WPD / WPHD

Woltman meter with parallel turbine shaft

The ZENNER Bulk water meter WPD / WPHD is specially constructed for the measuring of high flow rates with a mainly constant flow rate profile. Due to the robust design, WPD / WPHD can cover a wide measuring range and provide accurate measuring results over a long period. So it covers almost all measuring tasks in the drinking water supply and distribution.

The housing of the WPD / WPHD was flow-optimized. The mesuring insert was newly constructed as a replacable metrological unit according to european MID. In combination with an up-to-date bearing of the impeller a good linearity and long-term stability of the error curve can be achieved. The robust copper-glass-register is non-diffusive and protected against condensation. It also works reliably under the hardest conditions (e.g. in flooded pits or shafts).

WPD / WPHD Bulk water meter

- WPD (DN 50 - 150), WPHD (DN 200 - 300)
- Replacable metrological unit (according to european MID)
- Prepared for remote meter reading

Product characteristics

- Replacable metrological unit (according to european MID)
- Flood-proof (IP68) hermetically sealed glass/copper register
- Low starting flow, high overload security
- Wide measuring range, small pressure loss
- Hydraulic bearing relieve
- Long-term measuring stability
- Swirl-reducing inlet
- No straight inlet or outlet needed (U0/D0) according to OIML R49 and DIN EN 14154
- Materials and coating approved in accordance with KTW / W 270
- Optional WS overall length for DN 50, DN 65, DN 80 and DN 100 available
- Optional ISO length for DN 50, DN 80 and DN 100 available
- Approved in accordance with MID and OIML

Applications

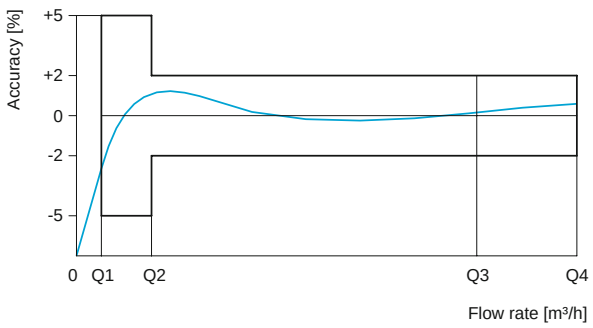
- For the mesuring of high flow rates
- For horizontal or vertical installation
- For cold water up to 50° C

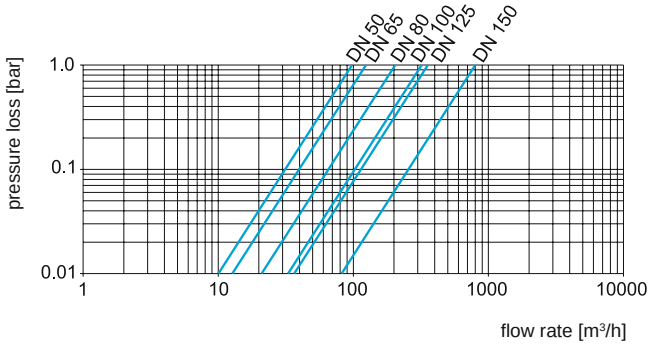
AMR options

- Retrofittable with up to two reed-sensors
- Retrofittable with stationary GSM system
- Serially equipped with communication interface for:
  - Electronic pulser
  - Wired M-bus
  - Radio via Wireless M-Bus according to OMS (Open Metering System)
  - Radio via LPWAN (LoRaWAN™, SIGFOX)

