

PVS

- Dynamic Pressure and Flow Regulation Valve

Application

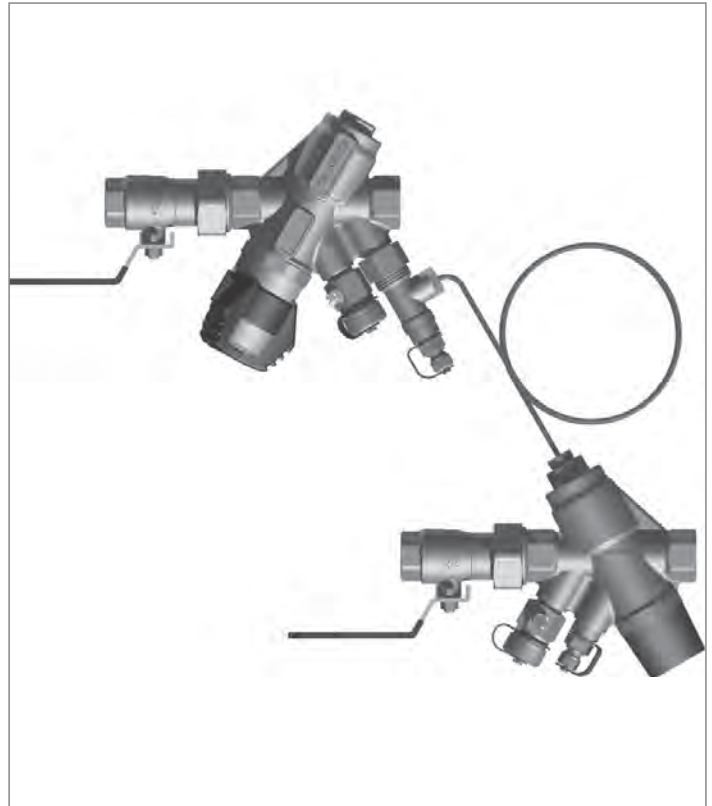
PVS system can be installed in domestic and commercial heating and cooling systems.

PVS system is a dynamic valve arrangement designed to regulate flow and differential pressure using the S dynamic balancing valve positioned in the flow, and the PV differential pressure control valve positioned in the return.

The PVS is supplied with capillary tube, isolation valves, drain valves, P/T plugs and unions as standard.

PVS system ensures 100% flow and differential pressure regulation under all conditions, irrespective of any changes within the system, providing simple and trouble free commissioning.

The PVS system operates by limiting the flow in the system and eliminating any noise caused by excess differential pressure.



Benefits

- Flow and differential pressure can be adjusted independently of each other.
- Setting the differential pressure can be easily adjusted after installation.
- Tamperproof presetting device fitted on the top of the valve.
- Simple presetting of flow and pressure.
- No additional commissioning required if the system design is changed.
- High levels of comfort and energy savings for the end user.

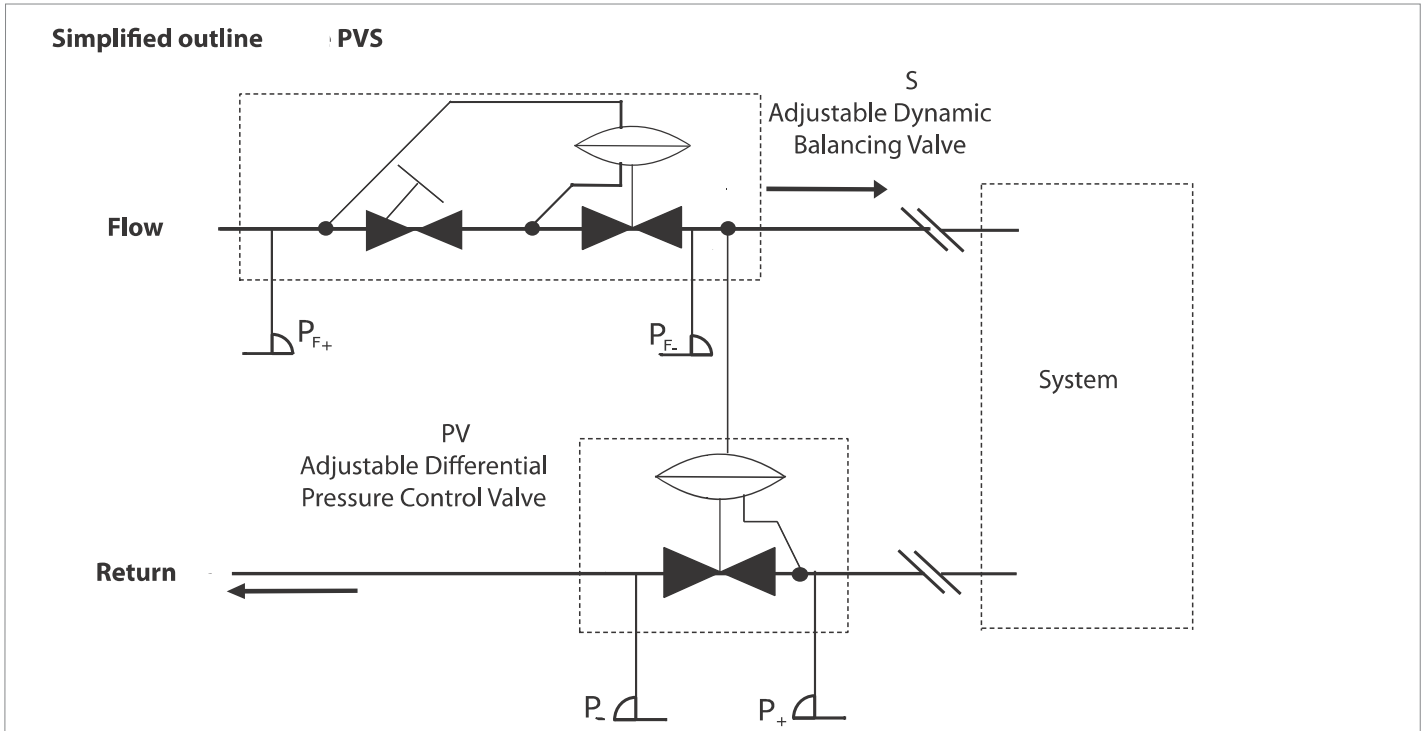
Features

- Size range: DN15 to DN50
- Maximum flow: 10.3m³/h
- Maximum differential pressure 250kPa/400kPa
- Setting range: 5kPa to 80kPa
- Differential pressure regulation, flow regulation, isolation, drain and PT plugs as standard

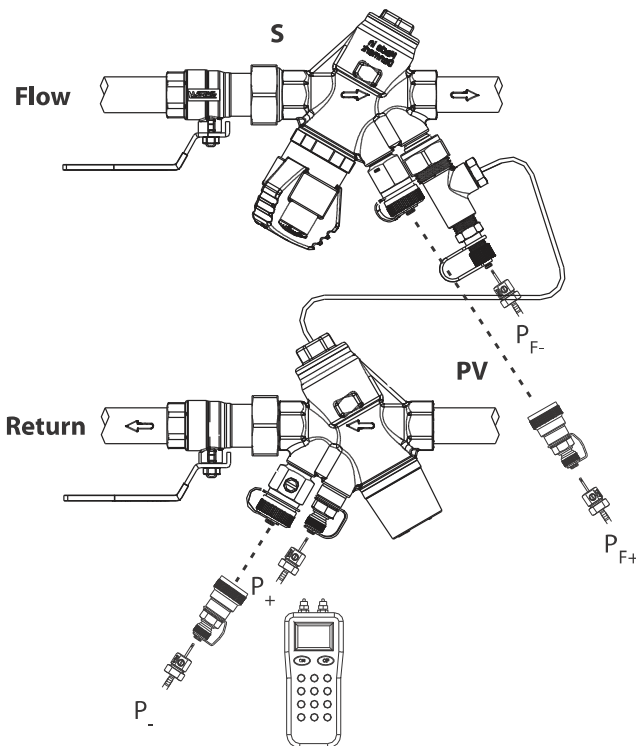
PVS

- Dynamic Pressure and Flow Regulation Valve

Design PVS



PVS system measurement of differential pressure and flow across the valve



Design flow: Q is adjusted directly on S (see graphs on the Pre-set diagram)

Differential pressure : ΔP_s is adjusted directly on PV (see graphs on the Pre-set diagram)

The flow in the system is verified by measuring minimum differential pressure (min. Δp) is available across the S valve. Measured from P_{F+} to P_{F-} (see graphs on the Pre-set diagram)

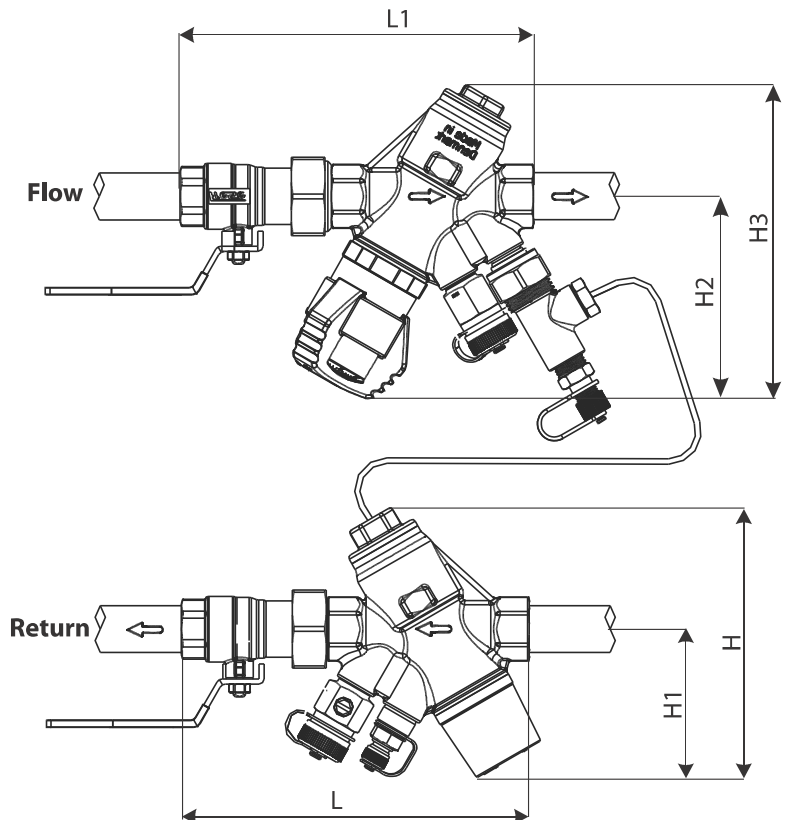
Δp of the system is measured from P_{F-} to P_+ .

