Co-innovating tomorrow™

YOKOGAWA

OpreX™ Field Instruments

ROTA*METER*®

Variable Area Flowmeter
The original for flow measurement

BU 01K01A07-01EN-R

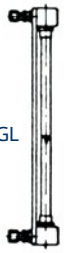
The ROTA*METER* – The Original

In 1908, Karl Küppers (1874 - 1933) filed a patent, marking the dawn of success for the company Rota with the implementation of ROTA*METER*®, based on a rotating float principle, inventing the measuring principle of the variable flowmeter. Together with Yokogawa, the company has become one of the largest suppliers of variable area meters worldwide.

Variable area flowmeters are used to measure the volume flow of liquids and gases. One of the oldest and perfected principles in flow measurements – where the name **ROTA*METER*®** has since become synonymous with variable area flowmeters.

Milestones of ROTA*METER* History

First metal ROTA*METER*



RAGL

RAM

1909 — Foundation of "Rotawerke"

Rotamesser

1950

1960

RAGG

1970

RAGH

1980

RAKC

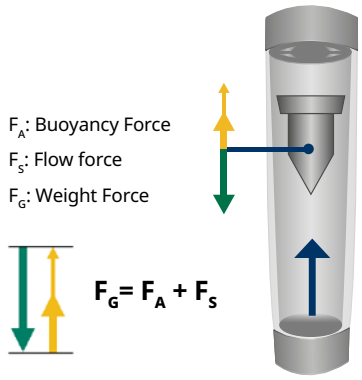
The ROTA*METER* – Measuring Principle

The ROTA*METER* measuring principle is easy to understand: Installed in a vertical position in the pipeline system, the fluid flows from bottom to top inside a conically shaped metal or glass tube. A specially designed float inside the tube moves freely up and down. Its position on a scale indicates the flow rate.

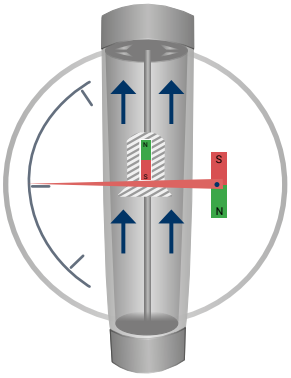
There are essentially three forces acting on the movable float: The so-called weight force G acts as a restoring force downwards, while the upward force of buoyancy A and the flow force S act in the opposite direction.

As soon as the medium flows through the tube from bottom to top, the float is raised until the acting forces are balanced. The height of the float is a measure of the flow. When the volume flow drops, the float also sinks again and the measured value changes accordingly. Power supply is not necessary.

The flow scale is designed for specific fluid properties at process conditions with a defined flow range. If the density or viscosity of the measured fluid changes, it also has an impact on the scale accuracy.



In a glass tube the flow rate is directly visible from the position of the float.



In a metal tube, the position of the float is magnetically transferred to a pointer which indicates the flow rate on a scale.

