REINMEER

www.reinmeer.com

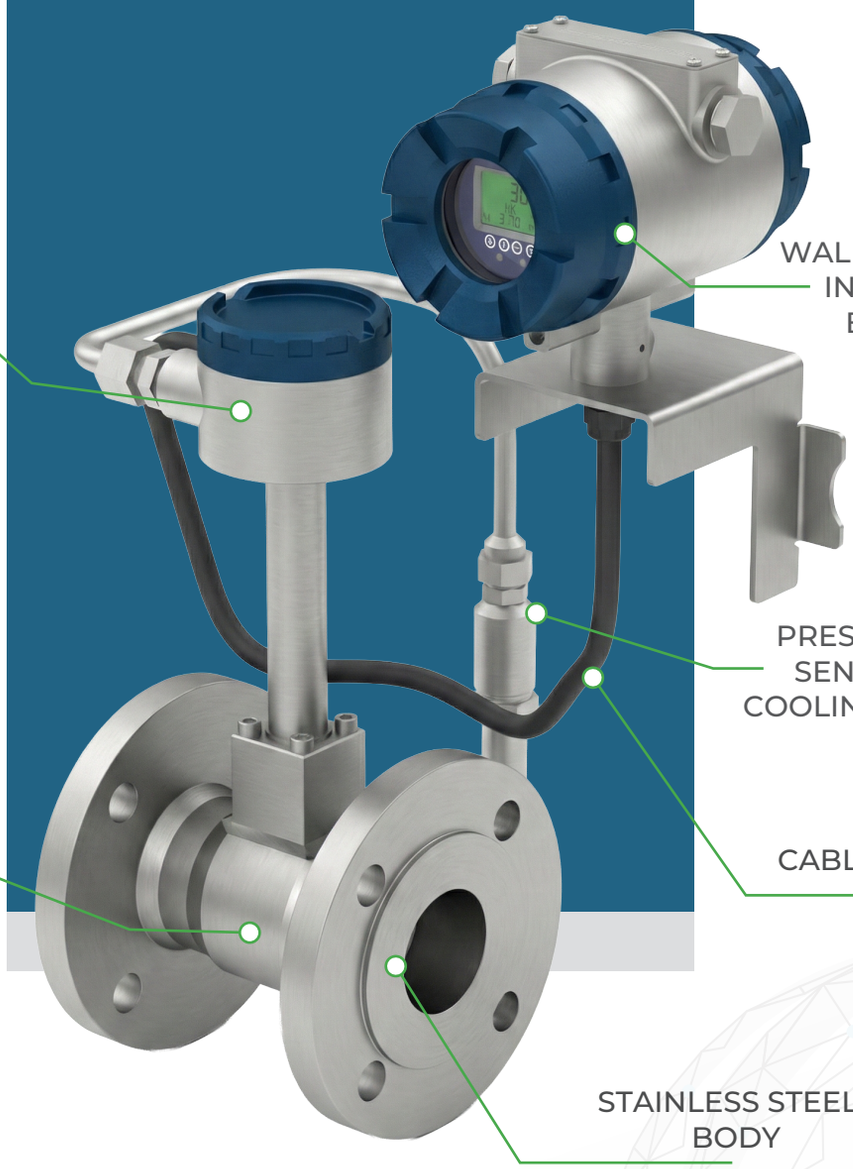
RM-V -R SERIES SEPARATE TYPE VORTEX FLOWMETER

LIQUID GAS STEAM

RELIABLE MEASUREMENTS FOR THE RIGHT DECISIONS

REINMEER

RM-V-R SERIES SEPARATE TYPE VORTEX FLOWMETER



www.reinmeer.com

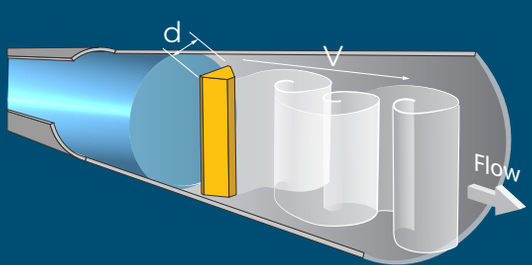
WORKING PRINCIPLE

The measurement principle of vortex flowmeters is based on the physical phenomenon known as the Kármán Vortex Street.

This principle is based on the fact that when a fluid (liquid or gas) passes around an obstacle (blow body), it creates regular vortices.

Basic Relationship (Formula):

$$f = St \cdot \frac{V}{d}$$



f = Vortex formation frequency (Hz)

St = Strouhal number (dimensionless constant, typically between 0.17–0.25)

V = Flow velocity (m/s)

d = Obstacle width (blow) (m)

The operating principle of this type of vortex flowmeter is based on the analysis of the vortex shedding phenomenon created when a fluid passes over an obstacle. This is also known as the turbulence principle and occurs regardless of the shape of the object through which the flow passes.

The simplest way to understand this effect is with the example of a flagpole and a flag. Here, air is the fluid, and the pole acts as a solid obstacle. As air flows around the pole, vortices are formed, which can be observed as the flag fluttering.

The obstacle (bluff body) used in industry is usually cylindrical or prismatic in shape and is mounted perpendicular to the flow direction. The measurement is based on determining the frequency of the vortices that are formed.

Working Mechanism:

- As the fluid passes around the body, it creates vortices.
- Each vortex passage creates a small change in pressure.
- These pressure changes are detected by a piezoelectric sensor or a capacitive sensor.
- The measured frequency signal is processed by the flowmeter's electronic unit.
- The volumetric flow rate (Q) is calculated based on the relationship between frequency and velocity:

$$Q = A \cdot V$$

Q = Volumetric flow rate (m^3/s)

A = Pipe cross-sectional area (m^2)

V = Flow velocity (m/s)

For vortex flow meters to provide accurate and reliable measurements, installation, process conditions, and environmental factors must be carefully evaluated.

Advantages:

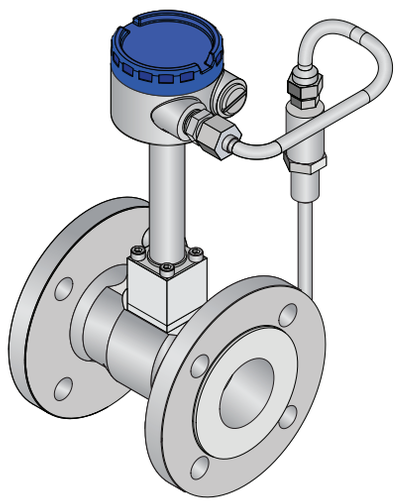
- No moving parts → low maintenance requirements
- Wide measurement range (stable in flows with Reynolds numbers above 10,000)
- Suitable for liquid, gas, and steam measurements
- Pressure and temperature compensation ensures high accuracy

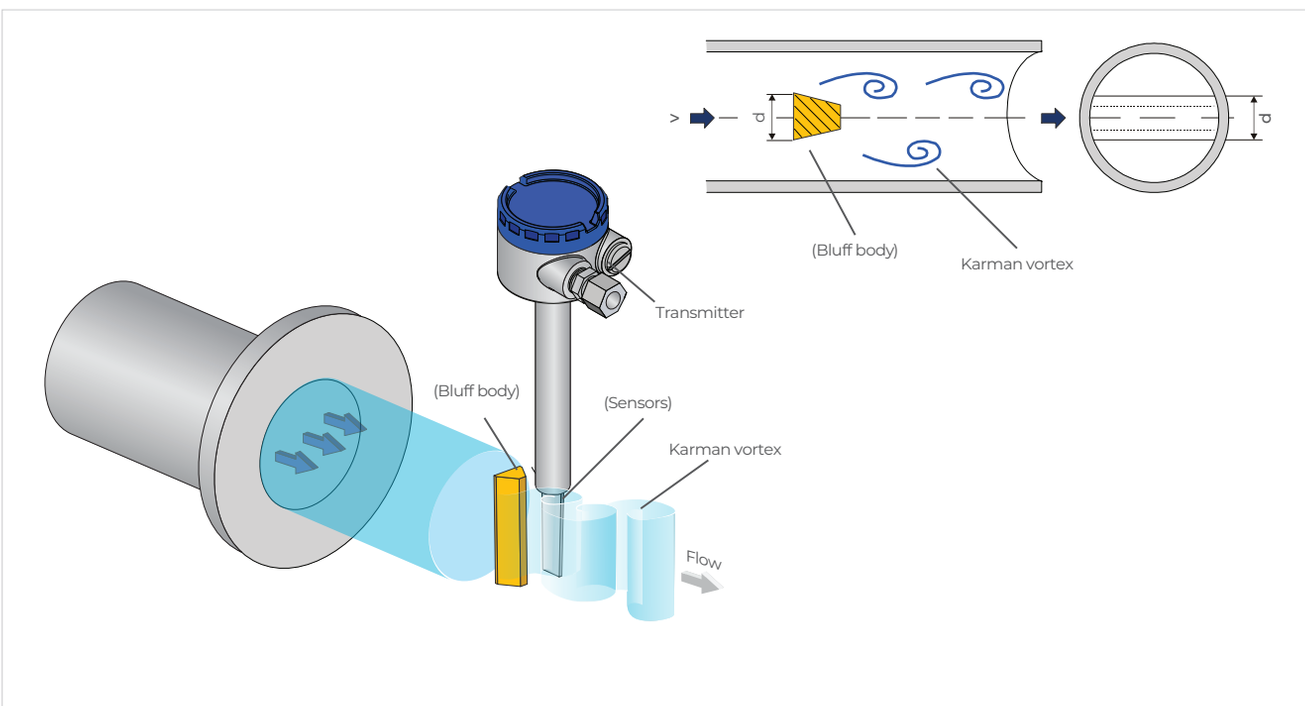
STRUCTURE OF VORTEX FLOWMETERS

The vortex flowmeter consists of an obstacle (blow body) that generates Kármán vortices, a sensor that detects these vortices, and a transmitter that processes the signals from the sensor.

