

WS- Dynamic

Turbine Water Meter
for hot water up to 130 °C
DN 50 ... DN 150



Special Features

- Measuring range better than metrological class C
- Hermetically sealed register (IP 68)
- Interchangeable measuring element
- High overload capability
- Up to 3 pulsers (1 x OD, 2 x RD) may be fitted without breaking the approval seal
- Register may be rotated through 360°
- Powder coating ensures maximum corrosion protection
- Not affected by external magnetic fields
- Can be used as flow sensor for heat meters

Application

Measurement of low and medium flow rates with variable flow profile

Pattern Approval

| |
|-------|
| 22.16 |
| 97.03 |

Nominal Diameter DN 50 ... DN 150

Marking:
Metrological class C
Installation H

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Installation

| | | |
|------------|------------|---|
| Pipe | horizontal |  |
| Meter head | upwards |  |

Installation Requirements

- Unrestricted straight pipe in front of the meter 3 x DN
- No abrupt restrictions directly behind the meter

Technical Data

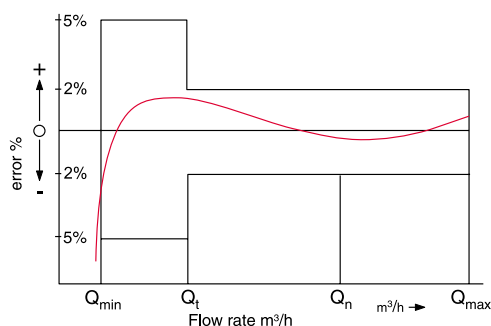
Performance data WS-Dynamic for hot water

| Nominal Diameter | DN | 50 | 65 | 80 | 100 | 150 |
|---|---------|------|------|------|------|------|
| Size of meter (acc. to PTB-A22) | Q_n | 15 | 25 | 40 | 60 | 150 |
| Maximum peak flow (few minutes) +/-2% Q_{max} | m^3/h | 30 | 60 | 85 | 125 | 300 |
| Continuous flow +/-2% Q_n | m^3/h | 15 | 25 | 40 | 60 | 150 |
| Transitional flow $\pm 2\%$ Q_t | m^3/h | 1.5 | 2.5 | 2.5 | 4.0 | 12 |
| Minimum flow $\pm 5\%$ Q_{min} | m^3/h | 0.25 | 0.30 | 0.30 | 0.50 | 0.80 |
| Starting flow | m^3/h | 0.06 | 0.07 | 0.10 | 0.15 | 0.50 |

Performance data acc. to PTB-A22-specification class C

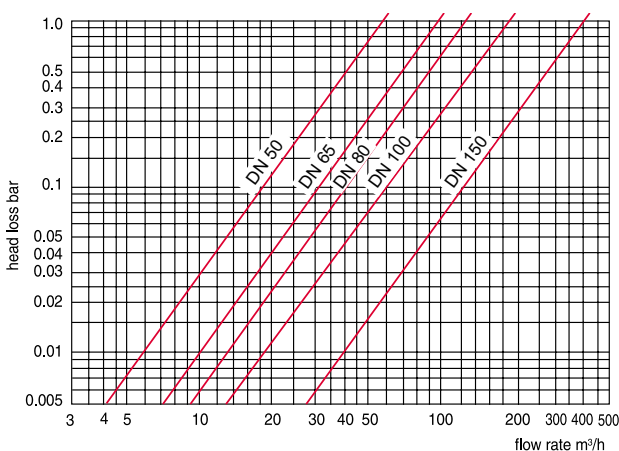
| Nominal Diameter | DN | 50 | 65 | 80 | 100 | 150 |
|--|---------|-----|-----|-----|-----|------|
| Size of meter (acc. to PTB-A22) | Q_n | 15 | 25 | 40 | 60 | 150 |
| Maximum peak flow (short time) Q_{max} | m^3/h | 30 | 50 | 80 | 120 | 300 |
| Continuous flow Q_n | m^3/h | 15 | 25 | 40 | 60 | 150 |
| Transitional flow $\pm 3\%$ Q_t | m^3/h | 1.5 | 2.5 | 4.0 | 6.0 | 15.0 |
| Minimum flow $\pm 5\%$ Q_{min} | m^3/h | 1.2 | 2.0 | 3.2 | 4.8 | 12.0 |

Typical Accuracy Curve



- Q_{max} = maximum peak flow
- Q_n = continuous flow +/-2%
- Q_t = transitional flow $\pm 2\%$
- Q_{min} = minimum flow $\pm 5\%$

