

 **TOMSKCABLE**



CATALOGUE OF NEW OUTPUT PRODUCTS

2019

1 POWER CABLES WITH CROSS-LINKED POLYETHYLENE INSULATION FOR A VOLTAGE OF 6-35 kV

TECHNICAL STANDARDS:

TU.27.32.14.110-078-12427382-2017

APPLICATION:

Power cables with cross-linked polyethylene insulation designed for the transmission and distribution of electric power in fixed facilities for a rated alternating voltage of 6 to 35 kV (inclusive) and a rated frequency of 50 Hz.



SPECIFICATIONS

CLIMATIC CATEGORY AS PER GOST 15150:

for cables with cross-linked polyethylene insulation...UHL, HL and T, environmental classes 1, 5

OPERATING TEMPERATURE RANGE:

For “-HL” marked cables or cables with a polyethylene protection hose	from -60°C to +50°C
For tropical cables	from -30°C to +50°C
For other cables	from -50°C to + 50°C

Relative air humidity at a temperature of up to +35°C up to 98%

CONDUCTOR OF CONTINUOUS HEATING TEMPERATURE DURING OPERATION:

For cables with cross-linked polyethylene insulation	+ 90 °C
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WITHOUT PRE-HEATING CABLES SHALL BE LAID AND INSTALLED AT A MINIMUM TEMPERATURE OF:

For “-HL” marked cables or cables with a polyethylene outer sheath	- 20 °C
For other cables	- 15 °C

Rated frequency50 Hz

PERMISSIBLE CABLE PULLING FORCE ALONG ITS ROUTING per 1 mm² of the total cross section of electrical conductors shall not exceed:

copper 50 N/mm²
aluminium 30 N/mm²

MINIMUM CABLE LAYING AND INSTALLATION BENDING RADIUS

single-conductor cables	15 Dout
multi-conductor cables	12 Dout
with the use of special template	7.5 Dout

Cables shall be laid and installed as per the duly approved documents developed subject to the currently valid **Electric Installation Code (PUE) and SNiP 3.05.06.**

Cable service life 30 years, min

Warranty period 5 years

QUANTITY AND RATED CROSS-SECTION OF CONDUCTORS AND RATED VOLTAGE OF CABLES

Electrical conductor type		Rated conductor cross-section, mm ²				
		Rated cable voltage U ₀ /U, kV				
		3.6/6	6/10	8.7/15	12/20	18/30
Copper	For single-conductor cables					
	Single-wire	35-50	-			
	Multi-wire	35-1600		50-1600		
	For triple cables					
	Multi-wire round	35-400		50-400		
	Multi-wire sector-shaped	50-400	95-400	-		
Aluminium	For single-conductor cables					
	Single-wire	35-400	-			
	Multi-wire	35-1600		50-1600		
	For triple cables					
	Single-wire round	35-400	-			
	Multi-wire round	35-400		50-400		
	Single-wire sector-shaped	35-400	95-400	120-400		-
	Multi-wire sector-shaped			-		
Notes:						
1. U ₀ – is the rated alternating voltage between each electrical conductor and ground, shield or cable armour.						
2. U – is the rated alternating voltage between the electrical cable conductors.						
3. Electrical conductors with a minimum rated cross-section of 1,200 mm ² shall be made of three, four or five compressed sectors.						

FIRE SAFETY PARAMETERS

Cables with an outer sheath made of a polyvinyl chloride compound shall be flame retardant when laid individually.

Cables marked as “ng(A)”, “ng(B)”, “ng(A)-LS”, “ng(B)-LS”, “ng(A)-HF” and “ng(B)-HF” shall be flame retardant when laid in groups.

Cables marked as “ng(A)-LS”, “ng(B)-LS”, “ng(A)-HF” and “ng(B)-HF” shall be low smoke with low gas emission during combustion and smouldering.