Technical Data WPD (DN 50 – DN 150)										
Nominal diameter	DN	mm	50	50	65	80	80	100	125	150
Permanent flow	Q_3	m³/h	25	40	40	63	63	100	100	250
Attainable measuring range	Q_3/Q_1	R	R125H	R200H	R200H	R200H	R200H	R315H	R315H	R315H
Standard measuring range (*)	Q_3/Q_1	R	R100H/63V	R100H/63V	R100H/63V	R100H/63V	R100H/63V	R100H/63V	R100H/63V	R100H/63V
Overload flow (**)	Q_4	m³/h	31,25	50	50	78,75	78,75	125	125	312,5
Minimum flow (**)	Q_1	m³/h	0,25/0,4	0,4/0,63	0,4/0,64	0,63/1,01	0,63/1,02	1,0/1,59	1,0/1,60	2,5/3,97
Transitional flow (**)	Q_2	m³/h	0,4/0,63	0,64/1,02	0,64/1,03	1,01/1,61	1,01/1,62	1,6/2,54	1,6/2,55	4,0/6,35
Pressure loss at Q_3	Δp	MPa	0,01	0,019	0,012	0,01	0,01	0,011	0,012	0,026
Start-up flow rate	-	l/h	65	65	65	110	110	150	150	350
Display range	min	l	0,5	0,5	0,5	0,5	0,5	0,5	0,5	5
	max	m³	999.999	999.999	999.999	999.999	999.999	999.999	999.999	9.999.999
Temperature range	-	°C	0,1 - 50	0,1 - 50	0,1 - 50	0,1 - 50	0,1 - 50	0,1 - 50	0,1 - 50	0,1 - 50
Operating pressure, max.	MAP	bar	16	16	16	16	10	16	16	16
Pulse value Reed	-	l/Imp.	100/1000	100/1000	100/1000	100/1000	100/1000	100/1000	100/1000	1000/10.000
Pulse value modulator disc	-	l/Imp.	10	10	10	10	10	10	10	100
Pressure loss at Q3	Δp	bar	0,1	0,19	0,12	0,1	0,1	0,11	0,12	0,1
Mechanical environmental condition	-	-	M2	M2	M2	M2	M2	M2	M2	M2
Climatic condition (****)	-	°C	5 - 55	5 - 55	5 - 55	5 - 55	5 - 55	5 - 55	5 - 55	5 - 55
Flow profile sensitivity	-	-	U0/D0	U0/D0	U0/D0	U0/D0	U0/D0	U0/D0	U0/D0	U0/D0
Weight and dimensions:										
Nominal diameter	DN	mm	50	50	65	80	80	100	125	150
Overall length (*)	L	mm	200	200	200	200/225	225	250	250	300
Height	H1	mm	135	135	135	143	143	152	152	183
Height	H2	mm	75	75	85	95	95	105	115	135
Total height approx. (***)	H1+H2	mm	210	210	220	238	238	257	267	318
Installation height of the measuring unit	H3	mm	230	230	230	256	256	266	266	373
Flange diameter	D	mm	165	165	185	200	200	220	250	285
Bolt circle diameter	D1	mm	125	125	145	160	160	180	210	240
Number of bolts	-	pcs.	4	4	4	8	4	8	8	8
Screw size	-	mm	M16	M16	M16	M16	M16	M16	M16	M20
Bolt diameter	-	mm	19	19	19	19	19	19	19	23
Weight approx.	-	kg	10,5	10,5	11,8	13,4	13,4	16,9	20,1	31,5

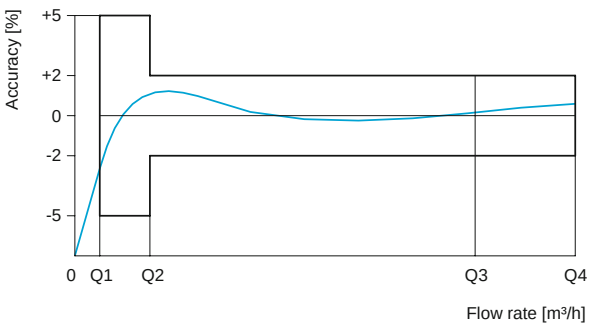
(*) Other measuring ranges (R) on request (**) Values refer to standard measuring range (***) Total height WPDE/WPHDE + 24mm
(****) Condensation possible

