



Installation & Operating Manual



ART 242 Differential Pressure Control Valve (DPCV)

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The Albion ART 242 is an adjustable Differential Pressure Control Valve (DPCV) that will automatically control the differential set pressure across the load or circuit is constant.

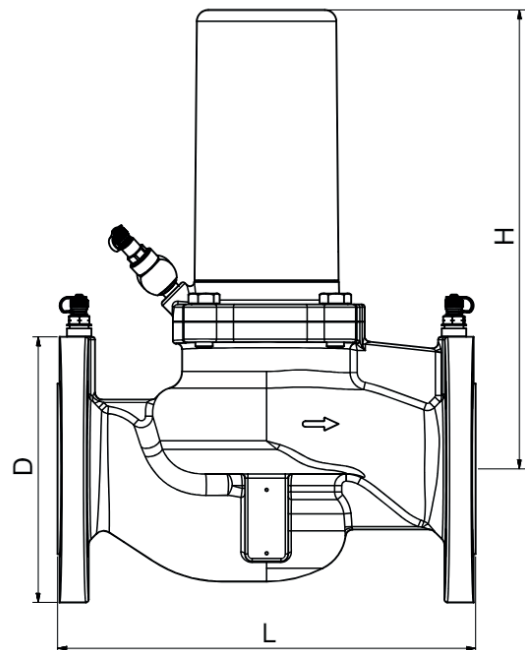
The valve balances the flow in the main network or in the single risers and branches of a heating / cooling systems, by controlling the differential pressure across the load at a stable (set) value, reducing the risk of noise and wear of the thermostatic control valves.

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

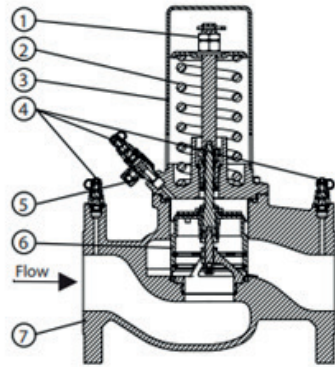
Control Ranges

DN50	
	20 - 80 kPa
	20 - 100 kPa
	50 - 200 kPa
	150 - 500 kPa
DN65 - DN100	
	20 - 100 kPa
	50 - 200 kPa
	150 - 500 kPa
DN125 - DN200	
	20 - 100 kPa
	90 - 350 kPa

Part Name	Material
Valve Housing DN50-65	Cast Iron GJL-250
Valve Housing DN80-200	Ductile Iron GJS-400
Valve Cover	Ductile Iron GJS-400
DP Controller	Stainless Steel
Spring	Spring wire (surface treated)
Spindle assembly	Stainless Steel
Diaphragm	Reinforced EPDM
O-Rings	EPDM

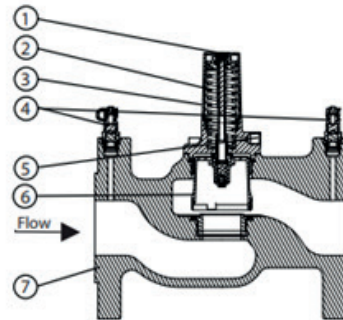


DN	DN50	DN65	DN80	DN100	DN125	DN150	DN200
Series	Standard	Standard	Standard	Standard	Standard	Standard	Standard
L	230	290	310	350	400	480	600
H	272	318	371	505	536	584	587
D	165	185	200	235	270	285	380
Kgs	16	21	31	50	77	115	180



*PV Compact DN50-DN200 with 3 P/T Plugs
cross sectional drawing*

- ① Adjustment screw
- ② Spring
- ③ Spring cover
- ④ P/T Plugs
- ⑤ Capillary tube connection
- ⑥ Piston
- ⑦ Housing



*PV Compact DN50 with 2 P/T Plugs
cross sectional drawing*

Valve housing/Top cover: GJL-250 or GJS-400

Top cover: DZR Brass CWN602

DP controller: Stainless steel
PPS 40% glass

Spring: Spring wire (surface treated)

Spindle assembly: Stainless steel

Diaphragm: Reinforced EPDM

O-rings: EPDM

Plastic cap over spring: PA6.6

Pressure class: PN16

Flange connections: ISO 7005-2/EN 1092-2

Max. differential pressure: 1000 kPa

Medium temperature: DN50-DN200 PN16: -10°C to 120°C

Capillary tube: $\varnothing 6\text{mm}$, L = 2000mm
 $\varnothing 3\text{mm}$, L = 1000mm

Conformity with PED 2014/68 EU

Face-to-Face; EN558-1

Flanges; EN1092-2

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 242 is unidirectional, reflect the flow direction and indicated by the arrow on the valve body.