CABLE FIRE SAFETY CLASSES AS PER GOST 31565 DEPENDING ON THEIR CONFIGURATION:

- 02.8.2.5.4 - with polyethylene sheath
- 01.8.2.5.4 - with a polyvinyl chloride compound sheath
- П2.8.2.5.4 - with a fire-resistant polyvinyl chloride compound sheath
- П16.8.2.5.4 - with a fire-resistant polyvinyl chloride compound sheath
- П2.8.2.2.2 - with a low fire-hazard polyvinyl chloride compound sheath
- П16.8.2.2.2 - with a low fire-hazard polyvinyl chloride compound sheath
- П2.8.1.2.1 - with a halogen-free polyolefin compound sheath (configuration)
- П16.8.1.2.1 - with a halogen-free polyolefin compound sheath (configuration)

TRANSPORTATION AND STORAGE

Cables shall be transported and stored in accordance with **GOST 18690** and the supplements given in this section. Cable transportation conditions in regard to environment climatic factors shall meet the requirements specific to group **OX3 as per GOST 15150**, provided that the original packaging is intact. Cable storage conditions shall meet the requirements specific to group **OX3 as per GOST 15150**, provided that original packaging is intact.

SHELF LIFE OF CABLES

- in open storage areas **2 years, max**
- under shelter.....**5 years, max**
- indoors **10 years, max**

POWER CABLES WITH HIGH-STRENGTH ETHYLENE-PROPYLENE RUBBER INSULATION for a rated voltage of 6 to 35 kV

TU 3530-077-12427382-2016

APPLICATION:

The cables are designed for the transmission and distribution of electric power in fixed and mobile electric facilities for a rated alternating voltage of 6 to 35 kV (inclusive) and a rated frequency of 50 Hz. The cables are designed for laying in dry and wet production facilities, open areas, special cable tray systems, blocks, pipes and fire risk facilities:

- Oil and gas production, transporting and processing enterprises
- Mining enterprises
- Metallurgic plants
- Chemical factories
- Nuclear power plants
- Floating facilities (vessels, ships, platforms)
- Transport tunnels and underground structures
- And other facilities in explosion hazard areas of all classes (flame retardant cables if laid in groups, with copper conductors)



SPECIFICATIONS

CLIMATIC CATEGORY AS PER GOST 15150:

UHL, HL and T **environmental class 1 and 5**

Salt spray resistant cables

Sunlight resistant cables

Tropical cables marked as "T", fungus resistant.

OPERATING TEMPERATURE RANGE:

The cables are designed for operation at ambient temperature:

for cold resistant cables	from -65 to +50°C
for cables with polyethylene outer sheath	from -60 to +50°C
for other cables	from -50 to +50°C

Relative air humidity is up to 98%, at a temperature of up to 35°C, including options with outdoor laying.

LAYING SHALL BE PERFORMED AT AMBIENT TEMPERATURE:

for HL marked cables	-35°C, min
for cables with a polyethylene outer sheath	-20°C, min

for other cable brands	- 15°C, min
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CABLE CONDUCTOR CONTINUOUS HEATING TEMPERATURE:

max **+90°C**

MINIMUM CABLE LAYING AND INSTALLATION BENDING RADIUS:

single-conductor cables..... **15Dout**

multi-conductor cables **12Dout**

Minimum cable bending radius of **7.5Dout** is allowed during cable installation with the use of a special template.

* where Dout is the outer cable diameter.

PERMISSIBLE CABLE PULLING FORCE ALONG ITS ROUTING per 1 mm² of total cross section of electrical conductors shall not exceed:

copper **50 N/mm²**
 aluminium **30 N/mm²**

CABLE SERVICE LIFE **35 years**

WARRANTY PERIOD **5 years**

The warranty period starts from the date of cable commissioning, but not later than 6 months from the date of manufacture.

