



JOINT-STOCK COMPANY

PODOLSK KABEL



*PRODUCT
CATALOG*

**CABLES
FOR SUBMERGED
OIL ELECTRIC PUMPS**



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Information given in the present issue is not a public offer, stipulated in the article 437 of Civil code of Russian Federation. Technical features of the cables are given as a reference material and only for information. As perfection of processing goes at the factory permanently and the expansion of the range of cable products is there, designs and production features can be modified. Please apply to the factory specialists on all the problems you are interested.

UNIQUE TECHNOLOGIES



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.

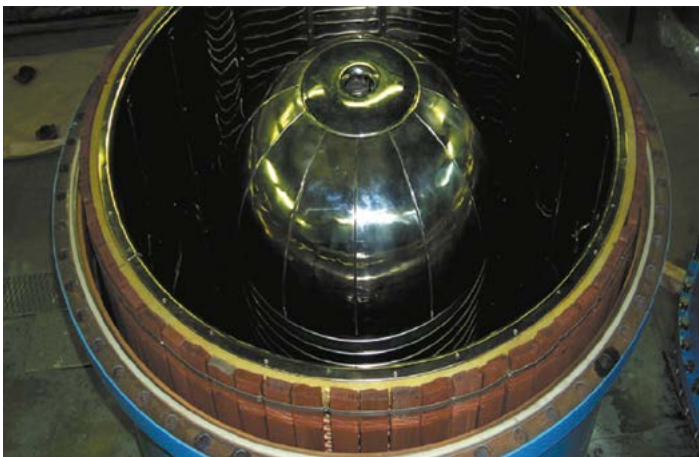
JSC «PE «PODOLSKKABEL» makes cables and wires with the implementation of radiation cross linking more than 35 years.

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.



QUALITY



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 «SURGUTNEFTGAS», 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.

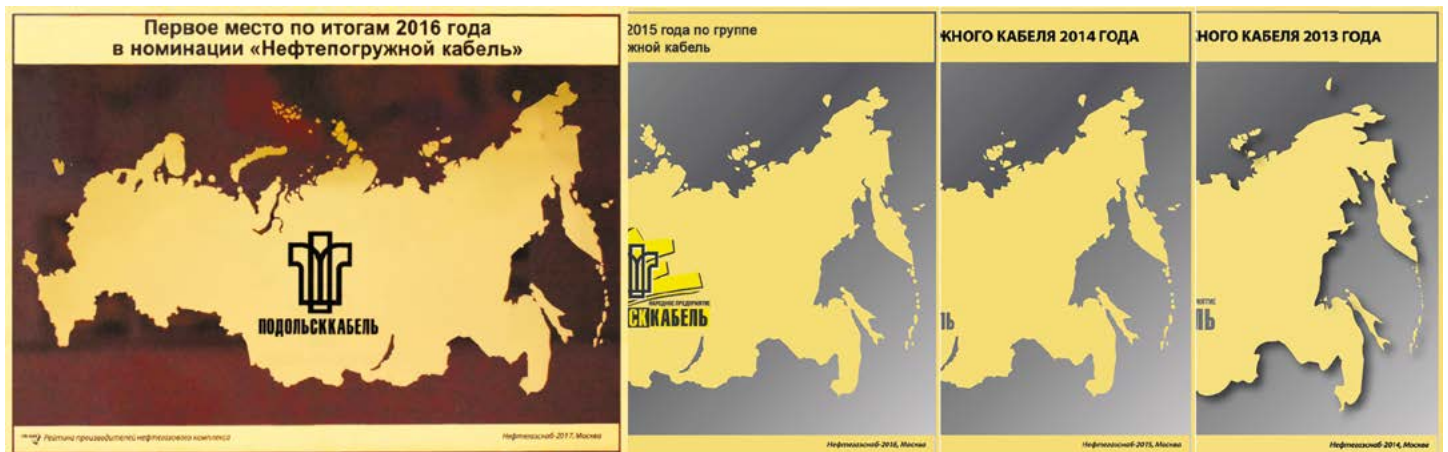
GOLD MEDAL and Diploma for the development of new items and Certificate of Winner in National competition «Golden Tag of Quality Russian Brand» was given to the Enterprise.

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.



QUALITY



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 zinedc tape, not more than, gram per liter	0,01
concentration of Sulfur Hydrogen for the cables of stainless steel tape resistant to corrosion, МPa, 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 КПсПБП-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 C°.

- 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 C° shall be not less than 2500 Mohms.

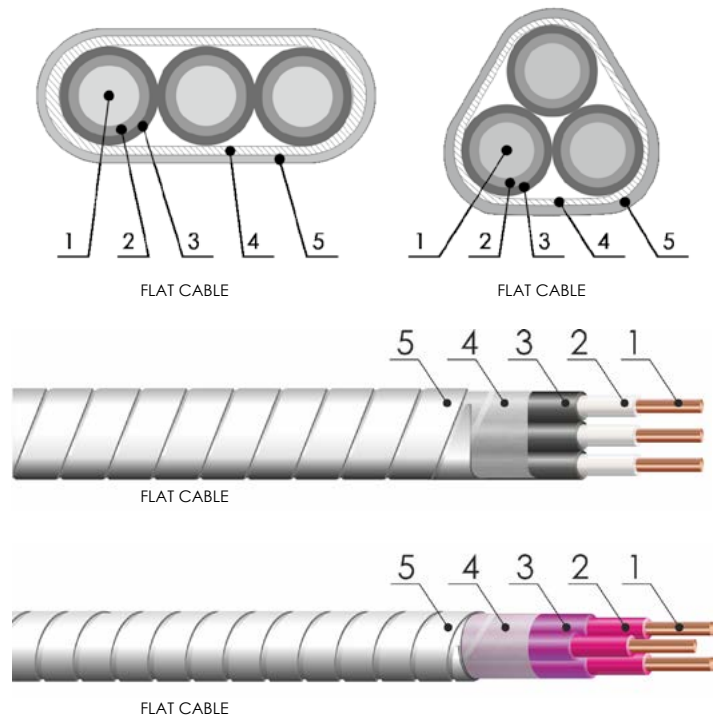
The cables can sustain crushing not less 158 kN.

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 C° 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 zinedc tape;

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

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

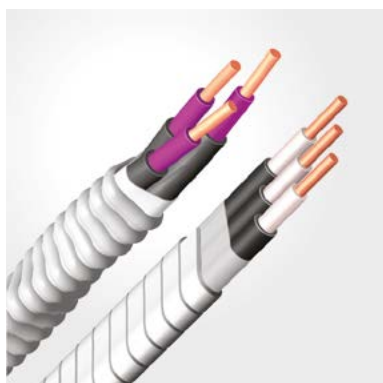
For the cables with rated voltage 4.0 and 5.0 kV figures 4 or 5 are added through mark .

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

КПсПнБП-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.

КПсПнБкК-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.



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

1. **Current carrying conductor** - copper;
2. **Insulation** – polyethylene of high density;
3. **Insulation** – polyethylene of high density;
4. **Pad** – as non woven cloth;
5. **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	858	КПБП-90-4	13,6x33,8	862	КПБП-90-5	13,6x33,8	879
3x13,3		15,0x37,4	979		15,0x37,4	987		15,0x37,4	1005
3x16,0		15,0x37,4	1064		15,0x37,4	1092		15,0x37,4	1110
3x21,15		16,2x42,5	1271		16,2x42,5	1282		16,2x42,5	1300
3x25,0		16,2x42,5	1410		16,2x42,5	1421		16,2x42,5	1441
3x35,0		18,0x48,2	1713		18,0x48,2	1730		18,0x48,2	1751

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	787	КПБК-90-4	29,0	798	КПБК-90-5	29,0	813
3x13,3		32,0	900		32,0	919		32,0	936
3x16,0		32,0	988		32,0	1024		32,0	1038
3x21,15		35,6	1188		35,6	1207		35,6	1224
3x25,0		35,6	1324		35,6	1344		35,6	1362
3x35,0		38,3	1626		38,3	1648		38,3	1666

