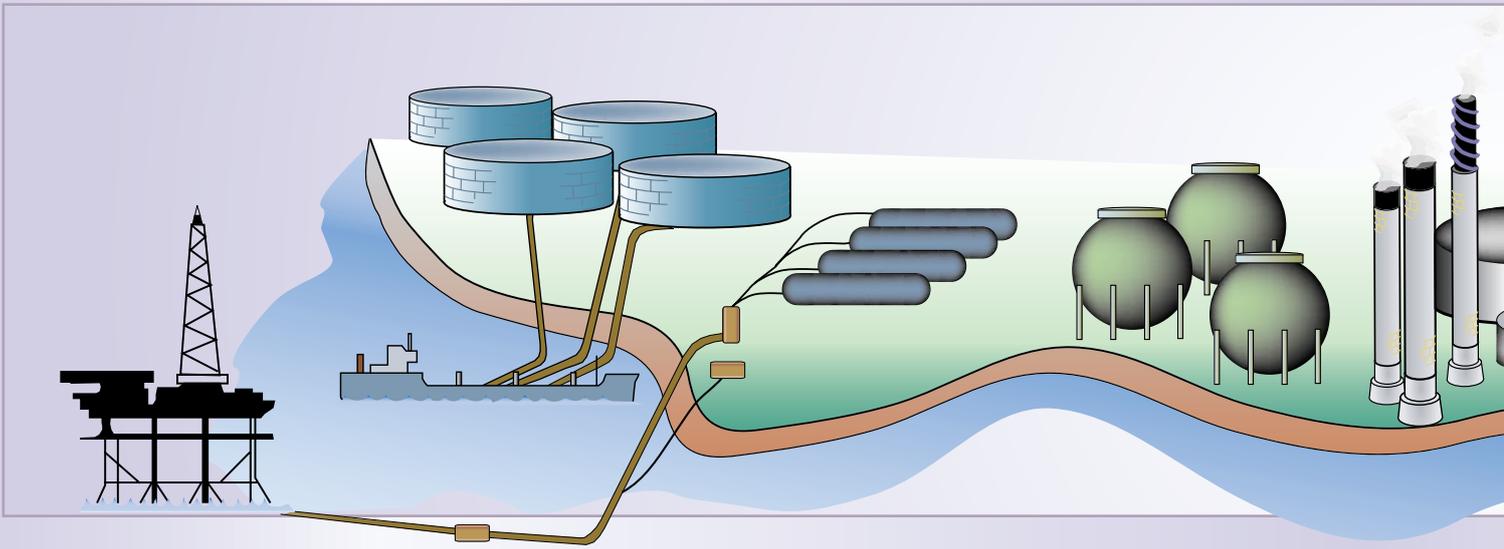


*process measurement solutions*



# The oil, gas and chemical industry capability catalogue





## Production

### Offshore and onshore

**Application**

- Alarm and shutdown duties
- High temperature flow and level
- Gas & hydrocarbon flow & discharge
- Interface detection

- Gas and liquid flow indication
- Contents indication
- Drilling mud pit levels
- Failsafe level alarms
- Fire pump test flow
- Water injection flow
- Oil/Water separators
- Fiscal and allocation metering
- Drilling mud control

**Product**

- Float and displacer level switches in chambers
- HART/Smart DP pressure transmitters
- Turbine flowmeters, averaging pitot flowmeters
- Ultrasonic & displacer switches, densitometers, flow computers
- Rotameter variable area flowmeters
- Level gauges
- Ultrasonic non-contact level meters
- Electropulse self-checking ultrasonic systems
- Averaging pitot flowmeters
- Averaging pitot flowmeters
- Displacer level transmitters
- Flow computers, liquid and gas densitometers
- Insertion liquid densitometers



### Storage

**Application**

- Fixed and floating roof level alarms
- Level measurement with remote seals
- Ullage and interface level
- Pipelines, flow balancing
- Water condensate detection
- Bund level detection
- Process storage

**Product**

- Float and displacer level switches, radar level transmitters
- Pressure transmitters
- Gauging tapes
- Averaging pitot flowmeters
- Interface sensors and float level switches
- Ultrasonic level switches
- Ultrasonic radar level measurement



### Transportation

**Application**

- HFO engine control
- High level 95% / 98% cargo alarm
- Bilge level alarms, fuel tanks
- Cargo contents
- Steering gear oil levels
- Tanker loading

**Product**

- Viscometers
- Electropulse failsafe and self-checking high level systems
- Float level switches
- Hydrostatic level transmitters
- Ultrasonic level switches
- Fiscal flow computers & liquid density meters



