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Art6060
## WOLTMANN Cold Water Meter (PN16 Flanged)

Features

1. Woltmann water meter for measuring cold water consumption.
2. Dry-dial, magnetic drive.
3. Cast iron body with inside and outside epoxy coating for protecting the corrosion.
4. T30: Working temperature: from 0,1ºC to 30ºC
5. Maximum working pressure 16 bar (PN 16)
6. Flanged ends according to UNE-EN 1092, PN16
7. Low pressure loss.
8. Meets to the standard ISO 4064-1: 2014
9. Accuracy class 2.
10. Pressure loss class $\Delta P10$. ($\Delta P16$ in DN50 and DN125).
11. Rank R80 H/V horizontal or vertical mounting.
12. No location limitation for installation. Accuracy is not affected wherever installed at horizontal, vertical o inclined pipeline position.
13. U10 / D5. It needs a minimum straight length of 10xDN upstream (U). Downstream (D) needs a minimum straight length of 5xDN. Does not require stabilizer at any point.
14. CE approval.
15. Easy maintenance and replacement of the measuring mechanism without removing the meter from the pipeline.
16. Two sockets for pulse transmitter connection.
17. Sphere protection IP68.
18. Internal and external corrosion protection.
19. Unaffected by external magnetic fields.

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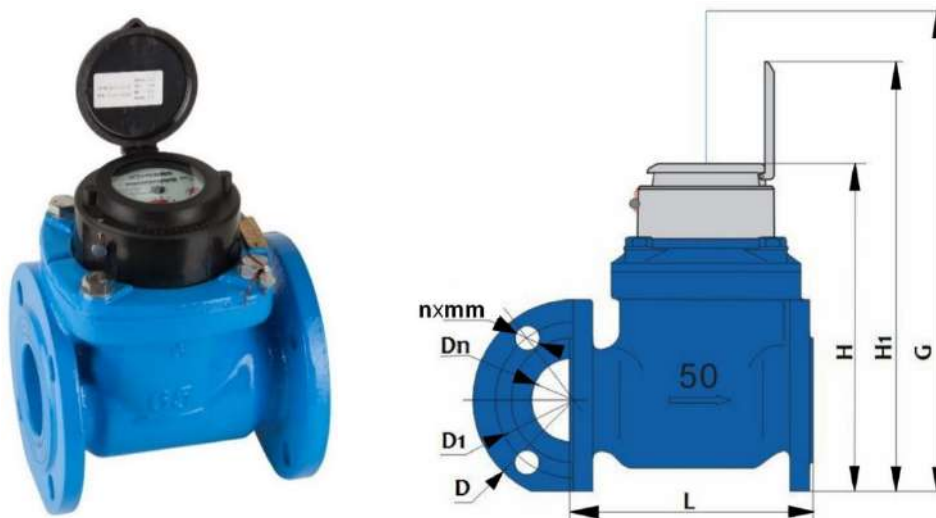
Dimensions

| Code | Size DN | Length L (mm) | Height G (mm) | Height H (mm) | Height H1 (mm) | Connecting Flange | | | Weight (Kg) |
						D (mm)	PCD (mm)	Nº holes x mm	
6060 09	50	200	400	252	339	165	125	4 x 18	12
6060 10	65	200	400	262	349	185	145	4 x 18	13
6060 11	80	225	400	272	359	200	160	8 x 18	14
6060 12	100	250	400	282	369	220	180	8 x 18	16
6060 13	125	250	400	297	384	250	210	8 x 18	20
6060 14	150	300	500	341	428	285	240	8 x 22	31
6060 16	200	350	500	371	458	340	295	12 x 22	40
6060 18	250	450	710	480	576	405	355	12 x 26	83

G= Minimum distance to be left free once installed the water meter to replace / repair the head.

Technical Measurement data

| Code | Size (DN) | Qn Q3 | Qmax Q4 | Qt Q2 | Qmin Q1 | Min Reading | Max Reading |
			m³/h				m³
6060 09	50	40	50	0,8	0,5	0,0005	9999999,999
6060 10	65	63	78,75	1,26	0,7875	0,0005	9999999,999
6060 11	80	63	78,75	1,26	0,7875	0,0005	9999999,999
6060 12	100	100	125	2	1,25	0,0005	9999999,999
6060 13	125	160	200	3,2	2	0,0005	9999999,999
6060 14	150	250	312,5	5	3,125	0,005	9999999,99
6060 16	200	400	500	8	5	0,005	9999999,99
6060 18	250	630	787,5	12,6	7,875	0,05	9999999,9

Q_1 **minimum flowrate.** Lowest flowrate at which the meter is to operate within the maximum permissible error.