RAMC

RAMC

Explosion-proof housing

1990 1995 2000 2005 2010 2020 2021

1995
YOKOGAWA
acquires Rota

RAKD

FMEDA for SIL

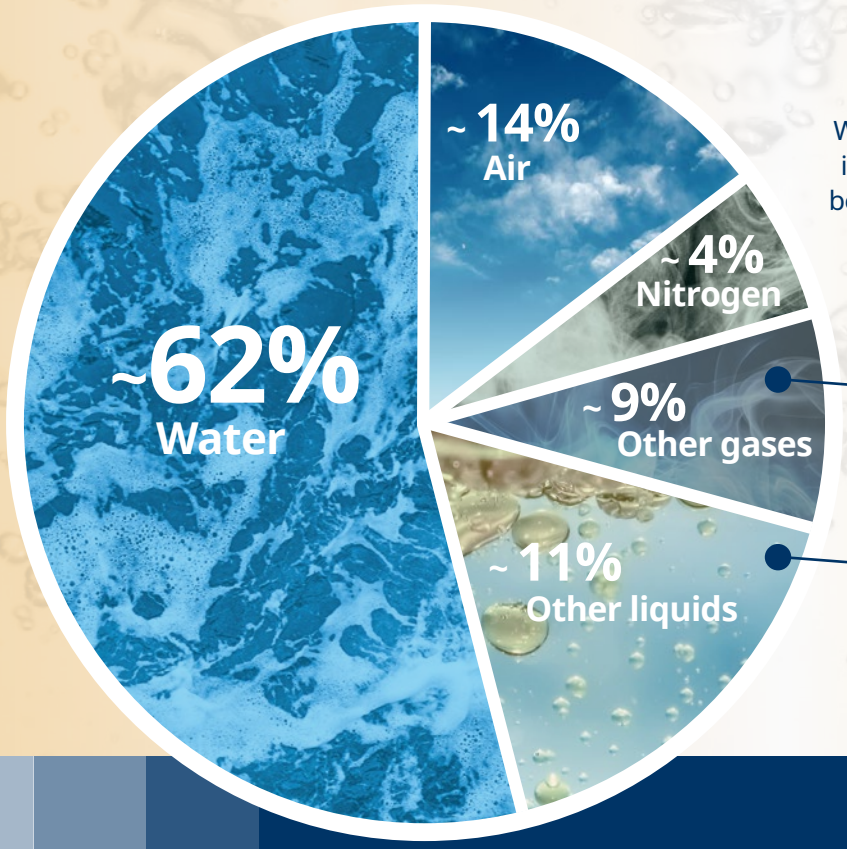
RAMC with PROFIBUS

RAGN

Release FOUNDATION Fieldbus

Fieldbus

ROTA*METER* – The original for flow measurement



The ROTA*METER* is a well known and trusted flowmeter worldwide.

With more than a century worth of application, industry and fluid know-how, ROTA*METER* can be used with hundreds of different clean fluids. They are particularly popular for measuring water, air and nitrogen.

e.g.
Oxygen, Hydrogen, Carbon Dioxide, Argon, Helium...

e.g.
Acids, Bases, Oil, Demineralised water, Alcohol, Solvents...

The ROTA*METER* – The Original: More than 100 years of measurement, application, product know-how and high quality speak for well-proven instruments.

For many industrial applications, variable area flowmeters are the standard solution for cost-effective flow measurement.

ROTA*METER* are easy to install, reliable in operation and function without auxiliary power supply. They offer durability at high pressure and temperature, which can range up to 400 °C and several hundred bar.

The ROTA*METER* Highlights:

Direct, real-time visual measurement and indication

Precise measurement at low-flow and low-pressure

Easy to install with low maintenance

Compact meters

No external power supply needed

Reliable, durable and versatile

High measurement repeatability for reliable measurement

Linearity of the scale for best readability

Cost-effective solution

ROTA*METER* in operation

For many industrial applications, variable area flowmeters are the standard solution for flow measurements. In the following table are some examples for typical applications of glass and metal ROTA*METER*.

	Process fluids (liquids and gases)													Device Properties					
	Clean fluids	Dirty fluids	Transparent fluids	Non-transparents fluids	Corrosive fluids	Low pressure application	Low velocity application	High viscosity liquids	Low viscosity liquids	Low Flow Rates	Magnetic fluids	Aggressive/Dangerous fluids	Saturated Steam	Superheated Steam	Without auxiliary energy	For large size	Low pressure loss	High process temperatures	High process pressures	Continuous measure-ment & flow control
 ROTA*METER* Glass	●		●		●	●	●	○	●	●	○	○			●		●			●
 ROTA*METER* Metal	●		●	●	●	○	○	○	●	○		●	○	●	●	○	●	●	●	●

ROTA*METER* Glass

- For low flow applications and low pressure conditions
  - ✓ **Up to max. 16 bar** (232 psi) **and 130 °C** (266 °F)
  - ✓ **Fluid is directly visible**
  - ✓ **Very reasonably priced**
  - ✓ **Large variety of applications**
    From laboratory applications to analyzer systems or purification plants
  - ✓ **Rotating float for stable meter-reading**
  - ✓ **Borosilicate glass tubes and more than 200 different floats of different materials, shapes and weights** to offer the best compatibility with your gases and liquids for higher throughputs in smaller nominal sizes or even with more viscous fluids
  - ✓ **Glass replacement possible**
  - ✓ **Optional: limit switches**
  - ✓ **Approvals for use in hazardous areas** (e.g., ATEX, IECEx, UKEx, etc.)
  - ✓ **Suitable for SIL 1 applications with fail-safe limit switches**
  - ✓ **The smallest measuring ranges** from the laboratory sector and high flow rates from demanding industrial conditions can be solved with Glass ROTA*METER* from Yokogawa

Petrochemical			Chemical/Pharmaceutical						Food & Beverage						Power/Pulp Paper/Mining/Water/Others								
Mineral oil	Gasoline/Diesel	Solvents	Air	Lacquer (water based or diluted)	Cleaning agents	Oxygen	Steam	Acids	Fruit juices	Fruit purée	Vegetable oil	Milk	Beer	Wine	Water	Cooling water	Exhaust gas	Butane	Propane	Natural gas	Process analysis	Gas injection in liquid	Additives
	●	●	●	●	●	●		●							●	○		●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	●	●	●	●	●	●	●	●	●

● supported ○ supported under certain conditions

ROTA*METER* Metal

- For extreme process conditions
  - ✓ **High pressure up to 700 bar (10152 psi)**
  - ✓ **Up to 400 °C (698 °F)**
  - ✓ **Demanding fluids**
    (e.g., for aggressive or opaque fluids and for steam applications)
  - ✓ **Guided float for stable meter-reading**
    More than 30 different floats for RAMC and RAKD to achieve the best performance for your fluid measurement
  - ✓ **Approvals for use in hazardous areas**
    (e.g., ATEX, IECEx, NEPSI, EAC, UKEx, etc.)
  - ✓ **Suitable up to SIL 2 applications with fail-safe limit switches**
  - ✓ **Available also with Limit switches, current output, totalizer and communication interface**
  - ✓ **Versatile** for conductive and non-conductive liquids and gases
  - ✓ The **robust all-metal design** ensures high pressure, temperature and media resistance and can withstand extreme use and environmental conditions
  - ✓ **Indication without auxiliary power supply**

