



# ALVAMT

## VA METAL TUBE Flowmeter

### Model ALVAMT Series

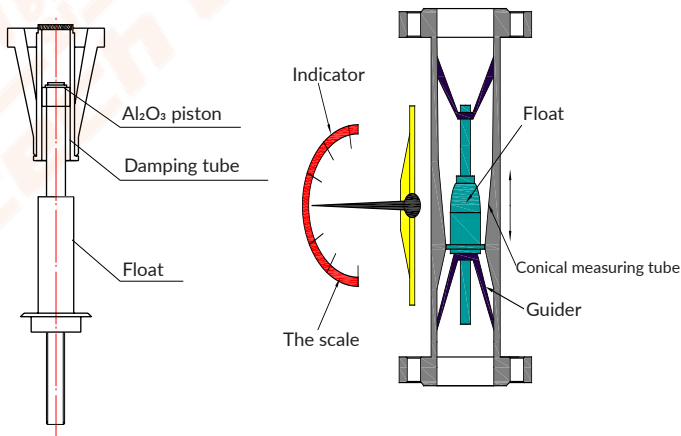
## GENERAL

ALVAMT variable area flowmeters are rugged, all metal flowmeters offering an accuracy of 1%. The ALVAMT is constructed with stainless steel components for measuring a variety of gases and liquids. The ALVAMT can be constructed with various lining materials for aggressive liquid and gas applications. Flow rate indication is provided by means of magnetic coupling where a magnet, encapsulated in the float, is coupled to a rotatable magnet located in the rear of the indicator, thus moving the dial indicator mounted on the meter. Optional accessories available include microprocessor based transmitter with 4-20 mA output with or without Hart configurable alarms, and pulse output for totalization. Also available are various mechanical indicators - see below.



## FEATURES

- Versatile construction for a variety of gas & liquid applications
- Fast response time and high resolution within 5 to 50 msec
- Wide temperature range from -40 up to +400 °C
- Pressures up to 6100 psi (420 bars)
- Pipe connections including flanged, threaded, Tri-Clamp
- Electronics either intrinsically safe EEx ia II CT5, or Ex proof EEx d II CT6
- Available with exotic materials such as Hastelloy B & C, Ti, Cu, Al
- PTFE and other liners available
- NIST traceable calibration



## SPECIFICATIONS

- **Size:** ½"~10" (15 ~ 250mm)
- **Measuring Range:** Water (20 °C) 10~300000L/h  
Air (20 °C, 0.1013MPa) 0.7 ~ 3.000 m³/h
- **Temperature:** Mechanical counter -80 up to +400 °C  
Electronic transmitter -40 up to +250 °C
- **Pressure:** ½"~2" (DN15 ~ DN50) 580 psig (4.0 MPa)  
2"~10" (DN65 ~ DN250) 232 psig (1.6 MPa)
- **Process Connections:** ANSI, DN & JIS flanges  
threaded and sanitary
- **Turndown ratio:** 10:1
- **Accuracy:** Mechanical counter 1.5 % FS  
Electronic transmitter 1.0% FS
- **Viscosity:** ½" (DN15)<30 mPa.s, 1" (DN25)<250 mPa.s  
2½"~10" (DN50-250)<300 mPa.s
- **Metering tube:** SS# 304/316/316L, WNR 1.4401/1.4404  
6Mo, Monel, Hastelloy B & C, Titanium  
SS# 304 with PTFE lining
- **Hazardous approvals:** Ex ia II CT5 Ex d II CT6
- **Protection:** IP65/NEMA 4X
- **Ambient temperature:** Mechanical counter -40 up to 120 °C  
Electronic transmitter -40 up to 60 °C
- **Cable interface:** M20 × 1.5, ½"G, ½"NPT, ¾"G, ¾"NPT
- **Display and electronics:** Stainless steel housing , dial indicating flow value  
2-wire (4-20)mA / HART output, Exi or Exd and alarms  
Mechanical indicator with Exd protection, selectable switches  
Indicator with LCD display and 3.6V lithium battery
- **Meter Structure:** Bottom enter, top exit  
Bottom enter, left exit  
Bottom enter, right exit  
Left enter, right exit  
Right enter, left exit  
Left enter, left exit  
Right enter, right exit