Q_2 **transitional flowrate.** Flowrate between the permanent flowrate Q_3 and the minimum flowrate Q_1.

Q_3 **permanent flowrate.** Highest flowrate within the rated operating conditions at which the meter is to operate.

Q_4 **overload flowrate.** Highest flowrate at which the meter is to operate for a short period of time.

Pulse Tansmitter Connection Options

Size	m³ / puls	
	A	B
DN 50 - DN 125	0,1	1
DN 150 - DN 200	1	10
DN 250	10	100
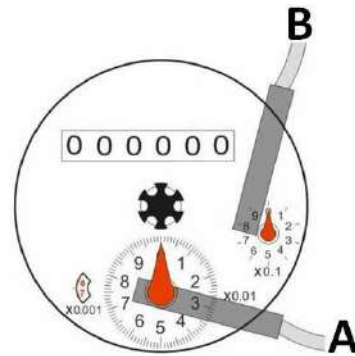
Woltmann Meter Installation

The Woltmann meters must be installed according to a basic steps for obtain an optimal results of measurement values.

By design Woltman meters are sensitive inflow profile to why it should be noted turbulence caused by the fittings or valves near of the water meter.

We recommend installing upstream the meter a stretch of straight pipe 10xDN* and downstream a section of 5xDN* for measures 2" to 12" (*DN=Nominal Diameter in inches of the valve)

Marker Operation

- Woltmann water meters have a dial with four markers, one main and three with wheels.
- It reads in that order: the main (center-up), right wheel (right-center), wheel down (center-down) and small marker (left-down).
- Each marker has multiplication factors, which are always multiple or fractions of 10. If it doesn't put anything, we assume that the factor is X1.
- To obtain a correct reading, we must follow the order of the second point and multiply each marker by the corresponding factor and at the end add the 4 markers.
- The final reading is always obtained in cubic meters (unit of volume).
- Depending on the size of the water meter, the flow rates will change and therefore the multiplication factors and the accuracy as well.

| Size	Main	Right	Center	Left
DN50 - DN125	X1	X0,1	X0,01	X0,001
DN150 & DN200	X10	X1	X0,1	X0,01
DN250	X100	X10	X1	X0,1

Example – (DN150 – DN200)
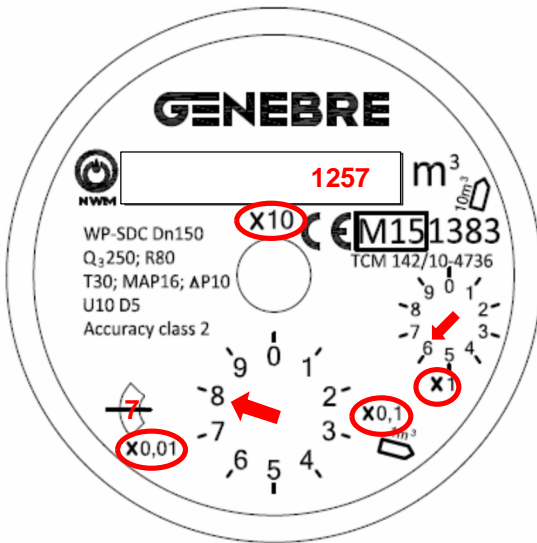
- The center marker (X10) is multiplied by 10 to obtain the main reading in cubic meters.

- The wheel on the right is multiplied (X1), if for example it marks 6, it is multiplied by 1 and it would be 6 cubic meters.

- The central wheel below (X0,1) would be the first decimal of the reading, if for example it marks 8, it is multiplied by 0,1 and would be 0.8 cubic meters.

- The bottom left wheel (X0,01) would be the second decimal of the reading, if for example it marks 7, it is multiplied by 0,01 and it would be 0,07 cubic meters.

- To obtain the total reading we must add what marks the total (in this case X10) with the result we get from each marker, in this case we would have to add 3 readings and the precision would be 2 decimals.

