



MK IP68/IP65

Chamber mount vertical rotor
axis water meter (Woltman) (DN50-150)

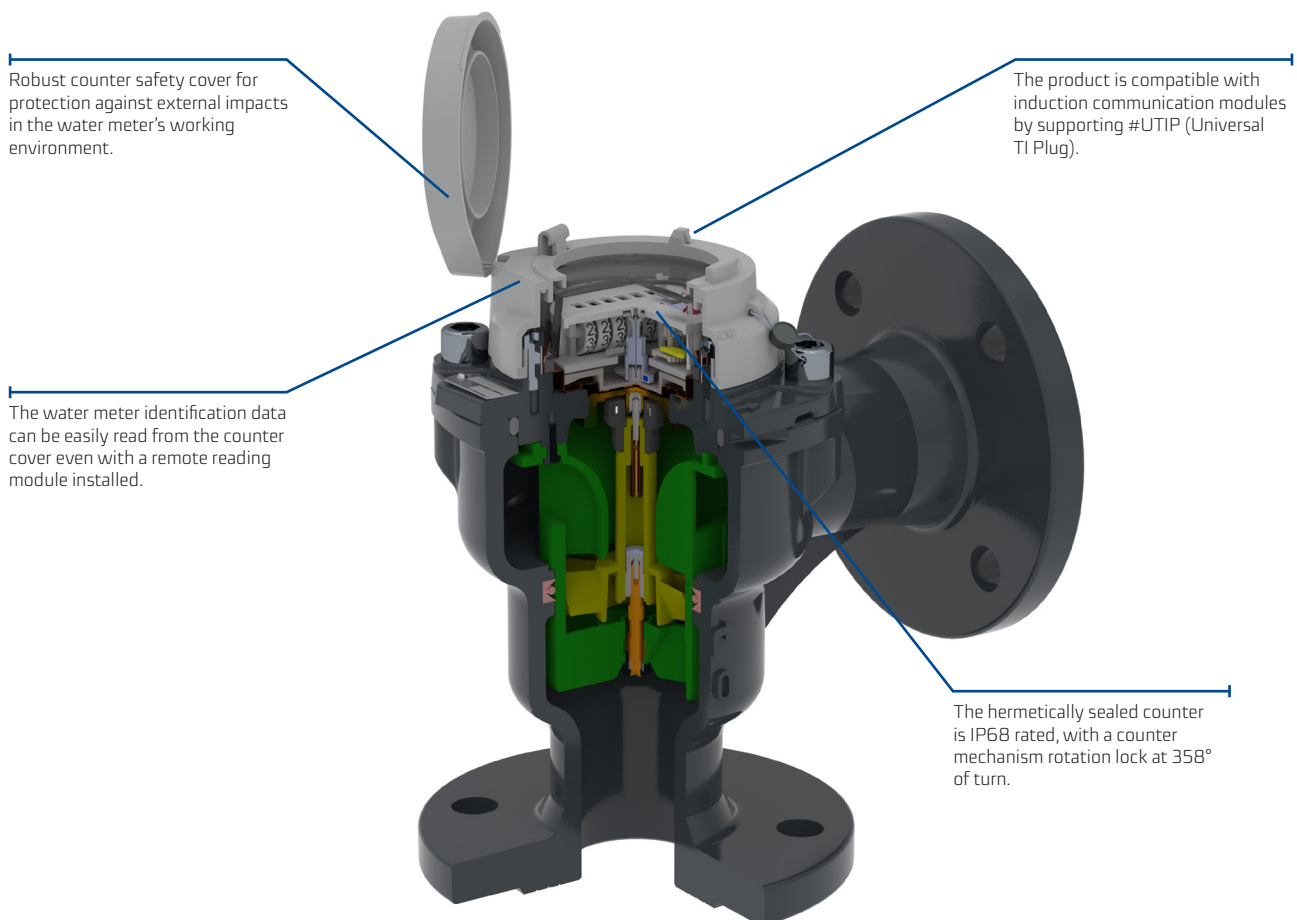
MK IP68/IP65

MK IP68/IP65 is a screw-type, dry-running chamber mount Woltman water meter. The design of the water meter body is design for a change in the water flow direction from vertical to horizontal, with the turbine placed in the vertical section. The standard device is compatible with induction or clip-on communication modules for remote wired or wireless meter reading. The water meter is designed and manufactured to the MID (Measuring Instruments Directive) and in compliance with EN14154, OIML R49 and ISO4064.

