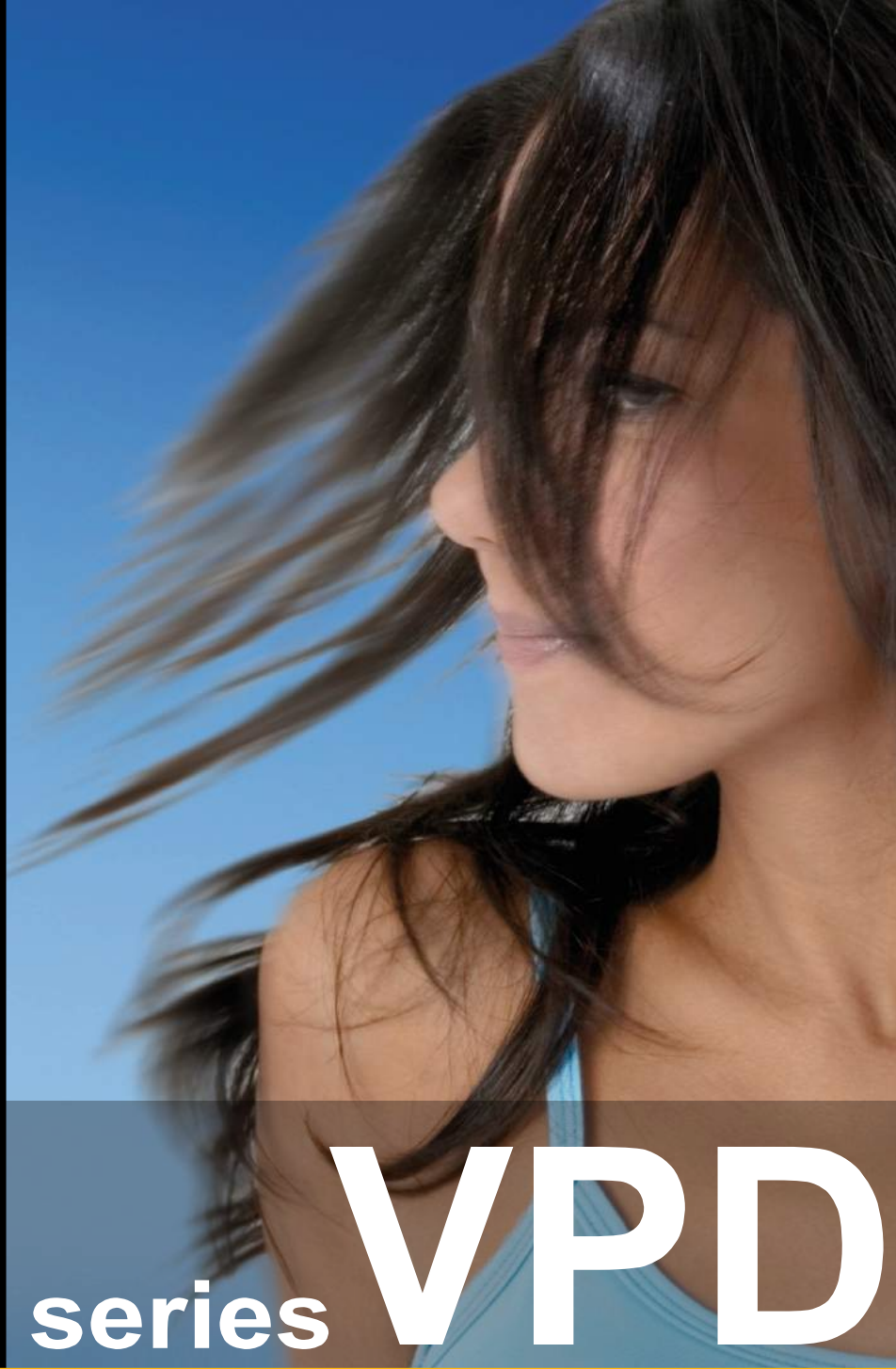
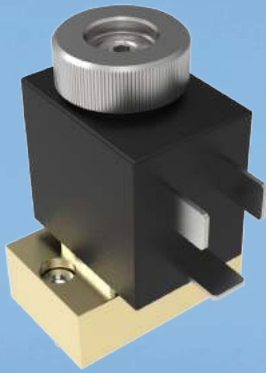
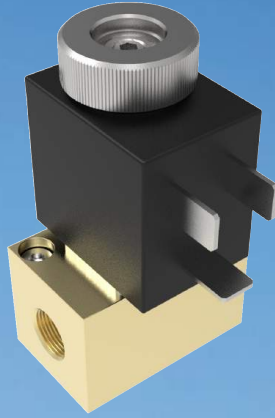


