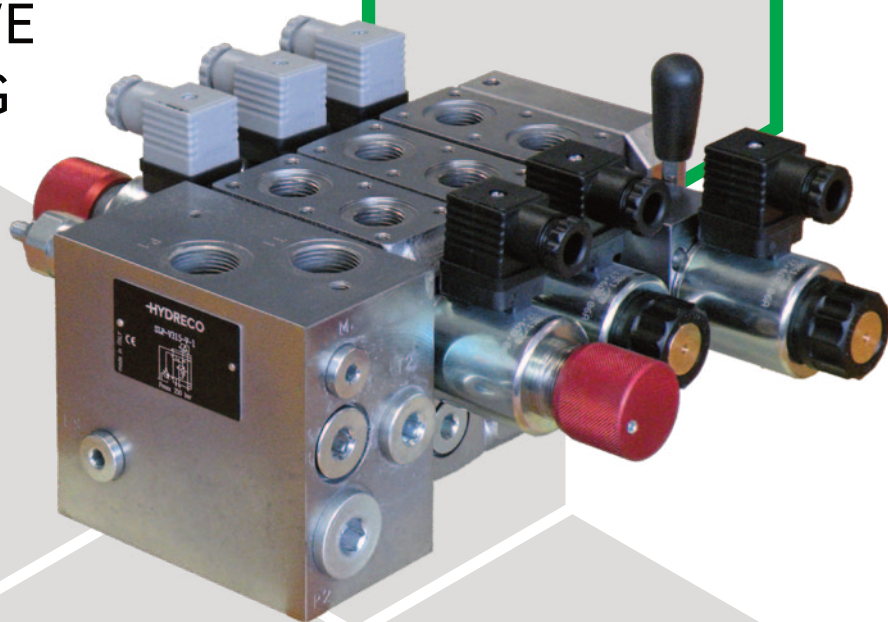


# SLSE

SECTIONAL  
PROPORTIONAL  
DIRECTIONAL VALVE  
FOR LOAD SENSING

315 bar 45 l/min



**INTRODUCTION**

The SLSE is a sectional directional control valve with load sensing feature. It can be assembled with up to 8 working sections (proportional and solenoid valves together).

Each module is equipped with a meter-in compensator that keeps the flow constant, independently from load changes.

Sections with pressure compensator are not influenced by other operated functions, provided that sufficient pump capacity is available. To work correctly, the sum of the flows used at the same time must not overcome the 90% of the inlet flow.

A and B working ports are threaded 1/2" BSP. P1, P2 and T1 ports of the inlet section are threaded 3/4" BSP.

The manual lever override is available as option.

**FLUIDS**

Use mineral oil-based hydraulic fluids HL or HM type, or fluids HFDR type (phosphate esters). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department.

Using fluids at temperatures higher than 80 °C (180 °F) causes the accelerated degradation of seals as well as the fluid physical and chemical properties.

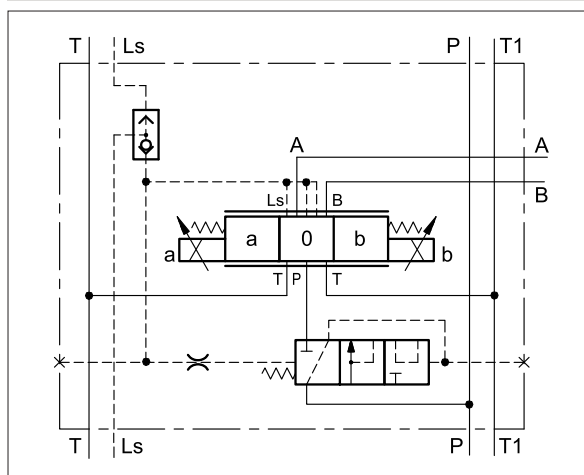
**OPERATING PARAMETERS**

<b>MAXIMUM OPERATING PRESSURE</b>	A - B ports	315 bar	4570 psi
	P1 and P2 ports	315 bar	4570 psi
	T1 port	20 bar	290 psi
<b>FLOW CAPACITY WITH Δp 10 BAR (145 PSI)</b>	A - B ports	45 l/min	12 gpm
	P1 and P2 ports	100 l/min	26 gpm
	T1 port	120 l/min	32 gpm

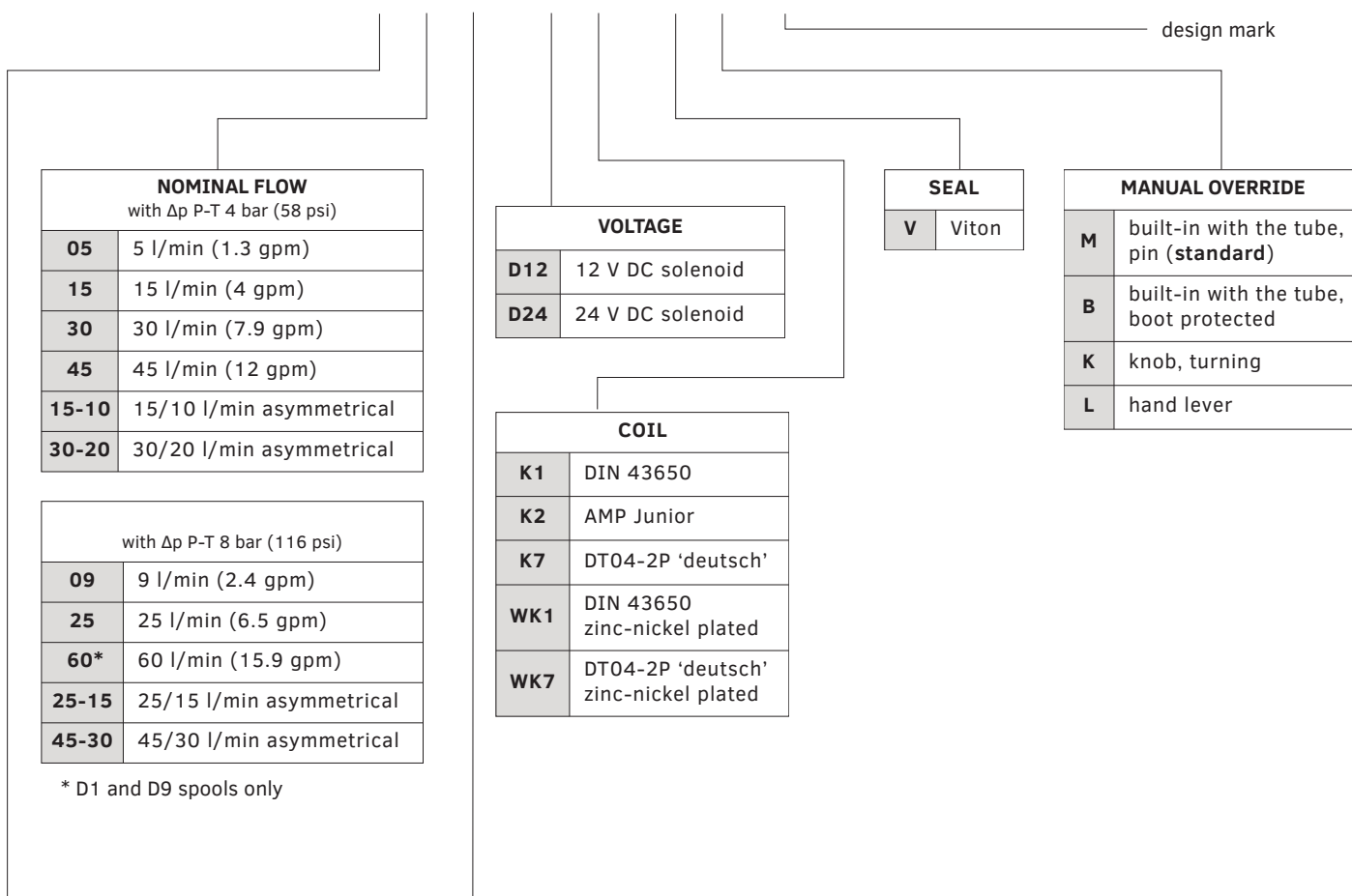
<b>STEP RESPONSE</b>	0 → 100%	50 ms
	100 → 0%	40 ms
<b>HYSTERESIS</b>	% of Q max	< 6%
<b>REPEATABILITY</b>	% of Q max	< ± 2%
<b>VOLTAGE</b>		12V DC 24V DC
<b>COIL CONNECTION</b>		DIN 43650 DT04-2P
<b>WEIGHT</b>	working section	4.5 kg 10 lbs

