Installation & Operating Manual

ART 24F
Differential Pressure Control Valve (DPCV)

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ART 24F Rev 1

With the use of variable speed pumps in larger systems, the differential pressure is likely to increase when the system is in a partial load condition. This may result in an increase in noise and poor regulation of control valves.

The use of a differential pressure control valve ensures the differential pressure across a circuit (or load) remains constant under all conditions.

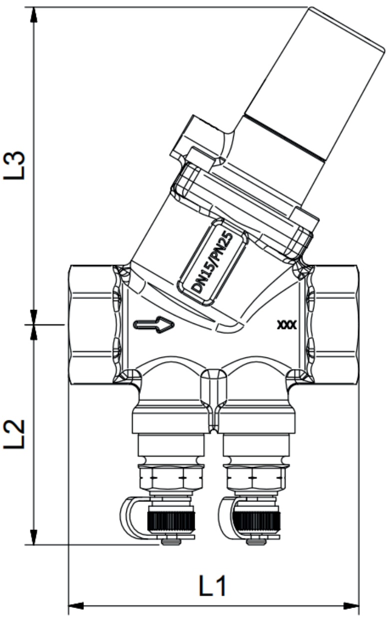
The Albion ART 24F is an adjustable Differential Pressure Control Valve (DPCV) that will automatically control the differential set pressure across the load or circuit and keep it constant.

The valve balances the flow in the main network or in the single risers and branches of heating / cooling systems, by controlling the differential pressure across the load at a stable (set) value, reducing the risk of noise and wear of the thermostatic control valves.

The valve can be selected to operate within several different control ranges, these are:

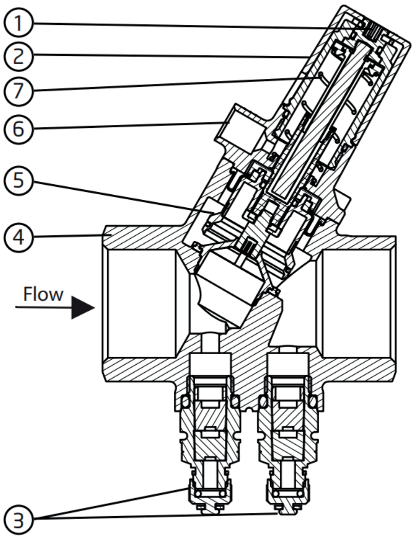
Control Ranges

DN15		DN32	
	5 - 30 kPa		20 - 80 kPa
	20 - 60 kPa	DN40	
DN20			20 - 80 kPa
	5 - 30 kPa	DN50	
	20 - 60 kPa		20 - 80 kPa
DN25 Low			
	5 - 30 kPa		
DN25 High			
	20 - 80 kPa		



Part Name	Material
Valve Housing DN15-32	DZR Brass
Valve Housing DN40-50	Ductile Iron
DP Controller	PPS 40% glass
Spring	Stainless Steel
Diaphragm	HNBR
O-Rings and Seat	EPDM

DN	DN15	DN20	DN25 Low	DN25 High	DN32	DN40	DN50
L1	75	79	83	100	104	138	138
L2	57	57	59	63	68	71	77
L3	82	82	85	134	134	156	156
Kgs	0.71	0.73	0.83	1.57	1.72	3.12	3.55



1. Adjustment Nut
2. Spring Cover
3. P/T Plugs
4. Housing
5. Piston
6. Capillary tube connection
7. Spring

Pressure class: PN25
Max. differential pressure: 450 kPa
Medium temperature: -10°C to 120°C
Capillary tube: ø3mm, L = 1000mm

Conformity with PED 2014/68 EU
Testing; 100% testing according to EN12266

Installation
Before installation check that;

- The piping is clean and free from any burrs.
- The valve is clean and undamaged
- The flange sealing surfaces are clean and undamaged

The ART 24F is unidirectional, reflect the flow direction as indicated by the arrow on the valve body.