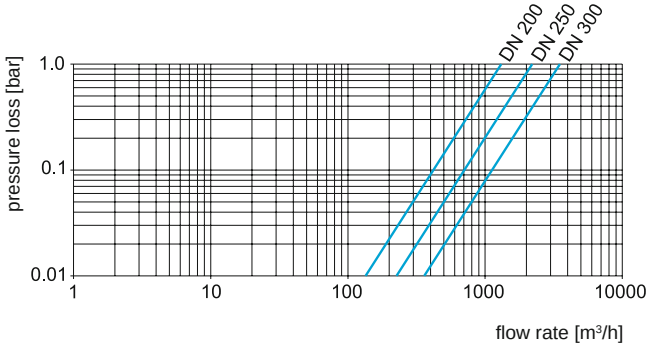


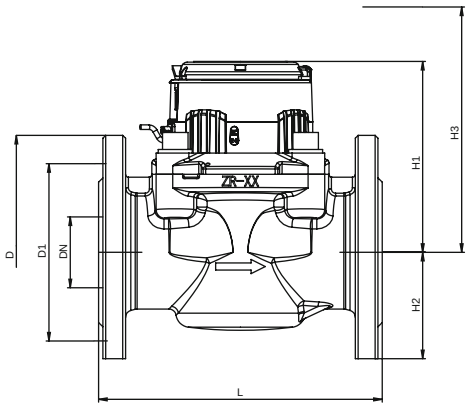


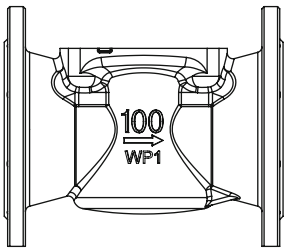
Technical Data WPHD (DN 200 - DN 300)								
Nominal diameter	DN	mm	200	200	250	250	300	300
Permanent flow	Q_3	m³/h	400	400	630	630	1000	1000
Attainable measuring range	Q_3/Q_1	R	R160H	R160H	R160H	R160H	R160H	R160H
Standard measuring range (*)	Q_3/Q_1	R	R100H/63V	R100H/63V	R100H/63V	R100H/63V	R100H/63V	R100H/63V
Overload flow (**)	Q_4	m³/h	500	500	787	787	1250	1250
Minimum flow (**)	Q_1	m³/h	4,0/6,35	4,0/6,36	6,3/10,0	6,3/10,1	10,0/15,87	10,0/15,88
Transitional flow (**)	Q_2	m³/h	6,4/10,16	6,4/10,17	10,08/16,0	10,08/16,1	16,0/25,4	16,0/25,5
Pressure loss at Q_3	Δp	MPa	0,009	0,009	0,008	0,008	0,008	0,008
Start-up flow rate	-	l/h	2000	2000	2000	2000	2000	2000
Display range	min	l	5	5	5	5	5	5
	max	m³	9.999.999	9.999.999	9.999.999	9.999.999	9.999.999	9.999.999
Temperature range	-	°C	0,1 - 50	0,1 - 50	0,1 - 50	0,1 - 50	0,1 - 50	0,1 - 50
Operating pressure, max.	MAP	bar	16	10	16	10	16	10
Pulse value Reed	-	l/Imp.	1000/10.000	1000/10.000	1000/10.000	1000/10.000	1000/10.000	1000/10.000
Pulse value modulator disc	-	l/Imp.	100	100	100	100	100	100
Pressure loss at Q3	Δp	bar	0,09	0,09	0,08	0,08	0,08	0,08
Mechanical environmental condition	-	-	M2	M2	M2	M2	M2	M2
Climatic condition (****)	-	°C	5 - 55	5 - 55	5 - 55	5 - 55	5 - 55	5 - 55
Flow profile sensitivity	-	-	U0/D0	U0/D0	U0/D0	U0/D0	U0/D0	U0/D0
Weight and dimensions:								
Nominal diameter	DN	mm	200	200	250	250	300	300
Overall length (*)	L	mm	350	350	450	450	500	500
Height	H1	mm	215	215	267	267	250	250
Height	H2	mm	160	160	193	193	220	220
Total height approx. (***)	H1+H2	mm	375	375	460	460	470	470
Installation height of the measuring unit	H3	mm	460	460	460	460	470	470
Flange diameter	D	mm	340	340	405	395	460	445
Bolt circle diameter	D1	mm	295	295	355	350	410	400
Number of bolts	-	pcs.	12	8	12	12	12	12
Screw size	-	mm	M20	M20	M24	M20	M24	M20
Bolt diameter	-	mm	23	23	28	23	28	23
Weight approx.	-	kg	49	49	68	68	105	105

