

H250 Technical Datasheet

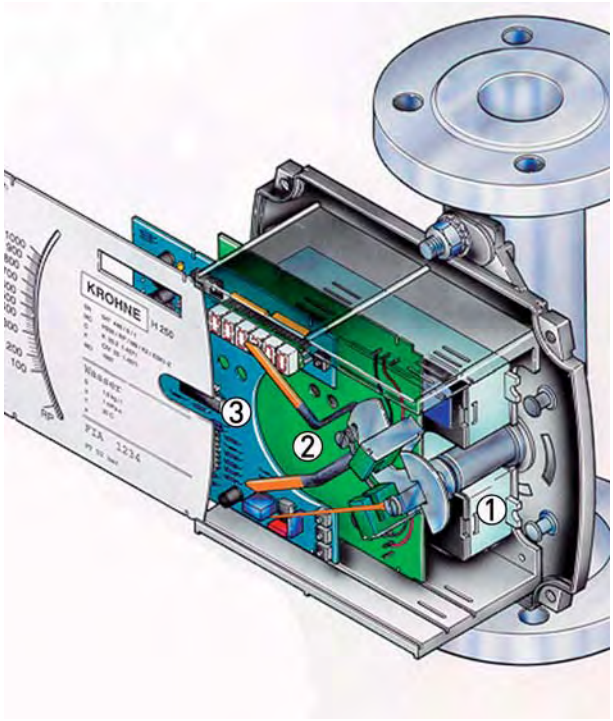
Variable Area Flowmeter

- Rugged design for extreme operating conditions
- Local indication without the need for auxiliary power
- Flexible and can be adapted to meet customer-specific requirements

KROHNE

The standard solution in the process industry

The all-metal flowmeter H250 is used in the measurement of volume or mass flow of liquids, gases, and vapors.



1. 4...20 mA-output / Profibus PA
2. Limit monitors
3. Flow Counter

Highlights

- Consistently used overall length concept
- Low loss of pressure for gas applications
- Measurement at operating pressures up to 3000 bar
- Measurement at extremely low and high process temperatures (-200°C to +300°C)
- Fast non-interruptive retrofitting of the modules
- The only EHEDG-certified variable area flow meter permitted for use with food & pharmaceuticals.
- Dead space-free, CIP and SIP capable
- SIL 2 certified

Industries

Can be used in all industrial sectors, for example:

- Chemical
- Petrochemical
- Pharmaceutical
- Mechanical engineering
- Food and Beverage
- Oil and Gas
- Iron, Steel and Metals
- Power plants
- Pulp and Paper
- Water and Wastewater

Applications

- Continuous gas and liquid measurement
- Measurement of non-conductive materials
- Industrial burner controlling
- Compressor monitoring
- Dry-run protection of pumps

Examples of customised variants

Stainless steel indicator housing (H250/M9R)



For particularly rough environmental conditions, the M9 indicator housing is optionally available in stainless steel.

This guarantees its reliable use in corrosive atmospheres caused by operational immissions.

When installed outdoors, external influences such as salt fog or contaminated precipitation no longer lead to corrosion.

The stainless steel housing is equally well-suited for use in splash water zones such as in the food and luxury food industry.

H250F Food & Pharmaceutical



The only EHEDG-certified variable area flowmeter approved for the food and pharmaceutical industry features.

Smooth stainless steel surfaces with a surface roughness of the parts in contact with the medium of ≤ 0.8 µm or 0,6 µm , which makes it difficult for deposits to stick and easy to clean.

Combined with a design devoid of dead spaces and stagnation zones, microorganisms cannot stick and multiply.

The measuring instruments can be cleaned (CIP) and sterilized (SIP) while intact.

There are suitable connections and FDA conforming materials for the food and pharmaceutical industry.

PTFE/ceramic liner for aggressive media



All components coming into contact with the medium can also be made of ceramic or PTFE, which means they can be used for virtually all acids and alkalis.

Process temperature Tmax = 70°C (PTFE)

Process temperature Tmax = 250°C (ceramic)

Accuracy class 2.5

Designs for special installation positions (H 250H / H 250U)



Variable area flowmeters-generally feature a vertically positioned measuring cone through which the medium flows from bottom to top, raising a float against the weight

.
If the installation structure does not permit it otherwise, the versions H 250H for horizontal or H 250U for reverse installation position (from top to bottom) are used.
The reset force lacking in the weight of the float is replaced by a spring.