When the fluid creates successive Kármán vortices on both sides of the bluff body, an alternating stress (mechanical stress) occurs on the sensor. This stress is detected by a piezoceramic element; the signal is then amplified and shaped by the transmitter.

As a result, this signal is obtained as a pulse output proportional to the flow velocity.





Flowing part:
This is the part of the flowmeter through which the fluid passes and is usually mounted directly onto the pipe.

Bluff body:
This is a solid part placed perpendicular to the flow direction. As the flow passes around this part, it creates vortices. It can be cylindrical, square, triangular, or polyhedral in shape.

Sensors:
Detect turbulence and pressure changes.

Transmitter:
Analyzes signals received from sensors and converts them into electrical output.

Additionally, auxiliary devices such as a calculator or a normalizing converter can be integrated into the system.

APPLICATION AREAS

The Etrans V Series Separate Type Vortex Flow Meter offers high accuracy and reliability in measuring gases, vapors, and liquids. Thanks to its robust construction, capable of withstanding harsh industrial conditions, and the advantage of separate type installation, it can be used safely even in high-temperature or vibrating environments.

Main application areas:

- **Power plants: Flow measurement in saturated and superheated steam lines**
- **Petrochemical and chemical plants: Control of combustible gases and process fluids**
- **Food and beverage industry: Monitoring of compressed air, CO_2, and steam lines**
- **HVAC systems: Measurement of cooling water, condensate, and air lines**
- **Water and wastewater treatment plants: Monitoring of liquid flow in process lines**
- **Paper and textile industry: Tracking the energy efficiency of steam and hot water lines**

The Etrans V Series adapts easily to field conditions thanks to its compact and separate design, offering flexibility in maintenance and installation.