PVS

- Dynamic Pressure and Flow Regulation Valve

Technical data

Housing:	DZR, Brass CW602N
DP controller:	PPS 40% glass
Flow setting:	PPO
Spring:	Stainless steel
Diaphragm:	HNBR
O-rings:	EPDM
Pressure class:	PN16
Max. differential pressure:	LP = 250 kPa HP = 400 kPa
Temperature range:	-10°C to + 120°C
Capillary tube:	Ø3, L = 1000 mm



Type		PVS								
Application		Two-pipe system								
Dimension		DN15		DN20		DN25		DN32	DN40	DN50
Version		LP	HP	LP	HP	LP	HP	HP	HP	HP
Control range	[kPa]	5-30	20-60	5-30	20-60	5-30	20-60	20-80	20-80	20-80
Pressure range	[kPa]	9-250	22-400	9-250	22-400	12-250	22-400	38-400	45-400	54-400
Flow rate [l/s]	PV	0,014-0,167	0,028-0,333	0,028-0,278	0,042-0,556	0,167-0,694	0,194-1,167	0,278-1,389	0,833-2,222	1,389-4,167
	S	0,007-0,223	0,011-0,306	0,011-0,351	0,018-0,512	0,017-0,462	0,025-0,653	0,060-1,328	0,049-2,067	0,122-2,868
	PVS	0,014-0,167	0,028-0,306	0,028-0,278	0,042-0,512	0,167-0,462	0,194-0,653	0,278-1,328	0,833-2,067	1,389-2,868
Dimension mm	L	167		173		232		235	257	286
	H	127		130		166		166	184	196
	H1	70		73		91		91	97	106
	L1	167		173		202		235	257	286
	H2	96		98		102		115	119	126
	H3	148		151		155		188	206	219



PVS

- Dynamic Pressure and Flow Regulation Valve

Product programme PVS

	Dimension	DN15	DN20	DN25	DN32	DN40	DN50
PVS with 2 isolation valves, 2 drain valves, P/T plugs, capillary tube and union connections.		PVS - LP 53-3040	PVS - LP 53-3041	PVS - LP 53-3042	PVS HP 53-3023	PVS HP 53-3024	PVS HP 53-3025
		PV, 5-30 kPa & S, LP	PV, 5-30 kPa & S, LP	PV, 5-30 kPa & S, LP	PV, 20-80 kPa & S, HP	PV, 20-80 kPa & S, HP	PV, 20-80 kPa & S, HP
		PVS - HP 53-3026	PVS - HP 53-3027	PVS - HP 53-3028			
		PV, 20-60 kPa & S, HP	PV, 20-60 kPa & S, HP	PV, 20-60 kPa & S, HP			

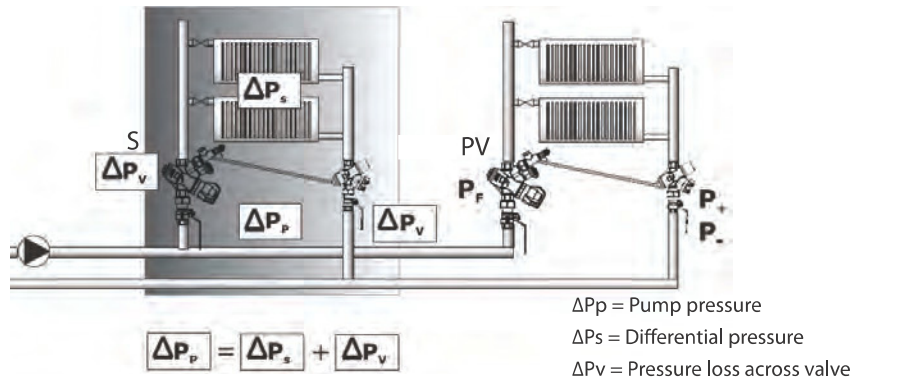
Accessories		no.	Dim./DN
Insulation jackets		38-0845	15/20/25
		38-0854	32/40/50
Spindle extension		46-1072	15/20
		46-1073	25
		46-1074	32/40
		46-1075	50

Example

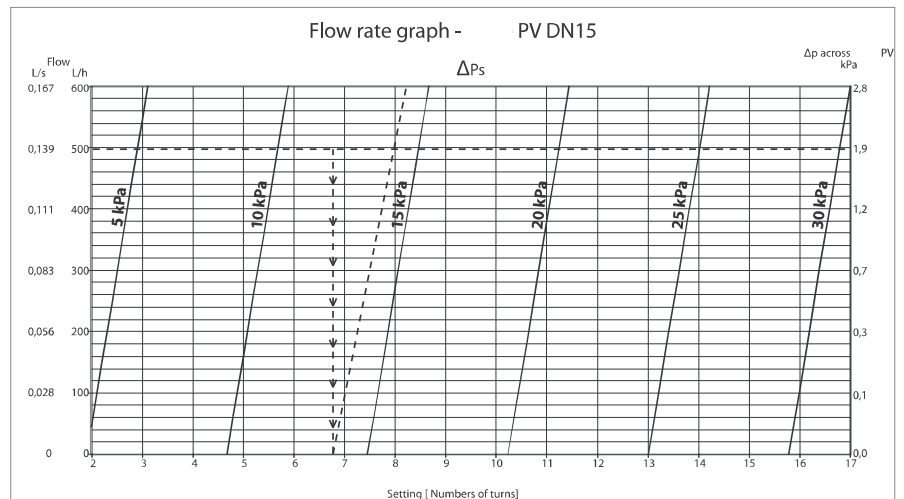
Please note:

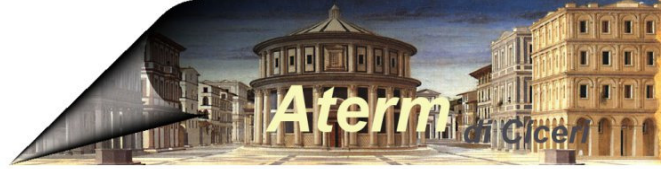
As the flow is reduced in the circuit in question the pressure increases in reverse ratio to the flow, which is due to the P-band of the adjustment spring. The valve still compensates for this.

However, the pressure will nowhere in the circuit be as high as the pump pressure that would have been available if PV had not been installed.



In this example the pressure increases to approx. 14 kPa as the graph is offset parallel to the course of flow. Furthermore, you can always read from the graph what the pressure in the circuit will be like at any flow rate below the rated 500 l/h.





PVS

- Dynamic Pressure and Flow Regulation Valve

Example

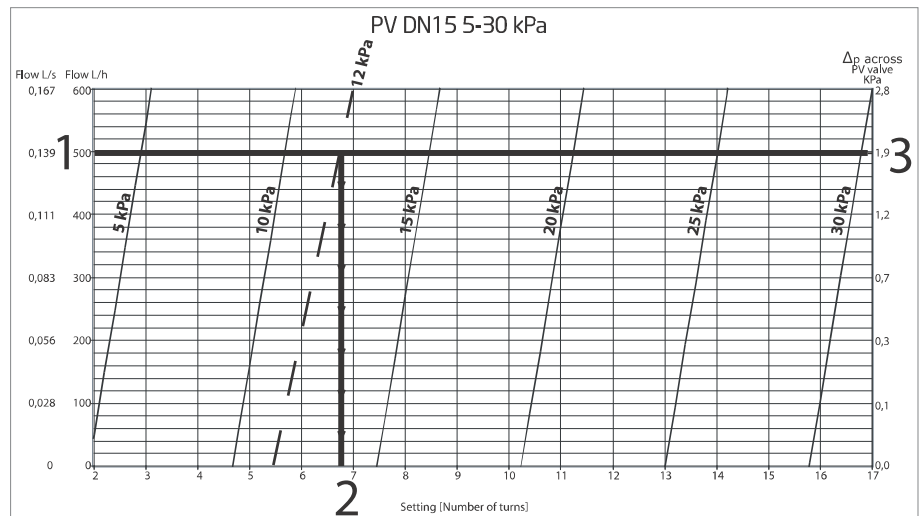
PVS DN15 Low Pressure

Design differential pressure 12 kPa

Design flow 0,139 l/s

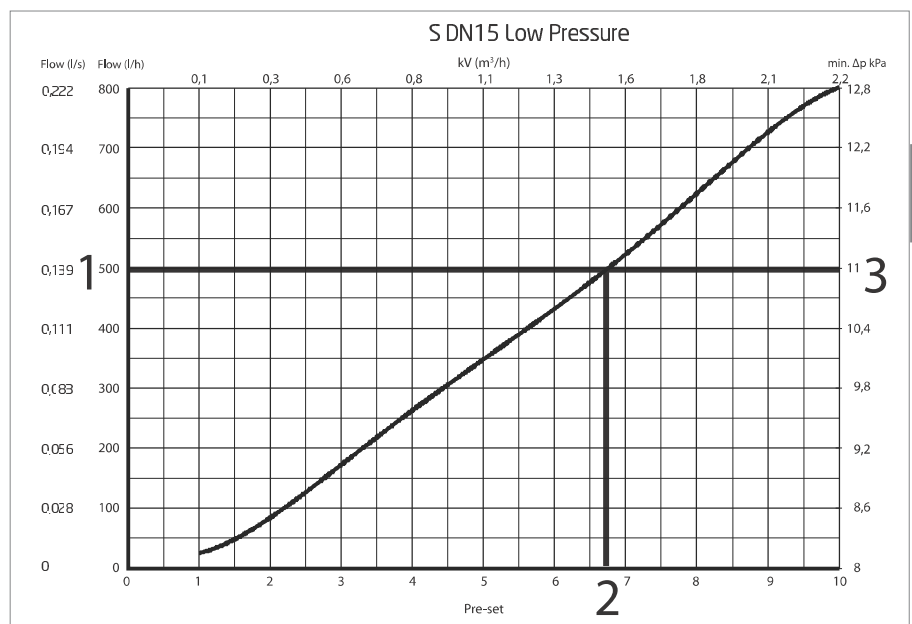
Differential pressure setting **PV**

1. The design flow is used as the point of reference for the setting. (See the graph)
2. In order to make reading easier the graphs indicating the pressure in the circuit are arranged at intervals of 5 kPa. Still, the graphs can be offset according to the specified pressure of 12 kPa in our circuit. From the intersection of the 12 kPa graph and the horizontal line indicating 0,139 l/s a line perpendicular to the x-axis is made to read the pre-set value. Pre-set app. 7 turns on the scale.
3. The minimum pressure drop required will be 1.9 kPa across the valve. (ΔP_{V2})



Flow setting **S**

1. The design flow is used as the point of reference for the setting. (See the graph)
2. The pre-setting for the valve is found by means of the flow rate graph. Setting = 6.7
3. The minimum pressure drop required will be 11 kPa across the valve. (ΔP_{V1})



Total pump pressure

Calculation of the total pump pressure:

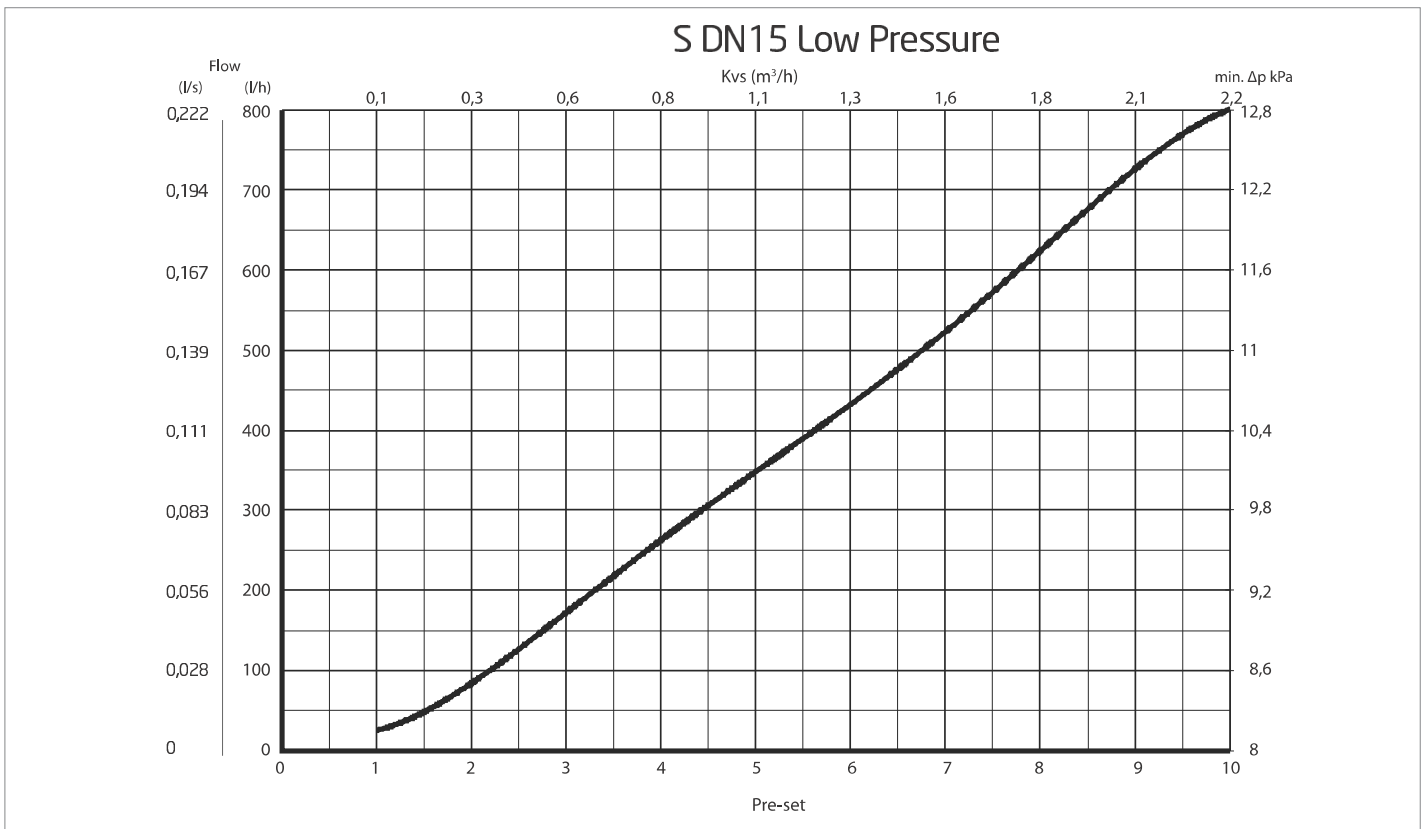
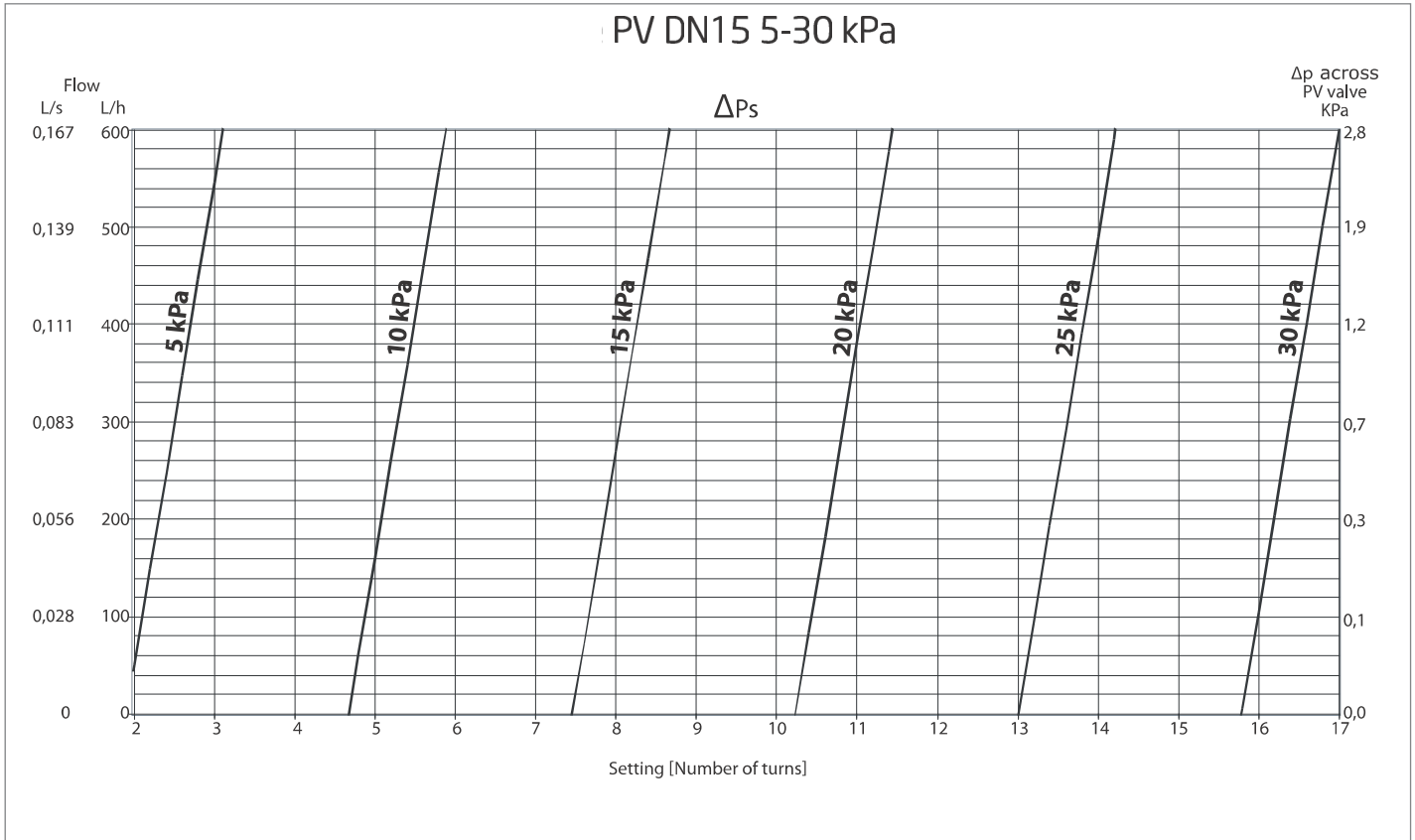
$$\Delta P_p = \Delta P_s + (\Delta P_{V1+V2})$$

$$\Delta P_p = 12 \text{ kPa} + (11 \text{ kPa} + 1,9 \text{ kPa}) = 24,9 \text{ kPa}$$



PVS DN15 LP

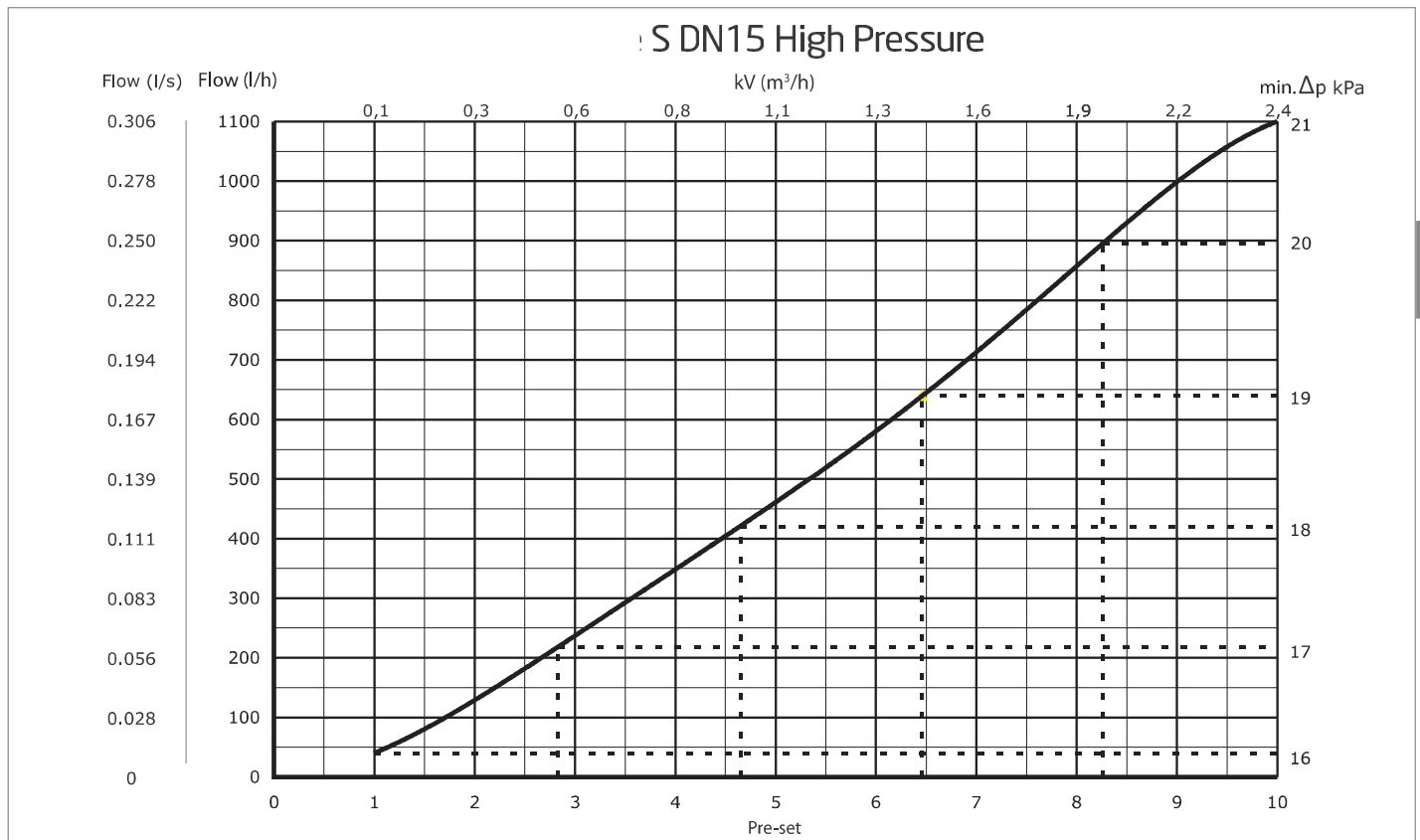
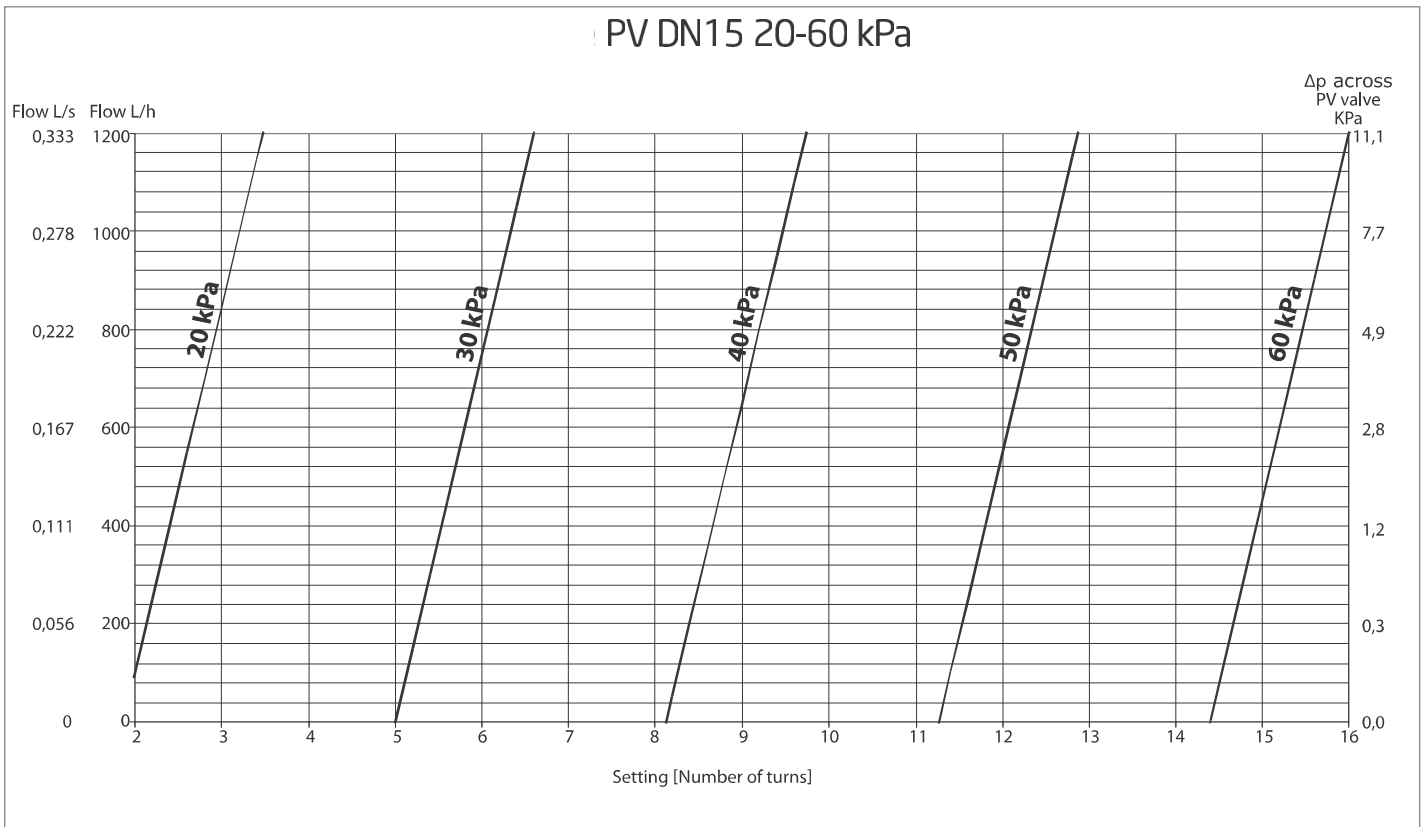
- Dynamic Pressure and Flow Regulation Valve