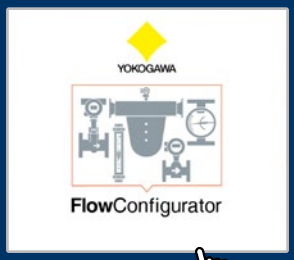
SELECTION GUIDE

Simplified Selection

ROTA*METER* Metal

Product Line	RAKD	RAMC
Flow Rate capacities		
	l/h	gph
Water (l/h)	130 000	3 432
	10 000	2 642
	630	166
	250	66
	110	29
	25	6,5
	1	0,264
	0,025	0,007
	0,002	0,001
	l/h at 20 °C/ 1.013 bar abs	cfh at 68 °F, 14.5 psia
Air (l/h at 20 °C/ 1.013 bar abs)	1 400 000	49 441
	160 000	5 650
	8 000	282,5
	6 300	222,5
	3 600	127,1
	750	26,5
	40	1,4
	1,9	0.07
	1,4	0.05
Max. permissible fluid temperature	-25 to +250 °C (-13 to +482 °F)	-196 to +400 °C (-321 to +752 °F)
Max. permissible pressure	160 bar (2321 psi)	700 bar (10,153 psi)
Pipe Sizes (mm / inch)	6, 8, 10, 12 mm; ¼ in. to 1 in.	½ in. to 6 in.
Accuracy		
Accuracy according to VDI/VDE 3513-2 (qG = 50 %)	4 %	2.5/1.6 %
Materials and process connections		
Wetted materials	1.4571 (AISI 316TI), Hastelloy or Monel on request	1.4404 (AISI 316L), PTFE Lining, Titanium*, Alloy C276* or Alloy K500* on request
Process connections	EN/ASME flanges, internal thread NPT/G, Cutting Ring, Swagelok	EN/ASME flanges, internal/external thread, TRI-Clamp
Installation lengths		
Hazardous area design	Zone 1, 2, 21, 22, Ex i	Zone 1, 2, 21, 22, Ex i, Ex t, Ex d
Electronic features		
	Measurement and indication without power supply	
	Limit switches	Limit switches
	Fail safe limit switches	Fail safe limit switches
	Pulse output	Pulse output
	(0)4 to 20 mA	(0)4 to 20 mA
		HART 7
		Profibus PA
		FOUNDATION Fieldbus
		LC-Display
Options		
	Flow Controller	Float damping for pulsating flows or low operating pressures
	Valves	Heating jacked for measuring cone
	Special options on request	Float Blockage indication system
	Easy installation with Quickon connector	High pressure models up to 700 bar*
		Magnetic filter, if the fluid contains particles which can be magnetically influenced*
	Suitable for SIL applications with fail-safe limit switches	

* available on demand



FC FlowConfigurator

Selecting the flowmeter that best meets your specific needs and requirements.

http://www.flowconfigurator.com

Product Line	RAGK	RAGL	RAGN
Flow Rate capacities			
l/h			gph
Water (l/h) 130 000			3 432
10 000			2 642
630			166
250			66
110			29
25			6,5
1			0,264
0,025			0,007
0,002			0,001
l/h at 20 °C/ 1.013 bar abs			cfh at 68 °F, 14.5 psia
Air (l/h at 20 °C/ 1.013 bar abs) 1 400 000			49 441
160 000			5 650
8 000			282,5
6 300			222,5
3 600			127,1
750			26,5
40			1,4
1,9			0.07
1,4			0.05
Max. permissible fluid temperature	130 °C (266 °F)	130 °C (266 °F)	-25 to 100 °C (-13 °F to +212°F)
Max. permissible pressure	16 bar (232 psi)	16 bar (232 psi)	16 bar (232 psi)
Pipe Sizes (mm / inch)	6, 8, 10, 12 mm; ¼ in. or ⅜ in.	6, 8, 10, 12 mm; ¼ in.	½ in. to 2 ½ in.
Accuracy			
Accuracy according to VDI/VDE 3513-2 (qG = 50 %)	6/4/2.5 %	6/4/2.5/1.6 %	2.5/1.6 %
Materials and process connections			
Wetted materials	1.4571 (316Ti), Polypropylene, Various float materials available		SS316L, PVDF, Various float materials available
Process connections	Internal thread NPT, Cutting ring, Swagelok, Nozzle		Internal thread NPT/G, EN/ASME flanges, TRI-CLAMP
Installation lengths	90 to 175 mm	100 to 325 mm	356 to 500 mm
Hazardous area design	Zone 1, 2, Ex i	Zone 1, 2, Ex i	Zone 1, 2, Ex i
Electronic features			
	Measurement and indication without power supply		
	Limit switches	Limit switches	Limit switches
	Reed contact		Reed contact
Options			
	Flow Controller	Flow Controller	Turnable splinter shield
	Valves	Valves	Connection box
	Special options on request		Valves
	Suitable for SIL applications with fail-safe limit switches		

RAMC

The RAMC is your great long-term solution with decades of proven flow measurement technology for a large variety of liquids, gases and steam.

