



# TR55 Monoblock valve

TECHNICAL CATALOGUE



## Features

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Thanks to a wide range of options and solutions, TR55 is a very flexible product. It can be easily adaptable to different applications, always meeting the specific needs of the applications for which it suits best: Compact Wheel Loaders, Agricultural Machines, Compact Backhoe Loaders, Backhoes. The TR55 monoblock valve can be fitted with adjustable port relief valves, anticavitation valves and adjustable antishock and anticavitation valves. The check valve on every single section allows a perfect control even with simultaneous operations. Clamping valve for Backhoe applications is available on TR55/6 and TR55/7 valve configurations.

- Up to 7 sections.
- Available in left or right inlet configuration.
- HPCO (carry-over) configuration.
- Wide range of controls available: mechanical, hydraulic, electrohydraulic and pneumatic.
- Wide range of auxiliary valves.

### Additional information

This catalogue shows the product in the most standard configurations.  
Please, contact Sales Dpt. 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.

2<sup>nd</sup> edition March 2021

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### Working conditions

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

Nominal flow rating		50 l/min	13 US gpm
Max. pressure (1)		350 bar	5100 psi
Back pressure (max.) on outlet <b>T</b> port	with mechanical controls	25 bar	362.5 psi
	with electrohydraulic controls	3 bar	43.5 psi
Standard internal leakage A(B)->T	$\Delta p = 100 \text{ bar} - 1450 \text{ psi}$	8 cm <sup>3</sup> /min max.	0.5 in <sup>3</sup> /min max.
Fluid		Mineral oil	
Fluid temperature range	with NBR (BUNA-N) seals	from -25°C to 80°C	from -13°F to 176°F
Viscosity	operating range	from 15 to 300 mm <sup>2</sup> /s	from 15 to 300 cst
Contamination level		20/18/15 - ISO 4406	NAS 1638 class 9
Environmental temperature for working conditions	with mechanical, hydraulic, electric and electrohydraulic devices	from -40°C to 60°C	from -40°F to 140°F
Tie rods tightening torque (ch 13)		30 Nm	22 lbft

NOTE - (1) Intermittent pressure at max. 250,000 cycles with specific internal testing.

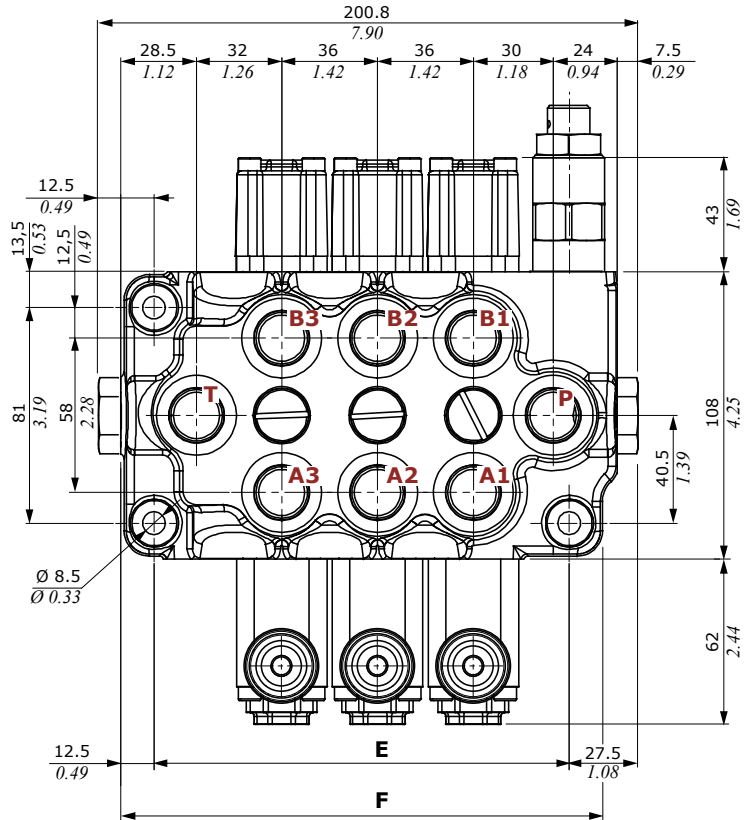
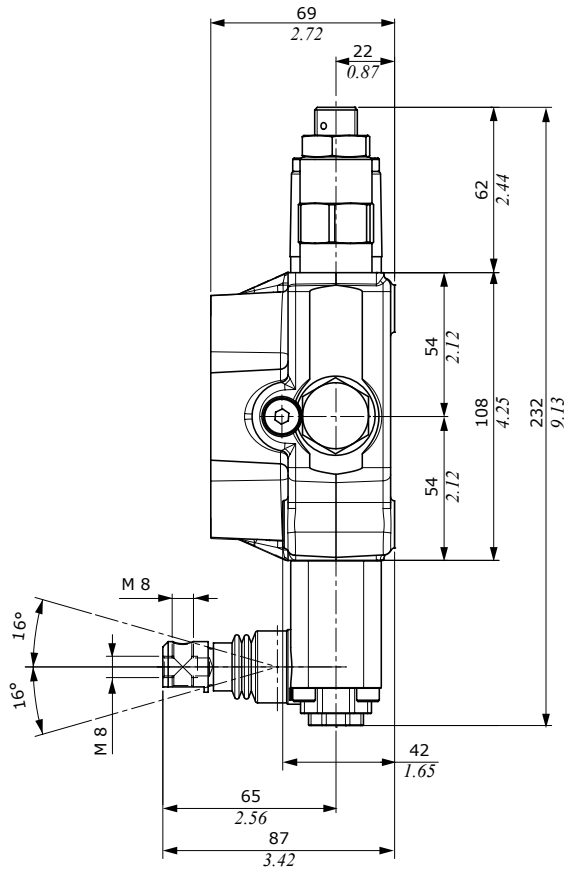
- For different working conditions please, contact our Sales Department.

### Standard threads

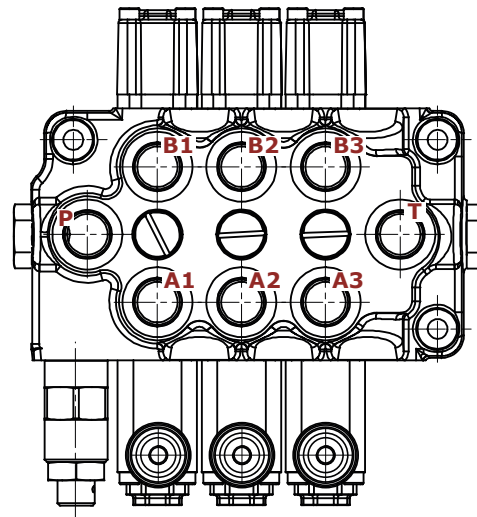
REFERENCE STANDARD				
		BSP	UN-UNF	NPTF
THREAD ACCORDING TO		ISO 228/1	ISO 263	ANSI B1.20.3
		BS 2779	ANSI B1.1 unified	
CAVITY	ISO	1179-1	11926-1	
DIMENSION	SAE		J1926-1	J476a
ACCORDING TO	DIN	3852-2 shape X or Y		

PORTS THREADING		
	BSP	UN-UNF
<b>P</b> inlet	G 3/8	3/4-16 (SAE 8)
<b>A</b> and <b>B</b> ports	G 3/8	3/4-16 (SAE 8)
<b>T</b> outlet, <b>HPCO</b> carry-over	G 3/8	3/4-16 (SAE 8)
Hydraulic and electrohydraulic controls	G 1/4	9/16-18 (SAE 6)
Pneumatic controls	G 1/8	NPTF 1/8-27

Right Inlet configuration example



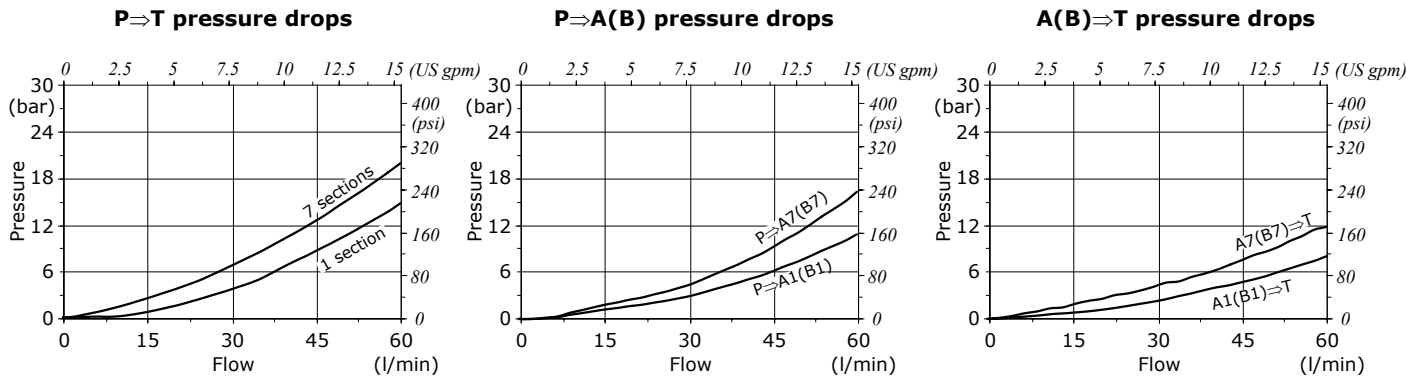
Left Inlet configuration example



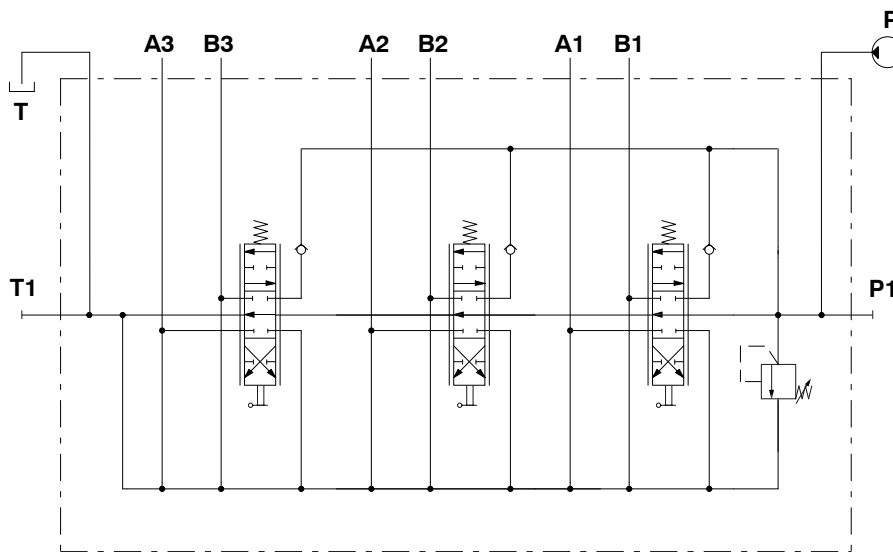
TYPE	E		F	
	mm	in	mm	in
TR55/1	84	3.31	114.5	4.51
TR55/2	120	4.72	150.5	5.92
TR55/3	156	6.14	186.5	7.34
TR55/4	192	7.56	222.5	8.76
TR55/5	228	8.98	258.5	10.18
TR55/6	264	10.39	294.5	11.59
TR55/7	300	11.81	330.5	13.01

NOTE: Drawings and dimensions are referred to a BSP threading configuration.