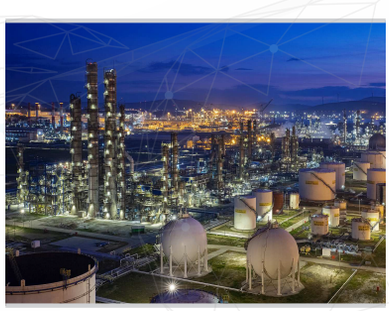
Chemical Industry

Power Plants

Food Industry

Water and Wastewater

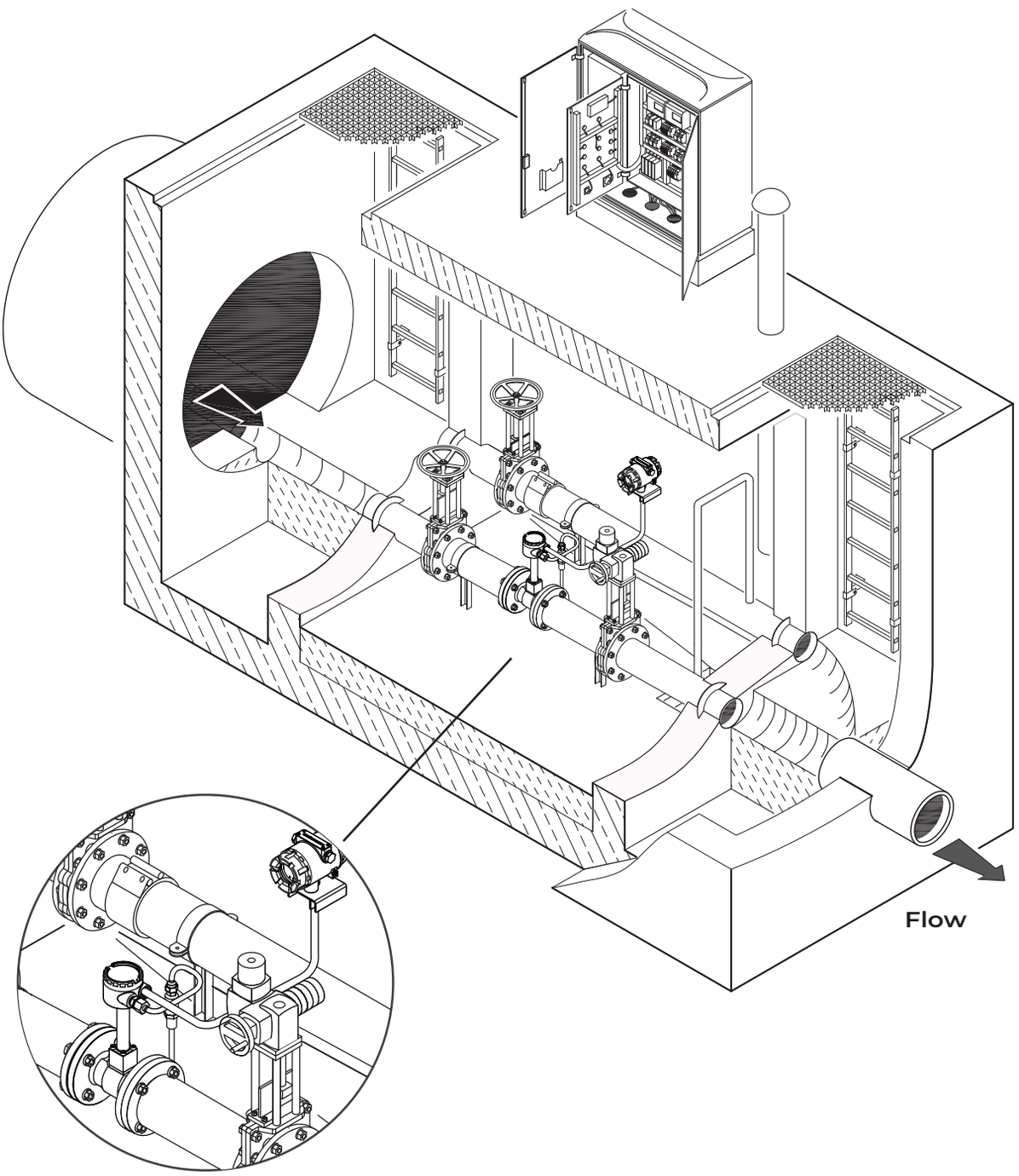
Petrochemicals



Pharmaceutical Industry

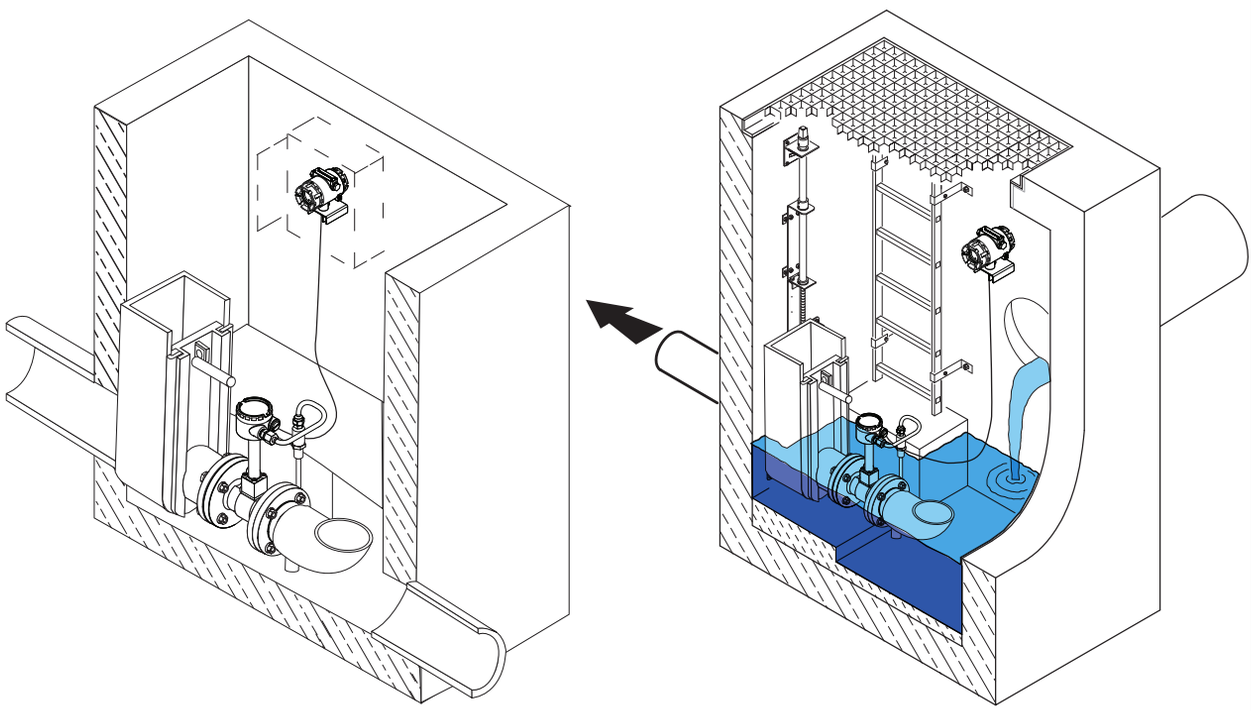
UYGULAMA

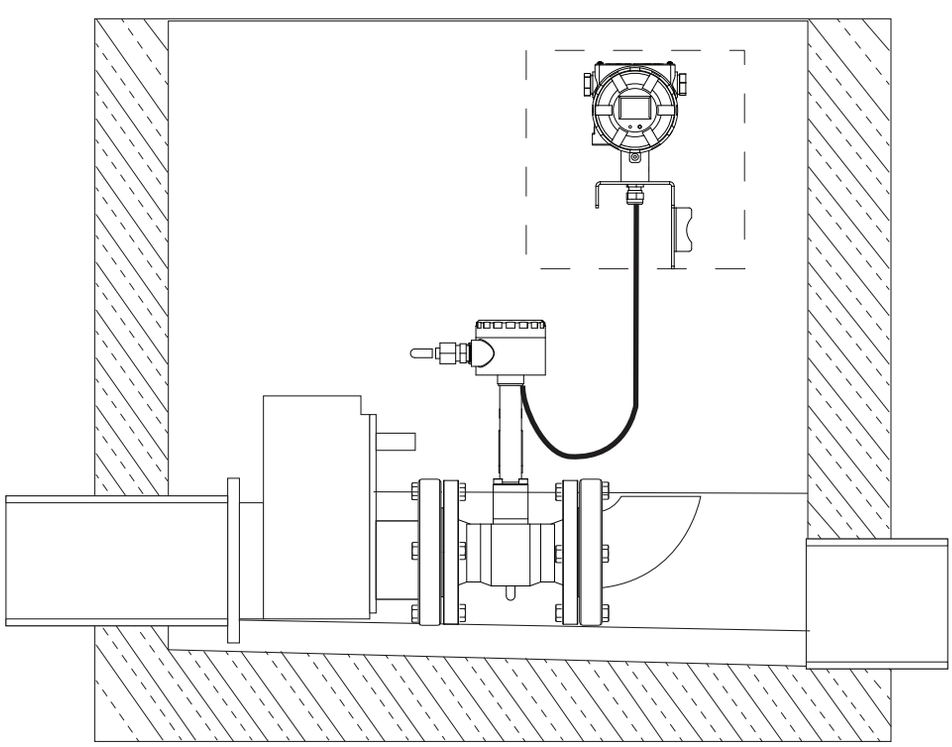
Reverse measurement and control station



APPLICATION

Flow measurement for shafts





TECHNICAL SPECIFICATIONS

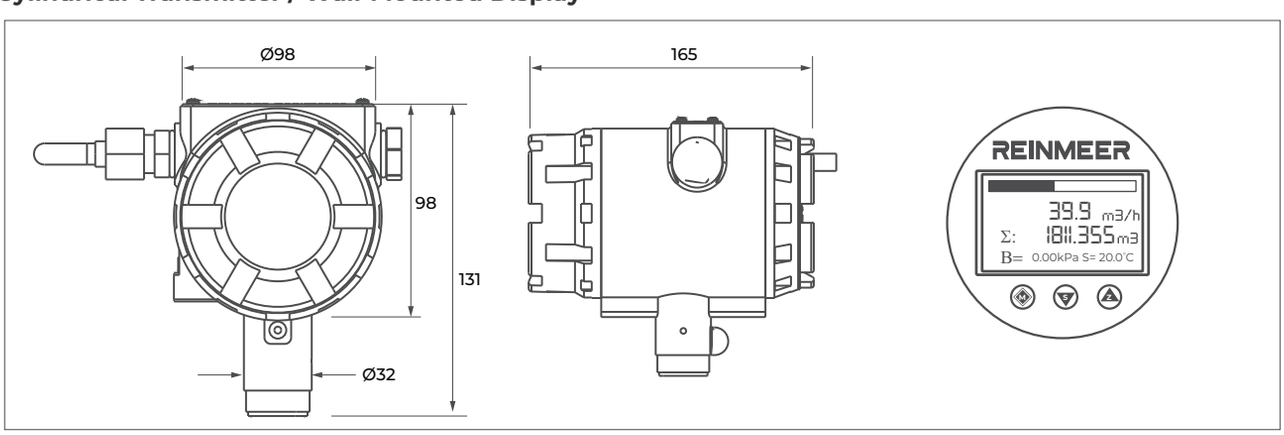
Standard Body

Measurement Range	Liquid: 0.25 ft/s to 9.5 ft/s Gas: 4 ft/s to 78 ft/s Vapor: 3 ft/s to 78 ft/s
Measurable Fluids	Liquid, gas, vapor
Average Pressure	1.0MPa, 1.6MPa, 2.5MPa Standard (Optional 4.0 MPa DN15...up to DN 80)
Special range	Customer Pressure information according to DN15-DN300
True Error Rate Full Type	liquid: ± 0.5%, gas and vapor ± 1.0%, ± 1.5%
Ratio Scale	1:10, 1:20, 1:30, 1:40
Friction Coefficient Full Type	Cd < 2.4
Vibration	Max. 2g
Process Temperature	Normal Environment -40°C ~ +250°C; **Optional** -40°C ~ +350°C;
Material	316 SS / 304 SS

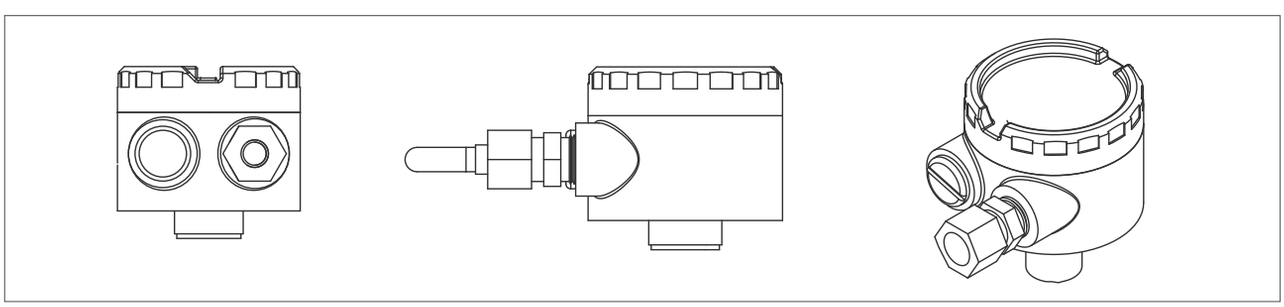
Transmitter

Body Material	Cast Aluminum	
Installation Method	Cylindrical Compact	
Supply Voltage	12...32VDC	
Local Screen	Backlit LCD Display 64x128	
Display Languages	English	
Output Signals	Standard (4–20 mA, Frequency, Pulse)	
Process Temperature	-20 ... +70 °C (Depending on process temperature)	-40 to +85 °C (Separate model)
Communication	RS485 MODBUS (Standard)	HART optional
Protection Class	IP67	

Cylindrical Transmitter / Wall-Mounted Display

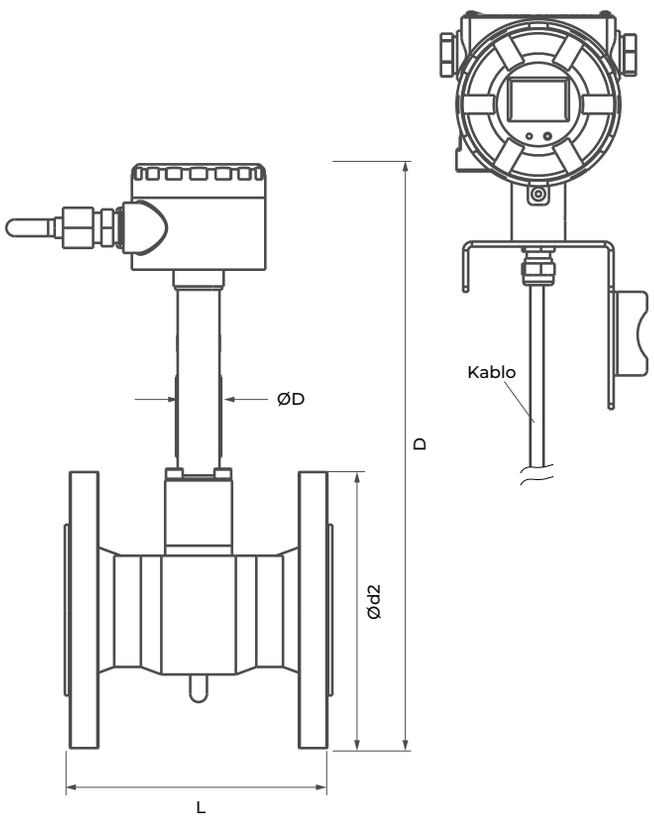


Separate Type Vortex Flow Meter – Sensor Head (Screenless Unit)

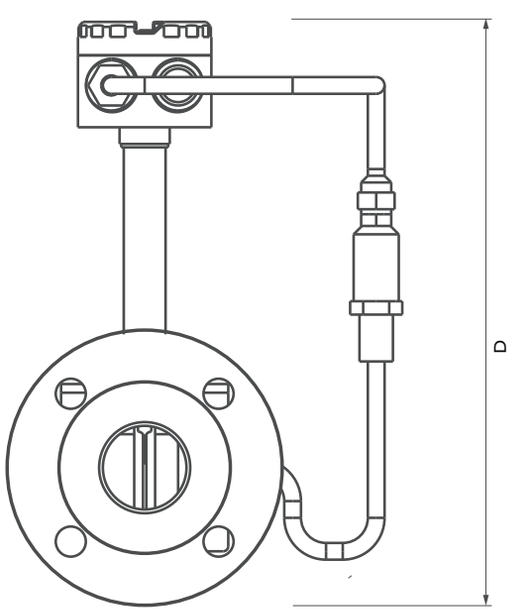


TECHNICAL DRAWING

FRONT VIEW OF THE SENSOR



SENSOR'S SIDE VIEW



DN (mm)	Pressure Class	L	C	D	$Ød_1$	$Ød_2$
DN 15	40 Bar	170	198	300	15	95
DN 20		170	203	305	20	105
DN 25		170	216	318	25	115
DN 32		170	228	330	32	140
DN 40		160	223	335	40	150
DN 50		160	247	349	50	165
DN 65		160	266	368	65	185
DN 80		180	282	384	80	200
DN 100	16 Bar	180	303	405	100	220
DN 125		180	329	431	125	250
DN 150		180	362	464	150	285
DN 200	10 Bar	200	415	517	200	340
DN 250		200	468	570	250	395
DN 300		240	518	620	300	445