PVS DN15 HP

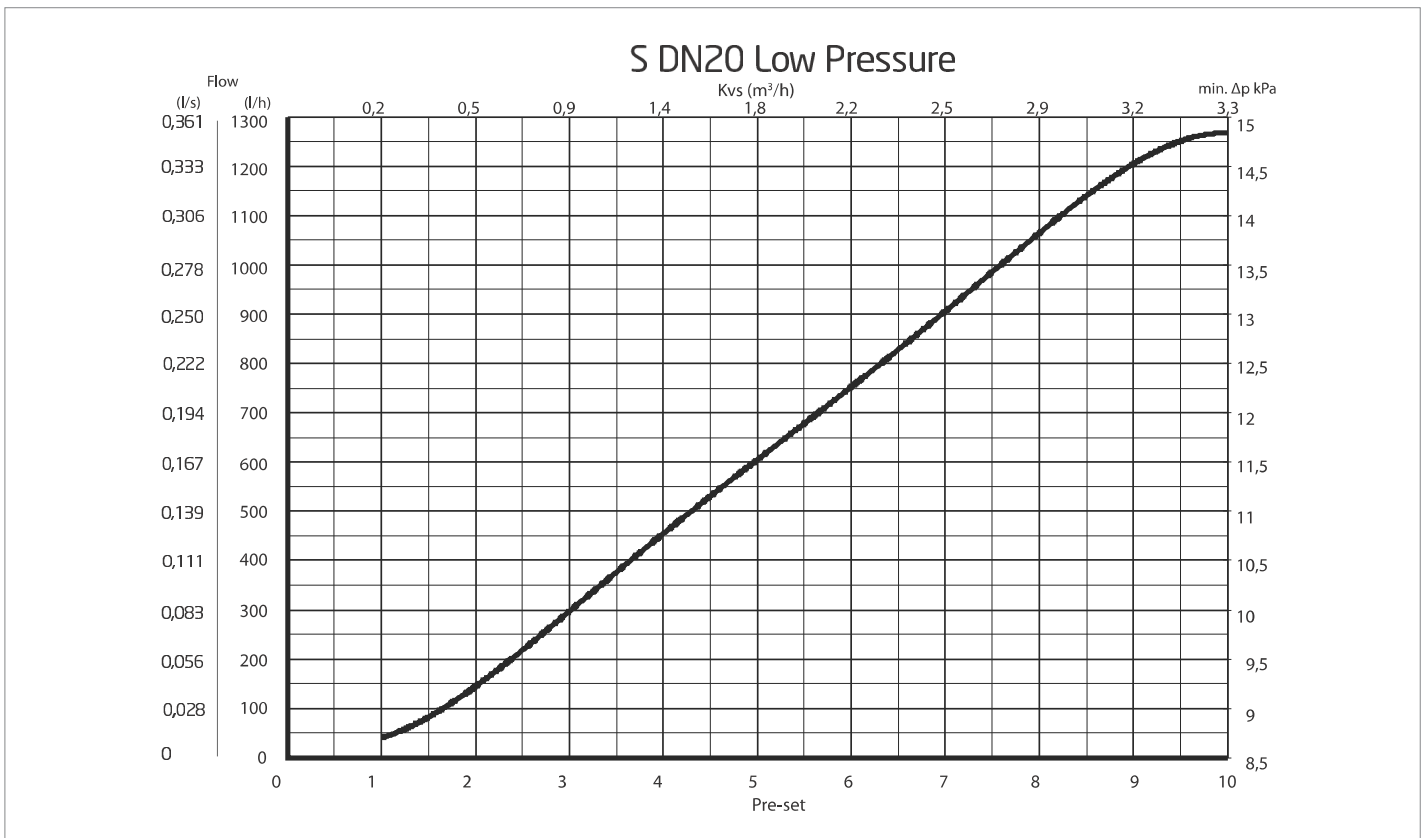
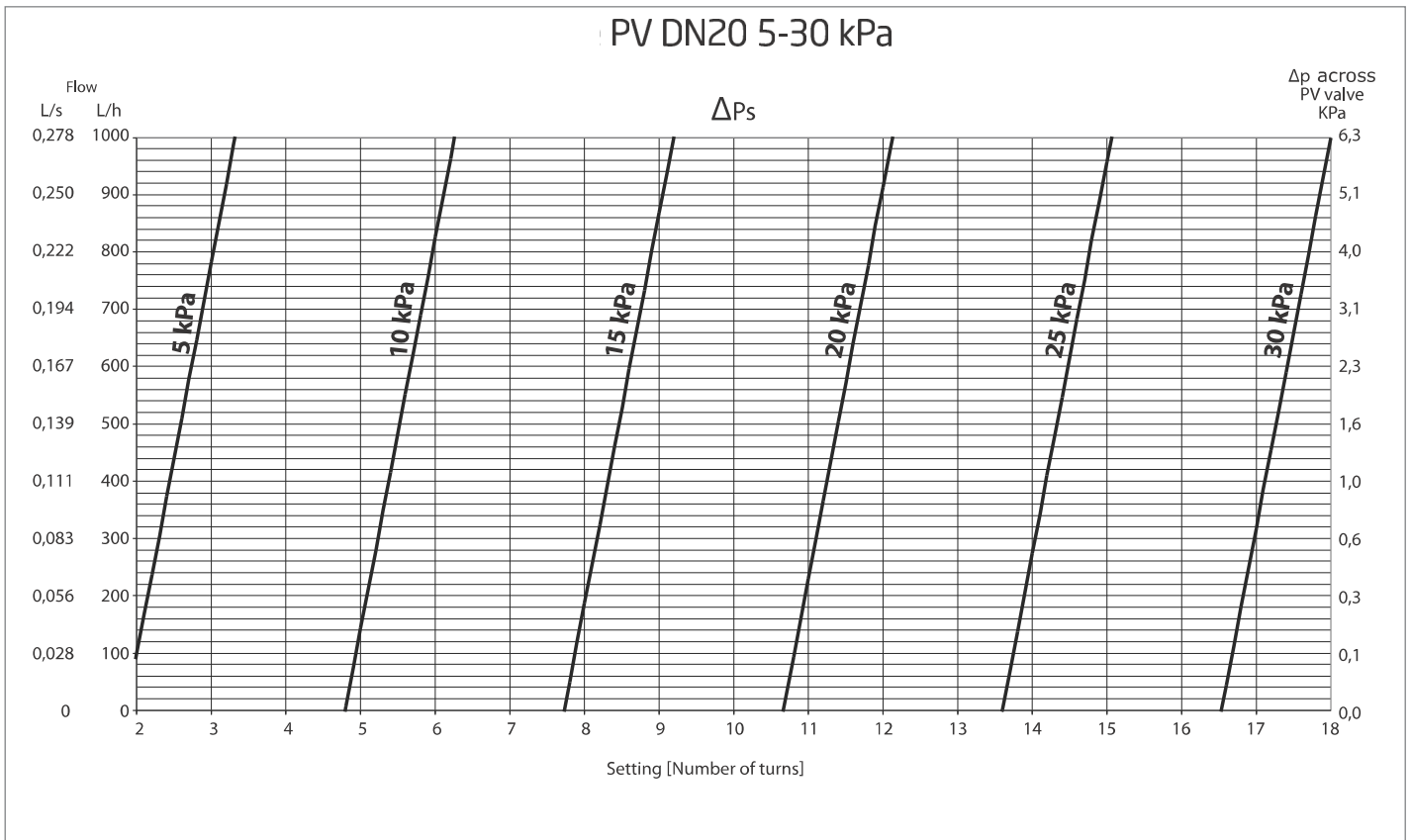
- Dynamic Pressure and Flow Regulation Valve





