

Downhole Tubing Encapsulated Conductor (TEC) Cables

These cables are used in the Oil and gas refineries, Oil well monitoring, Powering downhole equipment and instrumentation, Underground power distribution, Pressure sensing equipment & Data collection etc.

They are used to monitor, provide power and transmit signals in a downhole application. Cables used in the oil & gas industry must be able to withstand extreme environments, temperatures and pressure which is why Thermo Cables is the choice of industry professionals.

TEC (Tubing Encapsulated Conductor) cables have the traditional characteristics of stranded wires or cables – they have some form of copper conductor surrounded by an insulation material or jacket. The difference comes when the stranded wire or the tubing layer that surrounds the product with an armored metal component. Lastly, the final layer encapsulates the entire cable. TEC tubing encapsulated cables can withstand temperature ranges from 150° C to 300° C.

These are made with 5 layers and can be constructed with the following materials:

- Conductor Layer** : can be comprised of 20 AWG to 12 AWG, solid or stranded, bare copper, tinned copper, nickel plated copper, or silver plated copper.
- Insulation Layer** : can be comprised of either FEP, PFA, ETFE or ECTFE.
- Extruded Filler Layer** : can be comprised of PFA, FEP or Polypropylene.
- Armor Layer** : can be comprised of 316L Stainless Steel, Alloy 825 or Alloy 625
- Final Layer** : an encapsulation layer can be comprised of FEP, PFA, ETFE, Polyolefin or Polyamide.

Cables Specification :

Voltage Rating V DC	1000	1000	1000	1000	1000	1000	1000	1000
Conductor Gauge (AWG)	18	16	18	16	18	16	18	16
Conductor Type	Solid or Stranded							
Conductor Coatings	Bare, Tinned, Nickel Plated, Silver Plated							
Insulation	ETFE, ECTFE, FEP, PFA							
Filler	Polypropylene, FEP, PFA							
Armor Type	316L (0.028" & 0.035") Alloy 825 (0.028" & 0.035")							
Max. Conductor Resistance Ohms / KFT 20° C	7	4.4	7	4.4	7	4.4	7	4.4
Max. Conductor Resistance Ohms / KFT 150° C	10.5	6.5	10.5	6.5	10.5	6.5	10.5	6.5
Capacitance pF / ft 20° C	26	27.2	32	29.3	26	27.2	32	29.3
Capacitance pF / ft 150° C	27.5	30.9	33.5	33.3	27.5	30.9	33.5	33.3
Min. Insulation Resistance Mohms / KFT	6500	15000	6500	15000	6500	15000	6500	15000
Encapsulation Cable Type	Polyolefin		Polyamide		FEP		PFA	
Encapsulation Cable Color	Yellow		Black		Natural			
Max. working temperature, degC (degF)	150 (302)				200 (392)		250 (482)	

