

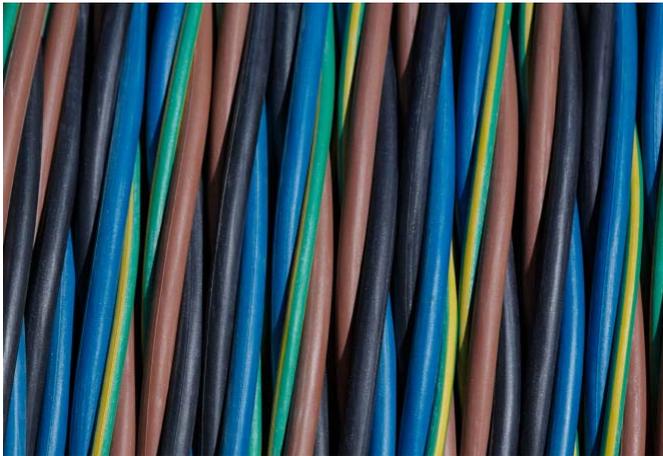
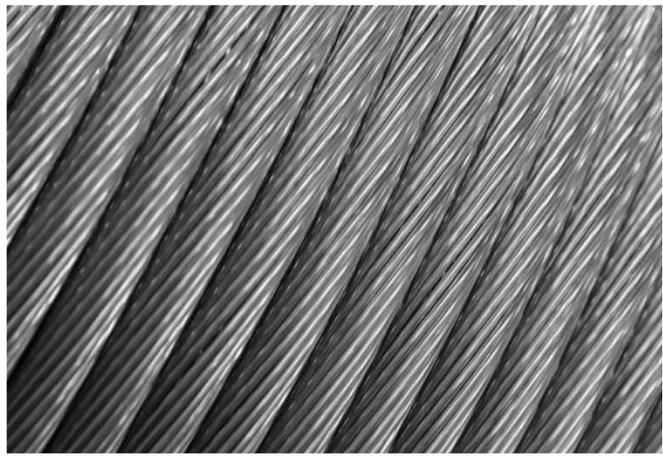


KAMKABEL
your guide to the world of energy



PRODUCT CATALOGUE

2021



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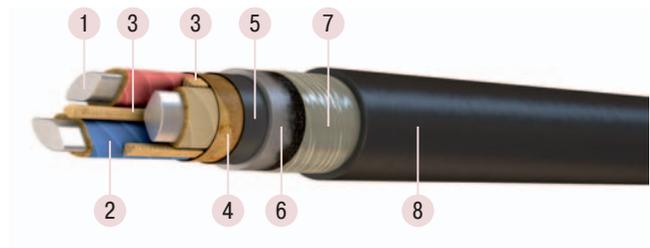
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POWER CABLES

with impregnated paper insulation

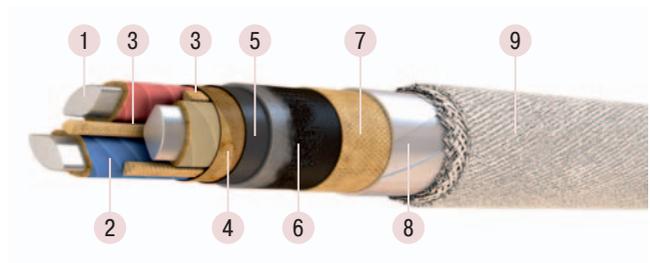
■ ASShv-6 construction

1. Electric conductor.
2. Phase insulation.
3. Filling.
4. Belt insulation.
5. Screen.
6. Lead sheath.
7. Sublayer.
8. Outer PVC sheath (hose).



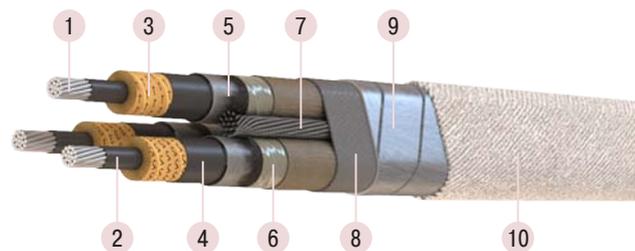
■ ASB-6 construction

1. Electric conductor.
2. Phase insulation.
3. Filling.
4. Belt insulation.
5. Screen.
6. Lead sheath.
7. Bedding.
8. Armor.
9. Outer covering.



■ AOSB-20 (35) construction

1. Electric conductor.
2. Conductor screen.
3. Phase insulation.
4. Insulation screen.
5. Lead sheaths.
6. Protective layer.
7. Filling.
8. Bedding.
9. Armor.
10. Outer covering.



■ Specifications

Rated AC voltage at 50 Hz frequency, kV	1.0	6,0	10.0	20.0	35.0
Rated DC voltage, kV	2.5	15.0	25.0	50.0	87.5
Test AC voltage at 50 Hz frequency, kV	4,0	17.0	25.0	50.0	88.0
Insulation resistance, min, MOhm*km	100	200	200	200	200
Maximum conductor operating temperature, °C	80	65/80*	60/70*	65	65
Maximum conductor operating temperature under overload, °C	105	90/105*	80/90*	–	–
Maximum short circuit temperature, °C	250	200	200	130	130
Ambient temperature, °C	-50/+50				
Air humidity at +35 °C, %	98				
Minimum laying (installation) temperature, °C	0				
Cable bend radius, min., outer diameter:					
- with aluminum sheath	25				
- single-conductor cables with lead sheath	25				
- multi-conductor cables with lead sheath	15				
Factory length, m:					
- conductor cross-section up to 70 mm ² ;	300-450		250		
- conductor cross-section of 95 and 120 mm ² ;	250-400		250		
- conductor cross-section of 150 mm ² or more.	200-350		250		
Service life, years	30				
Guarantee period, years	4.5				

* For cables with non-flowing impregnating compound ("Ts" (L)) letter in the cable grade designation).

Additional letter designations in cable grades, not specified in the Tables:

ozh (ож) — single-wire conductors,
ms (мс)— multi-wire sector-shaped conductors,
os (ос) — single-wire sector-shaped conductors.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AAG GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10 20 35	1 3 4 1 3 3 1 1	240-800 95-240 70-240 240-625 50-240 25-240 50-400 120-300	aluminum conductors, impregnated paper insulation, aluminum sheath	Used for laying: - outdoors, in dry rooms, ducts, cable cellars, mines, cable galleries, production premises, in the absence of risk of mechanical damage during operation; - in fire-hazardous premises; - in explosion-hazardous areas. Designed for sloped and horizontal routes, can be used in places subject to vibration. Flame-retardant at single laying (IEC 60332-1).
AAShv GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10 20 35	1 3 4 1 3 3 1 1	240-800 95-240 70-240 240-625 50-240 25-240 50-400 120-300	aluminum conductors, impregnated paper insulation, aluminum sheath, PVC hose	Designed for operation: - underground (trenches), if the cables are not subject to tensile forces during operation; - underground (trenches) at low and medium corrosion activity with the presence or absence of stray currents, with high corrosion activity with no stray currents; - in the air with no risk of mechanical damage during operation; - in dry or wet areas (tunnels), ducts, cable cellars, mines, cable galleries, production premises, partially flooded structures in the environment with weak, medium and high corrosive activity; - in fire-hazardous premises; - in explosion-hazardous areas. Designed for sloped and horizontal routes, can be used in places subject to vibration. Flame-retardant at single laying (IEC 60332-1).
TsAAShv GOST 18410-73, TU 16.K09-139-2004	6 10 35	3 3 1	50-240 25-240 120-400	aluminum conductors, impregnated paper insulation, aluminum sheath, PVC hose	Same as AAShv, but for vertical and sloped routes without limitations in the difference of levels.
AAShng GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	95-240 70-240 50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, low flammability PVC hose	Same as AAShv, but is flame-retardant when laid in harnesses (IEC 60332-3, A and B categories).
TsAAShng GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, low flammability PVC hose	Same as AAShng, but for vertical and sloped routes without limitations in the difference of levels.
AAShp GOST 18410-73, TU 16.K09-143-2004	1 6 10 35	3 4 3 3 1	95-240 70-240 50-240 25-240 120-300	aluminum conductors, impregnated paper insulation, aluminum sheath, LDPE hose	Designed for underground use (trenches) with low, medium or high corrosive activity, with the presence of stray currents, if the cables are not subject to significant tensile forces during operation. For laying underground (trenches) with high humidity; for sloped and horizontal routes.
AABI, AAB2I GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10	1 3 4 1 3 3	240-800 95-240 70-240 240-625 50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor, outer covering	Designed for underground use (trenches) with low and medium corrosive activity, with no stray currents, if the cables are not subject to significant tensile forces during operation; for sloped and horizontal routes.
TsAABI, TsAAB2I GOST 18410-73, TU 16.K09-139-2004	6 10 6 10	3 3 3 3	50-185 25-185 240 240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor, outer covering	Same as AABI, but for vertical and sloped routes, without limitations in level difference.
AABv GOST 18410-73, TU 16.K09-143-2004	1 6 10	4 3 3	70-240 50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, PVC sheath, tape armor, outer covering	Designed for operation: - underground (trenches), if the cables are not subject to tensile forces during operation; - underground (trenches) with medium and high corrosive activity with the presence of stray currents. Designed for sloped and horizontal routes.
TsAABv GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, PVC sheath, tape armor, outer covering	Same as AABv, but for vertical and sloped routes, without limitations in level difference.
AAPi, AAP2i GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	95-240 70-240 50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, wire armor, outer covering	Same as AABI and AAB2I, if the cables are subject to significant tensile forces (fill-up, swampy, heaving and permafrost soils, vertical sections of routes) during operation.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
TsAPI, TsAAP2I GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, wire armor, outer covering	Same as AAPI and AAP2I, but for vertical and sloped routes, without limitations in level difference.
AABIG GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10	1 3 4 1 3 3	240-800 95-240 70-240 240-625 50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor	Designed for operation: - in the air, if there is a risk of mechanical damage during operation; - in dry or wet areas (tunnels), ducts, cable cellars, mines, cable galleries, production premises, partially flooded structures in the environment with weak, medium and high corrosive activity; - in fire-hazardous premises; - in explosion-hazardous areas. Designed for sloped and horizontal routes, can be used in places subject to vibration. Flame-retardant at single laying (IEC 60332-1).
TsAABIG GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor	Same as AABIG, but for vertical and sloped routes, without limitations in level difference.
AAPIG GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	95-240 70-240 50-185 25-185	aluminum conductors, impregnated paper insulation, aluminum sheath, wire armor	Same as AABIG, if the cables are subject to significant tensile forces (vertical sections of routes) during operation.
TsAAPIG GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, wire armor	Same as AAPIG, but for vertical and sloped routes, without limitations in level difference.
AABnIG GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10	3 4 1 3 3	95-240 70-240 240-625 50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor	Same as AABIG, but is flame-retardant when laid in harnesses (IEC 60332-3, A and B categories).
TsAABnIG GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor	Same as AABnIG, but for vertical and sloped routes, without limitations in level difference.
AABvG GOST 18410-73, TU 16.K09-143-2004	1 6 10	4 3 3	70-240 50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, PVC sheath, tape armor	Designed for operation: - in the air, if there is a risk of mechanical damage during operation; - in dry or wet areas (tunnels), ducts, cable cellars, mines, cable galleries, production premises, partially flooded structures in the environment with weak, medium and high corrosive activity; - in fire-hazardous premises. Designed for sloped and horizontal routes, can be used in places subject to vibration. Flame-retardant at single laying (IEC 60332-1).
TsAABvG GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, PVC sheath, tape armor	Same as AABvG, but for vertical and sloped routes, without limitations in level difference.
AAB2IShv GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10	3 4 1 3 3	95-240 50-240 240-625 50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor, PVC hose	For laying: - underground (trenches), if the cables are not subject to tensile forces during operation; - underground (trenches) with high corrosion activity with no stray currents; - in the air, if there is a risk of mechanical damage during operation; - in dry or wet areas (tunnels), ducts, cable cellars, cable galleries, production premises, partially flooded structures in the environment with weak, medium and high corrosive activity; - in fire-hazardous premises; - in explosion-hazardous areas. Designed for sloped and horizontal routes, can be used in places subject to vibration. Flame-retardant at single laying (IEC 60332-1).
AAP2IShv GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	95-240 70-240 50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, wire armor, PVC hose	Same as AAB2IShv, if the cables are subject to significant tensile forces (fill-up, swampy, heaving and permafrost soils, vertical sections of routes) during operation.
AAB2IShp GOST 18410-73, TU 16.K09-143-2004	1 6 10	4 3 3 3	70-240 95-240 50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor, LDPE hose	Designed for operation: - underground (trenches), if the cables are not subject to tensile forces during operation; - underground (trenches) with high corrosion activity with no stray currents; - underground (trenches) with high humidity. Designed for sloped and horizontal routes.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
ASG, ASG-T GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10 20 35	1 3 4 1 3 1 1	185-800 25-240 25-240 185-625 16-240 16-240 50-400 120-300	aluminum conductors, impregnated paper insulation, lead sheath	Designed for operation: - underground (trenches), if the cables are not subject to tensile forces during operation; - underground (trenches) with high corrosion activity with no stray currents; - underground (trenches) with high humidity. Designed for sloped and horizontal routes.
SG, SG-T GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10 20 35	1 3 4 1 3 1 1	185-800 25-240 25-240 185-625 16-240 16-240 50-400 120-300	copper conductors, impregnated paper insulation, lead sheath	
ASShv, ASShv-T GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, PVC hose	Designed for operation: - in the air with no risk of mechanical damage during operation; - in dry or wet areas (tunnels), ducts, cable cellars, mines, cable galleries, production premises, partially flooded structures in the environment with weak, medium and high corrosive activity; - in explosion-hazardous areas. Designed for sloped and horizontal routes. Flame-retardant at single laying (IEC 60332-1). Cables of SShv grade can be laid in mines.
SShv, SShv-T GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, PVC hose	
ASB, ASB-T GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10	1 3 4 1 3 3	185-800 25-240 25-240 185-625 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, outer covering	Used for laying: - underground (trenches), if the cables are not subject to significant tensile forces during operation; - underground (trenches) with low and medium corrosive activity with no stray currents. Designed for sloped and horizontal routes.
SB, SB-T GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 6 10	1 3 4 3 3	185-800 25-240 25-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, outer covering	
AOSB, AOSB-T GOST 18410-73	20 35	3 3	25-185 120-150	aluminum conductors, impregnated paper insulation, lead sheaths, tape armor, outer covering	Same as ASB and SB, but for vertical and sloped routes, without limitations in level difference.
OSB, OSB-T GOST 18410-73	20 35	3 3	25-185 120-150	copper conductors, impregnated paper insulation, lead sheaths, tape armor, outer covering	
TsASB, TsASB-T GOST 18410-73, TU 16.K09-139-2004	6 10 6 10	3 3 3 3	16-185 16-185 240 240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, outer covering	Same as ASB and SB, but for vertical and sloped routes, without limitations in level difference.
TsSB, TsSB-T GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, outer covering	
TsAOSB, TsAOSB-T GOST 18410-73	35	3	120-150	aluminum conductors, impregnated paper insulation, lead sheaths, tape armor, outer covering	Same as ASB and SB, if the cables are subject to significant tensile forces (fill-up, swampy, heaving and permafrost soils, vertical sections of routes) during operation.
TsOSB, TsOSB-T GOST 18410-73	35	3	120-150	copper conductors, impregnated paper insulation, lead sheaths, tape armor, outer covering	
ASP, ASP-T GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	Same as ASB and SB, if the cables are subject to significant tensile forces (fill-up, swampy, heaving and permafrost soils, vertical sections of routes) during operation.
SP, SP-T GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
TsASP, TsASP-T GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	Same as ASP and SP, but for vertical and sloped routes, without limitations in level difference.
TsSP, TsSP-T GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	
ASBI, ASB2I GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10	1 3 4 1 3	185-800 25-240 25-240 185-625 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, outer covering	Used for laying: - underground (trenches), if the cables are not subject to significant tensile forces during operation; - underground (trenches) with medium corrosive activity with the presence of stray currents; - underground (trenches) with high corrosive activity with no stray currents. Cables are designed for sloped and horizontal routes.
SBI, SB2I GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10	1 3 4 1 3	185-800 25-240 25-240 185-625 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, outer covering	
TsASBI, TsASB2I GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, outer covering	Same as ASBI and SBI, but for vertical and sloped routes, without limitations in level difference.
TsSBI, TsSB2I GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, outer covering	
ASPI, ASP2I GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	Same as ASBI, if the cables are subject to significant tensile forces (fill-up, swampy, heaving and permafrost soils, vertical sections of routes) during operation.
SPI, SP2I GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	
TsASPI GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	Same as ASPI and SPI, but for vertical and sloped routes, without limitations in level difference.
TsSPI GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	
ASKI GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 16-240 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	Designed for laying in water, if cables are subject to significant tensile forces during operation; for sloped and horizontal routes.
SKI GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	
AOSK GOST 18410-73	20 35	3 3	25-185 120	aluminum conductors, impregnated paper insulation, lead sheaths, wire armor, outer covering	Designed for laying in water, if cables are subject to significant tensile forces during operation. Cables are designed for sloped and horizontal routes.
OSK GOST 18410-73	20 35	3 3	25-185 120	copper conductors, impregnated paper insulation, lead sheaths, wire armor, outer covering	
TsASKI GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	25-240 25-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	Same as ASKI and SKI, but for vertical and sloped routes, without limitations in level difference.
TsSKI GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	25-240 25-240	copper conductors, impregnated paper insulation, lead sheath, wire armor, outer covering	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
ASBG, ASBG-T GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 6 10	1 3 4 3 3	185-800 25-240 25-240 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor	Designed for operation: - in the air, if there is a risk of mechanical damage during operation; - in explosion-hazardous areas B-Ig and B-II in the absence of risk of mechanical damage during operation; - in explosion-hazardous areas B-Ib and B-IIa, if there is a risk of mechanical damage during operation. Designed for sloped and horizontal routes. Flame-retardant at single laying (IEC 60332-1).
SBG, SBG-T GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10	1 3 4 1 3 3	185-800 25-240 25-240 185-625 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor	
AOSBG, AOSBG-T GOST 18410-73	20 35	3 3	25-185 120-150	aluminum conductors, impregnated paper insulation, lead sheaths, tape armor	
OSBG, OSBG-T GOST 18410-73	20 35	3 3	25-185 120-150	copper conductors, impregnated paper insulation, lead sheaths, tape armor	
TsASBG, TsASBG-T GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor	
TsSBG, TsSBG-T GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor	
TsAOSBG, TsAOSBG-T GOST 18410-73	35	3	120-150	aluminum conductors, impregnated paper insulation, lead sheaths, tape armor	
TsOSBG, TsOSBG-T GOST 18410-73	35	3	120-150	copper conductors, impregnated paper insulation, lead sheaths, tape armor	
ASPG GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor	
SPG GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, wire armor	
TsASPG GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor	
TsSPG GOST 18410-73, TU 16.K09-139-2004	6 10	3 3	16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, wire armor	
ASB2IG GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10	1 4 1 3 3	25-240 25-240 185-625 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor	Designed for operation: - in the air, if there is a risk of mechanical damage during operation; - in dry or wet areas (tunnels), production premises, partially flooded structures in the environment with weak, medium and high corrosive activity; For sloped and horizontal routes. Flame-retardant at single laying (IEC 60332-1).
SB2IG GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10	3 4 1 3 3	25-240 25-240 185-625 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor	
ASBShv, ASBIShv, ASB2IShv GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, PVC hose	Designed for operation: - in the air, if there is a risk of mechanical damage during operation; - in dry or wet areas (tunnels), ducts, cable cellars, mines, cable galleries, production premises, partially flooded structures in the environment with weak, medium and high corrosive activity. For sloped and horizontal routes. Flame-retardant at single laying (IEC 60332-1). Cables of SBSHv grade can be laid in mines.
SBSHv, SBSIShv, SB2IShv GOST 18410-73, TU 16.K09-143-2004	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, PVC hose	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
TsASBShv, TsASBIShv GOST 18410-73, TU 16.K09-139-2004	6 10 6 10	3 3 3 3	16-185 16-185 240 240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, PVC hose	Same as ASBShv, SBSShv, ASBIShv and SBIShv, but for vertical and sloped routes, without limitations in level difference.
TsSBSShv, TsSBIShv GOST 18410-73, TU 16.K09-139-2004	6 10 6 10	3 3 3 3	16-185 16-185 240 240	copper conductors, impregnated paper insulation, lead sheath, tape armor, PVC hose	
SBVng(A)-LS TU 16.K71-090-2002 TU 16.K180-046-2015	1 6 10	1 3 4 3 3	95-800 16-240 16-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, low fire-hazard compound sheath	Same as ASBShv, SBSShv, ASBIShv and SBIShv. Flame retardant, low smoke and gas emission.
ASBVng(A)-LS TU 16.K71-090-2002 TU 16.K180-046-2015	1 6 10	1 3 4 3 3	95-800 16-240 16-240 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, low fire-hazard compound sheath	
TsSBVng(A)-LS TU 16.K71-090-2002 TU 16.K180-046-2015	1 6 10	1 3 4 3 3	95-800 16-240 16-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, low fire-hazard compound sheath	Same as ASBShv, SBSShv, ASBIShv and SBIShv, but for vertical and sloped routes, without limitations in level difference. Flame retardant, low smoke and gas emission.
TsASBVng(A)-LS TU 16.K71-090-2002 TU 16.K180-046-2015	1 6 10	1 3 4 3 3	95-800 16-240 16-240 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, low fire-hazard compound sheath	
ASB2IShv GOST 18410-73, TU 16.K71-269-97, TU 16.K09-143-2004	1 3 6 10	4 3 1 3 3	25-240 25-240 185-625 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, PVC hose	Used for laying: - underground (trenches), if the cables are not subject to significant tensile forces during operation; - underground (trenches) with high corrosive activity with the presence of stray currents; - in the air, if there is a risk of mechanical damage during operation; - in dry or wet areas (tunnels), ducts, cable cellars, mines, cable galleries, production premises, partially flooded structures in the environment with weak, medium and high corrosive activity. Designed for sloped and horizontal routes. Flame-retardant at single laying (IEC 60332-1). Cables of SB2IShv grade can be laid in mines.
SB2IShv GOST 18410-73, TU 16.K09-143-2004	1 6 10	4 3 3 3	25-240 25-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, PVC hose	
ASBnIShng TU 16.K09-134-2003	6-10	3	25-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, low flammability PVC hose	For laying in cable structures, premises, in subway structures, including fire- and explosion-hazardous areas in the absence of tensile forces during operation, and if there is a risk of mechanical impacts on the cables. Laying in conduits and underground (trenches) on certain sections of the cable route is allowed subject to additional protection against mechanical damage. Cables are flame-retardant when laid in harnesses (IEC 60332-3, A and B categories). Designed for sloped and horizontal routes.
SBnIShng TU 16.K09-134-2003	6-10	3	25-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, low flammability PVC hose	
TsASBnIShng TU 16.K09-134-2003	6-10	3	25-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, low flammability PVC hose	Same as ASBnIShng and SBnIShng, but for vertical and sloped routes, without limitations in level difference.
TsSBnIShng TU 16.K09-134-2003	6-10	3	25-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, low flammability PVC hose	
AAShv, AABI, AAB2I, AABIG TU 16.K71-269-97	1	1+2	240-800+1.5	aluminum conductors, copper control conductors, impregnated paper insulation, aluminum sheath, protective covering	For electric transport.
ASShv, ASB, ASBI, ASB2I TU 16.K71-269-97	1	1+2	240-800+1.5	aluminum conductors, copper control conductors, impregnated paper insulation, lead sheath, protective covering	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
TsASBnIshng TU 16.K09-134-2003	6-10	3	25-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, low flammability PVC hose	Same as ASBnIshng and SBnIshng, but for vertical and sloped routes, without limitations in level difference.
TsSBnIshng TU 16.K09-134-2003	6-10	3	25-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, low flammability PVC hose	
AAShv, AABI, AAB2I, AABIG TU 16.K71-269-97	1	1+2	240-800+1.5	aluminum conductors, copper control conductors, impregnated paper insulation, aluminum sheath, protective covering	For electric transport.
ASShv, ASB, ASBI, ASB2I TU 16.K71-269-97	1	1+2	240-800+1.5	aluminum conductors, copper control conductors, impregnated paper insulation, lead sheath, protective covering	
AAShvE, AABIE, AABIGE, ASShvE, ASBE, AABGE TU 16-705.421-86	110	1	50	aluminum conductors, screen, impregnated paper insulation, screen, aluminum or lead sheath, protective covering	For transmission of electrical energy to electrostatic precipitators.
AAB2IG TU 16.K09-177-2007	1	1 3 4	240-800 95-240 70-240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor	Same as AABIG.
	6 10	3 3	50-240 25-240		
TsAAB2IG TU 16.K09-177-2007	6 10	3 3	50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor	Same as TsAABIG.
AABIShv TU 16.K09-177-2007	1	1 3 4	240-800 95-240 70-240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor, PVC hose	Same as AAB2IShv.
	6 10	3 3	50-240 25-240		
TsAABIShv, TsAAB2IShv TU 16.K09-177-2007	6 10	3 3	50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, tape armor, PVC hose	Same as AAB2IShv, but for vertical and sloped routes, without limitations in level difference.
AAPIShv TU 16.K09-177-2007	1	1 3 4	240-800 95-240 70-240	aluminum conductors, impregnated paper insulation, aluminum sheath, wire armor, PVC hose	Same as AAP2IShv.
	6 10	3 3	50-240 25-240		
TsAAPIShv, TsAAP2IShv TU 16.K09-177-2007	6 10	3 3	50-240 25-240	aluminum conductors, impregnated paper insulation, aluminum sheath, wire armor, PVC hose	Same as AAP2IShv, but for vertical and sloped routes, without limitations in level difference.
ASBIG TU 16.K09-177-2007	1	1 3 4	95-800 25-240 25-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor	Same as ASB2IG.
	6 10	3 3	16-240 16-240		
SBIG TU 16.K09-177-2007	1	1 3 4	95-800 25-240 25-240	copper conductors, impregnated paper insulation, lead sheath, tape armor	Same as SB2IG.
	6 10	3 3	16-240 16-240		
TsASBIG, TsASB2IG TU 16.K09-177-2007	6 10	3 3	16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor	Same as ASB2IG, but for vertical and sloped routes, without limitations in level difference.
TsSBIG, TsSB2IG TU 16.K09-177-2007	6 10	3 3	16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor	Same as SB2IG, but for vertical and sloped routes, without limitations in level difference.
TsASB2IShv TU 16.K09-177-2007	6 10	3 3	16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, PVC hose	Same as TsASBIShv.
TsSB2IShv TU 16.K09-177-2007	6 10	3 3	16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, PVC hose	Same as TsSBIShv.
ASBSHng, ASBIShng, ASB2IShng TU 16.K09-177-2007	1	1 3 4	95-800 25-240 25-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, low flammability PVC compound hose	Same as ASBShv. Cables are flame-retardant when laid in harnesses (IEC 60332-3, A and B categories).
	6 10	3 3	16-240 16-240		

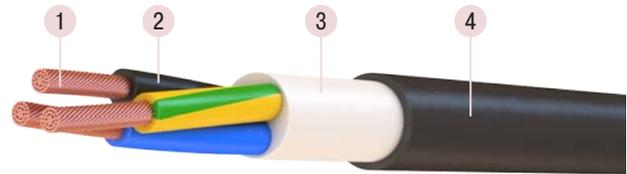
Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
SBSHng, SBISHng, SB2ISHng TU 16.K09-177-2007	1 6 10	1 3 4 3 3	95-800 25-240 25-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, low flammability PVC compound hose	Same as SBSHv. Cables are flame-retardant when laid in harnesses (IEC 60332-3, A and B categories). Cables can be laid in mines.
TsASBSHng, TsASBISHng, TsASB2ISHng TU 16.K09-177-2007	6 10	3 3	16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, low flammability PVC compound hose	Same as ASBSHng, but for vertical and sloped routes, without limitations in level difference.
TsSBSHng, TsSBISHng, TsSB2ISHng TU 16.K09-177-2007	6 10	3 3	16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, tape armor, low flammability PVC compound hose	Same as SBSHng, but for vertical and sloped routes, without limitations in level difference.
ASPSHv, ASPIShv, ASP2ISHv, ASKISHv TU 16.K09-177-2007	1 6 10	1 3 4 3 3	95-800 25-240 25-240 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor, PVC hose	Same as ASBSHv, if the cables are subject to significant tensile forces (fill-up, swampy, heaving and permafrost soils, vertical sections of routes) during operation.
TsASBSHng, TsASBISHng, TsASB2ISHng TU 16.K09-177-2007	6 10	3 3	16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, tape armor, low flammability PVC compound hose	Same as ASBSHng, but for vertical and sloped routes, without limitations in level difference.
SPSHv, SPISHv, SP2ISHv, SKISHv TU 16.K09-177-2007	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, wire armor, PVC hose	Same as SBSHv, if the cables are subject to significant tensile forces (fill-up, swampy, heaving and permafrost soils, vertical sections of routes) during operation. Cables can be laid in mines.
TsASPSHv, TsASPIShv, TsASP2ISHv, TsASKISHv TU 16.K09-177-2007	6 10	3 3	16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor, PVC hose	Same as ASPSHv, but for vertical and sloped routes, without limitations in level difference
TsSPSHv, TsSPISHv, TsSP2ISHv, TsSKISHv TU 16.K09-177-2007	6 10	3 3	16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, wire armor, PVC hose	Same as SPSHv, but for vertical and sloped routes, without limitations in level difference.
ASPSHng, ASPIShng, ASP2ISHng, ASKISHng TU 16.K09-177-2007	1 6 10	3 4 3 3	25-240 25-240 16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor, low flammability PVC compound hose	Same as ASPSHv. Cables are flame-retardant when laid in harnesses (IEC 60332-3, A and B categories).
SPSHng, SPISHng, SP2ISHng, SKISHng TU 16.K09-177-2007	1 6 10	3 3	25-240 25-240 16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, wire armor, low flammability PVC compound hose	Same as SPSHv. Cables are flame-retardant when laid in harnesses (IEC 60332-3, A and B categories). Cables can be laid in mines.
TsASPSHng, TsASPIShng, TsASP2ISHng, TsASKISHng TU 16.K09-177-2007	6 10	3 3	16-240 16-240	aluminum conductors, impregnated paper insulation, lead sheath, wire armor, low flammability PVC compound hose	Same as ASPSHng, but for vertical and sloped routes, without limitations in level difference.
TsSPSHng, TsSPISHng, TsSP2ISHng, TsSKISHng TU 16.K09-177-2007	6 10	3 3	16-240 16-240	copper conductors, impregnated paper insulation, lead sheath, wire armor, low flammability PVC compound hose	Same as SPSHng, but for vertical and sloped routes, without limitations in level difference.
AASHng(A)-LS TU 16.K180-046-2015	1 3 6 10 20 35	1 3 4 1 3 3 1 1	240-800 95-240 70-240 240-625 50-240 25-240 50-400 50-400	aluminum conductors, impregnated paper insulation, aluminum sheath, low fire-hazard PVC hose	For laying in cable structures, cable galleries, tunnels, ducts, on racks, in premises, including in fire- and explosion-hazardous areas (except for explosion-hazardous areas of classes B-1, B-1a) provided that there is no risk of mechanical damage during operation. Cables are designed for sloped and horizontal routes. Cables are flame-retardant when laid in harnesses (IEC 60332-3, A category).

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
TsAAShng(A)-LS TU 16.K180-046-2015	1	1	240-800	aluminum conductors, impregnated paper insulation, aluminum sheath, low fire-hazard PVC hose	Same as AAShng(A)-LS, but for vertical and sloped routes, without limitations in level difference.
		3	95-240		
		4	70-240		
		1	240-625		
	6	50-240			
	10	25-240			
ASBPng(A)-HF TU 16.K180-046-2015	1	1	95-800	aluminum conductors, impregnated paper insulation, lead sheath, halogen-free polymer compound inner sheath, tape armor, halogen-free polymer compound outer sheath	For laying in cable structures, premises and in subway structures, including in fire- and explosion-hazardous areas (except for explosion-hazardous areas of classes B-1, B-1a) in the absence of tensile forces during operation. Cables are designed for sloped and horizontal routes. Cables are flame-retardant when laid in harnesses (IEC 60332-3, A category).
		3	16-240		
	4	16-240			
	3	16-240			
TsASBPng(A)-HF TU 16.K180-046-2015	1	1	95-800	aluminum conductors, impregnated paper insulation, lead sheath, halogen-free polymer compound inner sheath, tape armor, halogen-free polymer compound outer sheath	Same as ASBPng(A)-HF, but for vertical and sloped routes, without limitations in level difference.
		3	16-240		
	4	16-240			
	3	16-240			
SBPng(A)-HF TU 16.K180-046-2015	1	1	95-800	copper conductors, impregnated paper insulation, lead sheath, halogen-free polymer compound inner sheath, tape armor, halogen-free polymer compound outer sheath	For laying in cable structures, premises and in subway structures, including in fire- and explosion-hazardous areas, in gaseous and dusty underground mines in the absence of tensile forces during operation. Cables are designed for sloped and horizontal routes. Cables are flame-retardant when laid in harnesses (IEC 60332-3, A category).
		3	16-240		
	4	16-240			
	3	16-240			
TsSBPng(A)-HF TU 16.K180-046-2015	1	1	95-800	copper conductors, impregnated paper insulation, lead sheath, halogen-free polymer compound inner sheath, tape armor, halogen-free polymer compound outer sheath	Same as SBPng(A)-HF, but for vertical and sloped routes, without limitations in level difference.
		3	16-240		
	4	16-240			
	3	16-240			
PILC BS 6480:1989	1	1	185-630	aluminum or copper conductors, impregnated paper insulation, lead sheath, protective covering	Power cables are designed to transmit and distribute electrical energy in stationary installations.
		3	50-400		
		4	50-400		
		1	50-960		
	3,3	3	50-400		
		1	120-630		
	11	3	25-400		
		1	50-630		
PILC AIEC SCI-90	5	3	2/OAWG-500MCM	copper conductors, impregnated paper insulation, lead sheath, protective covering	
	8	1	2/OAWG-500MCM		
	15	3	2/OAWG-750MCM		

PVC INSULATED POWER CABLES

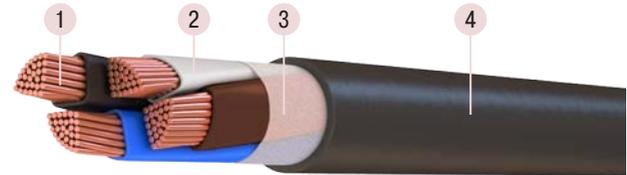
■ NYM construction

1. Electric conductor.
2. Insulation.
3. Filling.
4. Outer sheath.



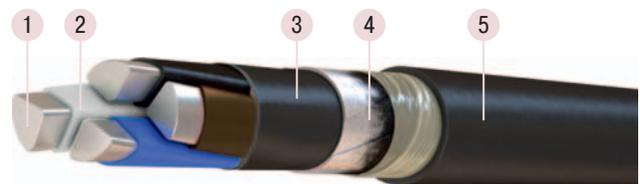
■ WG construction

1. Electric conductor.
2. Insulation.
3. Inner extruded sheath.
4. Outer sheath.



■ AVBShv construction

1. Electric conductor.
2. Insulation.
3. Inner extruded sheath.
4. Armor.
5. Outer sheath.



■ Area of application

Power cables are intended for transmission and distribution of electrical energy in stationary installations.

■ Specifications

Rated AC voltage at 50 Hz frequency, kV	0.66	1.0	3.0	6.0
Maximum AC voltage at 50 Hz frequency, kV	0.72	1.2	3.6	7.2
Test AC voltage at 50 Hz frequency, 10 min, kV	3.0	3.5	9.5	15.0
Maximum conductor operating temperature, °C	+70			
Allowable conductor heating temperature under overload, °C	+90			
Maximum allowable short circuit temperature during 4 sec, °C	+160			
Ambient temperature, °C	-50/+50			
Ambient temperature (for cables in cold resistant design), °C	-60/+40			
Ambient temperature (for cables with polyethylene protection hose), °C	-60/+50			
Air humidity at +35 °C, %	98			
Minimum laying (installation) temperature, °C	-15			
Cable bend radius, min., outer diameter:				
- single-conductor	10			
- multi-conductor	7.5			
Service life, years	30			
Guarantee period, years	5			

Additional letter designations in cable grades, not specified in the Tables:

- ozh (ож)** – single-wire conductors,
- ms (мс)** – multi-wire sector-shaped conductors,
- os (ос)** – single-wire sector-shaped conductors,
- ok (ок)** – single-wire circular conductors,
- mk (мк)** – multi-wire circular conductors,
- N** – conductor insulation color (blue),
- PE** – conductor insulation color (yellow-green).

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
NUM-O, NUM-J TU 16.K180-012-2009	0.66	2 3-5	1.5-10	copper conductors, PVC compound insulation, internal unvulcanized rubber filling, PVC compound sheath	Used for electric wiring installation: - in production, residential and public buildings. Can be installed over, in and under plaster; - in brickwork and concrete; - outdoors, protected from direct sunlight. Can be laid in conduits, ducts. Flame-retardant at single laying (GOST IEC 60332-1-2, GOST IEC 60332-1-3).

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AWG, AWG-T TU 16-705.499-2010 TU 16.K180-025-2010 TU 16.K09-144-2005	0.66 1 3 6	1-5 1 2-5 1 3 1 3	2.5-50 2.5-1000 2.5-240 2.5-1000 2.5-240 240-800 16-240	aluminum conductors, PVC compound insulation, PVC compound sheath	Designed for electrical energy transmission and distribution in stationary installations rated for AC voltage, for single laying of cable lines in cable structures and indoors. Fire protection is mandatory in group laying. Cables are intended to be laid on cable routes without limitations of difference in level, including vertical sections. Not recommended for underground laying (in trenches).
WG, WG-T TU 16-705.499-2010 TU 16.K180-025-2010 TU 16.K09-144-2005	0.66 1 3 6	1-5 1 2-5 1 3 1 3	1.5-50 1.5-800 1.5-240 1.5-1000 1.5-240 240-800 16-240	copper conductors, PVC compound insulation, PVC compound sheath	
AWG-KhL TU 16.K180-005-2008 TU 16.K09-144-2005	0.66 1 6	1-5 1 2-5 1 3	2.5-50 2.5-1000 2.5-240 240-800 16-240	aluminum conductors, PVC insulation, PVC sheath	Same as AWG and WG, but cold resistant cable design.
WG-KhL TU 16.K180-005-2008 TU 16.K09-144-2005	0.66 1 6	1-5 1 2-5 1 3	1.5-50 1.5-800 1.5-240 240-800 16-240	copper conductors, PVC compound insulation, PVC compound sheath	
AWG-P TU 16-705.499-2010 TU 16.K180-025-2010	0.66 1	2 3 2 3	2.5-16 2.5-10 2.5-16 2.5-10	aluminum conductors, PVC compound insulation, PVC sheath	Same as AWG and WG, but flat cables.
WG-P TU 16-705.499-2010 TU 16.K180-025-2010	0.66 1	2 3 2 3	1.5-16 1.5-10 1.5-16 1.5-10	copper conductors, PVC compound insulation, PVC compound sheath	
AWGE TU 16-705.499-2010 TU 16.K180-025-2010	0.66 1 3	1-5 1 2-5 1	2.5-50 2.5-1000 2.5-240 2.5-1000	aluminum conductors, PVC compound insulation, inner PVC compound sheath, copper screen, PVC compound sheath	Same as AWG, but cable in common screen under sheath.
WGE TU 16-705.499-2010 TU 16.K180-025-2010	0.66 1 3	1-5 1 2-5 1	1.5-50 1.5-800 1.5-240 1.5-800	copper conductors, PVC compound insulation, inner PVC compound sheath, copper screen, PVC compound sheath	Same as WG, but cable in common screen under sheath.
AWGng(A)-LS TU 16.K71-310-2001 TU 16.K180-038-2012	0.66 1	1-5 1 2-5	2.5-50 2.5-1000 2.5-240	aluminum conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound sheath	Flame-retardant when laid in harnesses (GOST IEC 60332-3, A category). Low smoke emission during combustion (GOST IEC 61034-2).
AWGng(A)-LS TU 16.K09-157-2005 TU 16.K180-038-2012	6	3	16-240	aluminum conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound inner sheath, screen, low fire-hazard PVC compound outer sheath	
WGng(A)-LS TU 16.K71-310-2001 TU 16.K180-038-2012	0.66 1	1-5 1 2-5	1.5-50 1.5-800 1.5-240	copper conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound sheath	Flame-retardant when laid in harnesses (GOST IEC 60332-3, A category). Low smoke emission during combustion (GOST IEC 61034-2).
WGng(A)-LS TU 16.K09-157-2005	6	3	16-240	copper conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound inner sheath, screen, low fire-hazard PVC outer sheath	
WG-Png(A)-LS TU 16.K71-310-2001 TU 16.K180-038-2012	0.66 1	2 3 2 3	1.5-16 1.5-10 1.5-16 1.5-10	copper conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound outer sheath	Designed for laying: <ul style="list-style-type: none"> - in stationary electrical installations; - in AC voltage electrical networks with grounded and insulated neutral; - for group laying in cable structures of outdoor (open) electrical installations (cable racks, galleries); - indoors when mechanical damage during operation is excluded. Can be laid without limitations of difference in level, including vertical sections. Flame-retardant in A category group laying. Ambient class – boreal climate (YX1), frigid climate (X1), placement category 1 and 5 under GOST 15150-69.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AWGEng(A)-LS TU 16.K71-310-2001 TU 16.K180-038-2012	0.66 1 3	1-5 1 2-5 1	2.5-50 2.5-1000 2.5-240 2.5-1000	aluminum conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound inner sheath, copper tape or aluminum foil screen, low fire-hazard PVC compound sheath	Same as AWGng(A)-LS and WGng(A)-LS, but cable in common screen under sheath.
WGEng(A)-LS TU 16.K71-310-2001 TU 16.K180-038-2012	0.66 1 3	1-5 1 2-5 1	1.5-50 1.5-800 1.5-240 1.5-800	copper conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound inner sheath, copper tape or aluminum foil screen, low fire-hazard PVC compound sheath	Same as AWGng(A)-LS and WGng(A)-LS, but cable in common screen under sheath.
AWGng(A) TU 16-705.499-2010 TU 16.K180-025-2010	0.66 1 3	1-5 1 2-5 1 3	2.5-50 2.5-1000 2.5-240 2.5-1000 2.5-240	aluminum conductors, PVC compound insulation, low flammability PVC compound sheath	Designed for electrical energy transmission and distribution in stationary installations rated for AC voltage. Operation in networks with grounded or insulated neutral where continuous duration of work in the operation mode of single-phase short circuit to ground does not exceed 8 h, and overall duration of work in the operation mode of single-phase short circuit to ground does not exceed 125 h per year.
AWGng(A) TU 16.K09-169-2006	6	3	16-240	aluminum conductors, PVC compound insulation, filling, screen, low flammability PVC compound sheath	Operation in networks with grounded or insulated neutral where continuous duration of work in the operation mode of single-phase short circuit to ground does not exceed 8 h, and overall duration of work in the operation mode of single-phase short circuit to ground does not exceed 125 h per year.
WGng(A) TU 16-705.499-2010 TU 16.K180-025-2010	0.66 1 3	1-5 1 2-5 1 3	1.5-50 1.5-800 1.5-240 1.5-1000 1.5-240	copper conductors, PVC compound insulation, low flammability PVC compound sheath	Cables can be laid in conduits and underground (in trenches) in certain sections of cable routes if provided with additional protection from mechanical damage. Flame-retardant in group laying. Correspond to fire hazard class P1b.8.2.5.4. Can be laid without limitation of difference in level on the route, including vertical sections.
WGng(A) TU 16.K09-169-2006	6	3	16-240	copper conductors, PVC compound insulation, filling, screen, low flammability PVC compound sheath	Flame-retardant in group laying. Correspond to fire hazard class P1b.8.2.5.4. Can be laid without limitation of difference in level on the route, including vertical sections.
AWGng(A)-KhL TU 16.K01-37-2003	0.66 1	1-5 1 2-5	2.5-50 2.5-500 2.5-240	aluminum conductors, PVC compound insulation, low flammability PVC compound sheath	Same as AWGng(A) and WGng(A), but cold resistant cable design.
WGng(A)-KhL TU 16.K01-37-2003	0.66 1	1-5 1 2-5	1.5-50 1.5-630 1.5-240	copper conductors, PVC compound insulation, low flammability PVC compound sheath	
AWG-Png(A) TU 16-705.499-2010 TU 16.K180-025-2010	0.66 1	2 3 2 3	2.5-16 2.5-10 2.5-16 2.5-10	aluminum conductors, PVC compound insulation, low flammability PVC compound sheath	Same as AWGng(A) and WGng(A), but flat cables.
WG-Png(A) TU 16-705.499-2010 TU 16.K180-025-2010	0.66 1	2 3 2 3	1.5-16 1.5-10 1.5-16 1.5-10	copper conductors, PVC compound insulation, low flammability PVC compound sheath	
AWGEng(A) TU 16-705.499-2010 TU 16.K180-025-2010	0.66 1 3	1-5 1 2-5 1	2.5-50 2.5-1000 2.5-240 2.5-1000	aluminum conductors, PVC compound insulation, low flammability PVC compound inner sheath, screen, low flammability PVC compound sheath	Same as AWGng(A) and WGng(A), but cable in common screen under sheath.
WGEng(A) TU 16-705.499-2010 TU 16.K180-025-2010	0.66 1 3	1-5 1 2-5 1	1.5-50 1.5-800 1.5-240 1.5-800	copper conductors, PVC compound insulation, low flammability PVC compound inner sheath, screen, low flammability PVC compound sheath	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AVBShv TU 16-705.499-2010	0.66	2-5	2.5-50	aluminum conductors, PVC compound insulation, low flammability PVC compound inner sheath, tape armor, PVC compound hose	Power cables are intended for electrical energy transmission and distribution in stationary installations rated for AC voltage. For single laying of cable lines in cable structures and indoors. Fire protection is mandatory in group laying. Operation in networks with grounded or insulated neutral where continuous duration of work in the operation mode of single-phase short circuit to ground does not exceed 8 h, and overall duration of work in the operation mode of single-phase short circuit to ground does not exceed 125 h per year. Cables can be laid in conduits and underground (in trenches) in certain sections of cable routes if provided with additional protection from mechanical damage. Flame-retardant in single laying. Correspond to fire hazard class O1.8.2.5.4. Can be laid without limitation of difference in level on the route, including vertical sections.
	1	1	16-630		
	3	3	10-240		
VBShv TU 16-705.499-2010	0.66	2-5	1.5-50	copper conductors, PVC compound insulation, low flammability PVC compound inner sheath, tape armor, PVC compound hose	
	1	1	10-630		
	3	3	6-240		
AVBbShV TU 16.K180-025-2010 TU 16.K09-144-2005	0.66	1	10-50	aluminum conductors, PVC compound insulation, low flammability PVC compound inner sheath, tape armor, PVC compound hose	
	1	2-5	2.5-50		
		1	10-1000		
	3	2-5	2.5-240		
		1	6-625		
6	3	6-240			
VBbShv TU 16.K180-025-2010 TU 16.K09-144-2005	0.66	1	10-50	copper conductors, PVC compound insulation, low flammability PVC compound inner sheath, tape armor, PVC compound hose	
	1	2-5	1.5-50		
		1	10-1000		
	3	2-5	1.5-240		
		1	6-625		
6	3	6-240			
AVBbShV-KhL TU 16.K180-005-2005 TU 16.K09-144-2005	0.66	1	16-50	aluminum conductors, PVC compound insulation, low flammability PVC compound inner sheath, tape armor, PVC compound hose	
	1	2-5	2.5-50		
		1	16-1000		
	6	2-5	2.5-240		
VBbShV-KhL TU 16.K180-005-2010 TU 16.K09-144-2005	0.66	1	16-50	copper conductors, PVC compound insulation, low flammability PVC compound inner sheath, tape armor, PVC compound hose	
	1	2-5	1.5-50		
		1	16-800		
	6	2-5	1.5-240		
AVBbShp TU 16.K180-025-2010	0.66	1	10-50	aluminum conductors, PVC compound insulation, low flammability PVC compound inner sheath or PE, tape armor, PE hose	
	1	2-5	2.5-50		
		1	10-1000		
	3	2-5	2.5-240		
		1	6-625		
3	3	6-240			
VBbShp TU 16.K180-025-2010	0.66	1	10-50	copper conductors, PVC compound insulation, low flammability PVC compound inner sheath or PE, tape armor, PE hose	
	1	2-5	1.5-50		
		1	10-1000		
	3	2-5	1.5-240		
AWBG TU 16.K180-025-2010 TU 16.K09-144-2005	0.66	1	10-50	aluminum conductors, PVC compound insulation, PVC compound sheath, tape armor	Power cables are intended for electrical energy transmission and distribution in stationary installations rated for AC voltage. For single laying of cable lines in cable structures and indoors. Fire protection is mandatory in group laying. Can be laid without limitation of difference in level on the route, including vertical sections. Cables can be laid in conduits and underground (in trenches) in certain sections of cable routes if provided with additional protection from mechanical damage. Correspond to fire hazard class O1.8.2.5.4.
	1	2-5	2.5-50		
		1	10-1000		
	3	2-5	2.5-240		
		1	6-625		
6	3	6-240			
WBG TU 16.K180-025-2010 TU 16.K09-144-2005	0.66	1	10-50	copper conductors, PVC compound insulation, PVC compound sheath, tape armor	
	1	2-5	1.5-50		
		1	10-1000		
	3	2-5	1.5-240		
		1	6-625		
6	3	6-240			
AWBG-KhL TU 16.K180-005-2008 TU 16.K09-144-2005	0.66	1	16-50	aluminum conductors, PVC compound insulation, PVC compound sheath, tape armor	
	1	2-5	2.5-50		
		1	16-1000		
	6	2-5	2.5-240		
WBG-KhL TU 16.K180-005-2008 TU 16.K09-144-2005	0.66	1	16-50	copper conductors, PVC compound insulation, PVC compound sheath, tape armor	
	1	2-5	1.5-50		
		1	16-800		
	6	2-5	1.5-240		
		3	16-240		