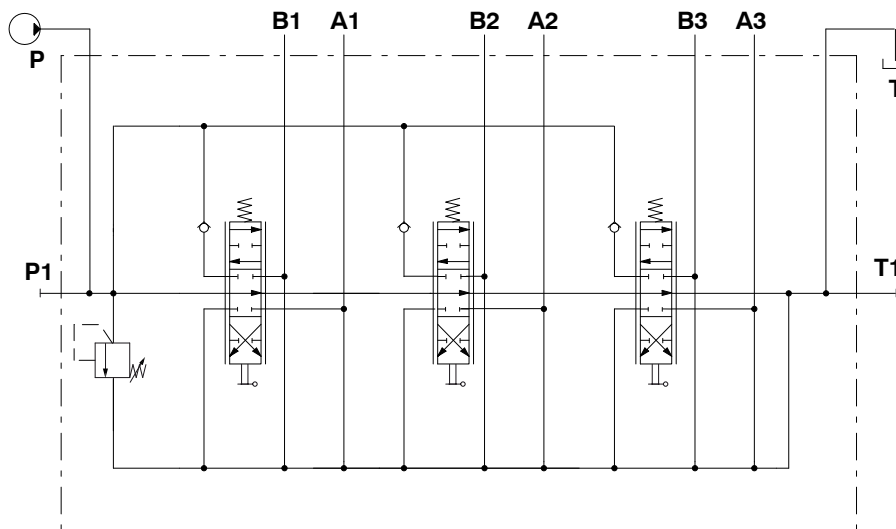
### Performances



### Hydraulic circuit



Right Inlet valve configuration:  
 TR55/3/IR-301(175)/W001A-H001-F001A/  
 W001A-H001-F001A/W001A-H001-F001A/MJ-AG03



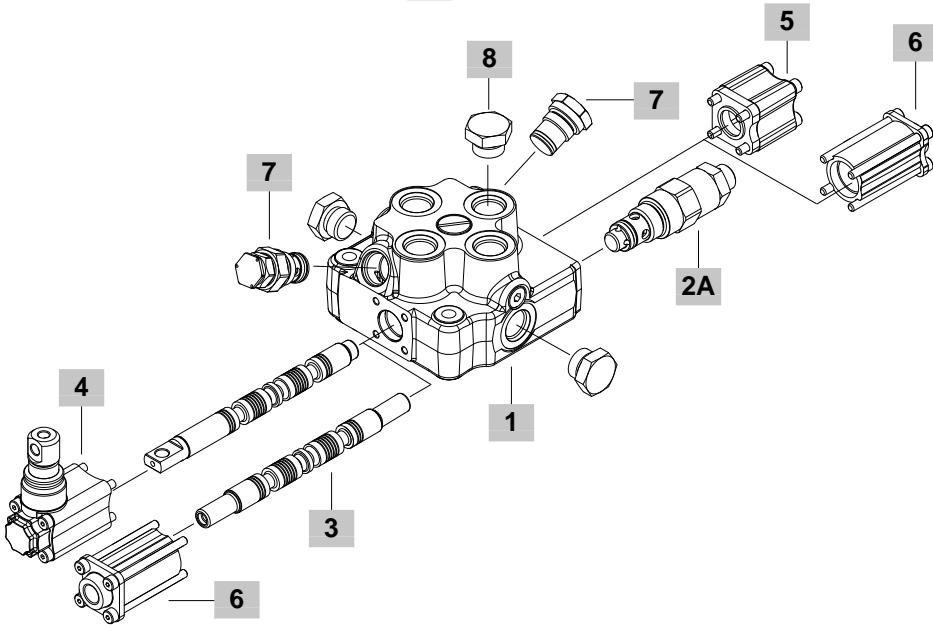
Left Inlet valve configuration:  
 TR55/3/IL-301(175)/W001A-H001-F001A/  
 W001A-H001-F001A/W001A-H001-F001A/MJ-AG03

Nr. of working sections      Right Inlet: R  
 Left Inlet: L

**TR55 / 1 / IR - 301(175) / W001A - H001 - F001A . 03T - PA(100) \ 05-PB / MJ - A - U03**

1                      2A                      3                      4                      5                      7                      7                      ports thread

MJ-A: inlet/outlet configuration see page 18

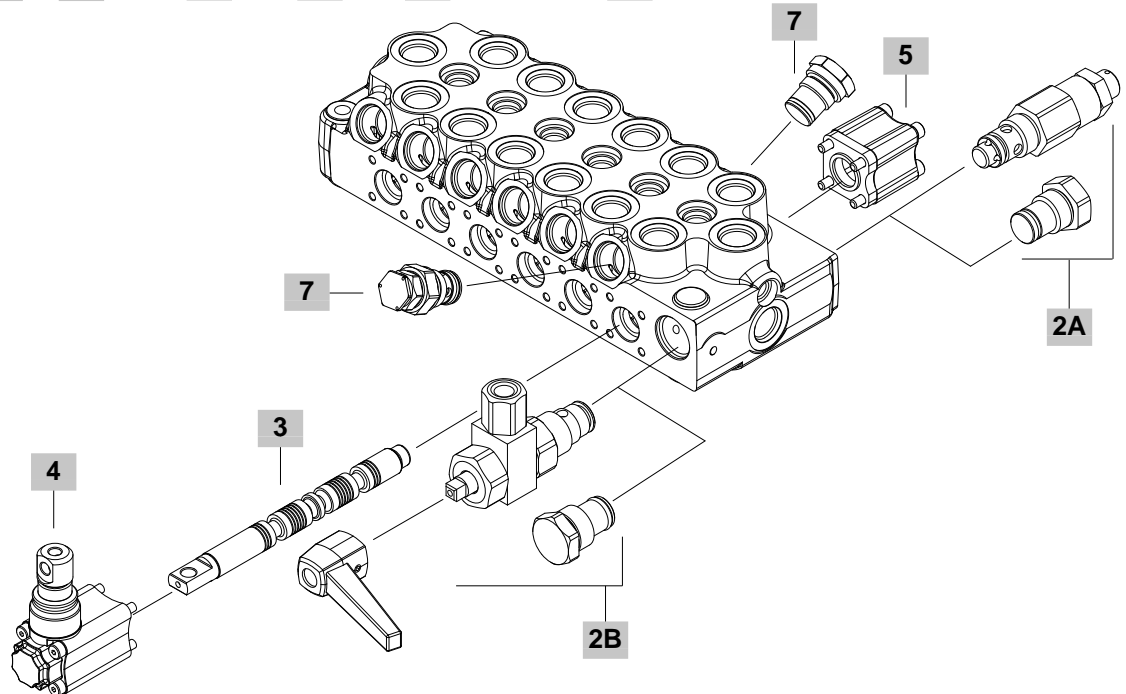


Configuration example with lock valve arrangement

Nr. of working sections      Right Inlet: R  
 Left Inlet: L

**TR55 / 6 / IR - 308 (175)\* / W001A - H001 - F001A . 03T - PA(100) \ .....**

1                      2B                      2A                      3                      4                      5                      7



NOTE (\*) - In configuration with lock valve arrangement, the presence of the main pressure relief valve is indicated by value setting. E.g.: (175).

### Ordering codes

1 Body kit *		
TYPE	CODE	DESCRIPTION
<b>Without service port valves arrangement</b>		
TR55/1-U03-SV	5KC421065038	1 section
TR55/2-U03-SV	5KC421065012	2 sections
TR55/3-U03-SV	5KC421065040	3 sections
TR55/4-U03-SV	5KC421065034	4 sections
TR55/5-U03-SV	5KC421065046	5 sections
TR55/6-U03-SV	5KC421065050	6 sections
TR55/7-U03-SV	5KC421065052	7 sections
<b>With service port valves arrangement</b>		
TR55/1-U03-CV	5KC421065037	1 section
TR55/2-U03-CV	5KC421065042	2 sections
TR55/3-U03-CV	5KC421065036	3 sections
TR55/4-U03-CV	5KC421065035	4 sections
TR55/5-U03-CV	5KC421065043	5 sections
TR55/6-U03-CV	5KC421065048	6 sections
TR55/7-U03-CV	5KC421065051	7 sections
<b>With lock valve arrangement</b>		
TR55/6-U03(CV)CON VBT V.AU6	5KC421065115	6 sections with port valves only on section 6

### 2A Main pressure relief valves page 10

TYPE	CODE	DESCRIPTION
Indicate <b>301</b> assembled for right inlet and <b>201</b> assembled for left inlet		
<b>301-201</b>	915025901	Direct acting pressure relief valve: range from 20 to 110 bar ( <i>from 290 to 1600 psi</i> )
	915025902	Direct acting pressure relief valve: range from 111 to 220 bar ( <i>from 1600 to 3200 psi</i> )
	915025903	Direct acting pressure relief valve: range from 221 to 350 bar ( <i>from 3200 to 5100 psi</i> )
Indicate <b>303</b> assembled for right inlet and <b>203</b> assembled for left inlet		
<b>303-203</b>	430159001	Relief valve blanking plug

### 2B Lock valve page 10

TYPE	CODE	DESCRIPTION
Indicate <b>308</b> assembled for right inlet and <b>208</b> assembled for left inlet		
<b>308-208</b>	915006601	Lock valve (only BSP thread)
-	430146001	Valve blanking plug
NOTE - lever (code 413000306) must be ordered separately		

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

### 3 Spools page 10

TYPE	CODE	DESCRIPTION
<b>Double acting spools</b>		
<b>W001A</b>	421265016	3 positions, A and B closed in neutral position, for 45 l/min ( <i>11.9 US gpm</i> )
	421265018	As previous, for joystick control or without lever
	421265084	3 positions, A and B closed in neutral position, 45 l/min ( <i>11.9 US gpm</i> ) <b>for complete control H005</b>
<b>W001B</b>	421265015	3 positions, A and B closed in neutral position, for 30 l/min ( <i>7.92 US gpm</i> )
	421265017	As previous one, for joystick control or without lever
	421265072	3 positions, A and B closed in neutral position, 30 l/min ( <i>7.92 US gpm</i> ) <b>for complete control H005</b>
<b>W001C</b>	421265053	3 positions, A and B closed in neutral position, for 15 l/min ( <i>3.96 US gpm</i> )
	421265054	As previous one, for joystick control or without lever
<b>W002A</b>	421265030	3 positions, A and B to tank in neutral position, for 45 l/min ( <i>11.9 US gpm</i> )
	421265036	As previous one, for joystick control or without lever
<b>W002B</b>	421265027	3 positions, A and B to tank in neutral position, for 30 l/min ( <i>7.92 US gpm</i> )
	421265033	As previous one, for joystick control or without lever
<b>W004A</b>	421265038	3 positions, B to tank in neutral position, for 45 l/min ( <i>11.9 US gpm</i> ), for joystick control or without lever
<b>W012A</b>	421265021	4 pos., for floating in position 3, A and B to tank, for 45 l/min ( <i>11.9 US gpm</i> ), <b>requires controls F005 and special body, please contact our sales Dpt.</b>
	421265019	As previous one, for joystick control or without lever
<b>W012B</b>	421265022	4 pos., for floating in position 3, <b>requires controls F005 and special body, please contact our sales Dpt.</b>
	421265020	As previous one, for joystick control or without lever
<b>Single acting spools: SAE8 plug is required (see point 8)</b>		
<b>W005A</b>	421265024	3 positions, single acting in A, B plugged, for 45 l/min ( <i>11.9 US gpm</i> )
	421265025	As previous one, for joystick control or without lever
<b>W005B</b>	421265023	3 positions, single acting in A, B plugged, for 30 l/min ( <i>7.92 US gpm</i> )
	421265026	As previous one, for joystick control or without lever
<b>W006A</b>	421265045	3 positions, single acting in B, A plugged, for 45 l/min ( <i>11.9 US gpm</i> )
	421265047	As previous one, for joystick control or without lever
<b>W006B</b>	421265046	3 positions, single acting in B, A plugged, for 30 l/min ( <i>7.92 US gpm</i> )
	421265048	As previous one, for joystick control or without lever

### 4 A side controls page 12

TYPE	CODE	DESCRIPTION
<b>H001</b>	320365002	Lever box control
	320365005	<b>As previous one for dedicated spools W012</b>
<b>H002</b>	320365002	Lever box control rotated 180°
<b>H019</b>	320365006	Lever box control with stroke limiter