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	ТУ 16.К13-012-2002
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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	848	КПнБП-120-4	13,6x33,8	889	КПнБП-120-5	13,6x33,8	887
3x13,3		15,0x37,4	970		15,0x37,4	994		15,0x37,4	1012
3x16,0		15,0x37,4	1059		15,0x37,4	1089		15,0x37,4	1107
3x21,15		16,2x42,5	1266		16,2x42,5	1294		16,2x42,5	1305
3x25,0		16,2x42,5	1398		16,2x42,5	1431		16,2x42,5	1451
3x35,0		18,0x48,2	1703		18,0x48,2	1739		18,0x48,2	1760

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	792	КПнБК-120-4	29,0	789	КПнБК-120-5	29,0	805
3x13,3		32,0	914		32,0	910		32,0	926
3x16,0		32,0	1006		32,0	1012		32,0	1027
3x21,15		35,6	1206		35,6	1196		35,6	1251
3x25,0		35,6	1344		35,6	1332		35,6	1350
3x35,0		38,3	1649		38,3	1635		38,3	1634

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
	3x35,0	232	221	208	194	180	164	147	127	104	74	33
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

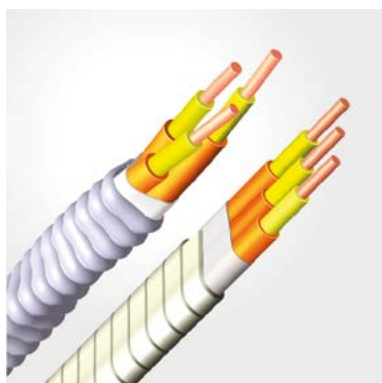
+120 °C

3,3 kV

4,0 kV

5,0 kV

ТУ 16.К13-012-2002



КПcПБП-120
КПcПБК-120

КПcПБП-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.

КПcПБК-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	КПcПБП-120	12,2x30,6	870	КПcПБП-120-4	12,4x31,2	886	КПcПБП-120-5	12,6x31,8	904
3x13,3		12,8x32x2	991		13x32,8	1008		13,2x33,4	1027
3x16,0		13,1x33,3	1082		13,3x33,8	1098		13,5x34,3	1115
3x21,15		13,9x35,5	1285		14,1x36,1	1301		14,3x36,7	1311
3x25,0		14,3x36,9	1423		14,5x37,5	1443		14,7x38,1	1463
3x35,0		15,3x39,7	1731		15,5x40,3	1752		15,7x40,9	1773

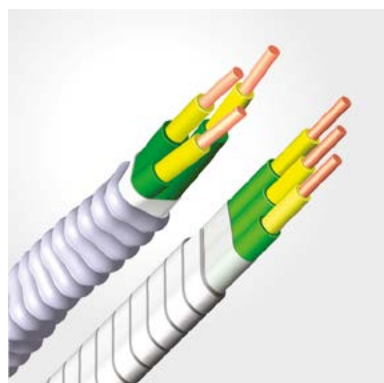
Cross-sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПcПБК-120	29,0	778	КПcПБК-120-4	29,0	813	КПcПБК-120-5	29,0	846
3x13,3		32,0	898		32,0	936		32,0	970
3x16,0		32,0	989		32,0	1038		32,0	1072
3x21,15		35,6	1190		35,6	1224		35,6	1260
3x25,0		35,6	1336		35,6	1362		35,6	1398
3x35,0		38,3	1631		38,3	1666		38,3	1705

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
КПcПБП-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
КПcПБК-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	ТУ 16.К13-012-2002
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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

- Current carrying conductor** - copper;
- Insulation** - PE of radiation modified;
- Insulation** - copolymer of Propilene;
- 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	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПсПнБП-120	13,6x33,8	840	КПсПнБП-120-4	13,6x33,8	857	КПсПнБП-120-5	13,6x33,8	874
3x13,3		15,0x37,4	964		15,0x37,4	981		15,0x37,4	1000
3x16,0		15,0x37,4	1068		15,0x37,4	1086		15,0x37,4	1104
3x21,15		16,2x42,5	1256		16,2x42,5	1275		16,2x42,5	1294
3x25,0		16,2x42,5	1396		16,2x42,5	1415		16,2x42,5	1434
3x35,0		18,0x48,2	1703		18,0x48,2	1722		18,0x48,2	1744

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	778	КПсПнБК-120-4	29,0	792	КПсПнБК-120-5	29,0	808
3x13,3		32,0	897		32,0	913		32,0	930
3x16,0		32,0	987		32,0	1015		32,0	1032
3x21,15		35,6	1186		35,6	1200		35,6	1217
3x25,0		35,6	1232		35,6	1337		35,6	1355
3x35,0		38,3	1624		38,3	1640		38,3	1659

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.

+130 °C

3,3 kV

4,0 kV

5,0 kV

ТУ 16.К13-012-2002



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	851	КПнБП-130-4	13,6x33,8	854	КПнБП-130-5	13,6x33,8	871
3x13,3		15,0x37,4	982		15,0x37,4	979		15,0x37,4	996
3x16,0		15,0x37,4	1061		15,0x37,4	1081		15,0x37,4	1100
3x21,15		16,2x42,5	1269		16,2x42,5	1274		16,2x42,5	1289
3x25,0		16,2x42,5	1401		16,2x42,5	1413		16,2x42,5	1429
3x35,0		18,0x48,2	1703		18,0x48,2	1719		18,0x48,2	1738

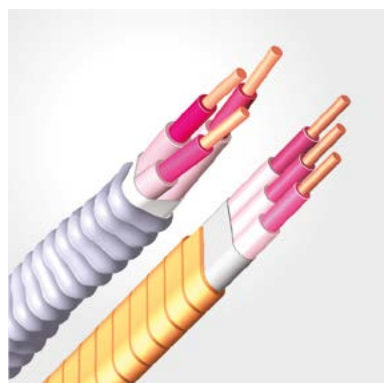
Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПнБК-130	29,0	805	КПнБК-130-4	29,0	789	КПнБК-130-5	29,0	805
3x13,3		32,0	926		32,0	910		32,0	926
3x16,0		32,0	1027		32,0	1012		32,0	1027
3x21,15		35,6	1213		35,6	1196		35,6	1213
3x25,0		35,6	1350		35,6	1332		35,6	1350
3x35,0		38,3	1654		38,3	1635		38,3	1654

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	ТУ 16.К13-012-2002
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КПcПБП-130
КПcПБК-130

КПcПБП-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.

КПcПБК-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. 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	КПcПБП-130	13,6x33,8	886	КПcПБП-130-4	13,6x33,8	906	КПcПБП-130-5	13,6x33,8	915
3x13,3		15,0x37,4	1008		15,0x37,4	1040		15,0x37,4	1042
3x16,0		15,0x37,4	1098		15,0x37,4	1119		15,0x37,4	1148
3x21,15		16,2x42,5	1301		16,2x42,5	1326		16,2x42,5	1340
3x25,0		16,2x42,5	1443		16,2x42,5	1461		16,2x42,5	1481
3x35,0		18,0x48,2	1752		18,0x48,2	1761		18,0x48,2	1793

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	КПcПБК-130	29,0	794	КПcПБК-130-4	29,0	813	КПcПБК-130-5	29,0	846
3x13,3		32,0	906		32,0	936		32,0	970
3x16,0		32,0	1006		32,0	1038		32,0	1072
3x21,15		35,6	1208		35,6	1224		35,6	1260
3x25,0		35,6	1355		35,6	1362		35,6	1398
3x35,0		38,3	1650		38,3	1666		38,3	1705

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
КПcПБП-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
КПcПБК-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.

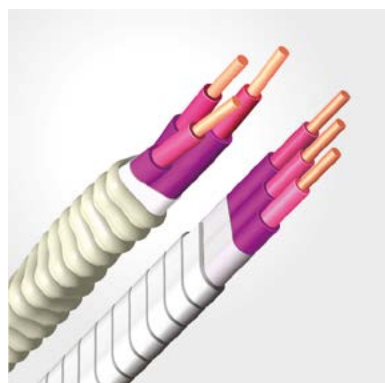
+130 °C

3,3 kV

4,0 kV

5,0 kV

ТУ 16.К13-012-2002



КПcПnБП-130

КПcПnБК-130

КПcПnБП-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.