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
ABPbShv, AVKSHv TU 16.K180-025-2010	0.66	1	10-50	aluminum conductors, PVC compound insulation, inner PVC compound sheath, wire armor, PVC compound hose	Galvanized steel armored cables are intended for laying in cable routes exposed to tensile forces during operation, including laying in seismic zones, permafrost regions and areas with seismic motion.
	1	2-5	2.5-50		
	3	1	10-1000		
VPbShv, VKSHv TU 16.K180-025-2010	0.66	1	10-50	copper conductors, PVC compound insulation, inner PVC compound sheath, wire armor, PVC compound hose	
	1	2-5	1.5-50		
	3	1	10-1000		
AVPbShp, AVKSNp TU 16.K180-025-2010	0.66	1	10-50	aluminum conductors, PVC compound insulation, inner PVC compound sheath, wire armor, PE hose	Intended for laying in cable routes exposed to tensile forces during operation, including laying in seismic zones, permafrost regions and areas with seismic motion.
	1	2-5	2.5-50		
	3	1	10-1000		
VPbShp, VKSNp TU 16.K180-025-2010	0.66	1	10-50	copper conductors, PVC compound insulation, inner PVC compound sheath, wire armor, PE hose	
	1	2-5	1.5-50		
	3	1	10-1000		
AVBShvng(A) TU 16-705.499-2010 TU 16.K01-37-2003	0.66	1	25-50	aluminum conductors, PVC compound insulation, aluminum conductors, PVC compound insulation, inner PVC compound sheath, tape armor, low flammability PVC compound hose	
	1	2-5	2.5-50		
	3	1	16-630		
VBShvng(A) TU 16-705.499-2010 TU 16.K01-37-2003	0.66	1	25-50	copper conductors, PVC compound insulation, aluminum conductors, PVC compound insulation, inner PVC compound sheath, tape armor, low flammability PVC compound hose	
	1	2-5	1.5-50		
	3	1	10-630		
AVBbShng(A) TU 16.K180-025-2010	0.66	1	10-50	aluminum conductors, PVC compound insulation, aluminum conductors, PVC compound insulation, low flammability PVC compound inner sheath, tape armor, low flammability PVC compound hose	For laying in cable structures, premises, in subway structures, including fire- and explosion-hazardous areas in the absence of tensile forces during operation, and if there is a risk of mechanical impacts on the cables. Laying in conduits and underground (trenches) on certain sections of the cable route is allowed subject to additional protection against mechanical damage. Cables are flame-retardant when laid in harnesses (GOST IEC 60332-3-22, A category).
	1	2-5	2.5-50		
	3	1	10-1000		
VBbShng(A) TU 16.K180-025-2010	0.66	1	10-50	copper conductors, PVC compound insulation, low flammability PVC compound inner sheath, tape armor, low flammability PVC compound hose	
	1	2-5	1.5-50		
	3	1	10-800		

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AVPbShng(A), AVKSNng(A) TU 16.K180-025-2010	0.66 1 3	1 2-5 1 2-5 1 3	10-50 2.5-50 10-1000 2.5-240 6-625 6-240	aluminum conductors, PVC compound insulation, low flammability PVC compound inner sheath wire armor, low flammability PVC compound hose	Power cables are intended for electrical energy transmission and distribution in stationary installations rated for AC voltage. Intended for group laying based on the flammable content in open cable structures (racks, galleries) of outdoor electrical installations.
VPbShng(A), VKSNng(A) TU 16.K180-025-2010	0.66 1 3	1 2-5 1 2-5 1 3	10-50 1.5-50 10-800 1.5-240 6-625 6-240	copper conductors, PVC compound insulation, low flammability PVC compound inner sheath, wire armor, low flammability PVC compound hose	Single-conductor armored power cables are intended for operation in DC voltage networks. Laying in conduits and underground (trenches) on certain sections of the cable route is allowed subject to additional protection against mechanical damage. Flame-retardant at group laying. Correspond to fire hazard class P1b.8.2.5.4.
AVBbShng(A) TY 16.K09-169-2006	6	3	16-240	aluminum conductors, PVC compound insulation, belt insulation with filling, screen, tape armor, low flammability PVC compound hose	
VBbShng(A) TU 16.K09-169-2006	6	3	16-240	copper conductors, PVC compound insulation, belt insulation with filling, tape armor, low flammability PVC compound hose	
AVBShvng(A)-KhL TU 16.K01-37-2003	0.66 1	1 2-5 1 2-5	25-50 2.5-50 25-630 2.5-240	aluminum conductors, PVC compound insulation, low flammability PVC compound inner sheath, tape armor, low flammability PVC compound hose	
VBSHVng(A)-KhL TU 16.K01-37-2003	0.66 1	1 2-5 1 2-5	25-50 1.5-50 25-630 1.5-240	copper conductors, PVC compound insulation, low flammability PVC compound inner sheath, tape armor, low flammability PVC compound hose	
AVBShvng(A)-LS TU 16.K71-310-2001	0.66 1 3	2-5 1 2-5 3	2.5-50 16-630 2.5-240 10-240	aluminum conductors, low fire-hazard PVC insulation, low fire-hazard inner PVC sheath, tape armor, low fire-hazard PVC hose	Low fire-hazard flame retardant cables with low smoke- and gas emission for transmission and distribution of electrical energy in stationary installations at nominal AC or DC (for single-conductor cables) voltage. For general industrial use in cable structures and premises, and for class 3, 4 nuclear station systems according to NP-001-2015 classification.
VBSHVng(A)-LS TU 16.K71-310-2001	0.66 1 3	2-5 1 2-5 3	1.5-50 10-630 1.5-240 6-240	copper conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound inner sheath, tape armor, low fire-hazard PVC compound hose	
AVBbShng(A)-LS TU 16.K09-157-2005	6	3	16-240	aluminum conductors, low fire-hazard PVC compound insulation, low fire-hazard inner PVC compound sheath, screen, tape armor, low fire-hazard PVC compound hose	
VBbShng(A)-LS TU 16.K09-157-2005	6	3	16-240	copper conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound inner sheath, screen, tape armor, low fire-hazard PVC compound hose	
AVBVng(A)-LS TU 16.K71-090-2002	1 3	1 3-5 1	50-625 2.5-240 240-625	aluminum conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound inner sheath, tape armor, low fire-hazard PVC compound hose	Low fire-hazard flame retardant cables with low smoke- and gas emission for transmission and distribution of electrical energy in stationary installations at nominal AC or DC (for single-conductor cables) voltage. For general industrial use in cable structures and premises, and for class 3, 4 nuclear station systems according to NP-001-2015 classification.
VBVng(A)-LS TU 16.K71-090-2002	1 3	1 3-5 1	50-625 1.5-240 240-625	copper conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound inner sheath tape armor, low fire-hazard PVC compound hose	
VKShvng(A)-LS TU 16.K180-038-2012	0.66 1	2-5 2-5	1.5-50 1.5-240	copper conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound filling, low fire-hazard PVC compound inner sheath, wire armor, low fire-hazard PVC compound hose	For laying in stationary electrical installations. Operation in networks with grounded or insulated neutral where continuous duration of work in the operation mode of single-phase short circuit to ground does not exceed 8 h, and overall duration of work in the operation mode of single-phase short circuit to ground does not exceed 125 h per year. Single-conductor armored power cables are intended for operation in DC voltage networks. Intended for group laying in cable structures and premises in presence of a mechanical damage hazard during operation, on routes where tensile forces can occur during operation. Flame retardant in group laying under A category.
AW TU 16-505.125-80	1	1 1	1000 1500	aluminum conductors, PVC compound insulation, PVC compound sheath	For laying in cable structures and industrial premises in absence of mechanical hazard to the cable.

PVC INSULATED POWER CABLES with aluminum alloy conductors

■ AsVVG construction

1. Aluminum alloy electric conductor.
2. Polyvinylchloride insulation.
3. Polyvinylchloride inner sheath.
4. Polyvinylchloride outer sheath.

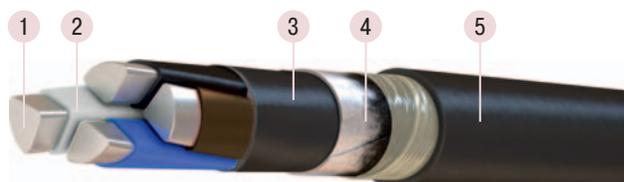


■ AsVBSHv construction

1. Aluminum alloy electric conductor.
2. Polyvinylchloride insulation.
3. Polyvinylchloride inner sheath.
4. Armor of two galvanized steel tapes.

Custom armor of two aluminum or aluminum alloy tapes is possible. In that case, index "a" is added to cable grade designation, e.g. AaVBaShv.

5. Polyvinylchloride outer sheath.



■ AsVKShv construction

1. Aluminum alloy electric conductor.
2. Polyvinylchloride insulation.
3. Polyvinylchloride inner sheath.
4. Galvanized steel wire armor.

Custom aluminum or aluminum alloy wire armor is possible. In that case, index "a" is added to cable grade designation, e.g. AsVKaShv.

5. Polyvinylchloride outer sheath.

■ AsVWGE construction

1. Aluminum alloy electric conductor.
2. Polyvinylchloride insulation.
3. Polyvinylchloride inner sheath.
4. Copper tape screen.
5. Polyvinylchloride outer sheath.

■ Area of application

Power cables are intended for transmission and distribution of electrical energy in stationary installations.

■ Specifications

Rated AC voltage at 50 Hz frequency, kV	0.66
Conductor operating temperature, °C	+70
Allowable conductor heating temperature in emergency mode, °C	+90
Maximum conductor temperature at short circuit, °C	+160
Operation in ambient temperature, °C: - cables in cold resistant design – "KhL" (frigid climate)	-50/+50 -60/+50
Minimum laying (installation) temperature, °C	-15
Cable bend radius, min., outer diameter: - single-conductor - multi-conductor	10 7.5
Service life, years	30
Guarantee period, years	5

Additional letter designations in cable grades, not specified in the Tables:

- ms (mc)** – multi-wire sector-shaped conductors,
- os (oc)** – single-wire sector-shaped conductors,
- ok (ok)** – single-wire circular conductors,
- mk (mk)** – multi-wire circular conductors,
- N** – conductor insulation color (blue),
- PE** – conductor insulation color (yellow-green).

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AsWVG TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50	aluminum alloy conductors, PVC compound insulation and outer sheath	Power cables are intended for electrical energy transmission and distribution in stationary installations rated for AC voltage. Operation in networks with grounded or insulated neutral where continuous duration of work in the operation mode of single-phase short circuit to ground does not exceed 8 h, and overall duration of work in the operation mode of single-phase short circuit to ground does not exceed 125 h per year. For single laying of cable lines in cable structures and indoors. Fire protection is mandatory at group laying. Can be laid without limitation of level difference on the route, including vertical sections. Not recommended for laying underground (in trenches). Fire hazard class O1.8.2.5.4.
	1	2; 5 3; 4 1	2.5-240 2.5-400 2.5-1000		
AsWVGng(A) TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50	aluminum alloy conductors, PVC compound insulation, low flammability PVC compound outer sheath, unarmored	Same as AsWVG, but cables can be laid in conduits and underground (in trenches) in certain sections of cable routes if provided with additional protection from mechanical damage. Cables are flame-retardant when laid in harnesses (IEC 60332-3, A category). Fire hazard class P1b.8.2.5.4.
	1	2; 5 3; 4 1	2.5-240 2.5-400 2.5-1000		
AsWVGng(A)-LS TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50	aluminum alloy conductors, low fire-hazard PVC compound insulation and outer sheath with low smoke and gas emission, unarmored	Cables are flame-retardant when laid in harnesses (IEC 60332-3, A category). Low smoke emission during combustion (IEC 61034-1, 2). Fire hazard class P1b.8.2.2.2.
	1	2; 5 3; 4 1	2.5-240 2.5-400 2.5-1000		
AsWVGng(A)-LSLTx TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50	aluminum alloy conductors, low fire-hazard PVC compound insulation and outer sheath with low smoke and gas emission and low toxicity combustion products, unarmored	For laying in office premises fitted with computing and microprocessor equipment, in kindergartens, schools, hospitals, for cable lines of mass entertainment and sports premises in absence of hazard of mechanical damage during operation. Flame retardant when laid in harnesses (IEC 60332-3, A category). Low smoke emission during combustion (IEC 61034-1, 2). Fire hazard class P1b.8.2.1.2.
	1	2; 5 3; 4 1	2.5-240 2.5-400 2.5-1000		
AsPPGng(A)-HF TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50	aluminum alloy conductors, halogen-free polymer compound insulation and outer sheath, unarmored	For laying in office premises fitted with computing and microprocessor equipment, in kindergartens, schools, hospitals, for cable lines of mass entertainment and sports premises where there are requirements to limit the impact of corrosive gases on equipment in the absence of the risk of mechanical damage during operation. Cables are flame-retardant when laid in harnesses (IEC 60332-3 A category). Low smoke emission during combustion (IEC 61034-1, 2). Gas and smoke emission products are corrosive (GOST R IEC 60754-2). Fire hazard class P1b.8.1.2.1.
	1	2; 5 3; 4 1	2.5-240 2.5-400 2.5-1000		
AsVBSshv TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50 2.5-50 (2.5-50)*	aluminum alloy conductors, PVC compound insulation and protective hose armored with galvanized steel tapes	Same as AsWVG, but cables can be laid in conduits and underground (in trenches).
	1	2; 5 3; 4 1	2.5-240 2.5-400 (2.5-800)*		
AsVBSshvng(A) TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50 2.5-50 (2.5-50)*	aluminum alloy conductors, PVC compound insulation, protective low flammability PVC compound hose armored with galvanized steel tapes	Same as AsWVGng(A), but cables can be laid in conduits and underground (in trenches).
	1	2; 5 3; 4 1	2.5-240 2.5-400 (2.5-800)*		
AsVBSshvng(A)-LS TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50 2.5-50 (2.5-50)*	aluminum alloy conductors, low fire-hazard PVC compound insulation and protective hose with low smoke and gas emission with galvanized steel tapes	Same as AsWVGng(A)-LS, in presence of mechanical hazard during operation.
	1	2; 5 3; 4 1	2.5-240 2.5-400 (2.5-800)*		
AsVBSshvng(A)-LSLTx TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50 2.5-50 (2.5-50)*	aluminum alloy conductors, low fire-hazard PVC compound insulation and protective hose with low smoke and gas emission and low combustion products toxicity armored with galvanized steel tapes	Same as AsWVGng(A)-LSLTx, in presence of mechanical hazard during operation
	1	2; 5 3; 4 1	2.5-240 2.5-400 (2.5-800)*		

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AsPBPng(A)-HF TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50 2.5-50 (2.5-50)*	aluminum alloy conductors, halogen-free polymer compound insulation and outer sheath armored with galvanized steel tapes	Same as AsWGng(A), in presence of mechanical hazard during operation
	1	2; 5 3; 4 1	2.5-240 2.5-400 (2.5-800)*		
AsVKShv TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50 2.5-50 (2.5-50)*	aluminum alloy conductors and protective PVC compound hose armored with galvanized steel wires	Same as AsVBSHV in presence of tensile forces during operation
	1	2; 5 3; 4 1	2.5-240 2.5-400 (2.5-800)*		
AsVKShvng(A) TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50 2.5-50 (2.5-50)*	aluminum alloy conductors, PVC compound insulation, protective low flammability PVC compound hose armored with galvanized steel wires	Same as AsVBSHVng(A) in presence of tensile forces during operation
	1	2; 5 3; 4 1	2.5-240 2.5-400 (2.5-800)*		
AsVKShvng(A)-LS TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50 2.5-50 (2.5-50)*	aluminum alloy conductors, low fire-hazard PVC compound insulation and outer sheath with low smoke and gas emission, screened	Same as AsVBSHVng(A)-LS in presence of tensile forces during operation
	1	2; 5 3; 4 1	2.5-240 2.5-400 (2.5-800)*		
AsVKShvng(A)-LSLTx TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50 2.5-50 (2.5-50)*	aluminum alloy conductors, low fire-hazard PVC compound insulation and protective hose with low smoke and gas emission and low combustion products toxicity armored with galvanized steel wires	Same as AsVBSHVng(A)-LSLTx in presence of tensile forces during operation
	1	2; 5 3; 4 1	2.5-240 2.5-400 (2.5-800)*		
AsPKPng(A)-HF TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50 2.5-50 (2.5-50)*	aluminum alloy conductors, halogen-free polymer compound insulation and outer sheath armored with galvanized steel wires	Same as AsVBSHVng(A)-HF in presence of tensile forces during operation
	1	2; 5 3; 4 1	2.5-240 2.5-400 (2.5-800)*		
AsWGE TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50	aluminum alloy conductors, PVC compound insulation and outer sheath, screened	Same as AsWG, if electrical circuits are to be protected from influence of external electrical fields
	1	2; 5 3; 4 1	2.5-240 2.5-400 2.5-1000		
AsWGEng(A) TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50	aluminum alloy conductors, PVC compound insulation, low flammability PVC compound outer sheath, screened	Same as AsWGng(A), if electrical circuits are to be protected from influence of external electrical fields
	1	2; 5 3; 4 1	2.5-240 2.5-400 2.5-1000		
AsWGEng(A)-LS TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50	aluminum alloy conductors, low fire-hazard PVC compound insulation and outer sheath with low smoke and gas emission, screened	Same as AsWGng(A)-LS, if electrical circuits are to be protected from influence of external electrical fields
	1	2; 5 3; 4 1	2.5-240 2.5-400 2.5-1000		
AsWGEng(A)-LSLTx TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50	aluminum alloy conductors, low fire-hazard PVC compound insulation and outer sheath with low smoke and gas emission and low combustion products toxicity, screened	Same as AsWGng(A)-LSLTx, if electrical circuits are to be protected from influence of external electrical fields
	1	2; 5 3; 4 1	2.5-240 2.5-400 2.5-1000		

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AsPPGEng(A)-HF TU 16.K180-053-2017	0.6	2; 5 3; 4 1	2.5-50	aluminum alloy conductors, halogen-free polymer compound insulation and outer sheath, screened	Same as AsWVGng(A)-HF, if electrical circuits are to be protected from influence of external electrical fields
	1	2; 5 3; 4 1	2.5-240 2.5-400 2.5-1000		

Notes:

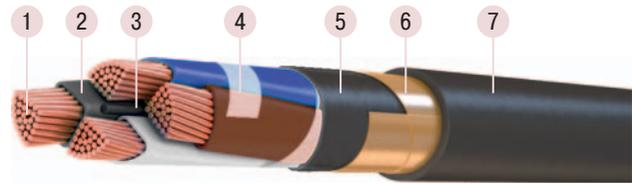
1. Letter “-T” is added to cable grade designation for tropical design.
 2. Letter “-П” (“-P”) is added to cable grade designation for flat design.
 3. Letters “-ХЛ” (“-KhL”) are added to cable grade designation for cold resistant design.
 4. Digital designation of rated cross-section in the cable grade is followed by indices describing electric conductors’ design:
 - single-wire (o);
 - multi-wire (m);
 - circular (k);
 - segmented (s).
 5. Digital designation of rated cross-section in the cable grade is followed by letters “up” in presence of an armor aramid thread.
- * If overlaid with galvanized steel tape or wire armor – in DC networks, if overlaid with aluminum or aluminum alloy wire or tape armor – in AC and DC networks.

POWER CABLES

with cross-linked polyethylene (XLPE) insulation rated for the voltage to 3 kV inclusive

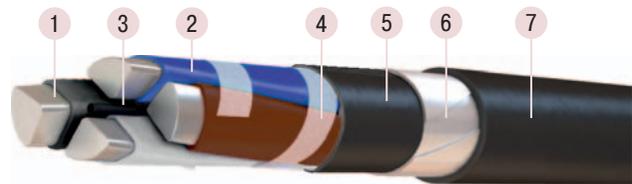
■ PwGng(A)-LS construction

1. Electric conductor.
2. Cross-linked polyethylene insulation.
3. Filling.
4. Tightening winding.
5. Extruded low fire-hazard inner PVC compound sheath.
6. Mica-containing tape winding.
7. Low fire-hazard PVC compound outer sheath.



■ APvBShp construction

1. Electric conductor.
2. Cross-linked polyethylene insulation.
3. Filling.
4. Tightening winding.
5. Extruded inner sheath.
6. Armor of two galvanized steel tapes.
7. Polyethylene outer sheath.



■ Area of application

Cables correspond to the main requirements of the international standard IEC 60502 and CENELEC HD 603 S1/1994/A2:2003 technical committee harmonized document.

■ Specifications

Rated AC voltage at 50 Hz frequency, kV	0.66	1.0	3.0
Maximum AC voltage at 50 Hz frequency, kV	0.72	1.2	3.6
Test AC voltage at 50 Hz frequency, 10 min, kV	3.0	3.5	9.5
Conductor continuous heating temperature, °C		+90	
Conductor heating temperature under overload, °C		+130	
Maximum short circuit temperature during 4 sec, °C		+250	
Ambient temperature for cables with outer PVC compound sheath, °C		-50/+50	
Ambient temperature for cables with outer polyethylene sheath, °C		-60/+50	
Air humidity at +35 °C, %		98	
Minimum laying (installation) temperature, °C		-15	
- for cables with outer PVC compound sheath		-20	
- for cables with outer polyethylene sheath			
Cable bend radius, outer diameter:			
- single-conductor		10	
- multi-conductor		7,5	
Service life, years		30	
Guarantee period, years		5	

Additional letter designations in cable grades, not specified in the Tables:

- ozh (ox)** – single-wire conductors,
- ms (mc)** – multi-wire sector-shaped conductors,
- os (oc)** – single-wire sector-shaped conductors,
- ok (ok)** – single-wire circular conductors,
- mk (mk)** – multi-wire circular conductors,
- N** – conductor insulation color (blue),
- PE** – conductor insulation color (yellow-green).

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
APWG, PwVG TU 16-705.499-2010 IEC 60502	0.66 1	1-5 1	10-50 10-630	aluminum or copper conductors, XLPE insulation, PVC compound sheath	Designed for electrical energy transmission and distribution in stationary installations rated for AC voltage, for single laying of cable lines in cable structures and indoors. Fire protection is mandatory in group laying. Operation in networks with grounded or insulated neutral where continuous duration of work in the operation mode of single-phase short circuit to ground does not exceed 8 h, and overall duration of work in the operation mode of single-phase short circuit to ground does not exceed 125 h per year. Can be laid without limitations of difference in level, including vertical sections
TU 16.K180-025-2010	3	2-5 1 3	10-240 10-630 10-240		
APWGE, PwGE TU 16-705.499-2010 TU 16.K180-025-2010 IEC 60502	0.66 1	1-5 1	10-50 10-630	aluminum or copper conductors, XLPE insulation, copper screen, PVC compound sheath	
TU 16.K180-025-2010	3	2-5 1	10-240 10-630		
APvBShv, PvBShv TU 16-705.499-2010 IEC 60502	0.66 1	2-5 1	10-50 10-630	aluminum or copper conductors, XLPE insulation, galvanized steel or steel tape armor, PVC compound protective hose	
TU 16.K180-025-2010	3	2-5 3	10-240 10-630		
APvBbShv, PvBbShv TU 16.K180-025-2010	0.66 1	1-5 1	10-50 10-630		
TU 16.K180-025-2010	3	2-5 1 3	10-240 10-630 10-240		
APvPbShv, APvKShv, PvPbShv, PvKShv TU 16.K180-025-2010	0.66 1	1-5 1	10-50 10-630	aluminum or copper conductors, XLPE insulation, galvanized steel wire armor, PVC compound protective hose	
TU 16.K180-025-2010	3	2-5 1 3	10-240 10-630 10-240		
APWGng(B), PwGng(B) TU 16.K01-37-2003	0.66 1	1-5 1	10-50 10-630	aluminum or copper conductors, XLPE insulation, low flammability PVC compound sheath	Designed for electrical energy transmission and distribution in stationary installations rated for AC voltage. Intended for group laying based on the flammable content in open cable structures (racks, galleries) of outdoor electrical installations. Single-conductor armored power cables are intended for operation in DC voltage networks
APvBShvng(B), PvBShvng(B) TU 16-705.499-2010	3	2-5 1 3	10-240 10-630 10-240	aluminum or copper conductors, XLPE insulation, low flammability PVC compound sheath	
APWGng(A)-LS TU 16.K71-090-2002 TU 16.K71-277-98 TU 16.K180-045-2014 IEC 60502	1	1 1-5 1 3; 3+1; 4 2; 5	2.5-240 16-630 2.5-630 2.5-400 2.5-240	aluminum conductors, XLPE insulation, low fire-hazard PVC compound sheath	Flame retardant cables with low smoke- and gas emission for transmission and distribution of electrical energy in stationary installations at nominal AC or DC voltage. For general industrial use in cable structures and subways. Fire hazard class according to GOST 31565-2012 – P1b.8.2.2.2 classification. Operation in networks with grounded or insulated neutral where continuous duration of work in the operation mode of single-phase short circuit to ground does not exceed 8 h, and overall duration of work in the operation mode of single-phase short circuit to ground does not exceed 125 h per year
PwGng(A)-LS TU 16.K71-090-2002 TU 16.K71-277-98 TU 16.K180-045-2014 IEC 60502	1	1 1-5 1 3; 3+1; 4 2; 5	1.5-50 16-630 1.5-630 1.5-400 1.5-240	copper conductors, XLPE insulation, low fire-hazard PVC compound sheath	
APWGEg(A)-LS TU 16.K180-045-2014 IEC 60502	1	1 1-5 1 3; 3+1; 4 2; 5	2.5-240 16-630 16-630 2.5-400 2.5-240	aluminum conductors, XLPE insulation, screen of copper tape or copper wire bound by copper tape or copper wire skein, low fire-hazard outer PVC compound sheath	
PwGEng(A)-LS TU 16.K180-045-2014 IEC 60502	1	1 1-5 1 3; 3+1; 4 2; 5	1.5-50 16-630 16-630 1.5-400 1.5-240	copper conductors, XLPE insulation, screen of copper tape or copper wire bound by copper tape or copper wire skein, low fire-hazard outer PVC compound sheath	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PWEng(A)-LS TU 16.K180-045-2014 IEC 60502	1	1 1-5 1 3; 3+1; 4 2; 5	1.5-50 16-630 16-630 1.5-400 1.5-240	copper conductors, XLPE insulation, screen of copper tape or copper wire bound by copper tape or copper wire skein, low fire-hazard outer PVC compound sheath	Flame retardant cables with low smoke- and gas emission for transmission and distribution of electrical energy in stationary installations at nominal AC or DC voltage. For general industrial use in cable structures and subways.
APvBShvng(A)-LS TU 16.K71-277-98 TU 16.K180-045-2014 IEC 60502	1	1 1-5 1 3; 3+1; 4 2; 5	2.5-240 16-630 16-630 2.5-400 2.5-240	aluminum conductors, XLPE insulation, galvanized steel tape armor, low fire-hazard PVC compound protective hose	Fire hazard class according to GOST 31565-2012 – P1b.8.2.2.2 classification. Operation in networks with grounded or insulated neutral where continuous duration of work in the operation mode of single-phase short circuit to ground does not exceed 8 h, and overall duration of work in the operation mode of single-phase short circuit to ground does not exceed 125 h per year.
APvBVng(A)-LS TU 16.K71-090-2002 TU 16.K180-045-2014 IEC 60502					Single-conductor armored power cables are intended for operation in DC voltage networks.
PvBShvng(A)-LS TU 16.K180-045-2014 IEC 60502	1	1 1-5 1 3; 3+1; 4 2; 5	1.5-50 16-630 16-630 1.5-400 1.5-240	copper conductors, XLPE insulation, galvanized steel tape armor, low fire-hazard PVC compound protective hose	Cables armored with steel wire or aluminum/aluminum alloy wire are intended for laying in cable routes exposed to tensile forces during operation, including laying in seismic zones, permafrost regions and areas with seismic motion, in fill-up and swampy soils.
PvBVng(A)-LS TU 16.K180-045-2014 IEC 60502					
APvKShvng(A)-LS TU 16.K180-045-2014 IEC 60502	1	1 1-5 1 3; 3+1; 4 2; 5	2.5-240 16-630 16-630 2.5-400 2.5-240	aluminum conductors, XLPE insulation, galvanized steel wire armor, low fire-hazard PVC compound protective hose	
PvKShvng(A)-LS TU 16.K180-045-2014 IEC 60502	1	1 1-5 1 3; 3+1; 4 2; 5	1.5-50 16-630 16-630 1.5-400 1.5-240	copper conductors, XLPE insulation, galvanized steel wire armor, low fire-hazard PVC compound protective hose	
APvPG, PvPG TU 16.K180-025-2010	0.66 1 3	1-5 1 2-5 1 3	10-50 10-630 10-240 10-630 10-240	aluminum or copper conductors, XLPE insulation, polyethylene sheath	Intended for single cable line laying. Can be laid in cable structures provided with additional fire protection (application of fire-resistant coatings). Can be laid without limitations of difference in level, including vertical sections.
APvPGE, PvPGE TU 16.K180-025-2010	0.66 1	1-5 1 2-5	10-50 10-630 10-240	aluminum or copper conductors, XLPE insulation, copper screen, polyethylene sheath	Armored cables can be laid underground (in trenches) regardless of corrosive activity of the soils and underground waters, with present or absent stray currents, if they are not subject to excessive tensile forces during operation. Cables can be laid via non-navigated rivers and water bodies if submerged in soil
APvBShp, PvBShp TU 16-705.499-2010	0.66 1 3	2-5 1 2-5 3	10-50 10-630 10-240 10-240	aluminum or copper conductors, XLPE insulation, galvanized steel tape armor, polyethylene protective hose	
APvBbShp, PvBbShp TU 16.K180-025-2010	0.66 1 3	1-5 1 2-5 1 3	10-50 10-630 10-240 10-630 10-240		
APvBbShp(g), PvBbShp(g) TU 16.K71-277-98 IEC 60502	1	3; 4; 5	10-240	same, with water blocking elements	

POWER CABLES

with cross-linked polyethylene (XLPE) insulation rated for the voltage from 6 to 35 kV

■ APvP2g construction

1. Aluminium conductor.
2. Conductor screen of semiconducting cross-linked polyethylene.
3. Cross-linked polyethylene insulation.
4. Insulation screen of semiconducting cross-linked polyethylene.
5. Water-blocking layer.
6. Copper wire screen.
7. Water-blocking layer.
8. Alumopolymer tape layer.
9. Polyethylene sheath.



■ PvVng-LS construction

1. Copper conductor.
2. Conductor screen of semiconducting cross-linked polyethylene.
3. Cross-linked polyethylene insulation.
4. Insulation screen of semiconducting cross-linked polyethylene.
5. Separating conductive layer.
6. Copper wire screen.
7. Heat barrier.
8. PVC sheath of low flammability.



■ Specifications

Rated AC voltage, 50 Hz frequency, kV	6-35
Conductor operating temperature, °C	+90
Permissible heating temperature of the conductors operating in emergency mode, °C	+130
Permissible conductor short-circuit temperature, °C	+250
Operating temperature range, °C:	
- PW, APvW, PvVng-LS, APvVng-LS cables	-50/+50
- PvP, APvP, PvPu, APvPu cables	-60/+50
Cables shall be laid without preheating at temperatures not lower than, °C:	
- PW, APvW, PvVng-LS, APvVng-LS cables	-15
- PvP, APvP, PvPu, APvPu cables	-20
Cable bend radius, outer diameter:	
- single-core	15 (7.5')
- three-core	12
Service life, years	30
Guarantee period in years	5

* - when installing single-core cables using a special template.

Additional letter designations in cable types, including those not specified in the tables:

- ms** – multi-wire sector-shaped conductors,
- ok** – single-wire round conductors,
- mk** – multi-wire round conductors,
- gzh** – sealed conductors,
- ov** – optical module,
- p** – sheath conducting layer*.

