

W-DPBV-20T Series

Differential pressure balancing valves

Technical Data Sheet



Description

The Series **W-DPBV** differential pressure-balancing valve is designed to keep constant differential pressure between supply pipes and return pipes of a bypass, control valve or terminal equipment in air-conditioning or heating system. It avoids hydraulic disturbances resulting from variations in system differential pressure.



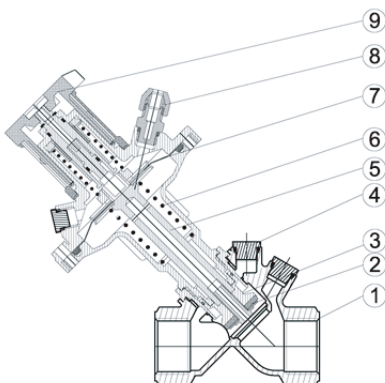
W-DPBV-20T

Differential pressure-balancing valve **with threaded connections** for heating and cooling systems. Self-acting differential pressure control, no external power needed, on-site setting of differential pressure, wide controllable range of differential pressure, handwheel equipped with differential pressure indicator, able to be shut off by handwheel self-sealing measuring points to protect against leakage, equipped with measuring points and air vent, equipped with a three-way measuring connector

- Nominal Pressure: PN 20
- Temperature Range: -10°C÷120°C

Type	Part No.	DN	ΔP Control (kPa)	Kvs (m ³ /h)	Weight (kg)
W-DPBV015S-20T	61180000E	15	5-30	2.5	2,1
W-DPBV020S-20T	61180001E	20	5-30	4	2,14
W-DPBV025S-20T	61180002E	25	5-30	6.5	2,43
W-DPBV032S-20T	61180003E	32	5-30	11.5	2,72
W-DPBV040S-20T	61180004E	40	5-30	15.5	2,95
W-DPBV050S-20T	61180005E	50	5-30	23.3	3,88
W-DPBV015L-20T	61180006E	15	30-70	2.5	2,1
W-DPBV020L-20T	61180007E	20	30-70	4	2,14
W-DPBV025L-20T	61180008E	25	30-70	6.5	2,43
W-DPBV032L-20T	61180009E	32	30-70	11.5	2,72
W-DPBV040L-20T	61180010E	40	30-70	15.5	2,95
W-DPBV050L-20T	61180011E	50	30-70	23.3	3,88

Technical features	
Nominal pressure	PN 20
Fluids	Water (liquid), Water + ethylene glycol (liquid) Not suitable for: Gases (Group 1 & 2) and liquids of Group 1 as defined in PED 2014/68/EU. The fluid must remain single-phase (no flashing) under all operating conditions. Not for steam/superheated water.
Maximum glycol content	25%. Higher percentages only on request and subject to Watts approval
Operating temperature	-10°C÷120°C Fluid temperatures below 0°C and above 100°C allowed only for water with anti-freezing or anti-boiling additives. For temperatures above 100°C, the vapor pressure of the selected fluid must be < 0,5 bar(g)
Threads	ISO 7/1
Control accuracy	±10%
Maximum Working Differential Pressure:	≤ 300 kPa
CE Marking	No CE marking (Falls under art. 4.3 of Pressure Equipment Directive)



Pos.	Component	Materials
1	Body	Brass
2	Seal	EPDM
3	Core	Brass
4	Plug	Brass
5	Stem	Brass
6	Spring	Stainless Steel
7	Membrane	EPDM
8	Pressure Pipe Joint	Brass
9	Handwheel	PA

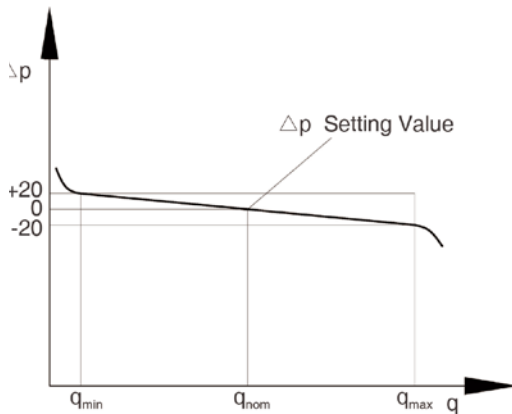
Application

Heating and cooling systems.

Working principle

When the service pressure difference of the system pipe increases, relying on the pressure change of its high and low pressure, the dynamic differential pressure balancing valve's chambers re-balance the forces acting on both sides of the diaphragm, at the same time, it drives the valve stem to move, reduces the valve opening, absorbs the increased utility pressure difference, and ensures the constant pressure difference at the controlled side.

