

Roxar Multiple Element Sand/Erosion Probes

High sensitivity, fast response



Sand and Erosion Control for Topside and Onshore Applications

Sand/Erosion monitoring is important for controlling piping and process equipment integrity in petroleum production, and for allowing controlled optimization of production rates.

Predicting sand flow and distribution can be challenging. This is the background for Roxar's unique multiple element probe penetrating through the pipe diameter for maximum probability of detecting the actual sand flow. In addition, multiple elements provide redundancy and information about how sand flow is distributed in the pipe. Please consult Emerson/Roxar for advice on probe positioning.

The measurements are based on measuring the resistance in the probe's elements, which are facing the flow at an optimum angle. When exposed to sand particles, the resistance in the measurement element increases due to sand erosion, therefore sand erosion and sand erosion rates can be calculated.

Roxar Sand/Erosion Probes are available with 4, 3 and 2 elements, depending on pipe diameter and flow conditions. A reference element is placed on the back side of the probe, compensating for temperature changes. An optional reinforced probe design is available for high velocities in order to ensure proper mechanical performance.

When used with Roxar's SandLog range of instruments excellent resolution is achieved. While instrument resolution is 24 bit, actual accuracy can be down to 5 nanometer (5×10^{-9} meter). The excellent accuracy allows detection of a sand production incident, corrective action and verification before incident could have been identified by other measurement technologies.

For optimized information and redundancy, it is suggested that multiple elements sand/erosion probes are used in parallel with non-intrusive sand detectors, such as Roxar SAM System. Combined with Roxar's Fieldwatch software, it generates the most comprehensive sand detection and management solution available. Roxar also offers combined sand/erosion and corrosion probes; please consult us for advice about products and applications.

Model Code Selector - Multiple Element Sand / Erosion Probes

Model	Product Description
THSMPR	Sand/Erosion Monitoring Probe
Code	Pipe Size
1	3" Pipe, 2 Elements
2	4" Pipe, 2 Elements
3	5-6" Pipe, 3 Elements
4	6" Pipe, 4 elements
5	8-10" Pipe, 4 Elements
6	12" Pipe, 4 Elements
Code	Probe Body Type
01	Standard Design
02	Reinforced Design, Fixed Length for Access Fitting Flareweld
03	Reinforced Design, Fixed Length for Access Fitting Flanged MECH \leq 300#, HYD \leq 1500#
04	Reinforced Design Fixed Length for Access Fitting Flanged MECH \geq 4/600#, HYD 2500#
99 ¹⁰	Other Design
Code	Probe Body Material
2C6A	Stainless Steel A 479 Gr. 316L, bar EN 10204 3.1 NACE MR0175
2D6A	Duplex A 276 / A 479 UNS S31803, bar EN 10204 3.1 NACE MR0175
2C6C	Stainless Steel A 479 Gr. 316L, bar EN 10204 3.1 NACE MR0175 NORSOK M630 MDS S01
2D6C	Duplex A 276 / A 479 UNS S31803, bar EN 10204 3.1 NACE MR0175 NORSOK M630 MDS D47
9X9X ¹⁰	Project Specific Material
Code	Element Thickness and Material
1M	150 micron, Monel 400
3M	300 micron, Monel 400
5M	500 micron, Monel 400
1D	150 micron, Duplex
2D	300 micron, Duplex
3D	500 micron, Duplex
99 ¹⁰	Other Element Material and/or Thickness
Code	Probe Length
L124 ^{1,7}	Standard length for Flareweld fittings, Standard Design
L146 ^{2,7}	Standard length for Flareweld fittings, Standard Design
L173 ^{3,7}	Standard length for Flareweld fittings, Standard Design

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L193 ^{4,7}	Standard length for Flareweld fittings, Standard Design
L244 ^{5,7}	Standard length for Flareweld fittings, Standard Design
L336 ^{6,7}	Standard length for Flareweld fittings, Standard Design
L138 ^{1,8}	Standard length for Flareweld fittings, Reinforced Design
L160 ^{2,8}	Standard length for Flareweld fittings, Reinforced Design
L187 ^{3,8}	Standard length for Flareweld fittings, Reinforced Design
L207 ^{4,8}	Standard length for Flareweld fittings, Reinforced Design
L258 ^{5,8}	Standard length for Flareweld fittings, Reinforced Design
L350 ^{6,8}	Standard length for Flareweld fittings, Reinforced Design
LXXX ⁹	Calculated length for flanged fittings
Code	Factory Options
Z	Standard product
X	ETO product
Code	Certificate, Tests, Calibrations and Services (Not Required, all are optional)
	<u>Dye Penetrant Examination (select any from this group)</u>
D1	Dye Penetrant Test
	<u>Positive Material Testing (select only one from this group)</u>
PM	Positive Material Identification
	<u>Pressure Testing (select any from this group)</u>
PT	10000 psi Test Certificate
	<u>Other testing</u>
TX ¹⁰	Project specific testing

¹ Available only with Pipe Size option 1, 3" Pipe, 2 Elements

² Available only with Pipe Size option 2, 4" Pipe, 2 Elements

³ Available only with Pipe Size option 3, 5-6" Pipe, 3 Elements

⁴ Available only with Pipe Size option 4, 6" Pipe, 4 elements

⁵ Available only with Pipe Size option 5, 8-10" Pipe, 4 Elements

⁶ Available only with Pipe Size option 6, 12" Pipe, 4 Elements

⁷ Available only with Probe Body Type options 01, Standard Design

⁸ Available only with Probe Body Type option 02, Reinforced Design, Fixed Length for Access Fitting Flareweld

⁹ Not available with Probe Body Type option 02, Reinforced Design, Fixed Length for Access Fitting Flareweld

¹⁰ Not Available with Factory Option Z

Specifications - Multiple Element Sand / Erosion Probes

Item	Description
Probe standard material:	According to NACE MR0175
Operating temperature:	Up to 145°C (293°F)
Operating pressure:	Standard: 0 – 420 bar / 0 – 6000 psi Optional: up to 690 bar / 10,000 psi
Mounting:	2" high pressure access system (hydraulic recommended) min. 3" pipe diameter
Accuracy:	10 to 100 ppm of probe element thickness

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