

# I-LEAD Encapsulated Motor Lead Extension (MLE)



## Reduce the risk of electrical failures in harsh conditions

The SPECTRUM ADVANCE I-LEAD™ (Patent Pending) is an encapsulated motor lead extension (MLE), developed to increase ESP run life in harsh, high pressure oilfield environments.

The I-LEAD incorporates a more robust motor lead design that protects the cable from sour gas ingress in corrosive, high pressure environments.

## Direct motor connection to eliminate potential leak paths

The plug in style I-LEAD connects directly into the motor terminals in the Universal Motor Head (UMH) power adapter. Each solid copper conductor is insulated with Polyether Ether Ketone (PEEK) and housed in a seamless Monel tube that eliminates the potential leak path present in welded alternatives.

Metal to metal sealing faces from the packer through to the motor head replace elastomers that are susceptible to high partial pressure H<sub>2</sub>S. Internally, Aflas elastomers are used exclusively to accommodate high temperature applications and pressure equalization is achieved via pressure balance holes on each individual tube that allows communication with the UMH as the unit is run in hole.

## Reduced risk of pothead and MLE failures

For applications with a history of repeated pothead/MLE failures, the design features of the I-LEAD minimizes, and offers enhanced protection against, the heat build up seen during ESP operation. Separation of the phases allows for greater dissipation of heat and additional cooling, minimizing any voltage imbalances between the phases, associated electrical stress and breakdown of insulation integrity.

The SPECTRUM ADVANCE I-LEAD allows for straightforward installation, minimizing rig time and offering greater mechanical protection to the cable system while running in hole and is available in a number of metallurgies to suit all application requirements.

## APPLICATIONS

- Offshore & Onshore ESP installations
- High value wells
- High partial pressure H<sub>2</sub>S, CO<sub>2</sub> wells
- Hot environments
- Designed for 7" casing or larger

## BENEFITS

- Longer ESP run life
- No electrical connections below packer
- Better ROI for harsh wells
- Improved reliability – reduced work overs, deferred production
- Reduced rig time: quick, simplified field installation
- Pressure Balance Holes allow communication between UMH and tubes to avoid pressure build up

## FEATURES

- Three 3/8" OD, seamless Monel encapsulated phases
- 4 AWG solid copper conductors
- Polyether Ether Ketone (PEEK) insulation, rated up to 500°F (260°C)
- Specially designed Universal Motor Head power adapter
- Metal to metal sealing faces
- High temperature Aflas elastomers in UMH
- Plug in style terminal connections
- Available for 560 Series CT motors
- Various tube lengths available, 30' (9.1m) up to 800' (243.8m)
- Metallurgy dependent on application: Inconel, Monel, carbon steel with Monel coating, Stainless Steel 316, Super Duplex options available

SERIES  
**560**

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## SPECIFICATIONS

Series	560
Conductor material	4AWG solid copper
Max voltage, V	5,000
Temperature range, °F (°C)	450 (232)
Conductor insulation, in (mm)	0.076 (1.922) PEEK
Barrier, in (mm)	0.035 (0.889) Monel

## METALLURGY OPTIONS

Environment	Mild		Moderate		Severe	
Component	Tubes	UMH	Tubes	UMH	Tubes	UMH
Metallurgy	Stainless steel	Carbon steel	Monel 400	Ferritic steel	Inconel 625	Super Duplex

## MOTOR SPECIFICATIONS

Series	450	550	560
OD, in (mm)	4.56 (115.82)	5.43 (137.92)	5.62 (142.75)
Max tandem HP @ 60Hz	360	900	1173
Max amperage, A	112	158	178
Maximum winding operating temperature, °F (°C)	400 (204)	400 (204)	400 (204)
Full load efficiency %	83	83	89
Full load power factor %	81	86	86
Rotor bearing type	Non rotating	Non rotating	Non rotating
Operating frequency Hz	30 - 90	30 - 90	30 - 90
Shaft material	35CrMo/CS4130	35CrMo/CS4130	35CrMo/CS4130
Shaft diameter, in (mm)	1.181 (29.99)	1.377 (34.98)	1.377 (34.98)