* At the request of the customer(consumer), it is possible to apply a conductive layer on the surface of the outer polyethylene sheath. This shall be specified when ordering.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
APvAP or NA2XA2Y or A2XA2Y, PvAP or N2XA2Y or 2XA2Y TU 16.K180-014-2009	6-35	1	50-800 Note: nominal cross-section of conductors shall be specified when ordering	aluminum or copper conductors; conductor screen; XLPE insulation; insulation screen; separating layer of conductive water-blocking tapes; aluminum or aluminum alloy sheath; polyethylene outer sheath	For ground (in trenches) and water (in non-navigable reservoirs) laying while adhering to measures excluding mechanical damage to the cable. Intended for ground laying, regardless of the degree of corrosivity of soils. The aerial laying is allowed, including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings. Cables are intended to be laid on routes without limitations of difference in level.
APvAPu, PvAPu TU 16.K180-014-2009	6-35	1	50-800 Note: nominal cross-section of conductors shall be specified when ordering	aluminum or copper conductors; conductor screen; XLPE insulation; insulation screen; separating layer of conductive water-blocking tapes; aluminum or aluminum alloy sheath; reinforced polyethylene outer sheath	For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
APvAV or NA2XAY or A2XAY, PvAV or N2XAY or 2XAY TU 16.K180-014-2009	6-35	1	50-800 Note: nominal cross-section of conductors shall be specified when ordering	aluminum or copper conductors; conductor screen; XLPE insulation, insulation screen, separating layer of conductive water-blocking tapes; aluminum or aluminum alloy sheath; PVC outer sheath	For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
APvSP or NA2K2Y or A2XK2Y, PvSP or N2XK2Y or 2XK2Y TU 16.K180-014-2009	6-35	1	50-800 Note: nominal cross-section of conductors shall be specified when ordering	aluminum or copper conductors; conductor screen; XLPE insulation; insulation screen, separating layer of conductive water-blocking tapes; lead alloy sheath; polyethylene outer sheath	For ground (in trenches) and water (in non-navigable reservoirs) laying while adhering to measures excluding mechanical damage to the cable. Intended for ground laying, regardless of the degree of corrosivity of soils. The aerial laying is allowed, including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings. Cables are intended to be laid on routes without limitations of difference in level.
APvSPu, PvSPu TU 16.K180-014-2009	6-35	1	50-800 Note: nominal cross-section of conductors shall be specified when ordering	aluminum or copper conductors; conductor screen; XLPE insulation; insulation screen; separating layer of conductive water-blocking tapes; lead alloy sheath; reinforced polyethylene outer sheath	For stationary ground laying (in trenches) regardless of the degree of corrosivity, if the cable is protected from mechanical damage. Cables with the indexes "g" and "2g" are intended to be laid in soils with high moisture content and wet, often flooded structures as well as in non-navigable and navigable reservoirs in agreement with the manufacturer while adhering to the measures that exclude mechanical damage to the cable. The aerial laying is allowed, including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings.
PvP, APvP, PvPg, APvPg, PvP2g, APvP2g, PvPu, APvPu, PvPug, APvPug, PvPu2g, APvPu2g, PvPgzh, APvPgzh, PvP2gzh, APvP2gzh, PvPugzh, APvPugzh, PvPu2gzh, APvPu2gzh TU 16.K71-335-2004 TU 16.K71-359-2005 TU 16. K180-014-2009 IEC 60 502-2,1997	6; 10; 15 20; 30; 35	1 1	35-1000 50-1000	aluminum or copper conductor; longitudinal sealing of conductors with water-blocking threads or conductive water-blocking tape (for cables with the "gzh" index); conductor screen; XLPE insulation; insulation screen; separating semiconducting layer or semiconducting water-blocking layer (for PvPg, APvPg, PvP2g, APvP2g); helically laid copper wire screen; separating layer or layer of semiconducting water-blocking tapes and alumopolymer tape (for cables with the "2g" index); polyethylene inner sheath; polyethylene or reinforced polyethylene sheath with longitudinal stiffeners or with an increased sheath thickness (for cables with the "u" index)	For stationary ground laying (in trenches) regardless of the degree of corrosivity, if the cable is protected from mechanical damage. Cables with the indexes "g" and "2g" are intended to be laid in soils with high moisture content and wet, often flooded structures as well as in non-navigable and navigable reservoirs in agreement with the manufacturer while adhering to the measures that exclude mechanical damage to the cable. The aerial laying is allowed, including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings.
PvP, APvP, PvPg, APvPg, PvP2g, APvP2g, PvPu, APvPu, PvPug, APvPug, PvPu2g, APvPu2g, PvPgzh, APvPgzh, PvP2gzh, APvP2gzh, PvPugzh, APvPugzh, PvPu2gzh, APvPu2gzh TU 16.K71-335-2004 TU 16.K71-359-2005 TU 16.K180-014-2009 IEC 60 502-2	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductor; longitudinal sealing of conductors with water-blocking threads or conductive water-blocking tape (for cables with the "gzh" index); conductor screen; XLPE insulation; insulation screen; separating semiconducting layer or semiconducting water-blocking layer (for PvPg, APvPg, PvP2g, APvP2g); helically laid copper wire screen; three conductors twisted around the core (water-blocking threads in the core of cables with the indexes "g" and "2g" are allowed); interphase gap filling of chalk-filled rubber mix; separating layer of alumopolymer tape (for cables with the "2g" index); polyethylene or reinforced polyethylene sheath with longitudinal stiffeners or with an increased sheath thickness (for cables with "u" index)	For stationary ground laying (in trenches) regardless of the degree of corrosivity, if the cable is protected from mechanical damage. Cables with the indexes "g" and "2g" are intended to be laid in soils with high moisture content and wet, often flooded structures as well as in non-navigable and navigable reservoirs in agreement with the manufacturer while adhering to the measures that exclude mechanical damage to the cable. The aerial laying is allowed, including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvBP, APvBP, PvBPg, APvBPg, PvBPu, APvBPu, PvBPug, APvBPug, PvBPu2g, APvBPu2g, PvBP2g, APvBP2g, PvBPgzh, APvBPgzh, PvBP2gzh, APvBP2gzh, PvBPugzh, APvBPugzh, PvBPu2gzh, APvBPu2gzh TU 16.K71 -335-2004 TU 16.K71 -359-2005 TU 16.K180-014-2009 IEC 60 502-2	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductor; longitudinal sealing of conductors with water-blocking threads or conductive water-blocking tape (for cables with "gzh" index; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer (for PvBPg, APvBPg, PvBPug, APvBPug); helically laid copper wire screen; three conductors twisted around the core (in cables with the "g" index, water-blocking threads in the core are allowed; interphase gap filling of chalk-filled rubber mix; polyethylene inner sheath; galvanized steel tape armor; polyethylene or reinforced polyethylene sheath with longitudinal stiffeners or with an increased sheath thickness (for cables with "u" index)	For ground laying (in trenches), except for heaving and subsidence soils. Cables with the indexes "g" and "2g" are intended to be laid in soils with high moisture content and wet, often flooded structures as well as in non-navigable and navigable reservoirs in agreement with the manufacturer while adhering to the measures that exclude mechanical damage to the cable. The aerial laying is allowed, including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings.
PvKP, APvKP, PvKPg, APvKPg, PvKP2g, APvKP2g, PvKpu, APvKpu, PvKPug, APvKPug, PvKpu2g, APvKpu2g, PvKpgzh, APvKpgzh, PvKP2gzh, APvKP2gzh, PvKPugzh, APvKPugzh, PvKpu2gzh, APvKpu2gzh TU 16.K180-014-2009 IEC 60 502-2	6; 10; 15 20; 30; 35	1 1	35-1000 50-1000	aluminum or copper conductor; longitudinal sealing of conductive cores with water-blocking threads or winding with conductive water-blocking tape (for cables with "gzh" index); conductor screen; XLPE insulation; insulation screen; separating semiconducting layer or semiconducting water-blocking layer (for PvKpg, APvKpg, PvKP2g, APvKP2g, PvKPug, APvKPug, PvPu2g, APvPu2g); helically laid copper wire screen; separating layer, or a layer of semiconducting water-blocking tapes and alumopolymer tape (for cable with "2g" index); polyethylene inner sheath; wire armor of aluminum (a) or aluminum alloy (s); polyethylene or reinforced polyethylene sheath with longitudinal stiffeners or with an increased sheath thickness (for cables with "u" index)	For group laying in cable structures, industrial premises and places where mechanical impacts on the cable, including tensile, are possible. Cables with the indexes "g" and "2g" are intended to be laid in soils with high moisture content and wet, often flooded structures as well as in non-navigable and navigable reservoirs in agreement with the manufacturer while adhering to the measures that exclude mechanical damage to the cable. The aerial laying is allowed, including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings.
PvKP, APvKP, PvKPg, APvKPg, PvKP2g, APvKP2g, PvKpu, APvKpu, PvKPug, APvKPug, PvKpu2g, APvKpu2g, PvKpgzh, APvKpgzh, PvKP2gzh, APvKP2gzh, PvKPugzh, APvKPugzh, PvKpu2gzh, APvKpu2gzh TU 16. K180-014-2009 IEC 60 502-2	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductor; longitudinal sealing of conductors with water-blocking threads or conductive water-blocking tape (for cables with "gzh" index; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer or semiconducting water-blocking layer (for PvKpg, APvBPg, PvKPug, APvBPug, PvKP2g, APvKP2g, PvKpu2g, APvKpu2g); helically laid copper wire; three conductors twisted around the core (in cables with "g" and "2g" index, water-blocking threads in the core are allowed); interphase gap filling of chalk-filled rubber mix; polyethylene inner sheath; galvanized steel wire armor; water-blocking layer and alumopolymer tape layer (for cable with "2g" index); polyethylene or reinforced polyethylene sheath with longitudinal stiffeners or with an increased sheath thickness (for cables with "u" index)	For group laying in cable structures, industrial premises and places where mechanical impacts on the cable, including tensile, are possible. Cables with the indexes "g" and "2g" are intended to be laid in soils with high moisture content and wet, often flooded structures as well as in non-navigable and navigable reservoirs in agreement with the manufacturer while adhering to the measures that exclude mechanical damage to the cable. The aerial laying is allowed, including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings.
Notes: 1. In cables armored with aluminum wires, the index "a" is added to the cable type designation, for example, APvKaP 1x50/16-6. 2. In cables armored with aluminum alloy wires, the index "s" is added to the cable type designation, for example, APvKsP 1x50/16-6.					
PW, APW TU 16.K71 -335-2004 TU 16.K71-359-2005 TU 16. K180-014-2009 IEC 60 502-2	6; 10; 15 20; 30; 35	1 1	35-1000 50-1000	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; separating layer; PVC sheath	For single laying of cable lines in cable structures and industrial premises
	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; a screen of copper wires fastened with copper tape wound on each core; three conductors twisted around the core; interphase gap filling of chalk-filled rubber mix; PVC sheath	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvWng, APvWng TU 16.K180-014-2009	6; 10; 15 20; 30; 35	1 1	35-1000 50-1000	aluminum or copper conductors; conductor screen; XLPE insulation; insulation screen; separating layer of conductive tapes; screen of copper wires; separating layer of flame retardant tape; fire-resistant PVC inner sheath (for category A cables); thermal barrier of copper or aluminum tape, or flame retardant tapes (for category A cables); fire-resistant PVC outer sheath	For group laying in cable structures and industrial premises, provided that there is no danger of mechanical damage. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level. Cables of PvWng type may be used for laying in explosion hazard zones of V-1, V-1a classes. Cables of APvWng type may be used for laying in explosion hazard zones of V-16, V-1g, V-II, V-Na classes.
Notes: 1. Depending on the limit of the fire spreading according to the classification of GOST 31565, the following indexes are added to the cable type designation: A – PRGP 1b fire spreading limit, for example, PvWng(A); B – PRGP 2 fire spreading limit, for example, PvWng(V). 2. Index (B) in the cable type designation can be omitted. 3. In the manufacture of cables with a screen sealing, the indexes "g" or "2g" are added to the cable type designation, for example, PvWng(A); with longitudinal conductor sealing and screen sealing, the indexes "gzh" or "2gzh" are added, for example, Pv2pkng(A).	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductors; conductor screen; XLPE insulation; insulation screen; separating layer of conductive tapes; screen of copper wires; cores twisted around the core; separating layer of fire-resistant PVC; fire-resistant PVC outer sheath	
	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductors; conductor screen; XLPE insulation; insulation screen; separating layer of conductive tapes; screen of copper wires; separating layer of flame retardant tape; fire-resistant PVC inner sheath (for category A cables); thermal barrier of copper or aluminum tape, or flame retardant tapes (for category A cables); fire-resistant PVC outer sheath	
PvWng-LS, APvWng-LS TU 16.K71-335-2004 TU 16.K71-359-2005 TU 16.K180-014-2009	6; 10; 15 20; 30; 35	1 1	35-1000 50-1000	aluminum or copper conductors; conductor screen; XLPE insulation; insulation screen; separating layer of conductive tapes; screen of copper wires; separating layer of flame retardant tape; fire-resistant PVC inner sheath (for category A cables); thermal barrier of copper or aluminum tape, or flame retardant tapes (for category A cables); fire-resistant PVC outer sheath	For group laying in cable structures and industrial premises, provided that there is no danger of mechanical damage. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level. Cables of the PvWng-LS type may be used for laying in explosion hazard zones of V-1, V-1a classes. Cables of the APvWng-LS type may be used for laying in explosion hazard zones of V-16, V-1g, V-II, V-Na classes.
Notes: 1. Depending on the limit of the fire spreading according to the classification of GOST 31565, the following indexes are added to the cable type designation: A – PRGP 1b fire spreading limit, for example, PvWng(A)-LS; B – PRGP 2 fire spreading limit, for example, PvBpng(B)-LS. 2. In the manufacture of cables with a screen sealing, the indexes "g" or "2g" are added to the cable type designation, for example, PvWng(A)-LS; with longitudinal conductor sealing and screen sealing, the indexes "gzh" or "2gzh" are added, for example, Pv2gzhng(A)-LS.	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductors; conductor screen; XLPE insulation; insulation screen; separating layer of conductive tapes; screen of copper; cores twisted around the core; separating layer of fire-resistant PVC; fire-resistant PVC outer sheath	
	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; three conductors twisted around the core; interphase gap filling of chalk-filled rubber mix; PVC inner sheath; galvanized steel tape armor; PVC sheath	For laying single cable lines in cable structures, in places where mechanical impacts on the cable are possible, with the exception of tensile forces
PvBV, APvBV TU 16.K71-335-2004 TU 16.K71-359-2005 TU 16.K180-014-2009 IEC 60 502-2	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; three conductors twisted around the core; interphase gap filling and fire-resistant PVC inner sheath; galvanized steel tape armor; fire-resistant PVC sheath	For group laying of cable lines in cable structures, in places where mechanical effects on the cable are possible, except for tensile forces
Notes: 1. Depending on the limit of the fire spreading according to the classification of GOST 31565, the following indexes are added to the cable type designation: A – PRGP 1b fire spreading limit, for example, PvBVng(A); B – PRGP 2 fire spreading limit, for example, PvBVng(B). 2. Index (B) in the cable type designation can be omitted.	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; three conductors twisted around the core; interphase gap filling and fire-resistant PVC inner sheath; galvanized steel tape armor; fire-resistant PVC sheath	
	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; three conductors twisted around the core; interphase gap filling and fire-resistant PVC inner sheath; galvanized steel tape armor; fire-resistant PVC sheath	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvBVng-LS, APvBVnt-LS TU 16.K71-335-2004 TU 16.K71-359-2005 TU 16.K180-014-2009 IEC 60 502-2	6; 10; 15 20; 30; 35	3 3	35-1000 50-1000	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; three conductors twisted around the core; interphase gap filling and fire-resistant PVC inner sheath; galvanized steel tape armor; fire-resistant PVC sheath	For group laying of cable lines in cable structures, in places where mechanical effects on the cable are possible, except for tensile forces
Note: Depending on the limit of the fire spreading according to the classification of GOST 31565, the following indexes are added to the cable type designation: A – PRGP 1b fire spreading limit, for example, PvBVng(A)-LS B – PRGP 2 fire spreading limit, for example, PvBVng(B)-LS	6; 10; 15 20; 30; 35	1 1	35-1000 50-1000	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; separating layer; PVC inner sheath; wire armor of aluminum or aluminum alloy; PVC sheath	For laying single cable lines in cable structures, in places where mechanical impacts on the cable are possible, with the exception of tensile forces
	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; three conductors twisted around the core; interphase gap filling of chalk-filled rubber mix; PVC inner sheath; galvanized steel wire armor; PVC sheath	
PvKV, APvKV TU 16. K180-014-2009 IEC 60 502-2 Notes: 1. In cables armored with aluminum wires, the index "a" is added to the cable type designation, for example, APvKaV. 2. In cables armored with aluminum alloy wires, the index "s" is added to the cable type designation, for example, APvKsV.	6; 10; 15 20; 30; 35	1 1	35-1000 50-1000	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; separating layer; fire-resistant PVC inner sheath; wire armor of aluminum or aluminum alloy; fire-resistant PVC sheath	For group laying of cable lines in cable structures, in places where mechanical effects on the cable are possible, including tensile forces
	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; three conductors twisted around the core; interphase gap filling and fire-resistant PVC inner sheath; galvanized steel wire armor; fire-resistant PVC sheath	
PvKVng, APvKVng TU 16. K180-014-2009 IEC 60 502-2 Notes: 1. Depending on the limit of the fire spreading according to the classification of GOST 31565, the following indexes are added to the cable type designation: A – PRGP 1b fire spreading limit, for example, PvKVng(A); B – PRGP 2 fire spreading limit, for example, PvKVng(B). 2. Index (B) in the cable type designation can be omitted. 3. In cables armored with aluminum wires, the index "a" is added to the cable type designation, for example, APvKaVng(A). 4. In cables armored with aluminum alloy wires, the index "s" is added to the cable type designation, for example, APvKsVng(A).	6; 10; 15 20; 30; 35	1 1	35-1000 50-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; separating layer; fire-resistant PVC inner sheath; wire armor of aluminum or aluminum alloy; fire-resistant PVC sheath	For group laying of cable lines in cable structures, in places where mechanical effects on the cable are possible, including tensile forces
	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; three conductors twisted around the core; interphase gap filling and fire-resistant PVC inner sheath; galvanized steel wire armor; fire-resistant PVC sheath	
PvKVng-LS, APvKVng-LS TU 16. K180-014-2009 IEC 60 502-2 Notes: 1. Depending on the limit of the fire spreading according to the classification of GOST 31565, the following indexes are added to the cable type designation: A – PRGP 1b fire spreading LS B – PRGP 2 fire spreading limit, for example, PvKVng(V)-LS. 2. In cables armored with aluminum alloy wires, the index "a" is added to the cable type designation, for example, APvKaVng(A)-LS. 3. In cables armored with aluminum alloy wires, the index "s" is added to the cable type designation, for example, APvKsVng(A)-LS.	6; 10; 15 20; 30; 35	1 1	35-1000 50-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; separating layer; fire-resistant PVC inner sheath; wire armor of aluminum or aluminum alloy; fire-resistant PVC sheath	For group laying of cable lines in cable structures, in places where mechanical effects on the cable are possible, including tensile forces
	6; 10; 15 20; 30; 35	3 3	35-1000 50-100	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer; helically laid copper wire screen; three conductors twisted around the core; interphase gap filling and fire-resistant PVC inner sheath; galvanized steel wire armor; fire-resistant PVC sheath	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvPng-HF, APvPng-HF, PvPgng-HF, APvPgng-HF, PvPgzhng-HF, APvPgzhng-HF, PvP2gng-HF, APvP2gng-HF, PvP2gzhng-NG, APvP2gzhng-HF TU 16.K180-016-2009	6 10; 15 20; 30; 35	1 1 1	35-800 35-1000 50-1000	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer or semiconducting water-blocking layer (for PvPgng-HF, APvPgng-HF); screen of copper wires; thermal barrier; inner and outer sheath of halogen-free polymer compound. For cable types (PvPgzhng-HF, APvPgzhng-HF) with the sealing of conductors. For cable types (PvP2gng-NG, APvP2gng-HF) with an aluminum polymer tape over a separating layer, for cable types (PvP2gzhng-HF, APvP2gzhng-HF), also with the sealing of conductors	For stationary laying in cable structures, industrial premises, and office premises where computers and other microprocessor equipment are installed. The cables may be also laid in underground structures, residential and public buildings, where there are requirements to limit the impact of corrosive gases on equipment in the absence of the risk of mechanical damage during operation. Cables are intended to be laid in the open air and dry soil. Cables with the indexes "g", "2g" are supposed to be in wet rooms
<p>Note: Depending on the limit of the fire spreading according to the classification of GOST 31565, the following indexes are added to the cable type designation: A – PRGP 1b fire spreading limit, for example, PvPng(A)-HF; B – PRGP 2 fire spreading limit, for example, PvPng(B)-HF.</p>	6; 10; 15	3	35-400	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating semiconducting layer or semiconducting water-blocking layer (for PvPgng-HF, APvPgng-HF, PvP2gag-HF, APvP2gng-HF), screen of copper wires along each conductor; core (water-blocking threads in the core of cables with the indexes "g" and "2g" are allowed); thermal barrier; inner and outer sheath of halogen-free polymer compound. The alumopolymer tape is applied over the separating layer for cables with the "2g" index. For cables with the "zh" index with the sealing of conductors	
	20; 30; 35	3	50-400		
PvKPng-HF, APvKPng-HF, PvKPgng-HF, APvKPgng-HF, PvKPgzhng-HF, APvKPgzhng-HF, PvKP2gng-HF, APvKP2gng-HF, PvKP2gzhng-HF, APvKP2gzhng-HF TU 16.K180-016-2009	6 10; 15 20; 30; 35	1 1 1	35-800 35-1000 35-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer or semiconducting water-blocking layer (for PvPgng-HF, APvPgng-HF); screen of copper wires; thermal barrier; armor of aluminum wire or aluminum alloy; inner and outer sheath of halogen-free polymer compound. For cable types (PvPgzhng-HF, APvPgzhng-HF) with the sealing of conductors. For cable types (PvP2gng-HF, APvP2gng-HF) with an aluminum polymer tape over the separating layer, for cable types (PvP2gzhng-HF, APvP2gzhng-HF), also with the sealing of conductors	For stationary laying in cable structures, industrial premises and office premises where computers and other microprocessor equipment are installed. The cables may be also laid in underground structures, residential and public buildings, where there are requirements to limit the effect of corrosive gases on equipment and also in the case of the probability of mechanical effects allowing tensile forces. Cables are intended to be laid in the open air and dry soil. Cables with the indexes "g", "2g" are supposed to be in wet rooms
<p>Notes: 1. Depending on the limit of the fire spreading according to the classification of GOST 31565, the following indexes are added to the cable type designation: A – PRGP 1b fire spreading limit, for example, PvKPng(A)-HF; B – PRGP 2 fire spreading limit, for example, PvKPng(B)-HF. 2. In cables armored with aluminum or aluminum alloy wires, the index "a" is added to the cable type designation, for example, APvKaPng(A)-HF.</p>	20; 30; 35	3	50-400	aluminum or copper conductor; conductor screen; XLPE insulation; insulation screen; separating semiconducting layer or semiconducting water-blocking layer (for PvPgng-HF, APvPgng-HF, PvP2gag-HF, APvP2gng-HF); screen of copper wires along each conductor; core (water-blocking threads in the core of the cables with the indexes "g" and "2g" are allowed); bedding made of halogen-free polymer compound; steel galvanized wire armor; inner and outer sheath of halogen-free polymer compound. The alumopolymer tape is applied over the separating layer for cables with the "2g" index. For cables with the "zh" index with the sealing of conductors	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvBPng-HF, APvBPng-HF, PvBPgng-HF, APvBPgng-HF, PvBPgzng-HF, APvBPgzng-HF, PvBP2gng-HF, APvBP2gng-HF, PvBP2gzng-HF, APvBP2gzng-HF, TU 16.K180-016-2009	6 10; 15 20; 30; 35	1 1 1	35-800 35-1000 50-1000	aluminum or copper conductors; conductor screen; XLPE insulation; insulation screen; separating layer of conductive tapes; screen of copper wires; fiberglass separation layer; inner sheath of halogen-free polymer compound; aluminum tape armor; outer sheath of halogen-free polymer compound	For group laying in industrial and office premises equipped with computer and microprocessor equipment, as well as in underground structures, residential and public buildings, where there are requirements to limit the impact of corrosive gases on the equipment. Cables are intended to be laid in the open air and on dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level. Can be used for laying in explosive zones
Notes: 1. Depending on the limit of the fire spreading according to the classification of GOST 31565, the following indexes are added to the cable type designation: A – PRGP 1b fire spreading limit, for example: PvBPng(A)-HF B – PRGP 2 fire spreading limit, for example, PvBPng(B)-HF 2. In the manufacture of cable with a sealed screen, "g" or "2g" indexes are added to the cable type designation, for example: PvBP2gng-NB, with longitudinal sealing of conductors and screen, the indexes "gzh" or "2gzh" are added, for example, PvBPkng-HF.	6; 10; 15 20; 30; 35	3 3	35-400 50-400	aluminum or copper conductors; conductor screen; XLPE insulation; insulation screen; separating layer of conductive tapes; screen of copper wires; cores twisted around the core; inner sheath of halogen-free polymer compound; bedding made of halogen free polymer compound; armor of two steel galvanized tapes; outer sheath of halogen-free polymer compound	
All types of cables with 6-20 kV XLPE insulation from pp. 27–33 can be manufactured with sector-shaped conductor TU 16.K.180-044-2014			copper	the same structural elements as for the cable type with round conductors, but instead of screens, a common copper screen is overlaid along each conductor	the same as for the cable type with round conductors
	6-20	3	95-300		
			aluminum		
	6; 10 15; 20	3 3	95-400 120-400		

POWER CABLES

with cross-linked polyethylene insulation rated for voltage from 45 to 220 kV

Standards

TU 16-705.495-2006;
 TU 3530-405-00217053-2009;
 TU 16.K180-022-2010

Application area

Power cables with cross-linked polyethylene insulation are intended for the transmission and distribution of electrical energy in stationary installations rated for AC voltage $U_0/U (U_m)$: 26/45(52), 36/66(72,5), 64/110(123), 76/132(145), 87/150(170), 127/220(245) kV with 50 Hz rated frequency.

PvP2g construction

1. Copper conductor.
2. Conductor screen of semiconducting cross-linked polyethylene.
3. Cross-linked polyethylene insulation.
4. Insulation screen of semiconducting cross-linked polyethylene.
5. Water-blocking layer.
6. Copper wire screen.
7. Water-blocking layer.
8. Alumopolymer tape layer.
9. Polyethylene sheath.



Specifications

Rated AC voltage $U_0/U (U_m)$, 50 Hz rated frequency, kV	26/45(52), 36/66(72.5), 64/110(123), 76/132(145), 87/150(170), 127/220(245)
Cable conductor continuous heating temperature, °C	+90
Cable conductor overload heating temperature, no more than, °C	
- for cables rated for voltage of 26/45, 36/66, 64/110, 76/132	+130
- for cables rated for voltage of 87/150, 127/220	+105
Maximum permissible conductor temperature at short-circuit currents, °C	+250
The maximum permissible temperature of the cable copper screen in case of the short circuit, no more, °C	+350
Ambient temperature, °C:	
- cables with cold-resistant polyethylene and PVC sheath	-60/+50
- cables with PVC and halogen-free polymer compound sheath	-50/+50
Cables shall be laid without preheating at temperatures not lower than, °C:	
- cables with the polyethylene sheath	-20
- cables with PVC and halogen-free polymer compound sheath	-15
Minimum bending radius during laying, mm	15 D (7.5 D)*
Construction cable length	to be specified when ordering
Guarantee period in years	5**
Cable service life, min, year	30***

* When laying using a special template with pre-heating up to 20–30 °C.

** The manufacturer guarantees the compliance of cables with the requirements of technical conditions provided that the consumer observes the conditions of storage, transportation, installation, and operation.

The guarantee period is calculated from the date of commissioning, but no later than 6 months from the date of manufacturing.

*** The service life of cables is 30 years provided that the consumer observes the conditions of transportation, storage, installation (laying) and the operation specified in the technical conditions. The service life is calculated from the date of commissioning of the cable. The actual service life of the cable is not limited to the specified service life but is determined by the technical condition of the cable.

Additional letter designations in cable types, those not specified in the tables:

mk – multi-wire round conductors,

gzh – sealed conductors,

ov – optical module,

p – conductive layer along the sheath*.

* At the request of the customer(consumer), it is possible to apply a conductive layer on the surface of the outer polyethylene sheath. This shall be specified when ordering.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvPg TU 16-705-495-2006	64/110	1	185-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes in a polyethylene sheath	For ground laying (in trenches) if the cable is protected from mechanical damage, regardless of the degree of corrosive activity of the soil. The aerial laying is allowed (without protection from solar radiation) including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings. Cables are intended to be laid on routes without limitations of difference in level.
APvPg TU 16-705-495-2006	64/110		185-2500		
PvPug TU 16-705-495-2006	64/110		185-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes, in a reinforced polyethylene sheath	
APvPug TU 16-705-495-2006	64/110		185-2500		
PvP2g TU 16-705-495-2006 TU 3530-405-00217053-2009	64/110 127/220	1	185-2500 300-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, the screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes in polyethylene sheath, with an additional alumopolymer tape over the sealed screen	For ground (in trenches) and water (in non-navigable reservoirs) laying while adhering to measures excluding mechanical damage to the cable. Intended for ground laying, regardless of the degree of corrosivity of soils. The aerial laying is allowed (without protection from solar radiation) including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings. Cables are intended to be laid on routes without limitations of difference in level. Reinforced sheath (Pu) for laying along routes of complex configuration, as well as in HDD pipes
APvP2g TU 16-705-495-2006 TU 3530-405-00217053-2009	64/110 127/220		185-2500 300-2500		
PvPu2g TU 16-705-495-2006 TU 3530-405-00217053-2009	64/110 127/220		185-2500 300-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes, in reinforced polyethylene sheath with additional alumopolymer tape over the sealed screen	
APvPu2g TU 16-705-495-2006 TU 3530-405-00217053-2009	64/110 127/220		185-2500 300-2500		
Pw TU 16-705-495-2006 TU 3530-405-00217053-2009	64/110 127/220	1	185-2500 300-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, separating layer, in PVC sheath	For single laying of cable lines in cable structures and industrial premises. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
APw TU 16-705-495-2006 TU 3530-405-00217053-2009	64/110 127/220		185-2500 300-2500		
Pwu TU 16-705-495-2006 TU 3530-405-00217053-2009	64/110 127/220		185-2500 300-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, separating layer, in reinforced PVC sheath	
APwu TU 16-705-495-2006 TU 3530-405-00217053-2009	64/110 127/220		185-2500 300-2500		
PvVng(A), APvVng(A) TU 16-705-495-2006	64/110	1	185-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, fire-resistant PVC inner sheath, in fire-resistant PVC sheath	For group laying of cable lines in cable structures and industrial premises. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
PvPng(A)-HF, APvPng(A)-HF TU 16-705-495-2006	64/110	1	185-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, inner sheath of halogen-free polymer compound, in halogen-free polymer compound sheath	For group laying of cable lines in cable structures and industrial premises. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level. If there are requirements to limit the impact of corrosive gases

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvPg or N2XS(F)2Y or 2XS(F)2Y TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes in a polyethylene sheath	For ground laying (in trenches) if the cable is protected from mechanical damage, regardless of the degree of corrosive activity of the soil. The aerial laying is allowed (without protection from solar radiation) including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings. Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvPg or NA2XS(F)2Y or A2XS(F)2Y TU 16.K180-022-2010	36/66	1	150-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes, in a reinforced polyethylene sheath	
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvPug TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes, in a reinforced polyethylene sheath	
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvPug TU 16.K180-022-2010	36/66	1	150-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes, in polyethylene sheath with additional alumopolymer tape over the sealed screen	
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvP2g or N2XS(FL)2Y or 2XS(FL)2Y TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes, in polyethylene sheath with additional alumopolymer tape over the sealed screen	For ground (in trenches) and water (in non-navigable reservoirs) laying while adhering to measures excluding mechanical damage to the cable. Intended for ground laying, regardless of the degree of corrosivity of soils. The aerial laying is allowed (without protection from solar radiation) including in the cable structures while adhering to additional fire protection measures such as applying flame-retardant coatings. Cables are intended to be laid on routes without limitations of difference in level. Reinforced sheath (Pu) for laying along routes of complex configuration, as well as in HDD pipes
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvP2g or NA2XS(FL)2Y or A2XS(FL)2Y TU 16.K180-022-2010	36/66	1	150-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes, in reinforced polyethylene sheath with additional alumopolymer tape over the sealed screen	
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvPu2g TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes, in reinforced polyethylene sheath with additional alumopolymer tape over the sealed screen	
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvPu2g TU 16.K180-022-2010	36/66	1	150-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes, in reinforced polyethylene sheath with additional alumopolymer tape over the sealed screen	
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PW or N2XSY or 2XSY TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, separating layer, in PVC sheath	For single laying of cable lines in cable structures and industrial premises. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvW or NA2XSY or A2XSY TU 16.K180-022-2010	36/66	1	150-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, separating layer, in reinforced PVC sheath	
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
PWu TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, separating layer, in reinforced PVC sheath	
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
APvWu TU 16.K180-022-2010	127/220	1	400-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, separating layer, in reinforced PVC sheath	
	36/66		150-2500		
	64/110		185-2500		
	76/132		240-2500		
PWg or N2XS(F)Y or 2XS(F)Y TU 16.K180-022-2010	87/150	1	300-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, in PVC sheath	For single laying in cable structures and industrial premises into which soil and stormwater can enter. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	127/220		400-1600		
	36/66		150-2500		
	64/110		185-2500		
	76/132		240-2500		
APvWg or NA2XS(F)Y or A2XS(F)Y TU 16.K180-022-2010	87/150	1	300-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, in reinforced PVC sheath	
	127/220		400-1600		
	36/66		150-2500		
	64/110		185-2500		
PWug TU 16.K180-022-2010	76/132	1	240-2500	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, in reinforced PVC sheath	
	87/150		300-1600		
	127/220		400-1600		
	26/45		50-1600		
	36/66		150-1600		
APvWug TU 16.K180-022-2010	64/110	1	185-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, in reinforced PVC sheath	
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvWng(A) TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, in fire-resistant PVC sheath	For group laying of cable lines in cable structures and industrial premises. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APWng(A) TU 16.K180-022-2010	36/66	150-2500			
	64/110	185-2500			
	76/132	240-2500			
	87/150	300-2500			
	127/220	400-2500			
PvWng(A) TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, fire-resistant PVC inner sheath, in fire-resistant PVC sheath	
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APWng(A) TU 16.K180-022-2010	36/66	150-2500			
	64/110	185-2500			
	76/132	240-2500			
	87/150	300-2500			
	127/220	400-2500			
PvVng(A)-KhL TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, fire-resistant PVC inner sheath, in cold-resistant and fire-resistant PVC sheath	
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
APWng(A)-KhL TU 16.K180-022-2010	36/66	150-2500			
	64/110	185-2500			
	76/132	240-2500			
	87/150	300-2500			
	127/220	400-2500			

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvWng(A)-LS TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, fire-resistant PVC inner sheath, in fire-resistant PVC sheath	For group laying of cable lines in cable structures and industrial premises. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvWng(A)-LS TU 16.K180-022-2010	36/66	1	150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvWngng(A)-LS TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, fire-resistant PVC inner sheath, in fire-resistant PVC sheath	For group laying of cable lines in cable structures and industrial premises into which soil and storm water can enter. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvWngng(A)-LS TU 16.K180-022-2010	36/66	1	150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvPng(A)-HF or N2XSH or 2XSH TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, inner sheath of halogen-free polymer compound, in halogen-free polymer compound sheath	For group laying of cable lines in cable structures and industrial premises. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level. If there are requirements to limit the impact of corrosive gases
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvPng(A)-HF or NA2XSH or A2XSH TU 16.K180-022-2010	36/66	1	150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvPngng(A)-HF or N2XS(F)H or 2XS(F)H TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes, inner sheath of halogen-free polymer compound, in halogen-free polymer compound sheath	For group laying of cable lines in cable structures and industrial premises into which soil and storm water can enter. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level. If there are requirements to limit the impact of corrosive gases
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvPngng(A)-HF or NA2XS(F)H or A2XS(F)H TU 16.K180-022-2010	36/66	1	150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvP2gng(A)-HF or N2XS(FL)H or 2XS(FL)H TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes with additional alumopolymer tape over a sealed screen, inner sheath of halogen-free polymer compound, in halogen-free polymer compound sheath	For group laying of cable lines in cable structures and industrial premises into which soil and storm water can enter. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level. If there are requirements to limit the impact of corrosive gases
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvP2gng(A)-HF or NA2XS(FL)H or A2XS(FL)H TU 16.K180-022-2010	36/66	1	150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
127/220	400-2500				
PvKsPg, PvKaPg or N2XS(F)R(AL)2Y, N2XS(F)R(TAL)2Y or 2XS(F)R(AL)2Y, 2XS(F)R(TAL)2Y TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape with water-blocking metal screen sealing tapes, polyethylene inner sheath, wire armor, in a polyethylene sheath	For ground laying (in trenches), in places where mechanical impacts on the cable, including tensile, are possible. Intended for ground laying, regardless of the degree of corrosivity of soils. Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvKsPg, APvKaPg or NA2XS(F)R(AL)2Y, NA2XS(F)R(TAL)2Y or A2XS(F)R(AL)2Y, A2XS(F)R(TAL)2Y TU 16.K180-022-2010	36/66	1	150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
127/220	400-2500				
PvKsPug, PvKaPug TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, polyethylene inner sheath, wire armor, in a reinforced polyethylene sheath	
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvKsPug, APvKaPug TU 16.K180-022-2010	36/66	1	150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
127/220	400-2500				
PvKaP2g, PvKsP2g or N2XS(FL)R(AL)2Y, N2XS(FL)R(TAL)2Y or 2XS(FL)R(AL)2Y, 2XS(FL)R(TAL)2Y TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, with additional alumopolymer tape over a sealed screen, polyethylene inner sheath, wire armor, in polyethylene sheath	For group laying of cable lines in cable structures and industrial premises into which soil and stormwater can enter, where there are requirements to limit the impact of corrosive gases. Intended for ground laying, regardless of the degree of corrosivity of soils. Can be laid in water (non-navigable reservoirs) while adhering to measures that exclude mechanical damage to the cable. Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvKaP2g, APvKsP2g or NA2XS(FL)R(AL)2Y, NA2XS(FL)R(TAL)2Y or A2XS(FL)R(AL)2Y, A2XS(FL)R(TAL)2Y TU 16.K180-022-2010	36/66	1	150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
127/220	400-2500				

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvKaV, PvKsV or N2XSR(AL)Y, N2XSR(TAL)Y or 2XSR(AL)Y, 2XSR(TAL)Y TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, separating layer, fire-resistant PVC inner sheath, wire armor, in PVC sheath	For single laying in cable structures and industrial premises, in places where mechanical effects on the cable are possible, including tensile forces. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220	400-1600			
APvKaV, APvKsV or NA2XSR(AL)Y, NA2XSR(TAL)Y or A2XSR(AL)Y, A2XSR(TAL)Y TU 16.K180-022-2010	36/66		150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvKaVg, PvKsVg or N2XS(F)R(AL)Y, N2XS(F)R(TAL)Y or 2XS(F)R(AL)Y, 2XS(F)R(TAL)Y TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, fire-resistant PVC inner sheath, wire armor, in PVC sheath	For single laying in cable structures and industrial premises, into which soil and stormwater can enter, where mechanical effects on the cable are possible, including tensile forces. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220	400-1600			
APvKaVg, APvKsVg or NA2XS(F)R(AL)Y, NA2XS(F)R(TAL)Y or A2XS(F)R(AL)Y, A2XS(F)R(TAL)Y TU 16.K180-022-2010	36/66		150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvKsPu2g, PvKaPu2g TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, polyethylene inner sheath, wire armor, in a reinforced polyethylene sheath	For single laying in cable structures and industrial premises, into which soil and stormwater can enter, where mechanical effects on the cable are possible, including tensile forces. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220	400-1600			
APvKsPu2g, APvKaPu2g TU 16.K180-022-2010	36/66		150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvKaVng(A), PvKsVng(A) TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, fire-resistant PVC inner sheath, wire armor, in fire-resistant PVC sheath	For group laying of cable lines in cable structures and industrial premises, in places where mechanical effects on the cable are possible, including tensile forces. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220	400-1600			
APvKaVng(A), APvKsVng(A) TU 16.K180-022-2010	36/66		150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application		
PvKaVng(A)-KhL, PvKsVng(A)-KhL TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, fire-resistant PVC inner sheath, wire armor, in cold-resistant and fire-resistant PVC sheath	For group laying of cable lines in cable structures and industrial premises, in places where mechanical effects on the cable are possible, including tensile forces. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without level difference limitation.		
	36/66		150-1600				
	64/110		185-1600				
	76/132		240-1600				
	87/150		300-1600				
APvKaVng(A)-KhL, APvKsVng(A)-KhL TU 16.K180-022-2010	127/220	400-1600	150-2500	185-2500	240-2500		
	36/66	150-2500					
	64/110	185-2500					
	76/132	240-2500					
	87/150	300-2500					
PvKaVgng(A), PvKsVgng(A) TU 16.K180-022-2010	127/220	400-2500	150-2500	185-2500	240-2500		
	26/45	50-1600				aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, fire-resistant PVC inner sheath, wire armor, in fire-resistant PVC sheath	For group laying in cable structures and industrial premises, into which soil and stormwater can enter, where mechanical effects on the cable are possible, including tensile forces. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66	150-1600					
	64/110	185-1600					
	76/132	240-1600					
87/150	300-1600						
APvKaVgng(A), APvKsVgng(A) TU 16.K180-022-2010	127/220	400-1600	150-2500	185-2500	240-2500		
	36/66	150-2500					
	64/110	185-2500					
	76/132	240-2500					
	87/150	300-2500					
PvKaVng(A)-LS, PvKsVng(A)-LS TU 16.K180-022-2010	127/220	400-2500	150-2500	185-2500	240-2500		
	26/45	50-1600				aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, fire-resistant PVC inner sheath, wire armor, in fire-resistant PVC sheath	For group laying of cable lines in cable structures and industrial premises, in places where mechanical effects on the cable are possible, including tensile forces. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66	150-1600					
	64/110	185-1600					
	76/132	240-1600					
87/150	300-1600						
APvKaVng(A)-LS, APvKsVng(A)-LS TU 16.K180-022-2010	127/220	400-1600	150-2500	185-2500	240-2500		
	36/66	150-2500					
	64/110	185-2500					
	76/132	240-2500					
	87/150	300-2500					
PvKaVgng(A)-LS, PvKsVgng(A)-LS TU 16.K180-022-2010	127/220	400-2500	150-2500	185-2500	240-2500		
	26/45	50-1600				aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, fire-resistant PVC inner sheath, wire armor, in fire-resistant PVC sheath	For group laying in cable structures and industrial premises, into which soil and stormwater can enter, where mechanical effects on the cable are possible, including tensile forces. For laying in dry soils (sand, sandy clay and normal soil with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66	150-1600					
	64/110	185-1600					
	76/132	240-1600					
87/150	300-1600						
APvKaVgng(A)-LS, APvKsVgng(A)-LS TU 16.K180-022-2010	127/220	400-1600	150-2500	185-2500	240-2500		
	36/66	150-2500					
	64/110	185-2500					
	76/132	240-2500					
	87/150	300-2500					
APvKaVgng(A)-LS, APvKsVgng(A)-LS TU 16.K180-022-2010	127/220	400-2500	150-2500	185-2500	240-2500		

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvKaPng(A)-HF, PvKsPng(A)-HF or N2XSR(AL)H, N2XSR(TAL)H or 2XSR(AL)H, 2XSR(TAL)H TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, inner sheath of halogen-free polymer compound, wire armor, in a halogen-free polymer compound sheath	For laying in cable structures and industrial premises, where there are requirements to limit the effects of corrosive gases, as well as where mechanical effects on the cable are possible, including tensile forces. For laying in dry soils (with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvKaPng(A)-HF, APvKsPng(A)-HF or NA2XSR(AL)H, NA2XSR(TAL)H or A2XSR(AL)H, A2XSR(TAL)H TU 16.K180-022-2010	36/66		150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvKaPng(A)-HF, PvKsPng(A)-HF or N2XS(F)R(AL)H, N2XS(F)R(TAL)H or 2XS(F)R(AL)H, 2XS(F)R(TAL)H TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, inner sheath of halogen-free polymer compound, wire armor, in halogen-free polymer compound sheath	For laying in cable structures and industrial premises into which soil and stormwater can enter, where there are requirements to limit the impact of corrosive gases. For laying in dry soils (with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvKaPng(A)-HF, APvKsPng(A)-HF or NA2XS(F)R(AL)H, NA2XS(F)R(TAL)H or A2XS(F)R(AL)H, A2XS(F)R(TAL)H TU 16.K180-022-2010	36/66		150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvKaP2ng(A)-HF, PvKsP2ng(A)-HF or N2XS(FL)R(AL)H, N2XS(FL)R(TAL)H or 2XS(FL)R(AL)H, 2XS(FL)R(TAL)H TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, screen of copper wires fastened with copper tape, with water-blocking metal screen sealing tapes, with additional alumopolymer tape over a sealed screen, inner sheath of halogen-free polymer compound, wire armor, in halogen-free polymer compound sheath	For laying in cable structures and industrial premises into which soil and stormwater can enter, where there are requirements to limit the impact of corrosive gases. For laying in dry soils (with a moisture content of less than 14%). Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvKaP2ng(A)-HF, APvKsP2ng(A)-HF or NA2XS(FL)R(AL)H, NA2XS(FL)R(TAL)H or A2XS(FL)R(AL)H, A2XS(FL)R(TAL)H TU 16.K180-022-2010	36/66		150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		
PvSP or N2XK2Y or 2XK2Y TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, lead alloy sheath, polyethylene outer sheath	For laying in the ground (in trenches), which may contain substances of destructive action on the cable sheath (salt marshes, swamps, bulk soil with slag and building materials, etc.), as well as in areas dangerous due to electro-corrosion). Intended for ground laying, regardless of the degree of corrosivity of soils. Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvSP or NA2XK2Y or A2XK2Y TU 16.K180-022-2010	36/66		150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PvAP or N2XA2Y or 2XA2Y TU 16.K180-022-2010	26/45	1	50-1600	aluminum or copper conductor, conductor screen, XLPE insulation, insulation screen, separating layer, aluminium alloy sheath, polyethylene outer sheath	For ground laying (in trenches), in places where mechanical impacts on cable, including vibrations, are possible. Intended for ground laying, regardless of the degree of corrosivity of soils. Cables are intended to be laid on routes without limitations of difference in level.
	36/66		150-1600		
	64/110		185-1600		
	76/132		240-1600		
	87/150		300-1600		
	127/220		400-1600		
APvAP or NA2XA2Y or A2XA2Y TU 16.K180-022-2010	36/66	1	150-2500		
	64/110		185-2500		
	76/132		240-2500		
	87/150		300-2500		
	127/220		400-2500		

POWER CABLES

universal, with cross-linked polyethylene insulation rated for voltage from 6 to 35 kV

■ APvP2gTi construction

1. Aluminum multiwire compacted conductor.
2. Conductor screen of extruded semiconducting cross-linked polyethylene.
3. Cross-linked polyethylene insulation.
4. Insulation screen of extruded semiconducting cross-linked polyethylene.
5. Separating layer.
6. Screen of copper wires*
7. Separating layer.
8. Separating layer of alumopolymer tape.
9. Polyethylene sheath.
10. Steel messenger rope.
11. Light-stabilized polyethylene insulation.



*Cable with the "2g" index can be made without a screen.

■ Application area

Cables are intended for the transmission and distribution of electrical energy in stationary installations rated for AC -voltage of 6, 10, 20 and 35 kV with a rated frequency of 50 Hz for networks with grounded and insulated neutral.

They combine the advantages of underwater and underground cables, as well as aerial cable.

Design and operational features of cables allow to use them:

- in areas with a "complex" landscape (rocky areas and wetlands, permafrost);
- in areas with a high population density, when it is impossible to lay only an underground or only an overhead power line;
- in wet areas and flood channels.

■ Specifications

Rated voltage, kV	6-35
Maximum long-term permissible operating temperature of conductors, °C	+90
Permissible conductor emergency (overload) mode heating temperature, °C	+130
Permissible conductor heating temperature at short circuit under the conditions of non-combustibility of the cable, °C	+400 (up to 4 sec)
Permissible copper screen short-circuit temperature, °C	+350
Ambient temperature during cable operation, °C	from -60 to +50
Relative humidity (at temperatures up to +35 °C), %	98
Maximum cable laying temperature without pre-heating, °C	-20
Minimum permissible bending radius during laying, outer diameters	10
Service life, years	30
Guarantee period in years	5

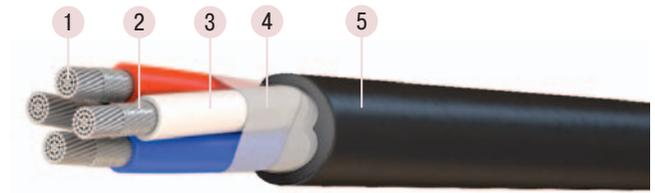
Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
APvPTg TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Cable with three aluminum conductors with cross-linked polyethylene insulation, in a reinforced sheath of light-stabilized polyethylene, twisted with a non-insulated supporting strand	For aerial and ground-laying if the cable is protected from mechanical damage.
APvPgTg TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal cable sealing	
APvP2gTg TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal and transverse cable sealing	
APvP2gzhTg TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal and transverse cable sealing, with longitudinal conductor sealing	
APvPuTg TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Cable with three aluminum conductors with cross-linked polyethylene insulation, in a sheath of light-stabilized polyethylene, twisted with a non-insulated cable messenger	For aerial and ground-laying if the cable is protected from mechanical damage, for laying on routes of a complex configuration.
APvPugTg TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal cable sealing	
APvPu2gTg TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal and transverse cable sealing	
APvPu2gzhTg TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal and transverse cable sealing, with longitudinal conductor sealing	
APvPTi TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Cable with three aluminum conductors with cross-linked polyethylene insulation, in a sheath of light-stabilized polyethylene, twisted with a non-insulated messenger wire of light-stabilized polyethylene	For aerial and ground-laying if the cable is protected from mechanical damage.
APvPgTi TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal cable sealing	
APvP2gTi TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal and transverse cable sealing	
APvP2gzhTi TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal and transverse cable sealing, with longitudinal conductor sealing	
APvPuTi TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Cable with three aluminum conductors with cross-linked polyethylene insulation, in a sheath of light-stabilized polyethylene, twisted with a non-insulated messenger wire of light-stabilized polyethylene	For aerial and ground-laying if the cable is protected from mechanical damage, for laying on routes of a complex configuration.
APvPugTi TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal cable sealing	
APvPu2gTi TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal and transverse cable sealing	
APvPu2gzhTi TU 16. K180-009-2009	6 10; 20; 35	3+1 3+1	35-240 50-240	Same, with longitudinal and transverse cable sealing, with longitudinal conductor sealing	

Note: (3+1) – in the cable designation, after the designation of the three main conductors with a cross-section of conductors and screens, the label size of the bearer cable is indicated, for example, APvPTi 3x(150/25)+1x70-35.

