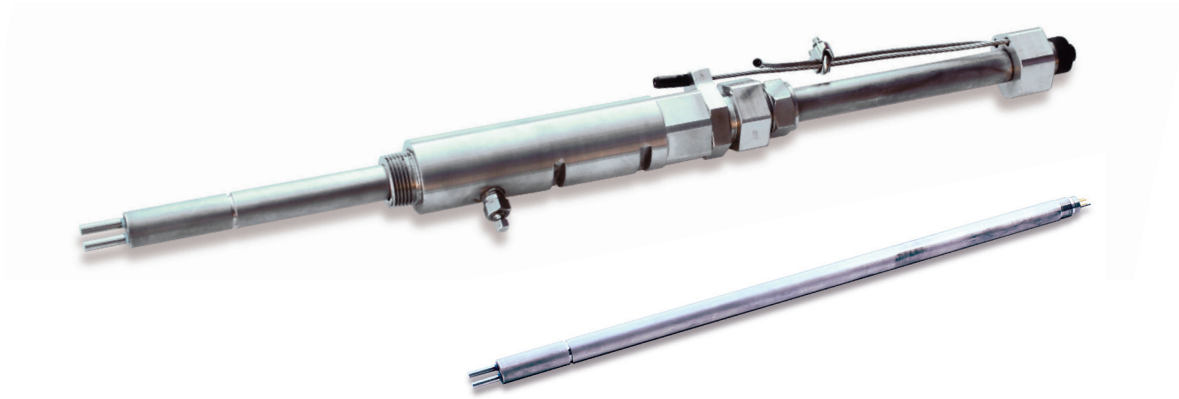


Roxar Linear Polarisation Resistance (LPR) Probes

1" Retractable System



Instantaneous Corrosion Rate Measurements

Linear Polarization Resistance (LPR) is one of the classical methods for internal corrosion monitoring.

The method is based on measuring the current response to a small polarization (10 - 20 mV) to a steel electrode's corrosion potential. Electrochemical theory (Stern-Geary's equations) shows that corrosion rates can be calculated directly from the current response to such small, known polarization, and thus, LPR measurements give an immediate corrosion rate value.

The instant response also makes the LPR Probe suitable for fast detection of oxygen ingress into systems that are assumed to be oxygen free, like water injection systems.

LPR Probe measurements are easy to understand and relate to.

The limitation of the method is that the electrochemical basis for the method requires that a conductive electrolyte (water) is present. For this reason, LPR Probes are mostly used in water systems.

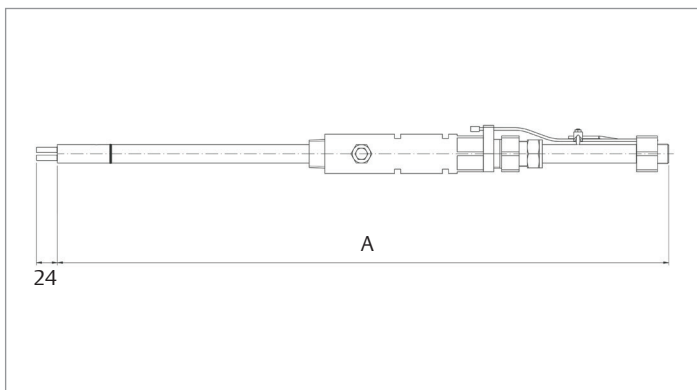
A Retractable LPR Probe assembly comprises the following:

- Retractable LPR Probe
- Pipe connection through a threadolet type fitting or flanged connection.
- Minimum 1" full port valve (optional, often provided by client)
- Packing box
- Safety wire arrangement

