BMF ELECTROMAGNETIC FLOW METERS

VuFlow
metering technology

ELECTROMAGNETIC FLOW METER

01 MAGNETIC FLOW METER WORKING PRINCIPLE

Magnetic flow meters provide obstruction free flow measurement and so are suitable for all conductive liquids including: chemicals, food stuffs, pulps, acids, pharmaceuticals, slurries and effluent . Their high accuracy is unaffected by changes in fluid viscosity , line pressure , temperature or density.

How do Mag flow meters work ?

The operating principle of the electromagnetic flow meter is based on Faraday 's law of magnetic induction : The voltage induced across any conductor , as it moves at right angles through a magnetic field, is proportional to the velocity of that conductor. The voltage induced within the fluid is measured by two diametrically opposed internally mounted electrodes. The induced signal voltage is proportional to the product of the magnetic flux density, the distance between the electrodes and the average flow velocity of the fluid.

APPLICATIONS

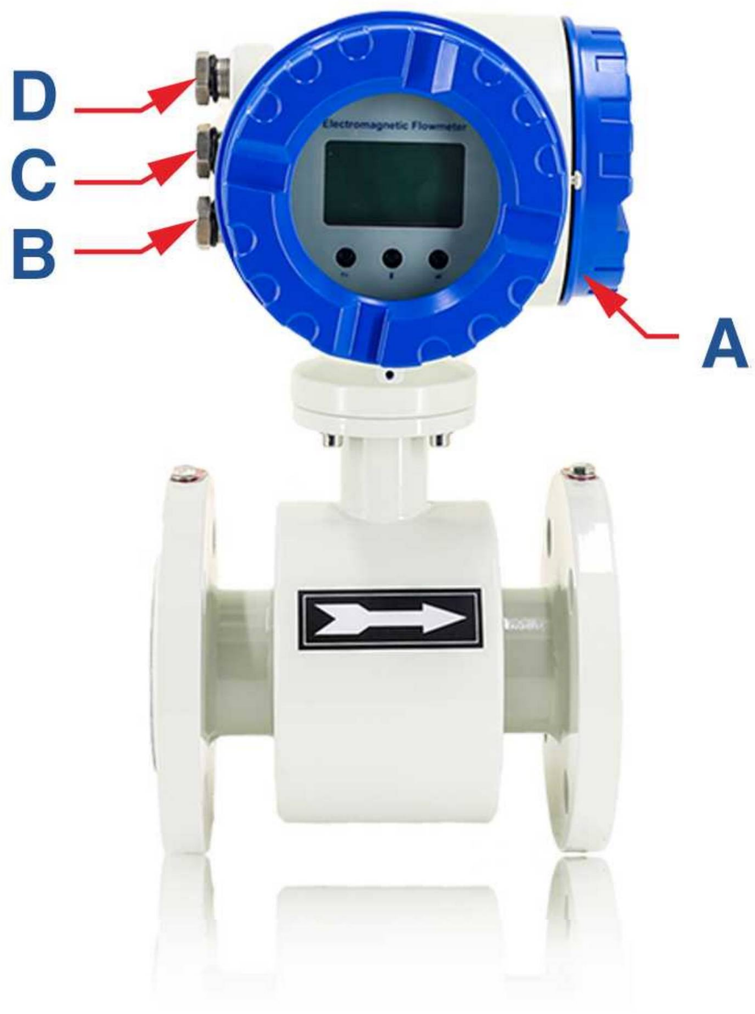
- **Waster water industry:** Transport networks, sewage treatment plants , sludges measurement
- **Chemical industry:** Acids alkalis, dosing applications, abrasive or corrosive mediums
- **Metal & mining industry:** Mediums with a high solid content, like ore or excavator mud
- **Water industry:** Revenue metering, district metering water abstraction , leakage detection
- **Pulp & paper industry:** Pulp, pastes, sludges & other caustic/abrahsive mediums, liquors, additives, bleaches, colourants
- **Food & beverage industry:** Mixing, dosing and filling of drinks under hygienic conditions filling systems applications

