



НАРОДНОЕ ПРЕДПРИЯТИЕ

ПОДОЛЬСККАБЕЛЬ



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

КАТАЛОГ ПРОДУКЦИИ



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For industries where the products of high reliability is a must. It sustains to extreme loads- such as nuclear industry, oil and gas complex, air and space crafts, army industry, vessels etc. we produce the wires with radiation cross linking.

As for today in Russia 2 types of cross linking are used in cable industry. One is chemical (PEROXIDE OR SILAN). Another type is radiation cross linking, where material treatment is provided by electronic beam radiation.

In all types of linking in core insulation cross links are formed between the molecules of PE. It creates 3 – measures structure. It facilitates high mechanical and electrical features of the material and wide range Of operation temperature.

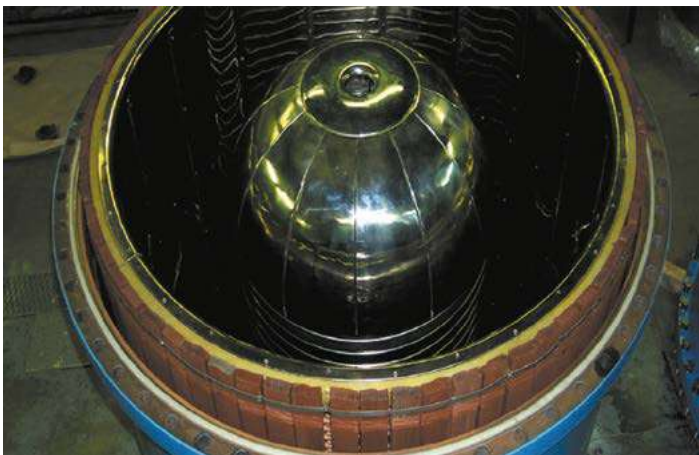
JSC «PE «PODOLSKKABEL» makes cables and wires with the implementation of radiation cross linking more than 35 years.

Our unit is equipped with authomized complexes for radiation of insulation of cables with PE insulation or polymeric compositions. The cross sections of cables are from 0,12 to 120 sq/mm.

As a result of radiation cross linking, cables and wires gain the advantages such as:

- higher thermal resistance –modified polymer goes mild at the Increased temperatures more than 150 C, melts at 200 C and fires at 400 C with dissipation to water and carbon dioxide gas
- more hardness and strength to rupture with decrease elongation to rupture
- strength to impact of aggressive substances- such as chemical and biological destroyers.
- Better resistance to cracking and crushing
- Thermal resistance to increased heating temperatures of current carrying conductors

All cables and wires passed radiation treatment, as cross- linking, have a better reliability and sustain to extreme stresses at different heavy loads.





Today JSC «PE «PODOLSKABEL» is one of the leading producers of cables and wires in oil and gas industry.

In 2013, 2014, 2015, 2016 feed backs of the specialists of such companies as PAO «GASPROM», PAO «NK «ROSNEFT», PAO «GASPROMNEFT», PAO «LUKOIL», OJS «SURGUTNEFTEGAS», PAO NK «RUSSNEFT «PAO ANK «Bashneft», OJSC «AK «TRANSNEFT», PAO «SIBIRHOLDING» confirm this thesis as JSC «PE «PODOLSKABEL» is considered as best producer in the nomination «OIL SUBMERGED CABLE».

The interview with the companies was conducted by Consulting council on the cooperation of Oil Gas complex companies with partner plants of industry. The chairman of Council is the Chairman of State дума committee on Energy. The purpose of interview is to identify the best producers of Oil and Gas complex on the basic trade groups. Within 4 years oil submerged cable of JSC «PE «PODOLSKABEL» production has been t are guaranteed by modern testing and processing equipment.

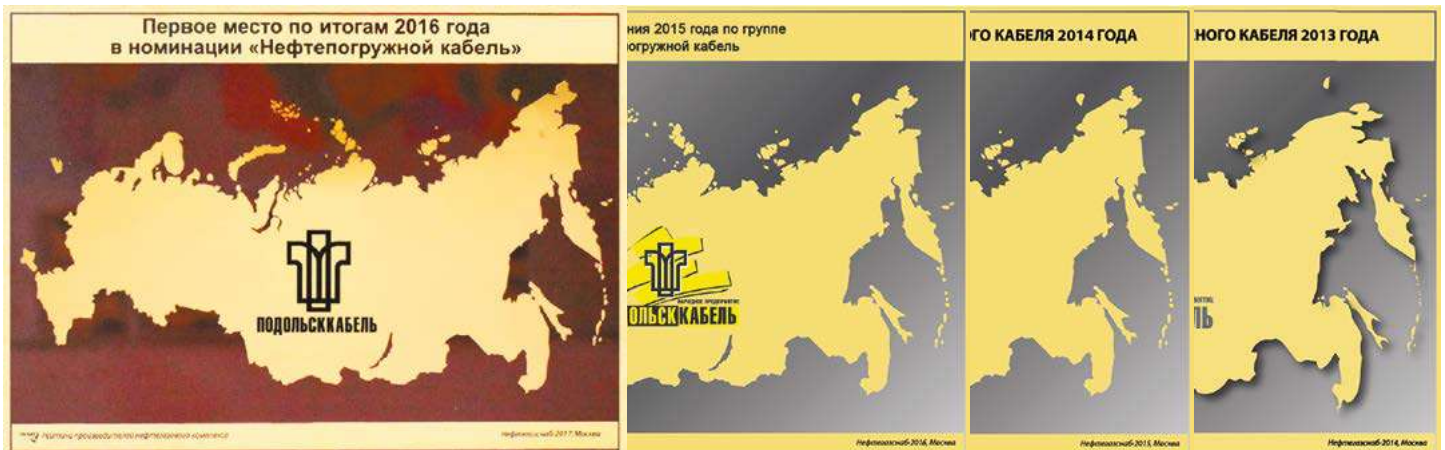
GOLD MEDAL and Diploma for the development of new items and Certificate of Winner in National competition «Golden Tag of Quality Russian Brand» was given to the Enterprise.

Certificate and Patent to useful model are given to the cables for submerged pumps as well as conformance certificate.

Many years of experience in production and best modern raw materials has provided the best operation qualities of oil submerged cable under the brand PE «PODOLSKABEL». All our products have the required Quality certificates.

Four years in sequence oil submerged cable by PODOLSKABEL is considered as the best in Russia.

Four years in sequence oil submerged cable by PODOLSKABEL is considered as the best in Russia.





Made cables are passed control to conformance to standard reference documentation in the Central Plant Laboratory.

Laboratory JSC «PE «PODOLSKKABEL» conducts the tests of cables and wires for the further certification and verification of consumed materials have been used for cable production.

Acceptance control includes :

- Test the quality of insulation in current carrying conductors by high voltage test and measurement of leakage current.
- Verify the quality of conductors by the measurement of its Ohmic voltage.
- Fill and print quality passport.
- Exclude human factor in testing the cable.
-

For consumption materials used for production of cables and wires such as plastics, steel wires, paints, varnishes, polyolefines and copper rods Central Plant Laboratory of JSC «PE «PODOLSKKABEL» conducts all required tests to confirm its quality and verification to the claimed quality. Each cable reel is furnished with Quality passport.

The set of documents from our factory attached to the cable can help to identify any worker in the total processing.

We feel importance in marking and packing the cables. Flexible packing The factory uses special material which has advantages to wooden mats packing

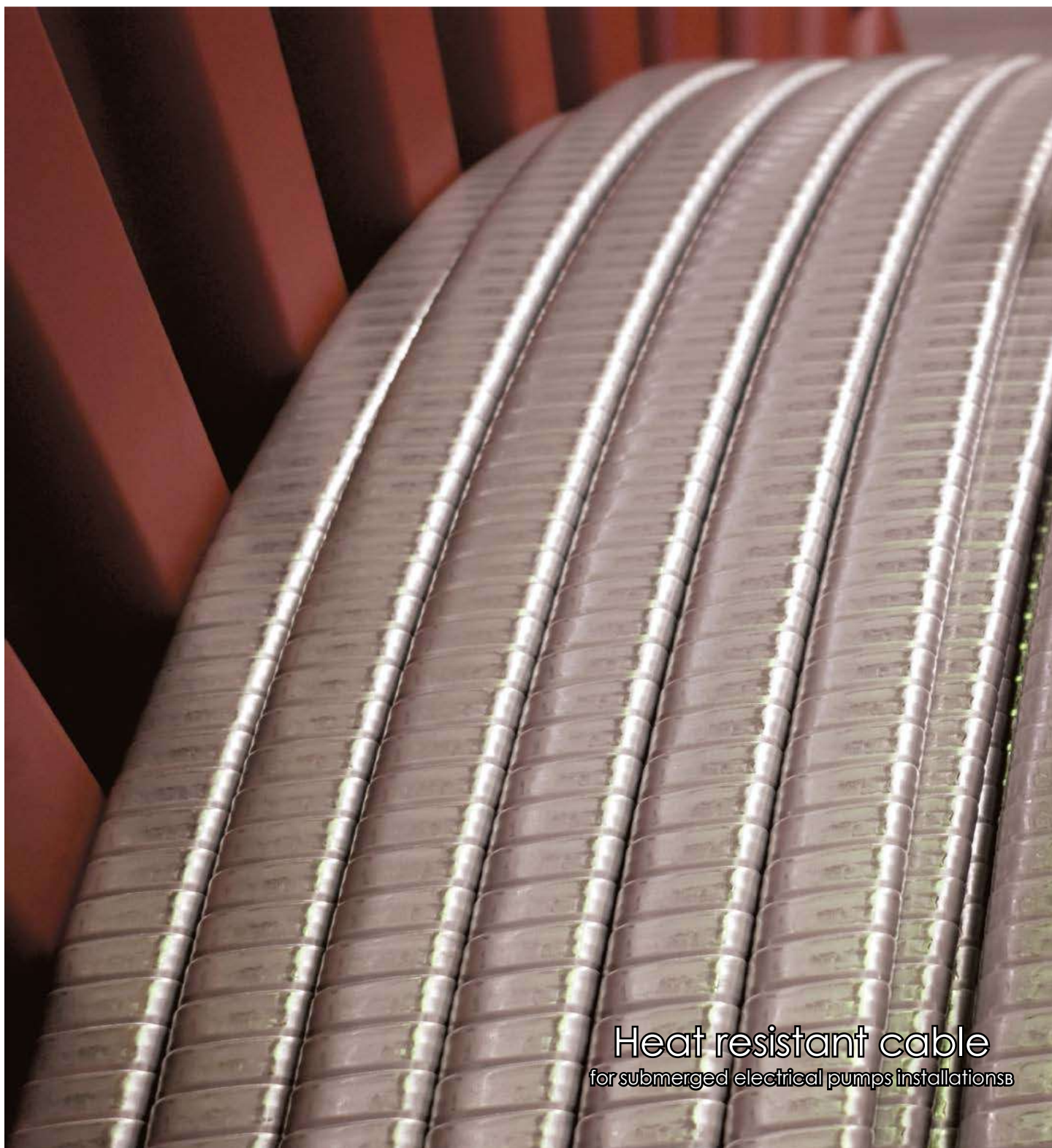
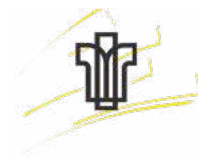
Cable marking is done according to GOST R51777-2001 and GOST 18690 – 2012.

At drum flange and at label stuck to the drum there are notes:

- nomination of the cable
- number of technical specification
- factory number
- length gross weight
- manufacturing date – month and year

Marking tape is laid in the cable with type of cable, -manufacturing date – month and year, manufacturing factory(K13). Cable ends are closed with plumb where length is given.





Heat resistant cable
for submerged electrical pumps installations

Cables for submerged electrical pumps installations with long time temperature of core heating

+90 °C

+120 °C

+130 °C

+140 °C

+150 °C

+160 °C



APPLICATION

The cables are designed to supply electrical energy to submerged electrical motors of oil pumping stations, for water hoisting and pumping the liquids from bores, basins ponds and designed to rated AC voltage 3.3, 4.0 and 5.0 kv with the frequency up to 70 Hz.

The cables are designed to work into bore liquid which contains oil as well as water and gas with following features:

water content	100%
pH of accompany water	5,0*- 8,5
concentration of Sulfur Hydrogen for the cables armor of steel zinced tape, not more than, gram per liter	0,01
concentration of Sulfur Hydrogen for the cables of stainless steel tape resistant to corrosion, MPa, not more	1,25
hydrostatic pressure, not more	25
gas factor, not more, cub.m per MT	500

* note – 6,0 pH for cables of types КПсТБП-160 by Technical specification 3542-034-05015408-2012

OPERATIONAL NOTES

Climate version for moderate cold climate. Categories of deployment 1 – 5 by GOST 15150 – 69, FOR OPERATION IN BORE LIQUID.

In static condition the cables resist to the impact of temperature fluctuation from minus 60 to long time admission of core long heating temperature for certain cable type.

Winding of cable and hoist – down operations can be at air temperature not low than minus 40 C⁰.

At winding and hoist and down operations bending radius is :

- not less 300 mm for the cores with cross - section 10-16 mm²;
- not less 360 mm the cores with cross – section 21,15 mm²;
- not less 380 mm the cores with cross – section 25 mm²;
- not less 420 mm the cores with cross – section 35 mm²;

Hoist and down of the cable to the bore shall go smoothly with the speed not more than 0.25 m per a second.

When tube column in the bore passes the section with curve more than 1,5 degrees per 10 meters, or passes to less diameter in the bore, the speed not more than 0,1 m per a second both in hoist or down

When the cable is fixed to tubes of pump and compressor, take care the cable shall not twist around the tubes and flat cable shall not get twisted around its own axis.

Electrical resistance of insulation of major cores recalculated to the length of 1 km and temperature 20 C⁰ shall be not less than 2500 Mohms.

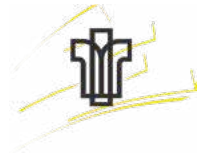
The cables can sustain crushing not less 158 kN.

Insulated cores are sealed in a longer direction at drop of liquid pressure 0,02 MPa per 1 km of the length.

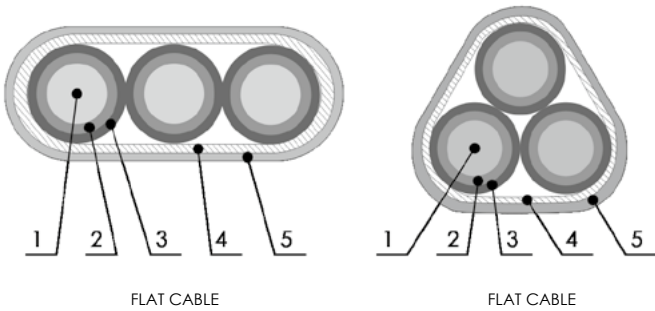
The cables shall pass DC voltage tests 18 kV within not less than 5 minutes . As a result, leakage current in insulation, recalculated to 1 km length and temperature 20 C⁰ shall not exceed 1*10⁻⁵ A.

The required length of the cable is agreed when order is formed.