### ■ Flow range

DN	Float Number	Viscosity Limitation Liquid mPa-s	Water (l/h)		Air (Nm <sup>3</sup> /h)	Pressure loss kPa	
			304SS	PTFE	304SS	304SS	PTFE
DN15	KV15.0	5	1.0-10	2.5-25	0.03-0.3	1.5	1.5
	KV15.1	5	1.5-15	3.0-30	0.045-0.45	1.5	1.5
	KV15.2	5	2.0-20	3.5-35	0.06-0.6	1.5	1.5
	KV15.3	5	2.0-20	4.0-40	0.21-2.1	1.5	1.5
	KV15.4	30	2.5-25	4.5-45	0.6-6	1.5	1.5
	KV15.5	30	3.5-35	5.0-50	0.105-1.05	1.5	1.5
	KV15.6	30	4.0-40	5.5-55	0.12-1.2	1.5	1.5
	KV15.7	30	4.5-45	6.0-60	0.135-1.35	1.5	1.5
	KV15.8	30	5.0-50	7.0-70	0.15-1.5	1.5	1.5
	KV15.9	30	5.5-55	8.0-80	0.165-1.65	1.5	1.5
	KV15.10	30	6.0-60	9.0-90	0.18-1.8	1.5	1.5
	KV15.11	30	7.0-70	10-100	0.21-2.1	1.5	1.5
	KV15.12	30	8.0-80	12-120	0.24-2.4	1.5	1.5
	KV15.13	30	9.0-90	16-160	0.27-2.7	1.5	1.5
	KV15.14	30	10-100	20-200	0.3-3	1.5	1.5
	KV15.15	30	12-120	22-220	0.36-3.6	1.5	1.5
	KV15.16	30	16-160	25-250	0.48-4.8	1.5	3.0
	KV15.17	30	20-200	28-280	0.6-6	1.5	3.0
	KV15.18	30	22-220	30-300	0.66-6.6	3.0	3.0
	KV15.19	30	25-250	35-350	0.75-7.5	3.0	3.0
	KV15.20	30	28-280	40-400	0.84-8.4	3.0	3.0
	KV15.21	30	30-300	45-450	0.9-9	3.0	3.5
	KV15.22	30	35-350	50-500	1.05-10.5	3.0	3.5
	KV15.23	30	40-400	/	1.2-12	3.0	/
	KV15.24	30	45-450	/	1.35-13.5	3.5	/
	KV15.25	30	50-500	/	1.5-15	3.5	/
	KV15.26	30	60-600	/	1.8-18	3.5	/
	KV15.27	30	70-700	/	2.1-21	3.5	/
	KV15.28	30	80-800	/	2.4-24	3.5	/
	KV15.29	30	90-900	/	2.7-27	3.5	/
KV15.30	30	100-1,000	/	3-30	3.5	/	
DN20	KV20.0	30	80-800	40-400	2.4-24	1.5	1.5
	KV20.1	30	100-1,000	60-600	3-30	1.5	1.5
	KV20.2	30	120-1,200	80-800	3.6-36	2.0	2
	KV20.3	30	160-1,600	100-1,000	4.8-48	2.0	2
	KV20.4	30	200-2,000	120-1,200	6-60	3.5	3
DN25	KV25.0	250	100-1,000	60-600	3-30	1.5	1.5
	KV25.1	250	120-1,200	80-800	3.6-36	1.5	1.5
	KV25.2	250	160-1,600	100-1,000	4.8-48	3	1.5
	KV25.3	250	200-2,000	120-1,200	6-60	3	1.5
	KV25.4	250	250-2,500	160-1,600	7.5-75	3.5	3
	KV25.5	250	300-3,000	200-2,000	9-90	3.5	3
	KV25.6	250	350-3,500	250-2,500	10.5-105	8	3.5
	KV25.7	250	400-4,000	300-3,000	12-120	8	3.5
	KV25.8	250	450-4,500	350-3,500	13.5-135	8	8
	KV25.9	250	500-5,000	400-4,000	15-150	16	10
	KV25.10	250	550-5,500	/	16.5-165	16	/
DN32	KV32.0	250	400-4,000	400-4,000	12-120	8	8
	KV32.1	250	500-5,000	500-5,000	15-150	10	10
	KV32.2	250	600-6,000	/	18-180	12	/
	KV32.3	250	800-8,000	/	12-120	16	/
DN40	KV40.0	250	500-5,000	500-5,000	15-150	8	6
	KV40.1	250	600-6,000	600-6,000	18-180	10	10
	KV40.2	250	800-8,000	/	24-240	12	/
DN50	KV50.0	300	600-6,000	600-6,000	18-180	3	3
	KV50.1	300	800-8,000	800-8,000	24-240	3	3

