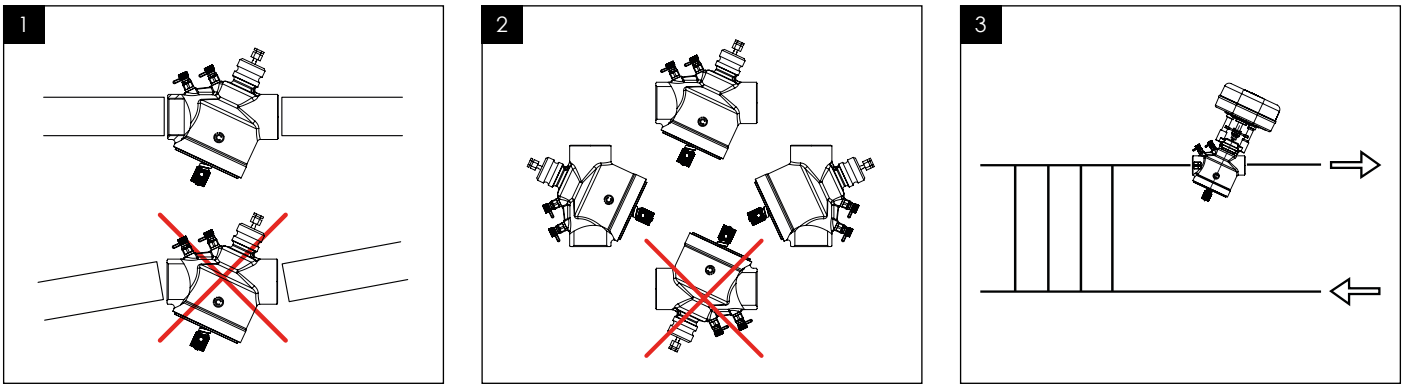
VLX DN40-50

Pressure Independent Control Valves

Model code	Ordering code
VLX6P	1373xx
VLX8P	137315

MOUNTING INSTRUCTIONS



⚠ **WARNING**

Media Compatibility - It is the responsibility of the installer or product specifier to verify media compatibility of the valves construction materials with the supplier of water treatment/heat transfer solution.

Best Practice Guidelines - Appropriate filter and a dirt separator shall be installed on the main branch pipework. Water treatment shall be executed according to VDI 2035 guidelines.

Recommendations - The pipework system should be flushed and strainers cleaned prior to the operation. Valves should be installed in the return pipe to reduce exposure to media temperature extremes. We recommend the use of sealants such as adhesive sealants for pipes or Teflon tape. When using hemp as a pipe sealant, make sure there are no threads left in the product or pipe.

Failure to comply with the warnings provided in this document will invalidate the warranty.

MAINTENANCE

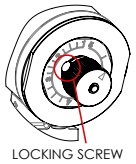
Stem packing tight check

Valves are equipped with a stuffing box sealed by a double O-ring and, therefore, they do not require any particular maintenance. In case of irregular leakage, O-Rings and stem packing have to be replaced.

COMMISSIONING

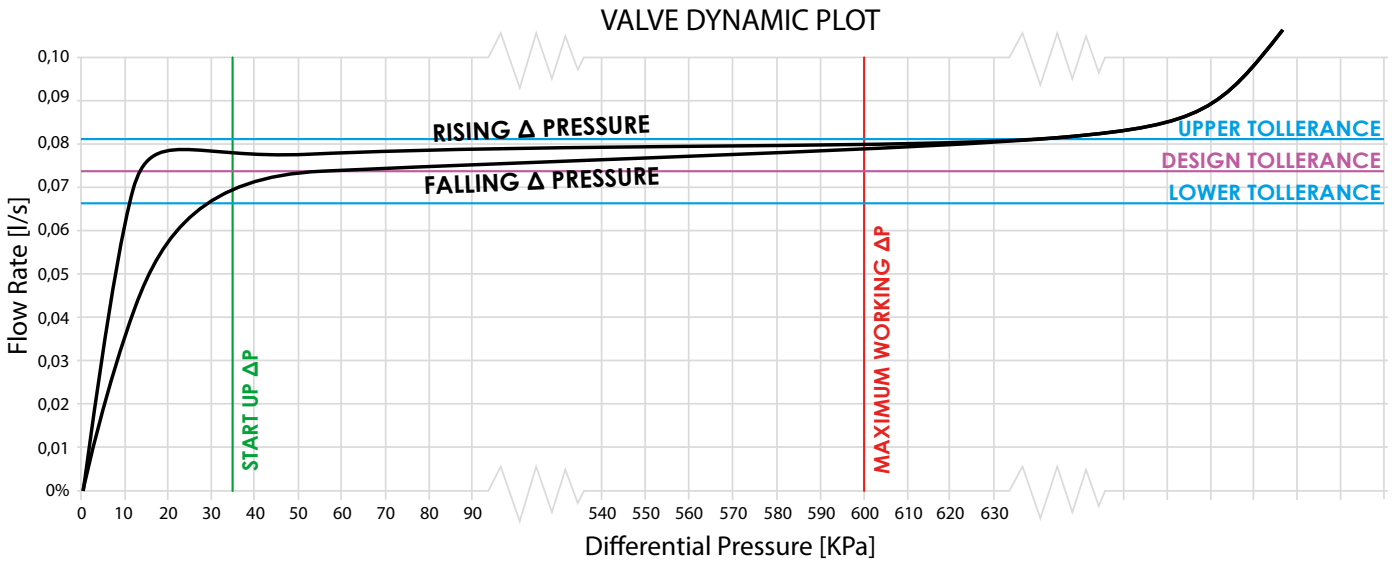
Each VLX valve can be set independently and in any order provided there is sufficient pressure available to enable its integral spring-operated diaphragm to operate. Branches close to the pump are most likely to have sufficient pressure at start up and are therefore an obvious place to start. The commissioning procedure is as follows:

1. Ensure that the selected VLX 2 port valve is fully open. Measure the differential pressure across its pressure tappings and confirm that the value obtained is greater than the minimum value indicated in the product brochure. If this is not the case investigate the causes and, if necessary, report to the designer.
2. Adjust the pre-setting knob (caliber) to the specified design flow rate, use the locking screw to fix the position and record the setting.
3. Repeat the above process for all of the VLX valves on the branch.
4. Measure the flow rate indicated at the flow measurement device on the branch. Confirm that the value recorded is equal to the sum of the flows set at downstream VLX valves. If this is not the case investigate the causes and, if necessary, report to the designer.
5. Repeat this procedure until all VLX valves in the system have been set and their summated flows checked against upstream flow measurement devices.
6. Measure the differential pressure across the VLX valve on the system index terminal (usually the most remote terminal from the pump). Adjust the pump speed until the differential pressure across this valve is equal to the minimum value indicated in the product brochure.
7. Determine the differential pressure at the sensor location. Usually the sensor is placed at the distance from the pump equal to 2/3 of the distance of the farthest terminal from the pump itself. Set the pump speed to control such that the value indicated at the sensor is maintained constant under all conditions.



The performances stated in this sheet can be modified without any prior notice.

8. Measure and record the total flow rate, differential pressure and energy consumption at the pump.
Run all two port valves to their closed positions. Measure and record the total flow rate, differential pressure and energy consumption at the pump. Calculate and report the overall energy saving achieved i.e. between full load and minimum load operation.



HYSTERESIS

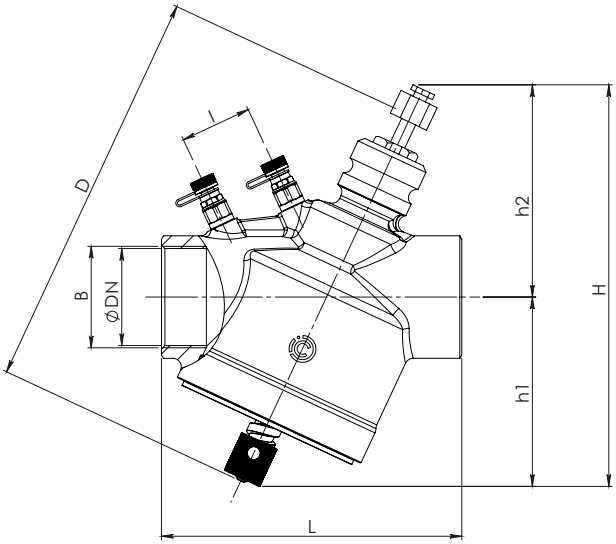
The accuracy with which the flow rate setting is maintained also depends on whether the differential pressure across the valve is rising or falling. It can be seen from the fig. 1 that there are distinct rising and falling pressure curves. The difference between the two curves is often referred to as the valve's "hysteresis". The hysteresis effect is caused by the sealing elements in the pressure regulating part of the valve, although the spring and elastic membrane may also have some influence. This hysteresis effect can be seen in all self-acting spring operated PICVs and DPCVs. Due to hysteresis, two repeatable flow readings can be obtained depending on whether the differential pressure across the valve has risen or fallen to the value when the measurement is taken. Since the valves are factory tested on their rising pressure curves, the flow setting device indicates flows that correspond to a rising rather than decreasing differential pressure. For the reasons explained, the valve's proportional band and hysteresis may cause flow values to vary from their set values. These effects can be minimised by ensuring that systems are:

- Designed such that when a PICV opens to increase the flow rate to a terminal unit, its differential pressure simultaneously increases rather than decreases.
- Commissioned such that when a PICV is set to its required flow rate, the differential pressure across the valve is as close as possible to its final operating value.