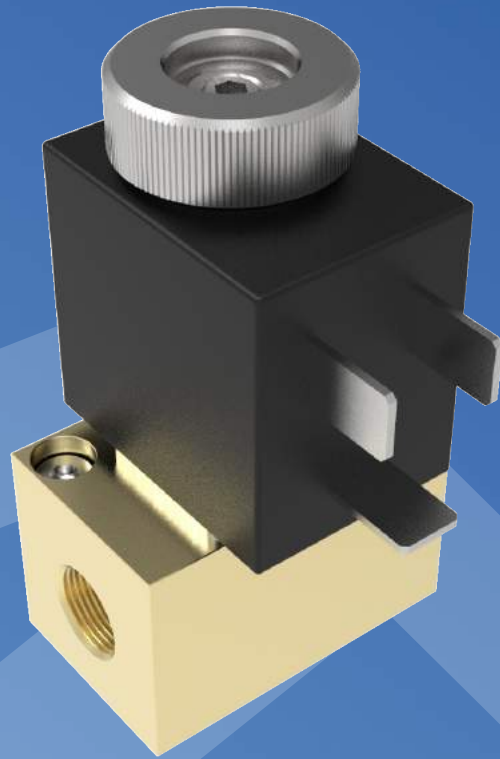
PROPORTIONAL SOLENOID VALVES



series **VPD**



Power and precision in the air



SERIES VPD

Direct acting proportional solenoid valves

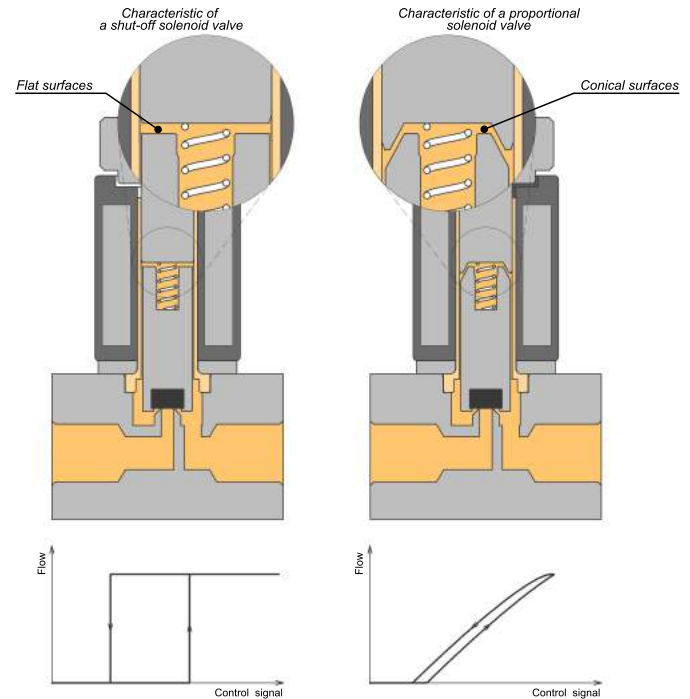
series VPD

PRINCIPLE OF OPERATION

The direct acting proportional solenoid valves series "VPD" is developed based on shut-off solenoid valve to which some constructive modifications are made.

If we apply a variable and increasing electric current to the coil of a classic shut-off solenoid valve, it generates a magnetic field proportional to the current and the two cores with flat ends tend to attract each other with a force proportional to the magnetism to which they are subjected. As soon as this force of attraction overcomes the antagonist one of the spring, the cores begin to approach and the force of attraction increases exponentially as the air gap decreases. At this point, the attraction of the cores becomes irreversible until the passage is completely open. For this reason they are called shut-off solenoid valves and they can only work with ON / OFF states.



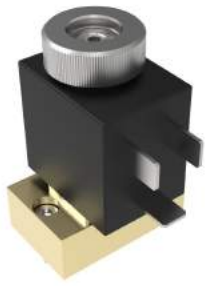
By varying the geometry of the two cores it is possible to obtain a magnetic attraction force which decreases as the air gap decreases, in this way a condition of equilibrium is obtained between the antagonist force of the spring. It is possible to vary this balance by modifying the value of the current in the coil which allows the shutter to be opened or closed gradually, thus drawing the characteristic curve of hysteresis "Ampere / flow rate" of this type of proportional solenoid valve.