Use suitable gaskets and check they are correctly centred before fully installing the valve.

Do not weld the flanges to the pipework after installing onto the valve.

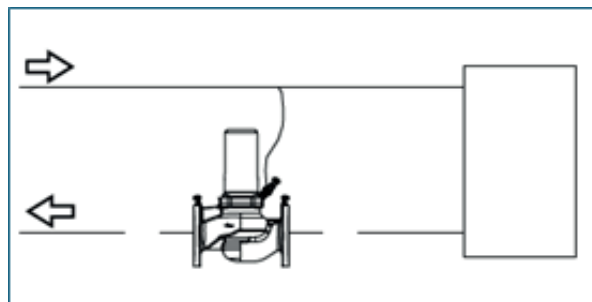
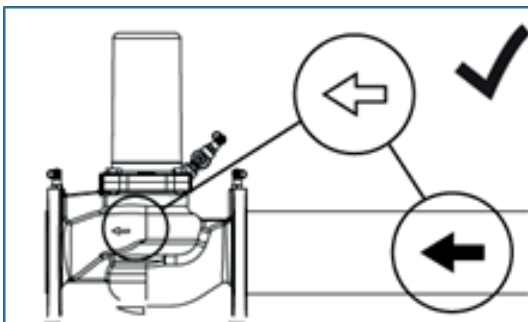
Water hammer may cause damage and ruptures. To reduce this risk, please avoid inclining, twisting and mis-alignments of the pipework which may subject the valve to excessive stresses. IT is recommended that elastic joints be used in order to reduce such effects as much as possible.

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.

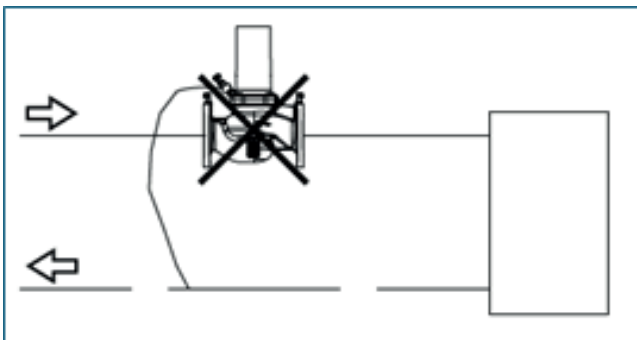
If a system pressure test is required, the maximum allowed pressure PS may be exceeded by up to a maximum of 24 bar.

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

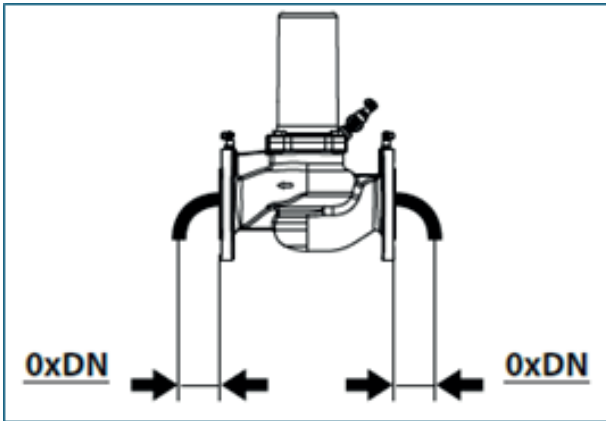
The ART 242 Differential Pressure Control Valve shall be mounted in the return pipework, with the capillary tube connected to a feed in the flow system pipework.



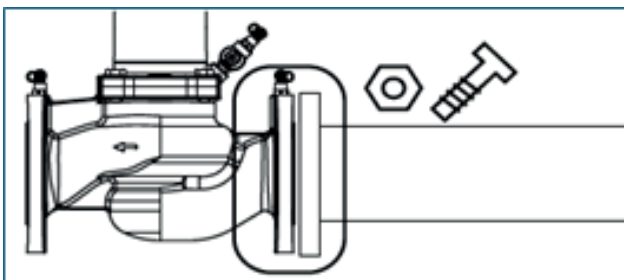
The ART 242 will not perform if installed on the flow system, with the capillary connection to the return line.