PVS DN20 LP

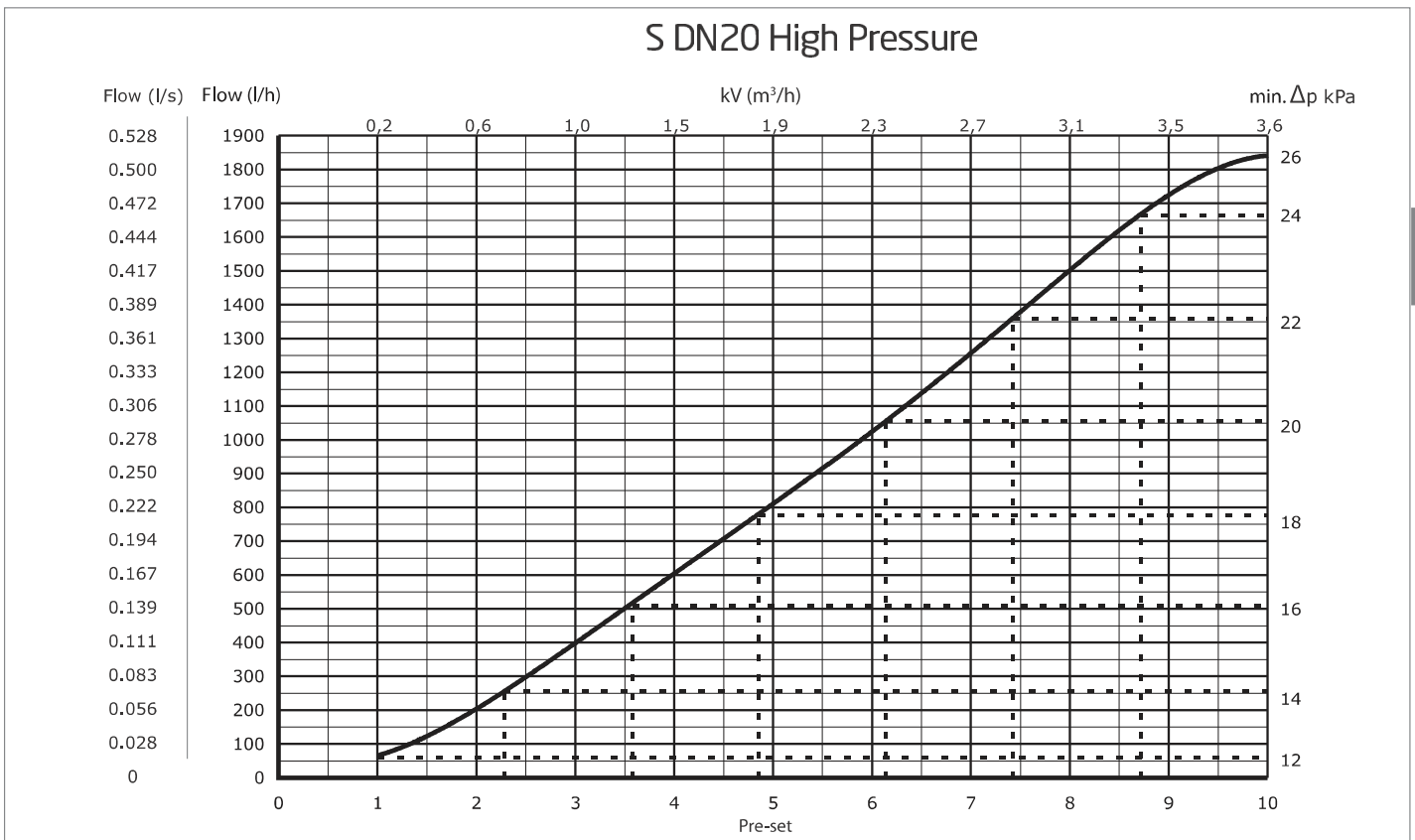
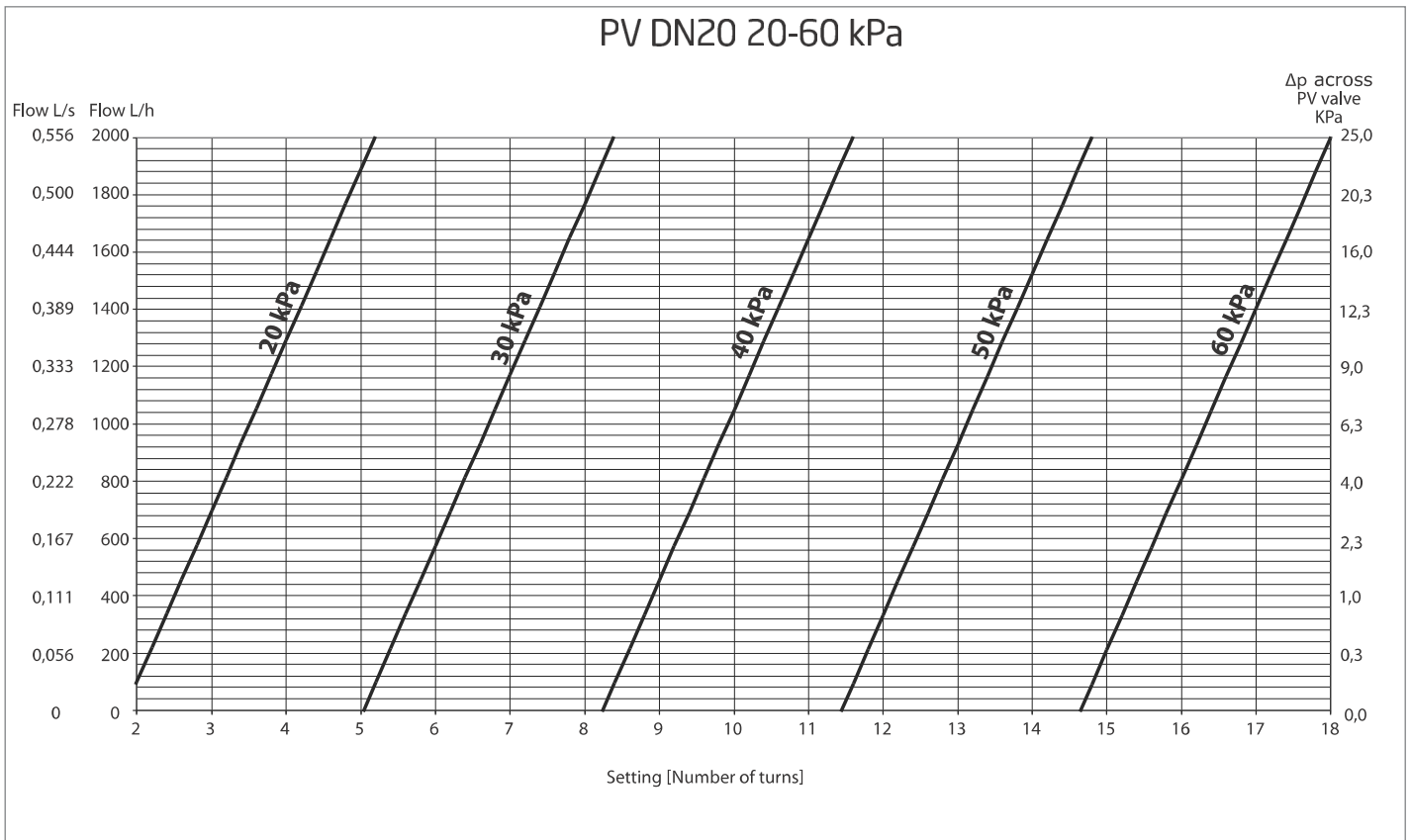
- Dynamic Pressure and Flow Regulation Valve





PVS DN20 HP

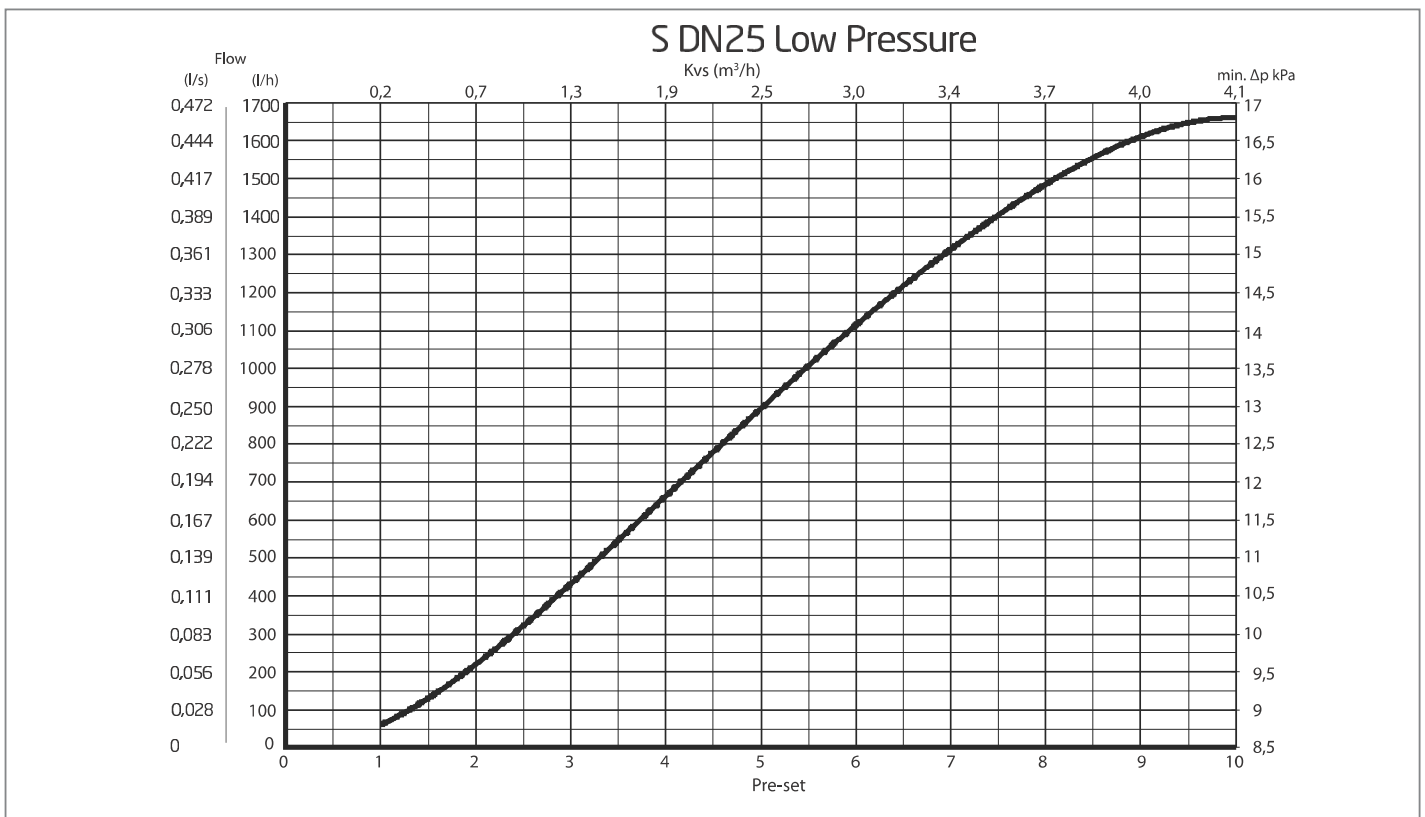
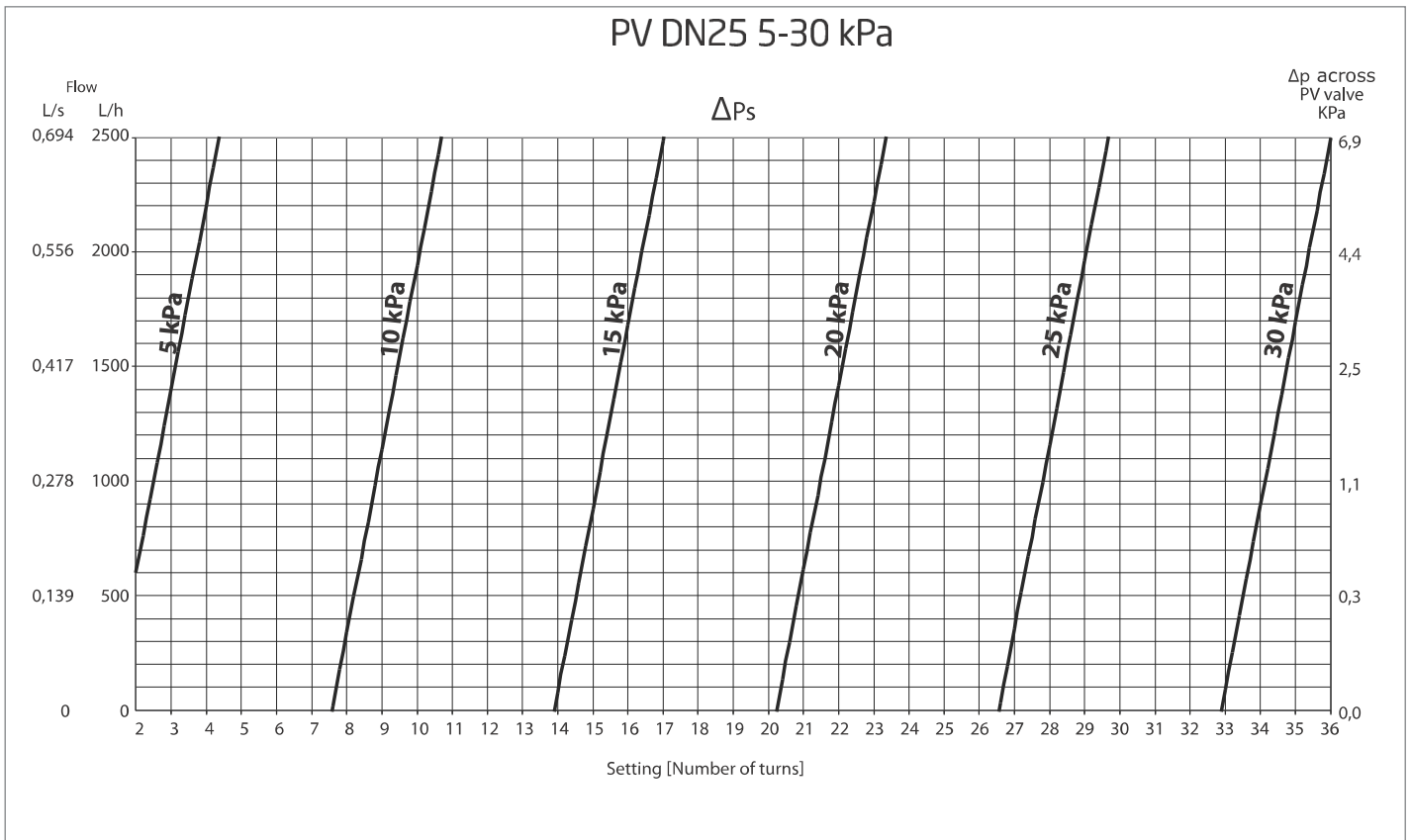
- Dynamic Pressure and Flow Regulation Valve