Application

The water meter is designed for measurement of high cold water consumption up to 30°C, MOP 16 bar (PN16). The device is designed for installation instead of an elbow a point where vertical pipeline transitions into a horizontal pipeline. It is ideal for operation in difficult environmental conditions at deep water intakes (in a highly humid environment). The water meter can be used by water supply, construction and agricultural companies, and individual users.

MK-08 (IP68)

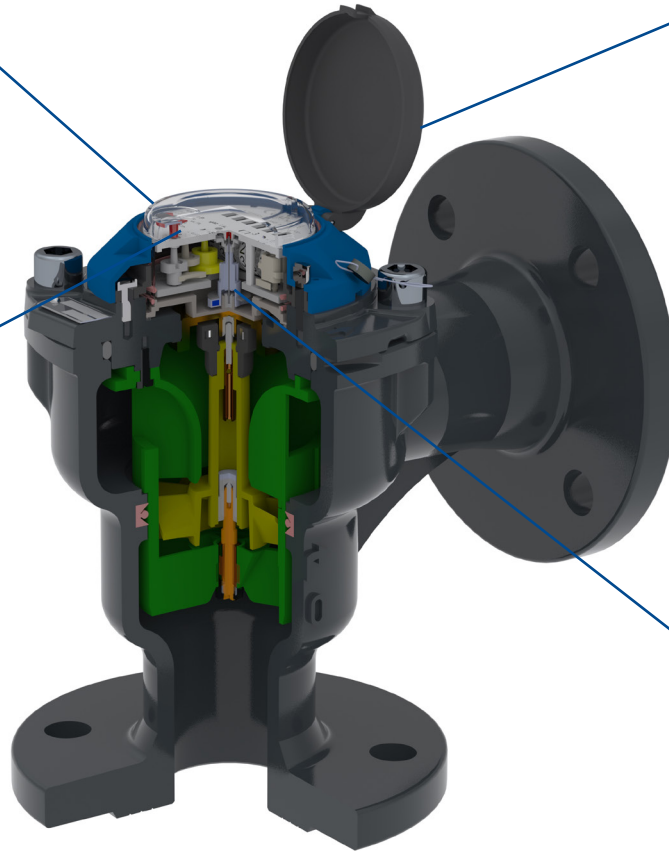


MK-01 (IP65)

The product is compatible with optical or induction communication modules, or the NK transmitter module for the JS-NKP version.

Robust counter safety cover for protection against external impacts in the water meter's working environment.

The IP65-rated counter mechanism is swivel-set. The counter mechanism features a rotation lock at 358° of turn.



Counter mechanism magnetic shielding: the design of the counter shield and the cover material ensure high resistance to external magnetic fields.

Advantages

Convenient use:

- Compact design
- The MK-08 water meter and compatible induction communication modules manufactured by Apator Powogaz are IP68 rated
- Induction modules mounted on the MK-08 or MK-01 water meter can signal alarms, e.g. disassembly or unsealing of cover, disruption in the module operation, reverse flow, leaks, etc.
- Easy reading of indications and parameters by:
 - any orientation of the counter mechanism within 0 to 358°,
 - hermetic, fog-resistant counter enclosed in a copper and glass IP68 rated housing,
 - location of the water meter parameter legend on the top of the counter cover.

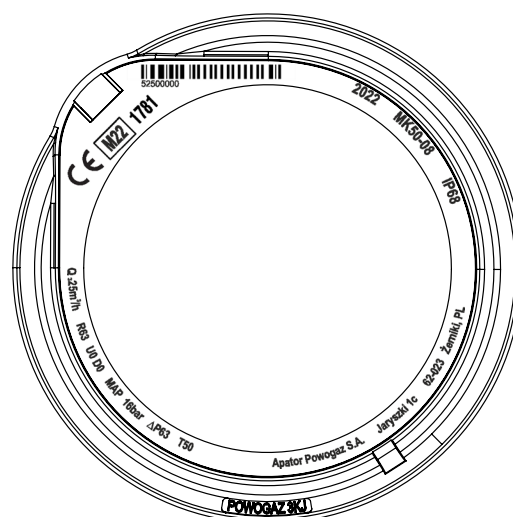
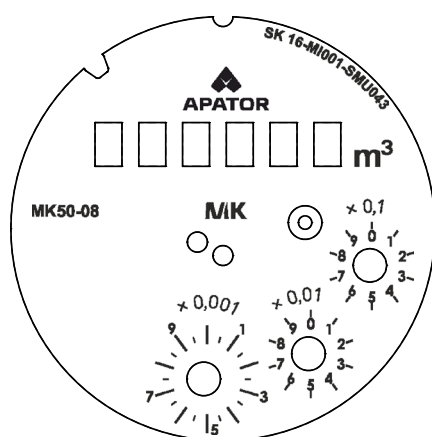
Reliability:

- Tested and robust design
- Fixed protection against strong magnetic field interference per EN 14154
- Long operating life thanks to advanced wear-resistant materials of bearings and pivots
- Counter mechanism is protected against mechanical damage

Key features

- The water meter can be used in difficult environmental conditions, alone or with an installed communication module
- The MK-01 model can be equipped with a reed relay/optical transmitter
- Magnetic coupling
- Protection against:
 - strong magnetic field interference per EN 14154,
 - mechanical tampering (robust, tamper-proof counter and cover design).
- Potable water approved materials

Design of the cover and dial of the MK-08 hydrant water meter is IP68 rated



Regulatory and standard compliance

- Directive 2014/32/EC of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments
- Polish Act of 13/04/2016 on market surveillance and compliance assessment systems
- OIML R 49-1:2013 – Water meters intended for the metering of cold potable water and hot water. Part 1: Metrological and technical requirements
- OIML R 49-2:2013 – Water meters intended for the metering of cold potable water and hot water. Part 2: Test methods
- OIML R 49-3:2013 – Water meters intended for the metering of cold potable water and hot water. Part 3: Test report format
- EN ISO 4064-1:2017 – Water meters for cold potable water and hot water. Part 1: Metrological and technical requirements
- EN ISO 4064-2:2017 – Water meters for cold potable water and hot water. Part 2: Test methods
- EN ISO 4064-3:2014 – Water meters for cold potable water and hot water, Part 3; Test report format
- EN ISO 4064-5:2017 – Water meters for cold potable water and hot water. Part 5: Installation requirements
- EU type examination certificate – SK 16-MI001-SMU043
- Classification of environmental climate and mechanical conditions: Class B (ref. EN-ISO 4064-1:2014 (E))
- Classification of mechanical environmental conditions: Class M1, as per Directive 2014/32/EC of the European Parliament and of the Council of 26 February 2014
- Classification of environmental electromagnetic conditions: Class E1, E2 – as per EN - ISO 4064: 2014 and with Directive 2014/32/EU of the European Parliament and of the Council of 26 February 2014

PZH National Institute of Hygiene and WRAS certificates (all materials used in MK water meters have Hygiene Certificates for use with potable water)