<b>RANGE TEMPERATURES:</b>	ambient	-20 to +60 °C	-4 to +140 °F
	fluid	-20 to +82 °C	-4 to +180 °F
<b>FLUID VISCOSITY</b>	range	10 - 400 cSt	60 - 1900 SUS
	recommended	25 cSt	120 SUS
<b>FLUID CONTAMINATION</b>		ISO 4406:1999 class 18/16/13	

**WORKING SECTION HYDRAULIC SYMBOL**



# SLSE - ■■■ - ■■ - ■■ - 1



NOMINAL FLOW	
with $\Delta p$ P-T 4 bar (58 psi)	
05	5 l/min (1.3 gpm)
15	15 l/min (4 gpm)
30	30 l/min (7.9 gpm)
45	45 l/min (12 gpm)
15-10	15/10 l/min asymmetrical
30-20	30/20 l/min asymmetrical

with $\Delta p$ P-T 8 bar (116 psi)	
09	9 l/min (2.4 gpm)
25	25 l/min (6.5 gpm)
60*	60 l/min (15.9 gpm)
25-15	25/15 l/min asymmetrical
45-30	45/30 l/min asymmetrical

\* D1 and D9 spools only

VOLTAGE	
D12	12 V DC solenoid
D24	24 V DC solenoid

SEAL	
V	Viton

MANUAL OVERRIDE	
M	built-in with the tube, pin (standard)
B	built-in with the tube, boot protected
K	knob, turning
L	hand lever

COIL	
K1	DIN 43650
K2	AMP Junior
K7	DT04-2P 'deutsch'
WK1	DIN 43650 zinc-nickel plated
WK7	DT04-2P 'deutsch' zinc-nickel plated

FUNCTION	
D	<p>double solenoid 3 position - spring centred</p>
A	<p>single solenoid at side A 2 position - spring return</p>
B	<p>single solenoid at side B 2 position - spring return</p>

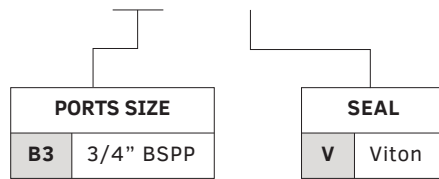
SPOOLS			
	SYMBOL	DESCRIPTION	APPLICATION
C		closed centre	meter in / meter out
A		open centre	
PA		line A	single flow function type D, flows 35 and 40 only
PB		line B	
D1		closed centre, on-off	function type D, flows 60, 45, 15, 25-15 only
D9		open centre, on-off	