КПcПnБК-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	КПcПnБП-130	13,6x33,8	902	КПcПnБП-130-4	13,6x33,8	855	КПcПnБП-130-5	13,6x33,8	921
3x13,3		15,0x37,4	1035		15,0x37,4	1054		15,0x37,4	1031
3x16,0		15,0x37,4	1113		15,0x37,4	1074		15,0x37,4	1147
3x21,15		16,2x42,5	1320		16,2x42,5	1351		16,2x42,5	1327
3x25,0		16,2x42,5	1454		16,2x42,5	1398		16,2x42,5	1489
3x35,0		18,0x48,2	1753		18,0x48,2	1691		18,0x48,2	1803

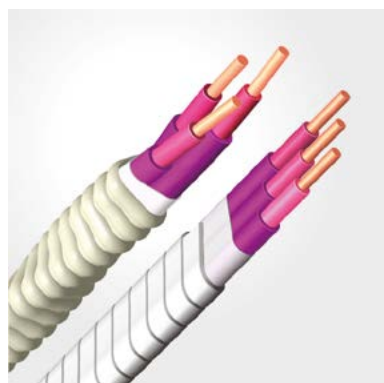
Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПcПnБК-130	29,0	820	КПcПnБК-130-4	29,0	808	КПcПnБК-130-5	29,0	840
3x13,3		32,0	941		32,0	930		32,0	963
3x16,0		32,0	1039		32,0	1032		32,0	1065
3x21,15		35,6	1232		35,6	1217		35,6	1252
3x25,0		35,6	1372		35,6	1355		35,6	1390
3x35,0		38,3	1672		38,3	1659		38,3	1697

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
КПcПnБП-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
КПcПnБК-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	ТУ 16.К13-012-2002
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KПнТБП-140
KПнТБК-140

KПнТБП-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.

KПнТБК-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

- Current carrying conductor** - copper;
- Insulation** - copolymer of Propilene;
- Insulation** - thermal elastomer;
- 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 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	KПнТБП-140	13,6x33,8	860	KПнТБП-140-4	13,6x33,8	894	KПнТБП-140-5	13,6x33,8	930
3x13,3		15,0x37,4	981		15,0x37,4	1016		15,0x37,4	1054
3x16,0		15,0x37,4	1068		15,0x37,4	1104		15,0x37,4	1143
3x21,15		16,2x42,5	1273		16,2x42,5	1310		16,2x42,5	1350
3x25,0		16,2x42,5	1412		16,2x42,5	1450		16,2x42,5	1491
3x35,0		18,0x48,2	1715		18,0x48,2	1755		18,0x48,2	1798

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	KПнТБК-140	29,0	786	KПнТБК-140-4	29,0	818	KПнТБК-140-5	29,0	853
3x13,3		32,0	907		32,0	940		32,0	975
3x16,0		32,0	996		32,0	1029		32,0	1066
3x21,15		35,6	1197		35,6	1231		35,6	1269
3x25,0		35,6	1333		35,6	1369		35,6	1408
3x35,0		38,3	1636		38,3	1673		38,3	1715

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
KПнТБП-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
KПнТБК-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

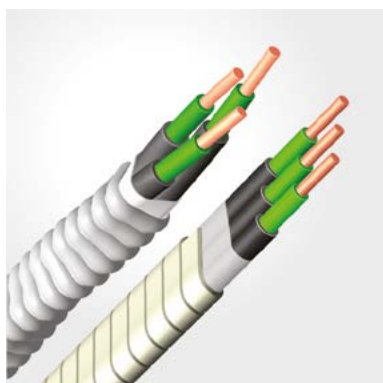
As for cable weights and constructive dimensions, it is given as a reference. Manufacturer reserves his right for the modifications of given dimensions for different constructions.

+150 °C

3,3 kV

4,0 kV

TV 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

- 1. Current carrying conductor** - copper;
- 2. Insulation** - PE of radiation modified;
- 3. Insulation** - thermal elastomer plastic;
- 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
3x10,0	КПСТБП-150	14,2x34,4	880	КПСТБП-150-4	14,2x34,4	937
3x13,3		15,0x37,4	1002		15,0x37,4	1076
3x16,0		15,0x37,4	1091		15,0x37,4	1158
3x21,15		16,2x42,5	1297		16,2x42,5	1377
3x25,0		16,2x42,5	1437		16,2x42,5	1501
3x35,0		18,0x48,2	1746		18,0x48,2	1812

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	779	КПСТБК-150-4	29,0	871
3x13,3		32,0	900		32,0	990
3x16,0		32,0	990		32,0	1091
3x21,15		35,6	1192		35,6	1285
3x25,0		35,6	1604		35,6	1426
3x35,0		38,3	1633		38,3	1732

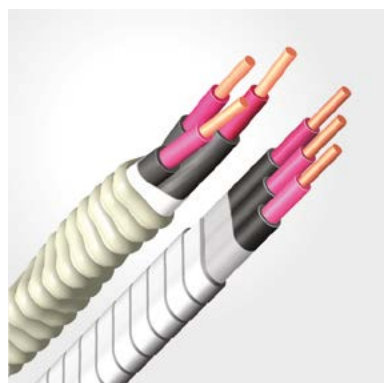
Long time current loads for the cable

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	TV 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 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 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.



The warranty period for cables is 1.5 years from the date of commissioning, but not more than 2 years from the date of shipment to the consumer.

The service life of the cable, subject to the requirements for storage and operation conditions, is at least 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-160	14,2x34,4	907	КПСТБП-160-4	14,2x34,4	934
3x13,3		15,0x37,4	1043		15,0x37,4	1073
3x16,0		15,0x37,4	1161		15,0x37,4	1161
3x21,15		16,2x42,5	1332		16,2x42,5	1372
3x25,0		16,2x42,5	1454		16,2x42,5	1496
3x35,0		18,0x48,2	1764		18,0x48,2	1805

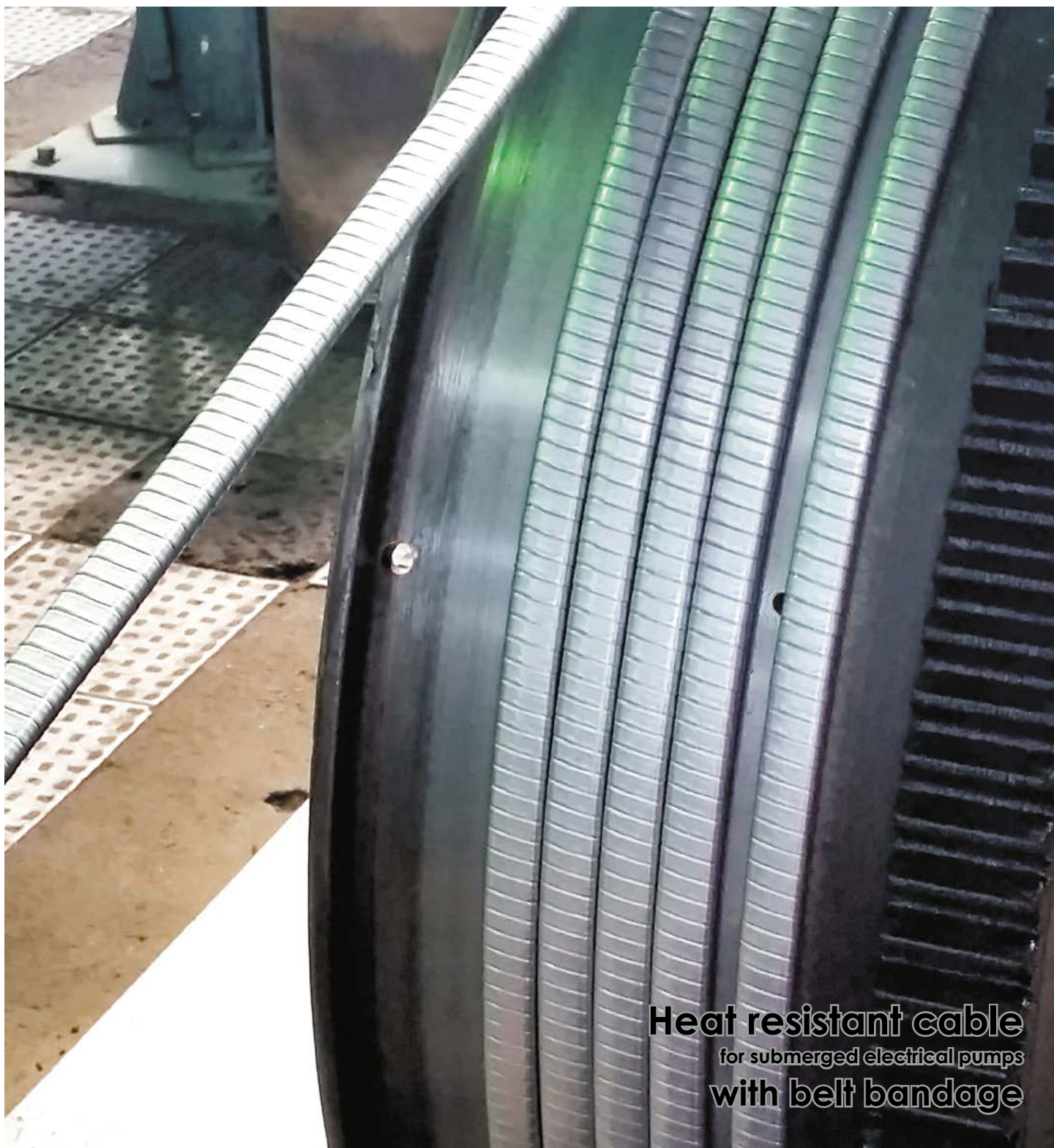
Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПСТБК-160	29,0	846	КПСТБК-160-4	29,0	865
3x13,3		32,0	964		32,0	984
3x16,0		32,0	1064		32,0	1085
3x21,15		35,6	1257		35,6	1280
3x25,0		35,6	1399		35,6	1422
3x35,0		38,3	1703		38,3	1728