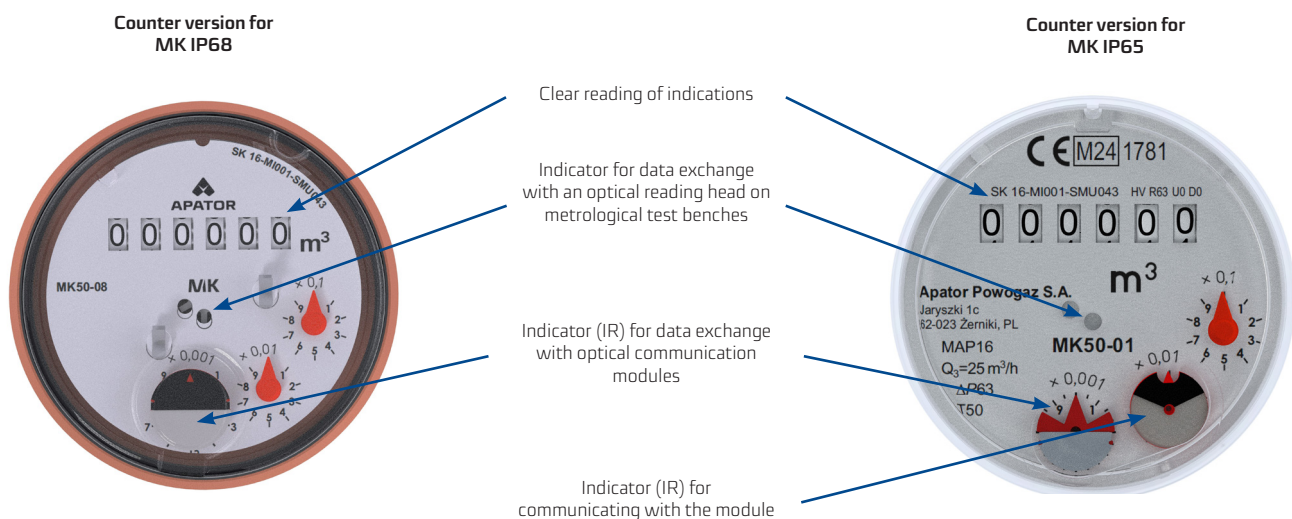


Table 1. Technical data

Parameter			MK IP68/IP65			
			MK-08* MK-01** MK-01-XX***	MK-08* MK-01** MK-01-XX***	MK-08* MK-01** MK-01-XX***	MK-08* MK-01** MK-01-XX***
Nominal diameter	DN	mm	50	80	100	150
Permanent flow rate	Q_3	m ³ /h	25	63	100	250
Maximum flow rate	Q_4	m ³ /h	31,25	78,75	125	312,5
Transitional flow rate	Q_2	m ³ /h	0,63	1,6	2,54	6,35
Minimum flow rate	Q_1	m ³ /h	0,39	1	1,59	3,97
Coefficient	Q_2/Q_1	–	1,6			
Measurement range, R	Q_3/Q_1	–	63			
Reading unit	–	m ³	0,0005			0,005
Temperature class	cold water	–	T30, T50			
Flow profile sensitivity class	–	–	U0, D0			
Indicating range	–	m ³	10 ⁶			10 ³
Maximum pressure	P_{max}	MPa	1,6			
Maximum pressure loss	Δp	kPa	63			
Connection ends	–	–	flanged****			
Maximum permissible error range: $Q_2 \leq Q \leq Q_4$	ϵ	%	± 2 for $0,1^\circ\text{C} \leq T \leq 30^\circ\text{C}$ cold water ± 3 $T > 30^\circ\text{C}$ water			
Maximum permissible error range: $Q_1 \leq Q < Q_2$	ϵ	%	± 5			
Reed relay pulse transmitter NK (IP65 only)	–	dm ³ /pulse	100 (standard pulsing) 10 (available on request)			1000 (standard pulsing) 100 (available on request)
Height	L	mm	150	180	200	250
	H	mm	249	304	339,3	358,3
	h	mm	150	180	200	250
	Dz	mm	165	200	220	285
Weight	–	kg	8,2	18	24	45

* version -08 – IP68-rated counter mechanism and cover; the water meter supports readout with induction communication modules (Ti)

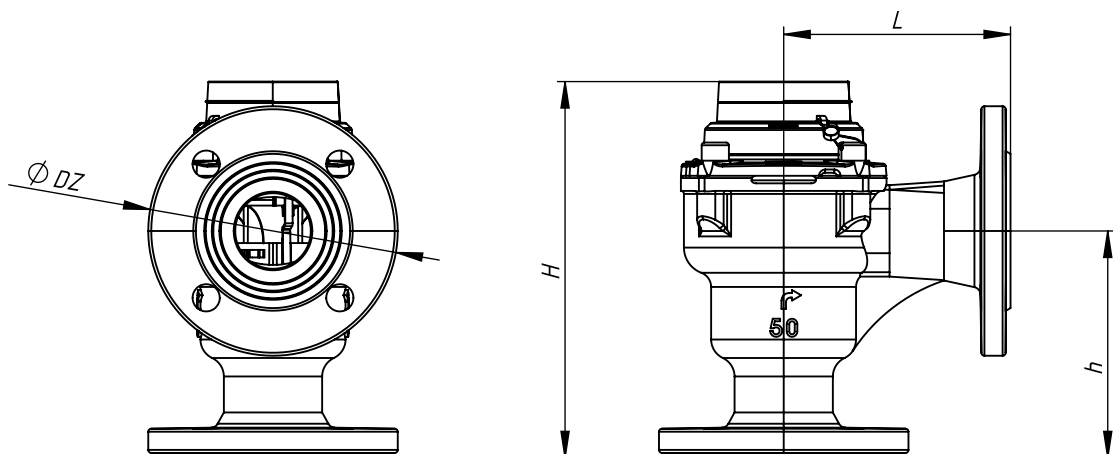
** version -01 – IP65-rated counter mechanism

