



## 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 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

Nominal flow rating		from 5 to 20 l/min - <i>from 1.32 to 5.28 USgpm</i> (12 l/min for SVM320 - 3.17 USgpm for SVM320)
Max. feeding pressure	on P inlet port	from 30 to 100 bar - <i>from 435 to 1450 psi</i>
Max. backpressure	on T outlet port	3 bar - 43.5 psi
Max. hysteresis		0.5 bar - 7.25 psi
Internal leakage (all ports)	at 30 bar - 435 psi, P⇒T	from 2.5 to 4.5 cm <sup>3</sup> /min - <i>from 0.15 to 0.27 in3/min</i>
Fluid		Mineral oil
Fluid temperature	with NBR (BUNA-N) seals	from -10°C to 80°C - <i>from 14 °F to 176 °F</i>
	operating range	from 15 to 75 mm <sup>2</sup> /s - <i>from 15 to 75 cSt</i>
Viscosity	min.	12 mm <sup>2</sup> /s - 12 cSt
	max.	400 mm <sup>2</sup> /s - 400 cSt
Max. contamination level		-/15/12 - ISO 4406 - <i>NAS1638 class 6</i>
Ambient temperature	without electric devices	from -40°C to 60°C - <i>from 40 °F to 140 °F</i>
	with electric devices	from -20°C to 50°C - <i>from -4 °F to 122 °F</i>
Tie rod tightening torque (wrench 13)	only for SVM100-101	24 Nm - 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	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

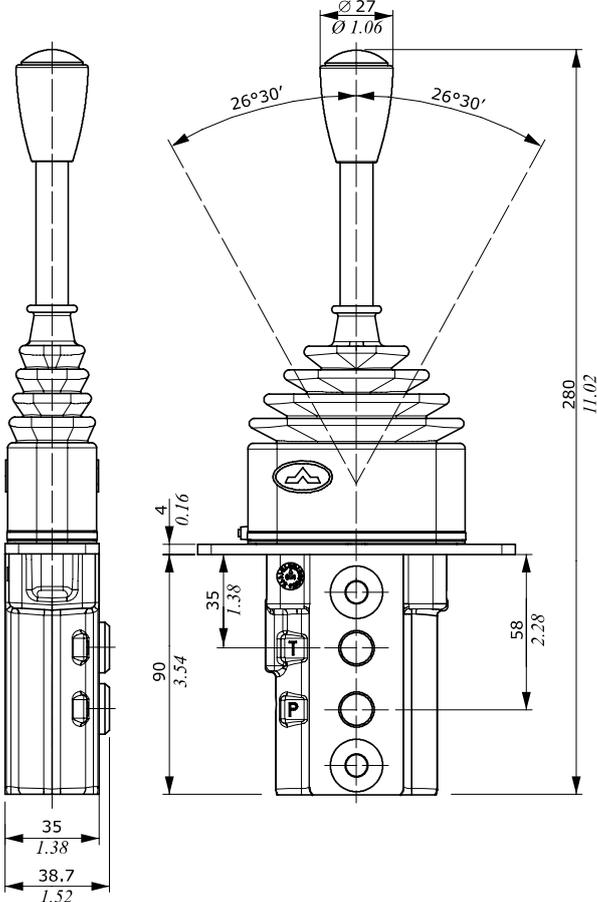
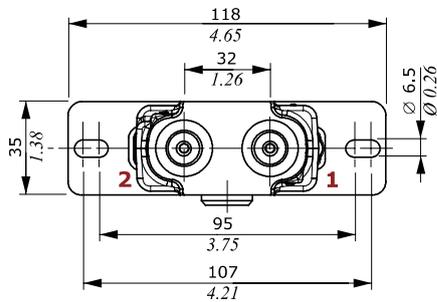
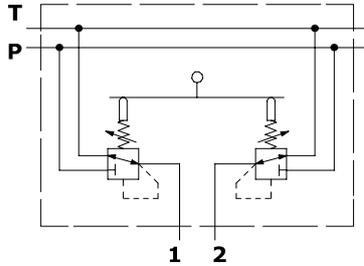
NOTE - These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finishing. The manufacturer has to be consulted.