**CODE EXAMPLE:**

SLSE - D25C - D12K7 - VM - 1  
SLSE - D25-15D1 - D12K7 - VM-1

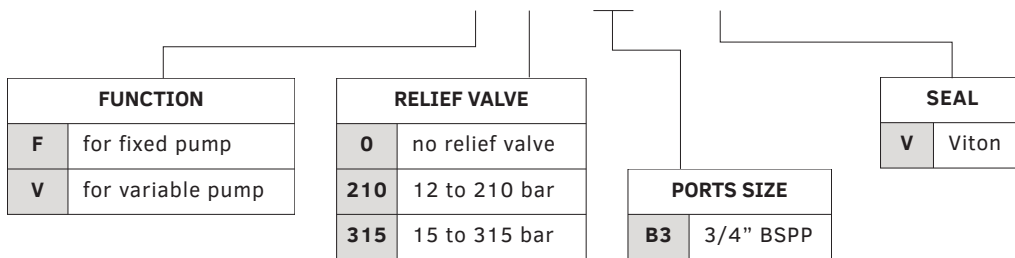
**BASIC INLET SECTIONS**

**SLSX - B3S - V - 1** ————— design mark



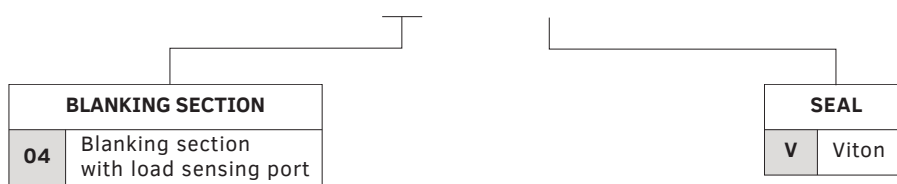
**INLET SECTIONS WITH COMPENSATOR**

**SLSX- ■ ■ - B3S - V - 1** ————— design mark



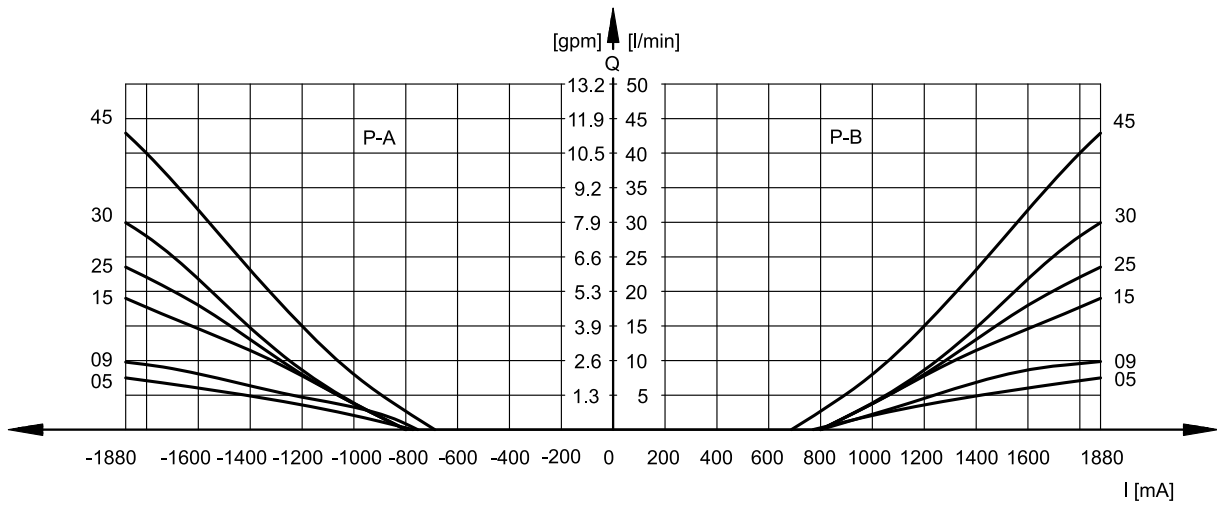
**OUTLET SECTION**

**SLSX - 04S - V - 1** ————— design mark

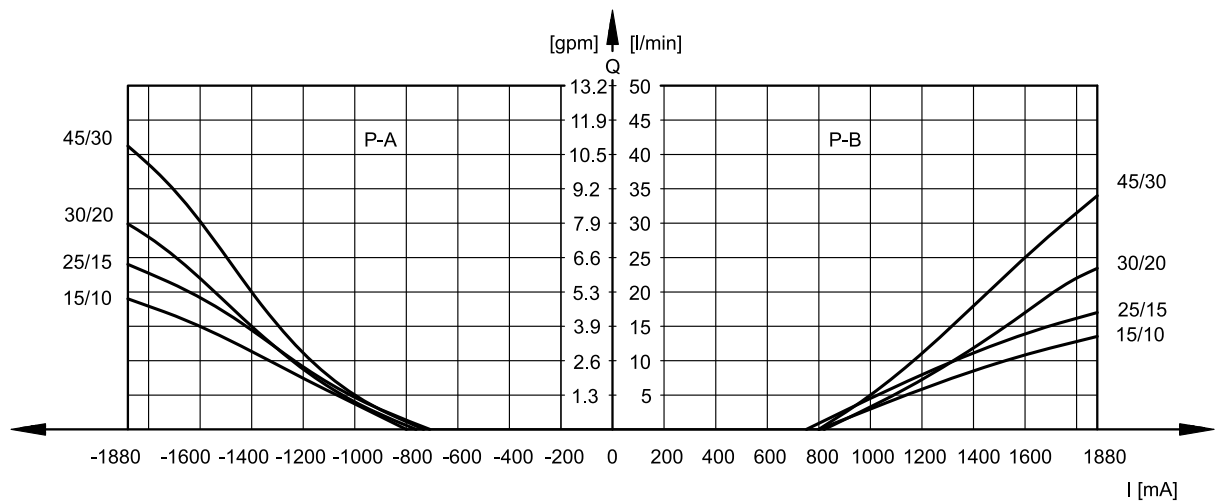


Typical constant flowrate obtained through the embedded compensator, and current with 12V solenoid type (for D24 version the maximum current is 860 mA).

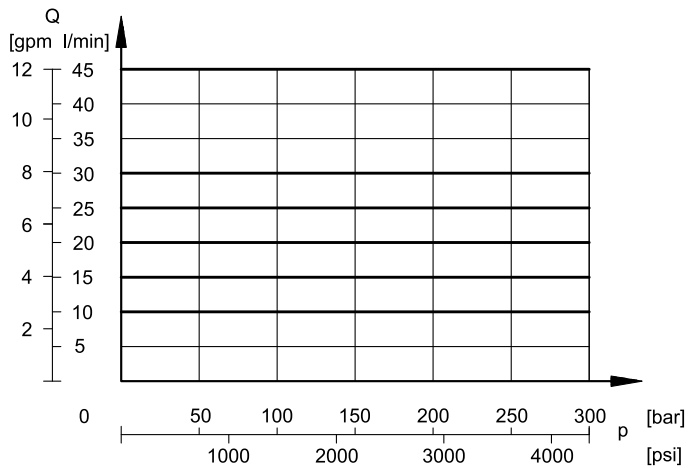
**PRESSURE DROPS  $\Delta p$ -Q - SYMMETRICAL SPOOLS TYPE C, A**



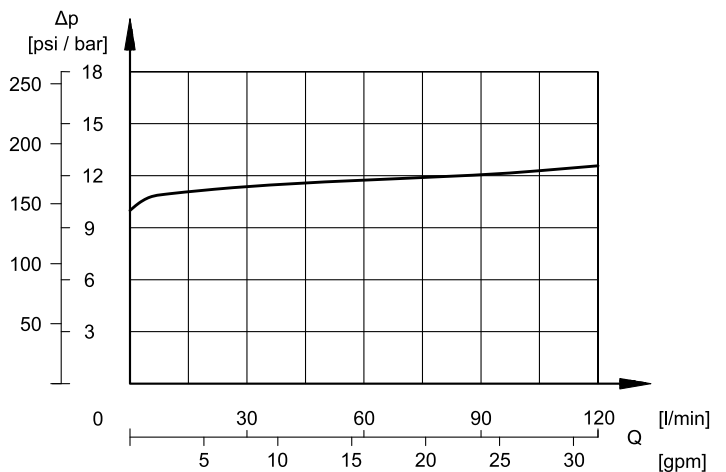
**PRESSURE DROPS  $\Delta p$ -Q - ASYMMETRICAL SPOOLS TYPE C, A**



**FLOWRATE BY PRESSURE**



**PRESSURE DROPS  $\Delta p$ -Q OF INLET SECTIONS F AND V**



The proportional solenoid consists of tube and coil. The coil is mounted on the tube and fastened to it by a ring retainer.

The coils can be indexed to any position allowing for convenient location of the connector.

<b>DUTY CYCLE</b>	100%	
<b>ELECTROMAGNETIC COMPATIBILITY (EMC)</b>	according to European directive 2014/30/EU	
<b>PROTECTION CLASS FOR INSULATION</b>	copper wire	class H (180 °C)
	coil	class F (155 °C)

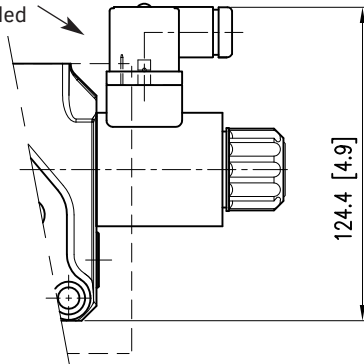
	Nominal voltage [V]	Resistance at 20 °C [Ω]	Current at 20 °C. [A]	Coil codes for spare parts				
				<b>K1</b>	<b>K2</b>	<b>K7</b>	<b>WK1</b>	<b>WK7</b>
<b>D12</b>	12	4.4	1.88	1903080	1903100	1902940	1903590	1903580
<b>D24</b>	24	18.6	0.86	1903081	1903101	1902941	1903591	1903581

Declared IP degrees are intended according to EMC 2014/30/EU, only for both valve and connectors of an equivalent IP degree, installed properly.

WK1 and WK7 coils reach a better IP degree than standard coils thanks to the zinc-nickel plating and to some constructive measures. The valves with these coils have a salt spray resistance up to 600 hours (test performed according to UNI EN ISO 9227 and assessment test performed according to UNI EN ISO 10289).

