

Metal tube flow meters

The metal Flow Meters of Riels@Instruments of this type are particularly suited for every kind of gas. The main feature of these low pressure drop instruments is the peculiar float shape that, to a certain extent, makes them less sensitive to viscosity variations. A further advantage is the short distance between flange connections - about 250 mm - that makes them suitable to be installed in narrow spaces, also because they do not need straight pipe line before or after the meter. Being the whole flowmeter – and the measuring tube too – built in AISI 316L stainless steel the flow reading is done by magnetic coupling of the float with the external pointer. These instruments shall be installed on vertical pipe with rising flow (bottom-top). Besides the standard version, it is available also the electronic microprocessor transmitter – two wired technology - for safe areas or hazardous environments - Ex i or Ex d execution.



Construction materials

- Wetted parts: AISI 316L stainless steel, Monel, Titanium, Hastelloy "C" on request
- Indicator housing: epoxy painted die cast aluminium RAL 7001, Inox AISI 316L stainless steel (on request).
- Housing protection class: IP67. On request IP68

Indicator flow meters with or without alarm - General features

Measuring range	≈ 1-10		
Scale length	≈ 80 mm		
Precision	± 1,5 % f.s.v. (standard)		
Repeatability	0,5% f.s.v.		
Max Pressure	40 bar (higher on request)		
Temperature	see "Temperature - tab.1"		
Alarms	for minimum or/and maximum flow, inductive type, adjustable on all the scale range. They can be certified for classified areas ATEX-CENELEC Ex ia IIC T6		
Feedings	8 Vcc		
Current consumption	Metallo presente < 1 mA;	Metallo assente > 3 mA	
Repeatability	< 0,4% v.f.s		

General features - Otherwise

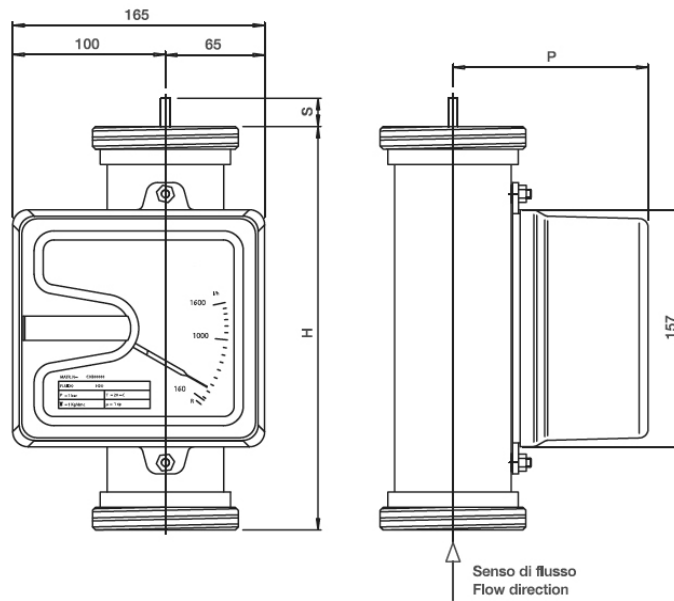
Alarms	for minimum or/and maximum flow, PNP bistable type, adjustable on all the scale range.		
Feedings	24 Vcc		
Connections	flanged PN 16 EN1092-1, DIN 11851, Gas-F, NPT-F or Triclamp. Other connections on request.		
ATEX Approval	CESI 04 ATEX 067		
Protection	ⓈI 1GD cT6IP65T85°C ⓈII 2GD cT6IP65T85°C	Ta=60°C;	Ta=60°C.