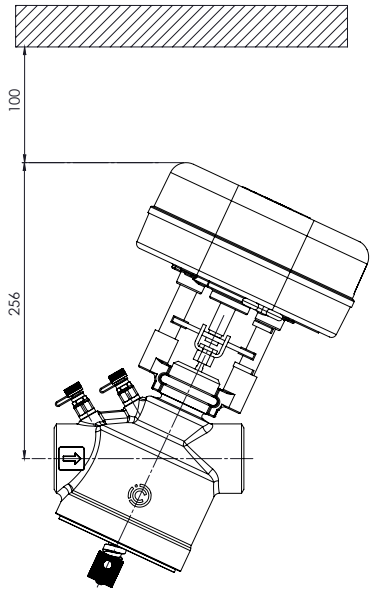
Both of these objectives can be easily achieved by ensuring that during commissioning and subsequent system operation, pump pressure always reduces as PICVs close. The best way to achieve this is to set the pump speed controller such that a constant differential pressure is maintained at a differential pressure sensor located towards the index PICV i.e. the PICV located furthest from the pump.
A single sensor located two thirds of the way along the index branch is satisfactory in systems with a uniform load pattern; alternatively multiple sensors across the most remote PICV controlled terminal branches can be used in systems with an unpredictable and varying load pattern. Controlling pump speed such that pump pressure is maintained constant should be avoided wherever possible. This solution inevitably results in large increases in differential pressure across PICVs as they close, resulting in the largest possible variations from set flow rate values, much better than standard two ports.

DIMENSIONS [mm]

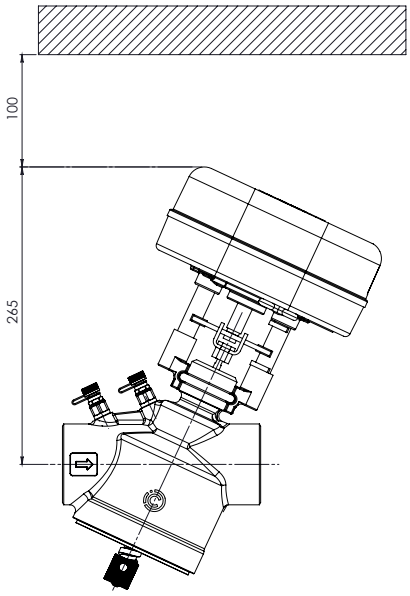
Cod.	DN	B	L	H	h1	h2	D	I	Weight [kg]
VLX6P	40	1 ½"	164	227	111	116	244	39	4,931
VLX8P	50	2"	176,5	236	111	125	254	42	5,667