OPERATION GUIDELINES

The cables are designed for operation in electric power systems of alternating voltage with an insulated or grounded neutral conductor. Cables with copper electrical conductors except for cables with a polyethylene outer sheath can be used in explosion hazard areas in accordance with the established requirements of **GOST 30852.13**:

- **armoured** – open along walls and civil structures on clamps and civil structures, in boxes, trays, strands, cable and process racks, in channels; buried in the ground (trenches) and blocks – for class 0, 1 and 2 areas.
- **unarmoured** – open subject to the absence of mechanical and chemical impact, along walls and civil structures on clamps and cable structures, in trays, boxes, on strands – for class 2 areas;

open and buried in steel water and gas tight pipes – for class 0, 1 and 2 areas.

Cables with halogen-free low fire-hazard polyvinyl chloride compound sheath or polymer compound sheath including the cross-linked and highly elastic ones, can be operated in underground structures, in shafts as well as at nuclear power plants beyond the containment area in NPP systems of class **2, 3 and 4 according to NP-001-15**.

Cables shall be laid and installed as per the duly approved documents developed subject to effective **Electric Installation Code (PUE) and SNiP 3.05.06**.

CONDUCTOR HEATING TEMPERATURE

Cable insulation material	Cable conductor heating temperature, °C			
	Continuous	In overload mode	Maximum in case of a short circuit	Subject to flame retardant in case of a short circuit
High-strength ethylene-propylene rubber	90	130	250	400

QUANTITY AND RATED CROSS-SECTION OF CONDUCTORS AND RATED VOLTAGE OF CABLES

Number of electrical conductors	Rated conductor cross-section, mm ²					
	Rated cable voltage U ₀ /U, kV					
	3.6/6	6/10	8.7/15	12/20	18/30	20/35
1	25-1000		35-1000		50-1000	
3	25-400		35-400		50-400	

Notes:

1. U₀ is the rated alternating voltage between each electrical conductor and ground, shield or cable armour (phase).
2. U is the rated alternating voltage between electrical cable conductors (line).

FIRE SAFETY PARAMETERS

Cables with an outer sheath made of polyvinyl chloride compound are flame-retardant if laid individually and refer to fire safety class **O1.8.2.5.4 as per GOST 31565**.

Cables are flame retardant when laid in groups and refer to the following fire safety classes:

- **П16.8.2.5.4** – cables marked as “**ng(A)**” and “**ng(A)-HL**”,
- **П16.8.2.2.2** – cables marked as “**ng(A)-LS**” and “**ng(A)-LS-HL**”,
- **П16.8.1.2.1** – cables marked as “**ng(A)-HF**” and “**ng(A)-HF-HL**”.

Smoke emission during combustion and smouldering of cables marked as “**ng(A)-LS**” does not result in transparency reduction in a test chamber for more than 50%, for cables marked as “**ng(A)-HF**” – more than 40%.

The toxicity equivalent factor for cable combustion products marked as “**ng(A)-LS**” and “**ng(A)-HF**” is **40 g/m³ min**.

TRANSPORTATION AND STORAGE

Cable transportation and storage comply with the requirements of **GOST 18690**.

Cable transportation conditions – **OX3 as per GOST 15150**, provided that original packing is intact.

Storage conditions – **OX3 as per GOST 15150**, provided that original packing is intact.

SHELF LIFE OF CABLES

in open storage areas **2 years, max**
 under shelter..... **5 years, max**
 indoors **10 years, max**

