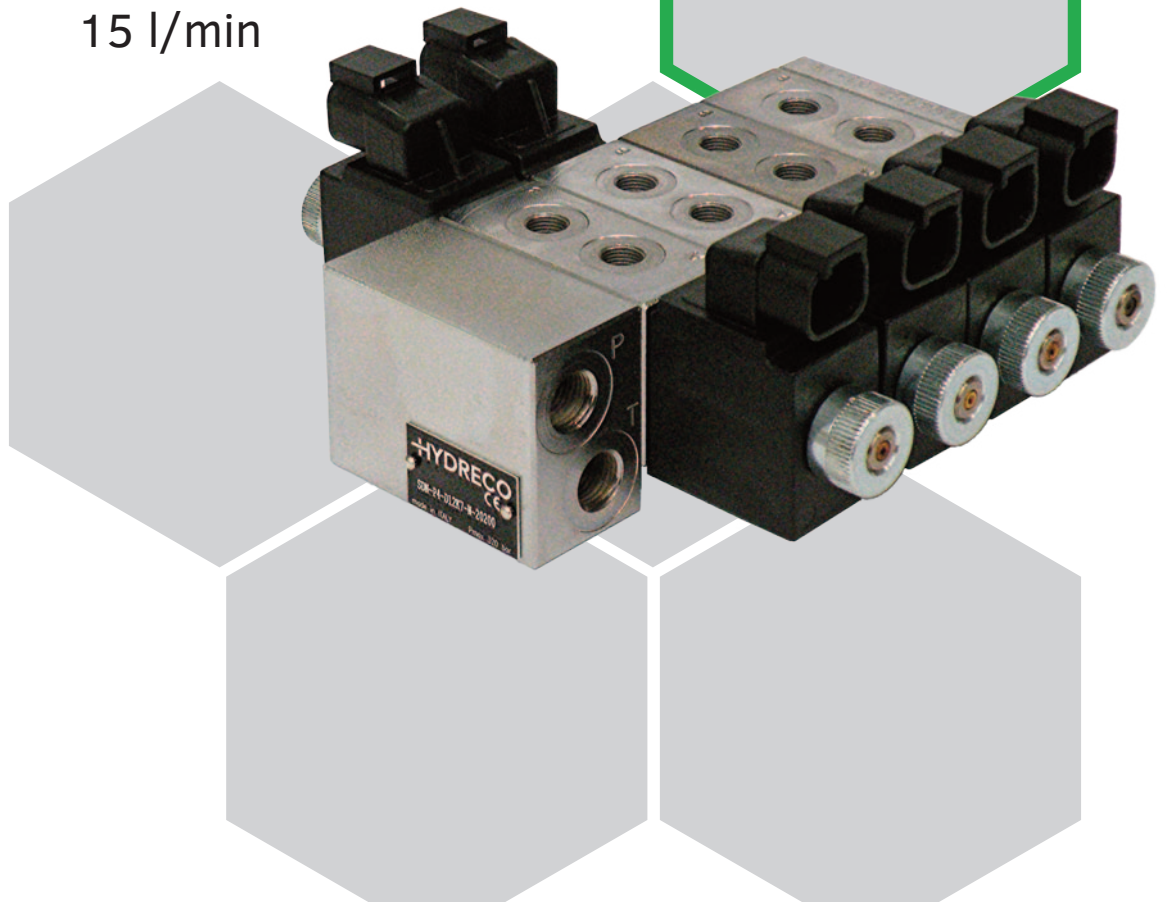




# SDN

## SECTIONAL DIRECTIONAL VALVE

350 bar    15 l/min



# TECHNICAL CATALOGUE

### INTRODUCTION

SDN are sectional directional control valves. They can be assembled in parallel with up to 8 working sections.

SDN assemblies are suitable for compact applications, mainly in mobile industries and in mini-power packs.

The directional valves have a thickness of 28 mm and 1/8" BSP connections on working ports.

Inlet elements have P and T ports 1/4" BSP size.

### FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals (standard - code N).

For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our engineering 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.

From a safety standpoint, temperatures above 55 °C (130 °F) are not recommended.

