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RVAF10 Series Variable Area Flowmeters Catalogue
Doc.ID: RII-KC191008



RVAF10 Series Variable Area Flowmeters



1. Overview

RVAF10 Series flowmeters for measurement of the volumetric or mass flow rate of liquids and gases is an all-metal flowmeter that operates on the float measuring principle. The flow-dependent vertical position of the float in the measuring tube is transmitted by a magnetic coupling system to the scale in the indicator part. The flowmeter is installed in a vertical pipe run, with flow from bottom to top. Owing to its rugged design, the RVAF10 Series variable-area flowmeter is particularly suitable for difficult applications and environmental conditions.

2. Feature

- Unique measuring tube and magnetic coupling structure
- Full series of installation and various power supply
- The indicator has a dual indication system
- Convenient and scientific lead interface
- A variety of indicator forms
- Advanced self-damping indicator
- Increase geomagnetic compensation
- Powerful software functions
- Superior anti-interference performance
- Conveniently connected optoelectronic isolated output

3. Specification

Measuring ranges (100% values)	Water@20°C, 1 to 200000L/h Air@20°C, 1.013bar, 0.03 to 3000m ³ /h
Range ratio	Standard 10:1, Special 20:1
Accuracy	Standard +/-1.5%, Special +/-2.0%
Operation pressure	Standard: DN15 to DN50 ≤ 40bar, DN80 to DN200 ≤ 16Bar Special: DN15 to DN50 ≤ 320bar, DN80 to DN200 ≤ 160Bar
Connection	Flanges, Sanitary clamp, Thread, Sanitary thread, other connection consult with us.
Jacket connection	DN15, DIN PN16 flange, other connection consult with us.

Operation Temperature	-20°C to 450°C, -80°C to -20°C 0°C to 80°C (PTFE Lining)
Ambient temperature	-40°C to +85°C (remote) , -40°C to +100°C (local) , -30°C to +60°C (Exia, Exd)
Cable entry	M20 x1.5 (M5, M6, M10 indicators) M16x1.5 (M7, M8, M9 indicators)
Power supply	Standard :24VDC or 100 to 240VAC@50Hz/60Hz 4 to 20 mA:12 to 32VDC Alarm: 24VDC Ni-MH Battery 3.6V@9AH (3 years)
Loading	600Ω(RLmax), 500Ω(Exia)
Alarm output	Upper and lower limit instant flow alarm, Optocoupler isolates Darlington output (internal power supply 24VDC, max. current 8mA, external internal power supply 200mA @ 30VDC Local alarm: upper, lower limit or upper and lower limit instant flow alarm, reed switch valve alarm (contact capacity 1A @ 30VDC), optional normally open and normally closed upper limit and lower limit alarm, maximum 60% range, min. 10% range of upper and lower limit alarm interval.
Pulse output	Optocoupler isolates Darlington output as cumulative pulse output (internal power supply 24VDC, max. current 8mA)
Type of protection	IP 67, NEMA 4X
Explosion Proof	Exia II CT4, Exd II BT3-6 Gb
Fluid Viscosity	DN15: $\eta < 5\text{mPa}\cdot\text{s}$ (S15.0 to S15.3) $\eta < 30\text{mPa}\cdot\text{s}$ (S15.4 to S15.10) DN25: $\eta < 250\text{mPa}\cdot\text{s}$ DN50 to DN200: $\eta < 300\text{mPa}\cdot\text{s}$ For special viscosity fluid, please consult with us.

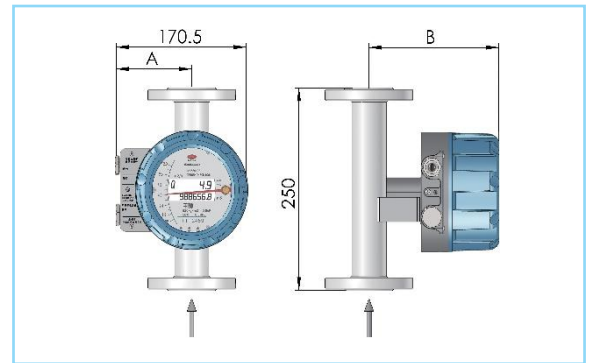
4. Dimension, weight and Pressure drop

4.1 10 series

a. Dimension, weight and pressure drop of 10 series standard M5 flowmeter

Size	Dimension, weight and pressure drop of 10 series standard M5 flowmeter				
	A	B		Weight/kg	$\Delta P/kPa$
		Standard	High Tem.		
DN15	108	154	194	3.7	16
DN25	99	173	213	5.6	16
DN50	84	173	213	9.7	7
DN80	71	173	213	15.1	15
DN100	61	213	273	17	22
DN150	42	213	273	33.7	60
DN200	12	213	273	48.7	70

