



Double Regulating Valve



NexusValve
Brevis



COMAP
Flamco



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Chapter NexusValve Brevis

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1. Safety instructions

Please read the instructions carefully before installation

The installation and initial operation of the assembly may be carried out only by an authorised specialist company.

Prior to starting work, familiarise yourself with all parts and how they are handled.

The application examples in these operating instructions are ideas sketched out. Local laws and regulations have to be observed.

Target group:

These instructions are intended for authorised specialists exclusively. Work on the heating system, the potable water as well as gas and power network may be carried out by specialists only.



Please follow these safety instructions carefully in order to avoid hazards and damage to people and property.

1.1 Rules/regulations

Please observe the applicable accident prevention regulations, the environmental legislation and the legal rules for mounting, installation and operation. Moreover, please observe the appropriate guidelines of German standard DIN, EN, DVGW, VDI and VDE (including lightning protection) as well as all current relevant country-specific standards, laws and regulations. Old and newly enforced regulations and standards shall apply, if they are relevant for the individual case. Moreover, the regulations of your local energy supply company have to be observed.

Electrical connection:

Electrical wiring work may be carried out by qualified electricians only. The VDE regulations and the specifications of the relevant energy supply company have to be met.

Excerpt:

Installation and construction of heat generators as well as the drinking water heaters:

DIN EN 4753, Part 1: Water heater and water heating plants for potable and process water.

DIN EN 12828 Heating systems in buildings.

Allowed medium (cf. DIN EN 12828): Heating water according to VDI 2035 (non-corrosive), water-glycol mixtures with up to max. 50% glycol content.

DIN 18 421: Insulation work on technical plants

AV B Wa s V Regulations concerning the general conditions for the supply with water

DIN EN 806 ff.: Technical rules for potable water installation

DIN 1988 ff.: Technical rules for potable water installation (national addition)

DIN EN 1717: Protection of potable water against contaminations

DIN 4751: Safety equipment

Electrical connection:

VDE 0100: Erection of electrical equipment, grounding, protective conductor, potential equalisation conductor.

VDE 0701: Repair, modification and testing of electrical devices.

VDE 0185: General aspects on the erection of lightning protection systems.

VDE 0190: Main potential equalisation of electrical plants.

VDE 0855: Installation of antenna plants (shall apply mutatis mutandis).

Additional remarks:

VDI 6002 Sheet 1: General principles, system technology and use in house building

VDI 6002, Sheet 2: Use in students' hostels, retirement homes, hospitals, indoor swimming pools and on camping facilities

Caution:

Prior to any electrical wiring work on pumps and controls, these modules have to be disconnected from voltage correctly.

1.2 Intended use

Inexpert installation as well as use for a purpose not intended of the assembly shall rule out all warranty claims.

All shut-off valves may be closed by an approved specialist only in case of servicing as otherwise the safety valves are not effective.



Do not modify the electrical components, the construction or the hydraulic components! You will impair the safe function of the plant otherwise.

1.3 Initial operation

Prior to the initial operation, the plant has to be tested for tightness, correct hydraulic connection as well as accurate and correct electrical connection. In addition, the plant has to be flushed correctly and/as required in keeping with German standard DIN 4753. The initial operation has to be carried out by a trained specialist, which has to be recorded in writing. In addition, the settings have to be put down in writing.

The technical documentation has to be available at the device.

1.4 Working on the system

The plant has to be de-energised and to be checked for the absence of voltage (such as on the separate fuse or a master switch). Secure the plant against unintentional restart.

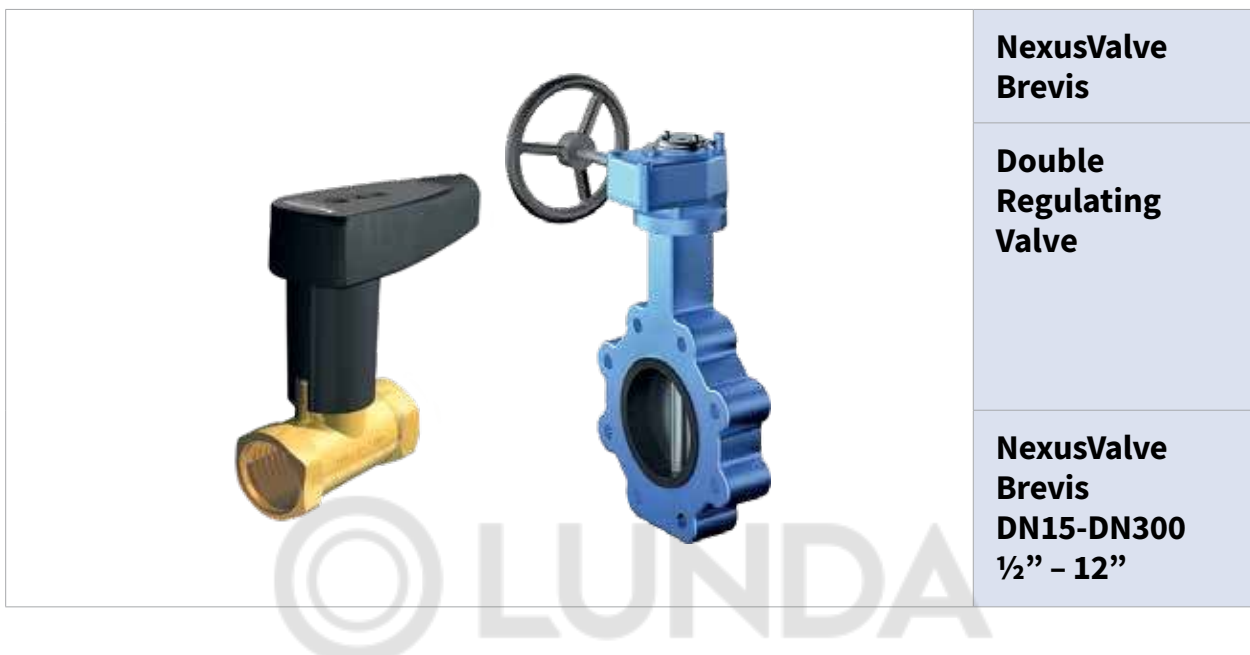
(If gas is used as fuel, close the gas shut-off valve and secure against unintentional opening.) Repair work on component parts with a safety-relevant function is impermissible.

1.5 Liability

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These installation and operating instructions shall have to be handed to the customer. The executing and/or authorised tradesperson (such as fitter) shall have to explain the function and operation of the plant to the customer in an intelligible manner.

2. Introduction



2.1 Description

NexusValve Brevis is a variable orifice double regulating valve for balancing water-based heating and cooling systems. The balancing performed ensures the required distribution of flow in individual risers and terminal units. Applications are typically central heating or cooling systems, as well as fan coil units in multi-storey and high-rise buildings. NexusValve Brevis in sizes DN 15 - DN 50, is manufactured in dezincification resistant brass (DZR).

2.2 Benefits

- Product range from DN 15 to DN 300 for heating and cooling systems
- Pre-setting and isolation functions in one unit
- Compact design for installations in confined spaces
- Flow direction is irrelevant for the valve installation
- Pre-setting is fast and simple using an Allen key
- Setting scale is precise and easy to read
- Isolation of flow is simply done using the quarter-turn handle
- No change in pre-setting when isolated and re-opened

2.3 Design

The NexusValve Brevis comprises flow regulation and isolation functions in one unit. The regulation spindle inside the incorporated ball valve of the NexusValve Brevis enables setting of the valve independently of the isolation function of the ball valve. This allows the system flow to be isolated and re-opened again without losing the valve setting. Isolating the system flow is done by a simple quarter-turn of the NexusValve Brevis handle. The quarter-turn handle position makes it also easy to identify if the valve is open or closed. The compact design of NexusValve Brevis ensures that the valve fits perfectly even in confined spaces where access to the system is restricted. NexusValve Brevis is provided without measuring points. For systems where flow measurement is required NexusValve Fluctus or NexusValve Vertex should be used.



NexusValve Brevis DN 65–300: butterfly valve provided with a gearbox with memory stop.





The butterfly valve is provided with a gearbox with memory stop. When the required setting of the valve is achieved, the memory stop is locked and the setting is fixed.

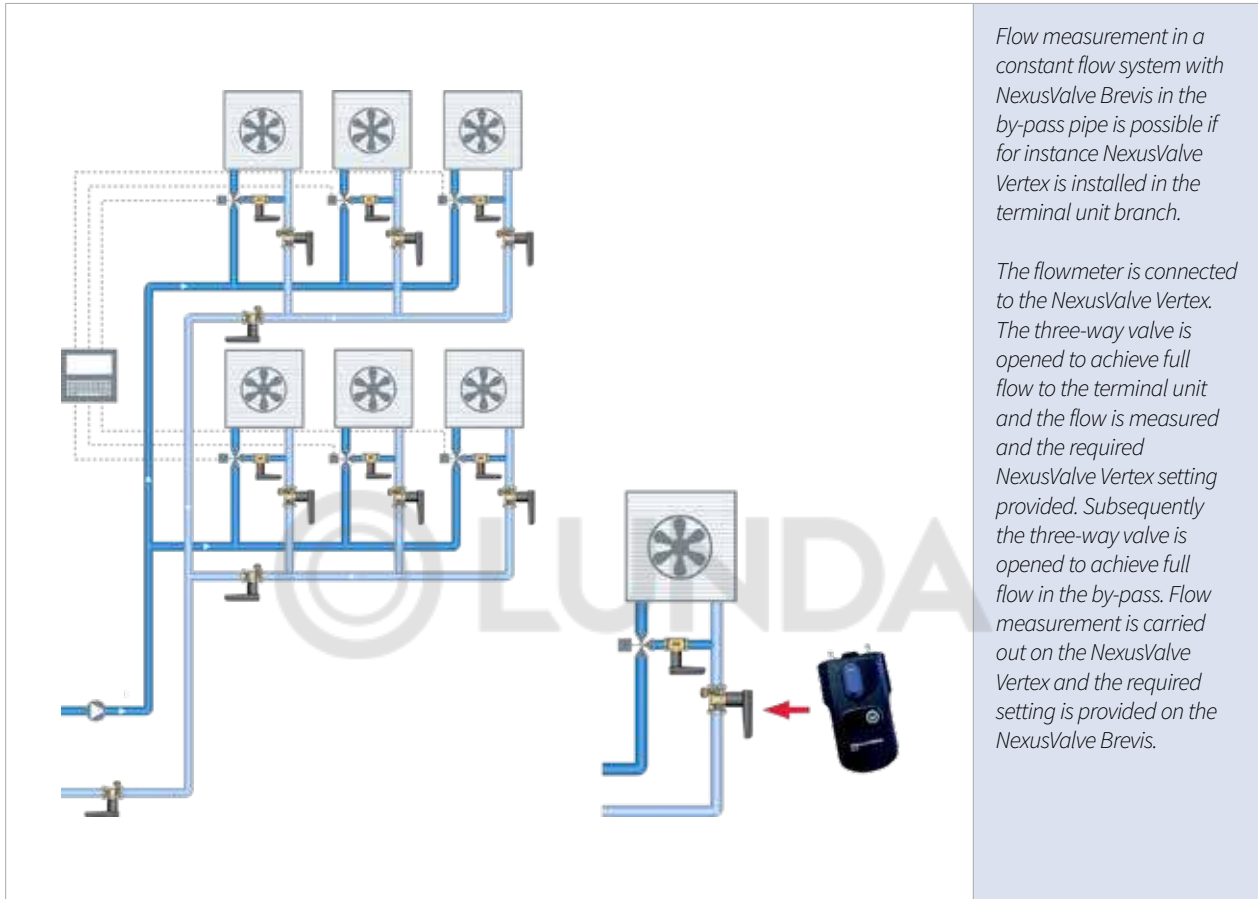
This can be used for pre-setting, e.g. in connection with a NexusValve Fluctus DN 65-300. The butterfly valve is set to the required position and the value can be checked at the NexusValve Fluctus measuring points.

2.4 Flow setting

The NexusValve Brevis is provided without measuring points and thus the flow cannot be validated directly. Based on calculations of pressure loss over a valve in a system and the required flow the valve setting can be evaluated. This can be then used for the system balancing.

The flow verification is possible in constant flow systems where NexusValve Brevis is installed in the by-pass pipe and NexusValve Vertex or NexusValve Fluctus at the terminal unit. Flowmeter can be then connected to the valves with measuring points and the required flow setting provided on the NexusValve Brevis.

2.Introduction



Setting is easily done using an Allen key to move the regulating spindle inside the valve and obtain its required position. The setting scale on top of the valve handle displays the precise setting for an – even from a distance – easy read-out.



*Flow setting using
Allen key.*

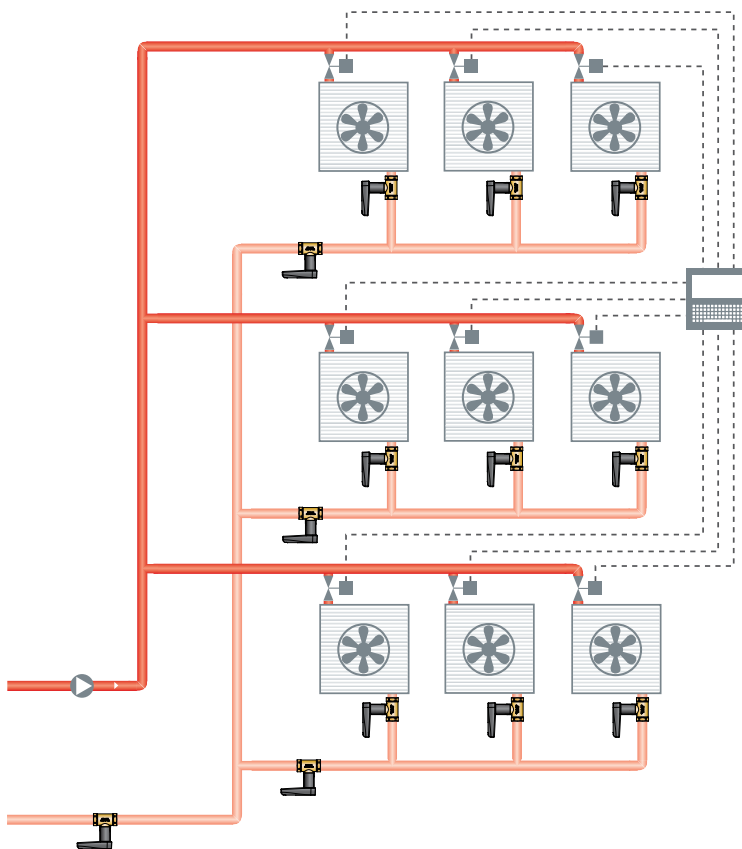
NexusValve Brevis can be installed in any position, also regardless of the flow direction. This ensures a flexible and error-free installation with no limitation to supply or return line installations.