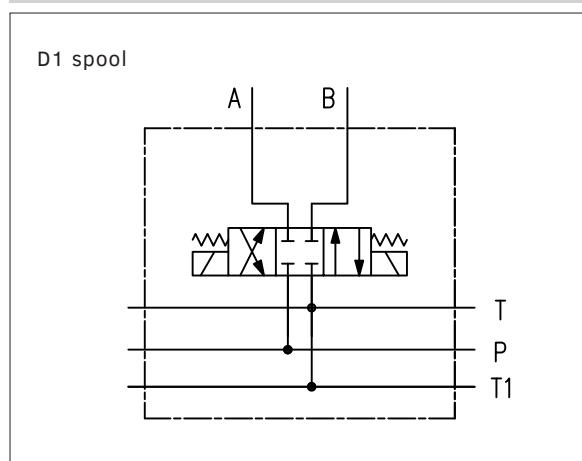
### SDN OPERATING PARAMETERS

<b>MAXIMUM OPERATING PRESSURE</b>	P - A - B ports	350 bar	5000 psi
	T and T1 ports	280 bar	4000 psi
<b>FLOW CAPACITY</b>	parallel	15 l/min	4 gpm

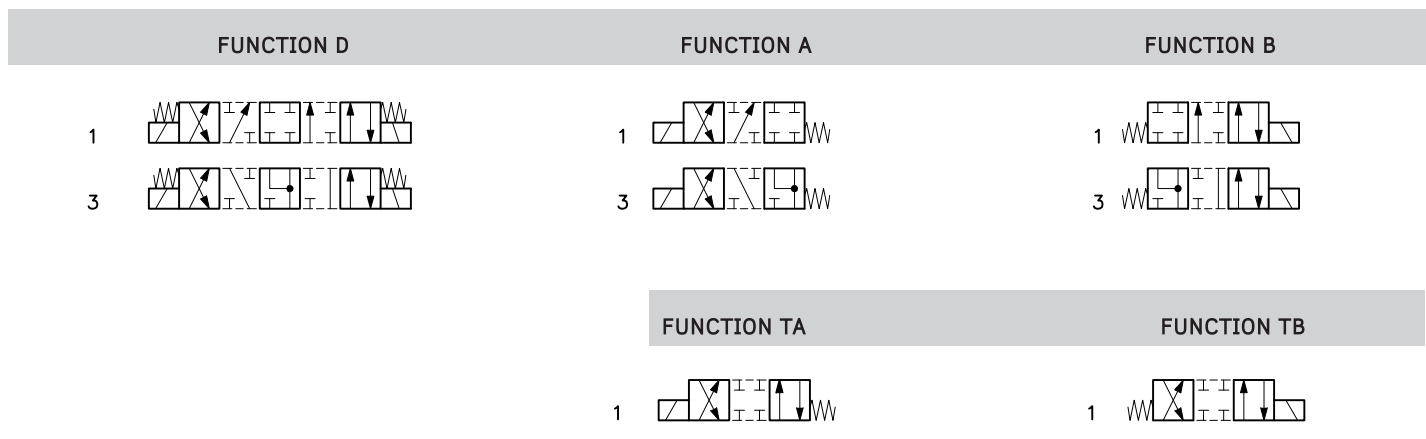
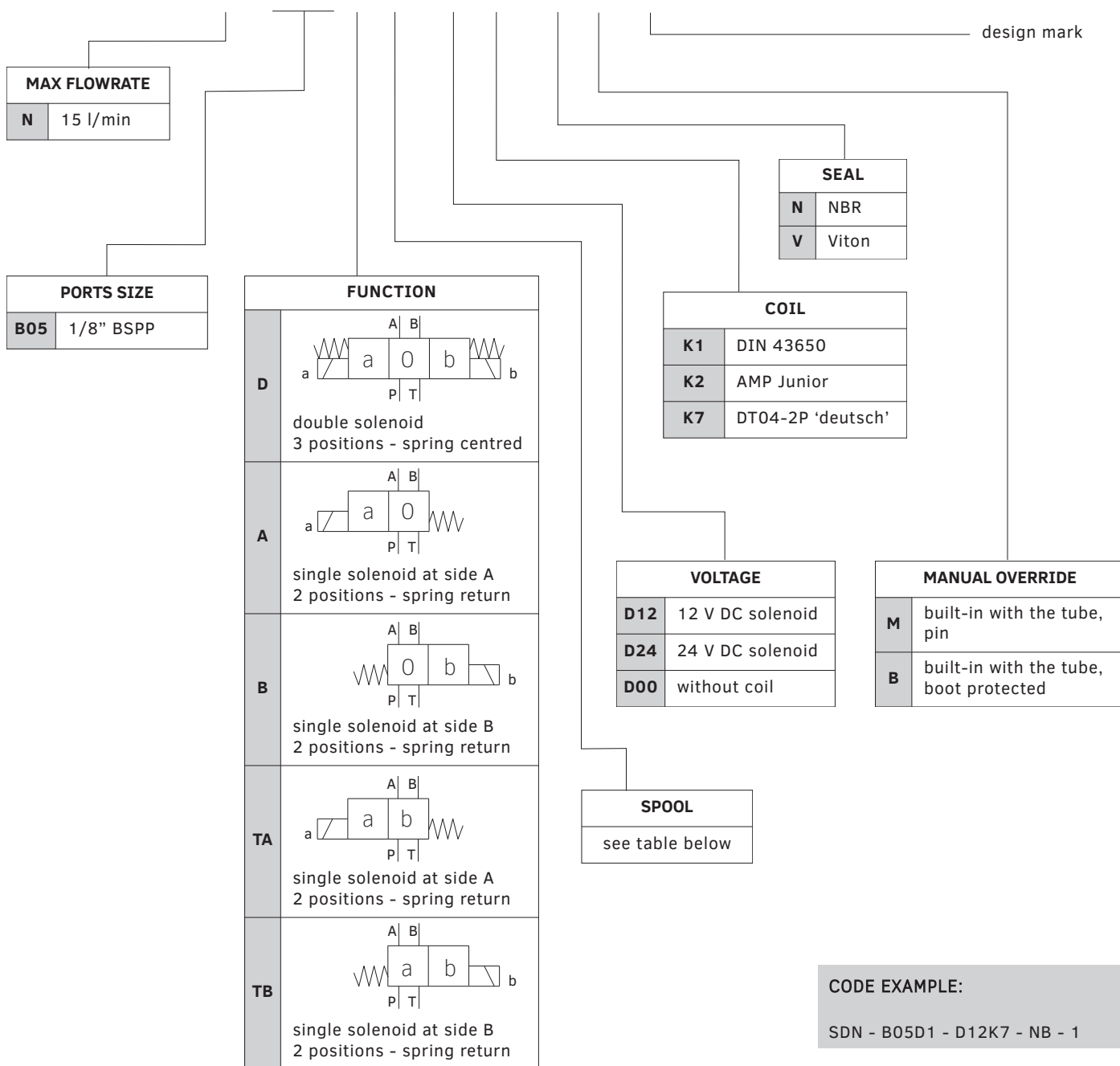
<b>STEP RESPONSE</b>	0 → 100%	25...75 ms
	100 → 0%	15...25 ms
<b>VOLTAGE</b>		12V DC 24V DC

