



power connection cable series

Flat Electrical Submersible Pump Cable

IEEE 1018 / 1019 3–5 kV low-profile flat 3-conductor armoured downhole ESP cable



IEEE 1018 / 1019 Flat ESP

3 kV · 4 kV · 5 kV Downhole

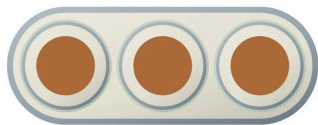
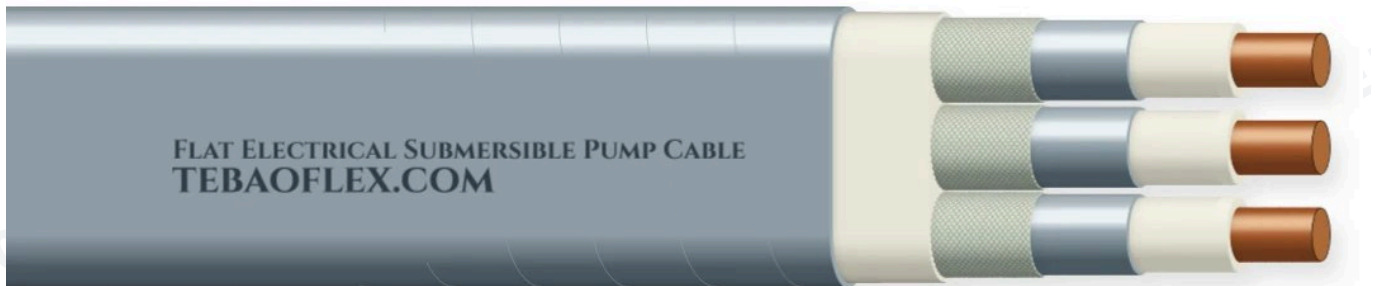
Galvanized / Monel Armour

Application

Flat Electrical Submersible Pump (ESP) Cable (3 kV, 4 kV & 5 kV) engineered per IEEE Std 1018, IEEE Std 1019 and API RP 11S5/11S6 with three parallel solid/compacted copper conductors (#6 AWG to #1/0 AWG), polypropylene or high-temp.

Typical uses: Tight-Clearance Oil & Gas ESP Completions, High-GOR & Sour-Gas (H₂S / CO₂) Production Wells, SAGD Thermal Heavy-Oil & Geothermal Wells (+204 °C), Offshore Platform & Subsea ESP Boosting, Deep Water-Injection & Coalbed Methane Dewatering

Construction



Cross-section, not to scale

- 1 3 × Solid or compacted tinned/bare copper conductors
- 2 PP (IEEE 1019) or High-Modulus EPDM (IEEE 1018) dielectric 75 mil (3 kV) to 90–115 mil (4–5 kV) radial wall
- 3 Individual Nitrile / EPDM or Seamless Lead gas barrier
- 4 Flat profiled interlocked metal strip armour

Technical data

Typical values

Rated voltage classes	3 kV · 4 kV · 5 kV AC phase-to-phase (50–400 Hz VSD)	DC hi-pot routine test	22 kV DC (3 kV) · 27 kV DC (4 kV) · 33–35 kV DC (5 kV) for 5 min
Max. DC resistance @ 20 °C	1.37 Ω/km (#6) · 0.863 Ω/km (#4) · 0.541 Ω/km (#2) · 0.430 Ω/km (#1)	Insulation resistance	≥ 1,500 MΩ·km (EPDM) · ≥ 5,000 MΩ·km (PP) @ 20 °C
PP / Nitrile rating (IEEE 1019)	–40 °C to +96 °C (+205 °F) bottomhole temperature	EPDM / EPDM-Braid (IEEE 1018)	–40 °C to +140 °C / +177 °C (+350 °F) bottomhole temp
EPDM / Lead Sheath (IEEE 1018)	–40 °C to +204 °C (+400 °F) / +232 °C peak	Flat height × width	11.4 × 29.2 mm (#6 AWG) to 15.8 × 41.5 mm (#1 AWG)
Min. sheave / reel diameter	1,100 mm to 1,400 mm (44" to 54" wellhead hay-pulley)	Armour strip thickness	0.51 mm (20 mil), 0.64 mm (25 mil) or 0.86 mm (34 mil)
Rapid gas decompression	Constrained by individual braid/lead + interlocked armour against CO ₂ /CH ₄	Sour gas H ₂ S immunity	Lead-sheathed + Monel 400 armour is 100 % impervious to H ₂ S
Hydrostatic well pressure	Up to 35 MPa (5,000 psi) standard · 55 MPa (8,000 psi) Lead/Monel	Standards	IEEE Std 1018 (EPDM) & IEEE Std 1019 (Polypropylene)

Sizes

6 standard constructions

Tick the sizes you need and send this page to info@tebaoflex.com or WhatsApp +86 185 9591 3361.

Order designation	AWG, insulation & barrier	Height mm	Width mm	Weight ≈ kg/km	Nom. rating A
4 kV +177 °C EPDM/EPDM-Braid Flat ESP 4 sizes					
☐ ESP-FLAT 4kV #6 EPDM	3 × #6 AWG (13.3 mm ²) · EPDM/Braid	11.4	29.2	1,180	75
☐ ESP-FLAT 4kV #4 EPDM	3 × #4 AWG (21.2 mm ²) · EPDM/Braid	12.7	33.0	1,540	100
☐ ESP-FLAT 4kV #2 EPDM	3 × #2 AWG (33.6 mm ²) · EPDM/Braid	14.5	38.1	2,120	135
☐ ESP-FLAT 4kV #1 EPDM	3 × #1 AWG (42.4 mm ²) · EPDM/Braid	15.8	41.5	2,540	155
5 kV +204 °C EPDM/Lead-Barrier Flat ESP 2 sizes					
☐ ESP-FLAT 5kV #4 Lead	3 × #4 AWG · EPDM + Lead + Galv/Monel	13.5	35.6	2,690	105
☐ ESP-FLAT 5kV #2 Lead	3 × #2 AWG · EPDM + Lead + Galv/Monel	15.2	40.6	3,480	140

– At the bottom of the string, Flat or Round main ESP cable is spliced to an ultra-low-profile Motor Lead Extension (MLE) cable to pass alongside the pump and seal sections.

Standards and approvals

- ✓ IEEE Std 1018 & IEEE Std 1019
- ✓ API RP 11S5 & API RP 11S6
- ✓ ISO 9001 Oilfield QA

Certifications



Management systems: ISO 9001, ISO 14001, ISO 45001

Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

WhatsApp / phone

+86 185 9591 3361

Email

info@tebaoflex.com

Web

tebaoflex.com/cables/flat-electrical-submersible-pump-cable



Typical values for this cable type, based on IEEE Std 1018 / IEEE Std 1019 / API RP 11S5 / 11S6. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.