



# EUREKA

ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 17025:2017: NABL Certified Company

## METAL TUBE ROTAMETER

Designed To Measure Flowrate Of Liquids & Gases Under Critical Conditions

**HART**  
COMMUNICATION PROTOCOL



**EUREKA  
INDUSTRIAL  
EQUIPMENTS  
PVT. LTD.**

REGD. & SALES OFFICE : 17-20, 1st Floor, Royal Chambers, Paud Road, Pune - 411 038, Maharashtra, India.

■ Tel: 0091-20-25443079,25461315 ■ sales@eurekaflow.com

FACTORY : 501, 'J' Block, M.I.D.C., Pimpri, Pune - 411018.

■ Email: works@eurekaflow.com

MUMBAI OFFICE : Office No.116, Growmore Tower, 1stFloor, Plot No.5, Sector No.2, Kharghar, Navi Mumbai - 410 210

[www.eurekaflow.com](http://www.eurekaflow.com)

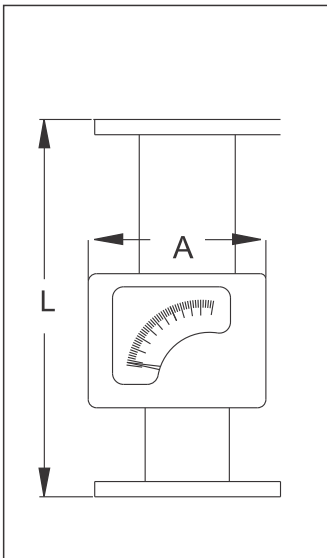
MT series Rotameters are all Metal Variable Area Type Flow to measure flow rate of liquids and gases under critical conditions . It consists of a tapered metal tube , an indicating assembly and float . A magnet encapsulated in float couples with rotating magnets connected to an indicating pointer as show in fig . Thus the movement of the float , is flowrate .

## ENGINEERING SPECIFICATIONS

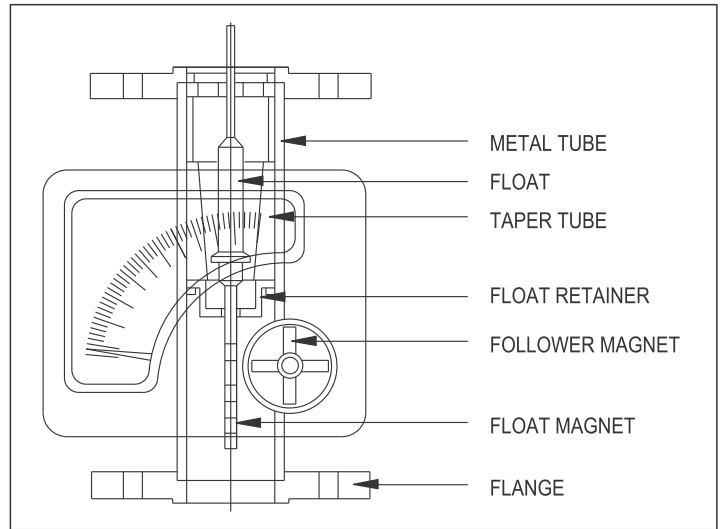
Rangeability	: 10 : 1
Accuracy	: +/-2% of Full Flow, Class 1.6 . Better Accuracy on request.
Repeatability	: 0.5%
Scale Length	: 90° Angular
Pressure Rating	: 40 Bar, 250 Bar (Optional)
Allowable Fluid Temp.	: -20° To 250° C
Connection	: Flanged, Threaded, Sanitary Fitting
Material Of Construction	: SS316, SS316L, SS304, Hastelloy C, Titanium
Indicator Box	: ABS, PC, Cast Al, SS (Optional)
Protection Class	: IP-65 ,IP-66 & other Protection on request (For MT Model enclosure Exproof II A and IIB/IIC as per requirement), CCOE certificate for IIC Box.
Certification	: ATEX, CE



## DIMENSIONS ALL DIMENSIONS ARE IN mm. UNLESS OTHERWISE SPECIFIED



Model	L
MTS 1 to 18	250
MTS 19 to 21	350
MT-1 to 15	350
MT-16 to 22	400
MT-23	450



