

H 4 000 / H 4 100 / H 4 300

Woltmann Meter

Forward and reverse flow measuring
for full-coverage results



- ✘ Type WP / WP-H.
- ✘ Nominal size DN 40 ... 500.
- ✘ Cold-water and hot-water meters – for optimal thermal stability.
- ✘ Metrological excellence – for measuring accuracy and durability.
- ✘ Quality that pays off – through minimized maintenance.
- ✘ Interchangeable registers – for sophisticated metering jobs.

H 4 000 / H 4 300

Woltmann Meter

Outstanding measurement technology
that leads the way

Metrological excellence

Our meter sets new standards of measuring accuracy and durability.

Quality that pays off

Optimal materials and minimized maintenance soon show up in your bottom line.

Interchangeable registers

With no less than three register options, you receive the right measuring system for every metering job.

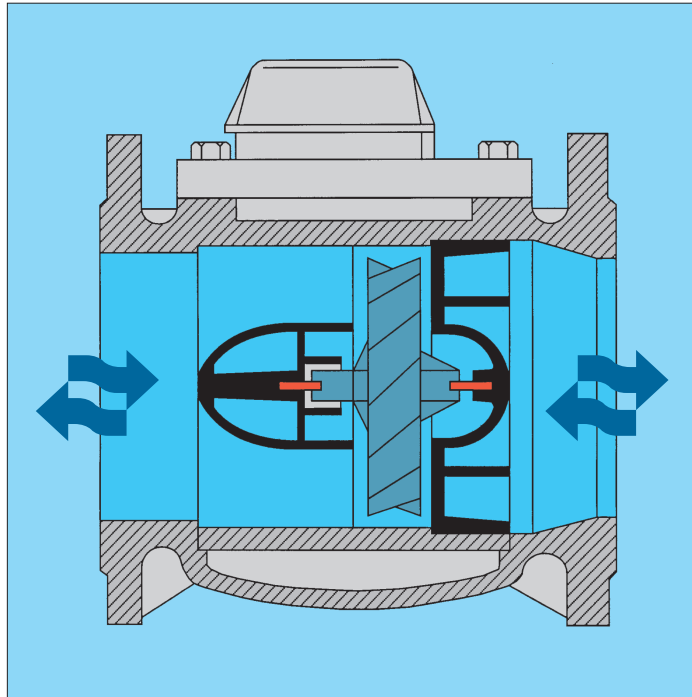
Forward and reverse flow measuring

And as the icing on the cake: our meter not only has the forward but also the reverse flow under control.

So now you obtain full-coverage metering results in meshed supply networks.

Commitment to service

Sophisticated metrology is worth going to a lot of trouble. In our repair plants, an ingenious staff makes sure that your investment pays off over an entire metering lifetime.



Typical

WP / WP-H

Threefold

Our meter allows you to choose between three registers:

- ✗ MULTI-PULSE (standard)
- ✗ MULTI-PULSE-TROPIC
- ✗ MULTI-BUS.

Connection-friendly

When you've fitted MULTI-PULSE, you're triply connected to the outside world.

- ✗ One analog and two digital measured values may be transmitted.

Clear

When you take a reading with your own eyes, you're fully in the picture.

- ✗ Non-misting registers offer a clear view of the metering display.

Tough and sturdy

- ✗ Engineered to last.
- ✗ Durable corrosion protection.
- ✗ Full flow through the metering chamber.
- ✗ Balanced bearing system.
- ✗ Stability thanks to hard-metal sapphire components.

Dependably accurate

- ✗ Meets or exceeds the EC Guidelines and ISO 4064 for cold water.

WP

Dry-dial

- ❑ Cold up to 50 °C.
D 97 WP 4000
6.132.41 DN 40 ... 300
PN 10/16
- ❑ Installation horizontal/vertical.
- ❑ Display capacity
DN 40 ... 125
999 999 m³,
DN 150 ... 300
9 999 999 m³.
- ❑ Minimum scale value
DN 40 ... 125
0.0005 m³,
DN 150 ... 300
0.005 m³.

