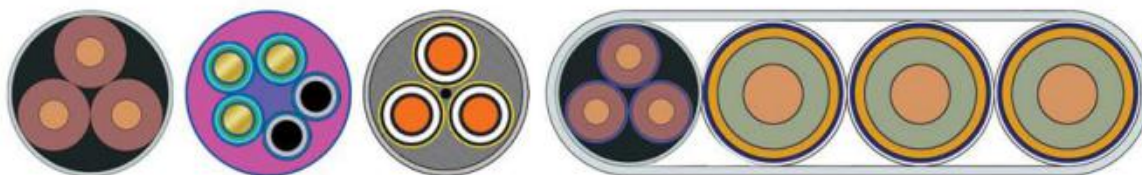




ESP Cable Solutions Co.,Ltd



ESP Cable **For Oilfield**



ESP Cable Solutions Co.,Limited

Integrity Solutions for Electrical Submersible Pump Cable



CONCOURSING IN...

Science & Technology

BUILDING ESSENCE...

By ESP Cable Solutions



ESP Cable Solutions Co.,Ltd



Introduction

- ◆ Established in 2011,ESP Cable Solutions Co.,Limited,focus and professional in ESP cable research,technical innovation & sells,we mainly service for international market,provide high level technical support,quality control support,ESP cable innovation support & full service support for our customers when they buy from China.
- ◆ Insisting the conception of survival based on quality of the products and development originate from innovation, our company always concern about promote of quality and technical innovation.For ESP cable we can supply temperature range from 90℃ to 260℃,voltage range is 3kV,4kV,5kV & 6kV,produce according to GB/T12706 standard,API RP 11S5 standard,API RP 11S6 standard,IEEE1018 standard, IEEE1019 standard and Gost standard in Russia.
- ◆ Usual type of ESP cable are QYPN,QYEQ,QYEN,QYEE,QYPNY,QYEQNY,QYEEY,QYYEQ,QYYEQNY,QYYEQEY,QYJYEQ(MLE),QYYFN,QYYFF,QYJYFF(MLE),innovation ESP cable has injection ESP cable, single-armor injection ESP cable,double-armors injection ESP cable,barrier type ESP cable,grounding type ESP cable,advanced ESP control cable,shielded ESP cable,full shielded ESP cable, aluminum-alloy conductor ESP cable,232℃ EPDM insulation ESP cable,260℃ Fluoroplastic insulation ESP cable, hydraulic pressure ESP cable, Amercia standard MLE ESP cable & Russia standard MLE ESP cable.
- ◆ Value come from creation,cooperate make success.Technical innovation help our company leading high-tech proceeding for ESP cable,we use our wisdom,credibility & service ability provide ESP cable integrity solutions for our partners. One cooperation,the whole life friend.One product,the whole lift dream.





Application Range

The cables are designed for use in the Electrical Submersible Pump Units with rated voltage between 3kv and 6kv. The permissible working temperature ranges from 90°C to 250°C. These cables have the excellent ability of Oil Resistance, Heat Resistance and Corrosion Resistance.

Note: The rated voltage of 4kv and 6kv can also be produced based on specific customer requirements.

Performing Criterion

GE/T 16750、IEEE1017、IEEE 1018、IEEE1019、API RP 11S5、API RP 11S6

ESP CABLE PRODUCT RANGE

Product Details	Type	Conductor	Insulation	Covering with Jacket	Temperature Ratings	Well Type
QYPNY	Round	Copper	PP	NBR Jacket	-40°C to 90°C	Low Gas & Vapor Concentrations Low Corrosion Cold Temperature
QYEQ	Flat	Copper	EPDM	Lead Sheath with Fluoropolymer tape and synthetic braid	-40°C to 120°C	Low-to-Moderate Gas & Vapor Concentrations Low-to-Moderate Corrosion
QYEQNY	Round	Copper	EPDM	Lead Sheath with Fluoropolymer tape and synthetic braid,NBR Jacket	-40°C to 120°C	Low-to-Moderate Temperature
QYYEQNY	Round	Copper	Polyimide film & EPDM	Lead Sheath with Fluoropolymer tape and synthetic braid,NBR Jacket	-40°C to 150°C	Moderate Gas & Vapor Concentrations Moderate Corrosion
QYYFN	Flat	Copper	Polyimide film & Fluoroplastics	NBR Jacket with Fluoropolymer tape & synthetic braid	-40°C to 150°C	Moderately High Temperature
QYJYEQ (MLE)	Flat	Copper	Polyimide film & EPDM	Lead Sheath with Fluoropolymer tape and synthetic braid	-40°C to 150°C Max 232°C	Significant Gas & Vapor Concentrations Significant Corrosion
QYYEQ	Flat	Copper	Polyimide film & EPDM	Lead Sheath with Fluoropolymer tape and synthetic braid	-40°C to 150°C Max 232°C	High Temperature
QYJYFF (MLE)	Flat	Copper	Polyimide film & Fluoroplastics	Fluoroplastics Jacket with Fluoropolymer tape & synthetic braid	-51°C to 250°C	Very High Gas & Vapor Concentrations
QYYFF	Flat	Copper	Polyimide film & Fluoroplastics	Fluoroplastics Jacket with Fluoropolymer tape & synthetic braid	-51°C to 250°C	Very Severe Corrosion Very High Temperature

ESP Cable Type Designation

>> Shapes and features code

- a) Round, use "Y" to signify. Round — Y
- b) Flat, be omitted.

>> Insulated materials code

- a) Polypropylene, use "P" to signify. Polypropylene — P
- b) EPDM — E
- c) Compound insulation with polyimide-F46 composite film and EPDM — YE
- d) Compound insulation with polyimide-F46 composite film and perfluorinated ethylene propylene —YF

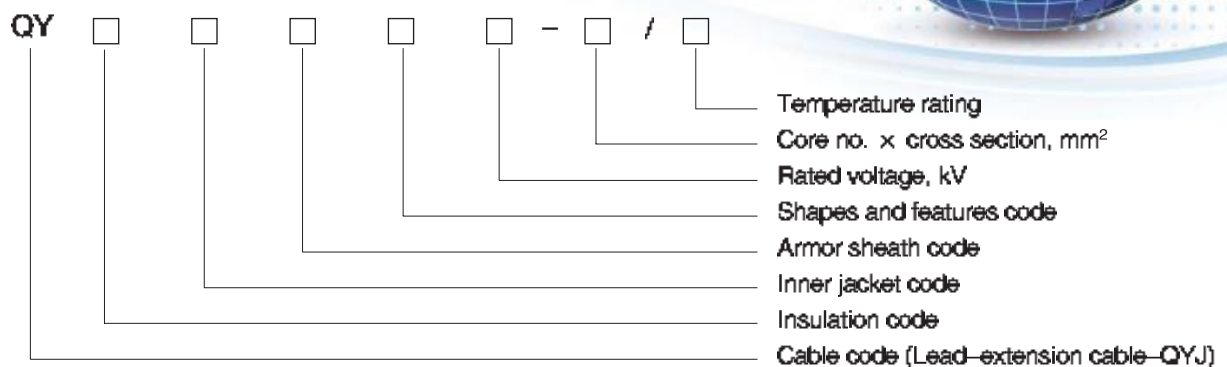
>> Jacket (Including Inner Jacket) Material Code

- a) Lead (Lead alloy), use "Q" to signify. Lead (Lead alloy) — Q
- b) EPDM —E
- c) Nitrile PVC (polyvinyl chloride) compound —F
- d) Nitrile rubber —N

>> Armor sheath code

- a) Monel tape armor, use "M" to signify. Monel tape armor — M
- b) Galvanized steel tape armor —be omitted
- c) Stainless steel tape armor —X

>> Type signified method



Example: **Model 1**

QYPNM 3-3x 16/90

—Rated voltage 3kV, Polypropylene insulation, Nitrile rubber inner jacket, Monel tape armor 3 x16mm², Max conductor working temperature 90°C, Flat ESP cable, is signified:

Example: **Model 2**

QYEEY6-3 x 20/120

—Rated voltage 6kV, EPDM insulation, EPDM jacket, galvanized steel tape armor 3 x 20mm², Max conductor working temperature 120°C, Round ESP cable, is signified:



QYPNY Electrical Submersible Pump Cable



Description

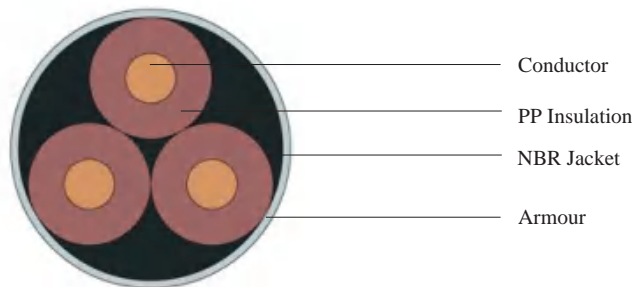
Polypropylene(PP) insulation, Nitrile rubber(NBR) jacket, Full galvanized steel (or stainless steel or Monel) tape armour.