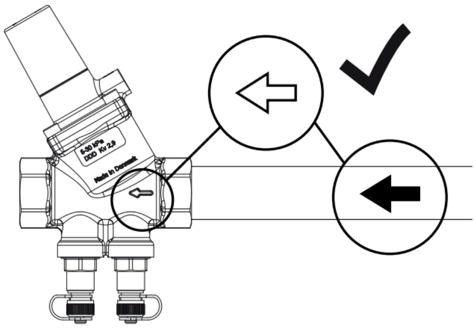
Water hammer may cause damage and ruptures. To reduce this risk, please avoid inclining, twisting and mis-alignments of the pipework which may subject the valve to excessive stresses. It is recommended that elastic joints be used in order to reduce such effects as much as possible.

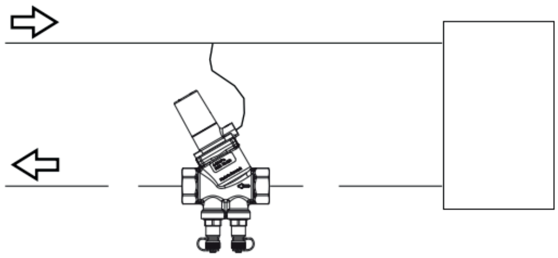
It is advisable to flush any system debris before the valve is installed. If this is not possible please perform the flush with the valve in the fully open position.

If a system pressure test is required, the maximum allowed pressure PS may be exceeded by up to a maximum of 24 bar.

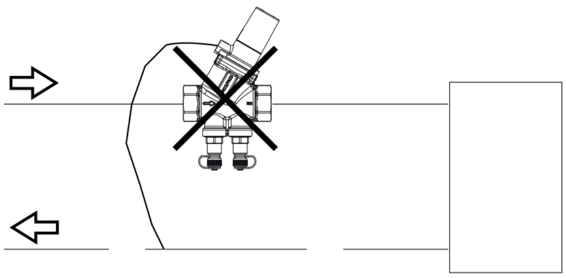
Pressure tests must be carried out at room temperature and with the valve fully open.

The ART 24F Differential Pressure Control Valve shall be mounted in the return pipework, with the capillary tube connected to a feed in the flow system pipework.



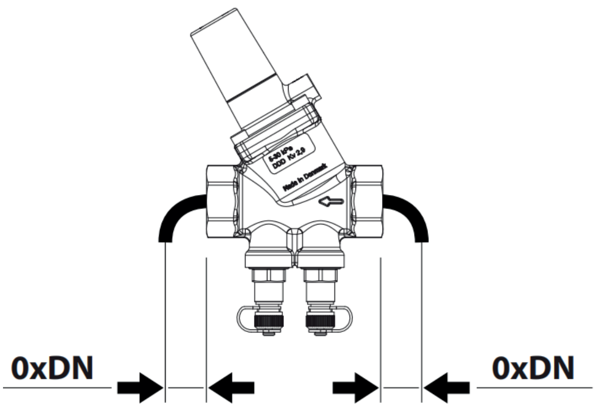


The ART 24F will not perform if installed on the flow system, with the capillary connection to the return line.

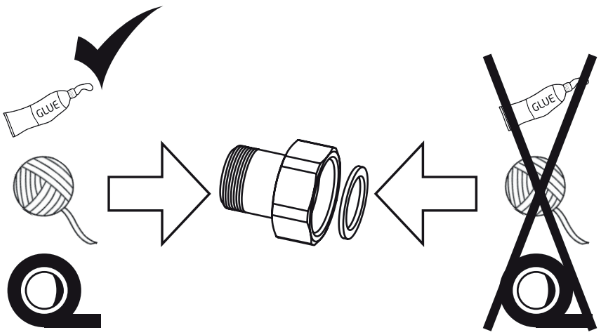


There is no need to install the valve with recommended free flow pipe diameters both before and after the valve.