**K1**

DIN connector  
 always included

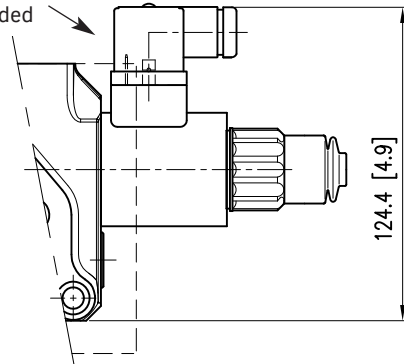


**DIN 43650 (EN 175301-803)**

IP degree of electrical connection: IP65  
 IP degree of whole valve: IP 65

**WK1**

DIN connector  
 always included



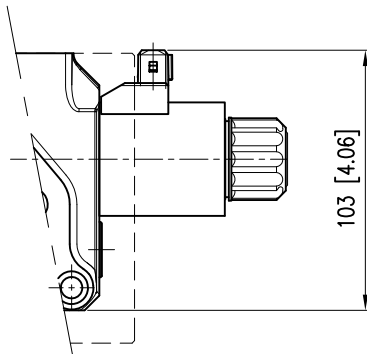
**DIN 43650 (EN 175301-803)**

Zinc-nickel plated coil.

IP degree of electrical connection: IP66  
 IP degree of whole valve: IP66

The pin for manual override is boot-protected (code B).

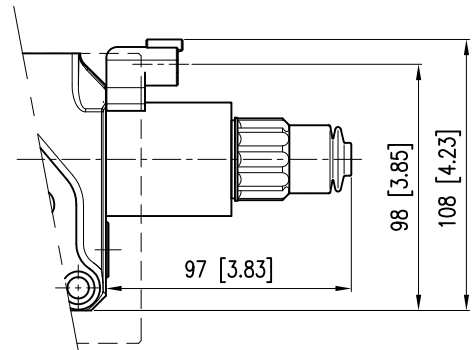
**K2**



**AMP Junior**

IP degree of electrical connection: IP65/IP67  
 IP degree of whole valve: IP 65

**WK7**



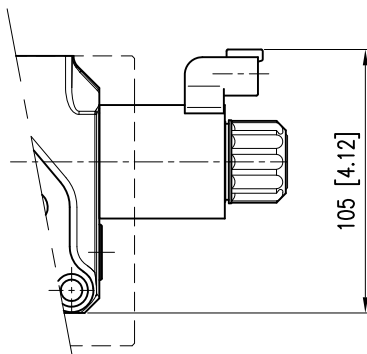
**DEUTSCH DT04 MALE**

Zinc-nickel plated coil.

IP degree of electrical connection: IP66/IP68/IP69  
 IP degree of whole valve: IP66/IP68/IP69  
 IP degree according to ISO 20653: IP69K

The pin for manual override is boot-protected (code B).