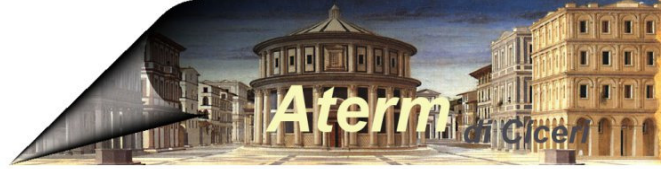




PVS DN25 LP

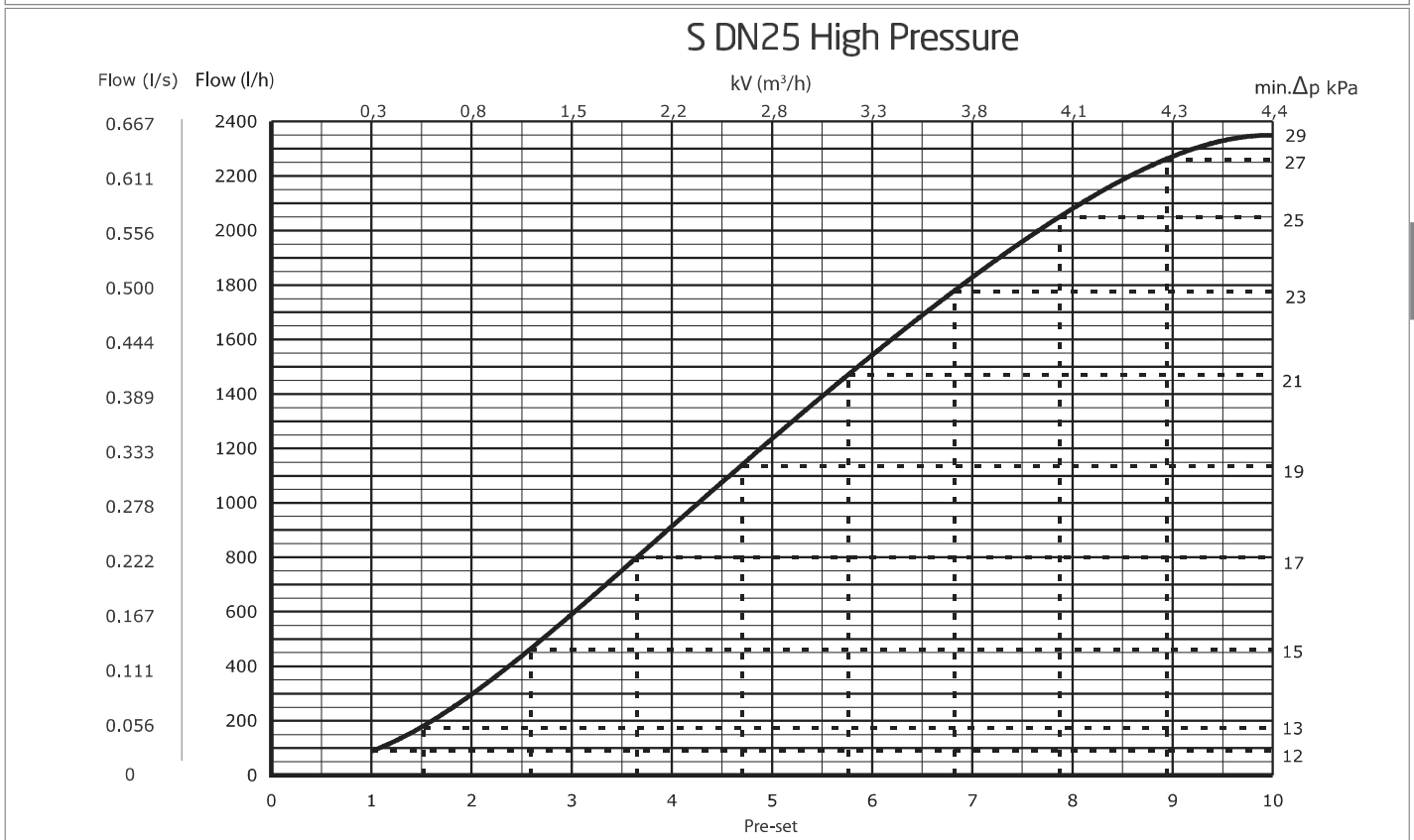
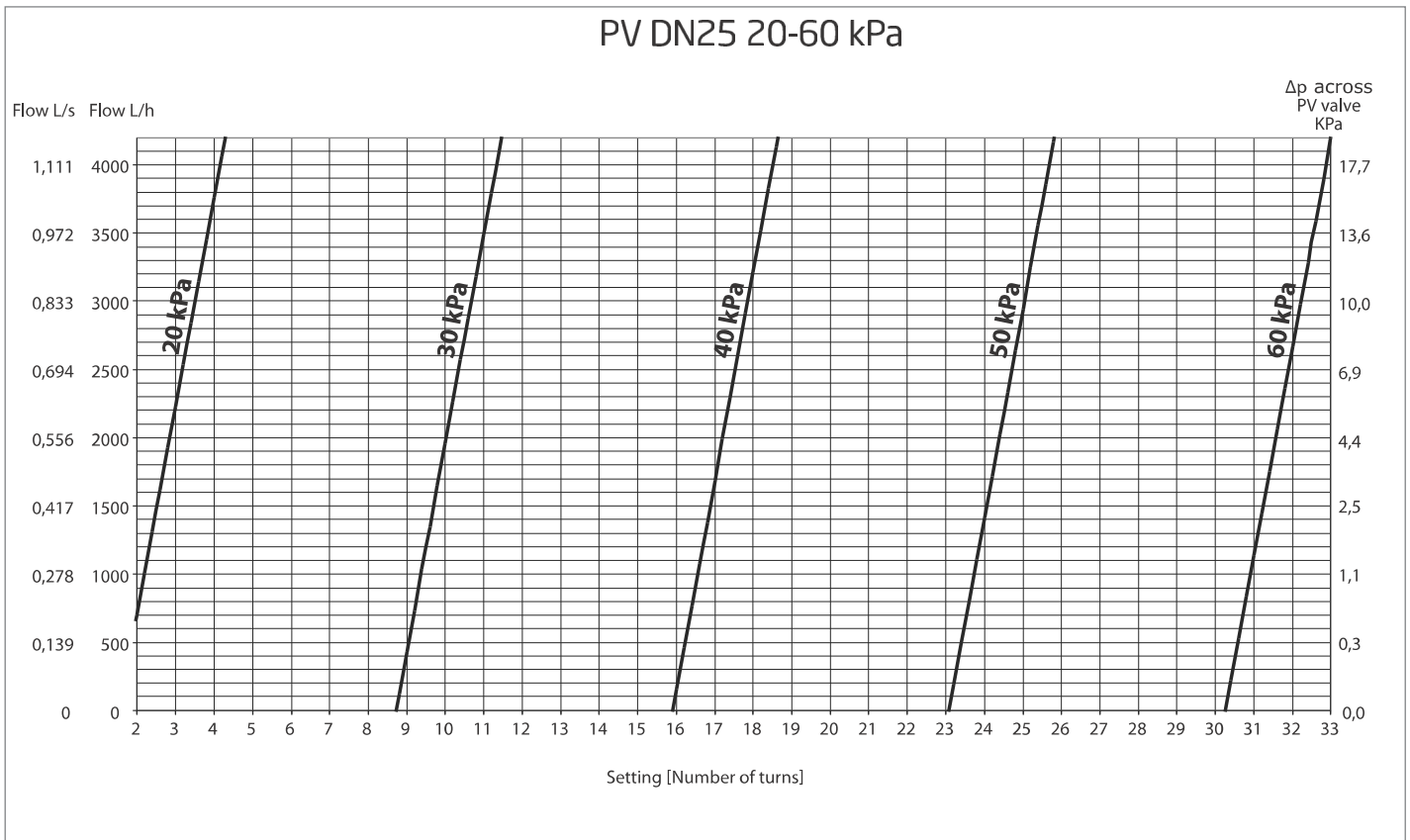
- Dynamic Pressure and Flow Regulation Valve





