

▶ **Performance chemicals require process performance**

The performance of chemical processes depends not only on the size of the plant but also on factors such as quality, availability, safety and capacity. Other important aspects include minimal energy consumption and material use, the reduction of waste and accompanying substances, and the reduction of the cost of ownership. Quick and simple start up and shut down as well as partial-load operation are also required. And this is often required under extreme environmental conditions, the likes of which are rarely seen in other industries.

Increasing competitive pressure in the industry, high system availability and quality conformity are covered with a broad range of products, solutions, services and expertise in all fields of process engineering.



▶ **Process instrumentation for the chemical industry**

▶ **Process analysis measurement technology**

Sensors, assemblies, transmitters, systems and accessories for process analysis help provide important information for the optimisation and control of production processes for chemicals as well as for water / wastewater treatment.

Innovative analytics by KROHNE cover inline and online liquid analytical measurements. The analytical sensors are available with fully integrated transmitters, as well as traditional separate transmitters.

Complete measuring systems and panels, installation equipment, signal converters and accessories make them suitable for most requirements.

▶ **Auxiliary and supply circuits**

KROHNE provides suitable solutions for utility and supply circuits

- Process water/auxiliary water
- Compressed air/air
- Natural gas/combustion system consumption measurement
- Steam
- Heat/energy quantity measurement
- Industrial gases and supercritical gases



ETA Process Instrumentation

www.etapii.com

sales@etapii.com

tel 978.532.1330

New England



Martech Controls

www.martechcontrols.com

sales@martechcontrols.com

tel: 315.876.9120


Upstate New York



▶ **KROHNE Chemicals – Your partner for the right measurement solution**

As Main Instrumentation Vendor (MIV), KROHNE offers you a wide range of products. It includes standardized devices which cover most applications. The installation lengths, outputs, mechanical design and choice of materials are specifically designed for chemical applications.

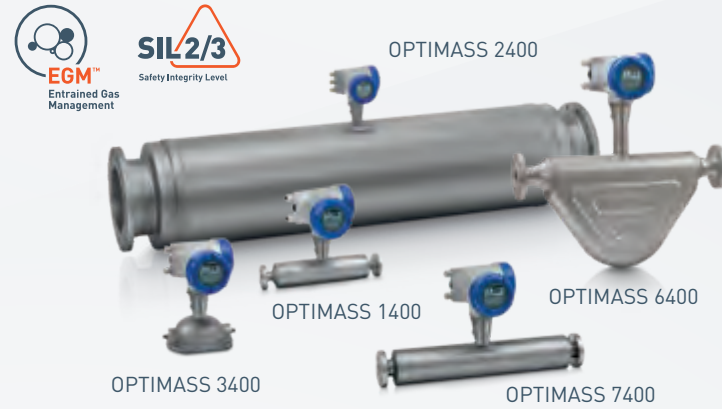
The chemical industry relies on state-of-the-art technologies which need to be extremely robust and durable. KROHNE offers a portfolio which includes virtually every technologically significant measuring principle and is specifically designed for universal use in the chemical and petrochemical industry.



Excerpt from the KROHNE product portfolio – chemical industry

OPTIMASS - mass flowmeters

- Coriolis mass flowmeters featuring Entrained Gas Management (EGM™): no loss of measuring signal for gas content of 0...100 % in the medium
- Process temperatures -200...+400°C / -328...+752°F
- Optional insulation / heating jacket / sun canopy
- Wide range of materials (e.g. tantalum, titanium, Hastelloy, Duplex, SS)
- Compliant with IEC 61508, NAMUR and NACE recommendations



OPTIFLUX and WATERFLUX – electromagnetic flowmeters

- Large choice of liner materials
- Ceramic measuring tubes and liners available in flange and sandwich versions, also with non-wetted electrodes
- Specific instruments for partially filled pipes
- Virtual reference option: no grounding rings / electrodes
- Detection of product changes by integrated measurement of electrical conductivity
- For high solids content and pulsating flow



OPTISWIRL – vortex flowmeters

- First choice for auxiliary and supply circuits
- Integrated pressure and temperature compensation
- Gross and net heat capacity calculation for hot water and steam
- Compliant with IEC 61508 and NAMUR recommendations



OPTISONIC – ultrasonic flowmeters

- Flow measurement of gases, liquids and steam
- No moving parts or components that protrude into the measuring tube
- Excellent long-term stability, no recalibration required
- Process temperatures -200...+540°C / -328...+1004°F
- Clamp-on or in-line, bidirectional
- Detection of product changes by measurement of sound velocity



Variable area flowmeters

- Sturdy stainless steel construction for high operating pressures up to 3000 bar and process temperatures from -200...+400°C / -328...+752°F, for liquids, gases and steam
- Horizontal, vertical and upside down installation possible
 - Limit switch (NAMUR, transistor or reed contact)
 - 2-wire current output 4...20mA with HART® communication
 - FOUNDATION™ fieldbus / PROFIBUS® PA communication
 - Flow counter, pulse output and totaliser
- Optionally available with PTFE/ceramic liner



OPTIWAVE – FMCW radar level transmitters

- Continuous, non-contact level measurement of liquids, pastes, granulates, powders and other solids ($\epsilon_r \geq 1.4$)
- Antenna options for aggressive and abrasive media, high pressure high temperature applications with agitators or for high dust load
- Certified IEC 61508 and for hazardous areas



OPTIFLEX – TDR guided radar level transmitters

- Continuous level measurement of liquids, solids and liquid-liquid interface ($\epsilon_r \geq 1.4$)
- Measuring distances up to 40 m; 131.23 ft
- Large choice of probes, e.g. for aggressive media, high pressure, high temperature and applications with interfering tank installations or boiling surfaces
- Certified IEC 61508 and for hazardous areas



OPTISWITCH – vibration level switches

- Level detection of liquids, solids and liquid-liquid interface
- Measurement independent of media properties such as viscosity, dielectric constant (ϵ_r) or electrical conductivity



OPTITEMP – industrial temperature assemblies

- Complete range of thermometers with a variety of materials, process connections and a comprehensive transmitter portfolio
- Standard and special versions for solid, liquid and gaseous media; NAMUR-style thermowell
- For applications at high and extremely cold temperatures, high pressure and high flow velocities



OPTIBAR – operating pressure, differential pressure and hydrostatic pressure

- Complete portfolio for the measurement of differential, operating and hydrostatic pressure
- Application-specific converters, diaphragm seals, differential pressure sensors, orifice plates and accessories
- Reliable, sturdy and cost-effective measuring system



SMARTPAT – digital analytical sensors

- Analytical sensors for pH, ORP and conductivity
- For inline analysis of chemicals as well as industrial water and wastewater
- Application-specific sensor types
- Suitable for use in hazardous areas (Zone 0) and mounting assemblies



OPTISYS – sludge blanket measuring system

- Optical measurement of sedimentation profile, sludge level and fluff level in industrial wastewater
- Precise colour-independent NIR measurement up to 10 m / 32 ft depth

Level
Temperature
Pressure
Process Analytics

Flow