



CABLE PRODUCTS

Power cable for nominal alternating voltage of 0.66 and 1 kV (GOST 31996-2012).

Power cables with aluminum conductors or conductors made of aluminum alloy, with plastic insulation, are designed for the transmission and distribution of electrical energy in stationary installations, with a nominal alternating voltage of 0.66 and 1 kV and a nominal frequency of 50 Hz.

Unarmored cables are used for laying cable lines in cable structures and outdoor (open) electrical installations (cable trays, galleries) and indoor (closed) electrical installations, where there is no risk of mechanical damage during operation.

Shielded cables are used when there is a need to protect electrical circuits from the influence of external electric fields, in the absence of risk of mechanical damage during operation.

Cables armored with steel tapes are used for laying cable lines in cable structures and rooms of outdoor (open) electrical installations (cable trays, galleries) and indoor (closed) electrical installations, in the ground (trenches), including in aggressive environments, if the cable is not subjected to significant tensile forces, but where there is a risk of mechanical damage during operation.

Cables armored with steel wires are used for laying cable lines in cable structures and rooms of outdoor (open) electrical installations (cable trays, galleries) and indoor (closed) electrical installations, in the ground (trenches), including in aggressive environments, if the cable is subjected to significant tensile forces.

Cables can be manufactured in a fire-safe design according to GOST 31565-2012.



- Conductive cores:

- Class 1 or 2 according to GOST 22483-2021;
- Core cross-section from 2.5 mm² to 1000 mm²;



- Number of cores in the cable: from 1 to 5.



- Cables may be equipped with a screen made of copper tapes or copper wires «E».

- Cables may have protective armor:

- «B» – two galvanized steel tapes;
- «K» – a winding of galvanized steel wires.



- Wide operating temperature range: from minus 60 to plus 50 °C.

Minimum installation temperature: minus 15 °C.

- Climatic versions UHL, HL, T, placement categories 1–5 (according to GOST 15150-69).



- Warranty period of operation: at least 5 years.

Service life: at least 30 years.



Cable construction

Single or multi-wire current-carrying aluminum conductors or conductors made of aluminum alloy, in round or sector (segmental) shape, class 1 or 2 according to GOST 22483-2021.

Conductor construction and nominal cross-section

Conductor designation	Nominal cross-section of the conductor, mm ²		
	round		sector (segment)
	made of aluminum alloy.	aluminum	aluminum
Single-wire conductors	2,5 - 50	2,5 - 95	-
Multi-wire conductors	25 - 1000		70 - 400

Nominal cross-section and number of conductors

Number of conductors	Nominal cross-section of the main conductors, mm ²	
	Nominal voltage, kV	
	0,66	1
1 - 5	2,5 - 50	2,5 - 240
1 - 4		2,5 - 400
1		2,5 - 1000

Multicore cables have all conductors of equal cross-section. Four- and five-core cables may have one conductor of reduced cross-section (neutral (N) or protective earth (PE)). The current-carrying conductor of reduced cross-section may be either round or sector-shaped, single- or multi-wire compacted, depending on the class of the main conductors in the cable.

The insulated conductors of multicore cables are twisted into a core.

Two- and three-core unarmoured cables with insulation made of polyvinyl chloride (PVC) compounds or cross-linked polyethylene (XLPE) for rated voltages up to and including 1 kV, with conductor cross-sections up to and including 10 mm², may have a flat design with insulated conductors laid parallel in one plane.

Conductor insulation materials:

- «V» - polyvinyl chloride (PVC) compound, including low fire hazard versions;
- «Pv» - cross-linked polyethylene (XLPE);
- «P» - halogen-free polymer compound.

Outer sheath materials:

- «V» - polyvinyl chloride (PVC) compound, including versions with reduced flammability or low fire hazard;
- «P» - halogen-free polymer compound.

