



METERS

A collaboration of the manufacturers with **SOLYD**

For 40 years, SOLYD in partnership with actors in the field has been offering **innovative and high-performance solutions** for connecting DRINKING WATER to homes worldwide.

MVM
MID



DSTRP
MID



WMAPEVO





METERS

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METER VOLUMETRIC MVM

MVM
MID



METERS

VOLUMETRIC MVM O

VOLUMETRIC METER WITH MAGNETIC TRANSMISSION



MANIFOLD version

MVM a Maddalena range of volumetric water meters with magnetic transmission. This meter satisfies the strict requirements provided by Directive 2014/32/EU MID and by European standard ISO 4064.

MVM is valued for its excellent metrological characteristics, ensuring an extraordinary level of precision even for a volumetric meter.

MVM is pre-equipped for the installation of a compact radio module for remote reading, Arrow MVM, and an inductive pulse transmitter, FlowPulse and FlowPulse M-Bus.

It is all guaranteed for 5 years + reference year by Maddalena: a company which has been producing very high-level measuring instruments for a century.



- Start up flow rate 0.5 litres/hour (best on market)
- MID approval in R800
- Totalizer **glass/metal as standard**
- Rotary totalizer 360°
- Mechanical protection system as well as magnetic fields
- IP68
- Guarantee 5 years + reference year
- Magnetic transmission
- Customizable with local authority name
- Option of engraving a QR code or barcode on the meter
- Barcode label with meter serial number
- Radio reading protocol based on European standard MBUS
- Compatible with INCOM, NOGEMA and DIOPTASE
- Compatible interfacing with most invoicing software on the market
- **Radio reading offer**, apart from the modules, plan ARROW COLLECT (see catalogue) and a reading terminal.

METER VOLUMETRIC MVM

BRASS AND COMPOSITES VERSION



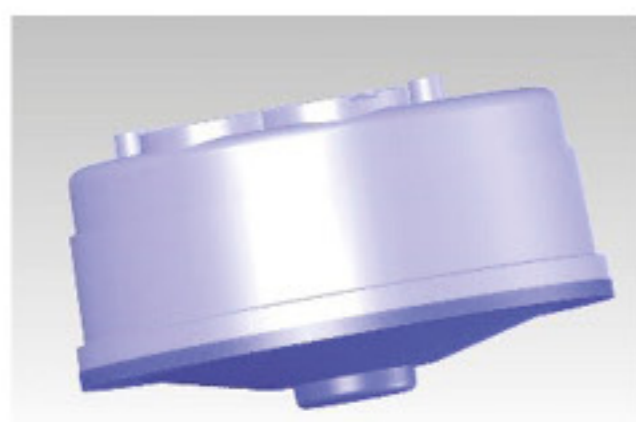
MVM is available **in brass version** in line DN 15 to DN 40 and coaxial, and in composites version for diameters 15 mm both in 110 mm and 170 mm. The MID characteristics are the same as the brass version.

MID STANDARDS

The Maddalena MVM volumetric meters are all **approved according to the new MID standard** which has been mandatory since 2015. This guarantees the quality of the manufacturing plant and the meter itself.

The MVM is mass produced in **R400 (MID)**, the **MVM (volumetric) was validated by the MID with a ratio of R800** (certificates available on request).

MAGNETIC TRANSMISSIONS



Magnetic transmission means that the hydrolic part is kept separate from the mechanism, thus keeping it completely dry, sealed closing on glass/metal version and dial at 45°.

MVM (brass version and composites version) is comprised of a **glass/metal dry dial IP68** (immersion in water for 1 week validated by specialist lab), to prevent any risk of condensation on the totalizer. It is systematically covered with a plastic cap to ensure its protection. It is available in line or coaxial version.

