

IM 01R01B07-00E-E

**Assembling Position** : Vertical

**Hints for Assembly** : Must be free of tension. Vibration must be avoided.

**Commissioning** : Reading point : conical float : top edge spherical float : top end

**Maintenance** : If the float does not move freely in the flow or if pollution can be seen in the glass metering tube the tube must be cleaned. To clean the metering tube, remove it from the fitting. First remove the protective cap, then unfasten the screws (13, RAGL) and take the metering tube forward complete with all sealing components out of the fitting. With the RAGK type, the device must be removed from the tube and the head pieces must be screwed off the rear plate and pulled off the metering tube. Now the stops (4) and (4a) can be removed and the float can be taken out of the tube.

**CAUTION** : The float can easily be lost. Please disassemble the device on a working surface where nothing can fall or roll off, such as trays or cardboard boxes. With RAGL / RAGK with valve the complete valve unit can be pulled forward after loosening the safety screw. All maintenance operations at the Rotameter (for example retightening of the valve gland or removal of the tube) are only permitted when the meter is fully drained and without pressure.

**NOTE**: In case of a built-in valve, place the safety screw correctly into the designed bore. In case of a defect of the display unit, the cover of the display unit can be removed after loosening the cover screws. When the display unit is taken out, recalibration will be necessary.

**Hints for Cleaning** : The metering tube and float may be cleaned with alcohol. When cleaning a plastic float, please be careful when using solvents. Do not leave plastic floats in solvents for lengthy periods of time. After cleaning the tube, blow it dry. If there is considerable dirt accumulation on the tube, wash it in hot soap and water solution. Use bottle brushes only when there is no risk of damaging the inside of the tube. Please rinse with distilled water or alcohol.

**CAUTION** : The tubes are calibrated individually. The metering tube, the float and the scale must be kept together.

**Safety Hints** : The metering tube is made of glass and therefore fragile. Avoid any damage coming from the outside. The specified maximum pressures must not be exceeded. Pressure peaks must not exceed the specified maximum pressure either. Pressure shock may hit the float against the top or the bottom stop (6a) with high speed. This may result in the destruction of the stop and the measuring tube. Tension in the glass over 6 N/mm<sup>2</sup> have to be avoided. Therefore the temperature difference in the glass may not exceed 40°C. Please avoid temperature shocks. ROTA YOKOGAWA gives no warranty for the improper use of flow meters having glass floats. Due to the uncontrollability of the material YOKOGAWA cannot guarantee that the material is fracture-proof. Further hints can be found in VDI/VDE 3513.

**Units with limit switches /GR1 ... GR8** : See instruction manual IM 01R01B14-00E-E. Particularly the explanations for explosion proof must be regarded for units with option /KS1.

**Units with limit switches /GM1 ... GM5 (only RAGK)** : See instruction manual IM 01R01B19-00E-E.

## STANDARD SPECIFICATIONS RAGK

### Measurable flow rates

- Water (20 °C) : 0.002 l/h to 630 l/h
- Air (20 °C; 1 bar abs.): 0.2 l/h to 6 300 l/h

**Measuring range** : 10:1 (20:1)

**Metering tubes** : M3; K6; M6; K7; R7; M7

### Accuracy:

Glass metering tube	Length	Measuring accuracy acc. Directive VDI/VDE 3513 sheet 2 (q <sub>g</sub> =50%)	Standard flow accuracy full scale
K631 - K743	75 mm	4% (for ball 6%)	± 4% (± 6%)
R741 - R743	75 mm	6% (only with ball)	± 6%
M613 - M622	150 mm	4%	± 4%
M624 - M747	150 mm	2.5%	± 2.5%
M352 - M357	150 mm	2.5%	± 2.5%

### Max. Temperature (see Figure 1)

- Fitting material SS : 100°C
- With option /MV : 130°C (not for PP-Rotameter)
- Fitting material PP : 80°C

**Max. Pressure (see Figure 1)** : 16 bar

### Material process connection

- Inner thread : PP or 1.4571 (for option controller 1.4571)
- Cutting ring : 1.4571 or steel
- Nozzle : 1.4571 or steel
- Swagelok connection : 1.4571

**Material of fitting** : Polypropylen; 1.4571

**Material of gaskets** : Buna

- With option /MV : PTFE / Viton

**Design (valve)** : With or without built-in valve

**Length approx.** : 90 mm; 165 mm or 175 mm

**Weight** : 0.3 to 1.2 kg, depending on design (without stand and controller)

## STANDARD SPECIFICATIONS RAGL

### Measurable flow rates

- Water (20 °C) : 0.002 l/h to 110 l/h
- Air (20 °C; 1 bar abs.): 0.1 l/h to 3500 l/h

**Measuring range** :

- K metering tube : 10:1
- M metering tube : 20:1 (10:1)
- L metering tube : 20:1

**Metering tubes** : K6; M6; L6; K7; R7; M7; L7

### Accuracy:

Glass metering tube	Length	Measuring accuracy acc. Directive VDI/VDE 3513 sheet 2 (q <sub>g</sub> =50%)	Standard flow accuracy full scale
R741 - R743	75 mm	6% (only with ball)	± 6%
K631 - K743	75 mm	4% (for ball 6%)	± 4% (± 6%)
M613 - M622	150 mm	4%	± 4%
M624 - M747	150 mm	2.5%	± 2.5%
M613 - L623	300 mm	2.5%	± 2.5%
L624 - L747	300 mm	1.6%	± 1.6%

### Max. Temperature

- Fitting material SS : 100°C
- With option /MV : 130°C (not for PP-Rotameter)
- Fitting material PP : 80°C

**Max. Pressure** : 16 bar (see Figure 1)

### Material process connection

- Inner thread : PP or 1.4571 (for option controller 1.4571)
- Cutting ring : 1.4571 or steel
- Nozzle : 1.4571 or steel
- Swagelok connection : 1.4571

**Material of fitting** : Polypropylene; 1.4571

**Material of gaskets** : PE / Buna (for M-, K-, R- tube)  
PTFE / Buna (for L-tube)

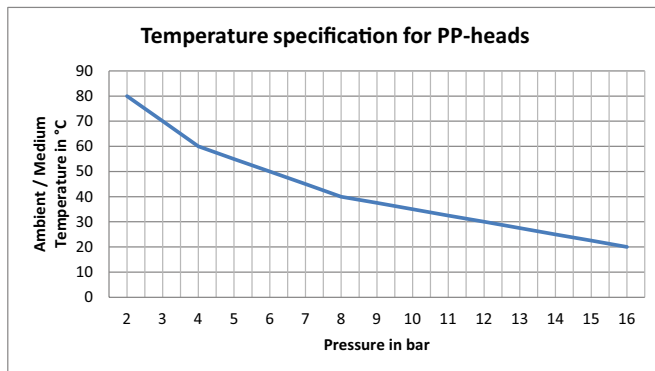
- With option /MV : PTFE / Viton

**Design (valve)** : With or without built-in valve

**Length approx.** : 100 mm; 175 mm or 325 mm

**Weight** : 0.3 to 1.3 kg, depending on design (without stand and controller)

Figure 1:



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