



# TMAG 401-IN Insertion Electromagnetic Flow Meter





## Description

TMAG 401-IN insertion electromagnetic flow meter is used to measure the flow of conductive liquids. It is available for use in pipes ranging in size from DN100 to DN3000. It can configure thread or flange ball valve to be hot-tapped, which allows sensor to be installed and retracted from process piping without shutting down the process.

It's an economic alternative when installed in large pipeline no matter in cost and delivery compared with full bore magnetic flow meter.



## Industries

Effluent Treatment Plant	Sewage Treatment Plant Water Supply Scheme	Steel & Aluminum Industries	Food & Drug Industries
Chemical & Fertilizer Industries	Dairy Industries	Sugar Industries	Textile Processing Industries

## Applications



## Features

- No moving parts, no pressure loss and require very less maintenance.
- More economical option for large pipelines flow measurement.
- It can achieve hot-tapping online installation.
- Simple structure, light weight and easy to transport.
- Bi-directional flow measurement.
- Automatic self-diagnosis.
- Protection Class: IP68 (sensor submersible) available.

## Technical Data

<b>Size</b>	DN100-DN3000 (4"-120" )
<b>Accuracy</b>	±1.5% of reading at flow velocity ≥ 0.5m/s
<b>Velocity</b>	0.1~15 m/s
<b>Repeatability</b>	≤0.17%
<b>Structure</b>	Compact / remote, cable length 10m standard, 100m max
<b>Conductivity</b>	> 5 μS/cm, demineralized water > 20 μS/cm
<b>Protection Grade</b>	Transmitter: IP65 standard, IP67 optional
<b>Electrode</b>	SS316L, Hastelloy C, Hastelloy B, Titanium, Tantalum, Platinoidium
<b>Power Supply</b>	85~250 VAC (50/60 Hz), 8~36 VDC
<b>Power Consumption</b>	<20W
<b>Signal Output</b>	Analog: 4~20mA ( load resistor 0~750Ω)
	Frequency: Forward & reverse flow output with a frequency range of 1~5000Hz
	Alarm: Two isolated open collector transistor (OCT) outputs for alarm signals
<b>Communication</b>	RS485 MODBUS standard, HART, GPRS, PROFIBUS optional
<b>Display</b>	LCD Display, 128X128mm, three lines, 4 buttons
<b>Ambient Temperature</b>	-20°C~60°C
<b>Fluid Temperature</b>	-20°C~80°C
<b>Process connection</b>	G2" thread ball valve
	DN50 flange ball valve
<b>Sensor material</b>	Probe material: ABS standard, Polypropylene optional
	DN50 flange ball valve
	Valve: SS316
<b>Transmitter Material</b>	Aluminium alloy with epoxy painting
<b>Nominal Pressure</b>	1.6 Mpa
<b>Display</b>	Instantaneous flow, total flow, flow velocity
<b>Function</b>	High and low alarm, empty pipe alarm, exciting alarm, self-diagnosis
<b>Totalizer</b>	Three built-in totalizers: forward flow, reverse flow and net flow
<b>Display Unit</b>	L/s, L/m, L/h, m <sup>3</sup> /s, m <sup>3</sup> /m, m <sup>3</sup> /h, UKG, USG, gal/s, gal/m, gal/h, kg/s, kg/m, kg/h, t/s, t/m, t/h
<b>Language</b>	English, Chinese, Italian, Portuguese, French, Spanish, Korean
<b>Sensor</b>	IP65 standard, IP68 (submersible, only available for remote type)