It can individually adapt to any application with its simple, low maintenance and cost-effective installation.

Max flow range	
water:	25 to 130,000 l/h (6.5 to 3,432 gph)
air:	750 to 1,400,000 l/h at 20 °C/1.013 bar abs. (26.5 to 49,441 cfh at 68 °F, 14.5 psia)

Reliable flow measurements from low flow rates to hundreds of cubic meters. The RAMC is available with an indicator without power supply, or as 2/4 wire transmitter with analog output & LC-display, as well as digital bus-powered or wireless communication protocols.

→ The RAMC is made for the world's major sectors of the industry!

Demanding Applications

- Designed to meet the highest international explosion proof safety requirements worldwide. It is therefore suitable for the use in all relevant applications with intrinsically safe or non-sparking wiring as well as for dust explosion-proof or flame-proof installations worldwide
- The ability to withstand extreme application and environmental conditions makes the RAMC a highly reliable flowmeter, especially with aggressive and opaque fluids
- Availability with increased distance between the measuring tube and display simplifies the insulation of the measuring tube at extreme process temperatures
- High-/low-flow alarm functions that meet SIL 2 requirements
- Increased application reliability with electronic device and application diagnostics
- Stainless steel or aluminum indicator with protection class IP66/67 and NEMA 4X
- All pressurized parts are made of 1.4401/1.4404 (316/316L) dual certified stainless steel
- Longevity with wetted parts made of PTFE against chemically harsh products such as aggressive acids and alkalis
- Wide range of special materials such as Alloy C276, Alloy K500, Titanium, and others on request

Flexibility

The RAMC is purely mechanical in design which forms the basis for its flexible uses. In the event of a change in application or new requirements, a new scale, electronic or limit switches can be easily added or replaced at any time.

- E.g. limit switch (NAMUR), 2-wire 4 to 20 mA signal output with HART and a graphical LCD as standard
- Available with digital, bus-powered communication interfaces according to FOUNDATION Fieldbus or PROFIBUS PA standard

Housing	Indicator	Measuring tube	Process connections
Stainless Steel	Mechanical indicator	Stainless Steel, Alloy C276*, Alloy K500*, Titanium*	EN or ASME flange
Aluminum Polyurethane coating	Indicator with electronic transmitter (0)4 to 20 mA	PTFE Inlet	Internal thread NPT, G or Rp
Aluminum Epoxy coating	HART COMMUNICATION PROTOCOL Profibus PA	For high & low temperatures	TRI-CLAMP
	FOUNDATION Fieldbus		External thread
	with adapter ISA100 WIRELESS, LoRaWAN		

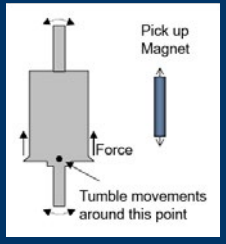
Highest quality

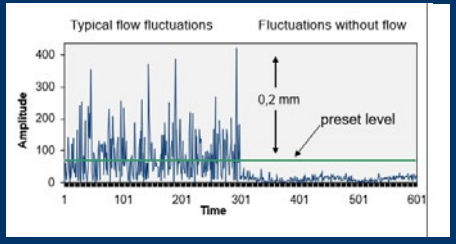
Automated welding processes with radiographic inspection and surface crack detection as well as other comprehensive quality assessments are being carried out at the factory.

→ All under the control of a seamless quality management system!

*on customer request

Invented by Rota Yokogawa: The float blocking indication with every electronic transmitter





If the float is blocked inside the tube, the ROTA*METER* will set the alarm current. Online condition monitoring provide valuable insights about the instrument and your plant.

It is difficult to see a blocked float from the outside. Our solution: The float blocking indication invented by Rota Yokogawa!

How does it work?
It measures the fluctuations of the float:

Under normal flow conditions the guided float tumbles around its center of gravity. This generates small movements at the indicator pick up magnet. These fluctuations are monitored by the **ROTA*METER***.

RAKD

The robust all-metal design of the RAKD ensures high pressure, temperature and media resistance and withstands extreme process and environmental conditions.