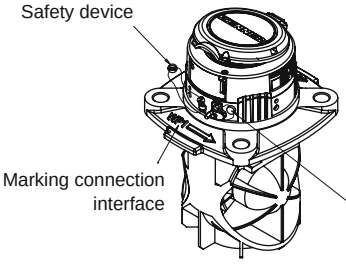
(*) Other measuring ranges (R) on request
(**) Values refer to standard measuring range
(***) Total height WPDE/WPHDE + 24mm
(****) Condensation possible

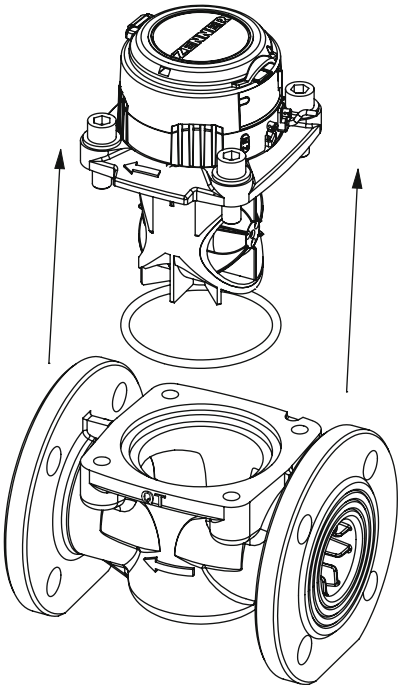


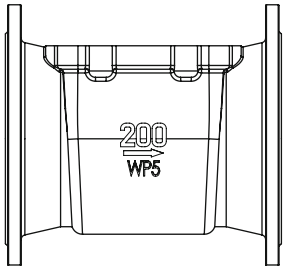


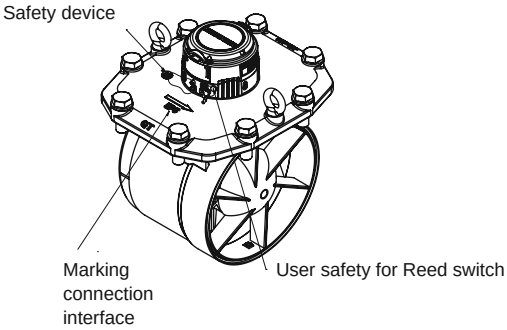


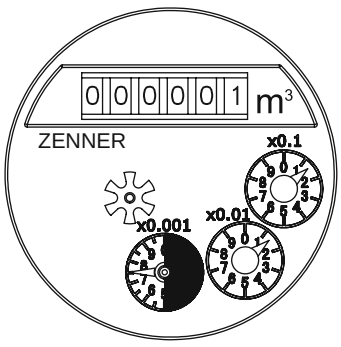




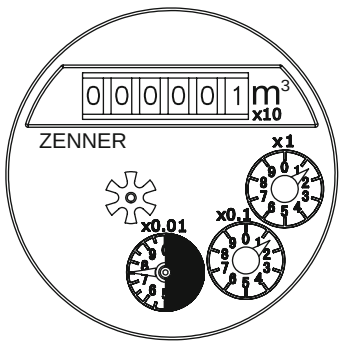




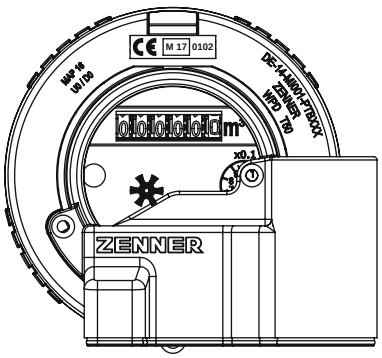




DN 50 -125
(WSD DN 50 - 200)



DN 150 - 300



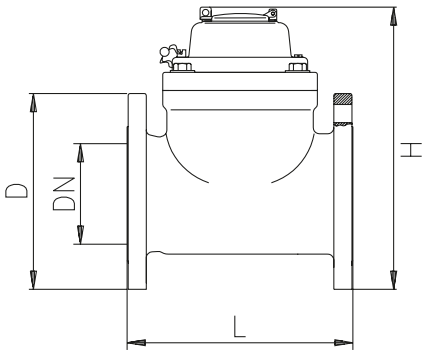
WPH-N-CC 90° C

Woltman meter with parallel turbine shaft for sanitary hot water up to 90° C

Woltman Parallel type meters are always used when high flow rates with a relative constant flow rate profile are to be measured. Through its robust construction they not only are capable of covering a large measuring range, but the measuring accuracy is also long-term stable.

The hydrodynamic optimized turbine is reliably operated already at small flow rates and “upwards” it has enough power reserves to reliably measure flow rate peaks. Especially strong bearings with low friction guarantee a long life of the meter.

Reed sensor can always be retrofitted without damaging the calibration seal. Then the meter can be integrated with data communication or automation and control systems in a simple and flexible way.



Dimensions WPH-N-CC

Performance characteristics in overview

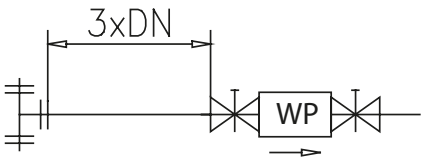
- Low starting flow, high overload security