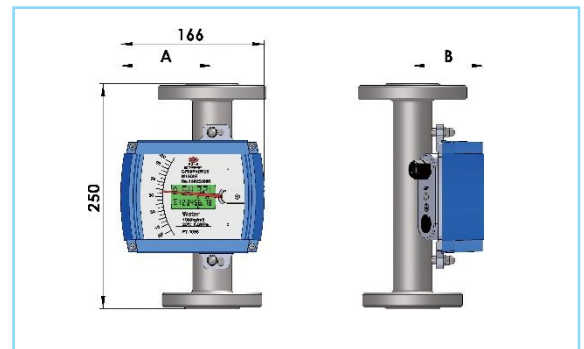
Remarks : ΔP is pressure drop (kPa)



b. Dimension, weight and pressure drop of 10 series standard M10 flowmeter

Size	Dimension, weight and pressure drop of 10 series standard M10 flowmeter				
	A	B		Weight/kg	$\Delta P/kPa$
		Standard	High Tem.		
DN15	106	74	154	3.4	14
DN25	106	83	163	5.3	10
DN50	106	98	178	9.4	12
DN80	116	111	191	14.8	16
DN100	116	121	201	16.7	25
DN150	116	140	220	33.4	60
DN200	116	170	250	48.4	70

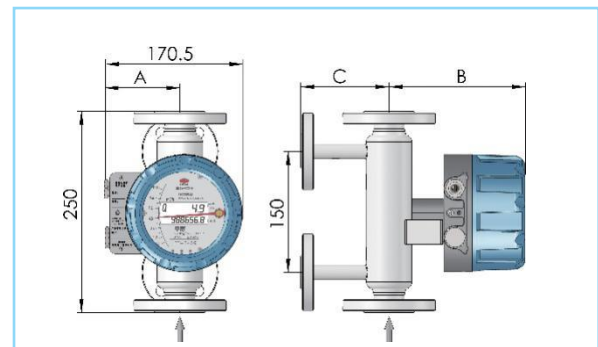
Remarks : ΔP is pressure drop (kPa)



c. Dimension, weight and pressure drop of 10 series jacket M5 flowmeter

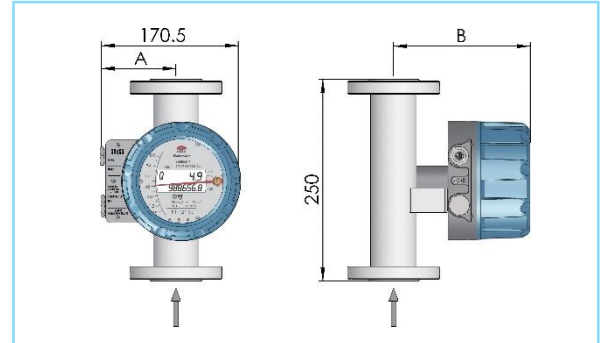
Size	Dimension, weight and pressure drop of 10 series jacket M5 flowmeter				
	A	B	C	Weight/kg	$\Delta P/kPa$
DN15	102	154	100	6.5	16
DN25	93	173	110	10.5	16
DN50	77	173	120	12.5	7
DN80	65	173	140	20	15
DN100	52	213	150	21	22
DN150	12	213	185	26	60
DN200	12	213	210	30	70

Remarks : ΔP is pressure drop (kPa)