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.

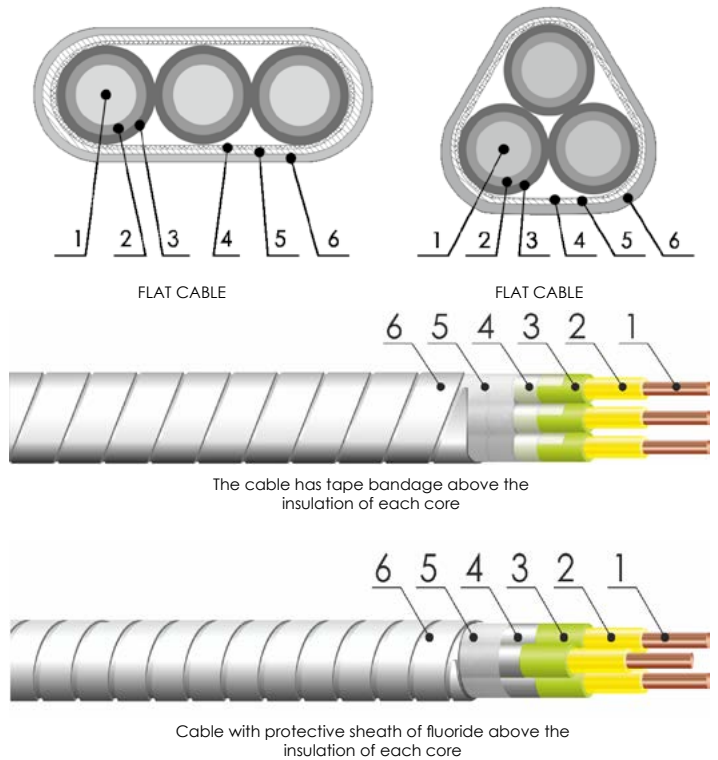
The required length of cables is determined at the custom.

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



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.

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 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

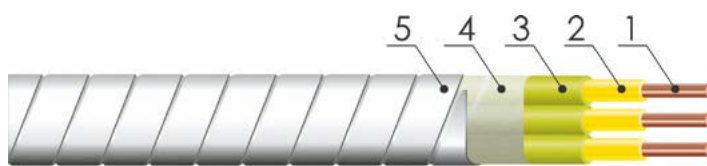
Cable with copper conductors, 2 – layers insulation, protective sheath of Fluoride polymer above the insulation of each core with armor of steel zinc coated tape, flat, with long admission of core heating+ 120 C to voltage 3,3 kV with 3 major conductors rated cross section 16 square mm;

КПсПлЛБкК-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.

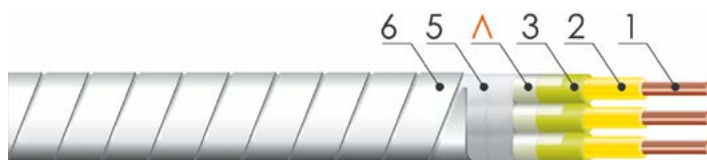
The cables correspond to general requirements of GOST R 51777-2001

THE ADVANTAGES OF ADVANCED CONSTRUCTION



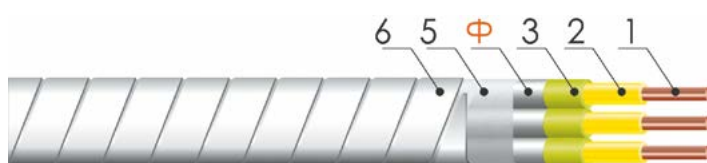
Basic construction:
cable type **КПсПпБП, КПсПБП**

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



Advanced design:
cable type **КПсПпΛБП, КПсПЛпБП**

- Λ - bandage over the insulation of each core of PTFE tape;
- Лп - bandage over the insulation of each of the cores from polyethelene terephthalate tape;



Advanced design:
cable type **КПсПпΦБП, КПсПΦБП**

- 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.

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
	Лп	Bandage in insulation of each core, made of Ftalate PLASTIC TAPE
Sheath material	Φ	Flouride copolymer, protective sheath
Armor material	Б	Steel zinc coated tape
	Бк или Бнк	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	

+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	880	КПЛБП-90-4	13,6x33,8	898	КПЛБП-90-5	13,6x33,8	916
3x13,3		15,0x37,4	1006		15,0x37,4	1025		15,0x37,4	1044
3x16,0		15,0x37,4	1112		15,0x37,4	1131		15,0x37,4	1150
3x21,15		16,2x42,5	1303		16,2x42,5	1323		16,2x42,5	1342
3x25,0		16,2x42,5	1443		16,2x42,5	1464		16,2x42,5	1484
3x35,0		18,0x48,2	1754		18,0x48,2	1775		18,0x48,2	1797

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	815	КПЛБК-90-4	29,0	832	КПЛБК-90-5	29,0	848
3x13,3		32,0	938		32,0	955		32,0	971
3x16,0		32,0	1041		32,0	1058		32,0	1075
3x21,15		35,6	1228		35,6	1246		35,6	1263
3x25,0		35,6	1366		35,6	1384		35,6	1402
3x35,0		38,3	1671		38,3	1691		38,3	1710

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.

+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	880	КПСЛБП-120-4 КПСЛлБП-120-4	13,6x33,8	898	КПСЛБП-120-5 КПСЛлБП-120-5	13,6x33,8	916
3x13,3		15,0x37,4	1006		15,0x37,4	1025		15,0x37,4	1044
3x16,0		15,0x37,4	1112		15,0x37,4	1131		15,0x37,4	1150
3x21,15		16,2x42,5	1303		16,2x42,5	1323		16,2x42,5	1342
3x25,0		16,2x42,5	1443		16,2x42,5	1464		16,2x42,5	1484
3x35,0		18,0x48,2	1754		18,0x48,2	1775		18,0x48,2	1797

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	815	КПСЛБК-120-4 КПСЛлБК-120-4	29,0	832	КПСЛБК-120-5 КПСЛлБК-120-5	29,0	848
3x13,3		32,0	938		32,0	955		32,0	971
3x16,0		32,0	1041		32,0	1058		32,0	1075
3x21,15		35,6	1228		35,6	1246		35,6	1263
3x25,0		35,6	1366		35,6	1384		35,6	1402
3x35,0		38,3	1671		38,3	1691		38,3	1710

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

+120 °C	3,3 kV	4,0 kV	5,0 kV	TV 3542-061-05015408-2016
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КПсПнЛБП-120
КПсПнЛБК-120

КПсПнЛпБП-120
КПсПнЛпБК-120

КПсПнЛБП-120/ КПсПнЛпБП-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/ КПсПнЛпБК-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

