

# KRAL

KRAL Volumeter® – Flowmeter Overview.



## **KRAL Volumeter®.** Decide for the original.

Our flowmeters combine the otherwise mutually exclusive properties of robustness and precision. For 25 years, our products have satisfied a wide range of customer requirements. These qualities provide extra security in the decision making process.

### Checklist.

Use this brochure to answer the following questions:

Suitability for the purpose of the application.	Suitability to the operating conditions.	Influence on the measured liquid and system.
<input type="checkbox"/> Is the equipment able to measure the liquid used? <input type="checkbox"/> Has the equipment been tested and proved for this application? <input type="checkbox"/> Will the flow be measured with sufficient accuracy? <input type="checkbox"/> Is the measured value stable over time and reproducible?	<input type="checkbox"/> Can the meter measure the required flow range? <input type="checkbox"/> Is the equipment suitable for the temperature of the liquid? <input type="checkbox"/> Can the equipment withstand the system pressure?	<input type="checkbox"/> Does the equipment function without affecting the liquid? <input type="checkbox"/> Does the equipment operate with low noise, vibration or pulsation? <input type="checkbox"/> Is the space where the equipment is to be installed limited? <input type="checkbox"/> Can the equipment be quickly installed using standard connections?

### Liquids and areas of application.

KRAL Volumeter measures the flow of liquids. KRAL is the first choice when it comes to measuring anything from low-viscosity liquids like petrol, acids and alkalis to high-viscosity liquids such as printing inks and bitumen. Our measuring equipment is found in many industrial areas such as:

- Marine.
- Energy.
- Fuel engineering.
- Hydraulics.
- Test stands.
- Mixing and batching technology.
- Chemical industry.
- Food industry.

### Measurement accuracy.

The precision of the measurement is unmatched: The KRAL Volumeter is accurate to  $\pm 0,1\%$  of rate over a wide flow and viscosity range. The reproducibility is better than  $\pm 0,01\%$ . The long working life and stability over time show that robustness and precision are not mutually exclusive.

### Silent operation.

Other flowmeter technologies can produce noise levels as high as 100 dBA, requiring ear protection for operating personnel. In comparison the KRAL Volumeter is scarcely audible.

### The measuring principle.

The KRAL Volumeter is a very compact positive-displacement meter. The measurement chamber consists of the casing and two screw spindles. The spindles continually divide the liquid in a precision made closed measuring-chamber – nothing escapes. The precise measured value is calculated from the known measuring-chamber-volume and the spindle rotation speed.

### Understandable measuring technology.

The measurement values are calculated understandable and accurate. The liquid flow drives the spindles. Poles on the wheel generate impulses in the sensor. Each pulse from the sensor represents a precisely calibrated volume.

## The solution.

KRAL Volumeter –  
gentle, understandable  
measurement technology.

The liquid drives the spindles. The spindles rotate and the liquid stream does not change direction. The measuring equipment exerts low force on the liquid.

KRAL Volumeter is a displacement meter. Together the casing and spindles form a precisely measured volume.

By increasing the number of poles on the wheel, the resolution of the measurement is increased.

The liquid to be measured flows straight into the KRAL Volumeter. No flow conditioning or straight piping is necessary upstream or downstream of the meter. Elbows and T-pieces can be installed without influencing the measurement accuracy.

A sensor registers each pole of the wheel.

Each impulse is transmitted as an interference-proof standard industrial square-wave to the KRAL electronic unit.

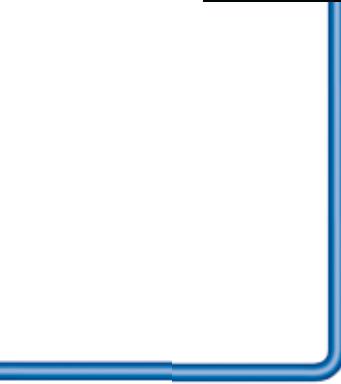
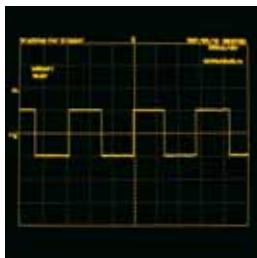
## KRAL Volumeter®.

Precision without deviation.

### Output signals.

The sensor offers the most common industry standard signals:

- PNP square-wave signal.
- NAMUR signal.



Mechanical connections designed  
for quick and easy installation.



Pipe thread G  
Pipe thread NPT



SAE - flanges



DIN - flanges  
ANSI - flanges  
JIS - flanges



### KRAL Electronic BEM 300 and BEM 500.

Display of current and total flowrate as well as consumption. Designed by KRAL to support the Volumeter and the various applications. Plenty of mounting options.



### KRAL Industrial PC BEM 900.

Suitable for complex applications utilizing up to 16 KRAL Volumeter. Designed for monitoring and data analysis.



The customer can process the signal using existing control room instrumentation.

Custom connections are also possible.

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Technical data.	Classification	Flow range (l/min)	Max. pressure (bar)	Temperature range (°C)	Casing material
<b>OME*</b>	Economy	0,1 to 150	40	-20 to 125	Anodized aluminium
<b>OMG*</b>	Universal	0,1 to 7.500	250	-20 to 200	Spheroidal graphite cast iron
<b>OMH*</b>	High pressure	0,1 to 3.000	420	-20 to 200	Spheroidal graphite cast iron
<b>OMK*</b>	Chemically resistant	0,2 to 150	40	-20 to 100	Chrome nickel steel
<b>OMX</b>	Custom design	0,1 to 7.500	630	-40 to 200	Custom design
<b>OMC</b>	Consumption measurement Diesel engines	0,1 to 350	40	-20 to 150	Spheroidal graphite cast iron
<b>OMA</b>	Accessory for DKC/DMC pump stations	0,3 to 150	40	-20 to 125	Spheroidal graphite cast iron

\* Product brochures available upon request.



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