WP

Dry-dial

- ❑ Cold up to 50 °C.
D 85 WP 2000/3 000
6.132.20 DN 50 ... 200
PN 25/40
- ❑ Installation horizontal/vertical.
- ❑ Display capacity
DN 50 ... 125
999 999 m³,
DN 150 ... 300
9 999 999 m³,
DN 400 ... 500
99 999 999 m³.
- ❑ Minimum scale value
DN 50 ... 125
0.0005 m³,
DN 150 ... 300
0.005 m³,
DN 400 ... 500
0.05 m³.

The Registers

Measuring up to the job

1. MULTI-PULSE

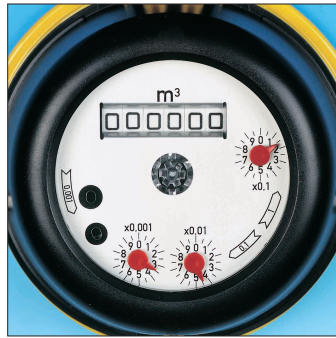
The standard register. Three data interfaces. Simply plugged in without damaging the calibration seal.

Condensation-free mechanical register.

2. MULTI-PULSE-TROPIC

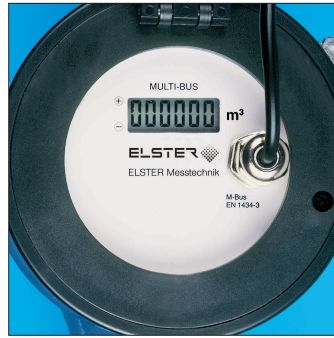
For use under tough climatic conditions. Corresponds to MULTI-PULSE, but additionally encapsulated in a waterproof copper housing.

Condensation-free mechanical register.



Data interfaces

1. Reed switch pulse unit.
 2. Reed switch pulse unit 2.
 3. Opto-electronic pulse unit.
- Optional:
Inductive pulse unit.



M-Bus output

1. Current volume.
2. Current flow rate.
3. Meter number.
4. Fixed day volume / date.
5. Current volume, high resolution.
6. Display test.

3. MULTI-BUS

M-Bus output according to EN 1434. Without pulse outputs. Further details are available on demand.

Waterproof register with LC display, micro-processor-controlled. Protection rating to IP 68 for cold and warm water up to 90 °C.

If pulse outputs are additionally requested, the MULTI-PULSE / TDD / MULTI-PULSE-TROPIC registers may be used, connected to M-Bus modules.

Reed switch pulse unit MULTI-PULS / TDD / MULTI-PULS-TROPIC

T 160 REED

- ✘ Contact loading 24 V/100 mA with suitable spark suppression.
- ✘ Pulse/interval sequence 20/80.
- ✘ Protective resistor 100 Ohm.
- ✘ Mean lifetime 10^7 operating cycles.
- ✘ Two-wire design.
- ✘ Cables 2 x 0.25 mm², 2 m.
- ✘ Protected to IP 68.
- ✘ Explosion-protected, usable in intrinsically safe circuits Zone 1.
- ✘ 25 x 20 x 10 mm.
- ✘ Temperature range -10 °C ... +90 °C.
- ✘ Any desired connections.

T 161 Double REED

- ✘ Bi-directional: forward and reverse flow measuring.
- ✘ Overlapping pulses.
- ✘ Three-wire design.

Opto-electronic pulse unit MULTI-PULS / TDD

T 180 PV 14

- ✘ Infrared optical sensor with OP amplifier.
- ✘ 12 V/15 ... 25 mA, 24 V with 1 kOhm.
- ✘ Pulse/interval sequence 50/50.
- ✘ Line resistance < 15 Ohm/core.
- ✘ Three-wire design.
- ✘ Cables 3 x 0.25 mm², 2 m.
- ✘ Protected to IP 68.
- ✘ 25 x 20 x 10 mm.
- ✘ Temperature range -10 °C ... +70 °C.
- ✘ Connections
 - White
 - + Brown
 - Green.