- Current carrying conductor** - copper;
- Insulation** - PE of radiation modified;
- Insulation** - copolymer of Propilene;
- Tape bandage:** **Л** - Flouride tape winding; **Лп** - 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	КПсПнЛБП-120 КПсПнЛпБП-120	13,6x33,8	879	КПсПнЛБП-120-4 КПсПнЛпБП-120-4	13,6x33,8	897	КПсПнЛБП-120-5 КПсПнЛпБП-120-5	13,6x33,8	911
3x13,3		15,0x37,4	1002		15,0x37,4	1021		15,0x37,4	1038
3x16,0		15,0x37,4	1093		15,0x37,4	1112		15,0x37,4	1144
3x21,15		16,2x42,5	1298		16,2x42,5	1317		16,2x42,5	1336
3x25,0		16,2x42,5	1435		16,2x42,5	1454		16,2x42,5	1478
3x35,0		18,0x48,2	1743		18,0x48,2	1763		18,0x48,2	1790

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 КПсПнЛпБК-120	29,0	810	КПсПнЛБК-120-4 КПсПнЛпБК-120-4	29,0	827	КПсПнЛБК-120-5 КПсПнЛпБК-120-5	29,0	842
3x13,3		32,0	933		32,0	949		32,0	967
3x16,0		32,0	1035		32,0	1052		32,0	1069
3x21,15		35,6	1221		35,6	1239		35,6	1257
3x25,0		35,6	1359		35,6	1377		35,6	1395
3x35,0		38,3	1665		38,3	1682		38,3	1703

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 КПсПнЛпБП-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 КПсПнЛпБК-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

+120 °C

3,3 kV

4,0 kV

5,0 kV

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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	899	КПсПнФБП-120-4	13,6x33,8	917	КПсПнФБП-120-5	13,6x33,8	954
3x13,3		15,0x37,4	1027		15,0x37,4	1045		15,0x37,4	1083
3x16,0		15,0x37,4	1133		15,0x37,4	1152		15,0x37,4	1191
3x21,15		16,2x42,5	1326		16,2x42,5	1346		16,2x42,5	1385
3x25,0		16,2x42,5	1468		16,2x42,5	1488		16,2x42,5	1528
3x35,0		18,0x48,2	1781		18,0x48,2	1802		18,0x48,2	1844

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	834	КПсПнФБК-120-4	29,0	851	КПсПнФБК-120-5	29,0	884
3x13,3		32,0	958		32,0	975		32,0	1010
3x16,0		32,0	1062		32,0	1080		32,0	1115
3x21,15		35,6	1250		35,6	1269		35,6	1306
3x25,0		35,6	1390		35,6	1409		35,6	1446
3x35,0		38,3	1698		38,3	1717		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	+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	TV 3542-061-05015408-2016
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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

- Current carrying conductor** - copper;
- Insulation** - copolymer of Propylene;
- Insulation** - copolymer of Propylene;
- Tape bandage:** **Л** - Flouride tape winding; **Лн** - 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	КПнЛБП-120 КПнЛнБП-120	13,6x33,8	873	КПнЛБП-120-4 КПнЛнБП-120-4	13,6x33,8	890	КПнЛБП-120-5 КПнЛнБП-120-5	13,6x33,8	908
3x13,3		15,0x37,4	998		15,0x37,4	1016		15,0x37,4	1034
3x16,0		15,0x37,4	1103		15,0x37,4	1121		15,0x37,4	1140
3x21,15		16,2x42,5	1293		16,2x42,5	1312		16,2x42,5	1331
3x25,0		16,2x42,5	1433		16,2x42,5	1543		16,2x42,5	1472
3x35,0		18,0x48,2	1742		18,0x48,2	1763		18,0x48,2	1783

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	808	КПнЛБК-120-4 КПнЛнБК-120-4	29,0	823	КПнЛБК-120-5 КПнЛнБК-120-5	29,0	840
3x13,3		32,0	930		32,0	946		32,0	962
3x16,0		32,0	1031		32,0	1049		32,0	1065
3x21,15		35,6	1217		35,6	1235		35,6	1252
3x25,0		35,6	1355		35,6	1372		35,6	1390
3x35,0		38,3	1660		38,3	1678		38,3	1696

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

+120 °C

3,3 kV

4,0 kV

5,0 kV

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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	896	КПнФБП-120-4	13,6x33,8	923	КПнФБП-120-5	13,6x33,8	951
3x13,3		15,0x37,4	1024		15,0x37,4	1049		15,0x37,4	1080
3x16,0		15,0x37,4	1130		15,0x37,4	1139		15,0x37,4	1187
3x21,15		16,2x42,5	1322		16,2x42,5	1347		16,2x42,5	1381
3x25,0		16,2x42,5	1464		16,2x42,5	1488		16,2x42,5	1524
3x35,0		18,0x48,2	1776		18,0x48,2	1797		18,0x48,2	1839

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	831	КПнФБК-120-4	29,0	847	КПнФБК-120-5	29,0	881
3x13,3		32,0	955		32,0	972		32,0	1006
3x16,0		32,0	1058		32,0	1076		32,0	1111
3x21,15		35,6	1247		35,6	1265		35,6	1301
3x25,0		35,6	1385		35,6	1404		35,6	1441
3x35,0		38,3	1693		38,3	1713		38,3	1752

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

+130 °C	3,3 kV	4,0 kV	5,0 kV	TV 3542-061-05015408-2016
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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

- Current carrying conductor** - copper;
- Insulation** - copolymer of Propylene;
- Insulation** - copolymer of Propylene;
- Tape bandage:** **Л** - Flouride tape winding; **Лн** - 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	КПнЛБП-130 КПнЛнБП-130	13,6x33,8	890	КПнЛБП-130-4 КПнЛнБП-130-4	13,6x33,8	908	КПнЛБП-130-5 КПнЛнБП-130-5	13,6x33,8	926
3x13,3		15,0x37,4	1016		15,0x37,4	1034		15,0x37,4	1053
3x16,0		15,0x37,4	1122		15,0x37,4	1140		15,0x37,4	1159
3x21,15		16,2x42,5	1312		16,2x42,5	1331		16,2x42,5	1351
3x25,0		16,2x42,5	1453		16,2x42,5	1472		16,2x42,5	1492
3x35,0		18,0x48,2	1764		18,0x48,2	1783		18,0x48,2	1804

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	823	КПнЛБК-130-4 КПнЛнБК-130-4	29,0	840	КПнЛБК-130-5 КПнЛнБК-130-5	29,0	855
3x13,3		32,0	945		32,0	962		32,0	979
3x16,0		32,0	1048		32,0	1065		32,0	1082
3x21,15		35,6	1235		35,6	1252		35,6	1270
3x25,0		35,6	1372		35,6	1390		35,6	1409
3x35,0		38,3	1677		38,3	1696		38,3	1715

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.

+130 °C

3,3 kV

4,0 kV

5,0 kV

ТУ 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	933	КПнФБП-130-4	13,6x33,8	951	КПнФБП-130-5	13,6x33,8	989
3x13,3		15,0x37,4	1061		15,0x37,4	1080		15,0x37,4	1119
3x16,0		15,0x37,4	1168		15,0x37,4	1187		15,0x37,4	1227
3x21,15		16,2x42,5	1362		16,2x42,5	1381		16,2x42,5	1422
3x25,0		16,2x42,5	1504		16,2x42,5	1524		16,2x42,5	1567
3x35,0		18,0x48,2	1817		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	КПнФБК-130	29,0	865	КПнФБК-130-4	29,0	881	КПнФБК-130-5	29,0	915
3x13,3		32,0	989		32,0	1006		32,0	1041
3x16,0		32,0	1093		32,0	1111		32,0	1147
3x21,15		35,6	1283		35,6	1301		35,6	1338
3x25,0		35,6	1422		35,6	1442		35,6	1479
3x35,0		38,3	1732		38,3	1752		38,3	1791

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

+130 °C	3,3 kV	4,0 kV	5,0 kV	TV 3542-061-05015408-2016
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КПсПЛБП-130
КПсПЛБК-130

КПсПЛлБП-130
КПсПЛлБК-130

КПсПЛБП-130/ КПсПЛлБП-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.