Performing Criterion

GB/T16750、IEEE1017、IEEE1018、IEEE1019、API RP 11S5、API RP 11S6

Application Range

This cable is applicable for use in Electrical Submersible Pump Units with rated voltage less than 3kV or 6kV. The permissible working temperature range is -40°C to 90°C , The cable has the excellent ability of oil-resistance and corrosion-resistance.



QYPNY ESP Cable

Product Details	Type	Conductor	Insulation	Covering with Jacket	Temperature Ratings	Well Type
QYPNY	Round	Copper	PP	NBR Jacket	-40°C to 90°C	Low Gas & Vapor Concentrations Low Corrosion Cold Temperature

Quality Guaranteed

One year after delivery

Packing

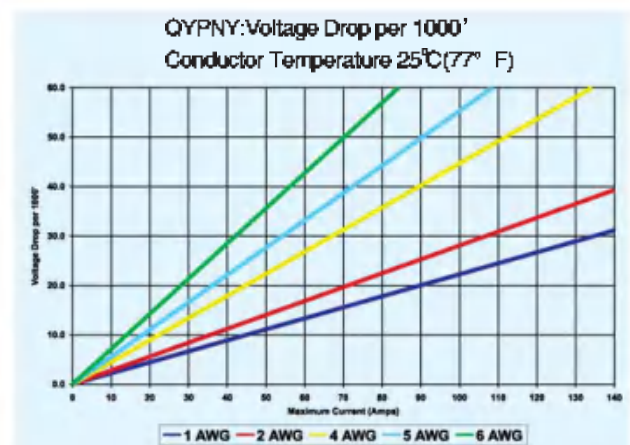
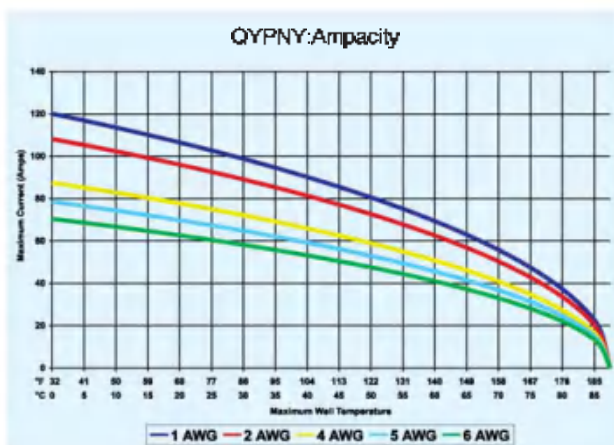
Steel reels of corrugated corellon, outside wrapped by fuming wood; Packing length according to customer's requirement.

Specification and Parameters

Sl.No	Voltage Rating (kv)	Conductor Size		Nominal Conductor Diameter		Nominal Insulation Diameter		Nominal Jacket Diameter		Armor Type	Nominal Cable OD		Nominal Weight (Approximate)	
		AWG	mm ²	inches	mm	inches	mm	inches	mm		inches	mm x mm	lb/1000 ft	kg/km
1	3 kV	AWG 5	16	0.18	4.62	0.33	8.42	0.87	22.1	Full galvanized steel Tape	1.06	27	928	1381
2	3 kV	AWG 4	20	0.20	5.19	0.35	8.99	0.92	23.4	Full galvanized steel Tape	1.10	28	1044	1555
3	3 kV	AWG 2	33	0.26	6.54	0.41	10.34	1.04	26.3	Full galvanized steel Tape	1.26	32	1384	2060
4	3 kV	AWG 1	42	0.29	7.35	0.44	11.15	1.10	28.0	Full galvanized steel Tape	1.34	34	1600	2382
5	6 kV	AWG 5	16	0.18	4.62	0.36	9.22	0.94	23.9	Full galvanized steel Tape	1.14	29	994	1480
6	6 kV	AWG 4	20	0.20	5.19	0.39	9.79	0.99	25.1	Full galvanized steel Tape	1.22	31	1108	1650
7	6 kV	AWG 2	33	0.26	6.54	0.44	11.14	1.10	28.0	Full galvanized steel Tape	1.34	34	1457	2170
8	6 kV	AWG 1	42	0.29	7.35	0.47	11.95	1.18	30.0	Full galvanized steel Tape	1.46	37	1679	2500

Note: Armor material can choose stainless steel tape or monel tape, this according to customer's requirement.

Ampacity and Voltage Drop



Voltage drop based on 60-Hz and 100% power factor



QYEQ Electrical Submersible Pump Cable



◆ Description

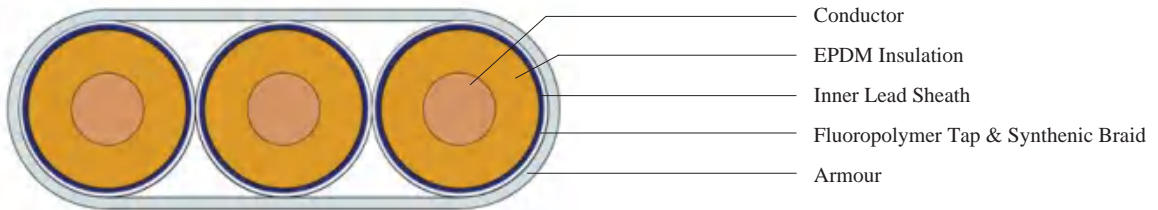
EPDM insulation, Inner lead sheath, Fluoropolymer tape applied with an overlap over the lead sheath, Synthetic braid covering completely over the lead sheath, Full galvanized steel (or stainless steel or Monel) tape armour.

◆ Performing Criterion

GB/T16750、IEEE1017、IEEE1018、IEEE1019、API RP 11S5、API RP 11S6

◆ Application Range

This cable is applicable for use in Electrical Submersible Pump Units with rated voltage less than 3kV or 6kV. The permissible working temperature range is -40°C to 120°C , The cable has the excellent ability of oil-resistance, heat-resistance and corrosion-resistance.



QYEQ ESP Cable

Product Details	Type	Conductor	Insulation	Covering with Jacket	Temperature Ratings	Well Type
QYEQ	Flat	Copper	EPDM	Lead Sheath with Fluoropolymer tape and synthetic braid	-40°C to 120°C	Low-to-Moderate Gas & Vapor Concentrations Low-to-Moderate Corrosion Low-to-Moderate Temperature

Quality Guaranteed

One year after delivery

Packing

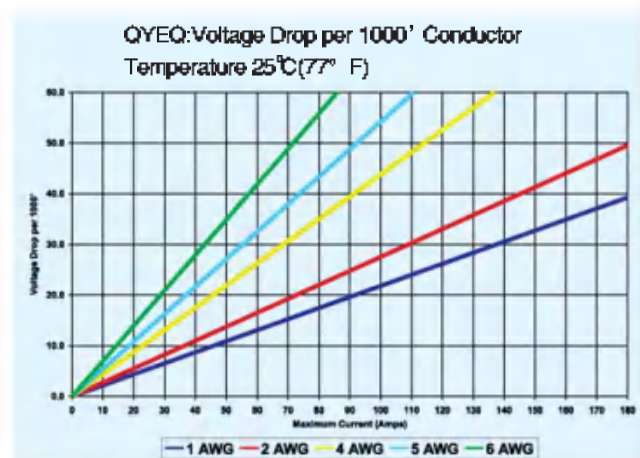
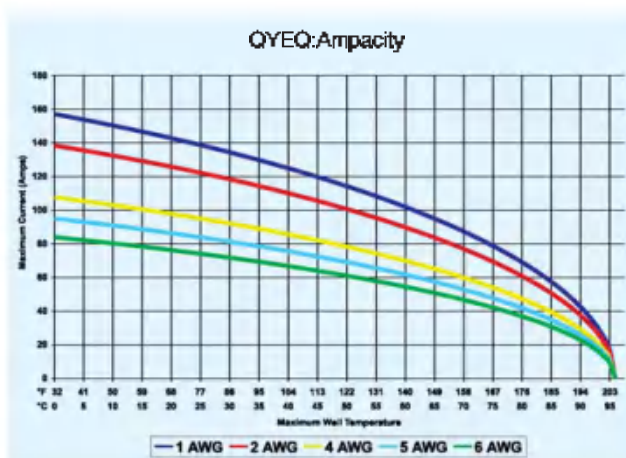
Steel reels of corrugated corellon, outside wrapped by fuming wood; Packing length according to customer's requirement.