### ■ Flow range

DN	Float Number	Viscosity Limitation Liquid mPa-s	Water (l/h)		Air (Nm <sup>3</sup> /h)	Pressure loss kPa	
			304SS	PTFE	304SS	304SS	PTFE
DN50	KV50.2	300	1,000-10,000	1,000-10,000	30-300	4	4
	KV50.3	300	1,200-12,000	1,200-12,000	36-360	4	4
	KV50.4	300	1,400-14,000	1,400-14,000	42-420	4	6
	KV50.5	300	1,600-16,000	1,600-16,000	48-480	8	6
	KV50.6	300	1,800-18,000	/	54-540	8	/
	KV50.7	300	2,000-20,000	/	60-600	16	/
DN65	KV65.0	300	1,200-12,000	1,200-12,000	36-360	6	6
	KV65.1	300	1,600-16,000	1,600-16,000	48-480	8	8
	KV65.2	300	2,000-20,000	2,000-20,000	60-600	10	12
	KV65.3	300	2,500-25,000	/	75-750	14	/
	KV65.4	300	3,000-30,000	/	90-900	20	/
DN80	KV80.1	300	2,500-25,000	2,500-25,000	75-750	14	14
	KV80.2	300	3,000-30,000	3,000-30,000	90-900	14	14
	KV80.3	300	3,500-35,000	3,500-35,000	105-1,050	14	20
	KV80.4	300	4,000-40,000	4,000-40,000	120-1,200	22	25
	KV80.5	300	5,000-50,000	/	150-1,500	22	/
	KV80.6	300	6,000-60,000	/	180-1,800	25	/
	KV80.7	300	6,500-65,000	/	195-1,950	25	/
DN100	KV100.0	300	5,000-50,000	5,000-50,000	150-1,500	30	25
	KV100.1	300	6,000-60,000	6,000-60,000	180-1,800	30	25
	KV100.2	300	7,000-70,000	/	210-2,100	30	/
	KV100.3	300	8,000-80,000	/	240-2,400	30	/
	KV100.4	300	9,000-90,000	/	270-2,700	40	/
DN125	KV125.0	300	10,000-100,000	10,000-100,000	300-3,000	45	35
	KV125.1	300	12,500-125,000	12,500-125,000	380-3,800	45	40
	KV125.2	300	15,000-150,000	/	/	48	/
	KV150.0	300	12,500-125,000	12,500-125,000	380-3,800	45	42
	KV150.1	300	15,000-150,000	15,000-150,000	450-4,500	50	50
DN150	KV150.2	300	16,000-160,000	/	/	50	/
	KV150.3	300	18,000-180,000	/	/	60	/
	KV150.4	300	20,000-200,000	/	/	60	/
	KV200.0	300	16,000-160,000	16,000-160,000	/	60	60
DN200	KV200.1	300	18,000-180,000	18,000-180,000	/	60	70
	KV200.2	300	20,000-200,000	/	/	65	/
	KV200.3	300	25,000-250,000	/	/	65	/
DN250	KV250.0	300	22,000-220,000	22,000-220,000	/	65	60
	KV250.1	300	25,000-250,000	/	/	75	/
	KV250.2	300	30,000-300,000	/	/	75	/

### ■ Indicators

#### Electronic (Exi or Exd)

LCD display (flow rate / total)  
2-wire 4-20mA/HART  
PC configurable, 1 or 2 contacts



#### Mechanical

EX proof Housing  
One or two selectable  
contacts optional



#### Battery Powered

LCD display (flow rate/ total)  
3.6V Lithium battery (1 year life)