TOFLEX 1 2 3 4 5 6 7 8 9 10 11 12 13
REB Png(A) - HF - T 3 x 240mr /25 (N) -10

- ① ELECTRICAL CONDUCTOR**
 No index – copper
 G – copper, class 5
 A – aluminium
- ② INSULATION**
 R – ethylene-propylene rubber
- ③ SEPARATE SHIELD**
 “E” – layer of copper wire,
 “EI” – winding made of copper tapes,
 “Eo” – sheath made of copper wire;
 “Eol” – sheath made of copper tinned wire;
- ④ ARMOUR**
 B – galvanised steel tapes*,
 “Ba” – aluminium or aluminium alloy tapes,
 “K” – round galvanised steel wire*,
 “Ka” – round aluminium or aluminium alloy wire,
 “P” – sheath made of galvanised steel wire”,
 * for triple cables only;
- ⑤ SHEATH**
 V – PVC
 P – halogen-free polymer compound
 R – cross-linked high-tension compound
- ⑥ FIRE SAFETY INDEX**
 ng(A) – flame retardant if laid in groups
- ⑦ FIRE SAFETY CONFIGURATION**
 LS – low smoke and gas emission cables (for sheath type: V)
 HF – halogen-free cables (for sheath types: R, P)
- ⑧ CLIMATIC CATEGORY DESIGNATION**
 “HL” – cold resistant,
 “T” – tropical;
- ⑨ NUMBER OF CONDUCTORS**
- ⑩ CONDUCTOR CROSS-SECTION**
 “mr” – multi-wire round,
 “ms” – multi-wire sector-shaped;
- ⑪ SHIELD CROSS-SECTION**
- ⑫ COLOUR CODE**
 N – neutral conductor, blue
 PE – ground conductor, yellow-and-green
- ⑬ VOLTAGE CLASS**

ORDERING EXAMPLE AND DESIGNATION IN OTHER DOCUMENTS:

<p>TOFLEX cable REBVng(A), HL climatic category, with three copper multi-wire round electrical conductors with rated cross section of 70 mm², with high-strength ethylene propylene rubber HEPR insulation, shielded with copper wire with rated cross-section of 16 mm², armoured with steel galvanized tapes, sheathed with fire and cold resistant polyvinyl chloride compound, for a rated line voltage of 35 kV</p>	<p>“Cable TOFLEX REBVng(A)-HL 3×70mr/16 – 35 TU 3530-077-12427382-2016”</p>
<p>TOFLEX cable AREVng(A)-LS, UHL climatic category, with three aluminium multi-wire round electrical conductors with rated cross section of 240 mm², with high-strength ethylene propylene rubber HEPR insulation, shielded with copper wire with rated cross-section of 25 mm², sheathed with low fire hazard polyvinyl chloride compound, for a rated line voltage of 10 kV</p>	<p>“Cable TOFLEX AREVng(A)-LS 3×240mr/25 – 10 TU 3530-077-12427382-2016”;</p>
<p>TOFLEX cable REBaPng(A)-HF, UHL climatic category, with one copper multi-wire round electrical conductor with rated cross section of 800 mm², with high-strength ethylene propylene rubber HEPR insulation, shielded with copper wire with rated cross-section of 35 mm², armoured with aluminium or aluminium alloy tapes, sheathed halogen-free polymer compound, for rated line voltage of 35 kV</p>	<p>“Cable TOFLEX REBaPng(A)-HF 1×800mr/35 – 35 TU 3530-077-12427382-2016”;</p>
<p>TOFLEX cable GREolRng(A), UHL climatic category, with three flexible copper multi-wire round electrical conductors with rated cross section of 50 mm², with high-strength ethylene propylene rubber HEPR insulation, shielded with copper tinned wire sheath, sheathed with fire resistant cross-linked high-tension polymer compound, for a rated line voltage of 6 kV</p>	<p>“Cable TOFLEX GREolRng(A) 3×50 – 6 TU 3 530-077-12427382-2016”;</p>

1140 V FLEXIBLE SHIELDED POWER CABLES

KGESh, KGETSh

TECHNICAL STANDARDS:

TU 27.32.14.140-100-12427382-2018

APPLICATION:

Flexible shielded power cables with copper electrical conductors, insulated and sheathed with rubber. The cables are designed for the connection of shaft mobile machines and devices to electric power systems for a rated alternating voltage of up to 1,140 V in basic conductors and up to 220 V in auxiliary conductors with a frequency of up to 50 Hz.