FEATURES

- High accuracy & wide flow range measurement
- 99.999% pure copper for oil
- No mechanically moving parts
- IP68 Sensor (Remote version) maximum 3 meter immersion in water
- Drinking water approvals including WRAS
- FDA approvals
- Bi-directional measurement
- Wide choice of materials for housing and flanges including SS304 and SS316
- Advanced electrode technology, no- drift zero point
- Robust, fully welded and potted construction
- In house wet calibration rig for all diameters (up to DN3000)
- Three electrodes
- >3mm thickness PTFE liner, durable service life (Other liner materials offered)

ELECTROMAGNETIC FLOW METER

INSTRUMENT CONNECTION



Local Converter Connection:

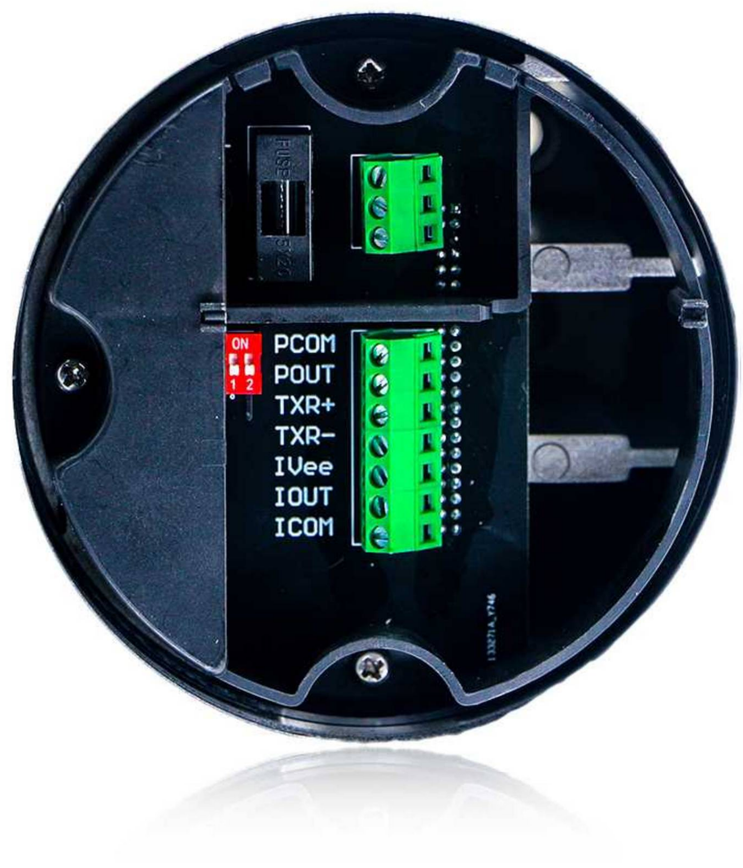
A. Wiring diagram below

B. Power cable

C. Signal cable or comms cable

D. Optional

WIRING

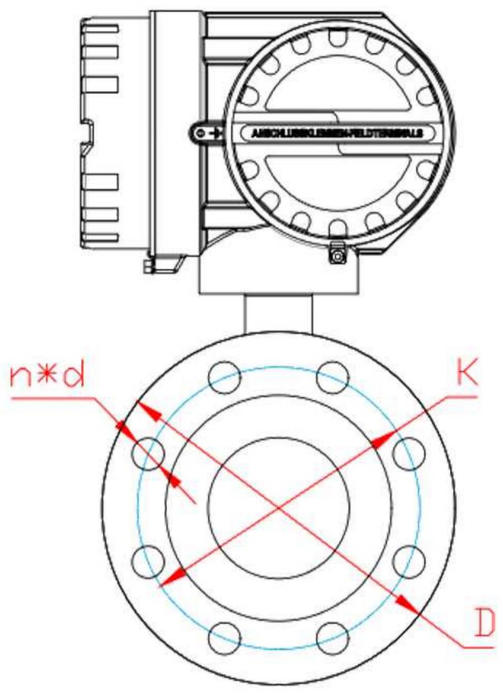


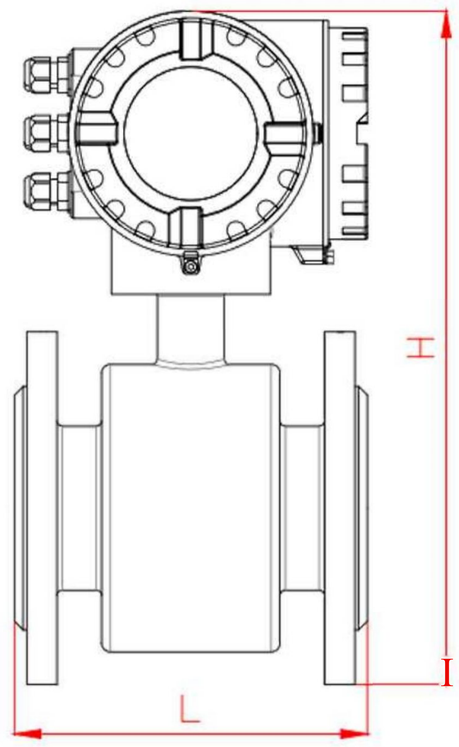
Sensor	SGND	Signal ground
	SIG 2	Signal 2
	EXT-	Field current -
Current output	IOUT+	Current output +
	ICOM-	Current common -
Pulse or frequency output	POUT+	Frequency (pulse) output (+)
	PCOM-	Frequency (pulse) output (-)
Digital output	DOUT+	Digital output (+)
	DCOM-	Digital output (-)
