

VORTEX FLOWMETER FOR STEAM, GAS AND LIQUID



- KÁRMÁN VORTEX STREET · NO MOVING PART
- DN25 ... DN300 · $\pm 1.0\%$ · 2.5 OR 4.0 MPa
- -40 ... +250 °C · +100 ... +350 °C HIGH-TEMPERATURE VERSION

KEY DATA

Property	Value	Property	Value
Nominal size	DN25 ... DN300	Media	Saturated steam · superheated steam · gas · liquid
Accuracy	$\pm 1.0\%$	Repeatability	0.3 % (R)
Nominal pressure	2.5 · 4.0 MPa	Medium temperature	-40 ... +250 °C · +100 ... +350 °C high-temperature version
Output	Three-wire pulse or two-wire 4 ... 20 mA	Supply voltage	+24 Vdc
Ambient	-25 ... +60 °C · $\leq 90\%$ RH	Connection	Flange or clamp (wafer) type

A vortex meter counts the vortices that shed behind a bluff body; their frequency is proportional to velocity, and nothing moves inside the tube.



MEASUREMENT

Measuring principle	Kármán vortex street — vortices shed behind a bluff body, their frequency proportional to velocity
Media	Saturated steam, superheated steam, gas and viscous liquid
Nominal size	DN25 ... DN300
Accuracy	± 1.0 %
Repeatability	0.3 % (R)
Flow ranges	See the range table · steam as dry saturated steam

MATERIALS AND PROCESS

Connection	Flange type or clamp (wafer) type — the first digit of the order code
Nominal pressure	2.5 · 4.0 MPa
Medium temperature	-40 ... +250 °C normal · +100 ... +350 °C high-temperature version, code H
Body material	Stainless steel
Counter flange	Not supplied — the flange type leaves the works without pipe flanges and bolts

ELECTRICAL PROPERTIES

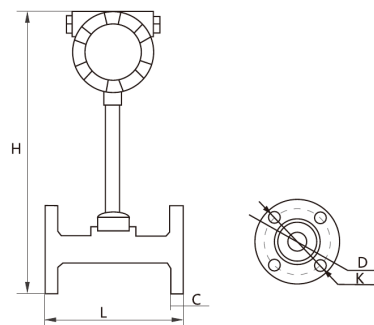
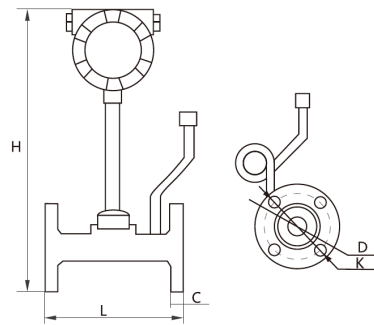
Output signal	Three-wire voltage pulse frequency signal, code F
	Two-wire 4 ... 20 mA with display, code A
Supply voltage	+24 Vdc
Ambient	-25 ... +60 °C · humidity ≤ 90 % RH
Explosion protection	A digit of the order code: 0 without, 1 explosion-proof type
Compensation	Without, or with temperature and pressure compensation, suffix -TP

DISPLAY

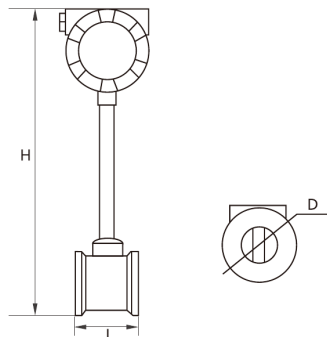
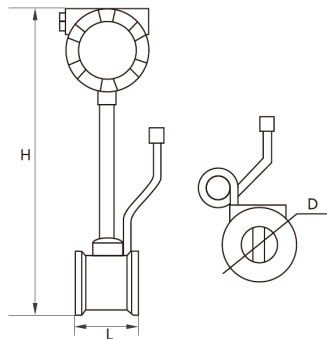
Display	With the 4 ... 20 mA version, code A
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THE TWO CONNECTION TYPES



The flange type, code F. Side view with L, H and C, end view with the flange outer diameter D and the bolt circle K.



The clamp (wafer) type, code K. The body is held between two pipe flanges; D here is the end face diameter of the body, not a flange.



DIMENSIONS (mm)

The flanged version. L is the face-to-face length, H the overall height with the converter on top, D the flange outer diameter and C the flange thickness. The pipe column names the pipe the meter is meant to sit in.