Flow direction across the NexusValve Brevis is irrelevant for the valve performance.

2.5 Operation

NexusValve Brevis is used as a stand-alone balancing valve to provide the desired flow distribution within the controlled system. The valve shall be installed at terminal units, in branches and risers.

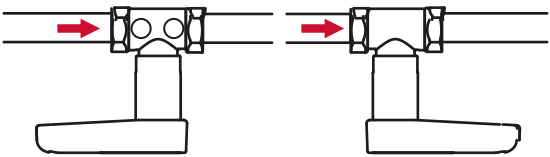
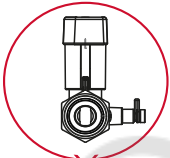
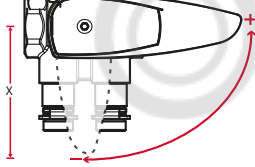
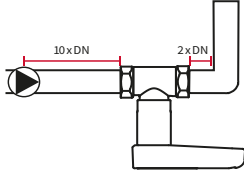
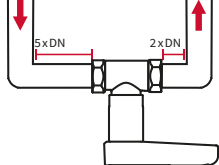
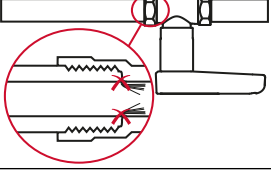
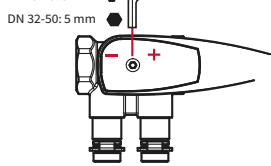


NexusValve Brevis is used as a stand alone valve for flow balancing and system service.

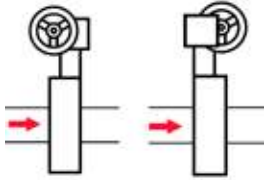
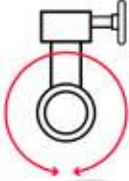
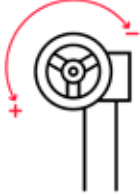
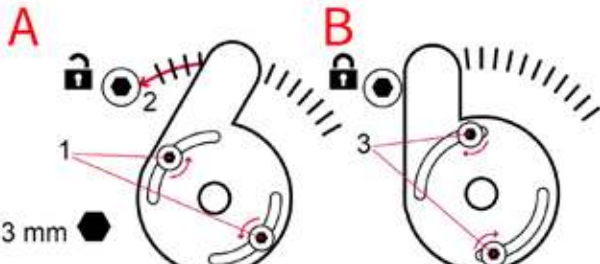
2.Introduction

2.6 Mounting

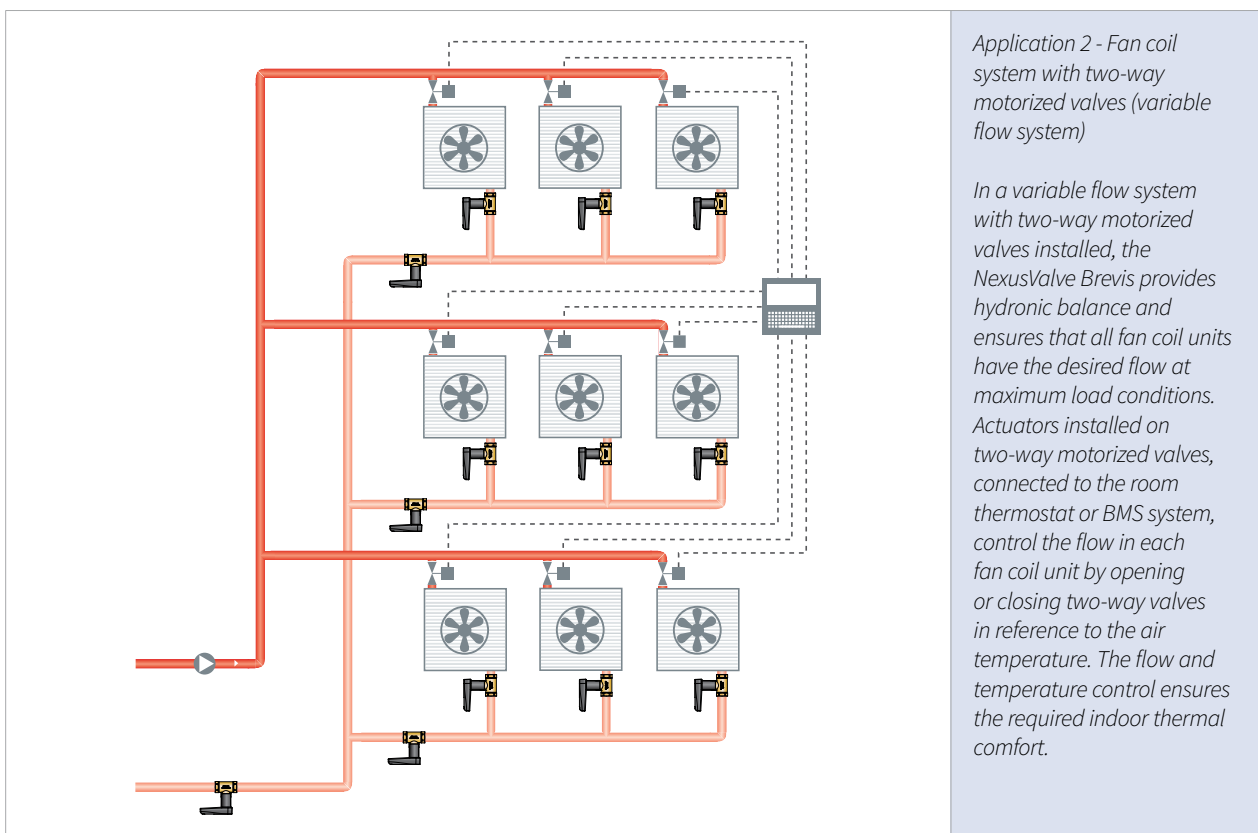
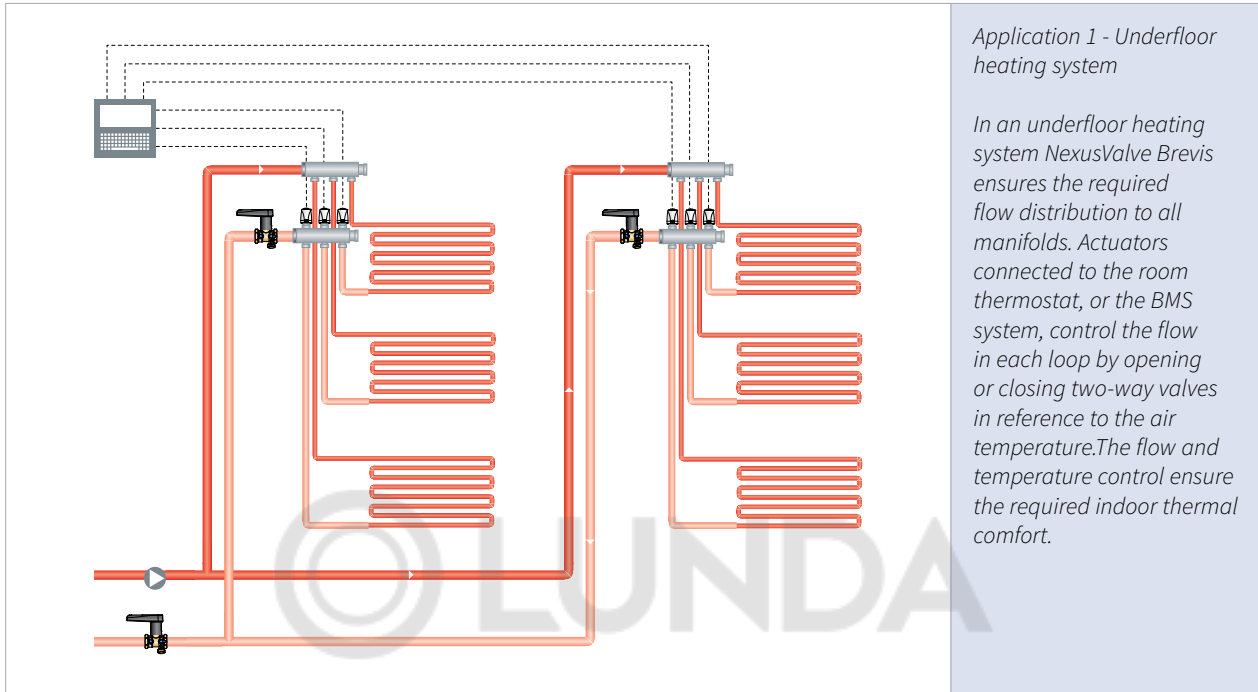
2.6.1 Montagehinweise DN 15 – 50

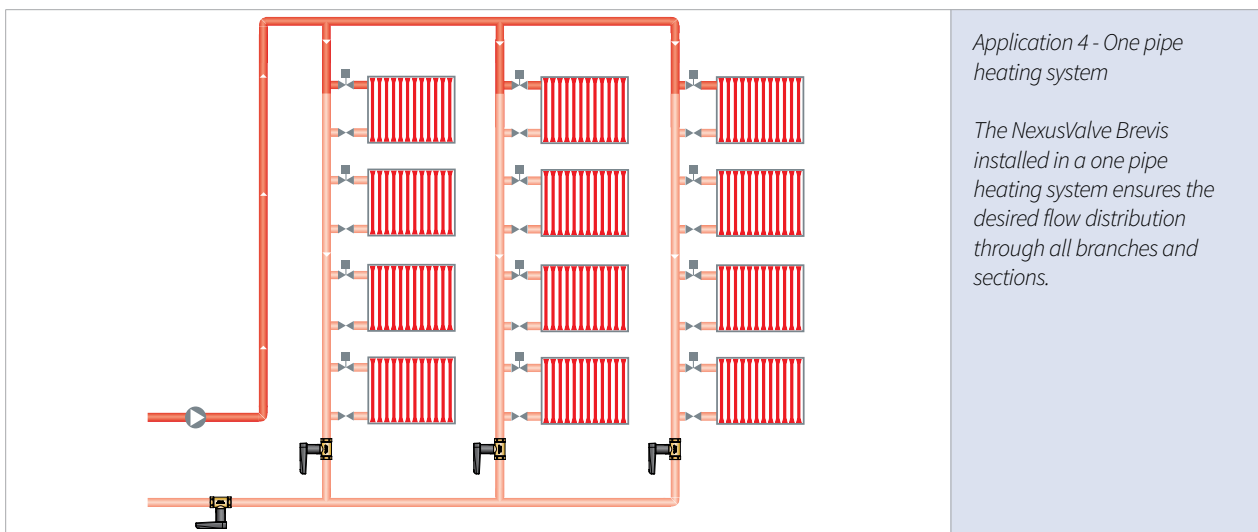
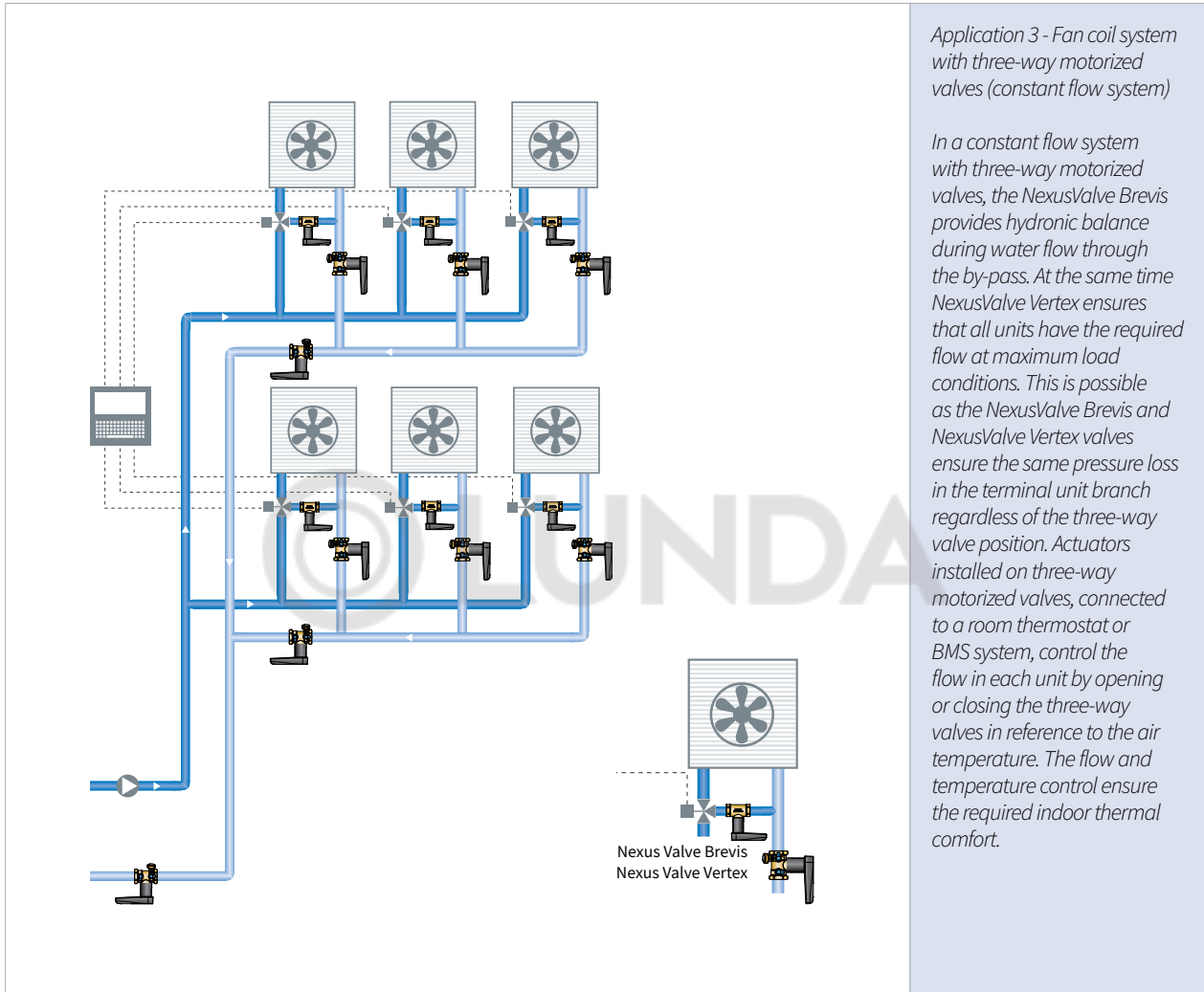
	NexusValve Brevis Ventile can be installed regardless of flow direction.
	The NexusValve Brevis can be orientated 360° around the pipe axis.
 DN 15-25: X = 75 mm, Y = 122 mm DN 32-50: X = 122 mm, Y = 122 mm	Installation space is required to ensure the 90° isolation.
	If a pump is installed immediately in front of the valve, a straight pipe of 10 × DN pipe diameter is required.
	NexusValve Brevis requires 5 × DN straight piping when installed directly after a bend, and 2 × DN straight piping when installed directly before a bend.
	Loose hems must not hang into the pipe.
	Deburring of pipe ends is required to prevent system clogging.
 DN15-25: 3 mm DN 32-50: 5 mm	Setting the valve is easily done using an Allen key. The valve is adjusted until the required flow is displayed on the flowmeter.