## Type



Compact Insertion Magnetic Flow Meter with Thread Ball Valve



Remote Insertion Magnetic Flow Meter with Thread Ball Valve

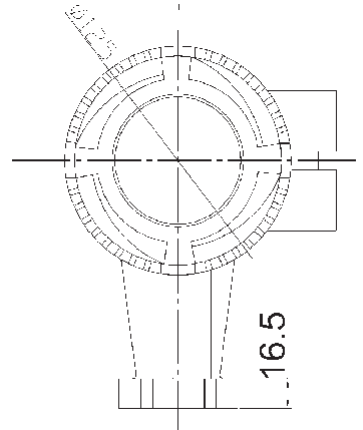
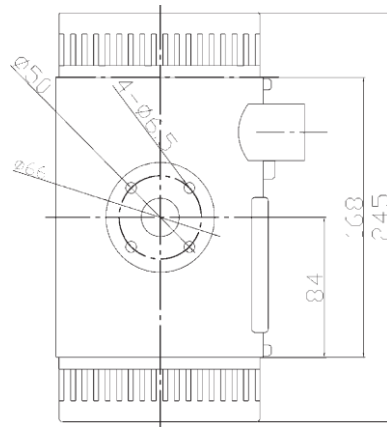


Compact Insertion Magnetic Flow Meter with Flange Ball Valve

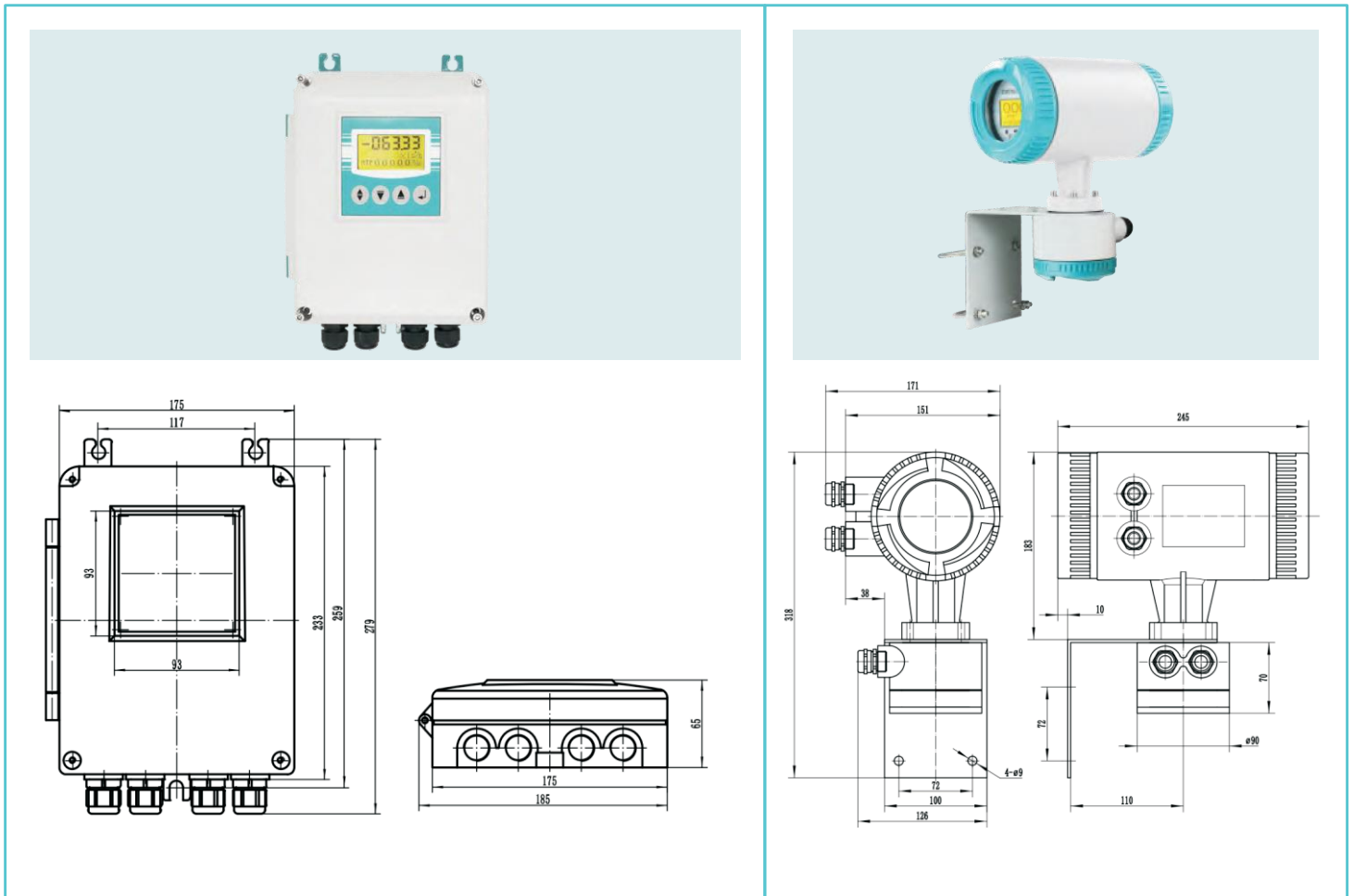