SPECIFICATIONS

CLIMATIC CATEGORY AS PER GOST 15150:

all cable brandsU and T, environmental class 1, 5

CONDUCTOR CONTINUOUS HEATING TEMPERATURE DURING OPERATION:

for KGESh marked cables	+ 75 °C
for KGETSh marked cables	+ 90 °C

WITHOUT PRE-HEATING CABLES SHALL BE LAID AND INSTALLED AT A MINIMUM TEMPERATURE OF:

all cable brands	- 15 °C
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Rated frequency50 Hz

CABLE TENSION FORCE shall not exceed 19.6 N (2 kgf) per 1 mm² of total cross-section of all conductors.

MINIMUM CABLE LAYING AND INSTALLATION BENDING RADIUS

all cable brands	5 Dout
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Warranty period6 months

TRANSPORTATION AND STORAGE

Cables shall be transported and stored in accordance with GOST 18690 with supplements given in this section.

Cable transportation and storage conditions in regard to environment climatic factors shall meet the requirements specific to groups **OX4** and **OX3** as per GOST 15150, for tropical cables – **OX2** as per GOST 15150, provided that the original packaging is intact.

When stored in open storage areas, cable drums with partial lagging require additional protection from sunlight. Cable shelf life, provided that the original packaging is intact, in open storage areas and under shelter – 6 months, max, indoors – 5 years, max.

Cable transportation conditions in regard to mechanical factors shall meet the requirements specific to **group X** as per GOST 23216.

FIRE SAFETY PARAMETERS

The cables shall be flame retardant if laid individually and shall refer to fire safety class **O1.8.2.5.4** as per GOST 31565.

CONDUCTOR NUMBER AND RATED CROSS-SECTION

Conductor number and rated cross-section, mm ²			Rated outside diameter, mm
main	ground	auxiliary	
3x4	1x2.5	-	22.8
3x6	1x4	-	26.5
3x10	1x6	-	29.2
3x16	1x10	-	33.7
3x25	1x10	-	37.7
3x35	1x10	-	41.2
3x50	1x10	-	44.7
3x70	1x10	-	49.2
3x95	1x10	-	55.4
3x4	1x2.5	3x1.5	28.2
3x6	1x4	3x2.5	31.0
3x10	1x6	3x(2.5; 4)	34.0
3x16	1x10	3x(2.5; 4)	37.7
3x25	1x10	3x(2.5; 4; 6)	41.1
3x35	1x10	3x(2.5; 4; 6)	46.0
3x50	1x10	3x(4; 6)	50.0
3x70	1x10	3x(4; 6; 10)	54.0
3x95	1x10	3x(4; 6; 10)	59.1
3x120	1x(10; 16)	3x(4; 6; 10)	63.1
3x150	1x(10; 16)	3x(4; 6; 10)	68.2
3x50	1x10	(5; 6)x2.5	48.6
3x70	1x10	(5; 6)x2.5	51.8
3x95	1x10	(5; 6)x2.5	57.3
3x50	1x10	9x2.5	48.6
3x70	1x10	9x2.5	51.8
3x95	1x10	9x2.5	57.3
3x35	1x4	3x(2x2.5)	49.8
3x50	1x4	3x(2x2.5)	52.2
3x70	1x4	3x(2x2.5)	56.0

PERMISSIBLE CABLE CURRENT-CARRYING CAPACITY IN NORMAL OPERATION MODE

Rated cross-section of main electrical conductors, mm ²	Current-carrying capacity, A	
	KGESh	KGETSh
4	45	57
6	58	72
10	75	100
16	105	127
25	136	166
35		
168	202	
50		
200	249	
70	250	306
95	290	356
120	320	370
150	360	410

FLEXIBLE SHIELDED POWER CABLES FOR SELF-PROPELLED CARS KGES



TECHNICAL STANDARDS:

TU 27.32.14.140-102-12427382-2018

APPLICATION:

Flexible shielded power cables with copper electrical conductors, insulated and sheathed with rubber, with a reinforcing core made of synthetic fibres.

