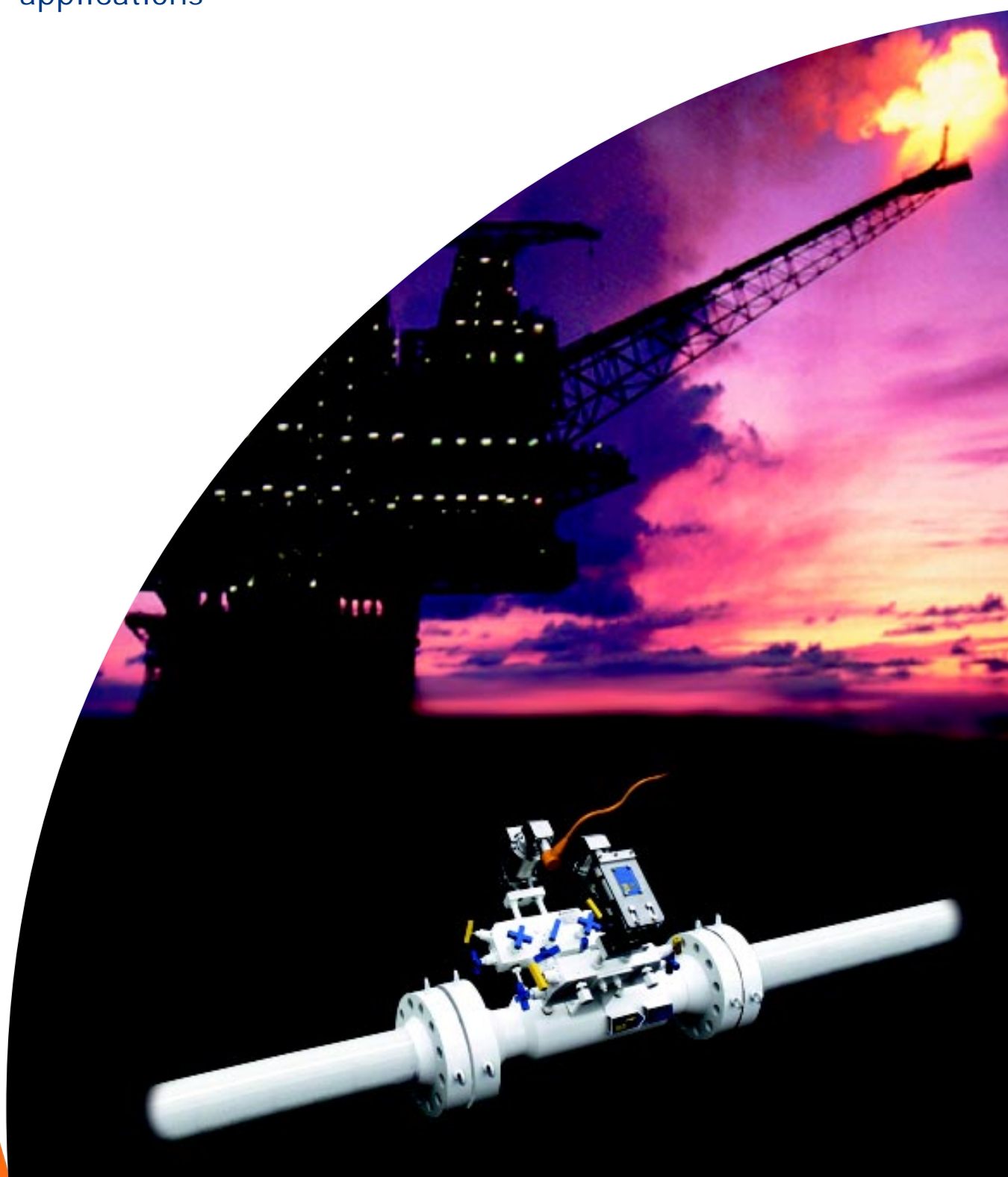


oil & gas measurement solutions



Solartron ISA flow measurement

the Seastream solution for subsea metering
applications



ISA Experience and innovation... ...Proven subsea flowmetering technology

Fit and forget technology at its best

The Seastream flowmeter has been specifically developed for subsea injection metering applications, including water injection, methanol injection and gas lift. Seastream units are installed in over 150 locations in the North Sea and play a key role in efficient well management, helping operators to optimise recovery from marginal fields.

Combining classical design with modern technology, the Seastream flowmeter is based on a venturi tube. ISA can offer gas or liquid flow testing to determine the actual venturi discharge coefficient, thus reducing the uncertainty of the venturi.

In addition, ISA's experience in detailed engineering ensures high integrity welding and correct sealing of the manifold and valve connections. This, combined with the natural shape of the venturi, gives operators access to a uniquely reliable and accurate metering system.