Remote Insertion Magnetic Flow Meter with Flange Ball Valve

# Transmitter Drawing



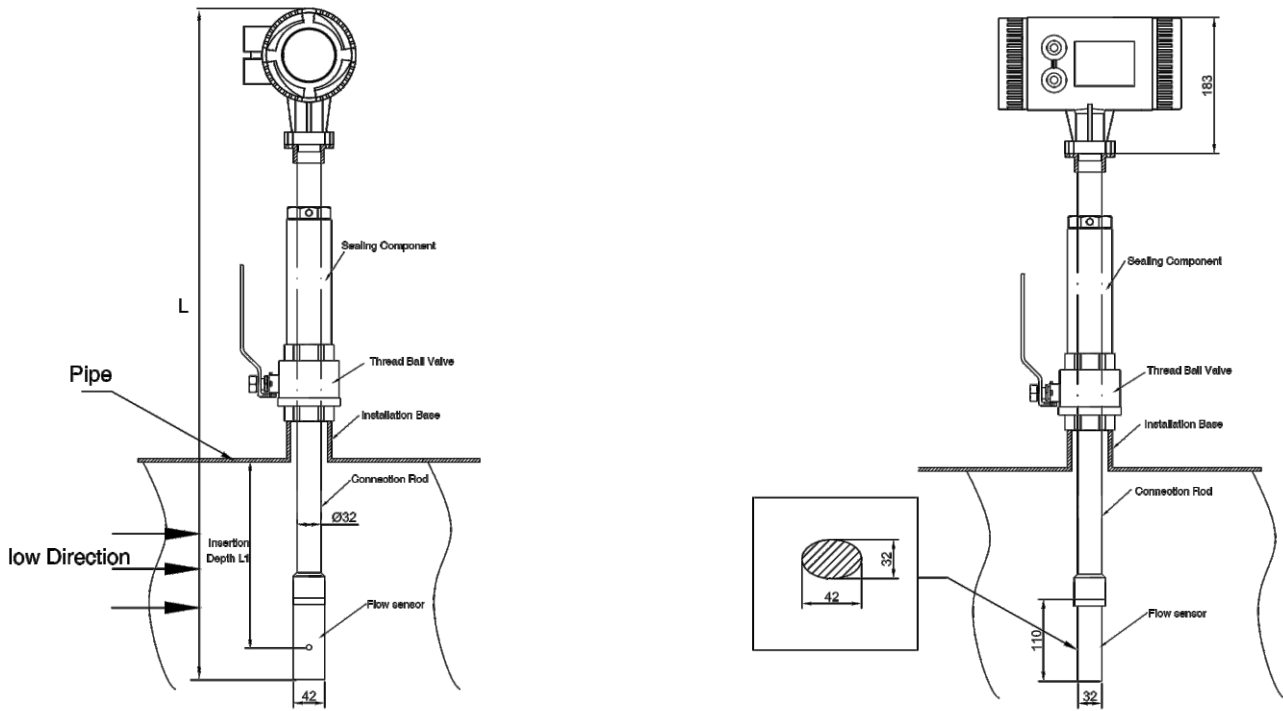
Compact Transmitter



Remote Transmitter

## Dimension

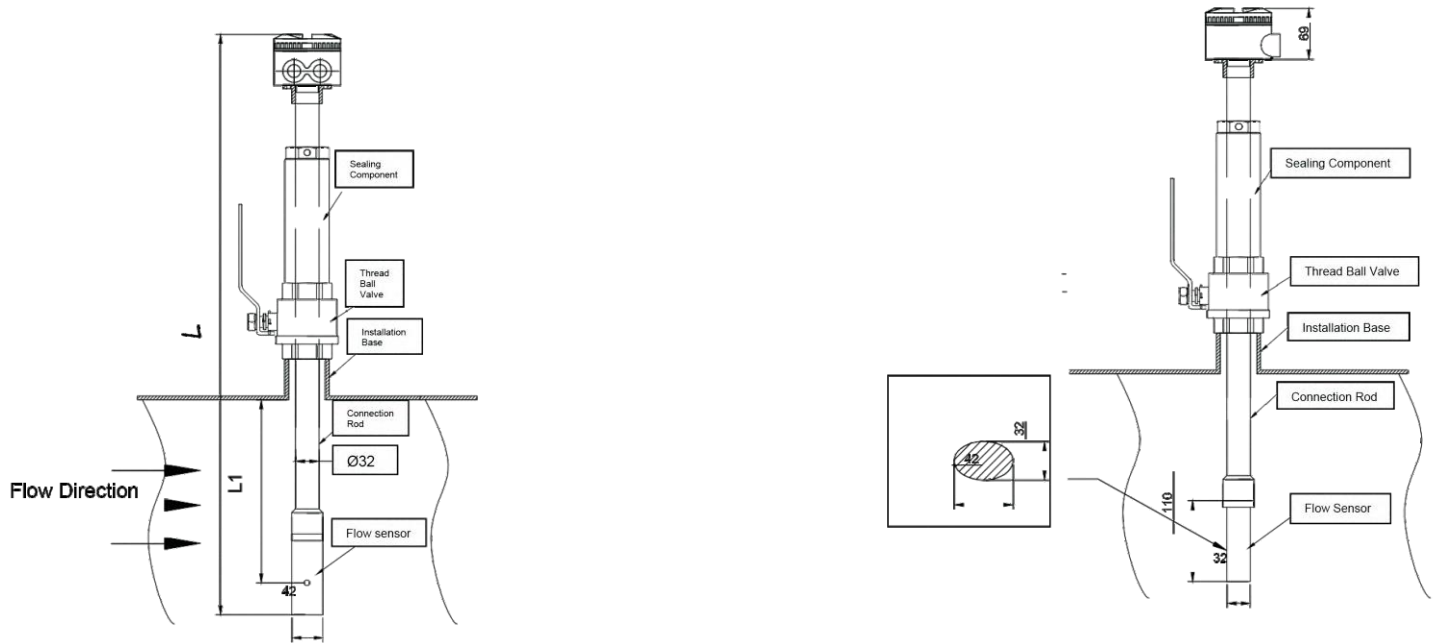
Pipe Size	Length(L)	insertion Length L1
DN ≤ 200	693mm	1/2 DN
400 ≥ DN ≥ 250	793mm	
1200 ≥ DN > 400	893mm	1/4 DN
2000 ≥ DN > 1400	1093mm	



4"-80" Thread Ball Valve Insertion Electromagnetic Flow Meter Drawing (Compact)

## Dimension

Pipe Size	Length(L)	insertion Length L1
DN ≤ 200	583mm	1/2 DN
400 ≥ DN ≥ 250	683mm	
1200 ≥ DN > 400	783mm	1/4 DN
2000 ≥ DN > 1400	983mm	

