

▶ Standards and certifications

We deliver according to the following manufacturing and material standards:

- DIN-ISO, EN, ASME materials
- ASME materials e.g. Section III P91/92
- KROHNE is certified according to ISO9001, ISO3834-2 and PED module H
- ASME N & NP T authorized
- Supply capabilities for ASME PP and U stamp instruments
- Qualified welders AD 2000-HP 3, TRD 201, encl. 2, EN ISO 9606, ISO 14732, VdTÜV-Mbl. 1164, ASME IX

Safety standards:

- SIL 2/3

Customer transfer standards:

- MID MI001, MI002, MI004, MI005, OIML R49, R75, R137, R117



Redundant main steam measurement with OPTISONIC 8300



▶ Process instrumentation for power generation



Secondary air flow measurement with OPTIBAR DP7060 C

**ETA Process Instrumentation**

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▶ Applications – flow, level and pressure

Flow

- LP/IP/HP Feedwater
- LP/IP/HP main steam
- Condensate, spray water
- Customer transfer of hot water/steam
- Primary/secondary air
- Burner fuel oil/gas
- Ammonia and lime slurry for SCR & FGD
- Customer transfer of fuel
- Other flows in auxiliary plants

Level

- Drum, deaerator, condenser, preheater
- Steam trap/drainage
- Coal bunker
- Fly ash silos
- Chemical tanks

Pressure

- Pulverisers, filters, ESP, condensers, heaters
- Flow and level applications with DP

▶ Applications – temperature, analysers and systems

Temperature

- Temperature measurements across the plant (water steam circuit, flue gas, secondary air, etc.)
- Thermo wells with calculations for natural frequency, steady-state and dynamic stress analysis
- Feedwater treatment
- Condensate
- Cooling water
- Waste water

Systems

- Complete flowmeter rigs e.g. for natural gas supply

▶ KROHNE Power Generation – your partner for the right measurement solution

The power generation market is facing new challenges like load flexibility, low load operation, higher efficiencies, increasing plant availabilities and tighter environmental regulations. As a leading multi instrument vendor, KROHNE supplies established process control technologies as well as modern and sophisticated systems. KROHNE Power Generation offers safety and non-safety related products, systems and services within the specific market standards and requirements.

KROHNE Power Generation is a dedicated expert for:

- Project management
- Design and calculations
- Testing and examination
- Product qualification
- Fabrication
- Documentation

with the highest consideration of safety.



Condenser level measurement with indicator BM26 and FMCW OPTIWAVE 1010

# Excerpt from the KROHNE product portfolio – thermal power generation

## OPTISONIC – ultrasonic flowmeters

For steam process and utility applications, energy and custody transfer (CT) measurements

- Variants for high pressure and high temperature available
- No requirements for winterisation, low installation time and cost
- Tolerance to pollution even during chemical cleaning and steam blowout
- No obstructions, no pressure loss, large turn-down ratio, maintenance-free



## OPTIFLUX and WATERFLUX – electromagnetic flowmeters

For all applications with conductive liquids

- Available in a wide range of DN2,5...DN3000 mm covering basic to demanding flow and custody transfer (CT) measurements
- Robust design for temperature up to +180°C / +356°F and pressure rating up to 2500 lbs / 150 bar
- All meters are in-house calibrated up to 30.000 m³/h
- Advanced diagnostic capabilities, OPTICHECK service tool for in-line verification



## H250 and DK devices – variable area flowmeters

For all applications measuring small or medium liquid and gas flow rates

- Robust measuring tube construction for high process temperatures up to +400°C / +752°F and extreme operating pressures up to several hundred bar
- Custom wetted materials: stainless steel, Hastelloy®, titanium, Monel, 6Mo, Inconel 625, PTFE, ceramics and others
- SIL 2 compliant



## OPTIMASS – Coriolis mass flowmeters

Mass flow and density measurement of burner fuel oil, gaseous and liquid ammonia, lime slurries and other applications

- Various versions, single straight tube, high capacity and high accuracy
- Meter sizes up to DN400, temperatures up to +400°C / +752°F
- Continuous flow measurement, even with entrained gas of up to 100% [EGM™]
- SIL 2/3 compliant versions available



## OPTIBAR – pressure transmitters and DP flowmeters

Process instruments for pressure and differential pressure applications

- Comprehensive portfolio: transmitters, primary elements, diaphragm seals and accessories
- State-of-the-art ceramic and metallic measuring cells
- 3D calibration, extremely robust against static pressure effects
- SIL 2/3 compliant versions available



## OPTIFLEX – TDR radar level transmitters

Continuous level and interface measurement of liquids and bulk material

- Wide range of antennas
- High temperature / pressure version with steam compensation for the power generation industry
- SIL 2/3 compliant versions available

## OPTIWAVE – FMCW radar level meters

Non-contact measurement solution for solids, bulk material and liquids

- Wide range of products from 6 to 80 GHz
- Patented drop antenna design, extremely robust in powder applications
- SIL 2/3 compliant versions available

## BM 26 – magnetic bypass level transmitters

Contact level measurement of liquids and liquid-liquid interfaces

- Variety of versions with switches, continuous transmitters, etc.
- MLI contained in hermetically sealed (IP68) Pyrex glass tube
- Bypass chamber in combination e.g. with FMCW or TDR transmitters
- Local level indication without power supply
- HT/HP versions for steam/condensate applications

## BW 25 – displacer level transmitter

Continuous measurement of level, liquid-liquid interface or density at extreme process conditions

- Wide measuring range: 0.3...5.5m / 1...18ft
- Measuring accuracy: ±1.5% of full scale
- Retrofit versions for existing bypass chamber vessels

## OPTISWITCH – level switches

The rugged solution for solids and liquids

- Measurement is independent of media properties
- Probe length 80...6,000mm / 3.1...236.2"
- Tuning fork, float and capacitance level switches



## OPTITEMP – temperature measurement

Assemblies, sensors, transmitters and accessories for temperature measurement

- Resistance temperature detectors (RTD) and thermocouples (TC) for industrial processes
- Wide measuring range: -50...+1,600°C / -58...+2,912°F
- Head- and rail-mounted temperature transmitters with safe and SIL approved designs
- Thermowells with calculations for natural frequency, steady-state and dynamic stress analysis