RUBBER INSULATED POWER CABLES

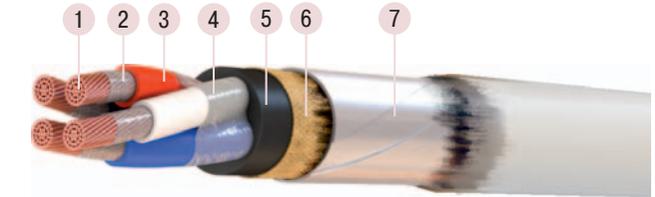
■ AVRГ construction

1. Electric conductor.
2. Winding.
3. Insulation.
4. Winding.
5. Sheath.



■ VRBG construction

1. Electric conductor.
2. Winding.
3. Insulation.
4. Winding.
5. Sheath.
6. Bedding.
7. Armor.



■ Specifications

Rated AC voltage at 50 Hz frequency, kV	0.66
Rated DC voltage, kV	1.0
Test AC voltage at 50 Hz frequency, 10 min, kV	3.0
Maximum conductor operating temperature, °C	+70
Maximum short circuit temperature during 4 sec, °C	+200
Ambient temperature, °C	-50/+50
Air humidity at +35 °C, %	98
Minimum laying (installation) temperature, °C	-15
Cable bend radius, outer diameter:	
- single-conductor	10
- multi-conductor	7.5
Factory length, min., m	125
Service life, years	30
Guarantee period, years	3

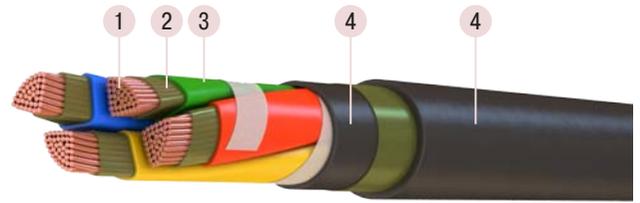
Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AVRG, AVRG-T GOST 433-73	0.66	1 2; 3; 3+1 4	6.0-300 2.5-240 2.5-185	aluminum conductors, rubber insulation, PVC sheath	Cables are used for laying: - in the air with no risk of mechanical damage during operation; - in dry or wet areas (tunnels), ducts, cable cellars, mines, manifolds, production premises, partially flooded structures in the environment with weak, medium and high corrosive activity; - on special-purpose cable racks, along bridges and in blocks; - in fire-hazardous premises; - in explosion-hazardous areas. Designed for vertical, sloped and horizontal routes, can be used in places subject to vibration. Flame-retardant at single laying (IEC 60332-1).
VRG, VRG-T GOST 433-73	0.66	1 2; 3; 3+1 4	6.0-240 1.0-240 1.0-185	copper conductors, rubber insulation, PVC sheath	
ANRG, ANRG-T GOST 433-73	0.66	1 2; 3; 3+1 4	16-300 2.5-240 2.5-185	aluminum conductors, rubber insulation, rubber sheath	
NRG, NRG-T GOST 433-73	0.66	1 2; 3; 3+1 4	10-240 1.0-240 1.0-185	copper conductors, rubber insulation, rubber sheath	
AVRGz, AVRGz-T GOST 433-73	0.66	2 3-4; 3+1 4	2.5-240 2.5-185 2.5-185	aluminum conductors, rubber insulation, PVC sheath	
VRGz, VRGz-T GOST 433-73	0.66	2 3; 3+1 4	1.5-240 1.0-185 1.0-185	copper conductors, rubber insulation, PVC sheath	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AVRBG, AVRBG-T GOST 433-73	0.66	2; 3 3; 3+1 4	4.0-240 2.5-240 2.5-185	aluminum conductors, rubber insulation, PVC sheath, tape armor	Same as AVRBG, VRBG, ANRBG and NRBG, but in presence of mechanical hazard.
VRBG, VRBG-T GOST 433-73	0.66	2-4	1.5-185	copper conductors, rubber insulation, PVC sheath, tape armor	
ANRBG, ANRBG-T GOST 433-73	0.66	2; 3 3+1 4	4.0-240 2.5-240 2.5-185	aluminum conductors, rubber insulation, rubber sheath, tape armor	
NRBG, NRBG-T GOST 433-73	0.66	2-4	1.5-185	copper conductors, rubber insulation, rubber sheath, tape armor	
AVRBGz, AVRBGz-T GOST 433-73	0.66	2; 3 3+1 4	4.0-240 2.5-240 2.5-185	aluminum conductors, rubber insulation, PVC sheath, tape armor	Same as AVRBG and VRBG but for power supply of electric installations requiring sealing on electrical equipment inlet.
VRBGz, VRBGz-T GOST 433-73	0.66	2-4	1.5-185	copper conductors, rubber insulation, PVC sheath, tape armor	
AVRB, AVRB-T GOST 433-73	0.66	2; 3 4	4.0-240 2.5-240	aluminum conductors, rubber insulation, PVC sheath, tape armor, outer covering	Cables are used for laying underground (in trenches) with low, medium or high corrosive activity, with presence or absence of stray currents, if in the process of operation cables are not exposed to significant tensile forces. Cables are intended for vertical, inclined and horizontal laying. Minimum installation temperature is minus 7 °C.
VRB, VRB-T GOST 433-73	0.66	2-4	1.5-185	copper conductors, rubber insulation, PVC sheath, tape armor, outer covering	
ANRB, ANRB-T GOST 433-73	0.66	2; 3 4	4.0-240 2.5-240	aluminum conductors, rubber insulation, rubber sheath, tape armor, outer covering	
NRB, NRB-T GOST 433-73	0.66	2-4	1.5-185	copper conductors, rubber insulation, rubber sheath, tape armor, outer covering	

FIRE RESISTANT POWER AND CONTROL CABLES

■ PPGng(A)-FRHF construction

1. Copper conductors.
2. Conductor thermal barrier.
3. Halogen-free polymer compound insulation.
4. Halogen-free polymer compound inner and outer sheath.



■ Specifications

Rated AC voltage at 50 Hz frequency, kV	0.66	1
Maximum AC voltage at 50 Hz frequency, kV	0.72	1.2
Test AC voltage at 50 Hz frequency, 10 min, kV	3	3.5
Allowable conductor operating temperature, °C, max:		
- for low fire-hazard PVC compound cables with halogen-free polymer compound insulation		+70
- for organic silicone rubber cables with XLPE insulation		+90
- for cables with organic silicone rubber insulation		+105
Allowable conductor heating temperature under overload, °C, max:		
- for low fire-hazard PVC compound cables with halogen-free polymer compound insulation		+90
- for cables with XLPE insulation		+130
Maximum allowable conductor short circuit heating temperature, °C, max:		
- for cables with LTx index and more than 300 mm ² electric conductor section		+140
- for cables with halogen-free polymer compound insulation and ng(A)-HF index, for cables with LTx index and 300 mm ² electric conductor section		+160
- for cables with FRHF and FRLS indices and for cables with XLPE insulation and HF index		+250
Limit temperature of cable conductors in line with cable non-combustion conditions at short circuit, °C, max:		
- for cables with LSLTx index		+350
- for cables with FRLSLTx, HF, FRHF, FRLS indices		+400
Ambient temperature, °C:		
- for all cables except cables with organic silicone rubber insulation		-50/+50
- for cables with organic silicone rubber insulation		-50/+55
Fire resistance of cables with FR index, minimum, minutes		180
Equivalent toxicity of combustion products for cables with LTx index, exceeding, g/m ³		120
Weight fraction of hydrogen chloride produced during combustion of cables with LTx index, max, mg/g:		
- insulation		100
- outer sheath and protective hose		80
- inner sheath and separating layer		50
Cable bend radius, min., outer diameter:		
- single-conductor power cables		10
- multi-conductor power cables		7.5
- control cables		6
Minimum laying (installation) temperature, °C		-15

Additional letter designations in cable grades, not specified in the Tables:

- ozh (ox)** – single-wire conductors,
- ms (mc)** – multi-wire sector-shaped conductors,
- os (oc)** – single-wire sector-shaped conductors,
- ok (ok)** – single-wire circular conductors,
- mk (mk)** – multi-wire circular conductors,
- N** – conductor insulation color (blue),
- PE** – conductor insulation color (yellow-green).

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PPGng(A)-HF TU 16 K71-304-2001 TU 16.K180-048-2016	0.66 1 3	1-5 1 3; 4 2; 5 1	1.5-50 1.5-800 1.5-400 1.5-240 1.5-800	copper conductors, halogen-free polymer compound insulation and sheath	Designed for transmission and distribution of electrical energy in stationary installations. Manufactured for general industrial application and use in nuclear station systems.
PvPGng(A)-HF TU 16 K71-304-2001 TU 16.K180-048-2016	0.66 1 3	1-5 1 3; 4 2; 5 1	1.5-50 1.5-800 1.5-400 1.5-240 1.5-800	copper conductors, XLPE insulation, halogen-free polymer compound sheath	Intended for electrical wiring in premises fitted with computing and microprocessor equipment, in kindergartens, schools, and hospitals.
KPPGng(A)-HF TU 16 K71-304-2001	0.66	4-37 4; 7; 10	1.0-2.5 4.0; 6.0	copper conductors, halogen-free polymer compound insulation and sheath	
PPGEng(A)-HF TU 16.K180-048-2016	0.66 1 3	1-5 1 3; 4 2; 5 1	1.5-50 1.5-800 1.5-400 1.5-240 1.5-800	copper conductors, halogen-free polymer compound insulation and sheath, copper screen under sheath	For group laying in premises and cable structures in absence of mechanical hazard and in need to protect electrical circuits against influence of external electrical fields, including premises and installations of subways.
PvPGEg(A)-HF TU 16.K180-048-2016	0.66 1 3	1-5 1 3; 4 2, 5 1	1.5-50 1.5-800 1.5-400 1.5-240 1.5-800	copper conductors, XLPE insulation, copper screen, halogen-free polymer compound sheath	Intended for electrical wiring in premises fitted with computing and microprocessor equipment, in kindergartens, schools, and hospitals.
KPPGEg(A)-HF TU 16 K71-304-2001	0.66	4-37 4; 7; 10	1.0-2.5 4.0; 6.0	copper conductors, halogen-free polymer compound insulation and sheath, copper screen	
PBPng(A)-HF TU 16 K71-304-2001 TU 16.K180-048-2016	0.66 1 3	2-5 1 3; 4 2; 5 1 3	1.5-50 10-800 1.5-400 1.5-240 10-800 6-240	copper conductors, halogen-free polymer compound insulation and sheath, armor of galvanized steel tapes under sheath	For group laying in premises and cable structures in presence of mechanical hazard during operation, including premises and installations of subways. Intended for electrical wiring in premises fitted with computing and microprocessor equipment, in kindergartens, schools, and hospitals.
PvBPng(A)-HF TU 16.K180-048-2016	0.66 1 3	1-5 1 3; 4 2; 5 1	1.5-50 1.5-800 1.5-400 1.5-240 1.5-800	copper conductors, XLPE insulation, halogen-free polymer compound sheath, armor of galvanized steel tapes under sheath	
KBPng(A)-HF TU 16 K71-304-2001	0.66	4-37 4; 7; 10	1.0-2.5 4.0; 6.0	copper conductors, insulation and protective hose of halogen-free polymer compounds, tape armor	
PPGng(A)-FRHF TU 16 K71-339-2004 TU 16.K180-018-2010	0.66 1 3	1-5 1 2-5 1	1.5-50 1.5-1000 1.5-240 240-1000	copper conductors, thermal barrier, halogen-free polymer compound insulation and sheath	Designed for transmission and distribution of electrical energy in stationary installations. Manufactured for general industrial application and use in nuclear station systems.
PvPGng(A)-FRHF TU 16 K71-339-2004 TU 16.K180-018-2010	0.66 1 3	1-5 1 2-5 1	1.5-50 1.5-800 1.5-240 240-800	copper conductors, XLPE insulation, halogen-free polymer compound sheath	For use in electrical circuits maintaining operability during fire. Can be used for laying in Class B-1a explosion hazard zones.
KPPGng(A)-FRHF TU 16 K71-339-2004 TU 16.K180-019-2010	0.66	4-37 4; 7; 10	1.0-2.5 4.0; 6.0	copper conductors, thermal barrier, halogen-free polymer compound insulation and sheath	
PPGEng(A)-FRHF TU 16 K71-339-2004 TU 16.K180-018-2010	0.66 1	1-5 1 2-5	1.5-50 1.5-800 1.5-240	copper conductors, thermal barrier, halogen-free polymer compound insulation and sheath, copper screen	
PvPGEg(A)-FRHF TU 16 K71-339-2004 TU 16.K180-018-2010	0.66 1	1-5 1-5 2-5	1.5-50 1.5-630 1.5-240	copper conductors, thermal barrier, XLPE insulation, copper screen, halogen-free polymer compound sheath	
KPPGEg(A)-FRHF TU 16 K71-339-2004 TU 16.K180-019-2010	0.66	4-37 4; 7; 10	1.0-2.5 4.0; 6.0	copper conductors, thermal barrier, halogen-free polymer compound insulation and sheath, copper screen	

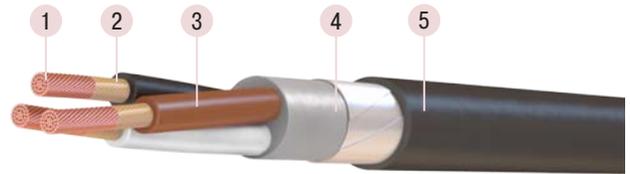
Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PBPng(A)-FRHF TU 16 K71-339-2004 TU 16.K180-018-2010	0.66 1	2-5 1 2-5	1.5-50 10-800 1.5-240	copper conductors, thermal barrier, halogen-free polymer compound insulation and sheath, tape armor	Designed for transmission and distribution of electrical energy in stationary installations. Manufactured for general industrial application and use in nuclear station systems. For use in electrical circuits maintaining operability during fire. Can be used for laying in Class B-1a explosion hazard zones.
PvBPng(A)-FRHF TU 16 K71-339-2004 TU 16.K180-018-2010	0.66 1 3	2-5 1 2-5 1	1.5-50 10-630 1.5-240 240-630	copper conductors, thermal barrier, XLPE insulation, halogen-free polymer compound sheath, tape armor	
KPBPng(A)-FRHF TU 16.K180-019-2010	0.66	4-37 4; 5; 7; 10	1.0-2.5 4.0; 6.0	copper conductors, thermal barrier, halogen-free polymer compound insulation and sheath, tape armor	
PKPng(A)-HF TU 16.K180-048-2016	0.66 1 3	2-5 1 3; 4 2; 5 1 3	1.5-850 10-800 1.5-400 1.5-240 10-800 6-240	copper conductors, halogen-free polymer compound insulation and sheath, armor of galvanized steel tapes under sheath	For group laying in premises and cable routes exposed to tensile forces during operation, including laying in premises and installations of subways.
PvKPng(A)-HF TU 16.K180-048-2016	0.66 1 3	2-5 1 3; 4 2; 5 1 3	1.5-50 10-800 1.5-400 1.5-240 10-800 6-240	copper conductors, XLPE insulation, galvanized steel wire armor, halogen-free polymer compound sheath	
PKaPng(A)-HF TU 16.K180-048-2016	1 3	1 1	10-800 10-800	copper conductors, halogen-free polymer compound insulation and sheath, armor of aluminum or aluminum alloy wire under sheath	
PvKaPng(A)-HF TU 16.K180-048-2016	1 3	1 1	10-800 10-800	copper conductors, XLPE insulation, armor of aluminum or aluminum alloy wire under sheath, halogen-free polymer compound sheath	
WGng(A)-FRLS TU 16 K71-337-2004, TU 16 K180-018-2010	0.66 1 3	1-5 1 2-5 1	1.5-50 1.5-1000 1.5-240 240-1000	copper conductors, thermal barrier, low fire-hazard PVC compound insulation and sheath	Designed for transmission and distribution of electrical energy and electrical signals in stationary electrical installations. Manufactured for general industrial application, including use in premises and installations of subways and in nuclear station systems.
KWGng(A)-FRLS TU 16 K71-337-2004 TU 16.K180-019-2010	0.66	4-37 4; 7; 10	1.0-2.5 4.0; 6.0	copper conductors, thermal barrier, low fire-hazard PVC compound insulation and sheath	
WGEng(A)-FRLS TU 16 K71-337-2004 TU 16.K180-018-2010	0.66 1	1-5 1 2-5	1.5-50 1.5-80 1.5-240	copper conductors, thermal barrier, low fire-hazard PVC compound insulation and sheath; copper screen between insulation and sheath	
KWGEng(A)-FRLS TU 16 K71-337-2004 TU 16.K180-019-2010	0.66	4-37 4; 7; 10	1.0-2.5 4.0; 6.0	copper conductors, thermal barrier, low fire-hazard PVC compound insulation and sheath; copper screen between insulation and sheath	
VBVng(A)-FRLS, VBShvng(A)-FRLS TU 16 K71-337-2004 TU 16.K180-018-2010	0.66 1 3	2-5 1 2-5 1	1.5-50 10-630 1.5-240 240-630	copper conductors, thermal barrier, low fire-hazard PVC compound insulation and sheath, tape armor	For laying in cable structures, premises and installations of subways, including fire-hazardous and explosion-hazardous zones in absence of tensile forces during operation.
KVBVng(A)-FRLS TU 16.K180-019-2010	0.66	4-37 4; 7; 5; 10	1.0-2.5 4.0; 6.0	copper conductors, thermal barrier, low fire-hazard PVC compound insulation and sheath, tape armor	
KSPng(A)-FRLS, KSGPng(A)-FRLS, KSPng(A)-FRHF, KSGPng(A)-FRHF TU 16.K180-026-2010	0.66	1-5	1.0-240	copper conductors, rubber insulation of organic silicon forming ceramic layer during combustion, low fire-hazard PVC compound sheath (for LS cables) or halogen-free polymer compound (for FRHF cables)	Designed for group laying in firefighting systems and other systems which have to maintain operability during fire. Used for laying in cable structures and premises, as well as in subway structures, including fire hazardous ones, in absence of mechanical hazard during operation, and for connection of electrical machines and devices.
KKPng(A)-FRLS, KKPng(A)-FRHF TY 16.K180-026-2010	0.66	4-37 4; 5; 7; 10	1.0-2.5 4.0; 6.0		

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AWGng(A)-LSLTx TU 16-705.496-2011	0.66 1	1-5 1 3; 4 2; 5	2.5-50 2.5-1000 2.5-400 2.5-240	aluminum conductors, insulation, inner sheath (for cross-sections exceeding 16 mm ² and for the quantity of conductors exceeding 2) and low fire-hazard PVC compound outer sheath	Designed for transmission and distribution of electrical energy in stationary installations. Manufactured for general industrial application and use in nuclear station systems in domestic and export deliveries.
WGng(A)-LSLTx TU 16-705.496-2011	0.66 1	1-5 1 3; 4 2; 5	1.5-50 1.5-1000 1.5-400 1.5-240	copper conductors, insulation, inner sheath (for cross-sections exceeding 16 mm ² and for the quantity of conductors exceeding 2) and low fire-hazard PVC compound outer sheath	
KWGng(A)-LSLTx TU 16-705.496-2011	0.66	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, low fire-hazard PVC compound insulation and sheath	Designed for operation in functional fire hazard class F1-F3 buildings, including pre-school children's education facilities, special homes for the elderly and disabled, hospitals, sleeping quarters of children's boarding schools and institutions, hotels, dormitories, sleeping quarters of medical and recreation resorts, campings, motels, boarding guesthouses, as well as for public entertainment facilities, clubs, sports facilities, public service buildings, subways, and for nuclear installations outside of the nuclear power plant containment area.
AWGEng(A)-LSLTx TU 16-705.496-2011	0.66 1	1-5 1 3; 4 2; 5	2.5-50 2.5-1000 2.5-400 2.5-240	aluminum conductors, insulation, low fire-hazard PVC compound inner sheath, common screen of cooper tapes (foil) or wire, low fire-hazard PVC compound outer sheath	
WGenG(A)-LSLTx TU 16-705.496-2011	0.66 1	1-5 1 3; 4 2; 5	1.5-50 1.5-1000 1.5-400 1.5-240	copper conductors, insulation, low fire-hazard PVC compound inner sheath, common screen of cooper tapes (foil) or wire, low fire-hazard PVC compound outer sheath	
KWGenG(A)-LSLTx TU 16-705.496-2011	0.66	4-37 4; 7; 10	1.0-2.5 4.0; 6.0	copper conductors, low fire-hazard PVC compound insulation and separating layer, copper screen, low fire-hazard PVC compound outer sheath	
AVBShvng(A)-LSLTx TU 16-705.496-2011	0.66 1	2-5 1 3 2; 4; 5	2.5-50 16-630 2.5-400 2.5-240	aluminum conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound inner sheath, galvanized steel tape armor, low fire-hazard PVC compound protective hose	
VBSHvng(A)-LSLTx TU 16-705.496-2011	0.66 1	2-5 1 3 2; 4; 5	1.5-50 10-630 1.5-400 1.5-240	copper conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound inner sheath, galvanized steel tape armor, low fire-hazard PVC compound protective hose	
WGng(A)-FRLSLTx TU 16-705.496-2011	0.66 1	1-5 1 3; 4 2; 5	1.5-50 1.5-1000 1.5-400 1.5-240	copper conductors, thermal barrier over each conductor, insulation, inner (for the amount of conductors exceeding 2) and outer low fire-hazard PVC compound sheaths	
KWGng(A)-FRLSLTx TU 16-705.496-2011	0.66	4-37 4; 7; 10	1.0-2.5 4.0; 6.0	copper conductors, thermal barrier over each conductor, insulation, inner (for the amount of conductors exceeding 2) and outer low fire-hazard PVC compound sheaths	
WGenG(A)-FRLSLTx TU 16-705.496-2011	0.66 1	1-5 1 3; 4 2; 5	1.5-50 1.5-1000 1.5-400 1.5-240	copper conductors, thermal barrier over each conductor, insulation, low fire-hazard PVC compound inner sheath, common screen of cooper tapes (foil) or wire, low fire-hazard PVC compound outer sheath	
KWGenG(A)-FRLSLTx TU 16-705.496-2011	0.66	4-37 4; 7; 10	1.0-2.5 4.0; 6.0	copper conductors, thermal barrier, low fire-hazard PVC compound insulation and separating layer, copper screen, low fire-hazard PVC compound outer sheath	
VBSHvng(A)-FRLSLTx TU 16-705.496-2011	0.66 1	2-5 1 3 2; 4; 5	1.5-50 10-630 1.5-400 1.5-240	copper conductors, thermal barrier over each conductor, low fire-hazard PVC compound insulation, low fire-hazard PVC compound inner sheath, galvanized steel tape armor, low fire-hazard PVC compound protective hose	

POWER AND CONTROL CABLES with ethylene-propylene rubber insulation **EPRon[®]**

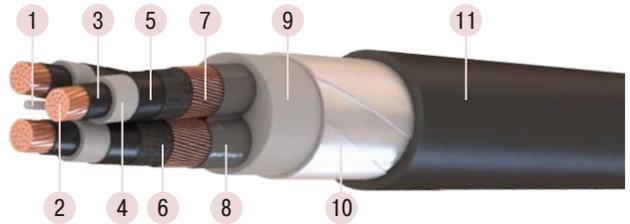
■ EPRon RPGng(A)-FRHF construction

1. Copper conductor.
2. Conductor thermal barrier.
3. Ethylene-propylene rubber insulation.
4. Inner sheath made of halogen-free polymer compound.
5. Outer sheath made of halogen-free polymer compound.



■ EPRon REBVng(A)-LS construction

1. Central rubber filling.
2. Copper conductor.
3. Conductor screen made of conductive polymer compound.
4. High modulus ethylene-propylene rubber (HEPR) insulation.
5. Insulation screen made of conductive polymer compound (removable).
6. Winding of conductive polymer tape.
7. Copper wire screen for each insulated conductor.
8. Bonding tape or thread.
9. Interphase filling and inner sheath of low fire-hazard PVC compound.
10. Armor made of galvanized steel tapes.
11. Outer sheath made of low fire-hazard PVC compound with low smoke and gas emission.



■ Specifications

Rated voltage at 50 Hz frequency, kV	1; 3; 6; 10; 15; 20; 30; 35
Conductor operating temperature, °C	+90
Permissible conductor heating temperature in emergency mode, °C	+130
Permissible conductor short-circuit temperature, °C	+250
Operating ambient temperature range, °C:	
- cables with sheath made of PVC compounds (V, Vng(A), Vng(A)-LS), polymer compound (Png(A)-HF)	-50/+60
- cables with sheath made of rubber (R, Rng(A)), PVC (Vng(A)-KhL, V-KhL), polyethylene (P, Pg, P2g)	-60/+60
- cables with sheath made of cold-resistant polymer compound (Png(A)-HF-KhL)	-65/+60
- cables with sheath made of flame-retardant rubber	-40/+50
Cables shall be laid without preheating at temperature not lower than, °C:	
- cables with PVC sheath (-ng(A), KhL, ng(A)-HF, ng(A)-LS)	-15
- cables with polyethylene sheath (P, Pg, P2g)	-20
- cables with polymer compound sheath (Png(A)-HF)	-30
- cables with sheath made of rubber (R, Rng(A)), polymer compound (Png(A)-HF-KhL)	-40
Minimum bend radius of cables rated for voltage of 1-3 kV, outer diameters (Do):	
- single-conductor	25
- multi-conductor	15
Minimum bend radius of cables rated for medium voltage (6-35 kV), outer diameters (Do):	
- single-conductor	15*
- three-conductor	12**
Service life, years	30
Guarantee period, years	5

* When laying single-conductor cables using a special template, subject to preheating to +20-30 °C, the minimum permissible bend radius of the cable is 7.5 Do.

** For unarmored cables, if there is 5th class flexibility (flexible) conductor in the construction, the minimum permissible bend radius of the cable is 8 Do.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
RVGng(A), ARVGng(A), RgVGng(A) TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, low flammability PVC sheath	Indoors, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, at group laying.
REVng(A), AREVng(A) TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, low flammability PVC sheath	
RBVng(A), ARBVng(A), RgBVng(A) TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel tape armor, low flammability PVC sheath	Same as RVGng(A), REVng(A) is used when the mechanical damage to the cable is possible.
REBVng(A), AREBVng(A) TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, galvanized steel tape armor, low flammability PVC inner and outer sheath	Same as RVGng(A) is used when the mechanical damage to the cable is possible.
RKVng(A), ARKVng(A), RgKVng(A) TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, steel galvanized wire armor, low flammability PVC sheath	Same as RVGng(A), REVng(A) is used if the cable is subject to significant tensile forces.
REKVng(A), AREKVng(A), REKAvng(A), AREKAvng(A) TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, armor made of galvanized wires (Ka – aluminum), low flammability PVC inner and outer sheath	Same as REVng(A) is used when the mechanical damage to the cable is possible, including impact of tensile forces.
RVGEng(A), ARVGEg(A), RgVGEg(A) TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, common copper screen, low flammability PVC sheath	Same as in RVGng(A), the copper screen protects against electromagnetic interference.
RVG-KhL, ARVG-KhL, RgVG-KhL TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, cold-resistant PVC sheath	Indoors, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, with single laying.
REVg-KhL, AREVg-KhL TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, cold-resistant PVC sheath	
RBV-KhL, ARBV-KhL, RgEBV-KhL TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel tape armor, cold-resistant PVC sheath	Same as RVG-KhL, REVg-KhL is used when the mechanical damage to the cable is possible.
REBV-KhL, AREBV-KhL TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, PVC inner sheath, galvanized steel tape armor, cold-resistant PVC sheath	Same as REVg-KhL is used when the mechanical damage to the cable is possible.
RKV-KhL, ARKV-KhL, RgKV-KhL TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, steel galvanized wire armor, cold-resistant PVC sheath	Same as RVG-KhL, REVg-KhL is used when the cable is subject to significant tensile forces.
REKV-KhL, AREKV-KhL, REKAv-KhL, AREKAv-KhL TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, PVC inner sheath, steel galvanized wire armor, (Ka – aluminum), cold-resistant PVC sheath	Same as REVg-KhL is used when the cable is subject to significant tensile forces.
RVGE-KhL, ARVGE-KhL, RgVGE-KhL TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, with common copper screen, low flammability PVC sheath	Same as in RVG-KhL, the copper screen protects against electromagnetic interference.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
RVGng(A)-KhL, ARVng(A)-KhL, RgVng(A)-KhL TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, cold-resistant low flammability PVC sheath	Indoors, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, at group laying.
REVGng(A)-KhL, AREVGng(A)-KhL TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, cold-resistant low flammability PVC sheath	
RBVng(A)-KhL, ARBVng(A)-KhL, RgBVng(A)-KhL TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel tape armor, cold-resistant low flammability PVC sheath	Same as RVGng(A)-KhL, REVGng(A)-KhL is used when the mechanical damage to the cable is possible.
REBVng(A)-KhL, AREBVng(A)-KhL TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, low flammability PVC inner sheath, galvanized steel tape armor, cold-resistant low flammability PVC sheath	Same as REVGng(A)-KhL is used when the mechanical damage to the cable is possible.
RKVng(A)-KhL, ARKVng(A)-KhL, RgKVng(A)-KhL TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel wire armor, cold-resistant low flammability PVC sheath	Same as RVGng(A)-KhL, REVGng(A)-KhL is used when the cable is subject to significant tensile forces.
REKVng(A)-KhL, AREKVng(A)-KhL, REKaVng(A)-KhL, AREKaVng(A)-KhL TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, low flammability PVC inner sheath, armor made of galvanized steel wires (Ka – aluminum), cold-resistant low flammability PVC sheath	
RVGEng(A)-KhL, ARVEng(A)-KhL, RgVEng(A)-KhL TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, common copper screen, cold-resistant low flammability PVC sheath	Same as in RVGng(A)-KhL, the copper screen protects against electromagnetic interference.
RPGng(A)-HF, ARPGng(A)-HF, RgPGng(A)-HF TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, sheath of halogen-free polymer compound	Indoors, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, in fire- and explosion hazard zones, with group laying.
REPGng(A)-HF, AREPGng(A)-HF TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, sheath of halogen-free polymer compound	
RBPng(A)-HF, ARBPng(A)-HF, RgBPng(A)-HF TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel tape armor, sheath of halogen-free polymer compound	Same as RPGng(A)-HF, REPGng(A)-HF is used when the mechanical damage to the cable is possible.
REBPng(A)-HF, AREBPng(A)-HF, RgEBPng(A)-HF TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, galvanized steel tape armor, inner and outer sheath of halogen-free polymer compound	Same as REPGng(A)-HF is used when the mechanical damage to the cable is possible.
RKPng(A)-HF, ARKPng(A)-HF, RgKPng(A)-HF TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel wire armor, sheath of halogen-free polymer compound	Same as RPGng(A)-HF, REPGng(A)-HF is used when the cable is subject to significant tensile forces.
REKPng(A)-HF, AREKPng(A)-HF, REKaPng(A)-HF, AREKaPng(A)-HF TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, armor made of galvanized steel wires (Ka – aluminum), inner and outer sheath of halogen-free polymer compound	Same as REPGng(A)-HF is used when the cable is subject to significant tensile forces.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
RPGEng(A)-HF, ARPGEng(A)-HF, RgPGEng(A)-HF TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, common copper screen, sheath of halogen-free polymer compound	Same as in RPGng(A)-HF, the copper screen protects against electromagnetic interference.
REPGng(A)-HF-KhL, AREPGng(A)-HF-KhL TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, sheath of halogen-free polymer compound	Indoors, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, in fire- and explosion hazard zones, with group laying.
REBPng(A)-HF-KhL, AREBPng(A)-HF-KhL TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, galvanized steel tape armor, inner and outer sheath of halogen-free polymer compound	Same as REPGng(A)-HF-KhL is used when the mechanical damage to the cable is possible.
REKPng(A)-HF-KhL, AREKPng(A)-HF-KhL, REKaPng(A)-HF-KhL, AREKaPng(A)-HF-KhL TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, galvanized steel wire armor (Ka – aluminum wires), inner and outer sheath of halogen-free polymer compound	Same as REPGng(A)-HF-KhL is used when the cable is subject to significant tensile forces.
RVGng(A)-LS, ARVGng(A)-LS, RgVGng(A)-LS TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, low fire-hazard PVC sheath	Indoors, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, in fire- and explosion hazard zones, with group laying.
REVgng(A)-LS, AREVgng(A)-LS TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, low fire-hazard PVC sheath	
RBVng(A)-LS, ARBVng(A)-LS, RgBVng(A)-LS TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel tape armor, low fire-hazard PVC sheath	Same as RVGng(A)-LS, REVgng(A)-LS is used when the mechanical damage to the cable is possible.
REBVng(A)-LS, AREBVng(A)-LS TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, galvanized steel tape armor, low fire-hazard PVC inner and outer sheath	Same as REVgng(A)-LS is used when the mechanical damage to the cable is possible.
RKVng(A)-LS, ARKVng(A)-LS, RgKVng(A)-LS TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel armor, low fire-hazard PVC sheath	Same as RVGng(A)-LS, REVgng(A)-LS is used when the cable is subject to significant tensile forces.
REKVng(A)-LS, AREKVng(A)-LS, REKaVng(A)-LS, AREKaVng(A)-LS TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, armor made of galvanized steel wires (Ka – aluminum), low fire-hazard PVC inner and outer sheath	Same as REVgng(A)-LS is used when the cable is subject to significant tensile forces.
RVGEng(A)-LS, ARVGEg(A)-LS, RgVGEg(A)-LS TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, common copper screen, low fire-hazard PVC sheath	Same as in RVGng(A)-LS, the copper screen protects against electromagnetic interference.
RRG, RgRG, ARRG TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, common copper screen, low fire-hazard PVC sheath	Indoors, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, with single laying.
RERG, RgERG, ARERG TU 16.K180-040-2013	6-10	1; 3	35-240	aluminum or copper conductors ("g" – flexible), semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, flame-retardant rubber sheath	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
RBR, RgBR, ARBR TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel tape armor, flame-retardant rubber sheath	Same as RRG, RERG is used when the mechanical damage to the cable is possible.
REBR, AREBR, RgEBR TU 16.K180-040-2013	6-10	1; 3	35-240	aluminum or copper conductors ("g" – flexible), semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, inner rubber sheath, galvanized steel tape armor, flame-retardant rubber sheath	Same as RERG is used when the mechanical damage to the cable is possible.
RKR, ARKR, RgKR TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel wire armor, flame-retardant rubber sheath	Same as RRG, RERG is used when the cable is subject to significant tensile forces.
REKR, AREKR, REKaR, AREKaR, RgEKR TU 16.K180-040-2013	6-35	1; 3	35-240	aluminum or copper conductors ("g" – flexible), semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, inner rubber sheath, armor made of galvanized steel wires (Ka – aluminum), flame-retardant rubber sheath	Same as RERG is used when the cable is subject to significant tensile forces.
RRGE, RgRGE, ARRGE TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, common copper screen, flame-retardant rubber sheath	Same as in RRG, the copper screen protects against electromagnetic interference.
RRGng(A), RgRng(A), ARRng(A) TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, sheath of flame-retardant (in cable harness) rubber	Indoors, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, at group laying.
RBRng(A), ARBRng(A), RgBRng(A) TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel tape armor, sheath of flame-retardant (in cable harness) rubber	Same as RRGng(A), RERGng(A) is used when the mechanical damage to the cable is possible.
RKRng(A), ARKRng(A), RgKRng(A) TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, galvanized steel wire armor, sheath of flame-retardant (in cable harness) rubber	Same as RRGng(A), RERGng(A) is used when the cable is subject to significant tensile forces.
RRGEng(A), RgRGEng(A), ARRGEng(A) TU 16.K180-035-2012	1	1 2; 5 3; 4 7; 10 12-37	1.0-800 1.0-240 1.0-400 1.0-6.0 1; 1.5; 2.5	aluminum or copper conductors ("g" – flexible), ethylene-propylene rubber insulation, common copper screen, sheath of flame-retardant (in cable harness) rubber	Same as in RRGng(A), the copper screen protects against electromagnetic interference.
AREPG, REPG TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screens, outer polyethylene sheath	For fixed underground laying (in trenches), in the absence of risk of mechanical damage during operation.
AREPuG, REPuG TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, reinforced outer sheath made of polyethylene	Same, for laying on routes of complex configuration.
AREPgG, REPgG TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, water-blocking tape under metal screen, outer polyethylene sheath	For fixed underground laying (in trenches), in the absence of risk of mechanical damage during operation.
AREPgzhG, REPgzhG TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	For fixed underground laying (in trenches), in the absence of risk of mechanical damage during operation.
AREPuGg, REPuGg TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, reinforced outer sheath made of polyethylene	Same, for laying on routes of complex configuration.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AREPugzhG, REPugzhG TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	Same, for laying on routes of complex configuration.
AREP2gG, REP2gG TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, water-blocking tape under metal screen, additional layer of alumopolymer tape, outer polyethylene sheath	For fixed underground laying (in trenches), in the absence of risk of mechanical damage during operation, in water.
AREP2gzhG, REP2gzhG TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	
AREPu2gG, REPu2gG TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, reinforced outer sheath made of polyethylene	Same, for laying on routes of complex configuration.
AREPu2gzhG, REPu2gzhG TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	
AREBP, REBP, RgEBP TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screen, inner sheath of PVC compound for filling, galvanized steel tape armor, outer polyethylene sheath	For fixed underground laying (in trenches), in places where mechanical impacts on the cable are possible.
AREBPu, REBPu, RgEBPu TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, reinforced outer sheath made of polyethylene	Same, for laying on routes of complex configuration.
AREBPg, REBPg, RgEBPg TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, water-blocking tape under metal screen, inner sheath of PVC compound for filling, galvanized steel tape armor, outer polyethylene sheath	For fixed underground laying (in trenches), in places where mechanical impacts on the cable are possible.
AREBPgzh, REBPgzh, RgEBPgzh TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	For fixed underground laying (in trenches), in places where mechanical impacts on the cable are possible.
AREBPug, REBPug, RgEBPug TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, reinforced outer sheath made of polyethylene	Same, for laying on routes of complex configuration.
AREBPugzh, REBPugzh, RgEBPugzh TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	Same, for laying on routes of complex configuration.
AREBP2G, REBP2g, RgEBP2g TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, water-blocking tape under metal screen, additional layer of alumopolymer tape, inner sheath of PVC compound for filling, galvanized steel tape armor, outer polyethylene sheath	For fixed underground laying (in trenches), in places where mechanical impacts on the cable are possible, in water.
AREBP2gzh, REBP2gzh, RgEBP2gzh TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	For fixed underground laying (in trenches), in places where mechanical impacts on the cable are possible, in water.
AREBPu2g, REBPu2g, RgEBPu2g TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, reinforced outer sheath made of polyethylene	Same, for laying on routes of complex configuration.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AREBPu2gzh, REBPu2gzh, RgEBPu2gzh TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	Same, for laying on routes of complex configuration.
AREKP, REKP TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, copper screen, inner sheath of PVC compound for filling, galvanized steel wire armor, outer polyethylene sheath	For fixed underground laying (in trenches), in places where mechanical impacts on the cable, including tensile, are possible.
AREKPu, REKPu TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, reinforced outer sheath made of polyethylene	Same, for laying on routes of complex configuration.
AREKPg, REKPg TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, water-blocking tape under metal screen, inner sheath of PVC compound for filling, galvanized steel wire armor, outer polyethylene sheath	For fixed underground laying (in trenches), in places where mechanical impacts on the cable, including tensile, are possible.
AREKPgzh, REKPgzh TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	For fixed underground laying (in trenches), in places where mechanical impacts on the cable, including tensile, are possible.
AREKPug, REKPug TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, reinforced outer sheath made of polyethylene	Same, for laying on routes of complex configuration.
AREKPugzh, REKPugzh TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	Same, for laying on routes of complex configuration.
AREKP2g, REKP2g TU 16.K180-040-2013	6-35	1 3	35-630 35-400	aluminum or copper conductors, semiconductive conductor screen, ethylene-propylene rubber insulation, semiconductive insulation screen, water-blocking tape under metal screen, additional layer of alumopolymer tape, inner sheath of PVC compound for filling, galvanized steel wire armor, outer polyethylene sheath	For fixed underground laying (in trenches), in places where mechanical impacts on the cable are possible, including tensile impacts, in water.
AREKP2gzh, REKP2gzh TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	For fixed underground laying (in trenches), in places where mechanical impacts on the cable are possible, including tensile impacts, in water.
AREKPu2g, REKPu2g TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, reinforced outer sheath made of polyethylene	Same, for laying on routes of complex configuration.
AREKPu2gzh, REKPu2gzh TU 16.K180-040-2013	6-35	1 3	35-630 35-400	same, with sealing of conductors	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
RPGng(A)-FRHF RgPGng(A)-FRHF TU 16.K180-035-2012	0.66	1	1.0-240* 10-240***	copper conductors or flexible copper conductors (g), with thermal barrier over conductors, ethylene-propylene rubber insulation, with inner and outer sheaths of halogen-free polymer compounds	Indoors, in subway facilities, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, in fire- and explosion hazard zones with group laying. When performance should be maintained in fire conditions.
		3	1.0-50		
		4	1.0-50		
		2, 5	1.0-50		
		7, 10, 12, 14, 16, 19, 24, 27, 30, 33, 37	1.0-2.5		
		7, 10	4, 6		
	1	1	1.0-800*		
		3	10-800***		
		4	1.0-500		
		2, 5	1.0-300		
		7, 10, 12, 14, 16, 19, 24, 27, 30, 33, 37	1.0-2.5		
		7, 10	4, 6		
	3	1	10-800** 10-800***		
3		10-240			
RBPng(A)-FRHF RgBPng(A)-FRHF TU 16.K180-035-2012	0.66, 1, 3	same as above	same as above	same, armored with steel galvanized tapes	Same, when the mechanical damage to the cable is possible.
RKPng(A)-FRHF, RgKPng(A)-FRHF TU 16.K180-035-2012	0.66, 1, 3	same as above	same as above	same, armored with steel galvanized wire	Same, if the cable is subject to significant tensile forces.
RPGEng(A)-FRHF, RgPGEg(A)-FRHF TU 16.K180-035-2012	0.66, 1, 3	same as above	same as above	copper conductors or flexible copper conductors (g), with thermal barrier over conductors, ethylene-propylene rubber insulation, with common copper screen, with inner and outer sheaths of halogen-free polymer compounds	Indoors, in subway facilities, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, in fire- and explosion hazard zones with group laying. Copper screen protects against electromagnetic interference. When performance should be maintained in fire conditions.
RRGng(A)-FRHF, RgRGng(A)-FRHF TU 16.K180-035-2012	0.66, 1, 3	same as above	same as above	aluminum or copper conductors or flexible copper conductors (g), with thermal barrier over conductors, ethylene-propylene rubber insulation, with outer sheath of halogen-free rubber	Indoors, in subway facilities, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, with group laying. When performance should be maintained in fire conditions.
RBRng(A)-FRHF, RgBRng(A)-FRHF TU 16.K180-035-2012	0.66, 1, 3	same as above	same as above	same, armored with steel galvanized tapes	Same, when the mechanical damage to the cable is possible.
RKRng(A)-FRHF, RgKRng(A)-FRHF TU 16.K180-035-2012	0.66, 1, 3	same as above	same as above	same, armored with steel galvanized wire	Same, if the cable is subject to significant tensile forces.
RRGEg(A)-FRHF-KhL, RgRGEg(A)-FRHF-KhL TU 16.K180-035-2012	0.66, 1, 3	same as above	same as above	aluminum or copper conductors or flexible copper conductors (g), with thermal barrier over conductors, ethylene-propylene rubber insulation, with common copper screen, with inner and outer sheaths of halogen-free rubber	Indoors, in subway facilities, outdoors, in a humid environment, in pipes or ducts, in masonry, steel structures, open wiring, with group laying. Copper screen protects against electromagnetic interference. When performance should be maintained in fire conditions.