2.6.2 Montagehinweise DN 65– 300

	An arrow on the NexusValve Brevis indicates the flow direction to be respected.
	NexusValve Brevis can be installed with the gearbox pointing in any direction.
	There are no minimum requirements for straight lengths of pipe after the valve.
	The flow rate is adjusted by rotating the handle on the gearbox. The flow rate increases by rotating the handle to the left (counter-clockwise) and is reduced by rotating it to the right (clockwise).
	Memory-Stop: After determining the volume flow by opening or closing the butterfly valve, the handwheel can be blocked. The blocking grants a shut-off without changing the presetting. A: Loosen the screw (1) using a 3 mm Allen key. Turn the memory disk against the stop (2). B: Fix the memory disk with screws (3)

3. Applications

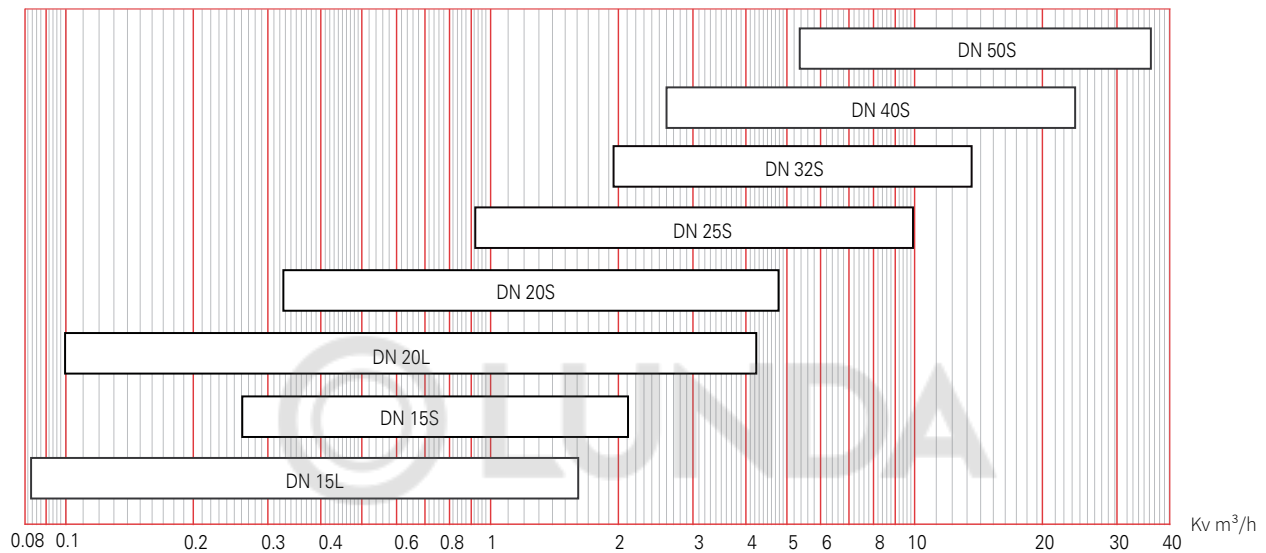




4. Product data sheet

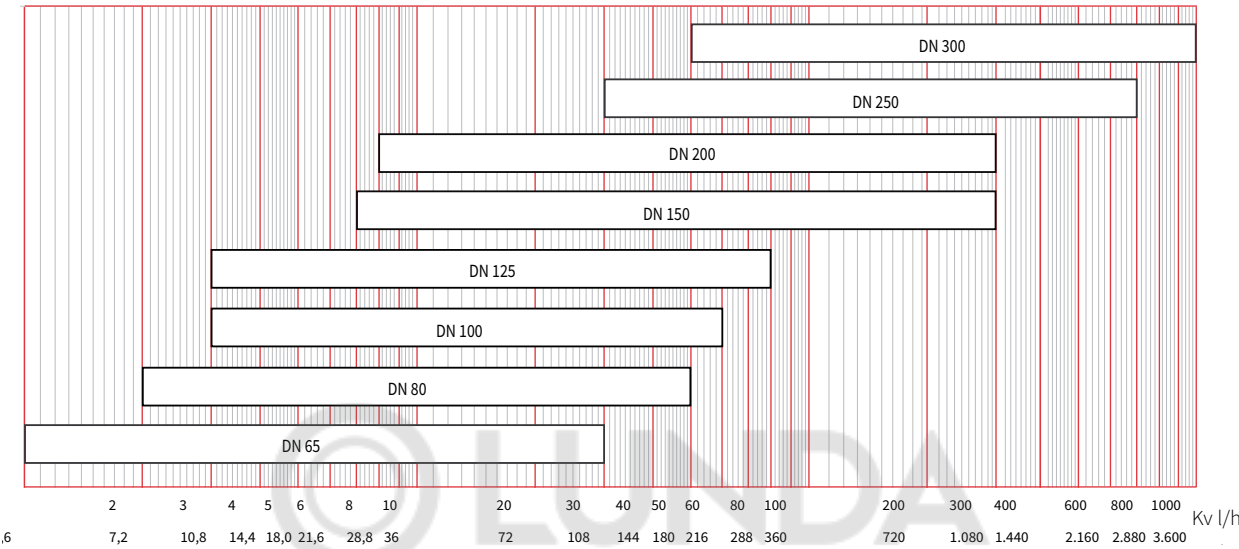
4.1 Product finder

4.1.1 Product finder DN 15– 50



Flow range		Kvs m³/h	Dimension
l/s	l/h		
0.008-0.20	28.0-720	1.62	DN 15L
0.020-0.50	72.0-1800	2.11	DN 15S
0.020-0.50	72.0-1800	4.26	DN 20L
0.030-0.70	108-2520	4.81	DN 20S
0.080-2.00	288-7200	9.94	DN 25S
0.10-2.00	360-7200	13.3	DN 32S
0.10-3.00	360-10800	23.3	DN 40S
0.30-8.00	1080-28800	35.3	DN 50S

4.1.2 Productfinder DN 65 – 300

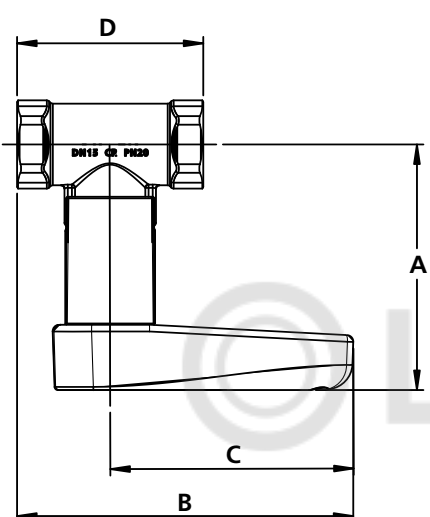


Flow range	Kvs	Dimension
m³/h	m³/h	
18,34 - 148	148	DN 65
28,3 - 237	237	DN 80
14,1 - 603	603	DN 100
30,5 - 888	888	DN 125
71,9 - 2340	2340	DN 150
127 - 2845	2850	DN 200
234 - 4549	4550	DN 250
819 - 7761	7760	DN 300

4. Product data sheet

4.2 NexusValve Brevis DN15-50

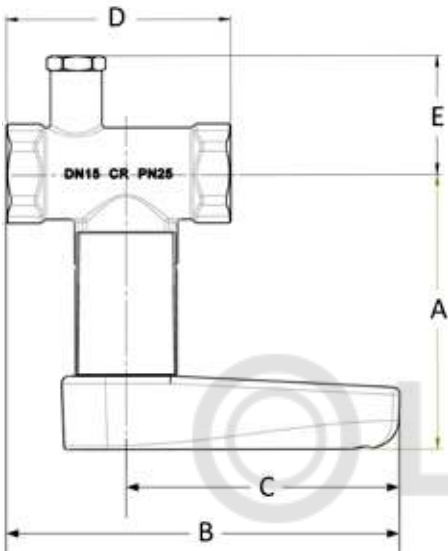
4.2.1 DN15-50 female/female

Dimensions	Specifications
	Max. temperature 135°C Min. temperature -20°C Max. pressure PN25 Marking on valve (Handle) DN (Valve body) DN, PN Connection Female thread ISO 7/1 parallel Valve housing DR Brass CW602N CuZn36Pb2As Ball and needle DR Brass CW602N (chrome plated) Valve handle Polyamide (PA6.6 30%GF) Sealings O-rings EPDM Gaskets PTFE Test point sealing EPDM

DN	A (mm)	B (mm)	C (mm)	D (mm)
15	76	104	75	57
20	79	106	75	62
25	83	113	75	75
32	109	166	122	88
40	113	171	122	98
50	120	180	122	115

Note! Information on insulation jackets, press adaptors and other is provided in the chapter Accessories.

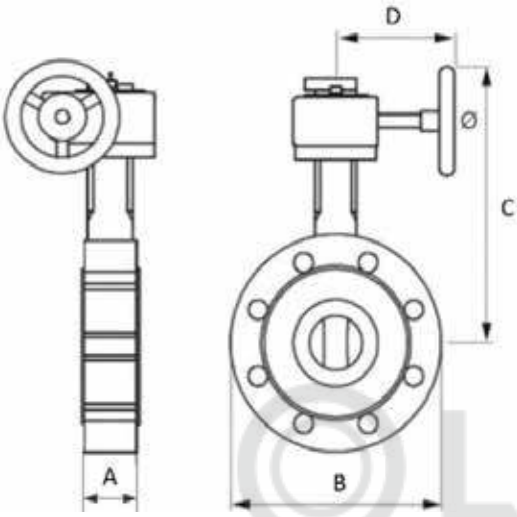
4.2.2 DN 15-25 Female-/Female thread with Heat meter-Sensor connection

Dimensions	Specifications
	Max. temperature 135 °C Min. temperature -20 °C Max. pressure PN25 Marking on valve (Handle) DN (Valve body) DN, PN Connection Female thread ISO 7/1 parallel Connection thread Heat meter-Connection M10x1 Valve housing DR Brass CW602N CuZn36Pb2As Ball and needle DR Brass CW602N (chrome plated) Valve handle Polyamide (PA 6,6 30 % GF) Sealings O-Rings EPDM Sealings PTFE Test point sealing EPDM

DN	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	SW
15	75	104	75	57	32	27
20	78	106	75	62	32	32
25	82	113	75	75	32	40

Note! Information on insulation jackets, press adaptors and other is provided in the chapter Accessories.