REINMEER

Project / Drawing

Revision

Not

1. All dimensions are shown

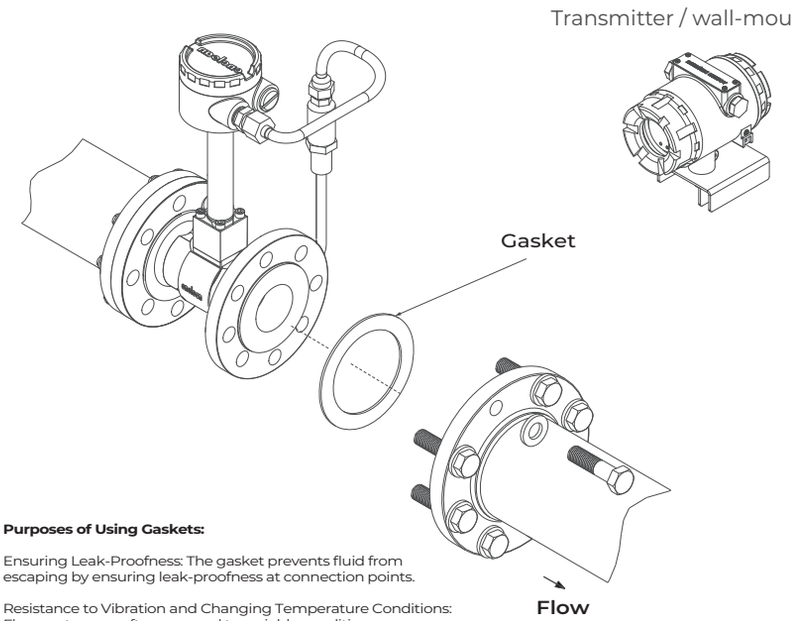
Designer

Scale

1.12

No.

POSITION OF FLANGE GASKETS



Purposes of Using Gaskets:

Ensuring Leak-Proofness: The gasket prevents fluid from escaping by ensuring leak-proofness at connection points.

Resistance to Vibration and Changing Temperature Conditions: Flow meters are often exposed to variable conditions (temperature, pressure) in processes. The gasket must be resistant to such conditions to ensure the safety of the connection points.

Protection of Flange Surfaces: The gasket prevents flange surfaces from damaging each other and prevents deformation that may occur due to mechanical stress.

REINMEER

Project / Drawing

Revision

Note

1. All dimensions are shown

Designer

Scale

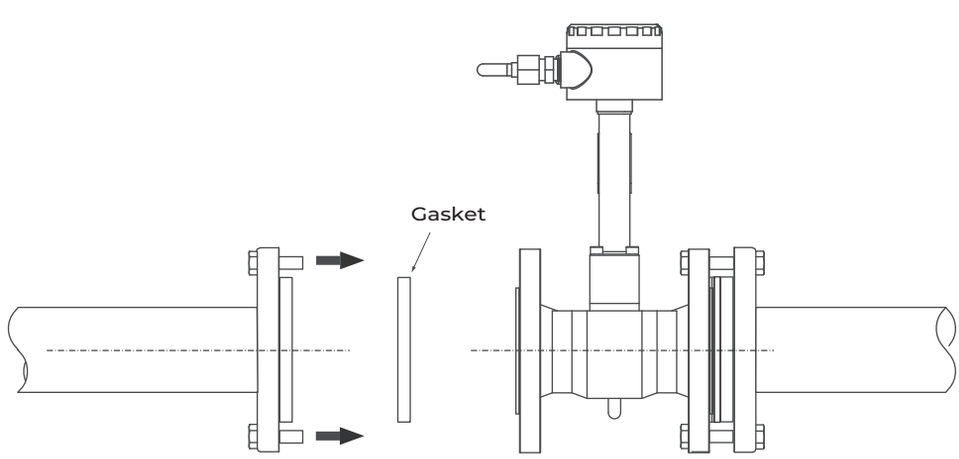
1.12

No.

Gasket Usage in Flange Connections:

Due to technological designs and high safety requirements, it is crucial to correctly position the gasket and select the appropriate material when making flange connections.

Points to consider during installation: The gasket must be positioned correctly and the flanges must be tightened to the correct torque. Otherwise, leak-tightness may not be achieved or damage may occur at the connection points.



REINMEER

Project / Drawing

Revision

Note

1. All dimensions are shown

Designer

Scale

1.12

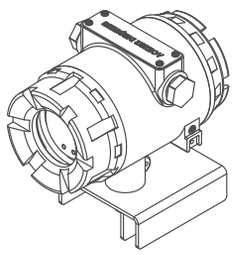
No.

TECHNICAL DRAWING

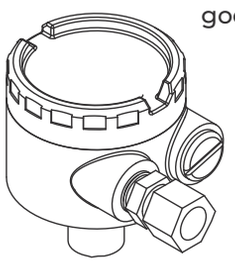
SENSOR INTERNAL DETAIL VIEW

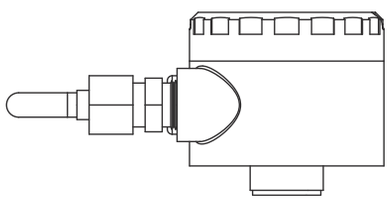
Seperate Type
Vortex Flowmeter – Sensor Head
(Screenless Unit)

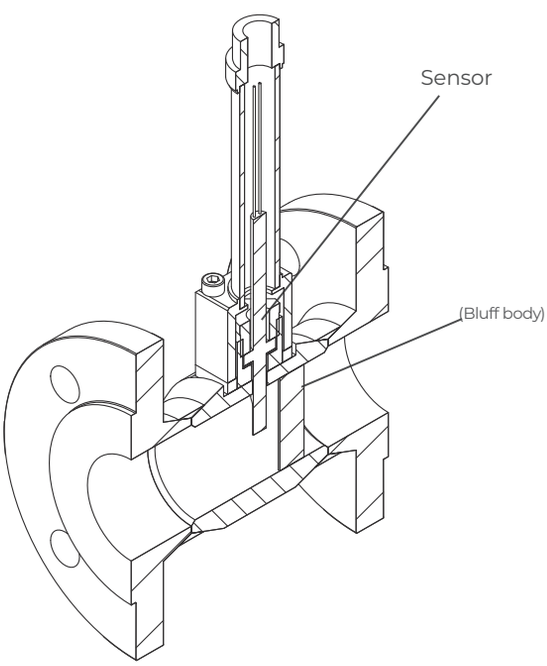
Transmitter / wall-mounted unit

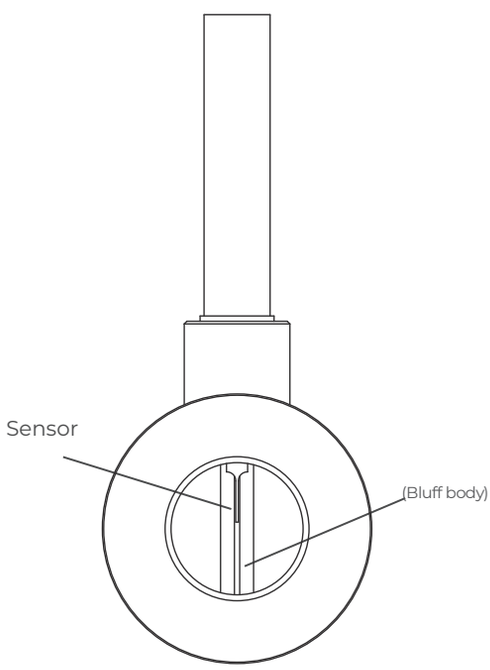


Screenless Unit The sensor is fixed to the body on the flow line; the cable outlet goes to the wall-mounted unit