Notes:

* for unarmored cables

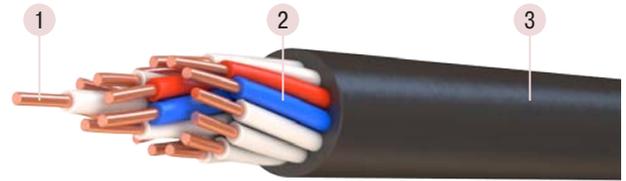
** only for screened cables with copper screen

*** for armored cables (single-conductor cable with armor made of galvanized steel tapes or wires, designed for use in DC grids)

CONTROL CABLES

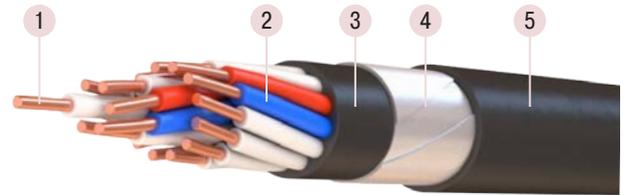
■ KVVG construction

1. Electric conductor.
2. Insulation.
3. Sheath.



■ KVVBShv construction

1. Electric conductor.
2. Insulation.
3. Separating layer.
4. Armor.
5. Protective hose.



■ Area of application

Control cables are intended for fixed connection to electrical devices, apparatus, terminal blocks of electric switchgear. Control cables are used for alarm, control, operation and protection relay systems.

■ Specifications

Rated AC voltage up to 100 Hz frequency, V	660
Rated DC voltage, V	1000
Test AC voltage at 50 Hz frequency, 5 min., V	2500
Maximum conductor operating temperature, °C	+70
Ambient temperature, °C	-50/+50
Ambient temperature for cables with KhL index, °C	-60/+50
Air humidity at +35 °C, %	98
Minimum laying (installation) temperature, °C:	
- for unarmored cables	-15
- for armored cables	-7
Factory length, min., m	150
Service life, min., years:	
- in surface laying and underground	15
- in premises, channels and tunnels	25
Guarantee period, years	3

Type and standard	U, V	Number of conductors	Cross-section, mm ²	Design	Area of application
AKWG GOST 1508-78	660	4-37 4; 7; 10	2.5 4.0-10	aluminum conductors, PVC compound insulation, PVC compound sheath	For laying in the open air, in premises, channels, tunnels, in conditions of aggressive environment in absence of mechanical hazard to cables. Flame retardant at single laying (GOST IEC 60332-1-2, GOST IEC 60332-1-3).
AKWGz GOST 1508-78	660	4; 5	2.5-10	aluminum conductors, PVC compound insulation, PVC compound sheath with filling	
AKWG-KhL, AKWGz-KhL TU 16.K180-001-2008	660	4-37 4; 7; 10	2.5 4.0-10	aluminum conductors, PVC compound insulation, PVC compound sheath in cold resistant design	
KWG GOST 1508-78	660	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, PVC compound sheath	
KWG-KhL TU 16.K180-001-2008	660	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, PVC compound sheath in cold resistant design	
KWGz GOST 1508-78	660	4; 5	0.75-6.0	copper conductors, PVC compound insulation, PVC compound sheath with filling	
KWGz-KhL TU 16.K180-001-2008	660	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, PVC compound sheath with filling in cold re-sistant design	

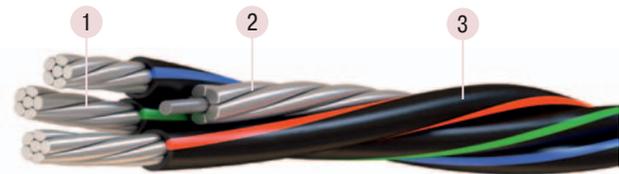
Type and standard	U, V	Number of conductors	Cross-section, mm ²	Design	Area of application
AKRVG GOST 1508-78	660	4-37 4 7; 10	2.5 4.0-10 4.0-6.0	aluminum conductors, PVC compound insulation, PVC compound sheath	For laying in the open air, in premises, channels, tunnels, in conditions of aggressive environment in absence of mechanical hazard to cables. Flame retardant at single laying (GOST IEC 60332-1-2, GOST IEC 60332-1-3).
KRVG GOST 1508-78	660	4-37 4; 7; 10	1.0-2.5 4.0-6.0	copper conductors, rubber insulation, PVC compound sheath	
AKRNG GOST 1508-78	660	4-37 4 7; 10	2.5 2.5-10 4.0-6.0	aluminum conductors, rubber insulation, rubber sheath	
KRNG GOST 1508-78	660	4-37 4; 7; 10	1.0-2.5 4.0-6.0	copper conductors, rubber insulation, rubber sheath	
AKWNg(A) TU 16.K01-37-2003	660	4-37 4; 5; 7; 10	2.5 4.0-10	aluminum conductors, PVC compound insulation, low flammability PVC compound sheath	Same as AKWG, but flame retardant when laid in harnesses (GOST IEC 60332-3-22, A category).
AKWgzng(A) TU 16.K01-37-2003	660	4-37 4; 5; 7; 10	2.5 4.0-10	aluminum conductors, PVC compound insulation, low flammability PVC compound sheath with filling	
KWNg(A) TU 16.K01-37-2003	660	4-37 4; 5; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, low flammability PVC compound sheath	Same as AKWG, but flame retardant when laid in harnesses (GOST IEC 60332-3-22, A category).
KWNg(A)-KhL TU 16.K01-37-2003	660	4-37 4; 5; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, low flammability PVC compound sheath	
KWgzng(A) TU 16.K01-37-2003	660	4-37 4; 5; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, low flammability PVC compound sheath with filling	
KWNg(A)-LS TU 16.K71-310-2001	660	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound sheath	Same as KWG, but flame retardant when laid in harnesses (GOST IEC 60332-3-22, A category). Low smoke emission during combustion (GOST IEC 61034-2).
AKWGE GOST 1508-78	660	4-37 4; 7; 10	2,5 4.0-10	aluminum conductors, PVC compound insulation, screen, PVC compound sheath	Designed for protection of electrical circuits against the influence of external electrical fields. Flame retardant at single laying (GOST IEC 60332-1-2, GOST IEC 60332-1-3).
AKWGE-KhL, AKWGEz-KhL TU 16.K180-001-2008	660	4-37 4; 7; 10	2,5 4.0-10	aluminum conductors, PVC compound insulation, screen, PVC compound sheath in cold resistant design	
KWGE GOST 1508-78	660	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, screen, PVC compound sheath	Designed for protection of electrical circuits against the influence of external electrical fields. Flame retardant at single laying (GOST IEC 60332-1-2, GOST IEC 60332-1-3).
KWGE-KhL, KWGEz-KhL TU 16.K180-001-2008	660	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, screen, PVC compound sheath in cold resistant design	
AKRVGE GOST 1508-78	660	4-37 4; 7; 10	2.5 4,0-10 4.0-6.0	aluminum conductors, rubber insulation, screen, PVC compound sheath	
KRVGE GOST 1508-78	660	4-37 4; 7; 10	1.0-2.5 4.0-6.0	copper conductors, rubber insulation, screen, PVC compound sheath	Same as AKWGE, but flame retardant when laid in harnesses (GOST IEC 60332-3-22).
AKWEng(A) TU 16.K01-37-2003	660	4-37 4; 5; 7; 10	2.5 4.0-10	aluminum conductors, PVC insulation, low flammability PVC separating layer, screen, low flammability PVC sheath	
KWEng(A), KWGEzng(A), KWEng(A)-KhL TU 16.K01-37-2003	660	4-37 4; 5; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, low flammability PVC compound separating layer, screen, low flammability PVC compound sheath	
KWEng(A)-LS TU 16.K71-310-2001	660	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, low fire-hazard PVC compound insulation, low fire-hazard PVC compound extruded layer, screen, low fire-hazard PVC compound sheath	Same as KWGE, but flame retardant when laid in harnesses (GOST IEC 60332-3-22, A category). Low smoke emission during combustion (GOST IEC 61034-2).

Type and standard	U, V	Number of conductors	Cross-section, mm ²	Design	Area of application
AKWB, AKWBG GOST 1508-78	660	4-37 4; 7; 10	2.5 4.0-6.0	aluminum conductors, PVC compound insulation, PVC compound sheath, embossed tarred paper bedding, tape armor	For laying in the open air, in premises, channels, tunnels, in conditions of aggressive environment in presence of mechanical hazard to cables if cables are not exposed to significant tensile forces. Flame retardant at single laying (GOST IEC 60332-1-2, GOST IEC 60332-1-3) except AKWB, KWB.
AKWBG-KhL TU 16.K180-001-2008	660	4-37 4; 7; 10	2.5 4.0-6.0	aluminum conductors, PVC compound insulation, PVC compound sheath in cold resistant design, tape armor	
KWB, KWBG GOST 1508-78	660	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, PVC compound sheath, embossed tarred paper bedding, tape armor	
KWBG-KhL TU 16.K180-001-2008	660	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, PVC compound sheath in cold resistant design, embossed tarred paper bedding, tape armor	
AKRVBG GOST 1508-78	660	4-37 4; 7; 10	2.5 4.0-10 4.0-6.0	aluminum conductors, rubber insulation, rubber sheath, tape armor	
KRVBG GOST 1508-78	660	4-37 4; 7; 10	1.0-2.5 4.0-6.0	copper conductors, rubber insulation, rubber sheath, tape armor	
KVBVng(A)-LS TU 16.K71-090-2002	660	4-37 4; 5; 7; 10	1.0-2.5 4.0-6.0	copper conductors, low flammability PVC compound insulation and protective hose, tape armor	For laying in cable structures, premises, in subway installations, including fire- and explosion hazardous zones, in absence of tensile forces during operation. Flame retardant when laid in harnesses (GOST IEC 60332-3-22, A category). Low smoke emission during combustion (GOST IEC 61034-2).
AKRVB GOST 1508-78	660	4-37 4 7; 10	2.5 4.0-10 4.0-6.0	aluminum conductors, rubber insulation, PVC compound sheath, tape armor, outer covering	For laying underground (in trenches) in conditions of aggressive environment and in places exposed to stray currents, if cables are not subject to significant tensile forces.
KRVB GOST 1508-78	660	4-37 4; 7; 10	1.0-2.5 4.0-6.0	copper conductors, rubber insulation, PVC compound sheath, tape armor, outer covering	
AKRNB GOST 1508-78	660	4-37 4 7; 10	2.5 4.0-10 4.0-6.0	aluminum conductors, rubber insulation, rubber sheath, tape armor, outer covering	
KRNB GOST 1508-78	660	4-37 4; 7; 10	1.0-2.5 4.0-6.0	copper conductors, rubber insulation, rubber sheath, tape armor, outer covering	
AKVBbShv GOST 1508-78	660	4-37 4; 7; 10	2.5 4.0-6.0	aluminum conductors, PVC compound insulation, PVC compound or tape separating layer, tape armor, PVC compound protective hose	
AKVBbShv-KhL, AKVBbShvz-KhL TU 16.K180-001-2008	660	4-37 4; 7; 10	2.5 4.0-6.0	aluminum conductors, PVC compound insulation, PVC compound or tape separating layer, tape armor, PVC compound protective hose in cold resistant design	
KVBbShv GOST 1508-78	660	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, PVC compound or tape separating layer, tape armor, PVC compound protective hose	For laying in the open air, in premises, channels, tunnels, underground (in trenches) in conditions of aggressive environment and in places exposed to stray currents, if cables are not subject to significant tensile forces and in presence of mechanical impacts on the cables. Flame retardant at single laying (GOST IEC 60332-1-2, GOST IEC 60332-1-3).
KVBbShv-KhL, KVBbShvz-KhL TU 16.K180-001-2008	660	4-37 4; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, PVC compound or tape separating layer, tape armor, PVC compound protective hose in cold resistant design	
KVPbShv GOST 1508-78	660	10-37 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, PVC compound separating layer, wire armor, PVC compound protective hose	
KVBbShng(A) TU 16.K01-37-2003	660	4-37 4; 5; 7; 10	0.75-2.5 4.0-6.0	copper conductors, PVC compound insulation, low flammability PVC compound separating layer, tape armor, low flammability PVC compound protective hose	Same as KVBbShv. Flame retardant when laid in harnesses (GOST IEC 60332-3-22, A category).

SELF-SUPPORTING INSULATED WIRES

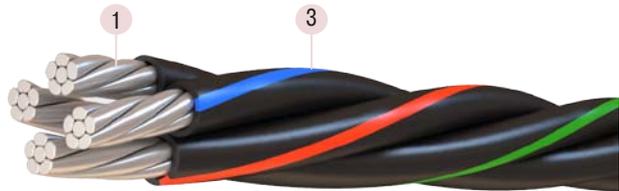
SIP-1/SIP-2 construction

1. Multiwire and compacted aluminum phase conductor.
2. Neutral supporting aluminum alloy conductor (for SIP-1/SIP-2) or aluminum conductor reinforced with steel wire (for SIP-1/2 of specification (TU) version).
3. Light-stabilized cross-linked polyethylene insulation:
 - bare supporting conductor (SIP-1 and SIP-1 of specification (TU) version);
 - insulated supporting conductor (SIP-2 and SIP-2 of specification (TU) version).



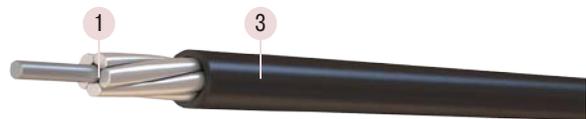
SIP-4/SIP-5 construction

1. Multiwire and compacted aluminum conductors with equal sections, one of which may be neutral.
2. Light-stabilized cross-linked polyethylene insulation.



SIP-3 construction

1. Aluminum alloy conductor (for SIP-3-20/35) or aluminum conductor reinforced with steel wire (for SIP-3-20/35 of specification (TU) version).
2. Light-stabilized cross-linked polyethylene insulation.



Notes:

1. At the request of the customer, wires of all grades can be made fully-filled. In this case, the "g" index is added to the letter designation of the wire grade, for example, SIPg-3.
2. At the request of the customer, it is allowed to manufacture all types of wires with a supporting neutral conductor with additional insulated conductors with a cross-section of 16, 25, or 35 mm² for lighting circuit connections.
3. The number of auxiliary conductors for the lighting circuit connections can be equal to 0, 1, 2, or 3.

Area of application

Wires are designed for use in overhead transmission lines (OHTL) with suspension on supports or facades of buildings and structures. Suspension of wires in OHTL shall meet the requirements of the electric installation code (PUE).

Specifications

After exposure to water at a temperature of (20±10) °C for at least 10 minutes wires shall withstand a test voltage of 50 Hz for 5 minutes at a factory length, kV, at least:

- self-supporting insulated wires	4
- protected wires with rated voltage of 20 kV	6
- protected wires with rated voltage of 35 kV	10

The breakdown alternating current voltage with a frequency of 50 Hz of protective insulation of protected wires after exposure to water at a temperature of (20±5) °C for at least 1 hour shall be, kV, at least:

- for wires with rated voltage of 20 kV	24
- for wires with rated voltage of 35 kV	40

Conductor operating temperature, °C	90
Conductor short-circuit temperature, °C	250
Ambient temperature, °C	-60/+50

Minimum laying (installation) temperature, °C	-20
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Cable bend laying (installation) radius, min, outer diameter	10
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Factory length of wires, m	to be specified when ordering
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Wire service life, min, years	40
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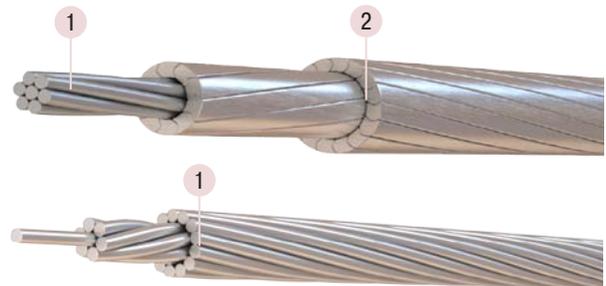
Guarantee period, years	3
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Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
SIP-1 TU 16-705.500-2006	0.6/1	1+1 3+1+(0-3)	16+25 (16-240)+(25-95)+(16-35)	aluminum conductors with light-stabilized cross-linked polyethylene insulation, a neutral supporting bare aluminum alloy conductor	For overhead transmission lines (OHTL) and linear branches of overhead lines in the atmosphere of types II and III according to GOST 15150.
SIP-1 TU 16. K09-140-2004	0.6/1	1+1+(0-3) 3+1+(0-3) 4+1+(0-3)	(16-25)+(25-35)+(16-35) (16-240)+(25-95)+(16-35) (16-35)+(25-50)+(16-35)	same, with a neutral supporting bare aluminum conductor reinforced with steel wire	
SIP-2 TU 16-705.500-2006 and TT	0.6/1	1+1+(0-3) 3+1+(0-3)	(16-25)+(25-35)+(16-35) (16-240)+(25-95)+(16-35)	same, with a neutral supporting bare aluminum alloy conductor, with light-stabilized cross-linked polyethylene insulation	For overhead transmission lines (OHTL) and linear branches of overhead lines in the atmosphere of types II and III according to GOST 15150, including on the shores of seas and salt lakes, in industrial areas, and in saline sand areas.
SIP-2 TU 16. K09-140-2004	0.6/1	1+1+(0-3) 3+1+(0-3) 4+1+(0-3)	(16-25)+(25-35)+(16-35) (16-240)+(25-95)+(16-35) (16-35)+(25-50)+(16-35)	same, with a neutral supporting bare aluminum conductor reinforced with steel wire, with light-stabilized cross-linked polyethylene insulation	For overhead transmission lines (OHTL) and linear branches of overhead lines in the atmosphere of types II and III according to GOST 15150.
SIP-3 TU 16-705.500-2006	20; 35	1	35-240	aluminum alloy conductor with light-stabilized cross-linked polyethylene insulation	For overhead transmission lines (OHTL) rated for voltage of 10-35 kV in the atmosphere of types II and III according to GOST 15150, including on the shores of seas and salt lakes, in industrial areas, and in saline sand areas.
SIP-3 TU 16. K09-147-2005	20; 35	1	25-120	aluminum conductor reinforced with steel wire or aluminum alloy conductor with light-stabilized cross-linked polyethylene insulation	For overhead transmission lines in areas with a temperate and cold climate, in the atmosphere of types II and III according to GOST 15150. Conductor operating temperature is up to 90 °C.
SIP-4 TU 16-705.500-2006	0.6/1	2; 4	16; 25	aluminum conductors with light-stabilized cross-linked polyethylene insulation	For branches from OHTL to lead-in, for laying along walls of buildings and engineering structures in the atmosphere of types II and III according to GOST 15150.
SIP-5 TU 16. K09-146-2005	0.6/1	2+(0-3) 3+(0-3) 4+(0-3)	(35-120)+(16-35) (16-120)+(16-35) (35-150)+(16-35)	aluminum conductors with light-stabilized cross-linked polyethylene insulation (without a supporting element)	For overhead transmission lines and branches to lead-ins of residential buildings, farm buildings in areas with a temperate and cold climate, in the atmosphere of types II and III according to GOST 15150. Conductor operating temperature is up to 90 °C.
SIPn-5 TU 16. K09-146-2005	0.6/1	2+(0-3) 3+(0-3) 4+(0-3)	(35-120)+(16-35) (16-120)+(16-35) (35-150)+(16-35)	aluminum conductors with light-stabilized cross-linked polyethylene insulation (without a supporting element)	Same, under high fire risk conditions.
SIP-4 TU 16. K09-146-2005	0.6/1	(2-4)+(0-3)	(10-120)+(16-35)	aluminum conductors with light-stabilized cross-linked polyethylene insulation (without a supporting element)	For overhead transmission lines and branches to lead-ins of residential buildings, farm buildings in areas with a temperate and cold climate, in the atmosphere of types II and III according to GOST 15150. Conductor operating temperature is up to 90 °C.
SIPn-4 TU 16. K09-146-2005	0.6/1	(2-4)+(0-3)	(10-120)+(16-35)	aluminum conductors with flame-retardant light-stabilized cross-linked polyethylene insulation (without a supporting element)	Same, under high fire risk conditions.

BARE WIRES FOR OVERHEAD POWER TRANSMISSION LINES

■ AT1PS/S construction

1. Galvanized steel wire core.
2. Outer layers of slotted arrow-shaped aluminum alloy wires.



■ A construction

1. Aluminum wire.

■ Specifications

Wires are designed for transmission of electric power in overhead systems (power transmission lines)

Maximum conductor operating temperature, °C:

A, AS, ASKS, ASKP, M, ASp	+90
AT1PS/S	+150

Service life, years:

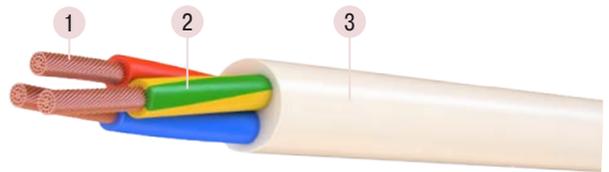
A, AS, M, ASp, AT1PS/S	45
ASKP	25
ASKS	10

Type and standard	Number of conductors	Cross-section area, mm ²	Design	Area of application
AT1PS/S TU 16 K71-453-2013	1	185-600	galvanized steel wire core, outer layers of slotted arrow-shaped aluminum alloy wires	Wires are designed for the transmission of electrical power on land of all macroclimatic areas in accordance with GOST 15150, NF version. Its main purpose is to significantly increase the capacity of the lines without replacing or significant reconstruction of the existing infrastructure.
ASp TU 16.K180-030-2011	1	205-779	aluminum alloy wire	Recommended for new and reconstructed 110-750 kV overhead lines. Wires are used in the atmosphere of types I and II, provided that the atmosphere contains no more than 150 mg/m ² per day of sulfur dioxide (1.5 mg/m ³) on land of all macroclimatic areas according to GOST 15150-69, NF version, except for TA and TH.
AS GOST 839-2019 IEC 61089	1	16/2.7-500/336	steel core, aluminum wire	Wires are used on the shores of seas and salt lakes, in industrial areas, and in saline sand areas, as well as adjacent areas with a temperate and cold climate, except for the humid tropics. Wires are used for laying in the atmosphere with a content of sulfur dioxide of no more than 150 mg/m ² per day (1.5 mg/m ³) and chloride salts of no more than 200 mg/m ² per day.
ASK GOST 839-2019	1	16/2.7-400/64		
ASKP GOST 839-2019 IEC 61089	1	16/2.7-400/64		
ASKS GOST 839-2019 IEC 61089	1	16/2.7-400/64		
ACSR DIN 48204:1984	1	16/2.5-240/40		
ACSR BS 215-2:1970	1	125-300		
A GOST 839-2019 MЭК 61089	1	16-500	aluminum wire	Wires are used for on-land applications in areas with a temperate and cold climate, except for dry and humid tropics. Wires are used for laying in the atmosphere with a content of sulfur dioxide of no more than 150 mg/m ² per day (1.5 mg/m ³) and chlorides of not less than 0.3 mg/m ² per day.
AAC DIN 48201-5:1984	1	16-185		
AAC BS 215-1:1970	1	16-185		
M GOST 839-2019	1	16-120	copper wire	Wires are designed for on-land applications in areas with a temperate and cold climate, except for dry and humid tropics. Wires are used for on-land and offshore applications in areas with a temperate and cold climate.

PVC INSULATED POWER WIRES AND CORDS

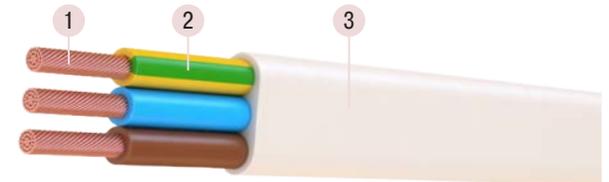
■ PVS construction

1. Copper multiwire conductor.
2. PVC compound insulation, color: light blue, brown, black, green-yellow, white, red.
3. PVC compound sheath, color: white, black, dark blue, red, yellow, green, brown, gray, light blue.



■ ShWP construction

1. Copper or copper tinned multiwire conductor, flexibility class 5.
2. PVC compound insulation, color: light blue, brown, black, green-yellow, white, red.
3. PVC compound sheath, color: white, black, dark blue, red, yellow, green, brown, gray, light blue.



■ Area of application

Wires and cords are intended for installation of electrical circuits in lighting and power networks, electrical equipment, machines and apparatus.

■ Specifications

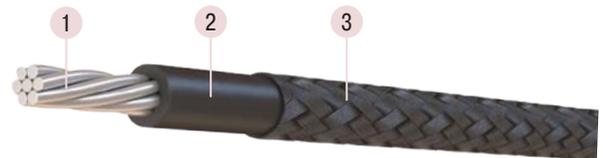
Rated voltage U_0/U , V:	
- all wires of the group except PVS and ShWP	450/750
- PVS	380/660
- ShWP	380/380
Test AC voltage at 50 Hz frequency during 5 min, V, after 1 hour in water:	
- all wires of the group except PVS and ShWP	2 500
- PVS, ShWP (without submerging underwater)	2 000
Insulation resistance, min., MOhm	5
Maximum conductor operating temperature, °C	+65/+70
Ambient temperature, °C:	
- all wires of the group except PVS and ShWP	-50/+65
- PVS, ShWP	-40/+40
Air humidity at +35 °C, %	to 98
Bend radius, min., outer diameters:	
- all wires of the group except PVS and ShWP	5
- PVS, ShWP	40
Factory length, min., m:	
- all wires of the group except PVS and ShWP	100
- PVS, ShWP	50
Service life, min., years:	
- all wires of the group except PVS and ShWP	20
- PVS, ShWP	10

Type and standard	U, V	Number of conductors	Cross-section, mm ²	Design	Area of application
PuV TU 16-705.501-2010	450/750	1	0.5-400	copper conductor, PVC compound insulation	For laying in steel ducts, ducts, trays etc. for electrical circuits installation.
PuGV TU 16-705.501-2010	450/750	1	0.5-400	flexible copper conductor, PVC compound insulation	For laying in steel ducts, ducts, trays etc. for electrical circuits installation where increased flexibility is necessary for routing and installation.
PuW TU 16-705.501-2010	450/750	1 2-3	0.5-400 0.5-4.0	copper conductor, PVC compound insulation, PVC compound sheath	For stationary laying in electrical installations of lighting and power networks, as well as for installation of electrical equipment, machines, mechanisms and machine tools, indoor electrical installations. Placement category – boreal climate (YXJ). Wires are used for single laying under plaster, in concrete, brick, in hollow spaces of construction elements, in open laying on wall and ceiling surfaces and in other structures, for installation of electrical circuits. Group laying is only allowed in outdoor electrical installations and industrial premises where passive fire protection is mandatory. Cables are flame retardant at single laying.
PuGW TU 16-705.501-2010	450/750	1	0.5-400	flexible copper conductor, PVC compound insulation, PVC compound sheath	For stationary laying in electrical installations of lighting and power networks, as well as for installation of electrical equipment, machines, mechanisms and machine tools, indoor electrical installations. Placement category – boreal climate (YXJ). Wires are used for single laying under plaster, in concrete, brick, in hollow spaces of construction elements, in open laying on wall and ceiling surfaces and in other structures, for installation of electrical circuits where increased flexibility is required during routing and installation. Group laying is only allowed in outdoor electrical installations and industrial premises where passive fire protection is mandatory. Cables are flame retardant at single laying.
PuVng (A)-LS TU 16-705.502-2011	450/750	1	0.5-400	copper conductor, low fire-hazard PVC compound insulation	For laying in steel ducts, ducts, trays etc. for electrical circuits installation.
PuGVng (A)-LS TU 16-705.502-2011	450/750	1	0.5-400	flexible copper conductor, low fire-hazard PVC compound insulation	For laying in steel ducts, ducts, trays etc. for electrical circuits installation where increased flexibility is necessary for routing and installation.
PVS GOST 7399-97	380/660	2-5	0.75-2.5	copper multiwire conductor, PVC compound insulation, PVC compound sheath	Wires are used to connect electric appliances and power tools for homecare and repair, washing machines, refrigerators, electrical tools for gardening and other similar machines and appliances, and as extender cords. Placement categories – mild climate (Y), tropical climate (T) and boreal climate (YXJ).
ShWP GOST 7399-97	380/380	2-3	0.5-0.75	copper multiwire conductor, PVC compound insulation, PVC compound sheath, flat design	The cord is used to connect personal care and microclimate appliances, electric soldering irons, lamps, kitchen appliances, electrical mechanical and radioelectronic equipment, washing machines, refrigerators and other similar appliances used in residential and administrative buildings, and as extender cords.

RUBBER INSULATED POWER WIRES AND CORDS

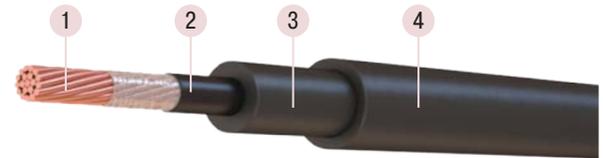
■ APRTO construction

1. Aluminum conductor.
2. Rubber insulation.
3. Cotton yarn braid impregnated with antifouling compound, or synthetic yarn braid without impregnation.



■ PRPG-600 construction

1. Copper multiwire conductor.
2. Conductive rubber screen.
3. Rubber insulation.
4. Rubber sheath.



■ Area of application

Wires and cords are intended for installation of electrical circuits in lighting and power networks, electrical equipment, machines and apparatus.

■ Specifications

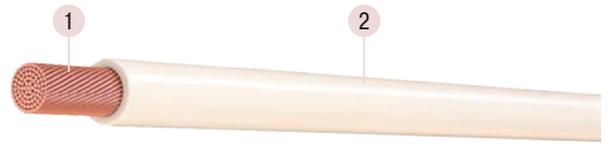
Rated voltage U, V	660-6 000
Test AC voltage at 50 Hz frequency, V:	
- during 5 min.: APRTO, PRTO, APRN, PRGN	2 000
- during 5 min. after staying in water for 6 hours.	13 000
- during 15 min. after staying in water: PRPG, PRG	2 500-15 000
- during 1 min. in water: PRKA	2 500
Maximum conductor operating temperature, °C:	
- APRN, PRGN, APRTO, PRTO, PRG, PRPG, PRG-6000	+65
- PVKV, PKGM, PRKA	+180
- PGRO	+115
- PGP	+150
Ambient temperature, °C:	
- APRTO, PRTO, APRN, PRGN	-50/+50
- PRG, PRPG	-50/+60
- PRPG-KhL, PRG-KhL	-60/+60
- PRG-TO, PRPG-T	-10/+60
- PRKA	-60/+180
Minimum laying (installation) temperature, °C:	
- APRTO, PRTO, APRN, PRGN	-25
- PRG, PRPG, PRG-6000, PVKV, RKGM, PRKA, PGR, PGRO, PR, PRPGU	-15
Bend radius, min., outer diameters:	
- APRTO, PRTO, APRN	10
- PRG, PRPG, PRGN	5
- PRKA	2
Factory length, min., m:	
- APRTO, PRTO, APRN, PRGN, PRG, PRPG	100
- PRKA	200
Service life, min., years:	
- APRTO, PRTO, APRN, PRG	12
- PRGN	7
- PRKA	10
- PRPG	6

Type and standard	U, V	Number of conductors	Cross-section, mm ²	Design	Area of application
PRPGU TU 16.K71-176-92	660 1 500 3 000 4 000	1	1.5-300	copper conductor, rubber insulation, rubber-impregnated cloth tape or thermally bonded fabric winding on insulated conductor, rubber sheath	Wires are designed to connect to mobile power consumers in the environment with a possibility of mechanical impacts. Ambient classes – mild climate (Y), frigid climate (XJ), tropical climate (T); placement categories 1 and 2 under GOST 15150. Wires are resistant to simultaneous bending-and-twisting, to ozone. During operation the wires should not be exposed to solar radiation.
	6 000	1	10-150	copper conductor, conductive rubber screen, rubber insulation, rubber-impregnated cloth tape or thermally bonded fabric winding, rubber sheath	
APRTO TU 16.K09-164-2006	660	1	2.5-120	aluminum conductor, rubber insulation, synthetic yarn braid without impregnation	Wires are designed to provide equipment operation at fixed laying, to install electrical equipment of machines and machine tools. Wires are designed for operation on land in macroclimatic areas with boreal, frigid and tropical climate. To be installed in pipes.
PRT0 TU 16.K09-164-2006	660	1	0.75-120	copper conductor, rubber insulation, synthetic yarn braid without impregnation	
PRG TU 16.K71-176-92	660 1 500 3 000 4 000	1	1.5-300	copper conductor, PET-E winding, rubber insulation, rubber sheath	Wires are designed for stationary and mobile electrical equipment installation. Wires are manufactured for operation in areas with boreal, frigid, tropical climate.
	6 000	1	10-150	copper conductor, conductive rubber screen, rubber insulation, rubber sheath	
PRPG TU 16.K71-176-92	660 1 500 3 000 4 000	1	1.5-300	copper conductor, PET-E winding, insulation and protection rubber sheath	Wires are used for stationary and mobile installation of electrical equipment, machines, mechanisms, machine tools, and for connection to mobile power consumers. Wires are manufactured for operation in areas with boreal, frigid and tropical climate.
	6 000	1	10-150	copper conductor, conductive rubber screen, rubber insulation, rubber sheath	
APRN TU 16.K09-164-2006	660	1	2.5-120	aluminum conductor, rubber insulation, nonflammable rubber sheath	Wire is designed to provide equipment operation at fixed routing in dry and damp premises, in hollow ducts of fireproof constructions and in the open air in macroclimatic areas with boreal and tropical climate.
PRGN TU 16.K09-164-2006	660	1	1.5-120	flexible copper conductor, rubber insulation, non- nonflammable rubber sheath	Wire is designed to be installed with increased flexibility during installation and connection of moving parts of electrical machines in dry and damp premises and in the open air in macroclimatic areas with boreal and tropical climate.
PRKA TU 16-505.317-76	660	1	0.75-2.5	conductor bound from copper wires, organic silicon rubber insulation	Wires are designed for operation at fixed installation inside lighting fittings, electric cookers, ovens and other household electrical heating appliances. Wires are designed to be used on land, rivers and lakes in macroclimatic areas with boreal, frigid and tropical climate.
PR TU 16.K71-176-92	660 1 500 3 000 4 000	1	1.5-300	copper conductor, rubber insulation and sheath	Intended for stationary and mobile electrical equipment installation. Wires are used for fixed laying. Ambient classes – mild climate (Y), frigid climate (XJ), tropical climate (T); placement categories 1 and 2 under GOST 15150. Wires are resistant to ozone. During operation the wires should not be exposed to solar radiation.
	6 000	1	10-150	copper conductor, conductive rubber screen, rubber insulation, rubber sheath	

WINDING TERMINAL WIRES

■ PVKV construction

1. Electric conductor twisted from copper wires.
2. Double layer organic silicone rubber insulation.

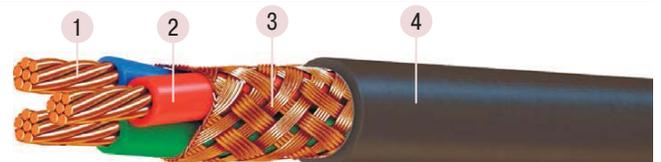


Type and standard	U, V	Number of conductors	Cross-section, mm ²	Design	Area of application
PVKV TU 16.K80-09-90	380 660	1	0.75-95 0.75-120	flexible copper conductor, double layer organic silicone rubber insulation	Wires are designed for output terminals of windings of temperature class H (+180 °C): electrical machines and devices with AC voltage up to 380 V, frequency up to 400 Hz, without exposure to aggressive mediums and oils. Wires are resistant to: decreased atmospheric pressure down to 1.3 x 10 ² Pa (1 mm Hg.) and increased atmospheric pressure up to 29.4 x 10 ⁴ Pa; vibration, mechanical impacts; mold fungi; lacquers and impregnation compounds. Minimum bending radius during installation is two wire diameters.
RKGM TU 16.K80-09-90	660	1	0.75-120	flexible copper conductor, double layer organic silicone rubber insulation, glass fiber braid impregnated with enamel or heat-resistant lacquer	Same as PVKV except for resistance to lacquers and impregnating compounds.
PRG-6000 TU 16-505.439-73, TT	6 000	1	6-95	flexible copper conductor, rubber insulation, synthetic thread braid	Wires are used for output terminals of electrical machines. Wires are manufactured for repair needs of domestic industry and for export. Ambient class – mild climate (U) and tropical climate (T); placement categories 2, 3 and 4 under GOST 15150.

MICROPHONE CABLES

■ KMM construction

1. Flexible conductor twisted from copper wires.
2. Polyethylene insulation.
3. Copper wire braid.
4. PVC compound sheath.

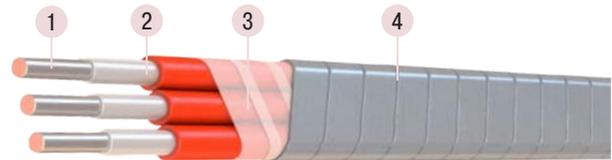


Type and standard	Test U, V	T _{max}	Number of conductors	Cross-section, mm ²	Design	Area of application
KMM, KMMc TU 16-505.488-78	1200, 50 Hz	+60	2; 3; 4; 5; 7; 9; 11	0.35	Flexible conductor made of copper wires, polyethylene insulation, copper wire braid over twisted insulated conductors, PVC compound sheath. KMMc cable conductors insulation is colored. Sheath color shall be specified in the order	Cables are designed to connect separate blocks contained in a microphone kit, to connect microphones, to connect microphones to amplifying devices, recorders and also as power circuits and microphone lines installation. Cables are resistant to temperature variation from minus 40 °C to plus 60 °C, direct sunlight, salt fog, installation and operation bends at minus 10 °C. Average service life is 8 years.

ELECTRICAL SUBMERSIBLE PUMP CABLES

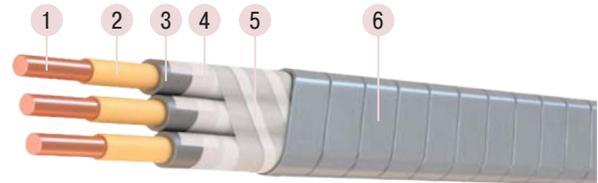
■ KPpBPTI-125 construction

1. Tinned copper single wire conductor, flexibility class 1.
2. Double layer insulation made of composition of block copolymer of propylene and ethylene.
3. Non-woven fabric tape bedding.
4. Galvanized steel tape armor.



■ KESBP-230 construction

1. Copper conductor.
2. Ethylene-propylene rubber insulation.
3. Lead alloy sheath.
4. Non-woven fabric tape winding.
5. Non-woven fabric tape bedding.
6. Galvanized steel tape armor (B) or corrosion resistant steel tape (Bk).



■ Area of application

Cables are designed to supply power to electrical submersible motors installed in boreholes, open wells, process reservoirs below supplied liquid level to enable liquid pump-out from large depths and pump component cooling. Cables are designed to be used in borehole fluid containing oil, water and gas.

■ Specifications

Rated AC voltage, kV:	
- with frequency 50 Hz for KPBP-90, KPBK-90	3.3
- with frequency 70 Hz for all other cables	3.3; 4
Insulation resistance at temperature 20 °C, min., MOhm x km	
- for KPBP-90, KPBK-90	2 500
- for KESBP-230	500
- for all other cable grades	4 000
Minimum operating temperature in static condition, °C	-60
Minimum temperature at tripping and rewind operations, °C	
- for KPBP-90, KPBK-90	-35
- for all other cable grades	-40
Cables are designed to be used in borehole fluid containing oil, water and gas with the following characteristics:	
- water content	to 100%
- hydrogen index of production water pH 6.0	8.5
- hydrogen sulfide concentration, % (g/l), max.:	
• for cables with galvanized steel tape armor,	0.001 (0.01)
• for cables with corrosion resistant tape armor;	0.125 (1.25)
- gaz factor of formation fluid, max., mi /mi;	500
- hydrostatic pressure, max., MPa:	
• for KESBP	40
• for other cable grades	25
Cable bending radius at tripping and rewind operations, min., mm	300
Guarantee period, months	18

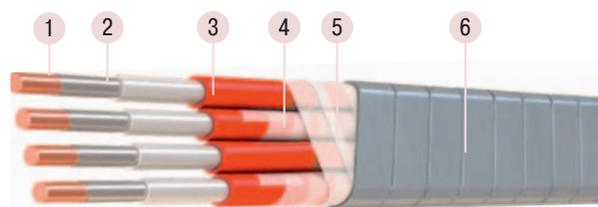
Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
AKPpBPT-120, AKPpBKT-120, AKPpBkPT-120 TU 16.K180-067-2018	3.3	3	10; 13.3; 16; 21,15; 25; 35	aluminum conductor, double layer insulation from composition of block copolymer of propylene and ethylene, bedding, galvanized steel tape armor (B) or corrosion resistant steel tape armor (Bk)	Cables are designed for power supply to electrical submersible motors with rated operating AC voltage of 3.3 kV, frequency 70 Hz, allowable continuous conductor heating temperature 120 °C
AKPpBPT-120-4, AKPpBKT-120-4, AKPpBkPT-120-4 TU 16.K180-067-2018	4	3	10; 13.3; 16; 21,15; 25		Cables are designed for power supply to electrical submersible motors with rated operating AC voltage of 4 kV, frequency 70 Hz, allowable continuous conductor heating temperature 120 °C
AKPvPpBP-130, AKPvPpBK-130, AKPvPpBkP-130 TU 16.K180-067-2018	3.3	3	10; 13.3; 16; 21,15; 25; 35	aluminum conductor, double layer insulation: 1 layer – chemically cross-linked polyethylene composition, 2 layer – block-copolymer of propylene and ethylene composition; bedding, galvanized steel tape armor (B) or corrosion resistant steel tape armor (Bk)	Cables are designed for power supply to electrical submersible motors with rated operating AC voltage of 3,3 kV, frequency 70 Hz, allowable continuous conductor heating temperature 130 °C
AKPvPpBP-130-4, AKPvPpBK-130-4, AKPvPpBkP-130-4 TU 16.K180-067-2018	4	3	10; 13.3; 16; 21,15; 25		Cables are designed for power supply to electrical submersible motors with rated operating AC voltage of 4 kV, frequency 70 Hz, allowable continuous conductor heating temperature 130 °C
KPBK-90, KPPB-90 TU 16-505.129-2002	3.3	3	10; 13.3; 16; 21,15; 25; 35	copper conductor, double- layer HDPE insulation, bedding, galvanized steel tape armor	Cables are designed to supply electrical submersible motors with rated operating AC voltage of 3.3 kV, frequency 50 Hz, allowable continuous conductor heating temperature 90 °C
KPpBKT-120, KPpBPT-120, KPpBkPT-120, KPpBkKT-120 TU 16.K09-119-2002	3.3	3	10; 13.3; 16; 21,15; 25; 35	copper conductor, double layer insulation from composition of block- copolymer of propylene and ethylene, bedding, galvanized steel tape armor (B) or corrosion resistant steel tape armor (Bk)	Cables are designed to supply electrical submersible motors with rated operating AC voltage of 3.3 kV, frequency 70 Hz, allowable continuous conductor heating temperature 120 °C
KPpBKT-120-4, KPpBPT-120-4, KPpBkPT-120-4, KPpBkKT-120-4 TU 16.K09-119-2002	4	3	10; 13.3; 16; 21,15; 25		Cables are designed to supply electrical submersible motors with rated operating AC voltage of 4 kV, frequency 70 Hz, allowable continuous conductor heating temperature 120 °C
KPpBKT-120-5, KPpBPT-120-5, KPpBkPT-120-5, KPpBkKT-120-5 TU 16.K09-119-2002	5	3	10; 13.3; 16; 21,15; 25		Cables are designed to supply electrical submersible motors with rated operating AC voltage of 5 kV, frequency 70 Hz, allowable continuous conductor heating temperature 120 °C
KPpBPTI-125, KppBkPTI-125 TU 16.K09-119-2002 TT SGT/07-03-2014	3.3	3	10; 13.3; 16; 21,15; 25	coper conductor, double layer insulation from block copolymer of propylene and ethylene composition, bedding, galvanized steel tape armor (B) or corrosion resistant steel tape armor (Bk)	Cables are designed to supply electrical submersible motors with rated operating AC voltage of 3.3 kV, frequency 70 Hz, allowable continuous conductor heating temperature 125 °C
KPpBPTI-125-4, KppBkPTI-125-4 TU 16.K09-119-2002 TT SGT/07-03-2014	4	3	10; 16; 25		Cables are designed to supply electrical submersible motors with rated operating AC voltage of 4 kV, frequency 70 Hz, allowable continuous conductor heating temperature 125 °C
KPvPpOPpBP-130 TU 16.K180-010-2009 TT SGT/01-59-2014	3.3	3	10; 16	copper conductor, double layer insulation: 1 layer – chemically cross-linked polyethylene composition, 2 layer – block-copolymer of propylene and ethylene composition; common sheath from block-copolymer of propylene and ethylene composition; bedding, galvanized steel tape armor	Cables are designed to supply power to electrical submersible motors of oil production units

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
KESBP-230, KESBkP-230, TU 16.K180-011-2009	4	3	10; 13,3; 16; 21, 15; 25	copper conductor, ethylene-propylene rubber insulation, lead alloy sheath, winding, bedding, galvanized steel tape armor (B) or corrosion resistant steel tape armor (Bk)	Cables are designed to supply electrical submersible motors with rated operating AC voltage of 4 kV, frequency 70 Hz, allowable continuous conductor heating temperature 230 °C
KLESBP-230-5, KLESBkP-230-5, TU 16.K180-011-2009	5	3	8; 10; 13,3; 16; 21, 15; 25		Cables are designed to supply electrical submersible motors with rated operating AC voltage of 5 kV, frequency 70 Hz, allowable continuous conductor heating temperature 230 °C
KPvPpBP-130, TU 16.K180-010-2009	3.3	3	10; 13,3; 16; 21, 15; 25; 35	copper conductor, double layer insulation: 1 layer – chemically cross-linked polyethylene composition, 2 layer – block-copolymer of propylene and ethylene composition resistant to copper ions, bedding, armor from embossed galvanized steel tape	Cables are designed to supply power to electrical submersible motors of oil production units, water lift, pumping of fluids from boreholes, reservoirs and water basins with rated operating AC voltage of 3.3 kV, frequency 70 Hz, allowable continuous conductor heating temperature 130 °C
KPvPpBP-130-4, TU 16.K180-010-2009	4	3	10; 13,3; 16; 21, 15; 25		Cables are designed to supply power to electrical submersible motors of oil production units, water lift, pumping of fluids from boreholes, reservoirs and water basins with rated operating AC voltage of 4 kV, frequency 70 Hz, allowable continuous conductor heating temperature 130 °C
KIFBP-230-4, KIFBkP-230-4, TU 16.K180-075-2019	4		10; 13,3; 16; 21, 15; 25	copper core, double-layer insulation: 1 layer of polyimide-fluoroplast tape, 2 layer of fluoroplast, cushion, armor made of galvanized steel tape (B) or corrosion-resistant steel tape (Bk)	Cables are designed to supply electrical submersible motors with rated operating AC voltage of 4 kV, frequency 70 Hz, allowable continuous conductor heating temperature 230 °C
KIFBP-230-5, KIFBkP-230-5, TY 16.K180-075-2019	5		10; 13,3; 16; 21, 15; 25		Cables are designed to supply electrical submersible motors with rated operating AC voltage of 5 kV, frequency 70 Hz, allowable continuous conductor heating temperature 230 °C
KPpFoBP-140, KPpFoBkP-140	3.3		10; 13,3; 16; 21, 15; 25	copper core, double-layer insulation made of propylene block copolymer compositions with ethylene, a shell for each core made of fluoroplast, a pillow, armor made of galvanized steel tape (B) or corrosion-resistant steel tape (Bk)	Cables are designed to supply electrical submersible motors with rated operating AC voltage of 3.3 kV, frequency 70 Hz, allowable continuous conductor heating temperature 140 °C

CABLES FOR OIL WELL TUBING HEATING against asphalt-tar-paraffin depositions (ATPD)

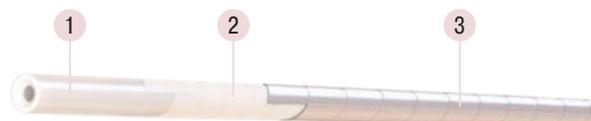
■ KNPpoBPI construction

1. Copper electric conductor.
2. Protective anti-corrosion coating.
3. Conductor double layer insulation.
4. Non-woven fabric tape winding.
5. Non-woven fabric tape bedding.
6. Galvanized steel tape armor.



