

- TURNKEY PROJECTS
- PROJECTS ENGINEERING
- ENGINEERING & CONSULTANCY



- PRECISION ENGINEERING ●
- INNOVATIVE TECHNOLOGIES ●
- R & D, TEST & CALIBRATION ●

SPECTEC

Valves & Instrumentations Pvt. Ltd.

www.spectecindia.com



COMPANY PROFILE

SPECTEC Group of company to recon with and has a vision to its products with a cost effective one and at an affordable price with full most satisfaction I terms of products and quality to its esteemed customers.

SPECTEC More than decade in the service and has with stood the litmus test all these years and currently Spectec group has grown over the years steadily. This shows Stability of the Company.

SPECTEC Backed by well Qualified experienced Engineers professionals and can offer its esteemed customers a wide range of valves pumps instrumentation & Precession engineering to suit an any specific application. The knowledge accumulated for over a decade is enormous, which has helped in supplying right products & equipment's for different and complicated application for our discerning Customers. Such as edible refineries, chemical plants, pulp & paper industries, petrochemical and gas, food plants, thermal plant etc.

we are an ISO 9001 2015 Company and also NSIC (ONICRA) approved And Rated company. And are approved under many statutory approvals. In addition We are looking forward to get accreditations for CE,API,IBR & fire test shortly for some of our products .

QUALITY POLICY

Our commitment is to provide High Quality products with International Standard at Competitive prices moreover Services tour customers and gain Customer satisfaction by way of:

- Total Quality Management System.
- On time Delivery every time.
- Total Employee involvement 24x7.
- Latest Technologies.
- Innovations with R & D.

OUR MISSION

Is to set the highest Standard for customer Service with Satisfaction in each of our activities. Continuously improving our products to competes Global markets.

VALVES





1 Piece Flange End Full Bore Ball Valve

Size	: 6 NB to 80 NB
Design STD	: As per BS 5351
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT	PTFE / RPTFE / PEEK
Type of Connection	: Socket End, Screwed End BSP/NPT
Class	: 150, 300, 600



**SALIENT
FEATURE :**

- (1) Investment Castings Body with **Flow Indicator**
- (2) Double Body Sealing
- (3) Actuator Mount Capability



**SALIENT
FEATURE :**

- (1) Investment Castings Body with **Flow Indicator**
- (2) Double Body Sealing
- (3) Actuator Mount Capability

2 Piece Flange End Full Bore Ball Valve

Size	: 15 NB to 300 NB
Design STD	: As per BS 5351
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT	PTFE / RPTFE / PEEK
Type of Connection	: Flanged End
Class	: 150, 300, 600

3 Piece FB/RB Ball Valve

Size	15 NB to 300 NB
Design STD	As per BS 5351
MOC	CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT	PTFE / RPTFE / PEEK
Type of Connection	Flanged End, Face to Face distance
Class	150, 300, 600



**SALIENT
FEATURE :**

- (1) Square body, Gland Type Body and Actuator
Mounted pad type body available
- (2) Investment Castings Body With **Flow Indicator** Slide Piece
- (3) Pneumatic Actuator operated ball valve available



**SALIENT
FEATURE :**

- (1) Square body, Gland Type Body and Actuator
Mounted pad type body available
- (2) Investment Castings Body With **Flow Indicator** Slide Piece
- (3) Pneumatic Actuator operated ball valve available

3 Piece S/E & S/W End Ball Valve

Size	: 15 NB to 100 NB
Design STD	: As per BS 5351
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT	PTFE / RPTFE / PEEK
Type of Connection	: Butt Weld, Socket End
Class	: 150, 300, 600





**SALIENT
FEATURE :**

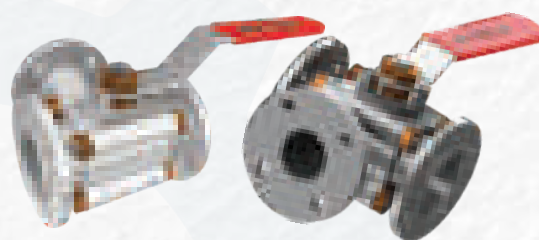
- (1) Compact Design With **Flow Indicator**, Wide Rang of Flow pattern.
- (2) Included Seat Prevent Leakage
- (3) Actuator Mount Capability

3 Way Socket End Ball Valve

Size	: 15 NB to 50 NB
Design STD	: As per BS 5351
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT	PTFE / RPTFE / PEEK
Type of Connection	: Socket End, Butt Welt
Class	: 150, 300, 600

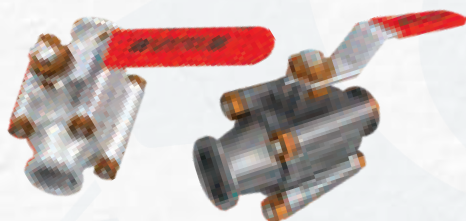
3 Way Flanged End Ball Valve

Size	: 15 NB to 50 NB
Design STD	: As per BS 5351
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT	PTFE / RPTFE / PEEK
Type of Connection	: Flanged End
Class	: 150, 300, 600



**SALIENT
FEATURE :**

- (1) Compact Design With **Flow Indicator**, Wide Rang of Flow pattern.
- (2) Included Seat Prevent Leakage
- (3) Actuator Mount Capability



**SALIENT
FEATURE :**

- (1) Investment Castings Body with **Flow Indicator** Side Piece
- (2) Double Body Sealing
- (3) Actuator Mount Capability

TRICLOVER END BALL VALVE

Size	: 15 NB to 100 NB
Design STD	: BS 5351
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT	PTFE , Glass or Carbon PTFE Etc
Type of Connection	: Triclover End
Class	: 150, 300

FLUSH BOTTOM BALL VALVE

Size	: 15 NB to 100 NB
Design STD	: As Per BS 5351
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT	PTFE Etc.
Type of Connection	: Flanged End
Class	: 150, 300



**SALIENT
FEATURE :**

- (1) Single Piece Design Body with **Flow Indicator**
- (2) Investment Castings Body
- (3) Operating at 45 Deg.





GLOBE / GATE VALVE

Size	: 15 NB to 400 NB
Design STD	: BS 1873 / DIN 3356 / API 600 / API 6D / ASME B16.34
MOC	: CF8M, CF8, WCB Etc.
SEAT / DISC	13 % Cr. Steel / AISI 410/304/316
Type of Connection	: Flanged End
Class	: 150, 300, 600



SALIENT FEATURE :

- (1) Compact Design With **Flow Indicator**, Wide Rang of Flow pattern.
- (2) Included Seat Prevent Leakage
- (3) Actuator Mount Capability

SALIENT FEATURE :

- (1) Compact Design With **Flow Indicator**, Wide Rang of Flow pattern.
- (2) Included Seat Prevent Leakage
- (3) Actuator Mount Capability



GLOBE / GATE VALVE S/E, S/W

Size	: 50 NB to 400 NB
Design STD	: As per BS 1873
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT/DISC	13 % Cr. Steel / AISI 410/304/316
Type of Connection	: Socket End, Socket Weld
Class	: 150, 300, 600

Extended Bonnet Globe/Gate Valve F/E

Size	: 50 NB to 400 NB
Design STD	: As per BS 1873
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT/DISC	13 % Cr. Steel / AISI 410/304/316
Type of Connection	: Socket End, Socket Weld
Class	: 150, 300, 600



SALIENT FEATURE :

- (1) Compact Design With **Flow Indicator**, Wide Rang of Flow pattern.
- (2) Included Seat Prevent Leakage
- (3) Actuator Mount Capability

SALIENT FEATURE :

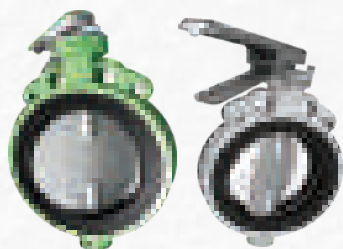
- (1) Compact Design With **Flow Indicator**, Wide Rang of Flow pattern.
- (2) Included Seat Prevent Leakage
- (3) Actuator Mount Capability



Extended Bonnet Globe/Gate Valve S/E

Size	: 50 NB to 400 NB
Design STD	: As per BS 1873
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT/DISC	13 % Cr. Steel / AISI 410/304/316
Type of Connection	: Socket End, Socket Weld
Class	: 150, 300, 600





SALIENT FEATURE :

- (1) Highest Standard of Durability and Reliability.
- (2) Suitable for steam, Water, Air, Gas, Oil process mill industries & Relatively non-corrosive fluids.
- (3) Can be Installed in a vertical or horizontal position.

BUTTER FLY VALVES (MANUAL)

Size	: 50 NB to 800 NB
Design STD	: BS EN 593 / ISO 10631 / API 609
MOC	: CF8M, CF8, CI, WCB Etc.
SEAT	NITRILE / EPDM / PTFE etc.
Type of Connection	: Wefer End, Double Flanged, Lug Type
Class	: 150, 300, 600

BUTTER FLY VALVES (GEARED)

Size	: 50 NB to 800 NB
Design STD	: BS EN 593 / ISO 10631 / API 609
MOC	: CF8M, CF8, CI, WCB Etc.
SEAT	NITRILE / EPDM / PTFE etc.
Type of Connection	: Wefer End, Double Flanged, Lug Type
Class	: 150, 300, 600



SALIENT FEATURE :

- (1) Highest Standard of Durability and Reliability.
- (2) Suitable for steam, Water, Air, Gas, Oil process mill industries & Relatively non-corrosive fluids.