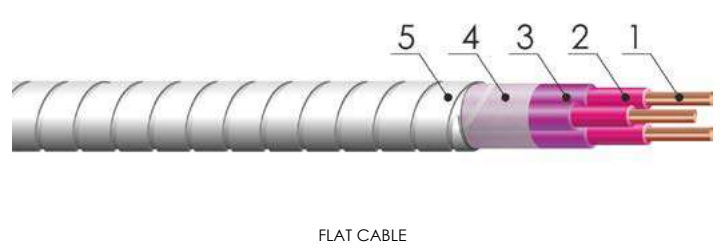
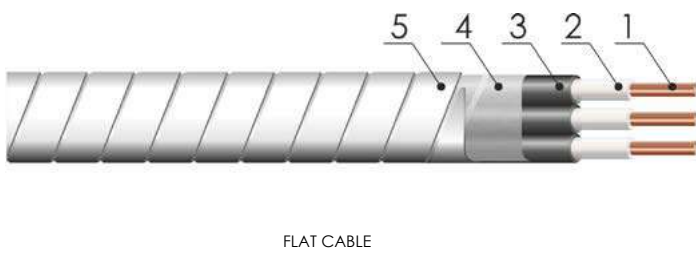




CONSTRUCTION



1. Current carrying conductor
2. The 1-st layer of insulation
3. The 2-nd layer of insulation
4. Pad
5. Armor



The cables can be made with different types of protective armor:

- «Б» - steel zinced tape;
- «БК» or «БНК» - is tape of stainless corrosion resistant steel;
- «БЛК» - steel tape with corrosion resistant coating with zinc – copper melt coating;

For the cables with rated voltage 4.0 and 5.0 kV figures 4 or 5 are added through mark .

The example of conventional nomination of a cable in the order or in the documentation:

КПсПлБП-120 3x16 ТУ 16.К13-012-2002- as cable with copper conductors, 2 layers of insulation, armored steel tape with zinc coating, with long admission of cores heating + 120 C° to the voltage 3,3 kV, with 3 major conductors rated cross – section 16 square mm.

КПсПлБкК-130 3x25-4 ТУ 16.К13-012-2002- as cable with copper conductors, 2 layers of insulation, with armor tape of stainless corrosion resistant steel, round shape, with long admission of cores heating + 130 C°, to the voltage 4.0kV with 3 major conductors rated cross – section 25 square mm.

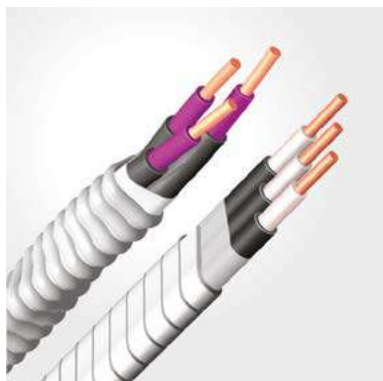
The cables correspond to the general requirements of GOST R 51777-2001 .





CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

+90 °C	3,3 kV	4,0 kV	5,0 kV	TV 16.K13-012-2002
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КПБП-90 КПБК-90

КПБП-90 - cable with copper conductors, 2 layers of PE insulation, armor of steel zinc coated tape, flat, with long admission of core heating +90 °C.

КПБК-90 - cable with copper conductors, 2 layers of PE insulation, armor of steel zinc coated tape, round, with long admission of core heating +90 °C.

DESIGN

- Current carrying conductor** - copper;
- Insulation** – polyethylene of high density;
- Insulation** – polyethylene of high density;
- Pad** – as non woven cloth;
- A armor** – zinc coated or corrosion resistant tape.



Guaranteed term of cable operation is 2 years since operation of cable started. Operation term does not include the period of storing provided that guaranteed term of storing is not exceeded.

Storing guaranteed term is 1 year since shipment.

Service life of the cable at right conditions of storing is not less 5,5 years.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПБП-90	13,6x33,8	885	КПБП-90-4	13,6x33,8	889	КПБП-90-5	13,6x33,8	907
3x13,3		15,0x37,4	1010		15,0x37,4	1018		15,0x37,4	1037
3x16,0		15,0x37,4	1092		15,0x37,4	1120		15,0x37,4	1139
3x21,15		16,2x42,5	1304		16,2x42,5	1315		16,2x42,5	1334
3x25,0		16,2x42,5	1439		16,2x42,5	1451		16,2x42,5	1471
3x35,0		18,0x48,2	1748		18,0x48,2	1766		18,0x48,2	1787

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПБК-90	29,0	812	КПБК-90-4	29,0	823	КПБК-90-5	29,0	839
3x13,3		32,0	928		32,0	948		32,0	965
3x16,0		32,0	1014		32,0	1048		32,0	1065
3x21,15		35,6	1219		35,6	1238		35,6	1256
3x25,0		35,6	1352		35,6	1372		35,6	1390
3x35,0		38,3	1660		38,3	1682		38,3	1701

Long time current loads for the cable

Type of cable	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less							
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+88 °C
КПБП-90	3x10,0	91	85	77	69	60	49	35	15
	3x13,3	110	101	93	83	72	59	42	19
	3x16,0	122	113	103	92	80	65	47	21
	3x21,15	148	137	125	112	97	79	56	25
	3x25,0	163	151	137	123	106	87	62	27
	3x35,0	203	188	172	154	133	109	77	34
КПБК-90	3x10,0	93	86	79	71	61	50	36	16
	3x13,3	112	103	94	84	73	60	43	19
	3x16,0	124	115	105	94	81	66	48	21
	3x21,15	151	139	127	114	99	80	57	25
	3x25,0	165	153	139	125	108	88	63	28
	3x35,0	202	187	171	153	133	108	76	34

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.

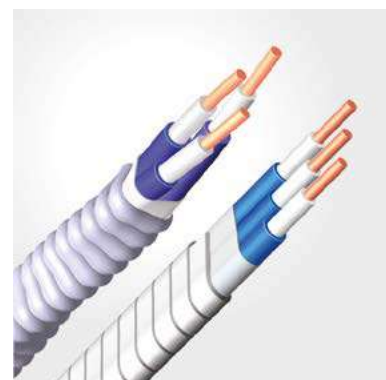


+120 °C	3,3 kV	4,0 kV	5,0 kV	TV 16.K13-012-2002
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КПнБП-120 КПнБК-120

КПнБП-120 - cable with copper conductors, with 2 layers of insulation of copolymer of Propilene, armor of steel zinced wire, flat, with long admission of core heating +120 °C.

КПнБК-120 - cable with copper conductors, with 2 layers of insulation of copolymer of Propilene, armor of steel zinced wire, round, with long admission of core heating +120 °C.



DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - copolymer of Propilene;
3. **Insulation** - copolymer of Propilene;
4. **Pad** - as non woven cloth;
5. **Armor** - steel zinc coated or corrosion resistant tape.



Guaranteed term of cable operation is 2 years since operation of cable started. Operation term does not include the period of storing provided that guaranteed term of storing is not exceeded.

Storing guaranteed term is 1 year since shipment.

Service life of the cable at right conditions of storing is not less 5,5 years.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнБП-120	13,6x33,8	875	КПнБП-120-4	13,6x33,8	896	КПнБП-120-5	13,6x33,8	915
3x13,3		15,0x37,4	1000		15,0x37,4	1025		15,0x37,4	1044
3x16,0		15,0x37,4	1087		15,0x37,4	1117		15,0x37,4	1136
3x21,15		16,2x42,5	1299		16,2x42,5	1328		16,2x42,5	1339
3x25,0		16,2x42,5	1427		16,2x42,5	1461		16,2x42,5	1481
3x35,0		18,0x48,2	1738		18,0x48,2	1775		18,0x48,2	1796

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнБК-120	29,0	817	КПнБК-120-4	29,0	814	КПнБК-120-5	29,0	830
3x13,3		32,0	943		32,0	939		32,0	955
3x16,0		32,0	1032		32,0	1038		32,0	1054
3x21,15		35,6	1237		35,6	1227		35,6	1254
3x25,0		35,6	1372		35,6	1360		35,6	1378
3x35,0		38,3	1683		38,3	1669		38,3	1668

Long time current loads for the cable

Type of cable	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less										
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+118 °C
КПнБП-120	3x10,0	105	99	94	88	81	74	66	57	47	33	15
	3x13,3	125	119	112	105	97	89	79	69	56	40	18
	3x16,0	139	132	124	116	108	98	88	76	62	44	20
	3x21,15	170	161	152	142	132	120	107	93	76	54	24
	3x25,0	186	176	166	156	144	131	118	102	83	59	26
КПнБК-120	3x10,0	107	101	95	89	83	75	68	58	48	34	15
	3x13,3	128	121	114	107	99	90	81	70	57	40	18
	3x16,0	142	135	127	119	110	100	90	78	63	45	20
	3x21,15	172	163	154	144	133	122	109	94	77	54	24
	3x25,0	189	179	169	158	146	133	119	103	84	60	27
	3x35,0	232	220	207	194	179	164	146	127	104	73	33

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

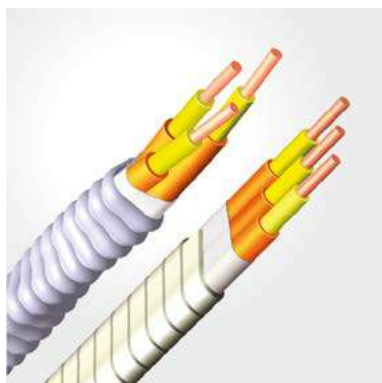
+120 °C

3,3 kV

4,0 kV

5,0 kV

TV 16.K13-012-2002



КПСБП-120

КПСБК-120

КПСБП-120 - cable with copper conductors, 2 layers insulation of Polyethelene, armor of steel zinc coated tape, flat, with long admission of core heating +120 °C.

КПСБК-120 - cable with copper conductors, 2 layers insulation of Polyethelene, armor of steel zinc coated tape, round, with long admission of core heating +120 °C.

DESIGN

- 1. Current carrying conductor** - copper;
- 2. Insulation** - PE of radiation modified;
- 3. Insulation** - polyethelene;
- 4. Pad** - as non woven cloth;
- 5. Armor** - steel zinc coated or corrosion resistant tape.



Guaranteed term of cable operation is 2 years since operation of cable started. Operation term does not include the period of storing provided that guaranteed term of storing is not exceeded.

Storing guaranteed term is 1 year since shipment.

Service life of the cable at right conditions of storing is not less 5,5 years.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПСБП-120	12,2x30,6	897	КПСБП-120-4	12,4x31,2	914	КПСБП-120-5	12,6x31,8	932
3x13,3		12,8x32x2	1022		13x32,8	1040		13,2x33,4	1059
3x16,0		13,1x33,3	1110		13,3x33,8	1127		13,5x34,3	1144
3x21,15		13,9x35,5	1318		14,1x36,1	1335		14,3x36,7	1345
3x25,0		14,3x36,9	1453		14,5x37,5	1473		14,7x38,1	1493
3x35,0		15,3x39,7	1767		15,5x40,3	1788		15,7x40,9	1810

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПСБК-120	22,9	803	КПСБК-120-4	29,0	839	КПСБК-120-5	29,0	873
3x13,3		24	926		32,0	965		32,0	1000
3x16,0		24,8	1015		32,0	1065		32,0	1100
3x21,15		26,5	1221		35,6	1256		35,6	1293
3x25,0		27,4	1364		35,6	1390		35,6	1427
3x35,0		29,5	1665		38,3	1701		38,3	1740

Long time current loads for the cable

Type of cable	Rated Cross-sections of the cores, mm ²	Long time current load A at environment temperature, not less										
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+118 °C
КПСБП-120	3x10,0	105	99	94	88	81	74	66	57	47	33	15
	3x13,3	125	119	112	105	97	89	79	69	56	40	18
	3x16,0	139	132	124	116	108	98	88	76	62	44	20
	3x21,15	170	161	152	142	132	120	107	93	76	54	24
	3x25,0	186	176	166	156	144	131	118	102	83	59	26
	3x35,0	232	221	208	194	180	164	147	127	104	74	33
КПСБК-120	3x10,0	107	101	95	89	83	75	68	58	48	34	15
	3x13,3	128	121	114	107	99	90	81	70	57	40	18
	3x16,0	142	135	127	119	110	100	90	78	63	45	20
	3x21,15	172	163	154	144	133	122	109	94	77	54	24
	3x25,0	189	179	169	158	146	133	119	103	84	60	27
	3x35,0	232	220	207	194	179	164	146	127	104	73	33

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.

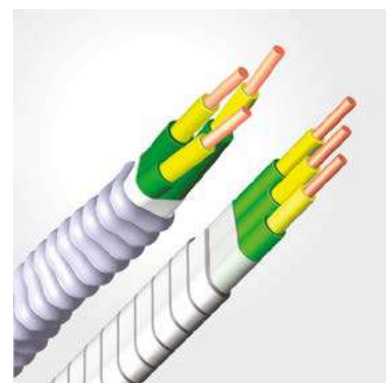


+120 °C	3,3 kV	4,0 kV	5,0 kV	TV 16.K13-012-2002
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КПсПнБП-120 КПсПнБК-120

КПсПнБП-120 - cable with copper conductors, with 2 layers of insulation of PE and copolymer of Propilene, armored with steel zinc coated tape, flat, with long admission of core heating +120 °C.

КПсПнБК-120 - cable with copper conductors, with 2 layers of insulation of PE and copolymer of Propilene, armored with steel zinc coated tape, round, with long admission of core heating +120 °C.



DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - PE of radiation modified;
3. **Insulation** - copolymer of Propilene;
4. **Pad** - as non woven cloth;
5. **Armor** - steel zinc coated or corrosion resistant tape.



Guaranteed term of cable operation is 2 years since operation of cable started. Operation term does not include the period of storing provided that guaranteed term of storing is not exceeded.

Storing guaranteed term is 1 year since shipment.

Service life of the cable at right conditions of storing is not less 5,5 years.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнБП-120	13,6x33,8	866	КПсПнБП-120-4	13,6x33,8	884	КПсПнБП-120-5	13,6x33,8	902
3x13,3		15,0x37,4	994		15,0x37,4	1012		15,0x37,4	1031
3x16,0		15,0x37,4	1096		15,0x37,4	1114		15,0x37,4	1133
3x21,15		16,2x42,5	1289		16,2x42,5	1308		16,2x42,5	1328
3x25,0		16,2x42,5	1425		16,2x42,5	1444		16,2x42,5	1464
3x35,0		18,0x48,2	1738		18,0x48,2	1758		18,0x48,2	1780

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнБК-120	29,0	803	КПсПнБК-120-4	29,0	817	КПсПнБК-120-5	29,0	833
3x13,3		32,0	925		32,0	942		32,0	959
3x16,0		32,0	1013		32,0	1042		32,0	1059
3x21,15		35,6	1217		35,6	1231		35,6	1249
3x25,0		35,6	1350		35,6	1365		35,6	1383
3x35,0		38,3	1658		38,3	1674		38,3	1693

Long time current loads for the cable.

Type of cable	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less										
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+118 °C
КПсПнБП-120	3x10,0	105	99	94	88	81	74	66	57	47	33	15
	3x13,3	125	119	112	105	97	89	79	69	56	40	18
	3x16,0	139	132	124	116	108	98	88	76	62	44	20
	3x21,15	170	161	152	142	132	120	107	93	76	54	24
	3x25,0	186	176	166	156	144	131	118	102	83	59	26
	3x35,0	232	221	208	194	180	164	147	127	104	74	33
КПсПнБК-120	3x10,0	107	101	95	89	83	75	68	58	48	34	15
	3x13,3	128	121	114	107	99	90	81	70	57	40	18
	3x16,0	142	135	127	119	110	100	90	78	63	45	20
	3x21,15	172	163	154	144	133	122	109	94	77	54	24
	3x25,0	189	179	169	158	146	133	119	103	84	60	27
	3x35,0	232	220	207	194	179	164	146	127	104	73	33

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

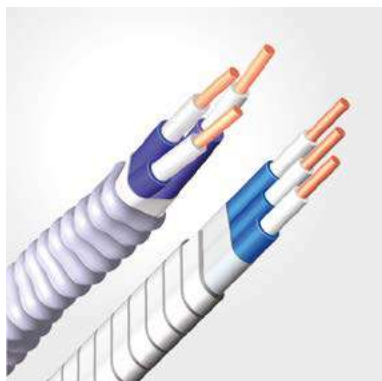
+130 °C

3,3 kV

4,0 kV

5,0 kV

TV 16.K13-012-2002



КПнБП-130

КПнБК-130

КПнБП-130 - cable with copper conductors, with 2 layers of insulation of PE and copolymer of Propilene, armored with steel zinc coated tape, flat, with long admission of core heating +130 °C.