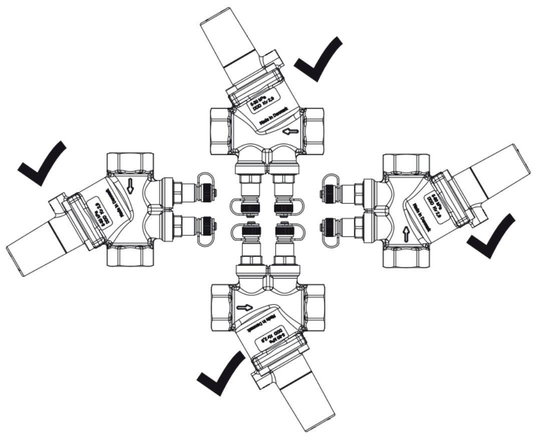
The ART 24F can be installed in domestic and commercial heating and cooling systems without the need for either upstream or downstream pipework allowances.

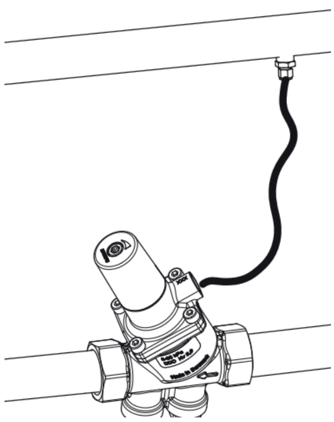


The use of suitable thread sealing compounds is permissible. These are not allowed where direct connection is made to the capillary tube as any excess may cause blockages and/or incorrect pressure reading.



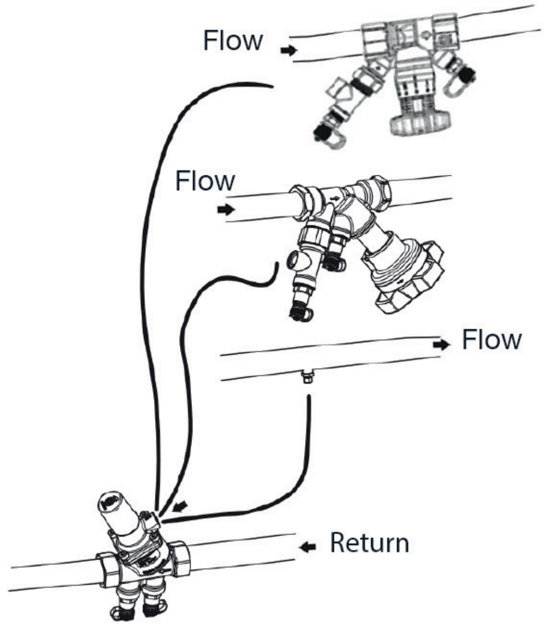
The ART 24F may be installed in any orientation, with the capillary tube connected to the inlet line either directly or via the use of a partner valve





Regulation / Setting of the Differential Pressure
To set the valve to the desired downstream differential pressure, the valve should be set at the minimum position and then adjusted in accordance with the presetting graphs.

This setting adjustment is easily achieved by means of a 4mm allen key.



The differential pressure regulating unit must be installed with the capillary tube connected to the inlet pipe line. This can be either direct or by means of a partner valve.

The differential pressure is measured by a manometer, and the DPCV is adjusted according to the description above, until the required differential pressure is reached.

Note: The capillary tube will require any air bleeding from the tube prior to the valve differential pressure being set.

DN15 - Low				
Flow m³/h	**Flow l/s**	**Flow l/h**	**Control Range (kPa)**	**Kvs**
0.050-0.601	0.014-0.167	50-600	5 - 30	2.9

DN15 - High				
Flow m³/h	**Flow l/s**	**Flow l/h**	**Control Range (kPa)**	**Kvs**
0.101-1.001	0.028-0.278	100-1000	20 - 60	2.9

DN20 - Low				
Flow m³/h	**Flow l/s**	**Flow l/h**	**Control Range (kPa)**	**Kvs**
0.101-1.001	0.028-0.278	100-1000	5 - 30	3.5

DN20 - High				
Flow m³/h	**Flow l/s**	**Flow l/h**	**Control Range (kPa)**	**Kvs**
0.151-2.002	0.042-0.556	150-2000	20 - 60	3.5