SALIENT FEATURE :

- (1) Compact Design, Wide Rang of Flow pattern.
- (2) Included Seat Prevent Leakage
- (3) Actuator Mount Capability



BUTTER FLY VALVES (AUTOMATIC)

Size	: 50 NB to 800 NB
Design STD	: BS EN 593 / ISO 10631 / API 609
MOC	: CF8M, CF8, CI, WCB Etc.
SEAT	NITRILE / EPDM / PTFE etc.
Type of Connection	: Wefer End, Double Flanged, Lug Type
Class	: 150, 300, 600

KNIFE GATE VALVE

Size	: 50 NB to 400 NB
Design STD	:
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT/DISC	13 % Cr. Steel / AISI 410/304/316
Type of Connection	: Wafer End, Double Flanged End, Lug Type Etc.
Class	: 150, 300, 600



SALIENT FEATURE :

- (1) Highest Standard of Durability and Reliability.
- (2) Suitable for steam, Water, Air, Gas, Oil process mill industries & Relatively non-corrosive fluids.



DIAPHRAGM VALVE

Size	: 15 NB to 50 NB
Design STD	: ASME B16.34
MOC	: CF8M, CF8, WCB Etc.
SEAT	PTFE / RPTFE / PEEK
Type of Connection	: Flanged End
Class	: 150, 300, 600



SALIENT FEATURE :

- (1) Highest Standard of Durability and Reliability.
- (2) Suitable for steam, Water, Air, Gas, Oil process mill industries & Relatively non-corrosive fluids.
- (3) Can be Installed in a vertical or horizontal position.

SALIENT FEATURE :

- (1) Single Piece Design Body with **Flow Indicator**
- (2) Investment Castings Body
- (3) Operating at 45 Deg.



FLUSH END S/E

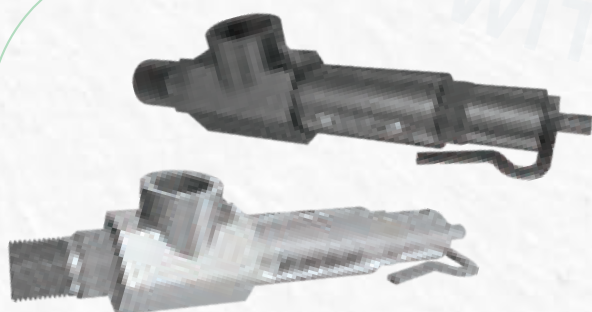
Size	: 50 NB to 400 NB
Design STD	: As Per BS 5351
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT	
Type of Connection	: Flanged End, Screwed End
Class	: 150, 300

Needle Valve

Size	: 15 NB to 100 NB
Design STD	: BS 5352 / CVPL Std.
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
Type of Connection	: Screwed End, Socket End
Class	: 150, 300



Safety Relief Valve



Size : 15 NB to 50 NB

Description	Material	Description	Material
Cap	WCB (I.C.)	Plug Disc	CF8
Adjustment Screw	SS 304	Hard Seat	CF8
Locking Nut	SS 304	Seat Frame	CF8
Spring Guide	CF8	Lever	WCB (I.C.)
Spring	SS304/M.S.	Left Stem	SS 304
Bonnet Body	WCB (I.C.)	Nut Jam	SS 304





WAFER CHECK VALVE

Size	: 50 NB to 600 NB
Design STD	: API 5981/ API 6D, API 594
MOC	: C1, CF8M , CF3, CF3M, WCB Etc.
SEAT	NITRILE / EPDM /NEOPRENE/ PTFE /SILICON
Type of Connection	: WEFER END, LUG Type
Class	: 150, 300, 600

NOT SLAM / DISC CHECK VALVE

Size	: 15 NB to 200 NB
Design STD	: BS 7438 / EN 558-1
MOC	: CF8, CF8M, CF3, CF3M, WCB Etc.
SEAT	Metal to Metal AISI 304 / 316
Type of Connection	: Wefer end
Class	: 150, 300

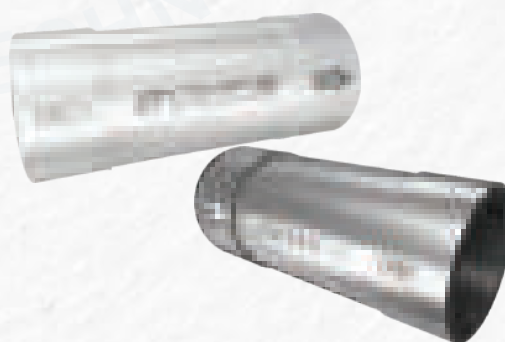


DUAL PLATE CHECK VALVE

Size	: 50 NB to 400 NB
Design STD	: API 594
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT/DISC	13 % Cr. Steel /AISI 410/304/316
Type of Connection	: Wafer End
Class	: 150, 300, 600

HIGH PRESSURE CHECK VALVE

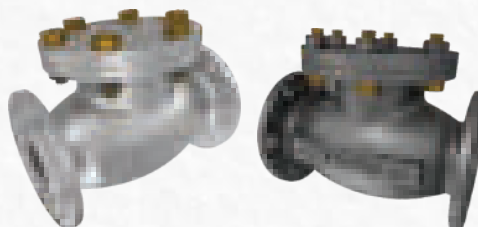
Size	: 15 NB to 50 NB
Design STD	: ASME B16.34
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT/DISC	AISI 410 / 304 / 316
Type of Connection	: Flanged End, Screwed End.
Class	: 150, 300





NON RETURN VALVE F/E

Size	: 25 NB to 400 NB
Design STD	: BS 1873/1868
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT/DISC	13 % Cr. Steel /AISI 410/304/316
Type of Connection	: Flanged End
Class	: 150, 300, 600



SALIENT FEATURE :

- (1) Compact Design With **Flow Indicator**, Wide Rang of Flow pattern.
- (2) Included Seat Prevent Leakage
- (3) Actuator Mount Capability



SALIENT FEATURE :

- (1) Compact Design With **Flow Indicator**, Wide Rang of Flow pattern.
- (2) Included Seat Prevent Leakage
- (3) Actuator Mount Capability

NON RETURN VALVE S/E

Size	: 25 NB to 400 NB
Design STD	: BS 1873/1868
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT/DISC	13 % Cr. Steel /AISI 410/304/316
Type of Connection	: Socket End , Butt Weld
Class	: 150, 300, 600

STEAM TRAP S/W, S/E

Size	: 15 NB to 100 NB
Design STD	: ASME B16.34
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT/DISC	
Type of Connection	: Socket End, Socket Weld
Class	: 150, 300



STEAM TRAP F/E

Size	: 15 NB to 100 NB
Design STD	: ASME B16.34
MOC	: CF8M, CF8, CF3M, CF3, WCB Etc.
SEAT/DISC	
Type of Connection	: Flanged End
Class	: 150, 300





INSTRUMENTATIONS



METAL TUBE ROTAMETER

Metal tube rotameter are used for higher pressure and temperature. Glass metering tubes would be damage where high operating pressure or temperature. Water hammer or other forces are exist. Stainless steel is commonly used for manufacturing of metal tube rotameters. Flow rate is determined by the spring and piston arrangements and as to suitable for the application of arrangement, fittings and material of construction are used. Magnetic tube is determined the position of float. These flow meters can be used for most fluid and best suited for steam application.

MODEL SMTV MODEL & RANGE

Model & Ranges			Dimensions in mm			
Model No.	Range M ³ /HR Water	Connection Flange Type	'A'	'B'	'C'	'D'
SMTV-R1	5	½" to 1"	300	350	135	100
SMTV-R2	10	1½" to 2"	300	350	135	100
SMTV-R3	20	2" to 2½"	300	350	135	120
SMTV-R3	30	2½" to 3"	300	350	135	120
SMTV-R4	50	3" to 4"	300	350	155	150
SMTV-R5	60	4"	300	350	155	150
	100	4"	300	350	155	150
SMTV-R6	130	5"	400	175
SMTV-R7	180	6"	400	200
SMTV-R8	200	8"	400	200



SPECIFICATIONS MODEL SMTV

METER BODY	SS 316L, SS316, SS304 etc.
Float	SS 316L, SS 316, PTFE etc.
INDICATOR HOUSING	ABS, OPTIONAL- ALUMINIUM, SS-304
TEMPERATURE RATING	250°C
PRESSURE RATING	40 Bar
Accuracy	±2% of full scale
Accessories	1) Electronic transmitter with (steam jacket) 4-20m A O/P
	2) Digital Flowrate indicator totaliser
	3) Hi - Low flow switch



ACRYLIC BODY ROTAMETER (SPNV)

These meters are used for measuring the instant flow rate of liquid and gases. These meters are used where the metal wetted parts cannot be acceptable, such as with deionized water or corrosive fluids. The cost of these rotameters is low and having high impact strength. Due to plastic and fittings care must be taken during installation.