DESCRIPTION

This series of solenoid valves is produced only in the 2/2 N.C. versions; they are available with brass body and G1/8" connections, with 22mm interface and CNOMO interface, all with different nominal Ø and different flow rate characteristics. It is also possible supply customized functional features, upon request.

TECHNICAL DATA AND MATERIALS

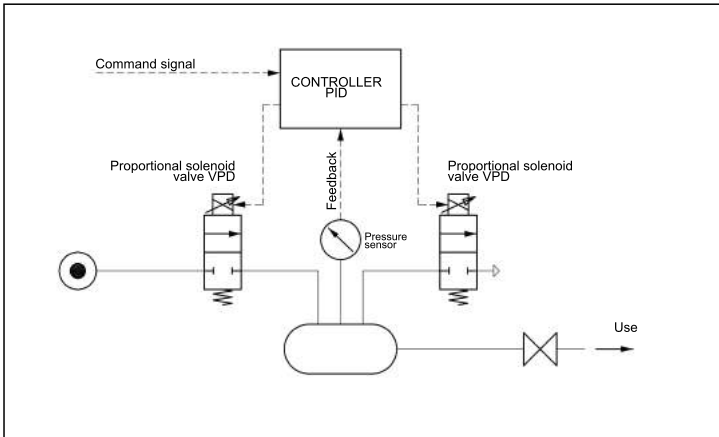
Type	VPDU12	VPDU14	VPDU22	VPDU24	VPD81.1	VPD82.0	VPD82.4	VPDS1.1	VPDS2.0	VPDS2.4	
											
Nominal diameter	Ø1		Ø2		Ø1.1	Ø2	Ø2.4	Ø1.1	Ø2	Ø2.4	
Operating pressure (bar)	0 ÷ 2	0 ÷ 4	0 ÷ 2	0 ÷ 4	0 ÷ 8	0 ÷ 4	0 ÷ 4	0 ÷ 8	0 ÷ 4	0 ÷ 4	
Flow max F.S. (Nl/min)	11	16	21	34	0 ÷ 65	0 ÷ 85	0 ÷ 100	0 ÷ 65	0 ÷ 85	0 ÷ 100	
Working temperature	-10 + +50 °C				-10 + +60 °C						
Fluid	Filtered compressed air not lubricated to ISO 8573-1 class 3.4.3, inert gases. The solenoid valves can be work with oxygen										
Mounting	In any position										
Materials	Body	Technopolymer							Brass		
	Seals	FKM							FKM		
	Core	IMRE									
	Springs	Stainless steel									
	Closing plate	Nickel-plated steel									
	Locking ring nut	-							Nickel-plated steel		
Hysteresis						12% F.S.					
Repeatability						7% F.S.					

ELECTRICAL CHARACTERISTICS

Standard voltages	6 - 12 - 24 VDC		12 VDC	
Nominal Power (W)	2 W		6 W	
Nominal resistance (Ohm)	6 VDC = 18 ohm		6 VDC = 14,4 ohm	
	12 VDC = 72 ohm		12 VDC = 57,6 ohm	
	24 VDC = 288 ohm		24 VDC = 230 ohm	
Electrical connector	MEK192/N		USR102/N9	
Protection class	IP 65			
Coil insulation class	H - (180 °C)			
Solenoid rating	ED 100%			

