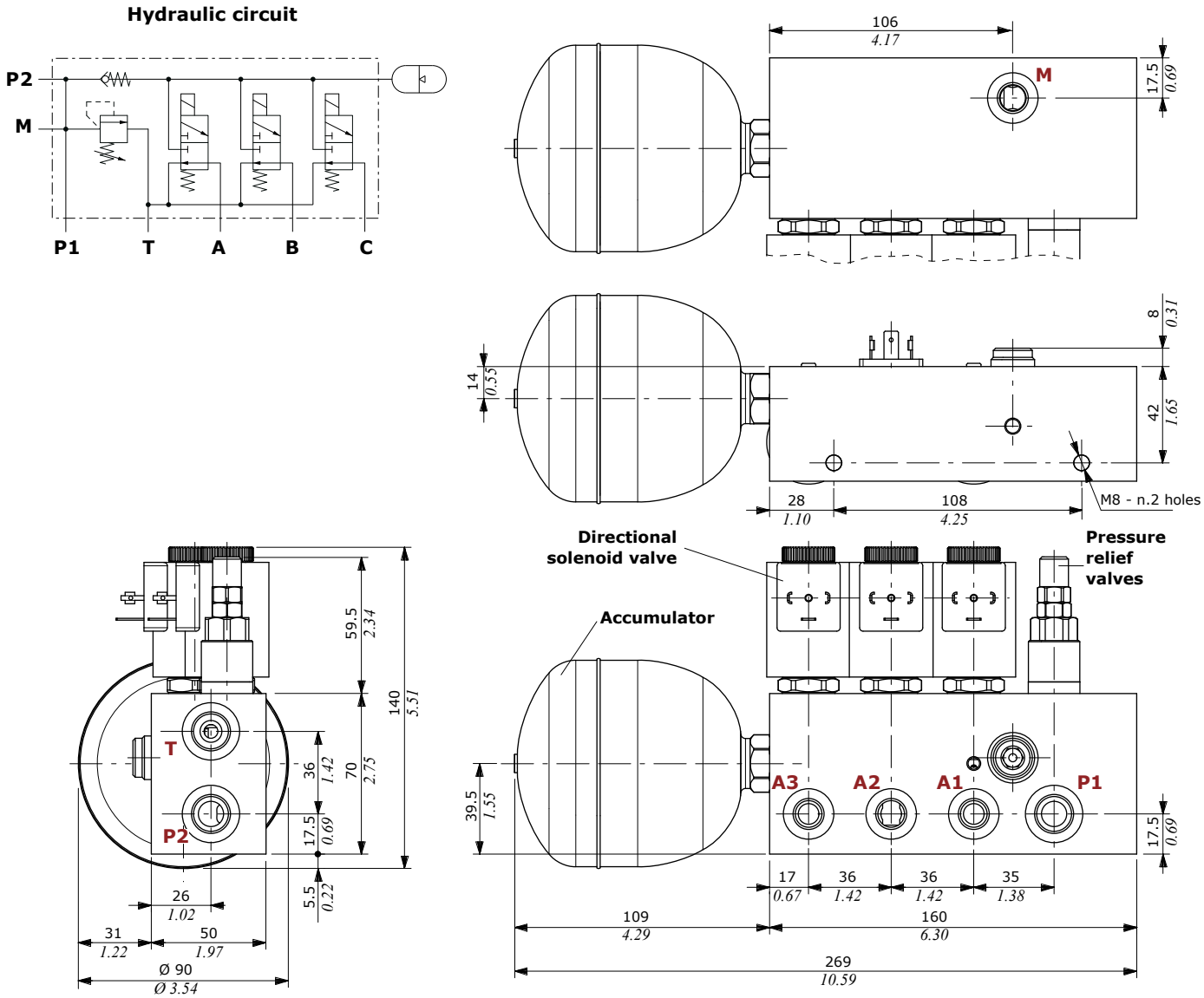
PORTS	Threads	Fitting tightening torque	
	(different threads on request)	Nm	*lbft*
P Inlet	BSP G 3/8	42	*31*
P1 Inlet	BSP G 1/8	24	*17.7*
A, B, M, L, V Ports	BSP G 1/4	30	*22*
Outlet **T**	BSP G 3/8	42	*31*
Accumulator connection	9/16-18 UNF (SAE 6)	30	*22*

NOTE – These torques are recommended. Assembly tightening torque depends on many factors, including lubrification, 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.



