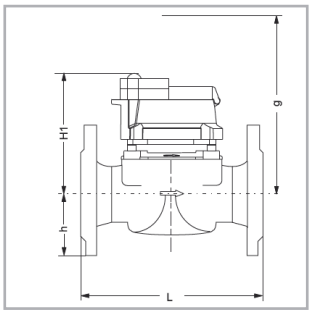
INTEGRA
METERING

RUBIN WMS

Hot water meter


HRI-model



Flow sensor for heat and cold meters in commercial sectors and light industry. The centrepiece is a newly developed impeller with a spherical hub, which is positioned free-floating between two bearing pins.

Characteristics

- Flow sensor
- Woltman
- Cooling water from 5 ° C / hot water up to 90 ° C
- DN50 to DN100
- Approval according to MID 2004/22 / EC Annex MI004
- Counter can be rotated up to 355 °
- Use of opto-connectors type "OD" possible
- Transmission volume pulses via HRI MEI FS

Customer benefits

- Horizontal or vertical installation
- No in or outlet exit pipe required (U0D0)
- Flood-proof counter Glass / Copper (IP 68)
- Short and long lengths available
- Counter prepared for inclusion of an HRI-MEI FS
- Guaranteed match between counter display and transmitted volume pulses

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RUBIN WMS

- Woltman turbo counter in dry-rotor design, IP 68
- Recommended for horizontal installation, straight inlet of 3 x DN
- Powder coated grey cast iron housing with flange connection
- Flanges according to EN 1092, PN 16
- Max. temperature 90 ° C
- Horizontal and vertical mounting possible
- No straight pipe sections as inlet or outlet are required (VODO acc. EN 1454)

Nominal diameter	**DN**	**mm**	**50**	**50**	**65**	**65**	**80**	**80**	**100**	**100**
	Inches		2	2	2 1/2	2 1/2	3	3	4	4
Max. flow	q_s	m^3/h	50	50	50	50	120	120	120	120
Nominal flow	**q_p**	**m^3/h**	**25**	**25**	**25**	**25**	**60**	**60**	**60**	**60**
Min. flow	q_i	m^3/h	0.5	0.5	0.5	0.5	1.2	1.2	1.2	1.2
Starting value	q_c	m^3/h	0.08	0.08	0.08	0.08	0.15	0.15	0.15	0.15
Flow at 1 bar Pressure loss kvs	q_p	m^3/h	88	88	177	177	212	212	300	300
Pressure drop at q_p	Δp (q_p)	bar	0.08	0.08	0.02	0.02	0.08	0.08	0.04	0.04
Weight	approx.	kg	7.8	9.6	10.1	12.0	14.2	16.3	18.2	20.2
Mass without HRI-module										
Overall length	L	mm	200	270	200	300	225	300	250	360
	h	mm	73	73	85	85	95	95	105	105
	H	**mm**	**120**	**120**	**120**	**120**	**150**	**150**	**150**	**150**
	g*)	mm	200	200	200	200	270	270	270	270
Flange connection according to standard EN 1092-1 and -2										
Mass with HRI-module										
Overall length	L	mm	200	270	200	300	225	300	250	360
	h	mm	73	73	85	85	95	95	105	105
	H1	**mm**	**150**	**150**	**150**	**150**	**180**	**180**	**180**	**180**
	g*)	mm	200	200	200	200	270	270	270	270
Flange connection according to standard EN 1092-1 and -2										

*)Removal height without and with HRI module

Pressure loss curve

(See page 6)

Approvals

MID approval according to MI004 or EN 1434 in accuracy class 2.
Approval remains valid even when mounted on site with OD / HRI FS,

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Pulse counters

WMS 50...100

Pulse generator

Pulse value

Pulse generator		Pulse value DN 50 ... 100
HRI MEI FS		0.01; 0.025; 0.1; 0.25m³
OD AM OD 04		0.001 m³ 0.01 m³

HRI-MEI FS specifications

Pulse rate:	10, 25, 100 or 250 l/pulses alternative	**Cable length**	3 m
		Connection	white= plus, grey = minus
Switch type:	OC as per EN 1434-2 (open Drain)	**Protection class:**	IP 68
Maximum voltage:	28 Volt	**Power supply:**	Lithium battery (cannot be changed)
Maximum current:	20 mA	**Battery duration:**	type. 6-year operation + 1 year storage
Pulse length:	≥100 ms	**Ambient temperature:**	-10 .... + 70 °C
Pulspause:	≥100 ms	**Air humidity**	100%
Start-up state:	≥0,3V with 0.1 mA		
Turn-off state:	≥6 MΩ		

