

General Specifications

Model RAGH Rotameter

This type of Rotameter is designed for measurement of liquids and gases. The conical glass metering tube has a free rotating float.

The mounting position is vertical with flow direction upwards. The flow is indicated by the top position of the float and can be read from the standard scale on the metering tube or from a connected scale.

When the process conditions are changed the scale needs to be replaced by a new one of which the values should be calculated.

FEATURES

- Wide measuring range selection
- Anti-static metering tube for low gas flow measurement
- Free rotating float for high measurement accuracy even at low flow rates
- Low pressure loss
- Visible monitoring of the measured medium
- Local indication without resource
- Selectable scale
- Scale conversion for various processes with the use of the flow table (option /PT)



STANDARD SPECIFICATIONS

Measurable flow rates

- Water (20 °C) : 0.002 l/h to 10 m3/h
- Air (20 °C; 1 bar abs.) : 0.1 l/h to 100 m3/h

Measuring range

- G metering tube : 10:1
- L metering tube : 20:1

Metering tubes : L6; L7; G0; G1; G2; G4

Accuracy:

Glass metering tube	Accuracy class acc. VDE / VDI 3513	Standard flow accuracy full scale
L613 - L623	2.5 , better on request	± 2.5 %
L624 - L747	1.6 , better on request	± 1.6 %
G044 - G467	1.6 , better on request	± 1.6 %

Max. temperature

- Standard : +80 °C
- With option /MV : +130 °C

Material process connection

- Inner thread Rp : 1.4571; steel
- Nozzle : 1.4571; steel
- Glue socket : PVC

Holder material

: 1.4571; steel
(sealing: Polypropylene, Buna)

Design (valve)

: With or without optional valve

Length

: 310 mm to 394 mm

Weight

: Depending on design 0.7 to 6 kg
(see page 7)

Max. pressure:

Metering tube	L6; L7	G0; G1	G2	G4
Pmax (bar)	16	10	8	6

OPTIONS

LIMIT SWITCH (OPTION CODE: /GM1 AND /GM2)

(for float with magnet only and flow $Q_{\min} > 2.5$ l/h water or 100 l/h air)

Type	: reed contact with bistable switching
Max. switching voltage	: 230 V
Max. switching current	: 0.6 A
Max. switching capacity	: 12 VA or 12 W
Temperature range	: -10 °C to +70 °C
Protection	: IP 65
Internal capacity	: 0 nF
Internal inductivity	: 0 mH
Electrical connection	: LIYY 2 x 0.34mm ² ; 1 m long
Housing	: Polystyrol
Weight	: 35 g
Explosion proof	: Intrinsic safe acc. EN50020 chapter 5.4 "Simple electrical instruments".
Group	: IIC
Category	: 2
Expl. atmosphere	: G
Temperature class	: T6
Entity parameter	: $U_i = 15V$; $I_i = 50mA$; $P_i = 187mW$ $L_i \approx 0mH$; $C_i \approx 0nF$

POWER SUPPLY FOR LIMIT SWITCH (OPTION /W__)

Type	: Transmitter relay acc. DIN EN 60947-5-6 (NAMUR)
Power supply	: 230V AC (/W2_) 115V AC (/W1_) 24V DC (/W4_)
Switching capacity	: max. 250 V AC; max. 4A or max. 500 VA
Relay output	: 1 or 2 potential free changeover contacts
Explosion proof	: Intrinsic safe [EEx ia] II C acc. PTB 00 ATEX 2081 (/W2_) acc. PTB 00 ATEX 2080 (/W4_)