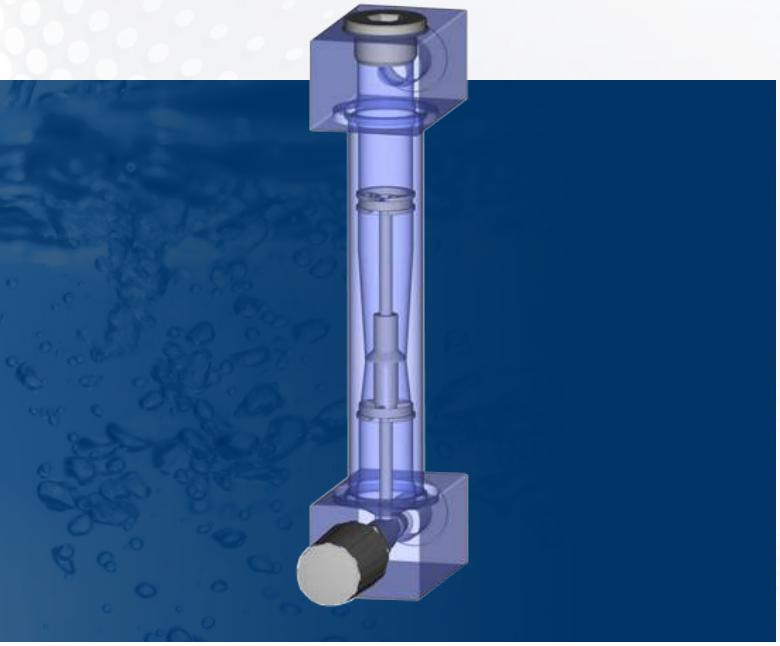
It is designed to be compatible with a wide range of liquids and gases and engineered for repeatable accuracy in low-flow rate applications with high pressure or hazardous fluids.

Max flow range	
water:	1 to 250 l/h (0.264 to 66 gph)
air:	40 to 8,000 l/h at 20 °C, 1 bar abs. (1.4 to 282.5 cfh at 68 °F, 14.5 psia)

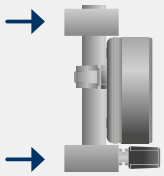
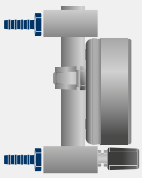
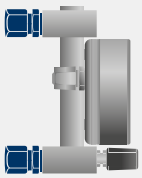
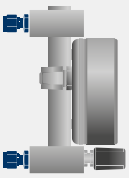
Reliable low flow measurement, available with an Indicator without power supply, or as 2 wire transmitter with analog output

ROTA*METER* RAKD Highlights

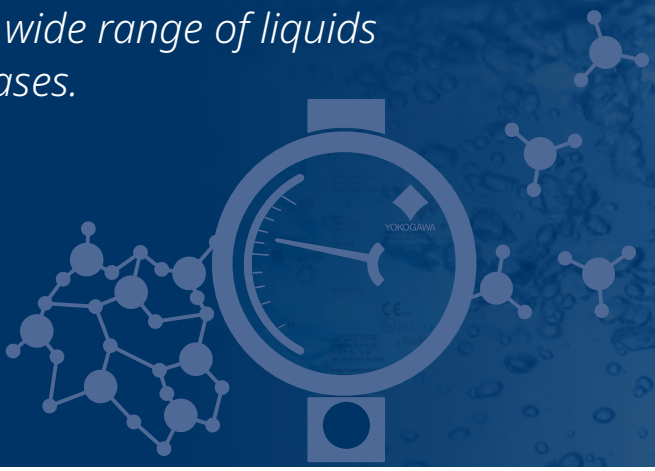
- High pressure and temperature rating up to 160 bar (2320 psi) and 250 °C (482 °F)
- Optional needle valve in the inlet or outlet



- Horizontal or vertical internal thread connections, as well as flanged connections make it easier to install and integrate into existing plants
- Guided floats
  - ✓ to stabilize float movement
  - ✓ to reduce pressure loss
- Easy to read display
- All wetted parts and indicator housing are made of stainless steel
- Housing with protection class IP 66/67, quick opening and closing by bayonet catch
- In case of variations in process pressure our flow controller ensures constant flow rates
- Compact size enables easy installation into systems with less space
- Certified international explosion proof certificates
- 4 to 20 mA flow signal transmitter, and/or limit switch alarms for high/low-flow conditions are available for more advanced flow measurement
- No auxiliary power supply needed which leads to more process reliability in case of power failure

Indicator	Piping	Process connections	Options
Local indicator 	Straight inlet and outlet – vertical process connection 	EN or ASME flange 	Flow regulator e.g.: /R1 or /R3 
Indicator with electronic transmitter 	With valve – horizontal process connection 	Internal thread NPT, G 	Simple fluid identification with colored caps for the valve knob 
		Nozzle 	
		Cutting Ring 	
		Swagelok 	