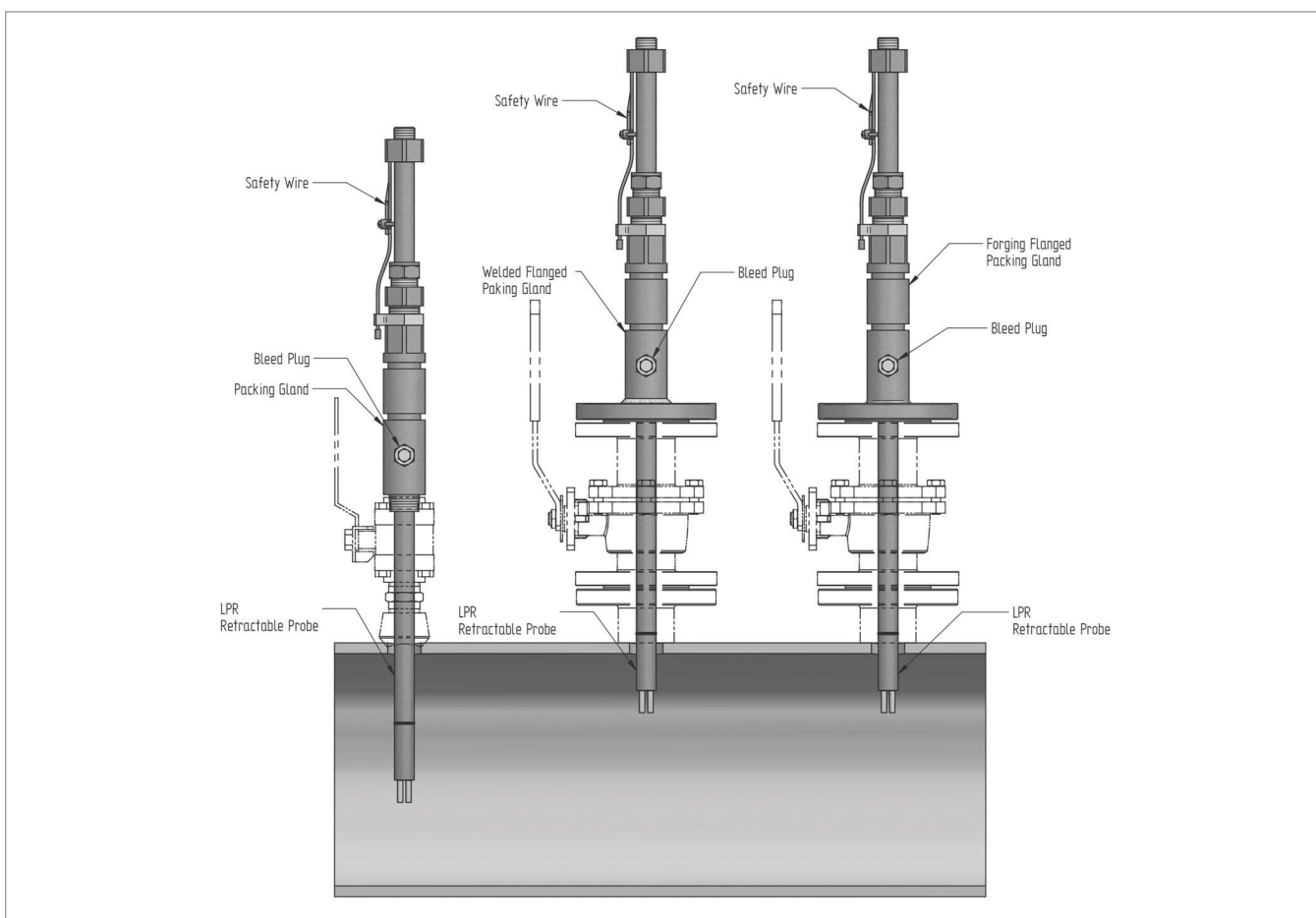
In addition to the safety wire, the probe also contains a blow out preventor to ensure that the probe is not accidentally pushed out from its position when installed.

In order to ensure controlled installation and retrieval of probes and coupons, it is recommended that Roxar's Retractor Tool is always used.

Quality of information and measurement accuracy depend on measurement frequency and instruments used. For best results, it is recommended that Roxar Retractable LPR Probes are used with Roxar CorrLog or Roxar CorrLog Wireless instruments, covering a wide range of configuration options.



LPR - Retractable Probe 1"		
Order length	A Dimension	
	Inches	mm
18	21.7	549
24	27.7	702
30	33.7	854
36	39.7	1007



Typical installation arrangement for retractable LPR Probes. Hatched parts are standard deliveries from Roxar.

General Specifications

Item	Description
Mounting:	1" Full Port Valve (minimum)
Rating:	1500 psi - up to 145 °C/293 °F

Model Code Selector - Retractable LPR Probe

Model	Product Description		
TLCMPR	Retractable Corrosion Monitoring Probe		
Code	Measuring Method		
02	Linear Polarization Resistance		
Code	Probe Body Material		
2C6A	Stainless Steel A 479 Gr. 316L, 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
9X9X ¹	Project Specific Material		
Code	Element Type and Material		
30S	Projected	Double C	Carbon Steel (St52-3N) UNS S355 J2+N
999 ¹	Other Element Material and/or Type		
Code	Probe Length		
L0	18"		
L1	24"		
L2	30"		
L3	36"		
Code	Product Accessory		
A2	Blow out preventer (AISI 316L)	Always included	
Code	Factory Options		
Z	Standard product		
X	ETO product		
Code	Certificate, Tests, Calibrations and Services (Not Required, all are optional)		
	Dye Penetrant Examination (select any from this group)		
D1	Dye Penetrant Test		
	Positive Material Testing (select only one from this group)		
M1	Positive Material Identification		
	Other testing		
TX ¹	Project specific testing		