Valve general information

Ordering codes

**4 A side controls (continue) page 12**

TYPE	CODE	DESCRIPTION
<b>H020</b>	320365006	As previous one, rotated 180°
<b>H009</b>	320665027	Joystick right side inlet, pivot on 1 <sup>st</sup> section (compulsory code for 2 <sup>nd</sup> section: H120)
<b>H012</b>	320665027	Joystick right side inlet, pivot on 2 <sup>nd</sup> section (compulsory code for 1 <sup>st</sup> section: H120)
<b>H010</b>	320665029	Joystick right side inlet, pivot on 2 <sup>nd</sup> section (compulsory code for 1 <sup>st</sup> section: H120)
<b>H011</b>	320665029	Joystick right side inlet, pivot on 1 <sup>st</sup> section (compulsory code for 2 <sup>nd</sup> section: H120)
<b>H012</b>	320665021	Safety locking joystick left side inlet, pivot on 2 <sup>nd</sup> section (compulsory code for 1 <sup>st</sup> section: H120)
<b>H011</b>	320665023	Safety locking joystick left side inlet, pivot on 1 <sup>st</sup> section (compulsory code for 2 <sup>nd</sup> section: H120)
<b>H004</b>	320365003	Control without lever
	320365004	<b>As previous one for dedicated spools W012</b>
<b>H128</b>	321965001	Connection for cable remote control

**5 B side controls page 14**

TYPE	CODE	DESCRIPTION
<b>With spring return to neutral position</b>		
<b>F001A</b>	320765002	3 positions with spring A type
<b>F001B</b>	320765003	3 positions with spring B type
<b>F002A</b>	320865017	3 positions detent in A and B, spring A type
<b>F002B</b>	320865018	3 positions detent in A and B, spring B type
<b>F003A</b>	320865016	3 positions detent in A, spring A type
<b>F004A</b>	320865020	3 positions detent in B, spring A type
<b>F005A</b>	320865014	4 positions, return spring in neutral position, detent in pos. 3, spring A type
		<b>For dedicated spools W012 type</b>
<b>F005B</b>	320865022	4 positions, return spring in neutral position, detent in pos. 3, spring B type
		<b>For dedicated spools W012 type</b>
<b>F142A</b>	320065005	3 positions with microswitch
<b>F014A</b>	320765004	3 positions with stroke limiter, spring A type
<b>F014B</b>	320765005	3 positions with stroke limiter, spring B type
<b>With detent</b>		
<b>F149</b>	320865015	3 positions, detent without return spring
<b>ON/OFF pneumatic controls</b>		
<b>F020A</b>	321165001	3 positions
<b>F021A</b>	321165001	3 positions, rotated 180°
<b>Proportional pneumatic controls</b>		
<b>F022A</b>	321165002	3 positions
<b>F023A</b>	321165002	3 positions, rotated 180°
<b>ON/OFF electrohydraulic controls</b>		
<b>F1600</b>	321465003	3 positions, 12 VDC
<b>F1601</b>	321465003	3 positions, 12 VDC, rotated 180°
<b>F1610</b>	321465004	3 positions, 24 VDC
<b>F1611</b>	321465004	3 positions, 24 VDC, rotated 180°
<b>Proportional electrohydraulic controls</b>		
<b>F2600</b>	322065001	3 positions, 12 VDC
<b>F2601</b>	322065001	3 positions, 12 VDC, rotated 180°
<b>F2610</b>	322065002	3 positions, 24 VDC
<b>F2611</b>	322065002	3 positions, 24 VDC, rotated 180°
<b>ON/OFF electrohydraulic controls with pressure reducing valve</b>		
<b>F1500</b>	321465006	With P ant T on inlet side, 12 VDC
<b>F1520</b>	321465006	With P on inlet side and T on outlet side, 12 VDC
<b>F1510</b>	321465005	With P ant T on inlet side, 24 VDC
<b>F1530</b>	321465005	With P on inlet side and T on outlet side, 24 VDC

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

**5 B side controls (continue) page 14**

TYPE	CODE	DESCRIPTION
<b>Proportional electrohydraulic controls with pressure reducing valve</b>		
<b>F2500</b>	322065003	With P ant T on inlet side, 12 VDC
<b>F2520</b>	322065003	With P on inlet side and T on outlet side, 12 VDC
<b>F2510</b>	322065004	With P ant T on inlet side, 24 VDC
<b>F2530</b>	322065004	With P on inlet side and T on outlet side, 24 VDC

**6 Complete control A and B sides\* page 20**

TYPE	CODE	DESCRIPTION
<b>H005</b>	320565009	Proportional hydraulic control: <b>for dedicated spool (see #3)</b>

**7 Port valves page 20**

TYPE	CODE	DESCRIZIONE
<b>05-PA/B</b>	430430001	Valve blanking plug
<b>02-PA/B</b>	915083001	Anticavitation valve

**Antishock and anticavitation valves:**

EXAMPLE OF SETTING:

TYPE: **03T-PA/B(80-A)**

└ setting (bar) @ min. flow - 5 l/min (1.3 US gpm)

TYPE: **03T-PA/B(100)**

└ setting (bar) @ full flow - 50 l/min (13.2 US gpm)

TYPE	CODE	DESCRIPTION
<b>03T(10-40)</b>	915073012	Setting @ 5 l/min (1.3 US gpm) flow from 10 to 40 bar (from 145 to 580 psi); setting @ 50 l/min (13.2 US gpm) flow from 20 to 60 bar (from 290 to 870 psi)
<b>03T(41-80)</b>	915073011	Setting @ 5 l/min (1.3 US gpm) flow from 41 to 80 bar (from 600 to 1160 psi); setting @ 50 l/min (13.2 US gpm) flow from 61 to 100 bar (from 890 to 1450 psi)
<b>03T(81-180)</b>	915073010	Setting @ 5 l/min (1.3 US gpm) flow from 81 to 180 bar (from 1180 to 2610 psi); setting 50 l/min (13.2 US gpm) flow from 101 to 220 bar (from 1460 to 3190 psi)
<b>03T(181-350)</b>	915073009	Setting @ 5 l/min (1.3 US gpm) flow from 181 to 350 bar (from 2620 to 5100 psi); setting @ 50 l/min (13.2 US gpm) flow from 221 to 350 bar (from 3200 to 5100 psi)

**Antishock valves:**

EXAMPLE OF SETTING:

TYPE: **01T-PA/B(80-A)**

└ setting (bar) @ min. flow - 5 l/min (1.3 US gpm)

TYPE: **01T-PA/B(100)**

└ setting (bar) @ full flow - 50 l/min (13.2 US gpm)

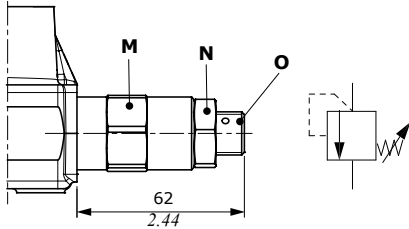
TYPE	CODE	DESCRIPTION
<b>01T(10-80)</b>	915063027	Setting @ 5 l/min (1.3 US gpm) flow from 10 to 80 bar (from 145 to 1160 psi); setting @ 50 l/min (13.2 US gpm) flow from 20 to 100 bar (from 290 to 1450 psi)
<b>01T(81-180)</b>	915063026	Setting @ 5 l/min (1.3 US gpm) flow from 81 to 180 bar (from 1180 to 2610 psi); setting @ 50 l/min (13.2 US gpm) flow from 101 to 220 bar (from 1460 to 3200 psi)
<b>01T(181-350)</b>	915063025	Setting @ 5 l/min (1.3 US gpm) flow from 181 to 350 bar (from 2620 to 5100 psi); setting @ 50 l/min (13.2 US gpm) flow from 221 to 350 bar (from 3200 to 5100 psi)

**8 Port plug\***

TYPE	CODE	DESCRIPTION
-	300001006	SAE8 plug: <b>for single acting spool</b>

## Main pressure relief valves

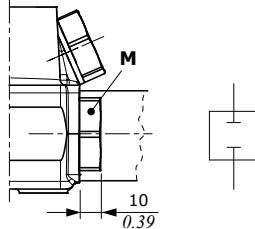
**Direct acting pressure relief valve**



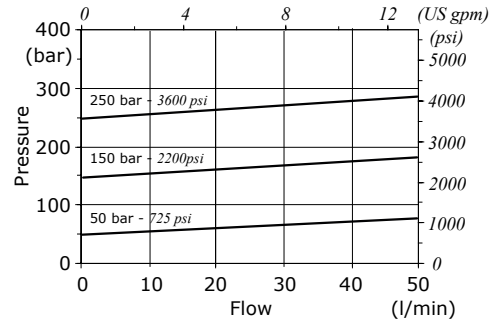
**Wrenches and tightening torques**

- M = Wrench 27 - 80 Nm (59 lbft)
- N = Wrench 24 - 20 Nm (14.7 lbft)
- O = rench 6

**Relief valve blanking plug**

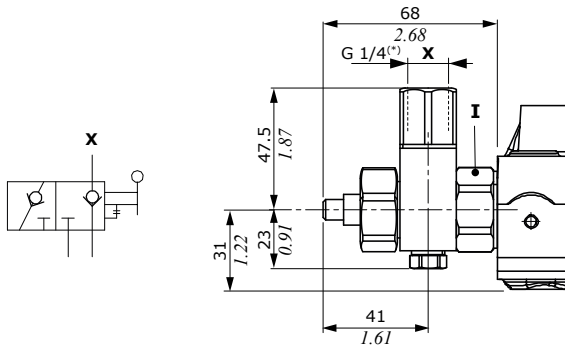


**Setting example**



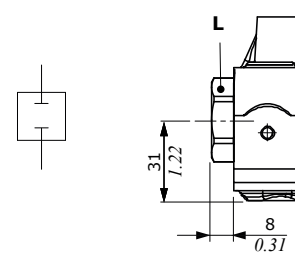
## Lock valves

**Lock valve**



NOTE - (\*) only BSP thread

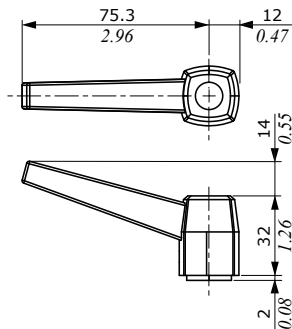
**Lock valve blanking plug**



**Wrenches and tightening torques**

- I = Wrench 30- 80 Nm (59 lbft)
- L = Wrench 27 - 80 Nm (59 lbft)

**Lever for lock valve**

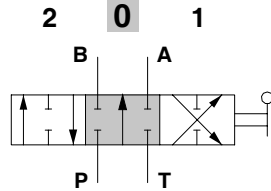


NOTE - lever (code 413000306) must be ordered separately

**Double acting spools**

**W001A/W001B/W001C types**

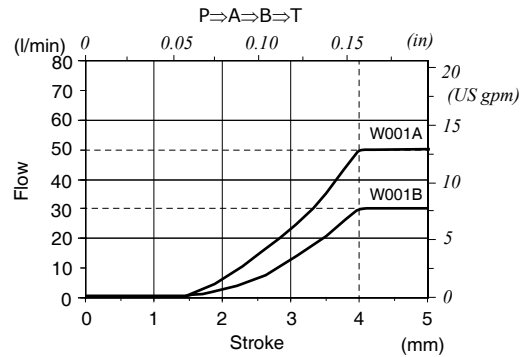
Double acting, 3 positions,  
A and B closed in neutral position



**Stroke**

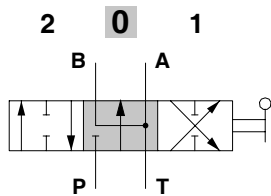
position 1: + 5 mm (+0.196 in)  
position 2: - 5 mm (-0.196 in)