## Dimensions and hydraulic circuit

### Single acting version

Single function configuration with side P and T ports.

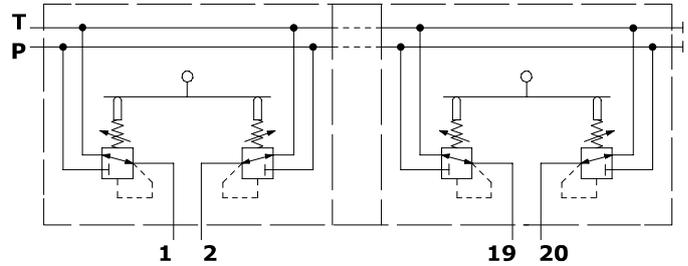
Hydraulic circuit



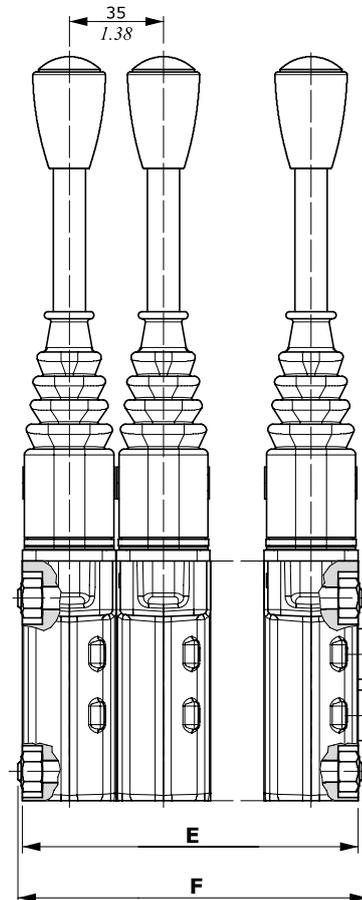
### SVM100/n version

Multiple 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	75.2	2.96	SVM100/7	245	9.65	250.2	9.85
SVM100/3	105	4.13	110.2	4.34	SVM100/8	280	11.02	285.2	11.23
SVM100/4	140	5.51	145.2	5.72	SVM100/9	315	12.40	320.2	12.61
SVM100/5	175	6.89	180.2	7.09	SVM100/10	350	13.78	355.2	13.98
SVM100/6	210	8.27	215.2	8.27					

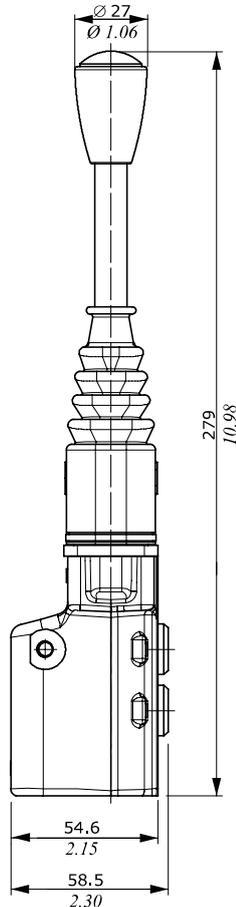
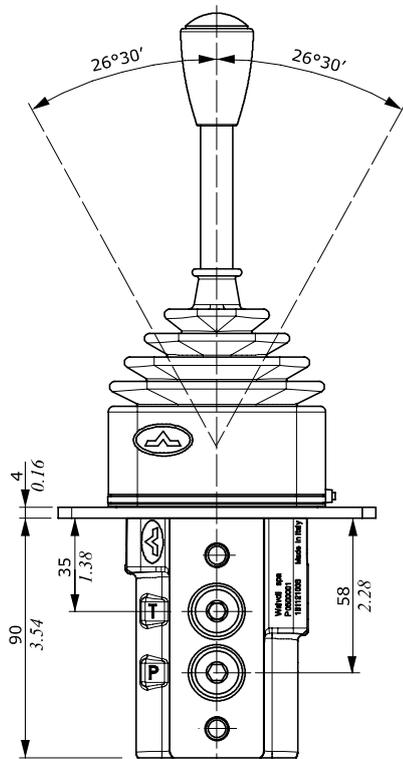
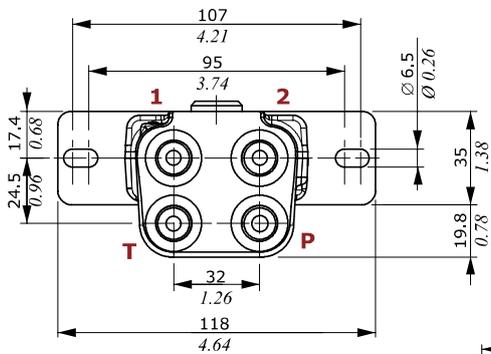
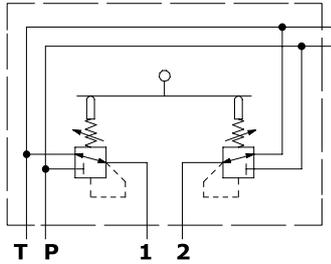