## CAPACITY TABLE

Water at Amb. Temp.							Air at Amb. Temp. 760 Torr ABS				Pressure Drop mm WG
Line size	Model No.		LPH		USGPM		nm <sup>3</sup> /hr		SCFM		
			Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	
3/4"	MT-1	MTS-1	16	160	0.07	0.7	0.45	4.50	0.28	2.80	1200
	MT-2	MTS-2	25	250	0.1	1	0.75	7.5	0.475	4.75	
	MT-3	MTS-3	40	400	0.17	1.7	1.2	12	0.76	7.60	
	MT-4	MTS-4	60	600	0.26	2.6	1.2	12	0.76	7.6	
1"	MT-5	MTS-5	100	1000	0.44	4.4	3	30	1.90	19.00	1000
	MT-6	MTS-6	120	1200	0.53	5.3	3.5	35	2.20	22.00	
	MT-7	MTS-7	160	1600	0.7	7	4.5	45	2.80	28.00	
	MT-8	MTS-8	280	2800	1.25	12.5	8	80	5.00	50.00	
	MT-9	...	500	5000	2.2	22	14	140	8.80	88.00	
1.5"	...	MTS-9	500	5000	2.2	22	14	140	8.80	88.00	1000
	MT-10	MTS-10	550	5500	2.5	25	16	160	10.00	100.00	
	MT-11	MTS-11	750	7500	3.3	33	20	200	12.50	125.00	
	MT-12	MTS-12	1000	10000	4.4	44	30	300	19.00	190.00	
2"	MT-13	MTS-13	1250	12500	5.5	55	36	360	23.00	230.00	1000
	MT-14	MTS-14	1600	16000	7	70	46	460	36.00	360.00	
	MT-15	MTS-15	2000	20000	8.8	88	57.5	575	36.00	360.00	
3"	MT-16	MTS-16	2000	20000	8.8	88	57.5	575	36.00	360.00	1000
	MT-17	MTS-17	2500	25000	11	110	70	700	44.00	440.00	
	MT-18	MTS-18	3000	30000	13.3	133	86	860	54.00	540.00	
	MT-19	-	4000	40000	17.5	175	115	1150	72.00	720.00	
	-	MTS-19	4000	40000	17.5	175	115	1150	72.00	720.00	
4"	MT-20	MTS-20	5000	50000	22	220	145	1450	91.50	915.00	1200
	MT-21	MTS-21	6000	60000	26.6	266	-	-	-	-	
	MT-22	-	8000	80000	35	350	-	-	-	-	
6"	MT-23	-	10000	100000	44	440	-	-	-	-	2000

## Accessories

- 1) Electronic Transmitter with 4-20mA O/P (HART)  
Contact Factory for Foundation Field bus.
- 2) Digital Flowrate Indicator Totaliser
- 3) Minimum or Maximum Flow Switch

MTF " series Rotameter is a precision flowrate measuring instrument . For details refer to fig.B. A float ( 2 ) is free to move up & down in a orifice ( 1 ) . Fluid flow causes the float to take up a position in which the buoyancy forces & the weight are balanced . The vertical position of the float is a measure of the instantaneous flowrate . The scale can be calibrated in mass or volume flow units . The coupling magnet into float ( 2 ) transmits float position to the follower magnet ( 4 ) which is attached to the indicating assembly in the indicator box . Thus the pointer moves with the position of the float .

**CAPACITY TABLE (PTFE FLOAT) WATER AT AMBIENT TEMP**

Line Size	Model NO	LPH		USGPM		Pressure Drop mmWG
		Mini	Max	Mini	Max	
3/4"	MTF-2	30	150	0.13	0.65	1000
	MTF-3	30	300	0.13	1.3	1000
	MTF-4	40	400	0.175	1.75	1000
1"	MTF-5	80	800	0.35	3.5	1000
	MTF-6	120	1200	0.525	5.25	1000
	MTF-7	140	1400	0.615	6.15	1000
	MTF-8	165	1650	0.725	7.25	1000
	MTF-9	250	2500	1.1	11	1000
1.5"	MTF-10	300	3000	1.3	13	1000
	MTF-11	400	4000	1.75	17.5	1000
	MTF-12	500	5000	2.2	22	1000
2"	MTF-13	600	6000	2.65	26.5	1000
	MTF-14	1000	10000	4.4	44	1000
3"	MTF-16	1600	16000	7	70	1000
	MTF-17	2000	20000	8.8	88	1000
	MTF-18	2500	25000	11	110	1000



