

Electrical Resistance (ER) Probe Accessories

PROBE ELEMENT SHIELDS

All loop element Electrical Resistance (ER) and ER Temperature process probes (Models 2600**, 2610**, 3000**, and 4605) require shields to prevent damage to the exposed measuring element. Standard shields may be used in liquid flow rates up to approximately twenty feet per second*, depending on viscosity, particulate matter, element configuration and other factors.

Cylindrical element ER and ER Temperature process probes (Models 2500, 3500, and 4500) may be used without shields in liquid flows up to approximately eight feet per second. However, standard shields are recommended at any velocity up to approximately 25 feet per second, to assure adequate protection of the element. All cylindrical element shields incorporate an element tip support to reduce the possibility of element failure from flow or fatigue.

Retractable ER and ER Temperature probes (Models 3000** and 3500) use removable shields so that the stuffing box may be accessed for maintenance. Since these shields also act as the mechanical stop for the probe in the retracted position, they must be periodically inspected (and replaced if required) to maintain their mechanical integrity. HIGH VELOCITY shields reduce the fluid velocity past the element and allow the probe to be used in more severe environments. Loop element and cylindrical element probes may be used in liquid flows up to approximately 50 feet per second.

COUPON HOLDING shields allow an electrically isolated blade type coupon to be mounted on the end of a loop or cylindrical element probe. This permits simultaneous coupon and ER data accumulation at a single probe location. The velocity limitation for coupon holding shields is the same as for standard shields.

*Velocity limitations for probes in gases are approximately three times the velocities listed for liquids. **Also "G" versions.

PROBE ELEMENT SHIELDS ORDER INFORMATION

Shield Type	Probe Model	Shield
Standard	3000**	030919
	3500	745006-Alloy
	3500HT	745054-Alloy
High Velocity	3000**	030930-8020
	3500	745017-Alloy
	3500HT	745057-Alloy
Coupon Holding	3000**	623001
	3500	745060-Alloy
	3500HT	745058-Alloy

NOTE Shields for Models 3000 and 3500 can be ordered separately. Shields for other Models are an integral part of the probe (usually welded and cannot be ordered separately.)



Typical Probe Element Shields. Coupon holding on the left, High Velocity in the Middle, Standard on the right.

ER Probe Accessories

RETRACTABLE PROBE SAFETY CLAMPS

ER and ER Temperature probes are designed for safe installation and operation in various environments. Where danger of fire, explosion or blowout exists, use of an appropriate safety device should be considered mandatory. This equipment is designed and tested for reliability, using established principles of operation.



Model 3000 probe with Safety Clamp and Safety Clamp by itself.

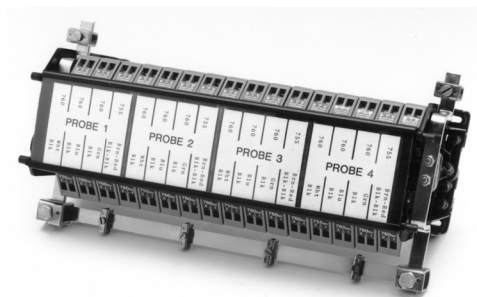
Safety Clamps are **required** at pressures of 100 psi or greater and at temperatures of +150°F or greater. The clamp provides a secondary back-up lock on retractable probes in the fully-inserted position, even during pressure transients. The attached cable gauges the extent to which a probe may be retracted and, if necessary, holds the probe in that position under rated operating pressures. The chart below gives the part number of the clamp assembly according to the probe model number. The length should be the same as the retractable probe length, which increase in 6" increments. Safety clamp threaded rods allow 0-8" of adjustment. Probe safety clamps are reusable and may be retrofitted to a probe in the field if required after retraction of the probe from the system.