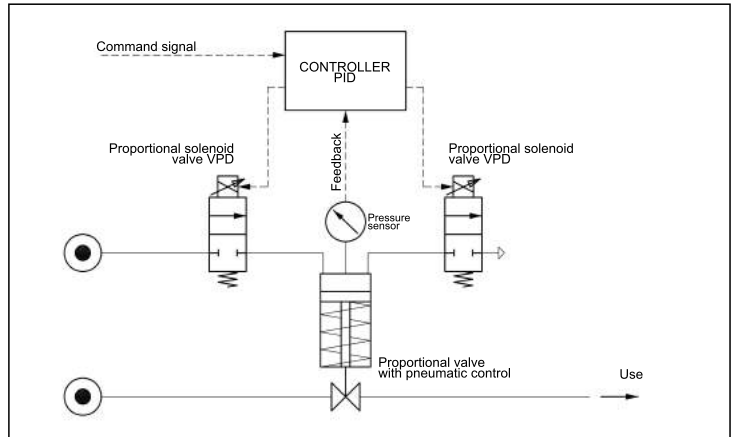
EXAMPLE OF USE

PRESSURE CONTROL



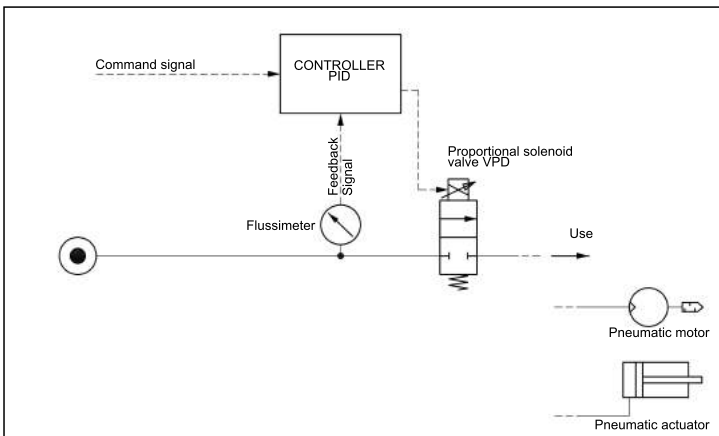
Proportional solenoid valves can be used to stabilize the pressure of a tank. A PID controller constantly monitors the pressure value via the pressure gauge (feedback) and, according to the command signal (target pressure), manages the two proportional solenoid valves to regulate the tank pressure.

POWER PROPORTIONAL VALVE CONTROL



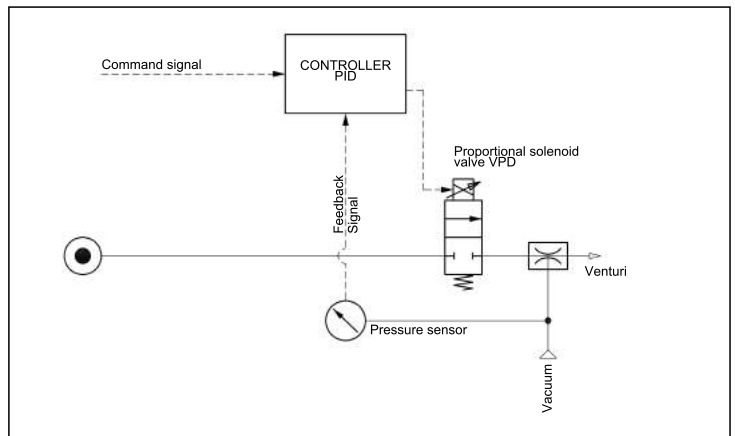
Similarly to the pressure control in a tank, series "VPD" solenoid valves can be used to manage the pilot pressure necessary to control the proportional opening of the main valve

FLOW RATE CONTROL



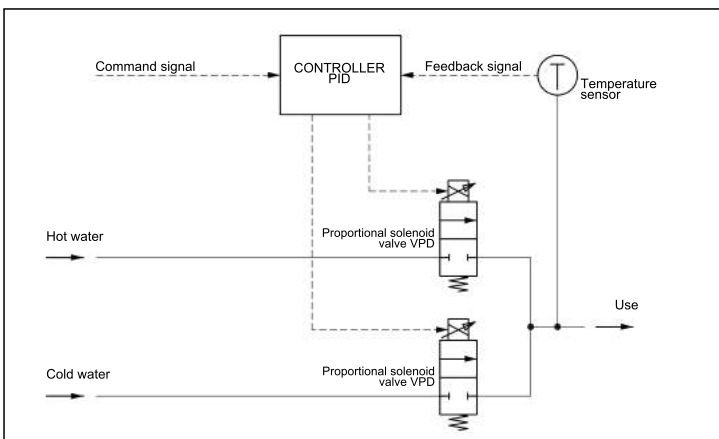
Proportional valves can be used to control the flow of the outgoing fluid. For example, they can be used to control the rotation speed of a pneumatic motor or applied to a nozzle to control the generated vacuum.

EJECTOR CONTROL



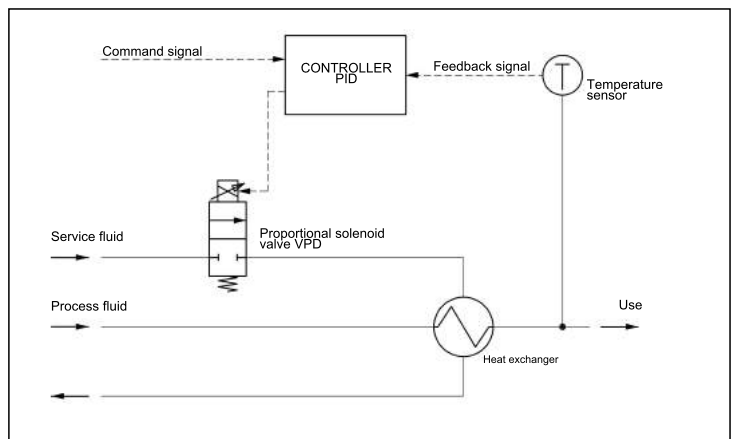
The controller uses proportional solenoid valves to adjust the vacuum generated by the Venturimeter.