■ TKPpB 5/10 construction

1. Block copolymer capillary tube.
2. Non-woven fabric tape winding.
3. Galvanized steel tape armor.



Specifications

Insulation resistance, min., MOhm x km:

- at temperature +20 °C: KNSPpoBP, KNPpoBPI 300
- at temperature +20 °C: KPpBPT-120+TK 4 000

Rated DC voltage, frequency 50 Hz, V:

- KNSPpoBP, KNPpoBPI 1 000
- KPpBPT-120+TK 3 300

Ambient temperature, °C

- KNSPpoBP, KNPpoBPI -60/+120
- KPpBPT-120+TK -60/+120
- TKPpB 5/10 -60/+90

Guarantee period, months:

- KNSPpoBP, KNPpoBPI 12
- KPpBPT-120+TK 18
- TKPpB 5/10 6

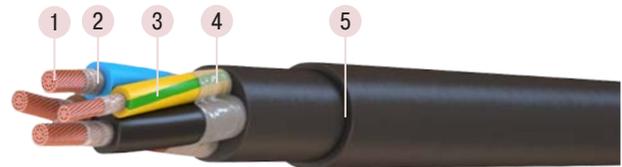
Type and standard	U, V	Number of conductors	Cross-section, mm ²	Design	Area of application
KNSPpoBP, KNPpoBPL, KNPpoBP TU 16.K09-120-2003	1 000	3; 4	6	copper conductor, or copper conductor with protective coating, or steel conductor, double layer insulation, winding, bedding under armor, armor	Cables are designed to heat the tubing of sucker rod pumps and rodless submersible pumps in wells with the aim to prevent ATPD and crystalline hydrates formation. They can also be used to heat water pipes of injection wells. For installation on the outer surface of tubing.
KNAppBP-125 TU 16.K09-120-2003, TT SGT/03-70-2016	2 500	3	10; 16	heat resistant aluminum alloy conductor, double layer insulation, bedding under armor, armor	Designed to heat wells, for tubing string to reduce mix viscosity and prevent ATPD formation on the tubing walls in oil wells. Used to operate in borehole fluid containing oil, water and gas.
KPpBPT-120+TK TU 16.K09-119-2002, TT SGT/01-24-2010	3 300	3+CP	3x16+5/10	copper conductor, double insulation + capillary pipe, bedding under armor, armor	Designed to supply power to electrical submersible motors (ESM) of oil production units and to supply chemicals to pump suction end by capillary pipe, or for ESM filling with oil.

Type and standard	Tube parameters	Design	Area of application
TKPpB 5/10 TU 16.K09-176-2007	Tube diameter: external – 10.0 mm internal – 5.0 mm	block copolymer capillary pipe, winding, armor	Designed to supply different reagents into a well, e.g. to suction end of submersible pumps, for ESM filling with oil
TKPpBpP 5/10 TU 16.K09-176-2007, TT SGT/01-45-2013	Tube diameter: external – 10.0 mm internal – 5.0 mm	capillary pipe from composition of block copolymer of propylene and ethylene; bedding under armor; galvanized steel tape armor; sheath from composition of block copolymer of propylene and ethylene	Designed to supply different reagents into a well, e.g. to suction ends of submersible pumps

FLEXIBLE POWER CABLES UP TO 1 KV

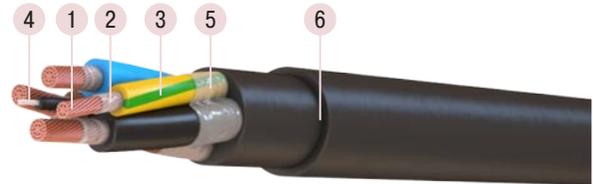
■ KGN (KGTP*) construction

1. Flexible copper conductor.
2. PET-E film.
3. Rubber insulation (*thermoelastoplast insulation).
4. PET-E film.
5. Oil resistant flame retardant rubber sheath.



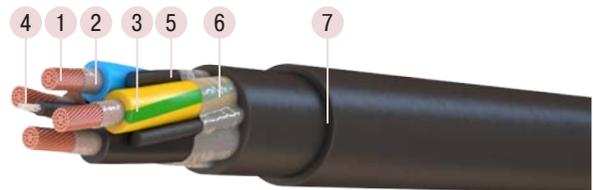
■ KPGS construction

1. Flexible copper conductor.
2. PET-E film.
3. Rubber insulation.
4. Strand from polyether threads in rubber sheath.
5. PET-E film.
6. Rubber sheath.



■ KPGU construction

1. Flexible copper conductor.
2. PET-E film.
3. Rubber insulation.
4. Strand from polyether threads in rubber sheath.
5. Rubber filling.
6. PET-E film.
7. Rubber sheath.



■ Area of application

Flexible power cables are designed to connect mobile devices to electrical networks with rated AC voltage up to 660 V, frequency up to 400 Hz or DC rated voltage 1000 V.

■ Specifications

Rated AC voltage with frequency up to 400 Hz, V	380	660
Rated DC voltage, V	660	1 000
Test AC voltage 50 Hz, 5 min., V	2 000	2 500
Insulation resistance at temperature +20 °C, min. MOhm x km:		
- for cables with rubber insulation		50
- for cables with heat resistant rubber insulation		100
Maximum conductor operating temperature, °C:		
- for cables with rubber insulation and thermoelastoplast insulation		+75
- for cables with heat resistant rubber insulation		+85
Ambient temperature, °C:		
- KGTP-KhL, KGTPp-KhL, KG-KhL, KPG-KhL, KPGT-KhL, KPGS-KhL, KPGST-KhL, KPGU-KhL		-60/+50
- KGTP, KGTPp, KPG, KPGT, KPGS, KPGST, KPGU, KPGUT		-50/+50
- KG		-40/+50
- KTG		-40/+65
- KGN, KPGSN, KPGSNT, KGNT, KPGN, KPGNT		-30/+50
- KG-T, KTG-T, KPG-T, KPGT-T, KPGS-T, KPGST-T, KPGU-T, KGN-T, KPGSN-T, KPGSNT-T, KPGSNT-T		-10/+55
Factory length, min., m:		
- main conductor cross section up to 35 mm ²		150
- main conductor cross section 50-120 mm ²		125
- main conductor cross section exceeding 150 mm ²		100
Service life, min., years:		
- KG, KGTP, KGTPp, KGTP-KhL, KGTPp-KhL, KTG, KPG, KPGT, KPGS, KPGST, KPGU		4
- KGN, KGNT, KPGN, KPGNT, KPGSN, KPGSN, KPGSNT		2.5
Guarantee period, months		6

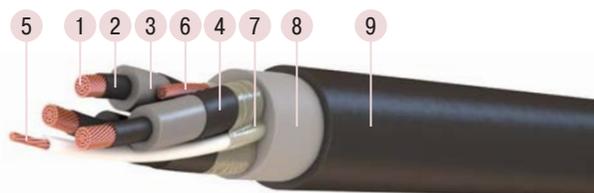
Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application								
KG, KG-T, KG-KhL GOST 24334-80 TU 16.K09-064-2004	0.38	1	2.5-120	copper conductors, PET-E film, rubber insulation, separating layer from PET-E film or thermolinked fabric, rubber sheath	For operation in: - open air, - premises. Resistant to direct sunlight. Bending radius – 8 x Ø								
		2	0.75-120										
		2+1	0.75-120										
		2+2	2.5-120										
		3	0.75-120										
	0.66	3+1	0.75-120										
		3+2	2.5-120										
		4	1.0-95										
		5	1.0-95										
		1	2.5-400										
	KGN, KGN-T GOST 24334-80 TU 16.K73.05-93	0.66	2			0.75-240	copper conductors, PET-E film, rubber insulation, separating layer from PET-E film or thermo-linked fabric, flame retardant rubber sheath	For operation in: - KGN – closed premises with natural ventilation without precipitation and direct sunlight, premises with increased air humidity; - KGN-T – same as KGN, and also in the open air without direct sunlight and under shed. Resistant to lubricating oils, detergents and aggressive substances. Flame retardant if laid single. Bending radius – 8 x Ø					
			2+1			0.75-240							
			3			0.75-185							
			3+1			0.75-185							
			4			1.0-185							
KGp, KGp-KhL TU 16.K09-064-2004		0.38	2	0.75-4	same as KG, in flat design	For operation in: - open air, - premises. Resistant to direct sunlight. Bending radius – 8 x Ø							
		0.66											
		KGTP, KGTP-KhL TU 16.K09-064-2004							0.38	1	2.5-120	copper conductors, PET-E film, thermoelastoplast insulation, separating layer from PET-E film or thermo-linked fabric, thermoelastoplast sheath	For connection of a welding apparatus, submersible pump and cranes, and for national industry needs For operation in: - open air, - premises. Resistant to direct sunlight and ozone. Bending radius – 8 x Ø
										2	0.75-120		
										2+1	0.75-120		
2+2	2.5-120												
3	0.75-120												
0.66	3+1		0.75-120										
	3+2		2.5-120										
	4		1.0-95										
	5		1.0-95										
	1		2.5-400										
KGTPp, KGTPp-KhL TU 16.K09-064-2004	0.38	2	0.75-4	same as KGTP, in flat design	For operation in: - open air, - premises. Resistant to direct sunlight. Bending radius – 8 x Ø								
	0.66												
	KTG, KTG-T GOST 24334-80 TU 16.K73.05-93					0.66	1	2.5-400	copper conductors, PET-E film, heat resistant rubber insulation, separating layer from PET-E film or thermo-linked fabric, rubber sheath	For operation in: - KTG – closed premises with natural ventilation without precipitation, premises with increased air humidity; - KTG-T – in open air, under shed and in closed premises. Resistant to direct sunlight. Bending radius – 8 x Ø			
							2	0.75-185					
							2+1	0.75-185					
3		0.75-185											
3+1		0.75-185											
4	1.0-185												
5	1.0-185												

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
KPG, KPG-T, KPG-KhL GOST 24334-80 TU 16.K73.05-93	0.66	2 2+1 3+1	0.75-185 0.75-185 0.75-185	copper conductors, PET-E film, rubber insulation, separating layer from PET-E film or thermo-linked fabric, rubber sheath	For operation in: - open air, - under shed, - premises. Resistant to direct sunlight. Bending radius – 5 x Ø
KPGT, KPGT-T, KPGT-KhL GOST 24334-80 TU 16.K73.05-93	0.66	2 2+1 3+1	0.75-185 0.75-185 0.75-185	copper conductors, PET-E film, heat resistant rubber insulation, separating layer from PET-E film or thermo-linked fabric, rubber sheath	
KPGU, KPGU-T, KPGU-KhL GOST 24334-80 TU 16.K73.05-93	0.66	3 3+1	95-185 95-185	copper conductors, PET-E film, rubber insulation, strand, filling, separating layer of PET-E film or thermo-linked fabric, rubber sheath	For operation in: - open air, - under shed, - premises. Resistant to direct sunlight. Bending radius – 10 x Ø
KPGUT, KPGUT-T, KPGUT-KhL GOST 24334-80 TU 16.K73.05-93	0.66	3 3+1	95-185 95-185	copper conductors, PET-E film, heat resistant rubber insulation, strand, filling, separating layer of PET-E film or thermo-linked fabric, rubber sheath	
KPGS, KPGS-T, KPGS-KhL GOST 24334-80, TU 16.K73.05-93	0.66	3+1 3+1+1 3+1+2	2.5-185 2.5-185 2.5-185	copper conductors, PET-E film, rubber insulation, strand, separating layer of PET-E film or thermo-linked fabric, rubber sheath	For operation in: - open air, - under shed, - premises. Resistant to direct sunlight. Bending radius – 5 x Ø
KPGST, KPGST-T, KPGST-KhL GOST 24334-80, TU 16.K73.05-93	0.66	3+1 3+1+1 3+1+2	2.5-185 2.5-185 2.5-185	copper conductors, PET-E film, heat resistant rubber insulation, strand, separating layer of PET-E film or thermo-linked fabric, rubber sheath	
KPGSN, KPGSN-T GOST 24334-80, TU 16.K73.05-93	0.66	3+1 3+1+1 3+1+2	2.5-185 2.5-185 2.5-185	copper conductors, PET-E film, rubber insulation, strand, separating layer of PET-E film or thermo-linked fabric, flame retardant rubber sheath	For operation in: - KPGSN and KPGSNT – closed premises with natural ventilation without precipitation and direct sunlight, premises with increased air humidity; - KPGSN-T and KPGSNT-T – same as KPGSN and KPGSNT, and in the open air without direct sunlight and under shed. Resistant to lubricating oils, detergents and aggressive substances.
KPGSNT, KPGSNT-T GOST 24334-80, TU 16.K73.05-93	0.66	3+1 3+1+1 3+1+2	2.5-185 2.5-185 2.5-185	copper conductors, PET-E film, heat resistant rubber insulation, strand, separating layer of PET-E film or thermo-linked fabric, flame retardant rubber sheath	Cables are flame retardant. Bending radius – 5 x Ø

FLEXIBLE POWER CABLES 6 TO 10 KV

KGE construction

1. Flexible copper conductor.
2. Conductive rubber screen.
3. Rubber insulation.
4. Conductive rubber screen.
5. Auxiliary conductor.
6. Grounding conductor.
7. PET-E film.
8. Inner rubber sheath.
9. Rubber sheath.



Area of application

Flexible power cables are designed to connect mobile excavators, mobile transformer substations and other mobile machines or electrical plants to electric networks with insulated neutral.

Specifications

Rated AC voltage with frequency 50 Hz, kV:			KShVGT
- main conductors	6.0	10.0	10.0
- auxiliary conductors	0.38	0.38	-
Test AC voltage 50Hz, 5 min., kV:			
- main conductors	15.0	25.0	20.0
- auxiliary conductors	2.0	2.0	-
Allowable continuous conductor heating temperature at ambient temperature 25 °C, °C:			
- KGpE, KGpE-KhL, KGpE-T, KGENSh, KGENSh-T		+70	
- KGE, KGE-T, KGE-KhL		+75	
- KShVGT-10, KGET-6000, KGET-10000, KGETN-6000, KGETN-10000		+85	
Ambient temperature, °C:			
- KGE-KhL, KGpE-KhL		-60/+50	
- KGET-6000, KGET-10000		-50/+55	
- KGE, KGE-T		-40/+50	
- KGpE		-50/+50	
- KGETN-6000, KGETN-10000		-30/+55	
- KShVGT-10		-50/+85	
- KGpE-T, KGETNSh-T		-10/+50	
- KGENSh, KGEN, KGEN-T		-30/+50	
Air humidity, %		98	
Factory length, min., m		200	
Service life, years:			
- KGE, KGE-KhL, KGE-T, KGEN, KGETN-6000, KGETN-10000, KGpE, KGpE-KhL, KGENSh, KGpE-T, KGENSh-T, KGET-6000, KGET-10000		3	
- KShVGT-10 (fixed/mobile routing)		15/7.5	
Guarantee period, years:			
- KGE, KGE-KhL, KGE-T, KGEN, KGETN-6000, KGETN-10000, KGpE, KGpE-KhL, KGENSh, KGpE-T, KGENSh-T, KGET-6000, KGET-10000		1	
- KShVGT-10 (fixed/mobile routing)		15/7.5	

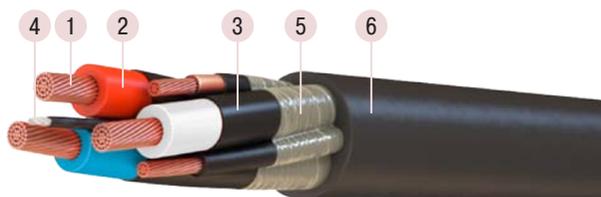
Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
KGE, KGE-T, KGE-KhL GOST R 52372-2005, TU 16.K73.02-88	6	3+1 3+1+1	10-150 10-150	copper conductors, rubber screen, rubber insulation, rubber screen, inner rubber sheath, outer rubber sheath	For excavators and other mobile mechanisms at open-pit mining in networks with insulated neutral, equipped with automatic shutdown apparatus at single phase short circuit to ground. Resistant to direct sunlight. Bending radius at installation and routing – 6 x Ø, at cable reel winding – 10 x Ø

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
KGEN KGEN-T GOST R 52372-2005, TU 16.K73.02-88	6	3+1 3+1+1	25-120 25-120	copper conductors, rubber screen, rubber insulation, rubber screen, inner rubber sheath, outer flame retardant rubber sheath	For zonal substations and distribution centers at underground mining in networks with insulated neutral and for operation in combination with equipment controlling ground conductor integrity and protection against single phase short circuit to ground. For operation in premises with increased air humidity. Flame retardant. Bending radius at installation and routing – 6 x Ø, at cable reel winding – 10 x Ø
KGET-6000 TU 16.K09-125-2002	6	3+1 3+1+1	10-185 10-185	copper conductors, rubber screen, heat resistant rubber insulation, rubber screen, PET-E film, inner rubber sheath, outer rubber sheath	To connect excavators and other mobile machines or electrical plants to electrical networks with insulated neutral. For operation in open air. Resistant to direct sunlight. Bending radius at installation and routing – 6 x Ø, at cable reel winding – 10 x Ø
KGET-10000 TU 16.K09-125-2002	10	3+1 3+1+1	25-150 25-150		
KGETN-6000 TU 16.K09-125-2002	6	3+1 3+1+1	10-185 10-185	copper conductors, rubber screen, heat resistant rubber insulation, rubber screen, inner rubber sheath, outer flame retardant rubber sheath	To connect excavators and other mobile machines or electrical plants to electrical networks with insulated neutral. Cables are flame retardant. For operation in premises with high humidity (unheated and unventilated underground premises). Bending radius at installation and routing – 6 x Ø, at cable reel winding – 10 x Ø
KGETN-10000 TU 16.K09-125-2002	10	3+1 3+1+1	25-150 25-150		
KShVGT-10 TU 16-705.101-79	10	3+3	25-150	copper conductors, rubber screen, heat resistant rubber insulation, rubber screen, strand of polyether thread in conductive rubber sheath, grounding conductor in conductive rubber sheath, thermo-linked fabric winding, inner rubber sheath, thermo-linked fabric winding, outer rubber sheath	For stationary and mobile installation and connection of mobile mechanisms to electrical networks. Bending radius – 6 x Ø
KGENSh, KGENSh-T TU 16.K09-158-2005	6	3+1 3+1+1	25-120 25-120	copper conductors, rubber screen, rubber insulation, rubber screen, PET-E winding, inner rubber sheath, oil and benzine resistant flame retardant rubber sheath	Mining cables are designed to connect mining electrical equipment to network with rated voltage of 6000 V. Cables are used in coal, iron-ore, salt, and slate mines. Cable insulation is resistant to ozone. Cables are flame retardant. Bending radius at installation and routing – 6 x Ø, at cable reel winding – 10 x Ø
KGpE, KGpE-KhL, KGpE-T TU 16.K09-158-2005	6	3+1+1	10-150	copper conductors, rubber screen, rubber insulation, rubber screen, PET-E winding, inner rubber sheath, outer rubber sheath	To connect excavators and other mobile machines or electrical plants to electrical networks. Cables are designed to be used in the open air. Cable insulation is resistant to ozone. Bending radius – 6 x Ø

FLEXIBLE MINING CABLES

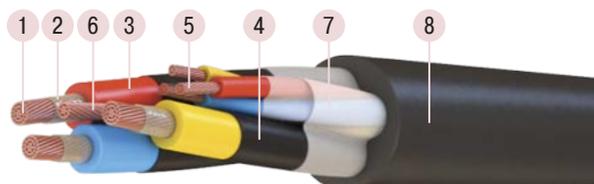
■ KOGRESH construction

1. Flexible copper conductor.
2. Rubber insulation.
3. Conductive rubber screen.
4. Reinforcement strand from polyether thread and conductive rubber.
5. PET-E film separating layer.
6. Flame retardant rubber sheath.



■ KGESH construction

1. Flexible copper conductor.
2. PET-E film over conductor.
3. Rubber insulation.
4. Conductive rubber screen.
5. Auxiliary conductors.
6. Grounding conductor.
7. PET-E film separating layer or thermo-linked fabric.
8. Flame retardant rubber sheath.



■ Area of application

Mining cables are designed to connect mining electrical equipment and tools to networks with rated AC voltage 380 V, 660 V, 1140 V, 330 V, 6300 V, frequency 50 Hz in main conductors and up to 250 V in auxiliary conductors. Cables are used in coal, iron-ore, salt and slate mines and in open pits (open cast), KGEZhSh cable grade is used in steep pitches.

■ Specifications

Rated AC voltage, frequency 50 Hz, V:

- main conductors	660	1 140	3 300	6 000	6 300	380
- auxiliary conductors	220	220	220	220	220	–

Test AC voltage 50 Hz, 5 min., V:

- main conductors	2 500	3 500	8 000	15 000	16 000	2 000
- auxiliary conductors	1 500	1 500	1 500	1 500	1 500	–

Maximum conductor operating temperature, °C:

- KOGRESH, KOGRESH-T, KOGRVESH, KOGRVESH-T, KGES, KUGVSh, KUGVSh-T, KGESUL, KGESU, KUGRSh, KUGRSh-T, KUGRVSh, KUGRVSh-T	+70
- KGESH, KGEZhSh	+75
- KGETSh, KGEZhTSh, KGTEkSh, KGRETSh, KGREOTSh, KPGNUT1, KPGNUT1-T, KPGUT1, KPGUT1-T, KGETS, KGETS-T	+90

Ambient temperature, °C:

- KGRETShKh, KGREOTShKh	-60/+55
- KPGUT1-KhL	-60/+50
- KPGUT1	-50/+50
- KUGVSh, KUGRSh, KUGRVSh, KPGNUT 1	-30/+50
- KOGRESH, KGESH, KGETSh, KOGPVESH, KGEZhSh, KGES, KGTEkSh, KGRETSh, KGREOTSh, KGESUL, KGESU, KGETS	-30/+55
- KOGRESH-T, KGESH-T, KOGRVESH-T, KGTEkSh-T, KGETSh-T, KGRETSh-T, KGREOTSh-T, KPGNUT1-T, KPGUT1-T, KGETS-T	-10/+55
- KUGVSh-T, KUGRSh-T, KUGRVSh-T	-10/+50

Factory length, min., m:

- KOGRESH, KOGRESH-T, KOGRVESH, KGES (25 mm ²), KUGVSh, KUGVSh-T, KUGRSh, KUGRSh-T, KUGRVSh, KUGRVSh-T, KGESU (25 mm ²), KGESUL (25 mm ²), KGETS (25 mm ²), KGETS-T (25 mm ²)	150
- KGESH, KGETSh, KGEZhSh, KGEZhTSh, KGTEkSh, KGRETSh, KGREOTSh	200
- KGES (16 mm ² ; 19 mm ²), KGESU (16 mm ² ; 19 mm ²), KGESUL (16 mm ² ; 19 mm ²), KGETS (16 mm ² ; 19 mm ²), KGETS-T (16 mm ² ; 19 mm ²)	210
- KGESU (50 mm ²), KGESUL (50 mm ²), KPGNUT1, KPGNUT1-T, KPGUT1, KPGUT1-T, KGETS (50 mm ²), KGETS-T (50 mm ²)	250
- KGESU (35 mm ²), KGESUL (35 mm ²), KGETS (35 mm ²), KGETS-T (35 mm ²)	310

Service life, min, years:

- KPGUT1	4
- KPGNUT1	2.5
- KOGRESh, KOGRESh-T, KOGPVESh, KOGPVESh-T	2
- KGESh, KGETSh	1.5
- KGES, KGEZSh, KGEZtSh, KUGVSh, KUGVSh-T, KUGRSh, KUGRSh-T, KUGRVSh, KUGRVSh-T, KGESUL, KGESU, KGETS, KGETS-T	1
- KGTEKSh	3

Guarantee period, years:

- KOGRESh, KOGRESh-T, KGESh, KGETSh, KGES, KOGRVESH, KGEZSh, KGEZtSh, KGTEKSh, KUGVSh, KUGVSh-T, KUGRSh, KUGRSh-T, KUGRVSh, KUGRVSh-T, KGRETSh, KGREOTSh, KGESUL, KGESU, KGETS, KGETS-T	6
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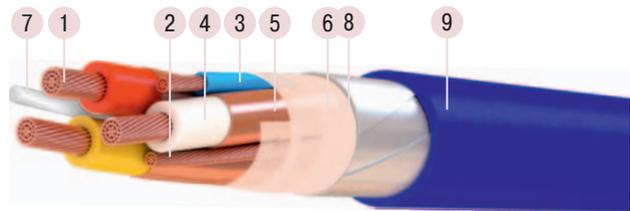
Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
KOGRESh, KOGRESh-T, KOGRVESH, KOGRVESH-T TU 16.K56.017-92	0.66	3+1+1	1.5-6.0	copper conductors, rubber insulation, rubber screen, reinforcing strand, PET-E film, flame retardant rubber sheath (KOGRESh, KOGRESh-T), PVC compound sheath (KOGRVESH, KOGRVESH-T)	To connect mine drilling electrical equipment. For operation in underground premises and mines with increased air humidity where prolonged water presence or frequent water condensation is possible. Cables are resistant to multiple bends, axial twisting and stretching. Cables are resistant to oils and petrol. Cables are flame retardant if laid single. Bending radius – 3x Ø
KGES TU 16.K09.043-90	1.14	3+1+1	16 19 25	copper conductors, rubber insulation, rubber screens, reinforcing strands, flame retardant rubber sheath	To connect self-driven cars to electrical networks. For operation in underground premises and mines with high air humidity where long time water presence or frequent water condensation is possible. Cables are resistant to multiple bends. Cables are resistant to oils and petrol. Cables are flame retardant if laid single. Bending radius – 2.5 x Ø
KGESh, KGESh-T, KGETSh, KGETSh-T TU 16.K73.012-95	1.14	3+1 3+1+3 3+1+6 3+1+9 3+3+3	4.0-95 4.0-150 50-95 50-95 35-70	copper conductors, rubber insulation (KGESh, KGESh-T), heat resistant rubber insulation (KGETSh, KGETSh-T), rubber screens, PET-E film or thermo-linked fabric, flame retardant rubber sheath	To connect coal combines, mining mobile machines and mechanisms to network. Cables are designed to be used in underground premises and mines with high air humidity where prolonged water presence or frequent water condensation is possible. Cables are resistant to multiple bending and stretching. Cables are resistant to oils and petrol. Cables are flame retardant if laid single. Bending radius – 5 x Ø
KGEZSh, KGEZSh-T, KGEZtSh, KGEZtSh-T TU 16.K73.012-95	1.14	3+1+5	25-95 10-95	copper conductors, rubber insulation (KGEZSh, KGEZSh-T), heat resistant rubber insulation (KGEZtSh, KGEZtSh-T), rubber screens, flame retardant double-layer rubber sheath, polyester tread braid between sheath layers	To connect coal combines, mining mobile machines and mechanisms to network. Cables are designed to be used in underground premises and mines with high air humidity where prolonged water presence or frequent water condensation is possible. Cables are resistant to multiple bending and stretching. Cables are resistant to oils and petrol. Cables are flame retardant if laid single. Bending radius – 5 x Ø
KGTEkSh-3300, KGTEkSh-6300 TU 16-K09.126-2004	3.3 6.3	3+1+6 3+1+6	16-95 16-95	copper conductors, ethylene propylene rubber insulation, copper tinned wire and polyester thread screen, thermo-linked fabric winding, flame retardant rubber sheath	Cables are designed to be used in underground premises and mines with high air humidity where prolonged water presence or frequent water condensation is possible. Resistant to multiple bending. Resistant to oils and petrol. Cables are flame retardant if laid single. Cable bending radius – 5 x Ø
KUGVSh, KUGVSh-T TU 16-K09.124-2004	0.38	2-36	1.0-1.5	copper conductors, PVC insulation, strand, PVC sheath	Cables are designed to connect remote control and automation devices in mines to electrical networks. Cables are flame retardant if laid single. Cable bending radius – 10 x Ø without preheating, 5 x Ø with preheating
KUGRSh, KUGRSh-T, KUGRVSh, KUGRVSh-T TU 16-K09.124-2004	0.38	2-36	1.0-1.5	copper conductors, rubber insulation, strand, flame retardant rubber sheath (KUGRSh, KUGRSh-T), PVC sheath (KUGRVSh, KUGRVSh-T)	Cables are designed to connect remote control and automation devices in mines to electrical networks. Cables are flame retardant if laid single. Cable bending radius – 10 x Ø without preheating, 5 x Ø with preheating
KGESUL, KGESUL-T TU 16.K09-174-2007	1.14	3+2+1	16-50	tinned copper conductors, rubber insulation, rubber screen, flame retardant rubber sheath reinforced with synthetic threads	Cables are designed to connect self-driven cars to electrical networks (for loading and delivery self-driven vehicles). The bending radius – 2.5 x Ø
KGESU, KGESU-T TU 16.K09-174-2007	1.14	3+2+1	16-50	copper conductors, rubber insulation, rubber screen, rubber strand, flame retardant rubber sheath reinforced with synthetic threads	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
KGRETSh, KGREOpTSh TU 16.K180-023-2010	1.14 3.3	3+1+3 6+1+3 3+1+3 6+1+3	6-240 35-95 6-240 35-95	flexible copper or tinned conductors, ethylene-propylene rubber insulation, rubber screen, high strength rubber inner and outer sheath, polyester threads braid between sheaths (KGREOpTSh). Grounding conductor can be evenly split and located over main conductors screen (example designation – 95/30 or 95/60, where 95 – ground conductor cross section).	Cables are designed to connect coal combines. For operation in underground mines where gas accumulation is possible. Withstands high levels of vibration during operation. Highly resistant to oils, abrasion and ruptures. The bending radius a – 5xØ
KPGNUT1, KPGNUT1-T GOST 24334-80, TU 16.K09-153-2005	0.66	3+1 3+1+1	25-70 25-35	copper conductors, PET-E film, heat resistant rubber insulation, strand, rubber sheath, polyether thread film, oil and petrol resistant flame retardant rubber sheath	To connect mobile devices to electrical circuits. Cables are designed to be used in the open air; under shed or in premises where temperature and humidity variations insignificantly differ from the ambient, and in closed premises. Cables are resistant to multiple bending and stretching. Cables are resistant to oils and petrol. Cables are flame retardant if laid single. Resistant to friction against abrasive rocks. Bending radius – 5xØ
KGETS, KGETS-T TU 16.K09-174-2007	1.14	3+1+1	16; 19; 25	copper conductors, high heat resistance rubber insulation, conductive rubber screen, rubber reinforcement harnesses, flame retardant rubber sheath	Cables are used to connect self-driven cars with electrical wire to electrical networks. Primary application – for mobile (self-driven) vehicles and mechanisms designed for high current loads. Cables are flame retardant if laid single. Bending radius – 2.5xØ

MINING CABLES FOR FIXED LAYING

■ KShVEBbShv construction

1. Copper conductor.
2. Grounding conductor.
3. Auxiliary conductor.
4. Main and auxiliary conductors insulation from PVC compound.
5. Main conductor copper tape screen.
6. PVC compound tape winding.
7. Plait.
8. Armor of two galvanized steel tapes.
9. PVC compound outer sheath.



■ Area of application

Cables are designed to be installed in horizontal and inclined pits in electrical networks with rated AC voltage 1.14 kV and 6 kV, frequency 50 Hz, in main conductors and up to 220 V in auxiliary conductors. Cables design characteristics allow their operation in heavy conditions, for example: long time water presence or water condensing, aggressive environment.

Electrical conduction screens in the design ensure disconnection of power supply system in case of cable insulation damage and thus prevent possible short circuit and mine methane explosion. Cables are flame retardant if laid single.

■ Specifications

Rated AC voltage, frequency 50 Hz, V:		
- main conductors	1 140	6 000
- auxiliary conductors:		
- for EVT	250	250
- for KShVEBbShv, KShVEBbShv-KhL, KShVEPbShv, KShVEPbShv-KhL, KShVEBbShng(A)-LS, KShVEPbShng(A)-LS, KShREBPng(A)-HF, KShREmBPng(A)-HF, KShREKPng(A)-HF, KShREmKPng(A)-HF	220	220
For EVT:		
Test AC voltage 50 Hz, 10 min., V:		
- main conductors	4 000	12 000
- auxiliary conductors	2 000	2 000
For KShVEBbShv, KShVEBbShv-KhL, KShVEPbShv, KShVEPbShv-KhL, KShVEBbShng(A)-LS, KShVEPbShng(A)-LS:		
Test AC voltage 50 Hz, 5 min., V:		
- main conductors	4 000	15 000
- auxiliary conductors	2 000	2 000
For KShREBPng(A)-HF, KShREmBPng(A)-HF, KShREKPng(A)-HF, KShREmKPng(A)-HF:		
Test AC voltage 50 Hz, 5 min., V:		
- main conductors	3 500	15 000
- auxiliary conductors	1 500	1 500
Maximum conductor operating temperature, °C:		
- EVT, KShVEBbShv, KShVEBbShv-KhL, KShVEPbShv, KShVEPbShv-KhL, KShVEBbShng(A)-LS, KShVEPbShng(A)-LS		+70
- KShREBPng(A)-HF, KShREmBPng(A)-HF, KShREKPng(A)-HF, KShREmKPng(A)-HF		+90
Ambient temperature, °C:		
- all grades without KhL index		-30/+50
- all grades with KhL index		-60/+50
Factory length, min., m		200
Service life, min., years:		
- EVT		8
- KShVEBbShv, KShVEBbShv-KhL, KShVEPbShv, KShVEPbShv-KhL, KShVEBbShng(A)-LS, KShVEPbShng(A)-LS, KShREBPng(A)-HF, KShREmBPng(A)-HF, KShREKPng(A)-HF, KShREmKPng(A)-HF		30
Guarantee period, mon.		60

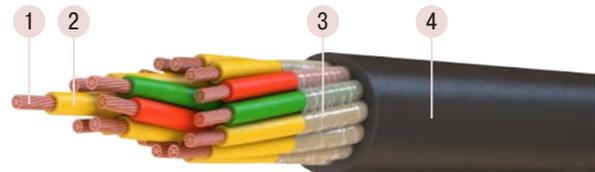
Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
EVT TU 16-505.934-76 and TT	1.14	3+4+1	35-120	copper conductors, PVC insulation, screen, filling, sheath, PVC compound tape bedding, armor, PVC sheath	To transmit electrical power in coal mines. For operation in underground premises and mines with high air humidity, where prolonged water presence or frequent water condensing is possible. Cables are resistant to multiple bending. Cables can be used in locations with the risk of mechanical damage and significant stretching forces. Bending radius – min. 10x Ø
	6.0	3+4+1	25-70		
KShVEBbShv TU 16.K09-155-2005	1.14	3+1+1 3+1 3	10-240	copper conductors, PVC compound insulation, copper tape screen over each conductor insulation, galvanized steel tape armor, inner and outer PVC compound sheath	To be installed in horizontal and inclined pits, and also to be installed underground (single laying). Bending radius – min. 7.5x Ø
	6.0	3+1+1 3+1 3	10-240		
KShVEPbShv TU 16.K09-155-2005	1.14	3+1+1 3+1 3	10-240	copper conductors, non-rigid PVC insulation, copper tape screen over each conductor insulation, galvanized steel wire armor, inner and outer PVC compound sheath	To be installed in vertical pits (single laying). Bending radius – min. 7.5x Ø
	6.0	3+1+1 3+1 3	10-240		
KShVEBbShv-KhL TU 16.K09-155-2005	1.14	3+1+1 3+1 3	10-240	Same as KShVEBbShv, cold resistant PVC compound sheath	To be installed in horizontal and inclined pits, and also to be installed underground at decreased temperatures. Bending radius – min. 7.5x Ø
	6.0	3+1+1 3+1 3	10-240		
KShVEPbShv-KhL TU 16.K09-155-2005	1.14	3+1+1 3+1 3	10-240	Same as KShVEPbShv, cold resistant PVC compound sheath	To be installed in vertical pits at decreased temperatures. Bending radius – min. 7.5x Ø
	6.0	3+1+1 3+1 3	10-240		
KShVEBbShv(A)-LS TU 16.K09-155-2005	1.14	3+1+1 3+1 3	10-240	Same as KShVEBbShv, low fire hazard PVC compound sheath	To be installed in horizontal and inclined pits in flammable and explosive areas at decreased temperatures. Bending radius – min. 7.5x Ø
	6.0	3+1+1 3+1 3	10-240		
KShVEPbShng(A)-LS TU 16.K09-155-2005	1.14	3+1+1 3+1 3	10-240	Same as KShVEPbShv, low fire hazard PVC compound sheath	To be installed in vertical pits in flammable and explosive areas at decreased temperatures. Bending radius – min. 7.5x Ø
	6.0	3+1+1 3+1 3	10-240		
KShVREBPng(A)-HF, KShRemBPng(A)-HF TU 16.K180-034-2011	1.14	3+1+1 3+1	10-400	Copper conductors, ethylene-propylene rubber insulation, screen of elastic rubber (m) or combined copper screen (Em), galvanized steel tape armor, inner and outer sheath of halogen-free polymer compound	To be installed in horizontal and inclined pits, in flammable and explosive areas at decreased temperatures. Bending radius – min. 7.5x Ø
	6.0	3+1+1 3+1	10-400		
KShREKpng(A)-HF, KShRemKpng(A)-HF TU 16.K180-034-2011	1.14	3+1+1 3+1	10-400	Copper conductors, ethylene-propylene rubber insulation, screen of elastic rubber (m) or combined copper screen (Em), galvanized steel wire armor, inner and outer sheath of halogen-free polymer compound	To be installed in vertical pits, in flammable and explosive areas. Flame retardant in group laying. Bending radius – min. 7.5x Ø
	6.0	3+1+1 3+1	10-400		

SHIPBOARD CABLES

e.g. flame retardant, low smoke and gas emission, halogen-free, fireproof*

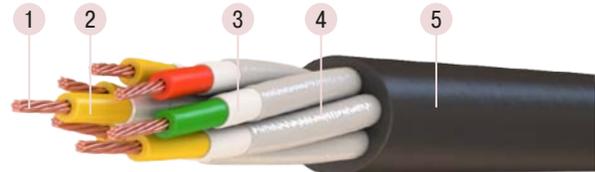
■ KNR construction

1. Copper conductor.
2. Rubber insulation.
3. PET-E film.
4. Oil and petrol resistant flame retardant rubber sheath.



■ NGRShM construction

1. Flexible copper conductor.
2. Rubber insulation.
3. Polyethylene thread braid.
4. PET-E film.
5. Oil resistant flame retardant rubber sheath.



■ Область применения

Shipboard cables are designed for fixed routing and connection to mobile current receivers used on marine ships with unrestricted navigating zone, river fleet, onshore facilities and floating structures with AC voltage up to 400 V or 690 V, frequency up to 400 Hz, or DC voltage 1200 V, and transmission of low-power electrical control signals at AC voltage up to 400 V, frequency up to 1200 Hz or 500 V DC voltage.

Cables are used in power and lighting networks, control lines, alarm and inter-device connections. Cables are used for mobile and fixed laying in premises and on the open deck, including situations of exposure to radial hydrostatic pressure up to 1.96 MPa (20 c/cm²).

*Indexes **ng(A)-LS**, **ng(A)-HF** in cable grade designation indicate the type of cable design in terms of fire hazard:

- **ng(A)-LS** is added to cable designation for cables which are flame retardant at group laying, with low smoke and gas emission;
- **ng(A)-HF** is added to cable designation for cables which are flame retardant at group laying and do not emit corrosive gas during combustion and smouldering.