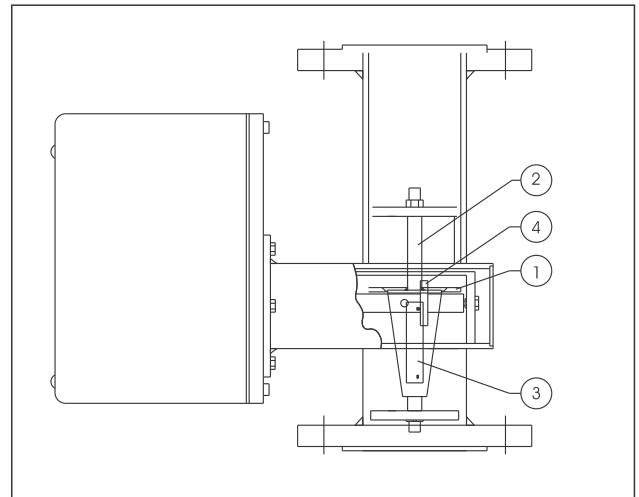
## Accessories

- 1) Electronic Transmitter with 4-20 mA O/P (HART)
- 2) Digital Flowrate Indicator Totaliser
- 3) Minimum or Maximum Flow Switch

## ENGINEERING SPECIFICATIONS

Rangeability	10 : 1
Accuracy	±2 % Of Full Flow
Repeatability	0.5%
Scale length	90 Degrees Angular
Max. pressure rating	20 Bar
Allowable Fluid Temp.	-20° to 100°
Connection	Process flanges machined as per customer's requirement.

Material of construction	SS316 PTFE LINED
Indicator box	ABS, CAST AL
Protection class	IP-65 Against Request.



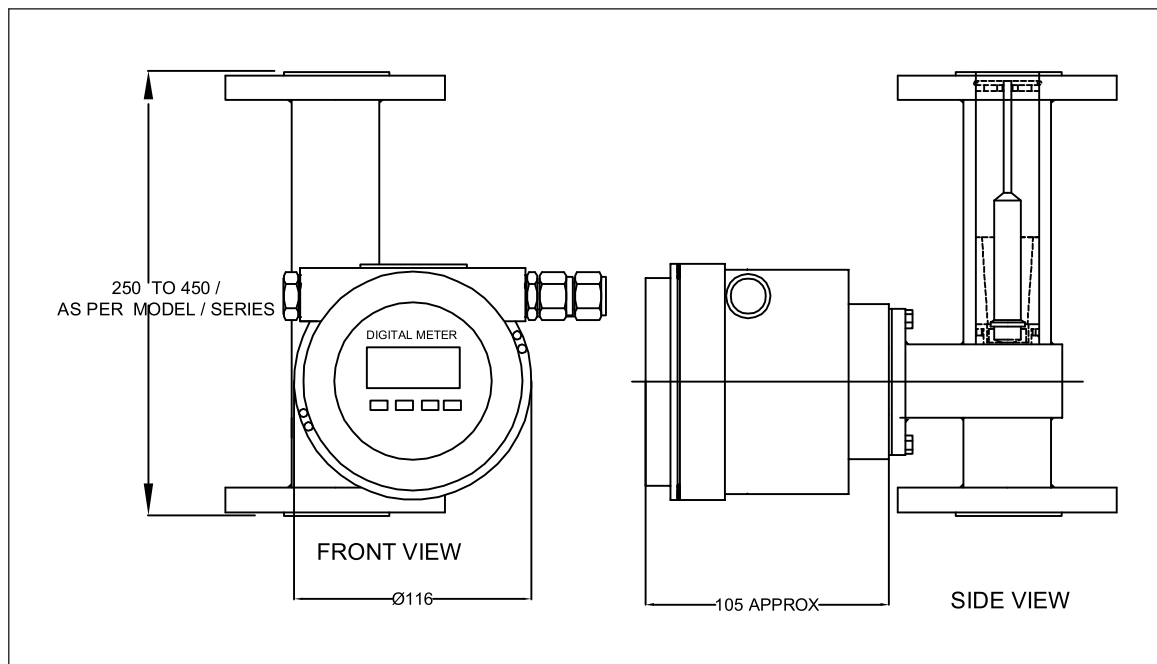
“DMTS series Digital Metal tube Rotameter is all Digital design and eliminates analogue pointer assembly. It has a sophisticated PCB with LCD Display. It offers local display for flow rate and totalised flow. It also has a 2 wire transmitter and set points for high and low flow. HART communication is available as an option . The Enclosure is available for EX and Non Ex application. It is a versatile instrument offering all features in a compact module.”