### Gas reception facility

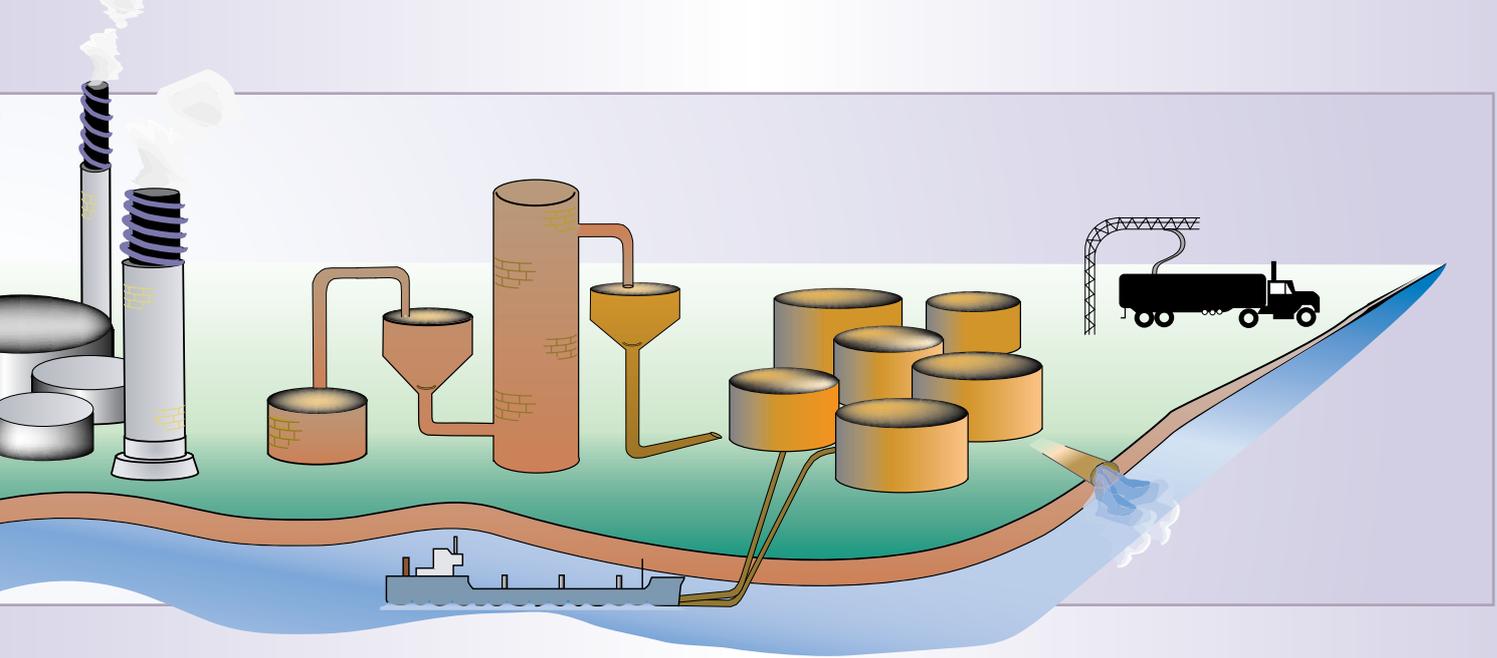
**Application**

- Condensate and methanol level alarm
- Gas flowmetering
- Flow indication
- Liquid level alarms
- Interface detection
- Liquid level indication
- Fiscal metering and proving

**Product**

- Float and displacer level switches
- Averaging pitot flowmeters
- Rotameter variable area flowmeters
- Electropulse fail-safe ultrasonic sensors
- Ultrasonic sensors and controls
- Level gauges
- Gas density transducers & flow computers





## Refining

### Refining

#### Application

Flow and level measurement  
High and low level alarms  
Tank contents

Gas and steam flow measurement  
Cooling water and effluent flow  
Hydrocarbon flowmetering  
Tank level indication  
Burner fuel oil control

#### Product

Differential pressure transmitters  
Displacer and float switches in chambers  
Non-contact ultrasonic level meters, radar level transmitters  
Insertion density meters  
Primary flow elements, averaging pitot flowmeters  
Ultrasonic time of flight flowmeters  
Ultrasonic time of flight and variable area flowmeters  
Hydrostatic level transmitters and level gauges  
Viscometers

### Environmental

#### Application

Effluent discharge  
Screens, weirs and flumes  
Effluent storage tanks  
Overfill prevention  
Flare stack monitoring  
Effluent blanket detection  
Water/chemical interface detection