**W001A/W001B types metering curves**



**W002A/W002B types**

Double acting, 3 positions,  
A and B to tank in neutral position

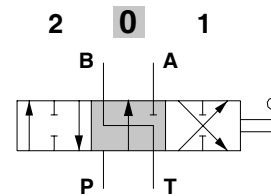


**Stroke**

position 1: + 5 mm (+0.196 in)  
position 2: - 5 mm (-0.196 in)

**W004A type**

Double acting, 3 positions, A closed  
and B to tank in neutral position

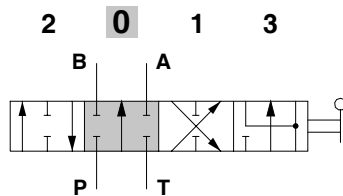


**Stroke**

position 1: + 5 mm (+0.196 in)  
position 2: - 5 mm (-0.196 in)

**W012A type**

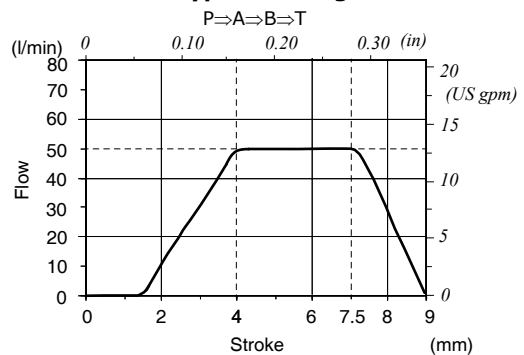
Double acting, 4 positions, float in 4<sup>th</sup> position



**Stroke**

position 1: + 5 mm (+0.196 in)  
position 2: - 5 mm (-0.196 in)  
position 3: + 9 mm (+0.354 in)

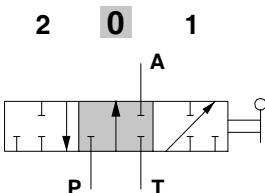
**W012A type metering curve**



**Single acting spools**

**W005A/W005B types**

Single acting in A, 3 positions

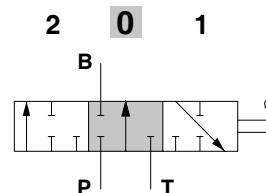


**Stroke**

position 1: + 5 mm (+0.196 in)  
position 2: - 5 mm (-0.196 in)

**W006A type**

Single acting in B, 3 positions



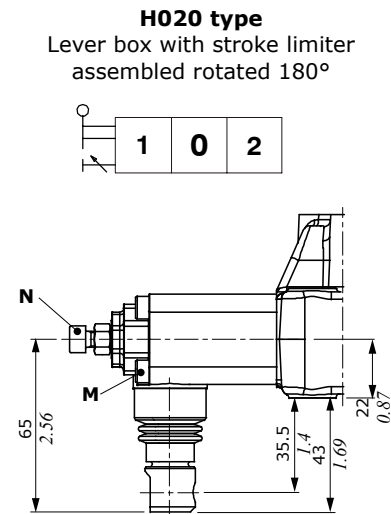
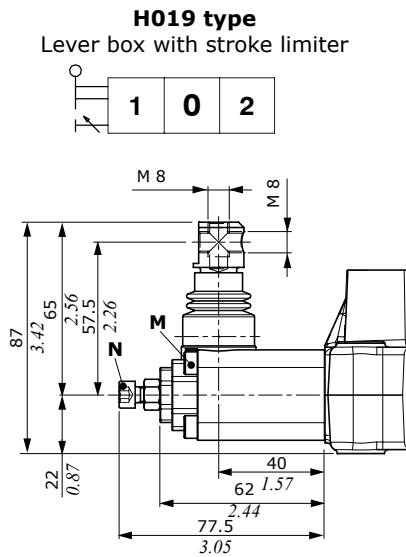
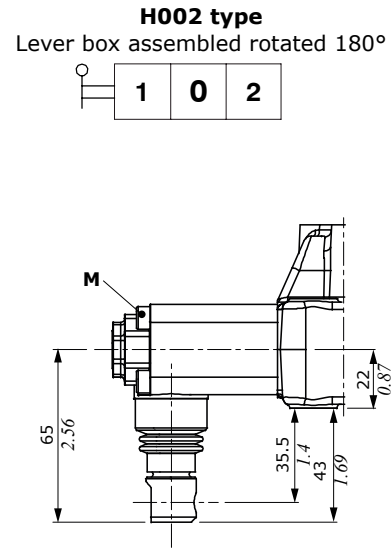
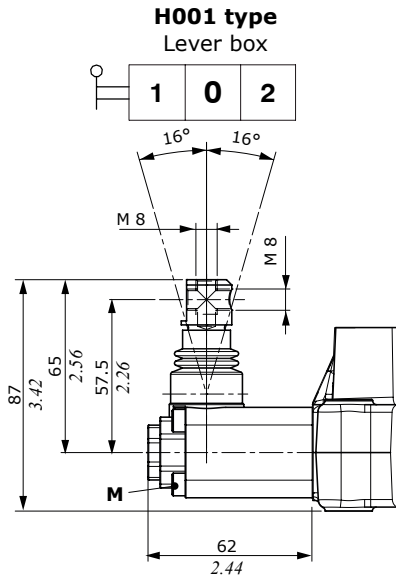
**Stroke**

position 1: + 5 mm (+0.196 in)  
position 2: - 5 mm (-0.196 in)

## A side controls

The drawings are referred to right inlet. Any different conditions are indicated.

### Lever controls



### Wrenches and tightening torques

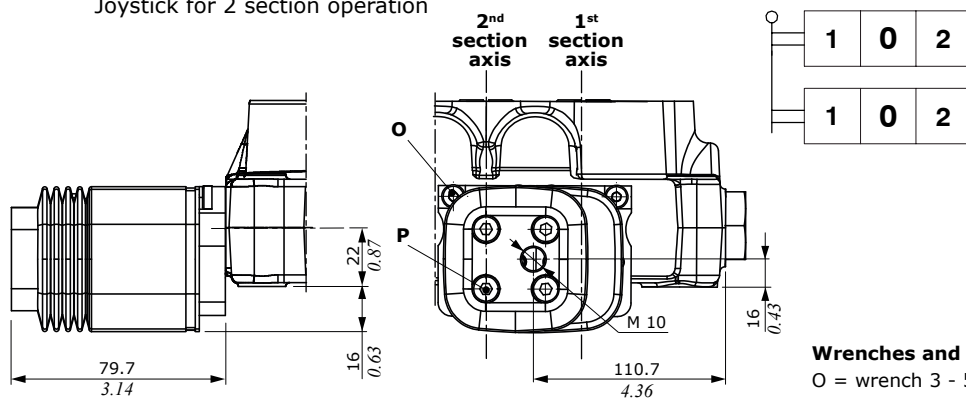
M = wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)

N = wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)

Joystick controls

**H009 type**

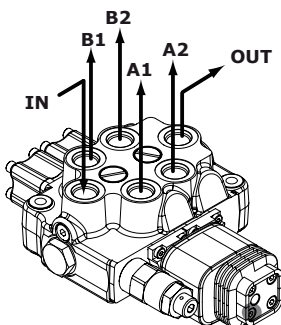
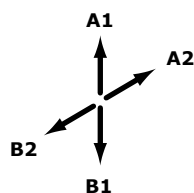
Joystick for 2 section operation



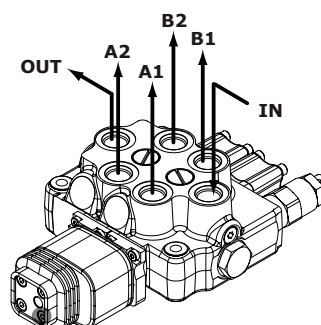
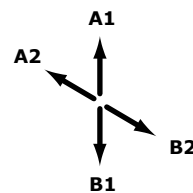
**Wrenches and tightening torques**

- O = wrench 3 - 5 Nm (3.7 lbf<sup>t</sup>)
- P = wrench 4 - 6 Nm (4.4 lbf<sup>t</sup>)

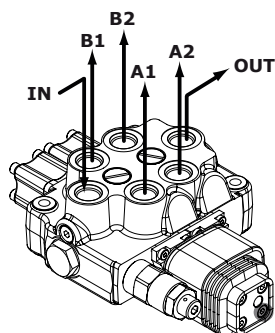
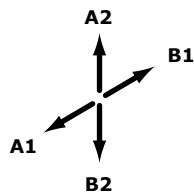
**Left Inlet configuration  
H011-H120 type**  
pivot "●" on 1<sup>st</sup> section



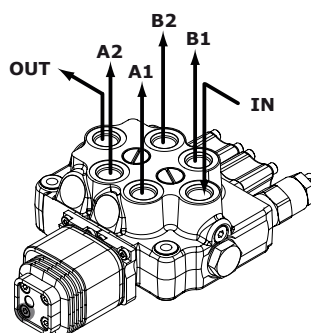
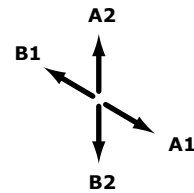
**Right Inlet configuration  
H009-H120 type**  
pivot "●" on 1<sup>st</sup> section



**Left Inlet configuration  
H120-H012 type**  
pivot "●" on 2<sup>nd</sup> section



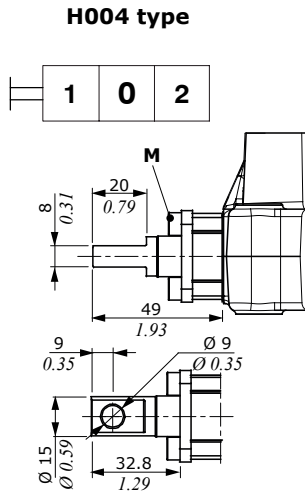
**Right Inlet configuration  
H120-H010 type**  
pivot "●" on 2<sup>nd</sup> section



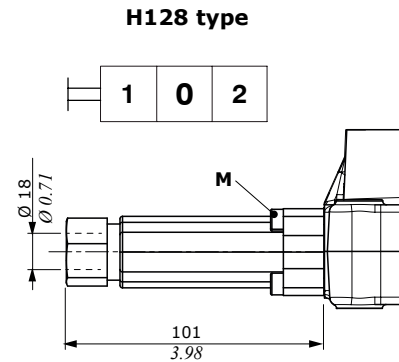
NOTES: The second section relative to the configuration of the joystick control is always identified with code H120.

## A side controls

### Control without lever



### Arrangement for cable remote control



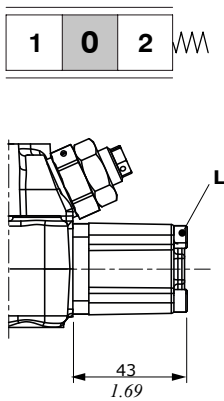
**Wrenches and tightening torques**  
 M = wrench 4 - 6.6 Nm (4.9 lbft)

## B side controls

The drawings are referred to right inlet. Any different conditions are indicated.