<b>RANGE TEMPERATURES:</b>	ambient	-20 to +50 °C	-4 to +122 °F
	fluid	-20 to +80 °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 20/18/15	

### WORKING SECTION HYDRAULIC SYMBOL

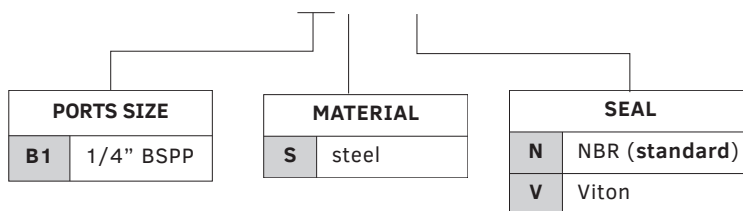


# SDN - B05 ■ ■ - ■ ■ - ■ ■ - 1



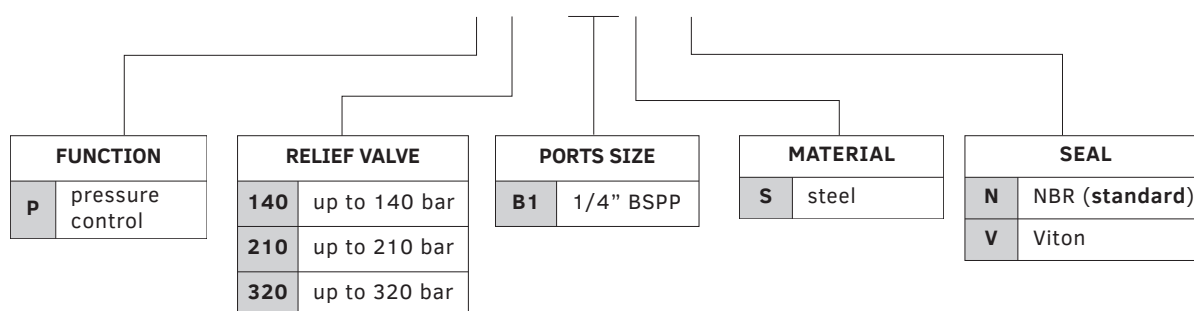
INLET SECTIONS: BASIC

**SDN - B1S - [ ] - 1** ————— design mark



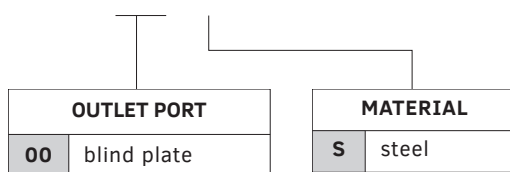
INLET SECTIONS: PRESSURE CONTROL

**SDN - P [ ] - B1S - [ ] - 1** ————— design mark



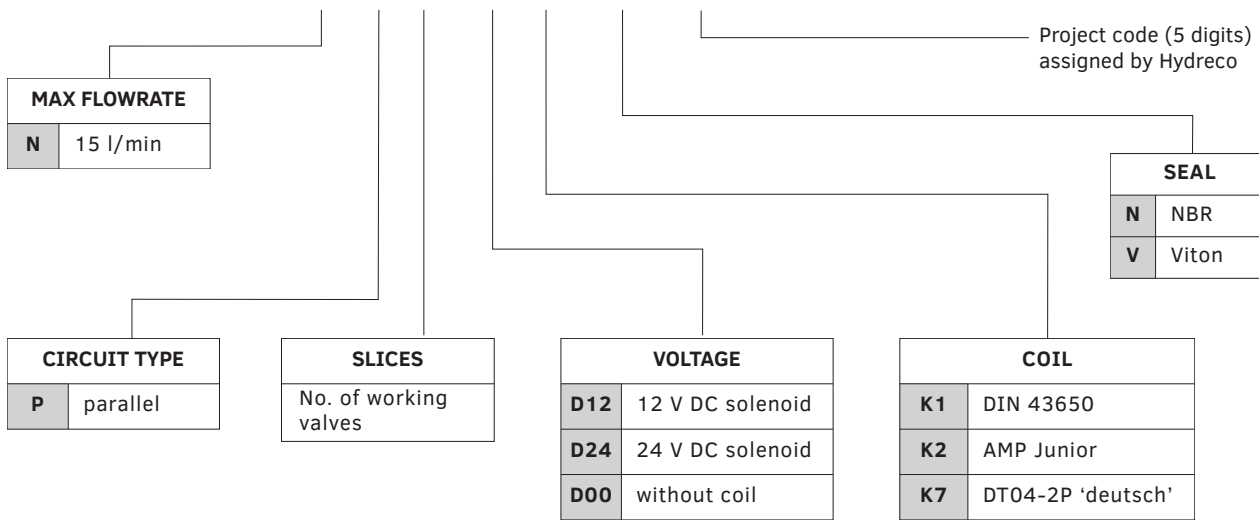
OUTLET SECTION

**SDN - 00-S-1** ————— design mark



ASSEMBLED VALVE

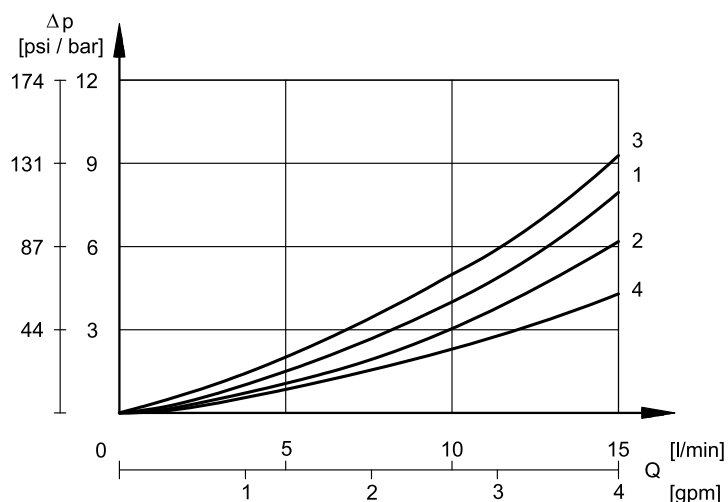
**SDN - P** ■ - ■ ■ - ■ - ■



**CODE EXAMPLE:**

SDN - P4 - D12K7 - N - 20520

**PRESSURE DROPS  $\Delta p$ -Q**



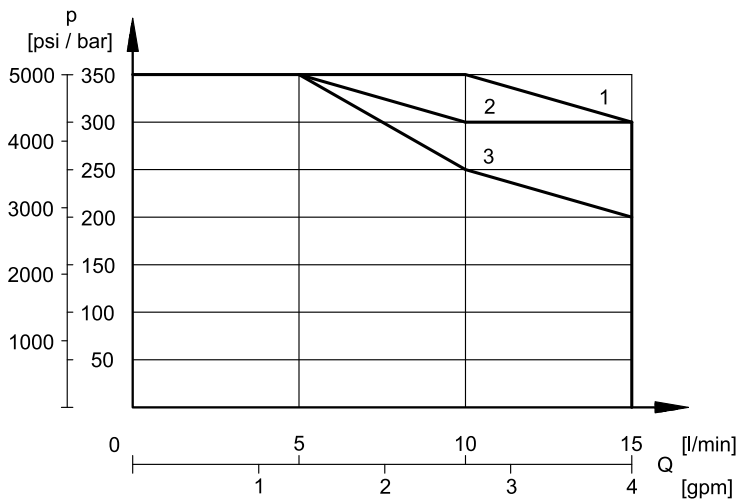
TYPE	CURVE			
	P→A	P→B	A→T	B→T
D1, A1, B1	1	1	2	2
D3, A3, B3	3	3	4	4
TA1, TB1	1	1	2	2

Please refer to curve 2 for pressure drops of D3 spool in float position.

**PERFORMANCE CURVES**

The curves define the flow rate operating fields according to the valve pressure. The values have been obtained according to ISO 6403 standards, with solenoids at rated temperature and supplied with voltage equal to 90% of the nominal voltage.

Values obtained with mineral oil, viscosity 36 cSt, temperature 50 °C and filtration according to ISO 4406:1999 class 18/16/13.



D1	1
D3	3
TA1, TB1	2