Indication variants

Indicator M9 (Modular functionality)



Simple, low-cost installation:
- Measure and display without auxiliary power supply
- Large scale for good readability
- Modular and flexible to adapt to customer-specific applications
- 2 limit switches (NAMUR or 3-wire transistor)
- 2-wire analog output 4...20mA with HART
- Profibus PA interface
- 6-digit flow counter with pulse output (non Ex)
- SIL 2 certified
- Intrinsically safe and nonincendive for use in hazardous areas (ATEX, FM, NEPSI)

Indicator M10 (Integrated functionality)



Integrated functionality
- Graphic display for measured value and counter display
- 2 limit switches (NAMUR or 3-wire transistor)
- 2-wire analog output 4...20mA with HART
- 12-digit flow counter with pulse output and reset input

Operated using keys or magnetic stylus
Explosion proof enclosure for use in hazardous areas (ATEX, FM, CSA, NEPSI)

Indicator M8 (compact)



- Compact, space saving design
- Intrinsically safe for use in hazardous areas (ATEX)

M8M
- Mechanical indicator -No auxiliary power needed
- Optional 2 limit switches (NAMUR)

M8E
- Electronic bargraph indicator
- 2-wire analog output 4...20mA with HART

Technical data

Application range	Flow measurement of liquids, gases and vapors
Function / measuring principle	Variable area measuring principle
Measuring accuracy acc. to directive VDI / VDE 3513 sheet 2 (q_G = 50%)	
H250 /RR /HC /F	1.6%
H250/C (ceramic/PTFE) H250H, H250U, H250 (100 : 1)	2.5%
Inlet run	≥5 x DN
Outlet run	≥3 x DN
Max. Operating pressure PS	per pressure equipment directive 97/23/EC
Max. Test pressure PT	per pressure equipment directive 97/23/EC or AD 2000-HP30
Max. Process temperature TS	300°C
Min. required operating pressure	Twice as great as pressure loss (see measuring ranges)
Suspended solid particle decrease during gas measurement recommended:	
DN15...DN25 / ½"...1"	Operating pressure <0.3 bar
DN50...DN100 / 2"...4"	Operating pressure <0.2 bar

Materials

Device	Measuring tube	Flanges / raised face	Float	Float stop / guide	Circular orifice
H250 /RR	CrNi-steel 1.4404 ❶	CrNi-steel 1.4404 massive ❶	CrNi-steel 1.4404 ❶	CrNi-steel 1.4404 ❶	-
H250/HC	Hastelloy C4 (2.4610)	CrNi-steel 2.4610 mit Hastelloy C4 (2.4610) plated ❶	Hastelloy C4 (2.4610)	Hastelloy C4 (2.4610)	-
H250/C ❷	CrNi steel 1.4571 with TFM/PTFE liner ❸	CrNi-steel 1.4571 with TFM/PTFE liner ❸	PTFE or Al2O3 with FFKM seal	Al2O3 and PTFE	Al2O3
H250/F ❹	CrNi steel 1.4435	CrNi steel 1.4435	CrNi steel 1.4435	CrNi steel 1.4435	-

❶ CrNi-steel 1.4571 on request, clamp connections CrNi-steel 1.4435
❷ DN100 / 4" only PTFE
❸ TFM/PTFE (electrically nonconductive)
❹ wetted surfaces Ra ≤ 0.8 µm

Further options:

- Special material on request: e.g. SMO 254, Titan, 1.4435
- Suspended solid particle decrease: ceramic or PEEK
- Seal for devices with internal thread: O-ring FPM / FKM



DANGER!
In case of instruments which are used in explosive endangered areas please consider the supplementary installation and operating instructions mentioned in the Ex-manual.