MIXING OF HOT AND COLD WATER



The controller uses the proportional solenoid valve to increase or decrease the flow rate of the service fluid that serves to cool or not the process fluid through the heat exchanger.

TEMPERATURE CONTROL

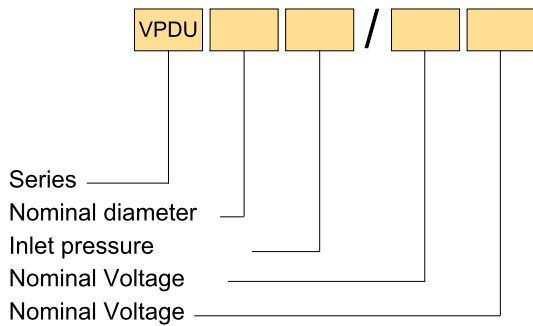


The controller uses proportional solenoid valves to mix the water and keep it at the reference temperature.

Direct acting proportional solenoid valves

series VPD

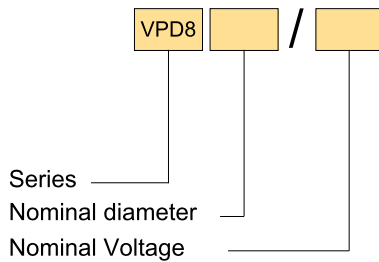
ORDER KEY TYPE VPDU



NOMINAL DIAMETER	
1 Ø1	2 Ø2
INLET PRESSURE	
2 2 bar	4 4 bar
NOMINAL VOLTAGE	
00600 6V DC*	01200 12V DC*
02400 24V DC*	
COIL POSITION	
Standard	180 Ruotata di 180°

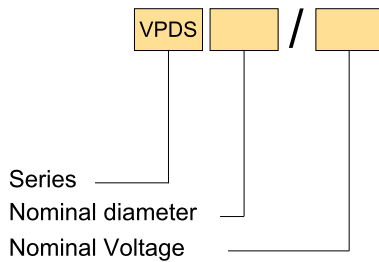
* 2 W con Ø1 - 2.5W con Ø2

ORDER KEY TYPE VPD8



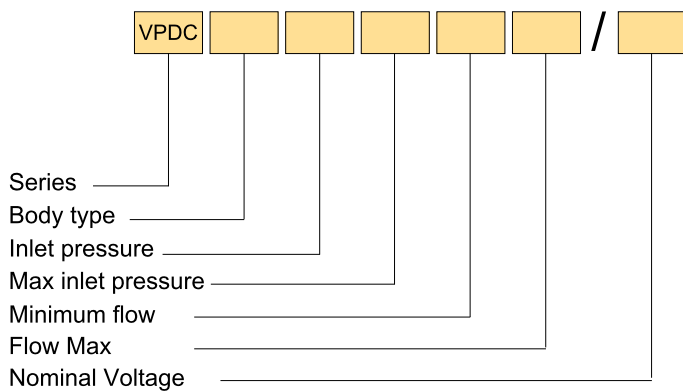
NOMINAL DIAMETER	
1.0 Ø1.1	2.0 Ø2
2.4 Ø2.4	
NOMINAL VOLTAGE	
A 12V DC 6W	

ORDER KEY TYPE VPDS



NOMINAL DIAMETER	
1.0 Ø1.1	2.0 Ø2
2.4 Ø2.4	
NOMINAL VOLTAGE	
A 12V DC 6W	

ORDER KEY for CUSTOM VALVE



BODY TYPE	
8 Brass body with G1/8 ports - VPD8	S Brass body with interface - VPDS
INLET PRESSURE [bar]	
Set the nominal inlet pressure of the solenoid valve	
MAX INLET PRESSURE [bar]	
Set the maximum inlet pressure of the solenoid valve	
MINIMUM FLOW [NI/min]	
Set the minimum flow required	
FLOW MAX [NI/min]	
Set the max flow required	
NOMINAL VOLTAGE*	
01200 12V DC	02400 22V DC

* The power of coil will be determined, in according with customer and of the functional characteristics required of the solenoid valve.

