

# General Specifications

## Model RAQN Plastic Rotameter

GS 01R01B04-00E-E

This type of Rotameter is designed for measurement of liquids and gases. The conical plastic metering tube has a free rotating float. This float is mounted in a vertical pipeline with flow direction upwards.

The flow is indicated by the top of the float and can be read on the standard scale of the metering tube or on a pin-on 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

- Breaking proof
- Easy to handle
- Highly corrosion resistant
- Low pressure loss
- Visible monitoring of the measured medium
- Local indication without power supply
- Selectable scale

### STANDARD SPECIFICATIONS

#### Measurable flow rates :

Water (20°C) : 10 l/h to 10 m<sup>3</sup>/h  
Air (20°C)(1 bar abs.) : 160 l/h to 250 m<sup>3</sup>/h

Measuring range : 10 : 1

Measuring accuracy : acc. Directive VDI/VDE 3513, sheet 2 (q<sub>G</sub>=50%); 4% (2.5%)

Max. Pressure : 10 bar

#### Max. Temperature :

Polyamide metering tube : -10°C to + 60°C

Polysulphone metering tube : -10°C to + 60°C

#### Material Process connection :

Inner thread Rp : Steel  
Glue socket : PVC (< 60°C)

Material of metering tubes : Polyamide or Polysulphone

Installation length : see page 4

Weight : 0.4 to 2.1 kg ( see page 4)

### TECHNICAL SPECIFICATIONS OF OPTIONS

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

(for float with magnet only and flow Q<sub>min</sub> > 16 l/h water or 630 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 0.34 mm<sup>2</sup>; 1 m long

Housing : Polystyrene

Weight : 35 g



#### Explosion proof :

Intrinsic safe acc. EN 60079-11 chapter 5.7 "Simple electrical instruments".

Group : IIC

Category : 2

Expl. atmosphere : G

Temperature class : T6

Entity parameter : U<sub>i</sub> = 15V ; I<sub>i</sub> = 50mA ; P<sub>i</sub> = 187mW  
Li ≈ 0mH ; Ci ≈ 0nF

#### POWER SUPPLY FOR LIMIT SWITCH

##### (OPTION CODE: /W\_\_)

Type : transistor relay according to DIN EN 50227 (NAMUR)

Power supply : 230 V AC; 115 V AC; 24 V DC

Relay output : 1 changeover contact or 2 potential-free changeover contacts

Switching capacity : max. 250 V AC;  
max. 4 A or max. 500 VA

Control circuit : intrinsically safe [EEx ia] IIC  
acc. declaration of conformity  
PTB 00 ATEX 2081 (230V AC)  
PTB 00 ATEX 2080 (24V DC)



**MODEL SPECIFICATIONS**

Diameter process connection		Model	Process connection		Material process connection	Material Rotameter	Design (valve)	Metering tube length/diameter
			Inner thread	Glue socket				
Inner thread	Glue socket	Code	Code	Code	Code	Code	Code	Code
Rp 3/8 inch		RAQN42	R1	-	ST;PC	PA;PS	NNN	Q1
Rp 1/2 inch		RAQN01	R1	-	ST;PC	PA;PS	NNN	Q1
Rp 3/4 inch		RAQN23	R1	-	ST;PC	PA;PS	NNN	Q1
Rp 1 inch	32 mm	RAQN02	R1	-	ST;PC	PA;PS	NNN	Q1
		RAQN02	-	K1	PC	PA;PS	NNN	Q1
Rp 1 inch		RAQN02	R1	-	ST;PC	PA;PS	NNN	Q2
Rp 1 1/4 inch	40 mm	RAQN03	R1	-	ST;PC	PA;PS	NNN	Q2
		RAQN03	-	K1	PC	PA;PS	NNN	Q2
Rp 1 1/2 inch		RAQN04	R1	-	ST;PC	PA;PS	NNN	Q4
Rp 2 inch	63 mm	RAQN05	R1	-	ST;PC	PA;PS	NNN	Q4
		RAQN05	-	K1	PC	PA;PS	NNN	Q4
Process connection:		Inner thread Rp .....	-R1					
		Glue socket (only for PVC) .....	-K1					
Material process connection:				Steel	ST			
				PVC	PC			
Material Rotameter:				Polyamide .....		-PA		
				Polysulphone .....		-ST		
Design:			Without valve .....			NNN		
			.....					
The suffix code of the combination metering tube - float can be read from the flow tables on page 3 .....								-xxxx-xxxx
Options (see table below) .....								/xx