Temperatures

H250/M9 - mechanical indicator without power supply

	Float	Liner	Measuring temp. [°C]	Ambient temp. [°C]
H250/RR	Stainless steel	Stainless steel	-196...+300	-40...+120
H250/RR Screw fitting				-20...+120
H250/HC	Hastelloy C4	Hastelloy C4	-196...+300	-40...+120
H250/C	PTFE	PTFE	-196...+70	-40...+70
H250/C	Ceramic	PTFE	-196...+150	-40...+70
H250/C	Ceramic	TFM	-196...+250	-40...+120
H250H / H250U	stainless steel	stainless steel	-40...+100	-20...+90

Temperatures H250/M9 with electrical components

			TS [°C] (Tamb. <40°C)		TS [°C] (Tamb. <60°C) ❶	
EN	ASME	Version with	Standard	HT	Standard	HT
DN15, DN25	1/2", 1"	ESK2A, ESK3-PA	+200	+300	+180	+300
		ESK2A with counter	+200	+200	+80	+130
		Limit switches SC.. SJ..	+200	+300	+200	+300
		Limit switches SB..	+200	+300	+130	+295
DN 50	2“	ESK2A, ESK3-PA	+200	+300	+165	+300
		ESK2A with counter	+180	+300	+75	+100
		Limit switches SC.. SJ..	+200	+300	+200	+300
		Limit switches SB..	+200	+300	+120	+195
DN 80, DN100	3“, 4"	ESK2A, ESK3-PA	+200	+300	+150	+250
		ESK2A with counter	+150	+270	+70	+85
		Limit switches SC.. SJ..	+200	+300	+200	+300
		Limit switches SB..	+190	+300	+110	+160

* without heat insulation measures, a heat-resistant cable is necessary (continuous operating temperature of the cable to be used: 100°C)

Abbreviations

HT	High temperature version
ESK2A	Transmitter, two-wire technology 4 ... 20 mA
ESK3-PA	PROFIBUS PA transmitter
SC	Limit switch type NAMUR
SJ	Limit switch type NAMUR safety oriented
SB	Limit switch type 3-wire, PNP normally open

Min. ambient temperatures Tamb with ESK and limit switches

Limit switches	-25°C
ESK2A / ESK3-PA	-40°C

Temperatures H250 /M8 /M10

M8M

Max. Tmed. at Tamb. +60°C	+200
Min. measuring temperature TS without limit monitor	-80
Min. measuring temperature TS with limit monitor	-25
Max. ambient temperature Tamb.	+70
Min. ambient temperature Tamb.	-25

M8E

Max. Tmed. at Tamb. +40°C	+200
Max. Tmed. at Tamb. +50°C	+185
Max. Tmed. at Tamb. +60°C	+145
Min. Tmed.	-25
Max. ambient temperature Tamb.	+70
Min. ambient temperature Tamb.	-25

M10

Max. Tmed. at Tamb. +60°C	+200
Min. measuring temperature TS	-80
Max. ambient temperature Tamb.	+75
Min. ambient temperature Tamb.	-40

Technical data for indicators M8 M9 M10

M8M limit switch

Clamp connection	2.5mm^2		
Limit switches	SC3,5-N0-Y	SJ3,5-SN	SJ3,5-S1N
Type	2-wire NAMUR	2-wire NAMUR	2-wire NAMUR
Switch configuration	Normally closed	Normally closed	Normally open
Nominal voltage U0	8 VDC	8 VDC	8 VDC
Pointer shaft not read	≥3 mA	≥3 mA	≤1 mA
Pointer shaft read	≤1 mA	≤1 mA	≥3 mA

M8E current output

Cable gland	M16 x 1.5	
Pipe diameter	8…10 mm	
Clamp-type terminal	4 mm^2	
Measuring signal	4...20 mA 0...100% flow value	Two-wire technology
Power supply	14.8...30 VDC	
Min. power supply at HART™	20.5 VDC	
Power supply effect	<0.1%	
Input impedance dependence	<0.1%	
Temperature effect	<10 µA / K	
Max. input impedance / load	640 Ohm (30 VDC)	
Min. load at HART™	250 Ohm	
M8E HART™ Parameterization		
Manufacturer's name (code)	KROHNE Messtechnik (69)	
Model name	M8E (230)	
HART™ Protocol revision	5.1	
Device revision	1	
Physical layer	FSK	
Device category	Transmitter	

M8E process variable

M8E process variable flowrate	Values [%]	Signal output [mA]
Over range	+105 (±1%)	20.64...20.96
Device error identification	>110	>21.60
Maximum	112.5	22
Multi drop operation	-	4.5

Indicator M9
M9 Cable fitting

Cable fitting	Material	Cable diameter
M 16x1,5 Standard	PA	5...10 mm
M 20x1,5	PA	8...13 mm
M 16x1,5	Nickel-plated brass	5...9 mm
M 20x1,5	Nickel-plated brass	10...14 mm