4.2.3 DN 15-25 Female-/Female thread with Heat meter-Sensor connection

Dimensions	Specifications
	Max. temperature 120°C Min. temperature -20 °C Max. pressure PN16 Marking on valve, Butterfly gearbox Valve type, DN, Kvs Connection Flange/Flange: EN 1092-1 PN16 Material Valve body: Cast iron fully lugged (ASTM A126 KL. B) Disc and shaft: Stainless steel (ASTM A351) Sealings EPDM and NBR, on site

DN	A (mm)	B (mm)	C (mm)	D (mm)	Nr. of Bolts
65	45	185	270	165	4
80	46	200	275	165	8
100	52	220	310	165	8
125	55	250	320	165	8
150	56	285	320	165	8
200	60	340	390	165	12
250	68	405	485	230	12
300	78	460	530	230	12

Valve	Article	Nom. Inch	Kvs m³/h	Flow range l/h
DN 15L				
	MN80597.441	½"	1.62	28.0-720
DN 15S				
	MN80597.442	½"	2.11	72.0-1800
DN 20L				
	MN80597.443	¾"	4.26	72.0-1800
DN 20S				
	MN80597.444	¾"	4.81	108-2520
DN 25S				
	MN80597.445	1"	9.94	288-7200
DN 32S				
	MN80597.446	1 ¼"	13.3	360-7200
DN 40S				
	MN80597.447	1 ½"	23.3	360-10800
DN 50S				
	MN80597.448	2"	35.3	1080-28800

Valve	Article	Nom. Inch	Kvs m ³ /h	Flow range l/h
DN 15L				
	MN80597.491	Rp ½" IG x IG	1,62	28 - 720
DN 20L				
	MN80597.493	Rp ¾" IG x IG	4,26	72 - 1800
DN 25S				
	MN80597.493	Rp ¾" IG x IG	4,26	72 - 1800

Valve	Article	Nom. Inch	Kvs m ³ /h	Flow range m ³ /h	Nr. of Bolts	ca. Gewicht kg
DN 65						
	MN80597.4710	2 ½"	148	18,34-148	4	5,93
DN 80						
	MN80597.4720	3"	237	28,3-237	8	6,07
DN 100						
	MN80597.4730	4"	603	14,1-603	8	8,7
DN 125						
	MN80597.4740	5"	888	30,5-888	8	11,2

DN 150



MN80597.4750	6"	2340	71,9-2340	8	12,86
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DN 200



MN80597.4760	8"	2850	127-2845	12	20,33
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DN 250



MN80597.4770	10"	4550	234-4549	12	32,6
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DN 300



MN80597.4780	12"	7760	819-7761	12	53
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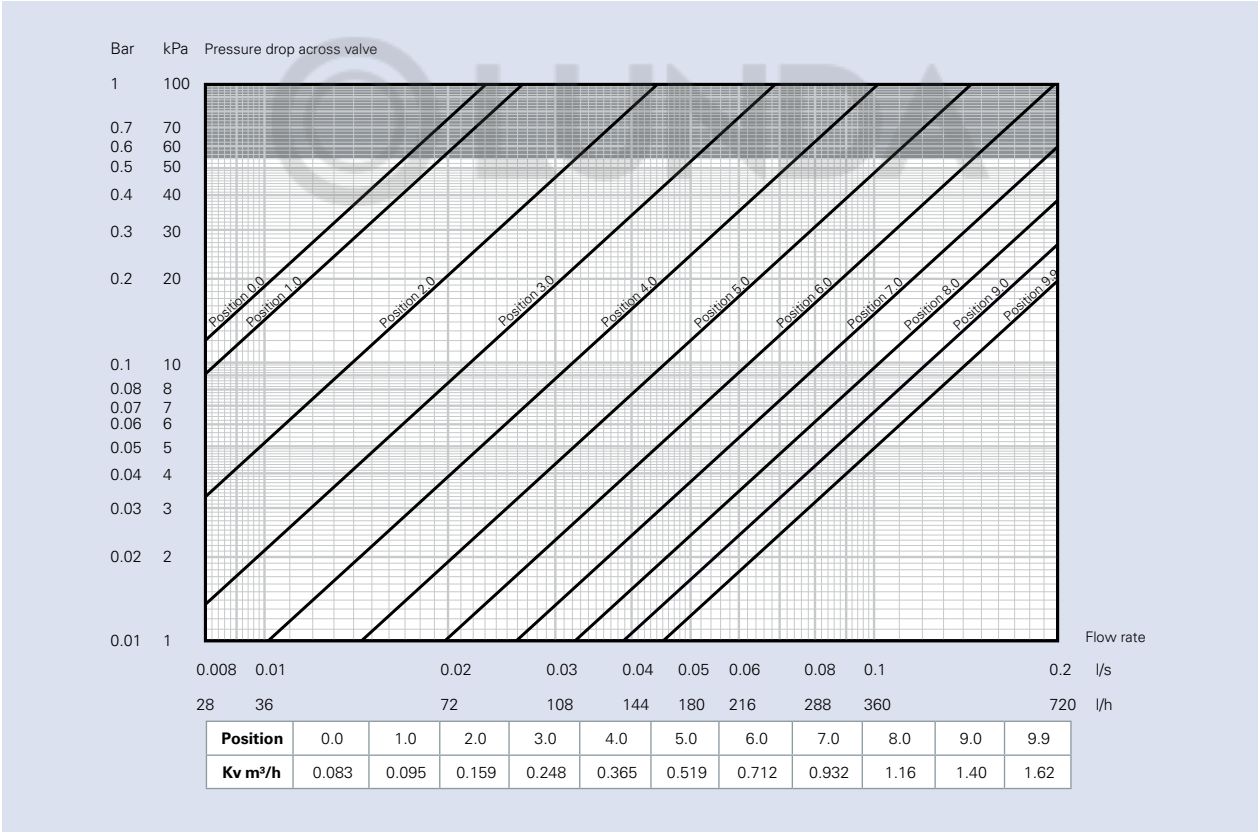
Note! For DN15-50 Information on insulation jackets, press adaptors and other is provided in the chapter Accessories.

4. Product data sheet

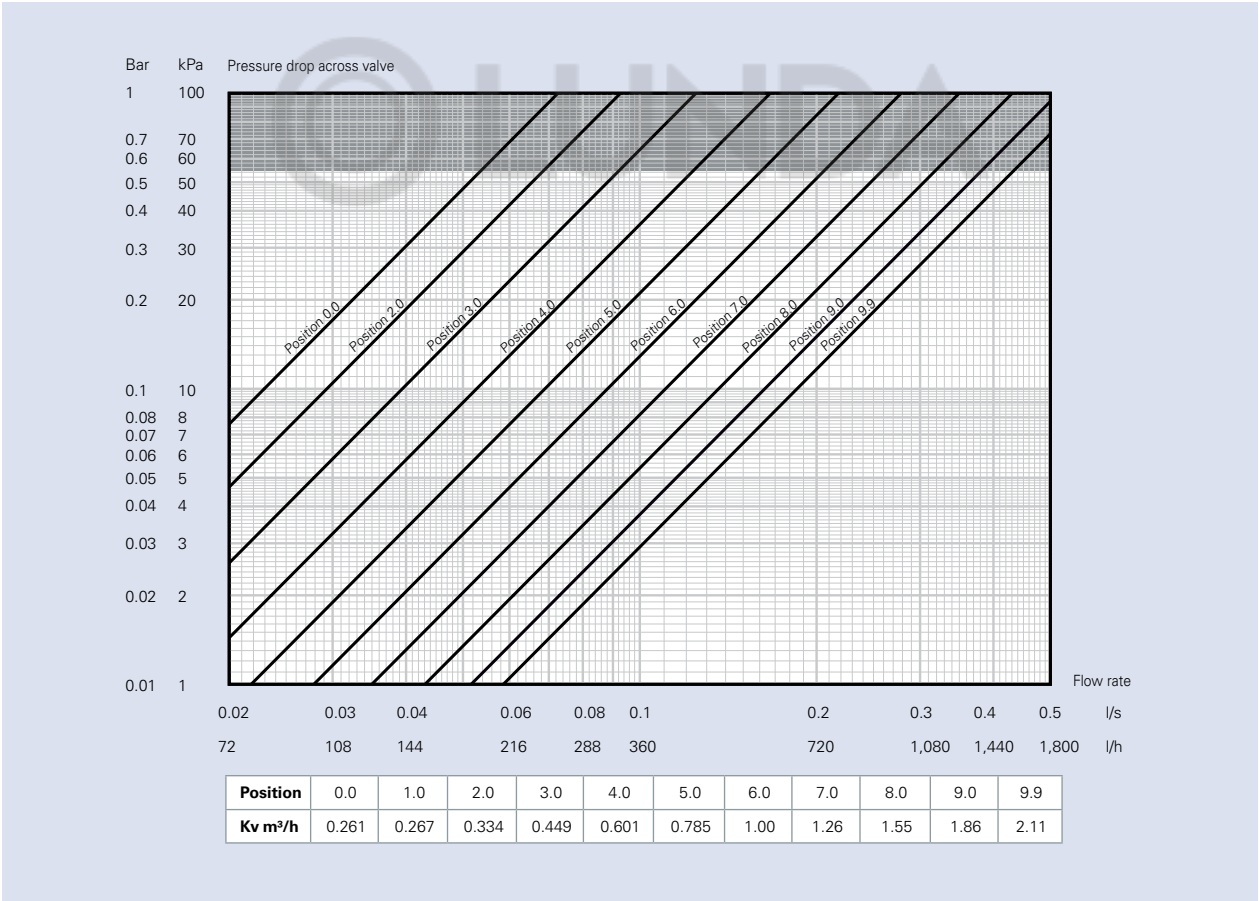
4.3 Flow diagrams

The graph is used to determine the total pressure loss across the NexusValve Brevis valve at a given pre-setting and flow rate. The minimum digital scale setting is 0.0 and the maximum setting (fully open valve) is 9.9. One hundred different positions, at an increment of 0.1, are possible, and each position corresponds to a different Kv value. The Kv value and the Kvs value (at a fully open valve) refer to the pressure loss across the entire valve. These values are used for system sizing and pump selection. A pressure loss of up to 100 kPa is allowed across the NexusValve Brevis valve. Within the working range it should be assured that cavitation does not occur at any given pressure loss. Valve sizing example is provided in chapter 6.