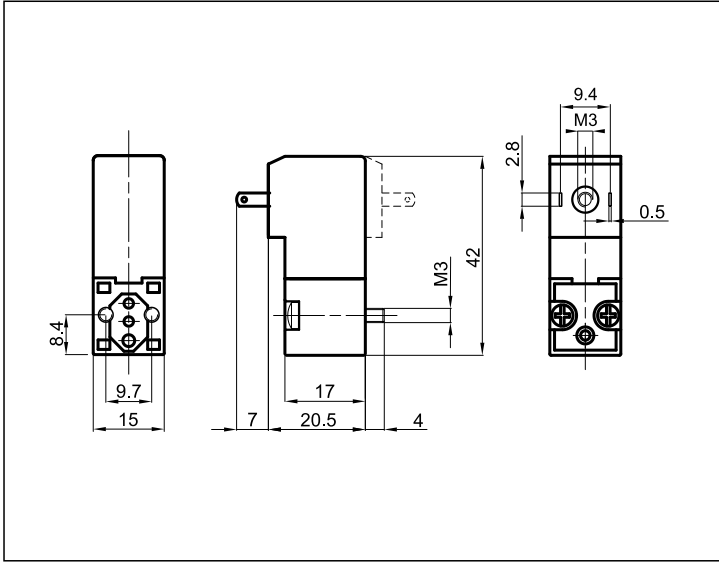
ORDER EXAMPLE FOR CUSTOM VALVE

Solenoid with brass body "VPDS" (with interface), Inlet pressure 9 bar, Max inlet pressure 10 bar, Flow range from 0 to 40 NI/min (in function of 9 bar of inlet pressure). Nominal voltage 24 VDC:
VPDCS9-10-0-40/02400

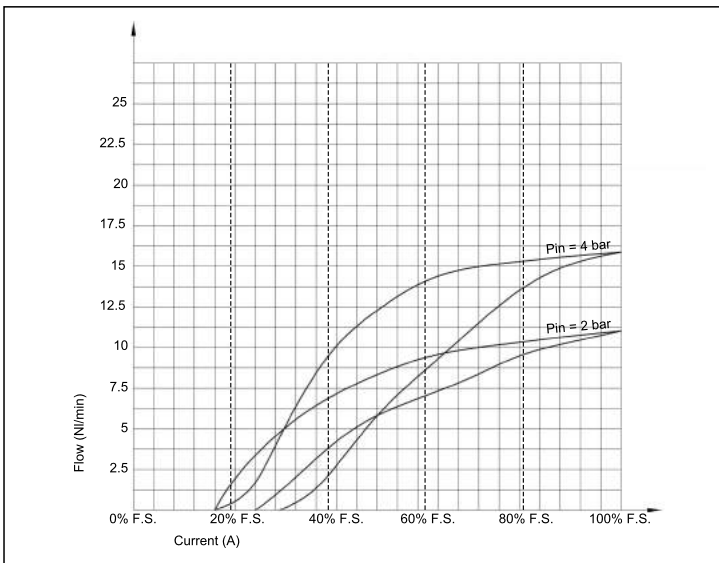
series VPD

Direct acting proportional solenoid valves

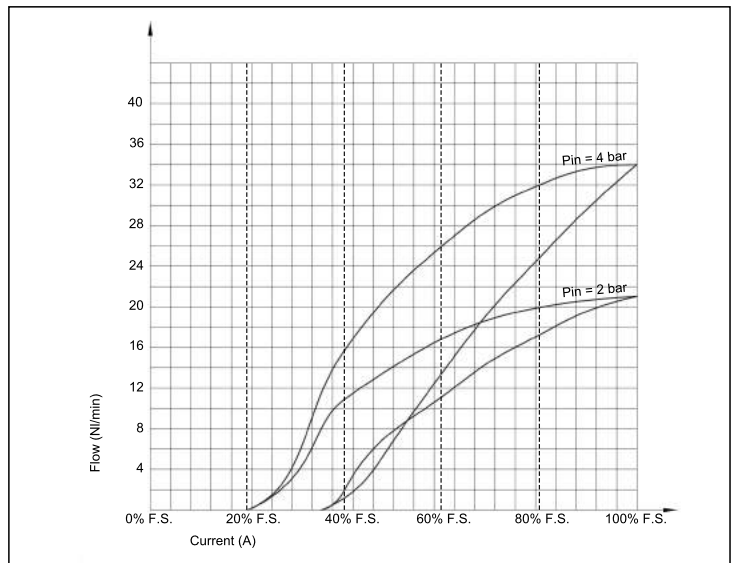
2 WAY 15 mm - VPDU...