#### Product

AC600 ultrasonic time of flight flowmeter  
Non-contact level and flow meters  
Ultrasonic level measurement  
Self-checking and failsafe ultrasonic level detection  
Averaging pitot flowmeters  
Sludge density meters, interface sensors and controllers  
Interface point sensors

### Chemical works

#### Application

Fine chemical & pharmaceutical  
Intermediate storage  
Tank farms  
Overfill alarm  
Processed steam

#### Product

Hygienic ultrasonic and vibrating fork level switches  
Ultrasonic level transmitters with multiplexing option  
Ultrasonic level meter, radar level transmitters  
High level fail-safe ultrasonic point level switches  
Pressure transmitters, averaging pitot flow sensors, primary flow elements  
Variable area and time of flight flowmeters  
Boiler water level control  
Hydrostatic level gauges, Radar, ultrasonic level

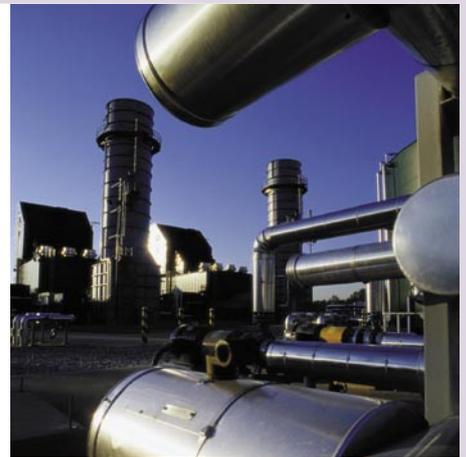
### Distribution, final storage

#### Application

High and low level control  
Flow  
Solids level  
Tank contents  
Tanker loading, custody transfer  
Interface detection

#### Product

Tuning forks and float switches  
Contact and non-contact ultrasonic flowmeters  
Radar level  
Smart level transmitter for tank farm multiplexing  
Flow computers & densitometers  
Densitometers



NACE - Material certification BS EN10204 3.1B - NDT - Duplex, Hastelloy, Monel - Intrinsically safe - Explosionproof - Failsafe high/low level - Self checking - Epoxy paint finish - High temperature 400°C - High pressure duties ANSI#2500 - Quality control plans - Full inspection facilities



#### Mobrey magnetic float level switches & chambers

- Simple, rugged and reliable to give alarms in the most arduous environments up to 400°C & 153 bar
- Choice of vertical or horizontal design
- Used throughout the industry for many years
- Glandless for safety and minimum maintenance
- Materials of manufacture chosen specifically to meet the needs of the industry
- Flameproof or intrinsically safe



#### Displacer level transmitter

- Level, contents or interface duty
- 2 Wire 24V dc loop powered
- 4-20mA output
- HART digital communications
- Hazardous area certification
- Fast and simple calibration
- Non-interactive zero and span
- Direct or external chamber mounting
- Optional local indicator
- Range to 3m, longer on request
- Pressure and temperature to 200 bar and 300°C



#### Hydrastep electronic gauging system

- Fail-safe and fault tolerant
- Fault indication on all displays
- Zero maintenance
- Local & remote displays
- Exceptional reliability
- Approved by insurance companies
- No missed incidents



#### Density transducers

- High accuracy and resolution
- Continuous measurement
- Fast response
- Intrinsically safe
- Long term stability



#### Viscometers

- On-line real time dynamic & kinematic viscosity
- Low maintenance
- Field proven



#### Hydrostatic level transmitters

- Flush mount ceramic sensor in tough 316SS body
- 2 Wire 24V dc loop powered
- 4-20mA output proportional to level and contents
- Unaffected by difficult, arduous ullage conditions
- Wide range of mounting options includes IP68 submersible model
- Certified for use in zone 0 hazardous areas
- Site adjustable SG compensation
- Self powered versions



#### Intelligent pressure transmitter

- Simple calibration and maintenance
- Wide rangeability
- Configurable outputs
- Flow totalisation
- Multi-function display
- 4-20mA output and HART digital comms
- PID control capability
- In-built flow profiles



#### Level gauge

- Reliable, accurate, robust
- Materials: stainless steel, PVC, PVDF, PTFE
- Continuous indication
- Flaps or slider indication
- External side or top mounting
- DIN / ASA flanges
- Suitable for toxic liquids
- Shockproof
- Alarm switch option
- 4-20mA output option



#### Rotameter variable area flowmeters

- Extensive range of glass and metal tube models
- High pressure models available
- Alarm and re-transmission
- Exotic materials on request

NACE - Material certification BS EN10204 3.1B - NDT - Duplex, Hastelloy, Monel - Intrinsically safe - Explosionproof - Failsafe high/low level - Self checking - Epoxy paint finish - High temperature 400°C - High pressure duties ANSI#2500 - Quality control plans - Full inspection facilities

