

BALANCING VALVES WITH DIFFERENTIAL PRESSURE CONTROL

ART. 6538



DESCRIPTION

The Tiemme differential pressure control valves **Art.6538**, paired with partner valves **art.6539**, are compact valves designed to control the differential pressure in various parts of the system.

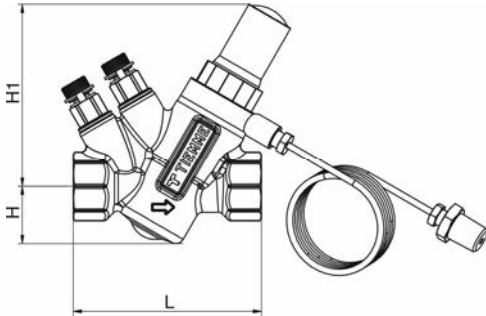
Thanks to the combined action of a membrane and a spring, they are able to react to the pressure variations that are generated in the system, to keep the pressure difference across the circuit constant at the set value. This adjustment is ideal for keeping variable flow systems constantly balanced, such as thermostatic valve systems, satellite modules or manifolds with multizone control. Partner valve **art. 6539** is the perfect complement to the differential pressure regulator as it allows for balancing of the maximum flow rate of the circulating project, transmission of the delivery pressure to the regulator, measurement of the pressure differences involved and interception of the branch with position memory

TECHNICAL SPECIFICATIONS

Technical Specifications	Unit of measurement	Value
Fluid temperature range	(°C)	-20°C - +120°C (- 4°F - +248°C)
Max pressure (PN)	Bar	16
Adjustment range ΔP	kPa	5-50 kPa (DN15- DN20 – DN25small) 5-60 kPa (DN25small – DN32) 5 – 100 kPa (DN40 – DN50)
Body material	-	Brass CW617N UNI EN 12165
Pressure point material	-	Brass CW617N UNI EN 12164
Insert/cartridge material	-	POM (polyoxymethylene); PPS (polyphenylene sulphide) FV loaded
Capillary tube material	-	Copper
Membrane	-	EPDM
Seals/O-Ring	-	EPDM
Pressure point fittings	-	1/4"
Connections	-	FF UNI-EN-ISO 228
Capillary tube	-	Ø 3 mm; length 1 m
Capillary tube fittings	-	M8 (supplied with 1/4' adapter)



DIMENSIONAL SPECIFICATIONS

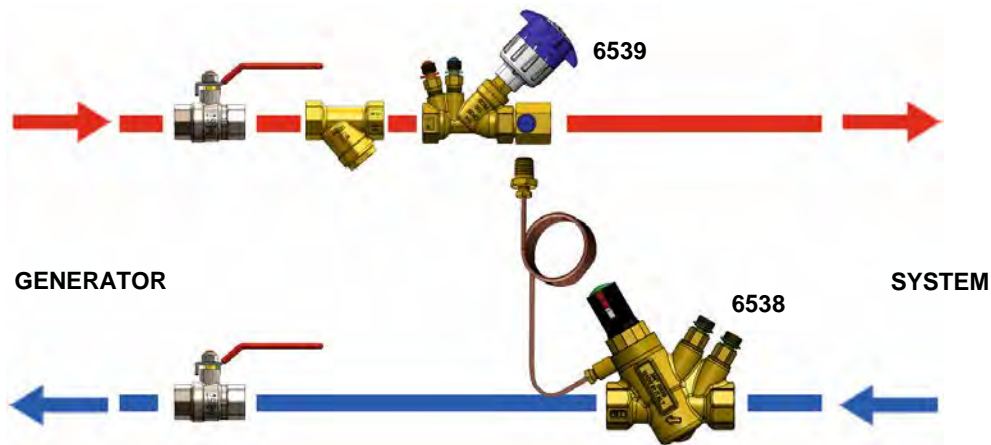


DN	DN CARTRIDGE	L (mm)	H	H1	WEIGHT	Kv (m ³ /h)
15	20	82	31	87	0.67	3.1
20		94			0.73	
25 Small		102			0.76	
25 Large	40	128	47	114	1.88	12.5
32					1.72	
40	50	169	54.5	151	3.90	32.0
50					3.50	