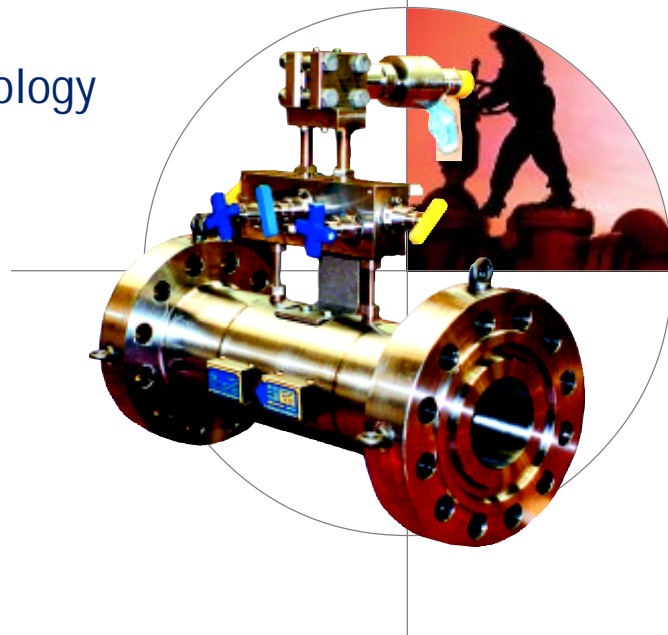
- ▶ Design and manufacture of the highest standards produce low maintenance costs and high reliability, with a product life span of 20 years.
- ▶ Energy efficient, with a very low permanent pressure loss
- ▶ Shorter upstream and downstream straight pipe lengths compared to orifice.
- ▶ User friendly operation, including ROV/diver operable isolating manifold.
- ▶ Combined engineering, software and hardware advances affords easy operation and management, with a metering system accuracy of better than $+ 1\frac{1}{2}\%$ uncalibrated or 1% calibrated.
- ▶ Real-time information display via topside computer allows fast decision making.
- ▶ Choice of inlet/outlet process and instrument manifold designs

Quality control

ISA works to a quality assurance system approved by Lloyds to ISO 9001, EN29001, and BS5750 Part 1.

The company manufacturers to a comprehensive range of standards relating to flow and temperature. Seastream is designed and manufactured to meet the following:- ISO 5167, ISO 5168, ISO 9001, API 6A, API 17D, API 14E, ASME VIII, ASME IX, SI 913, NACE MR-01-75, BS EN 10204.

Each subsea Seastream flowmeter is metrologically examined by the Quality Assurance department prior to customer inspection. The throat bore and internal pipe diameter together with the positions of the differential pressure tapings are carefully recorded on the ISA metrology report sheet. This provides a detailed record of the physical properties of the flowmeter which can be used for third party audit purposes after the metrology has been deployed subsea.





The Seastream flowmeter is subjected to rigorous pressure containment tests in accordance with API 6A and API 17D PSL 3 or 4 prior to leaving the factory. The Seastream can be calibrated to obtain an actual co-efficient of discharge of the meter as an option. Discharge coefficient uncertainties of better than +0.5% can be achieved on gas applications and down to +0.2% on liquid applications.

Manifold Options

Seastream offers a wide range of options on instrument manifold and DP cell configurations.

Process End Connections

API 6BX OR 17SS flanges up to 20,000 psi
 Hub clamp connectors
 ASME RTJ flanges up to class 2,500