КПсПЛБК-130/ КПсПЛлБК-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. **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	КПсПЛБП-130 КПсПЛлБП-130	13,6x33,8	899	КПсПЛБП-130-4 КПсПЛлБП-130-4	13,6x33,8	916	КПсПЛБП-130-5 КПсПЛлБП-130-5	13,6x33,8	935
3x13,3		15,0x37,4	1026		15,0x37,4	1044		15,0x37,4	1063
3x16,0		15,0x37,4	1131		15,0x37,4	1150		15,0x37,4	1170
3x21,15		16,2x42,5	1323		16,2x42,5	1342		16,2x42,5	1363
3x25,0		16,2x42,5	1464		16,2x42,5	1484		16,2x42,5	1505
3x35,0		18,0x48,2	1775		18,0x48,2	1797		18,0x48,2	1817

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	КПсПЛБК-130 КПсПЛлБК-130	29,0	832	КПсПЛБК-130-4 КПсПЛлБК-130-4	29,0	848	КПсПЛБК-130-5 КПсПЛлБК-130-5	29,0	865
3x13,3		32,0	955		32,0	971		32,0	989
3x16,0		32,0	1057		32,0	1075		32,0	1092
3x21,15		35,6	1245		35,6	1263		35,6	1282
3x25,0		35,6	1383		35,6	1402		35,6	1421
3x35,0		38,3	1690		38,3	1710		38,3	1729

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
КПсПЛБП-130 КПсПЛлБП-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
КПсПЛБК-130 КПсПЛлБК-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

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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	897	КПсПнЛБП-130-4 КПсПнЛпБП-130-4	13,6x33,8	914	КПсПнЛБП-130-5 КПсПнЛпБП-130-5	13,6x33,8	930
3x13,3		15,0x37,4	1021		15,0x37,4	1038		15,0x37,4	1057
3x16,0		15,0x37,4	1112		15,0x37,4	1130		15,0x37,4	1164
3x21,15		16,2x42,5	1317		16,2x42,5	1335		16,2x42,5	1356
3x25,0		16,2x42,5	1454		16,2x42,5	1479		16,2x42,5	1498
3x35,0		18,0x48,2	1763		18,0x48,2	1783		18,0x48,2	1811
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	827	КПсПнЛБК-130-4 КПсПнЛпБК-130-4	29,0	842	КПсПнЛБК-130-5 КПсПнЛпБК-130-5	29,0	859
3x13,3		32,0	949		32,0	967		32,0	983
3x16,0		32,0	1053		32,0	1069		32,0	1087
3x21,15		35,6	1240		35,6	1257		35,6	1275
3x25,0		35,6	1377		35,6	1396		35,6	1414
3x35,0		38,3	1683		38,3	1703		38,3	1721

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

+130 °C	3,3 kV	4,0 kV	5,0 kV	TV 3542-061-05015408-2016
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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	936	КПсПнФБП-130-4	13,6x33,8	954	КПсПнФБП-130-5	13,6x33,8	993
3x13,3		15,0x37,4	1065		15,0x37,4	1083		15,0x37,4	1123
3x16,0		15,0x37,4	1171		15,0x37,4	1191		15,0x37,4	1231
3x21,15		16,2x42,5	1365		16,2x42,5	1385		16,2x42,5	1427
3x25,0		16,2x42,5	1509		16,2x42,5	1528		16,2x42,5	1571
3x35,0		18,0x48,2	1823		18,0x48,2	1844		18,0x48,2	1889

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	868	КПсПнФБК-130-4	29,0	884	КПсПнФБК-130-5	29,0	919
3x13,3		32,0	993		32,0	1010		32,0	1046
3x16,0		32,0	1097		32,0	1115		32,0	1152
3x21,15		35,6	1287		35,6	1306		35,6	1343
3x25,0		35,6	1427		35,6	1446		35,6	1485
3x35,0		38,3	1737		38,3	1757		38,3	1797

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.

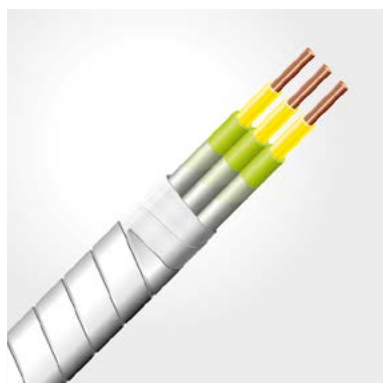
+140 °C

3,3 kV

4,0 kV

5,0 kV

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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.

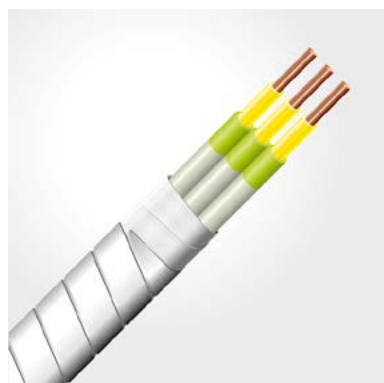
DESIGN

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	908	КПнЛБП-140-4 КПнЛнБП-140-4	13,6x33,8	926	КПнЛБП-140-5 КПнЛнБП-140-5	13,6x33,8	944
3x13,3		15,0x37,4	1034		15,0x37,4	1053		15,0x37,4	1071
3x16,0		15,0x37,4	1140		15,0x37,4	1159		15,0x37,4	1177
3x21,15		16,2x42,5	1331		16,2x42,5	1351		16,2x42,5	1370
3x25,0		16,2x42,5	1472		16,2x42,5	1492		16,2x42,5	1513
3x35,0		18,0x48,2	1783		18,0x48,2	1804		18,0x48,2	1825
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	840	КПнЛБК-140-4 КПнЛнБК-140-4	29,0	855	КПнЛБК-140-5 КПнЛнБК-140-5	29,0	872
3x13,3		32,0	962		32,0	979		32,0	996
3x16,0		32,0	1065		32,0	1082		32,0	1099
3x21,15		35,6	1252		35,6	1270		35,6	1288
3x25,0		35,6	1390		35,6	1409		35,6	1427
3x35,0		38,3	1696		38,3	1715		38,3	1735

+140 °C	3,3 kV	4,0 kV	5,0 kV	ТУ 3542-061-05015408-2016
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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. 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-140	13,6x33,8	966	КПнФБП-140-4	13,6x33,8	978	КПнФБП-140-5	13,6x33,8	1007
3x13,3		15,0x37,4	1092		15,0x37,4	1104		15,0x37,4	1138
3x16,0		15,0x37,4	1184		15,0x37,4	1197		15,0x37,4	1247
3x21,15		16,2x42,5	1393		16,2x42,5	1405		16,2x42,5	1443
3x25,0		16,2x42,5	1535		16,2x42,5	1549		16,2x42,5	1587
3x35,0		18,0x48,2	1846		18,0x48,2	1860		18,0x48,2	1905
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	881	КПнФБК-140-4	29,0	899	КПнФБК-140-5	29,0	933
3x13,3		32,0	1006		32,0	1025		32,0	1060
3x16,0		32,0	1111		32,0	1130		32,0	1166
3x21,15		35,6	1301		35,6	1321		35,6	1358
3x25,0		35,6	1442		35,6	1461		35,6	1499
3x35,0		38,3	1752		38,3	1771		38,3	1812

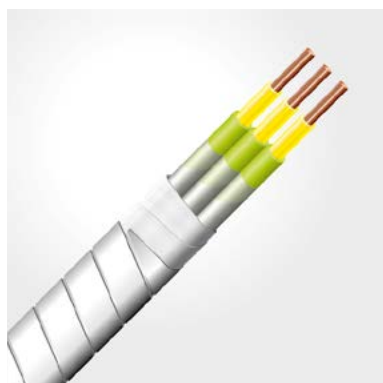
+140 °C

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.