MODEL SPNV MODEL & RANGE

MODEL	MODEL	WATER LPH	Pressure Rating Max.
R1	50	100	3 Kg/Cm ²
R2	150	250	
R3	500	500	
R4	600	1200	7 Kg/Cm ²
R5	1500	2400	
R6	2500	6000	
R7	3000	8000	12 Kg/Cm ²
R8	8000	15000	
R9	NA	20000	18 Kg/Cm ²
R10	NA	40000	
R11	NA	50000	
R12	NA	80000	

SPECIAL SIZES & RANGES ON REQUEST (SPNV)

Model FL-C	A	B	C	D	Connection BSP 'F' Flange
R-1	190	...	28	150	1/4"
R-2	190	...	32	150	1/4" & 1/2"
R-3	240	...	28	195	1/4"
R-4	250	275	35	180	1/2"
R-5	250	275	42	180	3/4"
R-6	300	325	55	230	1" & 1 1/2"
R-7	400	450	60	320	1" & 1 1/2"
R-8/R-9	400	450	70	320	1" & 2"
R-10	...	450	85	320	2" & 2 1/2"
R-11	...	450	100	320	2 1/2" & 3"
R-12	...	450	100	320	4" & 8"

SPECIFICATIONS SERIES (SPNV)

Meter body	Acrylic
Floats	316, PTFE etc.
Wetted parts	SS, PVC, P.P, PTFE etc.
O-RINGS	Neoprene, PTFE Silicon etc.
Scale	Engraved on body
Temp. Rating	60°C
Connection	Flanged Or Threaded
Accuracy of	Model 10 & 20 ± 3%
Full Scale	Model 30, 40, 50 & 60 ± 2%
	Model 70, 80, 90, 100, 110, & 120 ± 2%
Repeatability	0.5%
Rangeability	10:1
	Higher pressure rating on request





ACRYLIC BODY ROTAMETER (SPNV)

SPECIFICATIONS MODEL SPPV

Meter Body	Acrylic
Float	SS 316, PTFE, PVC etc.
Wetted Parts	SS, PVC, P.P, PTFE etc.
O-Rings	Neoprene, PTFE Silicon etc.
Scale	Engraved on Body
Temp. Rating	160°F

Connection	Threaded BSP/NPT Female or Male
Accuracy of	Model 10, 20 & 30 $\pm 3\%$
Full Scale	Model 40 & 50 $\pm 2\%$
Repeatability	0.5%
Rangeability	10:1

Model FL-A/FL-B	Ambient Temperature		Pressure Rating Maximum
	Air LPM	Water LPH	
10	0-11	0.4-5	3 Kg/Cm2
	0.2-2	1-10	
	0.4-5	3-30	
	1-10	5-50	
	2-20	10-100	
	3-30	15-150	
	4-50	20-200	

Model FL-A/FL-B	Ambient Temperature		Pressure Rating Maximum
	Air LPM	Water LPH	
20	15-150	25-250	5 Kg/Cm2
	10-100		
	15-160	50-500	
30	30-300		
	40-500	100-1000	
	80-800	250-2500	
40			
50	140-1400		



OVERALL DIMENSIONS (MM) SPPV

Model FLA/FLBA	A	B	C	D	E	F	G	H	I	J HOLEQ	Connection BSP"F"
10	150	114	28	28	20	180	166	32	3	5	1/4"
15	150	110	35	35	20	180	166	38	3	5	1/4"
20	195	159	28	28	20	225	210	38	3	5	1/4"
30	250	200	40	40	25	290	275	52	3	5	1/2"
35	250	194	48	48	25	290	275	52	3	5	1/2"





GLASS TUBE ROTAMETER (SGTV)

Glass tube rotameter are used for measuring the instant flow rate of liquid and gasses. It is vertically upward installed in the pipe lines with flanged or screwed connection. Unique design feature eliminate the stress on glass tube even under industrial handling conditions. These meters are used for flow of Air, Common gasses, Water, Alkalies, oil & organic chemicals etc.

SPECIFICATIONS SERIES SGTV

METER BODY	: Power coated M.S. optional SS 304, SS 316 etc.
Float	: SS 316L, SS 316, PTFE, PVC, Monel etc.
Wetted Parts	: SS 316L, SS 316, SS 304, MS PTFE, PVC, P.P., Monel etc.
Packings	: Neoprene, PTFE, Silicon etc.
Tube	: Borosilicate glass
Scale Length	: 175-225 mm
Temperature Max.	: Upto 200?c depends on gland packing material.
Connections	: Flanged, threaded etc.
Accuracy	: $\pm 2\%$ of full scale.
Repeatability	: 0.5%
Accessories	: Hi - low flow switch, Steam jacketed

STANDARD RANGES (SGTV)

NB	Models	FLOW RATES		Pressure Rating KG/CM ²	Pressure Drop MM WG
		Water At 20°C LPH	Air At Amb. Temp. Nm ³ /HR		
½" to 1"	SGTV-R1	600	20	20	300
1" to 2"	SGTV-R2	3000	80	12	600
1" to 2"	SGTV-R3	5000	150	9	650
1½" to 3"	SGTV-R4	10000	300	7	850
2" to 3"	SGTV-R5	20000	NA	5	1000
2" to 4"	SGTV-R6	30000	NA	5	1100



OVERALL DIMENSIONS

NB	A	B	C	D	E
15	500	425	440	55	90
20	500	425	440	60	90
25	500	425	440	65	115
40	500	425	500	85	140
50	500	450	500	85	155
65	500	N/A	500	N/A	190
80	500	N/A	500	N/A	190



BYPASS ROTAMETER (SBMTV/SBGTV)

Bypass rotameter can be used for measuring the flow rates in 50 NB and above pipelines. Different Range of orifice of rotameter are used at the inlet. The range of orifice designed in such a way that the bypass flow is directly proportional to the main flow. Bypass rotameter works as manometer. These are useful where the measurements must be made in hazardous or remote area, or where electric power is either not available or would be potentially dangerous.

Rangeability can be 5:1 or 7:1

Scale readings that can be graduated in direct units for flow in main pipelines.

Changing the range or cleaning the tube without disassembling the meter or removing it from the bypass line.

SPECIFICATIONS SERIES (SBMTV/SBGTV)

Models		NB	Maximum Flowrate (M ³ /HR.	Models		Maximum NB (M ³ /HR.	Flowrate
SBGTV-25	SBMTV-25	25	5	SBGTV-275	SBMTV-275	275	650
SBGTV-40	SBMTV-40	40	10	SBGTV-300	SBMTV-300	300	800
SBGTV-50	SBMTV-50	50	20	SBGTV-350	SBMTV-350	350	1000
SBGTV-80	SBMTV-80	80	36	SBGTV-400	SBMTV-400	400	1500
SBGTV-100	SBMTV-100	100	80	SBGTV-450	SBMTV-450	450	2000
SBGTV-125	SBMTV-125	125	125	SBGTV-500	SBMTV-500	500	2500
SBGTV-150	SBMTV-150	150	150	SBGTV-600	SBMTV-600	600	3000
SBGTV-200	SBMTV-200	200	320	SBGTV-700	SBMTV-700	700	4000
SBGTV-225	SBMTV-225	225	450	SBGTV-800	SBMTV-800	800	5000
SBGTV-250	SBMTV-250	250	550	Other Sizes on request			

SPECIFICATION

Type of tapping	:	Flange, D and D/2, corner
Accuracy	:	±2% of full flow
Rangeability	:	7:1 or 5:1

STANDARD MATERIAL OF CONSTRUCTION

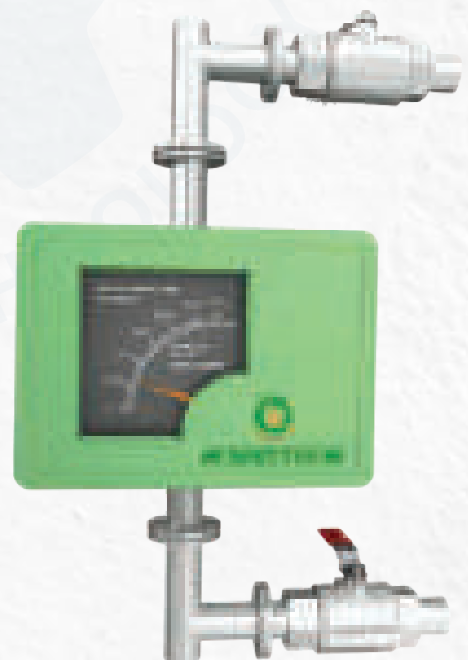
Orifice flange	:	SS 316 L, SS 316, SS 304, CS etc.
Orifice plate	:	SS 316 L, SS 316, SS 304, Hastelloy 'C'
Carrier Rings	:	SS 316 L, SS 316, Mild steel, PP etc.
By Pass Line	:	SS 316 L, SS 316, SS 304, Mild steel, PVC etc.
Wetted Part of	:	SS 316 L, SS 316, SS 304, Mild steel, PP etc. the Rotameter PP etc.

ACESSORIES

Hi-low switch
4-20 mA transmitter

METER ASSEMBLY

Glass Tube Rotameter	:	SBGTV-10
Glass Tube Rotameter	:	SBMTV-10





PURGE TUBE ROTAMETER (SPTV)

OVERALL DIMENSIONS

Model	A	B	C	D
SPTV 10	144	114	190	28
SPTV 20	193	163	240	36
SPTV 30 & 40	255	225	302	36

OVERALL DIMENSIONS

Model	FLOW RATES		
	Water At 20° C LPH	Air At Amb. Temp. LPM	Air At Amb. Temp. SCFH
SPTV 0-1	0.1-1	0.05-0.5	0.1-1
	0.2-2	0.1-1	0.2-2
	0.5-5	0.2-2	0.4-4
	0.6-6	0.4-4	0.8-8
	1.0-10	0.6-6	1.2-12
SPTV-20	1.5-15	1.0-10	2.20
	2.5-25	1.5-15	3-30
	1.2-12	0.7-7	1.5-15
	2-20	1.2-12	2.5-25
	3-30	1.6-16	3.2-32.5
SPTV-30	502.	5-25	5-50
	6-60	3-30	6-60
	10-100	5-50	10-100
SPTV-40	12-120	6-60	12-120
	15-150	8-80	16-160
	18-180	10-100	20-200
	20-200	12-120	25-250



OVERALL DIMENSIONS

METER	: Power coated M.S., SS 304, SS 316 etc.
Float	: SS 316L, SS 316, PTFE etc.
Wetted Parts	: SS 316L, SS 316, SS 304, PTFE etc.
Packings	: Neoprene, PTFE etc.
Tube	: Borosilicate glass
Scale Length	: Model SPTV 10-20 = 65mm, SPTV 30-40 = 110mm & SPTV 80-170 = 140 mm
Temp. Max.	: Upto 200°C depends on gland packing material.
Connections	: Threaded etc.
Accuracy	: SPTV 10-20 ±5%, SPTV 30-40 ±3%, SPTV 40 ±2% of full scale. (on request)
Repeatability	: 0.5%
Rangeability	: 10:1
Accessories	: Hi - low flow switch

WATER METER 15NB TO 500NB

A removable mechanism type woltman water meter/ multijet dry with magnetic drive and vacuum sealed register.

