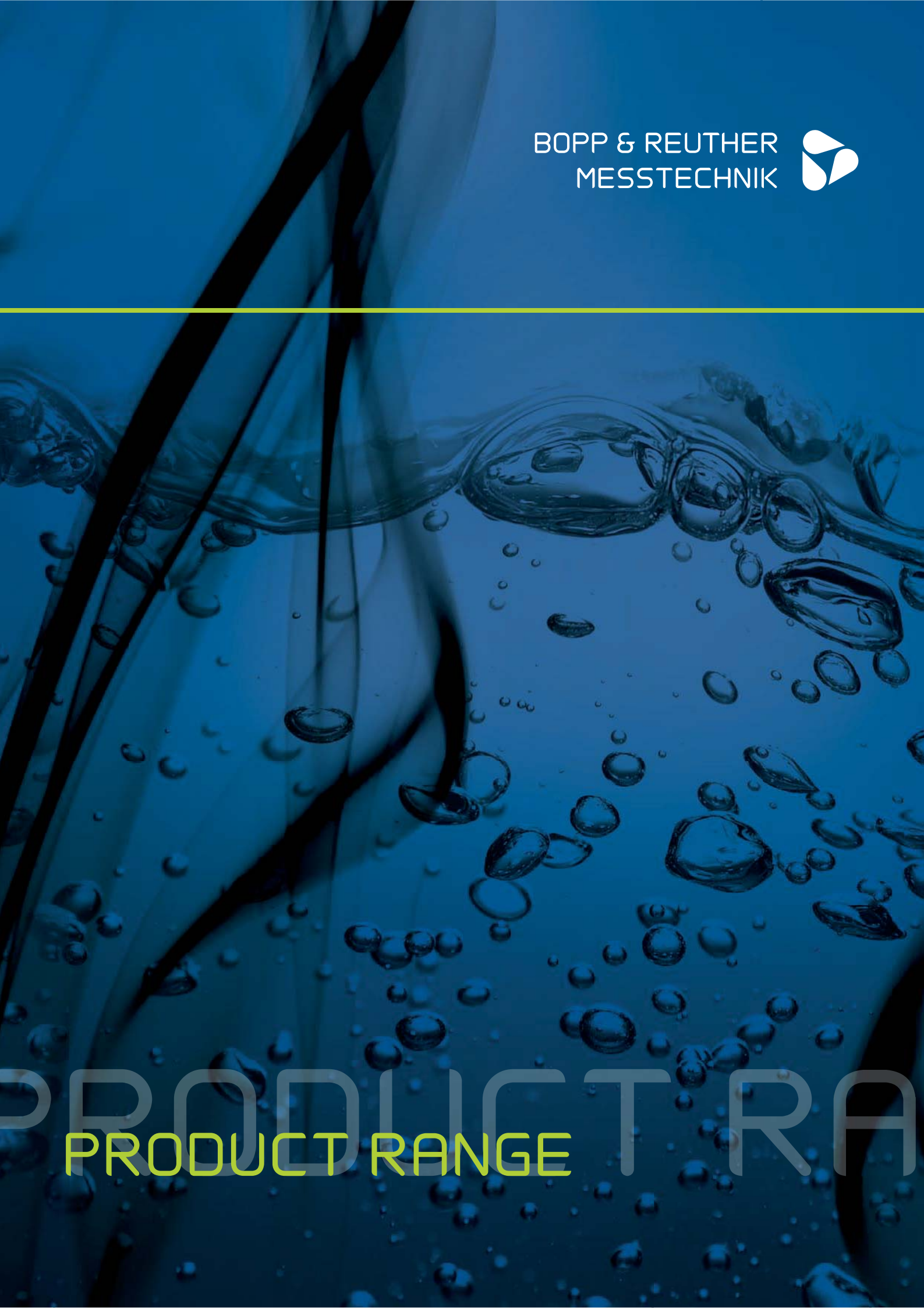

BOPP & REUTHER
MESSTECHNIK
PRODUCT RANGE

OVERVIEW

OVERVIEW

We offer competent solutions for a large number of measurement applications in many different industrial sectors. Our expert know-how covers a broad spectrum in the area of flow measurement, density easurement and level metering, including the commissioning, securing and conformity assessment of the measurement system, according to the Measuring Instruments Directive 2004/22/CE (MID, former initial calibration).