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 3/8	42	*31*
A, B, 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 lubrification, coating and surface finishing. The fittings manufacturer has to be consulted.

FU series configuration examples

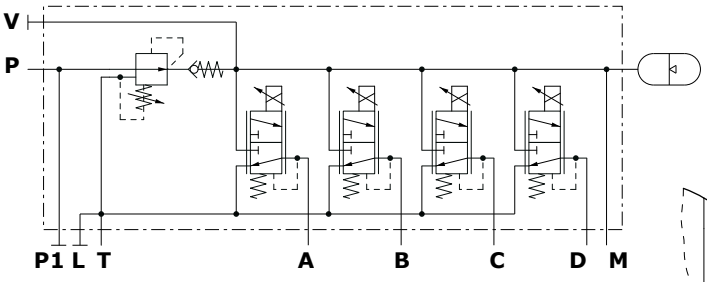
Type FU/4 - four stages

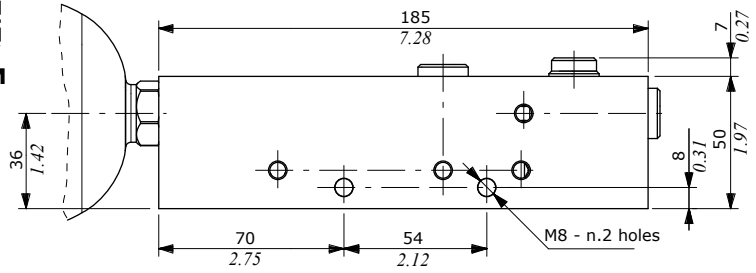
CODE: 1992840000

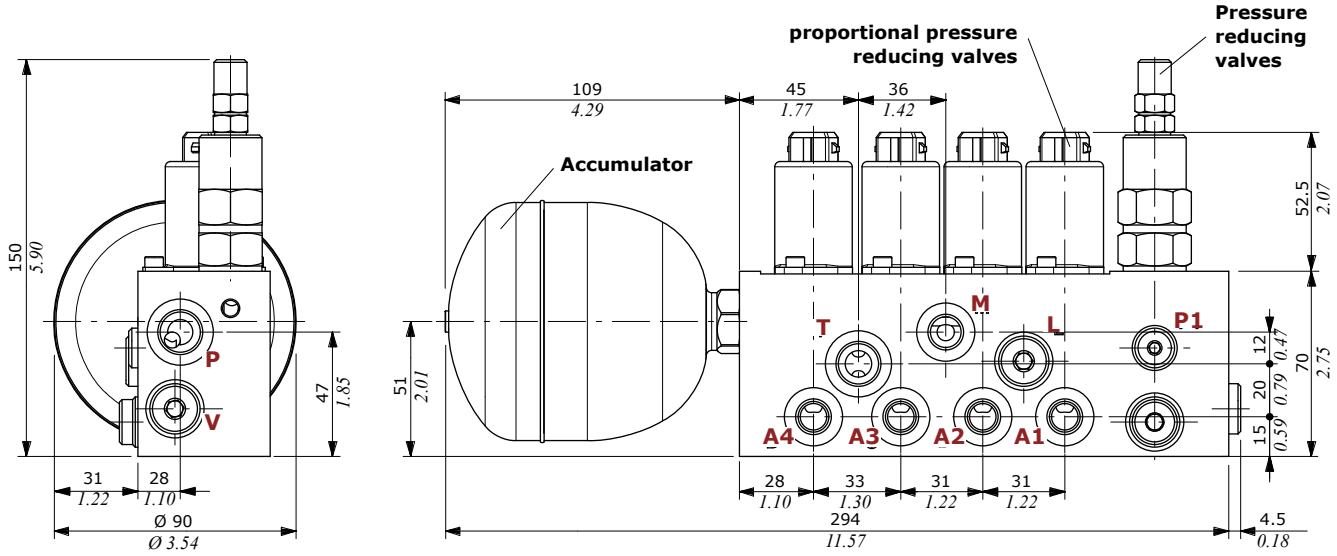
TYPE: FU-AC(SAE6-11)-RB08A(35)-F-NV/4RPT2/PMA-P1-L-V-BSP-24VDC-<TAP(P1LV)>