## ENGINEERING SPECIFICATIONS

Rangeability	: 1:10
Accuracy	: $\pm 2\%FS$ (Higher Accuracy on Request)
Repeatability	: 0.5%
Pressure Rating	: 40 bar (Higher Pressure Rating on Request)
Allowed Fluid Temp	: 10 to +100° C
Connection	: Flanged/Threaded
Line Sizes	: 3/4" to 4"
Enclosure	: Ex proof suitable for Gr IIC / Non Ex proof (*Ex d t6 for gas group IIC EPL Gb and Db)
Display	: Two line LCD Display for Instantaneous Flow rate & Totaliser Flow Full Function keypad for programming
Output	: 4-20 mA(2 wire), HART communication available against request
Supply	: 24V DC loop powered Three wire mode available to accommodate set point contacts
Set points	: Two Nos. High / Low ( Type : Open collector for Non Ex version and NAMUR for Ex version) (Possible with three wire mode only)



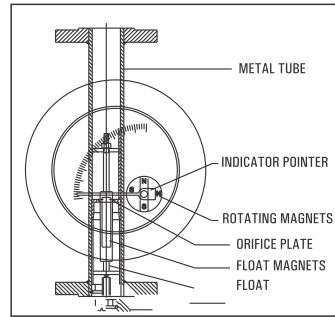
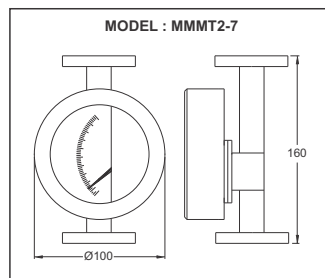
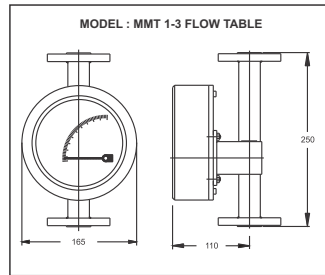
Dimensions and Ranges as per MTS series



"MMT/MMMT" series Rotameter is a precision low flowrate measuring instrument. It consists of a special miniature orifice plate, tapered float, and an indicating assembly. A magnet encapsulated in float couples with rotating magnets connected to an indicator pointer as shown in fig.C. Thus the movement of the float is accurately indicated in terms of flowrate.

## ENGINEERING SPECIFICATIONS

Application	: Liquid
Rangeability	: 10 : 1
Accuracy	: +/- 5% of Full Flow
Repeatability	: 1.5%
Float Travel	: 40 mm
Scale Length	: 90° Angular
Pressure Rating	: 40 Bar
Allowable Fluid Temp	: -10° To 100°C
Viscosity	: ≤ 3 CP
Connection	: Process flanges machined as per customer's requirement
Material Of Construction	: AISI 316, AISI 304
Indicator Box	: Aluminium
Protection Class	: IP-65 on request.

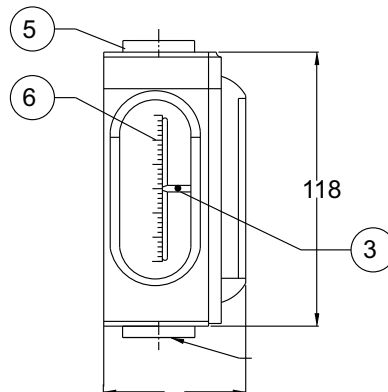
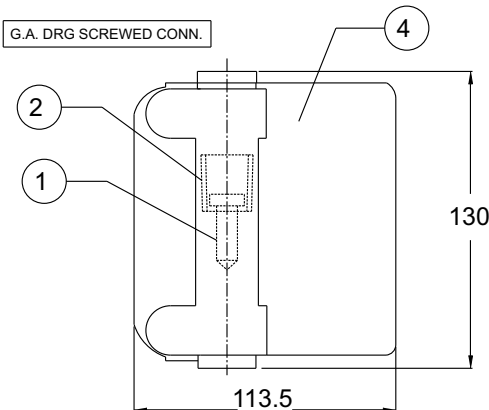