Screen and protective armour:

- «E» - screen made of copper tape or copper wires;
- «B» - inner sheath and armour consisting of two galvanized steel tapes;
- «K» - inner sheath and armour consisting of galvanized steel wires.

Over the armour, a protective sheath is applied, made of:

- «Shv» - polyvinyl chloride (PVC) compound, including versions with reduced flammability or low fire hazard;
- «Shp» - polyethylene;
- «P» - halogen-free polymer compound.

The colour of the cable sheath/protective covering is determined in agreement with the customer; if not specified, the cables are manufactured in black.

Cable manufacture upon customer request:

- with a different number and nominal cross-section of conductors;
- with a different class of conductors;
- with coloured outer sheath/protective covering (red, white, blue, or other colours).

Technical specifications

Rated voltage	0.66 and 1 kV rated voltage, with a nominal frequency of 50 Hz
Insulation resistance during operation, at t=+20 °C not less than	<ul style="list-style-type: none"> – For cross-linked polyethylene insulation: 150 MΩ; – For polyvinyl chloride (PVC) compound and halogenfree polymer compound insulation: 12 MΩ (conductor cross-section from 2.5 to 4.0 mm²); 10 MΩ (conductor cross-section from 6.0 to 25 mm²); 5 MΩ (conductor cross-section from 35 to 500 mm²); 3 MΩ (conductor cross-section from 500 to 1000 mm²)
Conductor resistance at t=+20 °C not more than	Complies with GOST 22483-2021
Test voltage, kV	<ul style="list-style-type: none"> – 3 kV - for cables with a rated voltage of 0.66 kV; – 3.5 kV - for cables with a rated voltage of 1 kV
Ambient temperature, upper limit	Plus 50 °C
Ambient temperature, lower limit	Cables of climate design HL and cables with a protective sheath made of: <ul style="list-style-type: none"> – Polyethylene - down to minus 60 °C; – Cables of other types - down to minus 50 °C
Installation temperature, not lower than	<ul style="list-style-type: none"> – Minus 30 °C - for cables of HL design; – Minus 20 °C - for cables with a protective sheath made of polyethylene (Shp); – Minus 15 °C - for cables of other types
Maximum operating temperature of the conductor	<ul style="list-style-type: none"> – Polyvinyl chloride (PVC) compound and halogen-free polymer compound - plus 70 °C; – Cross-linked polyethylene (XLPE) - 90 °C
Minimum allowable bending radius of the cables	<ul style="list-style-type: none"> – Multicore cables - 7.5 times the calculated outer diameter of the cable; – Single-core cables - 10 times the calculated outer diameter of the cable
Fungus resistance	Cables resistant to fungal growth, with a degree of infestation up to 2 points
Service life of the cables, not less than	30 years (when laid in rooms, tunnels, or ducts - 25 years)
Warranty period of operation, not less than	5 years

Cable design according to fire hazard parameters according to GOST 31565-2012

Designation of the cable type in terms of fire hazard parameters	Cable type according to fire hazard parameters according to GOST 31565-2012
(without the index)	Cables with insulation made of PVC plastic or cross-linked polyethylene, with an outer sheath or protective hose made of PVC plastic, flame-retardant when laid individually.
ng(A)	Cables with insulation made of PVC plastic or cross-linked polyethylene, with an outer sheath or protective hose made of low-flammability PVC plastic, flame-retardant when laid in groups according to category A.
ng(A)-LS	Cables with insulation made of low-fire-hazard PVC plastic or cross-linked polyethylene, outer sheath or protective hose made of low-fire-hazard PVC plastic, with reduced smoke and gas emissions, flame-retardant when laid in groups according to category A.
ng(A)-LSLTx	Cables with insulation, outer sheath, or protective hose made of low-fire-hazard PVC plastic, with reduced smoke and gas emissions, low toxicity of combustion products, flame-retardant when laid in groups according to category A.
нг(A)-HF	Cables with insulation, outer sheath, or protective hose made of a halogen-free polymer compound, flame-retardant when laid in groups according to category A, and not emitting corrosive gaseous products during combustion and smoldering.