M9 limit switches

Clamp connection	$2,5mm^2$			
Limit switches	SC3,5-N0-Y	SJ3,5-SN	SJ3,5-S1N	SB3,5-E2
Type	2-wire NAMUR	2-wire NAMUR	2-wire NAMUR	3-wire
Switch configuration	Normally closed	Normally closed	Normally open	PNP Normally open
Nominal voltage U0	8 VDC	8 VDC	8 VDC	10...30 VDC
Pointer shaft not read	≥3 mA	≥3 mA	≤1 mA	≤ 0.3 VDC
Pointer shaft read	≤1 mA	≤1 mA	≥3 mA	Ub -3 VDC
Continuous current	-	-	-	max. 100 mA
No-load current I0	-	-	-	≤15 mA

M9 current output ESK2A

Clamp connection	$2.5\ mm^2$	
Power supply	12...30 VDC	
Measurement signal	4.00...20.00 mA 0...100% flow value	Two-wire technology
Power supply	12...30 VDC	
Min. power supply for HART™	18 VDC	
Effect of supply power	<0.1%	
External resistance dependence	<0.1%	
Temperature influence	<5 µA / K	
Max. external resistance / load impedance	800 ohms (30 VDC)	
Min. load with HART™	250 ohms	
Software firmware version	02.14	
Ident no.	3210680500	
ESK2A HART™ parameter configuration		
Name of manufacturer (code)	KROHNE Messtechnik (69 = 45h)	
Name of model	ESK2A (226 = E2h)	
HART™ protocol revision	5.9	
Device revision	1	
Physical layer	FSK	
Device category	Transmitter non dc isolated device	

M9 ESK2A process variable

ESK2A process variable flow rate	Values [%]	Signal output [mA]
Over range	+102.5 (± 1%)	20.24...20.56
Device error detection	>106.25	>21.00
Maximum	131.25	25
Multi-drop operation	-	4.5
Lift-off voltage	12 VDC	

M9 ESK-Z totalizer

Clamp connection	2,5 mm^2	
Power supply	10...30 VDC	
$R_{ext.}$ Current loop	0...600 Ohm	
Power consumption	max. 2,5 watts	
Indicating error	<1%	maximum one scalar unit
Max. reset voltage	30 VDC	
Min. reset pulse	300 ms	
Software firmware version	1.19	
Power supply	10...30 VDC	
Max. current	50 mA	
Max. dissipation	250 mW	
T on	80 ms	fixed pulse width
T off	depends on flow rate	
V on	Ub –3 VDC	
V off	0 Volt	
Pulse value	1 pulse = 1 display totalizer advance	= 1 flow unit (1 liter , 1 m^3 ....)

M9 ESK3PA Profibus

Klemmenanschluss	2,5 mm^2	
Buskabel R´	15...150 Ohm/km	
Buskabel L´	0,4...1 mH/km	
Buskabel C´	80...200 nF/km.	

M9 ESK3PA Hardware

Hardware	nach IEC 1158-2 und FISCO Modell	
Versorgungsspannung	9...32 VDC	
Grundstrom	12 mA	
Anlaufstrom	< Grundstrom	
FDE (Fehlerabfallelektronik)	< 18 mA	
Genauigkeit nach VDI/ VDE 3513	1,6 %	
Messwertauflösung	<0.1% vom Endwert	
Temperatureinfluss	<0.05% / K vom Endwert	
Software- Firmwareversion	1.01/000418	
Ident Nr.	3184980200	

M9 ESK3PA Software

GSD	Geräte Stamm Datei	
Geräte-Profil	Profils B, V3.0	
Funktionsblöcke		
Durchfluss (AI0)	Volumen oder Masse	
Zähler (TOT0)	Volumen-Zähler	Default-Einheit: [m3]
Zähler (TOT1)	Massen-Zähler	Default-Einheit: [kg]
Adressbereich	0...126, default 126	
SAP`s	Service_Access_Points	
DD	Device-Description	

Indicator M10

M10 indicator cable fitting

Cable fitting	none	(standard)
M 20x1.5	on request	
M 20x1.5 Ex d	on request	

M10 current output

current output	Two-wire technology	
Power supply	24 VDC +/- 30	
Signal output current	4...20 mA	
Effect of supply power	< 0.1	
External resistance dependence	< 0.1	
Temperature influence	< 5 µA/K	
External resistance / load impedance	≤ 630 ohms	
External resistance with HART	≥ 250 ohms	