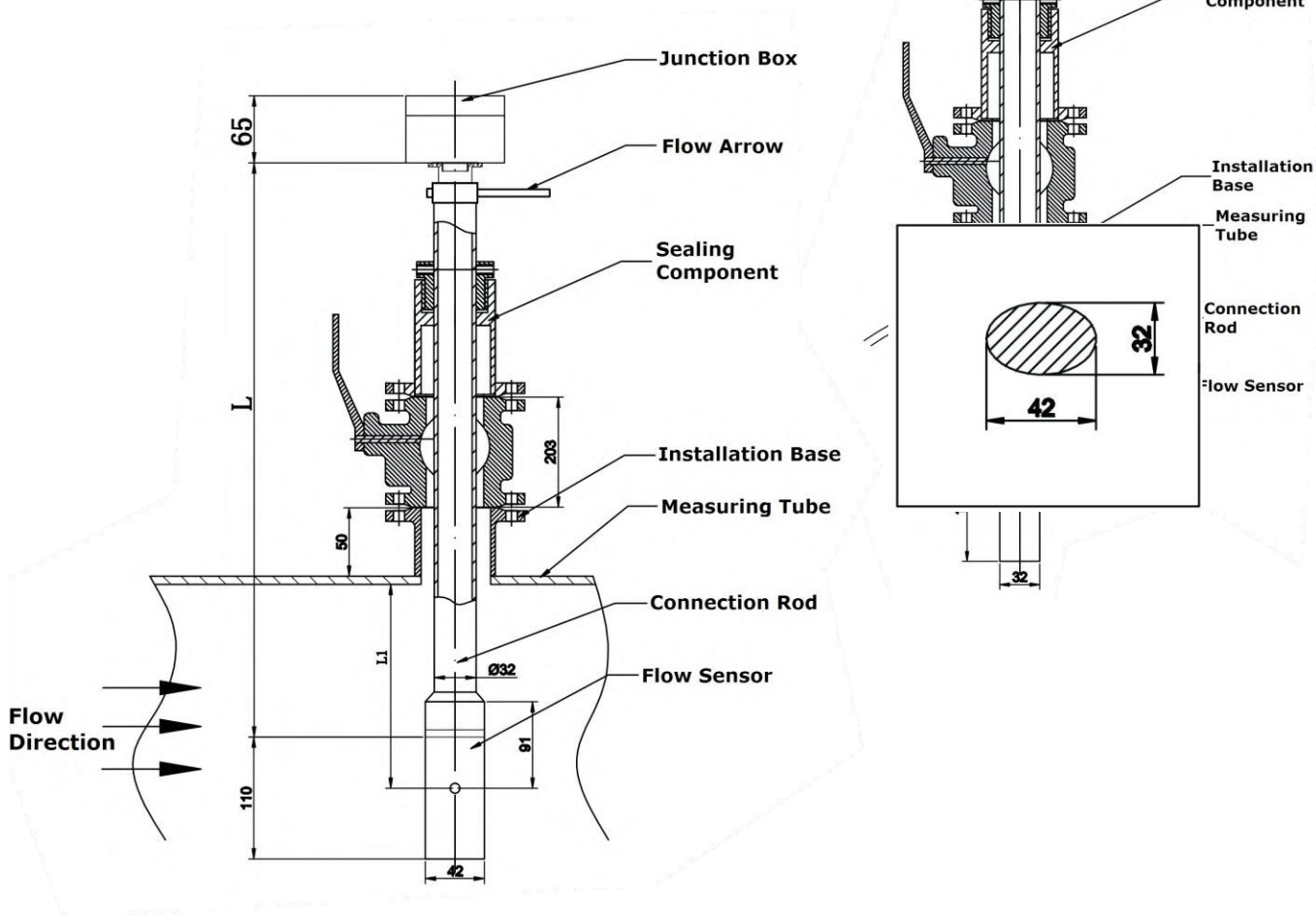


4"-80" Thread Ball Valve Insertion Electromagnetic Flow Meter Drawing (Remote)