Specification and Parameters

Sl.No	Voltage Rating (kv)	Conductor Size		Nominal Conductor Diameter		Nominal Insulation Diameter		Nominal Jacket Diameter		Armor Type	Nominal Cable OD		Nominal Weight (Approximate)	
		AWG	mm ²	inches	mm	inches	mm	inches	mm		inches	mm x mm	lbs/1000ft	kg/km
1	3 kv	AWG 5	16	0.18	4.62	0.33	8.42	0.41	10.42	Full galvanized steel Tape	0.5 * 1.4	13 * 36	1485	2211
2	3 kv	AWG 4	20	0.20	5.19	0.35	8.99	0.43	10.99	Full galvanized steel Tape	0.6 * 1.5	14 * 38	1640	2442
3	3 kv	AWG 2	33	0.26	6.54	0.41	10.34	0.49	12.34	Full galvanized steel Tape	0.6 * 1.7	15 * 43	2093	3116
4	3 kv	AWG 1	42	0.29	7.35	0.44	11.15	0.52	13.15	Full galvanized steel Tape	0.6 * 1.8	16 * 45	2380	3544
5	6 kv	AWG 5	16	0.18	4.62	0.36	9.22	0.44	11.22	Full galvanized steel Tape	0.5 * 1.5	13 * 38	1619	2410
6	6 kv	AWG 4	20	0.20	5.19	0.39	9.79	0.46	11.79	Full galvanized steel Tape	0.6 * 1.6	14 * 40	1834	2730
7	6 kv	AWG 2	33	0.26	6.54	0.44	11.14	0.52	13.14	Full galvanized steel Tape	0.6 * 1.8	15 * 45	2230	3320
8	6 kv	AWG 1	42	0.29	7.35	0.47	11.95	0.55	13.95	Full galvanized steel Tape	0.6 * 1.9	16 * 47	2586	3850

Note: Armor material can choose stainless steel tape or monel tape, this according to customer's requirement.

Ampacity and Voltage Drop



Voltage drop based on 60Hz and 100% power factor

QYEQNY Electrical Submersible Pump Cable



◆ Description

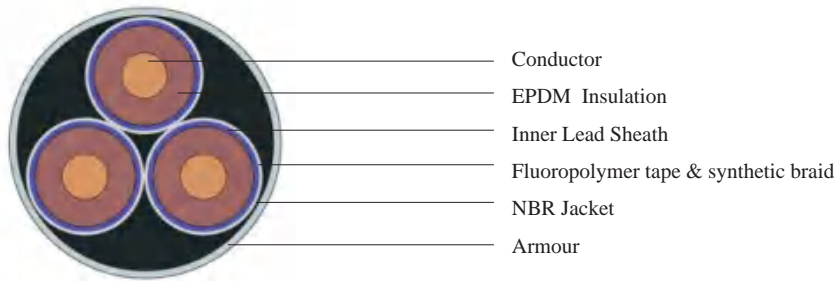
EPDM insulation, Inner lead sheath, Fluoropolymer tape and synthetic braid covered completely over the lead sheath, Outer nitrile rubber(NBR) jacket, Full galvanized steel (or stainless steel or Monel) tape armour.

◆ Performing Criterion

GB/T16750、IEEE1017、IEEE1018、IEEE1019、API RP 11S5、API RP 11S6

◆ Application Range

This cable is applicable for use in Electrical Submersible Pump Units with rated voltage less than 3kV or 6kV. The permissible working temperature range is -40°C to 120°C , The cable has the excellent ability of oil-resistance, heat-resistance and corrosion-resistance.



QYEQNY ESP Cable

Product Details	Type	Conductor	Insulation	Covering with Jacket	Temperature Ratings	Well Type
QYEQNY	Round	Copper	EPDM	Lead Sheath with Fluoropolymer tape and synthetic braid, NBR Jacket	-40°C to 120°C	Low-to-Moderate Gas & Vapor Concentrations Low-to-Moderate Corrosion Low-to-Moderate Temperature

Quality Guaranteed

One year after delivery

Packing

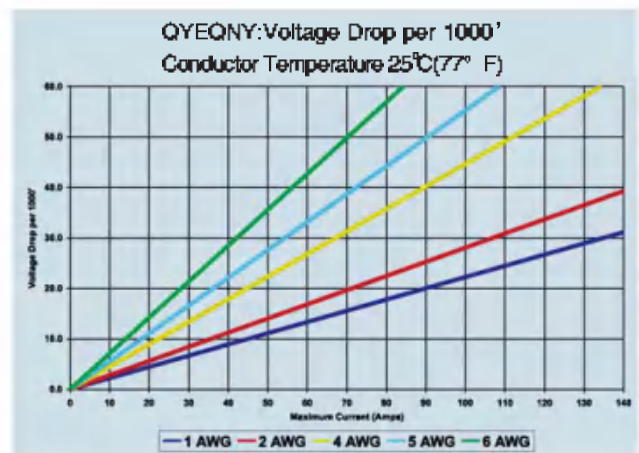
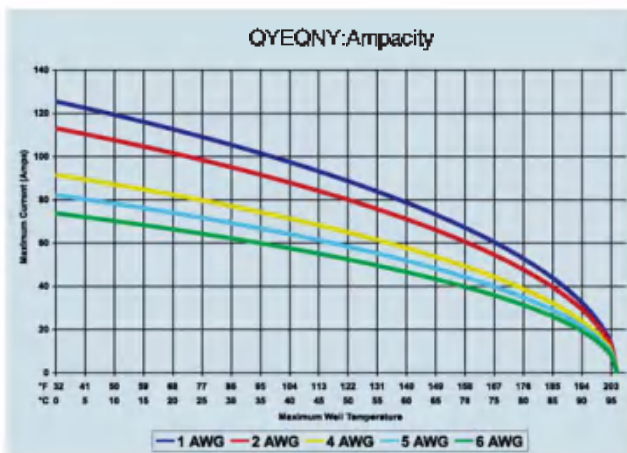
Steel reels of corrugated corellon, outside wrapped by fuming wood; Packing length according to customer's requirement.

Specification and Parameters

Sl.No	Voltage Rating (kv)	Conductor Size		Nominal Conductor Diameter		Nominal Insulation Diameter		Nominal Jacket Diameter				Armor Type	Nominal Cable OD		Nominal Weight (Approximate)	
		AWG	mm ²	inches	mm	inches	mm	Inside inches	Outside inches	Inside mm	Outside mm		inches	mm	lb/1000 ft	kg/km
1	3 kV	AWG 5	16	0.18	4.62	0.33	8.42	0.41	1.08	10.42	27.5	Full galvanized steel Tape	1.26	32	1398	2082
2	3 kV	AWG 4	20	0.20	5.19	0.35	8.99	0.43	1.13	10.99	28.7	Full galvanized steel Tape	1.34	34	1611	2399
3	3 kV	AWG 2	33	0.26	6.54	0.41	10.34	0.49	1.25	12.34	31.7	Full galvanized steel Tape	1.42	36	2096	3120
4	3 kV	AWG 1	42	0.29	7.35	0.44	11.15	0.52	1.31	13.15	33.4	Full galvanized steel Tape	1.50	38	2223	3310
5	6 kV	AWG 5	16	0.18	4.62	0.36	9.22	0.44	1.15	11.22	29.2	Full galvanized steel Tape	1.30	33	1540	2293
6	6 kV	AWG 4	20	0.20	5.19	0.39	9.79	0.46	1.20	11.79	30.5	Full galvanized steel Tape	1.38	35	1731	2577
7	6 kV	AWG 2	33	0.26	6.54	0.44	11.14	0.52	1.31	13.14	33.4	Full galvanized steel Tape	1.46	37	2133	3176
8	6 kV	AWG 1	42	0.29	7.35	0.47	11.95	0.55	1.38	13.95	35.1	Full galvanized steel Tape	1.54	39	2395	3566

Note: Armor material can choose stainless steel tape or monel tape, this according to customer's requirement.

Ampacity and Voltage Drop



Voltage drop based on 60 Hz and 100% power factor



QYYEQNY Electrical Submersible Pump Cable



◆ Description

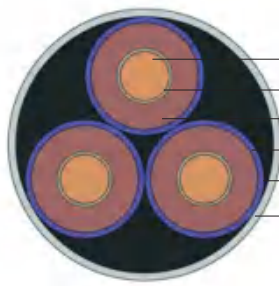
Compound insulation with polyimide film and EPDM rubber, Inner lead sheath, Fluoropolymer tape and synthetic braid covered completely over the lead sheath, Outer nitrile rubber(NBR) jacket, Full galvanized steel (or stainless steel or Monel) tape armour.

◆ Performing Criterion

GB/T16750、IEEE1017、IEEE1018、IEEE1019、API RP 11S5、API RP 11S6

◆ Application Range

This cable is applicable for use in Electrical Submersible Pump Units with rated voltage less than 3kV or 6kV. The permissible working temperature range is -40℃ to 150℃, The cable has the excellent ability of oil-resistance, heat-resistance and corrosion-resistance.