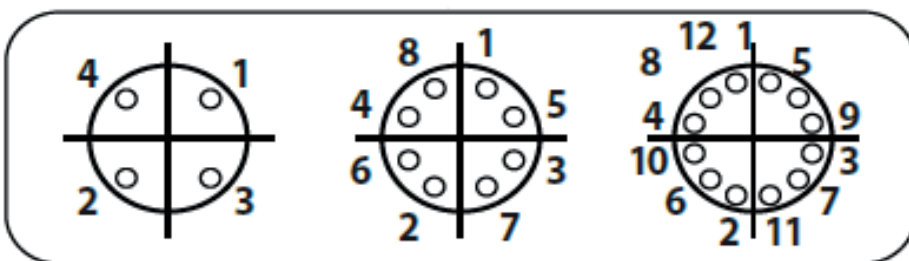
There is no need to install the valve with recommended free flow pipe diameters both before and after the valve.



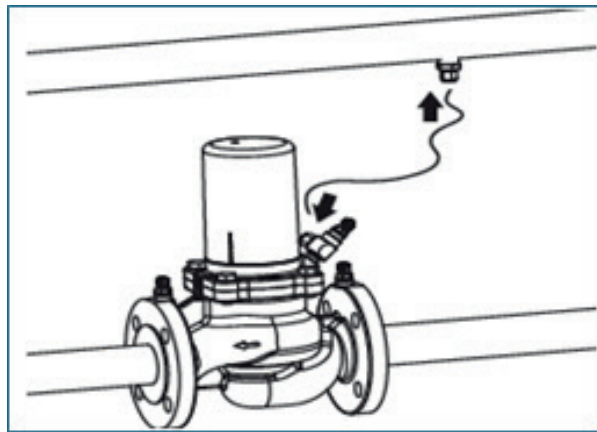
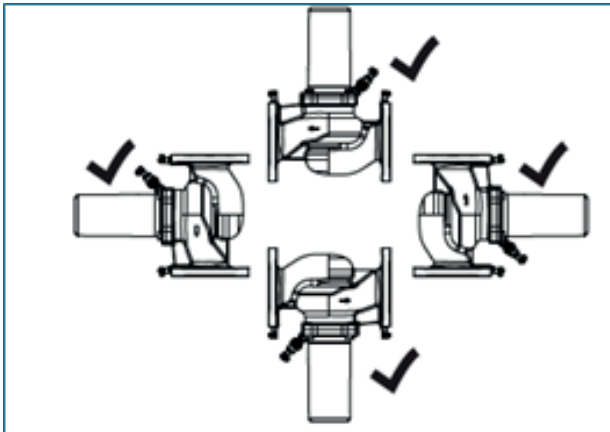
When installing the valve please ensure the correct bolt tightening sequence is employed and that the tightening torque is controlled (according to the gasket manufacturers tightening torques).



For reference please refer to the Albion Valves – Technical Guide ‘Bolt Tightening Sequence’



The ART 242 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



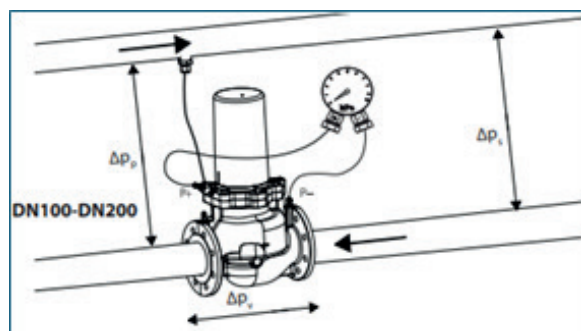
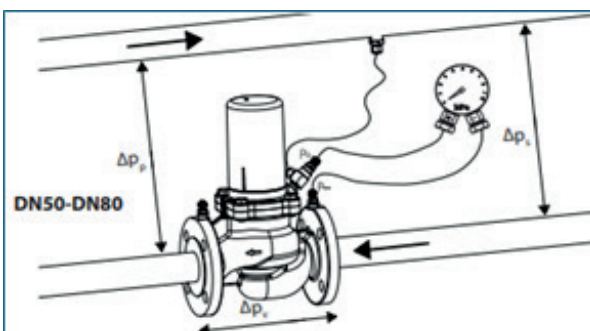
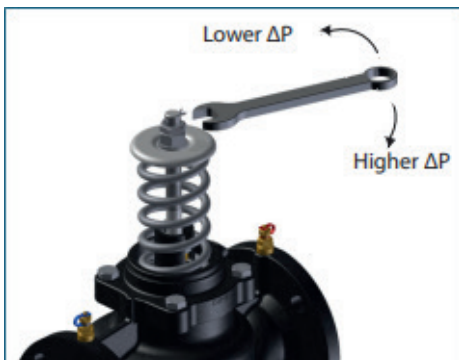
Regulation / Setting of the Differential Pressure

The valve is set by removing the plastic cap over the spring.