КПнБК-130 - cable with copper conductors, with 2 layers of insulation of PE and copolymer of Propilene, armored with steel zinc coated tape, round, with long admission of core heating +130 °C.

DESIGN

- Current carrying conductor** - copper;
- Insulation** - copolymer of Propilene;
- Insulation** - copolymer of Propilene;
- Pad** - as non woven cloth;
- Aarmor** - steel zinc coated or corrosion resistant tape.



Guaranteed term of cable operation is 2 years since operation of cable started. Operation term does not include the period of storing provided that guaranteed term of storing is not exceeded.

Storing guaranteed term is 1 year since shipment.

Service life of the cable at right conditions of storing is not less 5,5 years.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнБП-130	13,6x33,8	878	КПнБП-130-4	13,6x33,8	881	КПнБП-130-5	13,6x33,8	898
3x13,3		15,0x37,4	1013		15,0x37,4	1010		15,0x37,4	1027
3x16,0		15,0x37,4	1089		15,0x37,4	1109		15,0x37,4	1129
3x21,15		16,2x42,5	1302		16,2x42,5	1307		16,2x42,5	1323
3x25,0		16,2x42,5	1430		16,2x42,5	1442		16,2x42,5	1459
3x35,0		18,0x48,2	1738		18,0x48,2	1755		18,0x48,2	1774

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнБК-130	29,0	830	КПнБК-130-4	29,0	814	КПнБК-130-5	29,0	830
3x13,3		32,0	955		32,0	939		32,0	955
3x16,0		32,0	1054		32,0	1038		32,0	1054
3x21,15		35,6	1245		35,6	1227		35,6	1245
3x25,0		35,6	1378		35,6	1360		35,6	1378
3x35,0		38,3	1688		38,3	1669		38,3	1688

Long time current loads for the cable.

Type of cable	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less											
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+128 °C
КПнБП-130	3x10,0	108	103	98	92	86	80	73	65	56	46	33	23
	3x13,3	129	123	117	110	103	95	87	78	67	55	39	28
	3x16,0	143	137	130	122	114	106	97	86	75	61	43	31
	3x21,15	175	167	158	149	140	129	118	106	91	75	53	37
	3x25,0	192	183	173	163	153	142	129	116	100	82	58	41
	3x35,0	240	228	217	204	191	177	161	144	125	102	72	51
КПнБК-130	3x10,0	110	105	100	94	88	81	74	66	58	47	33	23
	3x13,3	132	126	119	112	105	97	89	79	69	56	40	28
	3x16,0	146	139	132	125	117	108	99	88	76	62	44	31
	3x21,15	178	169	161	151	142	131	120	107	93	76	54	38
	3x25,0	195	186	176	166	155	144	131	117	102	83	59	41
	3x35,0	239	228	216	204	190	176	161	144	125	102	72	51

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.

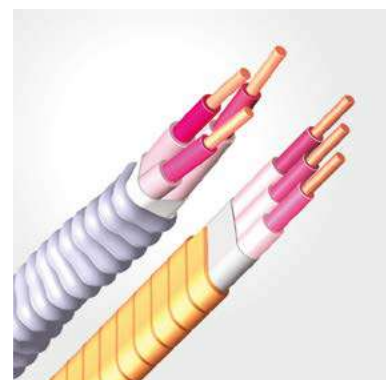


+130 °C	3,3 kV	4,0 kV	5,0 kV	TV 16.K13-012-2002
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КПСБП-130 КПСБК-130

КПСБП-130 - cable with copper conductors, with 2 layers of insulation of PE , armored with steel zinc coated tape, flat, with long admission of core heating +130 °C.

КПСБК-130 - cable with copper conductors, with 2 layers of insulation of PE , armored with steel zinc coated tape, round, with long admission of core heating +130 °C.



DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - PE of radiation modified;
3. **Insulation** - polyethelene;
4. **Pad** - as non woven cloth;
5. **Aarmor** - steel zinc coated or corrosion resistant tape.



Guaranteed term of cable operation is 2 years since operation of cable started. Operation term does not include the period of storing provided that guaranteed term of storing is not exceeded.

Storing guaranteed term is 1 year since shipment.

Service life of the cable at right conditions of storing is not less 5,5 years.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПСБП-130	13,6x33,8	914	КПСБП-130-4	13,6x33,8	935	КПСБП-130-5	13,6x33,8	944
3x13,3		15,0x37,4	1040		15,0x37,4	1073		15,0x37,4	1075
3x16,0		15,0x37,4	1127		15,0x37,4	1148		15,0x37,4	1178
3x21,15		16,2x42,5	1335		16,2x42,5	1361		16,2x42,5	1375
3x25,0		16,2x42,5	1473		16,2x42,5	1491		16,2x42,5	1512
3x35,0		18,0x48,2	1788		18,0x48,2	1797		18,0x48,2	1830

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПСБК-130	29,0	819	КПСБК-130-4	29,0	839	КПСБК-130-5	29,0	873
3x13,3		32,0	935		32,0	965		32,0	1000
3x16,0		32,0	1032		32,0	1065		32,0	1100
3x21,15		35,6	1239		35,6	1256		35,6	1293
3x25,0		35,6	1383		35,6	1390		35,6	1427
3x35,0		38,3	1684		38,3	1701		38,3	1740

Long time current loads for the cable.

Type of cable	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less											
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+128 °C
КПСБП-130	3x10,0	108	103	98	92	86	80	73	65	56	46	33	23
	3x13,3	129	123	117	110	103	95	87	78	67	55	39	28
	3x16,0	143	137	130	122	114	106	97	86	75	61	43	31
	3x21,15	175	167	158	149	140	129	118	106	91	75	53	37
	3x25,0	192	183	173	163	153	142	129	116	100	82	58	41
	3x35,0	240	228	217	204	191	177	161	144	125	102	72	51
КПСБК-130	3x10,0	110	105	100	94	88	81	74	66	58	47	33	23
	3x13,3	132	126	119	112	105	97	89	79	69	56	40	28
	3x16,0	146	139	132	125	117	108	99	88	76	62	44	31
	3x21,15	178	169	161	151	142	131	120	107	93	76	54	38
	3x25,0	195	186	176	166	155	144	131	117	102	83	59	41
	3x35,0	239	228	216	204	190	176	161	144	125	102	72	51

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

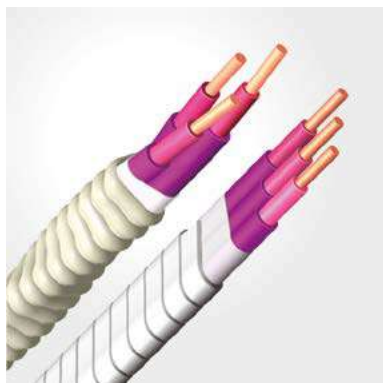
+130 °C

3,3 kV

4,0 kV

5,0 kV

ТУ 16.К13-012-2002



КПсПнБП-130

КПсПнБК-130

КПсПнБП-130 - cable with copper conductors, with 2 layers of insulation of PE and copolymer of Propilene, armor of steel zinc coated tape, flat, with long admission of core heating +130 °C.

КПсПнБК-130 - cable with copper conductors, with 2 layers of insulation of PE and copolymer of Propilene, armor of steel zinc coated tape, round, with long admission of core heating +130 °C.

DESIGN

- 1. Current carrying conductor** - copper;
- 2. Insulation** - PE of radiation modified;
- 3. Insulation** - copolymer of Propilene;
- 4. Pad** - as non woven cloth;
- 5. Armor** - steel zinc coated or corrosion resistant tape.



Guaranteed term of cable operation is 2 years since operation of cable started. Operation term does not include the period of storing provided that guaranteed term of storing is not exceeded.

Storing guaranteed term is 1 year since shipment.

Service life of the cable at right conditions of storing is not less 5,5 years.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнБП-130	13,6x33,8	930	КПсПнБП-130-4	13,6x33,8	882	КПсПнБП-130-5	13,6x33,8	950
3x13,3		15,0x37,4	1068		15,0x37,4	1087		15,0x37,4	1063
3x16,0		15,0x37,4	1142		15,0x37,4	1102		15,0x37,4	1177
3x21,15		16,2x42,5	1354		16,2x42,5	1386		16,2x42,5	1362
3x25,0		16,2x42,5	1484		16,2x42,5	1427		16,2x42,5	1520
3x35,0		18,0x48,2	1789		18,0x48,2	1726		18,0x48,2	1840

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнБК-130	29,0	846	КПсПнБК-130-4	29,0	833	КПсПнБК-130-5	29,0	866
3x13,3		32,0	971		32,0	959		32,0	993
3x16,0		32,0	1066		32,0	1059		32,0	1093
3x21,15		35,6	1264		35,6	1249		35,6	1285
3x25,0		35,6	1400		35,6	1383		35,6	1419
3x35,0		38,3	1707		38,3	1693		38,3	1732

Long time current loads for the cable.

Type of cable	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less											
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+128 °C
КПсПнБП-130	3x10,0	108	103	98	92	86	80	73	65	56	46	33	23
	3x13,3	129	123	117	110	103	95	87	78	67	55	39	28
	3x16,0	143	137	130	122	114	106	97	86	75	61	43	31
	3x21,15	175	167	158	149	140	129	118	106	91	75	53	37
	3x25,0	192	183	173	163	153	142	129	116	100	82	58	41
	3x35,0	240	228	217	204	191	177	161	144	125	102	72	51
КПсПнБК-130	3x10,0	110	105	100	94	88	81	74	66	58	47	33	23
	3x13,3	132	126	119	112	105	97	89	79	69	56	40	28
	3x16,0	146	139	132	125	117	108	99	88	76	62	44	31
	3x21,15	178	169	161	151	142	131	120	107	93	76	54	38
	3x25,0	195	186	176	166	155	144	131	117	102	83	59	41
	3x35,0	239	228	216	204	190	176	161	144	125	102	72	51

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.

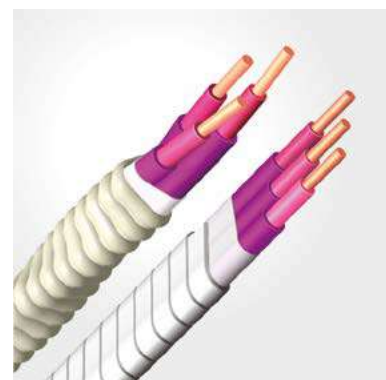


+140 °C	3,3 kV	4,0 kV	5,0 kV	TV 16.K13-012-2002
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КПнТБП-140 КПнТБК-140

КПнТБП-140 - cable with copper conductors, combined insulation of copolymer of Propilene and thermal elastomer, armor of steel zinced tape, flat, with long admission of core heating +140 °C.

КПнТБК-140 - cable with copper conductors, combined insulation of copolymer of Propilene and thermal elastomer, armor of steel zinced tape, round, with long admission of core heating +140 °C.



DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - copolymer of Propilene;
3. **Insulation** - thermal elastomer;
4. **Pad** - as non woven cloth;
5. **Aarmor** - steel zinc coated or corrosion resistant tape.



Guaranteed term of cable operation is 2 years since operation of cable started. Operation term does not include the period of storing provided that guaranteed term of storing is not exceeded.

Storing guaranteed term is 1 year since shipment.

Service life of the cable at right conditions of storing is not less 5,5 years.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнТБП-140	13,6x33,8		КПнТБП-140-5	13,6x33,8	936	КПнТБП-140-5	13,6x33,8	959
3x13,3		15,0x37,4			15,0x37,4	1063		15,0x37,4	1087
3x16,0		15,0x37,4			15,0x37,4	1146		15,0x37,4	1179
3x21,15		16,2x42,5			16,2x42,5	1363		16,2x42,5	1353
3x25,0		16,2x42,5	1437		16,2x42,5	1500		16,2x42,5	1529
3x35,0		18,0x48,2	1778		18,0x48,2	1813		18,0x48,2	1842

Cross- sections, mm ²	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнТБК-140	29,0	880
3x13,3		32,0	1006
3x16,0		32,0	1094
3x21,15		35,6	1302
3x25,0		35,6	1437
3x35,0		38,3	1750

Long time current loads for the cable.

Type of cable	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less												
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+130 °C	+138 °C
КПнТБП-140	3x10,0	113	108	103	98	92	86	80	73	65	56	46	33	15
	3x13,3	136	130	124	118	111	104	96	88	78	68	55	39	18
	3x16,0	145	139	132	125	118	111	102	94	84	72	59	42	19
	3x21,15	183	175	167	159	149	140	129	118	106	92	75	53	24
	3x25,0	200	192	183	173	163	153	141	129	116	100	82	58	26
	3x35,0	248	237	226	215	202	189	175	160	143	124	101	72	32
КПнТБК-140	3x10,0	115	110	105	100	94	88	81	74	67	58	47	33	15
	3x13,3	138	132	126	120	113	106	98	89	80	69	56	40	18
	3x16,0	148	141	135	128	121	113	104	95	85	74	60	43	19
	3x21,15	186	178	170	161	152	142	131	120	107	93	76	54	24
	3x25,0	203	195	185	176	166	155	144	131	117	102	83	59	26
	3x35,0	247	237	226	214	202	189	175	160	143	124	101	71	32

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



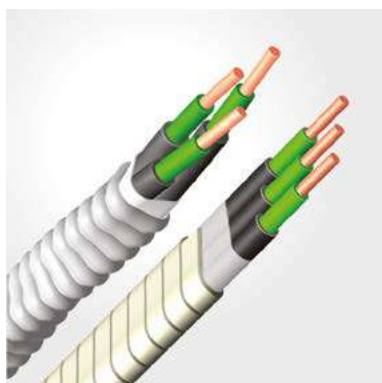
CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

+150 °C

3,3 kV

4,0 kV

TY 3542-034-05015408-2012



КПсТБП-150
КПсТБК-150

КПсТБП-150 - combined insulation of copolymer of Propylene and thermal elastomer, armor of steel zinced tape, flat, with long admission of core heating +150 °C.

КПсТБК-150 - combined insulation of copolymer of Propylene and thermal elastomer, armor of steel zinced tape, round, with long admission of core heating +150 °C.

DESIGN

- Current carrying conductor** - copper;
- Insulation** - PE of radiation modified;
- Insulation** - thermal elastomer plastic;
- Pad** - as non woven cloth;
- Armor** - steel zinc coated or corrosion resistant tape.



Guaranteed term of cable operation is 2 years since operation of cable started. Operation term does not include the period of storing provided that guaranteed term of storing is not exceeded.

Storing guaranteed term is 1 year since shipment.