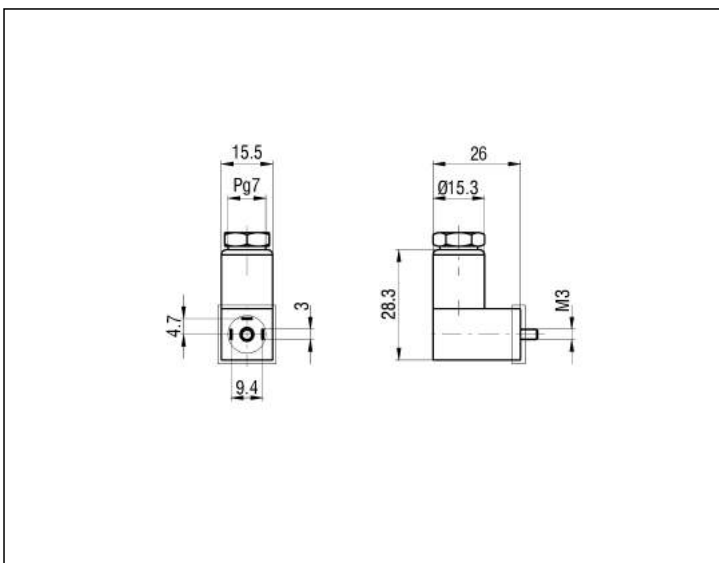
FLOW DIAGRAM - VPDU12, VPDU14 - Ø1



FLOW DIAGRAM - VPDU22, VPDU24 - Ø2



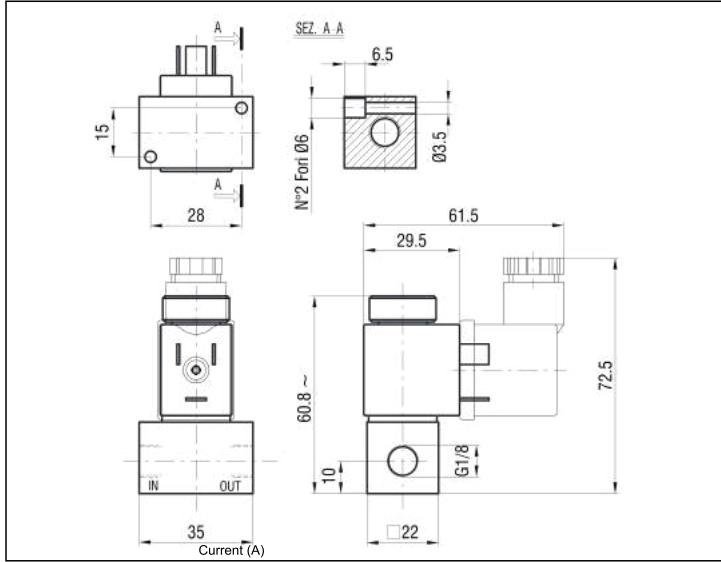
CONNECTOR DIN 43650C - MEK192/N9



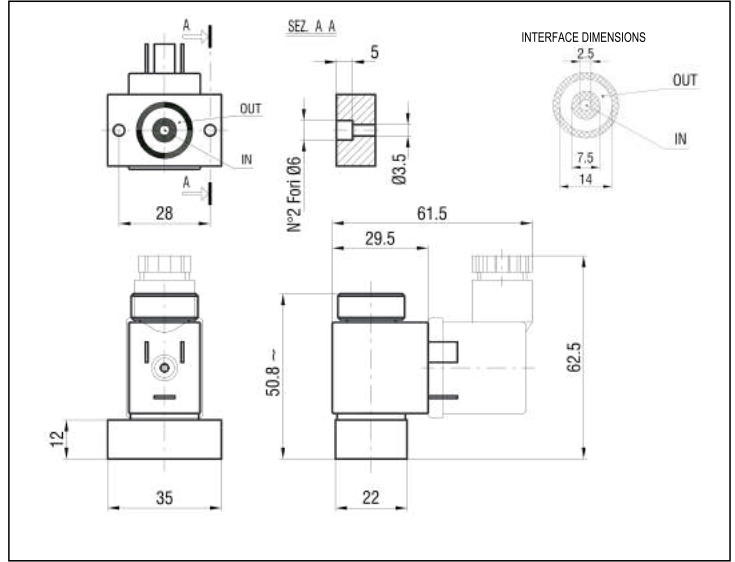
Direct acting proportional solenoid valves