- Conductor
- PI Film & EPDM Insulation
- Inner Lead Sheath
- Fluoropolymer tape & synthetic braid
- NBR Jacket
- Armour

QYYEQNY ESP Cable

Product Details	Type	Conductor	Insulation	Covering with Jacket	Temperature Ratings	Well Type
QYYEQNY	Round	Copper	Polyimide film & EPDM	Lead Sheath with Fluoropolymer tape and synthetic braid, NBR Jacket	-40℃ to 150℃	Moderate Gas & Vapor Concentrations Moderate Corrosion Moderately High Temperature

Quality Guaranteed

One year after delivery

Packing

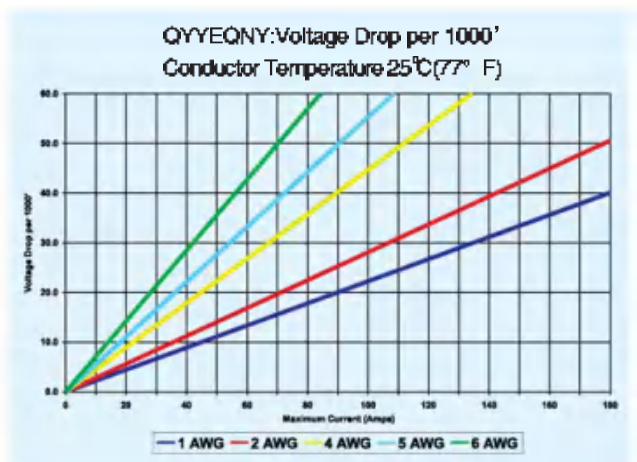
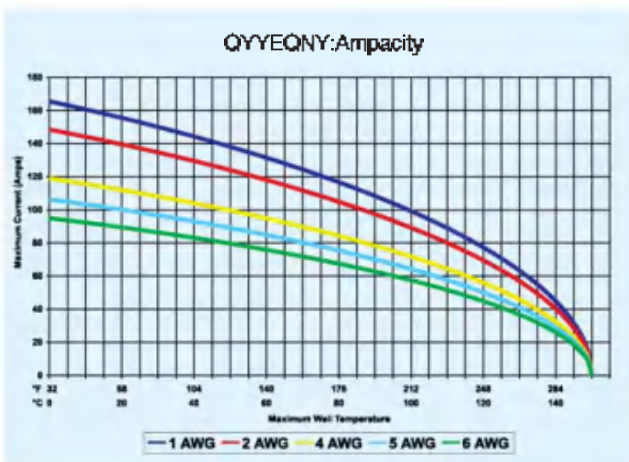
Steel reels of corrugated corellon, outside wrapped by fuming wood; Packing length according to customer's requirement.

Specification and Parameters

Sl.No	Voltage Rating (kv)	Conductor Size		Nominal Conductor Diameter		Nominal Insulation Diameter		Nominal Jacket Diameter				Armor Type	Nominal Cable OD		Nominal Weight (Approximate)	
		AWG	mm ²	inches	mm	inches	mm	Inside inches	Outside inches	Inside mm	Outside mm		inches	mm	lb/1000 ft	kg/km
1	3 kV	AWG 5	16	0.18	4.62	0.34	8.52	0.41	1.09	10.52	27.7	Full galvanized steel Tape	1.26	32	1552	2310
2	3 kV	AWG 4	20	0.20	5.19	0.36	9.09	0.44	1.14	11.09	29.0	Full galvanized steel Tape	1.34	34	1799	2678
3	3 kV	AWG 2	33	0.26	6.54	0.41	10.44	0.49	1.26	12.44	31.9	Full galvanized steel Tape	1.42	36	2052	3055
4	3 kV	AWG 1	42	0.29	7.35	0.44	11.25	0.52	1.32	13.25	33.6	Full galvanized steel Tape	1.50	38	2391	3560
5	6 kV	AWG 5	16	0.18	4.62	0.37	9.32	0.45	1.16	11.32	39.5	Full galvanized steel Tape	1.34	34	1673	2491
6	6 kV	AWG 4	20	0.20	5.19	0.39	9.89	0.47	1.21	11.89	30.7	Full galvanized steel Tape	1.42	36	2016	3002
7	6 kV	AWG 2	33	0.26	6.54	0.44	11.24	0.52	1.32	13.24	33.6	Full galvanized steel Tape	1.50	38	2223	3310
8	6 kV	AWG 1	42	0.29	7.35	0.47	12.05	0.55	1.39	14.05	35.3	Full galvanized steel Tape	1.57	40	2529	3766

Note: Armor material can choose stainless steel tape or monel tape, this according to customer's requirement.

Ampacity and Voltage Drop



Voltage drop based on 60Hz and 100% power factor



QYYFN Electrical Submersible Pump Cable



◆ Description

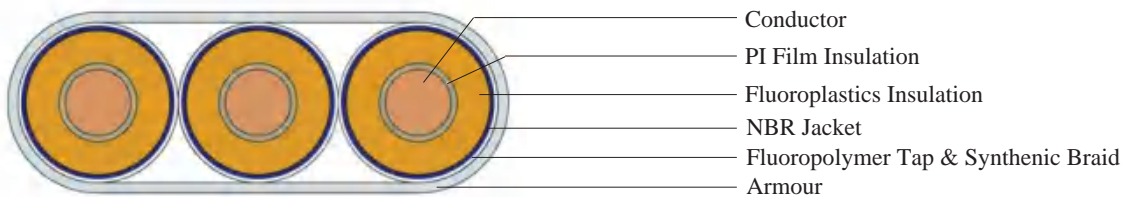
Compound insulation with polyimide film and fluoroplastics, Nitrile rubber jacket, Fluoropolymer tape and synthetic braid covered completely over the jacket, Full galvanized steel (or stainless steel or Monel) tape armour.

◆ Performing Criterion

GGB/T16750、IEEE1017、IEEE1018、IEEE1019、API RP 11S5、 API RP 11S6

◆ Application Range

This cable is applicable for use in Electrical Submersible Pump Units with rated voltage less than 3kV or 6kV. The permissible working temperature range is -40°C to 150°C , The cable has the excellent ability of oil-resistance, heat-resistance and corrosion-resistance.



QYYFN ESP Cable

Product Details	Type	Conductor	Insulation	Covering with Jacket	Temperature Ratings	Well Type
QYYFN	Flat	Copper	Polyimide film & Fluoroplastics	NBR Jacket with Fluoropolymer tape & synthetic braid	-40°C to 150°C	Moderate Gas & Vapor Concentrations Moderate Corrosion Moderately High Temperature

Quality Guaranteed

One year after delivery

Packing

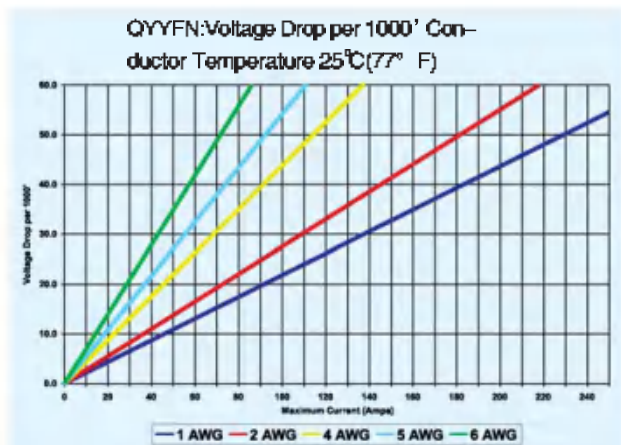
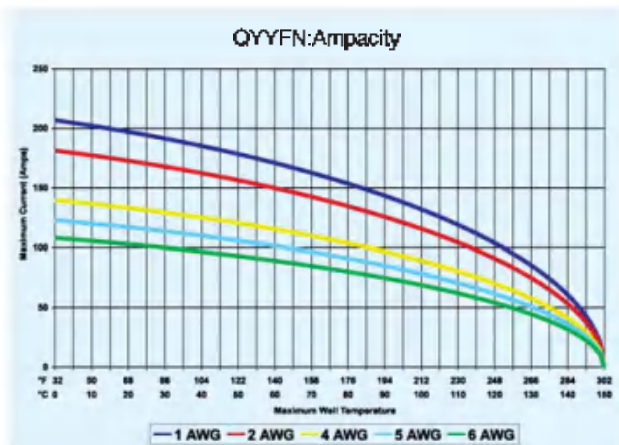
Steel reels of corrugated corellon, outside wrapped by fuming wood; Packing length according to customer's requirement.