d. Dimension, weight and pressure drop of 10 series PTFE M5 flowmeter

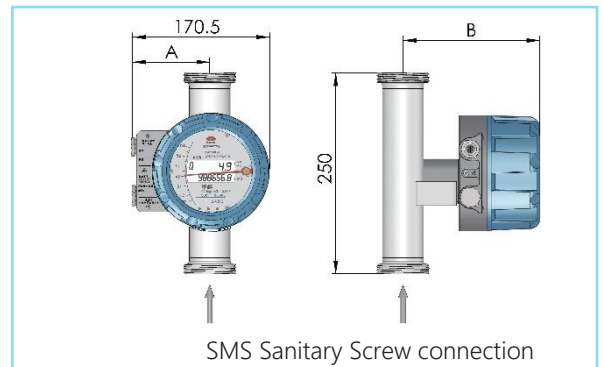
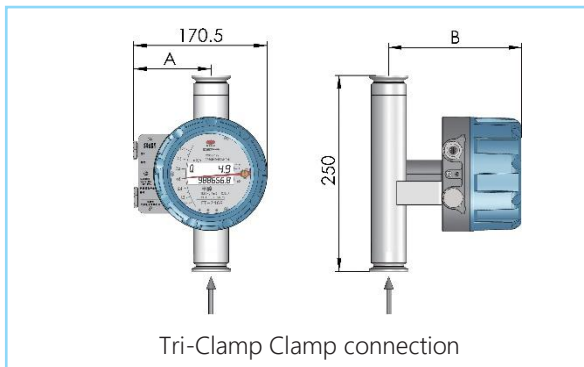
Size	Dimension, weight and pressure drop of 10 series PTFE M5 flowmeter			
	A	B	Weight/kg	$\Delta P/kPa$
DN15	103	154	4	16
DN25	93	173	5.5	16
DN50	77	173	9	7
DN80	65	173	16	15
DN100	52	213	17.5	22



Remarks : ΔP Remarks : ΔP is pressure drop (kPa)

4.2 15 series

a. Dimension, weight and pressure drop of 15 series sanitary M5 flowmeter

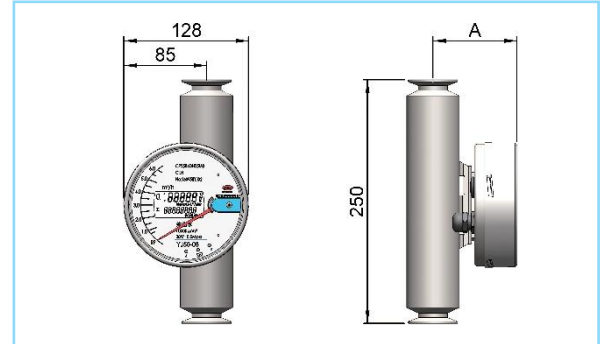


Size	Dimension, weight and pressure drop of 15 series sanitary M5 flowmeter			
	A	B	Weight/kg	$\Delta P/kPa$
DN15	109	154	2.4	16
DN25	101	173	3.5	16
DN50	84	173	5.3	7
DN80	71	173	7.3	15
DN100	61	213	8.1	22

Remarks : Other screw connections are available

b. Dimension, weight and pressure drop of 15 series sanitary M8 flowmeter

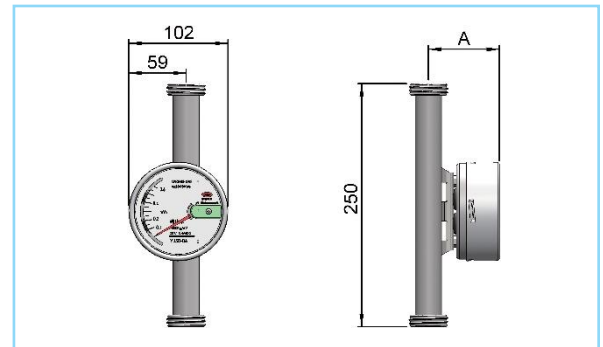
Size	Dimension, weight and pressure drop of 15 series sanitary M8 flowmeter		
	A	Weight/kg	$\Delta P/kPa$
DN15	75	1.6	16
DN25	88	2.7	16
DN32	88	2.7	16
DN40	88	2.7	16
DN50	100	4.5	7
DN80	112	6.5	15
DN100	122	7.3	22



Remarks : ΔP is pressure drop (kPa)