APPLICATION

Meter suitable for use to measure the total flow of water passing through pipeline in water work, mining and industrial enterprises.

STANDARDS Conforms to ISO 4064, Class-B



FEATURES

- (1) Leak proof and sealed totaliser
- (2) Magnetic drive
- (3) Repairable without interrupting water supply
- (4) Removable mechanism ensures easy maintenance
- (5) Totaliser protected by metallic cover
- (6) Reliable sensitive metrology and low pressure loss
- (7) Remote reading facility/ pulse output available request

ORIFICE PLATES



An orifice plate is a device used for measuring flow rate, for reducing pressure or for restricting flow. Either a volumetric or mass flow rate may be determined, depending on the calculation associated with the orifice plate.

EDGES: Sharpe & square, will not reflect a beam of light when viewed without magnification.

BORE: Orifice bore tolerance strictly in according with A.G.A, Asme, ISO5167, ISA and BS Standards.

FLANGE MATERIAL: Carbon Steel A105/ASTMA182/SS304/SS316/SS316L/ALLOY STEEL OTHER MATERIAL ON REQUES.

ORIFICE PLATE: SS304/SS306/SS316L/PVC ETC OTHER MATERIAL ON REQUEST.

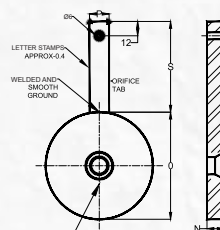
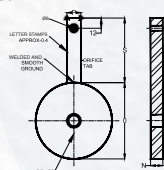
STUDS& NUTS: ASTM A193 GR.B7/A194GR.2H/SS OTHER MATERIAL ON REQUEST.

GASKETS: CAF/PTFE/SPIRAL WOUND/ NEOPRENE/NON-ASSBESTONS OTHER MATERIAL ON REQUEST.

ORIFICE PLATE GUIDE

COCENTRIC BEVELED BORE

This most common bore used in the industries. This is the only type generally accepted for use in custody transfer measurement, since adequate data is not available for other bores. Used primarily for clean homogeneous liquids, gases, non-viscous fluids. The bevel is matched at 45° angle to the desired throat thickness.

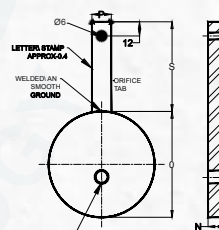
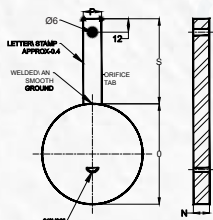


RESTRICTION BORE

This type is not used for flow measurement but for dropping the pressure considerably and reducing the flow accordingly. The bore is not beveled but kept straight. The beta ratio has no limit as accuracy is not the goal.

ECCENTRIC BORE

Used for measurement of flow for fluids containing solids and slurries. It is also used for vapors and gases where condensation is present. The eccentric bore is offset to where the bore edge is inscribed in a circle that is 98% the line id.

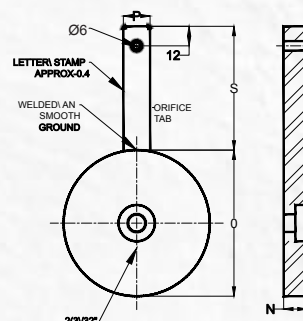


SEGMENTAL BORE

The segmental bore is located in the same way that the eccentric bore is. This type is used primarily for slurries or extremely dirty gases where the flow may contain impurities heavier than the fluid.

QUADRANT BORE

Used for high viscous fluids such as heavy cruid, syrups and slurries. It is always recommended for flow where Reynolds number is less than 10,000. The inlet is quarter of a circle and the plate thickness must be at least radius of the inlet.





ORIFICE PLANTS & FLANGE ASSEMBLIES

SPECTEC offers a complete range of orifice plates for a variety of flow conditions for mounting between flanges for carrier rings and with RJ plate holder for mounting between RJ flanges.

SPECTEC'S orifice flange Assemblies are made to AGA/ASME recommendations and are reliable means to flow measurement. Assemblies to other international standards viz. ISO, BS, DIN etc. are also available.

Spectec's orifice flanges cover complete range of sizes pressure rating upto ASA 2500 of ANSI B16.36 as standard and dimensions as per other major international standard viz. - APL, MSS, BS and DIN etc. are also available on request. These flanges are available in various types such as weld neck, slip on, screwed with facing FF RJ, TG etc. a various types of tapping available are viz. Flange, corner and D_D/2. Orifice bore calculation can be carried out as per ASME MFC-3M, ASME 19.5 ISO 5167/BS1042, R.W. MILLER and L.k. spink etc.

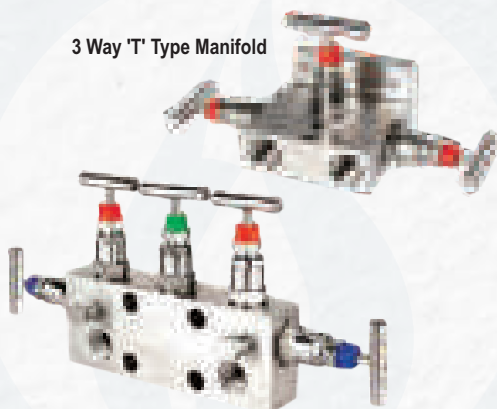
FLANGES	: Carbon steel/ ASTM A105/ ASTM A 182/ ASTM A 350/ SS304/ SS304L/ SS316/ SS 316L/ PP/ PTFE
ORIFICE PLATE	: SS304/ SS304L/ SS316/ SS316L/ Monel/ HAST ALLOY/ PP/ PTFE Other material on request.
STUD & NUTS	: MS/ SS/ ASTM A193 Gr. B7/ A194 Gr. 2H
GASKET	: SPIRAL WOUND/ CAF/ PTFE/ AF120

Fasteners & Gaskets of other material specification available on request.



Orifice Plate with WNRF Flange Assembly

3 Way 'T' Type Manifold



5 Way 'Y' Type Manifold

Integral Orifice Flange Assembly (SORF)



Condensate Pot

ORIFICE FLANGES ASSEMBLIES WITH DP TRANSMITTER

FLANGES	: Carbon steel/ ASTM A105/ ASTM A 182/ ASTM A 350/ SS304/SS304L/SS316/ SS 316L/ PP/ PTFE
ORIFICE PLATE	: SS304/ SS304L/ SS316/ SS316L/ Monel/ HAST ALLOY/ PP/ PTFE Other material on request.
STUD & NUTS	: MS/ SS/ ASTM A193 Gr. B7/ A194 Gr. 2h
GASKET	: SPIRAL WOUND/ CAF/ PTFE/ AF120

Fasteners & Gaskets of other material specification available on request.



FEATURES

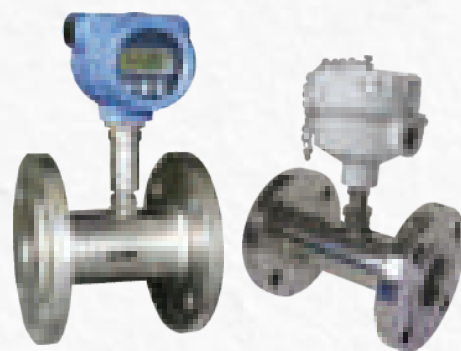
- Repeatability of reading up to 0.1 %
- High flow rate turndown ratio.
- Suitable for liquid, Gas & steam flow application.
- Choice of linear or square root out put.
- A/D or D/A converter not required as the electronic unit can be directly hooked up with the control system.
- Pirzo resistive sensor for temperature & pressure compensation.
- Programmable engineering units for display.



TURBINE FLOWMETER (STFV)

Turbine flow meter offers high accuracy and repeatable measurement under the most demanding condition of custody transfer applications. Typical installations include crude oil and refined product pipelines.

Highly accurate measurement is achieved by using a blade rotor that's turn at a speed proportional to rate of flow. The rotation of the rotor is sensed by electrical pickoffs mounted on the meter body, generating a pulsing voltage. The total numbers of pulses collected over a period of time represent the metered volume.