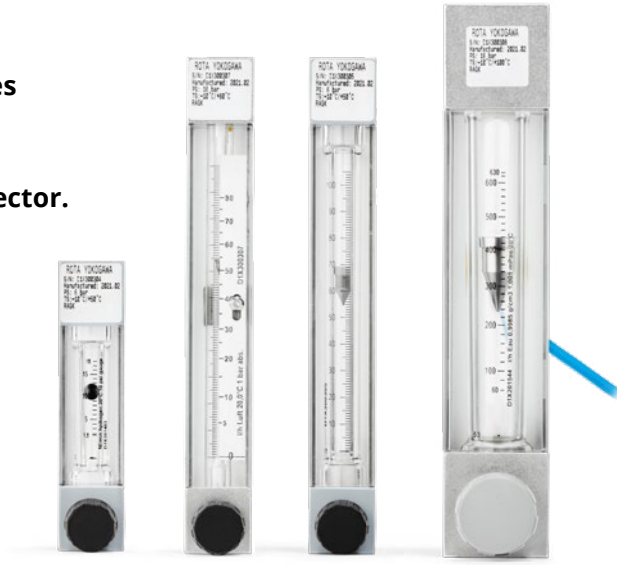
Designed to be compatible with a wide range of liquids and gases.



RAGK and RAGL

These universally applicable Glass ROTA*METER* are particularly suitable for measuring and dosing low flow rates of liquid and gaseous fluids. Areas of application are e.g., in the Gas analysis technology, biotechnology, medical technology, in apparatus engineering or in the laboratory sector.

Max flow range RAGK	
water:	0.002 to 630 l/h (0.001 to 166 gph)
air:	1.4 to 6,300 l/h at 20 °C,1 bar abs. (0.05 to 222.5 cfh at 68 °F, 14.5 psia)
Max flow range RAGL	
water:	0.002 to 110 l/h (0.001 to 29 gph)
air:	1.4 to 3,600 l/h at 20 °C, 1 bar abs. (0.05 to 127.1 cfh at 68 °F, 14.5 psia)



RAGK product examples

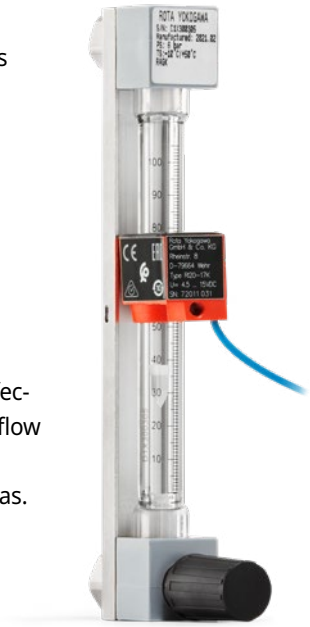
ROTA*METER* RAGK and RAGL Highlights

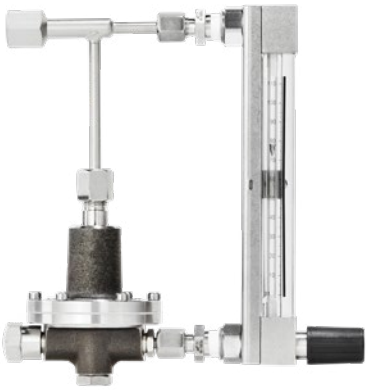
- Visual evaluation of the fluid is always possible
- Glass cones of different lengths for different accuracy requirements and installation possibilities
- Linear scale
- Various process connections with same meter inlet/outlet size for easy installation with existing process piping
- Transparent cover to protect the measuring glass tubes
- Optional fine adjustment valve at the inlet or outlet for setting the desired flow
- Up to 2 limit switches
- With optional panel mounting
- Optional laboratory foot stand converts the RAGK and RAGL into stand-alone devices

Glass ROTA*METER* are a simple, well approved and cost-effective device but with precise flow measurement at very low flow rates, without auxiliary energy, combined with long-lasting repeatable measurement, even in potentially explosive areas.

Fluid-resistant material options for scales, floats, fittings and valves accommodate demanding applications.

Borosilicate glass is resistant to thermal shock and corrosive gases and fluids.

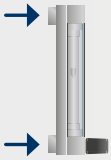




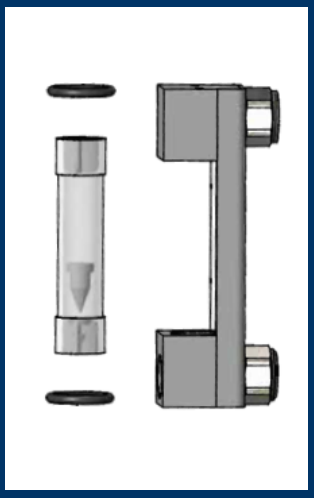
Also available with a flow controller to ensure constant flow rates, in case of variations in process pressure and thus ensures a constant flow rate throughput.

RAGL product examples

Simple fluid identification with colored caps for the valve knob.