$$1.257x10 + 6x1 + 8x0,1 + 7x0,01 = 12.570+6+0,8+0,07 = 12.576,87 \text{ m3}$$

Error Curve
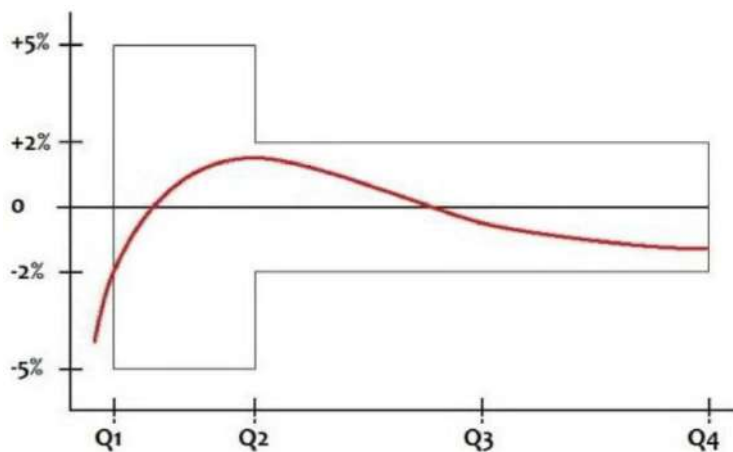
Max Permission error for temperature 30º
From Q1 inclusive up to Q2 (excluding Q2) is ± 5%
From Q2 inclusive up to Q4 (including Q4) is ± 2%
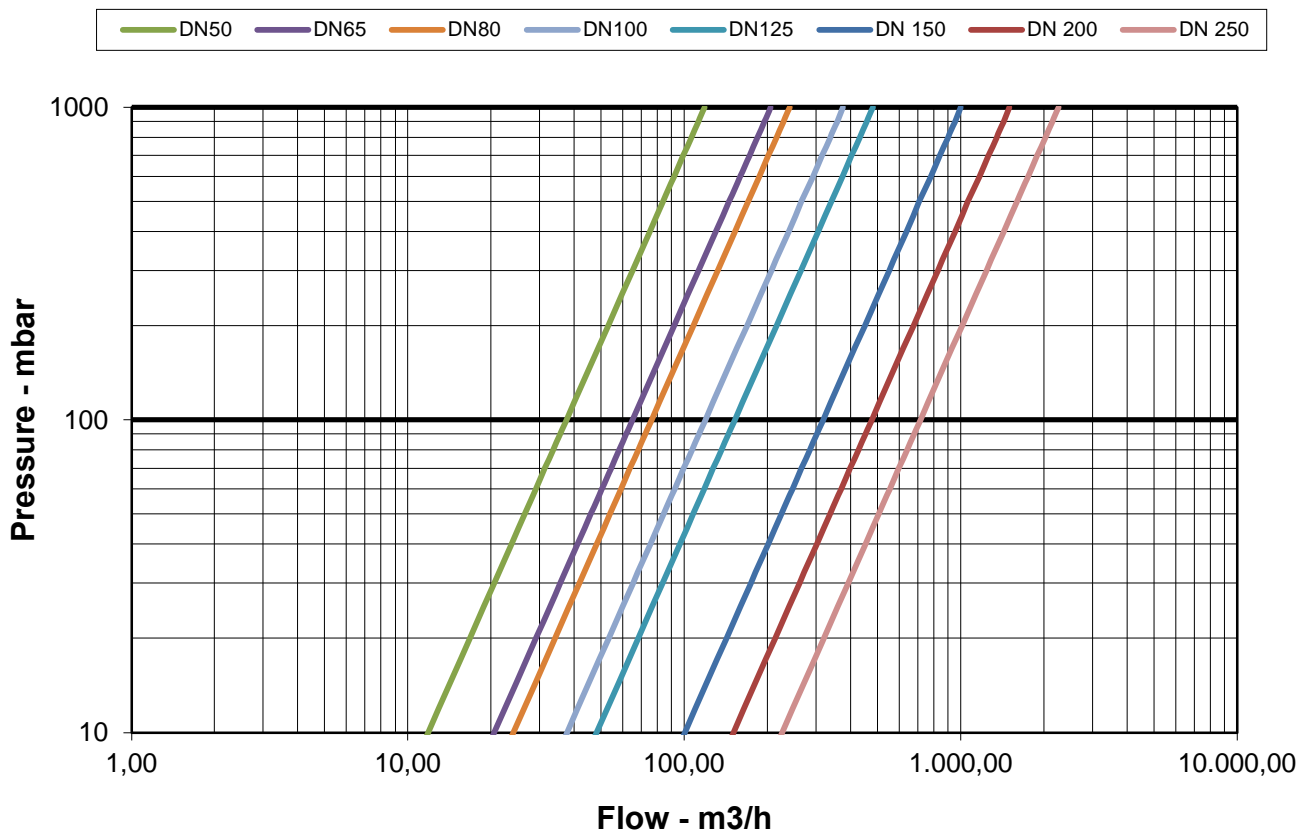
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Kv Values

Kv: Water flow rate in cubic meters per hour generating a 1 bar pressure drop across the valve.

Size	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250
Kv	118	205	240	375	480	1000	1500	2250

Head Loss Chart

* Water meter pressure loss class P10. (P16 in DN50 and DN125). So maximum head loss will be 100 mbar (160 mbar in DN50 and DN125). Keep in mind when you see the flow in the graph.