SAFETY CLAMP ORDERING INFORMATION

Probe	Safety Clamp Ordering Information
3000, 3000G, 3705	061430 - Length
3500	061431 - Length
3700	061450 - Length

INTRINSIC SAFETY BARRIERS

Electrical Resistance (ER) and ER Temperature instruments and probes are commonly used in areas where there is a risk of the presence of potentially explosive gaseous mixtures. Many of the instruments such as the portable and single channel instruments are designed to be intrinsically safe (i.e. unable to generate a spark or an excessive temperature even under fault conditions). For line powered instruments and probes in an electrically hazardous process environment, it is generally necessary to install INTRINSIC SAFETY BARRIERS to prevent any high energy levels being transferred under fault conditions from the standard ER and ER Temperature electronics to the standard ER or ER Temperature probe. These barriers are available as separate assemblies, or as part of an automated system. For various options to meet appropriate Certifying Authority standards, contact the factory.



Intrinsic Safety Barrier Assembly for four ER or ER Temperature ER probes used in ICMS™ ERSystem.

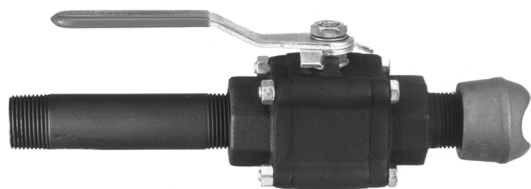
Automatic instruments and safety barriers (such as ICMS™ Probe Interface Modules) may be installed in Division II (Zone 2 areas) or Division 1 (Zone 0 and Zone 1) in an explosive-proof enclosure with safety barrier sets. Contact the factory for further details.

NOTE: The Barrier set for ER Probes has BASEEFA Certification Numbers: System Cert. No. Ex 90C2389X, EExia IIC T4 Probe Cert. No. Ex 90C2388X, EExia IIC T4

ER Probe Accessories

MODEL 60 ACCESS VALVE ASSEMBLY

The Cosasco Model 60 Access Valve Assemblies are designed to allow access to pressurized areas without process shut down.

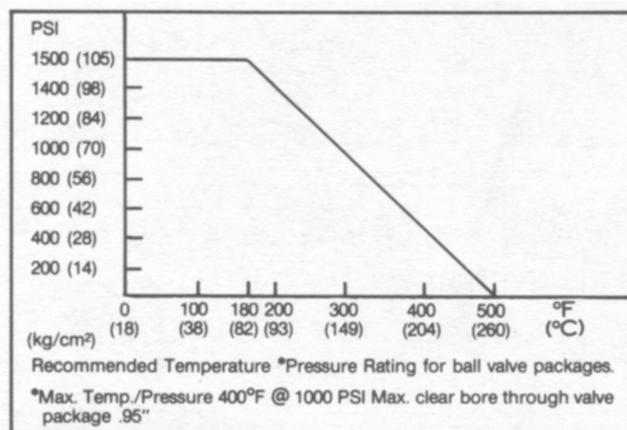


The assembly consists of a Thredolet®, all thread nipple, ball valve and a 5"(*) nipple. The full port ball valve is provided in either a carbon steel or 316 Stainless Steel body, with Polyfill™ seats and Viton™ body seals. All items comply with NACE standard MR0175, for materials resistance to sulfide stress cracking.

The Model 60 Access Valve Assembly accommodates all Cosasco retractable probes. This includes the Standard ER, ER Temperature, LPR, Coupon Holder, Injection Tubes and Hydrogen Probes.

***Note:** A 5" nipple is used as standard and is suitable for all probe elements except coupon holding shields which require a 9" nipple. (For loop element probes a minimum nipple of 3" length may be used. T50 elements require an 11" long nipple [15" long with coupon holder]).

Temperature/Pressure Rating Chart



MODEL 60 ACCESS VALVE ASSEMBLY ORDERING INFORMATION

Order Number	Access Valve Assy.
061500-LL	Carbon Steel with S.S. Trim – 1"
061560-LL	316 Stainless Steel – 1"
061501-LL	Carbon Steel with S.S. Trim – 1 ½"
061551-LL	316 Stainless Steel – 1 ½"

LL= Line Size

HIGH PRESSURE PROBE CONNECTING ADAPTORS

The 4000 Series of ER probes which are installed in the high pressure access fittings require probe connecting adaptors to allow connection to the cables listed below (connecting adaptor has a probe type B connector for cable attachment).