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

Use coil codes in the table below to order spare parts.

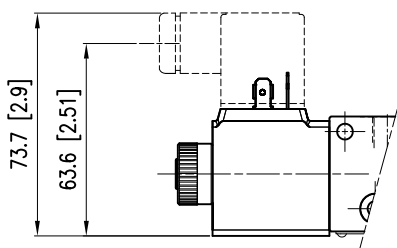
<b>DUTY CYCLE</b>		100%
<b>ELECTROMAGNETIC COMPATIBILITY (EMC)</b>		according to European directive 2014/30/EU
<b>PROTECTION CLASS FOR INSULATION</b>	copper wire	class H (180 °C)
	coil	class H (180 °C)

	Absorbed power [W]	Resistance at 20 °C [Ω]	Current at 20 °C. [A]	Coil codes for spare parts		
				K1	K2	K7
<b>SDN WORKING SECTION</b>						
<b>D12</b>	21.8	6.6	1.8	1903710	1903720	1903730
<b>D24</b>	21.6	27	0.9	1903711	1903721	1903731

### ELECTRICAL CONNECTIONS AND IP DEGREES

Declared IP degrees are intended according to EMC 2014/30/EU, only for both valve and connectors of an equivalent IP degree, installed properly. Mating connectors are not included in solenoid valves delivery. Connectors for K1 coils can be ordered separately.

#### SDN - K1



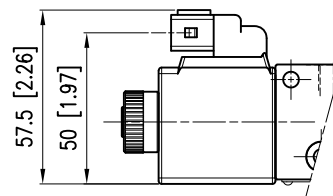
#### DIN 43650 (EN 175301-803)

Mating connectors type ISO 4400 / DIN 43650 (EN 175301-803).

IP degree of electrical connection: IP65

IP degree of whole valve: IP 65

#### SDN - K2

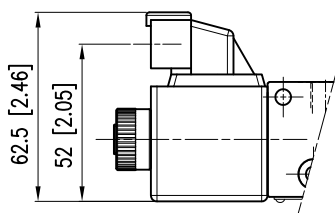


#### AMP Junior

IP degree of electrical connection: IP65

IP degree of whole valve: IP65

#### SDN - K7



#### DEUTSCH DT04 MALE

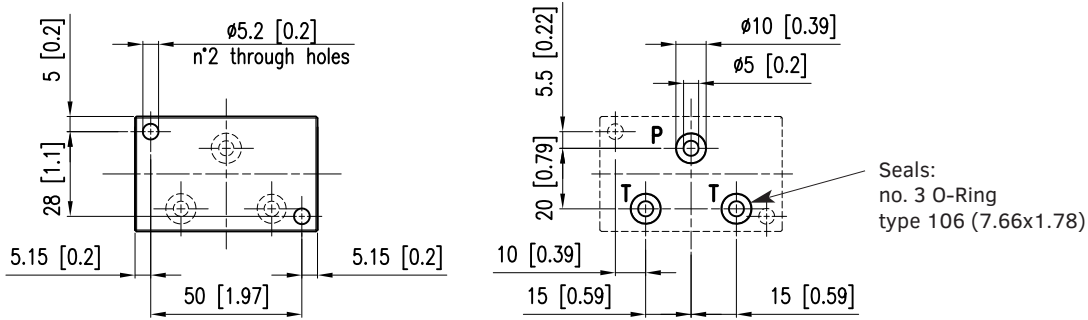
IP degree of electrical connection: IP65/IP69