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







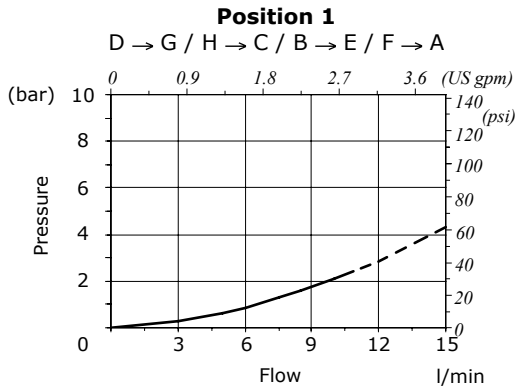
PORTS THREADINGS AND FITTING TIGHTENING TORQUE

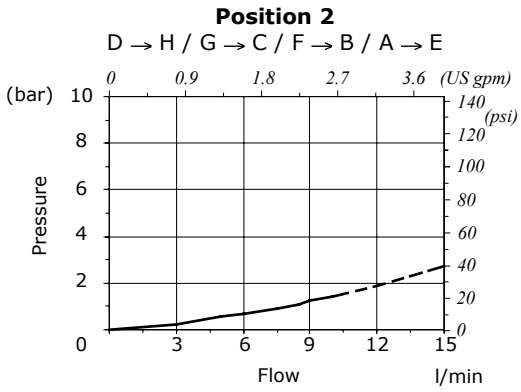
PORTS	Threads	Fitting tightening torque	
	(different threads on request)	Nm	*lbft*
P inlet	BSP G 3/8	42	*31*
P1 inlet	BSP G 1/8	24	*17.7*
A, B, C, D, M, L, V ports	BSP G 1/4	30	*22*
T outlet	BSP G 3/8	42	*31*
Accumulator connection	9/16-18 UNF (SAE 6)	30	*22*