DP Tapping Connections

Butt weld
 High pressure fittings (60,00 psi)
 Hub connections
 RTJ connections

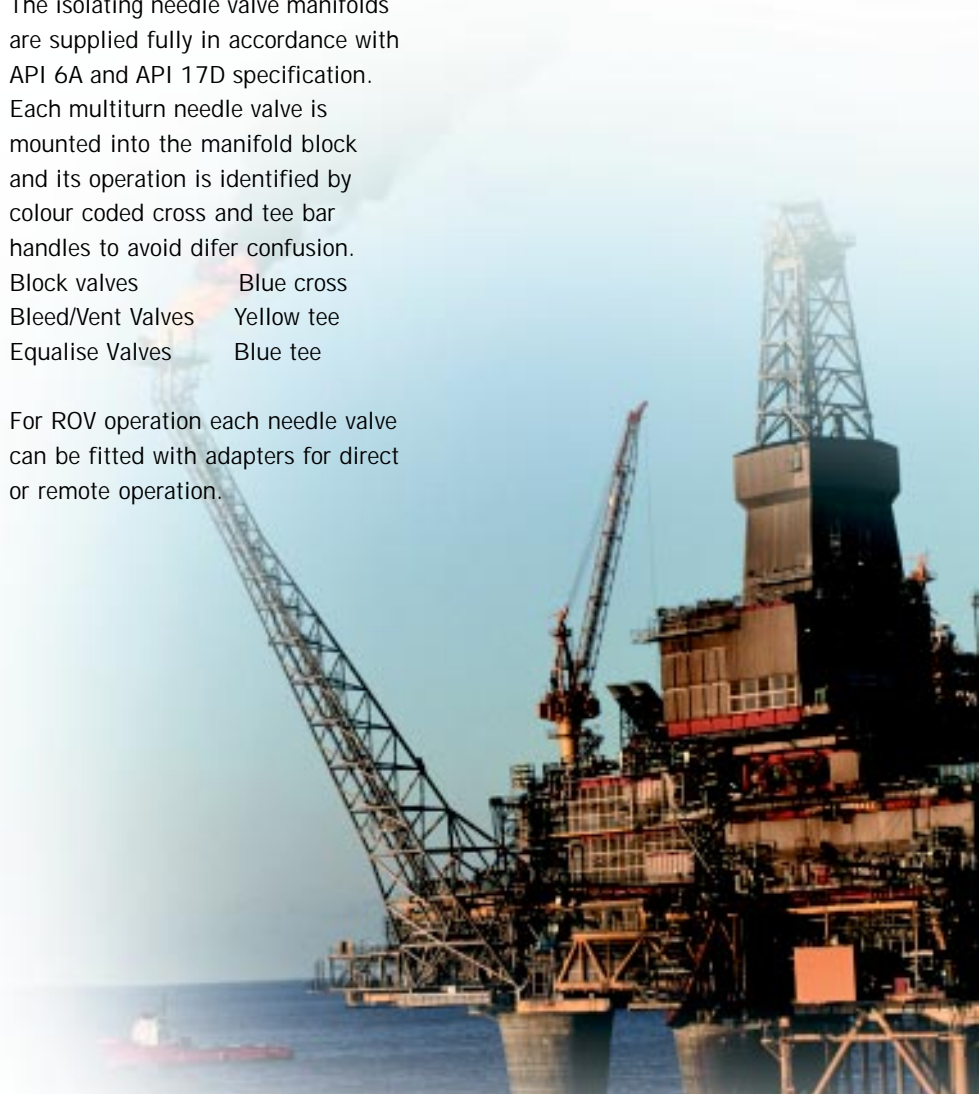
Other connections are available on request.

The isolating needle valve manifolds are supplied fully in accordance with API 6A and API 17D specification.

Each multiturn needle valve is mounted into the manifold block and its operation is identified by colour coded cross and tee bar handles to avoid difer confusion.

Block valves	Blue cross
Bleed/Vent Valves	Yellow tee
Equalise Valves	Blue tee

For ROV operation each needle valve can be fitted with adapters for direct or remote operation.



Solartron ISA has a worldwide network of distributors:



Abu Dhabi	China	Germany	Ireland	Mexico	Poland	Switzerland
Argentina	Colombia	Ghana	Italy	Morocco	Portugal	Taiwan
Australia	Croatia	Greece	Japan	Myanmar	Qatar	Thailand
Austria	Cyprus	Holland	Jordan	New Zealand	Romania	Turkey
Bahrain	Czech	Hong Kong	Kenya	Nigeria	Russia	UAE
Belgium	Denmark	Hungary	Korea	Norway	Saudi Arabia	USA
Bolivia	Dubai	Iceland	Kuwait	Oman	Singapore	Venezuela
Brazil	Egypt	India	Malawi	Pakistan	South Africa	West Indies
Canada	Finland	Indonesia	Malaysia	Peru	Spain	Zimbabwe
Chile	France	Iran	Mauritius	Philippines	Sweden	

Solartron ISA

Hackworth Industrial Park, Shildon,
County Durham, UK, DL4 1LH
Tel: 01388 773065
Fax: 01388 774888
Email: sales@solartronisa.com

Solartron Inc.

19408 Park Row, Suite 320
Houston
Texas 77084-4860
USA
Tel: (281) 398 7890
Fax: (281) 398 7891
Email: sales@solartron.com

www.solartronisa.com

Solartron Mobrey Ltd

158 Edinburgh Avenue, Slough, Berkshire, UK SL1 4UE
Tel: + 44 (0) 1753 756 600 Fax: + 44 (0) 1753 823 589
Email: sales@solartron.com

Solartron Mobrey GmbH	Deutschland	tel: 0211/99 808-0
Solartron Mobrey Ltd	China	tel: 021 6353 5652
Mobrey sp z o o	Polska	tel: 022 871 7865
Solartron Mobrey AB	Sverige	tel: 08-725 01 00
Mobrey SA	France	tel: 01.34.30.28.30
Solartron Mobrey SA-NV	Belgium	tel: 02/465 3879
Solartron Mobrey	USA	tel: (281) 398 7890



a Roxboro Group company