series VPD

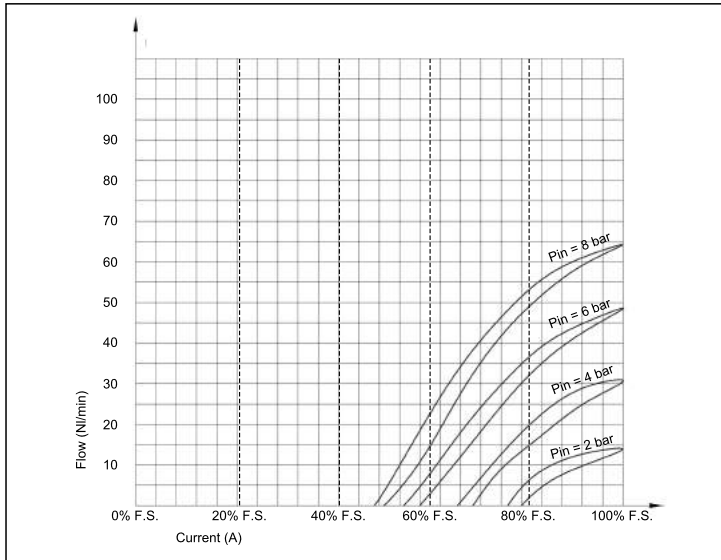
2 WAY WITH G1/8 PORTS - VPD81, VPD82, VPD83



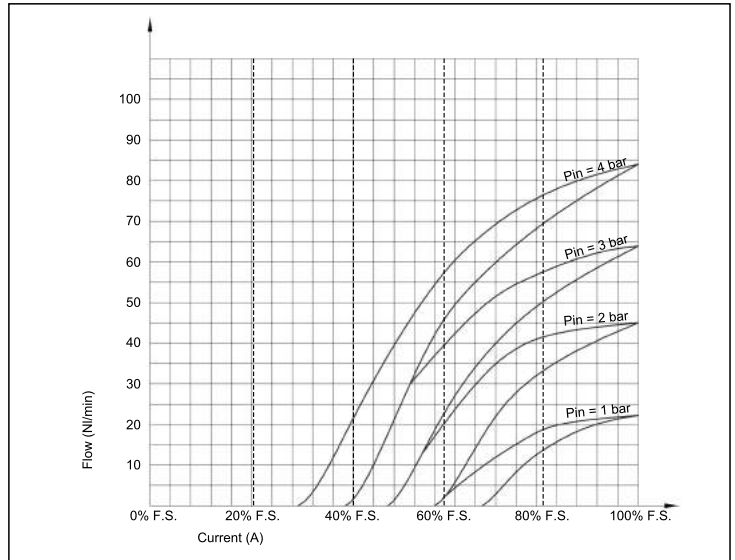
2 WAY WITH INTERFACE - VPDS1, VPDS2, VPDS3



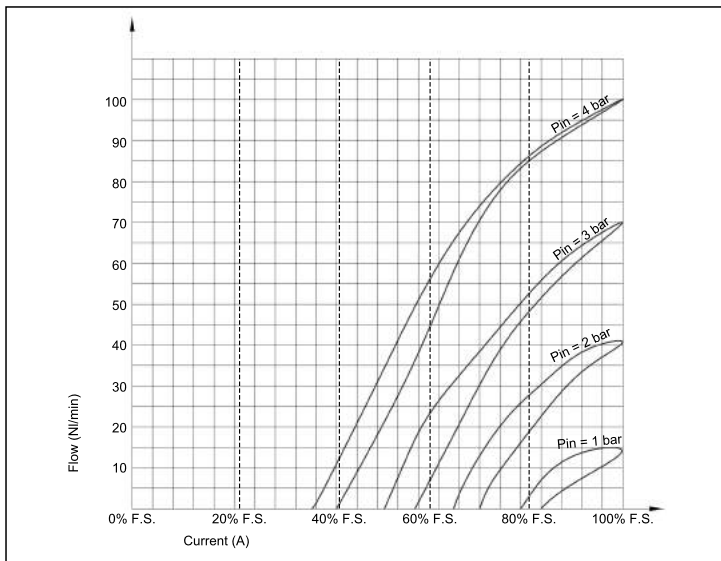
FLOW DIAGRAM - VPD81 - Ø1,1



FLOW DIAGRAM - VPD82 - Ø1,9



FLOW DIAGRAM - VPD83 - Ø2,4



CONNECTOR DIN 43650B - USR102/N9