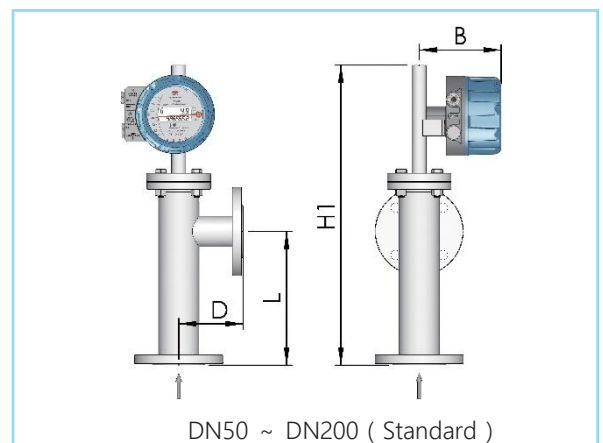
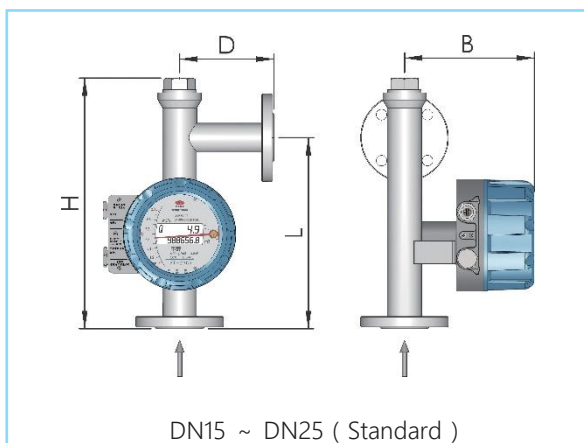
c. Dimension, weight and pressure drop of 15 series sanitary M9 flowmeter

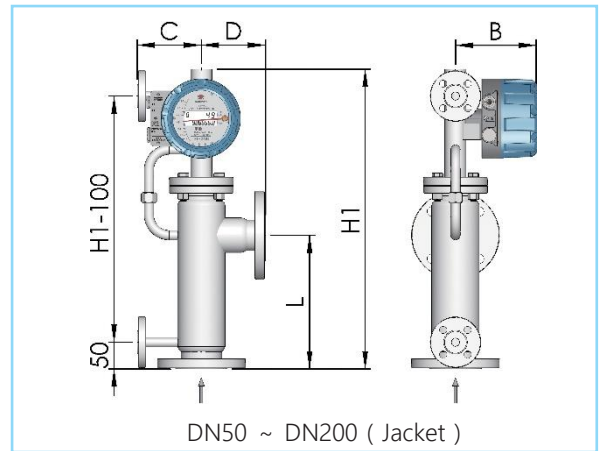
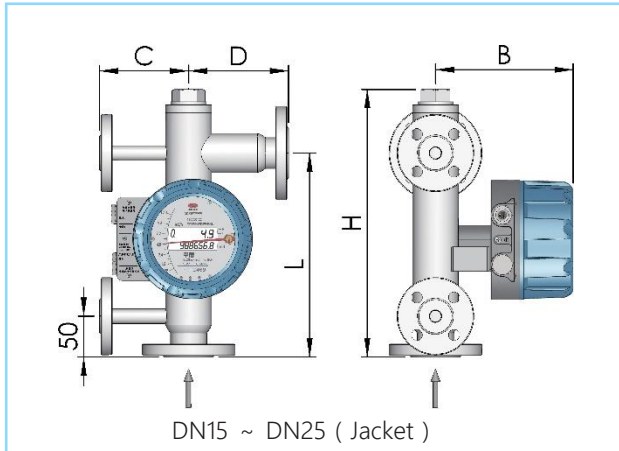
Size	Dimension, weight and pressure drop of 15 series sanitary M9 flowmeter		
	A	Weight/kg	$\Delta P/kPa$
DN15	74	1.5	16
DN25	86	2.6	16
DN32	86	2.6	16
DN40	86	2.6	16
DN50	99	4.4	7



Remarks : ΔP is pressure drop (kPa)