Inductive pulse unit MULTI-PULS / TDD

T 170 PV 13-3

- ✘ Connection circuitry: NAMUR DIN 19 234.
- ✘ U_0 8 ... 12 V, R_1 1 kOhm.
- ✘ Pulse range approx. 9 ms, closed-circuit current < 0.7 mA, operating current > 3 mA.
- ✘ Output frequency < 60 Hz.
- ✘ Line resistance < 50 Ohm/core.
- ✘ Two-wire design.
- ✘ Cables 2 x 0.25 mm², 2 m.
- ✘ Protected to IP 68.
- ✘ 25 x 20 x 10 mm.
- ✘ Temperature range 0 °C ... +70 °C.
- ✘ Connections
 - White
 - + Brown.

T 171 PV 13-3 LC

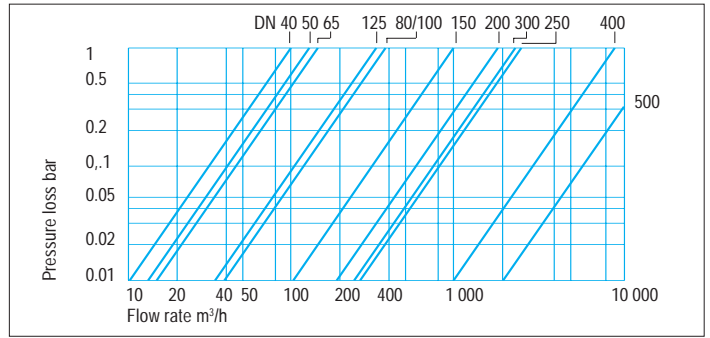
- ✘ Explosion-protected, usable in intrinsically safe circuits Zone 1.