TECHNICAL SPECIFICATION

Media	: Liquid (Clear)	Process temp	: 150°C max
Viscosity	: 100 cp max	Process pressure	: 30 kg/ cm ³ max.
Pick off types	: magnetic sensor	Constructional Material	: Body, Bearing, Support & Flange - SS 316
Line size	: 15 NB to 150 NB	Rotor	: SS410 / SS410 with Teflon coating
Display	: 8x1 LCD / 4x1 LED, 8x1 LED	Shaft	: Tungsten carbide
Type of output	: 4 to 20 mA DC, 2 wire / pulse 30 mV	Power supply	: Loop powered, 24 v DC, External
Calibration range	: As per requirement	Power consumption	: <40mW
Accuracy	: +/- 1% F.S.	Response time	: <100mSec
Linearity	: +/- 1%	Temperature coefficient	: +/-0.01% pre° C
Repeatability	: +/- 1%	Transmitter enclosure	: Flame-proof, IP-65, IIA, IIB CMRI Certified
Pressure drop	: Approx. 0.28 kg/cm ³	Process connection	: Flanged / Threaded / Tri-clover
Turn down ratio	: 10:1 to 100:1	Mounting	: In-line (Horizontal OR Vertical)
		Operating conditions	: Temperature 0 to 55°C / Humidity 5 to 95%

LINE SIZE SELECTOR CHART WITH RESPECT TO FLOW RANGE

Line Size	15	20	25	40	50	80	100	150
Flow Range m ³ /Hr	0.2-2.2	0.6-6	1-10	2.5-25	4.5-45	9-90	18-180	35-350
F/F Distance	175/208	175/210	175/213	175/220	175/238	238/250	250/275	250/275

ELECTRO MAGNETIC FLOWMETER

Micro- controller based full bore type electromagnetic flow transmitter specially used for various industrial applications. These flow transmitters accurately measure the flow rate of conductive liquids & slurries in closed pipes. Due to simple & rigid design the flow transmitter is an obstruction less & maintenance free instrument in place of conventional mechanical flow measuring device. The use of Pulsed DC technology offer highest ability & better measuring accuracy in the form of electrical signal 4 - 20 mA DC linearly proportional to volumetric flow. The instrument is based on faraday's law of electro-magnetic induction. A magnetic field is generated by the instrument in the flow tube. The fluid flowing through this magnetic field generates a voltage that is proportional to the flow velocity. Corresponding electrical output is provided with respect to measuring voltage.



TECHNICAL SPECIFICATION

Media	: Liquid (Cleaner)	Display	: 1) 16x2 LCD, 2) 4 digit, 0.3" Red LED for flow rate indication & 8 digit, 0.3" Red LED for totalized flow indication.
Line size	: 15 NB TO 2000 NB	Repeatability	: +/- 1 %
Accuracy	: +/- 0.5% F.S	Linearity	: +/- 0.5 %
Process temperature	: 150 °C max.	Excitation	: Pulsed DC coil
Type of output	: 4 to 20 mA DC, Isolated, Pulse, RS 485	Viscosity	: 200 cp max
Calibration range	: As per requirement (factory calibrated)	Dimensions	: As per chart on rear
Process pressure	: 10 kg/cm ² max.	Process connections	: ASA B 16.5, Flanged
Material of construction	: Lining - Neoprene / Rubber / PTFE (Teflon) Flange - MS/SS Electrode- SS316, SS316L hast alloy "C" platinum wetted parts- SS316, Body-MS	Mounting	: In-Line (Horizontal or Vertical)
Power supply	: 1) 230 V AC, 50Hz +/- 10%, 2) 24 V DC, External		
Isolation	: 1.4 KV between input, Output & Power Supply		
Temperature coefficient	: +/- 0.1% per °C		

Line Size	15	20	25	40	50	65	80	100	150	200	250	300	350
Flow Range M ³ /Hr	0.4-4.2	0.6-6	1-10	2.7-27	4.2-42	7.1-71	10-100	17-170	38-380	67-678	100-1000	150-1500	200-200
F/F Distance	152	152	200	200	200	200	200	250	300	350	450	500	550





DISPLACER TYPE LEVEL SWITCHES

Displacer type level switch is based on buoyancy principle. It is used for controlling the liquid level in underground & overhead tanks.

Application	: Water, Furnace oil, Luba oil chemical, Solvent, effluent etc.
Protection	: weather proof IP 65/ Ex-proof IIA & IIB
Output	: Replay contacts
Switch Rating	: 5 Amps 230 VAC
Pressure	: 20 kg/ Cm ³
Temp.	: 150°C
Conn.	: 3" (Min) Flanged or Screwed

(1)	Service	: to Mention
(2)	Op Pressure kg/Cm ² g/temp/s.g	: to mention
(3)	All wettdw parts malt	: SS/PP/PVC/HDPE/PVDF/PTFE etc.
(4)	No. of displacer	: 1,2,3 (HIHI, HI, LO & LOLO)
(5)	MOC Of spring	: SS316/PP/SS sleeved with PTFE
(6)	MOC Multistrand wire rope	: SS/316/PP/SS sleeved with PTFE
(7)	Mounting flange	: 3" ANSI 150# RF N 16.5 (OR) to mention
(8)	Connection head	: cast aluminium weatherproof of flameproof
(9)	Cable entry	: ¾" ET (F) STD
(10)	Switch differential	: 60-80 mm Approx
(11)	Guide pipe perforated	: will be supplied as per the request
(12)	Repeatability	: ±1%
(13)	Measuring range/ tank height	: to mention
(14)	HI & LO actuation points	: to mention from bottom of the flange
(15)	Adjustable	: the switches are adjustable over the entire stem length to have various level actuation points



RF LEVEL SWITCHES

RF DESIGN

Rf principle based level sensors have been designed based on the considerations discussed and various other aspects. Spectec's Rf level sensors are highly reliable for use with materials that are conductive or nonconductive, granular or slurries, fines to large particles and contaminated or pure liquids at varying temperatures and pressures

FEATURES

SPECTEC'S Rf level switch series FLRF 20 models work on Rf principle. Independent but identical low power Rf signals equal in frequency, phases, amplitude and wave shape generated in the electronic controller are provided to active and shield sections of the sensing probe, whereas, the reference ground of electronics is connected to the vessel shell. The signal provided to the electronic controller while the signal applied to the active section varies with change of media between probe and the vessel shell/wall. The suspended dust or material in-transit do not have cohesive inter-particle contact, and have no role in this Rf Principle of level sensing. The variation in active signal is compared with the constant shield signal. At a predetermined value of difference a relay is actuated to obtain potential free relay change-over contacts for further alarm and control



TOP MOUNTED MAGNETIC LEVEL SWITCH

A magnetic float moves up and down on probe immersed in a liquid. The float energizes the hermitically sealed sensor, which change from NO to NC or otherwise as the float-passes them.

FEATURES

- (1) Versatile system contact points can be changed in accordance with process necessity
- (2) Less wear & tear – Easy on maintenance
- (3) Inter linking liquid level in parallel tanks
- (4) External cage on request

Standard range	: 200 mm to 2000 mm
Temperature	: Upto 200°C
Pressure	: Upto 20 kg/cm ²
MOC	: SS304, SS316, SS316L, PP
Connection	: Flange end / Screwed or to mention

- (1) Height of the tank or probe length required.
- (2) No. of points to be controlled with respect to top flange.
- (3) Material of construction of wetted parts.
- (4) Top nozzle detail which is welded on tank on which you are intending to mount level switch
- (5) Housing enclosure (flame proof / weather proof



SIDE MOUNTED MAGNETIC LEVEL SWITCHES

LIQUID LEVEL SWITCHES

The range is widespread and meets various industry applications catering to all type of operating conditions. The switches can have miniature floats. Vertical or horizontal mounting operating in single and multiple liquid levels. Side mounted magnetic level switch as the liquid level in the tank changes, a horizontal magnetic float moves about a fulcrum in accordance with the level. The micro switch contacts (NO/NC) are accordingly activated providing an output for further industry processing.

FEATURES

Temperature: upto 300°C
Pressure: upto 75kg/cm²
MOC: SS304, SS316, SS316L, PP, PVC
Less wear & tear - easy on maintenance inter linking liquid level in parallel tanks external cage on request

APPLICATION

- (1) High / Low level Alarm
- (2) Automatic pump / valve control
- (3) Elimination of tank over flow
- (4) Enhances pump safety against dry running





CABLE TYPE BALLOON LEVEL SWITCHES

- | |
|---|
| (1) An economical, viable alternative for control in liquid level |
| (2) Simple, Rugged & Reliable |
| (3) Range: upto 10 mtr |
| (4) Switch rating : 10-140Amp @ 230 VAC |
| (5) Material of construction PVC suitable for most liquids |
| (6) Housing : weatherproof to IP 66/68/ flameproof - on request |

DETAILS REQUIRED FOR QUOTATION

- | |
|---------------------|
| (1) TANK HEIGHT |
| (2) No. of contacts |

CAPACITANCE LEVEL SWITCHES

DESCRIPTION

SPECTEC FLCLT- 10 are capacitance type level transmitters. The probe is based on properties of capacitor. Vessel wall & probe form two electrodes. If vessel is of non-conductive material, the probe will be double rod type. The distance between electrode & surface area of electrodes remain unchanged. The variable is the depth of the material being measured which represents the dielectric contact between two electrodes. Air & vacuum have relative dielectric constant as 1 & that of liquids, it is greater than 1. The capacitance of the capacitor therefore depends on how much material lies between the probe & vessel wall i.e. Whether the probe is covered with or free from material. The capacitor changes with change in level of material & provides corresponding 4-20 Ma DC continuous output

TECHNICAL SPECIFICATIONS

Probe length	: As per requirement (max 3 mtr.)
Type of output	: 4 to 20 mA DC , 2 wire
Accuracy	: $\pm 2\%$ F.S.
Linearity	: $\pm 2\%$
Processes temperature	: 250°C max.
Probe MOC	: 30kg/cm ³ max.
Power supply	: SS316 with Teflon coating
Power consumption	: 24 v DC, External
Response time	: < 6 VA
Temperature coefficient	: <1000 mSec
Process connection	: Flame-proof, [P-65, IIA, IIB, CMRI Certified]
Mounting	: flanged/ threaded
Operating conditions	: Top of the tank
Optional	: Temperature 0 to 55°C / Humidity 5 to 95% non-condensing
Local Display	: 8x1 LCD



CABLE TYPE BALLOON LEVEL SWITCHES

Level indicators are devices used in the measurement of level of fluids at various industrial applications. These devices are used to determine the level of liquid in tank, drums, pressure vessels etc.