Nowadays tasks are getting increasingly complex and their solution goes far beyond the function of individual components. The ongoing automation and increasing integration of application processes leads to a complexity, which is successfully solved by the Engineering, Measurement and Service Divisions of the Bopp & Reuther Messtechnik Group.

BOPP & REUTHER
MESSTECHNIK

Bopp & Reuther Messtechnik supports you for the individual measuring point of your application as well as by consulting, design and commissioning of measuring systems for the transfer of gases and liquids in pipeline, loading and metering operations.

The design and construction of test and calibration equipment is one of the core competencies of the Engineering Division of Bopp & Reuther Messtechnik.

Our customers additionally benefit from the professional after-sales service, e.g. calibation and commissioning of our group.

BOPP & REUTHER
MESSTECHNIK

MASS FLOW METER

MASS FLOW METER

Oval Wheel Meter Series OG VT
with temperature compensation

Flow Computer
UR 06

Display
F-Series

Application

Measuring the flow rate and mass of liquids in the chemical and petrochemical industry, in the mineral oil industry and in the food and beverage industry. The electronics converts the measured volume under consideration of the current fluid temperature and the associated actual density into a mass signal.

Reliability

- high measuring precision and stability over many years
- high reliability and long life-times up to 40 years

Special features

- no in- and outlet section necessary
- large measuring range
- wide viscosity range
- broad range of materials for a large variety of substances
- fiscal measuring

Technical data

- DN 8 to DN 100
- 5 l/min to 1,200 l/min
- <0.3 to 100,000 mPas
- -40 °C to +80 °C
- up to 40 bar
- current and pulse output

BOPP & REUTHER
MESSTECHNIK

OVAL WHEEL METERS CLASSIC

OVAL WHEEL METERS CLASSICS

Application

Volume measurement of liquids and liquefied gases in loading applications for chemical and petrochemical industry, petroleum industry and of food and beverages

Reliability

- high measurement accuracy
- robust mechanics
- national and international approvals
- custody certification / OIML
- SIL2

Special features

- mechanical or electronic counters
- no straight inlet and outlet pipe sections required
- wide viscosity range
- easy installation and commissioning
- maintenance-free

Technical data

- DN 6 to DN 400
- 120 l/h to 1,200m³/h
- <0.3 to 100,000 mPas
- -40 ° C to 290 ° C
- up to 100 bar
- current and pulse output

WE'VE GOT HART ABILITY

PACTware

Oval Wheel Meter with Universal Smart Transmitter (UST)

Double pointer indicator D

Roller counter M5

BOPP & REUTHER
MESSTECHNIK

FLOWAL®

Flowal® Series OR

Flowal® Series OF

Application

Universal flowmeter for measuring the volume of fluids in mechanical engineering, factory automation and process instrumentation. The modular design combines reliable mechanical sensors with modern electronics.

Reliability

- oval gear meters for low viscosity liquids
- high measurement accuracy
- robust mechanics
- reduced noise level

Special features

- no straight inlet and outlet pipe sections required
- measuring principle independent of the viscosity
- compact design
- easy start-up
- maintenance-free

Technical data

- 1 l/min to 700 l/min
- process connections with pipe threads, flanges or customized
- built-in temperature sensor
- battery-supplied compact devices
- detection of flow direction
- pulse output/current output

BOPP & REUTHER
MESSTECHNIK

FLOWAL® PLASTIC

FLOWAL® PLASTIC

Application

Precision instruments for measuring the volume of chemically aggressive liquids - acids, alkalis, solvents, dyes ...

Reliability

- measuring principle of oval gear meters
- high measurement accuracy
- robust mechanics

Special features

- no wetted metal parts
- no straight inlet – and outlet pipe sections required
- measuring principle independent of the viscosity
- compact design
- less weight
- easy start-up
- maintenance-free

Technical data

- 1 l/min to 350 l/min
- process connections with pipe threads, flanges or customized
- battery-supplied compact devices
- detection of flow direction
- pulse output/current output