H 4 000

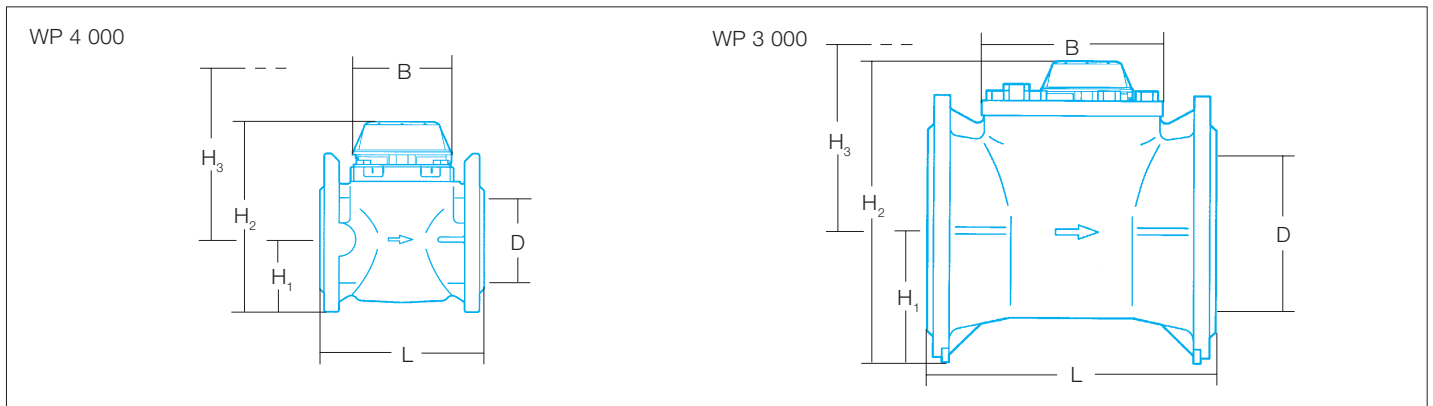
Woltmann Meter

Cold and warm water

Pressure rating PN 10/16



Woltmann meter		H 4 000	WP 4 000						
Nominal size	DN	mm	40	50	65	80	100	125	
Meter size / nominal flow rate	Q_n	m^3/h	15	15	25	40	60	100	
D	Connection flange	DN	mm	40	50	65	80	100	125
L	Meter length	mm	300	200/300	200/300	200/225/350	250/350	250	
B	Width	mm	166	166	186	200	228	250	
H_1	Centerline height	mm	78	78	86	94	106	118	
H_2	Overall height	mm	207	207	215	234	246	258	
H_3	Height	Replacement of measuring insert	mm	254	254	265	265	265	
Weight		kg	12	12.5/13	13/14.5	14/15.5/16.5	19.5/21	20.5	
		Installation horizontal / vertical							
Maximum flow rate	Q_{max}	m^3/h	90	90	120	200	250	250	
Transitional flow rate	Q_t	m^3/h	1	1	1.5	2	2	2	
Minimum flow rate	Q_{min}	m^3/h	0.35	0.35	0.4	0.5	0.6	0.6	
Continuous load		m^3/h	50	50	65	120	180	180	
Temperature	T_{max}	$^{\circ}C$	50	50	50	50	50	50	
Pressure rating		PN	10/16	10/16	10/16	10/16	10/16	10/16	
Flow capacity	at 0.1 bar pressure loss	m^3/h	> 31	> 42.5	> 45.5	> 121	> 121	> 104	
Woltmann meter		H 4 000	WP 4 000				WP 3 000		
Nominal size	DN	mm	150	200	250	300	400	500	
Meter size / nominal flow rate	Q_n	m^3/h	150	250	400	600	1 000	1 500	
D	Connection flange	DN	mm	150	200	250	300	400	500
L	Meter length	mm	300	350	450	500	500	500	
B	Width	mm	286	341	410	460	580	715	
H_1	Centerline height	mm	135	165	200	225	290	358	
H_2	Overall height	mm	335	387	440	465	601	719	
H_3	Height	Replacement of measuring insert	mm	470	470	635	660	607	657
Weight		kg	37.5	47.5	82	104	220	300	
		Installation horizontal / vertical							
Maximum flow rate	Q_{max}	m^3/h	600	1 200	1 600	2 000	3 000	4 500	
Transitional flow rate	Q_t	m^3/h	4	6	11	15	50	80	
Minimum flow rate	Q_{min}	m^3/h	2	4	6	12	30	45	
Continuous load		m^3/h	450	700	1 000	1 500	1 500	2 300	
Temperature	T_{max}	$^{\circ}C$	50	50	50	50	50	50	
Pressure rating		PN	10/16	10/16	10/16	10/16	10/16	10/16	
Flow capacity	at 0.1 bar pressure loss	m^3/h	> 320	> 550	> 840	> 830	> 3 000	> 6 000	