## CAPACITY TABLE

Model No.	Water at Abm. Temp		Precise Drop mm WG
	FLOW RANGE		
	LPH	USGPM	1000 Approx.
MMT-1	3 - 30	0.014 - 0.14	
MMT-2	5 - 50	0.022 - 0.22	
MMT-3	10 - 100	0.044 - 0.44	
MMMT-2	1 - 10	0.0044 - 0.044	
MMMT-3	1.6 - 16	0.0070 - 0.070	
MMMT-4	2.5 - 25	0.011 - 0.11	
MMMT-5	3 - 30	0.014 - 0.14	
MMMT-6	5 - 50	0.022 - 0.22	
MMMT-7	10 - 100	0.044 - 0.44	

## Accessories (FOR MMT 1-3) / MMMT 2-7

- 1) Electronic transmitter with 4-20 mA O/P
- 2) Digital Flowrate Indicator Totaliser
- 3) Flow Switch
- 4) DP Regulator



SR.NO.	PART NAME
1	FLOAT
2	MEASURING CONE
3	POINTER
4	INDICATOR BOX
5	THREADED MAIN BODY
6	SCALE

## TECHNICAL SPECIFICATIONS :

### FLOW RANGES

AIR AT 945mbar (a), 27°C		WATER AT AMBIENT TEMP.	
MODEL NO	FLOW RANGE	MODEL NO	FLOW RANGE
MMMT-1(M1)	45 - 450 mln/min.	MMMT-1(M1)	0.1 - 1 LPH
MMMT-1(M2)	0.13 - 1.3 nlpn	MMMT-1(M4)	0.3 - 3 LPH
MMMT-1(M3)	0.16 - 1.6 nlpn		
MMMT-1(M4)	0.6 - 6 nlpn		

CONNECTION : SCREWED OR FLANGED  
 CONNECTION SIZE : 1/2" TO 1"  
 ACCURACY : ±5% OF FULL FLOW  
 REPEATABILITY ; ±2% OF FULL FLOW  
 TEMPERATURE RATING : 100°C  
 PRESSURE RATING : 20 BAR, 70 BAR, HIGHER ON REQUEST  
 PRESSURE DROP : 0.15 BAR  
 MIN. WORKING PRESSURE : 0.5 BAR WITHOUT VALVE & 1 BAR WITH VALVE

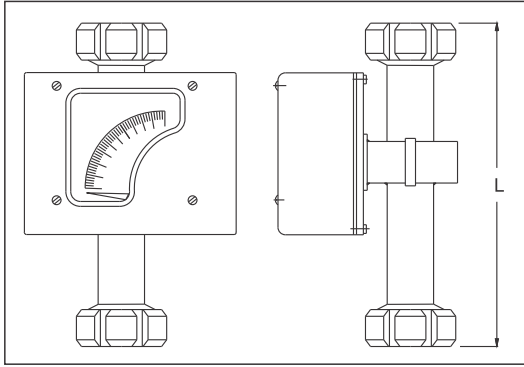
### MOC :-

- 1) METER BODY :- 316SS
- 2) FLOAT :- 316SS
- 3) INDICATOR BOX : CAST AL.

### ACCESSORIES :-

- 1) NEEDLE VALVE
- 2) DP REGULATOR
- 3) FLOW SWITCH OTHER PARTS MOC ON REQUEST.

## SANITARY APPLICATIONS



L : MT 1 to MT 14 : 332 mm  
MT 16 to MT 19 : 385 mm

SMS Union Size	Model No.	Water At Amb. Temp.			
		LPH		USGPM	
		Minimum	Maximum		
1.5"	SVS-MT-1-SAP	16	160	0.07	0.7
	SVS-MT-2-SAP	25	250	0.1	1
	SVS-MT-3-SAP	40	400	0.17	1.7
2"	SVS-MT-4-SAP	60	600	0.26	2.6
	SVS-MT-5-SAP	100	1000	0.44	4.4
	SVS-MT-6-SAP	120	1200	0.53	5.3
	SVS-MT-7-SAP	160	1600	0.7	7
2.5"	SVS-MT-8-SAP	280	2800	1.25	12.5
	SVS-MT-9-SAP	500	5000	2.2	22
	SVS-MT-10-SAP	550	5500	2.42	24.2
3"	SVS-MT-11-SAP	750	7500	3.13	31.3
	SVS-MT-12-SAP	1000	10000	4.4	44
4"	SVS-MT-13-SAP	1250	12500	5.5	55
	SVS-MT-14-SAP	1600	16000	7	70
	SVS-MT-16-SAP	2000	20000	8.8	88
	SVS-MT-17-SAP	2500	25000	11	110
	SVS-MT-18-SAP	3000	30000	13.2	132
	SVS-MT-19-SAP	4000	40000	17.6	176