Service life of the cable at right conditions of storing is not less 5,5 years.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсТБП-150	14,2x34,4	908	КПсТБП-150-4	14,2x34,4	967
3x13,3		15,0x37,4	1034		15,0x37,4	1110
3x16,0		15,0x37,4	1119		15,0x37,4	1188
3x21,15		16,2x42,5	1331		16,2x42,5	1413
3x25,0		16,2x42,5	1467		16,2x42,5	1532
3x35,0		18,0x48,2	1782		18,0x48,2	1849

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсТБК-150	29,0	804	КПсТБК-150-4	29,0	898
3x13,3		32,0	928		32,0	1021
3x16,0		32,0	1016		32,0	1119
3x21,15		35,6	1223		35,6	1318
3x25,0		35,6	1367		35,6	1456
3x35,0		38,3	1667		38,3	1768

Long time current loads for the cable

КПсТБП-150	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less													
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+130 °C	+140 °C	+148 °C
In well fluid	3x10,0	117	112	107	102	97	92	86	79	72	65	56	46	32	14
	3x13,3	141	135	129	123	117	110	103	95	87	78	68	55	39	17
	3x16,0	150	144	138	132	125	118	110	102	93	83	72	59	42	19
	3x21,15	189	182	174	166	157	148	139	128	117	105	91	74	52	23
	3x25,0	206	197	189	180	171	161	151	140	127	114	99	81	57	25
	3x35,0	255	245	234	223	212	200	187	173	158	141	122	100	71	32
In the gas-air environment of the well	3x10,0	95	91	87	83	79	74	70	64	59	53	46	37	26	12
	3x13,3	113	109	104	100	94	89	83	77	70	63	55	45	31	14
	3x16,0	121	116	111	106	101	95	89	82	75	67	58	47	34	15
	3x21,15	152	146	140	133	127	119	112	103	94	84	73	60	42	19
	3x25,0	165	159	152	145	138	130	121	112	103	92	79	65	46	21
	3x35,0	205	197	188	180	170	161	150	139	127	114	98	80	57	25

КПсТБК-150	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less													
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+130 °C	+140 °C	+148 °C
In well fluid	3x10,0	119	114	110	105	99	93	87	81	74	66	57	47	33	15
	3x13,3	143	138	132	126	119	112	105	97	89	79	69	56	40	18
	3x16,0	153	147	141	134	127	120	112	104	95	85	73	60	42	19
	3x21,15	192	184	176	168	160	150	141	130	119	106	92	75	53	24
	3x25,0	209	200	192	183	174	164	153	142	129	116	100	82	58	26
	3x35,0	254	244	234	223	211	199	186	173	157	141	122	100	70	31
In the gas-air environment of the well	3x10,0	97	93	89	85	81	76	71	66	60	54	47	38	27	12
	3x13,3	116	111	107	102	96	91	85	79	72	64	56	45	32	14
	3x16,0	123	119	114	108	103	97	91	84	77	68	59	48	34	15
	3x21,15	155	149	142	136	129	121	114	105	96	86	74	61	43	19
	3x25,0	168	162	155	148	140	132	124	114	104	93	81	66	47	21
	3x35,0	205	197	189	180	171	161	150	139	127	114	98	80	57	25

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.

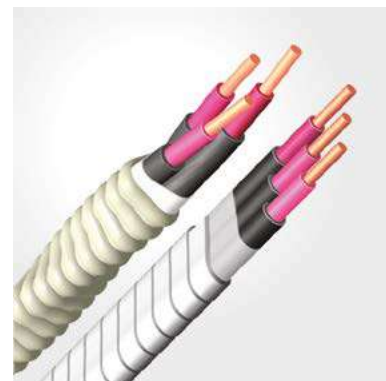


+160 °C	3,3 kV	4,0 kV	ТУ 3542-036-05015408-2010
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КПсТБП-160
КПсТБК-160

КПсТБП-160 - cable of copper conductors with 2 layers combined insulation of radiation modified composition of Polyolefine and thermal elastomer, armor of steel zinc coated tape, flat, with long admission of core heating +160 °C.

КПсТБК-160 - cable of copper conductors with 2 layers combined insulation of radiation modified composition of Polyolefine and thermal elastomer, armor of steel zinc coated tape, round, with long admission of core heating +160 °C.



DESIGN

- Current carrying conductor** - copper;
- Insulation** - compositions of Polyolefin of radiation modified;
- Insulation** - thermal elastomer;
- Pad** - as non woven cloth;
- Armor** - steel zinc coated or corrosion resistant tape.



Гарантийный срок эксплуатации кабелей 1,5 года с момента ввода в эксплуатацию, но не более 2 лет со дня отгрузки потребителю.

Срок службы кабеля при соблюдении требованиям к условиям хранения и эксплуатации не менее 5 лет.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсТБП-160	14,2x34,4	936	КПсТБП-160-4	14,2x34,4	963
3x13,3		15,0x37,4	1076		15,0x37,4	1107
3x16,0		15,0x37,4	1164		15,0x37,4	1191
3x21,15		16,2x42,5	1367		16,2x42,5	1408
3x25,0		16,2x42,5	1484		16,2x42,5	1527
3x35,0		18,0x48,2	1800		18,0x48,2	1842

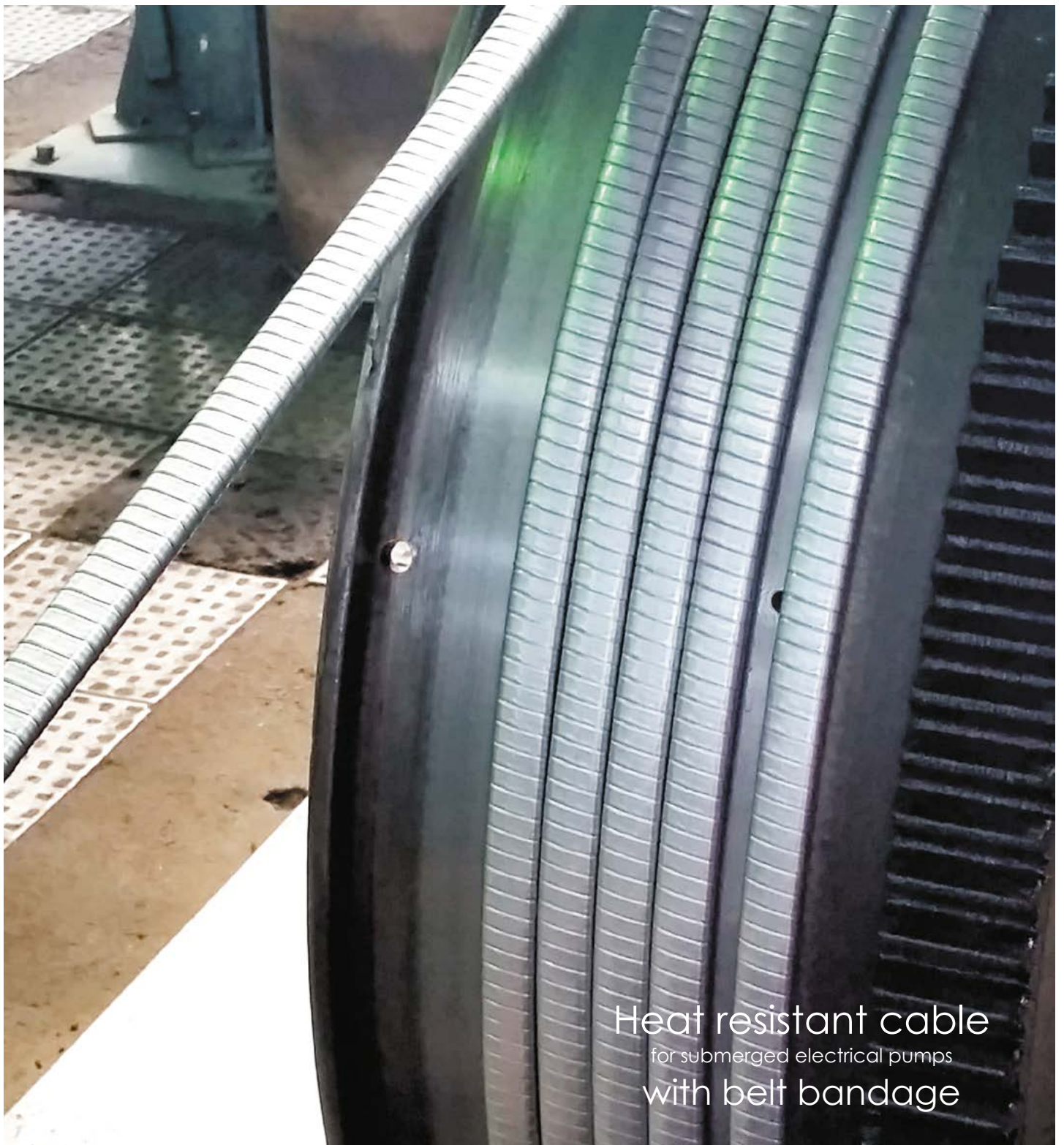
Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсТБК-160	29,0	873	КПсТБК-160-4	29,0	892
3x13,3		32,0	994		32,0	1015
3x16,0		32,0	1092		32,0	1113
3x21,15		35,6	1290		35,6	1313
3x25,0		35,6	1428		35,6	1452
3x35,0		38,3	1738		38,3	1764

Long time current loads for the cable

КПсТБП-160	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less														
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+130 °C	+140 °C	+150 °C	+158 °C
In well fluid	3x10,0	119	115	111	106	101	96	90	84	78	71	64	55	45	32	14
	3x13,3	144	138	133	127	121	115	109	102	94	86	77	66	54	38	17
	3x16,0	153	148	142	138	129	123	116	108	100	92	82	71	58	41	18
	3x21,15	194	187	179	172	164	155	146	137	127	116	104	90	73	52	23
	3x25,0	212	204	196	188	179	170	160	150	139	126	113	98	80	57	25
	3x35,0	262	253	243	232	222	210	198	185	172	157	140	121	99	70	31
In the gas-air environment of the well	3x10,0	97	93	90	86	82	78	73	63	63	58	52	45	37	26	12
	3x13,3	116	112	107	103	98	93	88	82	76	69	62	54	44	31	14
	3x16,0	124	119	114	110	104	99	93	87	81	74	66	57	47	33	15
	3x21,15	156	146	144	138	132	125	118	110	102	93	83	72	59	42	19
	3x25,0	170	164	157	151	144	136	128	120	111	102	91	79	64	45	20
	3x35,0	211	203	195	187	178	169	159	149	138	126	113	97	80	56	25

КПсТБК-160	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less														
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+130 °C	+140 °C	+150 °C	+158 °C
In well fluid	3x10,0	122	117	113	108	103	98	92	86	80	73	65	56	46	33	15
	3x13,3	146	141	135	130	124	117	111	103	96	87	78	68	55	39	17
	3x16,0	156	151	145	138	132	125	118	110	102	93	83	72	59	42	19
	3x21,15	196	189	182	174	166	158	149	139	129	117	105	91	74	53	23
	3x25,0	215	207	199	190	182	172	162	152	141	128	115	99	81	57	26
	3x35,0	261	252	242	232	221	210	198	185	171	156	140	121	99	70	31
In the gas-air environment of the well	3x10,0	99	96	92	88	84	80	75	70	65	59	53	46	38	27	12
	3x13,3	119	114	110	105	100	95	90	84	78	71	63	55	45	32	14
	3x16,0	126	122	117	112	107	101	95	89	83	75	68	58	48	34	15
	3x21,15	159	153	147	141	134	127	120	112	104	95	85	73	60	42	19
	3x25,0	173	167	160	153	146	139	131	122	113	103	92	80	65	46	21
	3x35,0	211	203	195	187	178	169	159	149	138	126	113	98	80	56	25

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



Heat resistant cable
for submerged electrical pumps
with belt bandage

Heat resistant cable for submerged electrical pumps with long time admission of core heating

+90 °C

+120 °C

+130 °C

+140 °C



APPLICATION

The cables are designed to transmit electrical energy to submerged electrical motors for oil recovery, as well as motors for water hoist, water removal from the mines, Water ponds, its design capacity to rated AC voltage 3.3, 4.0 and 5.0 kV, frequency up to 70 Hz.

The cables are designed to work in bore liquid , which contains oil and also water and gas with the following indices:

water content	100%
pH of accompany water	5,0 - 8,5
concentration of Sulfur Hydrogen for the cables armor of steel zinced tape, not more than, gram per liter	0,01
concentration of Sulfur Hydrogen for the cables of stainless steel tape resistant to corrosion, MPa, not more	1,25
hydrostatic pressure, not more	40
gas factor, not more, cub.m per MT	500

REMARKS TO OPERATION

Climate version is for moderate cold climate, deployment categories are from 1 to 5 by GOST 15150 –69 FOR OPERATION IN BORE LIQUID.

In static condition the cables can resist to impact of temperature drop from minus 60 °C to long time admission of core heating temperatures for so and so type of cable.

Winding of cable and hoist – down operations can be at air temperature not low than minus 40 °C.

At winding and hoist and down operations bending radius is :
 not less 300 mm for the cores with cross - section 10-16 мм²;
 not less 360 mm the cores with cross – section 21,15 мм²;
 not less 380 mm the cores with cross – section 25 мм²;
 not less 420 mm for cores with cross – section 35 мм².

Hoist and down of the cable to the bore shall go smoothly with the speed not more than 0,25 m per a second.

When tube column in the bore passes the section with curve more than 1,5 degrees per 10 meters, or passes to less diameter in the bore, the speed not more than 0,1 m per a second both in hoist or down

When the cable is fixed to compressor pipes, prevent twisting of the cable around the tubes and twisting flat cable around its own axis.

Electrical resistance of insulation recalculated to length 1 km and temperature + 20 °C is not less than 2500 mOhm.

The cables can sustain crushing load not less than 158 kN. Insulated cores are sealed in pressure drop in the liquid 0.02 MPa per 1 meter length.

Cables are tested with DC voltage 18 kV within not less than 5 minutes, leakage current recalculated to 1 km length and temperature + 20 °C shall not exceed 1*10⁻⁵A.

When test the cables already run in the bores the voltage shall not exceed 12 kV.

The required length of cables is determined at the custom.

Guaranteed term of cable operation is 2 years since operation of cable started. Operation term does not include the period of storing provided that guaranteed term of storing is not exceeded.

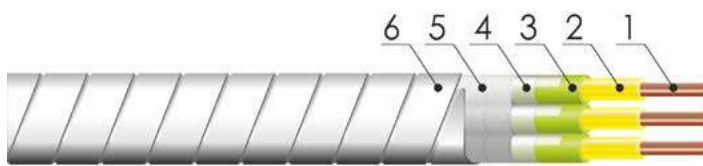
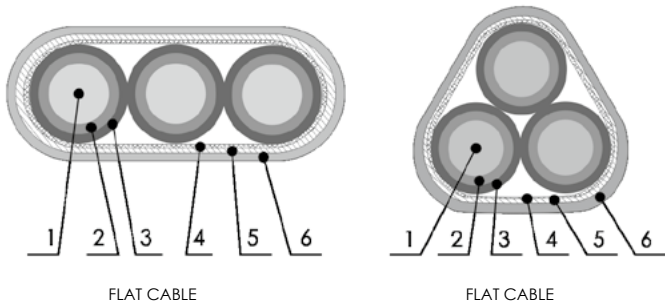
Guaranteed storing term is 1 year from the moment of shipment.

Service life of the cable is not less than 5,5 years, provided the conditions of storing are followed.



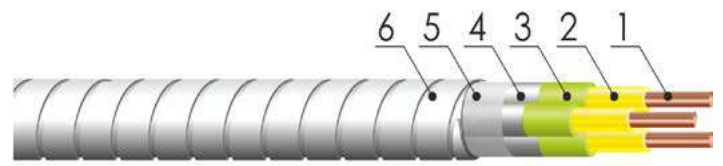


CONSTRUCTION



The cable has tape bandage above the insulation of each core

1. Current carrying conductor;
2. The first layer of insulation;
3. The second layer of insulation;
4. Tape bandage or protective sheath;
5. Pad;
6. Armor.



