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9510 series

Fixed Orifice DZR Brass Double
Regulating Valve

Description

Fixed orifice DZR brass double regulating valve
Threaded F/F (ISO 228/1 for DN15 and DN20, ISO7/1 Rp above)
Olive and nut mounting kit for European copper tubing (EN1057) on request:

- DN15, kit for 15mm pipe
- DN20, kit for 22mm pipe

Design according BS7350

Tolerance on nominal $K_{vs} \pm 3\%$ (test according BS7350)

Available on following versions:

- Fig. 9515, with test points
 - Fig. 9516, with test points (high pressure TP with drain)
- STF and Gost compliant

PN25 (Max 25bar up to 100°C, max 20bar at 130°C)

PN16 with O/N kit (Max 16bar up to 30°C, max 5bar at 120°C)

Working conditions:

- Water: -10°C to +130°C (120°C with O/N kit)
below 0°C only for water with added antifreezing fluids
over 100°C only for water with added anti-boiling fluids



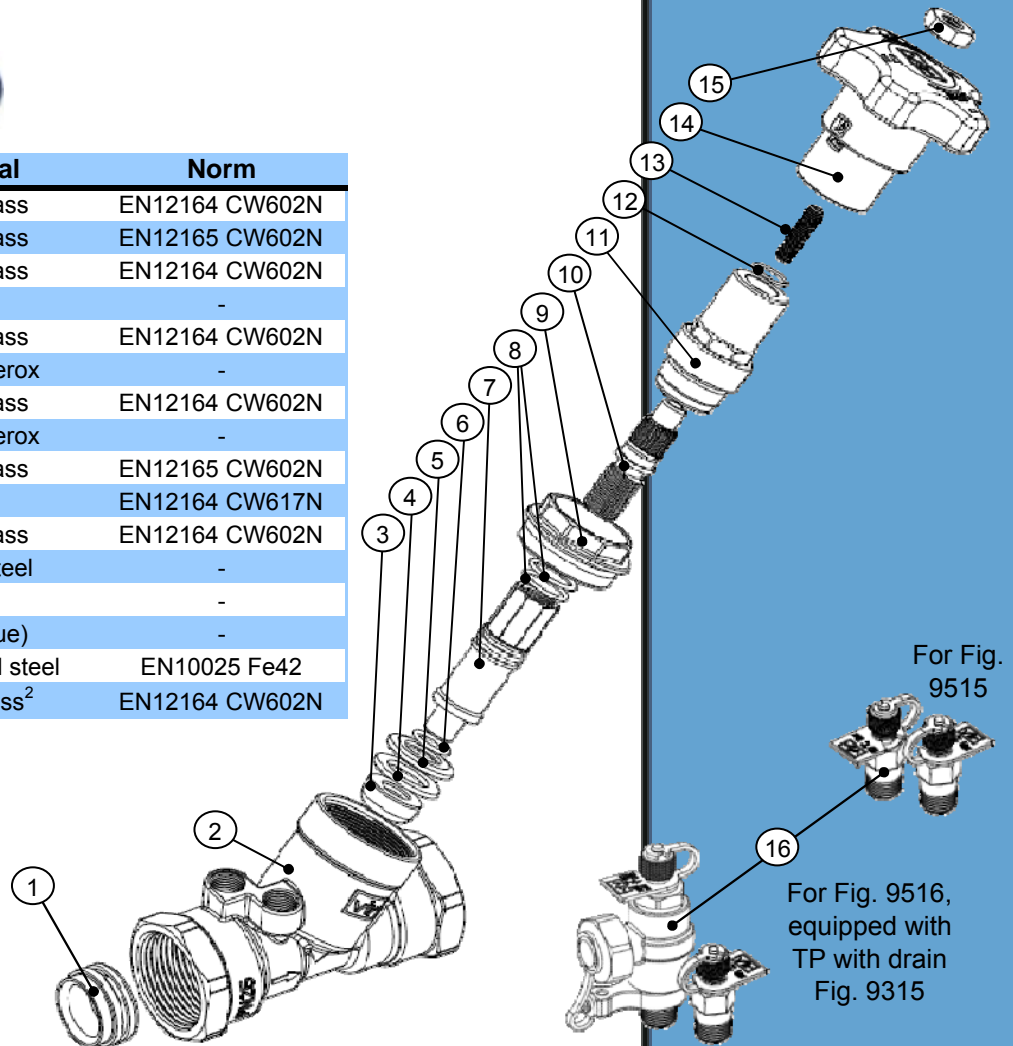
STF

Part List

N.	Part	Material	Norm
1	Venturi insert	DZR Brass	EN12164 CW602N
2	Body	DZR Brass	EN12165 CW602N
3	Balancing cone	DZR Brass	EN12164 CW602N
4	Gasket disc	PTFE	-