METER VOLUMETRIC MVM

MVM IS VERY SECURE



In terms of **protection in relation to magnetic fields**, the MVM perfectly satisfies the MID standard and beyond, MVM was designed not to be blocked even in the presence of the most powerful magnets on the market. (N52, 60x30x15 mm - 125 kg)

START UP FLOW RATES

The MVM meters are capable of recording water consumption at the lowest flow rates (**start up flow rate 0.5 l/hr on DN 15**)

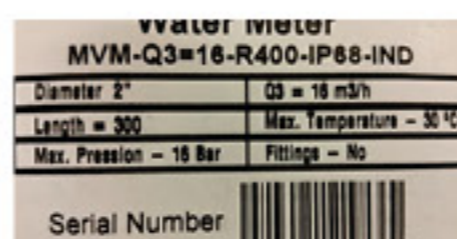
TECHNICAL INNOVATIONS



- **Materials:** Self-lubricating and resistant to wear and to the passing of particles in suspension (test with sand on special test bench)
- **Safety:** Very efficient filter for blocking all particles in suspension. The meter has an upstream filter and a basket filter placed at the inlet of the measurement chamber. This ensures meter operation even with water that has particles in suspension.
- **Vandalism alarm:** Identification device of attempted fraud.



- **Barcode:** Laser technologies enable marking of the serial number by barcode COD128C or QR CODE.



- **Customization:** Logo and/or inscription of the name of the water company.
- **The meter number is always printed on a self-adhesive label placed under the cover with barcode and meter number.**

HEALTH AS PRIORITY

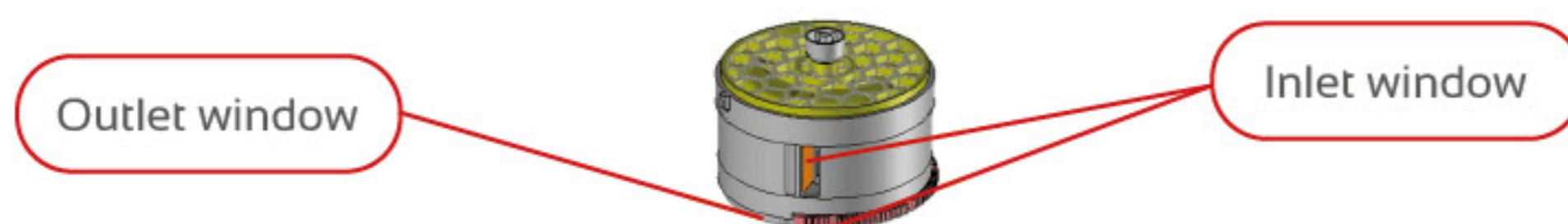
All the main European health certifications have been obtained to guarantee absolute reliability according to the standards of compatibility with drinking water (ACS available on request)

EASY TO INSTALL



2 flats for holding the meter during installation are placed on the tubing.

STRIATED PISTON OPTION



Optionally the MVM piston is striated to limit the risk of the meter blocking with sand or limescale.

SYSTEMATIC BENCH TESTING

Bench testing is systematic at manufacturing line end. Each meter goes to the bench to check its metrological data. (MID approved bench). Test bench certificate reports available on request

THE MADDALENA RADIO



Maddalena radio reading is based on the European standard M-BUS.

With Maddalena no more proprietary protocols, the bare meters are pre-equipped for data transmission by AMR or MBUS system (European standard, available in wireless or wire version).

It can be pre-equipped for a REED sensor (on request) or by default with INDUCTIVE type (managing water returns) for then connecting them to a **pulse transmitter** or to a compact radio module.

FULL LEGIBILITY OF TOTALIZER



Even with the radio module attached to the TOTALIZER, visibility is complete, and for pointers.

COMPATIBILITY

The Maddalena radio system with its compact wireless radio module (868 MHZ) is operational on the multi-protocol **platform of INCOM, NOGEMA and DIOPTASE**.

This lets you change meter make without restriction and easily and at least cost adapt to a radio reading network already in place.



Arrow^{wan} MVM 169
MHz



Arrow^{wan} MVM 868
MHz



Arrow MVM



Émetteur d'impulsions



Émetteur d'impulsions
Reed



Clapet de non retour



Kit de raccords



Collier de plombage

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METERS

A collaboration of the manufacturers **SOLYD**

METER
OF SPEED
DSTRP

DS TRP
MID



SOLYD

METERS OF SPEED DSTRP

MULTI-JET METER WITH PROTECTED ROLLERS

DS TRP MID is the new Maddalena range of multi-jet water meters with protected rollers. New because it was designed to satisfy the strict requirements provided by the Directive CE2004/22 MID and by the European standard EN 14154. DS TRP MID unites excellent low flow rate service with very high resistance to flow rate conditions and negative pressures. DSTRP MID is pre-equipped for the installation of a latest generation pulse transmitter and a radio module for remote reading. It is all guaranteed by Maddalena: a company which has been producing very high-level measuring instruments for a century.