M10 HART

Name of manufacturer (code)	KROHNE Messtechnik (69)	
Name of model	M10A	
HART™ protocol revision	5.1	
Device revision	1	
Physical layer	FSK	
Device category	Transmitter	

M10 process variable

	Values [%]	Signal output [mA]
Over range	+105 (± 1%)	20.64...20.96
Device error detection	> 110	> 21.60
Maximum	112.5	22
Multi-drop operation	-	4.5

M10 digital output

Binary outputs	galvanically isolated	
Operating mode	Binary output	NAMUR or open collector
configurable as	switching contact	normally open / normally closed or
	pulse output	max. 10 pulses per second
NAMUR binary output		
Power supply	8 VDC	
Signal current	> 3 mA if switching value not reached;	
	< 1 mA when switching value reached	
Open collector binary output		
Power supply	8...30 VDC	
Pmax	500 mW	
Imax	100 mA	

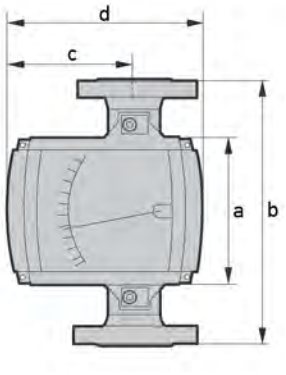
M10 reset input

Binary input	galvanically isolated	
Operating mode	Counter reset	
configurable as	active HI / active LO	
Voltage level	5...30 VDC	
Current drawn	≤1 mA	
Pulse length (active)	≥ 500 ms	

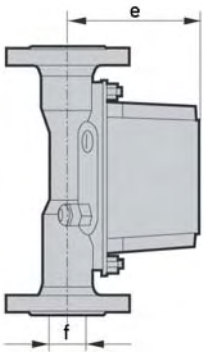
Dimensions

Dimensions of H250/M9

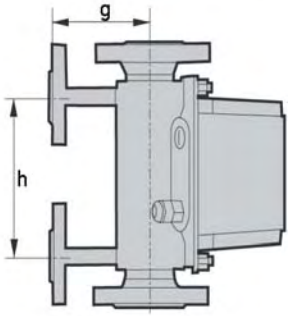
M9
Front view



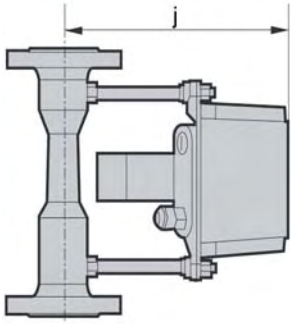
M9
Side view



M9
with heating

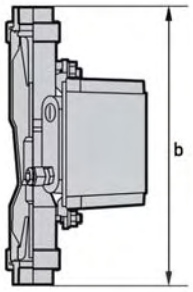


M9
HT high-temperature

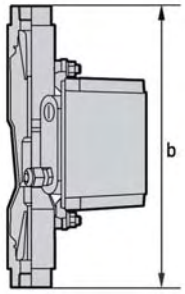


	Dimensions [mm]								
	a	b	c	d	e	Ø f	g	h	j
DN15 PN40	138	250	110.5	181	107	20	100	150	187
DN25 PN40	138	250	110.5	181	119	32	106	150	199
DN50 PN40	138	250	123.5	181	132	65	125	150	212
DN80 PN16	138	250	123.5	181	148	89	160	150	228
DN100 PN16	138	250	123.5	181	158	114	150	150	232
Overall height b of H250/C (ceramic/PTFE) from 3" / 300 lbs: 300 mm									
ISO 228		300							
H250/F		250							