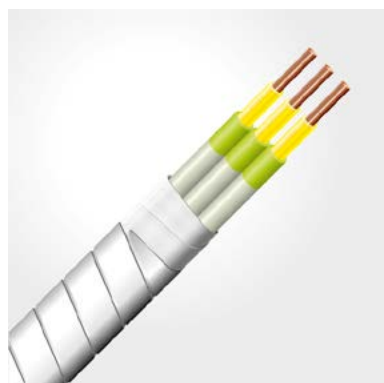
DESIGN

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. **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	911	КПсПнЛБП-140-4 КПсПнЛпБП-140-4	13,6x33,8	930	КПсПнЛБП-140-5 КПсПнЛпБП-140-5	13,6x33,8	947
3x13,3		15,0x37,4	1038		15,0x37,4	1057		15,0x37,4	1075
3x16,0		15,0x37,4	1144		15,0x37,4	1164		15,0x37,4	1182
3x21,15		16,2x42,5	1336		16,2x42,5	1356		16,2x42,5	1375
3x25,0		16,2x42,5	1478		16,2x42,5	1498		16,2x42,5	1518
3x35,0		18,0x48,2	1790		18,0x48,2	1811		18,0x48,2	1831
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	842	КПсПнЛБК-140-4 КПсПнЛпБК-140-4	29,0	859	КПсПнЛБК-140-5 КПсПнЛпБК-140-5	29,0	875
3x13,3		32,0	967		32,0	983		32,0	1000
3x16,0		32,0	1069		32,0	1087		32,0	1104
3x21,15		35,6	1257		35,6	1275		35,6	1293
3x25,0		35,6	1396		35,6	1414		35,6	1432
3x35,0		38,3	1703		38,3	1721		38,3	1741

+140 °C	3,3 kV	4,0 kV	5,0 kV	TV 3542-061-05015408-2016
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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	954	КПсПнФБП-140-4	13,6x33,8	987	КПсПнФБП-140-5	13,6x33,8	1011
3x13,3		15,0x37,4	1083		15,0x37,4	1114		15,0x37,4	1142
3x16,0		15,0x37,4	1191		15,0x37,4	1207		15,0x37,4	1251
3x21,15		16,2x42,5	1385		16,2x42,5	1417		16,2x42,5	1447
3x25,0		16,2x42,5	1528		16,2x42,5	1561		16,2x42,5	1592
3x35,0		18,0x48,2	1844		18,0x48,2	1872		18,0x48,2	1911
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	884	КПсПнФБК-140-4	29,0	902	КПсПнФБК-140-5	29,0	937
3x13,3		32,0	1019		32,0	1028		32,0	1064
3x16,0		32,0	1115		32,0	1133		32,0	1170
3x21,15		35,6	1306		35,6	1325		35,6	1363
3x25,0		35,6	1446		35,6	1466		35,6	1505
3x35,0		38,3	1757		38,3	1777		38,3	1817



Heat resistant cable
for submerged pumps installations
with a common shell

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

+120 °C

+130 °C

APPLICATION

Cables with three main cores for submersible electric pump installations, designed to supply electrical energy to electric motors of oil production installations for rated alternating voltage 3.3 kV, 4.0 kV and 5.0 kV with a frequency of up to 200 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 zined tape, not more than, gram per liter	0,01
concentration of Sulfur Hydrogen for the cables of stainless steel tape resistant to corrosion, МPa, 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 C°.

- 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 C° 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 МPa 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 C° shall not exceed 1*10⁻⁵ A.

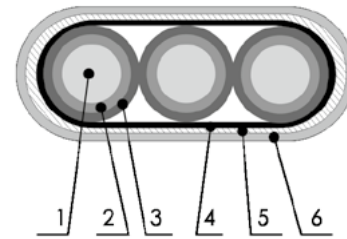
The required length of the cable is agreed when order is formed.

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.

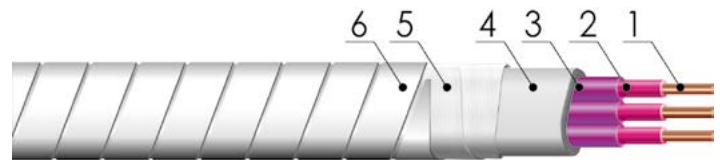
Service life of the cable at right conditions of storing is not less 5,5 years.

CONSTRUCTION



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

Кабель плоский



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

«Б» - steel zined tape;

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

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

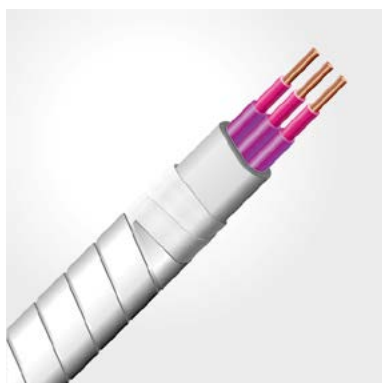
For the cables with rated voltage 4.0 and 5.0 kV figures 4 or 5 are added through mark .

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

КПвОппБП-120 3x16,0 3,3 кВ ТУ 27.32.14-001-71378736-2021 - cable with copper conductors, with two-layer insulation made of radiation-modified polyethylene, with a common sheath made of propylene-ethylene block copolymers, armored with galvanized steel tape, flat, with a long-term permissible heating temperature of the conductors of +120 °C, with three main conductors with a nominal cross-section of 16.0 mm² , for a rated voltage of 3.3 kV.

КПвОппБкП-130 3x25,0 4 кВ ТУ 27.32.14-001-71378736-2021 - cable with copper conductors, with two-layer insulation made of radiation-modified polyethylene, with a common sheath made of propylene-ethylene block copolymers, armored with a stainless steel tape, flat, with a long-term permissible heating temperature of the conductors of +130 °C, with three main conductors with a nominal cross-section of 25.0 mm², for a rated voltage of 4.0 kV.

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



КПвОппБП-120 КПвОппБкП-120

КПвОппБП-120 - cable with copper conductors with two-layer insulation made of radiation-modified polyethylene, with a common sheath made of propylene copolymers, armored with galvanized steel tape, flat, with a long-term permissible heating temperature of the conductors of +120 °C.

КПвОппБкП-120 - cable with copper conductors with two-layer insulation made of radiation-modified polyethylene, with a common sheath made of propylene copolymers, armored with a stainless steel tape, flat, with a long-term permissible heating temperature of the conductors of +120 °C.

КОНСТРУКЦИЯ

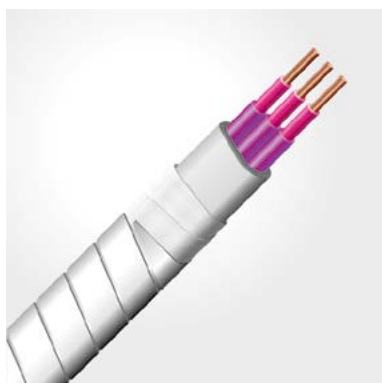
- Current carrying conductor** - copper;
- Insulation** - radiation-modified high-density polyethylene;
- Insulation** - radiation-modified high-density polyethylene;
- General shell** - propylene copolymer;
- Pad** – as non woven cloth;
- Armor:**
 - «Б» - galvanized steel tape;
 - «Бк» - stainless steel 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	КПвОппБП-120	14,4x31,3	887	КПвОппБП-120-4	14,8x32,5	923	КПвОппБП-120-5	15,2x33,7	964
3x13,3		15,1x33,4	1042		15,5x34,6	1080		15,9x35,8	1120
3x16,0		15,5x34,6	1132		15,9x35,8	1172		16,3x37,0	1211
3x21,15		16,2x36,7	1323		16,6x37,9	1364		17,0x39,1	1405
3x25,0		16,6x37,9	1464		17,0x39,1	1506		17,4x40,3	1548
3x35,0		17,7x41,2	1807		18,1x42,4	1851		18,5x43,6	1895

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	КПвОппБкП-120	14,4x31,3	835	КПвОппБкП-120-4	14,8x32,5	870	КПвОппБкП-120-5	15,2x33,7	909
3x13,3		15,1x33,4	986		15,5x34,6	1022		15,9x35,8	1060
3x16,0		15,5x34,6	1075		15,9x35,8	1113		16,3x37,0	1150
3x21,15		16,2x36,7	1262		16,6x37,9	1301		17,0x39,1	1340
3x25,0		16,6x37,9	1401		17,0x39,1	1440		17,4x40,3	1481
3x35,0		17,7x41,2	1738		18,1x42,4	1780		18,5x43,6	1823

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	+115 °C	+120 °C
КПвОппБП-120 КПвОппБкП-120	3x10,0	96	91	86	81	75	68	61	53	43	30	22	0
	3x13,3	115	109	103	96	89	81	72	63	51	36	26	0
	3x16,0	128	122	115	107	99	91	81	70	57	41	29	0
	3x21,15	155	147	139	130	120	110	98	85	69	49	35	0
	3x25,0	171	162	153	143	133	121	108	94	77	54	38	0
	3x35,0	206	195	184	172	160	146	130	113	92	65	46	0
КПвОппБП-120-4 КПвОппБкП-120-4	3x10,0	97	92	87	81	75	69	62	53	44	31	22	0
	3x13,3	116	110	103	97	90	82	73	63	52	37	26	0
	3x16,0	129	123	116	108	100	91	82	71	58	41	29	0
	3x21,15	156	148	140	131	121	111	99	86	70	49	35	0
	3x25,0	172	164	154	144	134	122	109	94	77	55	39	0
	3x35,0	207	197	186	174	161	147	131	114	93	66	46	0
КПвОппБП-120-5 КПвОппБкП-120-5	3x10,0	98	93	88	82	76	69	62	54	44	31	22	0
	3x13,3	117	111	104	98	90	82	74	64	52	37	26	0
	3x16,0	130	124	116	109	101	92	82	71	58	41	29	0
	3x21,15	157	149	141	132	122	111	100	86	70	50	35	0
	3x25,0	174	165	155	145	134	123	110	95	78	55	39	0
	3x35,0	209	198	187	175	162	148	132	114	93	66	47	0



КПвОппБП-130
КПвОппБкП-130

КПвОппБП-130 - cable with copper conductors with two-layer insulation made of radiation-modified polyethylene, with a common sheath of block copolymers of propylene and ethylene, armored with galvanized steel tape, flat, with a long-term permissible heating temperature of the conductors of +130 °С.