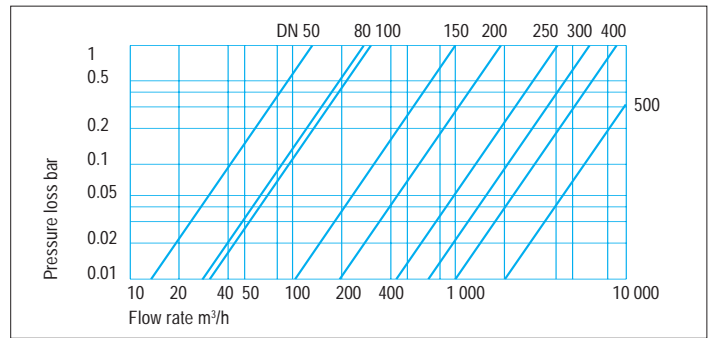


H 4100 / H 4000

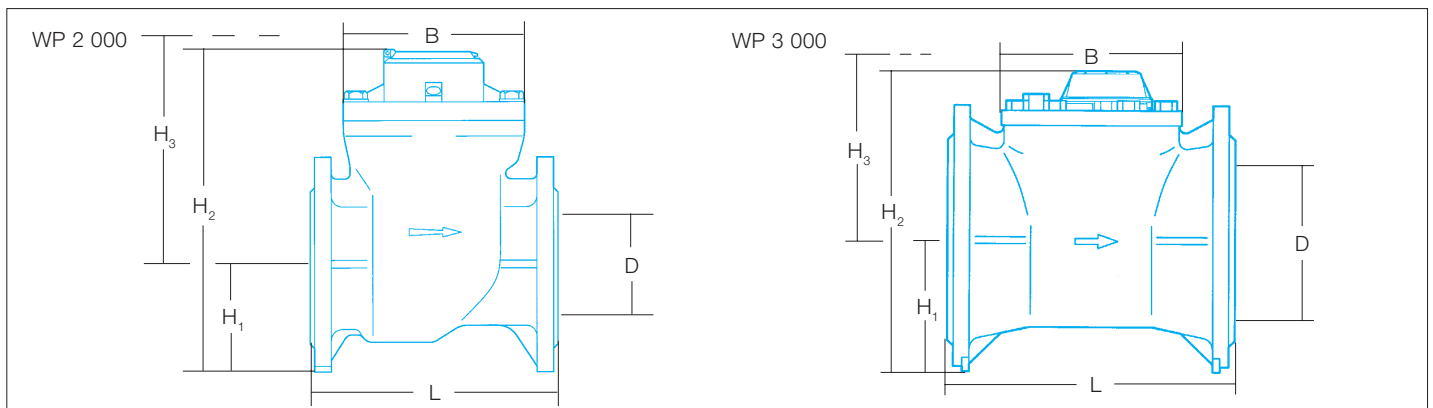
Woltmann Meter

Cold and warm water

Pressure rating PN 25/40



Woltmann meter		H 4100		WP 2 000						
Nominal size	DN	mm	—	50	—	80	100	—	—	—
Meter size / nominal flow rate	Q_n	m^3/h	—	15	—	40	60	—	—	—
D	Connection flange	DN	mm	—	50	—	80	100	—	—
L	Meter length	mm	—	200	—	225	250	—	—	—
B	Width	mm	—	200	—	200	225	—	—	—
H_1	Centerline height	mm	—	75	—	92	118	—	—	—
H_2	Overall height	mm	—	269	—	286	312	—	—	—
H_3	Height	mm	—	390	—	390	390	—	—	—
Weight		kg	—	15	—	19	23	—	—	—
		Installation horizontal / vertical								
Maximum flow rate	Q_{max}	m^3/h	—	70	—	150	250	—	—	—
Transitional flow rate	Q_t	m^3/h	—	2	—	3	3	—	—	—
Minimum flow rate	Q_{min}	m^3/h	—	0.4	—	0.65	0.8	—	—	—
Continuous load		m^3/h	—	35	—	90	125	—	—	—
Temperature	T_{max}	$^{\circ}C$	—	50	—	50	50	—	—	—
Pressure rating		PN	—	25/40	—	25/40	25/40	—	—	—
Flow capacity		at 0.1 bar pressure loss	—	> 40	—	> 85	> 95	—	—	—
Woltmann meter		H 4000		WP 3 000						
Nominal size	DN	mm	—	150	200	250	300	400	500	—
Meter size / nominal flow rate	Q_n	m^3/h	—	150	250	400	600	1 000	1 500	—
D	Connection flange	DN	mm	150	200	250	300	400	500	—
L	Meter length	mm	—	300	350	450	500	500	500	—
B	Width	mm	—	300	375	405	460	580	715	—
H_1	Centerline height	mm	—	143	180	203	230	290	358	—
H_2	Overall height	mm	—	355	392	439	491	601	719	—
H_3	Height	mm	—	460	460	461	486	607	657	—
Weight		kg	—	40	50	108	136	220	300	—
		Installation horizontal / vertical								
Maximum flow rate	Q_{max}	m^3/h	—	425	650	1 200	1 500	3 000	4 500	—
Transitional flow rate	Q_t	m^3/h	—	12	12	15	25	50	80	—
Minimum flow rate	Q_{min}	m^3/h	—	3	5	10	18	30	45	—
Continuous load		m^3/h	—	250	350	600	750	1 500	2 300	—
Temperature	T_{max}	$^{\circ}C$	—	50	50	50	50	50	50	—
Pressure rating		PN	—	25/40	25/40	25	25	25	25	—
Flow capacity		at 0.1 bar pressure loss	—	> 310	> 610	> 1 300	> 2 000	> 3 000	> 6 000	—