FLANGE TYPE · OVERALL DIMENSIONS (mm)

DN	Length L	Height H	Flange D	Thickness C	Pipe
15	180	415	95	14	Φ 18x1.5
20	180	420	105	16	Φ 25x2.5
25	180	425	115	16	Φ 32x3.5
32	180	435	140	18	Φ 39x4.5
40	180	435	150	18	Φ 48x4
50	180	440	165	20	Φ 59x4.5
65	200	460	185	20	Φ 74x4.5
80	200	490	200	20	Φ 89x4.5
100	200	510	220	22	Φ 109x4.5
125	220	535	250	22	Φ 134x4.5
150	220	570	285	24	Φ 159x4.5
200	220	625	340	24	Φ 219x9
250	250	685	405	26	Φ 273x11
300	300	710	460	28	Φ 325x12

The connection flange: D the outer diameter, K the bolt circle, Ø the bolt hole, n their number, C the flange thickness. The meter leaves the works without pipe flanges and bolts — both have to be bought separately.

FLANGE DIMENSIONS (mm)

DN	D	K	Hole Ø	n	Bolt	C
15	95	65	14	4	M 12x60	14
20	105	75	14	4	M 12x60	16
25	115	85	14	4	M 12x60	16
32	140	100	18	4	M 16x70	18
40	150	110	18	4	M 16x70	18
50	165	125	18	4	M 16x70	20
65	185	145	18	4	M 16x70	20
80	200	160	18	8	M 16x70	20
100	220	180	18	8	M 16x70	22
125	250	210	18	8	M 16x70	22



FLANGE DIMENSIONS (mm) · CONTINUED

DN	D	K	Hole Ø	n	Bolt	C
150	285	240	22	8	M 16x90	24
200	340	295	22	12	M 16x90	24
250	405	355	26	12	M 24x110	26
300	460	410	26	12	M 24x110	28

The clamp (wafer) version, held between two pipe flanges. Body L is the length of the meter body, installed L the length it takes up once installed.

CLAMP TYPE · OVERALL DIMENSIONS (mm)

DN	Body L	Installed L	Height H	End face D	Pipe
15	80	116	400	68	Φ 18x1.5
20	80	116	400	68	Φ 25x2.5
25	80	116	400	68	Φ 32x3.5
32	80	116	400	68	Φ 39x3.5
40	80	116	404	80	Φ 49x4.5
50	80	116	412	88	Φ 59x4.5
65	80	116	428	105	Φ 74x4.5
80	80	116	446	120	Φ 89x4.5
100	80	118	472	148	Φ 109x4.5
125	85	124	492	174	Φ 134x4.5
150	90	135	515	196	Φ 159x4.5
200	105	150	570	250	Φ 219x9
250	120	166	620	300	Φ 273x11
300	135	185	670	350	Φ 325x12



Flow in cubic metres per hour: liquid as water at room temperature, gas as air at standard conditions, steam as dry saturated steam.

FLOW RANGES (m³/h)

DN	Liquid min	Liquid max	Gas min	Gas max	Steam min	Steam max
25	0.9	14	8.3	80	8	120
40	2.5	35	18	200	20	300
50	3.3	55	30	400	30	450
65	6	80	50	700	60	800
80	10	130	70	1000	100	1300
100	20	200	120	1800	200	2000
125	30	300	180	2500	300	3000
150	25	450	240	3500	450	4500
200	40	900	480	7000	900	9000
250	60	1200	600	10000	1200	15000
300	100	1600	1000	14000	1400	18500

COMPLIANCE AND CERTIFICATION

Measuring principle	Kármán vortex street
Accuracy	± 1.0 %
Repeatability	0.3 % (R)
Pressure rating	2.5 · 4.0 MPa
Wetted materials	Stainless steel

Example: QWKA-F-1-050-025-L-S-F-0. Special customisation is supported.

ORDER CODE

Field	Code	Meaning
1 Series	QWKA	QWKA vortex flow sensor
2 Connection	F · K	Flange type · clamp (wafer) type
3 Medium	1 · 2	Liquid · general gas
	3 · 4	Saturated steam · superheated steam
4 Size	025 ... 300	Nominal size in mm · DN25 ... DN300
5 Pressure	025 · 040	2.5 MPa · 4.0 MPa
6 Temperature	L · H	Ordinary · high-temperature version
7 Material	S	Stainless steel
8 Output	F · A	Pulse output · 4 ... 20 mA with display
9 Explosion	0 · 1	Without · explosion-proof type
10 Compensation	— · -TP	Without · with temperature and pressure compensation