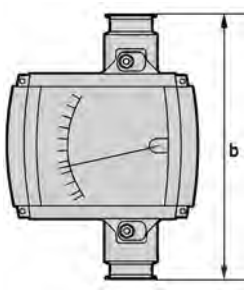
ISO 228
Female thread
screwed



ISO228
Female thread
welded

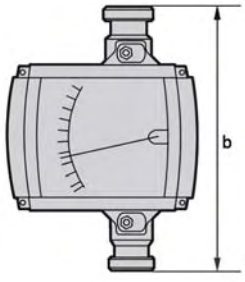


H250/F
Clamp connection



❶

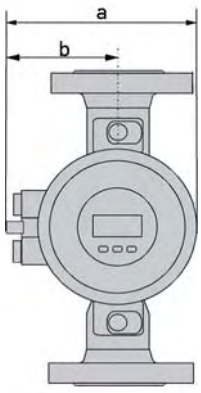
H250/F
Screw connection
DIN 11851



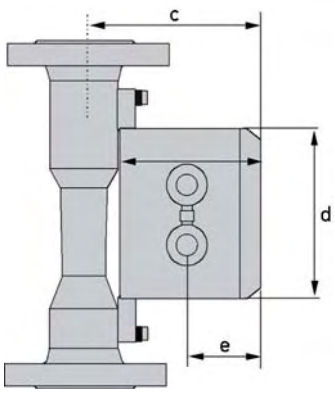
❶ Stainless steel 1.4435
EHEDG approved. Surfaces with medium contact Ra = 0.8 µm

Dimensions of H250/M10 /M8

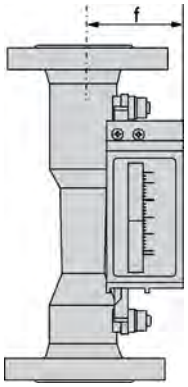
M10



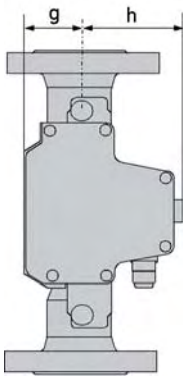
M10



M8



M8



	Dimensions [mm]										
	M10						M8M			M8E	
	a	b	c	d	e	f	g	h	f	g	h
DN15 PN40	147	83	118	Ø 132	55	63	60	58.5	53.5	66	52.5
DN25 PN40	147	83	130	Ø 132	55	75	60	58.5	65.5	66	52.5
DN50 PN40	147	83	143	Ø 132	55	89	73	45.5	79.5	79	39.5
DN80 PN16	147	83	160	Ø 132	55	105	73	45.5	95.5	79	39.5
DN100 PN16	147	83	169	Ø 132	55	114	73	45.5	104.5	79	39.5

Weights

Nominal diameter	H250	with heating		H250/C (Ceramic / PTFE)			Screw connection
	EN 1092-1	Flange connection	Ermeto 12 connection	EN 1092-1	ASME B 16.5 150 lbs	ASME B 16.5 300 lbs	DIN 11864-1
	[kg]						
DN15 / ½“	3.5	5.6	5.7	3.5	3.2	3.5	2
DN25 / 1“	5	7.5	7.6	5	5.2	6.8	3.5
DN50 / 2“	8.2	11.2	11.3	10	10	11	5
DN80 / 3“	12.2	14.8	14.9	13	13	15	7.6
DN100 / 4“	14	17.4	17.5	15	16	17	10.3

Process connections

	Standards	Connection dimensions	Pressure rating
Flange (H250/RR /HC /C)	EN-1092-1	DN15...DN100	PN16...PN100
	ASME B16.5	1/2"...4"	150 lbs...600 lbs
	JIS B 2238	LR15...LR100	10K...20K
Clamp connections (H250/RR /F)	DIN 32676	DN15...DN100	10 bar...16 bar
	ISO 2852	Größe 25...139.7	10 bar...16 bar
Threaded connections (H250/RR /HC /F)	DIN 11851	DN15...DN100	25 bar...40 bar
	SMS 1146	1"...4"	6 bar
Inside thread welded (H250/RR /HC)	ISO 228	G1/2"...G2"	≥ PN50
	ASME B1.20.1	1/2"...2" NPT	
Inside thread, screwed (H250/RR /HC)	ISO 228	G1/2"...2"	PN40...PN50
with insert and union nut	ASME B1.20.1	1/2"...2" NPT	
Aseptic threaded connection (H250/F)	DIN 11864 - 1	DN15...DN50	PN40
		DN80...DN100	PN16
Aseptic flange (H250/F)	DIN 11864 - 2	DN15...DN50	PN40
		DN80...DN100	PN16
Meters (H250/RR /HC) with heating:			
Heating with flange connection	EN 1092-1	DN15	PN40
	ASME B16.5	1/2"	150 lbs / RF
Heating with pipe connection for Ermeto		E12	PN40