	RAGK	RAGL	RAGK/RAGL Float variations
Accuracy of the measured value according to VDI / VDE 3513-2, qG = 50 %	2.5 % - 6 % (depending on the cone length and float)	1.6 % - 6 % (depending on the cone length and float)	Glass Ball 
Special Features	Available with Reed sensors	Exchangeable measuring tube without removing the meter from the pipe, saving maintenance time and costs	Stainless Steel Ball 
Process Connections	Internal thread NPT, G 		Stainless Steel, Titanium, Aluminum, Mu-metal 
	Nozzle 		PP 
	Cutting Ring 		PVDF 
	Swagelok 		Corundum (Al_2O_3) 

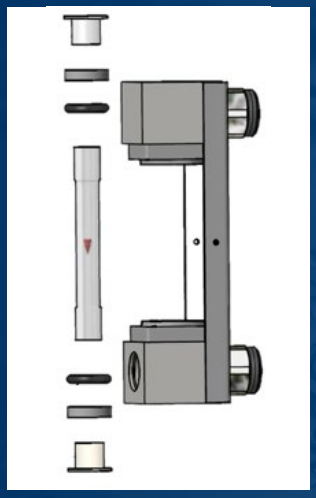
Maintenance made easy – with replaceable glass tubes



RAGK:

Standard Glass ROTA*METER* design

Tube is fixed between two square formed heads and sealed with Viton O-rings



RAGL:

Modular design saves maintenance efforts and costs:

Tube is sealed with O-rings and additional tube gaskets which are fixed with pressure flanges for high tightness

Replacement of the glass tube possible whilst the device remains in the installation

RAGN

This special Glass ROTA*METER* is used e.g., in industrial furnaces, annealing and kilns, protective gas and heating systems, in apparatus engineering or in the laboratory sector and many other.

Max flow range	
water:	0.025 to 10 000 l/h (0.007 to 2642 gph)
air:	1.9 to 160,000 l/h at 20 °C, 1 bar abs. (0.07 to 5,650. cfh at 68 °F, 14.5 psia)

RAGN product examples

ROTA*METER* RAGN Highlights

- Visual evaluation of the fluid is always possible
- Flow rate directly visible without auxiliary energy
- Linear scale
- Various process connections with same meter inlet/outlet size for easy installation with existing process piping

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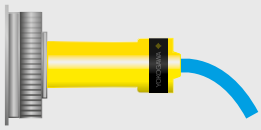
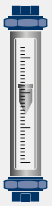
- Stainless-steel safety sleeve as standard to protect the glass tube against mechanical destruction
- The RAGN offers simple, well approved, cost-effective and precise flow measurement, combined with long-lasting and repeatable measurement, even in potentially explosive areas
- Fluid-resistant material options for scales, floats and fittings accommodate demanding applications. The imprinted scale enables the usage for harsher ambient conditions
- Borosilicate glass is resistant to thermal shock and corrosive gases and fluids
- Suitable connections and FDA-compliant materials are available for the food and pharmaceutical sector
- The RAGN is very easy to clean, and it can be delivered free of oil and grease
- Comprehensive range of measuring ranges thanks to various float weights and measuring tube diameters with an accuracy up to 1.6 % of the measured value according to VDI / VDE 3513-2 (qG = 50%)

Scale	Float material	Process connections	Limit Switches
Fluid scale 	Stainless Steel 	EN or ASME flange 	Reed contact 
mm scale 	PTFE 	Internal thread NPT, G 	Inductive Ring sensor 
Percentage scale 	PVDF 	TRI-CLAMP 	
Dual scale 	Titanium 		
Imprinted scale 			

The RAGN can be equipped with a valve and up to 2 limit switches (ring initiators or Reed contacts).

Production and development

Rota Yokogawa offers a high level of vertical integration for our ROTA*METER* and ensures detailed production knowledge in-house as well as the flexibility to produce customer-specific orders in the shortest possible time.

The development of new and the maintenance of existing products are always in consideration of the latest revision of DIN EN ISO 9001 as well as compliance with national and European guidelines and standards.

Tests in our own laboratories as well as type approvals by external official test centers (TÜV, DEKRA, etc.) ensure compliance with e.g., CE conformity, explosion protection guidelines PED requirements, etc.

All electrical and electronic devices are individually tested to ensure that all assemblies and device parts function properly during production and after final assembly.

The training of our employees, process and work instructions as well as our test are all within the framework of DIN EN ISO 9001 and ensure that the product quality that you expect from us is always achieved and documented.

Calibration Competence

With every ROTA*METER* from Yokogawa, you can count on reliability and repeatability.

Each ROTA*METER* is individually calibrated with either water or gas.

The full intended measuring range is hereby calibrated with defined measuring accuracy and afterwards according norm VDI 3513 transferred to the customer specific fluid.