REINMEER

Project / Drawing

Revision

Not

1. All dimensions are shown

Designer

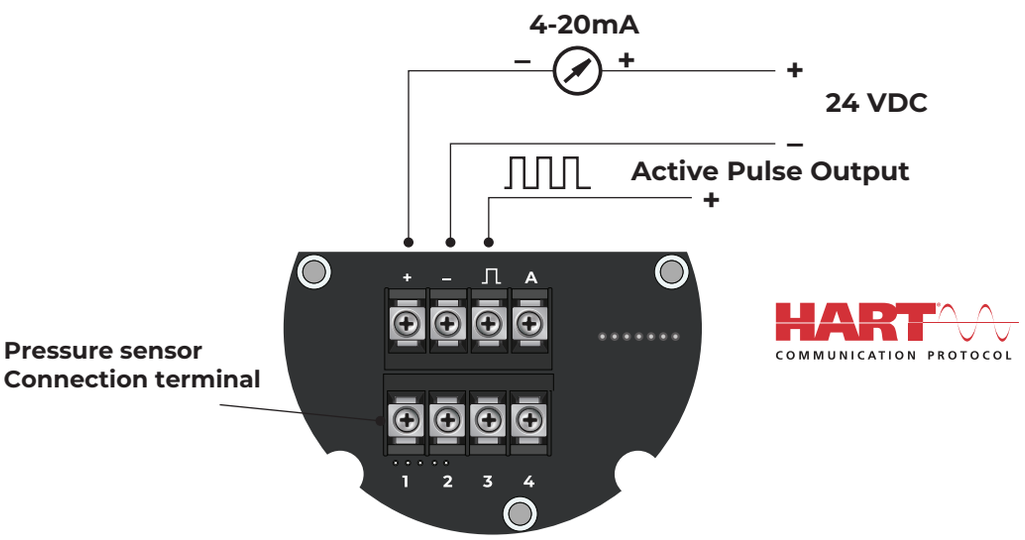
Scale

1.12

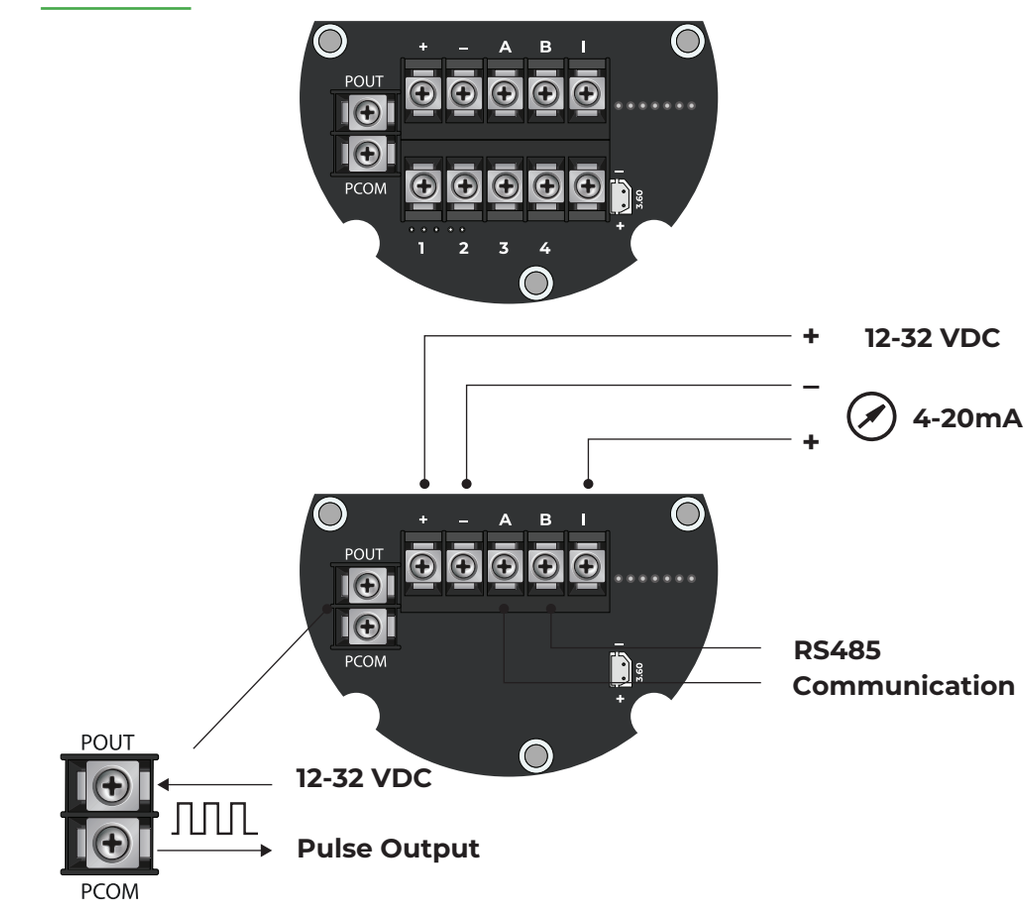
No.

ELECTRONIC CARD CONNECTION

4~20mA Output and HART Communication Model



4~20mA - Pulse - RS485 Communication Model



Passive Pulse Output

REINMEER

Project / Drawing

Revision

Not

1. All dimensions are shown

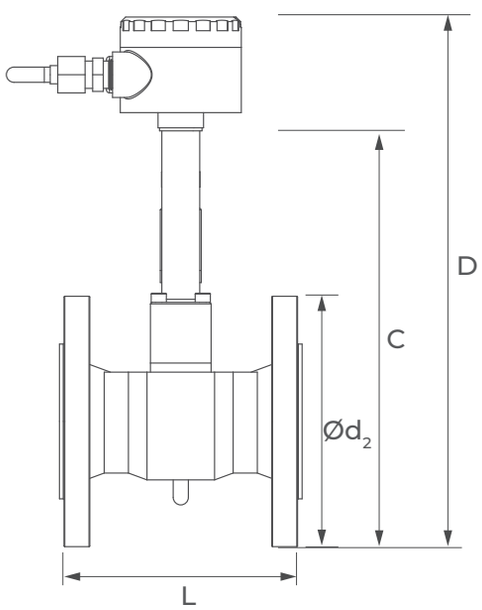
Designer

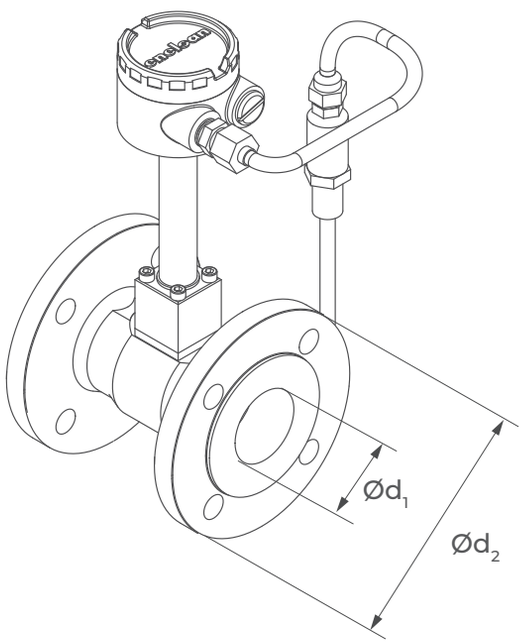
Scale

1.12

No.

TECHNICAL DIMENSIONS OF THE PRODUCT





DN (mm)	Pressure Class	L	C	D	Ød1	Ød2
DN 15	40 Bar	170	198	300	15	95
DN 20		170	203	305	20	105
DN 25		170	216	318	25	115
DN 32		170	228	330	32	140
DN 40		160	223	335	40	150
DN 50		160	247	349	50	165
DN 65		160	266	368	65	185
DN 80		180	282	384	80	200
DN 100	16 Bar	180	303	405	100	220
DN 125		180	329	431	125	250
DN 150		180	362	464	150	285
DN 200	10 Bar	200	415	517	200	340
DN 250		200	468	570	250	395
DN 300		240	518	620	300	445

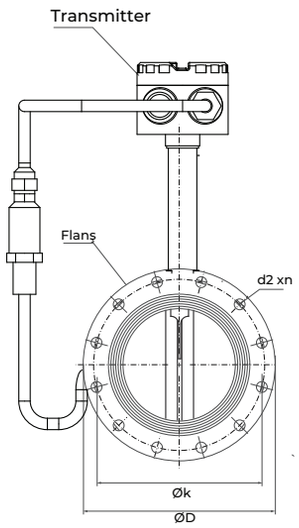
MEASURABLE FLOW RATES ACCORDING TO PRODUCT DIAMETERS AND FLUID TYPE

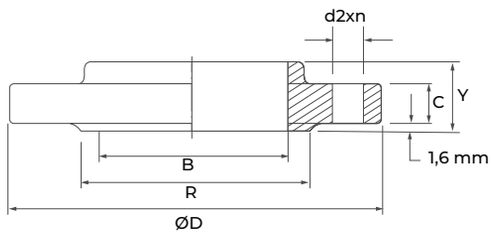
DN (mm)	K-Factor	Liquid (m3/h)	Frequency (HZ)	Gas (m3/h)	Frequency (HZ)	Steam (m3/h)	Frequency (HZ)
DN 15	350000	0.3-9	88-580	3-50	240-2350	4-50	260-2000
DN 20	148000	0.5-15	38-422	5-80	210-2132	7-80	210-1900
DN 25	74980.3	0.6-18	25-336	6-120	190-1140	10-80	210-1680
DN 32	30511	1-30	16-264	10-150	150-1100	12-120	156-1080
DN 40	17523.5	1.6-48	10-200	16-320	10-1040	25-180	126-910
DN 50	9451.2	5.5-75	8-160	25-500	94-1020	40-260	100-700
DN 65	4113	4-120	6.1-77.1	40-800	80.7-807	35-800	94-940
DN 80	2346	6-180	4.1-82	60-1250	55-690	100-800	63-500
DN 100	1153.5	10-300	4.7-69	100-2000	42-536	160-1100	50-350
DN 125	573.1	15-450	3.3-41.6	150-3000	38-416	150-2000	38-475
DN 150	334	22-660	2.8-43	200-4500	33-380	400-3500	38-350
DN 200	141.5	40-1200	2-31	300-8000	22-315	580-7000	23-270
DN 250	70.8	60-1800	1.5-25	500-12000	18-221	960-9600	20-200