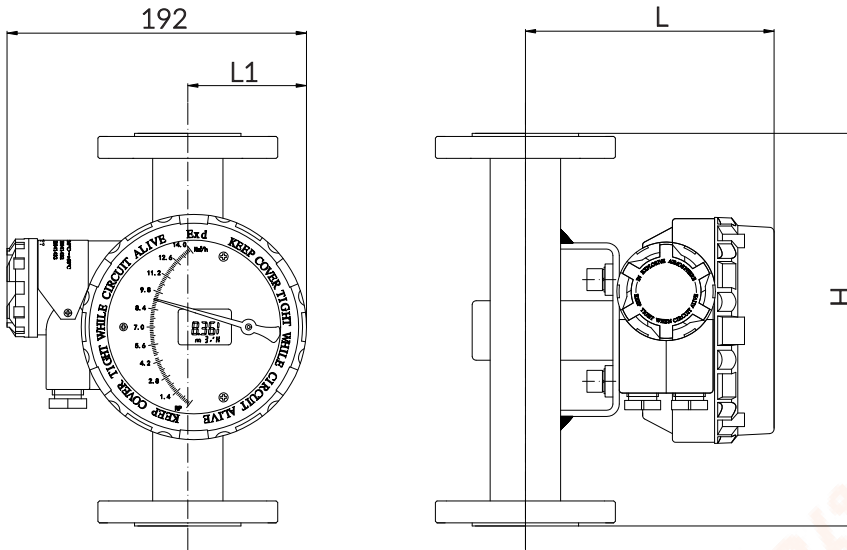


#### Mechanical

SS# 304 housing



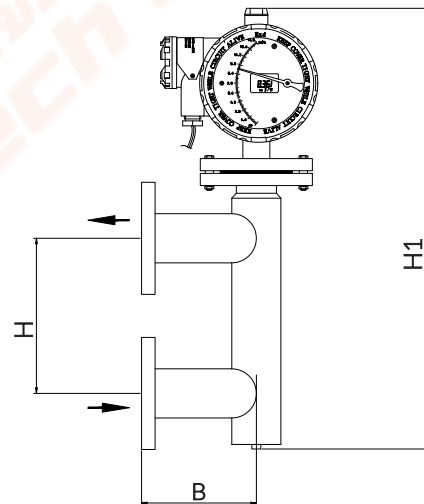
### Vertical , Bottom -to- Top



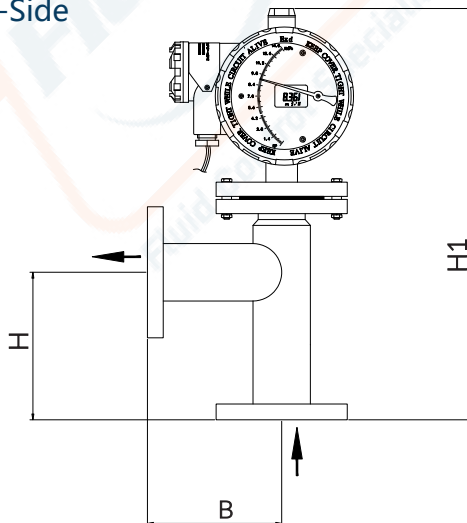
Dimensions Inches (mm)		
Nominal Size	H	L
½" (DN 15)	9.84 (250)	5.90 (150)
¾" (DN 20)	9.84 (250)	6.15 (156)
1" (DN 25)	9.84 (250)	6.25 (159)
1¼" (DN32)	9.84 (250)	6.50 (165)
1½" (DN40)	9.84 (250)	6.75 (171)
2" (DN50)	9.84 (250)	6.85 (174)
2½" (DN65)	9.84 (250)	7.13 (181)
3" (DN80)	9.84 (250)	7.40 (188)
4" (DN 100)	9.84 (250)	7.75 (197)
5" (DN 125)	15.75 (400)	8.15 (207)
6" (DN 150)	15.75 (400)	8.70 (221)
8" (DN 200)	17.75 (450)	9.69 (246)
10" (DN 250)	19.70 (500)	10.79 (274)

### Side-to-Side

Dimensions inches (mm)			
Nominal Size	H	H1	B
½" (DN 15)	7.87 (200)	19.70 (500)	3.95 (100)
¾" (DN 20)	7.87 (200)	19.70 (500)	3.95 (100)
1" (DN 25)	7.87 (200)	19.70 (500)	3.95 (100)
1¼" (DN32)	7.87 (200)	19.70 (500)	3.95 (100)
1½" (DN40)	9.84 (250)	23.62 (600)	4.75 (120)
2" (DN50)	9.84 (250)	23.62 (600)	4.75 (120)
2½" (DN65)	13.75 (350)	27.55 (700)	6.30 (160)
3" (DN80)	13.75 (350)	27.55 (700)	6.30 (160)
4" (DN 100)	13.75 (350)	29.50 (750)	7.10 (180)
5" (DN 125)	15.75 (400)	31.50 (800)	9.84 (250)
6" (DN 150)	18.11 (460)	33.45 (850)	9.84 (250)



