

Selection and installation

Integrated electromagnetic flowmeter | Dimensions, flow reference and materials

1. Product parameters

Parameter	Specification
Accuracy class	±0.5%FS
Published overall flow range	0-9999.99m³/h; select the actual range for the sensor size
Working pressure options	1.6MPa, 4MPa, 16MPa; the dimension table has size-specific pressure ratings
Working temperature	Rubber lining ≤60°C; PTFE lining ≤120°C
Supply options	220VAC, 24VDC, 12VDC; optional lithium battery
Output options	Pulse / frequency, 4-20mA, RS485 (Modbus), HART
Electrode materials	316L, Hastelloy B, Hastelloy C, tantalum, platinum-iridium alloy, tungsten carbide
Lining materials	Neoprene, PTFE, F46, PFA, polyurethane
Mounting	Flange connection as standard; threaded or quick-clamp connection can be customized
Measured media	Conductive liquids, including strong acids/alkalis, chemical wastewater, pulp, slurry and circulating water; select compatible wetted materials

2. Configuration selection

Supply choices in the selection chart are 220VAC, 24VDC and a 3.6V lithium battery pack. The standard output group is 4-20mA, frequency, pulse and Modbus communication; HART and Profibus are additional protocol choices. Specify the required configuration when ordering.

Select the nominal bore from the actual process flow. The published turndown ratio is 150:1. The velocity-to-flow table is a geometric reference and does not establish the accuracy-qualified range at every listed velocity.

Dimensions and flow reference

3. Reference flange dimensions

DN	A (mm)	L (mm)	Pressure (MPa)	Holes n-Ø (mm)
15	95	200	1.6	4-14
20	105	200		4-16
25	115	200		4-18
32	150	200		4-18
40	165	200		4-20
50	185	200		4-22
65	200	200		4-24
80	220	200		8-24
100	285	250		8-26
150	285	300		8-28
200	340	350		8-24
250	395	450	1.0	12-26

A = outside flange diameter; L = face-to-face length; n-Ø = number of mounting holes × hole diameter. Dimensions are reference values. The DN100 and DN150 entries both list A = 285mm.

4. Flow in m³/h at the stated velocity

DN	0.01m/s	1m/s	2m/s	3m/s	4m/s	5m/s	15m/s
15	.0064	.6362	1.2723	1.9085	2.5447	3.1809	9.5426
20	.0113	1.1310	2.2619	3.3929	4.5239	5.6549	16.9646
25	.0177	1.7671	3.5343	5.3014	7.0686	8.8357	26.5072
40	.0452	4.5239	9.0478	13.5717	18.0956	22.6195	67.8584
50	.0707	7.0686	14.1372	21.2058	28.2743	35.3429	106.0288
65	.1195	11.9459	23.8918	35.8377	47.7836	59.7295	179.1886
80	.1810	18.0956	36.1911	54.2867	72.3823	90.4779	271.4336
100	.2827	28.2743	56.5487	84.8230	113.0973	141.3717	424.1150
150	.6362	63.6173	127.2345	190.8518	254.4690	318.0863	954.2588
200	1.1310	113.0973	226.1947	339.2920	452.3803	565.4867	1696.4600
250	1.7671	176.7146	353.4292	530.1438	706.8583	883.5729	2650.7188

The first and last velocity columns are 0.01m/s and 15m/s. No DN32 flow row is supplied. For DN250 at 2m/s, flow is 353.4292m³/h using $Q = \pi D^2 v \times 3600 / 4$, with D in metres.

Wetted-material selection

5. Electrode and grounding-ring materials

Material	Chemical-service guidance
Molybdenum stainless steel 0Cr18Ni12Mo2Ti	Nitric acid, sulfuric acid below 5% at room temperature, boiling phosphoric acid, acetic acid, alkali solutions, sulfurous acid under specified pressure conditions, and seawater.
Hastelloy C / Hastelloy B (HC / HB)	The grade group covers oxidizing acids and salts, seawater, nonoxidizing acids and salts, alkalis, and sulfuric acid at room temperature. Select the individual alloy grade for the actual medium.
Titanium (Ti)	Seawater, chlorides and hypochlorites, oxidizing acids including fuming nitric acid, organic acids and alkalis.
Tantalum (Ta)	Broad chemical resistance, including boiling hydrochloric and nitric acids and sulfuric acid below 175°C. Excludes hydrofluoric acid, fuming sulfuric acid and alkalis.
Platinum (Pt)	Acids, alkalis and salts; excludes aqua regia.

Material selection depends on concentration, temperature and the complete wetted assembly. The chemical-service temperatures in this table do not increase the flowmeter's configured operating-temperature rating.

6. Lining properties and applications

Lining	Properties and applications
Neoprene	High elasticity, tear strength and abrasion resistance. Resists ordinary acid and alkali concentrations, but not oxidizing media. Used for water, wastewater, mud and ore slurry.
PTFE / F4	High chemical stability; resistance to boiling hydrochloric, sulfuric and nitric acids, aqua regia, concentrated alkalis and organic solvents. Used for strongly corrosive and hygienic media.
Polyurethane	High abrasion resistance, described as approximately ten times that of natural rubber; poor acid/alkali resistance. Used for neutral abrasive ore and coal slurries.
F46 (FEP)	Chemical properties similar to F4, with improved resistance to negative pressure and a higher price. Applications as for F4.
Mesh-reinforced PFA	Chemical properties similar to F4, excellent resistance to negative pressure and a higher price. Applications as for F4.