SATURATED VAPOR PRESSURE-BASED FLOW RATE CHANGE TABLE

DN (mm)	Flow	Measurable Flow Rates (kg/h)								
		1 Bar	2 Bar	4 Bar	6 Bar	8 Bar	10 Bar	15 Bar	20 Bar	25 Bar
DN 15	Min	2,2	3,2	5,1	7,1	8,9	10,8	15,5	20,2	25,0
	Max	54,5	79,6	128,4	176,3	223,7	270,8	388,2	505,9	624,5
DN 20	Min	3,8	5,6	9,0	12,3	15,7	19,0	27,2	35,4	43,7
	Max	95,4	139,2	224,6	308,5	391,4	473,9	679,3	885,3	1092,9
DN 25	Min	6,1	8,9	14,4	19,8	25,2	30,5	43,7	56,9	70,3
	Max	153,4	223,7	361,0	495,7	629,1	761,6	1091,8	1422,8	1756,5
DN 32	Min	10,2	14,9	24,1	33,0	41,9	50,8	72,8	94,9	117,1
	Max	255,6	372,9	601,7	826,2	1048,4	1269,3	1819,7	2371,4	2927,5
DN 40	Min	15,7	22,9	36,9	50,7	64,3	77,9	111,6	145,4	179,6
	Max	392,0	571,8	922,6	1266,9	1607,6	1946,3	2790,1	3636,1	4488,8
DN 50	Min	23,9	34,8	56,2	77,1	97,9	118,5	169,8	221,3	273,2
	Max	596,5	870,1	1404,0	1927,8	2446,3	2961,8	4245,9	5533,2	6830,7
DN 65	Min	49,1	71,6	115,5	158,6	201,3	243,7	349,4	455,3	562,1
	Max	1227,0	1789,9	2888,2	3965,8	5032,5	6092,8	8734,4	11382,6	14051,8
DN 80	Min	61,4	89,5	144,4	198,3	251,6	304,6	436,7	569,1	702,6
	Max	1533,8	2237,4	3610,3	4957,3	6290,6	7616,0	10918,0	14228,2	17564,7
DN 100	Min	95,4	139,2	224,6	308,5	391,4	473,9	679,3	885,3	1092,9
	Max	2385,8	3480,4	5616,0	7711,3	9785,3	11847,1	16983,5	22132,8	27322,9
DN 125	Min	150,0	218,8	353,0	484,7	615,1	744,7	1067,5	1391,2	1717,4
	Max	3749,2	5469,3	8825,2	12117,8	15375,9	18616,8	26688,4	34780,1	42935,9
DN 150	Min	204,5	298,3	481,4	661,0	838,7	1015,5	1455,7	1897,1	2342,0
	Max	5112,5	7458,1	12034,3	16524,2	20968,5	25386,6	36393,2	47427,4	58549,0
DN 200	Min	374,9	546,9	882,5	1211,8	1537,7	1861,7	2668,8	3478,0	4293,6
	Max	9373,0	13673,2	22062,9	30294,4	38442,3	46542,0	66720,9	86950,3	107339,9
DN 250	Min	599,9	875,1	1412,0	1938,8	2460,3	2978,7	4270,1	5564,8	6869,8
	Max	14996,8	21877,1	35300,6	48471,0	61507,7	74467,3	106753,4	139120,4	171743,8
DN 300	Min	852,1	1243,0	2005,7	2754,0	3494,8	4231,1	6065,5	7904,6	9758,2
	Max	21302,2	31075,4	50142,9	68850,9	87368,9	105777,4	151638,4	197614,2	243954,2

ANSI 15 - 300 Flange Dimensions



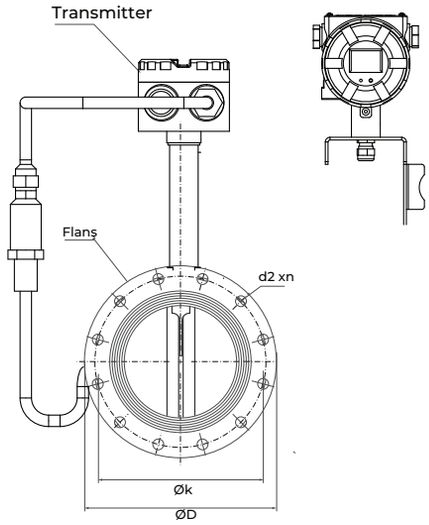


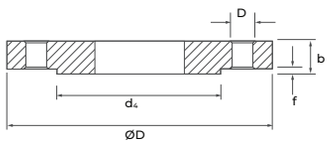
SLIP-ON FLANGE 150 LB
SLIP-ON FLANGE CLASS 150
(ASME B 16.5 + MSS - SP 44 - 1996)
BS 3293

PIPE					HOLES						WEIGHT
DN	NPS	D	C min	R	n	K	d_2	B min	X	Y	kg
15	1/2''	89	11,2	34,9	4	60,3	15,8	22,4	30	16	0,8
20	3/4''	99	12,7	42,9	4	69,8	15,8	27,7	38	16	0,9
25	1''	108	14,3	50,8	4	79,4	15,8	34,5	49	17	1
32	1 1/4''	117	15,7	63,5	4	88,9	15,8	43,2	59	21	1,3
40	1 1/2''	127	17,5	73	4	98,4	15,8	49,5	65	22	1,5
50	2''	152	19, 1	92,1	4	120,6	19	62	78	25	2,3
65	2 1/2''	178	22,3	104,8	4	139,7	19	74,7	90	29	3,7
80	3''	190	23,9	127	4	152,4	19	90,7	108	30	4,2
100	4''	229	23,9	157,2	8	190,5	19	116, 1	135	33	5,9
125	5''	254	23,9	185,7	8	215,9	22,2	143,8	164	37	7
150	6''	279	25,4	215,9	8	24 1,3	22,2	170,7	192	40	8,5
200	8''	343	28,5	269,9	8	298,4	22,2	221,5	246	44	13,5
250	10''	406	30,2	323,8	12	362	25,4	276,4	305	49	19,5
300	12''	483	31,8	381	12	431,8	25,4	327,2	365	56	29

SLIP-ON FLANGE 300 LB
SLIP-ON FLANGE CLASS 300
(ASME B 16.5 + MSS -SP 44 - 1996)
BS 3293

PIPE					HOLES						WEIGHT
DN	NPS	D	C min	R	n	K	d_2	B min	X	Y	kg
15	1/2''	95	14.2	34.9	4	66.7	15.8	22,4	38	22	1,2
20	3/4''	117	15.7	42.9	4	82.6	19	27,7	48	25	1,3
25	1''	124	17.5	50.8	4	88.9	19	34,5	54	27	1,4
32	1 1/4''	133	19	63.5	4	98.4	19	43,2	64	27	1,8
40	1 1/2''	156	20.6	73	4	114.3	22.2	49,5	70	30	2,5
50	2''	165	22.4	92.1	8	127	19	62	84	33	3
65	2 1/2''	190	25.4	104.8	8	149.2	22.2	74,7	100	38	4,5
80	3''	210	28.4	127	8	168.3	22.2	90,7	117	43	6
100	4''	254	31.8	157.2	8	200	22.2	116, 1	146	48	10, 1
125	5''	279	35	185.7	8	235	22.2	143,8	178	51	12,5
150	6''	318	36.6	215.9	12	269.9	22.2	170,7	206	52	17,5
200	8''	381	41.1	269.9	12	330.2	25.4	221,5	260	62	26
250	10''	444	47.8	323.8	16	387.4	28.5	276,4	320	66	28
300	12''	521	381	381	16	450.8	31.8	327,2	375	73	52



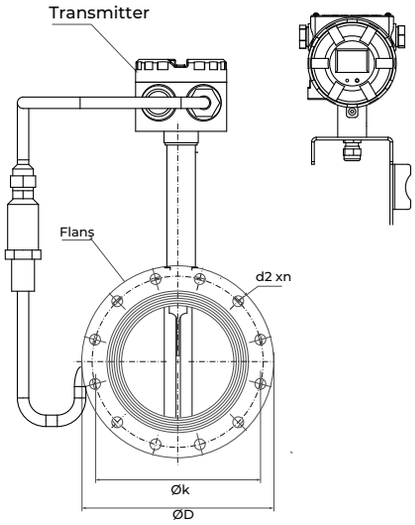


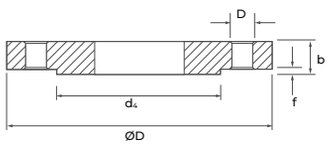
Pn 6 Steel Flat Flange
TS-EN 1092-1 /
TYPE 01 / DIN 2576

PIPE	FLANGE					FOREHEAD PROTRUSION		HOLES			WEIGHT	
DN	d_5	D	b		k	d_4	f	n	screw	d_2	EN 1092 - 1 kg/ad - kg/pcs	DIN2501 kg/ad - kg/pcs
			EN 1092-1	DIN2501								
15	22	80	12	12	55	40	2	4	MIO	11	0,35	0,35
20	27,5	90	14	14	65	50	2	4	MIO	11	0,53	0,53
25	34,5	100	14	14	75	60	2	4	MIO	11	0,65	0,65
32	43,5	120	16	14	90	70	2	4	M12	14	1,05	0,91
40	49,5	130	16	14	100	80	3	4	M12	14	1,20	1,00
50	61 ,5	140	16	14	110	90	3	4	M12	14	1,30	1, 10
65	77,5	160	16	14	130	110	3	4	M12	14	1,60	1,40
80	90,5	190	18	16	150	128	3	4	M16	18	2,60	2,30
100	116	210	18	16	170	148	3	4	M16	18	2,90	2,50
125	141,5	240	20	18	200	178	3	8	M16	18	3,90	3,50
150	170,5	265	20	18	225	202	3	8	M16	18	4,30	3,80
200	221,5	320	22	20	280	258	3	8	M16	18	6,30	5,60
250	276,5	375	24	22	335	312	3	12	M16	18	8,20	7,50
300	327,5	440	24	22	395	365	4	12	M20	22	10,60	9,60