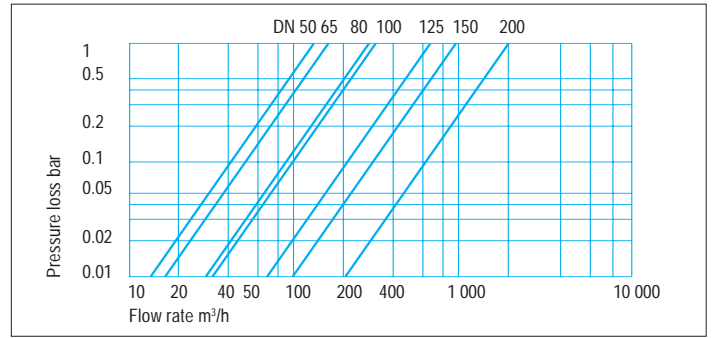
H 4 300

Woltmann meter

Hot water

Pressure ratings

PN 10/16 and PN 25/40



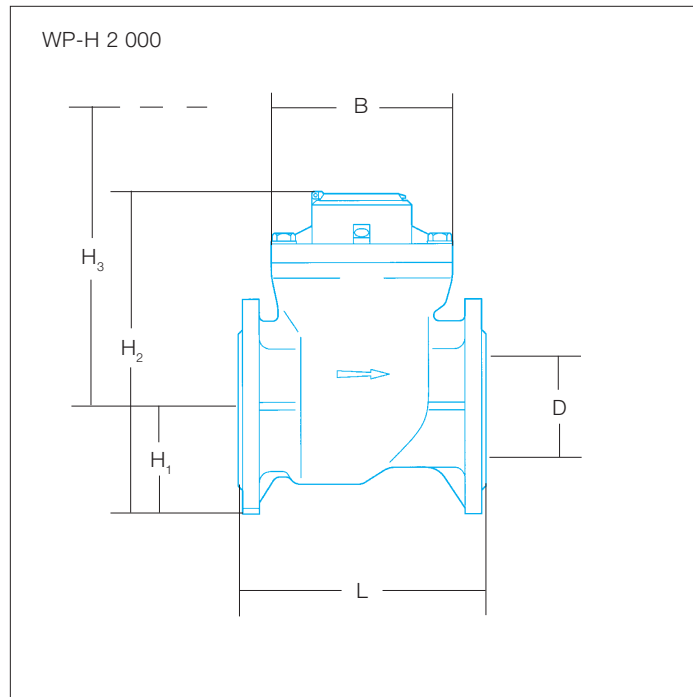
Woltmann meter		H 4 300		WP-H 2 000						
Nominal size	DN	mm		50	65	80	100	125	150	200
Meter size / nominal flow rate	Q_n	m³/h		15	25	40	60	100	150	250
D	Connection flange	DN	mm	50	65	80	100	125	150	200
L	Meter length	mm		200	200	200/225	250	250	300	350
B	Width	mm		200	200	200	225	270	300	375
H ₁	Centerline height	mm		75	84	92	118	135	143	180
H ₂	Overall height	mm		269	278	286	312	329	355	392
H ₃	Height Replacement of measuring insert	mm		390	390	390	390	390	460	460
Weight		kg		15	17	19	23	30	40	50
Installation horizontal / vertical										
Maximum flow rate	Q_{max}	m³/h		30	60	90	140	200	300	500
Transitional flow rate	Q_t	m³/h		2	3	4	6	10	20	20
Minimum flow rate	Q_{min}	m³/h		1	1.6	2	2.4	3.5	4	8
Continuous load		m³/h		15	25	45	70	100	150	250
Temperature	T_{max}	°C		120	120	120	120	120	120	120
Option raised register	T_{max}	°C		130	130	130	130	130	130	130
Pressure rating		PN		10/16	10/16	10/16	10/16	10/16	10/16	10/16
		PN		25/40	—	25/40	25/40	—	25/40	25/40
Flow capacity	at 0.1 bar pressure loss	m³/h		40	50	85	95	200	310	610

WP-H Dry-dial

- Hot water up to 120 °C. With raised register up to 130 °C.

22.16 WP-H 2 000
87.02 DN 50 ... 200

- Any desired installation configuration.
- Display capacity
DN 50 ... 125
999 999 m³,
DN 150 ... 200
9 999 999 m³.
- Minimum scale value
DN 50 ... 125
0.0005 m³,
DN 150 ... 200
0.005 m³.



Hot-water-proof

The right supplement when you want to meter higher temperature water.

- Permanent thermal stability, thanks to top-quality materials and fine workmanship.
- Highly advanced design optimized by years of usage under extreme conditions.
- Field-proven TDD registers with three interfaces.
- Compatible pulse-units: reed switch, opto-electronic, inductive.