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

DHV080 diverter valve

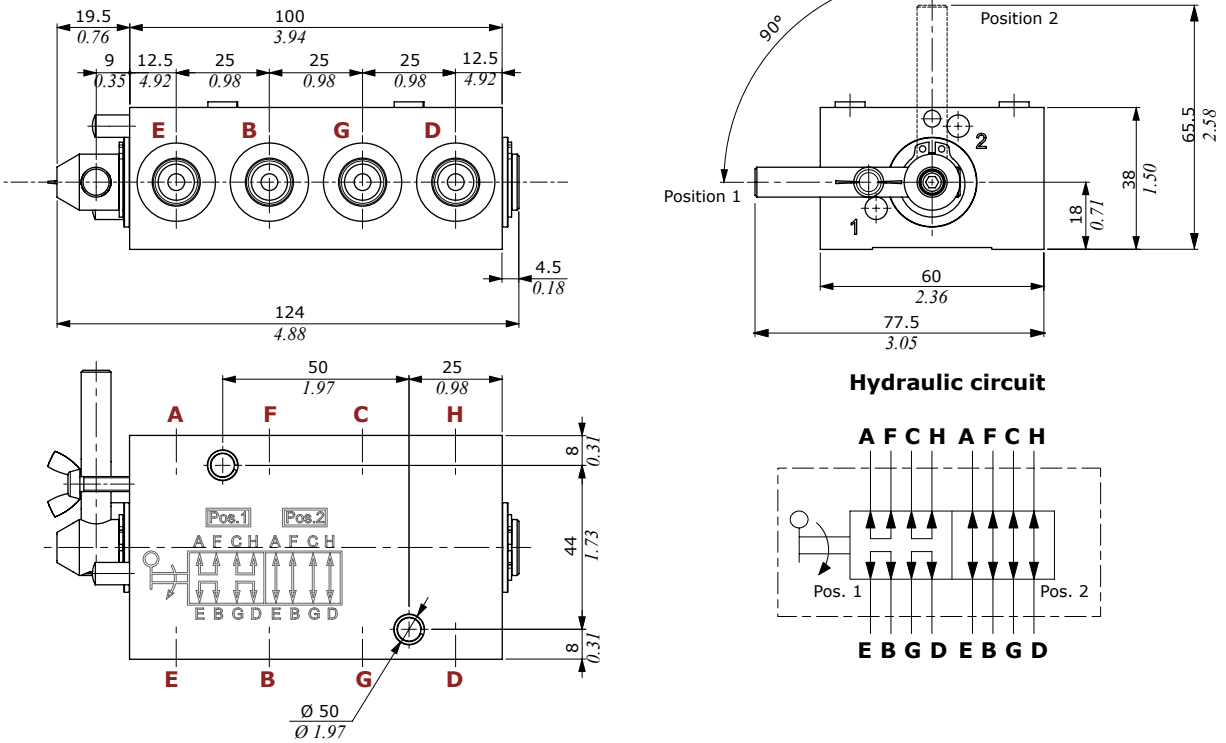
Pressure drop





Dimensions and hydraulic circuit

The diverter valve is available in this configuration: **DHV080/8LN-SAE-<CVN>** code **140080002**
Supplied as standard, with one coat of primer black antirust.



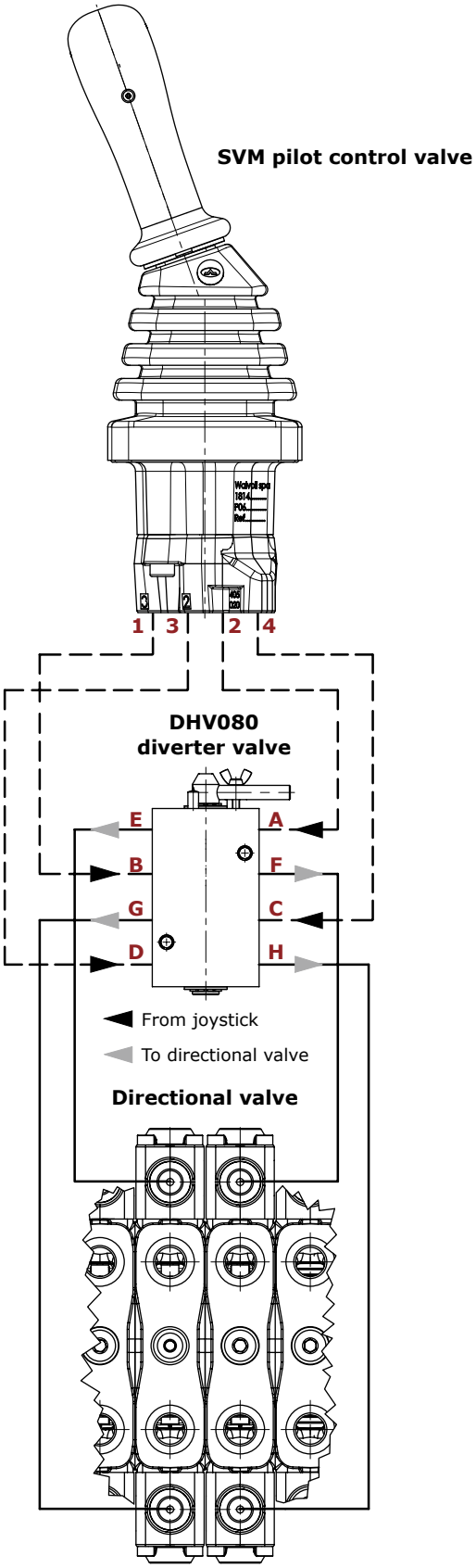
Hydraulic circuit

PORT THREADING AND FITTING TIGHTENING TORQUE				
PORTS	**Threads**		**Fitting tightening torque**	
	BSP	**UN-UNF**	Nm	*lbft*
A, B, C, D, E, F, G, H ports	G 1/4	7/16-20 UNF-2B (SAE4)	30	*22*