The cables are designed for the connection of electrically-driven self-propelled cars to electric power systems for rated alternating voltage of up to 1,140 V in basic conductors and up to 220 V in auxiliary conductors with a frequency of up to 50 Hz. The cables are designed for operation on underground premises and in shafts with high air humidity where water can be present for a long time or frequent moisture condensation is possible.

SPECIFICATIONS

CLIMATIC CATEGORY AS PER GOST 15150:

cables are manufactured as **U** climatic category, **environmental class 5** as per **GOST 15150**.

CONDUCTOR CONTINUOUS HEATING TEMPERATURE DURING OPERATION:

for KGES marked cables	+ 75 °C
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WITHOUT PRE-HEATING CABLES SHALL BE LAID AND INSTALLED AT A MINIMUM TEMPERATURE OF:

all cable brands	- 15 °C
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Rated frequency 50 Hz

CABLE TENSION FORCE shall not exceed 49 N (5 kgf) per 1 mm² of total cross-section of all conductors.

MINIMUM CABLE LAYING AND INSTALLATION BENDING RADIUS

all cable brands	2,5 Dout
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Cable bending to any side for an angle exceeding 2π rad at 1 metre length is prohibited.

Do not operate cables if there are cuts, tears, holes or other damage to their sheath.

Warranty period **6 months**

CONDUCTOR NUMBER AND RATED CROSS-SECTION

Conductor number and rated cross-section, mm ²			Rated outside diameter, mm
main	ground	auxiliary	
3x16	1x10	1x16	35.2
3x19	1x10	1x19	36.4
3x25	1x10	1x25	38.6

PERMISSIBLE CABLE CURRENT-CARRYING CAPACITY IN NORMAL OPERATION MODE

Rated cross-section of main electrical conductors, mm ²	Current-carrying capacity, A
16	105
19	105
25	136

TRANSPORTATION AND STORAGE

Cables shall be transported and stored in accordance with **GOST 18690** with supplements given in this section.

Cable transportation and storage conditions in regard to environment climatic factors shall meet the requirements specific to the groups **OЖ4 and OЖ3 as per GOST 15150**, provided that the original packaging is intact.

When stored in open storage areas, cable drums with partial lagging require additional protection from sunlight. Cable shelf life, provided that the original packaging is intact, in open storage areas and under shelter – **6 months, max**, indoors – **5 years, max**.

Cable transportation conditions in regard to mechanical factors shall meet the requirements specific to **group Ж as per GOST 23216**.

FIRE SAFETY PARAMETERS

The cables shall be flame retardant if laid individually and shall refer to fire safety class **O1.8.2.5.4 as per GOST 31565**.

CONDUCTOR NUMBER AND RATED CROSS-SECTION

Conductor number and rated cross-section, mm ²			Rated outside diameter, mm
main	ground	auxiliary	
3x1.5	1x1.5	1x1.5	16.9
3x2.5	1x2.5	1x2.5	17.7
3x4	1x4	1x2.5	18.9
3x6	1x4	1x2.5	21.6

PERMISSIBLE CABLE CURRENT-CARRYING CAPACITY IN NORMAL OPERATION MODE

Rated cross-section of main electrical conductors, mm ²	Current-carrying capacity, A
1.5	25
2.5	37
4	46
6	59

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TRANSPORTATION AND STORAGE

Cables shall be transported and stored in accordance with **GOST 18690** with the supplements given in this section.

Cable transportation and storage conditions in regard to environment climatic factors shall meet the requirements specific to the groups **OЖ4 and OЖ3 as per GOST 15150**, for tropical cables – **OЖ2 as per GOST 15150**, provided that the original packaging is intact.

