HydroControl D

Differential Pressure Control Valve PN 25

DN 15...50

For automatic hydronic balancing of distribution pipes in central heating and cooling systems with closed circuits. The differential pressure control ensures hydronic balancing even in partial load range and prevents high differential pressures in the controlled system section, e.g. at the radiator valve.

When using a HydroControl V or M as partner valve, the water quantity in the pipeline can also be measured with the help of the OV-DMC 3 measuring system with the impulse tube connected.

Y-pattern version with secured, at any time controllable, infinitely adjustable presetting of the desired nominal differential pressure value. All functions accessible from the top.

Functions

- Differential pressure control
- Shutoff
- Measurement (with HydroControl V or M as partner valve)

Features

+ High flow rate
+ Small diaphragm housing
+ Body made of dezincification resistant brass
+ Measurement function support

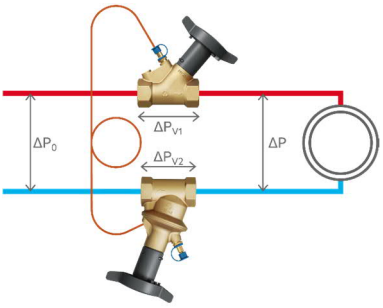
Product Details

Technical Data

Nominal sizes	DN 15...50
Variants	With internal thread according to EN 10226 With external thread according to ISO 228
Operating temperature	-20...120 °C
Operating pressure	PN 25
Medium	Heating or cooling water according to VDI 2035 or ÖNORM 5195 Water-glycol mixtures with max. 50% glycol content
Max differential pressure	2.5 bar
Nominal differential pressure	5...30 kPa oder 25...70 kPa

Functions

Differential pressure control



The main function of the HydroControl D is to control the differential pressure via a control circuit. For this purpose, the pressure pickup is carried out in the supply and in the return.

- The pressure pickup in the return is carried out inside the HydroControl D – which must always be installed in the return
- The pressure pickup in the supply is transmitted to the HydroControl D via the supplied impulse tube. The pressure pickup is usually carried out via a so-called partner valve, typically a shutoff or throttle valve

The desired differential pressure ΔP is set as the nominal value on the HydroControl D handwheel. The required nominal value setting can be determined from the charts in the chapter “Sizing” further on. The HydroControl D is available in two setting ranges:

- 5 to 30 kPa (50 to 300 mbar)
- 25 to 70 kPa (250 to 700 mbar)

The total pressure loss of the system section ΔP_0 is the sum of ΔP, ΔP_{V2} and, if applicable, the pressure loss of the partner valve ΔP_{V1}. As a rule, pressure pickup is carried out on the partner valve downstream of its valve seat so that no pressure loss needs to be taken into account. This is also shown in the above graphic.

IMPULSE TUBE

The impulse tube required for pressure pickup in the supply pipe is included in the scope of delivery. The impulse tube can be connected to a HydroControl V, HydroControl M or HydroControl A partner valve without tools. The connection is usually made at the blue HydroPort auxiliary valve of the partner valve.

On the HydroControl D, the impulse tube is screwed into the connection thread above the diaphragm housing and tightened with an open-end spanner.

PARTNER VALVE

All HydroControl shutoff and throttle valves are suitable as partner valves:

- The HydroControl A shutoff valve enables a quick and easy connection on the impulse tube

- The HydroControl V double regulating valve additionally enables throttling and measurement of the water quantity in the pipeline
- The HydroControl M fixed orifice double regulating valve additionally enables the measurement of the water quantity in the pipeline via a fixed orifice metering station, which simplifies measuring

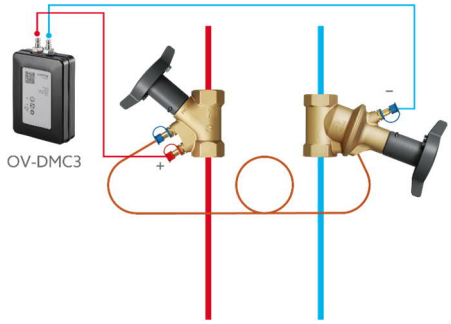
Item numbers of HydroControl partner valves

