

Flat Electrical Submersible Pump Cable

With solid or stranded conductors and galvanized steel armour

High temperature cable 450°F 5kV



Application

Downhole extraction systems are critical for crude oil extraction. The reliability of the electrical power supply to an Electrical Submersible Pump (ESP) system depends on the performance and reliability of the power feed through to the wellhead, power cable, motor lead cable, pig tail connectors and related equipment such as the pump and motor. These ESP cables offer an efficient, rugged and easy to handle solution that delivers reliable performance in a package that is straightforward to install and maintain.

Technical Specification

Conductor	: Composed of a soft solid or stranded (tinned) copper wire.
Conductor Adhesion (Optional insulation)	: An adhesive, electrically, chemically and thermally compatible with the cable components, is applied to the conductor at or prior to the insulation extrusion to ensure a strong bond between the conductor and the insulation.
Insulation	: The insulation is composed of an extruded layer of special vulcanized EPDM based compound, continuous and uniform along its whole length.
Identification	: Shall be imprinted on the insulation or a tape placed under the armor, containing the following minimum information: EEWD (number) Company name + production year + P/N number + Flat LEAD PL450 5kV + Size AWG+ Armour + length Marking
Lead Sheath	: A lead alloy extruded layer is applied over each insulated conductor, with no joints or repairs. The sheath surface shall be free of longitudinal “die” line and radial scratches. The lead alloy may be 1/2 C alloy or chemical grade lead defined in ASTM B 29 Standard. Specification for Refined Lead with UNS number L51121. Table 1 gives the composition for chemical-copper lead and contains 0.04% to 0.08% copper by weight for added corrosion resistance.
Lead Sheath Protection	: A nylon textile braid with a minimum coverage of 80%, or a rubber faced tape, or a fluorocarbon tape, or Fiber glass tape is applied over the lead sheath for mechanical and/or chemical protection.
Armour	: The armor, applied over the three parallel lead-sheathed and insulated conductors, is composed of a formed galvanized steel tape, It shall fit snugly without deformation of the lead sheath (not forming “two D’s and square”). The inside and outside of the armor shall be smooth with no edge sticking up at the edge of the strip.
Splices	: Splices not allowed.

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Range and dimensions

AWG Size	1AWG		2AWG		4AWG	6AWG
Article code						
Type of conductor	Stranded	Solid	Stranded	Solid	Solid	Solid
Number of wires	7	1	7	1	1	1
Nominal conductor diameter	0.299 in 7.59 mm	0.289 in 7.34 mm	0.268 in 6.81 mm	0.258 in 6.55 mm	0.204 in 5.18 mm	0.162 in 4.11 mm
Maximum DC resistance at 20°C Ohms/km	0.448		0.566		0.873	1.930
Conductor adhesion	With	With	With	With	With	With
Insulation EPDM with thickness of 0.075in (1.9mm)						
Nominal diameter insulation	0.453 in 11.51 mm	0.443 in 11.25 mm	0.422 in 10.72 mm	0.412 in 10.46 mm	0.358 in 9.09 mm	0.316 in 8.03 cm
Maximum diameter insulation	0.468 in 11.89 mm	0.458 in 11.63 mm	0.437 in 11.10 mm	0.427 in 10.84 mm	0.373 in 9.48 mm	0.331 in 8.41 mm
Nominal lead sheath thickness shall be 0.040in (1.00 mm) for all sizes Minimum thickness at any point of a cross section shall not be less than 0.035in (0.89mm)						
Thickness of lead sheath	0.040 in 1.02 mm	0.040 in 1.02 mm	0.040 in 1.02 mm	0.040 in 1.02 mm	0.040 in 1.02 mm	0.040 in 1.02 mm
Nominal diameter sheath	0.533 in 13.50 mm	0.523 in 13.30 mm	0.502 in 12.80 mm	0.492 in 12.50 mm	0.438 in 11.10 mm	0.396 in 10.10 mm
Maximum diameter sheath	0.536 in 13.60 mm	0.526 in 13.40 mm	0.504 in 12.80 mm	0.494 in 12.50 mm	0.441 in 11.20 mm	0.399 in 10.10 mm
Fiber glass tape wrapping Galvanized steel amour, with thickness of 0.50mm x 12.7mm width. (0.02in x0.5in)						
Thickness of fiber glass tape	0.010 in 0.254 mm	0.010 in 0.254 mm	0.010 in 0.254 mm	0.010 in 0.254 mm	0.010 in 0.254 mm	0.010 in 0.254 mm
Thickness of galvanized tape	0.020 in 0.50 mm	0.020 in 0.50 mm	0.020 in 0.50 mm	0.020 in 0.50 mm	0.020 in 0.50 mm	0.020 in 0.50 mm
Width of galvanized tape	0.500 in 12.70 mm	0.500 in 12.70 mm	0.500 in 12.70 mm	0.500 in 12.70 mm	0.500 in 12.70 mm	0.500 in 12.70 mm
Nominal thickness x width						
Nominal dimension armour in inches	0.703 1.829	0.693 1.799	0.672 1.736	0.662 1.706	0.608 1.544	0.566 1.418
Nominal dimension armour in mm	17.90 46.50	17.60 45.70	17.10 44.10	16.80 43.30	15.40 39.20	14.40 36.00
Maximum thickness x width						
Maximum dimension armour in inches	0.746 1.877	0.736 1.847	0.714 1.781	0.704 1.753	0.651 1.592	0.609 1.466
Maximum dimension armour in mm	18.90 47.70	18.70 46.90	18.10 45.20	17.90 44.50	16.50 40.4	15.50 37.20

NOTICE

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