Designation when ordering

Material of the outer sheath of the unarmored cable	
-	Armored cables
V	PVC plastic, including low-flammability and low-fire-hazard types
P	Polymer composition free of halogens

Insulation material	
V	PVC plastic, including low-fire-hazard type
Pv	Cross-linked polyethylene (XLPE)
P	Halogen-free polymer compound

Presence of armor	
G	Without armor
B	Aarmor made of two galvanized steel tapes
K	Aarmor made of galvanized steel wires

Presence of a screen	
-	No screen
E	Overall screen made of copper wires/tapes

Cable design	
-	Round cable
P	Flat cable

Cross-sectional area of conductors, mm²	
S	Cross-sectional area of the conductor

Presence of a conductor with a smaller cross-section in the cable, cross-section, mm²	
-	Conductor with a smaller cross-section is absent
+1xS*	Number and cross-sectional area of conductors

Conductor construction	
ok	Single-wire round conductors
mk	Multi-wire round conductors
ms	Multi-wire sector-shaped conductors

Cross-sectional area of the screen, mm²	
-	Non-screened cables
/S**	Cross-sectional area of the screen



Conductor material.	
A	Aluminum
Ac	Aluminum alloy

Material of the outer sheath of the armored cable.	
-	Unarmored cables.
Shv	PVC plastic, including low-flammability and low-fire-hazard types.
Shp	PE in the form of a hose.
P	Halogen-free polymer compound

Climatic design	
-	UHL
-HL	HL
-T	T

Presence of grounding and/or neutral conductor	
-	Without neutral and grounding conductors
(N)	Neutral conductor
(PE)	Grounding conductor
(N,PE)	Neutral and grounding conductors

Fire safety index	
-	Insulation made of PVC plastic or cross-linked polyethylene, outer sheath or protective hose made of PVC plastic, flame-retardant when laid individually.
ng(A)	Insulation made of PVC plastic or cross-linked polyethylene, outer sheath or protective hose made of low-flammability PVC plastic, flame-retardant when laid in groups.
ng(A)-LS	Insulation made of PVC plastic or cross-linked polyethylene, outer sheath or protective hose made of low fire-hazard PVC plastic, flame-retardant when laid in groups.
ng(A)-LSLTx	Insulation and outer sheath or protective hose made of low fire-hazard PVC plastic, flame-retardant when laid in groups and with low toxicity of combustion products.
ng(A)-LSLTx	Insulation, outer sheath or protective hose made of halogen-free polymer composition, flame-retardant when laid in groups.
ng(A)-HF	flame-retardant when laid in groups according to category A, and non-releasing corrosive gaseous products during combustion and smoldering.

Rated voltage, kV	
-0,66	Voltage
-1	Voltage

Example of cable specification when ordering:

AVVGng(A)-LS 3x50ok+1x25ok(N)-0.66

Power cable of AVVGng(A)-LS type with three aluminum single-core round conductors with a nominal cross-section of 50 mm², with a neutral single-core round conductor with a nominal cross-section of 25 mm², rated for a nominal voltage of 0.66 kV.

Example of cable specification when ordering:

AVBShvng(A)-LSLTx 3x120ms+1x70ok(N)-1

Armored power cable of AVBShvng(A)-LSLTx type with three aluminum multi-core sector conductors with a nominal cross-section of 120 mm², with a neutral single-core round conductor with a nominal cross-section of 70 mm², rated for a nominal voltage of 1 kV.

Example of cable specification when ordering:

AsVVGEng(A) 4x25ok(N)/16-0.66

Power cable of AsVVGEng(A) type with four aluminum alloy single-core round conductors with a nominal cross-section of 25 mm², shielded with a copper screen with a nominal cross-section of 16 mm², rated for a nominal voltage of 0.66 kV.