**OPTIONS**

Options	Option Code	Description	Restriction
Marking	/B1 /B4 /B8	Tag plate (SS) Neutral version Customer provided marking on label	Plate 12 x 40 mm; max. 45 digits
Limit switches	/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	Oil + fat free for wetted surfaces acc. ASTM G93-03,level C 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 metering system With flow table for recalculation	
Power supply for limit switches (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 channel KFA6-SR2-Ex1.W / 230 V AC, 1 channel KFA6-SR2-Ex2.W / 230 V AC, 2 channel KFD2-SR2-Ex1.W / 24 V DC, 1 channel KFD2-SR2-Ex2.W / 24 V DC, 2 channel	

### FLOW TABLE WITH METERING TUBE-FLOAT-COMBINATION

Flow table				Suffix code metering tube - float- combination								
Water / liquids 20°C				Metering tube				Float				
Recommended comb. Row 1		Alternative comb. Row 2		-x	x	xx	x	-xx	x	x	x	
Max. Flow	Pressure loss *)	Max. Flow	Pressure loss *)	Length	Diameter	Metering tube cone Code	Scale	Material	Diameter	Flow mark	Insertion	
[l/h]	[mbar]	[l/h]	[mbar]	Code	Code	Code	Code	Code	Code	Code	Code	
-	-	100	2.5	Q	1	53	A;N	PP;PC	1	1	N	
250	15	160	6	Q	1	53		Row 1 SS		Row 1 3	M <sup>1)</sup> ; N	
400	16	250	7	Q	1	54		Row 2 PP;PC		Row 2 2		
630	18	400	8	Q	1	57		PP;PC	2	1	N	
1000	26	630	10	Q	1	61				Row 1 SS	Row 1 3	M <sup>1)</sup> ; N
-	-	1000	6	Q	2	63				Row 2 PP;PC	Row 2 2	
2500	30	-	-	Q	2	63		PP;PC	4	1	N	
-	-	1600	15	Q	2	63				Row 1 SS	Row 1 3	M <sup>1)</sup> ; N
-	-	4000	13	Q	4	71				Row 2 PP;PC	Row 2 2	
10000	50	-	-	Q	4	71		PP;PC	4	1	N	
-	-	6300	25	Q	4	71				Row 1 SS	Row 1 3	M <sup>1)</sup> ; N
-	-	6300	25	Q	4	71				Row 2 PP;PC	Row 2 2	

Flow table				Suffix code metering tube - float- combination									
Air 20°C, 1 bar abs. / Gas				Metering tube				Float					
Recommended comb. Row 1		Alternative comb. Row 2		-x	x	xx	x	-xx	x	x	x		
Max. Flow	Pressure loss *)	Max. Flow	Pressure loss *)	Length	Diameter	Metering tube cone Code	Scale	Material	Diameter	Flow mark	Insertion		
[l/h]	[mbar]	[l/h]	[mbar]	Code	Code	Code	Code	Code	Code	Code	Code		
-	-	1600	1	Q	1	53	A;N	PP;PC	1	4	N		
2500	2	6300	11	Q	1	53				Row 1 5	M <sup>1)</sup> ; N		
4000	2	10000	14	Q	1	54				Row 2 7			
6300	3	16000	16	Q	1	57				PP;PC	2	6	N
10000	3	25000	19	Q	1	61						Row 1 5	N
-	-	40000	12	Q	2	63						Row 2 7	M <sup>1)</sup> ; N
25000	5	-	-	Q	2	63				PP;PC	4	4	N
-	-	63000	26	Q	2	63		6	M <sup>1)</sup> ; N				
--	-	63000	3	Q	4	71		Row 1 5	N				
100000	7	-	-	Q	4	71		PP;PC	4	6	M <sup>1)</sup> ; N		
-	-	250000	34	Q	4	71				Row 1 5	N		
-	-	250000	34	Q	4	71				Row 2 7	M <sup>1)</sup> ; N		