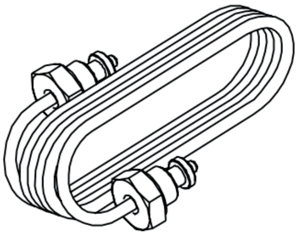
DN25				
Flow m³/h	**Flow l/s**	**Flow l/h**	**Control Range (kPa)**	**Kvs**
0.601-2.099	0.167-0.583	600-2100	5 - 30	4.0

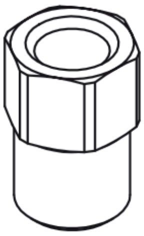
DN25L				
Flow m³/h	**Flow l/s**	**Flow l/h**	**Control Range (kPa)**	**Kvs**
0.749-4.201	0.208-1.167	750-4200	20 - 80	8.7

DN32				
Flow m³/h	**Flow l/s**	**Flow l/h**	**Control Range (kPa)**	**Kvs**
1.001-5.000	0.278-1.389	1000-5000	20 - 80	10.1

DN40				
Flow m³/h	**Flow l/s**	**Flow l/h**	**Control Range (kPa)**	**Kvs**
2.999-7.999	0.833-2.222	3000-8000	20 - 80	15.8

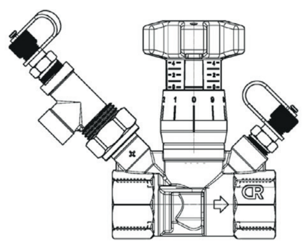
DN50				
Flow m³/h	**Flow l/s**	**Flow l/h**	**Control Range (kPa)**	**Kvs**
5.000-11.498	1.389-3.194	5000-11500	20 - 80	16.2





Capillary Tube Ø3mm x 1000mm	Included as standard with the ART 24F
ART 24F Capillary Adaptor 1/4”	Included as standard with the ART 24F

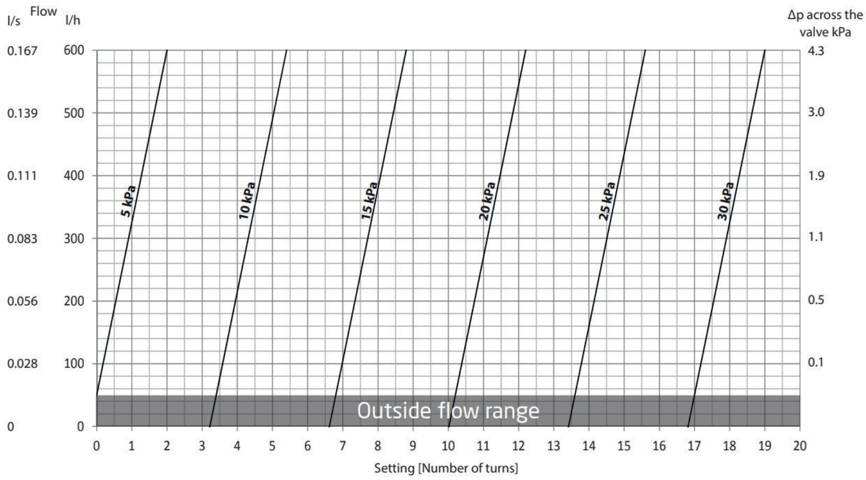
ART 28DP - Optional Partner Valve for ART 24F