Pn 10 Steel Flat Flange
TS-EN 1092-1 /
TYPE 01 / DIN 2576

PIPE	FLANGE					FOREHEAD PROTRUSION		HOLES			WEIGHT	
DN	d_5	D	b		k	d_4	f	n	screw	d_2	EN 1092 - 1 kg/ad - kg/pcs	DIN2501 kg/ad - kg/pcs
			EN 1092-1	DIN2501								
15	22	95	14	14	65	45	2	4	M12	14	0,59	0,59
20	27,5	105	16	16	75	58	2	4	M12	14	0,85	0,85
25	34,5	115	16	16	85	68	2	4	M12	14	1,01	1,01
32	43,5	140	18	16	100	78	2	4	M16	18	1,70	1,50
40	49,5	150	18	16	110	88	3	4	M16	18	1,80	1,60
50	61,5	165	20	18	125	102	3	4	M16	18	2,50	2,20
65	77,5	185	20	18	145	122	3	(1092)8/4 (DIN)	M16	18	3,00	2,70
80	90,5	200	20	20	160	138	3	8	M16	18	3,30	3,30
100	116	220	22	20	180	158	3	8	M16	18	4,00	3,60
125	141,5	250	22	22	210	188	3	8	M16	18	5,00	5,00
150	170,5	285	24	22	240	212	3	8	M20	22	6,50	6,00
200	221,5	340	24	24	295	268	3	8	M20	22	8,50	8,50
250	276,5	395	26	26	350	320	3	12	M20	22	11,00	11,00
300	327,5	45	26	26	400	370	4	12	M20	22	12,30	12,30



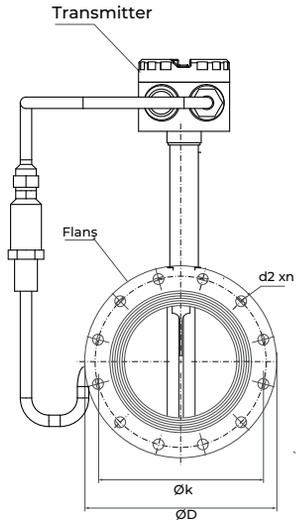


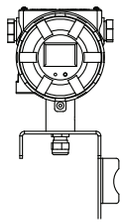
Pn 16 Steel Flat Flange
TS-EN 1092-1 /
TYPE 01 / DIN 2576

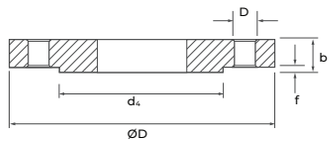
PIPE	FLANGE					FOREHEAD PROTRUSION		HOLES			WEIGHT	
DN	d_5	D	b		k	d_4	f	n	screw	d_2	EN 1092 - 1 kg/ad - kg/pcs	DIN2501 kg/ad - kg/pcs
			EN 1092-1	DIN2501								
15	22	95	14	14	65	45	2	4	M12	14	0,60	0,60
20	27,5	105	16	16	75	58	2	4	M12	14	0,90	0,90
25	34,5	115	16	16	85	68	2	4	M12	14	1,00	1,00
32	43,5	140	18	16	100	78	2	4	M16	18	1,70	1,50
40	49,5	150	18	16	110	88	3	4	M16	18	1,80	1,60
50	61,5	165	20	18	125	102	3	4	M16	18	2,50	2,20
65	77,5	185	20	18	145	122	3	(1092)8/4 (DIN)	M16	18	2,90	2,50
80	90,5	200	20	20	160	138	3	8	M16	18	3,30	3,30
100	116	220	22	20	180	158	3	8	M16	18	4,00	3,60
125	141,5	250	22	22	210	188	3	8	M16	18	5,00	5,00
150	170,5	285	24	22	240	212	3	8	M20	22	6,50	6,00
200	221,5	340	26	24	295	268	3	12	M24	22	9,00	8,30
250	276,5	405	29	26	355	320	3	12	M24	26	13,3	11,80
300	327,5	460	32	28	410	378	4	12	M24	26	17,50	15,10

Pn 25 Steel Flat Flange
TS-EN 1092-1 /
TYPE 01 / DIN 2576

PIPE	FLANGE					FOREHEAD PROTRUSION		HOLES			WEIGHT	
DN	d_5	D	b		k	d_4	f	n	screw	d_2	EN 1092 - 1 kg/ad - kg/pcs	DIN2501 kg/ad - kg/pcs
			EN 1092-1	DIN2501								
15	22	95	14	14	65	45	2	4	M12	14	0,59	0,69
20	27,5	105	16	16	75	58	2	4	M12	14	0,85	0,97
25	34,5	115	16	16	85	68	2	4	M12	14	1,01	1, 15
32	43,5	140	18	18	100	78	2	4	M16	18	1,68	1,68
40	49,5	150	18	18	110	88	3	4	M16	18	1,80	1,80
50	61,5	165	20	20	125	102	3	4	M16	18	2,50	2,50
65	77,5	185	22	22	145	122	3	8	M16	18	3,20	3,20
80	90,5	200	24	24	160	138	3	8	M16	18	4,00	4,00
100	116	235	26	24	190	162	3	8	M20	22	5,60	5,20
125	141,5	270	28	26	220	188	3	8	M24	26	7,60	7,00
150	170,5	300	30	28	250	218	3	8	M24	26	9,60	8,90
200	221,5	360	32	30	310	278	3	12	M24	26	13,50	12,60
250	276,5	425	35	32	370	335	3	12	M27	30	19,10	17,40
300	327,5	485	38	34	430	395	4	16	M27	30	25,00	22,20





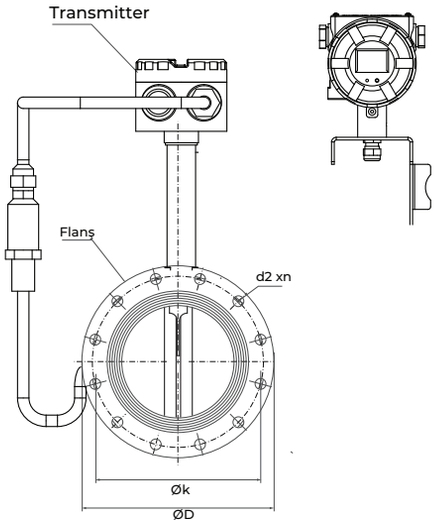


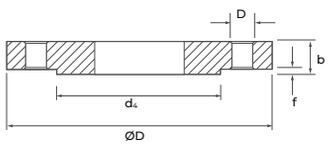
Pn 40 Steel Flat Flange
TS-EN 1092-1 /
TYPE 01 / DIN 2576

PIPE	FLANGE					FOREHEAD PROTRUSION		HOLES			WEIGHT	
DN	d_5	D	b EN 1092-1	b DIN2501	k	d_4	f	n	screw	d_2	EN 1092 - 1 kg/ad - kg/pcs	DIN2501 kg/ad - kg/pcs
15	22	95	14	14	65	45	2	4	M12	14	0,59	0,69
20	27,5	105	16	16	75	58	2	4	M12	14	0,85	0,97
25	34,5	115	16	16	85	68	2	4	M12	14	1,01	1, 15
32	43,5	140	18	18	100	78	2	4	M16	18	1,67	1,67
40	49,5	150	18	18	110	88	3	4	M16	18	1,80	1,80
50	61 ,5	165	20	20	125	102	3	4	M16	18	2,40	2,40
65	77,5	185	22	22	145	122	3	8	M16	18	3,20	3,20
80	90,5	200	24	24	160	138	3	8	M16	18	4,00	4,00
100	116	235	26	24	190	162	3	8	M20	22	5,60	5, 10
125	141,5	270	28	26	220	188	3	8	M24	26	7,60	7,00
150	170,5	300	30	28	250	218	3	8	M24	26	9,60	8,90
200	221,5	375	36	34	320	285	3	12	M27	30	17,00	16,00
250	276,5	450	42	38	385	345	3	12	M30	33	28,00	25,20
300	327,5	515	52	42	450	410	4	16	M30	33	43, 10	34,50

Pn 64 Steel Flat Flange
TS-EN 1092-1 /
TYPE 01 / DIN 2576

PIPE	FLANGE					FOREHEAD PROTRUSION		HOLES			WEIGHT	
DN	d_5	D	b EN 1092-1	b DIN2501	k	d_4	f	n	screw	d_2	EN 1092 - 1 kg/ad - kg/pcs	DIN2501 kg/ad - kg/pcs
15	22	105	20	20	75	45	2	4	M12	14	1, 10	1, 10
20	27,5	130	22	22	90	58	2	4	M16	18	1,86	1,86
25	34,5	140	24	24	100	68	2	4	M16	18	2,37	2,37
32	43,1	155	24	24	110	78	3	4	M20	22	2,70	2,70
40	49	170	26	26	125	88	3	4	M20	22	3,60	3,60
50	61, 1	180	26	26	135	102	3	4	M20	22	3,90	3,90
65	71, 1	205	26	26	160	122	3	8	M20	22	4,70	4,70
80	90,3	215	30	28	170	138	3	8	M20	22	5,90	5,50
100	115,9	250	32	30	200	162	3	8	M24	26	8,00	7,50
125	141,6	295	34	34	240	188	3	8	M27	30	11,70	11,70
150	170,5	345	36	36	280	218	3	8	M30	33	16,90	16,90
200	221,5	415	48	42	345	285	3	12	M33	36	30,50	26,50
250	276,2	470	55	46	400	345	3	12	M33	36	42,20	35,00
300	327,6	530	65	52	460	410	4	16	M33	36	59,00	46,80