Bolts and tightening torques

For flowmeters with PTFE liner or ceramic liner and PTFE sealing face, tighten the flange threads with the following torques:

Nominal sizes, EN

	Bolts	Tightening torques	
Nominal sizes as per EN 1092-1	Quantity x size	SI [Nm]	Imp [lb-ft]
DN15 PN40 (1)	4x M12	9.8	7.1
DN25 PN40 (1)	4x M12	21	15
DN50 PN40 (1)	4x M16	57	41
DN80 PN16 (1)	8x M16	47	34
DN100 PN16 (1)	8x M16	67	48

(1) Standard connections; other connection on request

Nominal sizes, ASME

	Bolts		Tightening torques	
Normal sizes as per ASME B 16.5	Quantity x size		SI [Nm]	Imp [lb-ft]
	150 lbs	300 lbs		
½“ 150 lbs / 300 lbs (1)	4x ½“	4x ½“	5.2	3.8
1“ 150 lbs / 300 lbs (1)	4x ½“	4x 5/8“	10	7.2
2“ 150 lbs / 300 lbs (1)	4x 5/8“	8x 5/8“	41	30
3“ 150 lbs / 300 lbs (1)	4x 5/8“	8x ¾“	70	51
4“ 150 lbs / 300 lbs (1)	8x 5/8“	8x ¾“	50	36

(1) Standard connections; other connection on request

Measuring ranges

H250/RR - stainless steel, H250/HC - Hastelloy

Measuring span 10 : 1
Flow values 100%

		Water			Air			Max. pressure loss			
Float ▸		TIV	CIV	DIV	TIV Alu	TIV	DIV	TIV Alu	TIV	CIV	DIV
Nominal diameter	Cone	[l/h]			[m3/h]			[mbar]			
DN15 1/2"	K 15.1	18	25	-	0,42	0,7	-	12	21	26	-
	K 15.2	30	40	-	0,7	1	-	12	21	26	-
	K 15.3	55	63	-	1	1,5	-	12	21	26	-
	K 15.4	80	100	-	1,7	2,2	-	12	21	26	-
	K 15.5	120	160	-	2,5	3,6	-	12	21	26	-
	K 15.6	200	250	-	4,2	5,5	-	12	21	26	-
	K 15.7	350	400	700	6,7	10	18 (1)	12	21	28	38
	K 15.8	500	630	1000	10	14	28 (1)	13	22	32	50
	K 15.8	-	-	1600 (2)	-	-	50 (2)	-	-	-	85
DN25 1"	K 25.1	480	630	1000	9,5	14	-	11	24	32	72
	K 25.2	820	1000	1600	15	23	-	11	24	33	74
	K 25.3	1200	1600	2500	22	35	-	11	25	34	75
	K 25.4	1700	2500	4000	37	50	110 (1)	12	26	38	78
	K 25.5	3200	4000	6300	62	95	180 (1)	13	30	45	103 (3)
DN50 2"	K 55.1	2700	6300	8400	58	80	230 (1)	8	13	74	60
	K 55.2	3600	10000	14000	77	110	350 (1)	8	13	77	69
	K 55.3	5100	16000	25000	110	150	700 (1)	9	13	84	104
DN80 3"	K 85.1	12000	25000	37000	245	350	1000 (1)	8	16	68	95
	K 85.2	16000	40000	64000	280	400	1800 (1)	9	16	89	125
DN100 4"	K105.1	19000	63000	100 000	-	550	2800 (1)	-	-	120	220

(1) P >0,5 bar
(2) with TR float
(3) 300 mbar with damping (gas measurement)

Reference condition:
Water 20°C
Air 20°C - 1.013bar abs.

Air measurement - TIV suspended solid particles: Heating not possible
The indicated pressure losses apply for water and air at maximum flow.
Other flow rate measuring ranges can be provided upon request.
The conversion of other process fluids or operating data (pressure, temperature, density, viscosity) is done at KROHNE with the help of the calculation procedure as detailed in VDI /VDE Directive 3513.