Communication interface	TXR+	Communications output (RS485+)
	TXR-	Communications output (RS485-)

ELECTROMAGNETIC FLOW METER

06 INSTALLATION DIMENSIONS (Flanged Model)

Flange						
Diameter (mm)	L (mm)	D (mm)	K(mm)	H (mm)	Bolt	n*d (mm)
15	200	95	65	301.5	M12*5O	4*⌀14
20	200	105	75	308.5	M12*5O	4*⌀14
25	200	115	85	318	M12*5O	4*⌀14
32	200	140	100	333	M16*7O	4*⌀18
40	200	150	110	339.5	M16*7O	4*⌀18
50	200	165	125	353	M16*7O	4*⌀18
65	200	185	145	368.5	M16*7O	4*⌀18
80	200	200	160	383.5	M16*7O	8*⌀18
100	250	220	180	404	M16*7O	8*⌀18
125	250	250	210	432	M16*7O	8*⌀18
150	300	285	240	458.5	M20*90	8*⌀22
200	350	340	295	515.5	M20*90	12*⌀22
250	450	405	355	584	M24*110	12*⌀26
300	500	460	410	626.5	M24*110	12*⌀26
350	550	520	470	681	M24*110	16*⌀26
400	600	580	525	741	M27*130	16*⌀30
450	600	640	585	791	M27*130	20*⌀30
500	600	715	650	856.5	M30*140	20*⌀33
600	600	840	770	972	M33*170	20*⌀36
700	700	910	840	1058	M33*180	24*⌀36
800	800	1025	950	1166.5	M36*210	24*⌀39
900	900	1125	1050	1266.5	M36*220	28*⌀39
1000	1000	1255	1170	1381.5	M39*250	28*⌀42





07 MEASUREMENT

ELECTROMAGNETIC FLOW METER

PRODUCT RANGE

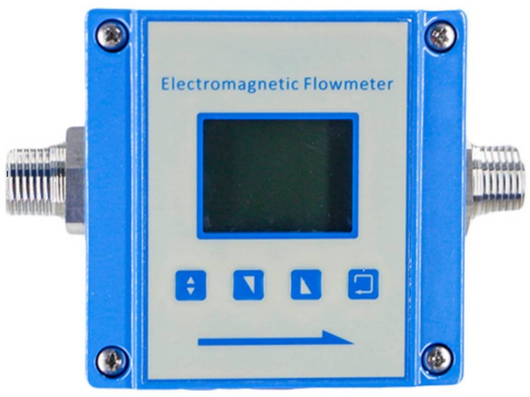
A TYPE
(Exd ATEX Local Display)

B TYPE
(Standard Local Display)