## MODEL NO. IDENTIFICATION CHART

for EUREKA make Metal Tube Rotometer

MODEL NO	Material of construction	Inlet Outlet Connection Direction	Type of connection	Type of Rotameter	Tube Size	Modification in	Accessories
	Stainless Steel SS PTFE Lined	Vertical (Inlet bottom, outlet top) Side conn. / Rear conn. / Inlet bottom, outlet side	Flange Screwed	Metal Tube Rotometer (STD) Metal Tube Rotometer (Small) Metal Tube Rotometer (PTFE Lined) Mini Metal Tube Rotameter Mini Mini Metal Tube Rotameter Digital Metal Tube Rotameter	1 to 23	Standard Features Enlarged Meter Connections Modified Extension	Flow switch (Proximity single point)** Flow switch (Proximity double point)** Flow Setting valve Transmitter** Transmitter Totalizer Transmitter Ex-proof for IIA, IIB, IIC* Sanitary application
	SS TVF	V R	F S	MT MTS MTF MMT MMMT DMTS		(M)	FSPL FSPHL NV T TT T-EX SAP

TYPICAL MODEL NO. :

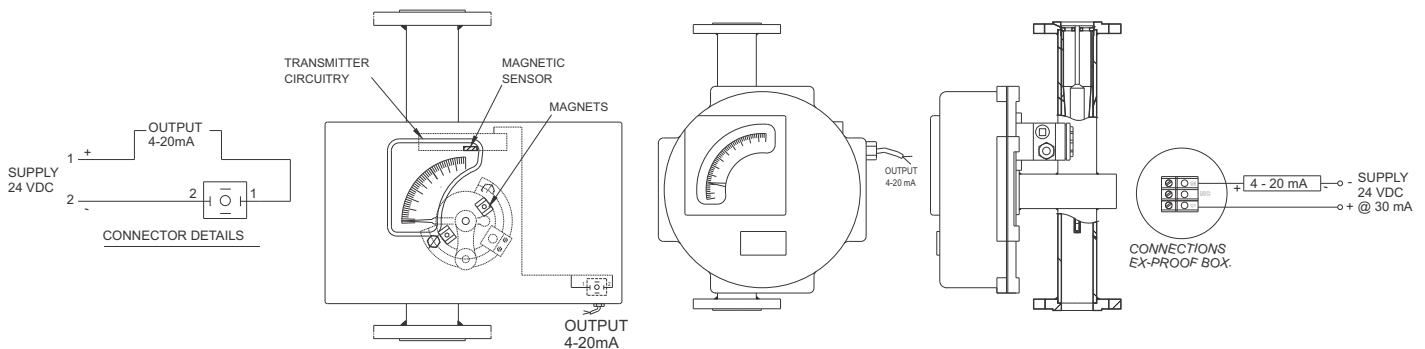
SS V F MT 8 - T

\* AVAILABLE WITH MT CODES

\*\* NOT AVAILABLE WITH MMMT CODES

## METAL TUBE ROTAMETER WITH TRANSMITTERS

### Ex Proof Transmitter (Series MT Only)



### STANDARD VERSION (SERIES MT OR MTS)

THE TRANSMITTER USES A UNIQUE MAGNETIC SENSOR WHICH IS DIRECTLY PLACED ON THE PCB. AS THE FLOAT MOVES IN THE TAPER TUBE, THE MAGNETIC FLUX AROUND THE SENSOR CHANGES IN ACCORDANCE WITH THE FLOAT POSITION. THIS CHANGE IN MAGNETIC FLUX CAUSES THE CHANGE IN THE OUTPUT OF THE SENSOR, THIS OUTPUT IS AMPLIFIED AND LINEARISED USING MICRO PROCESS BASED CIRCUITRY TO GET STANDARD LOOP POWERED. 4 - 20 mA DC O/P