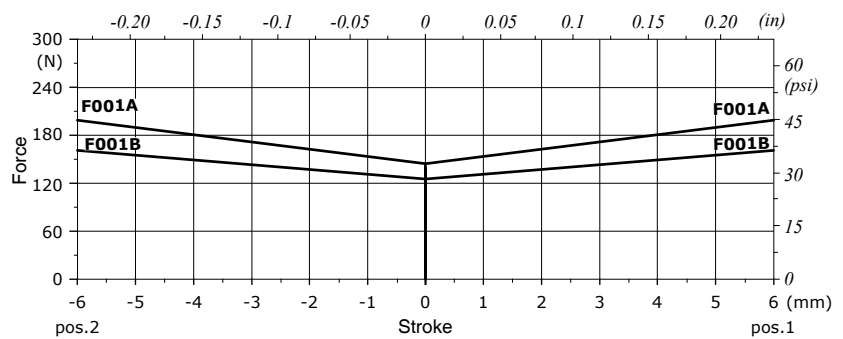
### With spring return in neutral position

**F001A-F001B types**



**Wrenches and tightening torques**  
 L = wrench 4 - 3.8 Nm (2.8 lbft)

**Force vs. Stroke diagram**

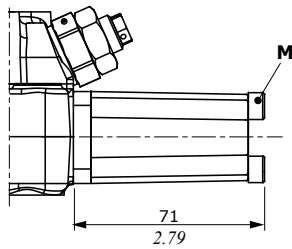
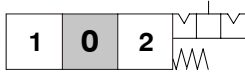


**Legenda**

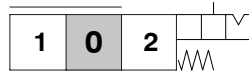
F001A = from 140 N to 195 N (31.5 lb to 43.8 lb)  
 F001B = from 130 N to 167 N (29.2 lb to 37.5 lb)

With detent and spring return in neutral position

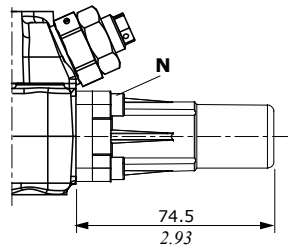
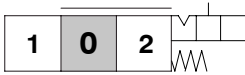
**F002A type**  
detent in A and B



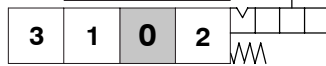
**F004A type**  
detent in B



**F003A type**  
detent in A



**F005A/F005B type**  
4 position, detent in position 3,  
W012A spool is required

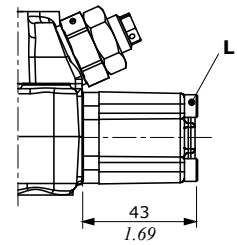
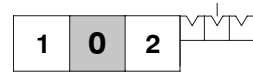


**Wrenches and tightening torques**

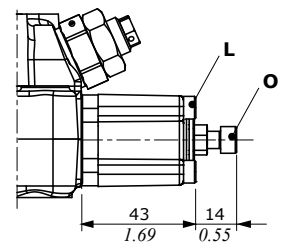
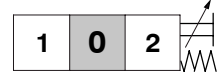
- L = wrench 4 - 3.8 Nm (2.8 lbf<sub>t</sub>)
- M = wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)
- N = wrench 4 - 6 Nm (4.4 lbf<sub>t</sub>)
- O = wrench 5

With detent

**F149 type**  
detent in neutral positions, 1 and 2

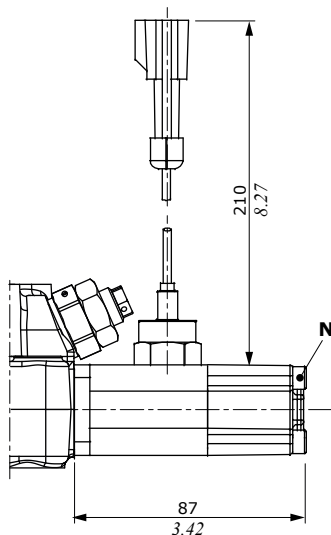
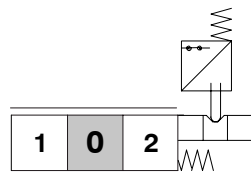


**F014A/F014B type**  
3 positions, with stroke limiter



With microswitch

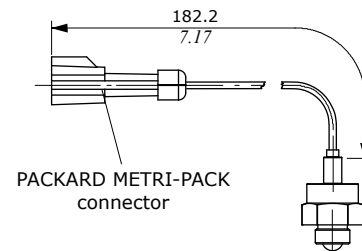
**F142A type**  
3 position



**Wrenches and tightening torques**  
N = wrench 4 - 6 Nm (4.4 lbf<sub>t</sub>)

**Microswitch ordering code**

**NO microswitch kit**  
code: 413080011



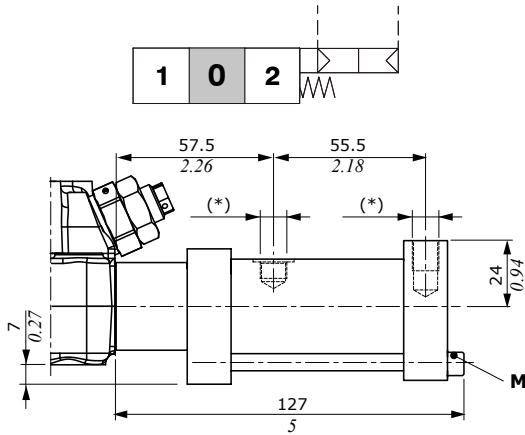
**Microswitch features**

- Mechanical life ..... : 10<sup>6</sup> operations
- Electrical life (resistive load) .. : 5x10<sup>5</sup> operations
- Current rating ..... : 0.01-5 A
- Voltage rating ..... : 5-24 VDC
- Connector ..... : Packard Metri-pack
- Mating connector not included

## B side controls

### ON/OFF operated pneumatic controls

**F020A type**



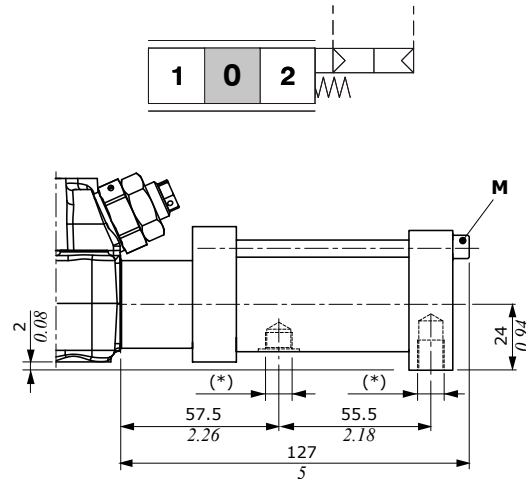
**Wrenches and tightening torques**

M = wrench 4 - 6.6 Nm (4.9 lbft)

NOTE: (\*) NPTF 1/8-27.

**F021A type**

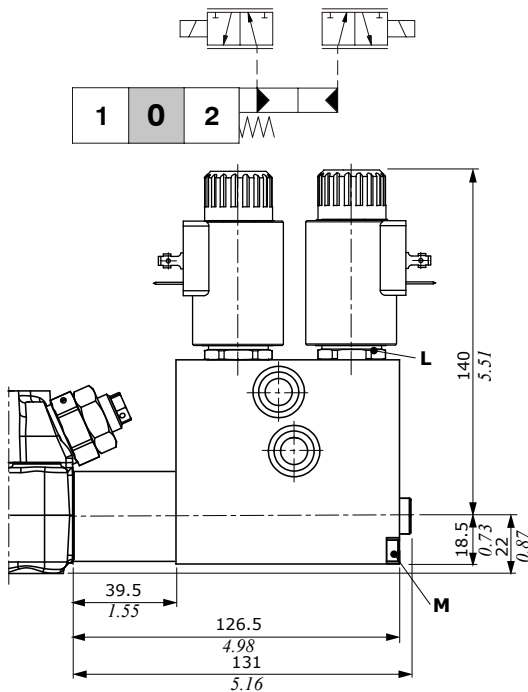
Assembled rotated 180°



### ON/OFF operated electrohydraulic controls

**F1600/F1610 type**

3 positions 12/24 VDC



**Wrenches and tightening torques**

L = wrench 30 - 30 Nm (22.13 lbft)

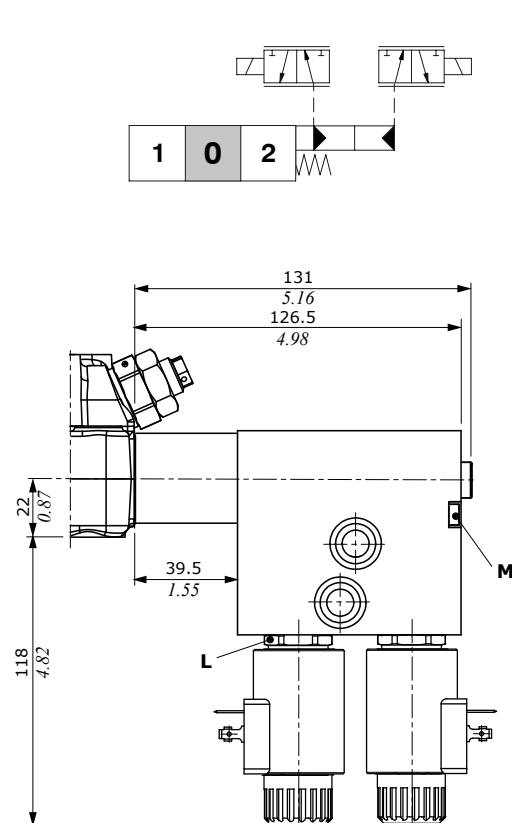
M = wrench 4 - 6.6 Nm (4.9 lbft)

NOTE: For coils features see page 25.

**F1601/F1611 type**

3 positions 12/24 VDC

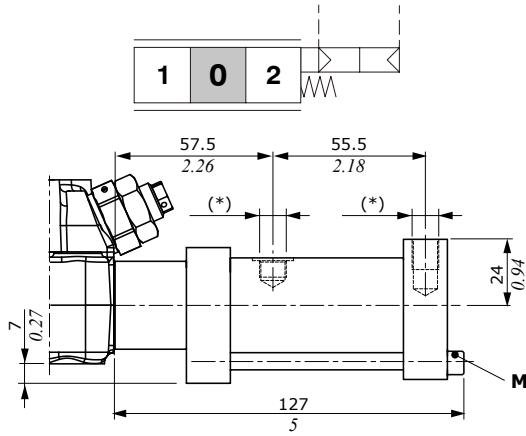
assembled rotated 180°



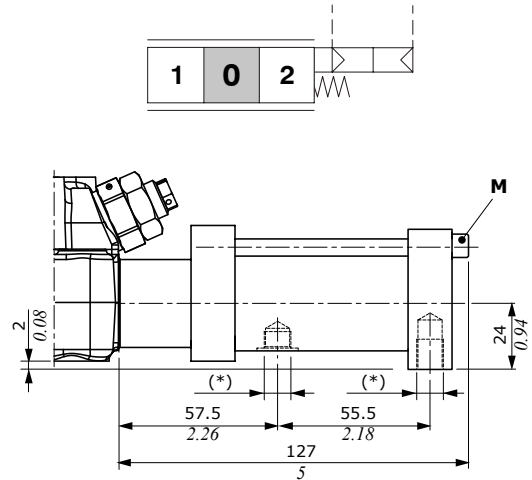


Proportional operated pneumatic controls

F022A type



F023A type  
Assembled rotated 180°



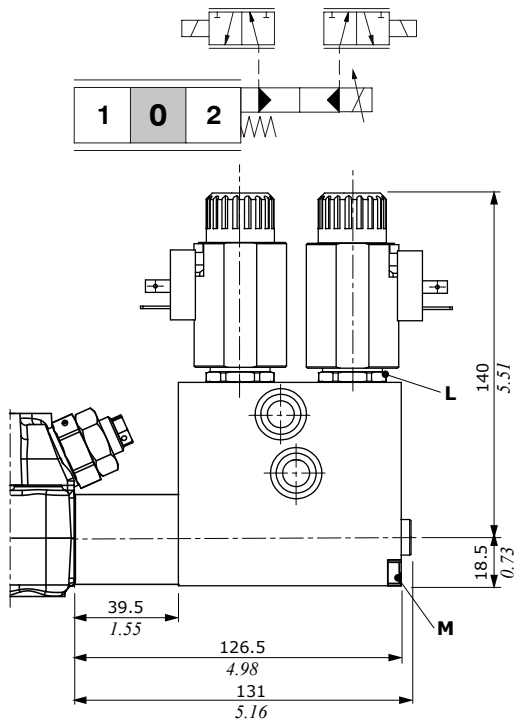
Wrenches and tightening torques

M = wrench 4 - 6.6 Nm (4.9 lbf ft)

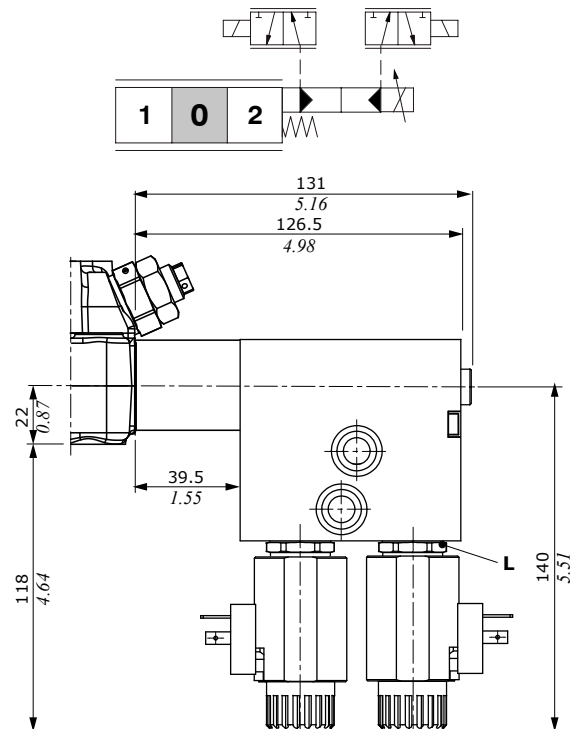
NOTE: (\*) NPTF 1/8-27.