When stored in open storage areas, cable drums with partial lagging require additional protection from sunlight. Cable shelf life, provided that the original packaging is intact, in open storage areas and under shelter – **6 months, max**, indoors – **5 years, max**.

Cable transportation conditions in regard to mechanical factors shall meet the requirements specific to group **Ж as per GOST 23216**.

FIRE SAFETY PARAMETERS

The cables shall be flame retardant if laid individually and shall refer to fire safety class **O1.8.2.5.4 as per GOST 31565**.

FLEXIBLE SHAFT POWER CABLES FOR MOBILE MACHINES

KGREPSU

TECHNICAL STANDARDS:

TU 27.32.14.140-099-12427382-2018

APPLICATION:

flexible shaft power cables with flexible copper electrical conductors, insulated with ethylene-propylene rubber and sheathed with thermoplastic polyurethane elastomer.

The cables are designed for the temporary laying and connection of electrically driven self-propelled cars or other mobile machines in underground mines for a voltage of 11540 VAC 50 Hz subject to high mechanical stress and continuous winding onto drums. Auxiliary cable conductors are designed for a power supply to auxiliary equipment of up to 220 VAC 50 Hz.



SPECIFICATIONS

CLIMATIC CATEGORY AS PER GOST 15150: cables are manufactured as **UHL** climatic category, **environmental class 5** as per **GOST 15150**.

OPERATION TEMPERATURE:

for KGRPSU marked cables	-40 °C + 70 °C
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CONDUCTOR CONTINUOUS HEATING TEMPERATURE DURING OPERATION:

for KGRPSU marked cables	+ 90 °C
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PERMISSIBLE CABLE CONDUCTOR HEATING IN OVERLOAD MODE:

for KGRPSU marked cables	+ 135 °C
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WITHOUT PRE-HEATING CABLES SHALL BE LAID AND INSTALLED AT A MINIMUM TEMPERATURE OF:

all cable brands	- 15 °C
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Rated frequency 50 Hz

CABLE TENSION FORCE shall not exceed **49 N (5 kgf) per 1 mm²** of the total cross-section of all conductors.

MINIMUM CABLE LAYING AND INSTALLATION BENDING RADIUS

for cables with rated cross-section of electrical conductors of 16, 19 and 25 mm ²	2.5 Dout
for cables with rated cross-section of electrical conductors of 35, 50, 70 and 95 mm ²	5 Dout

Do not use a cable with a damaged sheath.

Warranty period **6 months**

CONDUCTOR NUMBER AND RATED CROSS-SECTION

Conductor number and rated cross-section, mm ²			Rated outside diameter, mm
main	ground	auxiliary	
3x16	1x10	1x16	35.6
		3x1.5	35.2
3x19	1x10	1x19	36.8
		3x1.5	32.2
3x25	1x10	1x25	38.6
		3x2.5	37.8
3x35	1x10	1x35	41.7
		3x2.5	40.6
3x50	1x10	1x50	45.5
		3x2.5	43.9
3x70	1x10	1x70	50.3
	1x16	3x4	48.4
3x95	1x10	1x95	55.8
	1x16	3x4	53.1

PERMISSIBLE CABLE CURRENT-CARRYING CAPACITY IN NORMAL OPERATION MODE

Rated cross-section of main electrical conductors, mm ²	Current-carrying capacity, A
16	99
19	106
25	131
35	162
50	202
70	250
95	301

TRANSPORTATION AND STORAGE

Cables shall be transported and stored in accordance with **GOST 18690** with the supplements given in this section.

Cable transportation conditions in regard to environment climatic factors shall meet the requirements specific to group **OX3 as per GOST 15150**, provided that the original packaging is intact.

Cable storage conditions in regard to environmental climatic factors shall meet the requirements specific to group **OX3 as per GOST 15150**, provided that the original packaging is intact.

The shelf life of lagged cable drums, provided that the original packaging is intact: in open storage areas and under shelter – 6 months, max, indoors – 1 year, max.