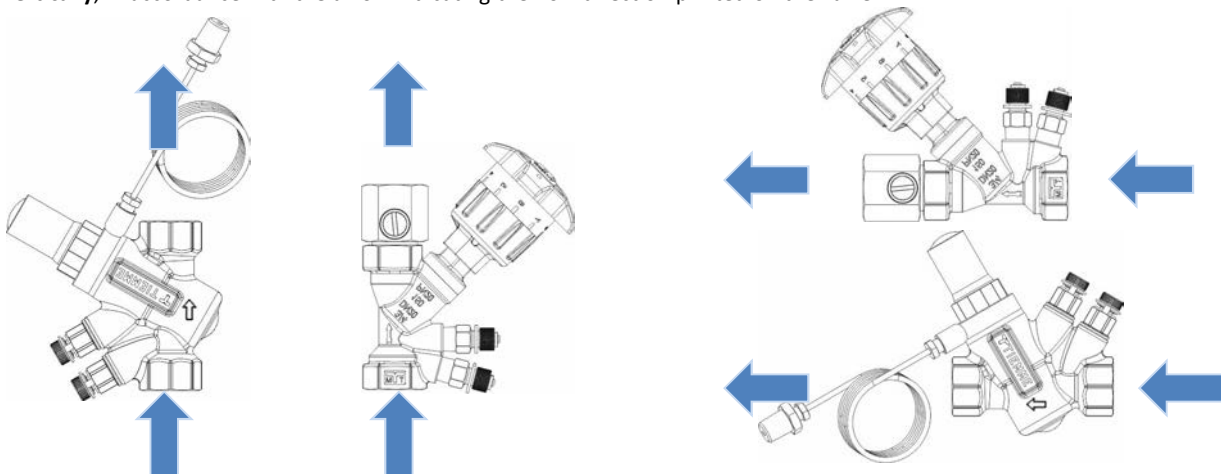
INSTALLATION

The balancing valve with differential pressure control **art.6538** must be installed on the return piping of the system in accordance with the arrow shown on the body.

The partner valve **art.6539** must be installed on the system delivery pipe. The arrow on the body should be taken into consideration in this case too.



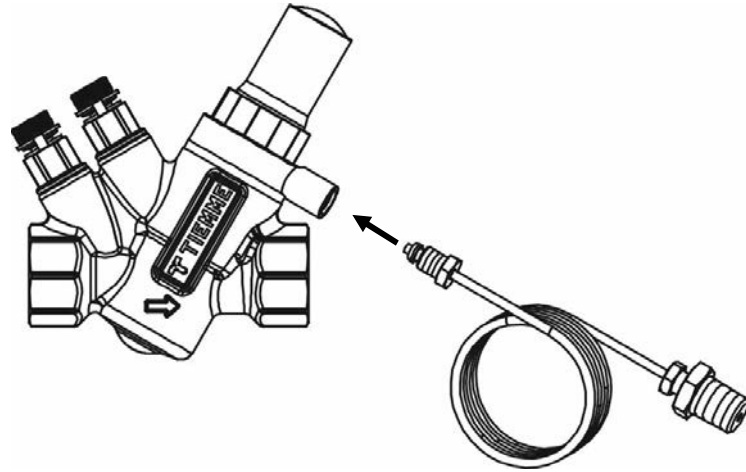
The balancing valve with differential pressure control **art.6538** and partner valve **art.6539** can be installed either **horizontally** or **vertically**, in accordance with the arrow indicating the flow direction printed on the valve.



To protect the internal cartridge from blockages caused by dirt in the water supply, we recommend **providing adequate filtration**. As for all balancing valves that have pressure points, it is important to keep these facing upwards in horizontal sections so as to avoid the possibility of sludge and impurities settling, which would compromise the correct operation of the system.



Connect the capillary between the two valves taking care not to damage it, avoid crushing or making tight curves ($R_{min} = 20 \text{ mm}$).



As for partner valve **Art. 6539**, remove the cap positioned on the capillary connection, screw-on the 1/4" adapter with sealant and then screw on the capillary pipe nut.