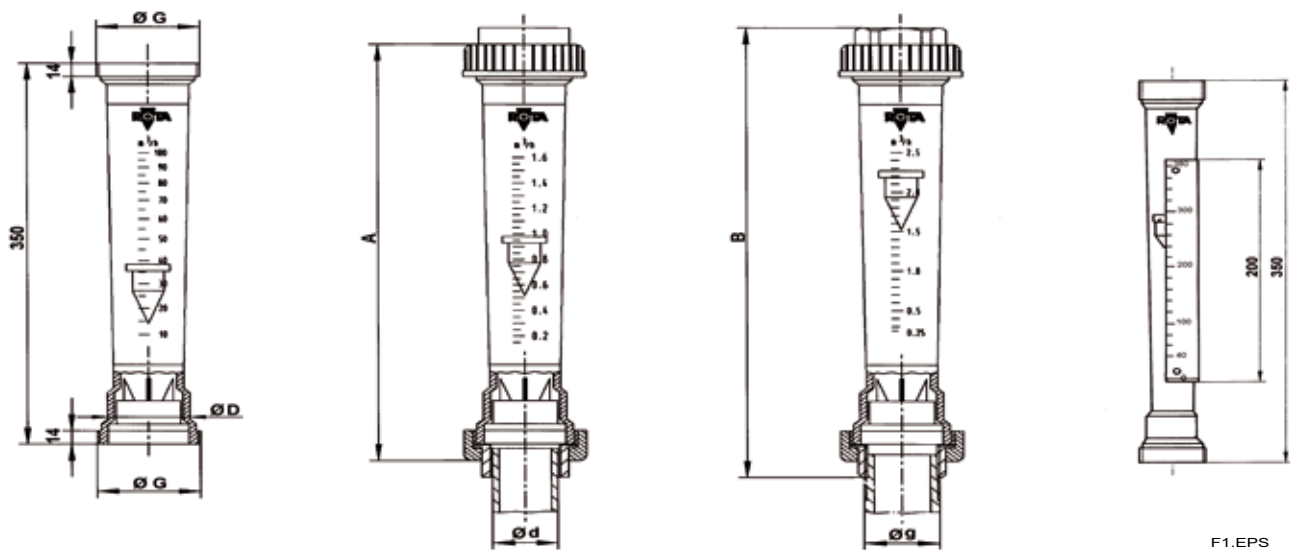
  

Description										
Length metering tube	350 mm .....	Q								
Diam. metering tube	R½ to R2¾ .....	x								
Cone metering tube	See flow table .....	xx								
Metering tube-Medium Scale	Pin up scale with mm division (recommended) .....	A								
	Metering tube with % division only .....	N								
Float material	1.4571 .....	SS								
	Polypropylene .....	PP								
	PTFE .....	PF								
Float diameter	21.6 mm to 54.1 mm .....	x								
Flow mark	Factor 0.4 to 1 (Water) (Code 1 to 3) .....								x	
	Factor 6.3 to 25 (Air) (Code 4 to 7) .....									
Flow insertion	Without magnet .....									N
	With magnet (for limit switch /GM 1 and /GM 2) .....									M <sup>1)</sup>

<sup>1)</sup> For option limit switch /GM1 and /GM2

\*) The indicated pressure loss may deviate depending on the flowmeter used.

**Other metering tube - float combinations with other float materials and a variety of measuring ranges are available on request. For applications for different medium- or process conditions use the Sizing Software Durep\_v.**



F1.EPS

## DIMENSIONS AND WEIGHTS

Metering tube	Dimensions [mm]						Weight [kg]
	G	D	A	d	B	g	
Q1	G 1½''	34	366	32	400	Rp 1''	0.4
Q2	G 2''	48	372	40	410	Rp 1¼''	0.7
Q4	G 2¾''	81	370	63	418	Rp 2''	2.1

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