Specification and Parameters

Sl.No	Voltage Rating (kv)	Conductor Size		Nominal Conductor Diameter		Nominal Insulation Diameter		Nominal Jacket Diameter		Armor Type	Nominal Cable OD		Nominal Weight (Approximate)	
		AWG	mm ²	inches	mm	inches	mm	inches	mm		inches	mm x mm	lbs/1000 ft	kg/km
1	3 kV	AWG 5	16	0.18	4.62	0.24	6.22	0.35	8.82	Full galvanized steel Tape	0.5 * 1.3	13 * 32	858	1278
2	3 kV	AWG 4	20	0.20	5.19	0.27	6.79	0.37	9.39	Full galvanized steel Tape	0.6 * 1.3	14 * 33	973	1449
3	3 kV	AWG 2	33	0.26	6.54	0.32	8.14	0.42	10.74	Full galvanized steel Tape	0.6 * 1.5	15 * 37	1104	1643
4	3 kV	AWG 1	42	0.29	7.35	0.35	8.95	0.45	11.55	Full galvanized steel Tape	0.6 * 1.6	16 * 40	1449	2158
5	6 kV	AWG 5	16	0.18	4.62	0.26	6.22	0.36	9.22	Full galvanized steel Tape	0.5 * 1.3	13 * 33.5	880	1310
6	6 kV	AWG 4	20	0.20	5.19	0.28	7.19	0.39	9.79	Full galvanized steel Tape	0.6 * 1.4	14 * 35	986	1468
7	6 kV	AWG 2	33	0.26	6.54	0.34	8.54	0.44	11.14	Full galvanized steel Tape	0.6 * 1.6	15 * 40	1300	1935
8	6 kV	AWG 1	42	0.29	7.35	0.37	9.35	0.47	11.95	Full galvanized steel Tape	0.6 * 1.7	16 * 42	1502	2236

Note: Armor material can choose stainless steel tape or monel tape, this according to customer's requirement.

Ampacity and Voltage Drop



Voltage drop based on 60Hz and 100% power factor



QYJYEQ(MLE) Electrical Submersible Pump Cable



◆ Description

Compound insulation with polyimide film and EPDM rubber, Inner lead sheath, Fluoropolymer tape and synthetic braid covered completely over the lead sheath, Full galvanized steel (or stainless steel or Monel) tape armour.

◆ Performing Criterion

GB/T16750、IEEE1017、IEEE1018、IEEE1019、API RP 11S5、API RP 11S6

◆ Application Range

This cable is applicable for use in Electrical Submersible Pump Units with rated voltage less than 3kV or 6kV. The permissible working temperature range is -40℃ to 150℃. The cable has the excellent ability of oil-resistance, heat-resistance and corrosion-resistance.



QYJYEQ(MLE) ESP Cable

Product Details	Type	Conductor	Insulation	Covering with Jacket	Temperature Ratings	Well Type
QYJYEQ (MLE)	Flat	Copper	Polyimide film & EPDM	Lead Sheath with Fluoropolymer tape and synthetic braid	-40℃ to 150℃ Max 232℃	Significant Gas & Vapor Concentrations Significant Corrosion High Temperature

Note: Normally the temperature ratings is 150℃, but this model can arrived 232℃ by choose high temperature resistant EPDM material.

Quality Guaranteed

One year after delivery

Packing

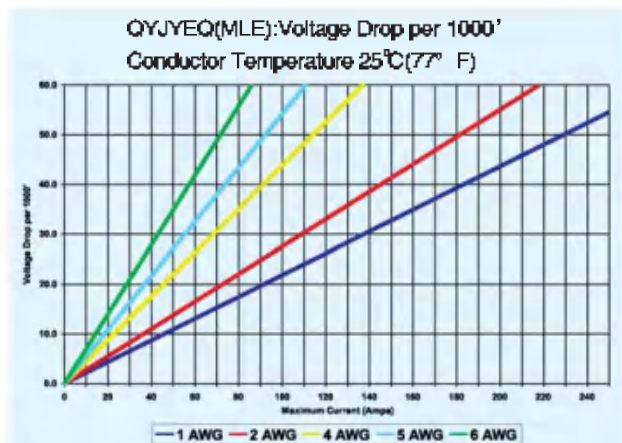
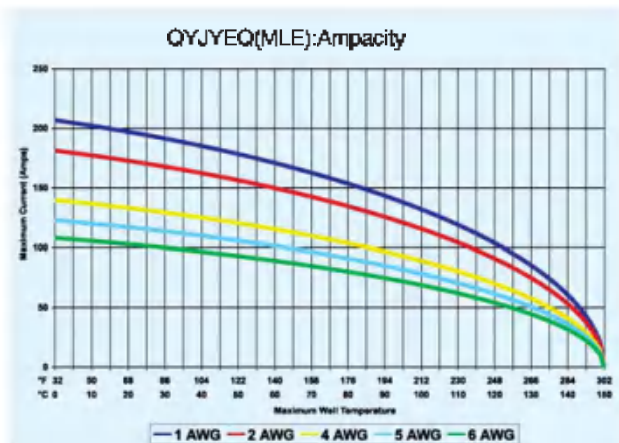
Steel reels of corrugated corellon, outside wrapped by fuming wood; Packing length according to customer's requirement.

Specification and Parameters

Sl.No	Voltage Rating (kv)	Conductor Size		Nominal Conductor Diameter		Nominal Insulation Diameter		Nominal Jacket Diameter		Armor Type	Nominal Cable OD		Nominal Weight (Approximate)	
		AWG	mm ²	inches	mm	inches	mm	inches	mm		inches	mm x mm	lb/1000 ft	kg/km
1	3 kV	AWG 7	10	0.14	3.67	0.22	5.67	0.29	7.27	Full galvanized steel Tape	0.4 * 1.0	10 * 25.6	873	1300
2	3 kV	AWG 6	13	0.16	4.12	0.24	6.12	0.30	7.72	Full galvanized steel Tape	0.4 * 1.1	10.5 * 27	1034	1540
3	3 kV	AWG 5	16	0.18	4.62	0.26	6.62	0.32	8.22	Full galvanized steel Tape	0.4 * 1.1	11 * 28.5	1128	1680
4	3 kV	AWG 4	20	0.20	5.19	0.28	7.19	0.35	8.79	Full galvanized steel Tape	0.5 * 1.2	12 * 30	1323	1970
5	6 kV	AWG 7	10	0.14	3.67	0.26	6.67	0.34	8.67	Full galvanized steel Tape	0.4 * 1.1	10.5 * 27.5	907	1350
6	6 kV	AWG 6	13	0.16	4.12	0.28	7.12	0.36	9.12	Full galvanized steel Tape	0.4 * 1.1	11 * 29	1075	1600
7	6 kV	AWG 5	16	0.18	4.62	0.30	7.62	0.38	9.62	Full galvanized steel Tape	0.5 * 1.2	11.5 * 30.5	1276	1900
8	6 kV	AWG 4	20	0.20	5.19	0.32	8.19	0.40	10.19	Full galvanized steel Tape	0.5 * 1.3	12 * 32	1410	2100

Note: Armor material can choose stainless steel tape or monel tape, this according to customer's requirement.

Ampacity and Voltage Drop



Voltage drop based on 60Hz and 100% power factor



QYYEQ Electrical Submersible Pump Cable



Description

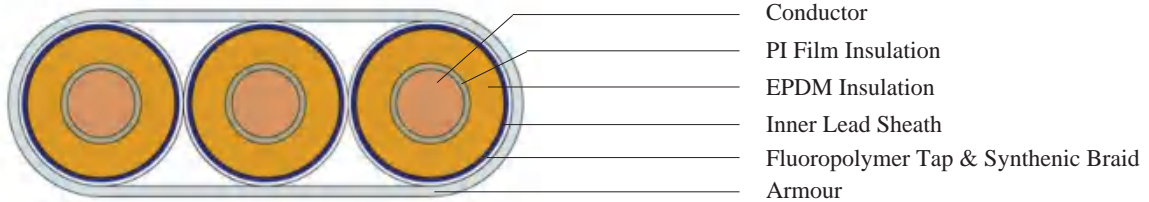
Compound insulation with polyimide film and EPDM rubber, Inner lead sheath, Fluoropolymer tape and synthetic braid covered completely over the jacket, Full galvanized steel (or stainless steel or Monel) tape armour.

Performing Criterion

GB/T16750、IEEE1017、IEEE1018、IEEE1019、API RP 11S5、API RP 11S6

Application Range

This cable is applicable for use in Electrical Submersible Pump Units with rated voltage less than 3kV or 6kV. The permissible working temperature range is -40°C to 150°C , The cable has the excellent ability of oil-resistance, heat-resistance and corrosion-resistance.



QYYEQ ESP Cable

Product Details	Type	Conductor	Insulation	Covering with Jacket	Temperature Ratings	Well Type
QYYEQ	Flat	Copper	Polyimide film & EPDM	Lead Sheath with Fluoropolymer tape and synthetic braid	-40°C to 150°C Max 232°C	Significant Gas & Vapor Concentrations Significant Corrosion High Temperature

Note: Normally the temperature ratings is 150°C , but this model can arrived 232°C by choose high temperature resistant EPDM material.