Working Differential Pressure Range



DN	ΔP (kPa)											
	5			10			20			30		
	q_{min}	q_{nom}	q_{max}	q_{min}	q_{nom}	q_{max}	q_{min}	q_{nom}	q_{max}	q_{min}	q_{nom}	q_{max}
15	0.02	0.25	0.48	0.03	0.32	0.66	0.04	0.47	0.91	0.05	0.60	1.13
20	0.03	0.41	0.89	0.04	0.61	1.19	0.05	0.84	1.64	0.07	1.02	1.96
25	0.08	0.71	1.04	0.10	0.98	1.67	0.13	1.23	2.48	0.15	1.78	3.41
32	0.10	1.06	2.19	0.13	1.42	2.72	0.16	2.05	3.88	0.20	2.77	5.13
40	0.11	1.66	3.34	0.23	2.22	4.17	0.35	3.04	5.72	0.55	3.83	6.31
50	0.20	2.21	3.94	0.31	3.71	5.07	0.53	3.82	7.00	0.66	4.56	8.58

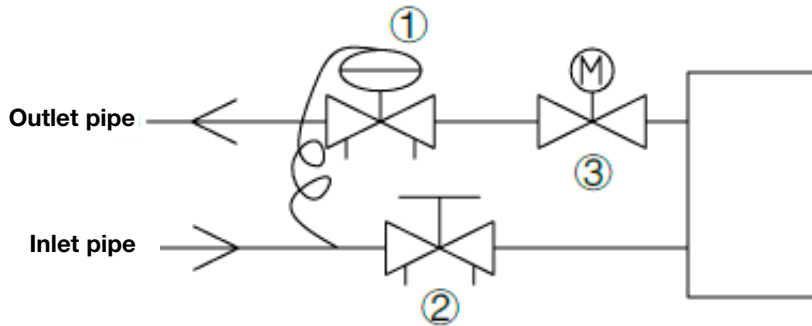
DN	ΔP (kPa)											
	30			40			50			60		
	q_{min}	q_{nom}	q_{max}	q_{min}	q_{nom}	q_{max}	q_{min}	q_{nom}	q_{max}	q_{min}	q_{nom}	q_{max}
15	0.06	0.64	1.19	0.06	0.70	1.31	0.07	0.80	1.48	0.08	0.85	1.60
20	0.08	1.07	2.07	0.09	1.19	2.28	0.11	1.37	2.56	0.13	1.46	2.81
25	0.16	1.88	3.60	0.19	2.13	3.98	0.21	2.38	4.53	0.23	2.59	4.91
32	0.21	2.93	5.42	0.27	3.47	6.61	0.35	3.99	7.43	0.41	4.24	8.03
40	0.58	4.04	6.66	0.68	4.47	8.83	0.79	5.01	9.44	0.83	5.51	10.15
50	0.69	4.82	9.05	0.80	5.53	10.04	0.95	6.12	11.36	1.04	6.52	12.32

DN	ΔP (kPa)		
	70		
	q_{min}	q_{nom}	q_{max}
15	0.09	0.90	1.71
20	0.15	1.60	3.06
25	0.25	2.72	5.73
32	0.47	4.65	8.92
40	0.93	5.88	10.93
50	1.10	7.04	13.37

Installation

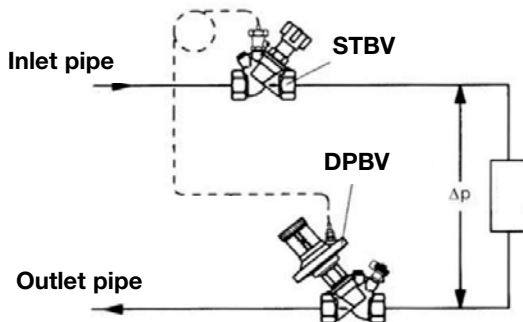
The dynamic differential pressure balancing valve can be used alone or in combination with the static balancing valve. The dynamic differential pressure balancing valve is always installed on the return pipe. When it is used with the static balance valve, the static balancing valve is installed on inlet pipe. Please see as follows.

1. DPBV (dynamic balancing valve)
2. STBV (static balancing valve)
3. Electronic control valve

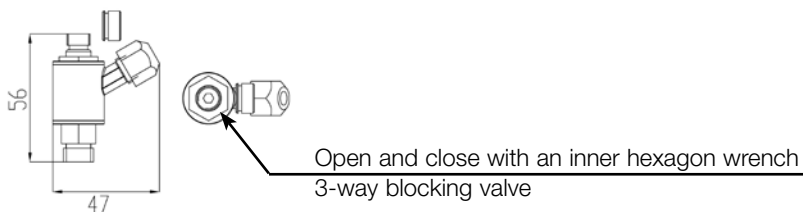


When pipeline pressure testing and pipeline flushing, the three-way valve must be fully open to prevent damage to the internal parts of the valve! Note: The pressure difference between the front and back of the valve should be less than 3 bar.