■ Specifications

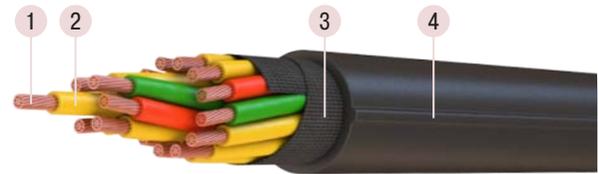
	GOST 7866.1-76		TU 16.K180-047-2016	
	0.4	0.69	0.45	0.6
Operating AC voltage with frequency up to 1200 Hz, kV	0.4	0.69	0.45	0.6
Operating DC voltage, kV	0.5	1.2	0.75	1
Test AC voltage, 50 Hz, 5 min., kV	2	2.5	1.5	2
Insulation resistance, MOhm x km	100			
Allowable continuous conductor heating temperature, °C:				
- KNR, KNRE, NRShM, NGRShM, MRShN, MERShN-100, MRShNE	+65			
- KNRk, KNREk	+75			
- KNRng(A)-LS, KNREng(A)-LS, KNRng(A)-HF, KNREng(A)-HF	+90			
Conductor temperature at short circuit, 1 sec, °C	+200			
Ambient temperature, [°C]:				
- KNR, KNRk, KNRE, KNREk	-40 / +45			
- NRShM, NGRShM, MRShN, MERShN-100, MRShNE	-30 / +45			
- KNRng(A)-LS, KNREng(A)-LS, KNRng(A)-HF, KNREng(A)-HF (mobile / stationary laying)	(-30/-40) / +60			
Air humidity at 35 °C, %	100			
Factory length, min., m:				
- KNR, KNRk, KNRE, KNREk, NRShM	125			
- MERShN-100, MRShNE, MRShN	85			
- NGRShM	60			
Service life, min., years:				
- KNR, KNRk, KNRE, KNREk, NRShM, NGRShM, MRShN, MERShN-100, MRShNE	25			
- KNRng(A)-LS, KNREng(A)-LS, KNRng(A)-HF, KNREng(A)-HF	35			
Guarantee period, years:				
- KNR, KNRk, KNRE, KNREk, KNRU, KGPs, HRShM, NGRShM, MRShN, MERShN-100, MRShNE, KNRng(A)-LS, KNREng(A)-LS, KNRng(A)-HF, KNREng(A)-HF	5			

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
KNR, KNR-T GOST 7866.1-76	0.69	1 2 3 4-37	10-400 1.0-120 1.0-240 1.0-2.5	copper conductors, rubber insulation, PET-E film, oil resistant flame retardant rubber sheath	For operation in power and lighting networks, in control lines, alarms and inter-device connections. For fixed laying indoors and in the open deck with protection from direct sunlight. Cables are resistant to radial hydrostatic pressure, vibration loads and single impact stress, sea water, lubricating oils, diesel fuel and sunlight. Cables are flame retardant if laid single. Bending radius – 5 x Ø
KNRng(A)-HF TU 16.K180-047-2016	0.45/ 0.6	1-5 1-52	4-400 0.75-2.5	copper conductors, low fire hazard ethylene-polypropylene rubber insulation, oil resistant low fire hazard rubber sheath	
KNRng(A)-LS TU 16.K180-047-2016	0.45/ 0.6	1-5 1-52	4-400 0.75-2.5	copper conductors, halogen-free ethylene-polypropylene rubber insulation, oil resistant halogen-free rubber sheath	
KNRk, KNRk-T GOST 7866.2-76	0.69	1 2 3 4-37	10-400 1.0-120 1.0-120 1.0-2.5	copper conductors, rubber insulation, PET-E film, PVC compound inner and outer sheath	Purpose and laying same as KNR. Cables are resistant to oil and fuel fumes and condensate, acid fumes, alkali fumes, apatite dust, fish-flour, vibration loads and single impact stress, sea water, salt solution and sunlight. Cables are flame retardant if laid single. Bending radius – 5 x Ø
KNRE, KNRE-T GOST 7866.1-76	0.69	1 2 3 4-10 12-33 37	6-120 1.0-50 1.0-70 1.0-2.5 1.5-2.5 1.5	copper conductors, rubber insulation, rubber sheath, tinned copper wire braid	Same as KNR. If it is necessary to protect electrical circuits from external electrical fields
KNREng (A)-HF TU 16.K180-047-2016	0.45/ 0.6	1-5 1-52	4-400 0.75-2.5	Same as KNRng(A)-HF, in common screen from tinned copper wire located under sheath	
KNREng(A)-HF TU 16.K180-047-2016	0.45/ 0.6	1-5 1-52	4-400 0.75-2.5	Same as KNRng(A)-LS, in common screen from tinned copper wire located under sheath	
KNREk, KNREk-T GOST 7866.2-76	0.69	1 2 3 4-10 12-37	10-120 1.0-50 1.0-70 1.0-2.5 1.5-2.5	copper conductors, rubber insulation, inner PVC compound sheath, tinned copper wire braid, PVC compound outer sheath	Same as KNRk. If it is necessary to protect electric circuits from external electric fields
NRShM, NRShM-T GOST 7866.1-76	0.69	1 2 3 4-37	1.0-400 1.0-70 1.0-120 1.0-2.5	copper conductors, rubber insulation, PET-E film, oil resistant flame retardant rubber sheath	For operation in power and lighting networks, in control circuits. To connect to mobile and portable current consumers with protection from direct sunlight. For fixed laying in sea water with radial hydrostatic pressure. Resistant to vibration and single impact stress, sea water, lubricating oils, diesel fuel and sunlight. Cables are flame retardant if laid single. Bending radius – 5 x Ø
NGRShM, NGRShM-T GOST 7866.1-76	0.69	4; 7	1.0-2.5	copper conductors, rubber insulation, polyethylene thread braid over insulation, oil resistant flame retardant rubber sheath	Same as NRShM. For operation in the air with simultaneous bending and twisting with protection from direct sunlight, and for fixed laying in sea water with radial hydrostatic pressure up to 1.96 MPa. Bending radius – 5 x Ø
MRShN, MRShN-T GOST 7866.1-76	0.40	2; 4; 7	1.0-2.5	copper conductors, rubber insulation, oil resistant flame retardant rubber sheath	Cables are designed for flexible current junction with multiple bends and twisting. Bending radius – 5 x Ø
MERShN-100, MERShN-100-T GOST 7866.1-76	0.40	2; 4; 7	1.0-2.5	copper conductors, rubber insulation, tinned copper wire braid, PET-E film, oil resistant flame retardant rubber sheath	For operation in the air with simultaneous bending and twisting with protection from direct sunlight, if it is necessary to protect electrical circuits from external electrical fields. Bending radius – 5 x Ø
MRShNE, MRShNE-T GOST 7866.1-76	0.40	2; 4; 7	1.0-2.5	copper conductors, rubber insulation, oil resistant flame retardant rubber sheath, screen over sheath	For operation in the air with simultaneous bending and twisting with protection from direct sunlight, if it is necessary to protect electrical circuits from external electrical fields. Bending radius – 5 x Ø

CABLES AND WIRES FOR ELECTRICAL MEANS OF TRANSPORT

■ KPSRVM construction

1. Flexible copper conductor.
2. Rubber insulation.
3. Rubber impregnated fabric tape winding.
4. PVC compound sheath.



■ PS construction

1. Copper conductor.
2. Polyethylene-terephthalate film winding.
3. Rubber insulation.
4. Thermo-linked fabric tape winding.
5. Polyester thread braid.



■ Area of application

Wires and cables are used in electrical wiring of rail transport, electric locomotives, diesel locomotives, electric trains, underground railway carriages, trolleybuses and tramways.

■ Specifications

Rated AC voltage with frequency up to 400 Hz, kV	0.66	1.0	1.5	–	–	3.0	4.0	2.0
Rated DC voltage, kV	1.0	1.5	2.5	3.0	4.0	4.5	6.0	3.0
Test AC voltage with frequency 50 Hz, kV	2.0-3.0	4.0	6.0	6.0	8.0	12.0	16.0	8.0
Operating conductor temperature, °C:								
- PSVLng(A)								+70
- KPSRE								+85
- PGRO								+115
- PPSKVMng(A), KPSKVMng(A)								+125
- PGR								+150
- other grades								+65
Ambient temperature, °C:								
- PS, PS-T, PSSh, PSSh-T								-50/+50
- KPSRVM, KPSRM, PPSRVM, PPSRM, PPSRMO								-50/+50
- PPSVLng(A), PPSVLMng(A)								-50/+70
- PPSRM-KhL, KPSRM-KhL, PPSRMO-KhL								-60/+50
- KPSRE								-60/+55
- PPSKVMng(A), KPSKVMng(A)								-60/+90
- PGRO								-60/+115
- PGR								-60/+150
- PPSRN								-30/+50
Air humidity, %								
- at 40 °C								98
- at 25 °C in KPSRE								100
Installation temperature, min., °C								-15
Service life, years:								
- PGRO, PGR								25
- other grades								12
Guarantee period, years								2
PGRO, PGR, KPSRE for connection to:								
- mobile current consumers								6
- fixed current consumers								12
- PPSKVMng(A), KPSKVMng (A), PPSRM, PPSRMO, PPSRVM, KPSRM, KPSRVM								2.5

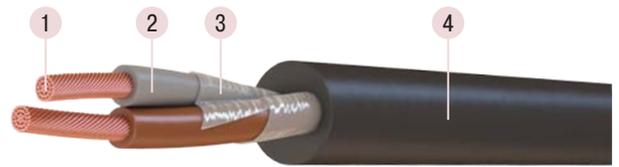
Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PS, PS-T TU 16.K09-167-2006	1 3 4	1 1	1.0-300 1.5-300	flexible copper conductor, PET film winding, rubber insulation, thermo-linked fabric winding, polyester thread braid	Wires are designed to repair electrical equipment of the rolling stock of all kinds of electrical transport. During operation cables should be protected from direct sunlight. Bending radius during operation – 5 x Ø, at installation – 3 x Ø
PSSh, PSSh-T TU 16.K09-167-2006	3 4	1	1.5-300	flexible copper conductor, PET film winding, insulating protective sheath	
KPSRM, KPSRM-KhL TU 16.K180-024-2010	0.66	2; 3; 4; 7; 12; 16; 19; 24; 37	1.5-2.5	flexible copper conductors, rubber insulation, rubber impregnated fabric tape winding, rubber sheath	Cables are used to connect to mobile current consumers, for installation in restricted movement conditions and infixed installation without exposure to lubricating oils and diesel fuels. Bending radius during operation – 5 x Ø, at installation – 3 x Ø
PPSRMO, PPSRMO-KhL TU 16.K180-024-2010	0.66 1.5 3 4	1	1.0-10	flexible copper conductor, PET film winding, rubber insulation, light rubber sheath	Wires are used in restricted movement conditions and infixed installation without exposure to lubricating oils and diesel fuels. Bending radius during operation – 5 x Ø, at installation – 3 x Ø
PPSRM, PPSRM-KhL TU 16.K180-024-2010	0.66 1.5 3 4	1	1.0-300	flexible copper conductor, PET film winding, rubber insulation, rubber sheath	
KPSRVM, KPSRVM-KhL TU 16.K180-024-2010	0.66	2-37	1.5-2.5	flexible copper conductors, rubber insulation, rubber impregnated fabric tape winding, PVC sheath	Cables are used for installation in restricted movement conditions and for fixed installation to connect to mobile current consumers with exposure to lubricating oils and diesel fuels. Bending radius during operation – 5 x Ø, at installation – 3 x Ø
PPSRVM, PPSRVM-KhL, PPSRVM-T TU 16.K180-024-2010	0.66 1.5 3 4	1	1.0-300	flexible copper conductor, PET film winding, rubber insulation, PVC sheath	Wires are used for installation in restricted movement conditions and for fixed installation to connect to mobile current consumers with exposure to lubricating oils and diesel fuels. Bending radius during operation – 5 x Ø, at installation – 3 x Ø
PPSRVM 1, PPSRVM-1-KhL TU 16.K180-24-2010	0.66 1.5 3 4	1	16-300	flexible copper conductor, rubber insulation, PET film winding, cold resistant PVC compound sheath	Wires are used for connection to mobile current consumers with exposure to lubricating oils and diesel fuels. Wires are resistant to vibration loads, multiple impact stress, alternating-sigh bends. Wires are flame retardant if laid single. During operation wires should not be exposed to direct sunlight. Bending radius during operation and installation – at least 5 x Ø
KPSRE TU 16-K09-106-2005	4	1 1	95 185	flexible copper tinned conductor, conductive rubber screen, heat resistant rubber insulation, conductive rubber screen, PET film winding, tinned copper wires screen, PET film winding, rubber sheath	Designed for internal and external connections of passenger transport, for operation in the open air and inside vehicles. Resistant to rain, dynamic abrasive impact of dust, dew and frost, salt fog, ozone, oil and diesel fuel. During operation cables should be protected from direct sunlight. Bending radius during installation and operation: at fixed installation – 3 x Ø, at connection to mobile current consumers – 5 x Ø
PGR TU 16-705.330-84	0.66	1	2.5-120	flexible copper conductor, organic-silicon rubber insulation	Wires are designed for fixed connection of electrical equipment of underground railway carriages, for operation in closed premises (locations).
PGRO TU 16-705.330-84	0.66	1	0.75-120	flexible copper conductor, organic-silicon rubber insulation, polyethylene threads braid impregnated with organic-silicon lacquer	Wires are resistant to ozone. Rain, frost and dew are acceptable. Wires are flame retardant and prevent flame propagation. During operation wires should be protected from direct sunlight. Bending radius – 4 x Ø
PPSRN TU 16.K180-024-2010	0.66 1.5 3 4	1	1.0-300	flexible copper conductor, rubber insulation, oil resistant flame retardant rubber sheath	For connection to mobile current consumers, installation in restricted movement conditions and fixed installation with exposure to lubricating oils and diesel fuels. Bending radius during fixed installation – 3 x Ø, at connection to mobile current consumers – 5 x Ø

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
PPSRN-1 TU 16.K180-024-2010	0.66 1,5 3 4	1	10-300	flexible copper conductor, rubber insulation, oil resistant flame retardant rubber sheath	For internal and external connection of rolling stock electrical equipment of railways, city electrical transport and subway. For connection to mobile current consumers with exposure to lubricating oils and diesel fuels. Bending radius at connection to mobile current consumers – 5 x Ø
PPSKVMng(A) TU 16.K180-031-2011	1 2 3 4	1	0.75-300	flexible copper conductor, thermoplastic compound flame retardant insulation, PET-E film, thermoplastic compound flame retardant sheath	For connection to mobile current consumers, installation in restricted movement conditions and fixed installation with exposure to lubricating oil. Bending radius – 5 x Ø
KPSKVMng(A) TU 16.K180-031-2011	0.66	2-37	1.5; 2.5		
PPSVLNg(A) TU 16.K180-032-2011	0.25	1	0.35-95	flexible copper tinned conductor, increased fire safety PVC compound insulation, polyester thread braid, ethyl-cellulose lacquer coating	Designed for fixed mounting of railway rolling stock electrical equipment and operation with voltage up to 250 V AC inclusive, frequency up to 2000 Hz or 500 V DC. Flame retardant in group laying.
PPSVLEng(A) TU 16.K180-032-2011	0.25	1	0.35-95	flexible copper tinned conductor, increased fire safety PVC compound insulation, polyester thread braid, ethyl-cellulose lacquer coating, tinned copper wire screen	
PPSVLMng(A) TU 16.K180-032-2011	0.25	1	0.35-2.5	flexible copper tinned conductor, increased fire safety PVC compound insulation, polyester thread braid, ethyl-cellulose lacquer coating	Small-size wires are intended for fixed installation of electrical equipment in railway rolling stock and operation at AC voltage up to 250 V inclusive with frequency up to 2000 Hz or 500 V DC. Flame retardant in group laying
PPSVLMEng(A) TU 16.K180-032-2011	0.25	1	0.35-2.5	flexible copper tinned conductor, increased fire safety PVC compound insulation, polyester thread armor, ethyl-cellulose lacquer coating, tinned copper wire screen	
PPST-M TU 16-505.526-73	3	1	0.75-120	copper conductor (with cross section 0.75-35 mm ² – not lower than class 4; with cross-section 50-95 mm ² – not lower than class 3), organic silicone rubber insulation, teflon film winding, polyester thread braid impregnated with organic silicone lacquer	Wires are intended for operation outdoors and inside means of transport in regions with boreal and tropical climate. Wires are resistant to bending. Wires are flame retardant, resistant to high air humidity. Wires in tropical design are resistant to mold fungi. Bending radius at installation – 3 x Ø

CABLES FOR AERODROME LIGHTS

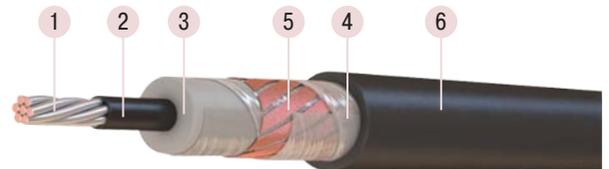
■ KG-DA construction

1. Flexible copper conductors.
2. Rubber insulation.
3. PET film winding.
4. Rubber sheath.



■ KVOREN-5 construction

1. Copper or tinned copper conductor.
2. Rubber screen.
3. Heat resistant rubber insulation.
4. PET film winding.
5. Copper wire screen.
6. Oil resistant flame retardant rubber sheath.



■ Area of application

Cables are designed for lighting and signaling facilities of aerodromes.

■ Specifications

Rated AC voltage, frequency up to 50 Hz, kV	0.25	0.38	3.0	5.0	6.0
Test AC voltage, frequency 50 Hz, kV	2.5	2.5	9.0	13.0	12.0
Ambient temperature, °C:					
- KVORNE-3, KVORNE-6, KG-DA				-60/+50	
- KRZE, KVORN-5, KVOREN-5, KVOREV-5				-50/+50	
Air humidity at 35 °C, %			98		
Installation temperature, min., °C:					
- KVORNE, KVOREV, KVOREN, KG-DA, KVORN-5				-15	
- KRZE				-10	
Factory length, min., m			125		
Service life, years:					
- KVORNE, KVOREV, KVOREN, KVORN				15	
- KG-DA				12	
- KRZE				10	
Guarantee period, years:					
- KVORNE				15	
- KG-DA				12	
- KVOREV, KVOREN, KVORN-5				2	
- KRZE				1	

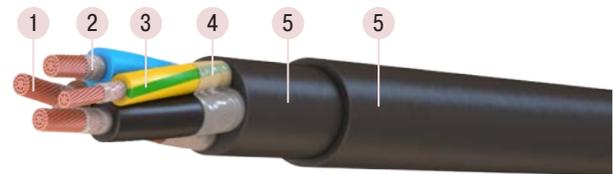
Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
KG-DA TU 16-505.600-77	0.25	2	2.5	flexible tinned copper conductors, rubber insulation, PET-E tape winding, rubber sheath	Cables are designed for use in electrical lighting and signaling facilities of aerodromes. Cables are used to connect aerodrome lights and lighting signs to the secondary winding of insulating or reducing transformers. Cables are designed for stationary operating conditions in different soils.
KRZE TU 16.K71-220-94	0.38	1	4.0	flexible copper conductor, ethylene-propylene natural rubber insulation, rubber sheath	Cables are designed for consecutive connection of aerodrome lights in aerodrome areas. Cables are designed to be used in low-voltage circuits of deepened aerodrome lights.
KVORNE TU 16-505.600-77	3 6	1	6.0-10	flexible tinned copper conductor, ethylene-propylene natural rubber insulation, rubber sheath	Cables are designed for use in lighting facilities of aerodromes. Cables are used to connect primary winding of insulating transformers feeding aerodrome lights into a common consecutive circuit, and to connect to brightness regulators. Cables are designed for stationary operating conditions in different soils.

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
KVOREN-5 TU 16.K71-283-99	5	1	6.0	copper or tinned copper conductor, rubber screen, rubber insulation, PET film winding, copper wire screen, PET-E film, oil resistant flame retardant rubber sheath	Cables are designed for aerodrome lights used in lighting and signaling facilities of aerodromes. Bending radius – 15 x Ø
KVORN-5 TU 16.K71-283-99	5	1	6.0	copper or tinned copper conductor, rubber insulation, rubber sheath	
KVOREV-5 TU 16.K71-283-99	5	1	6.0	copper or tinned copper conductor, rubber screen, rubber insulation, PET film winding, copper wire screen, PET film winding, PVC sheath	

OZONE RESISTANT FLEXIBLE POWER CABLES

■ KGO construction

1. Flexible copper conductor.
2. PET-E film.
3. Rubber insulation.
4. PET-E film.
5. Rubber sheath with increased ozone and cold resistance.



■ Area of application

Flexible power cables are designed for flexible connection of electrical devices in field conditions.

■ Specifications

Rated AC voltage, frequency up to 500 Hz, V	660
Rated DC voltage, V	1 000
Test AC voltage, 50 Hz, 10 min., V	3 000
Insulation resistance at +20 °C, min., MOhm x km	50
Maximum conductor operating temperature, °C	+65
Ambient temperature, °C	-50/+50
Factory length, min., m	100
Service life, min., years	6
Guarantee period, months	12

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
KGO TU 16-505-897-84	0.66	1 2 2+1 3+1	70-120 1.0-2.5 1.0-6.0 2.5-50	copper conductors, PET-E film, rubber insulation, PET-E film, rubber sheath	For operation in open air without direct sunlight and under shed. Bending radius – 8 x Ø

EXTRA-FLEXIBLE WELDING CABLES

■ KOG1 construction

1. Extra-flexible copper conductor.
2. PET-E film.
3. Insulating and protective rubber sheath.



■ Area of application

Designed for connection of electrode holders, automatic and semi-automatic welding units with the source rated at AC voltage up to 220 V, rated frequency 50 Hz, or DC voltage 700 V, during electric arc welding.

■ Specifications

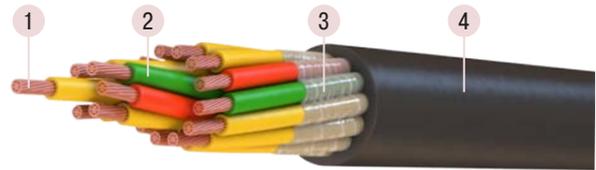
Rated AC voltage with frequency up to 50 Hz, V	220
Rated DC voltage, V	700
Peak value of test voltage per run, V:	
- for cross sections from 16 to 35 mm ²	10 000
- for cross sections from 50 to 70 mm ²	12 500
- for cross sections from 95 to 120 mm ²	14 000
- for cross section 150 mm ²	17 000
Insulation resistance at temperature +20 °C, min., MOhm x km	50
Allowable continuous conductor heating temperature at ambient temperature 25 °C, °C	+75
Ambient temperature, °C:	
- KOG1	-50/+50
- KOG1-KhL	-60/+50
- KOG1-T	-10/+55
Factory length, m	100
Service life, min., years	4
Guarantee period, months	6

Type and standard	Number of conductors	Cross-section, mm ²	Design	Area of application
KOG1, KOG1-T, KOG1-KhL, GOST 24334-80 TU 16.K73.03-97	1	16-150	copper conductor, PET-E film, insulating and protective rubber sheath or rubber insulation and rubber sheath	For connection of electrode holders, automatic and semi-automatic welding units during electric arc welding and manual electric arc welding. For operation in the open air, under shed, in premises, including those with increased air humidity. Cables are resistant to direct sunlight and are flame retardant. Bending radius – 3 x Ø

FLEXIBLE POWER CABLES UP TO 1 KV

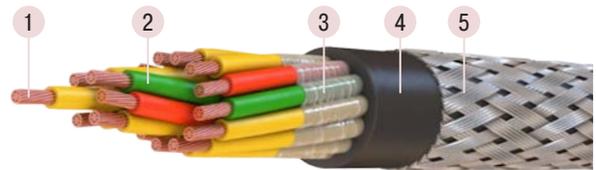
RPSH construction

1. Flexible copper conductor.
2. Rubber insulation.
3. PET-E film.
4. Rubber sheath.



RPSHE construction

1. Flexible copper conductor.
2. Rubber insulation.
3. PET-E film.
4. Rubber sheath.
5. Tinned copper wire braid.



Area of application

Wires are designed to connect plants in electrical circuits and to install radio equipment.

Технические характеристики

Rated AC voltage with frequency up to 400 Hz, V	380	660
Rated DC voltage, V	700	1 000
Test AC voltage 50 Hz, 5 min., V	1 300	1 500
Insulation resistance at temperature +20 °C, min., MOhm x km	10	
Maximum conductor operating temperature, °C	+65	
Ambient temperature, °C:		
- RPSH, RPSHEM	-50/+60	
- RPSH, RPSH-T, RPSHE, RPSHE-T	-40/+60	
Installation temperature, min., °C	-15	
Air humidity at temperature +35 °C, %	98	
Factory length, min., m	50	
Service life, min., years	8	
Guarantee period, years	1	

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
RPSH, RPSH-T, RPSHM TU 16.K18-001-89	0.38 0.66	2-4 5-14	0.75-10 0.75-2.5	copper conductors, rubber insulation, PET-E film, rubber sheath	Used to install radio and electrical plants. Designed for operation in closed premises.
RPSHE, RPSHE-T, RPSHEM TU 16.K18-001-89	0.38 0.66	2-4 5-14	0.75-10 0.75-2.5	copper conductors, rubber insulation, PET-E film, rubber sheath, tinned copper wire braid.	

WINDING WIRES with enamel insulation

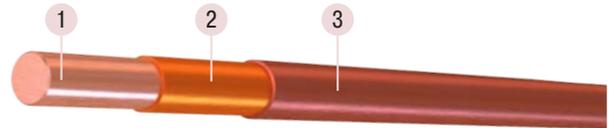
■ PETV-2 construction

1. Round copper wire.
2. Polyester lacquer insulation.



■ PETD-180 construction

1. Round copper wire.
2. Polyesterimide lacquer insulation.
3. Polyamidimide lacquer insulation.



■ PEEIP-1-155, PEEIP-2-155 construction

1. Rectangular copper wire.
2. Polyesterimide lacquer insulation.



Type and standard	Temperature index, °C	Size, mm ²	Design	Area of application
PEEA-130 TU 16.K09-077-2006	130	Ø 0.950-5.000	aluminum wire, polyester lacquer insulation	Wire is used to manufacture winding with temperature class B: low-power motors and dry transformers.
PETV-1 TU 16-705.110-79 and TT	130	Ø 0.080-3.000	copper wire, thinned polyester lacquer insulation (type 1)	Wire is used to manufacture winding with temperature class B: measuring and recording devices, telephone cups, low-power motors, electric magnets and dry transformers.
PETV-2 TU 16-705.110-79 and TT	130	Ø 0.080-3.000	copper wire, normal thickness polyester lacquer insulation (type 2)	Wire has excellent mechanical properties which enable its use for mechanized winding. It is resistant to solvents (toluene), transformer oil and boiling water.
PETVM TU 16-505.370-78	130	Ø 0.080-3.000	copper wire, reinforced polyester lacquer insulation (type 3)	Wire is used to manufacture winding with temperature class B: low and medium-power motors, generators and dry transformers. Improved thermal properties (wire class B) ensure high reliability of an article at short term loadings. Wire has excellent mechanical properties which enable its use for mechanized winding. Resistant to solvents (toluene).
PETVP-V, PETVP-C TU 16-705.457-87	130	«a» 0.80-3.55 «b» 2.0-8.0	copper wire, polyester lacquer insulation	Wire is used to manufacture winding with temperature class B: universal medium power motors, generators and dry transformers. Rectangular wire shape ensures high winding layer density. Wire has good mechanical properties which enable its use for mechanized winding. Designation "B" means that the wire ensures competitiveness on international market; "C" means that the wire ensures required equipment and instrumentation performance during the specified service life.
PEEA-155 TU 16-K71-001-87 and TT	155	Ø 0.950-5.000	aluminum wire, polyesterimide lacquer insulation	Wire is used to manufacture winding with temperature class F: low-power motors and dry transformers.
PEAP-1-155 TU 16.K09-163- 2007	155	«a» 2.00-4.00 «b» 5.00-10.00	aluminum wire, thinned polyesterimide lacquer insulation (type 1)	Wire is used to manufacture winding with temperature class F: electrical machines, apparatus, devices and dry transformers. Rectangular wire shape ensures high winding layer density. Custom expansion of size range is possible.
PEAP-2-155 TU 16.K09-163- 2007	155	«a» 2.00-4.00 «b» 5.00-10.00	aluminum wire, normal thickness polyesterimide lacquer insulation (type 2)	
PEVTL-1-155 IEC 60317-20 and TT, TU 16.K09-130- 2003	155	Ø 0.080-1.600	copper wire, thinned polyesterimide lacquer insulation (type 1)	Wire is used to manufacture winding with temperature class F: ignition coils, cups, low voltage dry transformers, relays, solenoids, electrical machines and apparatus, radio-technical items and equipment, micromotors. Wire can be operated at temperature +390 °C without preliminary insulation stripping. Custom manufacturing of wires with color insulation (red, green) is possible. In that case, letter "C" is added to the type designation (e.g. PEVTL C).
PEVTL-2-155 IEC 60317-20 and TT, TU 16.K09-130- 2003			copper wire, normal thickness polyurethane lacquer insulation (type 2)	
PET-155 TU 16.K71-160-92 and TT	155	Ø 0.080-3.000	copper wire, modified polyester insulation (type 2)	Wire is used to manufacture winding with temperature class F: universal power motors, motors for household appliances and electrical tools, generators, dry transformers, meters, coils and relays. Cable is resistant to solvents (toluene).

Type and standard	Temperature index, °C	Size, mm ²	Design	Area of application
PETM-155 TU 16-705.173-80 and TT	155	Ø 0.080-3.000	copper wire, polyestercyanuritimide lacquer insulation (type 3)	Same as PET-155 but with improved mechanical properties which enable its use for mechanized winding.
PEF-155 TU 16-505.673-77 and TT	155	Ø 0.080-3.000	copper wire, polyestercyanuritimide lacquer insulation (type 2)	Wire is used to manufacture winding with temperature class F: motors of compressors, freezers and air conditioners operating in freon medium (khladon). Cable is resistant to solvents, transformer oil and freons.
PEEIP-1-155 TU 16-705.414-86 and TT	155	«a» 0.80-3.55 «b» 2.00-8.00	copper wire, thinned polyesterimide lacquer insulation (type 1)	Wire is used to manufacture winding with temperature class F: motors and dry transformers. Rectangular wire shape ensures high winding layer density. Custom size range expansion is possible.
PEEIP-2-155 TU 16-705.264-82 and TT			copper wire, normal thickness polyesterimide lacquer insulation (type 2)	
PET-180 TU 16.K09-097-95 and TT	180	Ø 0.080-3.000	copper wire, polyesterimide lacquer insulation (type 2)	Wire is used to manufacture winding with temperature class H: motors and dry transformers of electrical equipment for industrial and household use, generators, meters, coils, relays, communication equipment.
PETD-180 TU 16-705.264-82 and TT	180	Ø 0.080-3.000	copper wire, 2-layer insulation: polyesterimide and polyamidimide lacquer (type 2)	Wire is used to manufacture winding with temperature class H: motors and dry transformers of electrical equipment for industrial and household use, generators, meters, coils, relays, communication equipment. Due to excellent electrical and thermal characteristics, as well as chemical substances resistance, provides high reliability of an article and is used to manufacture explosion proof equipment for chemical, gas, oil-refining and coal industry. Mechanical strength of insulation enables use for automatic winding. Resistant to refrigeration agents (R-22) and oils (KhF-22-24) (custom check of resistance to other refrigeration oils is possible).
PETD-Kh-180 TU 16-705.264-82 and TT			copper wire, 2-layer insulation: polyesterimide and polyamidimide lacquer (type 2)	
PEEIP-1-180 TU 16.K180-033- 2011	180	«a» 0.80-3.55 «b» 2.00-8.00	copper wire, thinned polyesterimide lacquer insulation (type 1)	Wire is used to manufacture winding with temperature class H: medium power universal motors, generators and dry transformers. Rectangular wire shape ensures high winding layer density. Custom size range expansion is possible.
PEEIP-2-180 TU 16.K180-033- 2011			copper wire, polyesterimide lacquer insulation (type 2)	
PETKD-1-180 TU 16.K09-132- 2003	180	Ø 0.080-1.600	copper wire, thinned polyesterimide lacquer insulation and additional adhesive layer on the basis of aromatic polyamide (type 1)	Wire is used to manufacture self-supporting coils, beam deflectors, in coils of metering devices, relay windings, electric motors, small transformers, magnetic coils. Adhesive layer eliminates the operation of impregnation and drying of the winding. Winding loops are glued together by heating without additional impregnation compounds.
PETKD-2-180 TU 16.K09-132- 2003			copper wire, polyesterimide lacquer insulation and additional adhesive layer on the basis of aromatic polyamide (type 2)	
PETDKD-200-1 TU 16.K180-054-2016	200	Ø 0.080-1.600	copper wire, thinned 3-layer insulation: polyesterimide and polyamidimide lacquer with an additional adhesive layer on the basis of aromatic polyamide (type 1)	Same as PETKD-1-180 and PETKD-2-180 but with improved thermal performance
PETDKD-200-2 TU 16.K180-054-2016			copper wire, normal thickness 3-layer insulation: polyesterimide and polyamidimide lacquer with an additional adhesive layer on the basis of aromatic polyamide (type 2)	
PET-200-1 TU 16-505.937-76, IEC 60317-26 and TT	200	Ø 0.080-3.000	copper wire, thinned polyesterimide lacquer insulation (type 1)	Wire is used to manufacture winding with temperature class 200: power and traction motors, dry transformers, generators, meters, coils, relays and communication equipment.
PET-200-2 TU 16-505.937-76, IEC 60317-26 and TT			copper wire, normal thickness polyesterimide lacquer insulation (type 2)	
PEEID-1-200 TU 16.K71-250-95	200	Ø 0,080-3,000	copper wire, thinned 2- layer insulation: polyesterimide and polyamidimide lacquer (type 1)	Wire is used to manufacture winding with temperature class 200: power and traction motors, dry transformers, generators, meters, coils, relays. Due to excellent electrical and thermal characteristics, as well as resistance to aggressive environments: acids, solvents and oils, the wire ensures high article reliability and is used to manufacture explosion proof equipment for chemical, gas, oil-refining and coal industry. Exceptional mechanical strength of insulation enables use of the wire for mechanized winding.
PEEID-2-200 TU 16.K71-250-95			copper wire, normal thickness 2-layer insulation: polyesterimide and polyamidimide lacquer (type 2)	

WINDING WIRES with fiberglass insulation

■ PSDKT construction

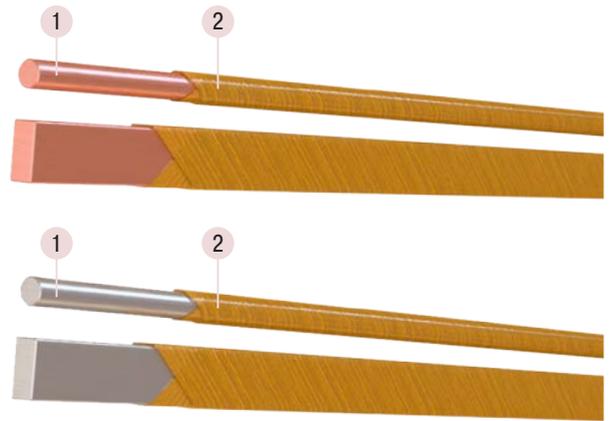
1. Round or rectangular copper wire.
2. Thinned two-layer glass fiber insulation with gluing and impregnation with insulating organic-silicon lacquer.

■ PSD construction

1. Round or rectangular copper wire.
2. Two-layer glass fiber insulation, with gluing and impregnation with insulating glyphtal lacquer.

■ APSLDKT construction

1. Round or rectangular aluminum wire.
2. Thinned two-layer glass-polyester thread insulation, with gluing and impregnation with insulating organic silicon lacquer.



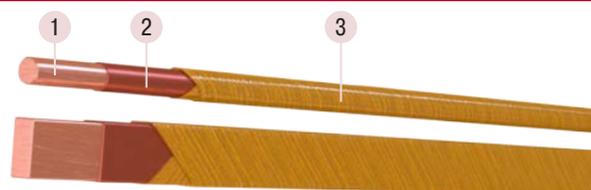
Type and standard	Temperature index, °C	Size, mm ²	Design	Area of application
APSD, APSLD TU 16.K71-257-96 and TT	155	Ø 1.25-10.01 «a» 1.50-5.70 «b» 3.00-16.00	aluminum wire, two-layer glass thread insulation (APSD) or glass-polyester thread insulation (APSLD) with gluing and impregnation with insulating glyphtal lacquer	Wire is used to manufacture winding with temperature class F: motors, transformers, generators, electric welding equipment and electric starting equipment. APSLD is more resistant to mechanical loads during equipment manufacturing and operation.
APSDK, APSDKT TU 16.K71-257-96 and TT	200	Ø 1.25-10.01 «a» 1.50-5.70 «b» 3.00-16.00	aluminum wire, normal thickness (APSDK) or thinned (APSDKT) two-layer glass thread insulation, with gluing and impregnation with insulating organic-silicon lacquer	Wire is used to manufacture winding with temperature class 200: motors, transformers, generators, electrical welding equipment and electrical starting equipment. Due to its thermal characteristics, wire is used to manufacture windings of equipment exposed to continuous overloading during operation.
APSLDK, APSLDKT TU 16.K71-257-96 and TT	200	Ø 1.25-10.01 «a» 1.50-5.70 «b» 3.00-16.00	aluminum wire, normal thickness (APSDK) or thinned (APSDKT) two-layer glass thread insulation, with gluing and impregnation with insulating organic-silicon lacquer	Wire is used to manufacture winding with temperature class 200: motors, transformers, generators, electrical welding equipment and electrical starting equipment. Due to its thermal characteristics, the wire is used to manufacture windings of equipment exposed to continuous overloading during operation. Wire is resistant to mechanical loads during equipment manufacturing and operation.
APSDK-L, APSDKT-L TU 16.K71-180-052-2017 and TT	200	«a» 1.50-5.70 «b» 3.00-16.00	aluminum wire, normal thickness (APSDK-L) or thinned (APSDKT-L) two-layer glass-polyester thread insulation, with gluing and impregnation with insulating organic-silicon lacquer, and surface lacquer layer	Wire is used to manufacture winding with temperature class 200: transformers, hydraulic generators, electrical motors. Due to its thermal characteristics, the wire is used to manufacture windings of equipment exposed to continuous overloading during operation. Wire is resistant to mechanical loads during equipment manufacturing and operation. Owing to its surface lacquer layer the wire is more smooth and less prone to frizzling during wire winding into an article.
PSD TU 16.K09-010-2005	155	Ø 0.85-6.45 «a» 0.80-5.60 «b» 2.00-14.00	copper wire, normal thickness (PSD) or thinned (PSDT) two-layer glass fiber insulation with gluing and impregnation with insulating glyphtal lacquer	Wire is used to manufacture winding with temperature class F: motors, transformers, generators, turbine generators, devices and apparatus. Owing to improved electrical properties, the wire is used to manufacture windings of equipment exposed to continuous overloading during operation.
PSDT TU 16.K71-129-91 and TT				
PSD-1 GOST 22301-77 and TT	155	Ø 0.85-6.45 «a» 0.80-5.60 «b» 2.00-14.00	copper wire, two-layer glass thread insulation with gluing and impregnation with insulating epoxy-polyester lacquer	Same as PSD but finished winding has better compatibility with impregnation compositions.
PSD-934 GOST 22301 and TT		«a» 0.80-5.60 «b» 2.00-14.00		
PSD-L, PSDT-L TU 16.K71-129-91 and TT	155	Ø 0.85-6.45 «a» 0.80-5.60 «b» 2.00-14.00	copper wire, normal thickness (PSD-L) or thinned (PSDT-L) two-layer glass thread insulation with gluing and impregnation with insulating glyphtal lacquer, surface lacquer coating	Same as PSD and PSDT but owing to its surface lacquer layer, the wire is more smooth and less prone to frizzling during wire winding into an article.

Type and standard	Temperature index, °C	Size, mm ²	Design	Area of application
PSLD, PSLDT TU 16.K71-129-91 and TT	155	Ø 0.85-6.45 «a» 0.80-5.60 «b» 2.00-14.00	copper wire, normal thickness (PSLD) or thinned (PSLDT) two-layer glass-polyester thread insulation with gluing and impregnation with insulating glyphtal lacquer	Same as PSD and PSDT but wire is resistant to mechanical loads during equipment
PSDK TU 16.K09-010- 2005	200	Ø 0.85-6.45 «a» 0.80-5.60 «b» 2.00-14.00	copper wire, normal thickness (PSDK) and thinned (PSDKT) two-layer glass thread insulation with gluing and impregnation with insulating organic-silicon lacquer	Wire is used to manufacture winding with temperature class 200: transformers, hydraulic generators and electric motors. Due to its thermal and electrical characteristics, wire is used to manufacture winding of equipment exposed to prolonged overloading during operation.
PSDKT TU 16.K71-129-91 and TT				
PSDK-L, PSDKT-L TU 16.K71-129-91 and TT	200	Ø 0.85-6.45 «a» 0.80-5.60 «b» 2.00-14.00	copper wire, normal thickness (PSDK-L) or thinned (PSDKT-L) two-layer glass thread insulation with gluing and impregnation with insulating organic-silicon lacquer, surface lacquer coating	Same as PSDK and PSDKT but owing to its surface lacquer layer, the wire is more smooth and less prone to frizzing during wire winding into an article.
PSLDK, PSLDKT TU 16.K71-129-91 and TT	200	Ø 0.85-6.45 «a» 0.80-5.60 «b» 2.00-14.00	copper wire, normal thickness (PSLDK) or thinned (PSLDKT) two-layer glass-polyester thread insulation with gluing and impregnation with insulating organic-silicon lacquer	Same as PSDK and PSDKT but wire is more resistant to mechanical loads during equipment manufacturing and operation.

WINDING WIRES with enamel-fiberglass insulation

■ PETS LD, PETVSD construction

1. Round or rectangular copper wire.
2. Polyesterimide lacquer insulation.
3. Two-layer glass-polyester thread insulation with gluing and insulating glyphtal lacquer impregnation.



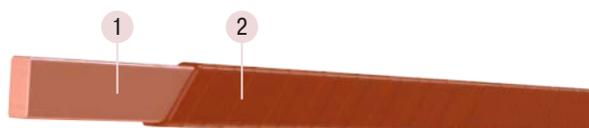
Type and standard	Temperature index, °C	Size, mm ²	Design	Area of application
PETVSD, PETVSDT TU 16.K71-020-96 and TT	155	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, normal thickness (PETVSD) or thinned (PETVSDT) polyester lacquer insulation, normal thickness (PETVSD) or thinned (PETVSDT) two-layer glass thread insulation, with gluing and impregnation with insulating glyphtal lacquer	Wire is used to manufacture winding with temperature class F: traction motors, transformers. Top electrical characteristics of wire provide high equipment reliability and enable use of the wire in windings of high-voltage electrical plants exposed to prolonged overloading during operation.
PETVSDT-1 TU 16.K09-123- 2008 and TT	155	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, polyester lacquer insulation, thinned two-layer glass thread insulation, with gluing and impregnation with epoxy-polyester insulating lacquer	Same as PETVSDT, but wire wound into the product has better compatibility with impregnation composition.
PETVSLD, PETVSLDT TU 16.K71-020-96 and TT	155	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, normal thickness (PETVSLD) or thinned (PETVSLDT) polyester lacquer insulation, normal thickness (PETVSLD) or thinned (PETVSLDT) two-layer glass-polyester thread insulation, with gluing and impregnation with insulating glyphtal lacquer	Same as PETVSD and PETVSDT but wire is more resistant to mechanical loads during equipment manufacturing and operation.
PETSD TU 16.K71-020-96 and TT	180	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, polyesterimide lacquer insulation, two-layer glass thread insulation, with gluing and impregnation with insulating glyphtal lacquer	Wire is used to manufacture winding with temperature class H: high-voltage electrical machines and transformers. Top electrical characteristics of wire provide high equipment reliability and enable use of the wire in windings of high-voltage electrical plants exposed to prolonged overloading during operation.
PETS LD TU 16.K71-020-96 and TT	180	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, polyesterimide lacquer insulation, two-layer glass-polyester thread insulation, with gluing and impregnation with insulating glyphtal lacquer	Same as PETSD but wire is more resistant to mechanical loads during equipment manufacturing and operation.