Dimensions and hydraulic circuit

**SVM101 version**

Single function configuration with bottom P and T ports.

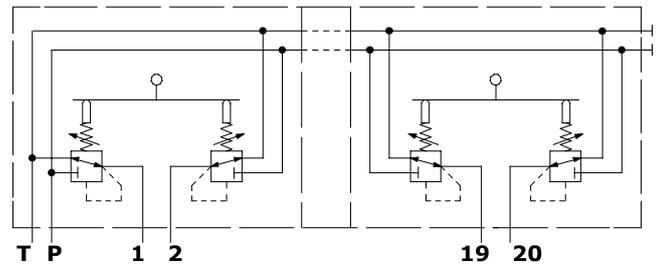
Hydraulic circuit



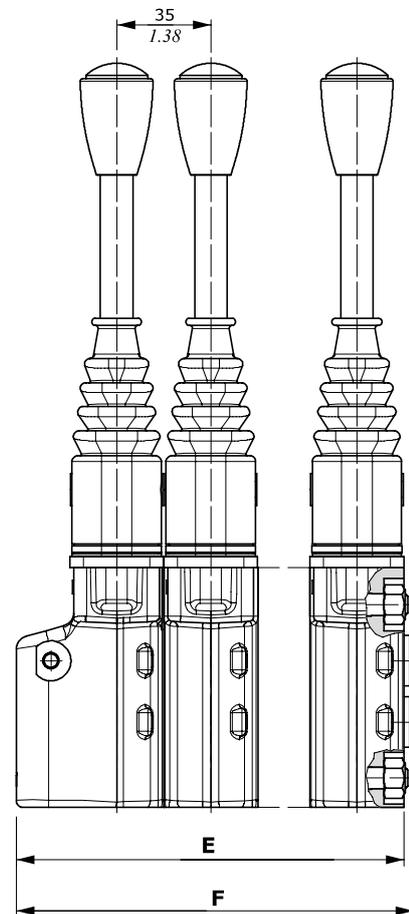
**SVM101/n version**

Multiple function configuration with bottom P and T ports.