**K7**

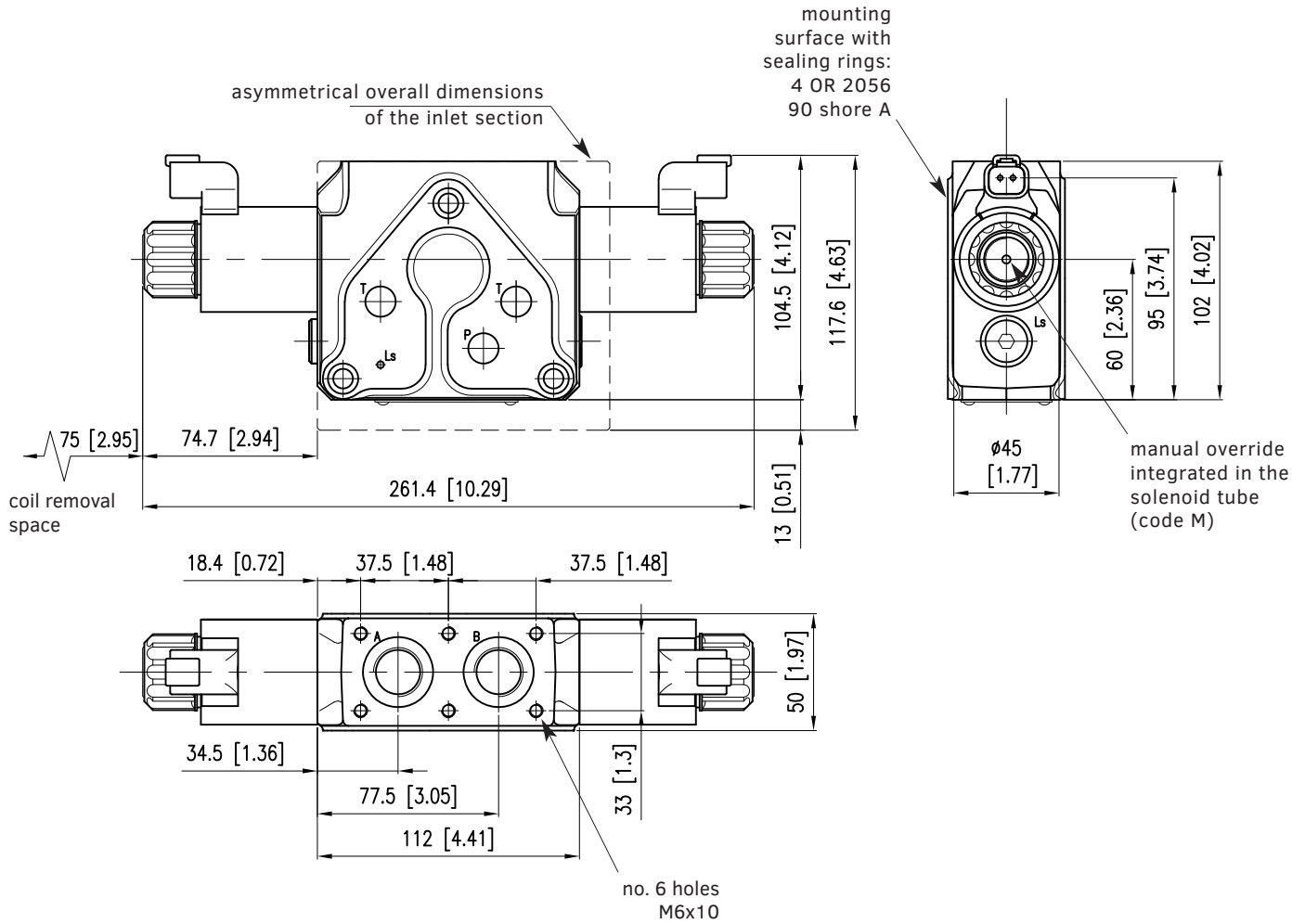


**DEUTSCH DT04 MALE**

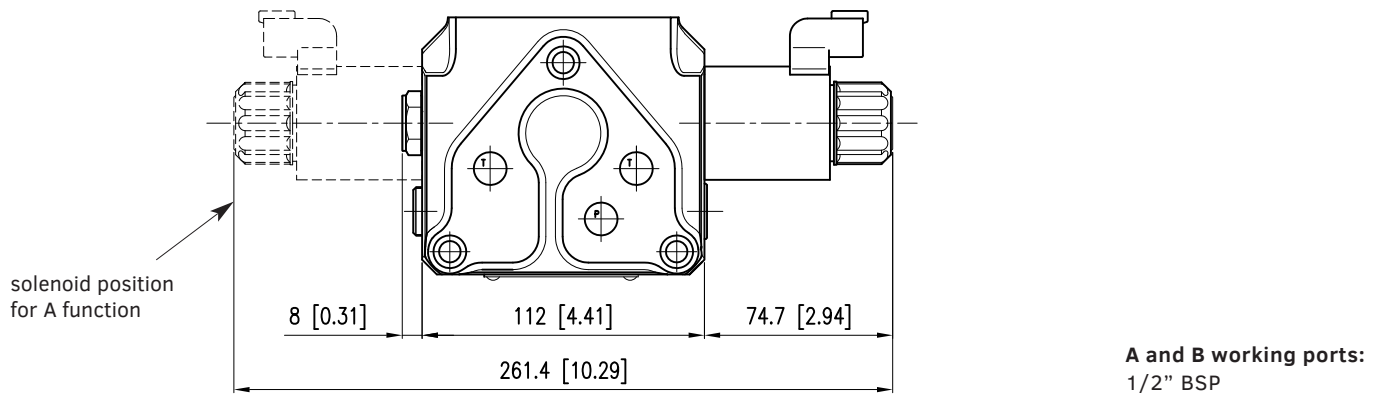
IP degree of electrical connection: IP65/IP67  
 IP degree of whole valve: IP 65

**SLSE WORKING SECTION - DOUBLE SOLENOID (K7 COIL)**

dimensions in mm [in]



**SLSE WORKING SECTION - SINGLE SOLENOID SIDE B (K7 COIL)**



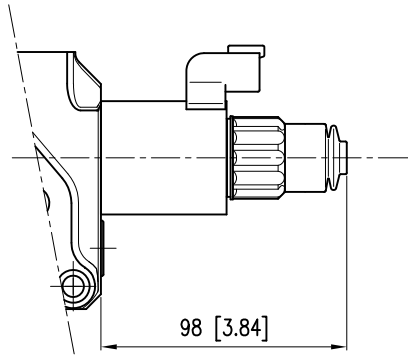


The standard valve has override pins integrated in the tube (code M). The operation of this control must be executed with a suitable tool, carefully not to damage the sliding surface.

Further manual overrides are available, entering the proper code in the model number.

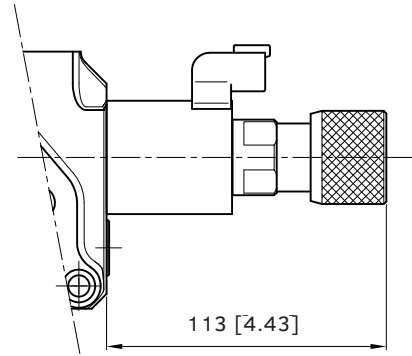
**VERRIDE PINS INTEGRATED THE TUBE, BOOT PROTECTED**

Code B

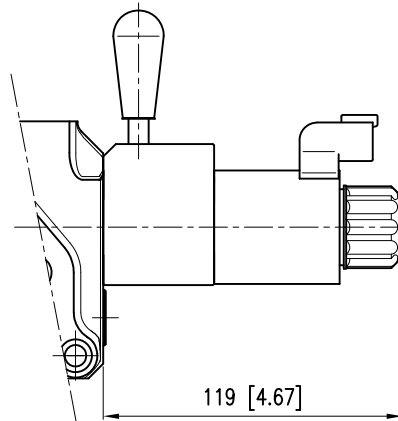
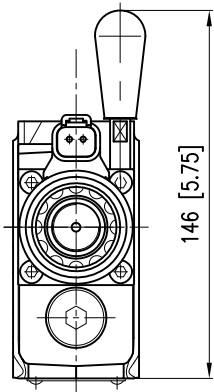


**KNOB, TURNING**

Code K



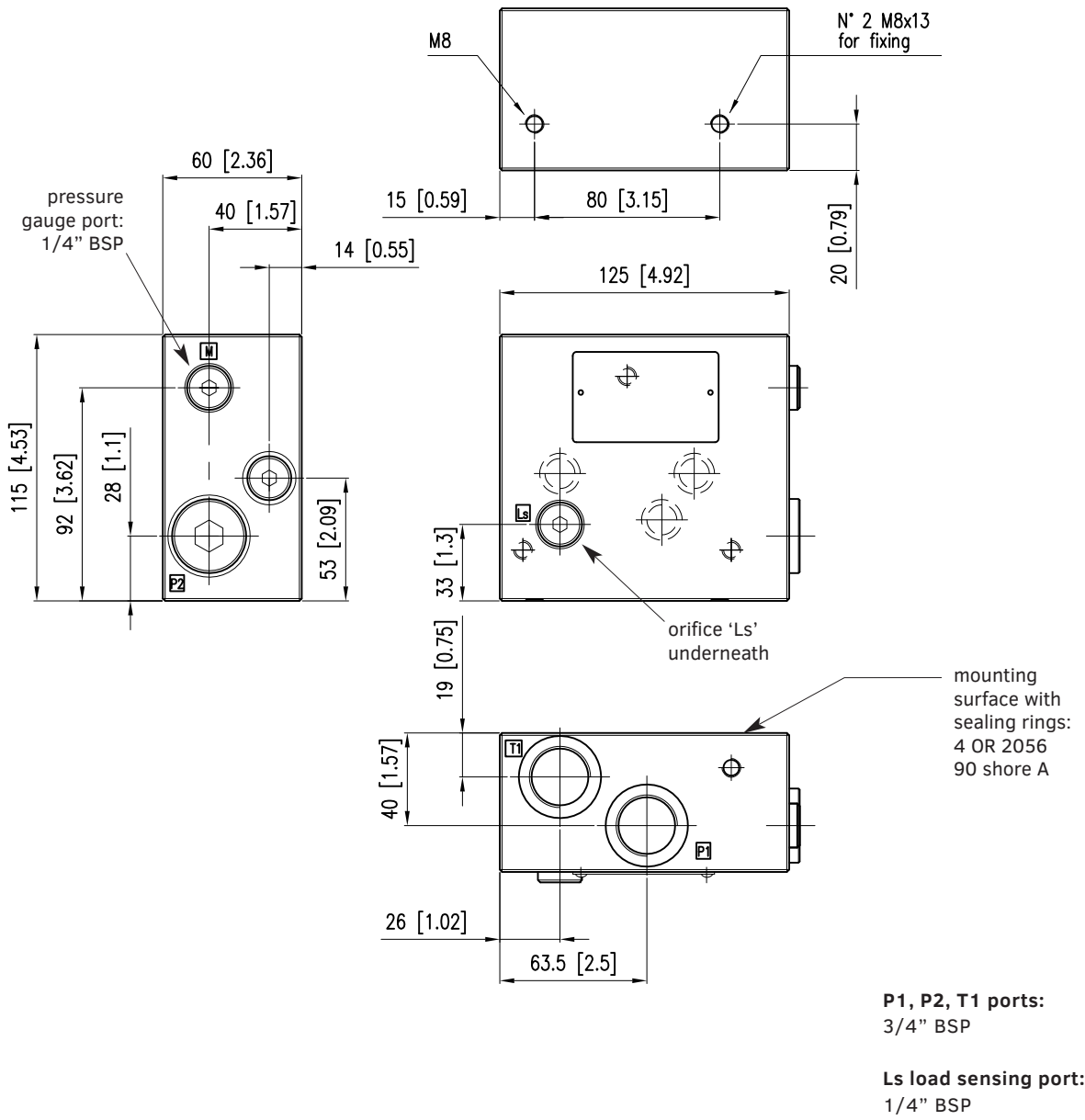
**HAND LEVER: Code L**



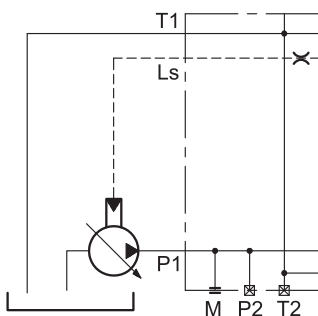
Valves with 'WK' coils are equipped with the boot for solenoid tube protection.