	HydroControl A		HydroControl V		HydroControl M
Nominal size	Internal thread	External thread	Internal thread	External thread	Internal thread
DN **15**	1067524	1067624	1062404	1062604	1065804
DN **20**	1067526	1067626	1062406	1062606	1065806
DN **25**	1067528	1067628	1062408	1062608	1065808
DN **32**	1067530	1067630	1062410	1062610	1065810
DN **40**	1067532	1067632	1062412	1062612	1065812
DN **50**	1067536	1067636	1062416	1062616	1065816

Flow measurement

Each HydroControl D is equipped with a HydroPort auxiliary valve as standard. With the HydroPort valve, the blue measuring hose of an OV-DMC 3 differential pressure measuring device can be easily and safely connected by means of a snap lock. HydroPort valves are opened by a quarter turn.

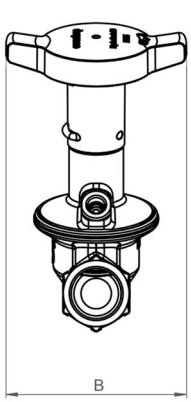
For the measurement, however, a partner valve with measuring function is required, i.e. a HydroControl V or HydroControl M double regulating valve. The red measuring hose of the OV-DMC 3 is connected to this partner valve, the respective partner valve is to be selected in the OV-DMC 3 measuring device.

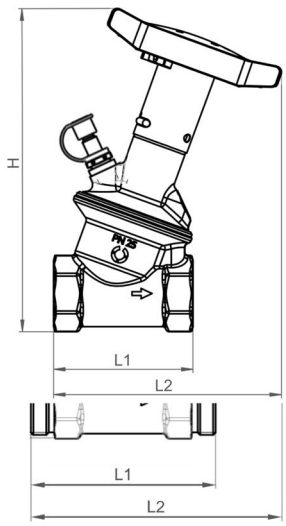


Shutoff

Turning the handwheel as far as it will go shuts off the pipeline tightly.

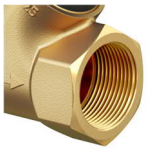
Dimensions

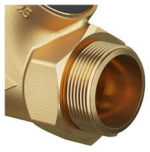




	INTERNAL THREAD			EXTERNAL THREAD					
DN	Con-nection	L1 [mm]	L2 [mm]	Con-nection	L1 [mm]	L2 [mm]	B [mm]	H [mm]	Weight [kg]
15	Rp ½	73	131	G ¾	89	138	109	180	1.3
20	Rp ¾	78	133	G 1	90	140	109	186	1.4
25	Rp 1	84.5	138	G 1 ¼	96	142	109	195	1.6
32	Rp 1 ¼	107	154	G 1 ½	125	164	109	195	1.8
40	Rp 1 ½	110	155	G 1 ¾	130	165	109	200	2.0
50	Rp 2	126	166	G 2 ⅜	137	175	109	222	2.9

Item Numbers





		INTERNAL THREAD		EXTERNAL THREAD	
DN	Nominal value range	Connection size	Item no.	Connection size	Item no.
15	5...30 kPa	Rp ½	1064524	G ¾	1064624
20		Rp ¾	1064526	G 1	1064626
25		Rp 1	1064528	G 1 ¼	1064628
32		Rp 1 ¼	1064530	G 1 ½	1064630
40		Rp 1 ½	1064532	G 1 ¾	1064632
50		Rp 2	1064536	G 2 ⅜	1064636
15	25...70 kPa	Rp ½	1064724		
20		Rp ¾	1064726		
25		Rp 1	1064728		
32		Rp 1 ¼	1064730		
40		Rp 1 ½	1064732		
50		Rp 2	1064736		

Scope of delivery

- HydroControl D differential pressure control valve
- Impulse tube, length = 1 meter, with quick-release fastener for HydroPort auxiliary valves
- Quick guide