Lining limits and installation

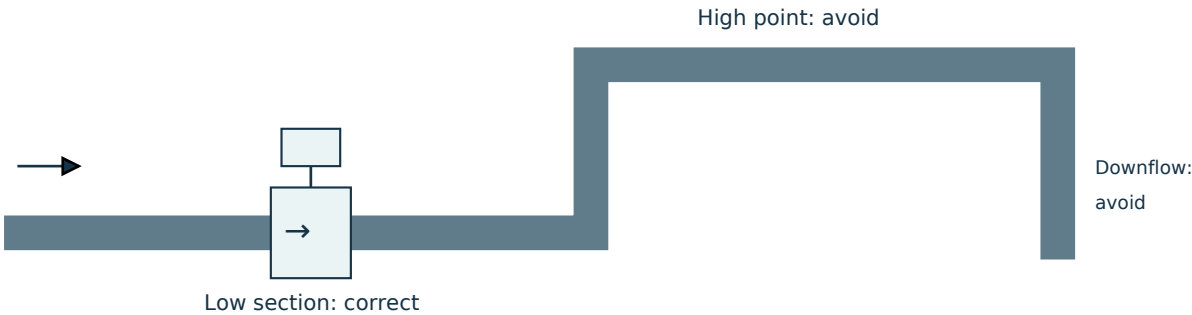
7. Interpret lining temperatures correctly

Lining	Generic material reference in the selection table
Neoprene	80°C and 120°C values are listed without configuration assignments
PTFE / F4	−40°C to 180°C
Polyurethane	Below 80°C
F46 / reinforced PFA	Applications refer to the F4 row; no independent temperature value is supplied

Complete instrument limits: The product parameter block specifies rubber lining ≤60°C and PTFE lining ≤120°C. These are the operating limits to apply to the stated instrument; the generic material values above are not higher-temperature instrument ratings.

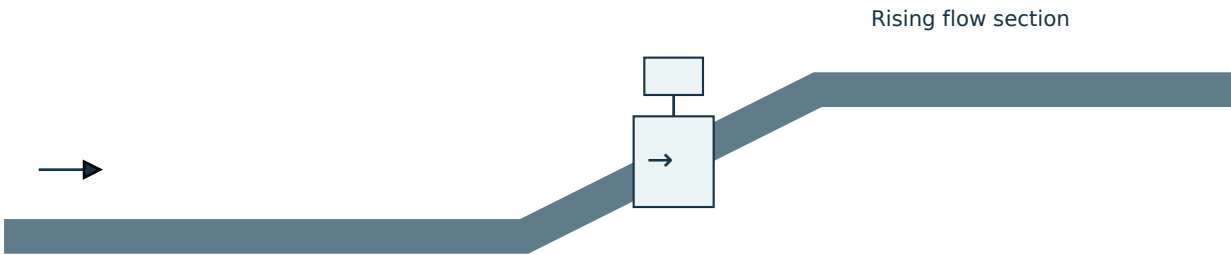
8. Keep the sensor full

Install in a low section of horizontal pipe or in vertical upward flow. Avoid the highest point of the pipe and a vertical downward-flow section.



9. Rising pipe section

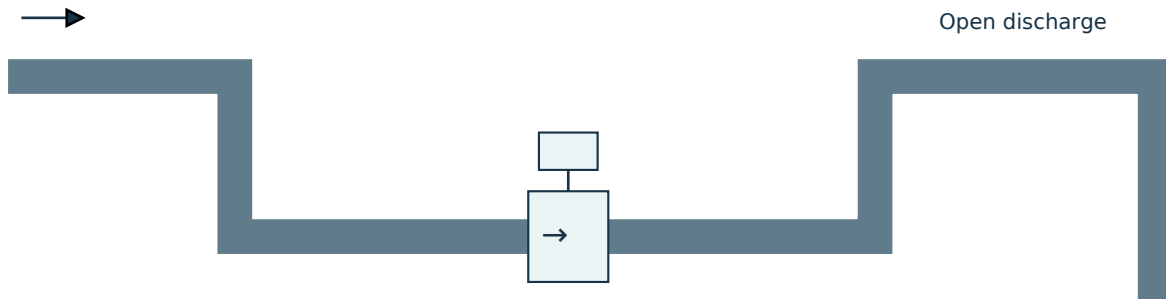
Locate the sensor in a rising section of the pipeline.