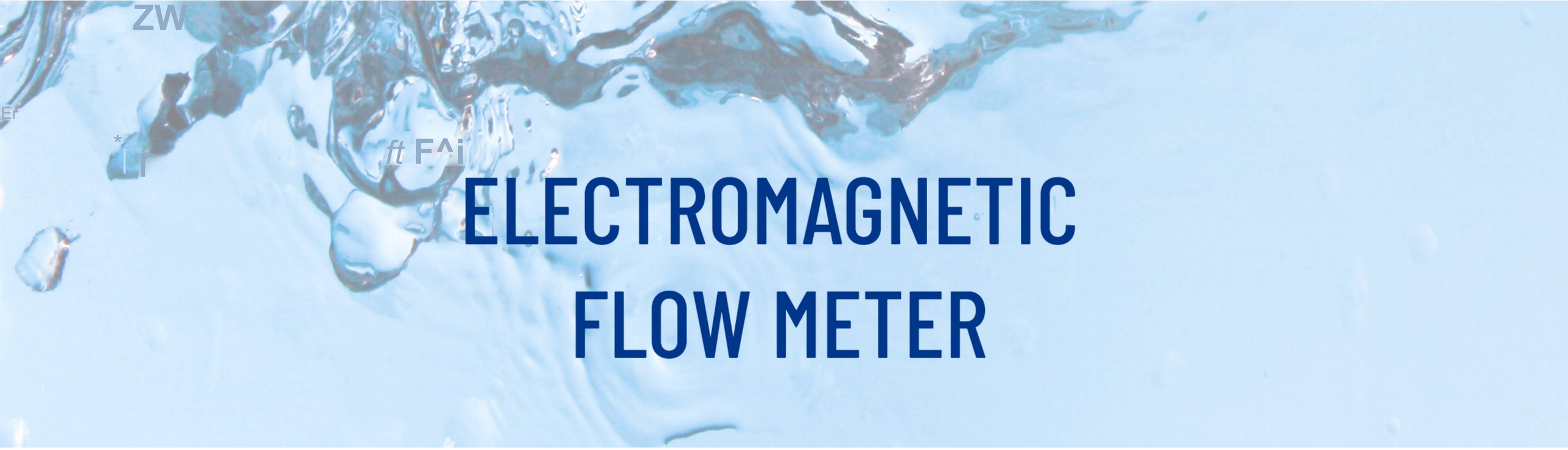
Y TYPE
(Remote Display)

S TYPE
(Hygienic Tri-Clamp)

I TYPE
(Insertion Style)



M TYPE
(Mini Mag Meter)