Temperature - tab.1

Maximum fluid temperature at 40°C (104°F) environment temperature

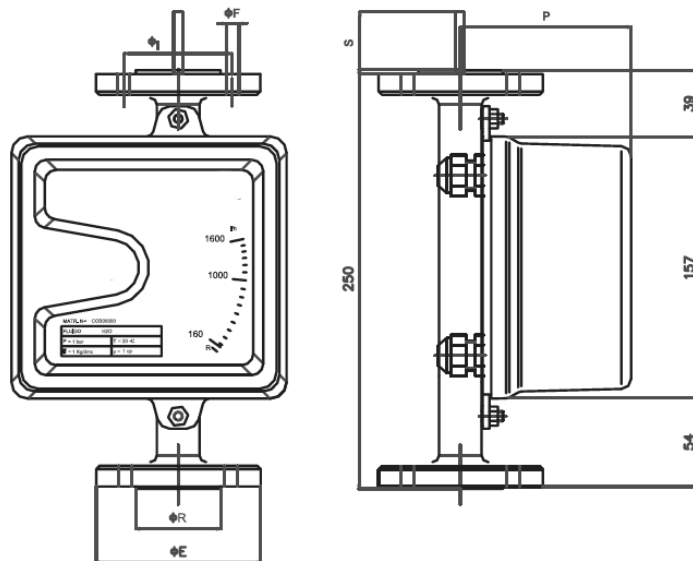
RIV550	Size	Standard cover	High Temperature
Indicator	All sizes	-10+150 °C (302° F)	-30+300 °C (572° F)
Indicator + alarms	All sizes	-10+150 °C (302° F)	-30+300 °C (572° F)

Dimensional drawings screwed DIN 11851 flow meters



Size	DIN 11851 DN	H mm	P mm	Weight kg
2600	1"	265	103	2,7
2800	1 1/2"	265	110	3,3
3100	2 1/2"	265	128	5,7
3300	4"	274	141	8,2

Dimensional drawings flanged flow meters



Flanged EN1092-1

Size	DN	P mm	Ø E mm	Ø I mm	Ø R mm	N° Holes	Ø H mm	Weight kg
2600	15	107	95	65	45	4	14	3,8
2800	25	115	115	85	68	4	14	4,9
3100	50	132/139*	165	125	102	4	18	9,9
3300	80	145	200	160	138	8	18	13,5
3400	100	161	220	180	158	8	18	16,5

Flanged ANSI 150 RF

Size	DN	P mm	Ø E mm	Ø I mm	Ø R mm	N°Holes	Ø H mm	Weight kg
2600	15	107	89	60	35	4	16	3,8
2800	25	115	108	79	51	4	16	4,9
3100	50	132/139*	152	120	92	4	19	9,9
3300	80	145	190	152	127	4	19	13,5
3400	100	161	229	190	157	8	19	16,5

*For flow-rate 25,000 l/h water only

Flow meters with microprocessor transmitter 4÷20 mA two wire technology - smart technology with or without alarms

Measuring range	≈ 1-10
Scale Length	≈ 80 mm
Accuracy	± 1% f.s.v. (standard)
Repeatability	0,5% f.s.v.
Display	LCD 8 digits for instant flow – direct or percent reading – and total flow
Electronic reply time (99%)	< 0,5 s
Feeding	Levels 24 V dc ± 10%. For Ex i version, feeding is done by an intrinsically safe insulator installed upstream the meter
Analogue output	4÷20 mA with serial port communication overlapped to HART® protocol (on request).
Max pressure	40 bar (higher on request)
Temperature	see "Temperature - tab.2"
Connections	flanged PN 16 EN1092-1, DIN 11851, Gas
Alarms	f, NPT f or Triclamp. Other connections on request.
ATEX Approval	1 o 2 bistabili Namur, in alternativa 1 o 2 bistabili PNP a richiesta CESI 04 ATEX®/7X Protezione: II 1GD Eex ia C T6IP65T85°C Ta=60°C; II 2GD Eex ia C T6IP65T85°C

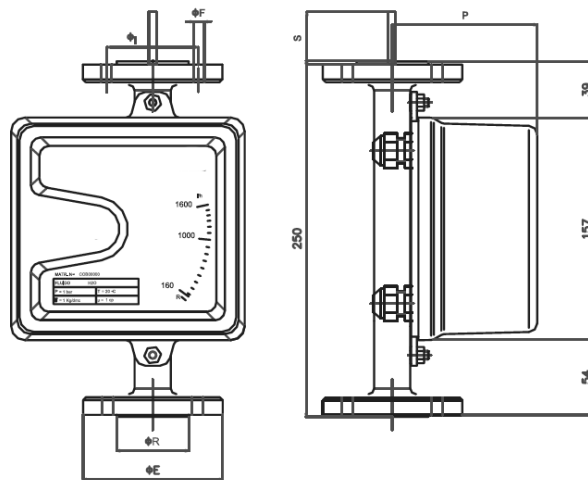


Temperature - tab.2

Maximum fluid temperature at 40°C (104°F) environment temperature

RIV550 EEx i micropr. 4÷20 mA	Size	Standard cover	High Temperature
Without alarms	All sizes	-10+150 °C (302° F)	-30+300 °C (572° F)
With alarms	All sizes	-10+150 °C (302° F)	-30+300 °C (572° F)