5	Disc ¹	DZR Brass	EN12164 CW602N
6	Disc O-ring ¹	EPDM Perox	-
7	Disc stem	DZR Brass	EN12164 CW602N
8	Stem O-ring	EPDM Perox	-
9	Union ¹	DZR Brass	EN12165 CW602N
10	Stem	Brass	EN12164 CW617N
11	Bonnet	DZR Brass	EN12164 CW602N
12	Stop spring ring	Spring steel	-
13	Screw	Steel	-
14	Handwheel	ABS (blue)	-
15	Nut	Zinc plated steel	EN10025 Fe42
16	Test point	DZR Brass ²	EN12164 CW602N

¹Only on DN32, DN40 and DN50

²Test points with EPDM gaskets and polypropylene ties



For Fig. 9515

For Fig. 9516, equipped with TP with drain Fig. 9315

121129

Dimensions

DN	G ¹	H (mm)	L (mm)	B (mm)	ØV (mm)	I (mm)	Wgt (g)	Flow range (l/s)
015 _{ULF}	½"	103,0	87,8 ²	17,5	70	22	558 ²	0,017-0,045
015 _{LF}	½"	103,0	87,8 ²	17,5	70	22	556 ²	0,031-0,074
015	½"	103,0	87,8 ²	17,5	70	22	550 ²	0,062-0,148 ⁴
020	¾"	103,0	95,9 ³	19,0	70	22	620 ³	0,138-0,325 ⁴
025	1"	103,0	100,0	22,5	70	22	751	0,258-0,603 ⁴
032	1¼"	123,3	117,5	24,8	70	22	1191	0,540-1,250 ⁴
040	1½"	125,4	127,0	24,8	70	22	1446	0,810-1,880 ⁴
050	2"	135,6	145,3	29,2	70	22	2064	1,520-3,510 ⁴

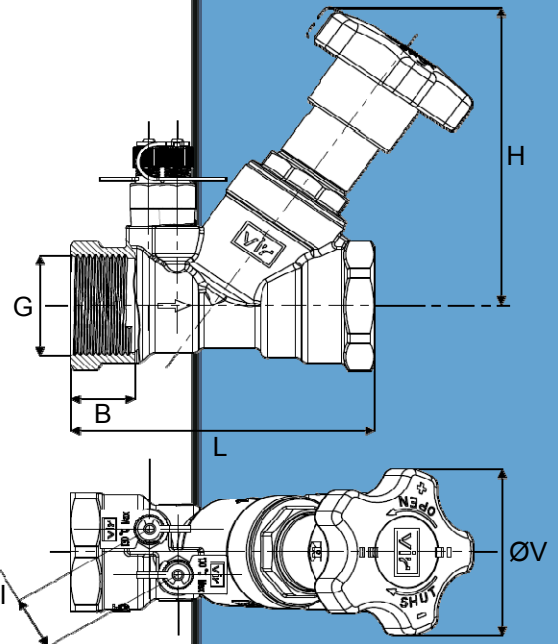
¹ISO 228/1 for DN15 and DN20, ISO7/1 Rp above