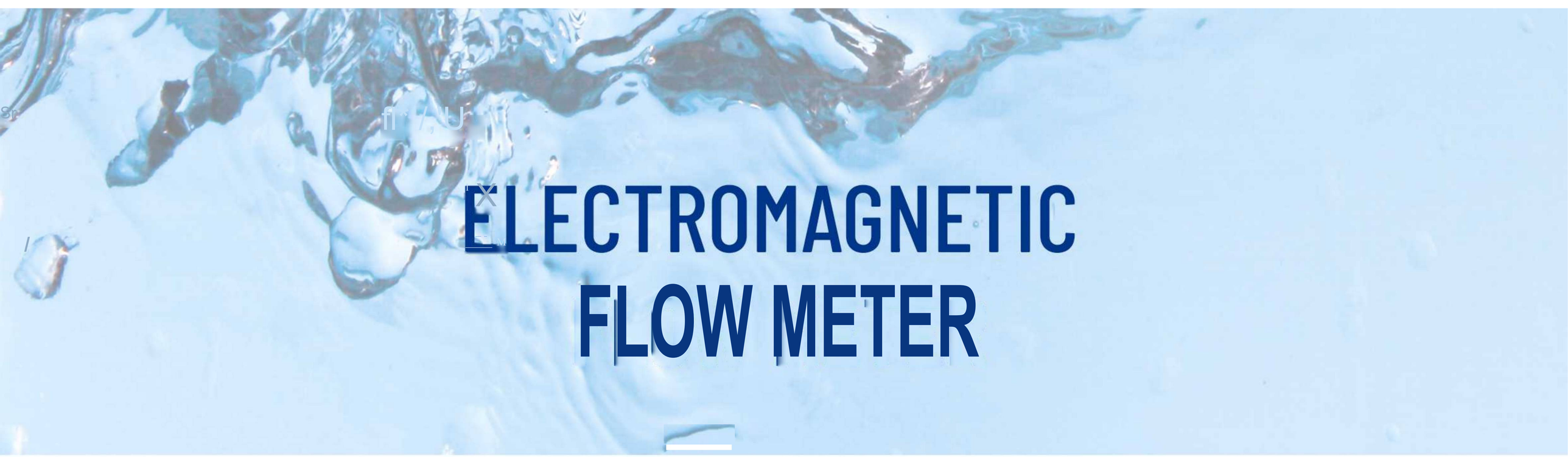
ELECTROMAGNETIC FLOW METER

TECHNICAL DATA

Diameter	PTFE: DN2.5-DN1000
	Rubber: DN50-DN3000
Flow Direction	Forward; Reverse
Repeatability Error	±0.1%
Accuracy	±0.5% of rate, Optionally ±0.2% of rate
Medium Temperature **Max Temp above 80°C refers to Remote display type)**	Rubber liner: -2O...+6O°C
	PTFE liner:-20...+120 °C
	PFA: -2O... + 18O°C
	Ceramic: -20...+180 °C
Velocity	0.3 - 10m/s
Ambient Temperature	-20...+60 °C
Relative Humidity	5%~95%
Power Consumption	<20W
Protection	IP 65, IP 68 (Remote Type)

010 PERFORMANCE OF THE ELECTRODE MATERIALS

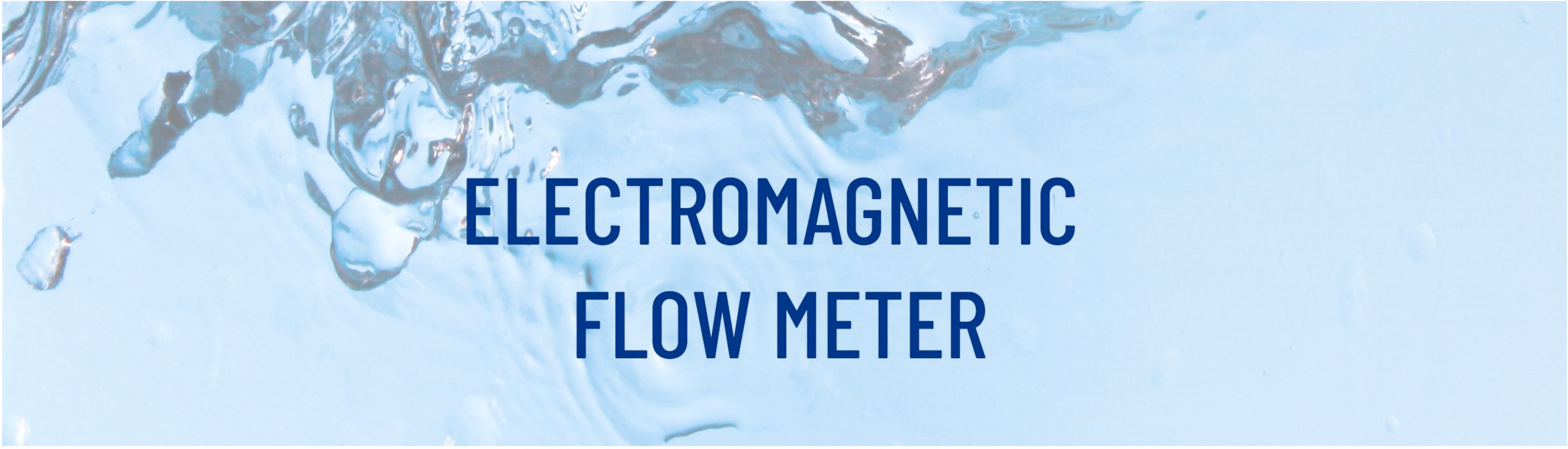
Electrode Material	Application
SS 316L	Ideal for general water, sewage and non corrosive chemical mediums. Widely used in general industry
Hastelloy B	Hastelloy® has a high level of all-round corrosion resistance. High resistance to localized corrosion (superior to Stainless Steel) Good for Salt Water / brine solutions
Hastelloy C	Resistant to oxidizing acids such as nitric acid, mixed acids and ideal for sea water
Titanium	Excellent corrosion resistance in many aggres sive environments , particularly oxidizing and chloride -containing media. Good for abrasive media.
Tantalum	Strong resistance to corrosive mediums that is akin to glass. Highly Resistant and suitable for a wide variety of challenging applications- Contact us
Platinum-iridium	Highly Resistant and suitable for most challenging applications- Contact us
Ceramic	Highly Resistant to corrosion and wear as well as extreme temperatures