MODEL SPECIFICATIONS

Diameter process connection		Model	Process connection			Material process connection	Material Rotameter	Design (Valve)	Metering tube length/diam.	
Without valve	Glue socket		Inner thread	Nozzle	Glue socket					
Inner thread	Glue socket	Code	Code	Code	Code	Code	Code	Code		
Rp 1/4 inch		RAGH41	R0	-	-	SS	SS	NNN	L6; L7; G0	
		RAGH41	R0	-	-	SS;ST	ST	NNN	L6; L7; G0	
Rp 1/2 inch	20 mm	RAGH01	R0	T0	-	K0	SS (PC)	SS	NNN	L6; L7; G0
		RAGH01	R0	T0	P0	K0	SS;ST(PC)	ST	NNN	L6; L7; G0
		RAGH01	R0	-	-	-	SS	SS	NNN	G1
		RAGH01	R0	-	-	-	SS;ST	ST	NNN	G1
Rp 3/4 inch		RAGH23	R0	-	-	-	SS	SS	NNN	G1
		RAGH23	R0	-	-	-	SS;ST	ST	NNN	G1
Rp 1 inch	32 mm	RAGH02	R0	T0	-	K0	SS (PC)	SS	NNN	G1
		RAGH02	R0	T0	P0	K0	SS;ST(PC)	ST	NNN	G1
		RAGH02	R0	-	-	-	SS	SS	NNN	G2
		RAGH02	R0	-	-	-	SS;ST	ST	NNN	G2
Rp 1 1/2 inch	50 mm	RAGH04	R0	T0	-	K0	SS (PC)	SS	NNN	G2
		RAGH04	R0	T0	P0	K0	SS;ST(PC)	ST	NNN	G2
Rp 2 inch		RAGH05	R0	T0	-	-	SS	SS	NNN	G4
		RAGH05	R0	T0	-	-	SS;ST	ST	NNN	G4
		RAGH05	R0	-	P0	-	ST	ST	NNN	G4
Rp 2 1/2 inch	75 mm	RAGH06	R0	T0	-	K0	SS (PC)	SS	NNN	G4
		RAGH06	R0	T	-	K0	SS;ST(PC)	ST	NNN	G4
With valve										
Rp 1/2 inch		RAGH01	R0	-	-	-	SS	SS	RBx	L6; L7; G0
		RAGH01	R0	-	-	-	SS	ST	RBx	L6; L7; G0
		RAGH01	R0	-	-	-	ST ¹⁾	ST	RAx	L6; L7; G0
Rp 1 inch		RAGH02	R0	-	-	-	SS	SS	RBx	G1
		RAGH02	R0	-	-	-	SS	ST	RBx	G1
		RAGH02	R0	-	-	-	ST ¹⁾	ST	RAx	G1
Rp 1 1/2 inch		RAGH04	R0	-	-	-	SS	SS	RBx	G2
		RAGH04	R0	-	-	-	SS	ST	RBx	G2
		RAGH04	R0	-	-	-	ST ¹⁾	ST	RAx	G2
Rp 2 1/2 inch		RAGH06	R0	-	-	-	ST ¹⁾	SS	RAx	G4
		RAGH06	R0	-	-	-	ST ¹⁾	ST	RAx	G4
Process connection:			Inner thread Rp ...	R0						
			Inner thread NPT	-T0						
			Nozzle	- P0						
			Glue socket (only for PVC)	-K0						
Material process connection:			1.4571	SS						
			Steel	ST ¹⁾						
			PVC (only for glue socket)	PC						
Material Rotameter:			1.4571	-SS						
			Steel, lacquered (recommended)	-ST						
Design:			Without valve	NNN						
			Valve in input	Sealing	Housing					
				Buna (PTFE) ²⁾	Brass	RAE			
				PTFE	CrNi-Steel ³⁾	RBE			
				Buna (PTFE) ²⁾	Brass	RAA			
				PTFE	CrNi-Steel ³⁾	RBA			
The suffix code of the combination metering tube - float can be read from the flow tables on page 3									-xxxx-xxxx	
Options (see table on page 5)										

1) The connection of the Rotameter with valve is made of brass.

2) A PTFE sealing is used for metering tubes G1 and G2, others Buna

3) A CrNi steel valve is not available for metering tube G4

OPTIONS

Options	Option code	Description	Restrictions
Marking	/B1 /B4 /B8 /BG	Tag plate (SS) Neutral version Customer provided marking on label Customer specific notes on scale	Plate 12 x 40 mm; max. 45 digits
Limit switches ¹⁾	/GM1 /GM2	Magnetic contact MIN Magnetic contact MAX	Only with float with magnet Only with float with magnet
Test and certificates	/H1 /P2 /P3 /PP /PT	Certificate of degrease Certificate of Compliance with the order acc. to EN 10204: 2004- 2.1 As /P2 +Test report acc. to EN 10204: 2004- 2.2 Pressure test report for measuring system With flow table for recalculation	
Accessoires metering tube	/MM	No mm- scale (without calculation table)	
Accessoires	/QF /MV /MV2 /MV3 /MV4	Foot stand Viton gaskets Viton gaskets (stopper material PTFE; O-ring holder 1.4571) Viton gaskets (stopper material halar; O-ring holder steel) Viton gaskets (stopper material halar; O-ring holder 1.4571)	Only with nozzle for tubing. For temperature up to 80°C. Do not use valve with Perbunan gaskets. For temperature up to 130°C For temperature up to 130°C For temperature up to 130°C
Power supply for limit switch(es) (transmitter relay)	/W1A /W1B /W2A /W2B /W4A /W4B	KFA5-SR2-Ex1.W / 115 V AC, 1 channel KFA5-SR2-Ex2.W / 115 V AC, 2 channels KFA6-SR2-Ex1.W / 230 V AC, 1 channel KFA6-SR2-Ex2.W / 230 V AC, 2 channels KFD2-SR2-Ex1.W / 24 V DC, 1 channel KFD2-SR2-Ex2.W / 24 V DC, 2 channels	

¹⁾ For RAGH41 and RAGH01 holder material "SS" must be selected.