²For olive and nut version length 109,2mm, weight +63g

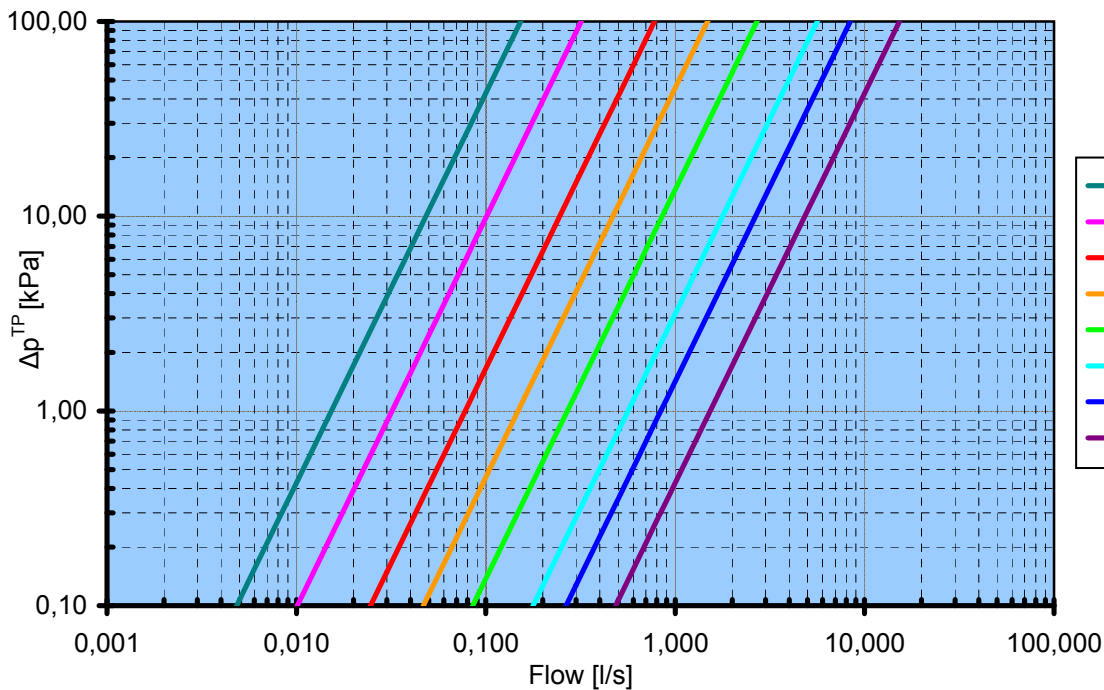
³For olive and nut version length 119,1mm, weight +65g

⁴Suggested flow range applicability (BS7350).

If used with measuring manometers different from those proposed by VIR please verify that sensibility of the measuring device is compatible with indicated minimum flow (see flow measurement paragraph)



Flow Measurement



DN15 _{ULF}	K _{vs} venturi 0,55
DN15 _{LF}	K _{vs} venturi 1,15
DN15	K _{vs} venturi 2,80
DN20	K _{vs} venturi 5,33
DN25	K _{vs} venturi 9,72
DN32	K _{vs} venturi 20,25
DN40	K _{vs} venturi 30,23
DN50	K _{vs} venturi 55,07

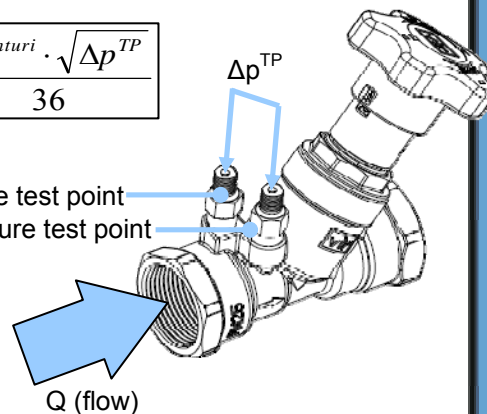
Formula linking flow Q (in l/s) and Δp measured at test points (in kPa).

Minimum flow that can be measured for each diameter may be calculated by using in the formula minimum Δp that can be measured by used manometer.