¹ Not applicable for factory option Z

Model Code Selector - Packing Box

Model	Product Description		
TPACK	Retractable System Packing Box (incl. Safety wire and bleed valve)		
Code	Pressure Rating		
1	Max 1 500 psi Design Pressure		
Code	Process Connection		
50	NPT Male		
60	Flanged 150 lbs RF	ASME B16.5	Socket Welding Flange
61	Flanged 300 lbs RF	ASME B16.5	Socket Welding Flange
62	Flanged 400/600 lbs RF	ASME B16.5	Socket Welding Flange
63	Flanged 400/600 lbs RTJ	ASME B16.5	Socket Welding Flange
70	Flanged 150 lbs RF	ASME B16.5	Integral Flange
71	Flanged 300 lbs RF	ASME B16.5	Integral Flange
72	Flanged 400/600 lbs RF	ASME B16.5	Integral Flange
73	Flanged 400/600 lbs RTJ	ASME B16.5	Integral Flange
99 ¹¹	Other Connection		
Code	Process Connection Size		
A	1"		
B	1,5"		
C	2"		
X ¹¹	Other		
Code	Material Packing Box		
0N0N ¹	Not applicable, same as Material Flange		
0B6A ²	Carbon Steel ASTM A350 Gr. LF2 Cl. 1, bar	EN 10204 3.1 NACE MR0175	
0B6C ²	Carbon Steel ASTM A350 Gr. LF2 Cl. 1, bar	EN 10204 3.1 NACE MR0175	NORSOK M630 MDS C11
2C6A ²	Stainless Steel A 479 Gr. 316L, bar	EN 10204 3.1 NACE MR0175	
2C6C ²	Stainless Steel A 479 Gr. 316L, bar	EN 10204 3.1 NACE MR0175	NORSOK M630 MDS S01
9X9X ¹¹	Project Specific Material		
Code	Material Flange		
0N0N ³	Not applicable		
0B3A ^{4,5}	Carbon Steel ASTM A350 Gr. LF2 Cl. 1, forging	EN 10204 3.1 NACE MR0175	
0B3C ^{4,6}	Carbon Steel ASTM A350 Gr. LF2 Cl. 1, forging	EN 10204 3.1 NACE MR0175	NORSOK M630 MDS C11
2C3A ^{4,7}	Stainless Steel A 182/182M Gr. 316L, forging	EN 10204 3.1 NACE MR0175	
2C3C ^{4,8}	Stainless Steel A 182/182M Gr. 316L, forging	EN 10204 3.1 NACE MR0175	NORSOK M630 MDS S01

Table continued on next page

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9X9X ¹¹	Project Specific Material
Code	Operating Mode and Conditions
S1	Standard Temperature (< 230 °C) PTFE 25% GF Main Seal
S2	High Temperature (>230 °C) Grafoil Main Seal
Code	Product Specific Options
C0	No Coating
C1 ⁹	Roxar Standard Coating for CS with (surface temperature below 120 °C)
C2 ⁹	Roxar Standard Coating for CS (surface temperature above 120 °C)
C6 ¹⁰	Roxar Standard Coating for SS
CX ¹¹	Project Specific
Code	Tag Plates
Z	No Tag Plates
A	Standard Tag plates for 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>
M1 ¹⁰	Positive Material Identification
	<u>Other testing</u>
TX ¹⁰	Project specific testing

¹ Only applicable for Process Connection option 70, 71, 72, 73

² Not applicable for Process Connection option 70, 71, 72, 73

³ Only applicable for Process Connection option 50

⁴ Not available for Process Connection option 50

⁵ Only available for Material Packing Box option 0N0N and 0B6A

⁶ Only available for Material Packing Box option 0N0N and 0B6C

⁷ Only available for Material Packing Box option 0N0N and 2C6A

⁸ Only available for Material Packing Box option 0N0N and 2C6C

⁹ Only available for Material Packing Box option 0B6A, 0B6C and Material Flange 0B3A, 0B3C

¹⁰ Only available for Material Packing Box option 2C6A, 2C6C and Material Flange 2C3A, 2C3C

¹¹ Not available with Factory Option Z

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