DS TRP is a multi-jet meter with protected rollers; the part designed for reading consumption is not in contact with the water which flows in the conduit; so it always remains readable even if the water is loaded with particles in suspension, is hard or sandy. The DSTRP MID range is certified according to the Directive 2004/22EC appendix MI001 converted in Italy by D.L. n.22 of 2 February 2007 and provided with conformity modules B+D, obtaining a maximum ratio $Q3/Q1$ (R) equal to 200, which allows the meter to also be a product with a lower R (160, 125, 100, etc.).

The DS TRP MID product range can be supplied in pre-equipped version for later installation of a new generation bidirectional static pulses transmitter; this version does not alter in any way the characteristics of the standard meter with special attention to conservation of the mineral glass reading disc. In addition to the metrological certifications DS TRP MID is provided with certifications for use with drinking water obtained in accordance with the Italian Directives (D.M. 174) and foreign.



Functional and structural characteristics

- Transparent disc made of hardened mineral glass of suitable thickness
- Option of inserting a barcode on the dial giving the serial number
- Cast brass sheet (OT58)
- Brass bushing (OT58)
- Sheet varnished inside and outside with epoxy powder (thickness 60-70 microns)
- Roller holder shaft of stainless steel 18/8 • Internal filter with suitable surface area
- Internal plastic mechanism, anigroscopic, anti-scale and wear resistant
- Nominal pressure (NP) 16 bar
- Installation: does not require length of straight tube upstream and downstream
- Maximum use temperature: water to 50°C
- The sub-multiple graduations of cubic metres, characteristic inscriptions (MID) and serial number are found in the protected part, without water contact and thus always visible
- 100% of production checked hydraulically at 3 curve points ($Q1, Q2, Q3$) on test benches in compliance with the standards ISO 4064/3 and ISO 4185 (EN14154/III) and certified by a European metrology body
- The meter can be supplied with an integral non-return valve
- The meter Q3 2.5 can be supplied with the PIIP mark (cert. No. 01/325/2003)



HYDRAULIC PERFORMANCE

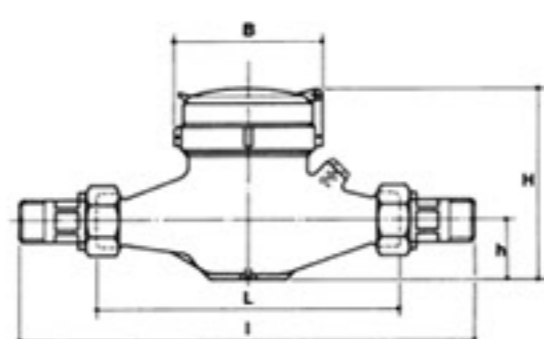
Diameter	mm	15	20	25	30	40	50
	inches	1/2	3/4	1"	1.1/4	1.1/2	2"
Module B n°		TCM 142/08-4604					
Module D n°		0119-SJ-A010-08					
Metrology class MID		R (Q3 / Q1° ≤ 200					
Performance according to Directive 2004/22/EC							
Q3	m³/h	2.5	4.0	6.3	10.0	16.0	25.0
Q4	m³/h	3.3	5.0	7.9	12.5	20.0	31.0
R160							
Q1	l/h	15.6	25	39.4	62.5	100	156.2
Q2	l/h	25	40	63	100	160	250
R100							
Q1	l/h	25	40	63	100	160	250
Q2	l/h	40	64	100.8	160	256	400
Others R on request							