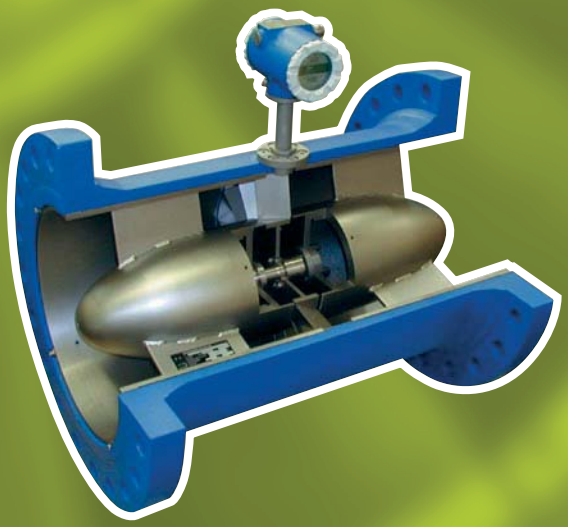
Flowal® Series OR
Plastic

BOPP & REUTHER
MESSTECHNIK

TURBINE METER

TURBINE METER

RQ Series 1 with Universal Smart transmitter (UST)



RQ Series 2 with Universal Smart transmitter (UST)

Application

Volume measurement of liquids and liquefied gases in the chemical and petrochemical industry, in the mineral oil industry and in loading facilities, especially at high operating pressures and low viscosities.

Reliability

- high measuring precision over decades
- high repeatability
- proven and reliable measuring system

Special features

- high flow capacity
- calibration certified by the German Bureau of Standards / OIML

Technical data

- DN 10 to DN 300
- 0.15 to 4,500 m³/h
- 0.2 to 50 mPas
- -196°C to +250°C
- up to 320 bar
- current and pulse output, HART®

WE'VE GOT HART ABILITY

PACTware

BOPP & REUTHER
MESSTECHNIK

MID-MDS DOSING MODULES

MID-MDS DOSING MODULES

Application

Modular dosing system (MDS) for filling conductive liquids in packaging machinery fitted with magnetic-inductive flow rate meters.

Reliability

- easy cleaning in comparison with piston fillers
- easy adjustment of filling quantities
- no mechanical forces are applied to the product

Special features

- shortest dosing times less than 100 ms possible
- small dimensions of the sensor
- complete system for linear and circular filling machines
- PLC or PC interface
- wide range of filling quantity with various diameters
- direct control of the dosing valve
- CIP/SIP approved
- change of flow transmitter without re-programming possible

Technical data

- DN 10 to DN 40
- various connections are available: e.g. hygienic connection for milk, TRI-CLAMP, sterile connection, sterile mini-flange
- 3A approved
- compact electronics
- expansible for up to 540 filling stations

BOPP & REUTHER
MESSTECHNIK

VORTEX METER

VORTEX METER

VTX sandwich version

VTX flange version

Application

The VTX2 vortex meter is used for flow-rate and volumetric measurements of conductive and non-conductive fluids, gases and steam in all industrial sectors. Applications include volumetric measurements for balancing (for example compressed air systems, heat carriers, steam, and chemical products), process control and high flowrate applications.

Reliability

- extremely rugged and stable measuring instrument
- maintenance-free

Special features

- insensitive to pulsations, pressure and temperature shocks
- with auto-adaptive digital signal processing
- three simultaneously and independently usable signals (current output, HART®, pulses)
- suited for high operating temperatures
- wide measurement range
- with manifold for changing the sensor under operating conditions

Technical data

- DN 15 to DN 300 (larger sizes upon request)
- 0.4 to 20,000 m³/h
- -40°C to + 260°C / 450°C
- up to PN 100
- current output with HART®, or current pulses and scalable pulse output according to NAMUR
- on-site eight digit display
- with operating keys
- DTM and AMS drivers available

WE'VE GOT HART ABILITY

PACTware

BOPP & REUTHER
MESSTECHNIK

COMPACT ORIFICE

COMPACT ORIFICE

Application

The Oriflow compact orifice is used for flow measurements of conductive and non-conductive fluids, gases and steam in all industrial sectors. Applications include flow measurements (volume/mass) for balancing (for example compressed air systems, heat carriers, steam and chemical products), process control and high flowrate applications.

Reliability

- already over 5,000 units in operation
- extremely rugged and stable measuring instrument
- suited for extreme applications
- highest acceptance in the market

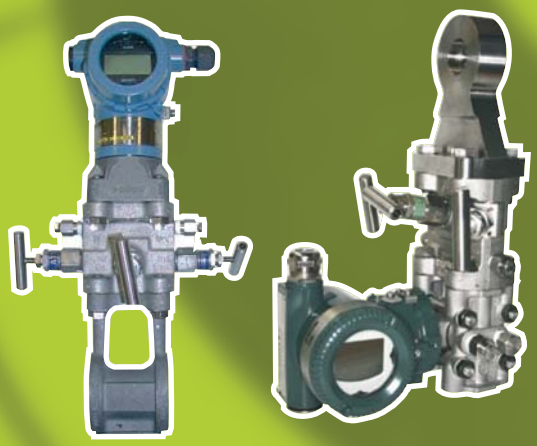
Special features

- dry calibration possible
- highly reproducible results
- easy to install without differential pressure lines

Technical data

- DN 15 to DN 1000
- 0.2 to 150,000 m³/h
- -40°C to 400°C
- up to PN 40 (up to 320 bar on request)
- current output
- materials: Stainless Steel, Hastelloy, Tantalum, Titanium, PVDF, etc.