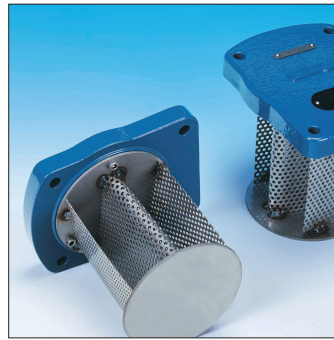
Accurate metering

- Meets or exceeds all international standards.

Working with WP Woltmann meters

H 4 010 Strainer

Housing with filter element.
Special wave design provides
the largest possible sieve area.
Filter element may be removed
for cleaning or replacement.



Laws and regulations
Woltmann meters may be installed only by properly trained persons in strict accordance with good engineering practice and the current laws and regulations. The installation tips below are intended to help you get optimal results from our meters.

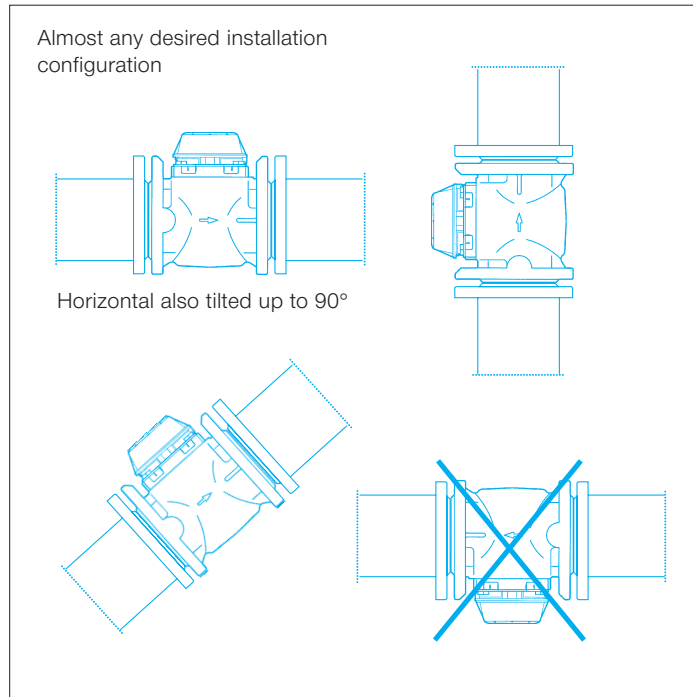
Operating temperature
Woltmann meters are identified by blue housings for cold water, and red ones for hot water. For both these models, the same instructions apply for installation and operation.

The operating temperature of
 $T_{\max} 90\text{ °C}$
for cold and warm water,
 $T_{\max} 120\text{ °C}$ or
 $T_{\max} 130\text{ °C}$ with raised register
for hot water must be complied with.

Transport and storage
Woltmann meters should not be allowed to fall or receive impact damage as this may affect their operation and accuracy.

Frost-protected and dust-free storage ensures accurate operation of the meters. The storage temperature should not exceed 50 °C for cold and warm water meters (caution near radiators), since plastic components may become deformed.

Please leave the water meters in their protective packaging until installation in order to avoid dirt contamination.



Installation
Like all water meters, Woltmann meters should be installed in locations which are frost-protected and easily accessible for reading. You can install them in almost any configuration you like: horizontal, vertical or tilted, but not upside down.

Only sealings suitable for drinking water may be used for installation.

If the pipe diameter is different from your meter's nominal diameter, you must use flanged adapters. No abrupt changes in cross-sectional area must be allowed immediately upstream and downstream of the meters.

The measuring points must be located such that it is ensured that the meters are always completely filled with water.

A straight, undisturbed pipe section in front of or behind the meter is necessary in the same diameter as the meters. It must be five times as long as the nominal diameter upstream of the meter, and three times as long downstream.

At narrow measuring points, shut-off gate valves can be installed immediately upstream and downstream of the meters, provided they are always completely open during operation.

Commissioning
New or modified piping must be thoroughly flushed at as high a pressure as possible in order to remove any foreign matter. For this process, install a pipe spacer or a strainer in place of the meters.