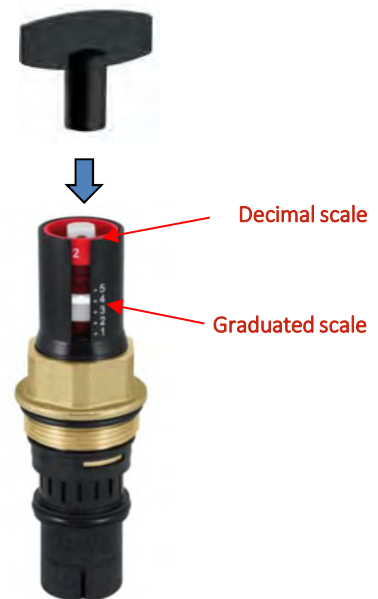


CALIBRATION

The flow rate value can be set using the special operating key (**art.6543CH**).

- Remove the cap from the top of the cartridge
- Adjust the cartridge to the required value. Turning clockwise increases the value, anticlockwise lowers it
- Put the cap back on. The valve is now calibrated

Calibration can also be done while the system is running, as can any further adjustments.



CARTRIDGE CALIBRATION CHART

ΔpC (kPaD)	Art. 6538 Measurement DN15 (1/2'') - DN 20 (3/4'') - DN25small (1'')														
	Flow rate (l/h)														
	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.5	4	4.5	5
3	330	430	520	620	710	810	920	1030	1150	1270	1390				
4	260	370	470	560	660	760	870	980	1100	1220	1340				
5	190	310	410	510	610	710	820	930	1050	1170	1290				
6	120	240	350	460	560	660	770	880	1000	1120	1240	1540			
7	50	180	300	400	510	610	720	830	950	1070	1190	1490			
8	15	120	240	350	460	560	670	780	900	1020	1140	1440			
9		60	190	300	410	510	620	740	850	970	1090	1390			
10		15	130	240	350	460	570	690	800	920	1040	1340			
11			70	190	300	410	520	640	750	870	990	1290			
12			15	140	250	360	470	590	700	820	940	1240	1520		
13				90	200	310	420	540	650	770	890	1190	1470		
14				30	150	260	370	490	600	720	840	1140	1420		
15				15	100	210	320	440	550	670	790	1090	1370		
16					50	160	280	390	500	620	740	1040	1320		
17					15	110	230	340	450	570	690	990	1270	1540	
18						60	180	290	410	520	640	940	1220	1490	
19						15	130	240	360	470	590	890	1170	1440	
20							80	190	310	420	540	840	1120	1390	
21							30	140	260	370	490	790	1070	1340	
22							15	90	210	320	440	730	1020	1290	
23								40	160	270	390	690	970	1240	1550
24								15	110	220	340	630	920	1190	1500
25									60	170	290	590	870	1140	1450
26									15	120	240	530	820	1100	1400
27										70	190	480	770	1050	1350
28										20	140	430	720	1000	1300
29										15	90	380	670	950	1250
30											40	330	620	900	1200
31											15	280	570	850	1150
32												230	520	800	1100
33												180	470	750	1050
34												130	420	700	1000
35												80	370	650	950
36												30	320	600	900
37												15	270	550	850
38													220	500	800
39													170	450	750
40													120	400	700
41													70	350	650
42													15	300	600
43														250	550
44														200	500
45														150	450
46														110	400
47														60	350
48														15	300
49															250
50															200
51															150
52															100
53															50
54															15