Suitable partner valves

- When using HydroControl V, HydroControl M or HydroCom V double regulating valves as partner valve, the flow rate can be measured with the OV-DMC 3 measuring system
- When using HydroControl A or HydroCom A shutoff valves as partner valve, it is not possible to measure the flow rate

	Double regulating valves: Flow rate measurement possible				Shutoff valves: flow rate measurement not possible		
	HydroControl V		HydroControl M	HydroCom V	HydroControl A		HydroCom A
							
DN	Item no. IT	Item no. ET	Item no. IT	Item no. IT	Item no. IT	Item no. ET	Item no. IT
15	1062404	1062604	1065804	1062704	1067524	1067624	1062724
20	1062406	1062606	1065806	1062706	1067526	1067626	1062726
25	1062408	1062608	1065808	1062708	1067528	1067628	1062728
32	1062410	1062610	1065810	1062710	1067530	1067630	1062730
40	1062412	1062612	1065812		1067532	1067632	
50	1063616	1062616	1065816		1067536	1067636	

Accessories

Extended impulse tube

Original impulse tube in extended version. On one side with screw fitting for connection to the HydroControl D diaphragm housing. On the other side with quick-release fastener for connection to HydroPort auxiliary valves.

Length	Suitable for	Item no.
2 metres	All nominal sizes and variants	1069626
5 metres	All nominal sizes and variants	1069627

Insulation shell

Only for heating systems. Meets the requirements of Appendix 8 to Sections 69 and 71(1),line ee) of the German Building Energy Act (GEG). Building material class B2 according to DIN 4102.

Operating temperature up to 110 °C.

Suitable for	Item no.
DN 15	1069620
DN 20	1069621
DN 25	1069622
DN 32	1069623
DN 40	1069624
DN 50	1069625

Fittings PN 16

Connection set with externally threaded tailpipes.

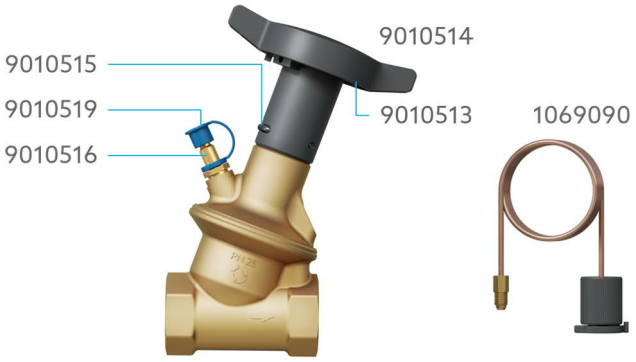
Consisting of two tailpipes, union nuts and sealing rings.

Suitable for HydroControl with external thread.

When using these fittings, the pressure rating is reduced to PN **16** = max. operating pressure **16** bar!

Connection size	Suitable for	Item no.
R ½	DN 15	1140792
R ¾	DN 20	1140793
R 1	DN 25	1140794
R 1 ¼	DN 32	1140795
R 1 ½	DN 40	1140796
R 2	DN 50	1140797

Spare parts



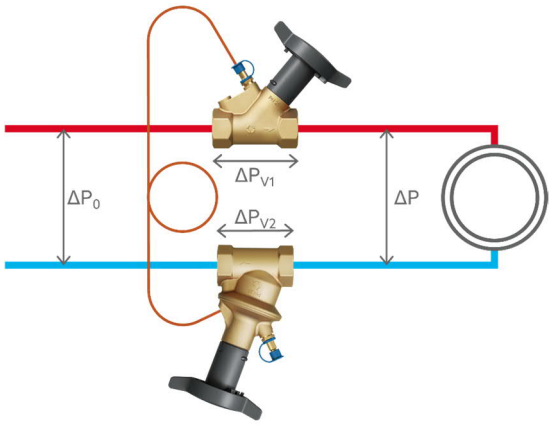
Spare part	Suitable for	Item no.
Impulse tube, complete	All nominal sizes and variants	1069090
Blocking clip (concealed, 10 pieces)		9010513
Handwheel set, complete		9010514
Securing clip (10 pieces)		9010515
HydroPort		9010516
Protection cap (10 pieces)		9010519