КПвОппБкП-130 - cable with copper conductors with two-layer insulation made of radiation-modified polyethylene, with a common sheath of block copolymers of propylene and ethylene, armored with a stainless steel tape, flat, with a long-term permissible temperature of heating the conductors of +130 °С.

КОНСТРУКЦИЯ

1. **Current carrying conductor** - copper;
2. **Insulation** - radiation-modified high-density polyethylene;
3. **Insulation** - radiation-modified high-density polyethylene;
4. **General shell** - a propylene / ethylene block copolymer;
5. **Pad** – as non woven cloth;
6. **Armor:**
 - «Б» - galvanized steel tape;
 - «Бк» - stainless steel tape.

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

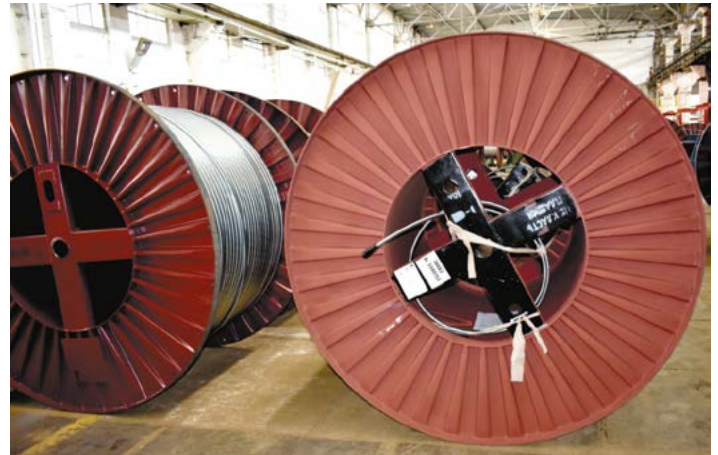
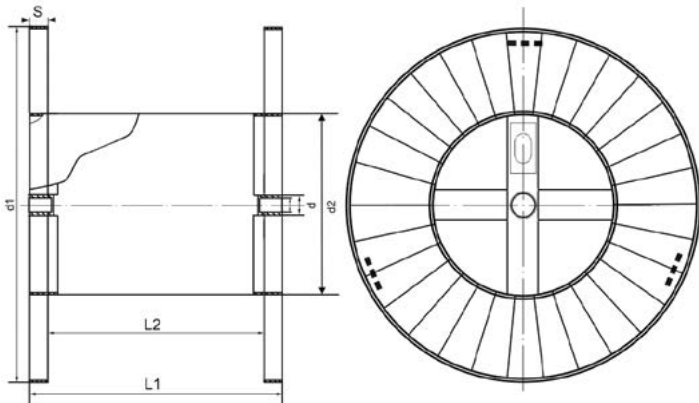
Cross- sections, mm ²	Type of cable 3,3 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 4,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km	Type of cable 5,0 kV	Outer dimensions of the cable, mm	Calculated cable weight, kg/km
3x10,0	КПвОппБП-130	14,4x31,3	887	КПвОппБП-130-4	14,8x32,5	923	КПвОппБП-130-5	15,2x33,7	964
3x13,3		15,1x33,4	1042		15,5x34,6	1080		15,9x35,8	1120
3x16,0		15,5x34,6	1132		15,9x35,8	1172		16,3x37,0	1211
3x21,15		16,2x36,7	1323		16,6x37,9	1364		17,0x39,1	1405
3x25,0		16,6x37,9	1464		17,0x39,1	1506		17,4x40,3	1548
3x35,0		17,7x41,2	1807		18,1x42,4	1851		18,5x43,6	1895

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	КПвОппБкП-130	14,4x31,3	835	КПвОппБкП-130-4	14,8x32,5	870	КПвОппБкП-130-5	15,2x33,7	909
3x13,3		15,1x33,4	986		15,5x34,6	1022		15,9x35,8	1060
3x16,0		15,5x34,6	1075		15,9x35,8	1113		16,3x37,0	1150
3x21,15		16,2x36,7	1262		16,6x37,9	1301		17,0x39,1	1340
3x25,0		16,6x37,9	1401		17,0x39,1	1440		17,4x40,3	1481
3x35,0		17,7x41,2	1738		18,1x42,4	1780		18,5x43,6	1823

Type of cable	Rated Cross-sections of the cores, mm ²	Long time current load A at environment temperature, not less												
		+20 °С	+30 °С	+40 °С	+50 °С	+60 °С	+70 °С	+80 °С	+90 °С	+100 °С	+110 °С	+120 °С	+125 °С	+130 °С
КПвОппБП-130 КПвОппБкП-130	3x10,0	100	95	90	85	80	74	67	60	52	44	30	21	0
	3x13,3	119	113	107	101	95	88	80	71	62	52	36	25	0
	3x16,0	133	126	120	113	106	98	89	80	69	58	40	28	0
	3x21,15	161	153	145	137	128	119	108	97	84	70	48	34	0
	3x25,0	177	169	160	151	141	131	119	107	92	77	53	38	0
	3x35,0	213	203	193	182	170	157	144	129	111	95	64	45	0
КПвОппБП-130-4 КПвОппБкП-130-4	3x10,0	101	96	91	86	80	74	68	61	53	44	30	21	0
	3x13,3	120	114	108	102	95	88	81	72	62	52	36	25	0
	3x16,0	134	127	121	114	107	99	90	81	70	58	40	28	0
	3x21,15	162	154	146	138	129	119	109	98	84	70	49	34	0
	3x25,0	178	170	161	152	142	132	120	108	93	77	54	38	0
	3x35,0	215	205	194	183	171	158	145	129	112	95	65	46	0
КПвОппБП-130-5 КПвОппБкП-130-5	3x10,0	102	97	92	87	81	75	69	61	53	44	31	22	0
	3x13,3	121	115	109	103	96	89	81	73	63	52	36	26	0
	3x16,0	135	128	122	115	107	99	91	81	70	58	41	29	0
	3x21,15	163	155	147	139	130	120	110	98	85	70	49	35	0
	3x25,0	179	171	162	153	143	133	121	108	94	77	54	38	0
	3x35,0	216	206	195	184	172	159	146	130	113	95	65	46	0

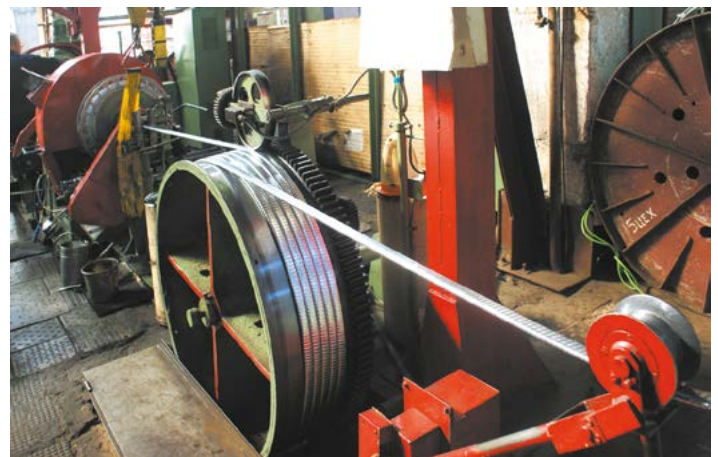
Sizes and weight of metallic reels

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



REFERENCE INFORMATION

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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