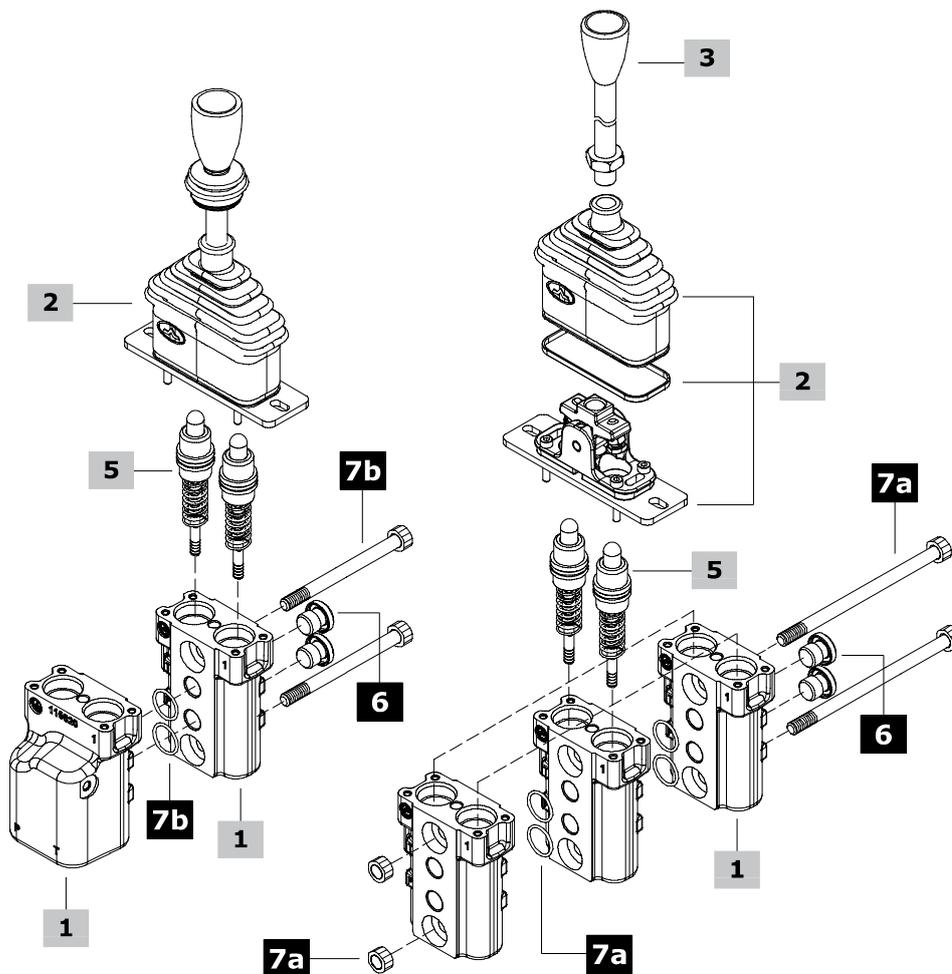
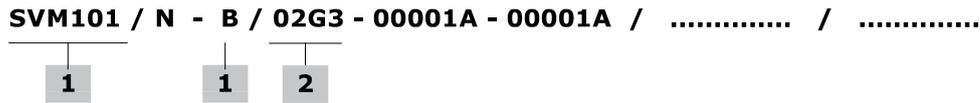
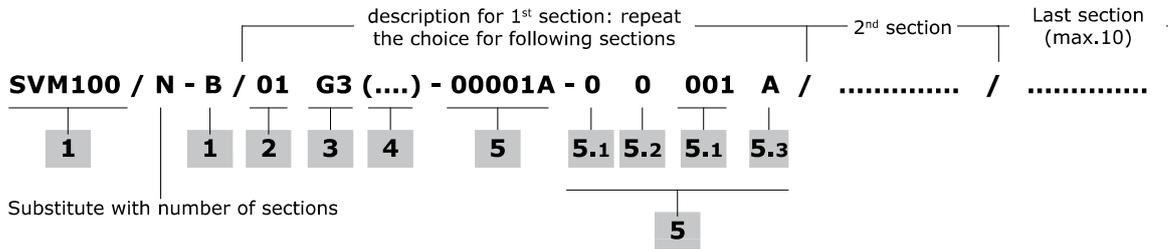
Hydraulic circuit



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



### Ordering codes



**1 Body kit \***

TYPE	CODE	DESCRIPTION
<b>SVM100-B</b>	3CO3122300	With side P and T ports
<b>SVM101-B</b>	3CO3122310	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
<b>01</b>	5CIN101000	Spring return to neutral position
<b>03S</b>	5CIN103008	With friction and neutral sensing, for 10, V, H, P and S series handles
<b>05</b>	5CIN105000	With detent in pos. 1 and spring return in neutral position
<b>06</b>	5CIN106000	With detent in pos. 2 and spring return in neutral position
<b>07</b>	5CIN107000	With detent in pos. 1 and 2; spring return in neutral position