Dimensional drawings



Flanged EN1092-1 PN16

Size	DN	P mm	Ø E mm	Ø I mm	Ø R mm	N° Holes	Ø H mm	Weight kg
2600	15	107	95	65	45	4	14	3,8
2800	25	115	115	85	68	4	14	4,9
3100	50	132/139*	165	125	102	4	18	9,9
3300	80	145	200	160	138	8	18	13,5
3400	100	161	220	180	158	8	18	16,5

Flanged ANSI 150 RF

Size	DN	P mm	Ø E mm	Ø I mm	Ø R mm	N°Holes	Ø H mm	Weight kg
2600	15	107	89	60	35	4	16	3,8
2800	25	115	108	79	51	4	16	4,9
3100	50	132/139*	152	120	92	4	19	9,9
3300	80	145	190	152	127	4	19	13,5
3400	100	161	229	190	157	8	19	16,5

* For flow-rate 25,000 l/h water only

Exd flow meters for hazardous environment and explosion proof areas

General features

Measuring range	≈1-10
Scale length	≈ 55 mm
Display	LCD 8 digits for instant flow – direct or percent reading – and total flow
Electronic reply time (99%)	< 0,5 s
Analogic output	4÷20 mA with serial port communication overlapped to HART® protocol (on request).
Feeding	Levels 24 V dc ± 10%.
Alarms	1 or 2 bistable Namur, otherwise 1 or 2 bistable PNP on request
Max pressure	40 bar (higher on request)
Temperature	see "Temperature - tab.3"
Connections	flanged PN 16 EN1092-1, DIN 11851, Gas f, NPT f or Triclamp. Other connections on request.



EEx d IIC T4 model

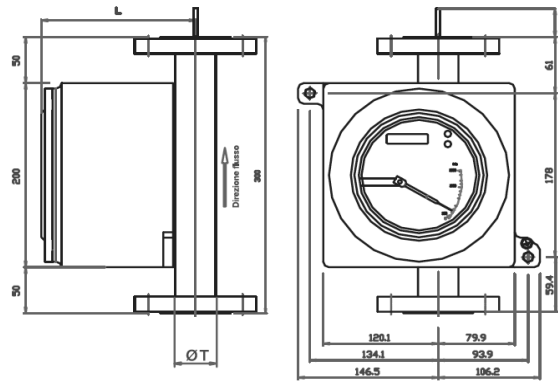
Temperatura - tab.3

Maximum fluid temperature at 40°C (104°F) environment temperature

RIV550 EEx d micropr. 4-20 mA	Sizes	Standard cover	High temperature *
Without alarms	All sizes	-10+150 °C (302° F)	-30+300 °C (572° F)
With alarms	All sizes	-10+150 °C (302° F)	-30+300 °C (572° F)

* Execution on request

EEx d IIC T4 dimensional drawings



Size	ANSI 300 RF DN	Ø T mm	L mm Exd II C
2600	1/2"	26,5	154
2800	1"	33,5	161
2800	1"	42,5	166
3100	2"	76	183
3300	2"	89	189

Other on request

Reference flow rates

Size	Water flow-rates / SS Aisi 16 float l/h @ T=20°C		Air flow-rates / SS Aisi 16 float nmc/h @ T=20°C		P mbar for float inox
	From	To	From	To	
2600	2,5	25	0,08	0,8	55
	4	40	0,12	1,2	57
	6,3	63	0,2	2	57
	10	100	0,3	3	40
	16	160	0,5	5	40
	25	250	0,75	7,5	40
	40	400	1,2	1,2	36
	63	630	2	20	36
2800	100	1000	3	30	42
	100	1000	3	30	45
	160	1600	5	50	45
	250	2500	7,5	75	50
	400	4000	12	120	50
	600	6000	-	-	98
3100	800	8000	-	-	98
	250	2500	7,5	75	50
	400	4000	12	120	50
	630	6300	20	200	50
	1000	10000	30	300	45
3300	1600	16000	50	500	45
	2500	25000*	-	-	52
	2500	25000*	50	500	48
	4000	40000*	57,5	575	48
3400	6300	63000*	100	1000	85
	4000	40000*	-	-	48
	6300	63000*	-	-	75
	10000	100000*	-	-	85

*Only for liquid

In bold flow-rates with PVDF float