Triple compact orifice



Compact Oriflow
with transmitter

BOPP & REUTHER
MESSTECHNIK

FLOW COMPUTER

FLOW COMPUTER

Flow computer URS 09

Flow computer
UR 06

Flow computer
URS 06

Application

The flow computers are used to capture, display and output mass- and volumetric flow rates corrected for temperature or density. The URS models with integrated PLC also allow the control of automated dispensing or filling operations. Plug-in modules enable the connection of different sensor systems for detection of mass flow, pressure, temperature or density.

Reliability

- 24-bit AD converter
- modular design
- short cycle times
- error curve linearization

Special features

- extensive data logging function
- OIML approval
- RS232, RS485, Ethernet
- MBus and Modbus

Technical data

- integrated PLC
- up to 4 current inputs
- 6 frequency Inputs
- 2 temperature Inputs
- 7 digital outputs
- 4 current outputs

BOPP & REUTHER
MESSTECHNIK

LEVEL METER

LEVEL METER

Application

The innovative TDR technology enables direct, precise and highly reliable continuous level measurement as well as point level detection in almost every liquid and solid – independent of changing process conditions (such as density, conductivity, temperature, pressure, vapour and turbulence). It is suitable for all types of process and storage tank applications and has an exceptional performance in media with low dielectric constant (low reflectivity) such hydrocarbons, or liquified gases.

Reliability

- maximum energy transmission on sensor based on 4-wire concept
- maintenance free

Special features

- fast reaction time of 0,5 sec
- ± 3mm accuracy
- precise continuous level measurement and reliable point level detection combined in one device
- for liquids as well as powdery solids
- no influences caused by tank / vessel internals
- modular design; one probe head for all versions
- active current output
- unmatched price/performance ratio

Technical data

- -40 °C to +150 °C
- up to PN40
- Rod / Rope / Coaxial Version
- from 100 mm to 20.000 mm

WE'VE GOT HART ABILITY

Level meter MG 1-E

MG 1-PTFE

MG 1-S

BOPP & REUTHER
MESSTECHNIK

DENSITY METER

DENSITY METER

DIMF 1.3 T...

DIMF 2.0 T...

DIMF - compact

Application

Continuous measurement of density and concentration of liquids.

Reliability

- high repeatability
- maintenance-free
- high long-term stability

Special features

- special calibration within the required density range
- fiscal metering for DIMF 1.3
- also useable for highly aggressive liquids, pastes and foams
- output signals scalable for density and concentration
- materials: Stainless Steel, Hastelloy, Tantalum, Monel Inconel, etc.
- 400-points correction table for customer specific calibration

Technical data

- DN 10 to DN 50, flanges or Swagelok, sanitary threads, sterile fittings
- 0 to 5,000 kg/m³
- -40°C to +210°C
- up to 300 bar
- current output, frequency output

WE'VE GOT HART ABILITY

PACTware

BOPP & REUTHER
MESSTECHNIK

THERMAL MASS FLOW METER – FCI

Application

Thermal mass flowmeters for measurement of gases, switches for monitoring of air, gas or liquid flows.