#### Ultrasonic point level and interface detection

- ▶ Failsafe, self-checking ultrasonic level switch systems
- ▶ High or low level fail-safe
- ▶ Integral hygienic model with Tri-Clover fitting
- ▶ Chemical/water interface detection
- ▶ Low maintenance, no moving parts
- ▶ 2 Wire systems for maximum signal integrity
- ▶ Models for low and high temperature applications
- ▶ Wide range of purpose designed sensors with remote or integral electronics

#### Temperature measurement and control

- Reliable measurement and control of temperature for safe and efficient manufacturing
- ▶ Complete assemblies with a range of terminal heads including digital mounts, RTD's and multipoints
  - ▶ Explosion proof, intrinsically safe and weatherproof applications

#### Ultrasonic flowmetering

- The AC600 clamp-on flowmeter is used to determine the flowrate of liquid media in closed pipes
- ▶ Easy to install
  - ▶ No pipeline downtime
  - ▶ Non-intrusive, non-contact
  - ▶ Suitable for pipe diameters between 10mm and 6.5m
  - ▶ Up to 4 flow channels

#### Flow computers

- ▶ Liquid and gas single and multistream applications
- ▶ Automatic product detection
- ▶ Transactions and batching
- ▶ Report generation
- ▶ International standards: ISO, AGA, API, NMI, S-GERG



#### Ultrasonic level transmitters and control systems

- ▶ 2 Wire 24V dc loop powered transmitters up to 12m range
- ▶ Reference accuracy +/- 3mm
- ▶ Resolution +/- 1.6mm
- ▶ Contents measurement displayed may be in any units, easily programmed by the customer.
- ▶ 4-20mA output
- ▶ Control systems with 5 relay outputs: Relays and current are field programmable
- ▶ Certified for use in Zone 0 hazardous areas
- ▶ Wall and panel mount control units
- ▶ HART digital comms

#### Radar level transmitters

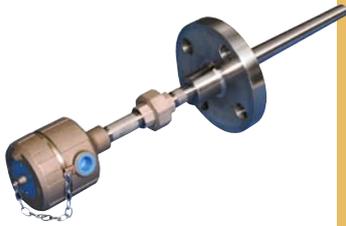
- ▶ Low cost installation
- ▶ Fast and simple set-up
- ▶ Reliable and repeatable measurements
- ▶ Suitable for use in hazardous areas  
ATEX II 1/2G EExd IIC T6  
ATEX II 3G EEx na II T5

#### Primary flow elements

- ▶ Orifice plates and flanges
- ▶ Meter runs
- ▶ Classical venturis
- ▶ ASME PCT6 nozzles
- ▶ Dall tubes

#### Averaging pitot flowmeters

- ▶ Low permanent pressure loss resulting in significant energy savings
- ▶ Any pipe size from 12mm to 2000mm
- ▶ Accuracy +/-1% of rate maintained over a flow turndown of greater than 10 to 1
- ▶ Bi-directional flow sensing
- ▶ Steam flow monitoring in the boiler house
- ▶ Gas flow measurement
- ▶ Use with 4301 intelligent pressure transmitter



Solartron Mobrey equipment is proven in the field by users including:



ADNOC	ICI
AGIP	JGC Corporation
AMEC Engineering	JP Kenny
Amerada Hess	Kala
Amoco	MW Kellogg
Aramco	Kvaerner
Astra Zeneca	Lindsay Oil Refinery
BASF	McDermott Engineering
Babcock	Marthon Oil
Badger Catalytic	Merck Sharp & Dohme
Bechtel UK	Mobil Oil
British Gas	NIOC
BP	NNPC
Brown & Root	Nissia-Sangyo
John Brown Engineering	Nuovo Pignone
Carless Refining	Ralph M Parsons
Chevron Petroleum	Petrofina UK
Chiyoda Corporation	Phillips Petroleum
Ciba Geigy	La Porte
Conoco	Rhodia
Costain Engineering	Rhone Poulenc chemicals
Davy McKee	Roche Products
Dow Chemicals	Shell UK
Elf Oil	Smith Kline Beecham
Esso Petroleum	Snamprogetti
Ewbank Preece	Statoil
Exxon Chemical	Stone and Webster
Flour Daniel	Synthomer
Foster Wheeler	Technipetrol
Glaxo Group	Texaco
Global Engineering	Tioxide Europe
Gulf Oil	Total Oil
Hamilton Oil	Wimpey Engineering
Hoechst UK	Wood Group

Solartron equipment is approved by international certifying authorities including:



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