**Controls with handlevers**

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

TYPE	CODE	DESCRIPTION
<b>02G3</b>	5CIN102000	With detent in neutral position, spring return in neutral position and type G knob; can not be used on two adjacent sections
<b>03G3</b>	5CIN103000	With friction and neutral sensing, G knob
<b>03E3</b>	5CIN103005	As previous one, E knob, 15° bending rod
<b>03JL3</b>	5CIN103004	As previous one, JL knob
<b>10G3</b>	5CIN110000	With friction and detent in neutral position, G knob; can not be used on two adjacent sections
<b>11G3</b>	5CIN111000	Detent in 3 positions, G knob; can not be used on two adjacent sections
<b>16G3</b>	5CIN116000	With (NO) microswitch operation in either directions, neutral sensing, spring return in neutral position, G knob
<b>16TM3G3</b>	5CIN116005	With (NC) microswitch operation in either directions, spring return in neutral position, G knob, Heavy Duty configuration
<b>16TM1G3</b>	5CIN116004	As 16TM3G3, microswitch operation with lever towards port 1
<b>16TM2G3</b>	5CIN116004	As 16TM3G3, microswitch operation with lever towards port 2
<b>20G3</b>	5CIN120000	Detent in position 1 and 2, friction, neutral sensing, G knob
<b>22G3</b>	5CIN122000	With (NO) microswitch operation in either directions, friction, G knob

**3 Standard handlevers****Without microswitch:**

TYPE	CODE	DESCRIPTION
<b>G3</b>	5AST271218G	Ogival with portlight, straight rod (STANDARD)
<b>G3(15)</b>	5AST371227G	Ogival with portlight, 15° sloping rod
<b>G3(30)</b>	5AST371228G	Ogival with portlight, 30° sloping rod
<b>E</b>	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
<b>JJ3</b>	5AST271218J	With spring return
<b>JM3</b>	5AST271218M	With detent rocker switch

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

**4 Handle position****Only for sloping rod**

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

**5 Pressure control curves**

For list available see from page 27

**5.1 Curve type**

TYPE	DESCRIPTION
<b>0</b>	Standard

**5.2 Typology of curves**

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

**5.3 Curve identification**

Progressive number

**5.4 Return springs**

TYPE	DESCRIPTION
<b>M</b>	Operation range from 18 to 25.5 N - <i>from 4.04 to 5.73 lbf</i>
<b>A</b>	Operation range from 23 to 35.2 N - <i>from 5.17 to 7.91 lbf</i>
<b>B</b>	Operation range from 23 to 68.1 N - <i>from 5.17 to 15.31 lbf</i>
<b>C</b>	Operation range from 89 to 176 N - <i>from 20 to 39.56 lbf</i>
<b>D</b>	Operation range from 110 to 220 N - <i>from 24.73 to 49.46 lbf</i>
<b>E</b>	Operation range from 137.8 to 276.1 N - <i>from 31 to 62.07 lbf</i>