There are many level indicators to suit the needs of different applications, normally, fluids are used in many forms in highly commercial industries. Without proper devices it will be very difficult to find the quantity and level of fluid stored. Also, In certain situations where the nature of fluid is dangerous or the place in which the liquid is stored is of such a nature that it is manually impossible to find the level, then the level indicators are of upmost importance.

Depending on the type of application used, the type of level indicator should be selected, for example, in the process industry.

TYPES OF LEVEL INDICATORS.

There are many different type of level indicators each with its own application.

1. TUBULAR LEVEL INDICATOR
2. REFLEX LEVEL INDICATOR are for application that involve high temperature, high pressure and use of corrosive fluids. The colorless fluid used in this apparatus give better clarity to level indication.
3. TRANSPARENT LEVEL INDICATOR are highly useful, in chemical industries and petrochemical fertilizers. As the fluid is stored in high pressure, the transparent level indicator is very useful to fluid level.
4. FLOAT & BOARD TYPE LEVEL INDICATOR, some other level indicators for reference are tubular level indicator, float and board level indicators, sight flow indicators, window type sight flow, manometers and bi-color indicators. Some of level indicators are provided with various features, such as a built-in continuous output measurement and adjustable alarm switches.
5. MAGNETIC LEVEL INDICATORS are red followers that need magnetic level indicators, cylindrical floats and powerful magnets are used to find the level of the fluid. the float movement is followed by magnetic capsules, and thus, the level is indicated. This type of indicator has good visibility and is absolutely safe to use as it contains non-fragile metal chamber.

TUBULAR LEVEL INDICATOR

EASY MOUNTING

Flange and screwed mounted parallel along the side of the tank multiple mounting/ orientation alternative on request.

SIMPLE OPERATION

When the liquid level rise in the tank the liquid also rise inside the glass tube carrying a graduated scale. The liquid level in the tank can be conveniently read against the scale.

IN - BUILT RUGGEDNESS

Box type guard made of steel channels (poly propylene for corrosive applications) enhances safety in operation and long usability.

CLEAR FULL VISIBILITY

High quality borosilicate glass tube.

DETAILS REQUIRED FOR QUOTATION

1. Center of center distance
2. Material of construction
3. Connection details
4. Operating pressure & temperature



SPECIFICATION

Glass tube	: borosilicate
Glass OD	: 16mm, 19mm, 22mm
Material if all	: MS, SS 304, SS316, SS316L,
wetted parts	: PP, PTFE
Gland packing	: PTFE
Glass protector	: MS powder coated, SS, PP
Scale	: Aluminum, SS Acrylic Bakelite
Mounting	: Side, rear, bottom, & top
Rated temp.	: 150°C
Rated pressure	: 10kg/cm ²
Vent & drain	: Plug / valve
Connection	: flanges / screwed/ or to mention



REFLEX LEVEL GUAGE

WORKING PRINCIPLE

Reflex Glass Level Gauges Working Principal Is Based On The Light Refraction And Reflection Law. reflex glass level gauges use glasses having the face fitted towards the chamber shaped to have prismatic grooves with section. Angle of 90° . When in operation, the chamber is filled with liquid in the lower zone and gases or vapors in the upper zone; the liquid level is distinguished by different brightness of the glass in the liquid and in the gas/ vapor zone. The reflex level gauges do not need a specific illumination: the day environmental light is enough. only during the night artificial light must be provided.

The different brightness in the zones is obtained as explained below :

LIQUID ZONE

This zone appears quite dark when the gauge is in operation and lighted as above said.

Given the construction, most of the environmental light rays incident on the external face of the glass are quite perpendicular to said face and, therefore, not deviated by the glass. These rays reach the glass/ liquid interface with an inclination of approx. 45° . the critical angle glass/liquid is always superior to 45° . Therefore the rays incident within the critical angle (practically the totality) are refracted within the liquid and since the internal walls of the gauge chamber are not reflecting, the gauge chamber are not reflecting, the rays cannot be seen from the outside. in fact the zone will appear dark, nearly black, to the observe.

GAS/VAPOR ZONE

This zone appears almost silver bright to the observe. As for the liquid zone, the light rays reach the glass/gas - vapor interface with the angle around 45° . Since this angle is greater than glass/gas-vapor critical angle, the rays are not refracted, but totally reflected making 90° turn reaching the nearest glass/gas - vapor interface again with angle of 45° . For same reason they will be reflected and turned by 90° toward the observe, to whom the zone will appear silver bright.

APPLICATIONS

Reflex glass level gauges can be used in most of the cases and offer great advantage in term of : low initial cost, low operating cost, easy level reading. reflex level gauges cannot be used in certain as for example.

1. When the separation level between two liquids has to be read(interface)
2. When besides the level indication, the observation of the liquid color is required.
3. When the process fluid is high - pressure water steam, since in the case the glass must be protected from the solvent action of the boiler water by using mica shield.
4. When the process fluid is such that can corrode the glass (e.g. high temperature alkaline solution or hydrofluoric acid), since mica shields or polytrifluoro-chloroethylene shields must be used to protect the glass.

SPECIFICATIONS

Type	: reflex / transparent
Material of construction	: toughened borosilicate imported kinger/maxos/indian make
Material of body	: CS/SS 304/SS316/PP/PTFE
Material of cover plate	: CS to ASTM A-105(non wetted parts)
Valve type/ design	: Ball check /Auto Shut - off
Valve body material	: CS/SS304/SS316/PP/PTFE
Valve trim material	: SS 316/SS-304
Vent / drain connection	: $\frac{1}{2}$ " NPT(F) with plug (or) to mention
Material of U- Bolts, studs &nuts	: SS 316 MS,EN-8,ss OR to mention
Gaskets/ seals	: CAF, AF 120, PTFE

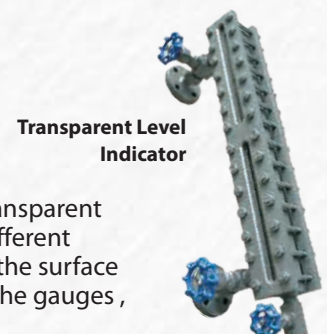


Reflex Level Indicator

TRANSPARENT LEVEL GUAGE

WORKING PRINCIPLE

Apart from glass tube level gauges, transparent level gauges are always fitted with two plate transparent glasses between which the fluids is contained. The fluids level is indicated as the result of the different transparency of the two media and in some cases (for water steam), by conveying upwards on the surface of separation (between liquid and gaseous substance) or source of light located at the back of the gauges, the rays of which are totally reflection down to the observe.



Transparent Level Indicator



APPLICATIONS

Transparent level gauges are suitable for almost all installations. In fact they permit:

- The use of mica shields or polytrifluorochloroethylene shields to protect the glass from the corrosive action of the process fluid
- The observation of interface
- The observation of the liquid color

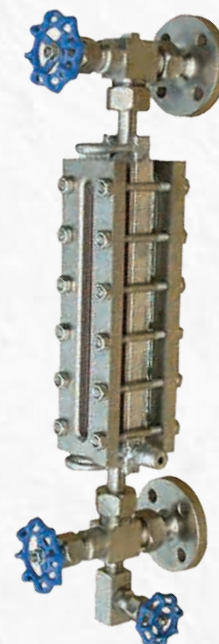
This instrument consists of a metal body, machined to have an internal chamber and one or more front windows (on each side of the gauge). On each window a special high resistance plate transparent glass is applied with sealing joint and metal cover plate hold by bolts and nuts.

The chamber is connected to vessel with cross fittings and flanged, threaded or welded ends. Usually, between the instrument and its connecting ends, valves are fitted to consent shut-off piping and to disassembled the level gauge without to empty the vessel.

Drain valves can also be fitted to cross fittings device.

To avoid leakage in case of glass breakage, safety ball-check device can be provide in cross-fittings or shut-off valves. This kind of indicator is suitable for water / steam. To protect glass surfaces from corrosive action of the process fluid, Transparent level gauge can be fitted with mica shields or polytrifluorochloroethylene shields. This kind of indicator is suitable for liquids colorless and very fluid.

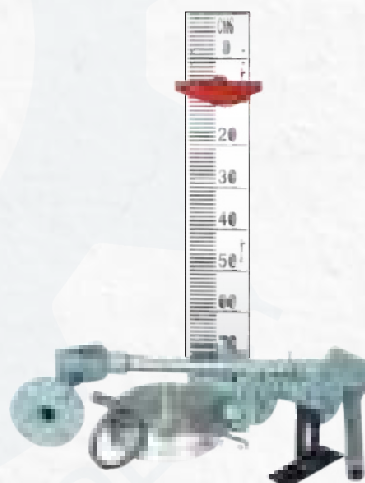
In some case (i.e. for water / steam) the best reading is obtained by conveying upwards on the surface of separation (liquid/steam or vapor interface), a source of light, located on the back of the gauge, the rays of which are totally reflected down to the observer.



FLOAT & BOARD LEVEL INDICATOR

As the liquid level rises, a large dia. Float moves up with the change in liquid level in the tank.