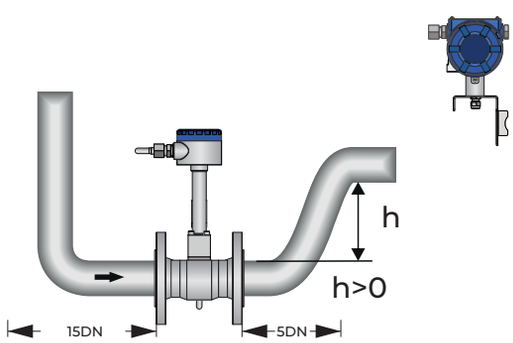


PIPE	FLANGE					FOREHEAD PROTRUSION		HOLES			WEIGHT	
DN	d_5	D	b		k	d_4	f	n	screw	d_2	EN 1092 - 1 kg/ad - kg/pcs	DIN2501 kg/ad - kg/pcs
			EN 1092-1	DIN2501								
15	22	105	20	20	75	45	2	4	M12	14	1, 10	1, 10
20	27,6	130	22	22	90	58	2	4	M16	18	1,86	1,86
25	34,4	140	24	24	100	68	2	4	M16	18	2,37	2,37
32	43, 1	155	24	24	110	78	3	4	M20	22	2,70	2,70
40	49	170	26	26	125	88	3	4	M20	22	3,58	3,58
50	61, 1	195	28	28	145	102	3	4	M24	26	5,00	5,00
65	77, 1	220	30	30	170	122	3	8	M24	26	6,34	6,34
80	90,3	230	34	32	180	138	3	8	M24	26	7,73	7,24
100	115,9	265	36	36	210	162	3	8	M27	30	10,33	10,30
125	141,6	315	42	40	250	188	3	8	M30	33	17,24	16,40
150	170,5	355	48	44	290	218	3	12	M30	33	23,63	21,60
200	221,5	430	60	52	360	285	3	12	M33	36	42,90	37,00
250	276,2	505	72	60	430	345	3	12	M36	39	69,12	57,20
300	327,6	585	84	68	500	410	4	16	M39	42	103,52	83,10

TERMS OF USE

To ensure accurate and reliable measurements with vortex flow meters, the following conditions must be met:

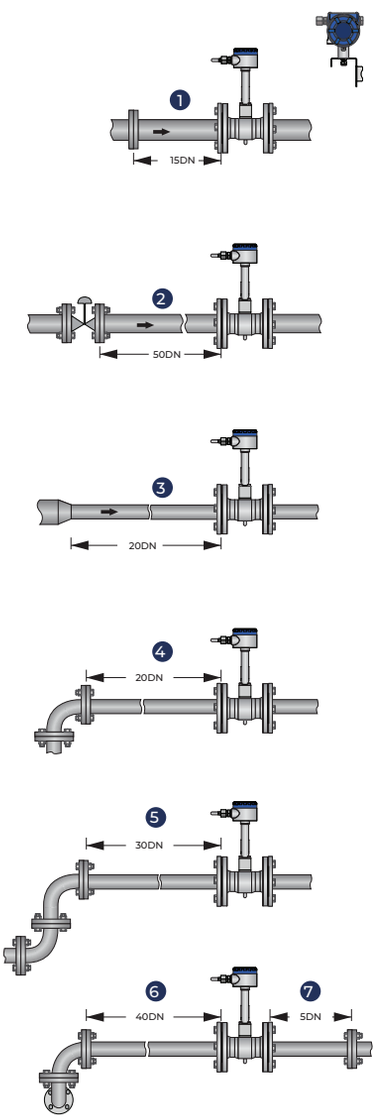
1. The pipe must always be completely full. (only for liquids)
2. A straight pipe length of 10D at the inlet and 5D at the outlet must be maintained. (only applies to liquids; varies for gas and steam applications)
3. The mounting direction must be the same as the flow direction.
4. A damper must be used in vibrating environments.
5. Cables must be protected and the device must be grounded.
6. A condensate trap must be used in steam lines.
7. Avoid sudden peak pressure changes.
8. In steam applications, the pipe line must be insulated along with the device.



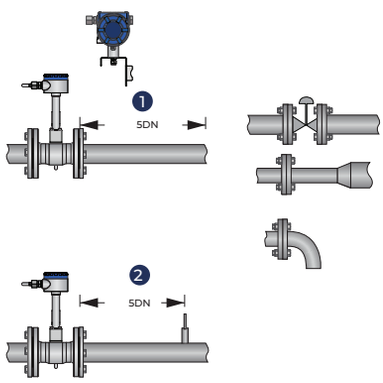
1. DN (Nominal Diameter): Unit of pipe diameter (e.g., DN100 = 100 mm pipe diameter).
2. Upstream direction: The straight pipe length before the flow meter.
3. Downstream direction: The straight pipe length after the flow meter.
4. Example: “25DN” means that a straight pipe length equal to 25 times the pipe diameter must be present before the flow meter.

Montaj Şekilleri

Minimum inlet direction pipe length

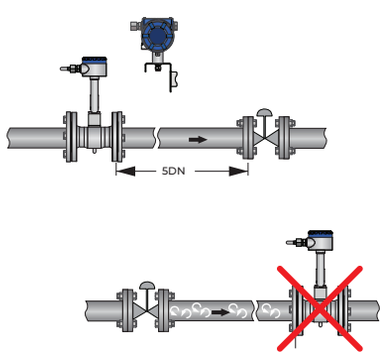


Minimum outlet direction pipe length



1. Pipe expanders, pipe elbows, control valves, etc., in the flow outlet direction ≥ 5 DN
2. Measurement points in the flow outlet direction ≥ 5 DN

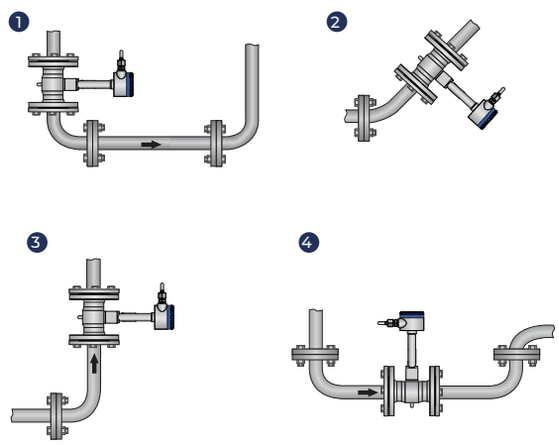
Control valve pipelines



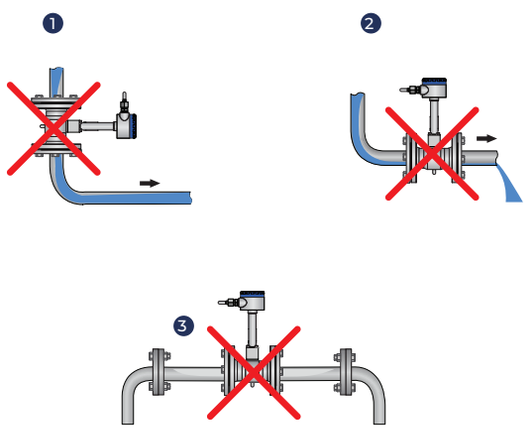
1. Without disrupting flow, general inlet direction pipe length ≥ 15 DN
2. After the control valve ≥ 50 DN
3. After pipe diameter reduction ≥ 20 DN
4. After a single 90° elbow ≥ 20 DN
5. After a double 2x90° elbow ≥ 30 DN
6. After two three-dimensional 2x90° elbows ≥ 40 DN
7. Outlet direction > 5 DN

Assembly Methods

Liquid line applications

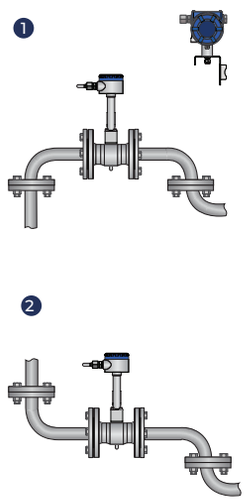


1. If the device is installed in a pipe with downward flow, a balancing pipe must be installed immediately behind it.
2. Installing the device in an inclined vertical pipe
3. Installing the device in a vertical pipe
4. Installing the device in a low pipe elbow

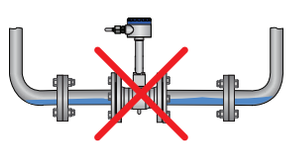


1. Attaching the device to the pipe where the flow is downward
2. Attaching the device in front of an outlet
3. Attaching the device to the upper pipe elbow due to the risk of gas bubbles forming

Gas and steam line applications



1. Attaching the device to the pipe where the flow is downward
2. Attaching the device in front of an outlet
3. Attaching the device to the upper pipe elbow due to the risk of gas bubbles forming



1. Low pipe elbows
2. Condensate

Attaching the device to the lower pipe elbow carries a risk of condensation forming.
Gas bubbles can cause pressure fluctuations and incorrect measurement. In certain circumstances,
the device may be damaged and the measured fluid may leak.

VTRANS (V) - R (1) - 100 (2) - PT (3) - G (4) - H (5) - HT (6) - Pn10 (7)

1 Product Type / Connection

Wafer-Type Vortex Flowmeter (sandwich)	☐	**W**
Flange-Type Vortex Flow Meter	√	**F**
Separate Type Vortex Flowmeter	☐	**R**
Immersion Type Vortex Flowmeter	☐	**D**

2 DN -Ø

Pipe Diameter - DN	☐	**XXX**

3 Model

Temperature Pressure Comp.	√	**PT**
No display / No computer	☐	**D**

4 Fluid

Liquid	☐	**S**
Gas	√	**G**
Saturated Steam	☐	**BB**
Superheated Steam	☐	**KB**

5 OPS Output

None	√	**X**
Hart Output	☐	**H**
Modbus Output	☐	**RS485**

6 OPS Temperature

None	√	**X**
High Temperature 350°C	☐	**HT**
Standard	☐	**X**

7 Pressure

10Bar	√	**Pn10**
16Bar	☐	**Pn16**
25Bar	☐	**Pn25**
40Bar	☐	**Pn40**
63Bar	☐	**Pn63**

Contact us

Adress :

Reinmeer Factory Address
Eutiner Str.12,22143
Hamburg, Germany
reinmeer@reinmeer.com