**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 **BSP** thread.

## Configuration option

### Controls without handlevers

#### Controls type

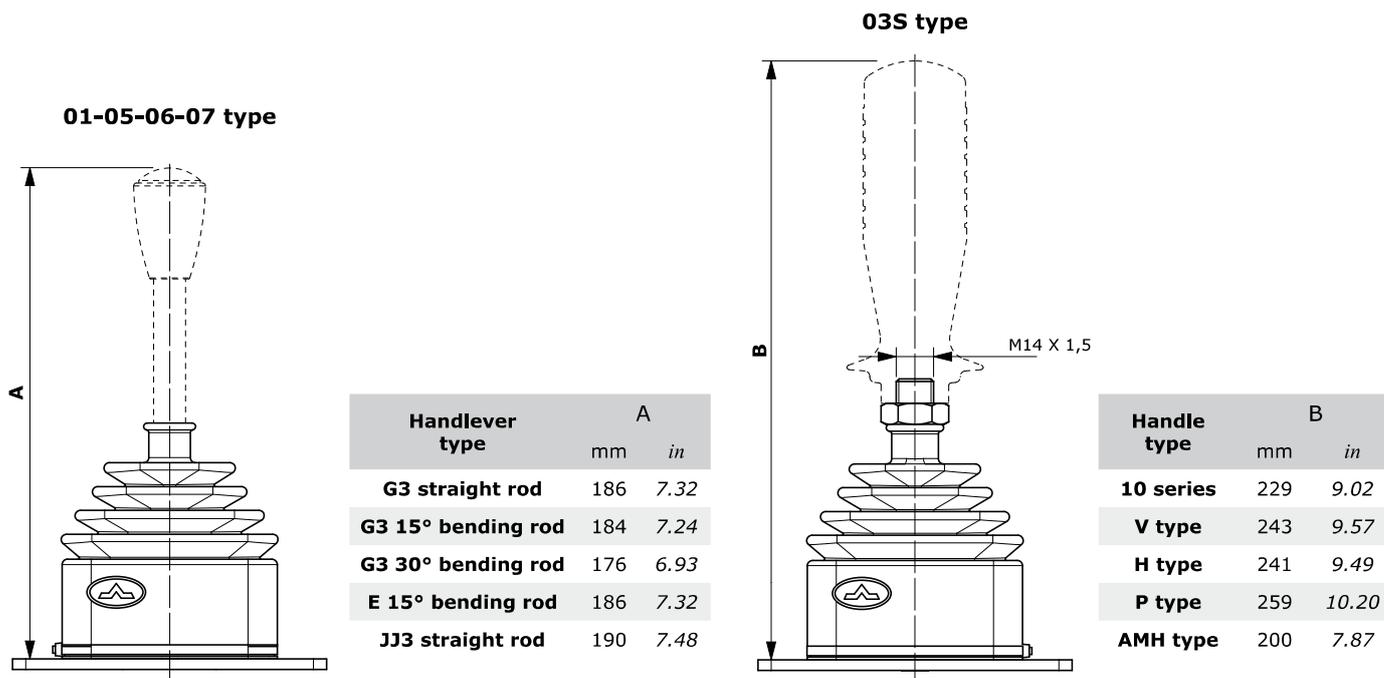
**01:** Spring return to neutral position