- Wide measuring range
- Removable measuring insert
- Low head loss
- Hydraulic bearing relieve for long-term measuring stability
- Retrofittable with active and passive pulsers
- Metal protective cover serially, plastic optional
- Flood-proof (IP68) hermetically sealed glass/copper register
- Dry dial counter with large number rollers simplifies the readability
- For sanitary hot water up to 90º C
- For horizontal, vertical and inclined installation positions

Technical data WPH-N-CC									
Nominal flow	Qn	m³/h	15	25	40	60	100	150	250
Nominal diameter	DN	mm	50	65	80	100	125	150	200
Overall length	L	mm	200	200	225	250	250	300	350
Metrological class			B	B	B	B	B	B	B
Maximum flow (short-term)	Qmax	m³/h	90	120	150	250	300	350	650
Maximum flow (constant)		m³/h	30	50	80	120	200	300	500
Transitional flow	Qt	m³/h	2,25	3,75	6	9	15	22,5	37,5
Minimum flow	Qmin	m³/h	0,6	1,0	1,6	2,4	4,0	6,0	10
Flow rate with 0.1 bar head loss		m³/h	30	50	70	100	150	200	650
Head loss at Qmax		bar	0,1	0,1	0,2	0,2	0,2	0,2	0,05
Display range	min	l	2	2	2	2	2	20	20
Maximum dial indication	max	m³				999.999			
Maximum temperature		°C	90	90	90	90	90	90	90
Operating pressure, max.	PN	bar	16	16	16	16	16	16	16
Height	H	mm	210	218	280	290	310	320	375
Flange diameter	D	mm	165	185	200	220	250	285	340

Installation

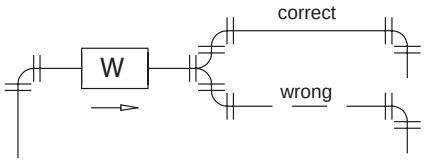
WPH type Woltman meters can be installed horizontally or vertically, that is in horizonzal or in perpendicular pipelines; the counter either is facing upwards or is tilted 90° to the side.