TECHNICAL CHARACTERISTICS

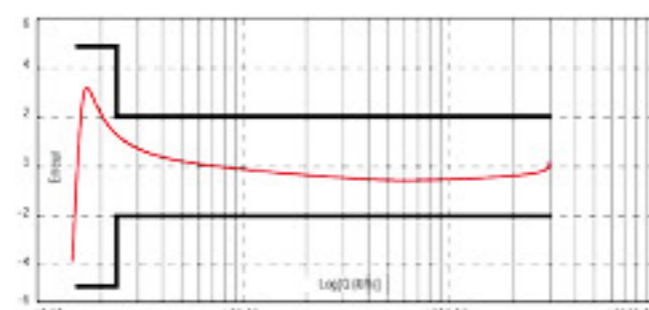
Maximum permitted error between			+/-5%				
Q1 and Q2 (exclu)							
Maximum permitted error between			+/- 2% with temperature of water ≤ 30°C				
Q2 (inclus) and Q4			+/- 3% with temperature of water ≤ 50°C				
Class of temperature			T30 and T50				
Class of sensitivity to conditions			U0 - D0				
Of installation			(of straight lengths upstream and downstream of the instrument are not necessary)				
Start up flow rate	l/h	4-5	7-9	16-18	22-24	28-30	28-30
Class of head loss (Δ ,P @ Q3)	bar	ΔP 63					
Service pressure	bar	16	16	16	16	16	16
Maximum reading	m³	100.000	100.000	100.000	100.000	1.000.000	1.000.000
Minimum reading	l	0.05	0.05	0.05	0.05	0.05	0.05
N° turns/litre turbine		25.31	19.41	11.22	10.04	4.40	3.16
Weight	Kg	1.450 (for L= 145 mm)	1.610 (for L= 190 mm)	2.300	2.400	4.500	9.500 threaded 14.000 flanged

DIMENSIONAL CHARACTERISTICS

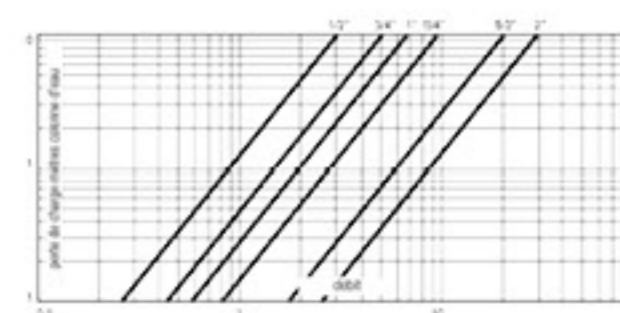
Diameter	mm	15	20	25	30	40	50
	inches	1/2	3/4	1"	1.1/4	1.1/2	2"
L	mm	105(V)-110-130	160-190	220-260	220-260	300	300
		145-160-165					
		170-190					
L with fittings	mm	205(V)-210-225	258-288	316-356	338-378	438	461
		240-245-250					(flanges 300)
H	mm	112,5	112,5	123	123	163	175
h	mm	36,5	36,5	43	43	64,5	77
B	mm	97,5	97,5	97,5	97,5	130	154



Typical error curve



Head loss





**REED pulse
transmitter**



**QUADRAPLUS pulse
transmitter**



ARROW radio module

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COMPTEURS

A collaboration of the manufacturers with **SOLYD**

**METER
WOLTMANN**

WMAF
EVO



METER WMAP EVO

METERS WOLTMANN

WOLTMANN METER WITH EXTRACTABLE AXIAL IMPELLER



WMAP EVO is the development of the Maddalena range of Woltmann type water meters with dry dial, with axial impeller in extractable version.

It is designed to satisfy the very strict requirements of the Directive 2014/32/EU (MID) and the international standard ISO 4064.

WMAP EVO can be equipped with a static pulse transmitter or a radio module compatible with different transmission technologies, while keeping its mechanical, metrological characteristics and readability.

The continuous improvement process of the hydraulic performance has made it possible to certify the meter with a ratio R (Q3/Q1) equivalent to 250.

It is all guaranteed by Maddalena: a company which has been producing very high-level measuring instruments for a century.

WMAP EVO is a Woltmann meter with extractable axial impeller (the impeller shaft coincides with that of the conduit).

The horology is dry dial type with magnetic transmission: the only part in contact with the water passing in the conduit is the impeller. The horology is contained in a copper capsule which constitutes a single body with the glass disc of the dial, and thus ensures tightness even with immersion (IP68).

The standard version is pre-equipped for three pulse outputs, one of inductive type and two of Reed switch type. This allows the meter to be supplied with a pulse transmitter or radio modules even when it is already installed, without altering its functionality or structure. The available radio modules are compatible with different transmission technologies (wireless M-Bus, LoRaTM, Sigfox).