IP degree of whole valve: IP65

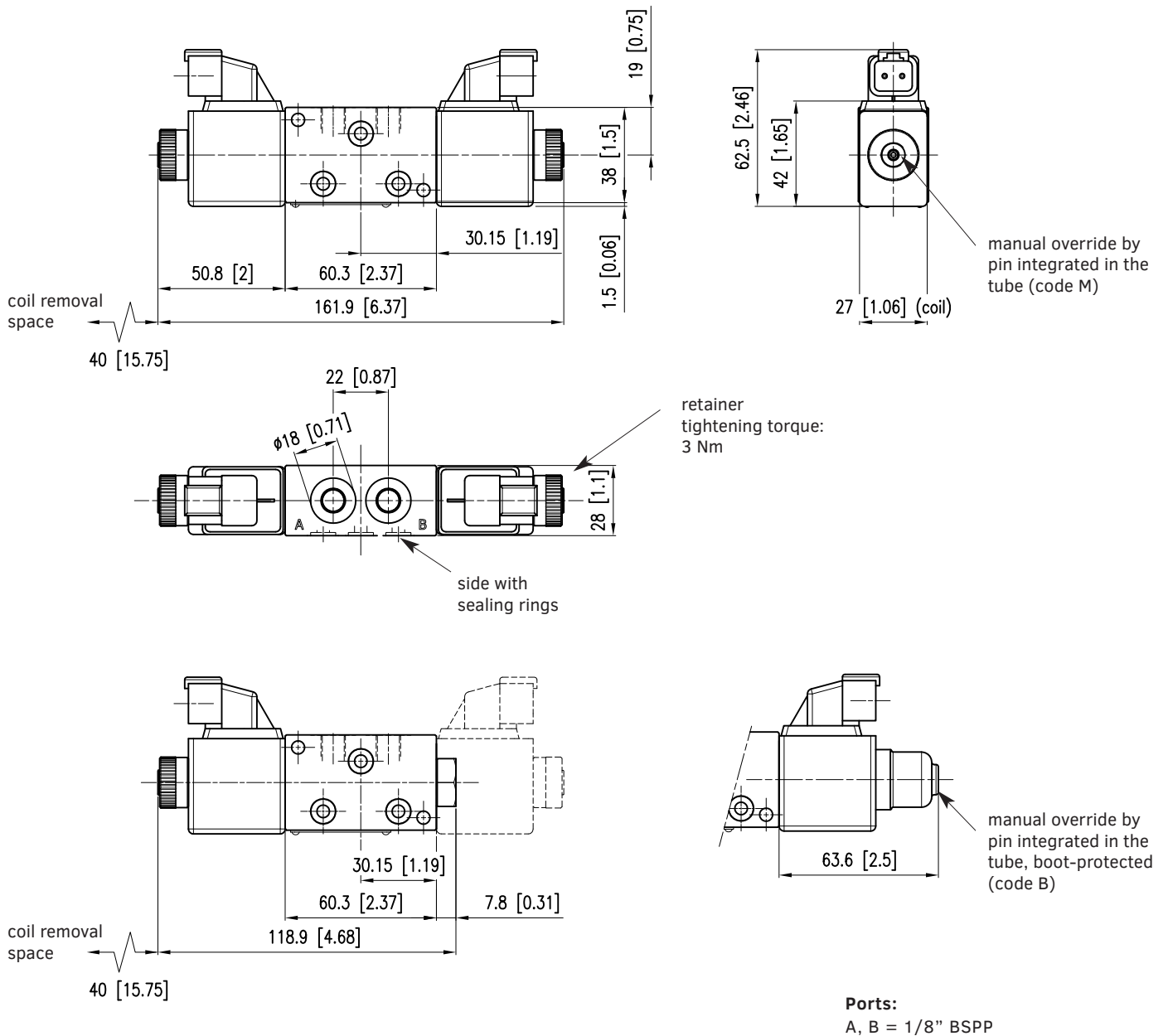
IP degree according to ISO 20653: IP69K

SECTIONAL MOUNTING INTERFACE

dimensions in mm [in]

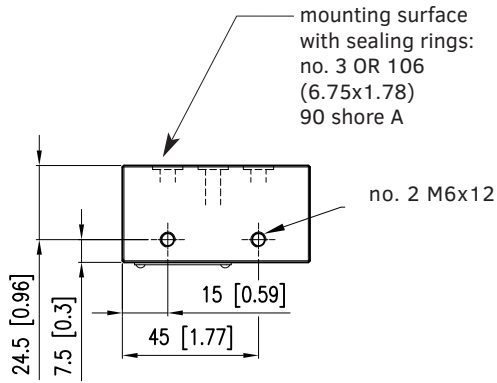
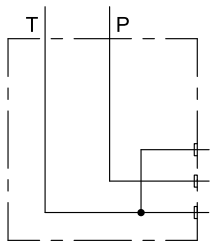