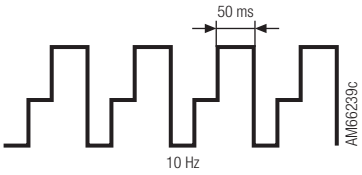
Applications WMS

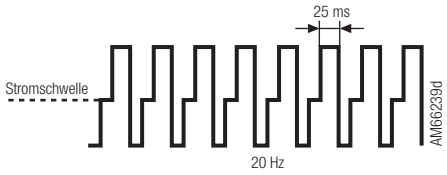
Optoelectronic pulse generator OD AM (small pulse value)
- as pulse generator of the hydraulic transmitter for heat measuring points, where the highest possible resolution is required
- Standard application for all heat measuring stations with arithmatic units with namur compatible pulse input
- for instantaneous value generation
- for cold measurements
- for automatic correction of impulses due to fluctuations of the liquid column (jitter)

Optoelectronic pulse generator OD 04 (large pulse value)
- as the pulse generator of the hydraulic transmitter for heat measuring points
- suitable for downstream devices, which can form the correct volume total via an integrated forward / reverse detection with changing flow direction

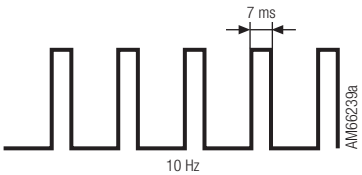
Configuration of the controlled devices
For most pulse generators, the pulse duration depends on the flow rate (except for the OD AM). In this case, continuous contact can occur during zero-flow throughput. The connected device must therefore be able to withstand permanent loads, otherwise protective devices must be provided.

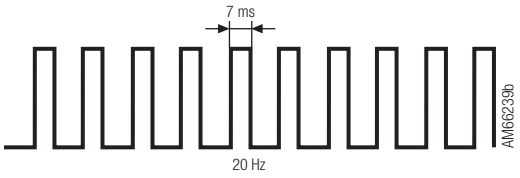
Example: With OD 04, the pulse length depends on the flow, since the active/passive ratio is always the same. In forward flow, the rising pulse edge has an additional current threshold of 1.5 mA. In the case of reverse flow, the current threshold is on the falling pulse edge.





Correct pulse evaluation
When the flow is interrupted, oscillations of the liquid column may occur in the installation (hydraulic vibration with slightly alternating forward / reverse flow so-called jitter). In such cases, impulses may occur which are registered exclusively as forward flow by the slave device. Such pulses do not interfere in the case of the instantaneous value formation since the frequency is very small. If a counting function is controlled with the pulse generator (as in all heat measuring stations), the optoelectronic pulse generator OD AM (which filters out the pulses generated by the forward / backward oscillation of the water column by means of a suitable electronic circuit) should be selected. With the OD AM, the pulse width is always constant; this is oriented at the maximum frequency of approximately 70 Hz and is approximately 7 ms for all pulse frequencies; rising and falling pulse edges are always the same. Reverse pulses are not emitted.



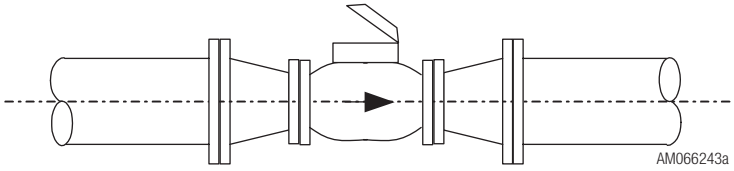


Note
When using the OD AM in conjunction with the CALEC ® calculating unit, it is important to remember that the bounce filter (normally used for passive Reed pulsers) is not be set when programming. The NAMUR 200 Hz input at the calculation unit must be used.

Installation instructions

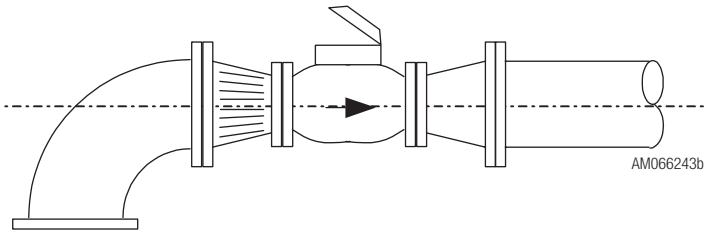
Nominal widths: Pipelines, meters and calibrations

The nominal width of the meter must not be calculated automatically according to the nominal size of the pipeline. The largest permanent flow in the pipeline, which determines the rated flow q_p of the meter, is decisive.



Pipe bends and flow rectifiers

The flow profile is greatly altered by means of built-in pipe bends or calibre exchanges, which has an effect on the inflow of the turbine wheel of the meter. As a result, measurement deviations occur, which can be prevented by appropriate structural measures. Flow rectifiers which are installed directly after the pipe bend are used for this purpose; if the space conditions are sufficient, additional stabilization runs should be taken into account. The flow profile is quieted again in the rectifier. Flow rectifiers are also available in combination with a calibre change.