Valves are anyway designed for best performances when used on range previously suggested and as indicated by BS7350.

$$Q = \frac{K_{vs} \text{ venturi} \cdot \sqrt{\Delta p^{TP}}}{36}$$

High pressure test point
Low pressure test point



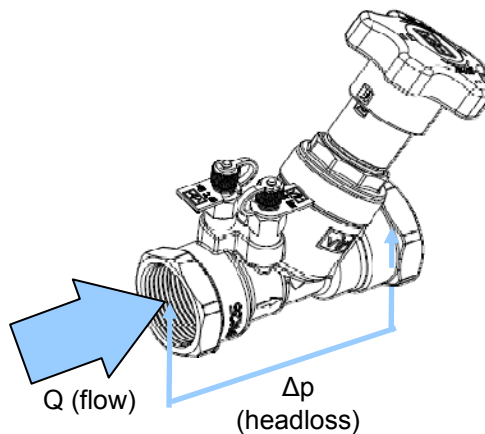
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Headloss calculation

Handwheel position	Kv (m ³ /h @ 1bar)							
	015 _{ULF}	015 _{LF}	015	020	025	032	040	050
0,5	0,153	0,138	0,41	0,41	1,47	2,56	2,72	5,36
0,7	0,178	0,161	0,41	0,47	1,73	2,92	3,12	6,54
1,0	0,245	0,248	0,53	0,58	2,09	3,42	3,69	8,35
1,3	0,286	0,341	0,62	0,70	2,44	3,88	4,29	10,54
1,5	0,307	0,381	0,70	0,78	2,70	4,18	4,82	12,37
1,7	0,335	0,433	0,78	0,86	3,01	4,54	5,71	14,39
2,0	0,385	0,507	0,86	0,97	3,57	5,42	7,78	17,45
2,3	0,442	0,579	0,95	1,08	4,18	6,76	10,45	20,20
2,5	0,447	0,602	1,02	1,20	4,57	7,92	12,29	21,73
2,7	0,456	0,643	1,14	1,40	4,87	9,05	14,13	23,06
3,0	0,487	0,716	1,38	1,94	5,27	10,56	16,34	24,84
3,3	0,500	0,747	1,63	2,54	5,61	11,58	17,88	26,44
3,5	0,514	0,771	1,76	2,93	5,74	12,06	18,63	27,44
3,7	0,515	0,800	1,83	3,24	5,88	12,40	19,17	28,42
4,0	0,522	0,824	1,89	3,51	6,14	12,54	19,59	29,72
4,4	0,523	0,852	1,92	3,67	6,24	-	-	-

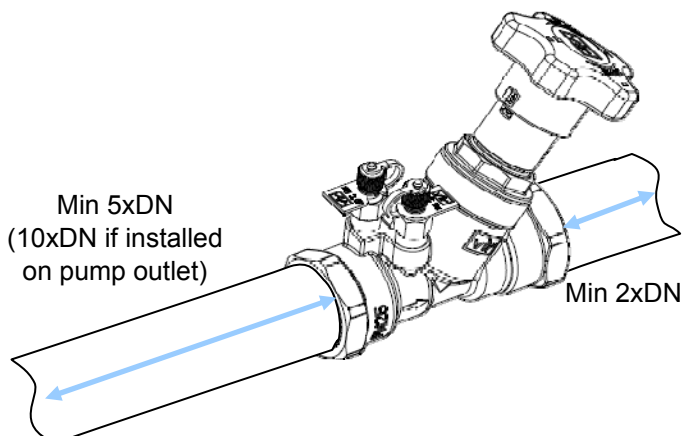
Formula linking flow Q (in l/s) and theoretical valve headloss Δp (in kPa).
 K_v depends on handwheel position as indicated on table.