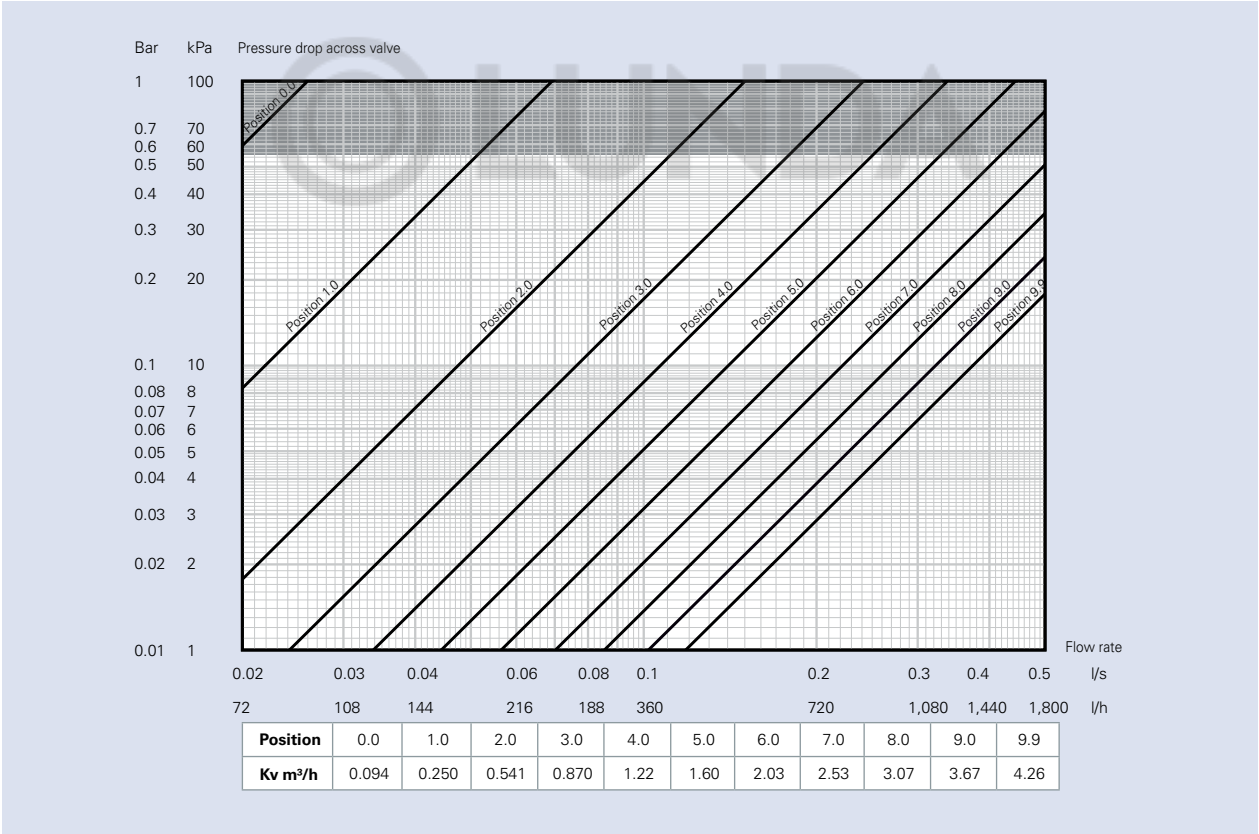
DN 15L



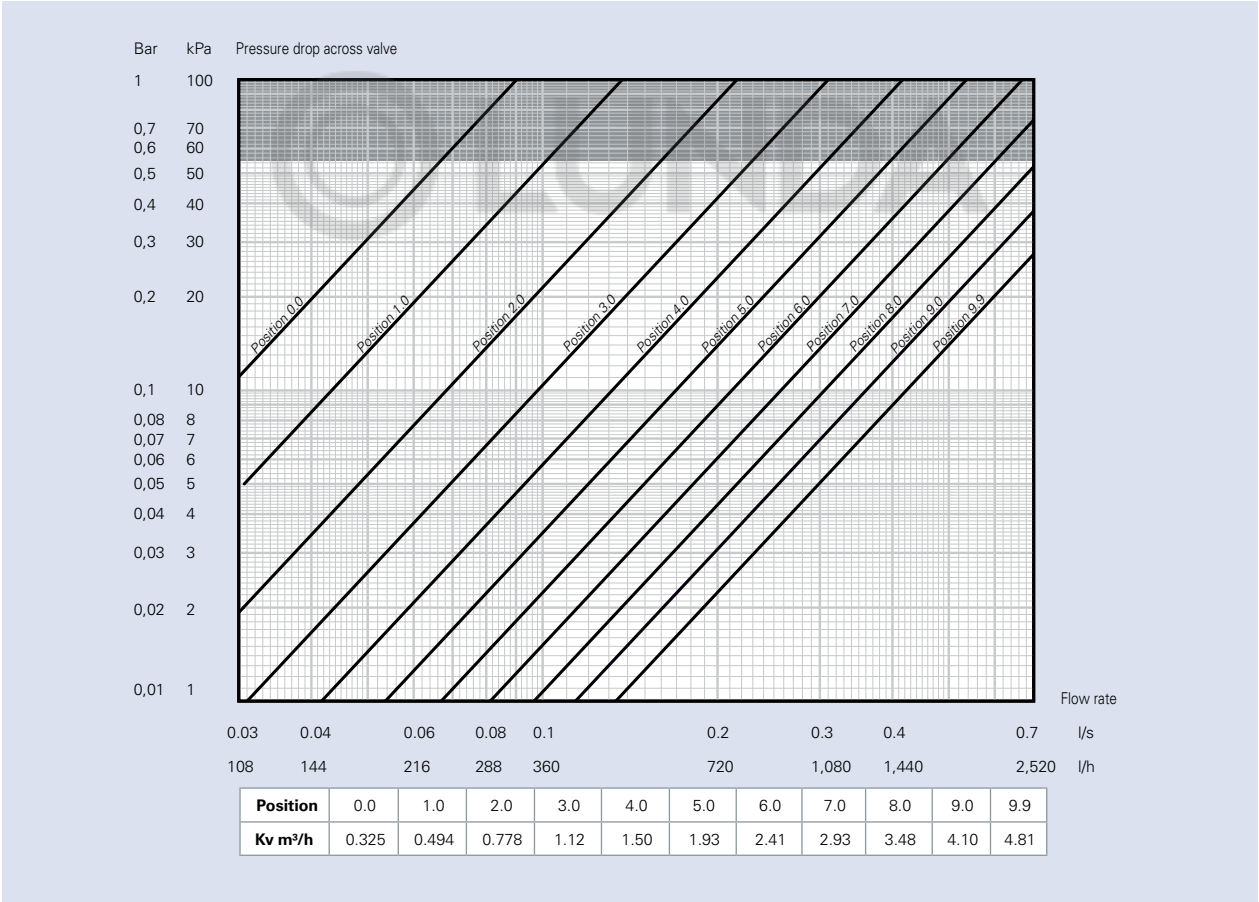
DN 15S



DN 20L

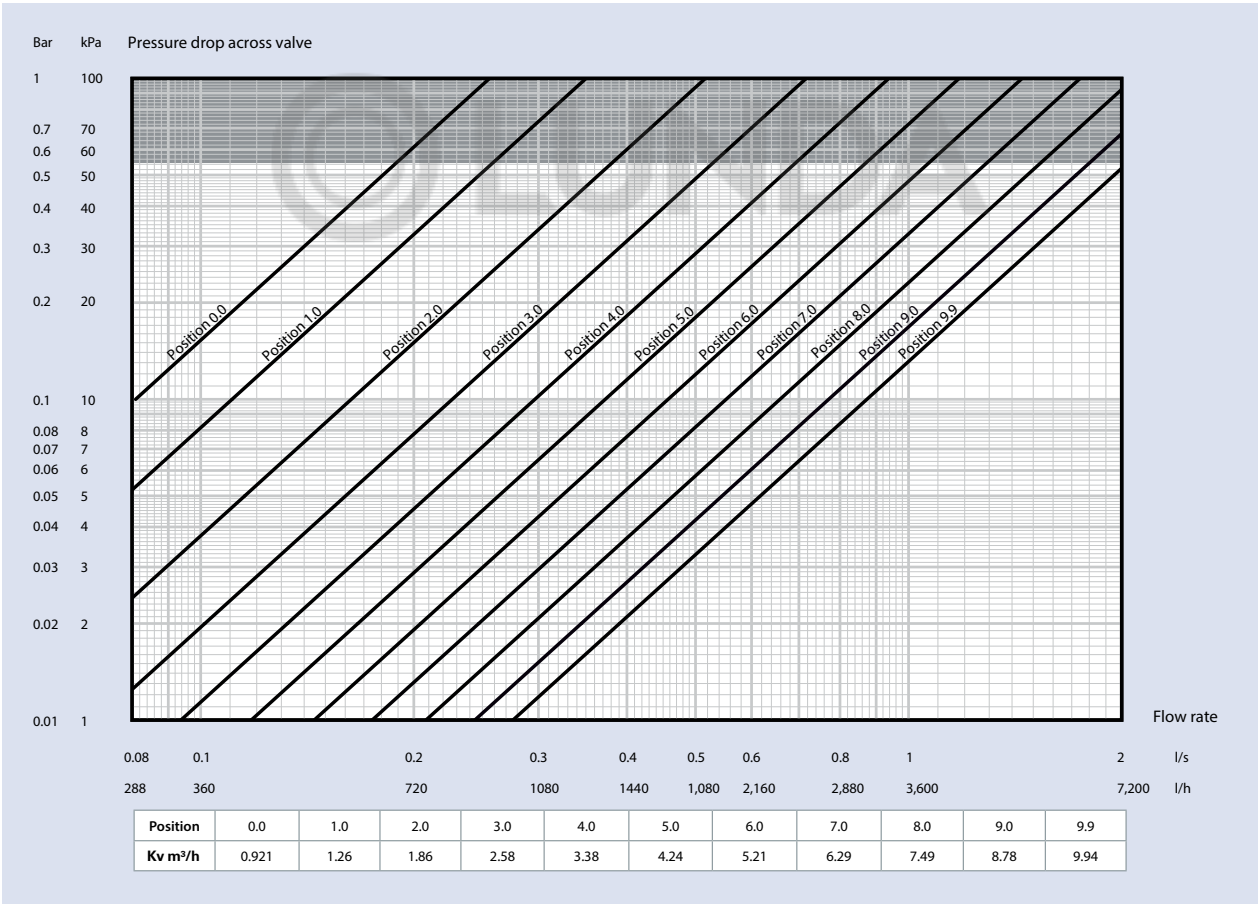


DN 20S

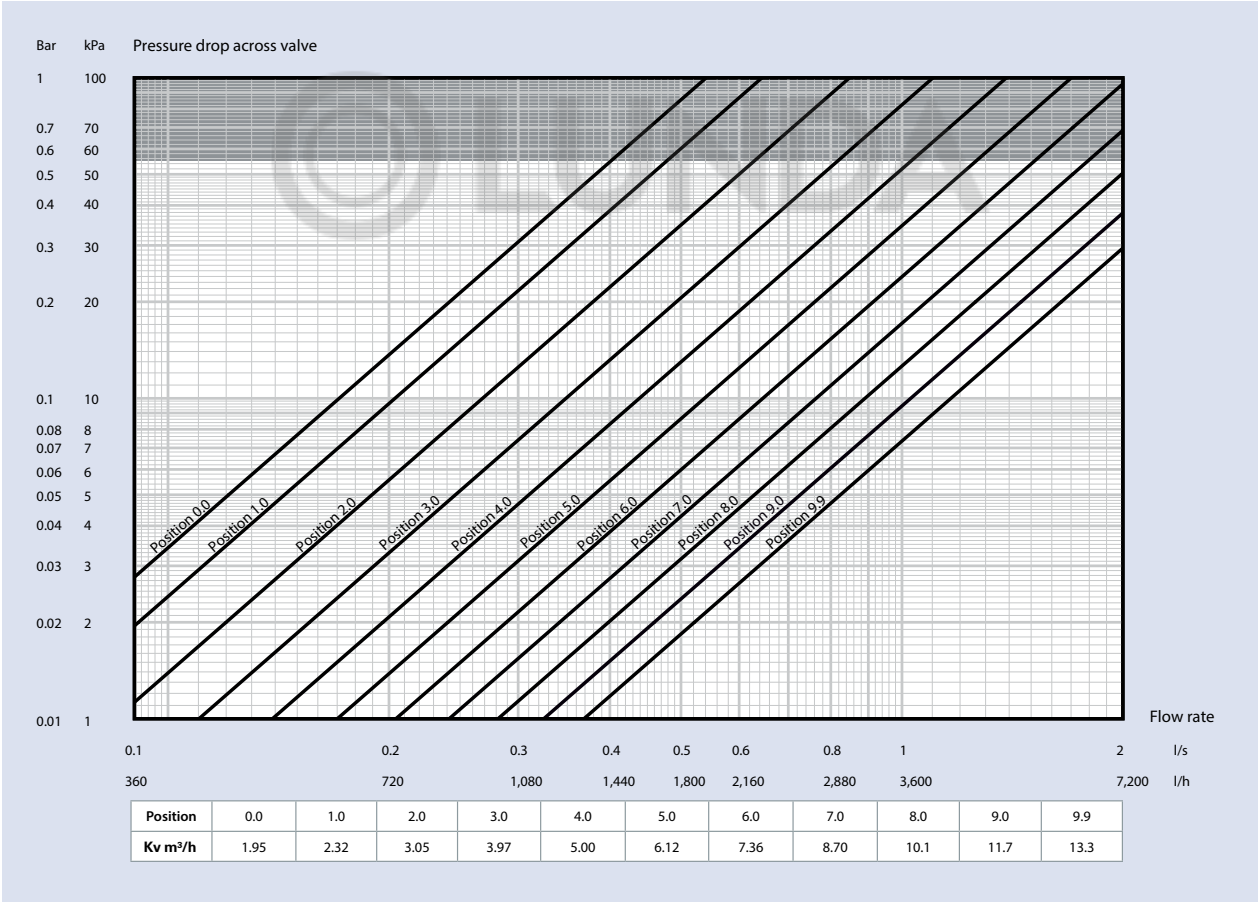


4. Product data sheet

DN 25S

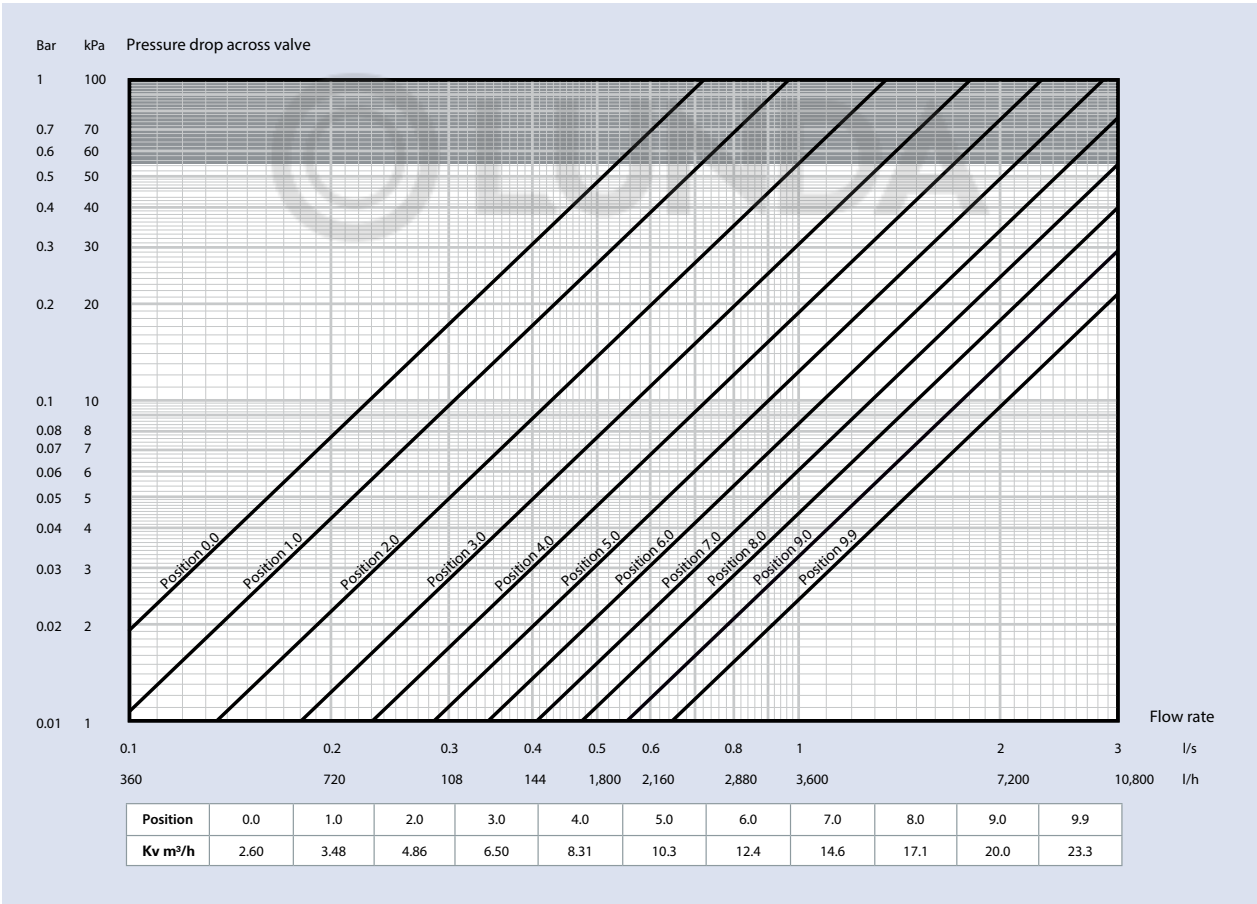


DN 32S

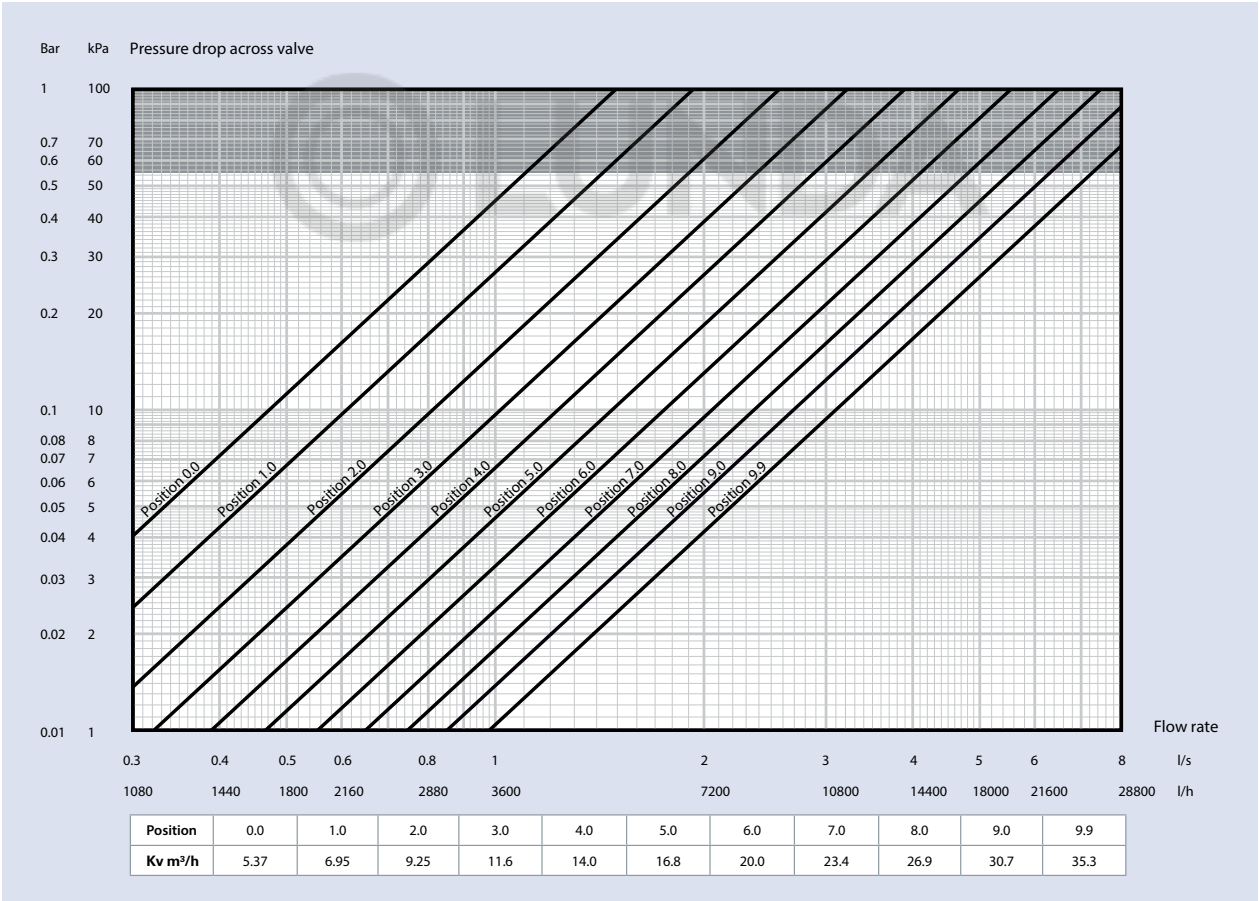


4. Product data sheet

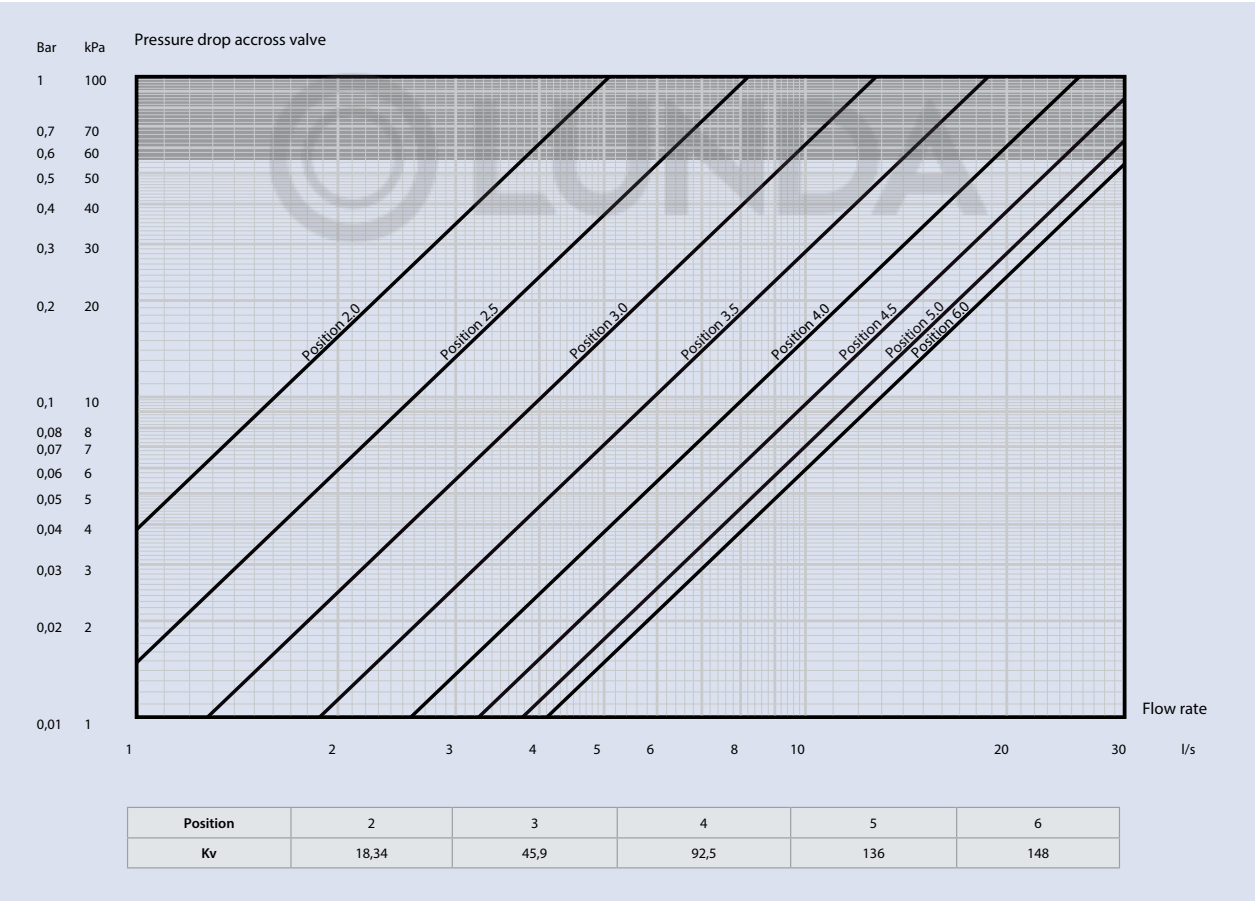
DN 40S



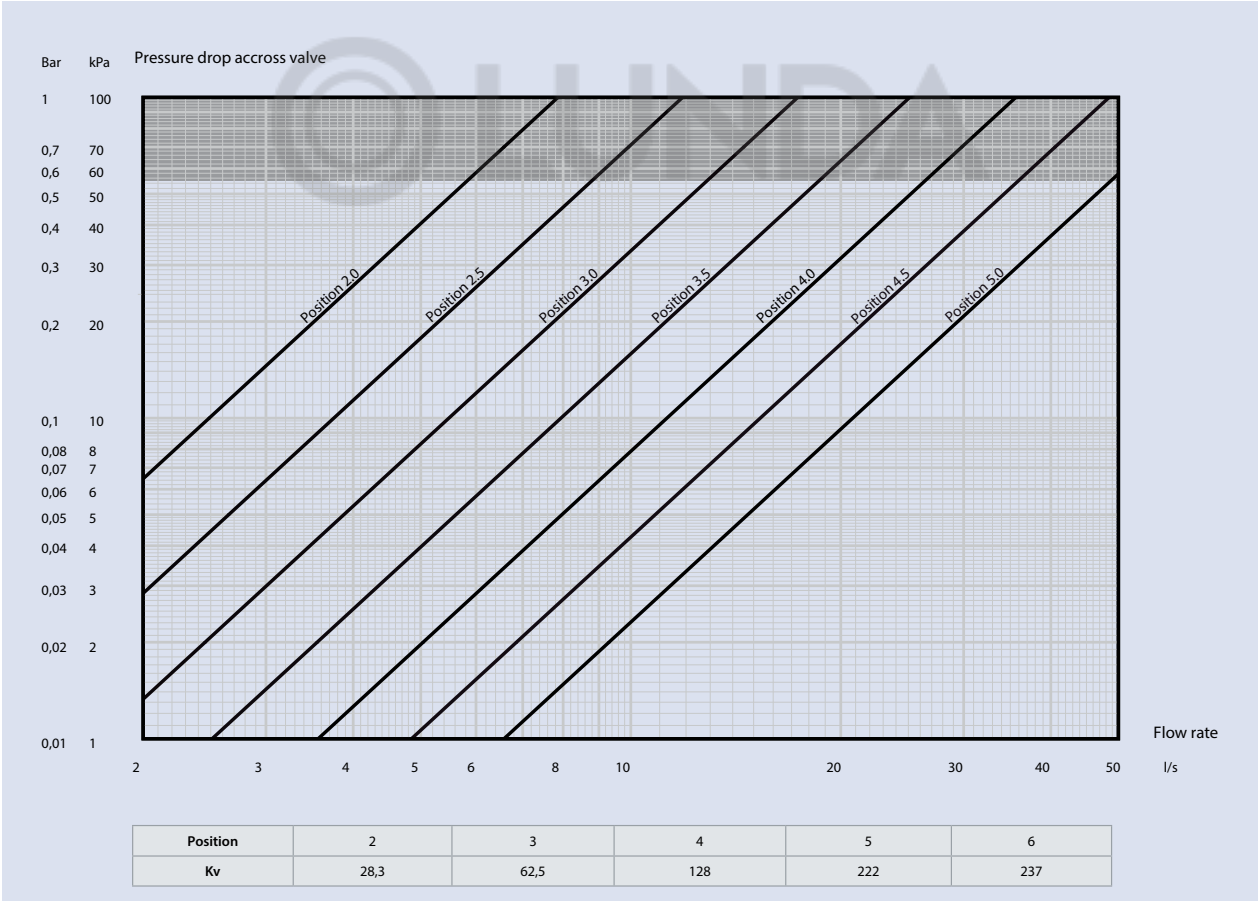
DN 50S



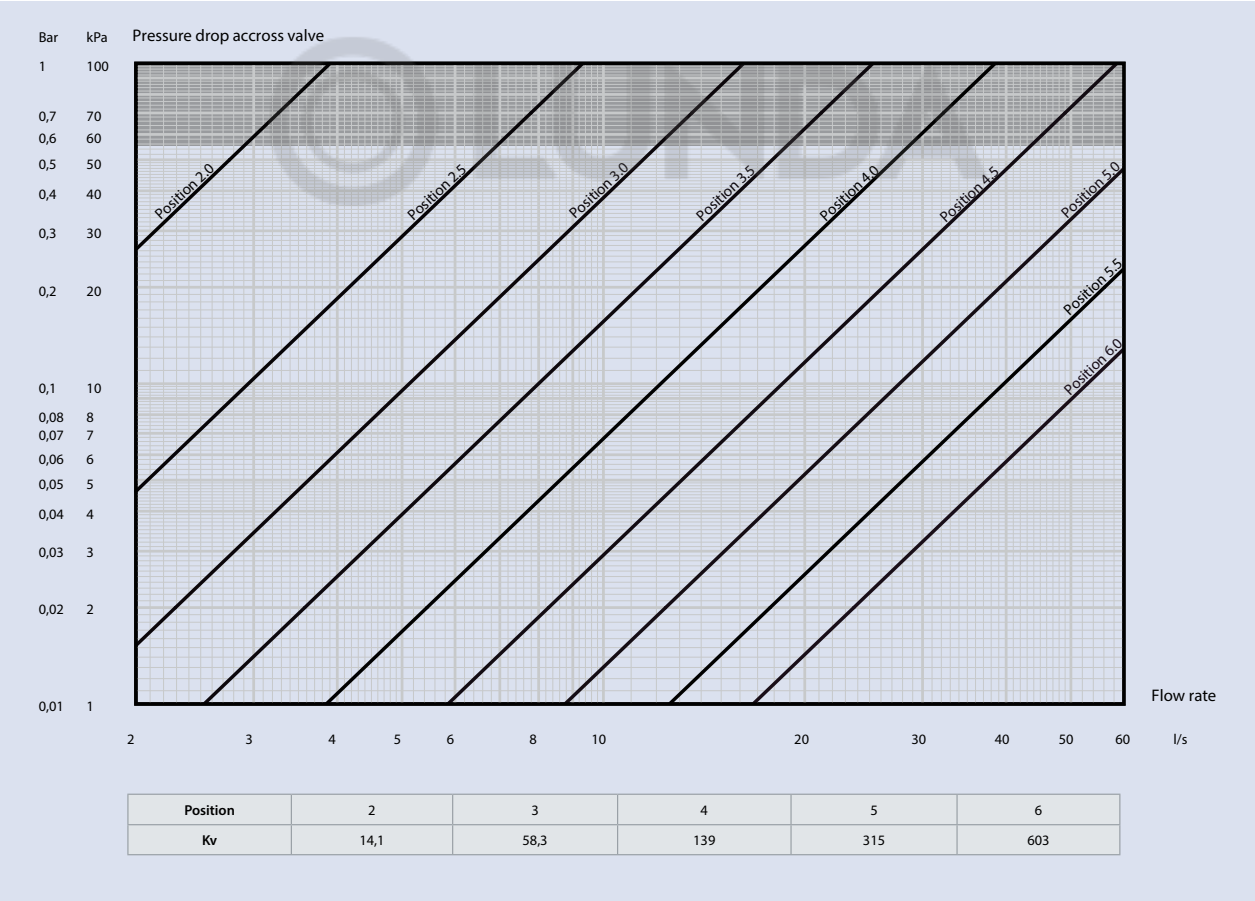
DN 65



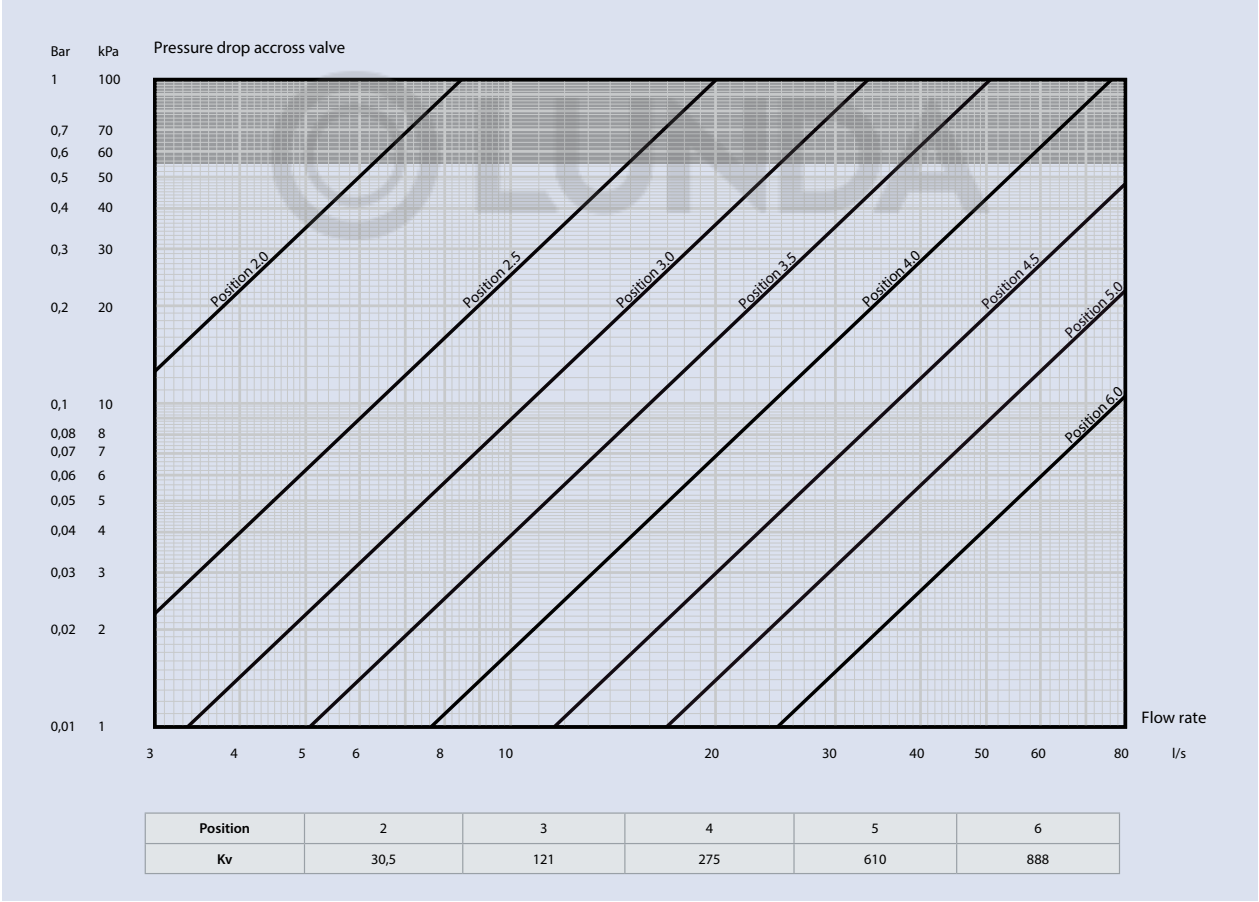
DN 80



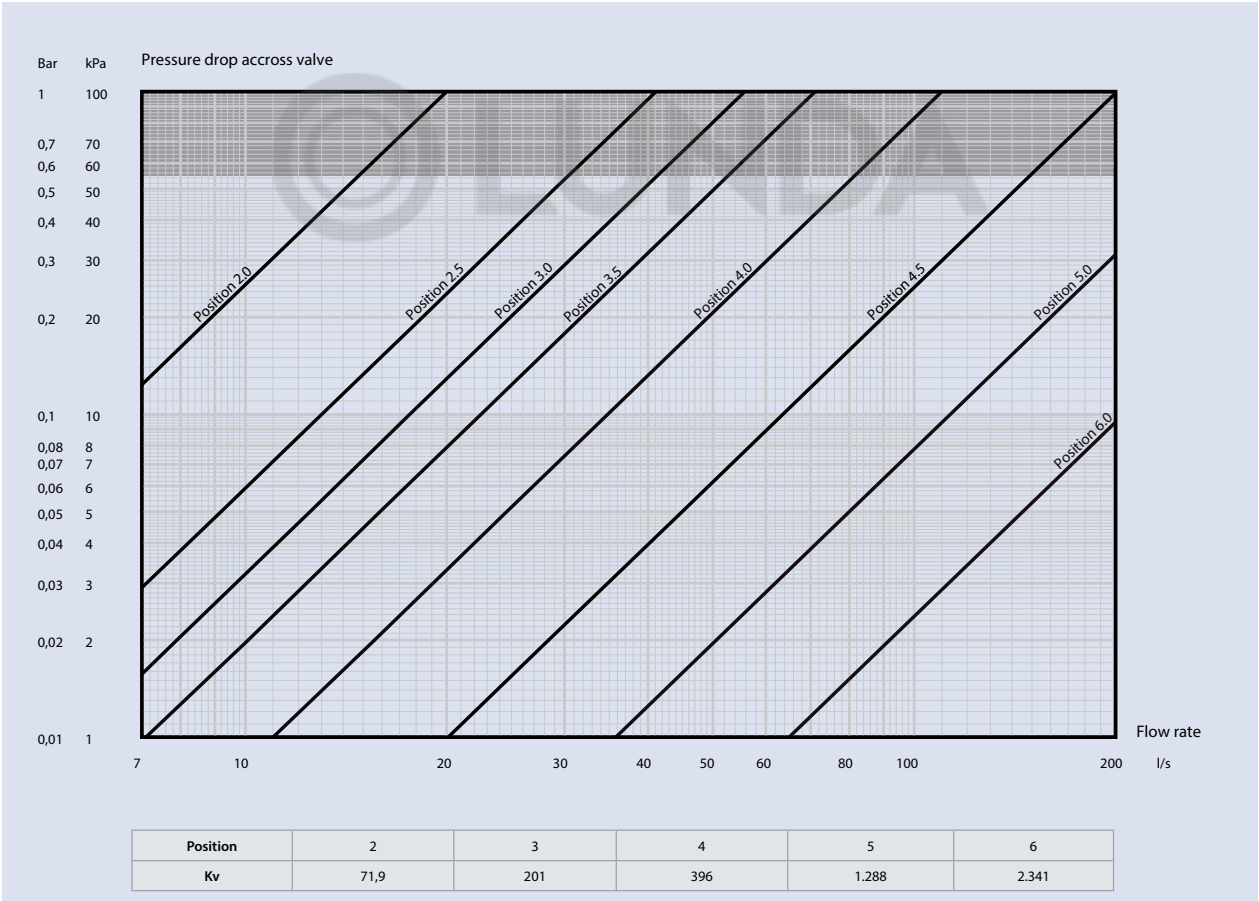
DN 100



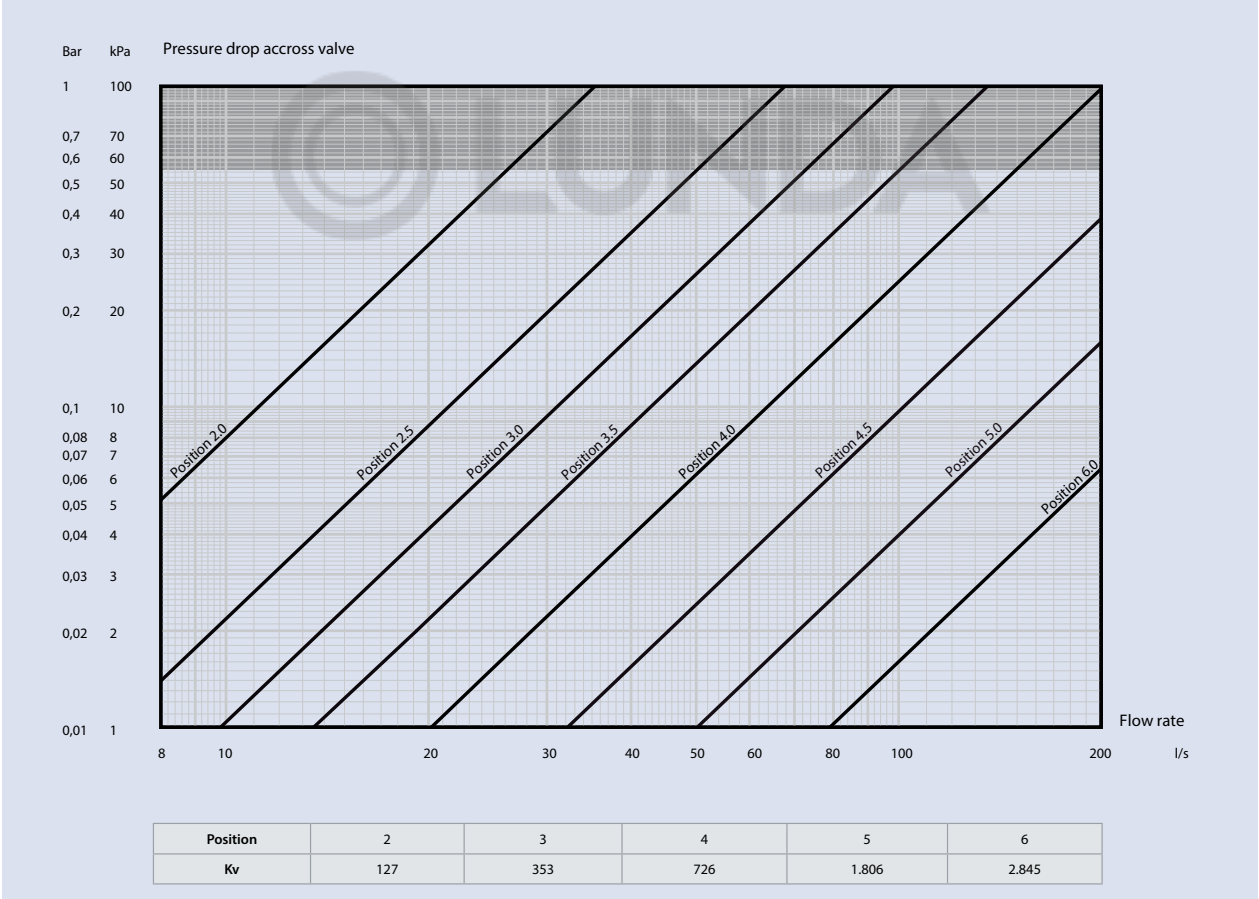
DN 125



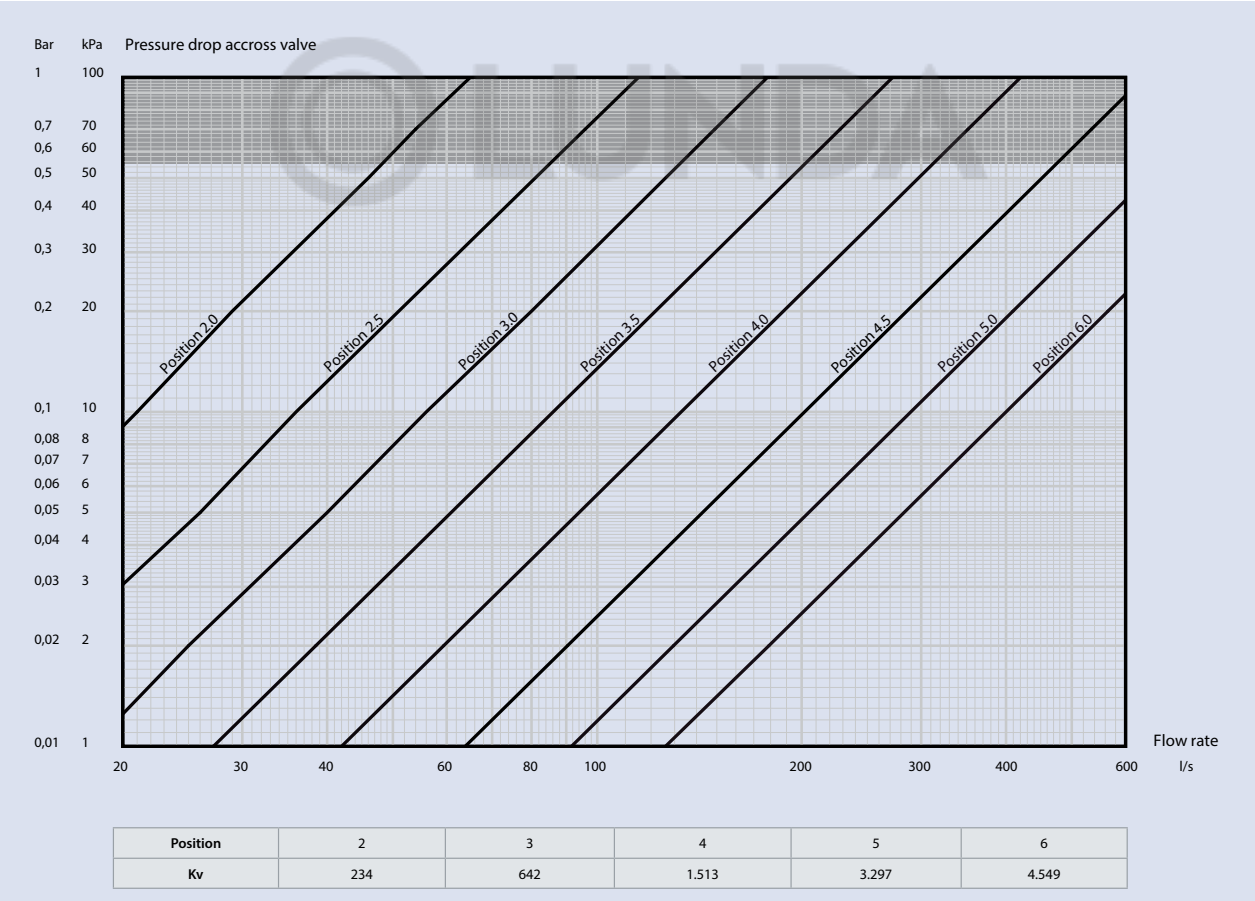
DN 150



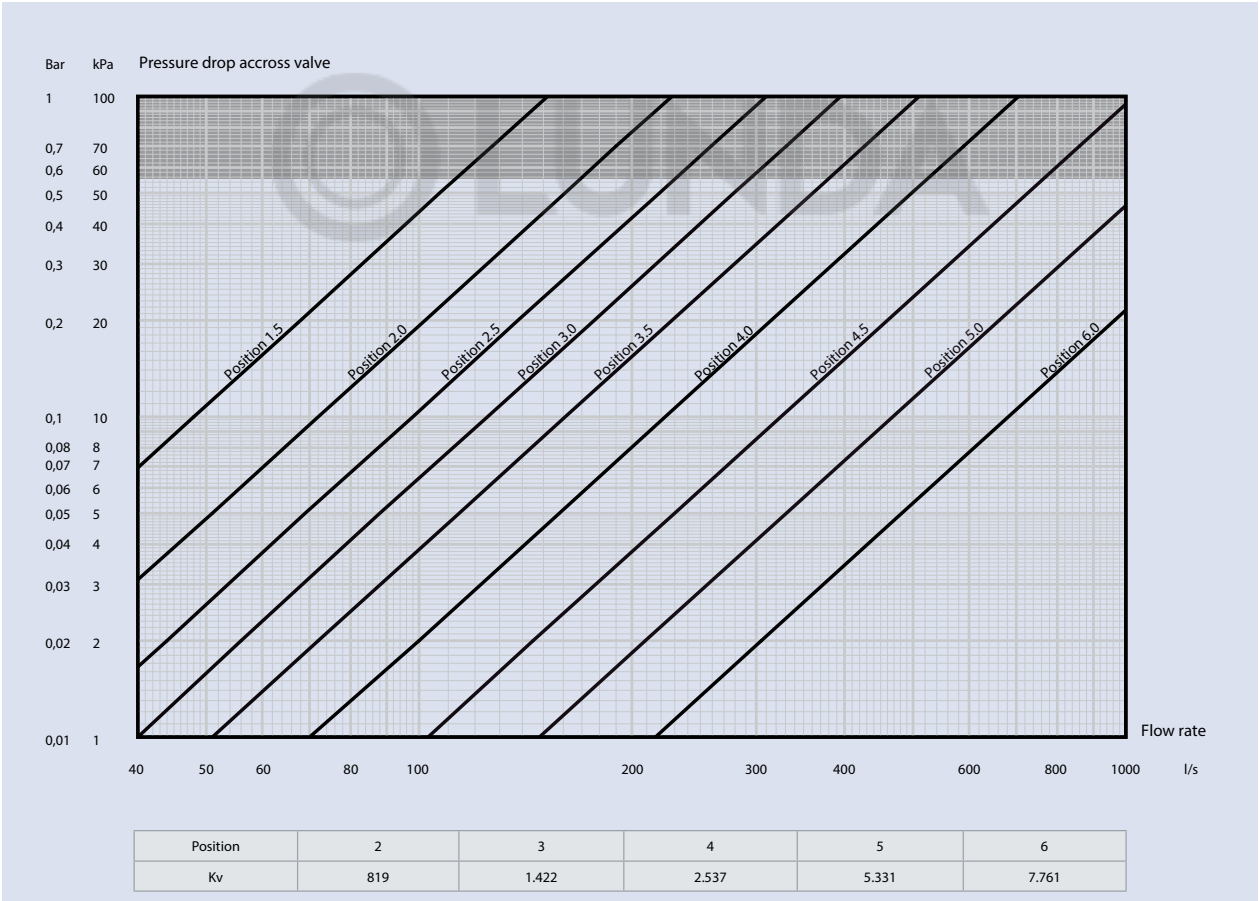
DN 200



DN 250



DN 300



5. Accessories

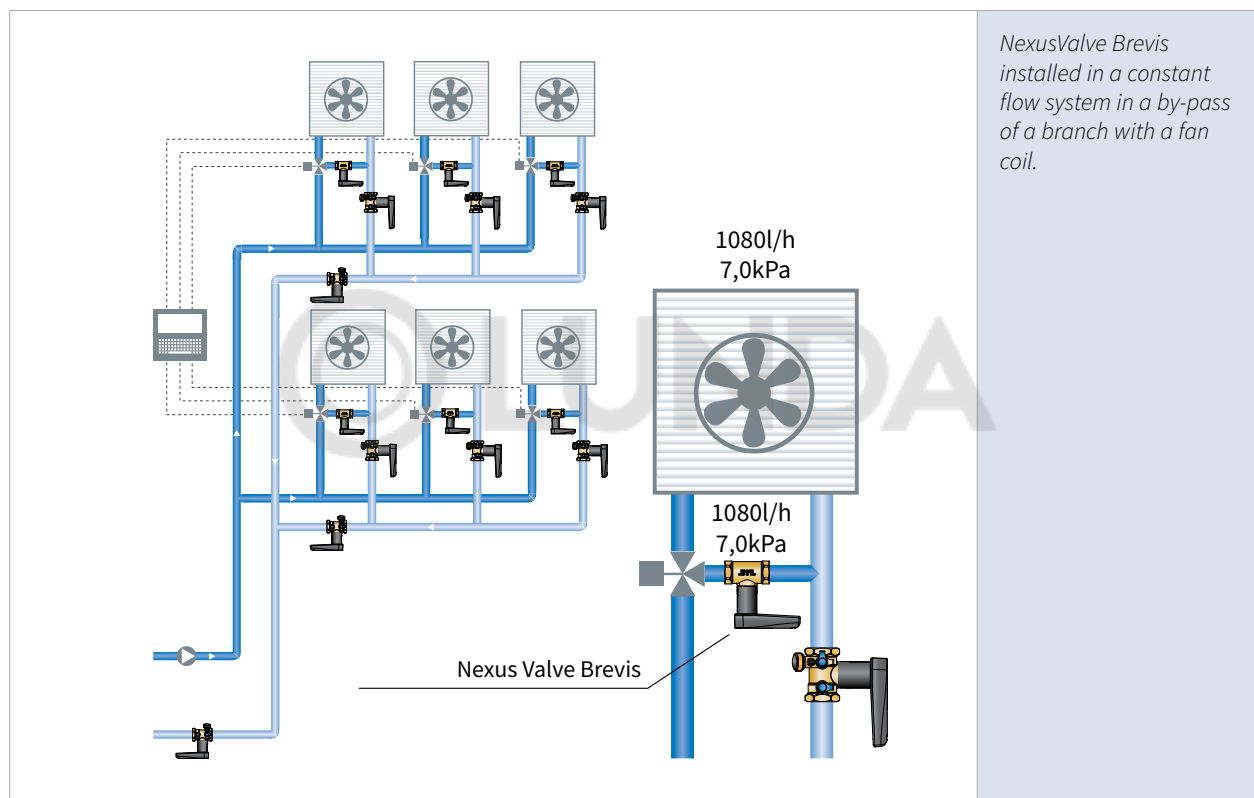
5.1 NexusValve Brevis accessories

Accessories	Article	Dimension	Description
	MN80597.7000	DN 15	Insulation jackets for NexusValve Brevis Material: expanded polypropylene Color: anthracite Thermal conductivity: 0,035 W/mK at 10°C Application: up to 110°C Fire protection class: B2, DIN 4102 and E, EN 13501-1