WMAP EVO can be installed both in horizontal position and vertical position and the metrological performance is not affected by the type of installation or by the quality of the water. The **WMAP EVO** range complies with the Directive 2014/32/EU (Appendix MI-001), transposed in Italy by legal decree No. 84 of 19 May 2016, and is certified according to conformity assessment forms B + D. The maximum certified ratio R (Q3/Q1) is 250, but it is possible to produce the meters with lower R (200, 160, 100, 80, etc.). **WMAP EVO** is certified for use with drinking water in compliance with ministerial decree 6/4/2004 No. 174 and with foreign directives.

Caractéristiques fonctionnelles et structurelles

- Totalizer with glass dial and copper capsule (IP68)
- All the mechanism is located in the dry part of the meter, not in contact with the water, and is always readable.
- The serial number is marked on the dial both in numerical format and in barcode format.
- The characteristic inscriptions (MID) are engraved on a metal label applied to a flange of the meter
- Direct reading on 7-digit rollers for cubic metres (8 for DN 150 and DN 200) and 2 pointers for sub-multiples.
- Plastic cap and cover with internal metal screening.
- Flanged body, of ductile cast iron, painted inside and outside with epoxy powder.
- Steel shaft and synthetic sapphire bearing.
- Plastic internal mechanism, non-hygroscopic, anti-scale and wear resistant.
- The version with Reed switch type pulse transmitter keeps the metric sealing and is protected by the cap
- Installation: it is not necessary to provide straight sections upstream and downstream (U0-D0)
- Maximum use temperature: 50°C
- Nominal pressure (NP) 10 or 16 bar.
- 100% of production is checked hydraulically at 3 curve points (Q1, Q2, Q3) on test benches in compliance with the standards ISO 4064/3 and ISO 4185 (EN 14154/III) and certified by an approved European body.

Diameter	mm	50	65	80	100	125	150	200
	inches	2"	2.½ "	3"	4"	5"	6"	8"
Module B n°	TCM 142/17-5473							
Module D n°	0119-SJ-A010-08							
Metrology class MID	H r ≤ 250 H T, V r, V s inclined ≤ 160						H r, V r; inclined ≤ 250 H T, V s ; ≤ 125	
Performance according to Directive 2014/32/EU								
Q3	m³/h	40	63	100	160	160	250	400
Q4	m³/h	50	78,8	125	200	200	312,5	500
R 250								
Q1	l/h	160	250	400	640	640	1000	1600
Q2	l/h	260	400	640	1020	1020	1600	2560
R 100 (standard)								
Q1	l/h	400	630	1000	1600	1600	2500	4000
Q2	l/h	500	788	1250	2000	2000	3125	5000