PVS DN25 HP

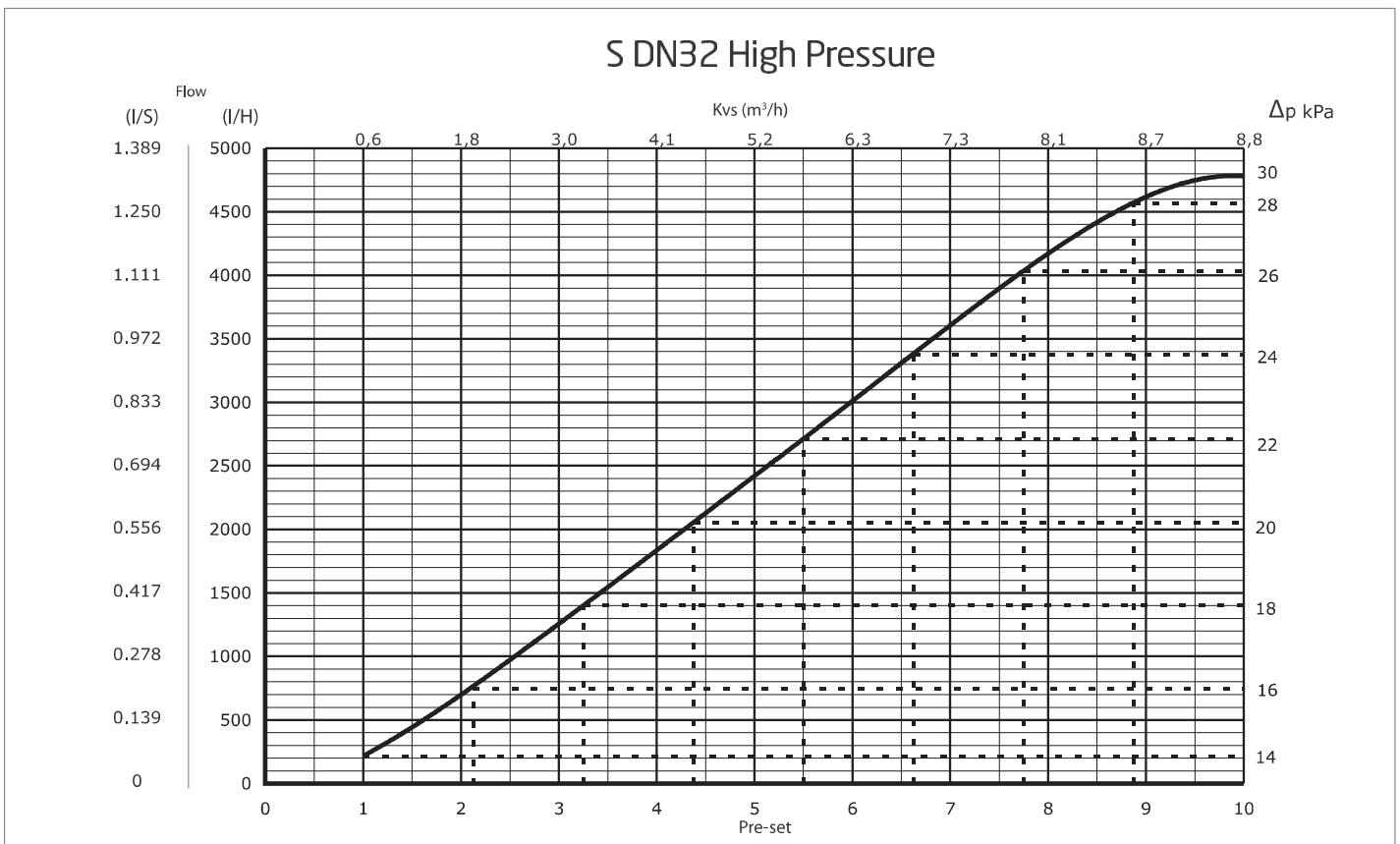
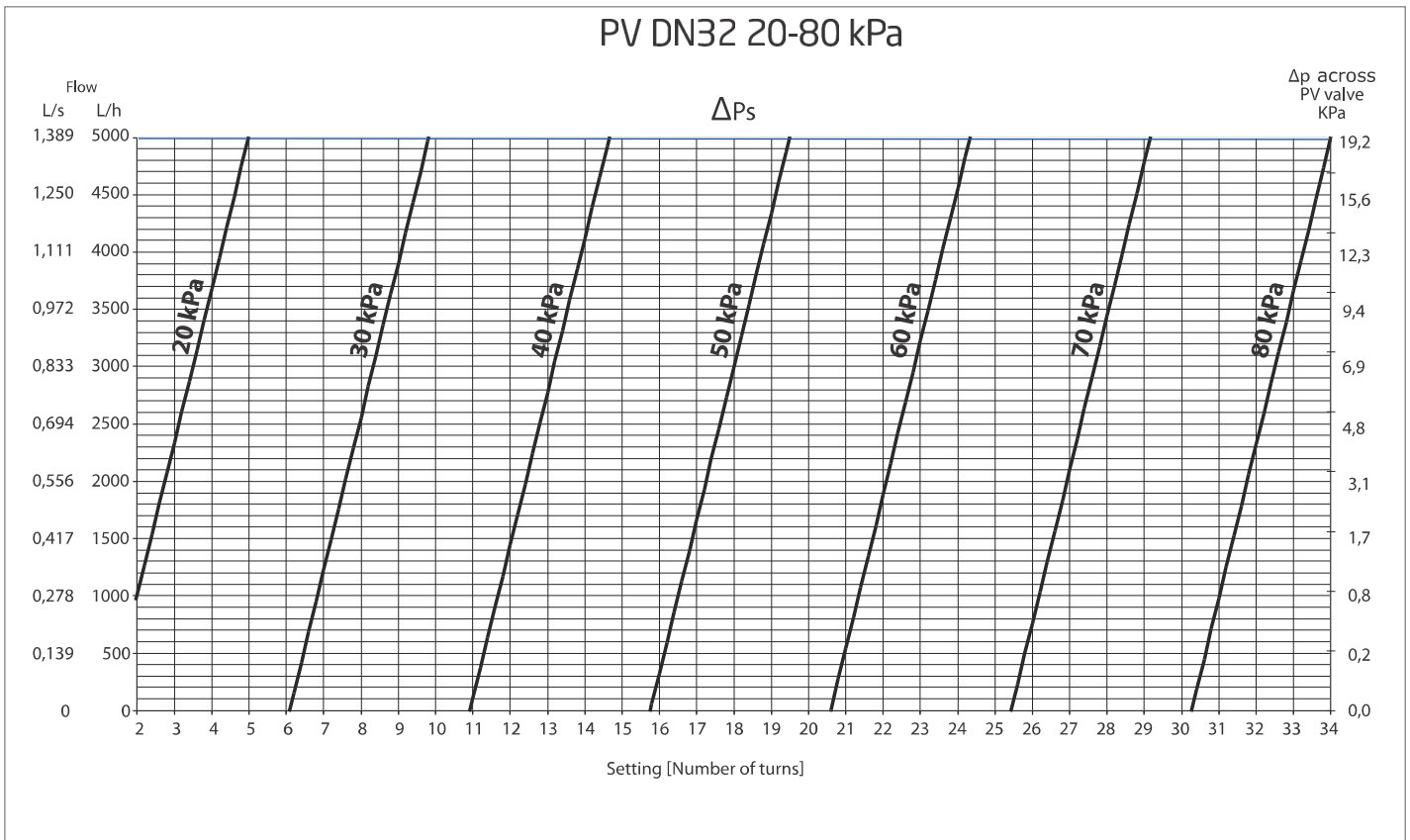
- Dynamic Pressure and Flow Regulation Valve