**BASIC INLET SECTION SLSX - B3S - V - 1**

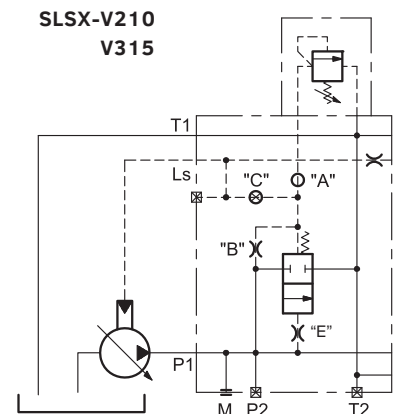
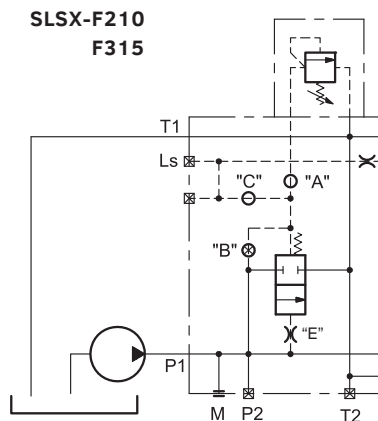
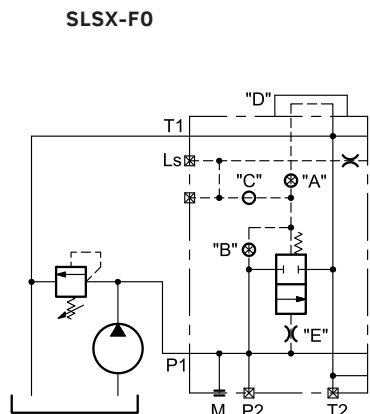
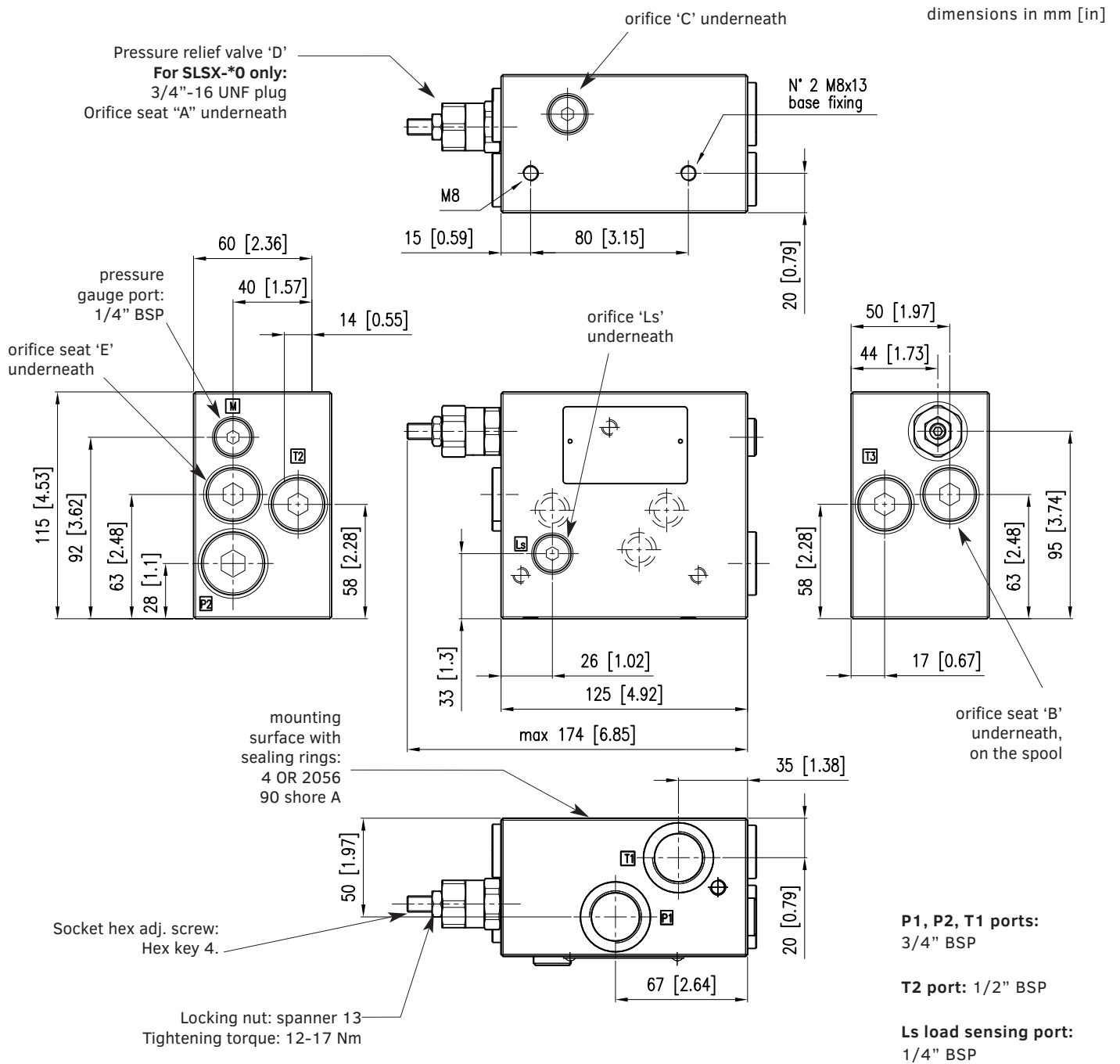
dimensions in mm [in]