The float is attached to a multi strand wire rope, which passes through 2 nos. friction less specially designed pulleys. The pulleys in turn are connected to a pointer, which moves on a graduated scale by



FEATURES

- (1) Clear visibility
- (2) Powder coated screen printed scale board
- (3) Less corrosion powder coated finish
- (4) Easy movement nylon roller pointer glides effortlessly
- (5) No guide wire specially designed self centering float/ anchor plate optional
- (6) Non-stretching multistrand wire rope in SS/ PP /Nylon
- (7) Dust free housing for pulleys - minimizing friction in movement
- (8) Easy to install, modular design
- (9) Vapor tight-version used for evaporating fluids.

DETAILS REQUIRED FOR QUOTATION

(1) Height of the tank
(2) Material of construction of wetted parts
(3) Top nozzle detail
(4) Service
(5) Specific gravity
(6) Operating temperature
(7) Operating pressure



MAGNETIC LEVEL GUAGE

The magnetic level gauge is the instrument to read a level indication in whatever plant or operating condition giving free maintenance, preventive security against leakage, environment al safety, sure and trouble free application with chemically aggressive, pollutant, harmful or poisonous, inflammable or explosive, optically similar fluid interface.

OPERATING PRINCIPLE

- The principle whereby the liquid in communicating vessel is always at the same level
- Archimede's principle according to which a body immersed in a liquid receives a buoyancy equal to the weight of displaced liquid
- The principle of attraction between north and south pole of two permanent magnets and that of repulsion between like poles.

THIS PRINCIPLE HAS TWO APPLICATIONS IN THE MAGNETIC LEVEL GAUGE

- (1) First between the magnet in the chamber float and every single magnet of the indicating scale
- (2) Second between the magnets of the indicating scale

- A vertical chamber consisting of a tube of suitable diameter and thickness containing a float where in a permanent magnet is placed exactly on the liquid level line.
- Two horizontal stub pipes for connection to the vessel containing the liquid of which we wish to know the level.
- Two stop valves (recommended, but not mandatory) one on each stub pipe, to isolate the level gauge
- An indicating scale, outside the vertical chamber, consisting of a case of non-magnetic material with transparent front face containing a set of small permanent magnets enclosed in small cylinders which can rotate on their horizontal axis.
- These cylinders show an external surface having two different colors.

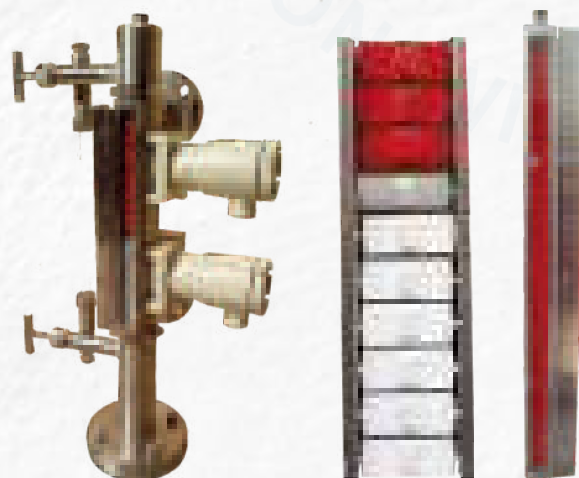
according to the orientation of each magnet (due to the action of the magnet in the float) each cylinder will show externally half of its surface of one color or the other.

The indicating scale will be of one color (e.g. white) over the chamber area taken up by gas, vapor or steam phase contrasting with the other color (e.g. red) over the chamber area taken up by liquid phase.

APPLICATIONS

The application range is very wide and includes all the situations where the fluids are:

- 1) At high pressure, at low or high temperature
- 2) At low pressure, at low or high temperature
- 3) Chemically aggressive
- 4) Pollutant to environment
- 5) noxious or poisonous for people health
- 6) inflammable or explosive
- 7) with identical optical characteristics of the superimpose phases (interface)



DETAILS REQUIRED FOR QUOTATION

(Top mounted magnetic level indicator - model No. : FLMLT-200)

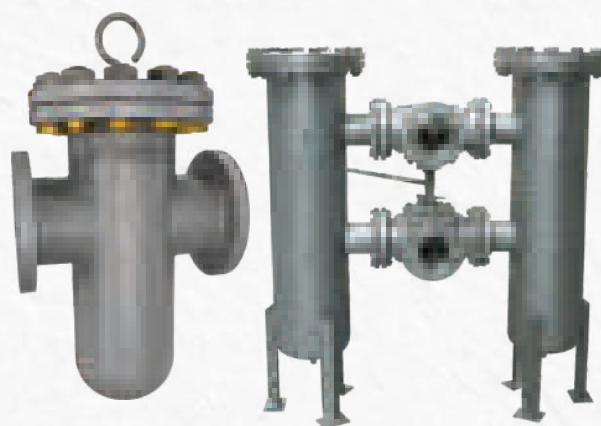
- | |
|--|
| 1) Height of the tank & height of the nozzle welded on it |
| 2) Name of the liquid |
| 3) Material of construction of wetted parts |
| 4) Specific gravity of the liquid |
| 5) Operating temperature |
| 6) Operating pressure |
| 7) Top nozzle detail on which you are intending to mount level indicator |



BASKET STRAINERS

Basket strainers feature top removal of the screen. The screen is in the form of a basket, with a lifting handle, so that all particulate captured and retained by the screen can be easily removed for disposal.

They are intended for applications where large amounts of solids particulate are expected and where the clean-out will be frequent. For easily flushable solids, a modified cone bottom basket can be tilted with automatic or manual blow-down through drain port. This will allow clean-out without removal of the screen, and without interrupting the flow process.



Y STRAINERS

Y Strainers take their name from their configuration. They are typically used in application where the amount of solid to be removed is small, and where frequent clean - out is not required. They are most commonly used in pressurized line, gas or liquid, but can also be used in suction or vacuum conditions. A Y-Strainer has the advantage of being able to be installed in either a horizontal or vertical position. However, in both cases, the screening element or "leg" must be on the "downside" of the strainer body so that entrapped solids can be properly collected and held for disposal. A blow down plug on the drain port will allow clean- out without removal of the screen, and without interrupting the process flow.

FEATURES

- (1) Largest basket size holds sufficient solids for the required time between clean-outs
- (2) Top removal of screen with a lifting handle
- (3) Maintenance features includes automatic flush, Davit arm assembly, pressure gaps or difficult pressure gaps, special internal coatings, single or multiple basket
- (4) Basket made of heavy gauges perforated stainless steel lined with wire mesh as low as 5 microns

ACRYLIC BODY MANOMETER

Pressure is defined as a force per unit area – and the most accurate way to measure low air pressure is to balance a column of liquid know weight against it and measure the height of the liquid column so balanced. The unit of measure as the fluid, and mm wc / inches wc using water or oil as the fluid.





SINGLE LIMB MANOMETER

At left, equal pressure is imposed on the fluid in the well and in the indicating tube. Reading is zero. At the right, a positive pressure has been imposed on the liquid in the well causing the level to go down very slightly. Liquid level in indicating tube has risen substantially. Reading is taken directly from scale at liquid level in indicating tube. The scale has been compensated for the drop in level in the well.

INCLINED MANOMETER

At left, equal pressure is imposed on the fluid in the well and in the indicating tube. Reading is zero. At the right, a positive pressure has been imposed on the liquid in the indicating tube pushing it down to a point on the scale equal to the pressure. Liquid level in the well rises proportionately. Inclining the indicating tube has opened up the scale to permit more precise reading of the pressure.

PRINCIPLE OF OPERATION

The Mcleod gauge consists of a bulb and capillary tube where their volume of mercury V_1 is at atmospheric pressure P_1 . When vacuum is applied both are evacuated and when the gauge is rotated, this volume is compressed to a small portion in the capillary having volume V_2 at corresponding pressure (i.e vacuum) P_2 boyle's Law $P_1 v_1 = P_2 v_2$.

The pressure is read by comparing the compressed level of mercury with the corresponding graduated scale parallel to the capillary tube.

'U' TUBE MANOMETER

Pressure measuring devices using liquid columns in vertical or inclined tubes are called manometers. One of the most common is the water filled u-tube manometer used to measure pressure difference in pitot or orifices located in the airflow in air handling or ventilation system.

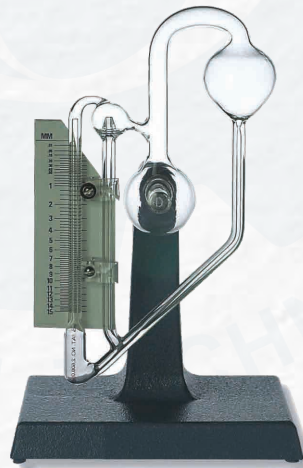
MCLEOD GUAGE

The conventional mcleod guage has been modified and range 0.001-10mm H.G. resulting as an accuracy of $\pm 5\%$ at scale point.

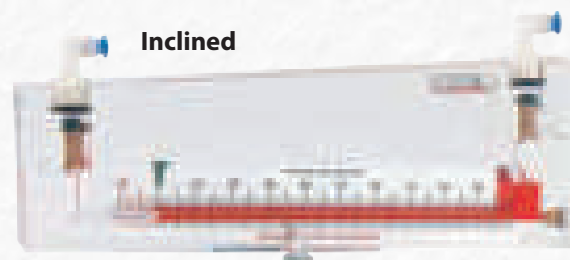


U-Tube

Single Limb



Mcleod Guage



Inclined





SIGHT FLOW INDICATOR

SPECTEC sight flow indicators provides a quick, reliable and economical way to verify fluid flows through industrial process lines. Sight flow indicator is available with four styles of indicators including rotor wheel, flapper, or drip tube, plain. A rotor wheel indicator style is ideal for indicating flow of clear or opaque liquids as well as observations from a distance. It can be installed in any direction, upward, downward, vertical or horizontal lines. A flap indicates at a glance which direction the flow is moving in horizontal lines or vertical lines with upward flow. A port in the shape of a whistle or drip tube is ideal for gravity flow, extremely low flow or intermittent flow. The drip tube keeps the fluid from dripping on the sight glass, ensuring visibility.