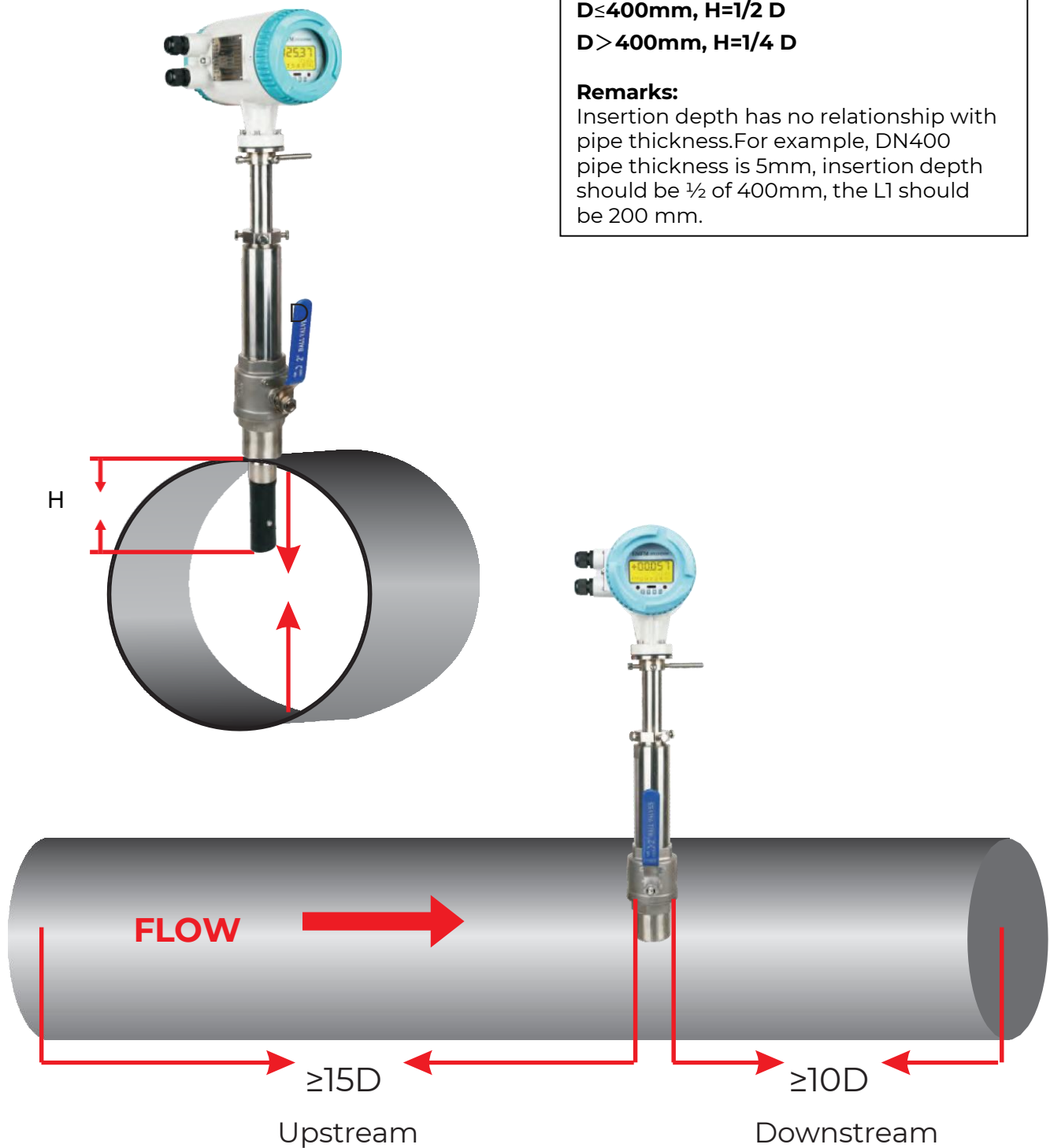
## Dimension

Pipe Size	Length(L)	Insertion Length L1
DN≤200	480mm	1 DN 2
400≥DN 250≥	580mm	
1200 ≥ DN > 400	680mm	1 DN 4
2000 ≥ DN > 1400	880mm	



4"-80" Flange Ball Valve Insertion Electromagnetic Flow Meter Drawing (Compact)

## Insertion Electromagnetic Flow Meter



## Selection Table

TMAG 401-IN-		X	X	X	X	X	X	X	X	X
Caliber size	DN100-DN3000/4"-120"									
Structure	Compact		1							
	Remote		2							
	Compact with explosion proof		3							
	Remote with explosion proof		4							
Probe	ABS		1							
	Polyurethane		2							
Electrode Material	SS316L			1						
	Hastelloy B			2						
	Hastelloy C			3						
	Others			4						
Power Supply	20~36 VDC						G			
	85~265 VAC						E			
	9~36 VDC solar power						SD			
	Others						X			
Signal Output /Communication	4~20 mA + Pulse + RS485 MODBUS							A		
	4~20 mA + HART							B		
	4~20 mA + Profibus							C		
	GPRS							D		
Protection Grade	IP65 Transmitter + IP65 sensor								1	
	IP65 Transmitter + IP68 sensor (remote)								2	
Transmitter	Square									A
	Round									B
Insertion	G2" thread ball valve									1
	DN50 flange ball valve									2

