

Meter Dimensions (mm)

DN (mm)	A	B	C
10, 15, 20	134	78	200
25	112	110	200
32	121	100	200
40	131	105	200
50	156	99	200
65	181	92	200
80	194	89	200
100	232	135	250
125	258	135	250
150	283	170	300
200	347	205	350
250	410	240	400
300	486	290	500
350	539	290	550

Note:

- All dimensions are in mm
- Dimensions are with ANSI B 16.5, class 150 flanges, with terminal box

•Production standard flanges:

ANSI B 16.5, class150 upto DN350

ORDERING INFORMATION

Sample code explained: DN25-PTFE-SS316L-ANSI 150-CS-SS304-SR1000A-1D-1L-RS4-RMT-2

<b>DN 25</b>	<b>Flow Meter Size</b>	DN 10 : 3/8" DN 80 : 3"
		DN 15 : 1/2" DN 100 : 4"
		DN 20 : 3/4" DN 125 : 5"
		DN 25 : 1" DN 150 : 6"
		DN 32 : 1 1/4" DN 200 : 8"
		DN 40 : 1 1/2" DN 250 : 10"
		DN 50 : 2" DN 300 : 12"
		DN 65 : 2 1/2" DN 350 :
<b>PTFE</b>	<b>Liner Material</b>	PTFE : PTFE
		Neoprene : NE
		Soft Rubber : SR
		Hard Rubber : HR
		PFA : PFA
		Any Other : ZZ
<b>SS316L</b>	<b>Electrode Material</b>	SS316 : SS316
		SS316L : SS316L
		Hastelloy B : HAST B
		Hastelloy C 276 : HAST C 276
		Tantalum : TAN
		Titanium : TIT
		Any Other : ZZ
<b>ANSI 150</b>	<b>Flange / End Connection Standards</b>	DIN : DIN
		ANSI 150 : ANSI 150
		AS 4087 : AS 4087
		Any Other : ZZ
<b>MS/CS</b>	<b>Flange / End Connection Material</b>	Mild/Carbon Steel : MS/CS
		Stainless Steel 304 : SS304
		Stainless Steel 316 : SS316
		Stainless Steel 316L : SS316L
<b>SS304</b>	<b>Body Material</b>	Mild / Carbon Steel : MS/CS
		Stainless Steel 304 : SS304
		Stainless Steel 316 : SS316
		Stainless Steel 316L : SS316L
<b>SR1000A</b>	<b>Transmitter Type</b>	SROAT 1000A : SR1000A
		SROAT 1000AP : SR1000AP
<b>1D</b>	<b>Display</b>	Blind : B
		Indication Display : 1D
		Indication & Totalization : 2D
<b>1L</b>	<b>Logging</b>	Normal Logging : 1L
		Extended Logging : 2L
		No Logging : 0L
<b>RS4</b>	<b>Communication Facility</b>	No Communication : NA
		RS 232 : RS2
		RS 485 : RS4
<b>RMT</b>	<b>Transmitter Mounting</b>	Integral : INT
		Remote : RMT
		Remote 2 : Pipe Mounting - RMT P
<b>2</b>	<b>Power Supply</b>	110 V AC $\pm$ 10%, 50 Hz : 1
		230 V AC $\pm$ 10%, 50 Hz : 2
		24 V DC : 3
		85-265 V AC, 50 Hz : U
		Any Other : Z

Due to continuous development specifications are subject to change without prior notice.



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We are certified with:

ISO/IEC 17025:2017 | ISO 9001:2015 | ISO 14001:2015 | OHSAS 45001:2018



Fc-FBE-05\_1 | EMF-1

WE MEASURE FLOW



MAGMETER  
SROAT 1000

We are certified with

ISO/IEC 17025:2017 | ISO 9001:2015  
ISO 14001:2015 | OHSAS 45001:2018





# ELECTROMAGNETIC FLOW METER SROAT - 1000

## INTRODUCTION

The Manas Make electromagnetic flow meter called as SROAT-1000 virtually approaches the ideal flow meter suitable for wide range of liquid flow measurements even with very low conductivities. The meter offers no resistance to flow hence the pressure drop is almost negligible. The measurement being based on Faraday's law of

electromagnetic induction, is independent of viscosity, density, pressure and temperature of flowing medium. The measurement is not affected by solid impurities as long as the min. conductivity of  $5\mu\text{S}/\text{cm}$  is available. It is a true volumetric flow measurement. We offer various materials of construction for meter lining and electrodes to cover majority of corrosive liquids.