Cable with protective sheath of fluoride above the insulation of each core

The cables can be made with different types of protective armor:

«Б» - steel zincted tape;

«БК» or «БНК» - is tape of stainless corrosion resistant steel;

«БКК» - steel tape with corrosion resistant coating with zinc – copper melt coating;

For the cables to rated voltage 4.0 and 5.0 digit is added to the type of cable 4 or 5 respectively.

The example of conventional nomination at the order or in the documentation:

КПСПлФБП-120 3x16 ТУ 3542-061-15015408-2016

Cable with copper conductors, 2 – layers insulation, protective sheath of Fluoride polymer above the insulation of each core with armor of steel zinc coated tape, flat, with long admission of core heating+ 120 C to voltage 3,3 kV with 3 major conductors rated cross section 16 square mm;

КПСПлББК-130-4 3x25 ТУ 3542-061-15015408-2016

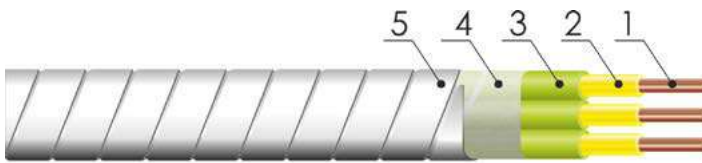
Cable with copper conductors, 2- layers insulation, with tape bandage above insulation of each core, tape of stainless corrosion resistant steel, round, long admission of core heating+ 130 C, to voltage 4,0 kV with 3 major conductors rated cross section 25 square mm.

The cables correspond to general requirements of GOST R 51777-2001



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

THE ADVANTAGES OF ADVANCED CONSTRUCTION

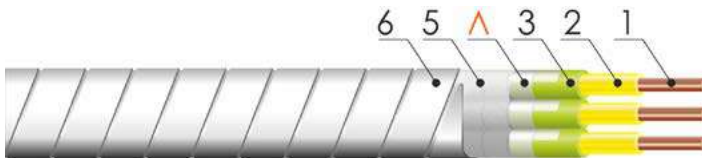


Basic construction:

cable type **КПсПпБП, КПсПБП**

Specification TY16.K13-012-2002 Cables with plastic insulation for submerged pumps

- 1 - Current carrying conductor;
- 2, 3 - Insulation of 2 layers;
- 4 - Pad of non-woven cloth;
- 5 - Armor.

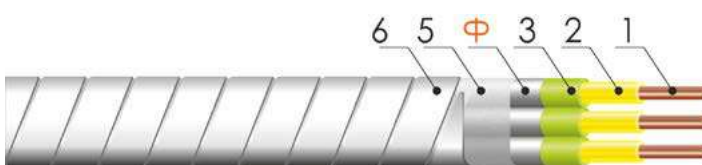


Advanced design:

cable type **КПсПпΔБП, КПсПΔпБП**

TY 3542-061-05015408-2016 – Cables with plastic insulation with a protective sheath made of PTFE, with a sheath for submersible electric pumps for a voltage of 3.3; 4.0 and 5.0 kV

- Δ - bandage over the insulation of each core of PTFE tape;
- Δп - bandage over the insulation of each of the cores from polyethelene terephthalate tape;



Advanced design:

cable type **КПсПпΦБП, КПсПΦБП**

TY 3542-061-05015408-2016 Cables with plastic insulation with a protective sheath made of PTFE, with a sheath for submersible electric pumps for a voltage of 3.3; 4.0 and 5.0 kV

- Φ - PTFE sheath over the insulation of each core.

- ✓ the insulation of each core is additionally protected by a heat-resistant, high-strength material;
- ✓ additional protection from acid-resistant heat-resistant materials;
- ✓ exclusion of direct contact of the outer layer of insulation with the borehole medium;

- ✓ increased resource, increased resistance to overheating;
- ✓ additional protection against mechanical damage.

The use of a new cable does not require a change in the technological process during splicing, operation and testing.





CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

CONVENTIONAL NOMINATION OF MATERIALS AND COJNSTRUCTIVE ELEMENTS

Name	Name	Description
Cable	К	Cable with copper conductors
Material of the 1 – st layer	П	Polyethelene of high density
	Пс	Cross linked PE of high density
	Пп	Copolymers and block – copolymers of Polypropilene
Material of the 2– nd layer of insulation	П	Polyethelene of high density
	Пп	Copolymers and block – copolymers of Polypropilene
Belt bandage	Λ	Bandage in insulation of each core, made of Flouride PLASTIC TAPE
	Λп	Bandage in insulation of each core, made of Ftalate PLASTIC TAPE
Sheath material	Ф	Flouride copolymer, protective sheath
Armor material	Б	Steel zinc coated tape
	Бк	Stainless steel tape
	Блк	Tape with anti corrosion coating
Constructive execution	П	Flat cable
	К	Round cable
Temperature, °C	-90	Long time admission of core heating
	-120	
	-130	
	-140	
Rated voltage of AC in, kV		3,3
	-4	4,0
	-5	5,0
Number of cores, its cross – section square, mm ²	3x10,0	Rated voltage of current carrying conductors
	3x13,3	
	3x16,0	
	3x21,15	
	3x25,0	
	3x35,0	

The examples of conventional names

Cable type **КПсПпФБП-120** with copper conductors, with 2 layers of insulation, protective sheath of Flouride polymer above the insulation of each core, armor of steel zinc coated wire, flat, with long time admission of core heating as +120 C°, voltage 3,3 kV with 3 major cores to rated cross – section 16 mm²:

Cable **КПсПпФБП-120 3x16 ТУ 3542-061-05015408-2016**



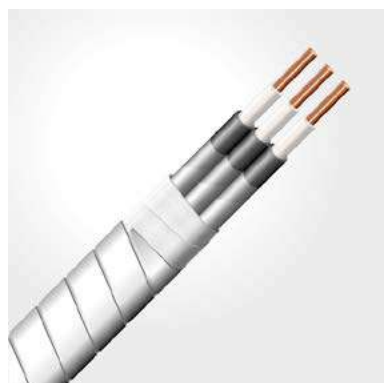
Cable type **КПсПпΛБкП-130** with copper conductors, with 2 layers of insulation, with tape bandage above the insulation of each core, armor of stainless corrosion resistant steel, flat, with long time admission of core heating as +130 C°, voltage 4,0 kV with 3 major cores to rated cross – section 25 mm²:

Cable **КПсПпΛБкП-130 3x25 ТУ 3542-061-05015408-2016**





+90 °C	3,3 kV	4,0 kV	5,0 kV	ТУ 3542-061-05015408-2016
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КПЛБП-90 КПЛБК-90

КПЛБП-90 - cable with copper conductors, with 2 layers of insulation of PE, with tape bandage above the insulation of each core, armor of steel zinc coated wire, flat, with long time admission of core heating a +90 °C.

КПЛБК-90 - cable with copper conductors, with 2 layers of insulation of PE, with tape bandage above the insulation of each core, armor of steel zinc coated wire, round, with long time admission of core heating a +90 °C.

DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - polyethelene of high density;
3. **Insulation** - polyethelene of high density;
4. **Tape bandage** - Flouride tape winding;
5. **Pad** - as non woven cloth;
6. **Armor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПЛБП-90	13,6x33,8	908	КПЛБП-90-4	13,6x33,8	926	КПЛБП-90-5	13,6x33,8	945
3x13,3		15,0x37,4	1038		15,0x37,4	1057		15,0x37,4	1077
3x16,0		15,0x37,4	1141		15,0x37,4	1160		15,0x37,4	1180
3x21,15		16,2x42,5	1337		16,2x42,5	1357		16,2x42,5	1377
3x25,0		16,2x42,5	1473		16,2x42,5	1494		16,2x42,5	1515
3x35,0		18,0x48,2	1790		18,0x48,2	1812		18,0x48,2	1834

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПЛБК-90	29,0	841	КПЛБК-90-4	29,0	858	КПЛБК-90-5	29,0	875
3x13,3		32,0	968		32,0	985		32,0	1002
3x16,0		32,0	1068		32,0	1086		32,0	1103
3x21,15		35,6	1260		35,6	1278		35,6	1296
3x25,0		35,6	1394		35,6	1413		35,6	1431
3x35,0		38,3	1706		38,3	1726		38,3	1745

Long-term permissible load currents of the cable at a voltage of 3.3; 4.0 and 5.0 kV

Type of cable	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less							
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C
КПЛБП-90	3x10,0	91	85	77	69	60	49	35	15
	3x13,3	110	101	93	83	72	59	42	19
	3x16,0	122	113	103	92	80	65	47	21
	3x21,15	148	137	125	112	97	79	56	25
	3x25,0	163	151	137	123	106	87	62	27
	3x35,0	203	188	172	154	133	109	77	34
КПЛБК-90	3x10,0	93	86	79	71	61	50	36	16
	3x13,3	112	103	94	84	73	60	43	19
	3x16,0	124	115	105	94	81	66	48	21
	3x21,15	151	139	127	114	99	80	57	25
	3x25,0	165	153	139	125	108	88	63	28
	3x35,0	202	187	171	153	133	108	76	34

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

+120 °C

3,3 kV

4,0 kV

5,0 kV

ТУ 3542-061-05015408-2016



КПСЛБП-120
КПСЛБК-120

КПСЛлБП-120
КПСЛлБК-120

КПСЛБП-120/ КПСЛлБП-120 - cable with copper conductors, 2 - layers of insulation of PE, tape bandage above the insulation of each core, armor of steel zinc coated wire, flat, with long time admission of core heating +120 °C.

КПСЛБК-120/ КПСЛлБК-120 - cable with copper conductors, 2 - layers of insulation of PE, tape bandage above the insulation of each core, armor of steel zinc coated wire, round, with long time admission of core heating +120 °C.

DESIGN

- Current carrying conductor** - copper;
- Insulation** - PE of radiation modified;
- Insulation** - polyethelene;
- Tape bandage:** **Л** - Flouride tape winding; **лл** - wrapping of polyetheleneftalate film;
- Pad** - as non woven cloth;
- Armor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПСЛБП-120 КПСЛлБП-120	13,6x33,8	908	КПСЛБП-120-4 КПСЛлБП-120-4	13,6x33,8	926	КПСЛБП-120-5 КПСЛлБП-120-5	13,6x33,8	945
3x13,3		15,0x37,4	1038		15,0x37,4	1057		15,0x37,4	1077
3x16,0		15,0x37,4	1141		15,0x37,4	1160		15,0x37,4	1180
3x21,15		16,2x42,5	1337		16,2x42,5	1357		16,2x42,5	1377
3x25,0		16,2x42,5	1473		16,2x42,5	1494		16,2x42,5	1515
3x35,0		18,0x48,2	1790		18,0x48,2	1812		18,0x48,2	1834

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПСЛБК-120 КПСЛлБК-120	29,0	841	КПСЛБК-120-4 КПСЛлБК-120-4	29,0	858	КПСЛБК-120-5 КПСЛлБК-120-5	29,0	875
3x13,3		32,0	968		32,0	985		32,0	1002
3x16,0		32,0	1068		32,0	1086		32,0	1103
3x21,15		35,6	1260		35,6	1278		35,6	1296
3x25,0		35,6	1394		35,6	1413		35,6	1431
3x35,0		38,3	1706		38,3	1726		38,3	1745

Long-term permissible load currents of the cable at a voltage of 3.3; 4.0 and 5.0 kV

Type of cable	Rated Cross-sections of the cores, mm ²	Long time current load A at environment temperature, not less										
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+118 °C
КПСЛБП-120 КПСЛлБП-120	3x10,0	104	98	93	87	80	73	65	57	46	33	15
	3x13,3	124	118	111	104	96	88	78	68	55	39	18
	3x16,0	138	131	123	115	107	97	87	75	62	44	19
	3x21,15	168	159	150	140	130	119	106	92	75	53	24
	3x25,0	184	174	165	154	142	130	116	101	82	58	26
	3x35,0	230	218	206	192	178	163	145	126	103	73	33
КПСЛБК-120 КПСЛлБК-120	3x10,0	105	99	94	88	81	74	66	57	47	33	15
	3x13,3	125	119	112	105	97	89	79	69	56	40	18
	3x16,0	139	132	125	117	108	98	88	76	62	44	20
	3x21,15	169	160	151	141	131	120	107	93	76	53	24
	3x25,0	185	176	166	155	144	131	117	102	83	59	26
	3x35,0	227	216	203	190	176	161	144	125	102	72	32

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



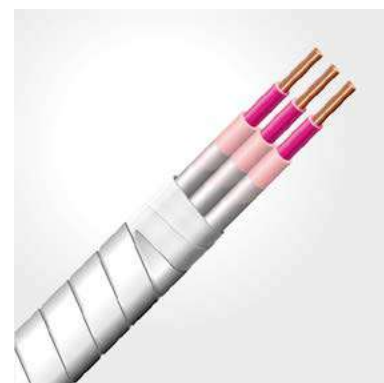
+120 °C	3,3 kV	4,0 kV	5,0 kV	TY 3542-061-05015408-2016
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КПСПнЛБП-120
КПСПнЛБК-120

КПСПнЛнБП-120
КПСПнЛнБК-120

КПСПнЛБП-120/ КПСПнЛнБП-120 - cable with copper conductors, 2 -layers of insulation of PE and propilene copolymer, tape bandage above the insulation of each core, armor of steel zinc coated wire, flat, with long time admission of core heating +120 °C.

КПСПнЛБК-120/ КПСПнЛнБК-120 - copper conductors, 2 -layers of insulation of PE and propilene copolymer, tape bandage above the insulation of each core, armor of steel zinc coated wire, round, with long time admission of core heating +120 °C.



DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - PE of radiation modified;
3. **Insulation** - copolymer of Propilene;
4. **Tape bandage:** **Л** - Flouride tape winding; **Лн** - wrapping of polyetheleneftalate film;
5. **Pad** - as non woven cloth;
6. **Armor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПСПнЛБП-120 КПСПнЛнБП-120	13,6x33,8	907	КПСПнЛБП-120-4 КПСПнЛнБП-120-4	13,6x33,8	925	КПСПнЛБП-120-5 КПСПнЛнБП-120-5	13,6x33,8	940
3x13,3		15,0x37,4	1034		15,0x37,4	1053		15,0x37,4	1071
3x16,0		15,0x37,4	1122		15,0x37,4	1141		15,0x37,4	1174
3x21,15		16,2x42,5	1332		16,2x42,5	1351		16,2x42,5	1371
3x25,0		16,2x42,5	1465		16,2x42,5	1484		16,2x42,5	1509
3x35,0		18,0x48,2	1779		18,0x48,2	1799		18,0x48,2	1827

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПСПнЛБК-120 КПСПнЛнБК-120	29,0	836	КПСПнЛБК-120-4 КПСПнЛнБК-120-4	29,0	853	КПСПнЛБК-120-5 КПСПнЛнБК-120-5	29,0	869
3x13,3		32,0	962		32,0	979		32,0	997
3x16,0		32,0	1062		32,0	1079		32,0	1097
3x21,15		35,6	1253		35,6	1271		35,6	1290
3x25,0		35,6	1387		35,6	1406		35,6	1424
3x35,0		38,3	1699		38,3	1718		38,3	1738

Long-term permissible load currents of the cable at a voltage of 3.3; 4.0 and 5.0 kV

Type of cable	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less										
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+118 °C
КПСПнЛБП-120 КПСПнЛнБП-120	3x10,0	104	98	93	87	80	73	65	57	46	33	15
	3x13,3	124	118	111	104	96	88	78	68	55	39	18
	3x16,0	138	131	123	115	107	97	87	75	62	44	19
	3x21,15	168	159	150	140	130	119	106	92	75	53	24
	3x25,0	184	174	165	154	142	130	116	101	82	58	26
	3x35,0	230	218	206	192	178	163	145	126	103	73	33
КПСПнЛБК-120 КПСПнЛнБК-120	3x10,0	105	99	94	88	81	74	66	57	47	33	15
	3x13,3	125	119	112	105	97	89	79	69	56	40	18
	3x16,0	139	132	125	117	108	98	88	76	62	44	20
	3x21,15	169	160	151	141	131	120	107	93	76	53	24
	3x25,0	185	176	166	155	144	131	117	102	83	59	26
	3x35,0	227	216	203	190	176	161	144	125	102	72	32



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

+120 °C

3,3 kV

4,0 kV

5,0 kV

ТУ 3542-061-05015408-2016



КПсПнФБП-120

КПсПнФБК-120

КПсПнФБП-120 - cable with copper conductors, 2 layers of insulation of PE and copolymer of Propylene, with protective sheath of Flouride copolymer above the insulation of each core, with armor as steel zinc coated wire, flat, with long time admission of core heating +120 °C.