Quality Guaranteed

One year after delivery

Packing

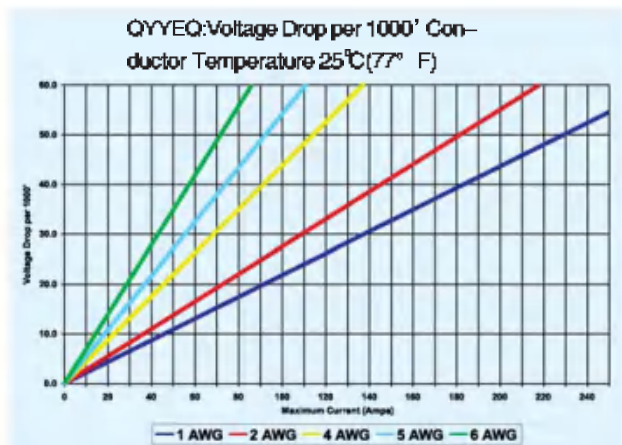
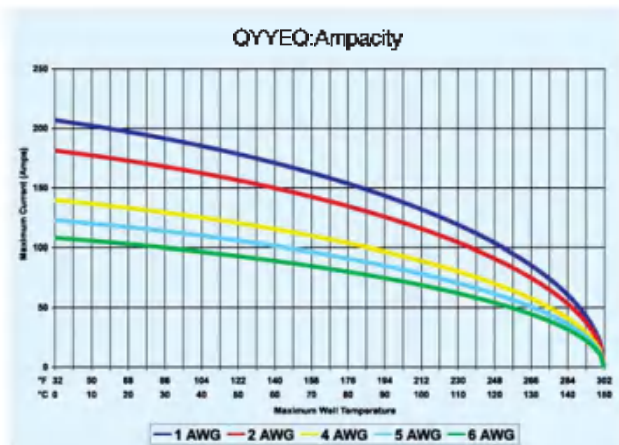
Steel reels of corrugated corellon, outside wrapped by fuming wood; Packing length according to customer's requirement.

Specification and Parameters

Sl.No	Voltage Rating (kv)	Conductor Size		Nominal Conductor Diameter		Nominal Insulation Diameter		Nominal Jacket Diameter		Armor Type	Nominal Cable OD		Nominal Weight (Approximate)	
		AWG	mm ²	inches	mm	inches	mm	inches	mm		inches	mm x mm	lb/1000ft	kg/km
1	3 kV	AWG 5	16	0.18	4.62	0.33	8.42	0.41	10.42	Full galvanized steel Tape	0.5 * 1.4	13 * 36	1498	2230
2	3 kV	AWG 4	20	0.20	5.19	0.35	8.99	0.43	10.99	Full galvanized steel Tape	0.6 * 1.5	14 * 38	1655	2464
3	3 kV	AWG 2	33	0.26	6.54	0.41	10.34	0.49	12.34	Full galvanized steel Tape	0.6 * 1.7	15 * 43	2111	3143
4	3 kV	AWG 1	42	0.29	7.35	0.44	11.15	0.52	13.15	Full galvanized steel Tape	0.6 * 1.8	16 * 45	2401	3575
5	6 kV	AWG 5	16	0.18	4.62	0.36	9.22	0.44	11.22	Full galvanized steel Tape	0.5 * 1.5	13 * 38	1632	2430
6	6 kV	AWG 4	20	0.20	5.19	0.39	9.79	0.46	11.79	Full galvanized steel Tape	0.6 * 1.6	14 * 40	1848	2752
7	6 kV	AWG 2	33	0.26	6.54	0.44	11.14	0.52	13.14	Full galvanized steel Tape	0.6 * 1.8	15 * 45	2249	3348
8	6 kV	AWG 1	42	0.29	7.35	0.47	11.95	0.55	13.95	Full galvanized steel Tape	0.6 * 1.9	16 * 47	2607	3881

Note: Armor material can choose stainless steel tape or monel tape, this according to customer's requirement.

Ampacity and Voltage Drop



Voltage drop based on 60Hz and 100% power factor



QYJYFF(MLE) Electrical Submersible Pump Cable



◆ Description

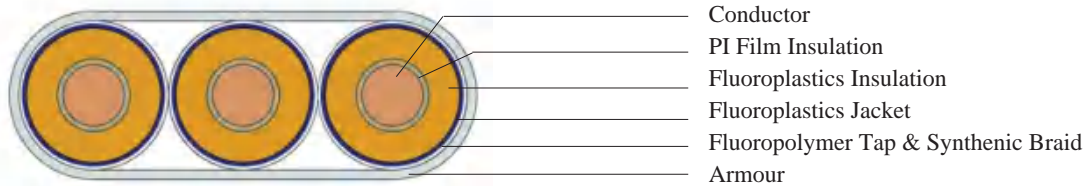
Compound insulation with polyimide film and fluoroplastics, Fluoroplastics jacket, Fluoropolymer tape and synthetic braid covered completely over the jacket, Full galvanized steel (or stainless steel or Monel) tape armour.

◆ Performing Criterion

GB/T16750、 IEEEE1017、 IEEEE1018、 IEEEE1019、 API RP 11S5、 API RP 11S6

◆ Application Range

This cable is applicable for use in Electrical Submersible Pump Units with rated voltage less than 3kV or 6kV. The permissible working temperature range is -51℃ to 250℃, The cable has the excellent ability of oil-resistance, heat-resistance and corrosion-resistance.



QYJYFF(MLE) ESP Cable

Product Details	Type	Conductor	Insulation	Covering with Jacket	Temperature Ratings	Well Type
QYJYFF (MLE)	Flat	Copper	Polyimide film & Fluoroplastics	Fluoroplastics Jacket with Fluoropolymer tape & synthetic braid	-51℃ to 250℃	Very High Gas & Vapor Concentrations Very Severe Corrosion Very High Temperature

Quality Guaranteed

One year after delivery

Packing

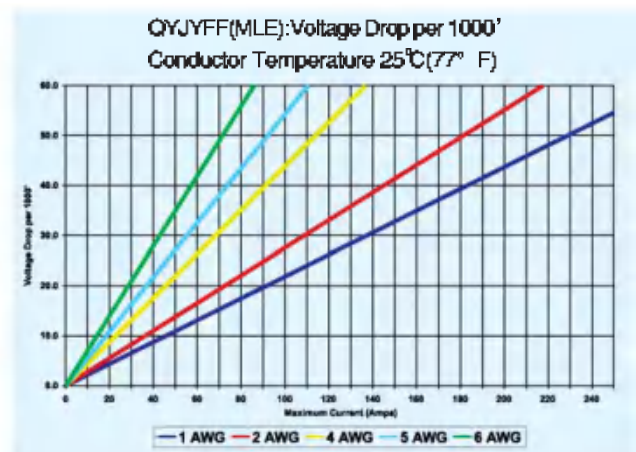
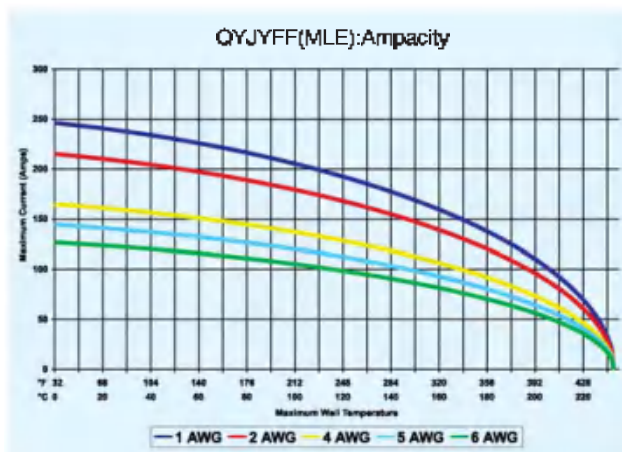
Steel reels of corrugated corellon, outside wrapped by fuming wood; Packing length according to customer's requirement.

Specification and Parameters

Sl.No	Voltage Rating (kv)	Conductor Size		Nominal Conductor Diameter		Nominal Insulation Diameter		Nominal Jacket Diameter		Armor Type	Nominal Cable OD		Nominal Weight (Approximate)	
		AWG	mm ²	inches	mm	inches	mm	inches	mm		inches	mm x mm	lb/1000 ft	kg/km
1	3 kV	AWG 7	10	0.14	3.67	0.21	5.27	0.25	6.47	Full galvanized steel Tape	0.4 * 0.9	9 * 23.6	469	698
2	3 kV	AWG 6	13	0.16	4.12	0.23	5.72	0.27	6.92	Full galvanized steel Tape	0.4 * 1.0	9.5 * 26	548	816
3	3 kV	AWG 5	16	0.18	4.62	0.25	6.22	0.29	7.42	Full galvanized steel Tape	0.4 * 1.1	10 * 27	630	938
4	3 kV	AWG 4	20	0.20	5.19	0.27	6.79	0.31	7.99	Full galvanized steel Tape	0.4 * 1.1	10.5 * 28.5	717	1068
5	6 kV	AWG 7	10	0.14	3.67	0.21	5.27	0.25	6.47	Full galvanized steel Tape	0.4 * 1.0	9 * 24.5	487	725
6	6 kV	AWG 6	13	0.16	4.12	0.23	5.72	0.27	6.92	Full galvanized steel Tape	0.4 * 1.1	10 * 28	571	850
7	6 kV	AWG 5	16	0.18	4.62	0.25	6.22	0.29	7.42	Full galvanized steel Tape	0.4 * 1.2	10.5 * 29.5	651	969
8	6 kV	AWG 4	20	0.20	5.19	0.27	6.79	0.31	7.99	Full galvanized steel Tape	0.4 * 1.2	11 * 30.5	739	1100

Note: Armor material can choose stainless steel tape or monel tape, this according to customer's requirement.