After flushing, you can install the meters. Make sure the direction of flow corresponds

to the arrows marked on the meters for this purpose. When putting into operation and also after every draining of the pipes, you must always make sure that the shut-off valves are opened slowly, so as to provide a gentle start-up for the meters, which will initially be running in dry operation.

In order to avoid incorrect registering and damage, water-air or water-steam mixtures may never flow through the meters.

Verification validity and maintenance
Woltmann meters used or provided in collection businesses must be verified.

Conform to the EC Guidelines, the duration of validity for such verification is of course 6 years for cold water meters and 5 years for warm water meters. This period has proved to be a suitable maintenance interval for unverified meters as well.

Depending on the water quality and operating conditions involved, however, maintenance may more frequently be necessary.

Warranty procedures
Should you have a warranty claim concerning one of our Woltmann meters, please send it in to us, unopened and sealed. Please give reference to our warranty obligations; otherwise no incoming inspection will take place and the cause of damage may no longer be traceable.

Ordering information and pulse sequences

Order numbers		H 4 000	Cold water							
Nominal size	DN mm	40	50	50	65	65	80	80	80	
Meter size / nominal flow rate	Q _n m ³ /h	15	15	15	25	25	40	40	40	
L	Meter length	mm	300	200	300	200	300	200	225	350
PN 10	WP 4 000 * 4-hole (old standard)	—	—	—	—	—	* 1137278	* 1099872	—	
PN 16	WP 4 000	1160393	1101273	R	1101303	R	1101338	1099864	R	
PN 25/40	WP 2 000	—	0531764	—	—	—	—	0531823	—	
Strainer insert with hood	H 4010	1176966	1176966	1176966	1176966	1176966	1176974	1176974	1176974	
Nominal size	DN mm	100	100	125	150	200	250	300	400	500
Meter size / nominal flow rate	Q _n m ³ /h	60	60	100	150	250	400	600	1 000	1 500
L	Meter length	mm	250	350	250	300	350	450	500	500
PN 10	WP 3 000 / WP 4 000	—	—	—	—	1164143	0618918	0618926	1093793	1093815
PN 16	WP 3 000 / WP 4 000	1099880	R	1099899	1164186	1164135	1193119	1193127	1093785	1093807
PN 25	WP 2 000 / WP 3 000	—	—	—	—	1101788	1102857	1102865	1102873	1102881
PN 40	WP 2 000 / WP 3 000	0531853	—	—	1101753	1101761	—	—	—	—
Strainer insert with hood	H 4010	1176974	1176974	1176974	0665142	—	—	—	—	—
Order numbers		H 4 300	Hot water 120 °C							
Nominal size	DN mm	50	65	80	80	100	125	150	200	
Meter size / nominal flow rate	Q _n m ³ /h	15	25	40	40	60	100	150	250	
L	Meter length	mm	200	200	200	225	250	250	300	350
PN 10	* 4-hole (old standard)	—	—	—	* 0530709	—	—	—	—	0530947
PN 16		0530641	0530671	R	0530739	0530769	0534447	0530917	0530977	0530977
PN 25		—	—	—	—	—	—	—	—	0531035
PN 40		0530799	—	R	0530858	0530888	—	0531005	0531065	0531065
PN 10	* 4-hole (old standard)	—	—	—	* R	—	—	—	—	R
PN 16		1100943	1114456	R	1100951	1114464	1169773	1123145	1126462	1126462
PN 25		—	—	—	—	—	—	—	—	1169811
PN 40		1101389	—	R	1083046	1169765	—	1169781	1169803	1169803

Pulse sequences		Standard			
Nominal size	DN mm	40 ... 125		150 ... 300	400 ... 500
Meter size / nominal flow rate	Q _n m ³ /h	15 ... 100		150 ... 600	1 000 ... 1 500
T 160 / T 161	litres/pulse	Reed / Double reed	100/1, 1 000/1	1 000/1, 10 000/1	10 000/1, 100 000/1
T 180	litres/pulse	Opto-electronic	1/1	10/1	100/1
T 170 / T 171	litres/pulse	Inductive / Explosion-protected	1/1	10/1	100/1