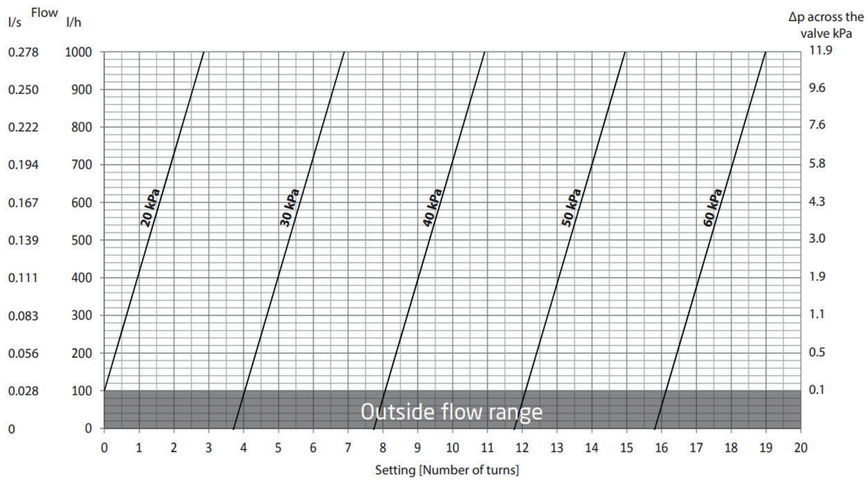
DN	15	20	25	32	40	50
Kv Total (Fully open valve)	1.75	2.87	4.08	6.71	10.40	15.06

Kv = m^3/h at a pressure drop of 1 bar across the fully open valve.