Ampacity and Voltage Drop



Voltage drop based on 60Hz and 100% power factor



QYYFF Electrical Submersible Pump Cable



Description

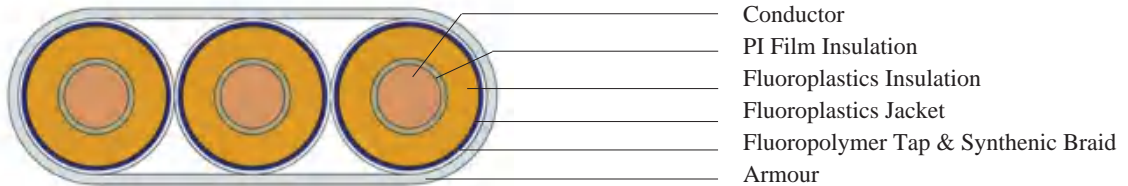
Compound insulation with polyimide film and fluoroplastics, Fluoroplastics jacket, Fluoropolymer tape and synthetic braid covered completely over the jacket, Full galvanized steel (or stainless steel or Monel) tape armour.

Performing Criterion

GB/T16750、IEEE1017、IEEE1018、IEEE1019、API RP 11S5、API RP 11S6

Application Range

This cable is applicable for use in Electrical Submersible Pump Units with rated voltage less than 3kV or 6kV. The permissible working temperature range is -51℃ to 250℃, The cable has the excellent ability of oil-resistance, heat-resistance and corrosion-resistance.



QYYFF ESP Cable

Product Details	Type	Conductor	Insulation	Covering with Jacket	Temperature Ratings	Well Type
QYYFF	Flat	Copper	Polyimide film & Fluoroplastics	Fluoroplastics Jacket with Fluoropolymer tape & synthetic braid	-51℃ to 250℃	Very High Gas & Vapor Concentrations Very Severe Corrosion Very High Temperature

Quality Guaranteed

One year after delivery

Packing

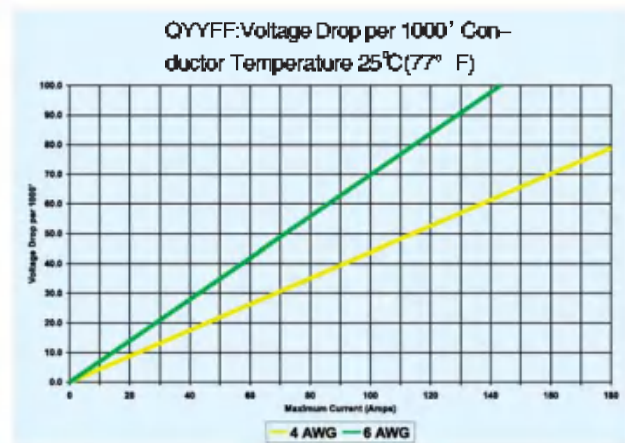
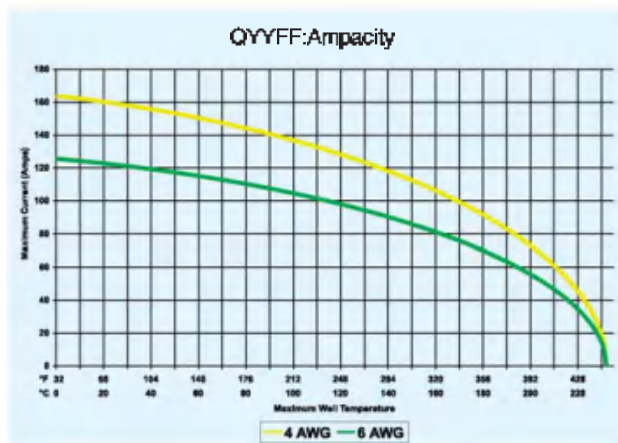
Steel reels of corrugated corellon, outside wrapped by fuming wood; Packing length according to customer's requirement.

Specification and Parameters

Sl.No	Voltage Rating (kv)	Conductor Size		Nominal Conductor Diameter		Nominal Insulation Diameter		Nominal Jacket Diameter		Armor Type	Nominal Cable OD		Nominal Weight (Approximate)	
		AWG	mm ²	inches	mm	inches	mm	inches	mm		inches	mm x mm	lb/1000 ft	kg/km
1	3 kV	AWG 5	16	0.18	4.62	0.25	6.22	0.29	7.42	Full galvanized steel Tape	0.4 * 1.0	10.5 * 26	813	1210
2	3 kV	AWG 4	20	0.20	5.19	0.27	6.79	0.31	7.99	Full galvanized steel Tape	0.4 * 1.1	11 * 27.5	919	1369
3	3 kV	AWG 2	33.5	0.26	6.54	0.32	8.14	0.37	9.34	Full galvanized steel Tape	0.5 * 1.2	12.5 * 31	1192	1775
4	3 kV	AWG 1	42.5	0.29	7.35	0.35	8.95	0.40	10.15	Full galvanized steel Tape	0.5 * 1.3	13.5 * 34	1421	2116
5	6 kV	AWG 5	16	0.18	4.62	0.26	6.62	0.30	7.82	Full galvanized steel Tape	0.4 * 1.1	11 * 29	840	1250
6	6 kV	AWG 4	20	0.20	5.19	0.28	7.19	0.33	8.39	Full galvanized steel Tape	0.5 * 1.2	12 * 31	962	1432
7	6 kV	AWG 2	33	0.26	6.54	0.34	8.54	0.38	9.74	Full galvanized steel Tape	0.5 * 1.3	12.5 * 33.5	1245	1853
8	6 kV	AWG 1	42	0.29	7.35	0.37	9.35	0.42	10.55	Full galvanized steel Tape	0.6 * 1.5	14 * 37.5	1470	2188

Note: Armor material can choose stainless steel tape or monel tape, this according to customer's requirement.

Ampacity and Voltage Drop



Voltage drop based on 60Hz and 100% power factor

HANDLING AND STORAGE OF ESP CABLES

1)DOWN HOLE PUMP CABLES

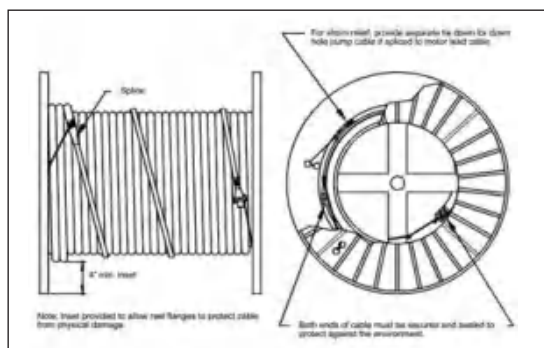
The recommended method to lift a reel of cable is to***

- Insert an adequately sized piece of pipe through the center of the reel to serve as an axle.
- The reel should be lifted with a power spooler or with a spreader bar and a wire rope or chain sling attached to this axle.
- A reel of cable should never be lifted using a sling without a spreader bar as the cable or the cable reel could be damaged.
- Necessary precautions should be taken to protect the cable and reel from damage during storage, transportation or installation of equipment.
- The reel of cable should never be allowed to roll against objects that might crush or otherwise damage the cable or reel.
- A minimum 4-inches clearance should be allowed between the outermost layer of the cable and the flange of the cable reel to protect the cable from damage. (See Figure 1.)
- The reel should be transported and handled with the reel axle horizontal to the ground.
- The reel rims when transported by conventional means should be chocked (blocked) on both sides of the reel, and that the reel should be properly secured by boom chains passing through the center section of the reel.
- Chains should never pass over the top of the reel or touch the cable.

GENERAL PRECAUTIONS USING FORKLIFTS

When forklifts are used to handle cable reels, they should consider the following instructions..

- ◆ Forks shall be long enough to support both reel rims;
- ◆ Forks shall be of adequate width to safely lift the reel;
- ◆ Forks shall be locked in position;
- ◆ Lifts shall be made on the reel rims only (when approaching the reel from its end);
- ◆ Only one cable reel shall be lifted at a time.