CARTRIDGE CALIBRATION CHART

		Art. 6538 Measurement DN25Large (1") - DN 32 (1" 1/4)																							
		Flow rate (l/h)																							
ΔpC (kPaD)	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.5	4	4.5	5										
5	1720	1720	1720	2010	2480	2970	3490	4030	4590	5190	5820														
6	1400	1400	1430	1870	2340	2830	3340	3870	4440	5030	5650														
7	1090	1090	1290	1730	2190	2680	3190	3720	4280	4870	5490														
8	780	780	1150	1590	2050	2530	3030	3560	4120	4700	5320														
9	470	600	1020	1450	1910	2380	2880	3410	3960	4540	5150														
10	150	480	880	1310	1780	2240	2730	3250	3800	4380	4990														
11	15	330	740	1170	1620	2090	2580	3100	3640	4220	4820														
12		190	600	1030	1480	1940	2430	2950	3490	4050	4650														
13		60	470	890	1330	1800	2280	2790	3330	3890	4490														
14		15	330	750	1190	1650	2130	2640	3170	3730	4320	5940													
15			190	610	1040	1500	1980	2480	3010	3570	4150	5760													
16			50	470	900	1350	1830	2330	2850	3400	3990	5580													
17			15	330	780	1210	1690	2170	2690	3240	3820	5400													
18				190	610	1060	1530	2020	2540	3080	3650	5230													
19				50	470	910	1380	1870	2380	2920	3490	5050													
20				15	330	770	1230	1710	2220	2750	3320	4870													
21					180	620	1080	1560	2060	2590	3150	4690													
22					40	470	930	1400	1900	2430	2990	4510													
23					15	330	780	1250	1750	2270	2820	4330													
24						180	630	1090	1590	2110	2650	4150	5890												
25						30	470	940	1430	1940	2490	3990	5690												
26						15	320	790	1270	1780	2320	3800	5500												
27							170	830	1110	1620	2150	3620	5310												
28							15	480	950	1460	1990	3440	5120												
29								320	800	1290	1820	3260	4930												
30								170	640	1130	1650	3080	4730												
31								15	480	970	1490	2900	4540												
32									320	810	1320	2720	4350												
33									180	640	1150	2550	4160												
34									15	480	980	2370	3960	5830											
35										320	820	2190	3770	5620											
36										180	650	2010	3580	5410											
37										15	480	1830	3390	5200											
38											320	1650	3190	4990											
39											150	1470	3000	4780											
40												15	1300	2810	4580										
41													1120	2620	4370										
42														940	2420	4160									
43															760	2230	3950	5980							
44																580	2040	3740	5750						
45																	400	1850	3530	5530					
46																		220	1660	3330	5300				
47																			50	1460	3120	5070			
48																				15	1270	2910	4840		
49																					1080	2700	4620		
50																					890	2490	4390		
51																					690	2280	4160		
52																					500	2090	3930		
53																					310	1870	3710		
54																					120	1680	3480		
55																						15	1450	3250	
56																							1240	3030	
57																							1030	2800	
58																							830	2570	
59																							620	2340	
60																							410	2120	
61																							200	1890	
62																								15	1660
63																								1430	
64																								1210	
65																								980	
66																								750	
67																								530	
68																								300	
69																								70	
70																								15	

CARTRIDGE CALIBRATION CHART

		Art. 6538 Measurement DN40 (1" 1/2) - DN 50 (2")													
		Flow rate (l/h)													
ΔpC (kPaD)	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.5	4	4.5	5
5	3670	3670	3670	3670	3900	5550	7130	8920	11000						
10	1670	1670	1670	1720	2830	4300	5800	7490	9400	11700					
12	870	900	920	1350	2400	3800	5270	6930	8800	11000	13600				
14	200	370	520	980	1970	3300	4730	6360	8200	10400	12900				
16			200	610	1550	2800	4200	5790	7610	9700	12200				
18				230	1120	2300	3670	5220	7000	9100	11500				
20					890	1800	3140	4650	6390	8400	10800				
22					260	1300	2610	4090	5790	7740	10000				
24						800	2070	3520	5170	7090	9300				
26						300	1540	2950	4560	6430	8600				
28							1010	2380	3950	5770	7900	13400			
30							480	1810	3340	5110	7190	12600			
32								1240	2730	4460	6470	11900			
34								680	2120	3800	5760	11100			
36								200	1510	3140	5050	10300			
38									900	2480	4330	9800			
40									290	1820	3620	8800			
42										1170	2900	8100	13900		
44										510	2190	7320	13100		
46											1470	6570	12300		
48											760	5810	11500		
50											200	5080	10700		
52												4300	9870		
54												3550	9070		
56												2790	8270	13600	
58												2040	7470	12800	
60												1280	6670	12100	
62												530	5870	11400	
64													5070	10700	
66													4270	9900	
68													3470	9200	14000
70													2670	8500	13300
72													1870	7740	12600
74													1070	7020	12000
76													270	6290	11300
78														5560	10600
80														4830	10000
82														4110	9300
84														3380	8600
86														2650	7970
88														1930	7300
90														1200	6640
92														470	5970
94															5300
96															4640
98															3970
100															3300
102															2640
104															1970
106															1300
108															640

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