FIRE SAFETY PARAMETERS

The cables shall be flame retardant if laid individually and shall refer to the fire safety class **O1.8.2.5.4 as per GOST 31565**.

6 kV FLEXIBLE SHIELDED POWER CABLES

TECHNICAL STANDARDS:

TU 27.32.14.140-084-12427382-2017

APPLICATION:

flexible shaft power cables with flexible copper electrical conductors, insulated with ethylene-propylene rubber and sheathed with a thermoplastic polyurethane elastomer. The cables are designed for temporary laying and connection of electrically driven self-propelled cars or other mobile machines in underground mines for a voltage of 1140 VAC 50 Hz subject to high mechanical stress and continuous winding onto drums. Auxiliary cable conductors are designed for power supply to auxiliary equipment of up to 220 VAC 50 Hz.



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SPECIFICATIONS

CLIMATIC CATEGORY AS PER GOST 15150: KGE marked cables – U, HL, T; KGRUE, KGRUEZh marked cables – U, T; KGET, KGRUET, KGRUEZhT marked cables – U; environmental class 1 as per GOST 15150. Climatic category of KGNE marked cables – UHL, T; environmental class 5 as per GOST 15150.

Rated frequency **50 Hz**

CABLE TENSION FORCE shall not exceed **24.5 N (2.5 kgf) per 1 mm²** of total cross-section of all conductors.

MINIMUM CABLE LAYING AND INSTALLATION BENDING RADIUS

for cables with rated cross-section of electrical conductors of 16, 19 and 25 mm ²	2.5 Dout
for cables with rated cross-section of electrical conductors of 35, 50, 70 and 95 mm ²	5 Dout

Cable bending to any side for an angle exceeding 2π rad at 1 metre length is prohibited.

Do not use cable with a damaged sheath.

Warranty period **1 year**

CONDUCTOR NUMBER AND RATED CROSS-SECTION

Conductor number and rated cross-section, mm ²		
main	ground	auxiliary
3×10	1×6	–
3×16	1×6	–
3×25	1×10	–
3×35	1×10	–
3×50	1×16	–
3×70	1×16	–
3×95	1×25	–
3×120	1×35	–
3×150	1×50	–
3×10	1×6	1×6
3×16	1×6	1×6
3×25	1×10	1×6
3×35	1×10	1×6
3×50	1×16	1×10
3×70	1×16	1×10
3×95	1×25	1×10
3×120	1×35	1×10
3×150	1×50	1×10

PERMISSIBLE CABLE CURRENT-CARRYING CAPACITY IN NORMAL OPERATION MODE

Rated cross-section of main conductors, mm ²	Current-carrying capacity, A, max		
	KGE, KGRUEZh	KGEN, KGRUE	KGET, KGRUET, KGRUEZhT
10	82	91	94
16	106	117	121
25	141	157	161
35	170	189	195
50	213	235	242
70	260	288	296
95	313	346	356
120	367	403	417
150	413	458	470

TRANSPORTATION AND STORAGE

Cables shall be transported and stored in accordance with **GOST 18690** with the supplements given in this section.

Cable transportation and storage conditions in regard to environmental climatic factors shall meet the requirements specific to the **groups OЖ4 and OЖ3 as per GOST 15150**, for tropical cables – **OЖ2 as per GOST 15150**, provided that the original packaging is intact.

When stored in open storage areas, cable drums with partial lagging require additional protection from sunlight.

Cable shelf life, provided that the original packaging is intact, in open storage areas – 6 months, max, under shelter – 1 year, max, indoors – 3 years, max.

Cable transportation conditions in regard to mechanical factors shall meet the requirements specific to **group Ж as per GOST 23216**.

FIRE SAFETY PARAMETERS

Cables shall refer to the following fire safety classes as per GOST 31565:

- **KGEN** marked – **O1.8.2.5.4**;
- other brands – **O2.8.2.5.4**.



TOMSKCABLE

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