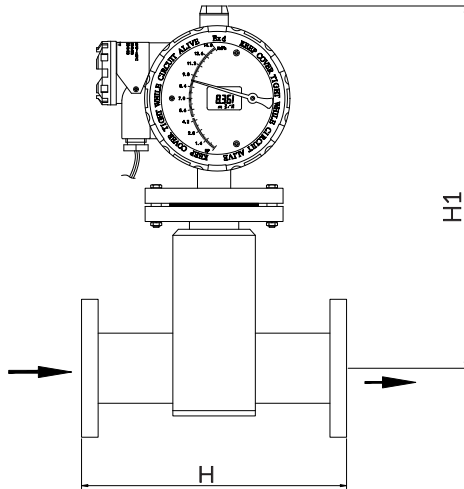
### Bottom-to-Side



Dimensions inches (mm)			
Nominal Size	H	H1	B
½" (DN 15)	7.87 (200)	19.70 (500)	3.95 (100)
¾" (DN 20)	7.87 (200)	19.70 (500)	3.95 (100)
1" (DN 25)	7.87 (200)	19.70 (500)	3.95 (100)
1¼" (DN32)	7.87 (200)	19.70 (500)	3.95 (100)
1½" (DN40)	9.84 (250)	23.62 (600)	4.75 (120)
2" (DN50)	9.84 (250)	23.62 (600)	4.75 (120)
2½" (DN65)	13.75 (350)	27.55 (700)	6.30 (160)
3" (DN80)	13.75 (350)	27.55 (700)	6.30 (160)
4" (DN 100)	13.75 (350)	29.50 (750)	7.10 (180)
5" (DN 125)	15.75 (400)	31.50 (800)	9.84 (250)
6" (DN 150)	18.11 (460)	33.45 (850)	9.84 (250)



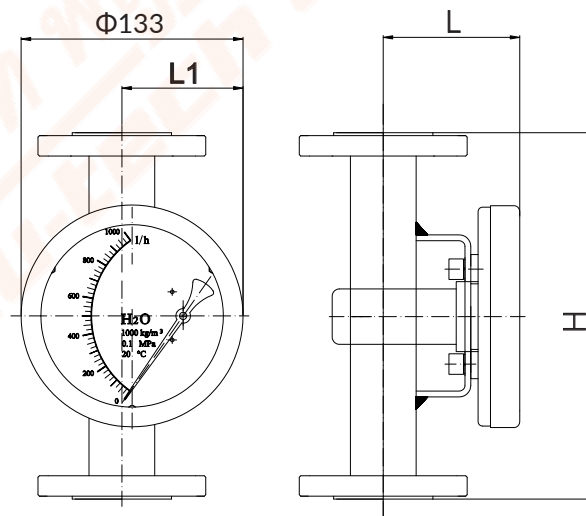
### Horizontal Type Left -to -Right



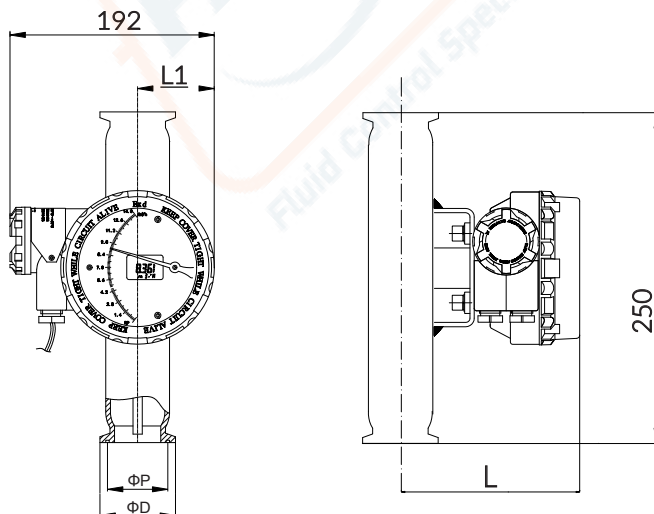
Dimensions Inches (mm)		
Nominal Size	H	L
½" (DN 15)	7.87 (200)	15.75 (400)
¾" (DN 20)	7.87 (200)	15.75 (400)
1" (DN 25)	7.87 (200)	15.75 (400)
1¼" (DN32)	7.87 (200)	15.75 (400)
1½" (DN40)	7.87 (200)	17.75 (450)
2" (DN50)	9.84 (250)	17.75 (450)
2½" (DN65)	9.84 (250)	17.75 (450)
3" (DN80)	9.84 (250)	19.70 (500)
4" (DN 100)	11.81 (300)	19.70 (500)
5" (DN 125)	13.75 (350)	19.70 (500)
6" (DN 150)	13.75 (350)	19.70 (500)
8" (DN 200)	17.75 (450)	25.60 (650)
10" (DN 250)	19.70 (500)	31.50 (800)