	MN80597.7010	DN 20	
	MN80597.7020	DN 25	
	MN80597.7030	DN 32	
	MN80597.7040	DN 40	
	MN80597.7050	DN 50	
	MN80597.0001	15 mm x 1/2"	Pre-sealed press adaptors (2 pcs) for valve DN 15 -50, max. 16 bar
	MN80597.0002	18 mm x 1/2"	
	MN80597.0003	15 mm x 3/4"	
	MN80597.0004	18 mm x 3/4"	
	MN80597.0005	22 mm x 3/4"	
	MN80597.0006	28 mm x 1"	
	MN80597.0007	35 mm x 1 1/4"	
	MN80597.0008	42 mm x 1 1/2"	
	MN80597.0009	54 mm x 2"	
	MN80597.0205	DN 15	High capacity drain valve (Kv 4,5) 1/2" female/female threaded connection
	MN80597.0206	DN 20	High capacity drain valve (Kv 4,5) 3/4" female/female threaded connection
	MN80597.0207	DN 25	High capacity drain valve (Kv 4,5) 1" female/female threaded connection

6. Sizing example

6.1 NexusValve Vertex system sizing

The NexusValve Brevis can be used for a number of applications. The following sizing example shows NexusValve Brevis installed in a constant flow system of fan coils. The NexusValve Brevis is to be used in a bypass of a branch with a fan coil. The NexusValve Brevis is to be sized in a way so that the sizing flow can pass through the valve while the pressure loss is the same as in the fan coil.