**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)

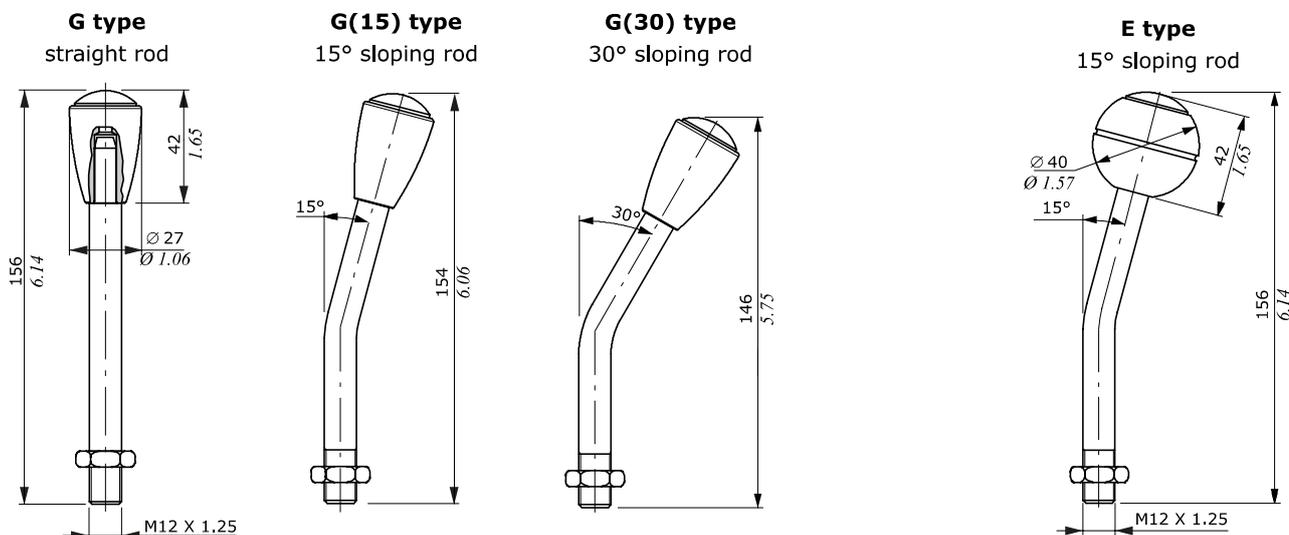


### Handlevers

#### 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.



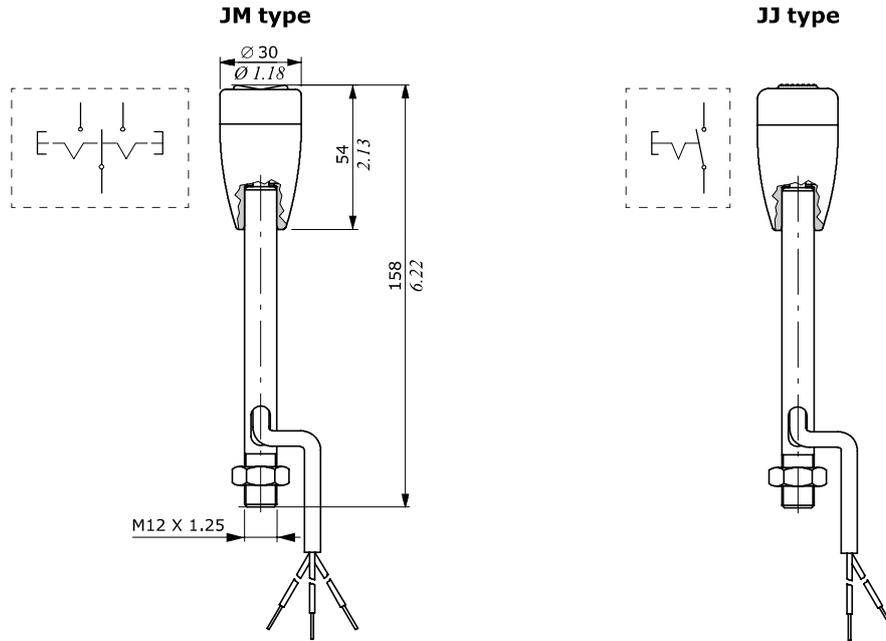
Handlevers

With microswitch

**JM type:** Ogival knob, small dimensions, available with detent rocker microswitch.

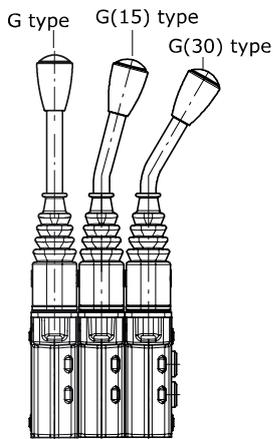
**JJ type:** As previous one, available with spring return push-button microswitch.

For technical features see catalogue D1WWEH01I.

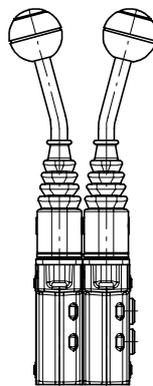


Mounting and orientation examples

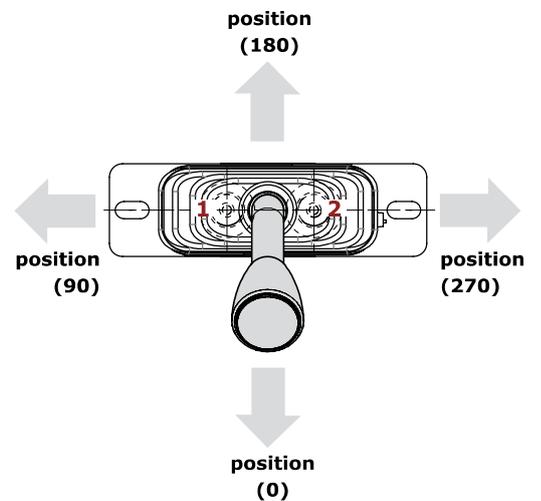
**G type**  
on 3 sections  
pilot control valve