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

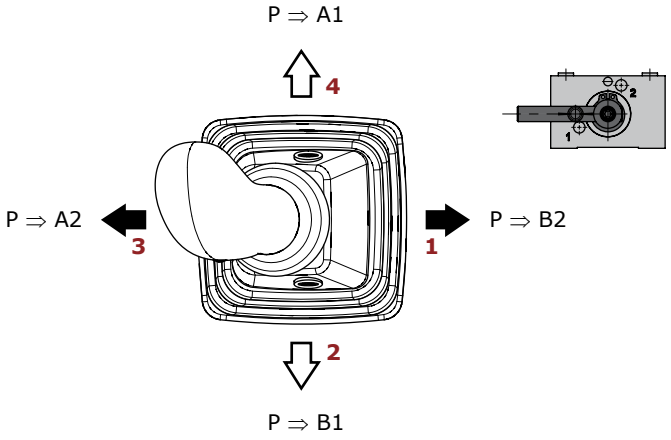
DHV080 diverter valve

Typical application

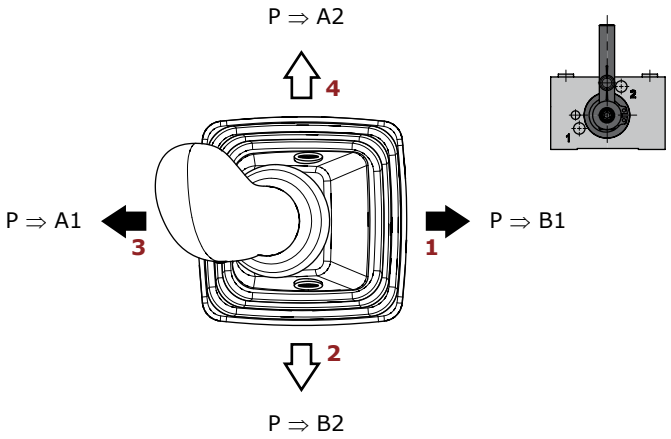


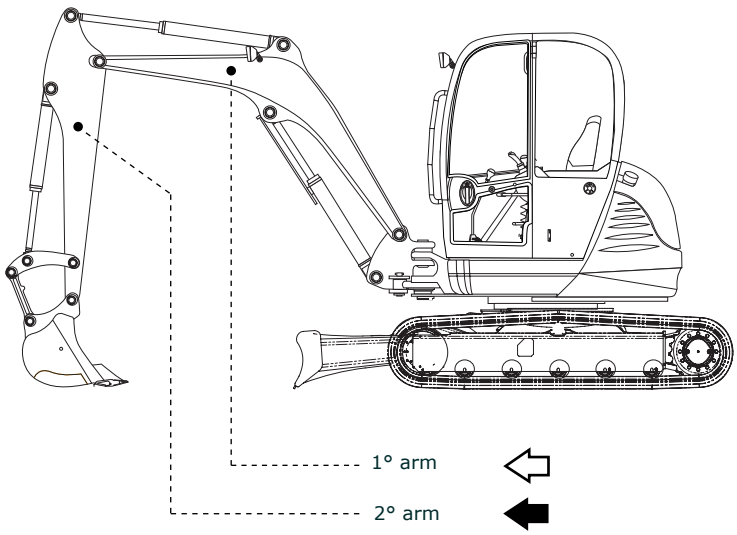
Joystick movement

Diverter valve in position 1
Backhoe configuration



Diverter valve in position 2
Mini-excavator configuration





Suggested pressure control curves for hydraulic controls

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

For monoblock directional control valves

Hydraulic controls Type	Code*	SD5 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	
	5IDR20B300										00028
8IMS	5IDR207320			00088							
8IMO	5IDR208100				00033						
	5IDR225000									00033	
8IMOH	5IDR216300-H						00033	00033			
8IMF3	5IDR207000		00033								
	5IDR207310			00088							
	5IDR208220					00021					
	5IDR216303							00033	00033		
13IM	5IDR20B310										00010 (VA) E0096 (VB)
13IMS	5IDR207350		00053 (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
8IM	5V08130800	**00020**				
	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

Installation notes

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

Innovation · Continuity · Integration

It is Power

walvoil

FLUID POWER E|MOTION

walvoil | hydro control | Gilytech

D1WWEF01A
5th edition November 2021

Walvoil S.P.A. • 42124 Reggio Emilia • Italy • Via Adige, 13/D • Tel.+39.0522.932411 • Fax +39.0522.300984
www.walvoil.com