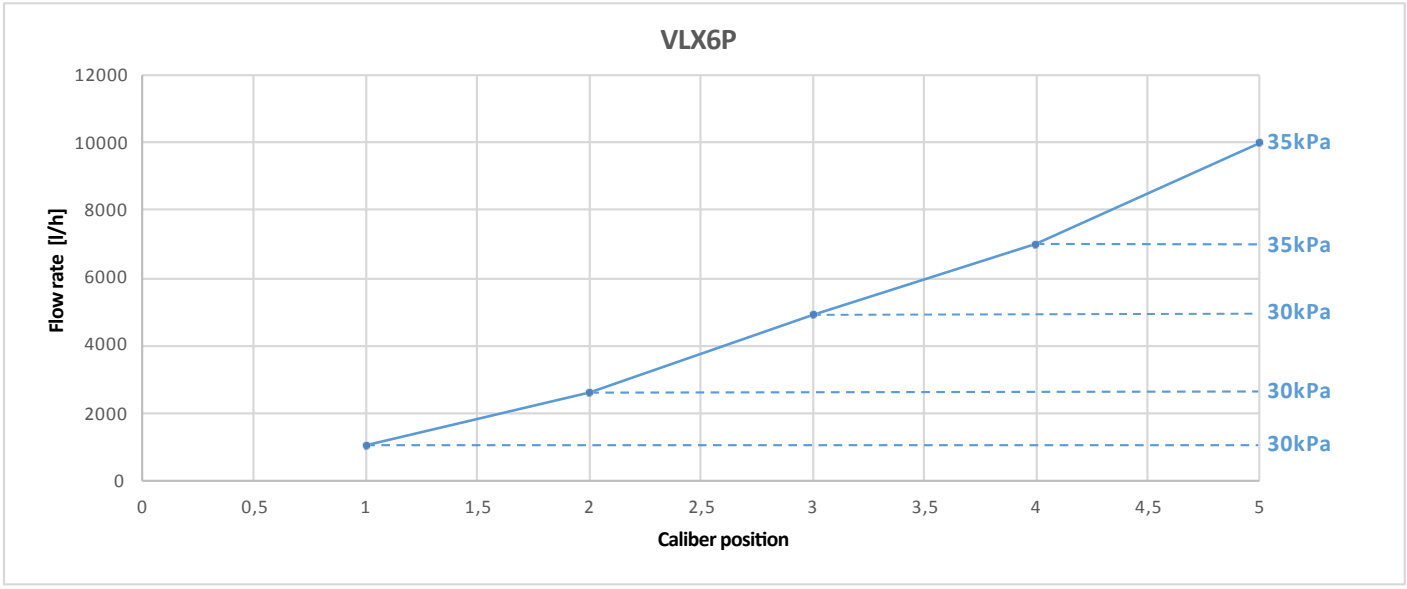


VLX6P + MVE.04S(R)



VLX8P + MVE.04S(R)




VLX6P
12000
10000
8000
6000
4000
2000
0
Flow rate [l/h]
0
0,5
1
1,5
2
2,5
3
3,5
4
4,5
5
Caliber position
35kPa
35kPa
30kPa
30kPa
30kPa

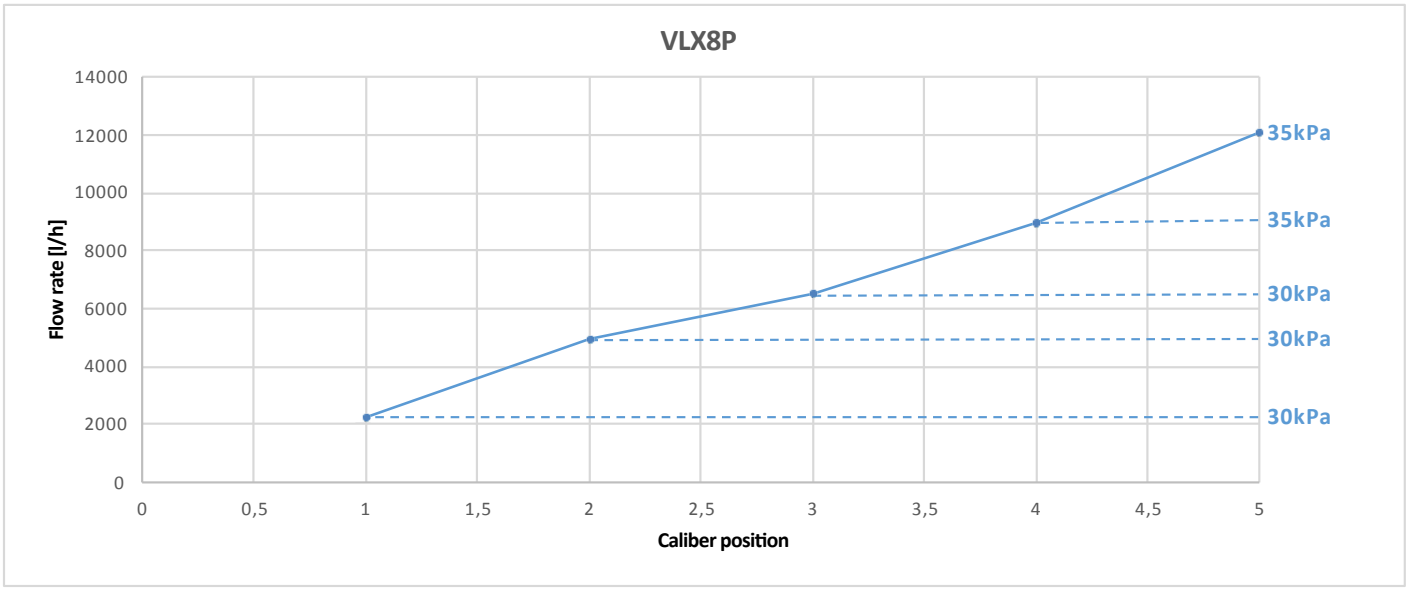

VLX8P
14000
12000
10000
8000
6000
4000
2000
0
Flow rate [l/h]
0
0,5
1
1,5
2
2,5
3
3,5
4
4,5
5
Caliber position
35kPa
35kPa
30kPa
30kPa
30kPa

TABLE FLOW RATE - CALIBRATION

Caliber Position	Flow Rate [l/h]	
	VLX6P	VLX8P
5	**10000**	**12500**
4,75	9250	11625
4,5	8500	10750
4,25	7750	9875
4	**7000**	**9000**
3,75	6450	8375
3,5	5900	7750
3,25	5350	7125
3	**4800**	**6500**
2,75	4288	6075
2,5	3775	5650
2,25	3263	5225
2	**2750**	**4800**
1,75	2338	4150
1,5	1925	3500
1,25	1513	2850
1	**1100**	**2200**