ELECTROMAGNETIC FLOW METER

TECHNICAL DATA

Diameter		Flow Rate (m^3/h)		
		V=0.3m/s	V=6m/s	V=10m/s
mm	Inch	Min	Calibrated	Max
2.5	1/10"	0.0053	0.106	0.177
4	1/8"	0.014	0.271	0.452
6	1/4"	0.03	0.6	1
10	3/8"	0.1	1.7	3
15	1/2"	0.2	4	6
20	3/4"	0.3	7	11
25	1"	0.5	11	18
32	1-1/4"	0.9	17	29
40	1-1/2"	1	27	45
50	2"	2	42	71
65	2-1/2"	4	72	120
80	3"	5	109	181
100	4"	8	170	283
125	5"	13	265	442
150	6"	20	382	636
200	8"	34	679	1131
250	10"	53	1060	1767
300	12"	76	1527	2545
350	14"	104	2078	3465
400	16"	136	2714	4524
450	18"	171	3435	5726
500	20"	212	4241	7069
600	24"	305	6107	10179
700	28"	415	8310	13850
800	32"	542	10860	18100
900	36"	662	13740	22900
1000	40"	848	16962	28270



ELECTROMAGNETIC FLOW METER

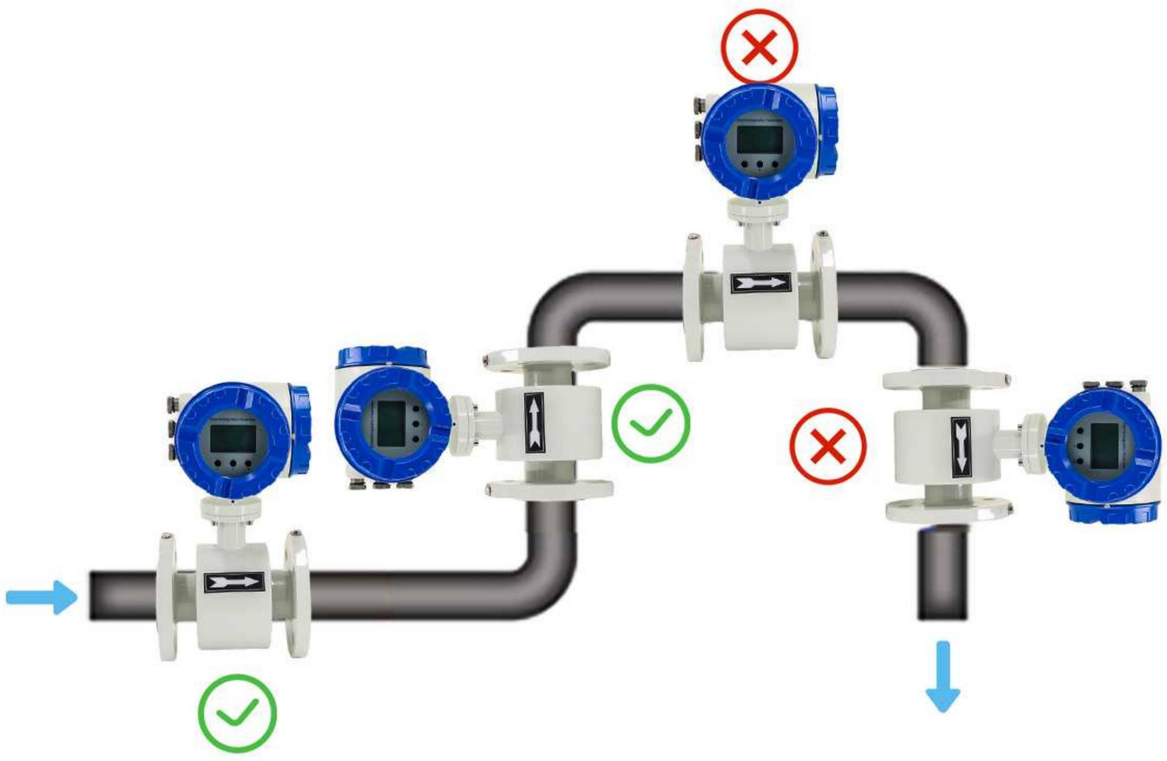
012 MODEL SELECTION

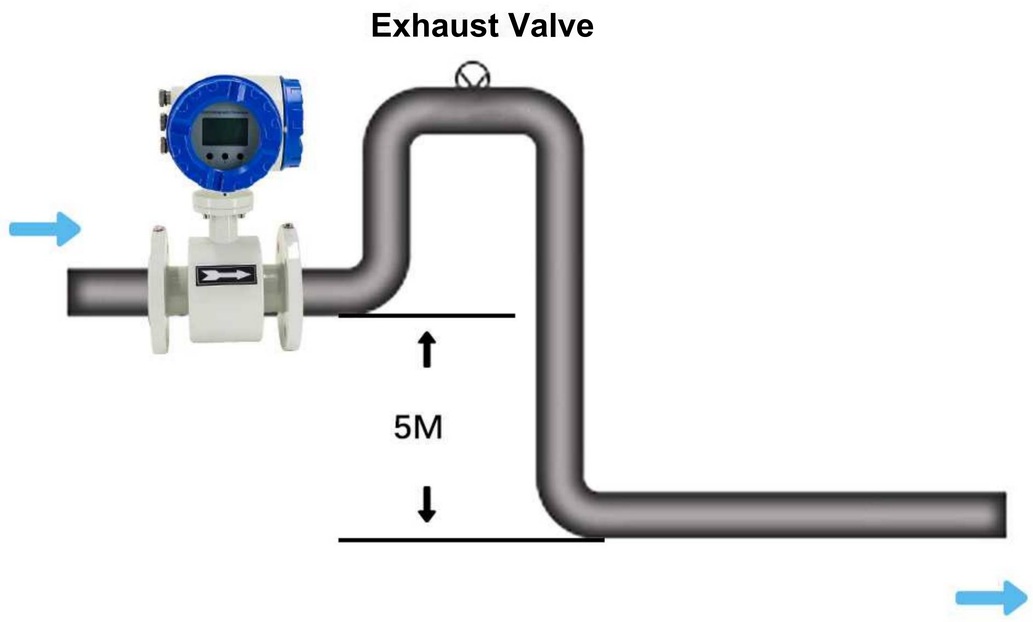
Model	Suffix Code													Description
BMF-	❶	❷	❸	❹	❺	❻	-❼	❽	❾	❿	⓫	⓬	⓭	**Electromagnetic Flow Meter**
Type	B													B type (Locally Mounted Display)
	Y													Y type (Remote Mounted Display)
	W													W type (Battery supply)
	S													S type (Hygienic Tri-clamp, Stainless body, PTFE liner)
	A													ATEX Type (Ex-proof)
	H													HY900(For sludge)
Diameter		XXX												Pipe Diameter 0006: DN6; 0015: DN15 0100: DN100; 2200: DN2200
Structure			S											Compact Type with local display