Pipeline installation

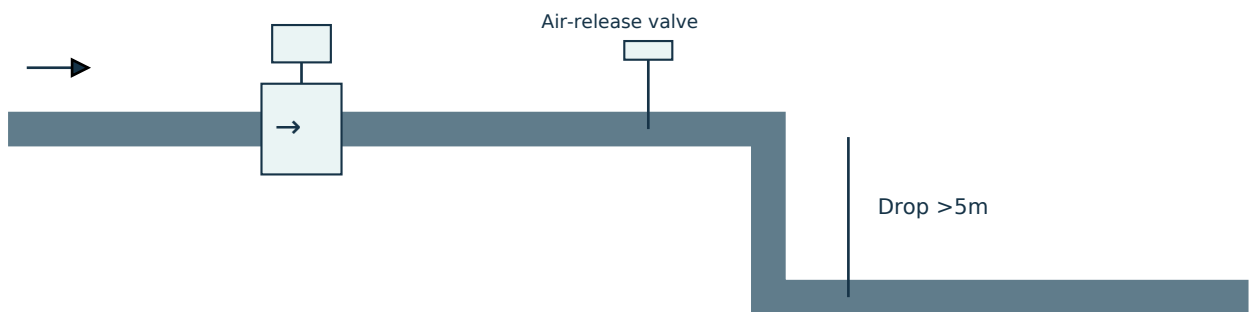
10. Open discharge

In an open-discharge pipeline, place the sensor in the low section so that the measuring pipe remains full.



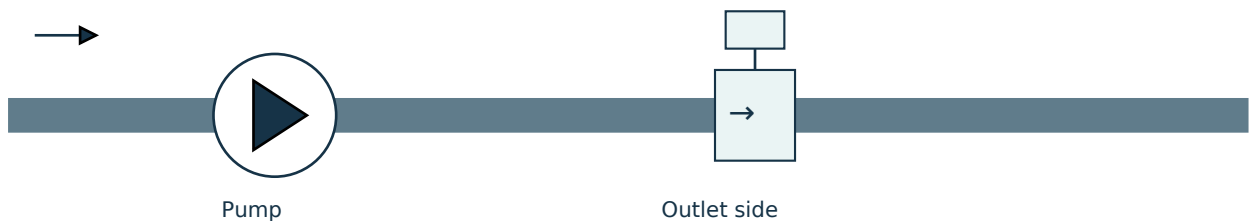
11. Downstream drop greater than 5m

Fit an air-release valve downstream of the sensor when the pipe drop exceeds 5m.



12. Pump placement

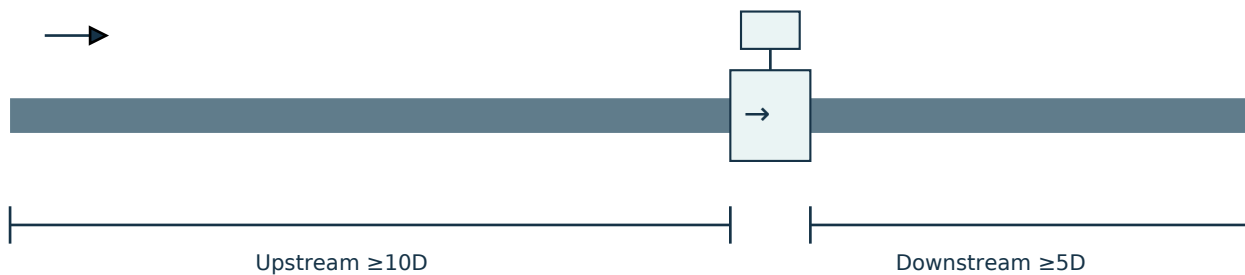
Install the sensor on the pump outlet side. Do not install it at the pump inlet.



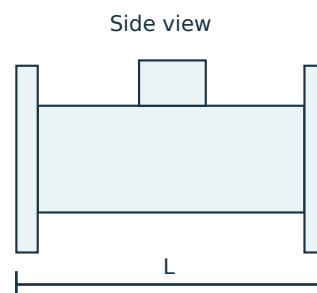
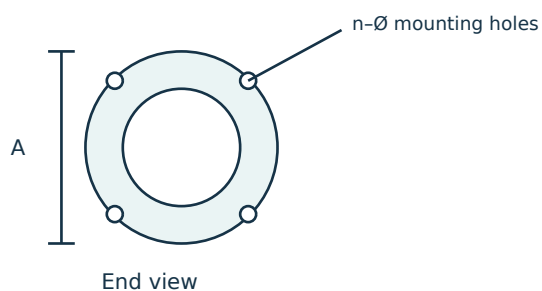
Straight runs and material selection

13. Straight-pipe requirements

Provide at least 10D of straight pipe upstream and 5D downstream. D is the internal diameter of the flowmeter.



Reference dimension sketch



Configuration notes

Calculate volumetric flow from the pipe internal diameter and average fluid velocity: $Q = \pi D^2 v \times 3600 / 4$. Use D in metres and v in metres per second to obtain Q in m³/h.

Chemical compatibility depends on the electrode material, fluid composition and concentration. The tantalum material reference for sulfuric acid below 175°C does not increase the complete instrument's configured operating-temperature limit.

Mesh-reinforced PFA is a lining option. Apply the operating-temperature limit stated for the selected lining.

Select electrode and lining materials for the actual fluid composition, concentration and temperature.