H250/C - Ceramic/PTFE

Measuring span 10 : 1
Flow values 100%

		Flow			Max. pressure loss		
		Water		Air	Water		Air
	Liner float ▸	PTFE	Ceramic	CeramiC	PTFE	Ceramic	Ceramic
Nominal size	Cone	[l/h]		[m3/h]	[mbar]		
DN15, 1/2"	E 17.2	25	30	-	65	62	62
	E 17.3	40	50	1,8	66	64	64
	E 17.4	63	70	2,4	66	66	66
	E 17.5	100	130	4	68	68	68
	E 17.6	160	200	6,5	72	70	70
	E 17.7	250	250	9	86	72	72
	E 17.8	400	-	-	111	-	-
DN25, 1"	E 27.1	630	500	18	70	55	55
	E 27.2	1000	700	22	80	60	60
	E 27.3	1600	1100	30	108	70	70
	E 27.4	2500	1600	50	158	82	82
	E 27.5	4000 ❶	2500	75	290	100	100
DN50, 2"	E 57.1	4000	4500	140	81	70	70
	E 57.2	6300	6300	200	110	80	80
	E 57.3	10000	11000	350	170	110	110
	E 57.4	16000 ❷	-	-	284	-	-
DN80, 3"	E 87.1	16000	16000	-	81	70	-
	E 87.2	25000	25000	-	95	85	-
	E 87.3	40000 ❷	-	-	243	-	-
DN100, 4"	E 107.1	40000	-	-	100	-	-
	E 107.2	60000 ❷	-	-	225	-	-

❶ special föoat
❷ special float

Reference condition:
Water 20°C
Air 20°C - 1.013bar abs.

The indicated pressure losses apply for water and air at maximum flow.
Other flow rate measuring ranges can be provided upon request.
The conversion of other process fluids or operating data (pressure, temperature, density, viscosity) is done at KROHNE with the help of the calculation procedure as detailed in VDI /VDE Directive 3513.

H250H - horizontal installation

Measuring span 10 : 1
Flow values 100%

EN	ASME	Cone No.	Water [l/h]	Air [Nm^3/h]	Max. pressure loss [mbar]
DN15	1/2"	K 15.1	70	1.8	195
		K 15.2	120	3	204
		K 15.3	180	4.5	195
		K 15.4	280	7.5	225
		K 15.5	450	12	250
		K 15.6	700	18	325
		K 15.7	1200	30	590
		K 15.8	1600	40	950
		K 15.8	2400	60	1600
DN25	1"	K 25.1	1300	35	122
		K 25.2	2000	50	105
		K 25.3	3000	80	116
		K 25.4	5000	130	145
		K 25.5	8500	220	217
		K 25.5	10000	260	336
DN50	2"	K 55.1	10000	260	240
		K 55.2	16000	420	230
		K 55.3	22000	580	220
		K 55.3	34000	900	420
DN80	3"	K 85.1	25000	650	130
		K 85.2	35000	950	130
		K 85.2	60000	1600	290
DN100	4"	K 105.1	80000	2200	250
		K 105.1	120000	3200	340

Reference condition:
Water 20°C
Air 20°C - 1.013bar abs.

Notes:

- The indicated pressure losses apply for water and air at maximum flow.
- Other flow rate measuring ranges can be provided upon request.
- Conversion of other process fluids or operating data as detailed in VDI /VDE Directive 3513

H250U - vertical installation

Direction of flow from top down

Measuring span 10 : 1
Flow values 100%

EN	ASME	Cone no.	Flow, water [l/h]	Air [Nm3/h]	Max. pressure loss [mbar]
DN15	1/2"	K 15.1	65	1.6	175
		K 15.2	110	2.5	178
		K 15.3	170	4	180
		K 15.4	260	6	200
		K 15.5	420	10	220
		K 15.6	650	16	290
		K 15.7	1100	28	520
		K 15.8	1500	40	840
DN25	1"	K 25.1	1150	30	97
		K 25.2	1800	45	85
		K 25.3	2700	70	92
		K 25.4	4500	120	115
		K 25.5	7600	200	172
DN50	2"	K 55.1	9000	240	220
		K 55.2	15000	400	230
		K 55.3	21000	550	240

Reference condition:
Water 20°C
Air 20°C - 1.013bar abs.

Notes:

- The indicated pressure losses apply for water and air at maximum flow.
- Other flow rate measuring ranges can be provided upon request.
- Conversion of other process fluids or operating data as detailed in VDI /VDE Directive 3513.



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