Proportional operated electrohydraulic controls

F2600/2610 type  
3 positions, 12/24 VDC



F2601/F2611 type  
3 positions, 12/24 VDC assembled rotated 180°



Electrohydraulic control features

Operating temperature range.: -20°C / 80°C (-4°F / 176°F)

Max inlet pressure .....: 350 bar - 5100 psi

Reduced pressure.....: 16 bar - 230 psi

Back pressure on T.....: 3 bar - 43.5 psi

Filtering degree.....: 25 µ absolute

Recommended pilot pipe size.: Ø 6 mm (0.236 in) - G 1/4

NOTE: For coils features see page 25.

Wrenches and tightening torques

L = wrench 30 - 30 Nm (22.13 lbf ft)

M = wrench 4 - 6.6 Nm (4.9 lbf ft)

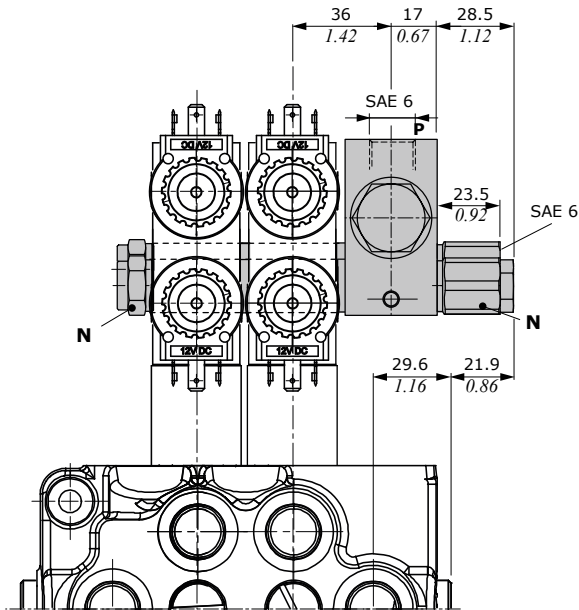
## B side controls

### Electrohydraulic controls

#### ON/OFF and proportional electrohydraulic controls with pressure reducing valve

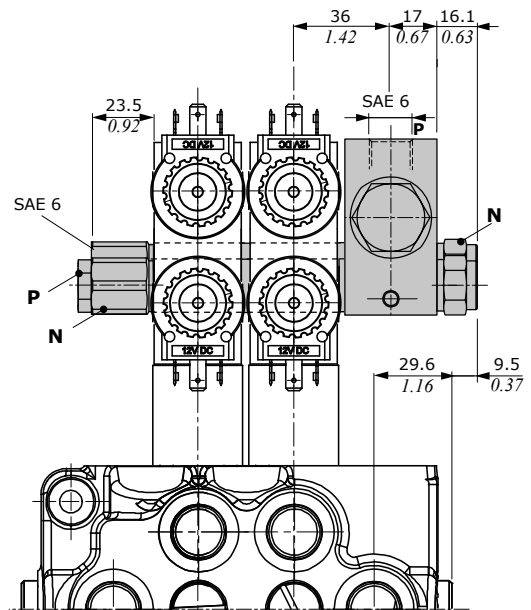
##### F1500/1510 type

ON/OFF with P and T on inlet side, 12/24 VDC



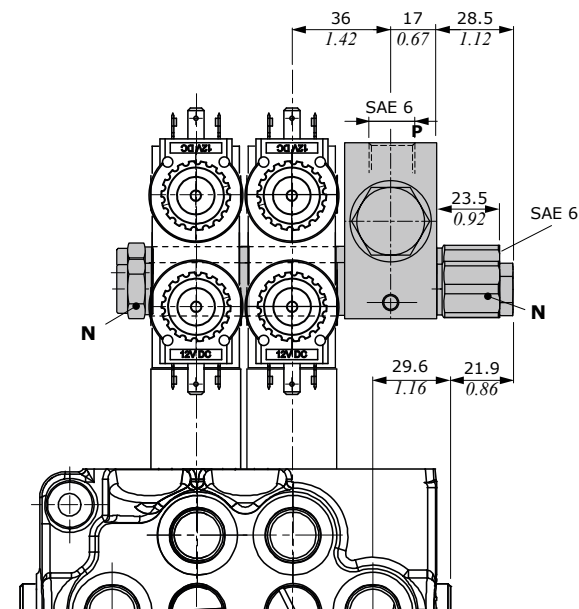
##### F1520/F1530 type

ON/OFF with P on inlet side and T on outlet side, 12/24 VDC

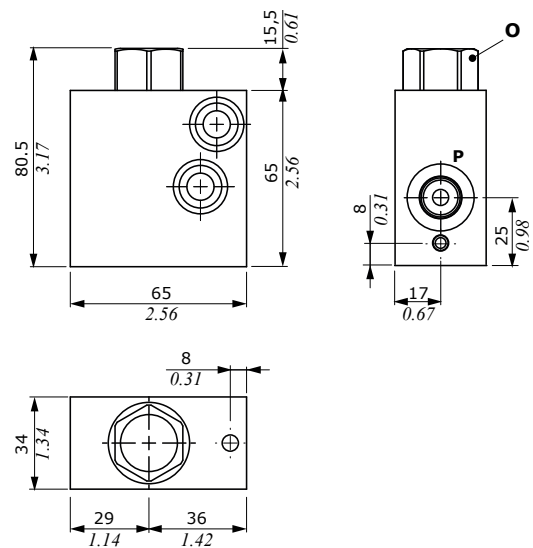


##### F2500/2510 type

Proportional with P and T on inlet side, 12/24 VDC



##### Fixed pressure reducing valve (16 bar - 232 psi) CODE: 915000312



##### Wrenches and tightening torques

N = wrench 21 - 15 Nm (11.06 lbft)

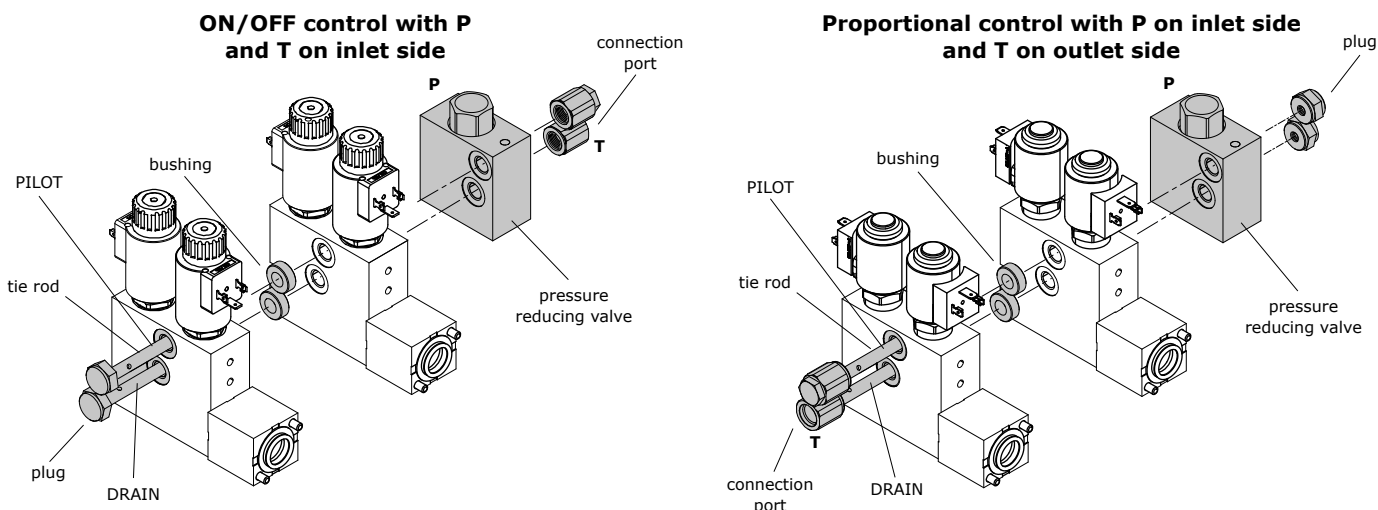
O = wrench 25 - 20 Nm (14.8 lbft)

P = wrench 17 - 45 Nm (33.2 lbft)

NOTE: For coils features see page 25.

Electrohydraulic controls

ON/OFF and proportional electrohydraulic controls with pressure reducing valve

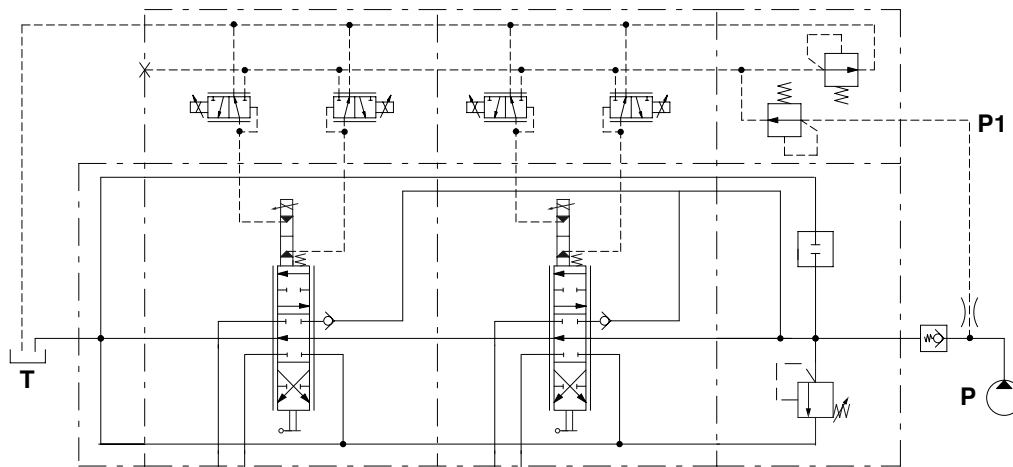


TIE RODS for ON/OFF and Proportional control			
Nr. of sections	Code	Nr. of sections	Code
1	320103026	5	320103030
2	320103027	6	320103031
3	320103028	7	320103032
4	320103029		

NOTES: The length of the tie rod will change depending on the section numbers. Each kit is composed by 2 tie rods, 2 plugs, 2 connection ports and bushings according to the section number.

The control tie rod kit has always to be ordered separately. Reducing valve, combined with electrohydraulic control kit has to be calculated as a normal working section. ORDER EXAMPLE: complete valves with 3 sections F1600 requires a complete tie-rod kit /3. Complete valves with 2 sections F1600 and 1 section with F1500 (reducing valve) requires a complete tie-rod kit /4.