Install the three-way valve joint to the static balancing valve, and the measuring head can be connected to the inlet or outlet of the static balancing valve as required.



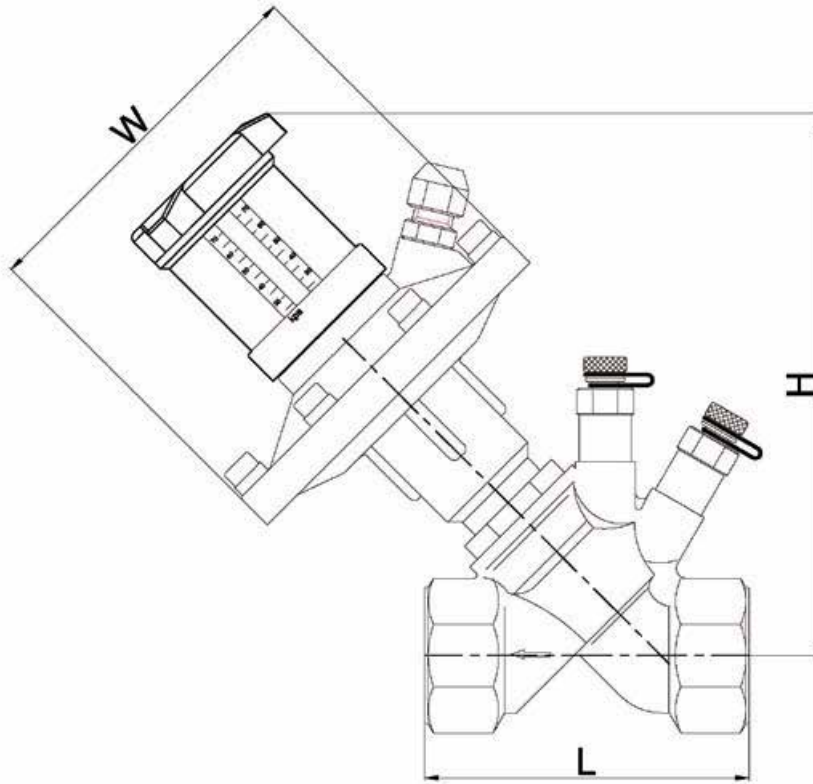
If used in conjunction with the static balancing valve produced by other manufacturers, please note that the interface size of the measuring head is G 1/4" thread.



- To ensure that the installation will not occur any accident, the piping system must be thoroughly cleaned before product installation (using chemical agents if necessary) to ensure that the piping system is clean and free of rust and dirt, and all filters must be removed before flushing to ensure that the piping is unblocked.
- During installation to ensure that the flow direction is in line with the arrow on the valve body logo.
- The valve shall be installed on the return pipe, connected with the pressure guide pipe on the valve, and the other end of the pressure guide pipe is connected with the water supply pipe.
- Install pressure gauges on the water supply pipe and the return pipe in front of the valve for easy observation, adjustment and control of actual pressure difference.
- If it is found that the system flow is too large or too small, the possible cause is debris stuck on the valve plug during installation of piping components, the valve should be disassembled for inspection to eliminate the blockage
- Method of controlling pressure difference adjustment: adjust the pressure regulating valve cover, observe the pressure difference before pressure difference pressure gauge.

Overall dimensions (mm)

W-DPBV-20T



DN	L	H	W
15	80	160	112
20	85	160	112
25	100	165	112
32	110	180	112
40	120	185	112
50	150	200	112

Specification text

W-DPBV-20T Series

Dynamic pressure balancing valve **W-DPBV-20T Series** with threaded connections DN 15-50 for heating and cooling systems. Self-acting differential pressure control, no external power needed, on-site setting of differential pressure, wide controllable range of differential pressure, handwheel equipped with differential pressure indicator, able to be shut off by handwheel self-sealing measuring points to protect against leakage, equipped with measuring points and air vent, equipped with a three-way measuring connector. Brass body. Nominal pressure 20 bar. Fluid: liquid water (max glycol content 25%). Operating temperature range: from -10°C to 120°C. ΔP Control 5-30 kPa or 30-70 kPa.

The descriptions and photographs contained in this product specification sheet are supplied by way of information only and are not binding.

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