2) MOTOR LEAD EXTENSION (FLAT) CABLES

- To ensure physical protection, a motor lead extension cable that is shipped separately should be boxed, crated, reeled or secured to a pallet.

- To protect the cable from the elements, each end of the lead extension cable should be sealed.
- Figure 1 shows the preparation of Cable for Transportation and Handling of Spools

3)CABLE SPOOLERS OR REELS

- Power cable spoolers of adequate size should be used and should be maintained in good condition.
- It is recognized that power cable spoolers may not always be available and that cable reels and conventional stands may be used instead. In this case, at least one person should be available to handle the reel.
- Reels of cable should be placed 25 to 30 m (75 to 100 feet) from the wellhead and should be in the rig operator's direct line of sight.
- Reels of cable shall be located so that the cable does not pass over the rig operator's head.
- Reel supports and spoolers should be in a position so that the reel axle is at right angles to the wellhead.
- Spool operators shall stay clear of reel rims during running or pulling operations.
- When the ambient temperature requires heating the cable for running, a suitable shelter with heaters should be utilized.

4)DOWNHOLE PUMP CABLE PROTECTION

- It may be necessary, because of local ground conditions, to provide some protection for the cable where it contacts the ground when passing from the cable reel to the cable sheave.
- In such a case, protective material should be placed on the ground under the cable to prevent cable damage.

5) CABLE SHEAVE

- A cable sheave shall be used when running or pulling down hole electrical submersible pump cable.
- Sheaves should be a minimum of 1.4 m (54 inches) in diameter, and be of such construction to prevent cables from jumping off the sheave wheel during operation.
- During equipment installation, cable sheaves should be supported above the ground when preparing to feed the cable through the sheave.
- After the cable has passed through the sheave and has been securely banded to the tubing, the sheave should be raised to a running position; approximately 8 to 14 m (25 to 45 ft) above the slips.
- The sheave should then be secured such that the cable is as close as possible in line with the movement of the traveling blocks
- The cable should not be used to reposition the sheave.
- In securing a sheave to the service rig, the sheave should be hung by a primary hanging device.
- A secondary safety hanging device shall be provided and connected to a separate support on the sheave and on the rig.
- The safety device shall not have any load on it during normal running or pulling operations.
- When flat, down hole pump cable is being run, a flat rimmed sheave should be used.
- The sheave axle, support frame, wheel rim and rim to-frame clearance should be inspected prior to each use.

6)CASING CHECK

- A full gauge tool in which the outer diameter (OD) of the tool is slightly larger than the OD of the equipment should be run to a depth of 18 m (60 feet) below the motor setting depth, or as deep as well conditions permit, prior to the installation of equipment.
- This should occur prior to the- installation
 - (a) In a new well,



- (b) When larger diameter equipment is run,
- (c) If evidence of damage is found on the cable or unit upon removal from a well, or
- (d) If the unit is to be run to a lower setting depth.

- Although some burrs, tight spots, partially collapsed casing, or other problems may be present, gauging the casing as recommended in 6.2.1 will ensure adequate clearance for the installation.
- It is allowed alternatively, however, to run a full bore casing scraper to assure there are no burrs that might damage the cable or to run a stiff string assembly to check for dog legs that may damage the equipment.
- If gauging the casing indicates any tight spots, appropriate action should be taken to eliminate the problem prior to installing equipment.
- If tight spots cannot be eliminated, smaller diameter equipment should be used.

7)CABLE SPLICING

- Several types of cable-splicing techniques are practical depending on wellbore conditions and cable material.
- The cable manufacturer should be consulted for suitable techniques.
- The motor lead extension cable should be spliced to the power cable before the cable is shipped to the location.

8)CABLE BANDING

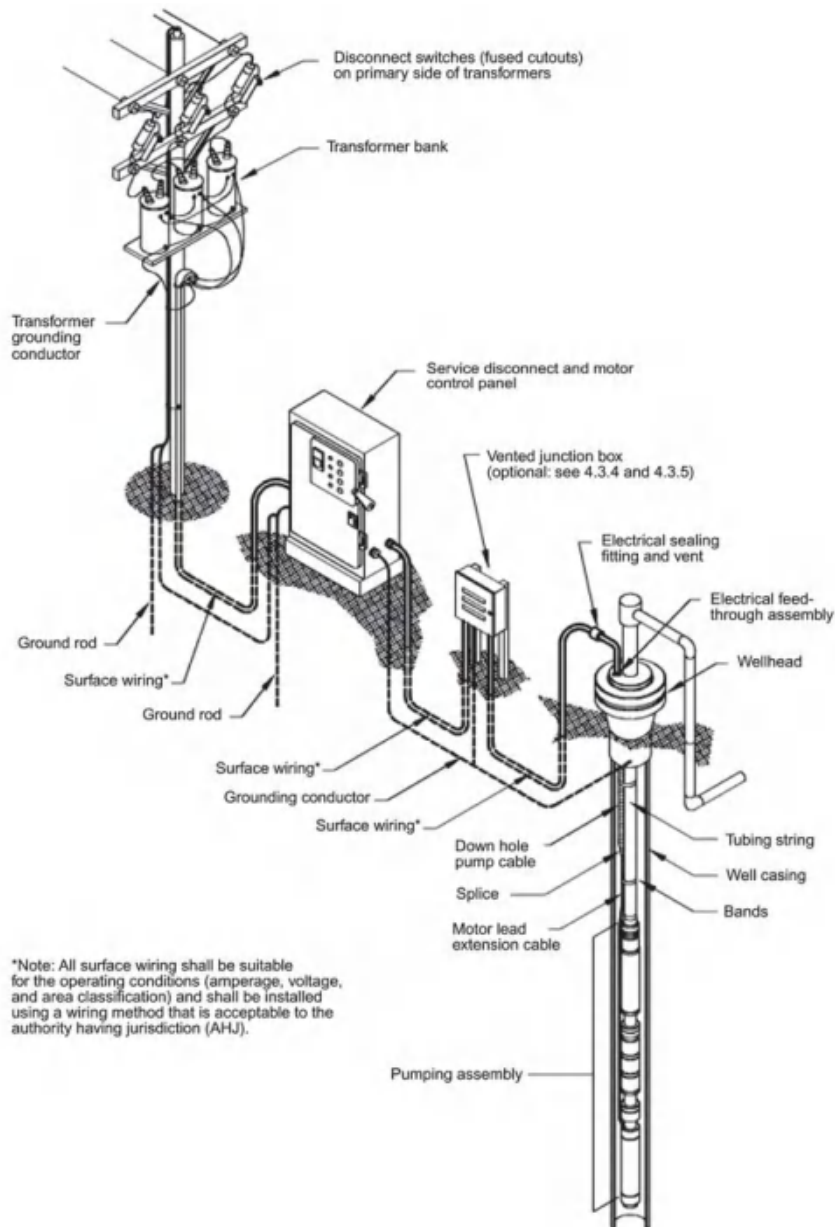
- Banding tools should be in good condition and adjusted correctly.
- Personnel using these tools should be trained and supervised to ensure proper banding.
- On armored cable, bands should be tightened until the armor is slightly distorted, but not crushed.
- Bands should not be installed on cable splices. Banding immediately above and below a splice is recommended to prevent any cable load from being transmitted to the splice.
 - The minimum banding recommendation is two bands per tubing joint, with one band in the middle of the joint and the other band 2 to 3 ft above the collar.
 - When running through a dogleg or other tight spot in the well, consideration should be given to installing more bands per joint.
 - Cable band saddles should be used on unarmored cable. Saddles may be used on armored cable, if desired, on unarmored power cables using saddles; bands should be tight enough to prevent slippage of the cable or the saddle.
 - An acceptable alternative to banding is the use of cable clamps.

9)FIELD EVALUATION OF USED DOWNHOLE PUMP CABLES

- Used down hole pump cables should be spooled and inspected for physical damage and corrosion.
It should be checked for the following:
 - a) Damaged, deteriorated armor.
 - b) Swollen insulation.
 - c) Exposed conductors.
 - d) Deteriorated or an excessive number of splices.
 - e) Corrosion.
- Field electrical integrity tests should be performed in accordance with API RP 11S6.

10)ASSESSMENT OF USED DOWNHOLE PUMP CABLES

- All cables should be electrically tested both before and after repairs are made.
- To maintain armor integrity, any corrosion, scrapes, and other physical damage must be repaired prior to reuse.
- Insulation resistance testing (obtaining megohm readings) alone does not provide sufficient information to evaluate the condition of a down hole pump cable. Reference API RP 11S6.
- It is a good practice to allow the cable to de-gas (i.e. breathe) for several days prior to testing unless it can- be verified that the cable is not gas-charged.



Components of an Electrical Submersible Pumping System



ESP Cable Solutions Co., Limited

Integrity Solutions for Electrical Submersible Pump Cable

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