PROBE ADAPTOR ORDERING INFORMATION

Probe Connector Type	Portable Probe Adaptor for use with Handheld Units	Fixed Probe Adaptor for Instruments (2500 psi max.)	Fixed Probe Adaptor for Instruments (10,000 psi max.)
S	028043	028068	745113
C	060913	745046	--

PROBE TO INSTRUMENT CABLES

ER and ER Temperature probe to instrument cables are of vital importance to system performance because of the particularly low level signals inherent in these corrosion measurements. Both the correct cable and careful connection are required for successful operation. These cables are available in a variety of duties, suitable for different service conditions.

STANDARD DUTY CABLE is generally suitable for plant applications and for running through conduit, with a rugged polyurethane outer sheath suitable for temperatures in the range -50°C to +70°C.

LIGHT DUTY CABLE is recommended only for light duty service such as laboratory or similar use.

HEAVY DUTY FIRE-RESISTANT TRAY CABLES are available on a special order basis for plant applications specifying these requirements. Cables and connectors are available separately for site installation as necessary; however, care is required to ensure correct connections.

ER Probe Accessories

Ordering Information

Code	Complete Cable Assemblies	
CBL 1	ER Probe and ER Temperature Probe Cable	
	Code	Probe End Termination
	A	Type A Connector (Model 2000, 2000g, 3000, 3000, 3705) (P/N 032202)
	B	Type B Connector (Model 1032, 1052, 2500, 2520, 2600, 2600g, 2610, 2610g, 2620, 2620g, 3500, 4500, 4604, 4700, 4705) (P/N 032135)
	AE	Type A Environmental Connector
	BE	Type B Environmental Connector
	S	Type S Connector (Model 3700) (P/N 009343)
	1	Atmospheric Probe (Model 600) ⁽⁴⁾
	2	Thin Film Probe (Model 610) (Excluding CK-4 & Corrddata ⁽³⁾)
	3	Thin Film Probe for CK-4 & Corrddata ⁽³⁾ Only
	Code	Instrument End Termination
	0	No Termination (Cut End)
	1	Flying Leads (For IS Barriers)
	2	RCS-8 D Type Connector (P/N 009280-2, 009281-3)
	B	Type B Female Connector (Portable Instruments) (P/N 032165) ⁽⁶⁾
	BE	Type B Female Environmental Connector (Portable Instruments) ⁽⁶⁾
	Code	Cable Type
	0	Standard-Duty ER Cable ⁽²⁾ (P/N 001133)
	Code	Cable Color ^{(2) (5)}
	0	Unspecified
	1	Black ⁽²⁾
	2	Blue ⁽²⁾
	Code	Cable Length
	LL	Specify Length Required. Available in 1 Foot Increments From 1 to 1500 Feet in a Single Continuous Run
CBL 1 — B — B — 0 — 0 — 50 ← Example		

NOTE

- Minimum order quantity of 1000 ft. applies.
- Standard duty and heavy duty cable is available with blue or black color outer jacket. The Company reserves the right to use either color cable on a particular order depending upon availability. Colors will not be mixed on any order. If a particular color is required please specify the appropriate dash number as follows:
 - 1 Black Jacket
 - 2 Blue Jackets (Identification of Intrinsic Safety Circuits)
 If you specify a color as above, pricing is unchanged but delivery may be longer. Contact factory for details.
- Connections must be made in the factory because additional components are required for connection of Model 610 probes to automatic instruments.
- Also suitable for use as an extension cable for connection the Model 610 probe to the Model CK-3 portable instrument only.
- Color option is not available for limited duty cable. It is furnished as grey only.
- Extension cables are not recommended for use with ICMS™ and CORRDATA® Systems because connections have only 6 pins. The cable requires 8 conductors from the probes all the way to the instrument for proper performance.

Cosasco
 11841 Smith Avenue
 Santa Fe Springs, CA 90670, USA
 Tel: 1-562-949-0123
 Email: sales@cosasco.com
 Web Site: www.cosasco.com

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Rohrback Cosasco Systems Corrosion Monitoring Equipment is manufactured and sold under one or more of the following US Patents: 4138878, 4238298, 4338563, 4514681, 4537071, 4587479, 4605626, 4625557, 4755744, 4839580, 4841787, 4882537 5243297

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