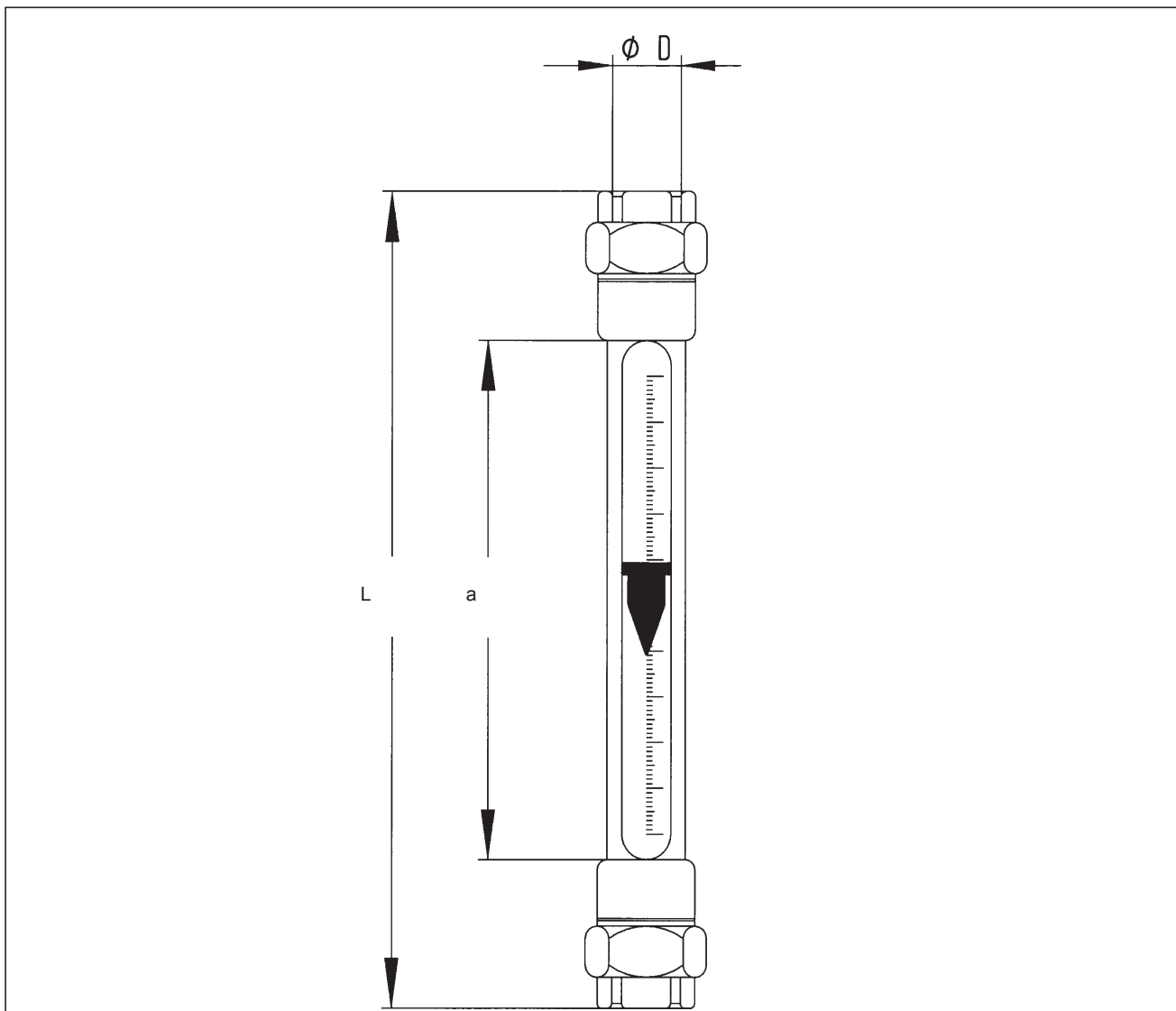
RECOMMENDATIONS FOR DETERMINING THE MODEL CODE

Please specify in the following order

- Measuring range for water/liquid or air/gas
- With or without optional limit switch
- With or without optional valve

First select the required measuring range from the flow table (last column) and specify the float insertion for the optional limit switch. Then the suffix code for the combination metering tube - float can be fixed.
The suffix code for the measuring tube length/diameter with or without the optional valve completes the model code specification.

DIMENSIONS



Diam. process conn. ϕD	Float Code	Dimensions (mm)		Weight kg
		L	a	
½ inch	L6;L7;G0	356	224	0.7
1 inch	G1	368	224	1.3
1½ inch	G2	386	224	2.5
2½ inch	G4	394	212	6

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