**SLSX-B3S-V-1**

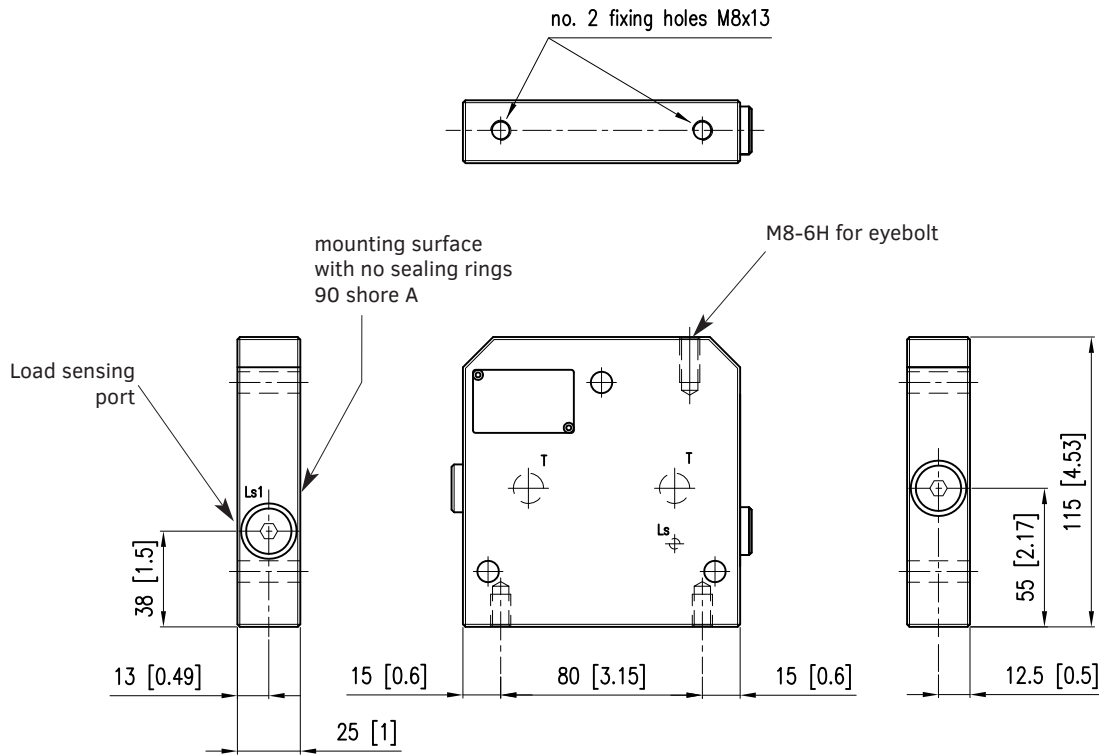


**INLET SECTION WITH COMPENSATOR SLSX -\*\*\*\*-B3S - V - 1**



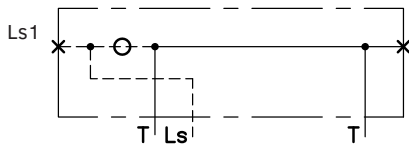
**OUTLET SECTION SLSX - 04S - V - 1**

dimensions in mm [in]

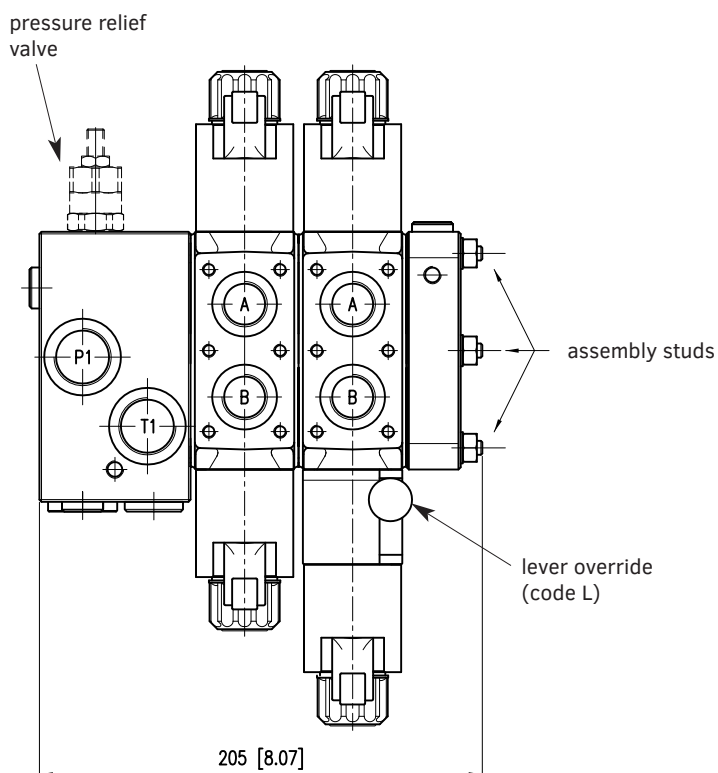
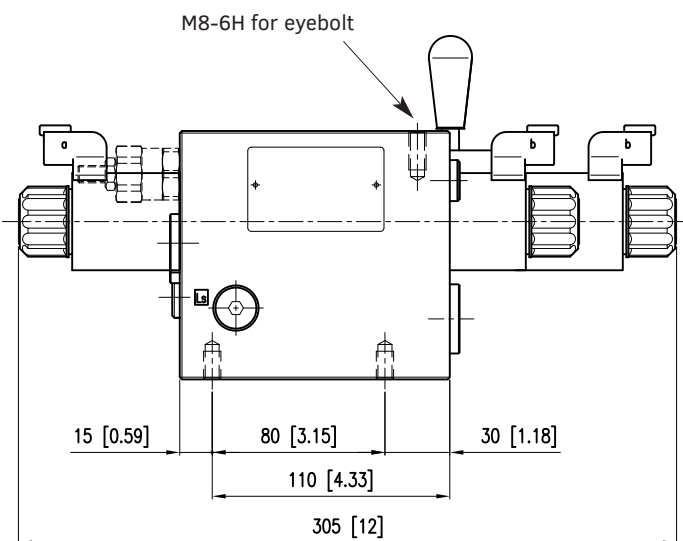
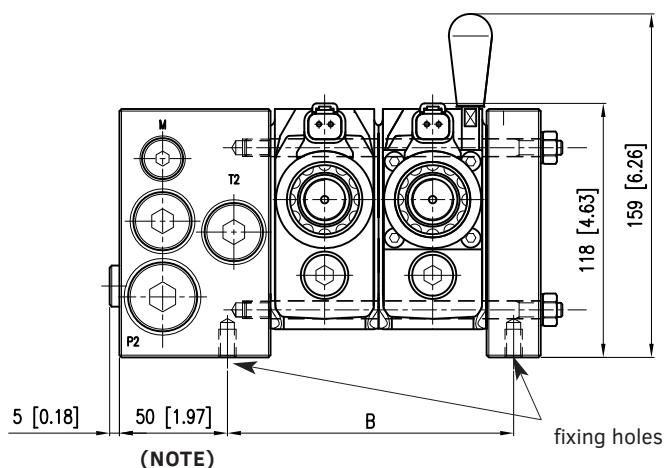


**Ls load sensing port:**  
 1/4" BSP

**SLSX-04S**



dimensions in mm [in]



Sectional valves	A (NOTE)	B
2	212	132,5
3	262	182,5
4	312	232,5
5	362	282,5
6	412	332,5
7	462	382,5
8	512	432,5

**NOTE:** Please consider this dimension 10 mm shorter for SLSX-B3S-V-1.

**ASSEMBLY KIT**

The assembly kit includes

- no. 3 studs,
- no. 3 self locking nuts
- no. 3 washers

All parts zinc-coated.