Example of hydraulic circuit with pressure reducing valve

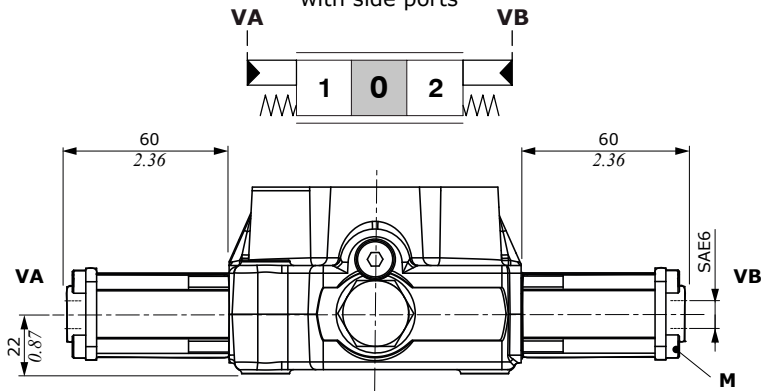


Right Inlet valve configuration with pressure reducing valve:  
TR55//IR-301(175)/W001A-H001-F2500/W001A-H001-F2600/MJ-A

## Complete control

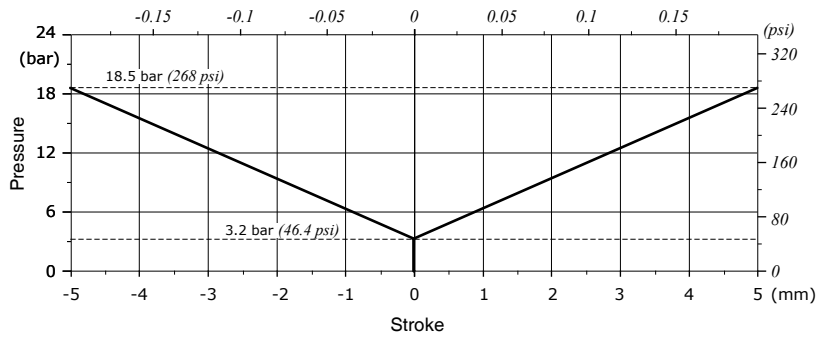
### Proportional hydraulic control

**H005 type**  
with side ports



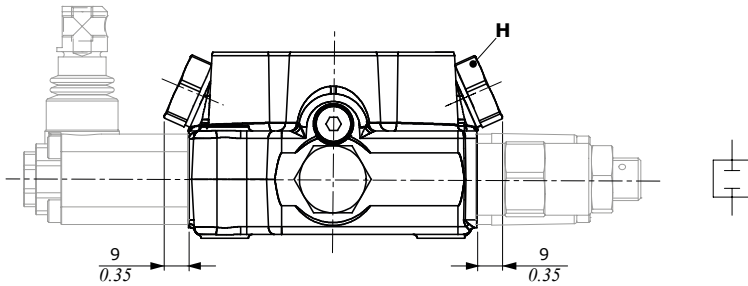
**Wrenches and tightening torques**  
M = wrench 4 - 6.6 Nm (4.9 lbf)

**Stroke vs. Pressure diagram**



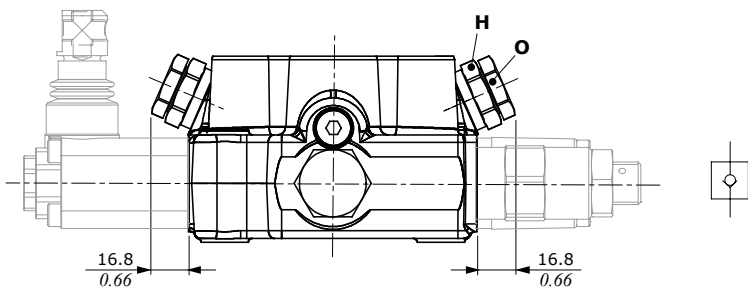
## Port valves

**05-P type**  
valve blanking plug

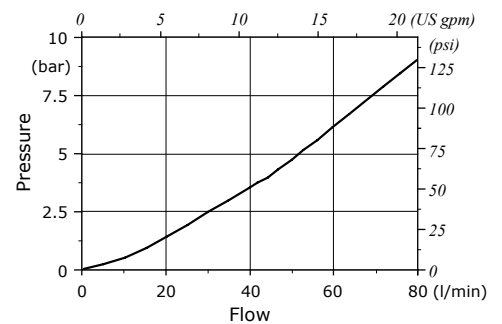


**Wrenches and tightening torques**  
O = wrench 22 - 25 Nm (18.44 lbf)  
H = wrench 24 - 60 Nm (44.25 lbf)

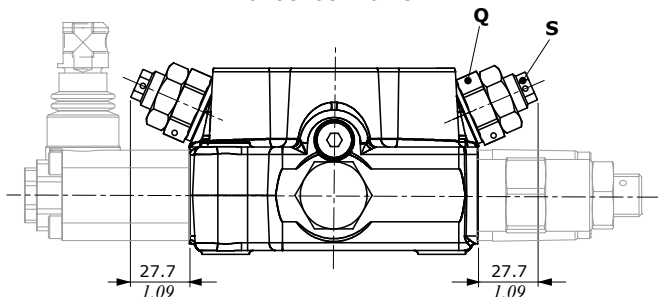
**02-P type**  
anticavitation valve



**Pressure drops**

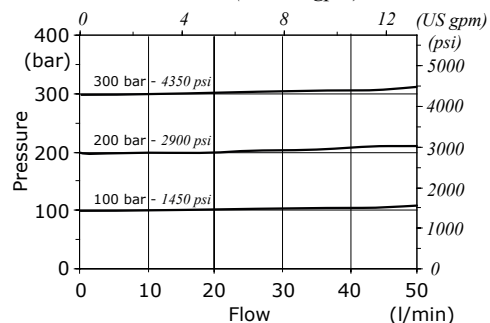


### 01T-P type antishock valve



### Setting example

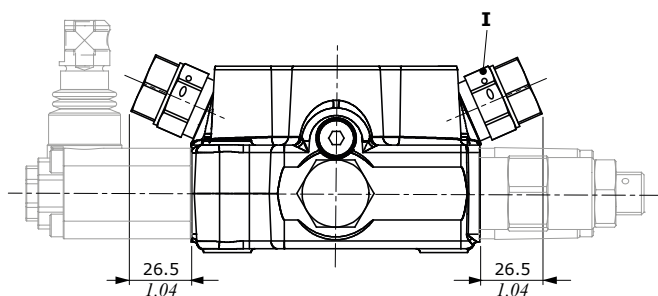
@ 5 l/min (1.3 US gpm)



### Setting ranges

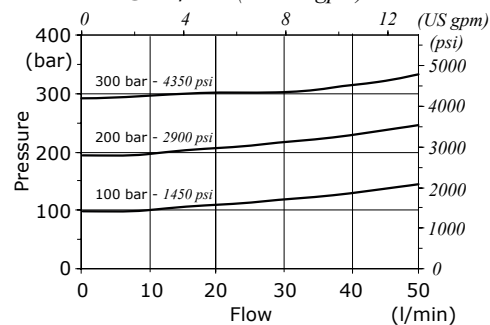
type	pressure @ 50 l/min (132 US gpm)	pressure @ 5 l/min (1.3 US gpm)
A	20 - 100 bar 290 - 1450 psi	10 - 80 bar 145 - 1160 psi
B	101 - 220 bar 1460 - 3190 psi	81 - 180 bar 1170 - 2610 psi
C	221 - 350 bar 3200 - 5075 psi	181 - 350 bar 3200 - 5075 psi

### 03T-P type combined antishock and anticavitation valve



### Setting example

@ 5 l/min (1.3 US gpm)



### Setting ranges

type	pressure @ 50 l/min (132 US gpm)	pressure @ 5 l/min (1.3 US gpm)
A	20 - 60 bar 290 - 870 psi	10 - 40 bar 145 - 580 psi
B	61 - 100 bar 884 - 1450 psi	41 - 80 bar 594 - 1160 psi
C	101 - 220 bar 1460 - 3190 psi	81 - 180 bar 1170 - 2610 psi
D	221 - 350 bar 3200 - 5075 psi	181 - 350 bar 3200 - 5075 psi

### Wrenches and tightening torques

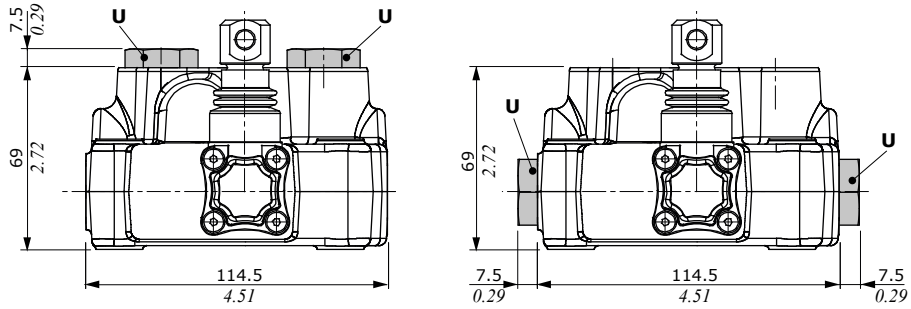
Q =wrench 55 - 60 Nm (44.25 lbft)

S =wrench 10

I =wrench 24 - 60 Nm (44.25 lbft)

## Inlet/outlet configurations

### MJ/MK configuration

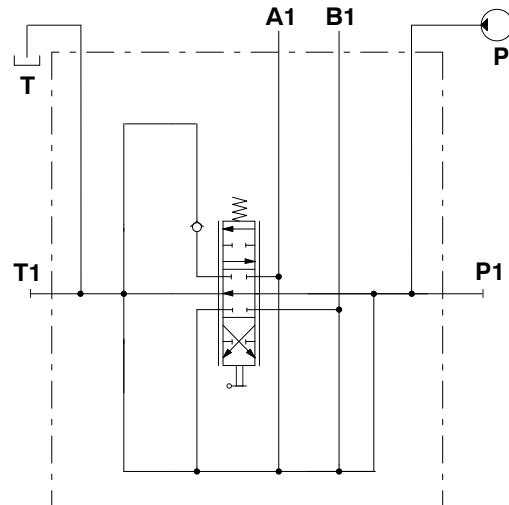
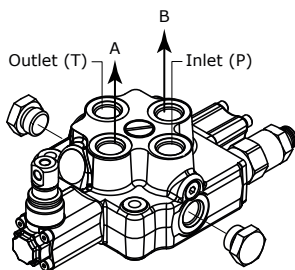


#### Wrenches and tightening torques

U = allen wrench 6 - 40 Nm (29.5 lbf<sub>t</sub>)

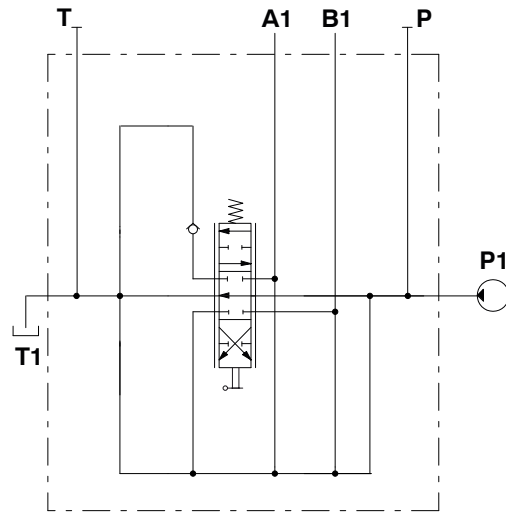
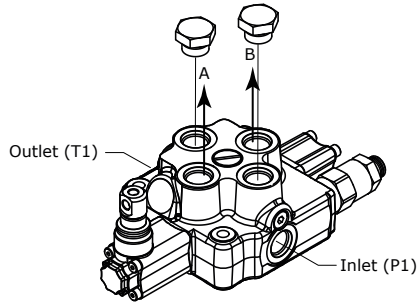
configuration	MJ right inlet	MK left inlet
upper ports	<b>A</b>	<b>A</b>
side ports	<b>C</b>	<b>C</b>
P side port, T upper port	<b>K</b>	<b>K</b>
T side port, P upper port	<b>L</b>	<b>L</b>
upper HPCO, side ports	-	-
upper HPCO and P port, T side port	-	-