The technique called as "Pulsed DC" is used which offers very high zero stability and accuracy of measurement. The standard current output of 4-20 mA DC is provided which is linearly proportional to volumetric flow rate.

## PRINCIPLE OF OPERATION

The method of flow measurement is based on Faraday's law of electromagnetic induction. When a conductor moves within a magnetic field, voltage is induced in it which is proportional to the velocity of conductor.

In this case the conductor is flowing media. The equation is as below.

$$E = B.v.d.$$

where,

E = Induced voltage [proportional to velocity]

B = Magnetic flux density

v = Mean velocity of the media

d = Distance between the sensing electrodes

For a given size of flow tube and compatible amplifier the flux density 'B' is constant, the distance between the electrodes is constant. Hence, the induced voltage is proportional to the velocity of the flowing media. Thus, the unit can be calibrated in terms of volumetric flow rate by knowing the cross-sectional area of the Tube.

## PRINCIPAL ADVANTAGES

- Use of pulsed DC magnetization and auto zero technique offers excellent long term zero stability
- Measurement is independent of velocity profile across the diameter of the pipe-line
- Measurement results are independent of density, viscosity, pressure, temperature, solid - impurities and conductivity variations [above  $5\mu\text{S}/\text{cm}$ ]
- No additional pressure drop across the meter which relieves the process designer while sizing his pumping requirements. Simple to install as no special precautions of straight pipe lengths required
- Compatible with virtually all corrosive / non-corrosive liquids
- Protection class offered IP 68 for flow sensor, IP 67 for transmitter
- Reasonably higher ratio of Return on Investment to Investment

## APPLICATIONS

This meter is more suitable with those fluids which present difficulties in handling. Fluids such as effluents, slurries, pulps, brines and other highly corrosive liquids, acids and bases, fermenter- wash, molasses etc.

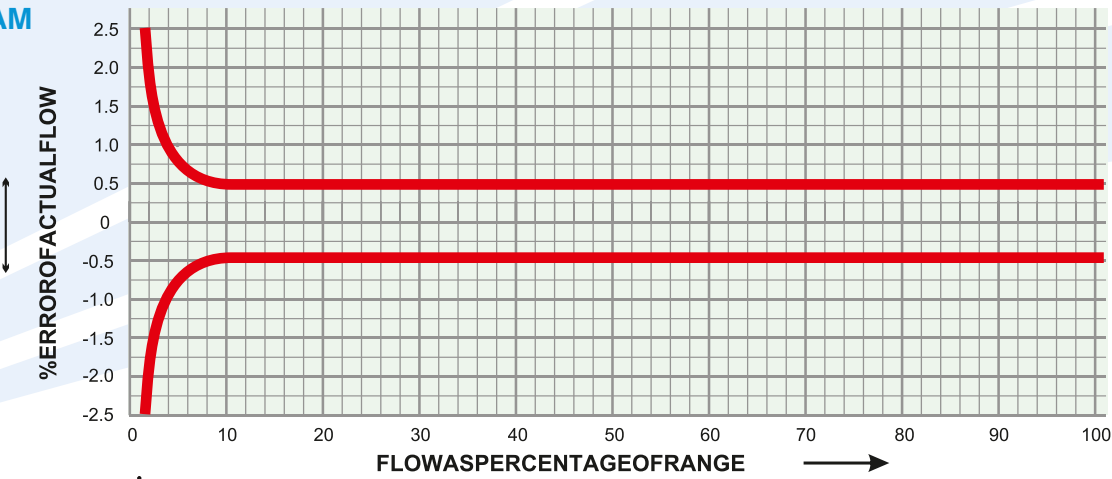
Following industries can find lot of application of this flow measurement technique.