КПсПнФБК-120 - cable with copper conductors, 2 layers of insulation of PE and copolymer of Propylene, with protective sheath of Flouride copolymer above the insulation of each core, with armor as steel zinc coated wire, round, with long time admission of core heating +120 °C.

DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - PE of radiation modified;
3. **Insulation** - copolymer of Propylene;
4. **Protective sheath** - Flouride polymer;
5. **Pad** - as non woven cloth;
6. **Armor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнФБП-120	13,6x33,8	927	КПсПнФБП-120-4	13,6x33,8	946	КПсПнФБП-120-5	13,6x33,8	984
3x13,3		15,0x37,4	1059		15,0x37,4	1078		15,0x37,4	1117
3x16,0		15,0x37,4	1163		15,0x37,4	1182		15,0x37,4	1222
3x21,15		16,2x42,5	1360		16,2x42,5	1381		16,2x42,5	1421
3x25,0		16,2x42,5	1498		16,2x42,5	1519		16,2x42,5	1560
3x35,0		18,0x48,2	1818		18,0x48,2	1839		18,0x48,2	1882

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнФБК-120	29,0	860	КПсПнФБК-120-4	29,0	878	КПсПнФБК-120-5	29,0	912
3x13,3		32,0	988		32,0	1006		32,0	1042
3x16,0		32,0	1090		32,0	1108		32,0	1144
3x21,15		35,6	1283		35,6	1302		35,6	1340
3x25,0		35,6	1419		35,6	1438		35,6	1476
3x35,0		38,3	1733		38,3	1753		38,3	1793

Long-term permissible load currents of the cable at a voltage of 3.3; 4.0 and 5.0 kV

Type of cable	Rated Cross-sections of the cores, mm ²	Long time current load A at environment temperature, not less										
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+118 °C
КПсПнФБП-120	3x10,0	103	98	92	86	80	73	65	56	46	33	15
	3x13,3	124	117	110	103	96	87	78	68	55	39	17
	3x16,0	137	130	123	115	106	97	87	75	61	43	19
	3x21,15	167	159	150	140	130	118	106	92	75	53	24
	3x25,0	183	174	164	153	142	130	116	100	82	58	26
	3x35,0	229	217	205	192	177	162	145	125	102	72	32
КПсПнФБК-120	3x10,0	105	100	94	88	82	74	67	58	47	33	15
	3x13,3	126	119	113	105	97	89	80	69	56	40	18
	3x16,0	140	133	125	117	108	99	88	77	63	44	20
	3x21,15	170	161	152	142	131	120	107	93	76	54	24
	3x25,0	186	176	166	156	144	132	118	102	83	59	26
	3x35,0	228	217	204	191	177	161	144	125	102	72	32

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



+120 °C

3,3 kV

4,0 kV

5,0 kV

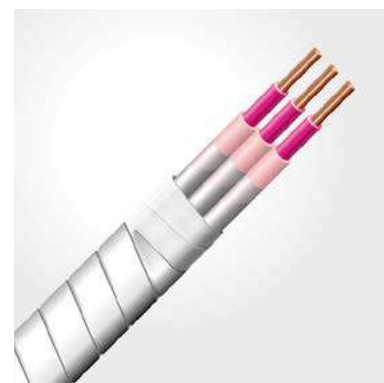
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КПнЛБП-120
КПнЛБК-120

КПнЛнБП-120
КПнЛнБК-120

КПнЛБП-120/ КПнЛнБП-120 - cable with copper conductors, 2 layer insulation of copolymer of Propylene, tape bandage above the insulation of each core, flat, with long time admission of core heating +120 °C.

КПнЛБК-120/ КПнЛнБК-120 - cable with copper conductors, 2 layer insulation of copolymer of Propylene, tape bandage above the insulation of each core, armored of steel zinc coated tape, round, with long time admission of core heating +120 °C.



DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - copolymer of Propylene;
3. **Insulation** - copolymer of Propylene;
4. **Tape bandage:** **Л** - Flouride tape winding; **Лн** - wrapping of polyetheleneftalate film;
5. **Pad** - as non woven cloth;
6. **Armor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнЛБП-120 КПнЛнБП-120	13,6x33,8	900	КПнЛБП-120-4 КПнЛнБП-120-4	13,6x33,8	918	КПнЛБП-120-5 КПнЛнБП-120-5	13,6x33,8	937
3x13,3		15,0x37,4	1029		15,0x37,4	1048		15,0x37,4	1067
3x16,0		15,0x37,4	1132		15,0x37,4	1150		15,0x37,4	1170
3x21,15		16,2x42,5	1327		16,2x42,5	1346		16,2x42,5	1366
3x25,0		16,2x42,5	1463		16,2x42,5	1483		16,2x42,5	1503
3x35,0		18,0x48,2	1778		18,0x48,2	1799		18,0x48,2	1820

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнЛБК-120 КПнЛнБК-120	29,0	833	КПнЛБК-120-4 КПнЛнБК-120-4	29,0	849	КПнЛБК-120-5 КПнЛнБК-120-5	29,0	866
3x13,3		32,0	959		32,0	976		32,0	992
3x16,0		32,0	1058		32,0	1076		32,0	1093
3x21,15		35,6	1249		35,6	1267		35,6	1285
3x25,0		35,6	1383		35,6	1401		35,6	1419
3x35,0		38,3	1694		38,3	1713		38,3	1731

Long-term permissible load currents of the cable at a voltage of 3.3; 4.0 and 5.0 kV

Type of cable	Rated Cross-sections of the cores, mm ²	Long time current load A at environment temperature, not less										
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+118 °C
КПнЛБП-120 КПнЛнБП-120	3x10,0	104	98	93	87	80	73	65	57	46	33	15
	3x13,3	124	118	111	104	96	88	78	68	55	39	18
	3x16,0	138	131	123	115	107	97	87	75	62	44	19
	3x21,15	168	159	150	140	130	119	106	92	75	53	24
	3x25,0	184	174	165	154	142	130	116	101	82	58	26
	3x35,0	230	218	206	192	178	163	145	126	103	73	33
КПнЛБК-120 КПнЛнБК-120	3x10,0	105	99	94	88	81	74	66	57	47	33	15
	3x13,3	125	119	112	105	97	89	79	69	56	40	18
	3x16,0	139	132	125	117	108	98	88	76	62	44	20
	3x21,15	169	160	151	141	131	120	107	93	76	53	24
	3x25,0	185	176	166	155	144	131	117	102	83	59	26
	3x35,0	227	216	203	190	176	161	144	125	102	72	32

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

+120 °C

3,3 kV

4,0 kV

5,0 kV

ТУ 3542-061-05015408-2016



КПнФБП-120

КПнФБК-120

КПнФБП-120 - cable with copper conductors, 2 layer insulation of copolymer of Propylene, protective sheath of Fluoride copolymer above the insulation of each core, armored of steel zinc coated tape, flat, with long time admission of core heating +120 °C.

КПнФБК-120 - cable with copper conductors, 2 layer insulation of copolymer of Propylene, protective sheath of Fluoride copolymer above the insulation of each core, armored of steel zinc coated tape, flat, with long time admission of core heating +120 °C.

DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - copolymer of Propylene;
3. **Insulation** - copolymer of Propylene;
4. **Protective sheath** - Fluoride polymer;
5. **Pad** - as non woven cloth;
6. **Aarmor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнФБП-120	13,6x33,8	924	КПнФБП-120-4	13,6x33,8	952	КПнФБП-120-5	13,6x33,8	981
3x13,3		15,0x37,4	1056		15,0x37,4	1082		15,0x37,4	1114
3x16,0		15,0x37,4	1159		15,0x37,4	1169		15,0x37,4	1218
3x21,15		16,2x42,5	1356		16,2x42,5	1382		16,2x42,5	1417
3x25,0		16,2x42,5	1494		16,2x42,5	1519		16,2x42,5	1556
3x35,0		18,0x48,2	1813		18,0x48,2	1834		18,0x48,2	1877

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнФБК-120	29,0	857	КПнФБК-120-4	29,0	874	КПнФБК-120-5	29,0	909
3x13,3		32,0	985		32,0	1003		32,0	1038
3x16,0		32,0	1086		32,0	1104		32,0	1140
3x21,15		35,6	1279		35,6	1298		35,6	1335
3x25,0		35,6	1414		35,6	1433		35,6	1471
3x35,0		38,3	1728		38,3	1748		38,3	1788

Long-term permissible load currents of the cable at a voltage of 3.3; 4.0 and 5.0 kV

Type of cable	Rated Cross-sections of the cores, mm ²	Long time current load A at environment temperature, not less										
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+118 °C
КПнФБП-120	3x10,0	103	98	92	86	80	73	65	56	46	33	15
	3x13,3	124	117	110	103	96	87	78	68	55	39	17
	3x16,0	137	130	123	115	106	97	87	75	61	43	19
	3x21,15	167	159	150	140	130	118	106	92	75	53	24
	3x25,0	183	174	164	153	142	130	116	100	82	58	26
	3x35,0	229	217	205	192	177	162	145	125	102	72	32
КПнФБК-120	3x10,0	105	100	94	88	82	74	67	58	47	33	15
	3x13,3	126	119	113	105	97	89	80	69	56	40	18
	3x16,0	140	133	125	117	108	99	88	77	63	44	20
	3x21,15	170	161	152	142	131	120	107	93	76	54	24
	3x25,0	186	176	166	156	144	132	118	102	83	59	26
	3x35,0	228	217	204	191	177	161	144	125	102	72	32

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



+130 °C

3,3 kV

4,0 kV

5,0 kV

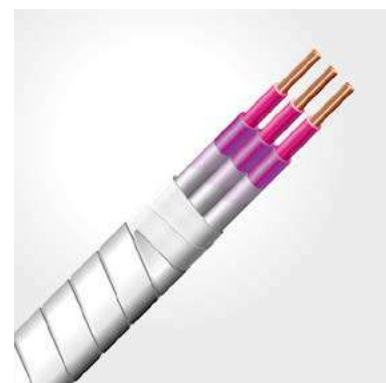
ТУ 3542-061-05015408-2016

КПнЛБП-130
КПнЛБК-130

КПнЛнБП-130
КПнЛнБК-130

КПнЛБП-130/ КПнЛнБП-130 - cable with copper conductors, 2 layer insulation of copolymer of Propylene, tape band, armor of steel zinc coated tape, bandage above the insulation of each core, flat, with long time admission of core heating +130 °C.

КПнЛБК-130/ КПнЛнБК-130 - cable with copper insulation of copolymer of Propylene, tape band, armor of steel zinc coated tape, tape bandage above the insulation of each core, round, with long time admission of core heating +130 °C.



DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - copolymer of Propylene;
3. **Insulation** - copolymer of Propylene;
4. **Tape bandage:** **Л** - Flouride tape winding; **Лн** - wrapping of polyetheleneftalate film;
5. **Pad** - as non woven cloth;
6. **Armor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнЛБП-130 КПнЛнБП-130	13,6x33,8	918	КПнЛБП-130-4 КПнЛнБП-130-4	13,6x33,8	937	КПнЛБП-130-5 КПнЛнБП-130-5	13,6x33,8	955
3x13,3		15,0x37,4	1048		15,0x37,4	1067		15,0x37,4	1086
3x16,0		15,0x37,4	1151		15,0x37,4	1170		15,0x37,4	1189
3x21,15		16,2x42,5	1346		16,2x42,5	1366		16,2x42,5	1386
3x25,0		16,2x42,5	1483		16,2x42,5	1503		16,2x42,5	1523
3x35,0		18,0x48,2	1800		18,0x48,2	1820		18,0x48,2	1841

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнЛБК-130 КПнЛнБК-130	29,0	849	КПнЛБК-130-4 КПнЛнБК-130-4	29,0	866	КПнЛБК-130-5 КПнЛнБК-130-5	29,0	882
3x13,3		32,0	975		32,0	992		32,0	1010
3x16,0		32,0	1075		32,0	1093		32,0	1110
3x21,15		35,6	1267		35,6	1285		35,6	1303
3x25,0		35,6	1401		35,6	1419		35,6	1438
3x35,0		38,3	1712		38,3	1731		38,3	1751

Long-term permissible load currents of the cable at a voltage of 3.3; 4.0 and 5.0 kV

Type of cable	Rated Cross-sections of the cores, mm ²	Long time current load A at environment temperature, not less											
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+128 °C
КПнЛБП-130 КПнЛнБП-130	3x10,0	107	102	97	92	86	79	72	65	56	46	32	14
	3x13,3	129	123	116	110	103	95	87	78	67	55	39	17
	3x16,0	143	136	129	122	114	105	96	86	75	61	43	19
	3x21,15	174	166	158	149	139	129	117	105	91	74	53	23
	3x25,0	191	182	173	163	152	141	129	115	100	81	58	26
	3x35,0	239	227	216	203	190	176	161	144	125	102	72	32
КПнЛБК-130 КПнЛнБК-130	3x10,0	110	105	99	94	88	81	74	66	57	47	33	15
	3x13,3	131	125	119	112	105	97	88	79	69	56	40	18
	3x16,0	146	139	132	124	116	108	98	88	76	62	44	20
	3x21,15	177	169	160	151	141	131	119	107	92	75	53	24
	3x25,0	194	185	175	165	155	143	131	117	101	83	58	26
	3x35,0	238	227	215	203	190	176	160	143	124	101	72	32

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

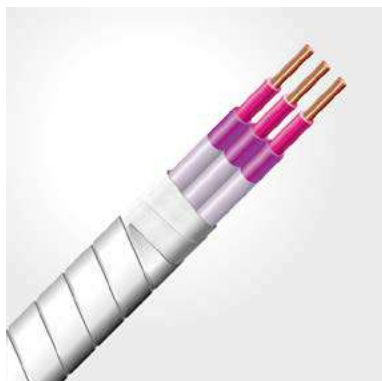
+130 °C

3,3 kV

4,0 kV

5,0 kV

TV 3542-061-05015408-2016



КПнФБП-130

КПнФБК-130

КПнФБП-130 - cable with copper conductors, with 2 layers of Propylene copolymer, protective sheath of flouride copolymer above the insulation of each core, armor of steel zinc coated tape, flat, with long time admission of core heating +130 °C.

КПнФБК-130 - cable with copper conductors, with 2 layers of Propylene copolymer, protective sheath of flouride copolymer above the insulation of each core, armor of steel zinc coated tape, round, with long time admission of core heating +130 °C.

DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - copolymer of Propilene;
3. **Insulation** - copolymer of Propilene;
4. **Protective sheath** - Flouride polymer;
5. **Pad** - as non woven cloth;
6. **Armor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнФБП-130	13,6x33,8	962	КПнФБП-130-4	13,6x33,8	981	КПнФБП-130-5	13,6x33,8	1020
3x13,3		15,0x37,4	1094		15,0x37,4	1114		15,0x37,4	1154
3x16,0		15,0x37,4	1198		15,0x37,4	1218		15,0x37,4	1259
3x21,15		16,2x42,5	1397		16,2x42,5	1417		16,2x42,5	1459
3x25,0		16,2x42,5	1535		16,2x42,5	1556		16,2x42,5	1599
3x35,0		18,0x48,2	1855		18,0x48,2	1877		18,0x48,2	1921

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнФБК-130	29,0	892	КПнФБК-130-4	29,0	909	КПнФБК-130-5	29,0	944
3x13,3		32,0	1020		32,0	1038		32,0	1074
3x16,0		32,0	1122		32,0	1140		32,0	1177
3x21,15		35,6	1316		35,6	1335		35,6	1373
3x25,0		35,6	1452		35,6	1472		35,6	1510
3x35,0		38,3	1768		38,3	1788		38,3	1828

Long-term permissible load currents of the cable at a voltage of 3.3; 4.0 and 5.0 kV

Type of cable	Rated Cross-sections of the cores, mm ²	Long time current load A at environment temperature, not less											
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+128 °C
КПнФБП-130	3x10,0	106	101	96	91	85	79	72	64	56	45	32	14
	3x13,3	127	121	115	109	102	94	86	77	67	54	38	17
	3x16,0	141	135	128	121	113	104	95	85	74	60	43	19
	3x21,15	173	165	156	147	138	127	116	104	90	74	52	23
	3x25,0	189	180	171	161	151	140	127	114	99	81	57	25
	3x35,0	236	225	214	201	188	174	159	142	123	101	71	32
КПнФБК-130	3x10,0	109	104	98	93	87	80	73	66	57	46	33	15
	3x13,3	130	124	117	111	104	96	88	78	68	55	39	18
	3x16,0	144	138	130	123	115	107	97	87	75	62	43	19
	3x21,15	175	167	158	149	140	129	118	106	91	75	53	24
	3x25,0	192	183	174	164	153	142	129	116	100	82	58	26
	3x35,0	235	225	213	201	188	174	159	142	123	100	71	32

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



+130 °C

3,3 kV

4,0 kV

5,0 kV

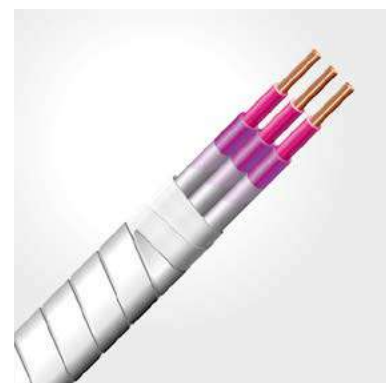
ТУ 3542-061-05015408-2016

КПСЛБП-130
КПСЛБК-130

КПСЛЛБП-130
КПСЛЛБК-130

КПСЛБП-130/ КПСЛЛБП-130 - cable with copper conductors, with 2 layers of PE insulation, tape bandage above the insulation of each core, armor of steel zinc coated tape, flat, with long time admission of core heating +130 °C.

КПСЛБК-130/ КПСЛЛБК-130 - cable with copper conductors, with 2 layers of PE insulation, tape bandage above the insulation of each core, armor of steel zinc coated tape, round, with long time admission of core heating +130 °C.



DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - polyethelene;
3. **Insulation** - polyethelene;
4. **Tape bandage:** **Л** - Flouride tape winding; **Лл** - wrapping of polyetheleneftalate film;
5. **Pad** - as non woven cloth;
6. **Aarmor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПСЛБП-130 КПСЛЛБП-130	13,6x33,8	927	КПСЛБП-130-4 КПСЛЛБП-130-4	13,6x33,8	945	КПСЛБП-130-5 КПСЛЛБП-130-5	13,6x33,8	964
3x13,3		15,0x37,4	1058		15,0x37,4	1077		15,0x37,4	1096
3x16,0		15,0x37,4	1161		15,0x37,4	1180		15,0x37,4	1200
3x21,15		16,2x42,5	1357		16,2x42,5	1377		16,2x42,5	1398
3x25,0		16,2x42,5	1494		16,2x42,5	1515		16,2x42,5	1536
3x35,0		18,0x48,2	1812		18,0x48,2	1834		18,0x48,2	1855
Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПСЛБК-130 КПСЛЛБК-130	29,0	858	КПСЛБК-130-4 КПСЛЛБК-130-4	29,0	875	КПСЛБК-130-5 КПСЛЛБК-130-5	29,0	892
3x13,3		32,0	985		32,0	1002		32,0	1020
3x16,0		32,0	1085		32,0	1103		32,0	1121
3x21,15		35,6	1277		35,6	1296		35,6	1315
3x25,0		35,6	1412		35,6	1431		35,6	1451
3x35,0		38,3	1725		38,3	1745		38,3	1765

Long-term permissible load currents of the cable at a voltage of 3.3; 4.0 and 5.0 kV

Type of cable	Rated Cross- sections of the cores, mm ²	Long time current load A at environment temperature, not less											
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+128 °C
КПСЛБП-130 КПСЛЛБП-130	3x10,0	107	102	97	92	86	79	72	65	56	46	32	14
	3x13,3	129	123	116	110	103	95	87	78	67	55	39	17
	3x16,0	143	136	129	122	114	105	96	86	75	61	43	19
	3x21,15	174	166	158	149	139	129	117	105	91	74	53	23
	3x25,0	191	182	173	163	152	141	129	115	100	81	58	26
	3x35,0	239	227	216	203	190	176	161	144	125	102	72	32
КПСЛБК-130 КПСЛЛБК-130	3x10,0	110	105	99	94	88	81	74	66	57	47	33	15
	3x13,3	131	125	119	112	105	97	88	79	69	56	40	18
	3x16,0	146	139	132	124	116	108	98	88	76	62	44	20
	3x21,15	177	169	160	151	141	131	119	107	92	75	53	24
	3x25,0	194	185	175	165	155	143	131	117	101	83	58	26
	3x35,0	238	227	215	203	190	176	160	143	124	101	72	32



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

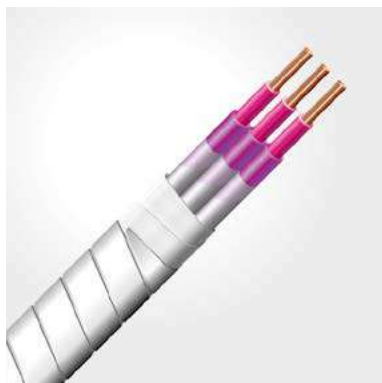
+130 °C

3,3 kV

4,0 kV

5,0 kV

ТУ 3542-061-05015408-2016



КПсПнЛБП-130
КПсПнЛБК-130

КПсПнЛпБП-130
КПсПнЛпБК-130

КПсПнЛБП-130/ КПсПнЛпБП-130 - cable with copper conductors, with 2 layers of insulation of Polyethylene and copolymer of Propylene, with tape bandage above the insulation of each core, armor of steel zinc coated tape, flat, long time admission of core heating +130 °C.

КПсПнЛБК-130/ КПсПнЛпБК-130 - cable with copper conductors, with 2 layers of insulation of Polyethylene and copolymer of Propylene, with tape bandage above the insulation of each core, armor of steel zinc coated tape, round, long time admission of core heating +130 °C.

DESIGN

- 1. Current carrying conductor** - copper;
- 2. Insulation** - PE of radiation modified;
- 3. Insulation** - copolymer of Propylene;
- 4. Tape bandage:** **Л** - Flouride tape winding; **Лп** - wrapping of polyetheleneftalate film;
- 5. Pad** - as non woven cloth;
- 6. Armor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнЛБП-130 КПсПнЛпБП-130	13,6x33,8	925	КПсПнЛБП-130-4 КПсПнЛпБП-130-4	13,6x33,8	943	КПсПнЛБП-130-5 КПсПнЛпБП-130-5	13,6x33,8	959
3x13,3		15,0x37,4	1053		15,0x37,4	1071		15,0x37,4	1090
3x16,0		15,0x37,4	1141		15,0x37,4	1159		15,0x37,4	1194
3x21,15		16,2x42,5	1351		16,2x42,5	1370		16,2x42,5	1391
3x25,0		16,2x42,5	1484		16,2x42,5	1504		16,2x42,5	1529
3x35,0		18,0x48,2	1799		18,0x48,2	1820		18,0x48,2	1848
Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнЛБК-130 КПсПнЛпБК-130	29,0	853	КПсПнЛБК-130-4 КПсПнЛпБК-130-4	29,0	869	КПсПнЛБК-130-5 КПсПнЛпБК-130-5	29,0	886
3x13,3		32,0	979		32,0	997		32,0	1014
3x16,0		32,0	1080		32,0	1097		32,0	1115
3x21,15		35,6	1272		35,6	1290		35,6	1308
3x25,0		35,6	1406		35,6	1425		35,6	1443
3x35,0		38,3	1718		38,3	1738		38,3	1757

Long-term permissible load currents of the cable at a voltage of 3.3; 4.0 and 5.0 kV

Type of cable	Rated Cross-sections of the cores, mm ²	Long time current load A at environment temperature, not less											
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C	+128 °C
КПсПнЛБП-130 КПсПнЛпБП-130	3x10,0	107	102	97	92	86	79	72	65	56	46	32	14
	3x13,3	129	123	116	110	103	95	87	78	67	55	39	17
	3x16,0	143	136	129	122	114	105	96	86	75	61	43	19
	3x21,15	174	166	158	149	139	129	117	105	91	74	53	23
	3x25,0	191	182	173	163	152	141	129	115	100	81	58	26
	3x35,0	239	227	216	203	190	176	161	144	125	102	72	32
КПсПнЛБК-130 КПсПнЛпБК-130	3x10,0	110	105	99	94	88	81	74	66	57	47	33	15
	3x13,3	131	125	119	112	105	97	88	79	69	56	40	18
	3x16,0	146	139	132	124	116	108	98	88	76	62	44	20
	3x21,15	177	169	160	151	141	131	119	107	92	75	53	24
	3x25,0	194	185	175	165	155	143	131	117	101	83	58	26
	3x35,0	238	227	215	203	190	176	160	143	124	101	72	32

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



+130 °C

3,3 kV

4,0 kV

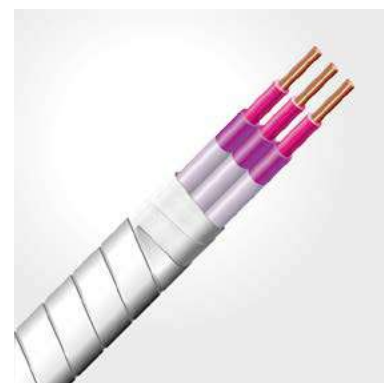
5,0 kV

TY 3542-061-05015408-2016

КПсПнФБП-130 КПсПнФБК-130

КПсПнФБП-130 - cable with copper conductors, with 2 –layers insulation of Polyethylene radiation modified and copolymer of Propylene, with protected sheath of Flouride polymer above the insulation of each core, armor of steel zinc coated tape, flat, long time admission of core heating +130 °C.

КПсПнФБК-130 - cable with copper conductors, with 2 –layers insulation of Polyethylene radiation modified and copolymer of Propylene, with protected sheath of Flouride polymer above the insulation of each core, armor of steel zinc coated tape, round, long time admission of core heating +130 °C.



DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - PE of radiation modified;
3. **Insulation** - copolymer of Propylene;
4. **Protective sheath** - Flouride polymer;
5. **Pad** - as non woven cloth;
6. **Armor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнФБП-130	13,6x33,8	965	КПсПнФБП-130-4	13,6x33,8	984	КПсПнФБП-130-5	13,6x33,8	1024
3x13,3		15,0x37,4	1098		15,0x37,4	1117		15,0x37,4	1158
3x16,0		15,0x37,4	1202		15,0x37,4	1222		15,0x37,4	1263
3x21,15		16,2x42,5	1401		16,2x42,5	1421		16,2x42,5	1464
3x25,0		16,2x42,5	1540		16,2x42,5	1560		16,2x42,5	1604
3x35,0		18,0x48,2	1861		18,0x48,2	1882		18,0x48,2	1928

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнФБК-130	29,0	895	КПсПнФБК-130-4	29,0	912	КПсПнФБК-130-5	29,0	948
3x13,3		32,0	1024		32,0	1042		32,0	1079
3x16,0		32,0	1126		32,0	1144		32,0	1182
3x21,15		35,6	1321		35,6	1340		35,6	1378
3x25,0		35,6	1457		35,6	1476		35,6	1516
3x35,0		38,3	1773		38,3	1793		38,3	1834

Long-term permissible load currents of the cable at a voltage of 3.3; 4.0 and 5.0 kV

Type of cable	Rated Cross-sections of the cores, mm ²	Long time current load A at environment temperature, not less										
		+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+118 °C
КПсПнФБП-130	3x10	103	98	92	86	80	73	65	56	46	33	15
	3x13,3	124	117	110	103	96	87	78	68	55	39	17
	3x16	137	130	123	115	106	97	87	75	61	43	19
	3x21,15	167	159	150	140	130	118	106	92	75	53	24
	3x25	183	174	164	153	142	130	116	100	82	58	26
	3x35	229	217	205	192	177	162	145	125	102	72	32
КПсПнФБК-130	3x10	105	100	94	88	82	74	67	58	47	33	15
	3x13,3	126	119	113	105	97	89	80	69	56	40	18
	3x16	140	133	125	117	108	99	88	77	63	44	20
	3x21,15	170	161	152	142	131	120	107	93	76	54	24
	3x25	186	176	166	156	144	132	118	102	83	59	26
	3x35	228	217	204	191	177	161	144	125	102	72	32

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

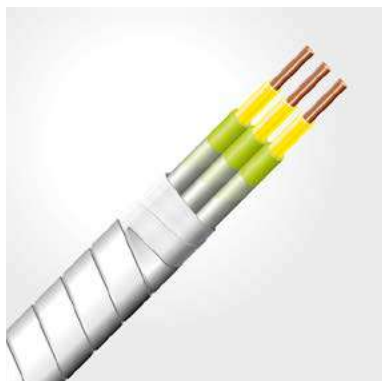
+140 °C

3,3 kV

4,0 kV

5,0 kV

ТУ 3542-061-05015408-2016



КПнЛБП-140
КПнЛБК-140

КПнЛнБП-140
КПнЛнБК-140

КПнЛБП-140/ КПнЛнБП-140 - cable with copper conductors, with 2 layers of insulation of Propylene copolymer, with tape bandage above the insulation of each core, armor of steel zinc coated tape, flat, long time admission of core heating +140 °C.

КПнЛБК-140/ КПнЛнБК-140 - cable with copper conductors, with 2 layers of insulation of Propylene copolymer, with tape bandage above the insulation of each core, armor of steel zinc coated tape, round, long time admission of core heating +140 °C.