Loosen the upper nut and set the ΔP by turning the lower nut to the required ΔP .

After setting the valve, the upper nut must be locked against the lower nut, to stop them from turning.

Replace the plastic cap over the spring.





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

Example:

Pump pressure (ΔPP) = Differential pressure in system (ΔPS) + Pressure loss across valve (ΔPV)

Desired differential pressure in system = 30 kPa

Flow in system = 10 m³ /h

Valve DN50 (Kv=29.0 m³ /h)

Pump pressure (ΔPP) = 30 + ((10/29)² * 100) = 30 kPa + 11.9 kPa = 41.9 kPa

DN50 - Standard				
Flow m ³ /h	Flow l/s	Flow gpm	Control Range (kPa)	Kvs
3.2-13.0	0.90 - 3.60	14.1 - 57.2	20 - 100	29
5.1-20.5	1.42 - 5.70	22.5 - 90.3	50 - 200	29
8.9-35.5	2.47 - 9.87	39.2 - 156	150 - 500	29

DN65 - Standard				
Flow m ³ /h	Flow l/s	Flow gpm	Control Range (kPa)	Kvs
4.70 - 18.8	1.30 - 5.22	20.7 - 82.8	20 - 100	42
7.4 - 29.7	2.06 - 8.25	32.6 - 131	50 - 200	42
12.9 - 51.4	3.57 - 14.3	56.8 - 226	150 - 500	42

DN80 - Standard				
Flow m ³ /h	Flow l/s	Flow gpm	Control Range (kPa)	Kvs
7.5 - 30.0	2.08 - 8.32	33.0 - 132	20 - 100	67
11.8 - 47.4	3.29 - 13.2	52.0 - 209	50 - 200	67
20.5 - 82.1	5.70 - 22.8	90.3 - 362	150 - 500	67

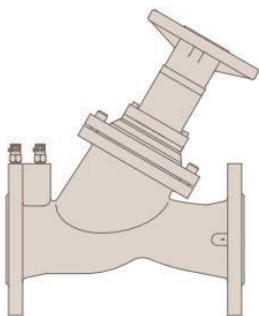
DN100 - Standard				
Flow m ³ /h	Flow l/s	Flow gpm	Control Range (kPa)	Kvs
12.9 - 51.4	3.57 - 14.3	56.8 - 226	20 - 100	115
20.3 - 81.3	5.65 - 22.6	89.4 - 358	50 - 200	115
35.2 - 141	9.78 - 39.1	155 - 621	150 - 500	115

DN125 - Standard				
Flow m ³ /h	Flow l/s	Flow gpm	Control Range (kPa)	Kvs
19.0 - 76.0	5.28 - 21.1	83.7 - 335	20 - 100	170
40.3 - 161	11.2 - 44.8	177 - 709	90 - 350	170

DN150 - Standard				
Flow m ³ /h	Flow l/s	Flow gpm	Control Range (kPa)	Kvs
28.0 - 112	7.76 - 31.1	123 - 493	20 - 100	250
59.3 - 237	16.5 - 65.9	261 - 1040	90 - 350	250

DN200 - Standard				
Flow m ³ /h	Flow l/s	Flow gpm	Control Range (kPa)	Kvs
30.7 - 123	8.54 - 34.2	135 - 542	20 - 100	275
65.2 - 261	18.1 - 72.5	287 - 1150	90 - 350	275

ART 255 (FODRV) - Optional Partner Valve for ART 242



DN	50	65	80	100	125	150	200	250	300
Kv Total (Fully open valve)	38	57	79	137	260	415	612	971	1412

Kv = m³/h at a pressure drop of 1 bar across the fully open valve.



About Albion Valves (UK) Ltd

Albion has been supplying valves and fittings to the building services and industrial markets for the past 40 years.

Albion was created with the sole purpose of providing quality products at an affordable price. With a growing reputation for quality and reliability, Albion is now an established brand providing the industry with a trusted alternative to premium-priced products.

Our commitment to setting the highest standards in all areas of our business means, if you're looking for quality, service, delivery and choice — you'll find 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 department are always on hand too!

Service

We pride ourselves on our customer service – we have even won awards for it! Our cradle to grave approach means you will never be on your own!

Delivery

We know that time is money, and when a priority project depends on a part you can trust Albion to deliver – next day for all orders placed before 4:00PM.

Choice

We may have started out with a single brass ball valve, but our range has grown substantially since and we now consider ourselves to be a 'One Stop Shop' with our comprehensive range. It is becoming more and more apparent to the industry, that it really is all at Albion.