Reliability

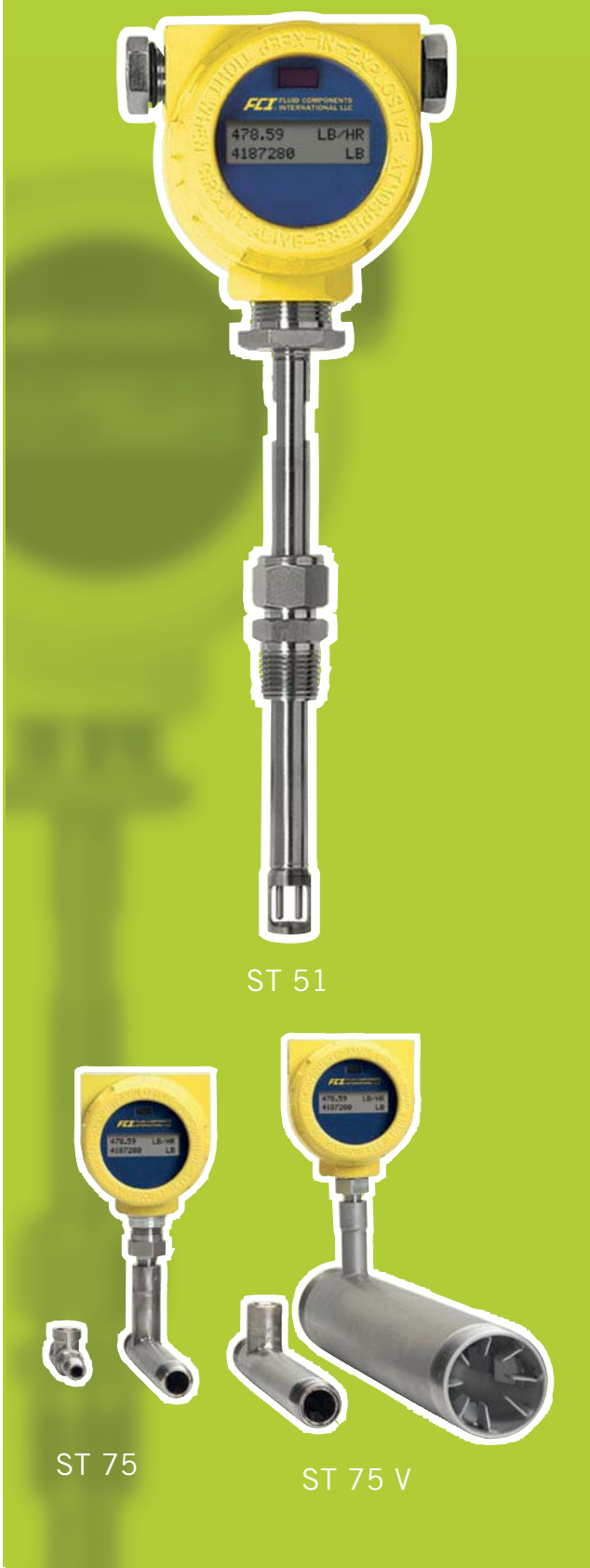
- direct mass measurement
- high repeatability
- maintenance free - no moving parts
- quick and easy commissioning
- global Service

Special features

- calibrated equipment - wet calibration with original medium
- limit switches flow, level
- solutions for harsh process conditions
- use up to 450° C
- SIL 2

Technical data

- 6 mm to 10 m pipe cross-sections
- 1000:1 dynamic range
- on-site calibration system - VeriCal®
- efficient Flow - Conditioner - VORTAB®



WE'VE GOT HART ABILITY

FCI® FLUID COMPONENTS INTERNATIONAL LLC

BOPP & REUTHER
MESSTECHNIK

CENTRIFUGAL GAS SEPARATORS

Application

To avoid measuring errors that result from air or gas contained in liquids measured with volumetric meters.

Reliability

- maintenance-free
- complete emptying via drainage valve

Special features

- with automatic float-deaeration device, level probe and controlled magnetic valve or defined reflux to the process (orifice)
- mandatory for fiscal metering with pump operation in Germany
- Bopp & Reuther Centrifugal Gas Separators have received EWG design approval and are approved for primary EWG calibration
- OIML and EC-Certificates are available
- according to Pressure Equipment Directive (97/23/EC)

Technical data

- DN 25 to 400
- up to 20 mPas
- up to 25,000 l/min
- up to PN 50

BOPP & REUTHER
MESSTECHNIK

STRAINERS FOR THE CHEMICAL INDUSTRY

STRAINERS FOR THE CHEMICAL INDUSTRY

Application

To avoid measuring errors and damage caused by solid particles contained in the medium.

Reliability

- the strainer can be completely drained using the drain valve at the lowest position of the strainer and the conical design of the device (only cast strainers)

Special features

- low pressure loss because of large filtration area (up to 16 times larger than the pipeline cross section)
- according to Pressure Equipment Directive (97/23/EC)
- customized Design

Technical data

- DN 15 to DN 400
- -200°C to +300°C
- up to 3,000 m³/h
- up to PN 100

Strainer NC
welded design

BOPP & REUTHER
MESSTECHNIK

SYSTEMS ENGINEERING

URS 09

T.O.K.A

Besides sensors, our group also provides systems engineering services, ranging from consultation services to detailed engineering, construction supervision and commissioning, providing full support for all your questions. Later on you can benefit from our after-sales service to the extent that is required.