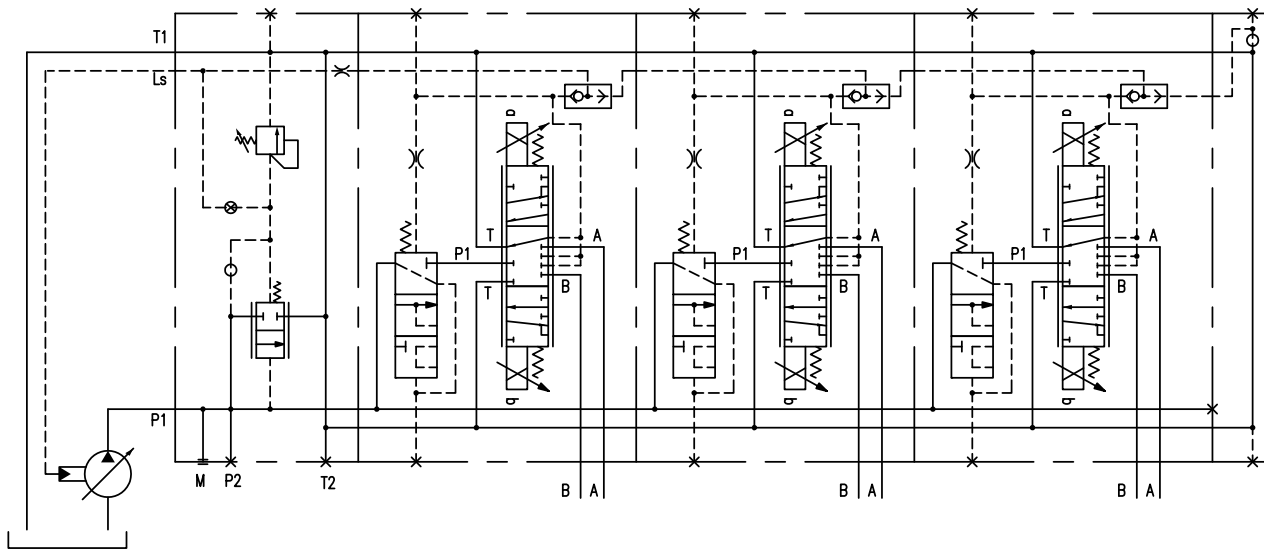
Please use these codes to order the kit:

Sectional valves	Code
2	3404150010
3	3404150011
4	3404150012
5	3404150013
6	3404150014
7	3404150015
8	3404150016

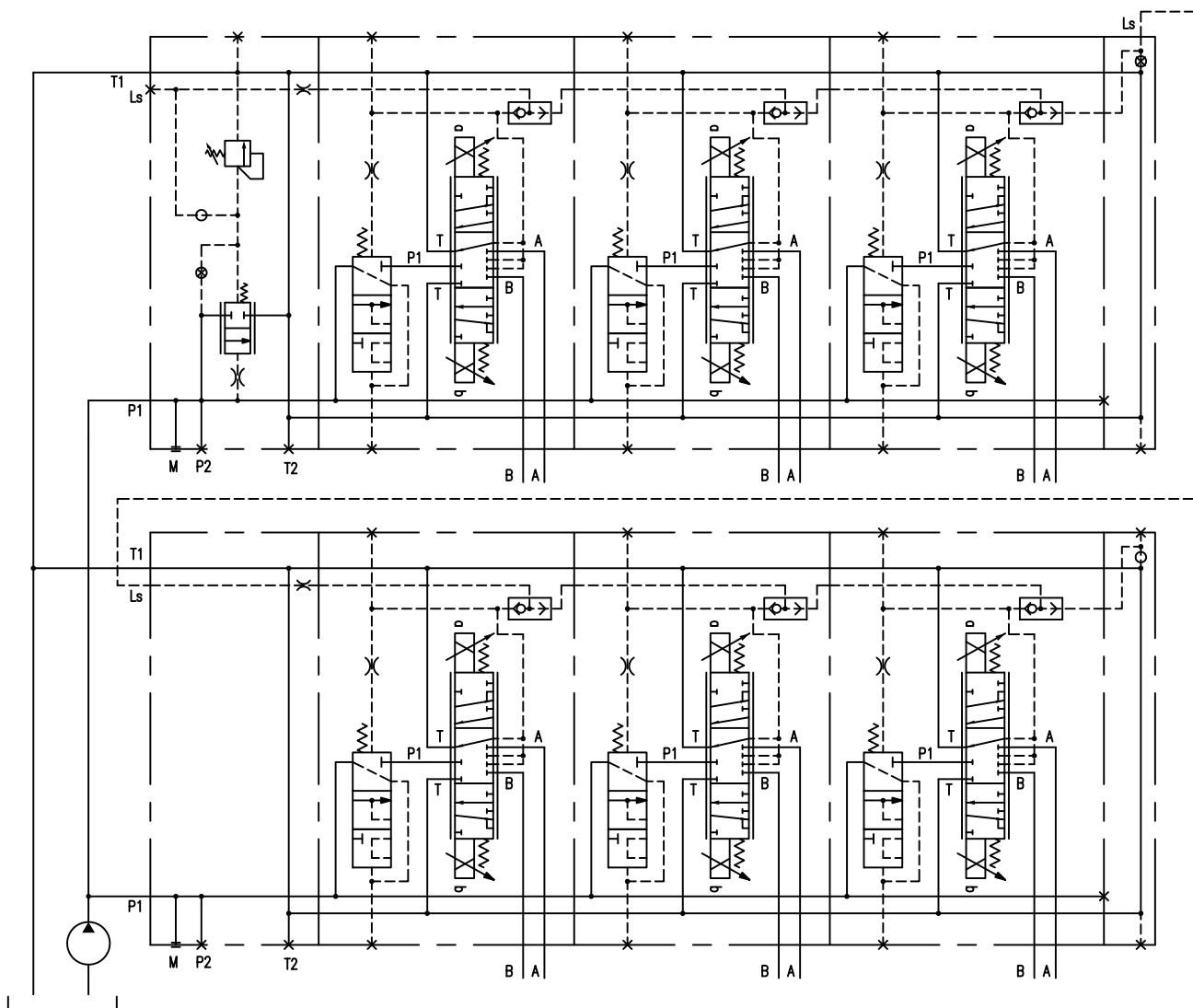
Tightening torque: 25 Nm

**CIRCUIT EXAMPLES**

SLSE sectional assembly with pressure relief valve for variable displacement pumps.



Two SLSE sectional assemblies linked together by parallel connection for the pump and by serial connection for LS port.



### IP DEGREE TIPS

The technical reference standard for IP degree is IEC 60529, which classifies and rates the degree of protection provided by equipments and electrical enclosures against intrusions.

The first digit (6) concerns the protection from solid particles (body parts to dust).

The second digit of the IP rating concerns the liquid ingress protection. It indicates three different types of atmospheric agents from which protection is provided:

Values from 1 to 6 → water jets.

Values 7 and 8 → immersion.

Value 9 → high pressure and high temperature water jets.

This means that IP66 covers all the lower steps, rating IP68 covers IP67 but not IP66 and lower. Instead, IP69 does not cover any of them. Whether a device meets two types of protection requirements it must be indicated by listing both separated by a slash. (E.g. a marking of an equipment covered both by temporary immersion and water jets is IP66/IP68).

### INSTALLATION

These valves can be installed in any position without impairing correct operation.

Ensure that there is no air in the hydraulic circuit.

Supported by a worldwide network



## CONTACT INFORMATION

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### APAC

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