DOUBLE WINDOW SIGHT FLOW INDICATOR

SIZE (NB)	F/F Distance in mm	Visible Dia IN MM
15	160	38
20	160	38
25	160	38
40	200	50
50	230	65
65	310	96
80	310	96
100	350	150



FEATURES & BENEFITS

- (1) Simple, reliable and economical way to verify liquid flows through industrial process lines
- (2) Many specials are available upon request to meet various conditions of pressure, temperature, fluid types and mechanical dimensions

SPECIFICATION

Item	: sight glass
Type	: double window
Nuts & bolts	: carbon steel / SS304 / SS316
Sealing	: CAF / PTFE / METALLIC GRAPHITE / SPIRAL WOUND
CUSHION	: CAF / PTFE / METALLIC GRAPHITE / SPIRAL WOUND
Cover plate	: M.S. / SS304 / SS316
Body material	: ASTM A216 Gr. WCB / ASTM 351 CF8 / ASTM351 CF8M/ A106 GRB / CARBON STEEL / SS304 / SS316
End connection	: Flanged / screwed



Item	: sight glass
Type	: full view
Glass	: borosilicate with flare end
Packing	: PTFE
F/F Distance	: 150 mm
End connection	: Screwed / flanged etc.
Tie rod & flanges	: SS316, SS316L, SS304, SS304L, MS, PTFE BUSH & WASHER

DETAIL REQUIRED FOR QUOTATION

(1) Type (full view or double window)	(4) Operating pressure
(2) Size	(5) Operating temperature
(3) End connection detail	(6) Material of construction

FULL VIEW SIGHT FLOW INDICATOR

SIZE (NB)	F/F Distance in mm
15	150
20	150
25	150
40	150
50	150
80	150
100	150



TEMPERATURE

Sensors, Indicators & Controllers



CONVENTIONAL THERMO COUPLE & RTD ASSEMBLIES

- Ceramic insulated wide in bead construction
- Available in K and N calibration
- SS316 and INCONEL 600 are standard sheath materials
- Also available in SS310 / SS316 & INCOLOY 800
- Terminal heads for flameproof application also
- ½" BSP (F) cable entry as standard
- Single cable entry without cable gland as standard
- Double cable entry and cable glands optional
- Elements terminated into nickel plated brass terminals mounted
- On high purity ceramic terminal block
- All models also available with dual element configuration

DIGITAL TEMPERATURE INDICATOR / MULTI POINT/ SCANNER

SD digital temperature controller are suitable for measure & control of highly precise Temperature of single / Various Stages of heat & cool process.

FEATURES

- DT-103 / DTI-10M/ DTI-13S08 / 1216
- 96 X 96 X 110 mm / 72 x 72 x 110 mm / 48 x 96 x 110 mm
- 48 x 72 x 110 mm / 96 x 192 x 200 mm
- Range - 50 °C to 200 °C, 400 °C, 1200 °C, 1600 °C
- J&k Thermocouple Pt-100 (RTD) / 4-20 mA/ Pt-Pt-Rh 10% and 13%
- 3.5 digits, 0.5" Red LED Display
- Accuracy : J&K ±1%, Ot-100 / 4-20 mA ±0.2%
- High Accurate design
- Hold switch, Auto / Manual and Adj. Scan time for Scanner

THERMOWELLS & PROTECTION TUBES

- Wide range of BARSTOCK (monolithic drilled well of bar material)
- And FABRICATED (protection tube weld sealed at the end of drawn)
- Metal pipe thermowells and protection tubes
- Available in SS316 / SS310 / SS446 / Hastalloy B&C, Tantalum / monel



DIGITAL VACUUM GAUGE

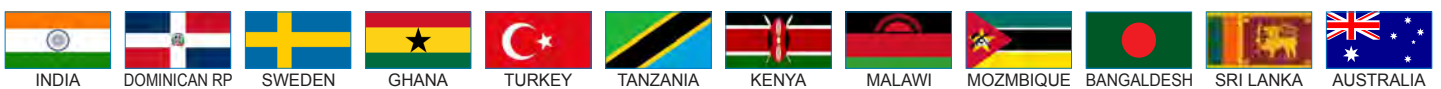
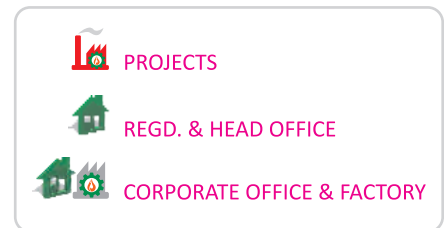
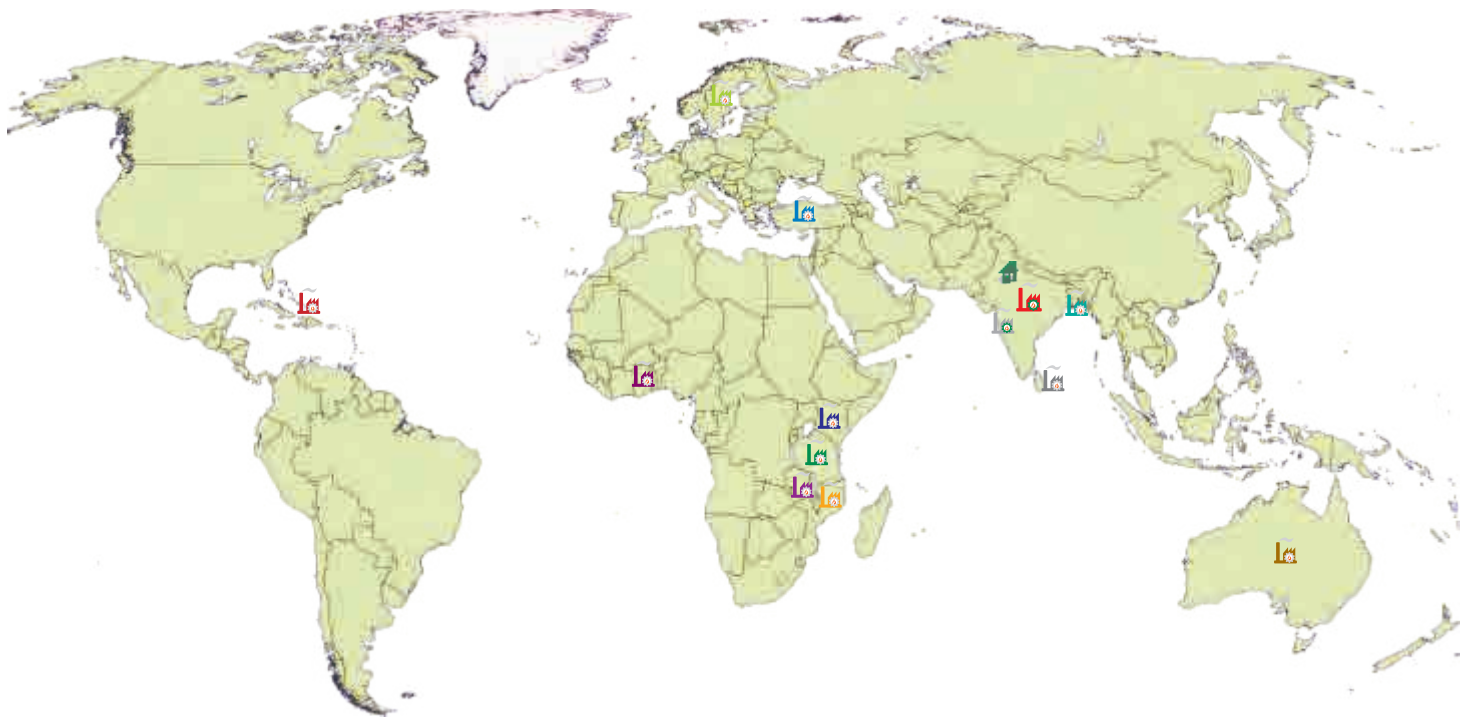
The vacuum gauge controller is a convenient and inexpensive power supply and readout instrument for a convention vacuum gauge sensor. The housing can be used as a bench top or a panel mount instrument. The Vacuum gauge is powered by user supplied 12 to 30 V dc, 2 W, or by optional power supply.



PRESSURE GAUGE

Pressure Gauge - of LATM, brand offer complete range of pressure gauge catering all the industrial low pressure to heavy-duty applications. Pressure gauges ranging from (-) 1 kg/cm² (vacuum) to pressure up to 1400kg/cm² with dial sizes starting from 40ND to 250ND. Master / test gauges are made to 0.1%, 0.25 & 0.5%, accuracy with knife edged pointer and mirror scale as an option to dial sizes 150 & 250 ND. Our scope of supply include pressure gauges for low gaseous pressure (mbar, capsule type). Liquid pressure (mmWC, schaffer diaphragm), Medium to higher pressure (kg/cm²- bar, Bourdon tube), for clogging & suspended media's (Diaphragm sealed type), Flanged ends type, for aggressive chemicals (Teflon lined / coated type). Options of direct / flanged, bottom / back mounting, panel / surface mounting / flanged or with remote capillary (remote capillary used for medias at high temperature & line vibration). Liquid fillings with crimped dials are for hydraulic & OEM end users best - suited recommendation. Triclover end / homogenizer pressure gauge are of regular manufacture scope catering to food, beverage, pharmaceutical & dairy industries for sanitary applications.





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