			L											Remote Type; 10 meters cable default
Electrode Material				M										SS316L
				T										Titanium
				D										Tantalum
				H										Hastelloy C
				P										Platinum-Iridium
				C										Ceramic
Signal Output					0									No Output
					1									4-20mA / Pulse
Liner Material						X								Rubber (DN40-DN2000)
						F								PTFE (DN2.5-DN2000)
						A								PFA (DN2.5-DN500)
						C								Ceramic (DN10-DN600)
						P								Polyurethane (DN15-DN500)
Power Supply							-0							110-240V AC
							-1							24V DC (20-36V DC)
							-2							Battery Power Supply
Communication								0						No Communication
								1						Modbus RS485
								2						HART
								3						GPRS
								4						Others (Profibus DP, Profibus PA, BACnet / IP, etc)
Sensor Grounding									0					No Grounding
									1					Grounding Rings
									2					Grounding Electrode
Connection										DXX				D16:DIN PN16 Flange ; D25: DIN PN25 Flange...
										AXX				A15: ANSI150# Flange; A30: ANSI 300# Flange...
										JXX				J10: JIS 10K Flange; J20: JIS 20K Flange...
										XXX				On request
Body Material											CS			Carbon Steel
											S4			Stainless Steel 304
											S6			Stainless Steel 316
Cable												0		Default
												XX		Optional
Accuracy													5	± 0.5%
													2	± 0.2%