**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.

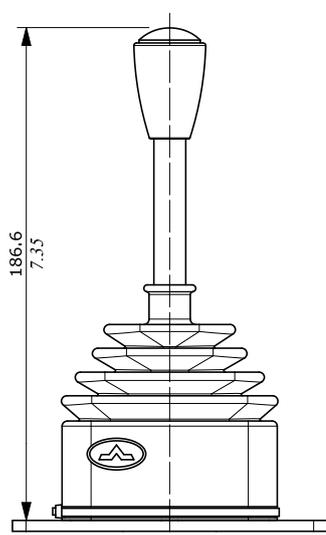
**03JL3:** As type 03G3 control, JL knob with spring return microswitch push-button.

**10G3:** With friction and detent in neutral position; it can not be used on two adjacent sections.

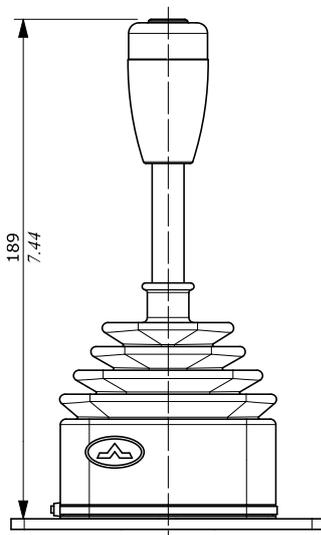
**11G3:** Detent in neutral position, 1 and 2; it can not use in adjacent sections.

**20G3:** With friction, stop in any positions and neutral sensing, with detent in positions 1 and 2.

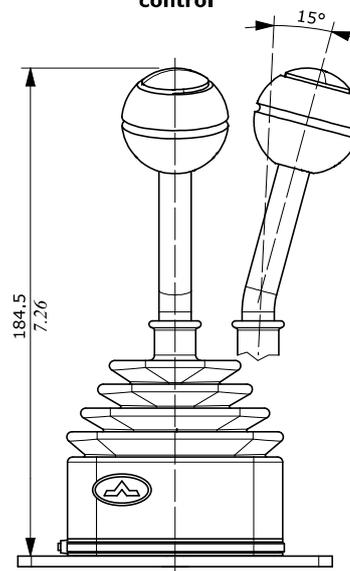
**03G3-20G3  
control**



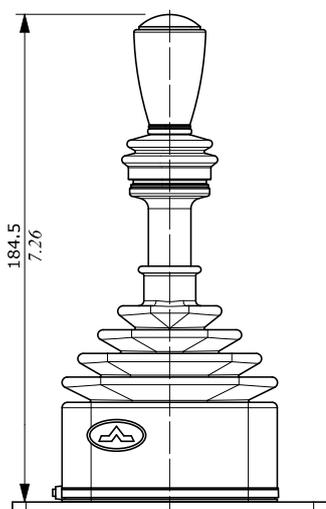
**03JL3  
control**



**03E3  
control**



**02G3-10G3-11G3  
control**



## Controls with handlevers

## Controls with microswitch

**16G3(NO)**: With (NO) microswitch operation in either directions, neutral sensing, spring return in neutral position.

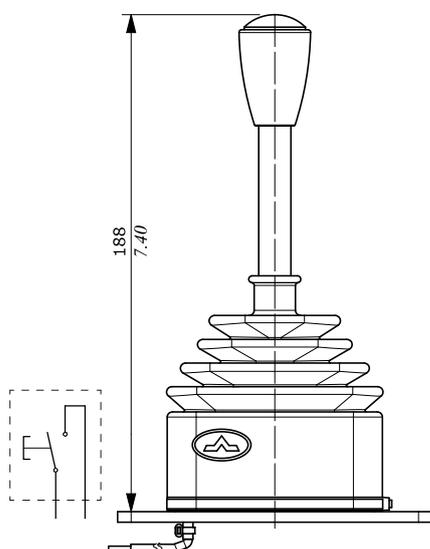
**16TM3G3(NC)**: With (NC) microswitch operation in either directions, protective shell and dust-proof seals

**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