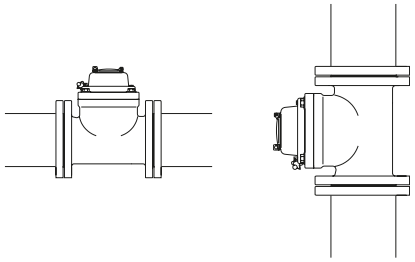
Woltman meters are by construction sensitive to the incident flow profile. Tee pieces or gate valves that are not completely opened within close proximity to the meter, effectively influence the measuring result.

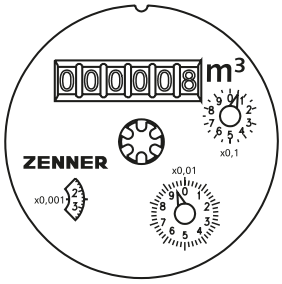


Exemplary the most important installation rules:

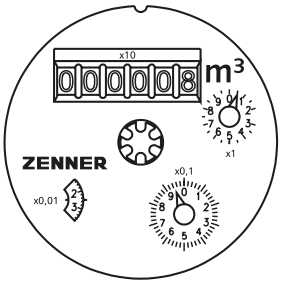
- The meters must be operated in the correct flow direction.
- There must be a minimum of 3 x DN of straight pipe section for WPH type upstream of the meter.
- If a sufficient straight pipe section is not possible, then a honeycomb flow straightener should be installed.
- Ideally a straight pipe section of at least 2 x DN is present downstream of the meter.
- To avoid air pockets in the meter, it should not be installed on the highest point of the piping.
- Gate valves or other shut-off valves in front of the meter should be completely opened during operation.
- The overhead installation is not permitted.



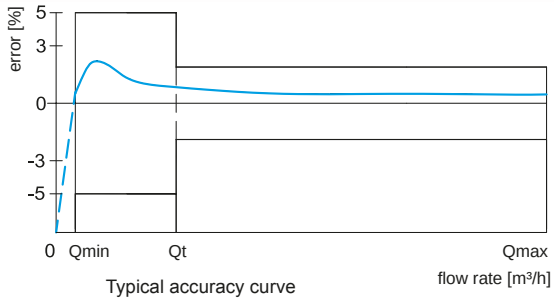




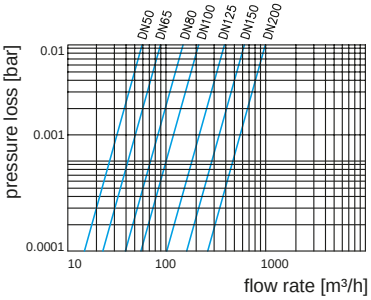
Dial from DN 50 to DN 125



Dial from DN 150 to DN 200



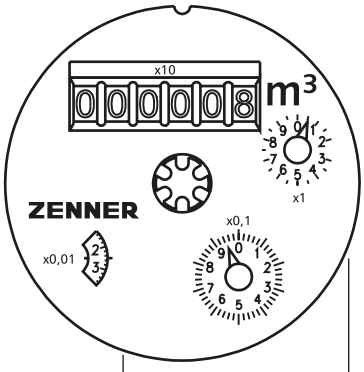
Typical accuracy curve



Head loss curves

Technical data Pulser		
Pulser	Pulse value	Pulse value
	DN 50 – 125	DN 150 – 200
Reed sensor*	0,1 m³	1 m³

* Standard. Other pulse values on request.



Reed sensor 1 (DN50-125)

Reed sensor 2 (DN150-200)