4.3 Dimension, weight and pressure drop of 11 jacket M5 flowmeter

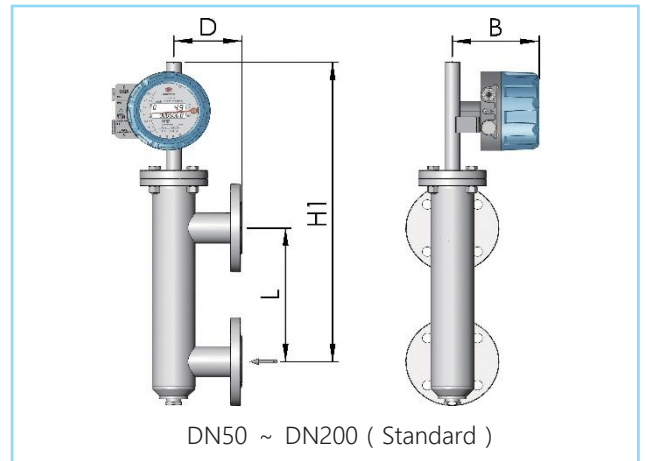
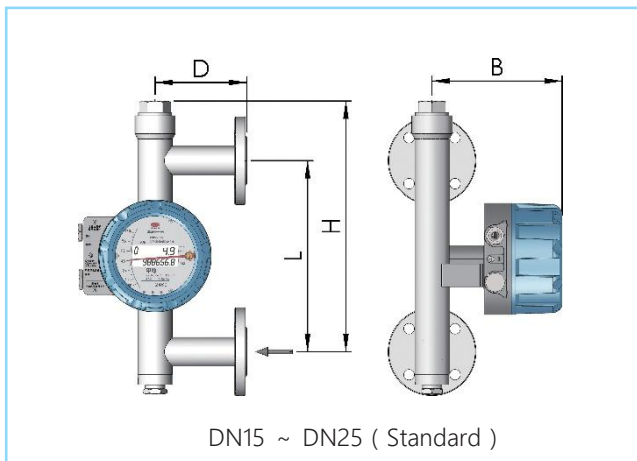




Size	Dimension, weight and pressure drop of 11 jacket M5 flowmeter									
	B		C	D	H	H1	L	Weight/kg		$\Delta P/kPa$
	Standar d	High tem.						Stan dard	Jacket	
DN15	154	194	100	120	330		250	7	8.6	20
DN25	173	194	110	120	340		250	8	10	20
DN50	173	194	120	120		560	250	15	17.5	11
DN80	173	194	140	150		575	250	25	28	19
DN100	173	194	150	150		590	250	29	32.5	26
DN150	173	194	185	180		690	300	53	57	58
DN200	173	194	210	200		780	350	61	66	80

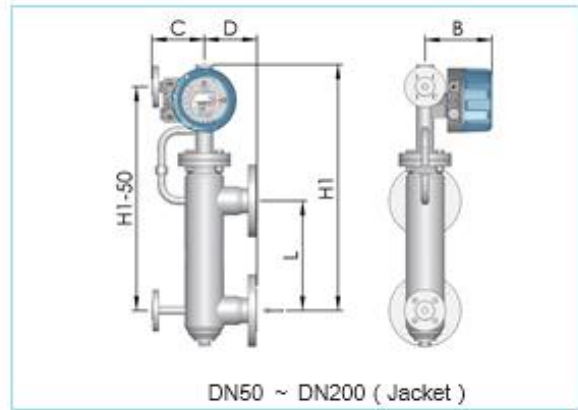
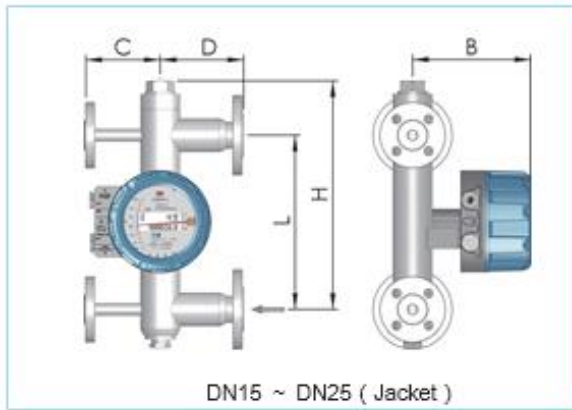
Remarks : ΔP is pressure drop (kPa)