Sizing

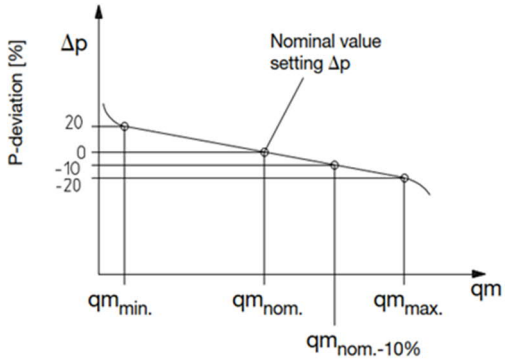
The recommended application range is determined by the minimum flow rate ($q_m$min) and the maximum flow rate ($q_m$max). The controller sizing can be done with the help of the charts. Depending on the flow rate and the differential pressure, the appropriate control valve can be determined. The expected maximum flow of the installation must not exceed that of the control valve ($q_m$max.). With the $q_m$nom curve, the differential pressure of the installation corresponds to the set nominal value.

The $q_m$nom –10 % curve shows the values with a P-deviation of –10 %. The performance data apply to the condition $\Delta P_0 \geq 2 \times \Delta P$. To ensure sufficient valve authority of the differential pressure control valve, ΔP_0 should be ≥ 1.5 x ΔP.

Note: A function of the differential pressure control valve is also given below this value.



System illustration



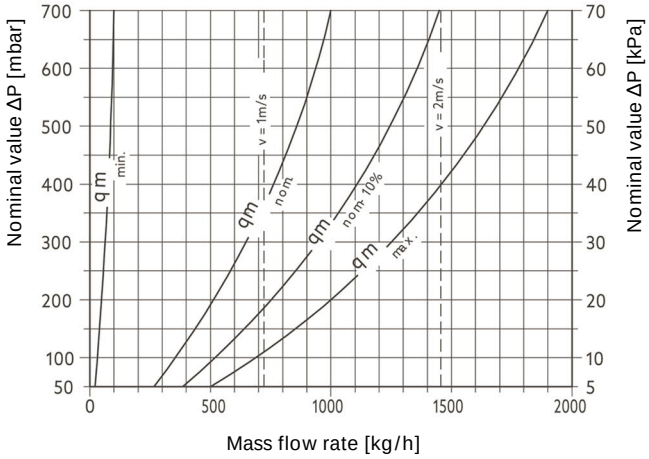
Smallest P-deviation at medium nominal value setting ($q_m$nom)