No in and outlet distances required

Installation height

The RUBIN WMS have interchangeable measuring inserts which can be tested and calibrated independently of the housing. For this purpose, the measuring insert is removed upwards. During installation, care must be taken that an adequate removal height (see removal height g page 2) is considered above the counter and, if necessary, HRI module.

Horizontal and vertical installation possible

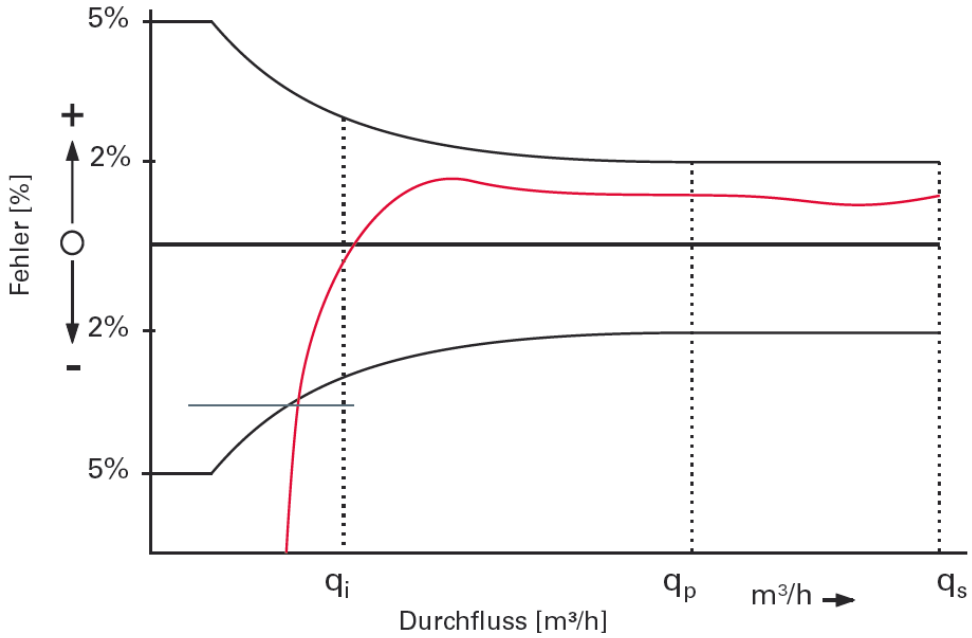
Counters must not be installed downwards with the counter since the metrological approval requirements are not met in this installation position.

Electrical installations

Electrical lines and installations must be carried out in accordance with valid regulations by authorised specialists.

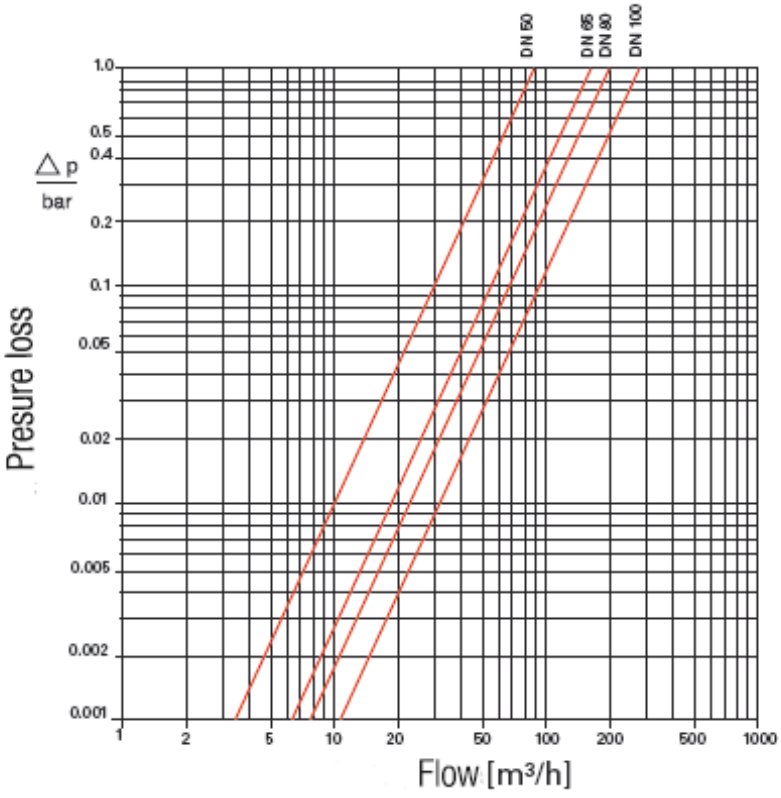
Measurement error limits

Typical measurement error curve



Pressure loss curve

WMS



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