4.4 Dimension, weight and pressure drop of 12 jacket M5 flowmeter



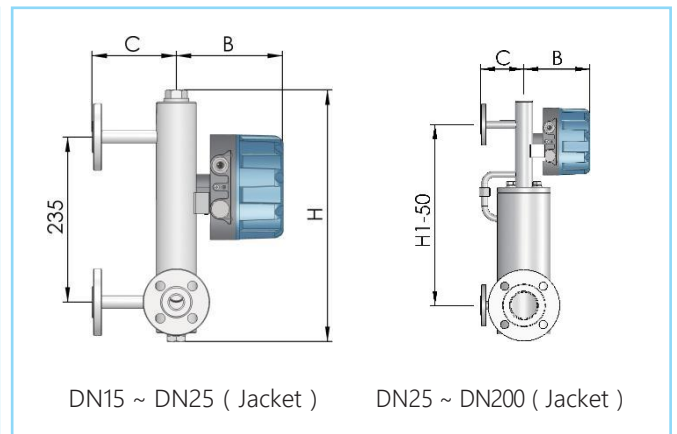
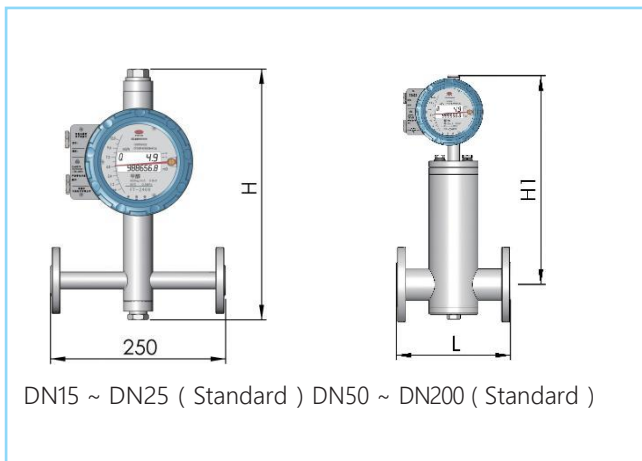
Size	Dimension, weight and pressure drop of 12 jacket M5 flowmeter									
	B		C	D	H	H1	L	Weight/kg		$\Delta P/kPa$
	Standard	High tem.						Standard	Jacket	
DN15	155	195	100	120	330		250	7.2	9	26
DN25	173	195	100	120	340		250	8.7	11.5	26
DN50	173	195	120	120		560	250	16.6	19	17
DN80	173	195	140	150		575	250	28.2	32.5	25
DN100	173	195	150	150		590	250	33.5	39.8	32
DN150	173	195	185	180		690	300	58	63.4	58
DN200	173	195	210	200		780	350	68	74	80

Remarks : ΔP is pressure drop (kPa)



4.5 Dimension, weight and pressure drop of 13R/L series jacket M5 flowmeter

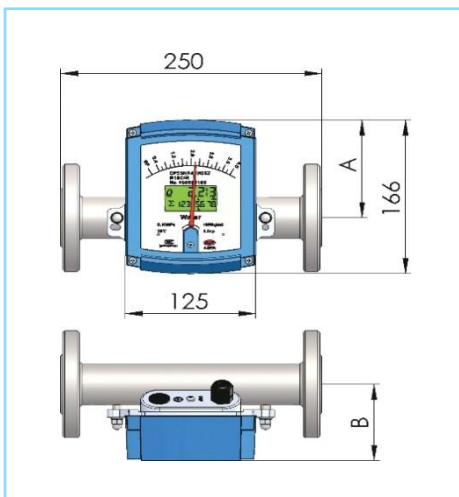
a. Dimension, weight and pressure drop of 13R/L series M5 flowmeter



Size	Dimension, weight and pressure drop of 13R/L M5 flowmeter									
	B		C	D	H	H1	L	Weight/kg		$\Delta P/kPa$
	Standard	High tem.						Standard	Jacket	
DN15	155	195	100	120	355		250	7.5	9.7	32
DN25	173	195	100	120	370		250	9	12	32
DN50	173	195	150	120		560	250	18	20	23
DN80	173	195	190	150		590	400	29	34	31
DN100	173	195	210	150		610	400	35	41.7	38
DN150	173	195	238	180		650	500	60	66.5	62
DN200	173	195	290	200		800	550	72.4	82.5	85

Remarks : ΔP is pressure drop (kPa)

b. Dimension, weight and pressure drop of 13H series M10 flowmeter

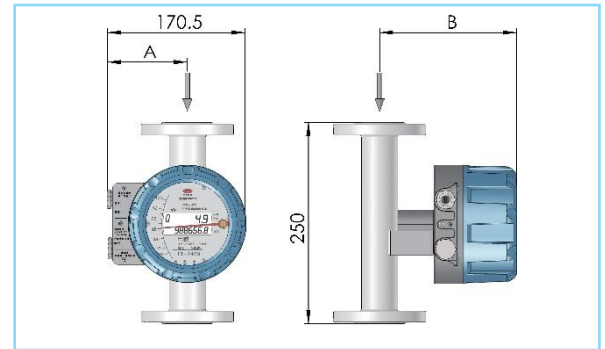


Size	Dimension, weight and pressure drop of 13H series M10 flowmeter				
	A	B		Weight/kg	$\Delta P/kPa$
		Standard	High tem.		
DN15	106	74	154	3.4	59
DN25	106	83	163	5.3	24
DN50	106	98	178	9.4	42
DN80	116	111	191	14.8	32
DN100	116	121	201	16.7	30
DN150	116	140	220	33.4	60
DN200	116	170	250	48.4	70