Typical Head Loss Curve



WS-Dynamic for hot water

Dimensions and Weights

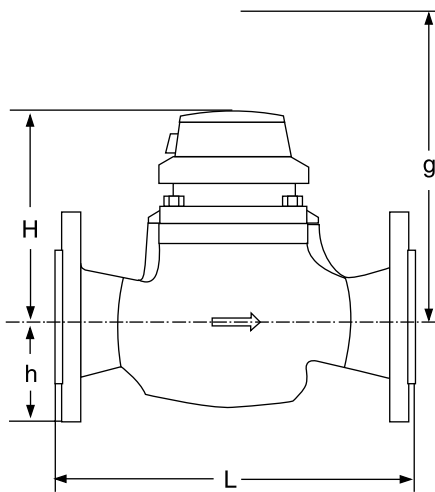
Pressure Rating PN 16

| | | | | | | | | |
|---------------------------------|-------------------|---|----------------|------|------|------|------|------|
| Nominal Diameter | | | DN | 50 | 65 | 80 | 100 | 150 |
| Size of meter (acc. to PTB-A22) | | | Q _n | 15 | 25 | 40 | 60 | 150 |
| Dimensions | overall length | L | mm | 270 | 300 | 300 | 360 | 500 |
| | height | H | mm | 151 | 161 | 161 | 191 | 301 |
| | | h | mm | 80 | 100 | 100 | 110 | 180 |
| | | g | mm | 281 | 301 | 301 | 341 | 581 |
| Weights | meter | | kg | 13.5 | 17.5 | 19.5 | 32.5 | 91.5 |
| | measuring element | | kg | 2.5 | 2.5 | 2.5 | 7.5 | 17.5 |
| | body | | kg | 11.0 | 15.0 | 17.0 | 25.0 | 74.0 |

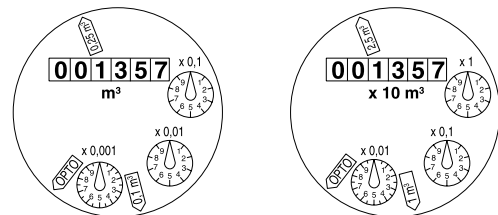
Pressure Rating PN 40

| | | | | | | | | |
|---------------------------------|-------------------|---|----------------|------|------|------|------|-------|
| Nominal Diameter | | | DN | 50 | 65 | 80 | 100 | 150 |
| Size of meter (acc. to PTB-A22) | | | Q _n | 15 | 25 | 40 | 60 | 150 |
| Dimensions | overall length | L | mm | 270 | 300 | 300 | 360 | 500 |
| | height | H | mm | 171 | 171 | 171 | 211 | 311 |
| | | h | mm | 80 | 100 | 100 | 115 | 180 |
| | | g | mm | 291 | 311 | 311 | 381 | 581 |
| Weights | meter | | kg | 19.5 | 24.5 | 27.5 | 48.5 | 114.5 |
| | measuring element | | kg | 4.5 | 4.5 | 4.5 | 14.5 | 31.5 |
| | body | | kg | 15.0 | 20.0 | 23.0 | 36,0 | 83,0 |

Dimension Picture



Dials



DN 50 ... DN 100



DN 150

| Nominal Diameter DN | Resolution m ³ | Max. reading m ³ |
|---------------------|---------------------------|-----------------------------|
| 50 ... 100 | 0.0005 | 1 000 000 |
| 150 | 0.005 | 10 000 000 |

Materials

| | | |
|------------------------------------|-------|------------------------|
| Body | PN 16 | cast iron |
| | PN 40 | spheroidal cast iron |
| Measuring element | | plastic |
| Rotor | | plastic |
| We also use the following material | | brass, stainless steel |

Pulse Values

| Pulser | | pulse value | |
|--------------|---|---|--|
| | | Dn 50 ... DN 100 | DN 150 |
| RD02 / RD022 |  | 0.25 and 0.1 m ³ alternatively 0.25 and 0.025 m ³ | 2.5 and 1 m ³ alternatively 2.5 and 0.25 m ³ |
| OD 02 |  | 0.001 m ³ | 0.01 m ³ |
| OD 04 | | 0.01 m ³ | 0.1 m ³ |

Order Text

Quantity:

Specification: WS-Dynamic

Nominal Diameter: DN

Size of meter: Q_n

Metrological class: A

Working temperature: 130 °C

Working pressure: PN 16

Overall length L: mm

Pulse values: / m³

Flange drilling: acc. to DIN 2501, PN 16

Certification: with / without

Order Example

Quantity: 3

Specification: WS-Dynamic

Nominal Diameter: DN 50

Size of meter: Q_n 15

Metrological class: A

Working temperature: 130 °C

Working pressure: PN 16

Overall length L: 270 mm

Pulse values: 1 / 0.1 m³

Flange drilling: acc. to DIN 2501, PN 16

Certification: with