Performance Data

Area of application range for $\Delta P_0 = 2 \times \Delta P$

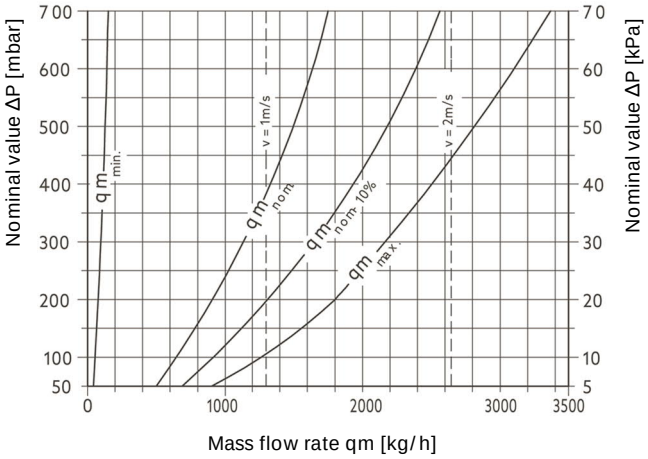
DN 15

Kvs = 4.0



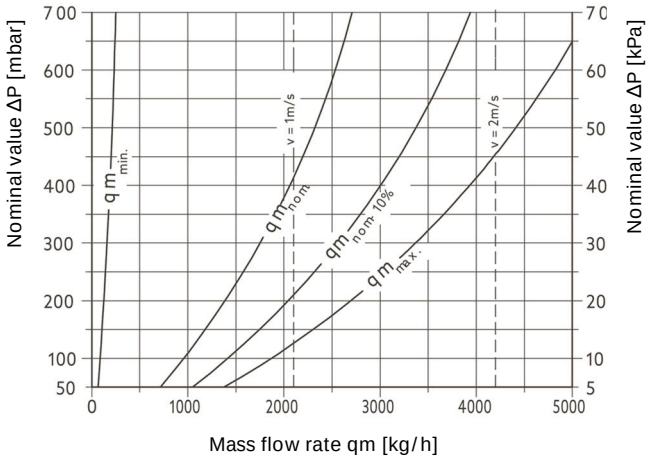
DN 20

Kvs = 5.5



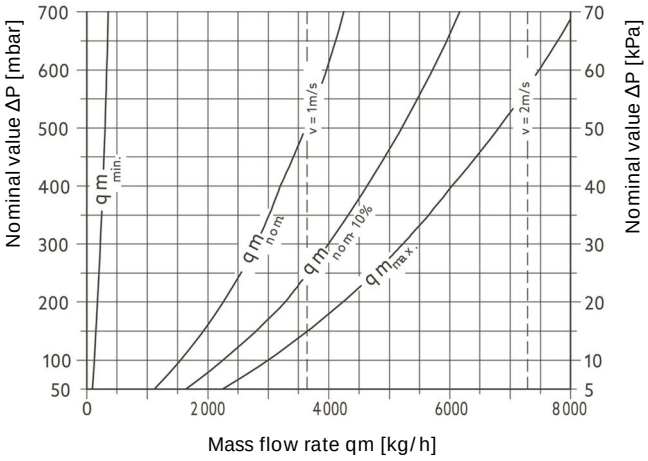
DN 25

Kvs = 7.5



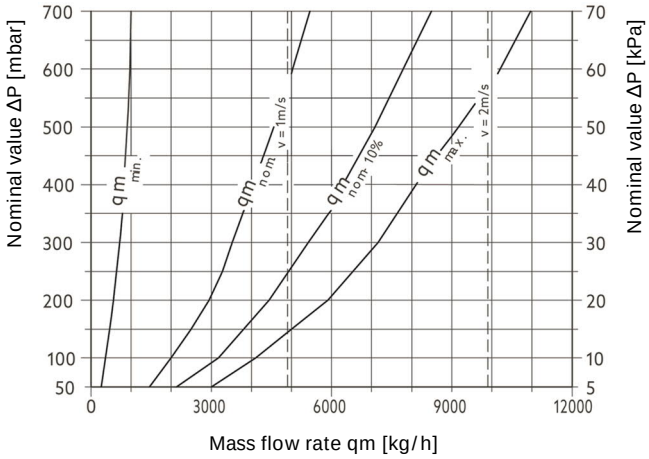
DN 32

Kvs = 9.5



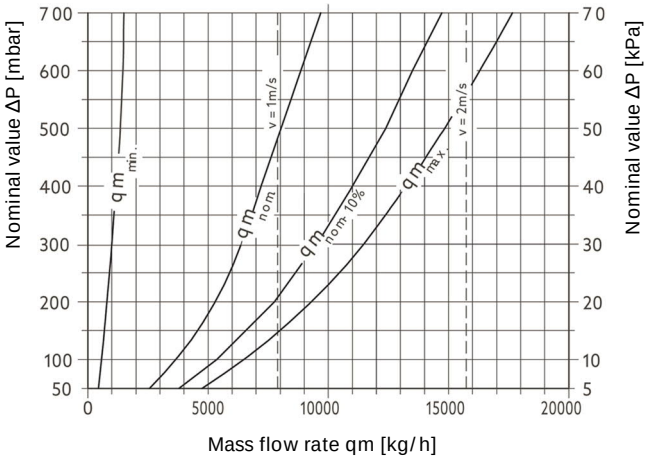
DN 40

Kvs = 11.5



DN 50

Kvs = 20.0



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