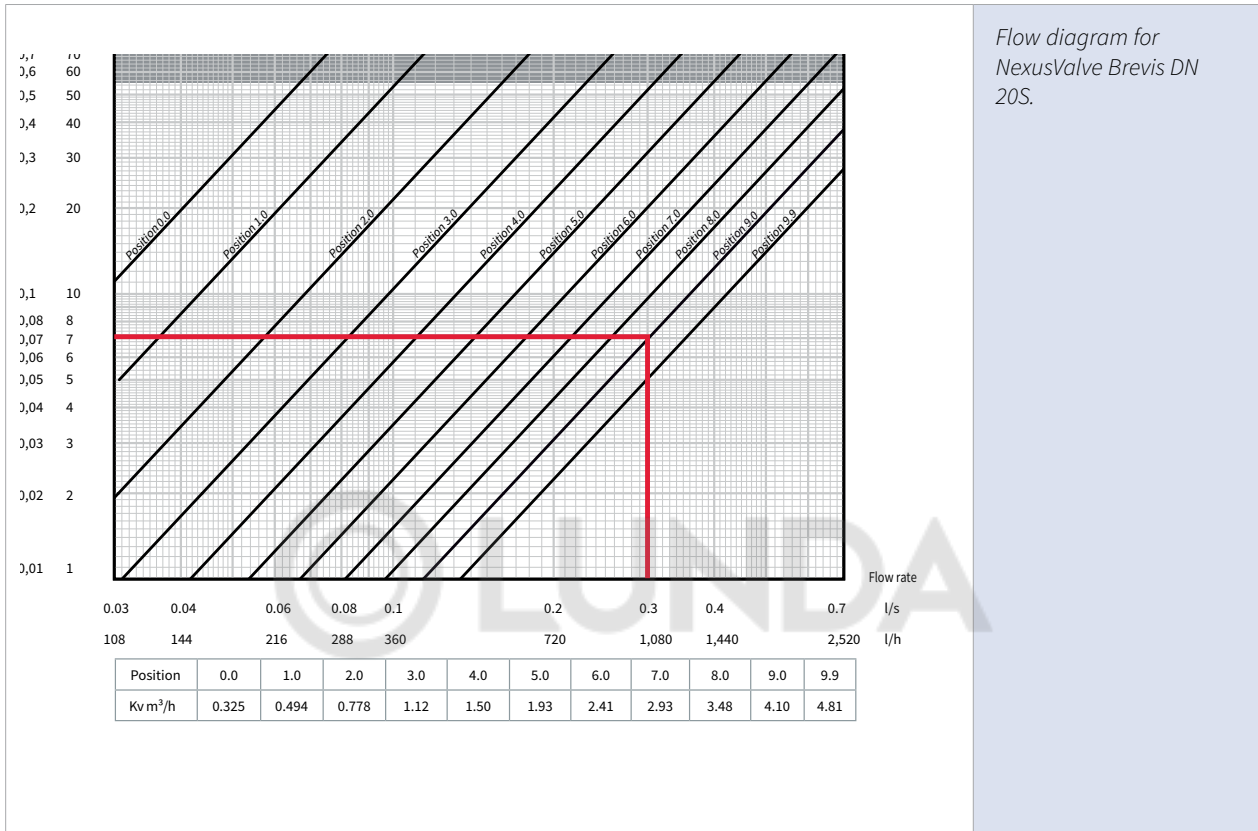
The flow to a selected fan coil is specified for the sizing conditions. The fan coil in this example requires 0.30 l/s (1080 l/h). The pressure loss in the circuit with the fan coil at the specified flow has been calculated and is equal 7.0 kPa.

Based on this the NexusValve Brevis valve must be sized so that 0.3 l/s (1080 l/h) at pressure loss 7.0 kPa is ensured when the 3 way valve closes the flow to the fan coil and opens through the by-pass.

Best regulation ability of the NexusValve Brevis (and any static balancing valve) is achieved, when valves are sized to meet the required flow and pressure loss, at fully or nearly fully open position.

The smallest size NexusValve Brevis meeting the requirement is selected. In this case a DN 20S valve at setting 7.0 will ensure the required flow and pressure loss.

The valve of this size will provide good regulation as any setting change will result in a greater pressure loss than for example in the case of a bigger valve like NexusValve Brevis 25S. Consequently it is going to be easier to tune the valve.



Ordering: NexusValve Brevis article No.: MN80597.444

6.2 General specifications DN 10-50

1. Balancing valve DN 15 - 50

1.1. The Contractor shall install Static Balancing Valves where indicated in drawings.

2. Valve Body – female/female

- 2.1. The valve body shall be made of hot stamped DR brass CW602N CuZn36Pb2As.
- 2.2. The pressure rating shall be no less than PN25 at 135°C.
- 2.3. The valve shall have regulation and isolation in one single unit.

3. Flow Regulation

- 3.1. The flow regulation shall be externally adjustable using an Allen key.
- 3.2. The regulation settings shall remain unchanged when the isolation (open/close function) is re-opened.

4. Functions

- 4.1. The valve shall have a visible ¼-turn open/close function.
- 4.2. The valve shall have 100 different setting positions.
- 4.3. Valve dimensions shall be clearly marked on the handle.

Notes



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Subject to modifications

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