# Flow Range Table

Size		Flow Range & Velocity Table							
mm	Inch	0.1 m/s	0.2 m/s	0.5 m/s	1 m/s	4 m/s	10 m/s	12 m/s	15 m/s
<b>DN3</b>	1/8"	0.003	0.005	0.013	0.025	0.102	0.254	0.305	0.382
<b>DN6</b>	1/4"	0.01	0.02	0.051	0.102	0.407	1.017	1.221	1.526
<b>DN10</b>	3/8"	0.028	0.057	0.141	0.283	1.13	2.826	3.391	4.239
<b>DN15</b>	1/2"	0.064	0.127	0.318	0.636	2.543	6.359	7.63	9.538
<b>DN20</b>	3/4"	0.113	0.226	0.565	1.13	4.522	11.304	13.56	16.956
<b>DN25</b>	1"	0.177	0.353	0.883	1.766	7.065	17.663	21.2	26.494
<b>DN32</b>	1¼"	0.289	0.579	1.447	2.894	11.575	28.938	34.73	43.407
<b>DN40</b>	1½"	0.452	0.904	2.261	4.522	18.086	45.216	54.26	67.824
<b>DN50</b>	2"	0.707	1.413	3.533	7.065	28.26	70.65	84.78	105.98
<b>DN65</b>	2½"	1.19	2.39	5.97	11.94	47.76	119.4	143.3	179.1
<b>DN80</b>	3"	1.81	3.62	9.04	18.09	72.35	180.86	217	271.3
<b>DN100</b>	4"	2.83	5.65	14.13	28.26	113.04	282.6	339.1	423.9
<b>DN125</b>	5"	4.42	8.83	22.08	44.16	176.63	441.56	529.9	662.34
<b>DN150</b>	6"	6.36	12.72	31.79	63.59	254.34	635.85	763	953.78
<b>DN200</b>	8"	11.3	22.61	56.52	113.04	452.16	1130.4	1356	1696
<b>DN250</b>	10"	17.66	35.33	88.31	176.53	706.5	1766.25	2120	2649
<b>DN300</b>	12"	25.43	50.87	127.2	254.34	1017	2543.4	3052	3815
<b>DN350</b>	14"	34.62	69.24	1731	3461.9	1385	3461.85	4154	5193
<b>DN400</b>	16"	45	90	2261	452	1809	4522	5426	6782
<b>DN450</b>	18"	57	114	2861	572	2289	5723	6867	8584
<b>DN500</b>	20"	71	141	3533	707	2826	7065	8478	10598
<b>DN600</b>	24"	102	203	5087	1017	4069	10174	12208	15260
<b>DN700</b>	28"	138	277	6924	1385	5539	13847	16617	20771
<b>DN800</b>	32"	181	362	9043	1809	7235	18086	21704	27130
<b>DN900</b>	36"	229	458	1145	2289	9156	22891	27469	34336
<b>DN1000</b>	40"	283	565	1413	2826	11304	28260	33912	42390
<b>DN1200</b>	48"	407	814	2035	4069	16278	40694	48833	61042
<b>DN1400</b>	56"	554	1108	2769	5539	22156	55390	66468	83084
<b>DN1600</b>	64"	723	1447	3617	7235	28938	72346	86815	108518
<b>DN1800</b>	72"	916	1831	4578	9156	36625	91562	109875	137344
<b>DN2000</b>	80"	1130	2261	5652	11304	45216	113040	135648	169560
<b>DN2200</b>	88"	1368	2736	6839	13678	54711	136778	164134	205168
<b>DN2400</b>	96"	1628	3256	8139	16278	65111	162778	195333	244166
<b>DN2600</b>	104"	1910	3821	9552	19104	76415	191038	229245	286556
<b>DN2800</b>	112"	2216	4431	11078	22156	88623	221558	265870	332338
<b>DN3000</b>	120"	2543	5087	12717	25434	101736	254340	305208	381510

**Remark: Recommend flow velocity range 0.5~15 m/s**