*** version XX- NKP reed relay transmitter; supports reed relay pulse transmitters

**** connection flange bolt hole pattern:

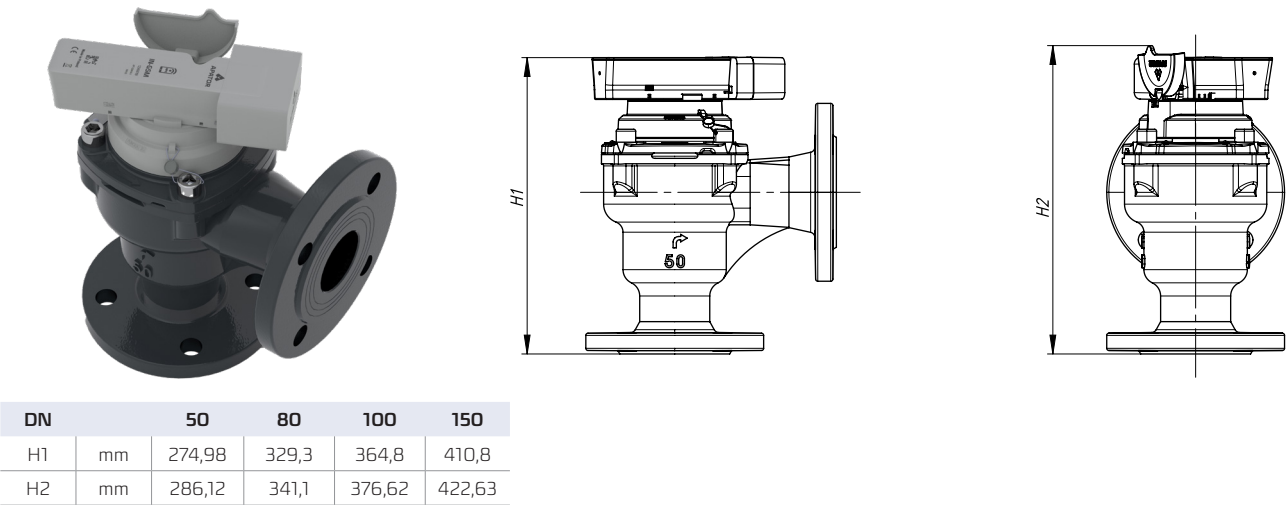
- standard: PN-EN 1092-2 (PN10), DIN 2532, DIN2501 (PN10)

- Special: PN-EN 1092-2 (PN16) (available on request)

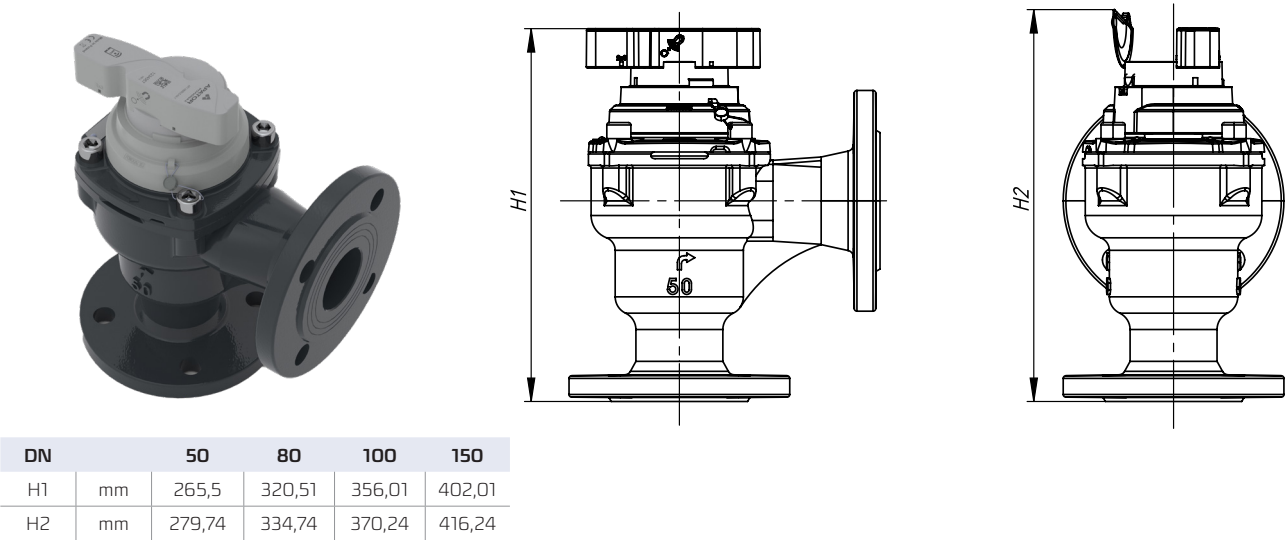


Example of the MK-08 IP68 water meter with compatible data communication modules:

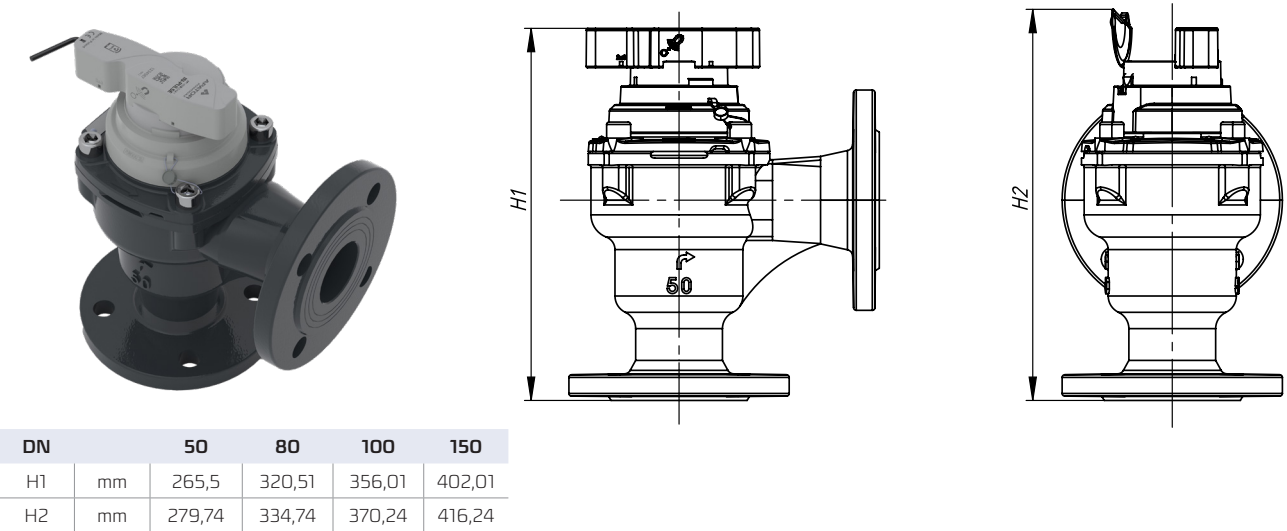
IN-GSM clip-on module, #UTIP (Universal TI Plug)



APT-WMBUS-NA-1 induction communication module#UTIP (Universal TI Plug)

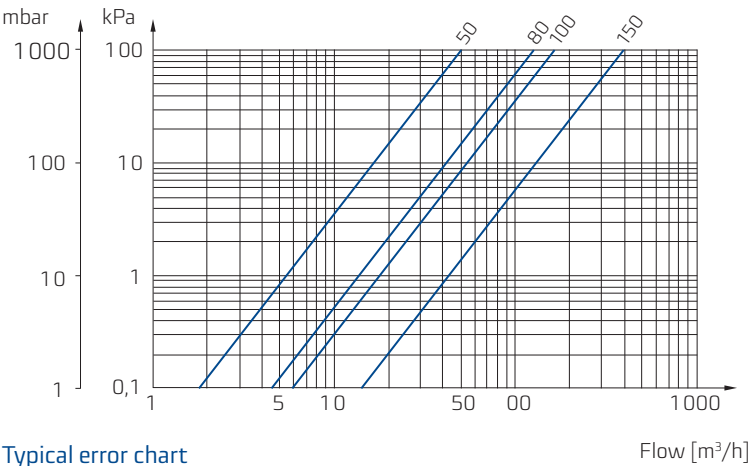


IN-PULSE induction module, #UTIP (Universal TI Plug)



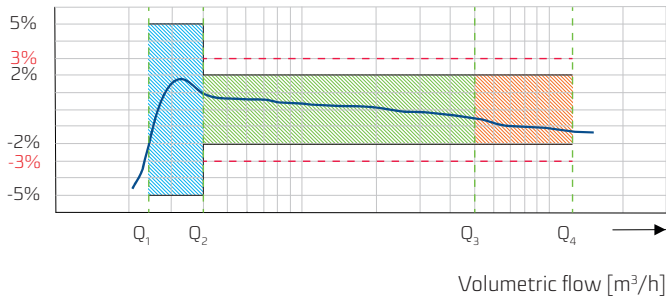
Pressure loss chart

Pressure loss



Typical error chart

Error [%]



The data presented in the datasheet was correct on the date of publication.
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