Loading systems

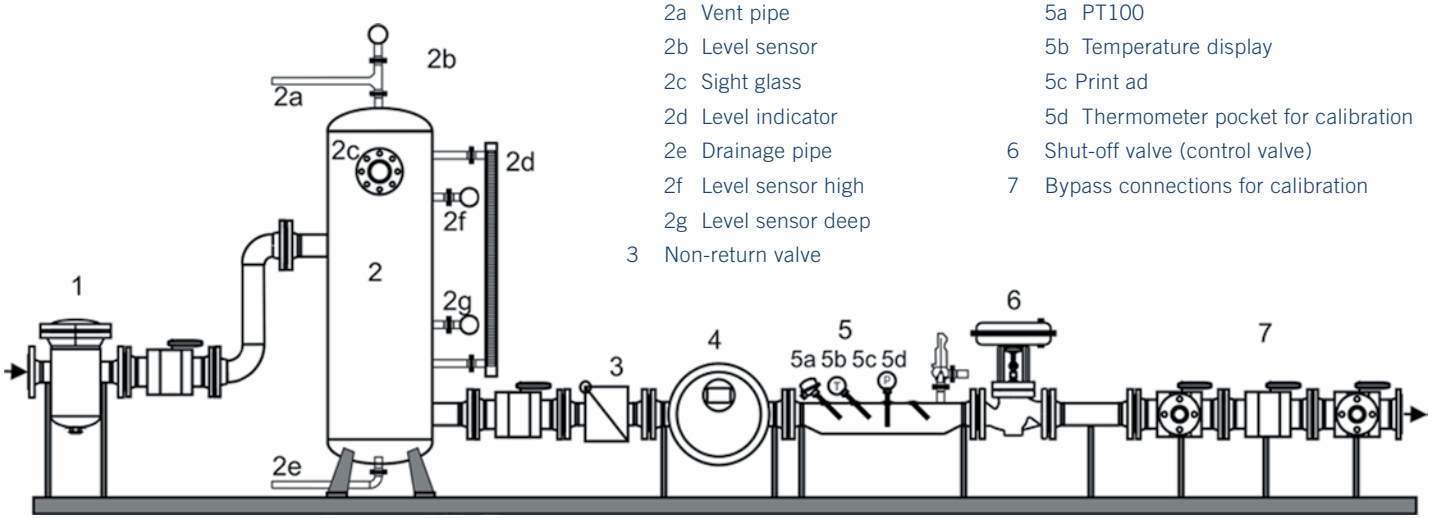
- for oil and chemistry industry
  -tank truck loading
  -rail tank cars
  -marine loading and unloading systems
  -tank farm management
- fiscal metering
- customer and vehicle data management
- interface to higher-level systems (e.g. SAP)

Testing and calibration equipment

- for all flow meters and volume meters
- inspection cycles
- master meter test equipment
- calibrated tanks
- stationary and mobile versions
- equipment for calibration and inspection authorities
- skid-mounted units for field service operation
- automatic sequencing and report generation

SERVICE

SERVICE



1 Strainer
2 Centrifugal gas separators
- 2a Vent pipe
- 2b Level sensor
- 2c Sight glass
- 2d Level indicator
- 2e Drainage pipe
- 2f Level sensor high
- 2g Level sensor deep

3 Non-return valve
4 Oval wheel meter
5 Instrument tube
- 5a PT100
- 5b Temperature display
- 5c Print ad
- 5d Thermometer pocket for calibration

6 Shut-off valve (control valve)
7 Bypass connections for calibration

The complete solution from one source:

As a competent manufacturer of complete measuring systems for liquids other than water, which fulfil the MID Directive (2004/22/EC), we have received the required design certificate. Our quality management system is approved according to the MID / module D by PTB.


Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

PTB

Zertifikat
Certificate

über die Anerkennung eines Qualitätsmanagementsystems
nach EG-Richtlinie 2004/22/EG Anhang D

Our services include:

- MID site consulting
- determination of requirements
- applications with the PTB
- design, construction, commissioning and calibration of the measuring system
- conformity assessment
- conformity declaration and generation of the required documentation

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