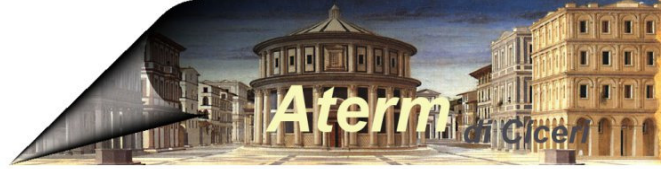




PVS DN32 HP

- Dynamic Pressure and Flow Regulation Valve

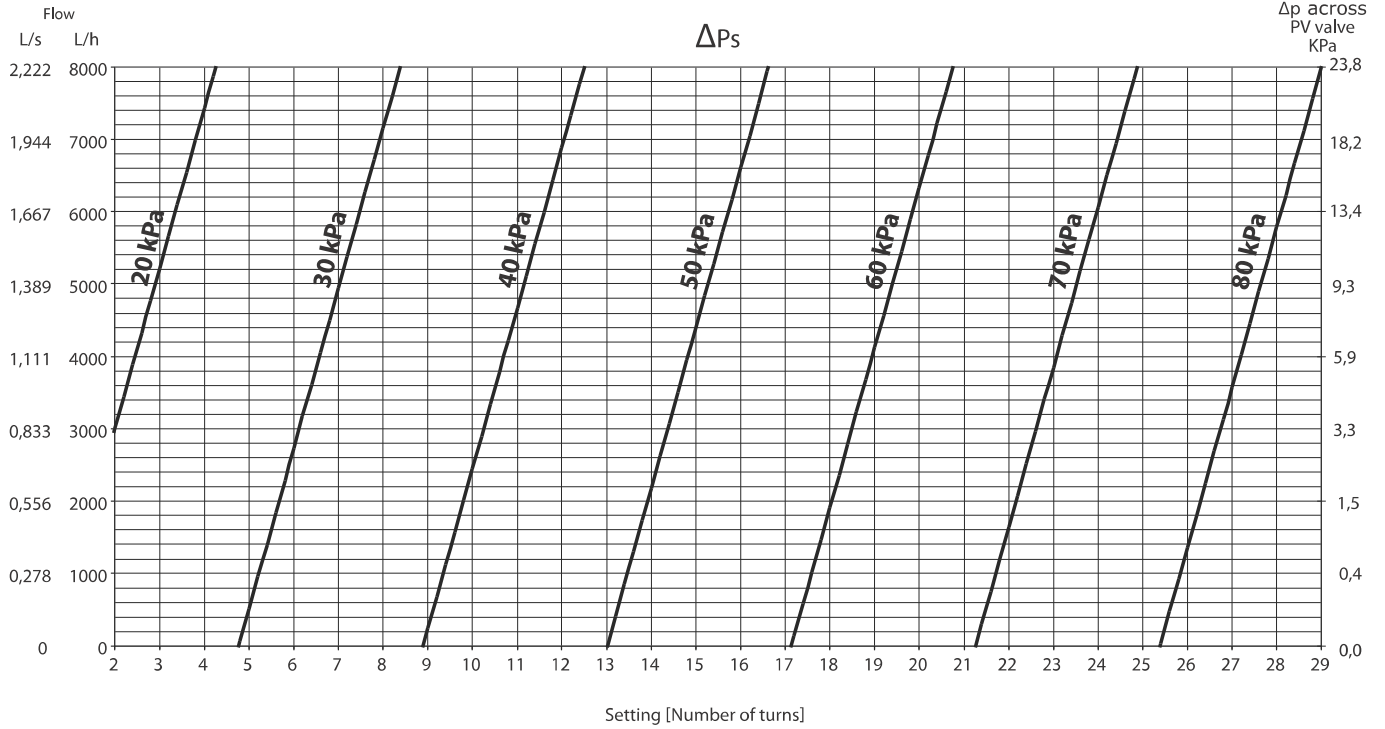




PVS DN40 HP

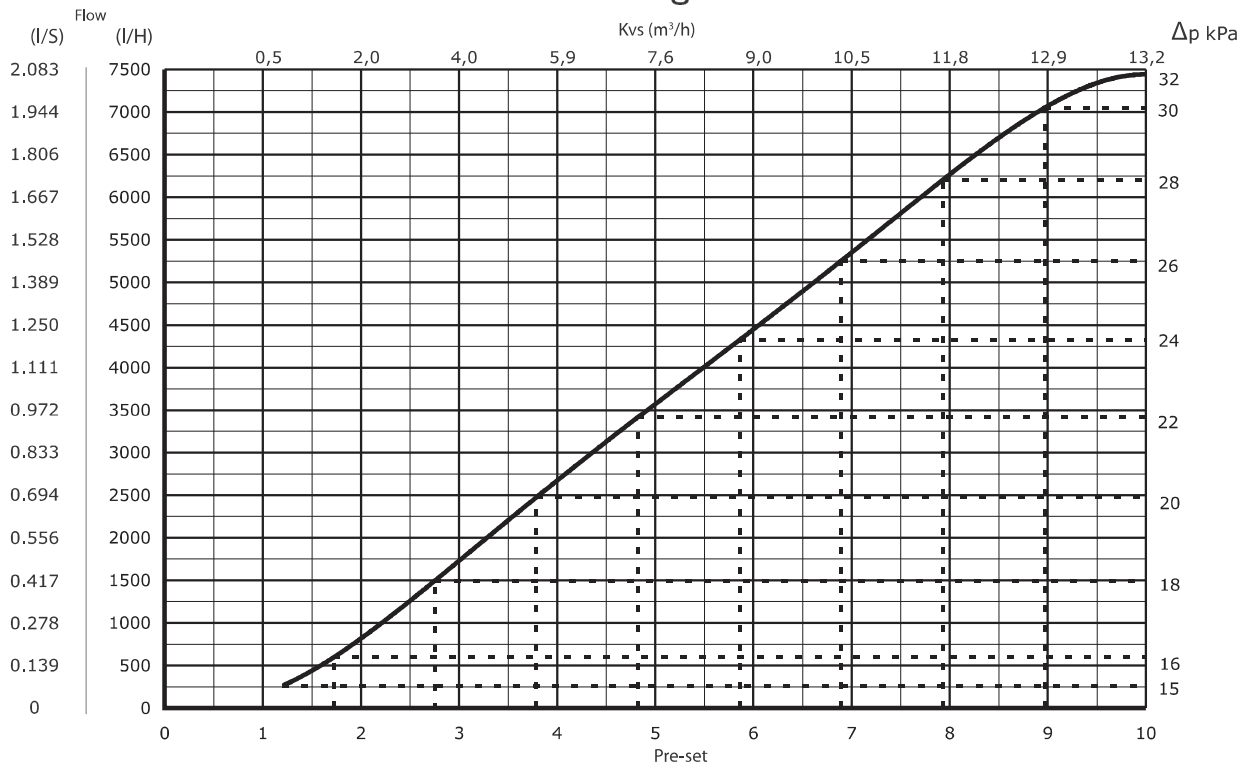
- Dynamic Pressure and Flow Regulation Valve

PV DN40 20-80 kPa



Setting [Number of turns]

S DN40 High Pressure

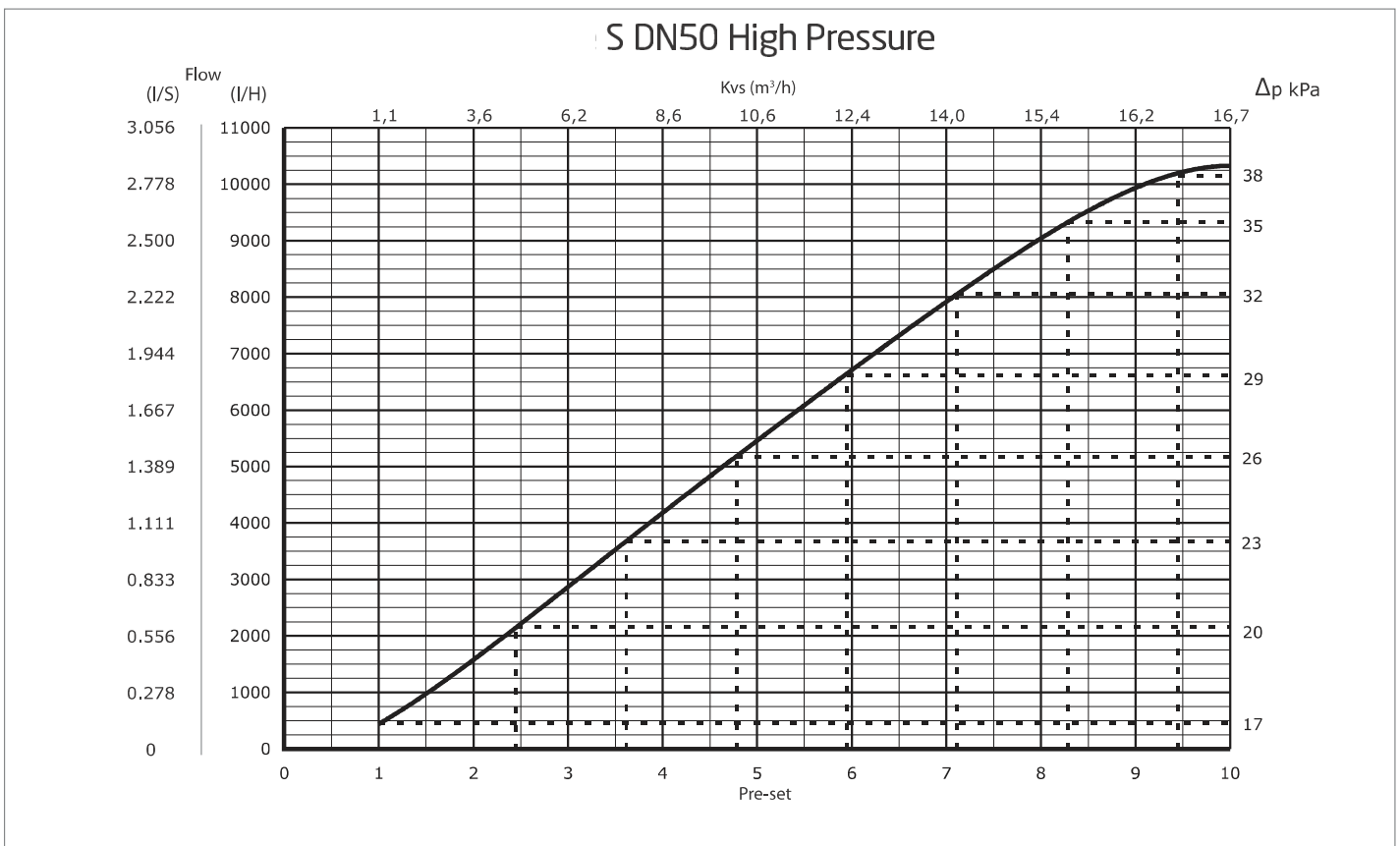
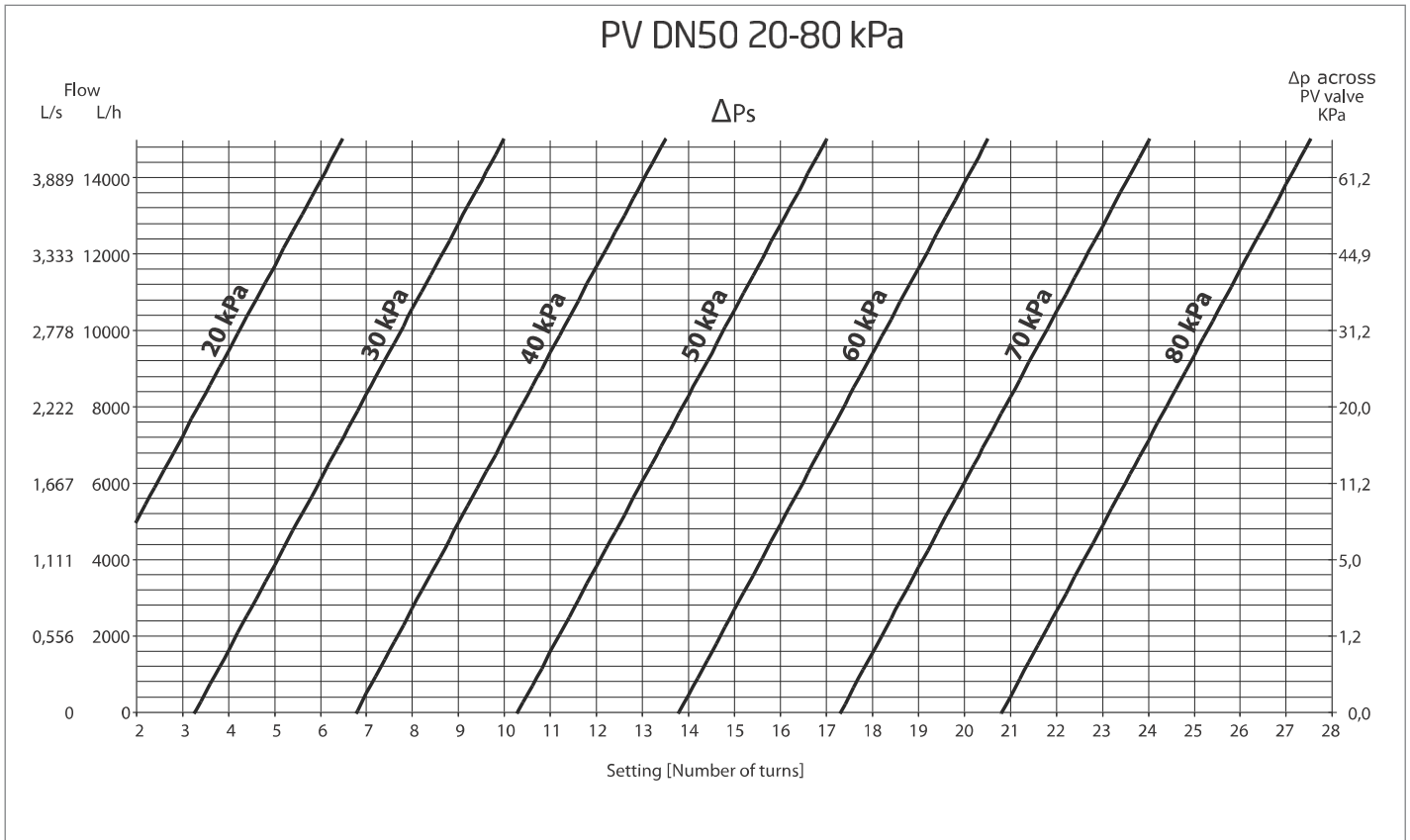


Pre-set



PVS DN50 HP

- Dynamic Pressure and Flow Regulation Valve





PVS - Dynamic Pressure and Flow Regulation Valve

Text for technical specifications

The valve should be a dynamic differential pressure and flow control valve with the option of setting the differential pressure and flow on site without suspension of operation.

The valve should limit the differential pressure in a circuit.

The valve should include optional P/T plugs for the verification of differential pressure in circuit and across the valve.

The differential pressure control valve scale should only be adjustable by means of a key.

The flow control valve should only be adjustable by means of a lockable handle.

The valve should be permanently marked with an indicator for flow direction.

Pressure rating PN16.