ELECTROMAGNETIC FLOW METER

013

INSTALLATION





The flow meter should be installed at a lower system level and vertically upwards of the horizontal pipe. Avoid installation at the highest system point and vertically downwards the pipe. (To reduce the effects of entrained air)

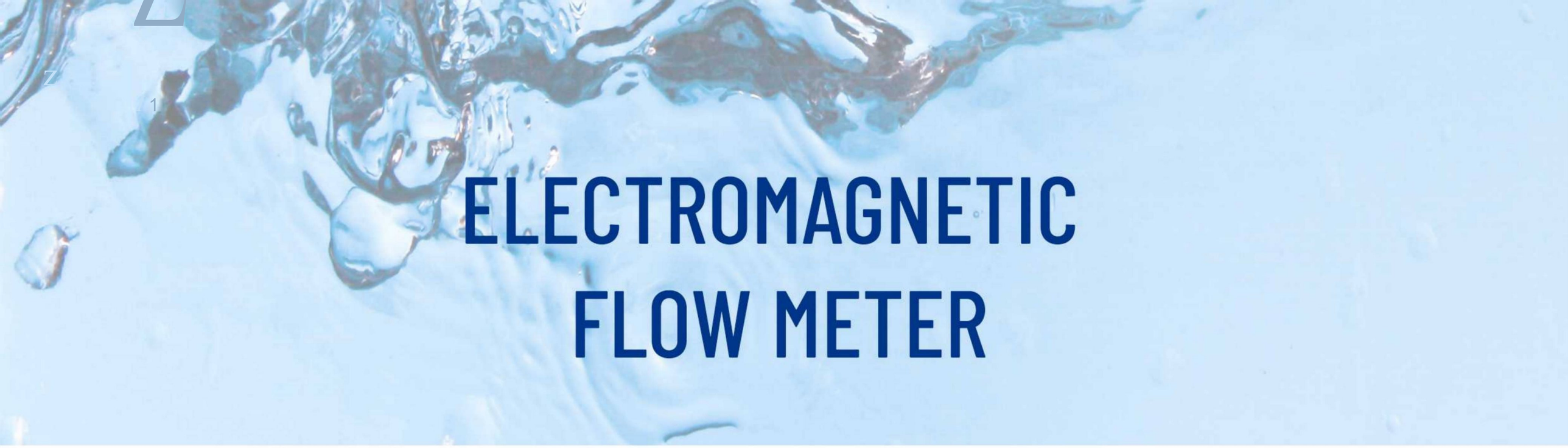
When drop is more than 5m, install Anti-drain valve downstream.

Install at the lowest point when used in an open drain to maintain a full pipe.

Needs 10D of upstream and 5D of downsteam straight pipe

Do not install it at the inlet of a pump, install it at the exit.

Install in the rising section



ELECTROMAGNETIC FLOW METER

04 OTHER PRODUCTS

ELECTROMAGNETIC FLOW METER

LIQUID TURBINE FLOW METER

GAS TURBINE FLOWMETER

VORTEX STEAM FLOW METER

CORIOLIS MASS FLOW METER

ULTRASONIC FLOW METER

GAS FLOWMETER

VARIABLE AREA FLOW METER

OVAL GEAR FLOW METER

TRANSMITTER & TOTALIZER

POSITIVE DISPLACEMENT FLOW METER

WATER ANALYZER SERIES