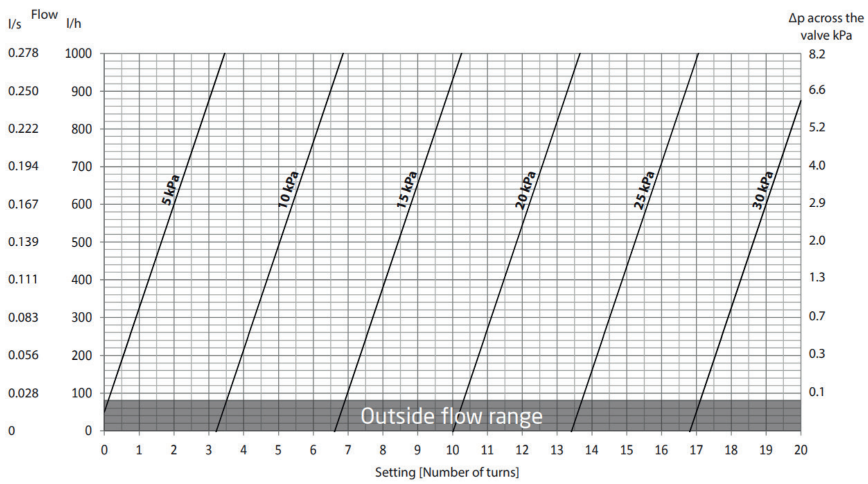
DN15 - 5-30 kPa



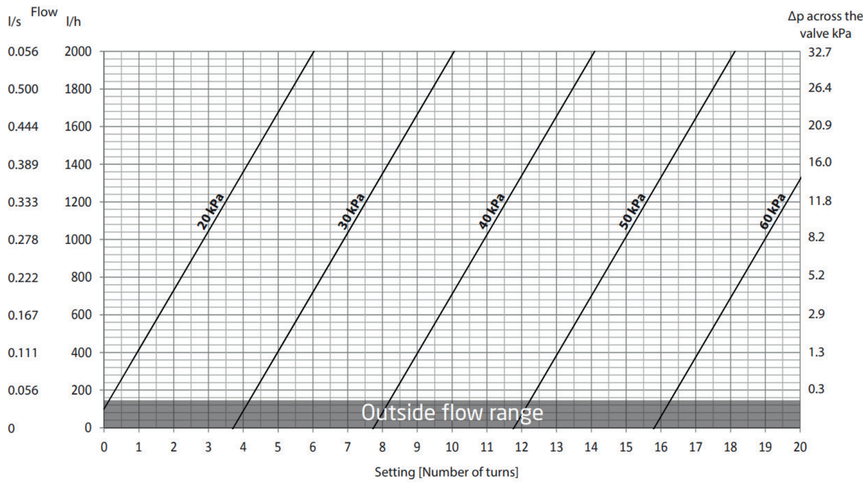
DN15 - 20-60 kPa



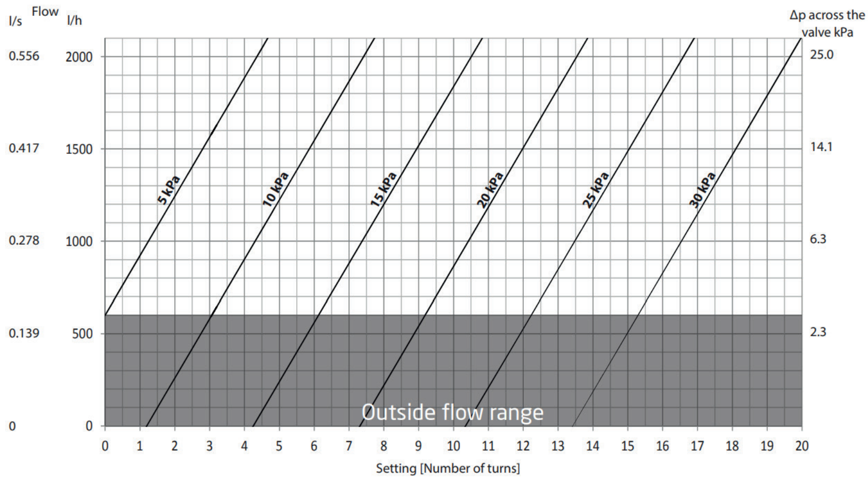
DN20 - 5-30 kPa



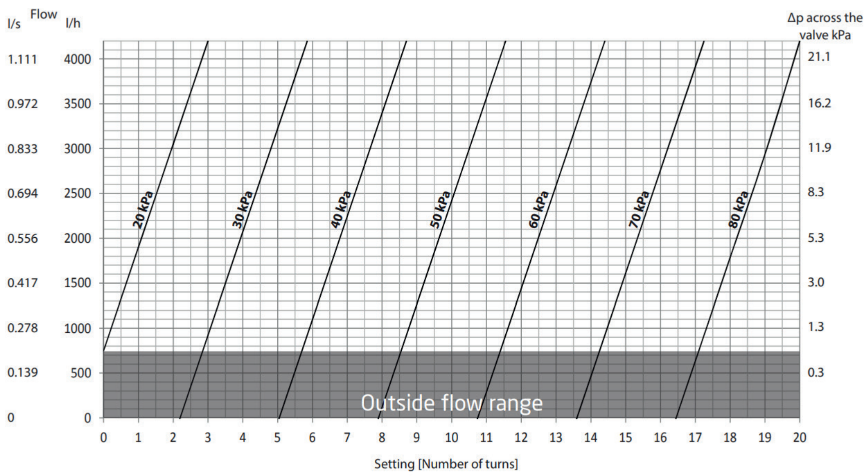
DN20 - 20-60 kPa



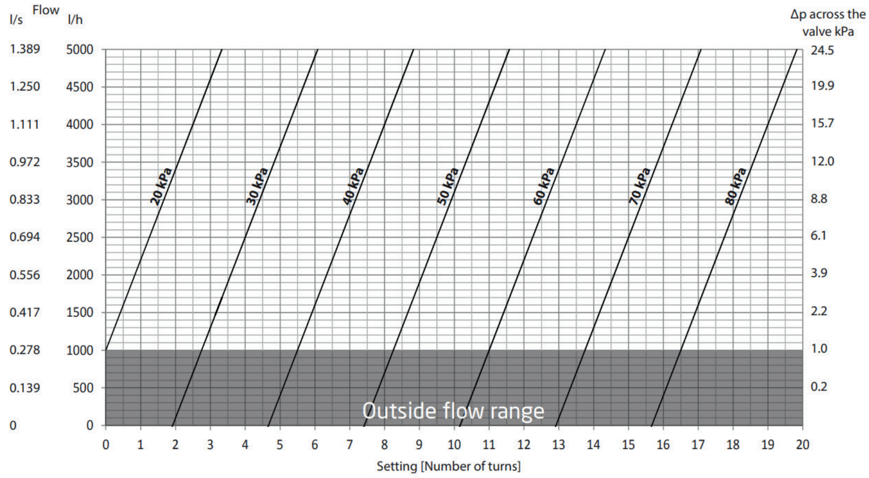
DN25 - 5-30 kPa



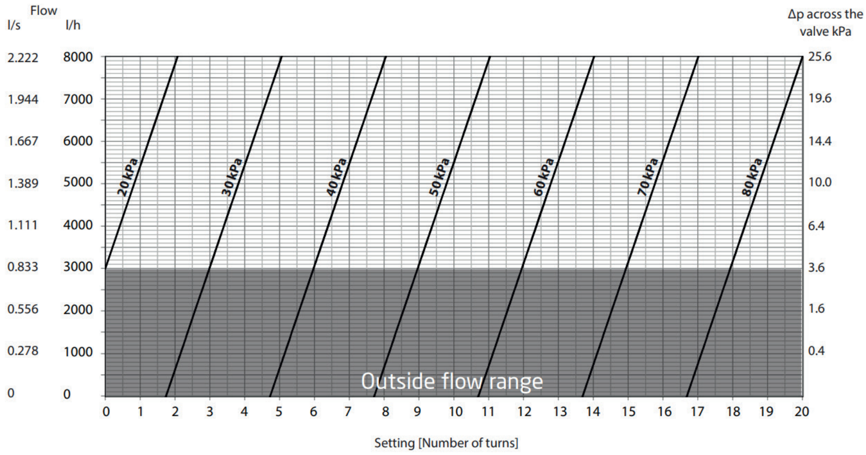
DN25 - 20-80 kPa



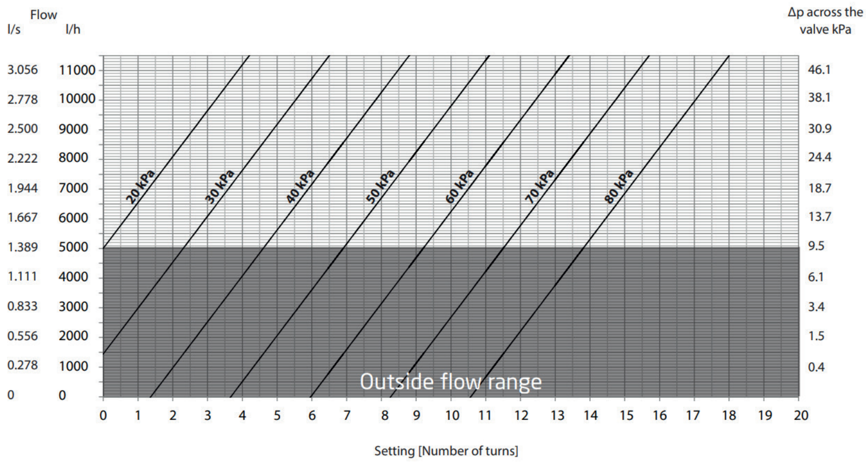
DN32 - 20-80 kPa



DN40 - 20-80 kPa



DN50 - 20-80 kPa



About Albion Valves (UK) Limited

Albion Valves (UK) Limited has been in the industrial heating and valve market for over 40 years, with this comes a wealth of knowledge and expertise that allows us to support our network of independent distributors and their customers.

Albion aims to supply a readily available, complete, quality valve solution alongside excellent cradle-to-grave support and service.

That is why we say, ‘It’s all at Albion’.

Quality

Whatever you need, you can rest assured that if it comes from Albion it has been designed and manufactured to deliver optimum performance and is accredited with the necessary approvals. Our in-house quality and technical departments are always on hand too!

Service

Our cradle-to-grave approach means you will never be on your own. Whether you need assistance with your system designs, an industry-leading turnaround time on your quote, or some help with commissioning after installation, we have a team to help!

Delivery

We know that time is money, and when a priority project depends on a part, you can trust Albion to deliver. We deliver 95% of products the next day with 99.98% accuracy!

Choice

We may have started with a single brass ball valve, but our range has grown substantially since and we can now offer a full building services valve solution, alongside a comprehensive range of valves for the industrial and process markets.

It is becoming more and more apparent to the industry, that it really is, all at Albion.