### Mechanical Bottom-to-top

Dimensions Inches (mm)			
Nominal Size	H	L	M
½" (DN 15)	9.84 (250)	2.20 (56)	3.07 (78)
¾" (DN 20)	9.84 (250)	2.44 (62)	3.25 (83)
1" (DN 25)	9.84 (250)	2.56 (65)	3.43 (87)
1¼" (DN32)	9.84 (250)	2.80 (71)	3.66 (93)
1½" (DN40)	9.84 (250)	2.80 (71)	3.86 (98)
2" (DN50)	9.84 (250)	3.15 (80)	4.00 (101)
2½" (DN65)	9.84 (250)	3.45 (88)	4.33 (110)
3" (DN80)	9.84 (250)	3.75 (95)	4.53 (115)
4" (DN 100)	9.84 (250)	4.05 (103)	4.92 (125)
5" (DN 125)	15.75 (400)	4.45 (113)	5.25 (134)
6" (DN 150)	15.75 (400)	5.00 (127)	5.91 (150)
8" (DN 200)	17.75 (450)	6.00 (152)	6.85 (174)
10" (DN 250)	19.70 (500)	7.00 (178)	7.87 (200)



### Hygienic Clamp connection



Dimensions Inches (mm)				
Nominal Size	D	A	d	L
½" (DN 15)	1.34 (34)	1.10 (28)	0.60 (15)	5.91 (150)
¾" (DN 20)	1.34 (34)	1.10 (28)	0.75 (19)	6.10 (155)
1" (DN 25)	2.00 (51)	1.75 (44)	0.94 (24)	6.25 (159)
1¼" (DN32)	2.00 (51)	1.75 (44)	1.18 (30)	6.46 (164)
1½" (DN40)	2.00 (51)	1.75 (44)	1.60 (36)	6.69 (170)
2" (DN50)	2.40 (61)	2.25 (57)	1.89 (48)	6.85 (174)
2½" (DN65)	3.58 (91)	3.31 (84)	2.60 (64)	7.13 (181)
3" (DN80)	4.17 (106)	3.82 (97)	3.07 (78)	7.40 (188)
4" (DN 100)	4.69 (119)	4.33 (110)	3.82 (97)	7.75 (197)

Please contact your **SmartMeasurement** application engineer  
 You also need to provide the following information:

<b>TYPE OF FLUID</b>	We need the name of your fluid, including operating density and viscosity
<b>FULL SCALE FLOW</b>	Maximum and minimum flow rates, units must be m <sup>3</sup> /hr, LPM or Gpm, etc..
<b>LINE SIZE</b>	we need to know your pipe size as well connection type (flange, threaded, etc..)
<b>PRESSURE AND TEMPERATURE</b>	We will calibrate your Flowmeter as close to your application as possible

### ALVAMT SERIES

EXAMPLE: ALVAMT-FA-304-L-M1-N-NN-0-0-SS-N

												DESCRIPTION
Diameter (for float contact factory)	****	**	**	**	**	**	**	**	**	**	**	Flow Meter
Bottom enter, Top exit	FA											Meter Structure
Bottom enter, Top exit horizontal	FBT											
Bottom enter horizontal, Top exit horizontal	FCZ											
Right enter, Left exit	FDR											
Left enter, Right exit	FD											
SS# 304	304											Material
SS# 316	316											
SS# 316L	316L											
PTFE liner - up to 100 °C	PTFE											
Titanium	TI											
Hast C	HC											
Hast B	HB											
Liquid	L											Fluid
Gas	G											
***	**											Float Number
Mechanical indicator, circular housing	M1											Indicator
Intelligent indicator, circular housing (ExdIICT6), 24 Vdc and 4-20mA, up to 250°C	M2											
-112~250 °F (-80~120 °C)	N											Operating Temperature
250~300°F (120-150 °C)	1											
300~390 °F (150-200 °C)	2											
390~480 °F (200-250 °C)	3											
480~578 °F (250-300 °C)	4											
575~750 °F (300-400 °C)	5											
Standard	NN											Operating Pressure
High pressure, up to ** Mpa	**											
None	0											Alarm point
Increasing Alarm	U											
Decreasing Alarm	D											
Increasing and Decreasing Alarm	UD											
None	0											Jacket
Heat jacket	1											
Other	2											
ANSI 150# flange	SS											Connection
ANSI 300# flange	S3											
PN 1.0 flange	1											
Other connection	**											
None	N											Options
With filter	FL											