#### A type configuration

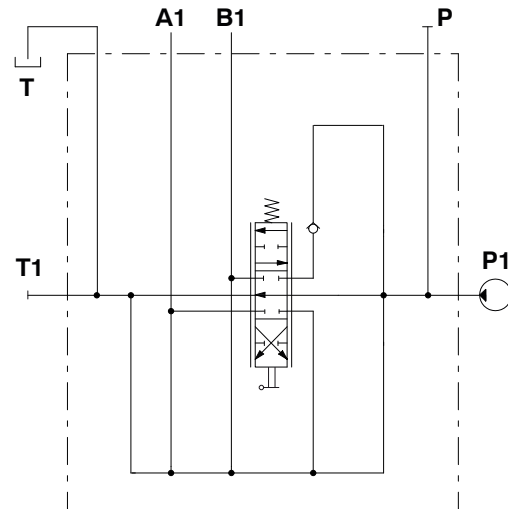
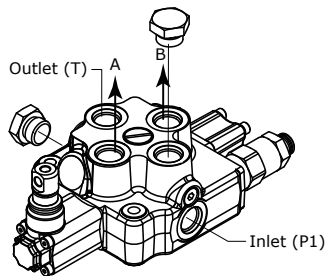


MJ/MK configuration

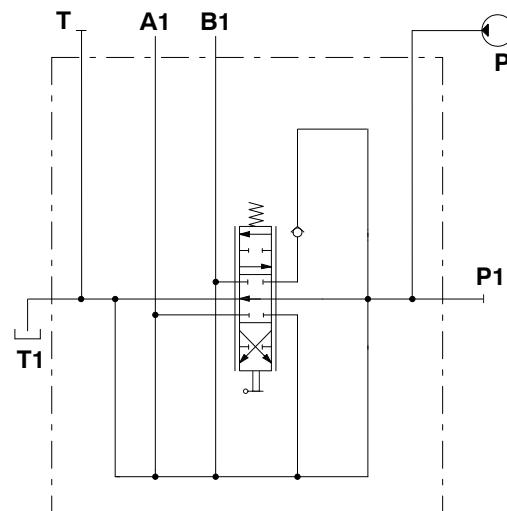
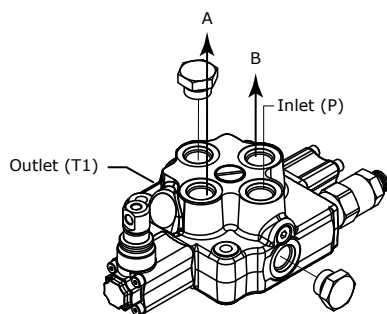
C type configuration



K type configuration



L type configuration



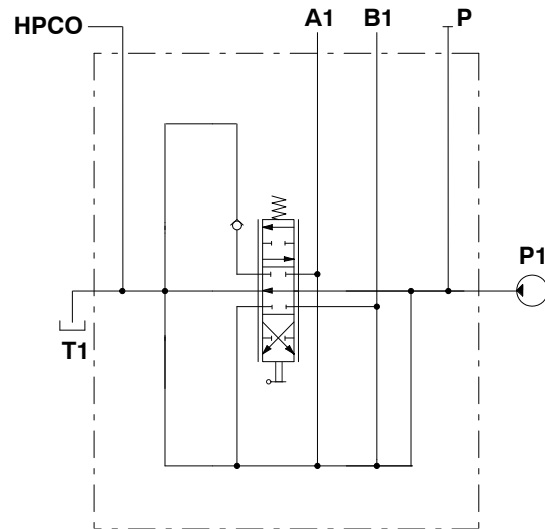
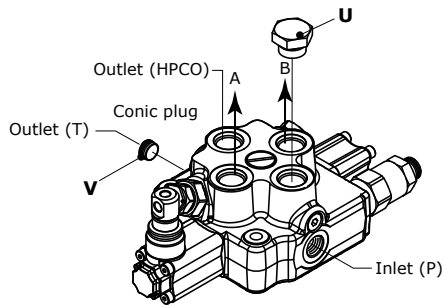
## Inlet/outlet configurations

### MM/MN configuration

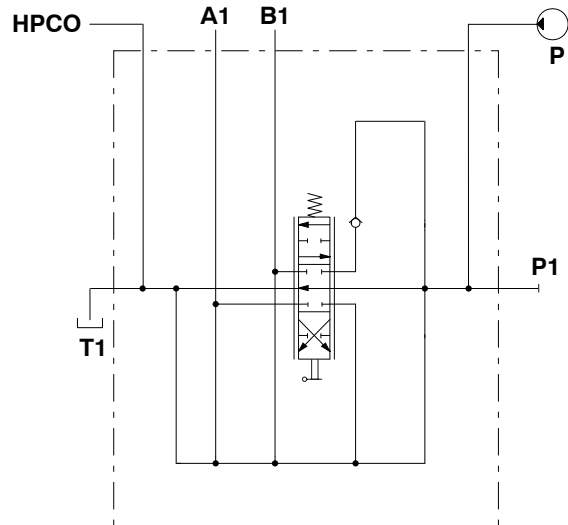
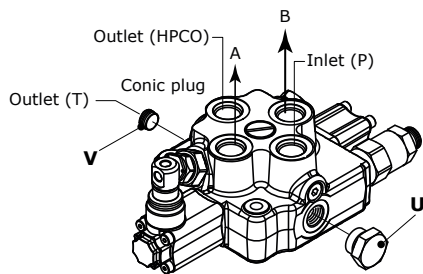
HPCO carry-over version with tapered plug code: 413010210.

configuration	MM right inlet	MN left inlet
upper ports	-	-
side ports	-	-
P side port, T upper port	-	-
T side port, P upper port	-	-
upper HPCO, side ports	<b>A</b>	<b>A</b>
upper HPCO and P port, T side port	<b>K</b>	<b>K</b>

#### A type configuration



#### K type configuration



#### Wrenches and tightening torques

U = allen wrench 6 - 40 Nm (29.5 lbf<sup>t</sup>)

V = allen wrench 6

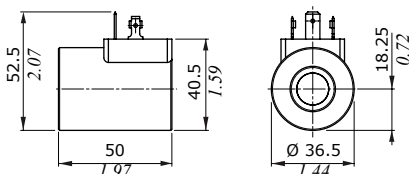


**Dimensional data and features**

Coil type	Control type	Voltage	Connectors					
			ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
BT	F1600/F1601 F1500/F1520	12 VDC	4SL3000120	4SL3000130 <sup>(6)</sup>	4SL3000122 <sup>(5)</sup>	4SL3000124 <sup>(2)</sup>	4SL3000127 <sup>(2)</sup>	4SL300012C
			4SL3000126 <sup>(4)</sup>	4SL3000134 <sup>(3-6)</sup>	4SL3000128 <sup>(2)</sup>	4SL30001200 <sup>(3-5)</sup>		
	F1610/F1611 F1510/F1530	24 VDC	4SL3000240	4SL3000249 <sup>(6)</sup>	4SL3000248 <sup>(5)</sup>	-	-	4SL3000246
			4SL3030240 <sup>(1)</sup>	4SL300024C <sup>(3-6)</sup>				
12V	F2600/F2601 F2500	12 VDC	413171224	-	-	-	-	-
24V	F2610/F2611 F2510	24 VDC	413172421	-	-	-	-	-
<b>Mating connectors</b>								
Standard			4CN1009995	5CON140031	5CON003	5CON001	5CON017	-
With rectifier			24 VDC	4CN3010240	-	-	-	-

Notes: <sup>(1)</sup> supply with AC and use only with rectifier connector - <sup>(2)</sup> with flying leads - <sup>(3)</sup> with bidirectional diode - <sup>(5)</sup> with unidirectional diode <sup>(6)</sup> integrated perpendicular type - <sup>(6)</sup> integrated parallel type

**Coil BT**  
**12 VDC for F1600/F1601/F1500/F1520**  
**controls and**  
**24 VDC for F1610/F1611/F1510/F1530**  
**controls**

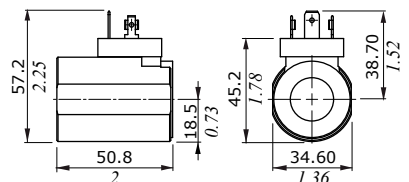


**Features**

- Nominal voltage . . . . . : 12/24 VDC
- Power rating . . . . . : 21 W - 12/24 VDC
- Nominal current . . . . . : 1,77 A - 12 VDC  
0,89 A - 24 VDC
- Electrical resistance . . . . . : 6,8 Ω - 12 VDC  
0,27 Ω - 24 VDC
- Duty cycle . . . . . : ED 100%
- Coil insulation . . . . . : Class F (155° - 311°F)
- Weather protection . . . . . : IP65
- Type connector . . . . . : DIN43650

**coils type for proportional electrohydraulic control**

**Coil 12V**  
**12 VDC for F2600/F2601/F2500 controls**  
**Coil 24V**  
**24 VDC for F2610/F2611/F2510 controls**



**Features**

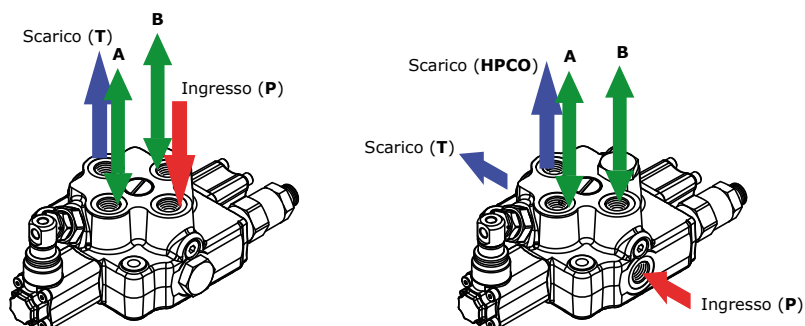
- Nominal voltage . . . . . : 12/24 VDC
- Power rating . . . . . : 38 W - 12 VDC  
36 W - 24 VDC
- Nominal current . . . . . : 3.17 A - 12 VDC  
1.55 A - 24 VDC
- Electrical resistance . . . . . : 3.8 Ω - 12 VDC  
15.5 Ω - 24 VDC
- Duty cycle . . . . . : ED 100%
- Coil insulation . . . . . : Class H (180° - 356°F)
- Weather protection . . . . . : IP65
- Type connector . . . . . : DIN43650

## Main rules

The TR55 valves are assembled and tested as per the technical specifications of this catalogue.

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

- the valve can be assembled in any position. In order to prevent body deformation and spool sticking mount the product on a flat surface;
- In order to prevent the possibility of water entering the spool control kit, do not use high pressure washdown directly on the valve;
- before painting, ensure that plugs on normally open ports are tightly in place.



### FITTINGS TIGHTENING TORQUE - Nm / lbft

	P inlet port	A and B workports	T and HPCO outlet port
BSP	G 3/8	G 3/8	G 3/8
With rubber sealing (DIN 3869)	40 / 29.5	40 / 29.5	40 / 29.5
With copper or steel and rubber washer	40 / 29.5	40 / 29.5	40 / 29.5
UN-UNF	3/4-16 (SAE 8)	3/4-16 (SAE 8)	3/4-16 (SAE 8)
With O-Ring seal	40 / 29.5	40 / 29.5	40 / 29.5

NOTE – These torques are recommended. Assembly tightening torque depends on many factors including lubrication, coating and surface finish.





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