$$\Delta p = \left(\frac{36 \cdot Q}{K_v} \right)^2$$



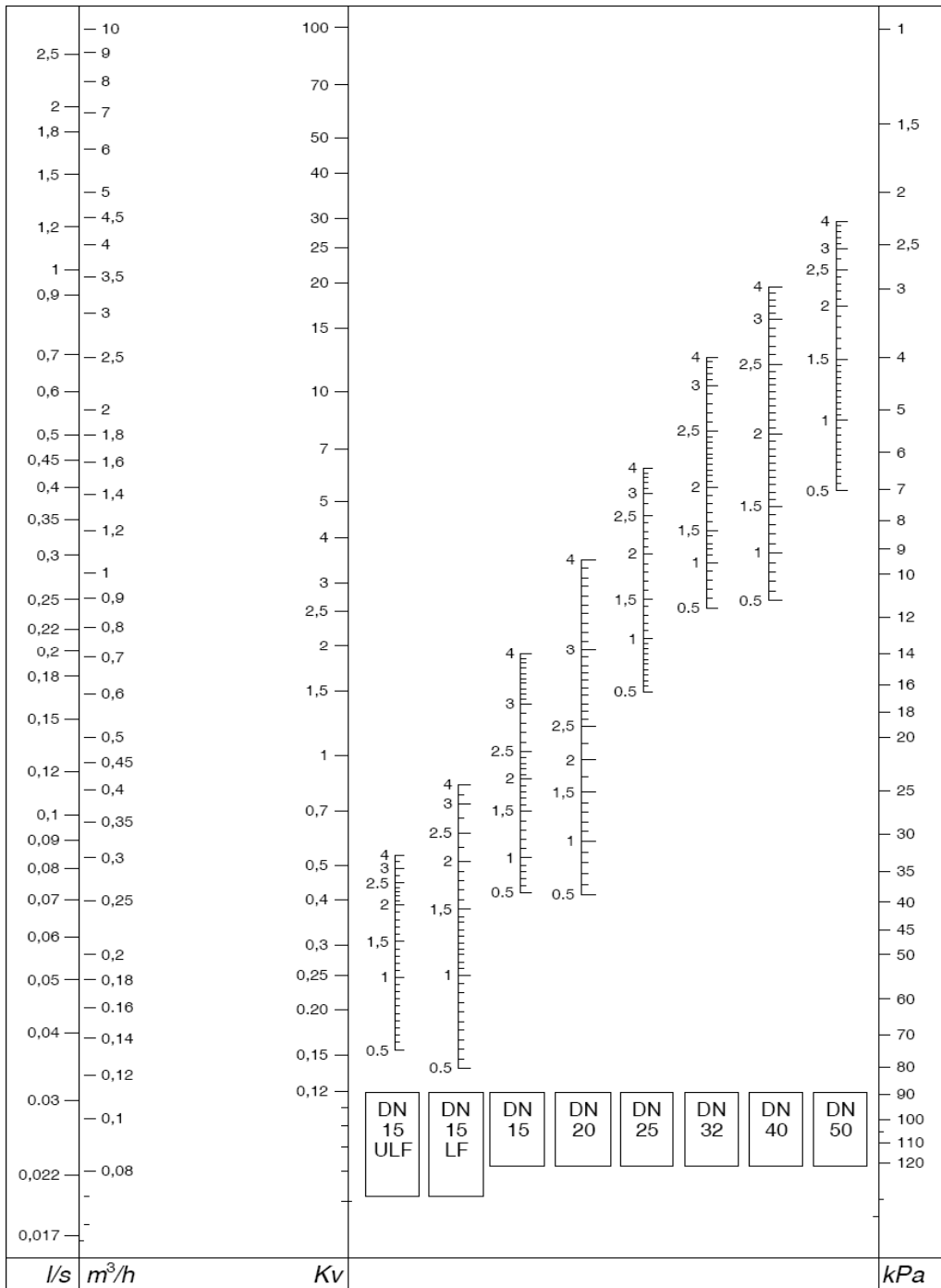
Installation

To obtain the best performances valve must be installed on a pipe with its same nominal size preceded and followed by straight pipe lengths as per figure indications.



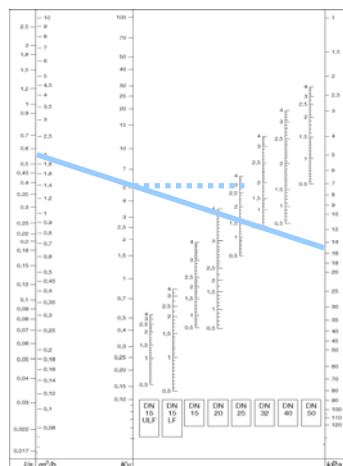
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Presetting



By using diagram above is possible to esteem the presetting position of the valve with given design flowrate and headloss:

- 1) draw a straight line joining design flowrate and design headloss;
- 2) determine design K_v value as intersection of drawn line and K_v axis;
- 3) draw a straight horizontal line from intersection previously identified and the specific valve DN Axis;
- 4) intersection determines handwheel position to use for presetting.



In the example for a design flowrate of $2\text{m}^3/\text{h}$ and design Δp 15kPa handwheel position of 2,9 is determined for a DN25 valve



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