Remarks : ΔP is pressure drop (kPa)

Size	Dimension, weight and pressure drop of 14 series M5 flowmeter				
	A	B		Weight/kg	$\Delta P/kPa$
		Standard	High tem.		
DN15	108	154	194	3.7	50
DN25	99	173	213	5.4	19.5
DN50	84	173	213	9.5	40
DN80	71	173	213	14.8	29
DN100	61	213	273	16.6	38
DN150	42	213	273	33.7	60
DN200	12	213	273	48.7	70

Remarks : ΔP is pressure drop (kPa)



5 Model Selection Guide

RVAF10 Series						
RVAF1		A	B	C	D E	Example: RVAF10R4DN25ZM5CLNIH
RVAF1		Variable Area Flowmeter				
RVAF10 (Standard)	Measuring tube A					
	0	Bottom - Top (Standard)				
	1	Bottom - Top Side (RP can't be used for wetting material)				
	2	Bottom Side - Top Side (RP can't be used for wetting material)				
	3R	Right - Left (RP can't be used for wetting material)				
	3L	Left - Right (RP can't be used for wetting material)				
	3H	Horizontal spring type (material of spring is SS316 , $T \leq 200^{\circ}C$)				
	4	Top - Bottom (material of spring is SS316 , $T \leq 200^{\circ}C$)				
	5	Sanitary (RP can't be used for wetting material) (Remark clamp or thread connection)				
R4 (Standard)	Wetting material B			Special wetting material		
	R4	304		R1	321	
	RL	316L		Hb	Hastelloy B2	
	RP	PTFE		Other		
	Ti	Titanium alloy				
Hc	Hastelloy C4					
		Size C				

Nonstandard size in bracket	DN15、(DN20)、DN25、(DN32)、(DN40)、DN50、(DN65)、DN80、DN100、(DN125)、DN150、DN200
	Appended structure D
	N No
	T Jacket (DIN PN16)
	Z Damp (Gas)
	G High Tem. (120°Cto 450°C)
	L Low Tem. (-80°Cto -20°C)
	Y High Pre. (DN15-DN50 Max. 32MPa、DN80-DN200 最大Max. 16MPa)
	Indicator E Next page

Indicator E			
M5	Full function indicator, cast aluminum round shell		
M6	Same with M5 , Stainless steel machined round shell		
M7	Same with M8 , Stainless steel machined round shell		
M8	Stainless steel stamping round shell (φ125)		
M9	Stainless steel stamping round shell (φ100)		
M10	Cast aluminum shell		
	Power supply		
J	Local indicator , no power supply , Reed tube alarm output can be used for M5		
A	100VAC to 240VAC 50Hzto60Hz power supply ,(4 to 20)mA output , alarm、 pulse、 batch processing output (M5&M6 indicator only)		
B	Battery powered , field liquid crystal display , no signal output , no backlight , no alarm (M5&M10 indicator only)		
C	24VDC two-wire supply ,(4 to 20)mA output		
D	24VDC three or four-wire power supply ,(4 to 20)mA output , alarm、 pulse、 batch processing output (except M9 indicator)		
	Display		
L	With liquid crystal display		
X	Without liquid crystal display		
	Alarm		
N	No	K1	Reed tube local single point alarm
K	Upper and lower alarm, pulse, batch output	K2	Reed tube local upper and lower alarm
	Protection		

N	Ordinary, non-explosion proof
I	Exia II CT4 Ga (Power supply C only)
d	Exd II BT3-6 Gb (M5 indicator only)
Communication protocol	
N	No
H	Hart (Power supply C only)
M	ModBus (Power supply A&D only)
F	FF (Power supply C only , M5&M6 indicator only)
P	ProfiBus-PA (Power supply C only , M5&M6 indicator only)
Z	ZigBee (Power supply B only , , M5&M10 indicator only)
G	GPRS

Option:

ATT5-	Code	Description
Multi-choice	C	Magnetic filter
	F	With matching flange, fastener gasket
	Z	With front and rear straight section
	B	With the battery
	T	With modem

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