SDN - WORKING SECTION (K7 COIL)

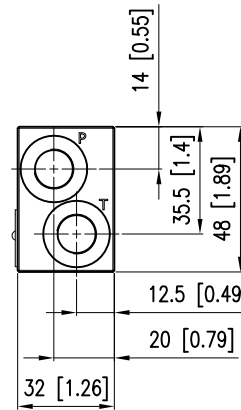
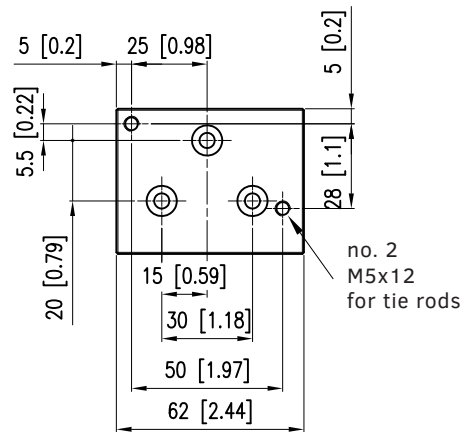




**BASIC INLET SDN-B15S-\*-1**

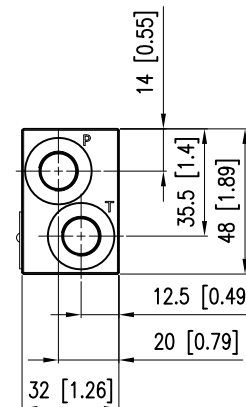
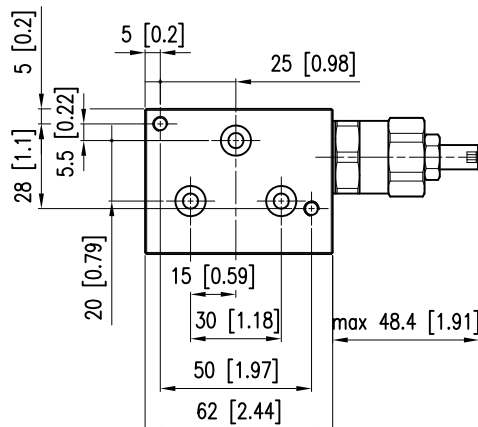
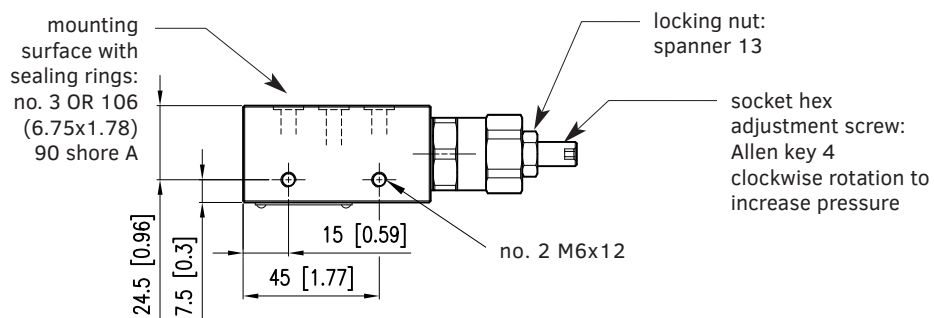
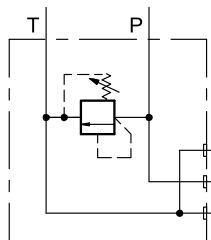


dimensions in mm [in]