- Effluent Treatment Plants
- Sewage Treatment Plants
- Water Supply Schemes
- Steel and Aluminium
- Sugar Industries and Distilleries
- Pulp and Paper
- Chemical / Pharmaceutical
- Petrochemicals / Fertilizers
- Food and Drugs

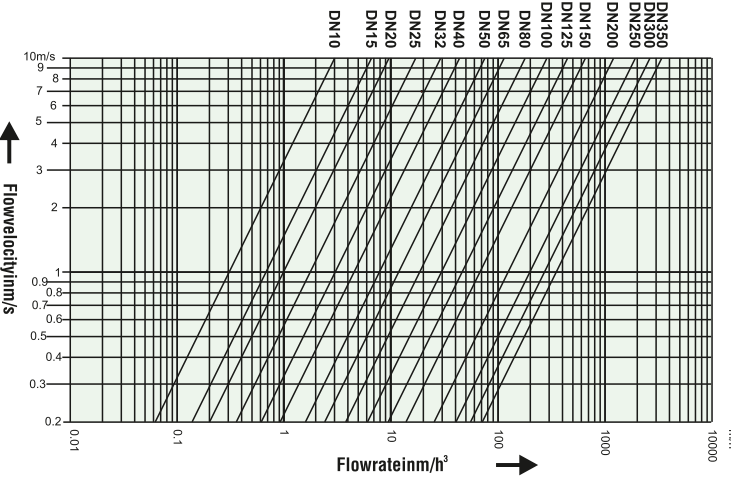
## FLOW RATE TABLE (Flow rate at $v = 1\text{ m/s}$ )

DN	M3/Hr.	LPM	LPS
10	0.282	4.712	0.078
15	0.636	10.602	0.176
20	1.130	18.849	0.314
25	1.767	29.452	0.490
32	2.895	48.254	0.804
40	4.523	75.398	1.256
50	7.068	117.809	1.963
65	11.945	199.098	3.318
80	18.095	301.592	5.026
100	28.274	471.238	7.853
125	44.178	736.310	12.271
150	63.617	1060.287	17.671
200	113.097	1884.955	31.415
250	176.714	2945.243	49.087
300	254.469	4241.150	70.685
350	346.356	5772.608	96.210

## ERROR DIAGRAM



## FLOW NOMOGRAPH



## SPECIFICATIONS\*

### METERING TUBE: SROAT 1000

Meter Size : DN 10 to DN 350  
for higher sizes consult factory

Media Pressure : Up to DN 80- PN 40

From DN 100 to DN 200 - PN 16  
DN 250 to DN 350 - PN 10

Media Temperature : PFA Liner: 0 - 200°C max.  
PTFE Liner: 0 - 150°C max.  
Rubber Liner: 0 - 90°C max.

Ambient Temperature Range : 0 - 50°C

Materials : Pipe : SS 304 (non-magnetic)

Electrode : SS 316/SS316L/Hastelloy C/Ta/Ti

Liner : PTFE/Neoprene/Soft Rubber/  
Hard Rubber/PFA

Flanges : CS/SS 316/SS 316L/SS 304

Body Material : Carbon Steel, P.U. painted/  
SS 304/SS316

Flange Standard : ANSI/DIN/BS/SMS/Triclamp

Power Supply to field coils : Pulsed DC

Ingress Protection : For Integral : IP 67

## TRANSMITTER SROAT 1000 A

Mounting : Integral mounted (on request)  
Remote mounted (standard)

Min. Media Conductivity :  $5\mu\text{S}/\text{cm}$  (for lower conductivities consult factory)

Signal Output : 4-20 mA dc isolated in max.  
Additional Option : 600 ohms  
Pulsed output with adjustable

count rate from 1 count / Hr to  $10^5$  counts/Hr. (open collector with 100mA/24 V dc capacity)

Local Display : a) 3 1/2 digit LCD calibrated in % or in engineering units for flow rate indication  
b) 8-digit LCD non resettable type for totalized quantity

Flow Velocity Range : 0.1 m/s to 10 m/s

Accuracy :  $\pm 0.5\%$  of reading (at ref. conditions) between 100% to 10% of calibrated range  
 $\pm 0.75\%$  of reading for flow rate between 10% to 5% (Refer accuracy graph)

Ref Conditions : Power supply nominal Temperature  $27^\circ\text{C} \pm 2^\circ\text{C}$

Repeatability :  $\pm 0.2\%$  of reading

Ambient Temperature : 0 - 50°C

Temperature Drift :  $\pm 0.015\%$  per  $^\circ\text{C}$  max.

Humidity : 90% R.H. max. non condensing

Material of Housing : Al. Die cast

Power Supply : 230V ac/110V ac, 50Hz/24V dc

Damping : Adjustable from 5 to 30 secs.

Cable Entries : 4 no. For Remote Amplifier  
2 no For Integral Amplifier  
PG11 1/2" NPT/1/2" BSP/(Female)

## ADDITIONAL FEATURES IN SR1001AP

Communication Port : RS 485 (standard)  
RS 232 (on request)

Data Logging : Available