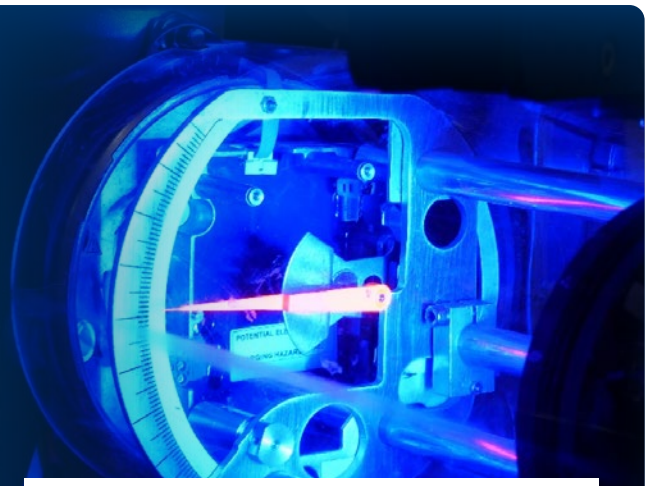
A typical calibration at Rota Yokogawa, using the example of the ROTA*METER* RAMC:

Original calibration is carried out with all ROTA*METER* RAMC on our DAkkS accredited calibration rig according DIN EN ISO 17025:2018.

For RAMC: An optical system calibrates the angle of the pointer against the mm reference scale, and hence calculates the flow rate. Each electronic transmitter is calibrated to a linear output. Specifically to the tube, float and scale, the individual flow calibration data for each angle transmitter is stored at the internal EEPROM.

Our high precision scale printer transfers the calibrated flow position exactly onto the scale. As a result we provide high quality scales, clearly and easy to read and resistant against UV.

In combination with the signal-colored and very thin pointer RAMC offers you maximum readability even from greater distance.



Understand the measuring scale of a ROTA*METER*

- The flow scale is designed for specific fluid properties at process conditions
- Changing the fluid or process conditions, it is recommended to contact your Yokogawa representative for an adapted scale, fitting for your new process conditions

Reference Calibration Conditions

Water or air	(10-35) °C	(1-2) bar abs.

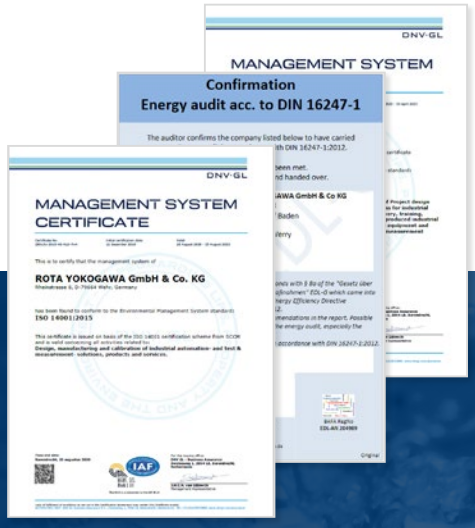
Our way to support your goal to reduce the ecological footprint – Go green with ROTA*METER*

The ROTA*METER* is always based on the mechanical variable aera measuring principle.

- ✓ No external power supply needed for purely mechanical devices
- ✓ No additional cabling required
- ✓ Saving installation costs and material
- ✓ Saving energy costs and still benefit from a measuring device with an accuracy up to 1, 6 % (qG = 50 %)

We care about the environment:

- ✓ Production factory powered by green electricity
  - » More than 60 % of the electricity which is used to produce your ROTA*METER*, comes from renewable energy sources
- ✓ More than 60 % of the parts used in our ROTA*METER* can be recycled
- ✓ The production factory Rota Yokogawa has also been certified according
  - » ISO 14001 – Environmental Management System Standard
  - » DIN 16247-1 – Energy efficiency directive



ROTA*METER* more than just a name:

- We are the inventor of the variable area measuring principle with process- and application know-how for more than 100 years, and therefore providing proof of safe and reliable measuring over many decades.
- Sustainability with
  - ✓ Very durable and long lasting devices
  - ✓ Support during the whole life cycle, e.g., with recalibration and service
  - ✓ FMEDA report is available for SIL application, up to SIL2 with fail-safe limit switches options
- We have committed ourselves to an exemplary ecology-minded way into the future by following highest standards
  - ✓ ISO 9001 certified to ensure high quality products
  - ✓ RoHS compliant to guarantee the usage of government approved materials

ROTA*METER* – The Original!

More than 100 years of measurement, application, product know-how and high quality speak for well approved instruments. For many industrial applications, variable area flowmeters are the standard and cost-effective solution for flow measurements. The reliable operation without auxiliary power supply is a major advantage of variable area flowmeters.

Since 1909, the original ROTA*METER* from Rota Yokogawa have been the benchmark in variable area flow measurement, with an continuously evolving and expanding portfolio, always responding to new industrial process requirements.

Yokogawa is your long-term partner for process automation with products like the original ROTA*METER*.
We support with our broad product portfolio, solving your measurement problems.

> Contact your local Yokogawa team for more Information

www.yokogawa.com/Rotameter

OpreX™ Through the comprehensive OpreX portfolio of products, services, and solutions, Yokogawa enables operational excellence across the enterprise.

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