DESIGN

- 1. Current carrying conductor** - copper;
- 2. Insulation** - copolymer of Propylene;
- 3. Insulation** - copolymer of Propylene;
- 4. Tape bandage:** **Л** - Flouride tape winding; **Лн** - wrapping of polyetheleneffalate film;
- 5. Pad** - as non woven cloth;
- 6. Armor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнЛБП-140 КПнЛнБП-140	13,6x33,8	937	КПнЛБП-140-4 КПнЛнБП-140-4	13,6x33,8	955	КПнЛБП-140-5 КПнЛнБП-140-5	13,6x33,8	974
3x13,3		15,0x37,4	1067		15,0x37,4	1086		15,0x37,4	1105
3x16,0		15,0x37,4	1170		15,0x37,4	1189		15,0x37,4	1208
3x21,15		16,2x42,5	1366		16,2x42,5	1386		16,2x42,5	1406
3x25,0		16,2x42,5	1503		16,2x42,5	1523		16,2x42,5	1544
3x35,0		18,0x48,2	1820		18,0x48,2	1841		18,0x48,2	1863
Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнЛБК-140 КПнЛнБК-140	29,0	866	КПнЛБК-140-4 КПнЛнБК-140-4	29,0	882	КПнЛБК-140-5 КПнЛнБК-140-5	29,0	899
3x13,3		32,0	992		32,0	1010		32,0	1027
3x16,0		32,0	1093		32,0	1110		32,0	1128
3x21,15		35,6	1285		35,6	1303		35,6	1322
3x25,0		35,6	1419		35,6	1438		35,6	1457
3x35,0		38,3	1731		38,3	1751		38,3	1771

As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.



+140 °C

3,3 kV

4,0 kV

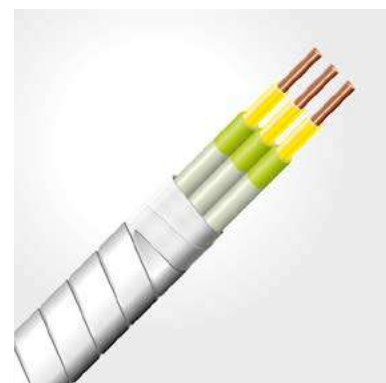
5,0 kV

TY 3542-061-05015408-2016

КПнФБП-140 КПнФБК-140

КПнФБП-140 - cable with copper conductors, with 2 layers of insulation of copolymer of Propylene, with protective sheath of Flour copolymer above the insulation of each core, armor of steel zinc coated tape, flat, long time admission of core heating +140 °C.

КПнФБК-140 - cable with copper conductors, with 2 layers of insulation of copolymer of Propylene, with protective sheath of Flour copolymer above the insulation of each core, armor of steel zinc coated tape, round, long time admission of core heating +140 °C.



DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - copolymer of Propylene;
3. **Insulation** - copolymer of Propylene;
4. **Protective sheath** - Flouride polymer;
5. **Pad** - as non woven cloth;
6. **Aarmor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнФБП-140	13,6x33,8	996	КПнФБП-140-4	13,6x33,8	1009	КПнФБП-140-5	13,6x33,8	1039
3x13,3		15,0x37,4	1126		15,0x37,4	1139		15,0x37,4	1174
3x16,0		15,0x37,4	1215		15,0x37,4	1228		15,0x37,4	1279
3x21,15		16,2x42,5	1429		16,2x42,5	1442		16,2x42,5	1480
3x25,0		16,2x42,5	1567		16,2x42,5	1581		16,2x42,5	1620
3x35,0		18,0x48,2	1884		18,0x48,2	1898		18,0x48,2	1944
Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнФБК-140	29,0	909	КПнФБК-140-4	29,0	927	КПнФБК-140-5	29,0	962
3x13,3		32,0	1038		32,0	1057		32,0	1093
3x16,0		32,0	1140		32,0	1159		32,0	1196
3x21,15		35,6	1335		35,6	1355		35,6	1393
3x25,0		35,6	1472		35,6	1491		35,6	1530
3x35,0		38,3	1788		38,3	1808		38,3	1849



CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

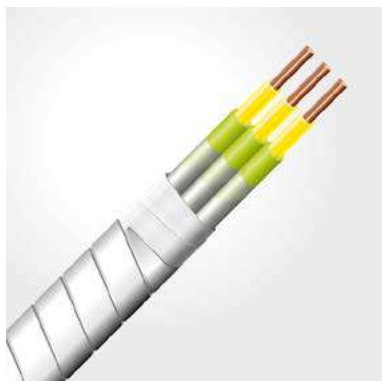
+140 °C

3,3 kV

4,0 kV

5,0 kV

ТУ 3542-061-05015408-2016



КПсПнЛБП-140
КПсПнЛБК-140

КПсПнЛпБП-140
КПсПнЛпБК-140

КПсПнЛБП-140/ КПсПнЛпБП-140 - cable with copper conductors, with 2 layers insulation of PE and copolymer and with tape bandage above the insulation of each core, armor of steel zinc coated tape, flat, long time admission of core heating +140 °C.

КПсПнЛБК-140/ КПсПнЛпБК-140 - cable with copper conductors, with 2 layers insulation of PE and copolymer and with tape bandage above the insulation of each core, armor of steel zinc coated tape, round, long time admission of core heating +140 °C.

DESIGN

- Current carrying conductor** - copper;
- Insulation** - PE of radiation modified;
- Insulation** - copolymer of Propylene;
- Tape bandage** : **Л** - Flouride tape winding; **Лп** - wrapping of polyetheleneftalate film;
- Pad** - as non woven cloth;
- Aarmor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнЛБП-140 КПсПнЛпБП-140	13,6x33,8	940	КПсПнЛБП-140-4 КПсПнЛпБП-140-4	13,6x33,8	959	КПсПнЛБП-140-5 КПсПнЛпБП-140-5	13,6x33,8	977
3x13,3		15,0x37,4	1071		15,0x37,4	1090		15,0x37,4	1109
3x16,0		15,0x37,4	1174		15,0x37,4	1194		15,0x37,4	1213
3x21,15		16,2x42,5	1371		16,2x42,5	1391		16,2x42,5	1411
3x25,0		16,2x42,5	1509		16,2x42,5	1529		16,2x42,5	1549
3x35,0		18,0x48,2	1827		18,0x48,2	1848		18,0x48,2	1869
Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнЛБК-140 КПсПнЛпБК-140	29,0	869	КПсПнЛБК-140-4 КПсПнЛпБК-140-4	29,0	886	КПсПнЛБК-140-5 КПсПнЛпБК-140-5	29,0	903
3x13,3		32,0	997		32,0	1014		32,0	1031
3x16,0		32,0	1097		32,0	1115		32,0	1133
3x21,15		35,6	1290		35,6	1308		35,6	1327
3x25,0		35,6	1425		35,6	1443		35,6	1462
3x35,0		38,3	1738		38,3	1757		38,3	1777



+140 °C

3,3 kV

4,0 kV

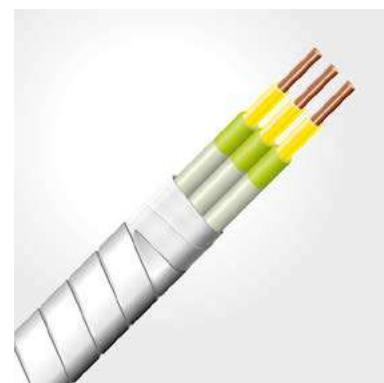
5,0 kV

TY 3542-061-05015408-2016

КПсПнФБП-140 КПсПнФБК-140

КПсПнФБП-140 - cable with copper conductors, with 2 layers of insulation of PE and copolymer of Propylene, with protective sheath of Flouride copolymer above insulation of each core, armor of steel zinc coated tape, flat, with long time admission of core heating +140 °C.

КПсПнФБК-140 - cable with copper conductors, with 2 layers of insulation of PE and copolymer of Propylene, with protective sheath of Flouride copolymer above insulation of each core, armor of steel zinc coated tape, round, with long time admission of core heating +140 °C.



DESIGN

1. **Current carrying conductor** - copper;
2. **Insulation** - PE of radiation modified;
3. **Insulation** - copolymer of Propylene;
4. **Protective sheath** - Flouride polymer;
5. **Pad** - as non woven cloth;
6. **Armor** - steel zinc coated or corrosion resistant tape.

Number of conductors and its rated cross- sections, outer diameters and weights of cables.

Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнФБП-140	13,6x33,8	984	КПсПнФБП-140-4	13,6x33,8	1018	КПсПнФБП-140-5	13,6x33,8	1043
3x13,3		15,0x37,4	1117		15,0x37,4	1149		15,0x37,4	1178
3x16,0		15,0x37,4	1222		15,0x37,4	1238		15,0x37,4	1284
3x21,15		16,2x42,5	1421		16,2x42,5	1454		16,2x42,5	1485
3x25,0		16,2x42,5	1560		16,2x42,5	1593		16,2x42,5	1625
3x35,0		18,0x48,2	1882		18,0x48,2	1911		18,0x48,2	1950
Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнФБК-140	29,0	912	КПсПнФБК-140-4	29,0	930	КПсПнФБК-140-5	29,0	966
3x13,3		32,0	1042		32,0	1060		32,0	1097
3x16,0		32,0	1144		32,0	1163		32,0	1200
3x21,15		35,6	1340		35,6	1359		35,6	1398
3x25,0		35,6	1476		35,6	1496		35,6	1536
3x35,0		38,3	1793		38,3	1814		38,3	1855

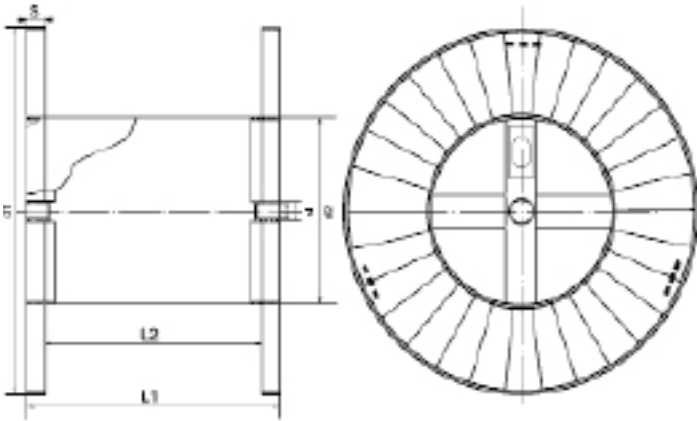


CABLES FOR SUBMERGED OIL ELECTRIC PUMPS

REFERENCE

Sizes and weight of metallic reels

Type of the reel	d1 flange diameter, mm	d2 barrel diameter, mm	d bore diameter, mm	L2 barrel length, mm	L1 reel length, mm	S Round length, mm	Weight, kg (for reference)
18	1800	890(±7)	107(±1)	1000	1170	8x50	220
20	2000	800	92	1000	1130	12x60	322
20	1950	800	92	1000	1130	12x65	285



The position of reels in the vehicle – for reference

Reel number	Roofed rail car with load capacity 63,0 MT	Lorry				
		8,0 MT capacity Length 5,4 m Width 2,2 m	10,0 MT capacity Length 6,4 m Width 2,2 m	14,0 MT capacity Length 9,8 m Width 2,2 m	20,0 MT capacity eurotruck semitrailer Length 13,5 m Width 2,3 m	20,0 MT capacity semitrailer Length 11,0 m Width 2,2 m
Amount						
18	14	3	7	5	8	6
20	12	2	2	3	6	6





Approximate calculation of cable length at the reel

Cable type	Cross-sections, mm ²	Maximal length of cable winding at the reel, m	
		Reel N 18 – metal	Reel N 20 - metal
КПБП-90	3x10,0	2500	3650
	3x13,3	2250	3300
	3x16,0	2050	3050
	3x21,15	1850	2750
	3x25,0	1700	2500
	3x35,0	1450	2200
КПБК-90	3x10,0	2300	3400
	3x13,3	2100	3100
	3x16,0	1950	2900
	3x21,15	1750	2550
	3x25,0	1600	2350
	3x35,0	1350	2000

Cable type	Cross-sections, mm ²	Maximal length of cable winding at the reel, m	
		Reel N 18 – metal	Reel N 20 - metal
КПнБП-120	3x10,0	2600	3750
	3x13,3	2350	3450
	3x16,0	2200	3200
	3x21,15	1850	2750
	3x25,0	1700	2500
	3x35,0	1500	2200
КПнБК-120	3x10,0	2400	3500
	3x13,3	2350	3100
	3x16,0	2350	2900
	3x21,15	1600	2350
	3x25,0	1600	2350
	3x35,0	1350	2000

Cable type	Cross-sections, mm ²	Maximal length of cable winding at the reel, m	
		Reel N 18 – metal	Reel N 20 - metal
КПсБП-120	3x10,0	2700	4000
	3x13,3	2450	3600
	3x16,0	2250	3300
	3x21,15	1850	2750
	3x25,0	1700	2600
	3x35,0	1450	2300
КПсБК-120	3x10,0	2600	3750
	3x13,3	2350	3450
	3x16,0	2200	3200
	3x21,15	1800	2700
	3x25,0	1500	2300
	3x35,0	1300	2000


Cable type	Cross-sections, mm ²	Maximal length of cable winding at the reel, m	
		Reel N 18 – metal	Reel N 20 - metal
КПсПнБП-120	3x10,0	2900	4200
	3x13,3	2600	3800
	3x16,0	2400	3550
	3x21,15	2000	2950
	3x25,0	1700	2500
	3x35,0	1450	2200
КПсПнБК-120	3x10,0	2700	4000
	3x13,3	2450	3600
	3x16,0	2250	3300
	3x21,15	1850	2750
	3x25,0	1600	2350
	3x35,0	1350	050

Cable type	Cross-sections, mm ²	Maximal length of cable winding at the reel, m	
		Reel N 18 – metal	Reel N 20 - metal
КПсБП-130	3x10,0	2600	3750
	3x13,3	2350	3450
	3x16,0	2200	3200
	3x21,15	1850	2750
	3x25,0	1700	2500
	3x35,0	1500	2200
КПсБК-130	3x10,0	2400	3550
	3x13,3	2150	3250
	3x16,0	2000	3000
	3x21,15	1750	2550
	3x25,0	1600	2350
	3x35,0	1350	2050

Cable type	Cross-sections, mm ²	Maximal length of cable winding at the reel, m	
		Reel N 18 – metal	Reel N 20 - metal
КПсПнБП-130	3x10,0	2700	4000
	3x13,3	2450	3600
	3x16,0	2250	3300
	3x21,15	1850	2750
	3x25,0	1700	2500
	3x35,0	1450	2200
КПсПнБК-130	3x10,0	2600	3750
	3x13,3	2350	3450
	3x16,0	2200	3200
	3x21,15	1800	2700
	3x25,0	1500	2300
	3x35,0	1300	2000

Cable type	Cross-sections, mm ²	Maximal length of cable winding at the reel, m	
		Reel N 18 – metal	Reel N 20 - metal
КПсБП-150	3x10,0	2900	4200
	3x13,3	2600	3800
	3x16,0	2400	3550
	3x21,15	2000	2950
	3x25,0	1650	2450
	3x35,0	1500	2200
КПсБК-150	3x10,0	2700	4000
	3x13,3	2450	3600
	3x16,0	2250	3300
	3x21,15	1850	2750
	3x25,0	1600	2350
	3x35,0	1350	2050

Cable type	Cross-sections, mm ²	Maximal length of cable winding at the reel, m	
		Reel N 18 – metal	Reel N 20 - metal
КПсБП-160	3x10,0	2900	4200
	3x13,3	2600	3800
	3x16,0	2400	3550
	3x21,15	2000	2950
	3x25,0	1650	2450
	3x35,0	1500	2200
КПсБК-160	3x10,0	2700	4000
	3x13,3	2450	3600
	3x16,0	2250	3300
	3x21,15	1850	2750
	3x25,0	1600	2350
	3x35,0	1350	2050



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