Ports: P, T = 1/4" BSPP

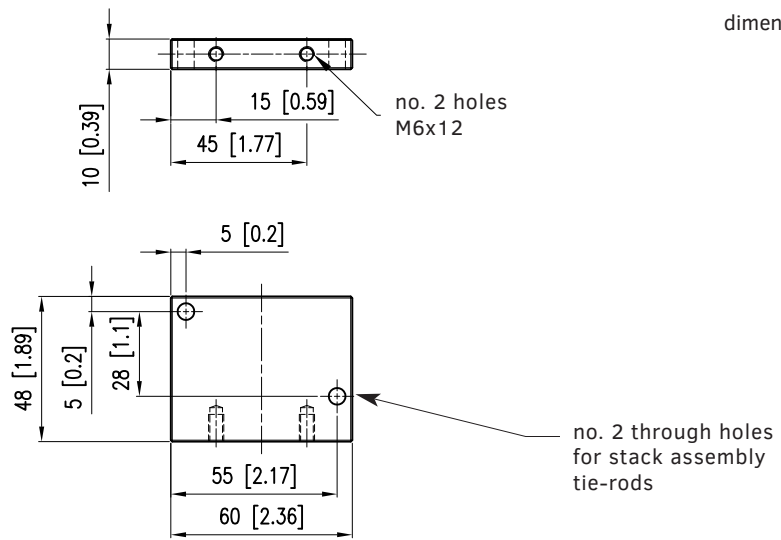
**INLET WITH PRESSURE CONTROL VALVE SDN-P\*\*\*-B15S-\*-1**



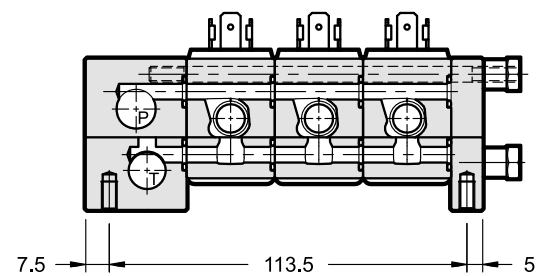
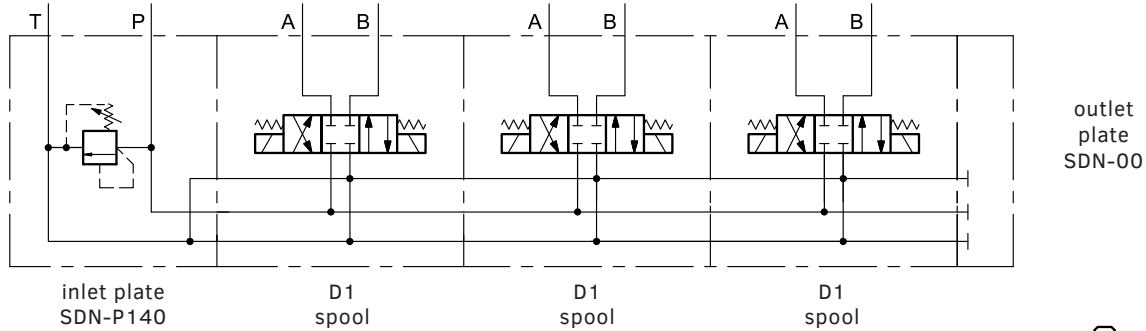
Ports: P, T = 1/4" BSPP

**NOTE:** please refer to page 10 for missing dimensions of the mounting interface

**OUTLET SECTION 00: BLIND**



**CIRCUIT EXAMPLE: PARALLEL CIRCUIT**



**INSTALLATION**

The stacked valve assembly can be installed in any position without impairing the proper functioning.

Fixing kits are available. Please contact our engineering department for dimensional check and ordering codes.

Ensure that there is no air in the hydraulic circuit.

#### 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).

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## CONTACT INFORMATION

### EMEA

<b>GERMANY</b>	Hydreco Hydraulics GmbH, Straelen (NRW)	+49 283494303-41	info-de@hydreco.com
<b>ITALY</b>	Hydreco Hydraulics Italia Srl, Vignola (MO)	+39 059 7700411	sales-it@hydreco.com
<b>ITALY</b>	Hydreco Hydraulics Italia Srl, Parma (PR)	+39 0521 1830520	sales-it@hydreco.com
<b>ITALY</b>	Hydreco Srl, San Cesario S/P (MO)	+39 059 330091	cylinders@hydreco.com
<b>NORWAY</b>	Hydreco Hydraulics Norway AS, Nittedal	+47 22909410	post-no@hydreco.com
<b>UK</b>	Hydreco Hydraulics Ltd, Poole, Dorset	+44 (0) 1202 627500	info-uk@hydreco.com

### AMERICAS

<b>NORTH/LATIN</b>	Hydreco Inc / Continental Hydraulics Inc, Shakopee (MN)	+1 952 895 6400	sales@conthyd.com
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### APAC

<b>AUSTRALIA</b>	Hydreco Hydraulics Pty Ltd, Seven Hills (NSW)	+61 2 9838 6800	sales-au@hydreco.com
<b>AUSTRALIA</b>	Hydreco Hydraulics Pty Ltd, Welshpool (WA)	+61 8 9377 2211	reception-wa@hydreco.com
<b>INDIA</b>	Hydreco Hydraulics India Private Ltd, Bangalore	+91 80 67656300	sales-in@hydreco.com