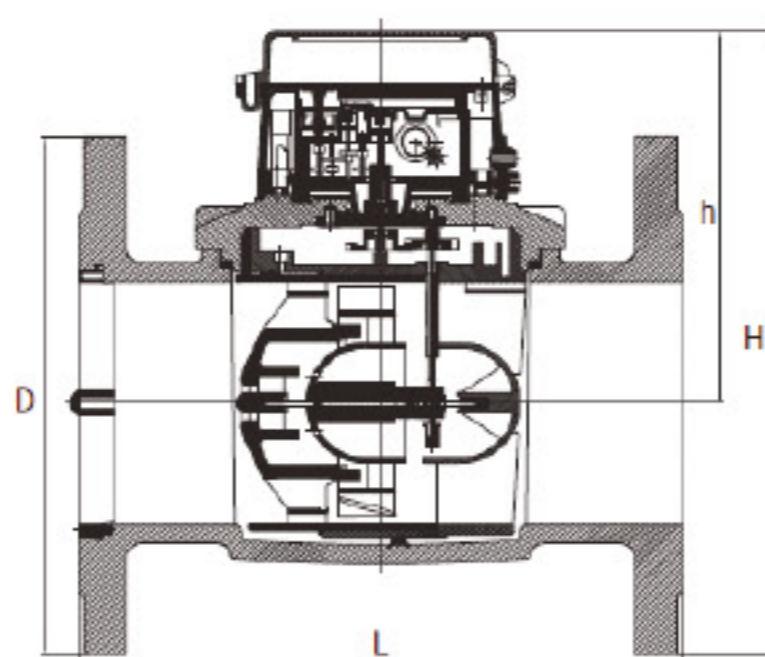
TECHNICAL CHARACTERISTICS

Maximum permitted error between Q1 and Q2 (excl)				+/- 5%				
Maximum permitted error between Q2 (incl) and Q4				+/- 2% with temperature of water ≤ 30°C +/- 3% with temperature of water > 30°C				
Class of temperature				T50				
Class of sensitivity to installation conditions				U0- D0				
Start up flow rate	l/h	125	190	320	450	700	1200	1800
Class of head loss (ΔP Q3)		ΔP 25	ΔP 40	ΔP 25	ΔP 40	ΔP 40	ΔP 16	ΔP 40
Service pressure	bar	10/16	10/16	10/16	10/16	10/16	10/16	10/16
Maximum reading	m³	10.000.000						
Minimum reading	m³	0,002	0,002	0,002	0,002	0,002	0,02	0,02
n° turns/litre turbine		10,0	11,2	15,2	17,2	22,4	29,0	42,6
Reed switch pulse transmitter pre-equipment V max. ≤ 24 V; I max. 0.1 A	I/ pulse	10-1.000	10-1.000	10-1.000	10- 1.000	10- 1.000	100- 10.000	100- 10.000
Inductive pulse transmitter pre-equipment V max. ≤ 24 V; I max.0.1 A	I/ pulse	10	10	10	10	10	100	100

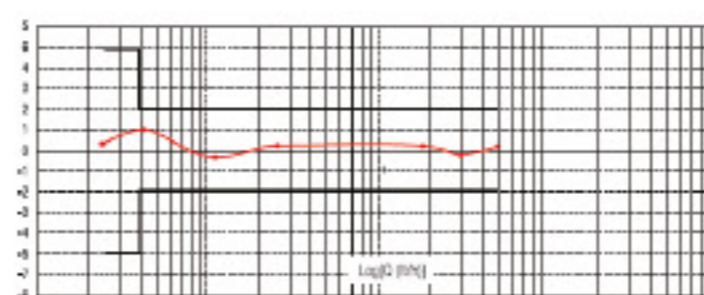
METER WMAP EVO

DIMENSIONAL CHARACTERISTICS

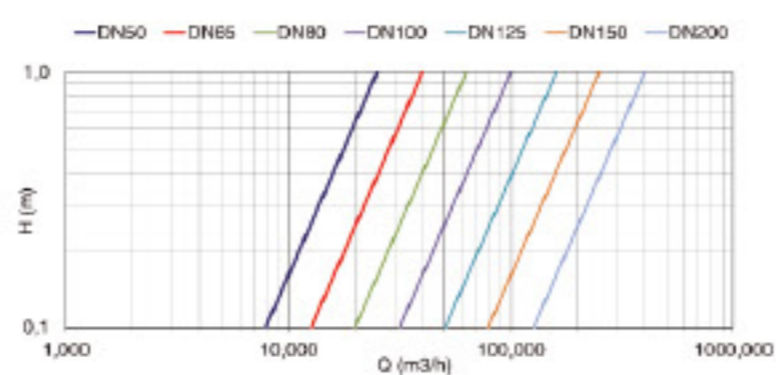
Diameter	mm	50	65	80	100	125	150	200
	inches	2"	2½"	3"	4"	5"	6"	8"
L	mm	200	200	225	250	250	300	350
H	mm	209	218	249	258	271	316	345
h	mm	132	132	154	154	154	183	183
D	mm	165	185	200	220	250	280	340

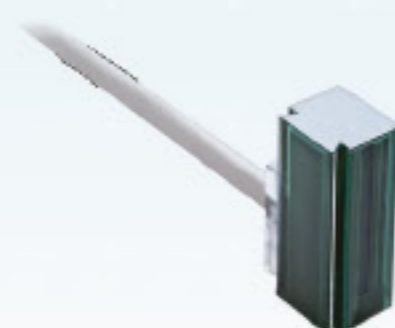


Typical error curve



Head loss





Émetteur
d'impulsions reed
switch simple



Émetteur
d'impulsions



Arrow 868 MHz



Module radio Arrow



Arrow^{wan} 169 MHz



Arrow^{wan} 868 MHz



Kit contre-brides



Stabilisateur de flux

SOLYD

Know-how and reactivity

For the fluidity of your projects