Type and standard	Temperature index, °C	Size, mm ²	Design	Area of application
PETSDT-1-180 TU 16.K09-154-2005	180	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, polyesterimide lacquer insulation, thinned two-layer glass thread insulation, with gluing and impregnation with epoxy-polyester insulating lacquer	Wire is used to manufacture winding with temperature class H: electrical machines, traction motors and transformers. Top electrical characteristics of wire provide high equipment reliability and enable its use in windings of high-voltage electrical machines, exposed to prolonged overloading during operation.
PETSDKT TU 16.K09-154-2005	200	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, polyesterimide lacquer insulation, thinned two-layer glass thread insulation, with gluing and impregnation with organic silicon lacquer	Wire is used to manufacture winding with temperature class 200: electrical machines, traction motors and transformers. Top electrical characteristics of wire provide high equipment reliability and enable its use in windings of high-voltage electrical machines exposed to prolonged overloading during operation.
PETSLDKT TU 16.K09-154-2005	200	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, polyesterimide lacquer insulation, thinned two-layer glass thread insulation, with gluing and impregnation with organic silicon lacquer	Wire is used to manufacture winding with temperature class 200: electrical machines, traction motors and transformers. Top electrical characteristics of wire provide high equipment reliability and enable its use in windings of high-voltage electrical machines exposed to prolonged overloading during operation.
PETSDKTU TU 16.K09-154- 2005 and TT	200	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, thickened polyesterimide lacquer insulation, two-layer glass thread insulation, with gluing and impregnation with organic silicon lacquer	Same as PETS�DKT but wire has increased electrical strength of insulation
PETSOK TU 16.K09-156- 2005	200	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, polyesterimide lacquer insulation, one layer glass thread insulation, with gluing and impregnation with organic-silicon lacquer	Wire is used to manufacture winding with temperature class 200: high voltage electrical machines, devices, apparatus, dry transformers. Without changing size of windings of electrical machines, the wire enables increase of current rating of winding due to increased copper cross section in channel.
PETSLOK TU 16.K09-156- 2005	200	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, polyesterimide lacquer insulation, one layer glass thread insulation, with gluing and impregnation with organic-silicon lacquer	Same as PETSOK but wire is more resistant to impact of mechanical loads in the process of manufacturing and operation of equipment
PETSO-1 TU 16.K09-156-2005	200	Ø 0.85-3.00 «a» 0.80-5.00 «b» 2.00-12.50	copper wire, polyesterimide lacquer insulation, one layer glass thread insulation, with gluing and impregnation with epoxy-polyester lacquer	Same as PETSOK but wire wound into an article has better compatibility with impregnating compounds

WINDING WIRES with film insulation

■ PPIPK-1 construction

1. Rectangular copper wire.
2. Polyimide-fluoroplast film insulation.

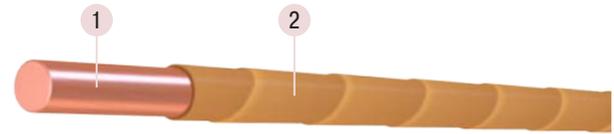


Type and standard	Temperature index, °C	Size, mm ²	Design	Area of application
PPI-U TU 16-705-159-80	200	Ø 1.06-3.15	copper wire, polyimide- fluoroplast film insulation	Wire is designed for windings of stators in submersible oil-filled electric motors. Excellent electrical properties provide high reliability of equipment under overload. Wire has excellent mechanical characteristics and elasticity.
PPIPK-T TU 16.K71-202-93	200	«a» 1.40-4.00 «b» 4.00-11.20 (9-40 mm ²)	copper wire, polyimide-fluoroplast film insulation (nominal insulation thickness 0.16 mm)	Wire is used to manufacture stator windings of electrical machines with temperature class 200: traction motors of large trucks, mainline electric locomotives, diesel locomotives, electrical drills and roll mills.
PPIPK-1 TU 16.K71-202-93	200	«a» 1.40-4.00 «b» 4.00-11.20 (9-40 mm ²)	copper wire, polyimide- fluoroplast film insulation (nominal insulation thickness 0.23 mm)	Due to top electrical and mechanical properties the wire provides high reliability of articles operation in extremely heavy duty conditions: with significant prolonged overloading and vibration. Wires can be impregnated with lacquers, finished winding can be compounded.
PPIPK-2 TU 16.K71-202-93	200	«a» 1.40-4.00 «b» 4.00-11.20 (9-40 mm ²)	copper wire, polyimide-fluoroplast film insulation (nominal insulation thickness 0.30 mm)	
PPIPK-3 TU 16-705.035-8	200	«a» 1.40-4.00 «b» 4.00-11.20 (9-40 mm ²)	copper wire, polyimide-fluoroplast film insulation (nominal insulation thickness 0.35 mm)	

WINDING WIRES with paper insulation

■ PB construction

- 1. Copper wire.
- 2. Cable paper tape insulation.

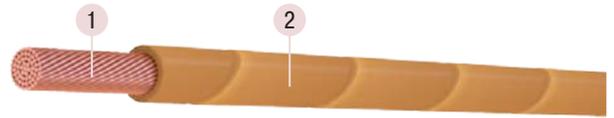


Type and standard	Temperature index, °C	Size, mm ²	Design	Area of application
APB TU 16.K71-108-2007	105	Ø 1.32-8.00 «a» 1.80-5.60 «b» 4.00-18.00	aluminum wire, cable paper tape insulation	Wire is used to manufacture winding with temperature class A: electrical machines, devices and transformers operating in insulating oil medium.
PB TU 16.K71-108-2007	105	Ø 1.32-8.00 «a» 1.00-5.60 «b» 3.00-19.50	copper wire, cable paper tape insulation	
PBU TU 16.K71-108-2007	105	«a» 1.80-5.60 «b» 4.75-19.50	copper conductor, transformer high-voltage densified paper tape insulation	Wires are designed to manufacture winding with temperature class A: electrical machines, devices and transformers operating in insulating oil medium.
APBU TU 16.K71-108-2007	105	«a» 2.50-5.60 «b» 5.60-16.00	aluminum conductor, transformer high-voltage densified paper tape insulation	Wires in impregnated condition are designed for operation at temperature up to minus 60 °C.
PBP TU 16-505.661-74	105	«a» 1.40-4.25 «b» 7.50-19.50	copper conductor strands with cable two- and multi-layer densified paper tape insulation, laid in parallel into common paper tape insulation	Wires are designed to manufacture winding with temperature class A: high-voltage oil transformers and reactors.
PBPU TU 16-505.661-74	105	«a» 1.40-4.25 «b» 7.50-19.50	copper conductor strands with cable two- and multi-layer transformer high-voltage densified paper tape insulation, laid in parallel into common paper tape insulation	Wires in impregnated condition are designed for operation at temperature up to minus 60 °C.
PPA TU 16.K09-151-2005 and TT	180	«a» 1.18-5.00 «b» 3.35-12.50	copper wire, insulating aramide paper Nomex insulation	Wires are designed to manufacture winding of temperature class N electrical machines, devices and transformers.

PAPER INSULATED POWER WIRES

■ PBOT construction

1. Conductor twisted from copper wire.
2. Paper insulation.



■ Specifications

Conductor class	4; 5
Insulation thickness, mm	2; 3; 6; 8
Service life, years	30

Type and standard	Type and standard	Cross-section, mm ²	Design	Area of application
PBOT TU 16-705.420-86	1	16-400	copper conductor, paper insulation	Designed for transformer winding taps

REACTOR WIRES

■ PRAV construction

1. Aluminum conductor.
2. PVC compound insulation.



■ Specifications

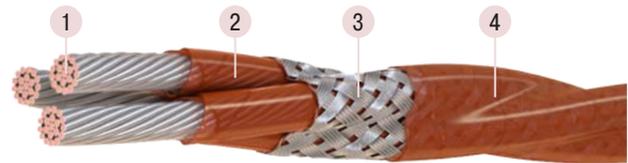
Ambient temperature, °C	-60/+105
Bending radius, min., outer diameters	-10
Factory length, min., m	400
Guarantee period, months	24

Type and standard	Number of conductors	Cross-section, mm ²	Design	Area of application
PRAV TU 16.K180-017-2010	1	300-320	conductor twisted from aluminum wires, PVC compound insulation	Wires are used in manufacturing of windings for dry current- limiting reactors intended for indoor and outdoor operation.

AEROSPACE WIRES AND CABLES

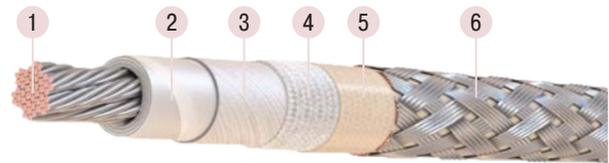
■ BIFEZ construction

1. Flexible silver-plated copper conductors or BrKhCrK alloy.
2. Polyimide-fluoroplast film insulation.
3. Silver-plated copper wire screen.
4. Polyimide-fluoroplast film protection sheath.



■ PTLE-200 construction

1. Flexible tinned copper conductor.
2. Fluoroplast film insulation.
3. Glass thread insulation.
4. Glass thread braid.
5. Organic-silicon lacquer coating.
6. Tinned copper wire screen.



Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
BIF TU 16-505.945-76	250 6 kHz	+200	1	0.20-2.50	flexible silver-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation	<p>Wires are designed for fixed installation of aviation equipment onboard electric circuit:</p> <ul style="list-style-type: none"> • operation AC voltage with frequency 6 kHz at atmospheric pressure up to 0,67 kPa - 250 V, • operation DC voltage at atmospheric pressure up to 0,67 kPa - 350 V, • operation AC voltage frequency 6 kHz at atmospheric pressure up to 60 kPa - 600 V, • operation DC voltage at atmospheric pressure up to 60 kPa - 750 V, • impulse voltage - 700 V. <p>Coupling impedance at frequency 10 MHz - 500 MOhm/m.</p> <p>Breaking tension of BrKhCrK alloy conductors is 1.8 times higher than in copper conductors. Wire insulation is resistant to abrasion, punching, vibration, impact, linear loadings and acoustic noises.</p> <p>Resistant to increased atmospheric pressure up to 295 kPa (3 kgF/cm²), atmospheric precipitations (frost, dew), oils and mold fungi.</p> <p>BIF(M)-(N) and BIF(M)EZ-(N) wires are resistant to salt fog. Flame retardant.</p> <p>Service life is 15 years. 95% resource is 35,000 hours. Minimum running time is 30,000 hours.</p>
BIFM TU 16-505.945-76	250 6 kHz	+200	1	0.20-2.50	flexible silver-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation with reduced thickness	
BIF-N TU 16-505.945-76	250 6 kHz	+200	1	0.20-2.50	flexible nickel-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation	
BIFM-N TU 16-505.945-76	250 6 kHz	+200	1	0.20-2.50	flexible nickel-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation with reduced thickness	
BIFE TU 16-505.945-76	250 6 kHz	+200	11-3	0.20-2.50	flexible silver-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation, silver-plated copper wire screen	
BIFME TU 16-505.945-76	250 6 kHz	+200	1-3	0.20-2.50	flexible silver-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation with reduced thickness, silver-plated copper wire screen	
BIFE-N TU 16-505.945-76	250 6 kHz	+200	1-3	0.20-2.50	flexible nickel-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation, nickel-plated copper conductors screen	
BIFME-N TU 16-505.945-76	250 6 kHz	+200	1-3	0.20-2.50	flexible nickel-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation with reduced thickness, nickel-plated copper conductors screen	
BIFEZ TU 16-505.945-76	250 6 kHz	+200	1-3	0.20-2.50	flexible silver-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation, silver-plated copper wire screen, polyimide-fluoroplast film protection sheath	
BIFMEZ TU 16-505.945-76	250 6 kHz	+200	1-3	0.20-2.50	flexible silver-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation with reduced thickness, silver-plated copper wire screen, polyimide-fluoroplast film protection sheath with reduced thickness	
BIFEZ-N TU 16-505.945-76	250 6 kHz	+200	1-3	0.20-2.50	flexible nickel-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation, nickel-plated copper wires screen, polyimide-fluoroplast film protection sheath	
BIFMEZ-N TU 16-505.945-76	250 6 kHz	+200	1-3	0.20-2.50	flexible nickel-plated copper or BrKhCrK alloy conductor, polyimide-fluoroplast film insulation with reduced thickness, nickel-plated copper wires screen, polyimide-fluoroplast film protection sheath with reduced thickness	

Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
BSFO TU 16-505.311-72	250 5 kHz	+350	1	0.50-95	flexible copper conductor, fluoroplast film insulation, glass thread insulation, organic-silicon lacquer coating, glass thread braid, cotton yarn braid, organic- silicon lacquer coating	Wires are designed for repair of onboard aviation equipment electric circuits. Wires are designed for operation in conditions of single, up to 3 hours long, local conductor overheating up to 350 °C. Wires are resistant to decreased atmospheric pressure to 2000 Pa. Wire shelf life – 12 years.
BSFE TU 16-505.311-72	250 5 kHz	+400	1	0.50-95	flexible copper conductor, fluoroplast film insulation, glass thread insulation, organic-silicon lacquer coating, fluoroplast film winding, tinned copper wire screen	Wires are designed for repair of onboard aviation equipment electric circuits. Wires are designed for operation in conditions of single, up to 3 hours long, local conductor overheating up to 400 °C. Wire shelf life – 12 years.
PTL-200 TU 16-505.280-79	250 5 kHz	+200	1	0.35-70	flexible tinned copper conductor, fluoroplast film insulation, glass thread insulation, glass thread braid, organic-silicon lacquer coating	Wires are designed for fixed installation of onboard aviation equipment electric circuits. Resistant to abrasion, vibration, impact, linear loadings and acoustic noises. Resistant to decreased atmospheric pressure down to 2 kPa (15 mm Hg), salt fog and mold fungi. Service life – 20 years. 95% resource: 10,000 hours for PTL-200, 1500 hours for PTL-250 and PTL-250-MN. Minimum running time: 5000 hours for PTL-200, 1000 hours for PTL-250 and PTL-250-MN.
PTL-250 TU 16-505.280-79	250 5 kHz	+250	1	0.35-70 95.0	flexible silver-plated copper conductor, fluoroplast film insulation, glass thread insulation, glass thread braid, organic-silicon lacquer coating	Wires are designed for fixed installation of onboard aviation equipment electric circuits. Coupling impedance 10 MHz – 250 MOhm/m. Resistant to vibration, impact, linear loadings and acoustic noises. Resistant to decreased atmospheric pressure to 2 kPa (15 mm Hg.), salt fog and mold fungi. Service life – 20 years. 95% resource: 5000 hours for PTLE-200, 1500 hours for PTLE-250 and PTLE-250-MN. Minimum running time: 3000 hours for PTLE-200, 1000 hours for PTLE-250 and PTLE-250-MN.
PTL-250-MN TU 16-505.280-79, TT	250 5 kHz	+250	1	0.35-70 95.0	flexible nickel-plated copper conductor, fluoroplast film insulation, glass thread insulation, glass thread braid, organic-silicon lacquer coating	Wires are designed for fixed installation of onboard aviation equipment electric circuits. Coupling impedance 10 MHz – 250 MOhm/m. Resistant to vibration, impact, linear loadings and acoustic noises. Resistant to decreased atmospheric pressure to 2 kPa (15 mm Hg.), salt fog and mold fungi. Service life – 20 years. 95% resource: 5000 hours for PTLE-200, 1500 hours for PTLE-250 and PTLE-250-MN. Minimum running time: 3000 hours for PTLE-200, 1000 hours for PTLE-250 and PTLE-250-MN.
PTLE-200 TU 16-505.280-79, TT	250 5 kHz	+200	1	0.35-70 95.0	flexible tinned copper conductor, fluoroplast film insulation, glass thread insulation, glass thread braid, organic-silicon lacquer coating, tinned copper wire screen	Wires are designed for fixed installation of onboard aviation equipment electric circuits. Coupling impedance 10 MHz – 250 MOhm/m. Resistant to vibration, impact, linear loadings and acoustic noises. Resistant to decreased atmospheric pressure to 2 kPa (15 mm Hg.), salt fog and mold fungi. Service life – 20 years. 95% resource: 5000 hours for PTLE-200, 1500 hours for PTLE-250 and PTLE-250-MN. Minimum running time: 3000 hours for PTLE-200, 1000 hours for PTLE-250 and PTLE-250-MN.
PTLE-250 TU 16-505.280-79, TT	250 5 kHz	+250	1	0.35-70 95.0	flexible silver-plated copper conductor, fluoroplast film insulation, glass thread insulation, glass thread braid, organic-silicon lacquer coating, tinned copper wire screen	Wires are designed for fixed installation of onboard aviation equipment electric circuits and operation at AC voltage up to 250 V AC, frequency up to 6 kHz or 350 V DC. Resistant to abrasion, withstand 10,000 double needle travel, resistant to vibration, impact and linear loading, and acoustic noises. Resistant to impact of relative humidity up to 98 % at temperature 35 °C, decreased to 0.67 kPa (5 mm Hg.) and increased to 295 kPa (3 kgF/cm ²) atmospheric pressure, salt fog (except wire of grade BSFE), atmospheric precipitations, mold fungi (oil, petrol and kerosene – for 20 hours). Flame retardant. Service life – 15 years (20 years for wires not subject to installation bending during operation). 95% resource – 35,000 hours.
PTLE-250-MN TU 16-505.280-79, TT	250 5 kHz	+250	1	0.35-70 95.0	flexible nickel-plated copper conductor, fluoroplast film insulation, glass thread insulation, glass thread braid, organic silicon lacquer coating, tinned copper wire screen	Wires are designed for fixed installation of onboard aviation equipment electric circuits and operation at AC voltage up to 250 V AC, frequency up to 6 kHz or 350 V DC. Resistant to abrasion, withstand 10,000 double needle travel, resistant to vibration, impact and linear loading, and acoustic noises. Resistant to impact of relative humidity up to 98 % at temperature 35 °C, decreased to 0.67 kPa (5 mm Hg.) and increased to 295 kPa (3 kgF/cm ²) atmospheric pressure, salt fog (except wire of grade BSFE), atmospheric precipitations, mold fungi (oil, petrol and kerosene – for 20 hours). Flame retardant. Service life – 15 years (20 years for wires not subject to installation bending during operation). 95% resource – 35,000 hours.
BFS TU 16-705.014-77	250 6 kHz	+250	1	0.20-6.00	flexible copper conductor nickel-plated or from BrKhCrK alloy, combination glass-polyimide-fluoroplast insulation, glass thread braid impregnated with fluoroplast suspension, heat treated	Wires are designed for fixed installation of onboard aviation equipment electric circuits and operation at AC voltage up to 250 V AC, frequency up to 6 kHz or 350 V DC. Resistant to abrasion, withstand 10,000 double needle travel, resistant to vibration, impact and linear loading, and acoustic noises. Resistant to impact of relative humidity up to 98 % at temperature 35 °C, decreased to 0.67 kPa (5 mm Hg.) and increased to 295 kPa (3 kgF/cm ²) atmospheric pressure, salt fog (except wire of grade BSFE), atmospheric precipitations, mold fungi (oil, petrol and kerosene – for 20 hours). Flame retardant. Service life – 15 years (20 years for wires not subject to installation bending during operation). 95% resource – 35,000 hours.
BFSE TU 16-705.014-77	250 6 kHz	+250	1, 3 2	0.20-6.00 0.20-2.50	flexible copper conductor nickel-plated or from BrKhCrK alloy, combination glass-polyimide-fluoroplast insulation, glass thread braid impregnated with fluoroplast suspension, heat treated, nickel-plated copper wire screen	Wires are designed for fixed installation of onboard aviation equipment electric circuits and operation at AC voltage up to 250 V AC, frequency up to 6 kHz or 350 V DC. Resistant to abrasion, withstand 10,000 double needle travel, resistant to vibration, impact and linear loading, and acoustic noises. Resistant to impact of relative humidity up to 98 % at temperature 35 °C, decreased to 0.67 kPa (5 mm Hg.) and increased to 295 kPa (3 kgF/cm ²) atmospheric pressure, salt fog (except wire of grade BSFE), atmospheric precipitations, mold fungi (oil, petrol and kerosene – for 20 hours). Flame retardant. Service life – 15 years (20 years for wires not subject to installation bending during operation). 95% resource – 35,000 hours.

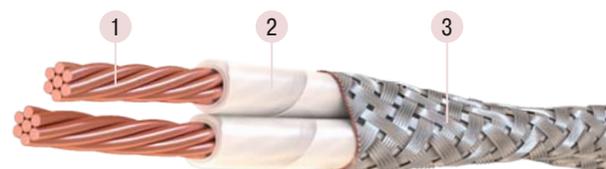
Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
BFSEZ TU 16-705.014-77	250 6 kHz	+250	1, 3 2	0.20-6.00 0.20-2.50	flexible copper conductor nickel-plated or from BrKhCrK alloy, combination glass-polyimide-fluoroplast insulation, glass thread braid impregnated with fluoroplast suspension, heat treated, nickel-plated copper wire screen, protection screen (for single-conductor wires - from fluoroplast-4D winding and glass thread braid, coated with suspension from fluoroplast 4D, heat treated; for multiconductor wires - fluoroplast-4 and fluoroplast 4D winding), heat treated	Wires are designed for fixed installation of onboard aviation equipment electric circuits and operation at AC voltage up to 250 V AC, frequency up to 6 kHz or 350 V DC. Resistant to abrasion, withstand 10,000 double needle travel, resistant to vibration, impact, linear loading and acoustic noises. Resistant to impact of relative humidity up to 98 % at temperature 35 °C, decreased to 0.67 kPa (5 mm Hg.) and increased to 295 kPa (3 kgF/ cm ²) atmospheric pressure, salt fog (except wire of grade BSFE), atmospheric precipitations, mold fungi (oil, petrol and kerosene – for 20 hours). Flame retardant. Service life – 15 years (20 years for wires not subject to installation bending during operation). 95% resource – 35,000 hours.
BPVL TU 16-505.911-76	250 2 kHz	+70	1	0.35-95.0	flexible tinned copper conductor, PVC compound insulation, combined braid of cotton antiseptic yarn and polyester thread, organic-silicon lacquer coating	Wires are designed for fixed installation of electric circuit including aviation equipment and operation at AC voltage up to 250 V AC, frequency up to 2000 Hz or 500 V DC. Resistant to impact of sinusoidal vibration, acoustic noise, single and multiple mechanical impacts, linear acceleration, increased and decreased atmospheric pressure, decreased and increased operation ambient temperature. Minimum service life – 15 years. 95% resource – 15,000 hours (37,500 hours – for wires designed for electrical network of civil aircraft at a temperature not exceeding +70 °C).
BPVLE TU 16-505.911-76	250 2 kHz	+70	1	0.35-95.0	flexible tinned copper conductor, PVC compound insulation, combined braid from cotton antiseptic yarn and polyester thread, organic-silicon lacquer coating, tinned copper wire screen	Wires are designed for fixed installation of electric circuit of onboard aviation equipment electric circuits. Coupling impedance 10 MHz – 500 MOhm/m. Wires are resistant to vibration, impact and linear loadings and acoustic noises. Resistant to decreased atmospheric pressure to 666 Pa (5 mm Hg.) for 3 hours at temperature +250 °C or single impact of temperature +400 °C for 15 minutes without further wire use. Resistant to mineral oils, petrol, kerosene, mold fungi. Flame retardant. Service life – 20 years. 95% resource – 1,500 hours. Minimum running time – 10,000 hours.
PTE TU 16-505.828-75	250 5 kHz	+250	2	0.20-0.50	flexible silver-plated copper conductors, fluoroplast film insulation, glass thread insulation, organic silicon lacquer coating, tinned copper wire braid	Wires are designed for fixed installation of electric circuit of onboard aviation equipment electric circuits. Coupling impedance 10 MHz – 500 MOhm/m. Wires are resistant to vibration, impact and linear loadings and acoustic noises. Cables are resistant to decreased atmospheric pressure to 666 Pa (5 mm Hg) and increased atmospheric pressure to 295 kPa (3 kgF/ cm ²), salt (sea) fog, atmospheric condensing precipitation and mold fungi. Cables service life – 20 years. 95% resource – 15,000 hours. Minimum running time – 10,000 hours.
KMTFL TU 16-505.542-73	110 2 kHz	+120	7-50	0.20	flexible copper conductors, fluoroplast film insulation, polyester thread insulation, organic-silicon lacquer coating, fluoroplast film winding over twisted conductors, polyethylene thread braid, organic silicon lacquer coating	Wires are designed for fixed installation of electric circuit of onboard aviation equipment electric circuits. Coupling impedance 10 MHz – 500 MOhm/m. Wires are resistant to vibration, impact and linear loadings and acoustic noises.
KMTFLE TU 16-505.542-73	110 2 kHz	+120	7-52	0.20-0.35	flexible copper conductors, fluoroplast film insulation, polyester thread insulation, organic-silicon lacquer coating, tinned copper wire screen, fluoroplast film winding over twisted conductors, polyethylene thread braid, organic-silicon lacquer coating	Wires are designed for fixed installation of electric circuit of onboard aviation equipment electric circuits. Coupling impedance 10 MHz – 500 MOhm/m. Wires are resistant to vibration, impact and linear loadings and acoustic noises. Cables are resistant to decreased atmospheric pressure to 666 Pa (5 mm Hg) and increased atmospheric pressure to 295 kPa (3 kgF/ cm ²), salt (sea) fog, atmospheric condensing precipitation and mold fungi. Cables service life – 20 years. 95% resource – 15,000 hours. Minimum running time – 10,000 hours.

Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
KTS TU 16-505.828-75	250 5 kHz	+250	4-52 4-27	0.20-0.50 0.75-1.50	flexible silver-plated copper conductors, fluoroplast film insulation, glass thread insulation, organic-silicon lacquer coating, fluoroplast film winding over twisted conductors, glass thread braid, organic-silicon lacquer coating	Designed for fixed installation of onboard aviation equipment electric circuits. Coupling impedance 10 MHz for cables KETS and KTES – 500 MOhm/m. Cables are resistant to abrasion, vibration, impact, linear loadings and acoustic noises. Resistant to decreased atmospheric pressure to 666 Pa (5 mm Hg) for 3 hours at temperature +250 °C or single impact of temperature +400 °C for 15 minutes without further wire use. Resistant to mineral oils, petrol, kerosene, mold fungi. Flame retardant. Service life – 20 years. 95% resource – 1,500 hours. Minimum running time – 10,000 hours.
KETS TU 16-505.828-75	250 5 kHz	+250	4-52	0.20-0.50	flexible silver-plated copper conductors, fluoroplast film insulation, glass thread insulation, organic-silicon lacquer coating, screens over insulated tinned copper wire conductors, glass tape winding over twisted conductors, fluoroplast film winding, glass thread braid, organic-silicon lacquer coating	
KTES TU 16-505.828-75	250 5 kHz	+250	3x2 4x2 7x2	0.20-0.50 0.20-0.50 0.20-0.50	flexible silver-plated copper conductors, fluoroplast film insulation, glass thread insulation, organic-silicon lacquer coating, screen over pair-twisted tinned copper wire conductors, glass tape winding over twisted conductors, fluoroplast film winding, glass thread braid, organic silicon-lacquer coating	
PVZPO-15-250 TU 16-505.252-81	15 000 Impulse voltage	+250	1	0.75	flexible copper conductor, fluoroplast film insulation, glass thread braid, organic silicon lacquer coating	Designed for fixed installation in ignition circuits of aviation equipment and in jet turbines, for operation at nominal value of impulse voltage range 15 kV. Resistant to abrasion, vibration, impact and linear loadings, acoustic noises, decreased atmospheric pressure to 0.13 kPa and increased atmospheric pressure to 295 kPa. Resistant to salt fog, atmospheric precipitation (frost and dew), direct sunlight, oil, fuel and mold fungi. Flame retardant.
PVZPO-15-350 TU 16-505.252-81	15 000 Impulse voltage	+350	1	0.50	steel conductor, fluoroplast film insulation, two glass thread braids, organic silicon-lacquer coating	

INSTALLATION WIRES AND CABLES

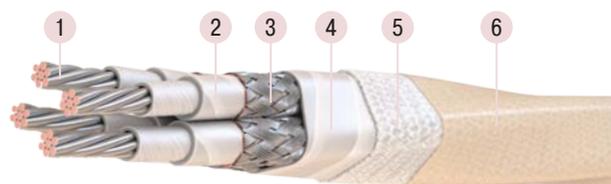
MGTFE construction

1. Flexible copper conductor.
2. Fluoroplast film insulation.
3. Tinned copper wire screen over twisted conductors.



KESFS construction

1. Flexible silver-plated copper conductors.
2. Glass threads and fluoroplast films insulation.
3. Screen over conductors insulation or pair-twisted tinned copper wire conductors.
4. Fluoroplast film winding.
5. Glass tape winding.
6. Glass thread sheath in the form of braid coated with organic silicon lacquer.



Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
MGShV, MGShV-1 TU 16-505.437-82, TT	1 000 10 kHz	+70	1 2-5	0.12-1.50 0.20-0.75	flexible tinned copper conductor, polyester thread insulation, PVC compound insulation	Designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices and electric equipment terminal outputs with operation AC voltage 1000 V, frequency 10 kHz, DC voltage 1500 V and impulse voltage 700 V. Coupling impedance 10 MHz for wire MGShVE with cross-section 0.35 mm ² – 150 MOhm/m.
MGShVE, MGShVE-1 TU 16-505.437-82, TT	1 000 10 kHz	+70	1-3 4-10	0.12-1.50 0.35-0.75	flexible tinned copper conductors, polyester thread insulation, PVC compound insulation, tinned copper wire screen	Resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, condensed atmospheric precipitation (dew and frost), static and dynamic dust (sand), salt (sea) fog, mold fungi and sunlight. Flame retardant if laid single.
MGShVEV, MGShVEV-1 TU 16-505.437-82, TT	1 000 10 kHz	+70	1; 2; 3 4 5	0.12-1.50 0.12-0.75 0.35-0.75	flexible tinned copper conductors, polyester thread insulation, PVC compound insulation, tinned copper wire screen, PVC compound sheath over twisted screened conductors	Wires withstand short time temperature: 100 °C for 96 hours, 130 °C for 5 minutes, 150 °C for 10 minutes (without further use). Minimum running time – 10,000 hours. Minimum shelf life – 15 years. 95% resource – 15,000 hours.
	380 10 kHz	+70	1	0.12-0.14		
NV GOST 17515-72	600 10 kHz	+105	1; 2; 3	0.20-2.50	coper tinned conductor (1, 3, 4, 5-th flexibility class), PVC compound insulation	Designed for operation in electric circuits of general industrial purpose units. Resistant to vibration, multiple impacts, mold fungi, petrol and mineral oil. Flame retardant. Average operation life: - 1000 hours at temperature 105 °C, - 6000 hours at temperature 70 °C, - 10,000 hours at temperature 50 °C. Service life – 15 years. Guaranteed shelf life – 1.5 years.
	1 000 10 kHz	+105	1 2; 3	0.20-2.50		
NVM GOST 17515-72	600 10 kHz	+105	1	0.20-2.50	copper conductor (1, 3, 4-th flexibility class), PVC compound insulation	Service life – 15 years. Guaranteed shelf life – 1.5 years.
	1 000 10 kHz	+105	1	0.20-2.50		
NVE GOST 17515-72	600 10 kHz	+105	1; 2; 3	0.20-2.50	copper conductors (3, 4, 5-th flexibility class), PVC compound insulation, tinned copper wire screen	Designed for operation in electric circuits of general industrial purpose units. Resistant to vibration, multiple impacts, mold fungi, petrol and mineral oil. Flame retardant. Average operation life: - 1000 hours at temperature 105 °C, - 6000 hours at temperature 70 °C, - 10,000 hours at temperature 50 °C. Service life – 15 years. Guaranteed shelf life – 1.5 years.
	1 000 10 kHz	+105	1; 2; 3	0.20-2.50		
NVME GOST 17515-72	600 10 kHz	+105	1; 2; 3	0.20-1.0	copper conductors (3, 4-th flexibility class), PVC compound insulation, copper wire screen	Service life – 15 years. Guaranteed shelf life – 1.5 years.
	1 000 10 kHz	+105	1 2; 3	0.20-2.50 0.20-1.0		

Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
NWGng(A)-LS TU 16.K180-002- 2008	600 400 Hz	+70	1 2-3	0.35-1.50 0.35-1.50	flexible conductor of tinned copper wires, low fire hazard PVC compound insulation, low fire hazard PVC compound sheath	Cables are designed for electrical equipment installation at operation voltage up to 600 V AC, frequency 400 Hz or up to 840 V DC. Insulation resistance min. 10 MOhm/km. Cables are resistant to change of temperature from minus 50 °C to plus 70 °C, increased humidity, cracking, installation bends at temperature minus 15 °C. Cables are flame retardant if laid in harnesses. Service life – 15 years.
NVEVng(A)-LS TU 16.K180-002- 2008	600 400 Hz	+70	1 2-3	0.35-95.0 0.35-1.50	flexible conductor of tinned copper wires, low fire hazard PVC compound insulation, screen in the form of braid from tinned copper wires over insulation of single conductor or over twisted conductors of multiconductor cable, low fire hazard PVC compound sheath	Cables are designed for electrical equipment installation at operation voltage up to 600 V AC, frequency 400 Hz or up to 840 V DC. Insulation resistance min. 10 MOhm/km. Cables are resistant to change of temperature from minus 50 °C to plus 70 °C, increased humidity, cracking, installation bends at temperature minus 15 °C. Cables are flame retardant if laid in harnesses. Service life – 15 years.
MP 16-11 TU 16-505.759-81	100 10 kHz	+200	1	0.03-0.05	flexible copper conductor, fluoroplast film insulation	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 100 V, frequency 10 kHz, DC voltage 150 V and impulse voltage 280 V. Wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure. Flame retardant. Minimum running time – 3000 hours. Minimum shelf life – 20 years. 95% resource – 5000 hours.
MP 37-12 TU 16-505.191-80	500 10 kHz	+250	1	0.08-1.50	flexible silver-plated copper conductor, fluoroplast film insulation	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 500 V, frequency 10 kHz, DC voltage 700 V and impulse voltage 700 V. Coupling impedance 10 MHz for wire MPE 37-12 – 500 MOhm/m.
MPE 37-12 TU 16-505.191-80	500 10 kHz	+250	1	0.08-1.50	flexible silver-plated copper conductor, fluoroplast film insulation, tinned copper wire screen	Resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi and sunlight. Wire of grade MP 37-12 is resistant to salt (sea) fog. Minimum wires running time: 3000 hours at temperature 250 °C for wires of grade MP 37-12, 1000 hours at temperature 250 °C for wires of grade MPE 37-12, 100,000 hours at temperature 100 °C for wires of grade MP 37-12, 25,000 hours at temperature 125 °C for wires of grade MPE 37-12. Wires minimum shelf life – 20 years. Minimum service life – 20 years. 95% resource – 5,000 hours for wire of grade MP 37-12, 1500 hours for wire of grade MPE 37-12.
MPE 37-14 TU 16-505.191-80	500 10 kHz	+250	1	0.08-1.50	flexible nickel-plated copper conductor, fluoroplast film insulation, tinned copper wire screen	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 500 V, frequency 10 kHz, DC voltage 700 V and impulse voltage 700 V. Coupling impedance 10 MHz for wire MPE 37-12 – 500 MOhm/m.
MGST TU 16-505.292-2000	220 50 Hz	+200	1	0.35-2.50	flexible copper conductor, glass thread insulation impregnated with organic-silicon lacquer, glass thread braid coated with organic-silicon lacquer	Wires are designed for semi-fixed installation inside floor-mounted electric cookers, ovens and other household heating appliances. Wires should be protected from moist and mechanical impact. Wire service life – min. 8 years. Guarantee period – 5 years.
MPM TU 16-505.495-81	U AC 250 5 000 Hz U DC 350	-50/+85	1	0.35; 0.50; 0.75; 1.00; 1.50	flexible conductor of tinned copper wires, polyethylene insulation	Wires are designed for operation with rated voltage up to 250 V, frequency 5000 Hz and DC voltage up to 350 V and temperature from minus 50 to plus 85 °C. Wires are resistant to sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, increased air humidity, condensed atmospheric precipitation (dew and frost), static and dynamic dust (sand), direct sunlight, salt (sea) fog, mold fungi.
MPME TU 16-505.495-81	U AC 250 5 000 Hz U DC 350	-50/+85	1	0.35; 0.50; 0.75; 1.00; 1.50	flexible conductor of tinned copper wires, polyethylene insulation, tinned copper wire braid	Wires are resistant to increased temperature 100 °C for 48 h., and short time (single) temperature 150 °C – 15 min. Minimum wires running time: - 3000 hours at temperature up to 85 °C, - 100,000 hours at temperature up to 40 °C, - 55,000 hours at temperature up to 50 °C, - 33,000 hours at temperature up to 60 °C. Minimum shelf life – 15 years. Minimum service life – 15 years. 95% resource at temperature 85 °C – 5000 hours.
			2; 3	0.35		

Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
MFOL TU 16-505.184-78	250 5 kHz	+200	9; 15; 20	0.20	flexible copper conductors; fluoroplast film insulation; tinned copper wire screens (for separately insulated conductors), fluoroplast film winding over twisted conductors, glass thread braid impregnated with organic-silicon lacquer	Cables are designed for interdevice connections in electronic and electric systems with operation AC voltage up to 250 V, frequency 5 kHz, and impulse voltage 700 V. Coupling impedance at 10 MHz – 300 MOhm/m for cables MFOL and 200 MOhm/m for MFE cables. Cables are resistant to sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, static dust (sand), mold fungi. Cables of grade MFOL are resistant to salt (sea) fog. Cables minimum running time – 3000 hours. Minimum cables shelf life – 20 years. Minimum service life – 20 years. 95% resource – 5000 hours.
MFE TU 16-505.184-78	250 5 kHz	+200	7; 12; 19	0.20	flexible copper conductors; fluoroplast film insulation, fluoroplast film winding over twisted conductors, tinned copper wire screen	
MGTF TU 16-505-185-71	250 5 kHz	+220	1	0.03-0.35	flexible copper conductor, fluoroplast film insulation	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric device with operation AC voltage 250 V, frequency 5 kHz, DC voltage 350 V and impulse voltage 700 M. Coupling impedance 10 MHz for wire of grade MGTFE – 400 MOhm/m. Wires are resistant to decreased and increased atmospheric pressure. It is not recommended to use wires in conditions with drastic temperature changes. Minimum wires running time – 3000 hours. Minimum wires shelf life – 20 years. Minimum service life – 20 years. 95% resource – 5000 hours.
MGTFE TU 16-505-185-71, TT	250 5 kHz	+220	1-4 1-4	0.07-0.14 0.20-0.35	flexible copper conductors, fluoroplast film insulation, tinned copper wire screen over twisted conductors	
MS 16-13 TU 16-505.083-78	100 10 kHz	+200	1	0.03-0.50	flexible silver-plated copper conductors, fluoroplast film winding	Wires are designed for operation with rated AC voltage 100, 250 and 500 V, frequency up to 10,000 Hz and correspondingly with DC voltage 150, 350 and 700 V and temperature from -60 °C up to +200 °C.
MS 16-33 TU 16-505.083-78	100 10 kHz	+200	1	0.03-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding	Wires are resistant to decreased atmospheric pressure down to 1.33×10^{-4} Pa and increased atmospheric pressure up to 295 kPa, increased air humidity up to 98 % at temperature 35 °C, short time (for 3 h.) temperature 250 °C. Wires are resistant to static, dynamic dust (sand), salt (sea) fog, mold fungi and sunlight. Wires are flame retardant.
MS 26-13 TU 16-505.083-78	250 10 kHz	+200	1	0.05-2.50	flexible silver-plated copper conductors, fluoroplast film winding	Toxic gases are emitted when wires are heated to more than 200 °C, and during wire waste incineration. Minimum running time: - 10,000 h. at temperature 200 °C, - 25,000 h. at temperature 125 °C, - 100,000 h. at temperature 100 °C. Minimum shelf life – 20 years.
MS 26-33 TU 16-505.083-78	250 10 kHz	+200	1	0.05-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding	Minimum service life – 20 years. 95% wires resource – 15,000 h. at temperature 200 °C.
MS 36-13 TU 16-505.083-78	500 10 kHz	+200	1	0.05-2.50	flexible silver-plated copper conductors, fluoroplast film winding	
MS 36-33 TU 16-505.083-78	500 10 kHz	+200	1	0.05-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding	

Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
MSE 15-12 TU 16-505.083-78	100 10 kHz	+155	1; 2; 3	0.08-0.50	flexible silver-plated copper conductors, fluoroplast film winding, tinned copper wire screen	Wires are designed for operation with rated AC voltage 100, 250 and 500 V, frequency up to 10,000 Hz and correspondingly with DC voltage 150, 350 and 700 and temperature from -60°C to +200 °C for wires with silver-plated copper screens (for wires with tinned copper screens – from -60 °C to +155 °C).
MSE 15-32 TU 16-505.083-78	100 10 kHz	+155	1; 2; 3	0.08-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding, tinned copper wire screen	Wires are resistant to decreased atmospheric pressure down to 1.33 x 10 ⁻⁴ Pa and increased atmospheric pressure up to 295 kPa, increased air humidity up to 98 % at temperature 35 °C, short time (for 3 h.) temperature of 250 °C (except for wires with tinned copper wire screen).
MSE 16-13 TU 16-505.083-78	100 10 kHz	+200	1; 2; 3	0.08-0.50	flexible silver-plated copper conductors, fluoroplast film winding, silver-plated copper wire screen	Wires are resistant to static, dynamic dust (sand), mold fungi and sunlight. Wires are flame retardant. Toxic gases are emitted when wires are heated to more than 200 °C, and during wire waste incineration.
MSE 16-33 TU 16-505.083-78	100 10 kHz	+200	1; 2; 3	0.08-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding, silver-plated copper wire screen	Minimum running time: - 10,000 h. at temperature 155 °C for wires with tinned copper wire screen and at temperature 200 °C for other wires, - 25,000 h. at temperature 125 °C, 100,000 h. at temperature 100 °C. Minimum shelf life – 20 years. Minimum service life – 20 years.
MSE 25-12 TU 16-505.083-78	250 10 kHz	+155	1 2; 3	0.08-2.50 0.12-2.50	flexible silver-plated copper conductors, fluoroplast film winding, tinned copper wire screen	Wires are designed for operation with rated AC voltage 100, 250 and 500 V, frequency up to 10,000 Hz and correspondingly DC voltage 150, 350 and 700 and temperature from -60 °C to +200 °C (for wires with tinned copper wire screen - form -60 °C to +155 °C) for wires with silver-plated copper wire screen.
MSE 25-32 TU 16-505.083-78	250 10 kHz	+155	1 2; 3	0.08-0.35 0.12-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding, tinned copper wire screen	Wires are resistant to decreased atmospheric pressure down to 1.33 x 10 ⁻⁴ Pa and increased atmospheric pressure up to 295 kPa, increased air humidity up to 98 % at temperature 35 °C, short time (for 3 h.) temperature 250 °C (except for wires with tinned copper wire screen). Wires are resistant to static, dynamic dust (sand), mold fungi and sunlight.
MSE 26-13 TU 16-505.083-78	250 10 kHz	+200	1 2; 3	0.08-2.50 0,12-2,50	flexible silver-plated copper conductors, fluoroplast film winding, silver-plated copper wire screen	Wires are flame retardant. Toxic gases are emitted when wires are heated to more than 200 °C, and during wire waste incineration. Minimum running time: - 10,000 h. at temperature 155 °C for wires with tinned copper wire screen and at temperature 200 °C for other wires, - 25,000 h. at temperature 125 °C, - 100,000 h. at temperature 100 °C. Minimum shelf life – 20 years. Minimum service life – 20 years.
MSE 26-33 TU 16-505.083-78	250 10 kHz	+200	1 2; 3	0.08-0.35 0.12-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding, silver-plated copper wire screen	Wires are designed for operation with rated AC voltage 100, 250 and 500 V, frequency up to 10,000 Hz and correspondingly DC voltage 150, 350 and 700 V and temperature -60 °C to +200 °C. Wires are resistant to decreased atmospheric pressure down to 1.33 x 10 ⁻⁴ Pa and increased atmospheric pressure to 295 kPa, increased air humidity up to 98 % at temperature 35 °C, short time (for 3 h.) temperature 250 °C.
MSE 35-12 TU 16-505.083-78	500 10 kHz	+155	1 2; 3; 4	0.08-2.50 0.12-1.50	flexible silver-plated copper conductors, fluoroplast film winding, tinned copper wire screen	Wires are resistant to static, dynamic dust (sand), mold fungi and sunlight. Wires are flame retardant.
MSE 35-32 TU 16-505.083-78	500 10 kHz	+155	1 2; 3; 4	0.08-0.35 0.12-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding, tinned copper wire screen	Toxic gases are emitted when wires are heated to more than 200 °C, and during wire waste incineration. Minimum running time: - 10,000 h. at temperature 155 °C for wires with tinned copper wire screen and at temperature 200 °C for other wires, - 25,000 h. at temperature 125 °C, - 100,000 h. at temperature 100 °C. Minimum shelf life – 20 years. Minimum service life – 20 years.
MSE 36-13 TU 16-505.083-78	500 10 kHz	+200	1 2; 3; 4	0.08-2.50 0.12-1.50	flexible silver-plated copper conductors, fluoroplast film winding, silver-plated copper wire screen	Wires are designed for operation with rated AC voltage 100, 250 and 500 V, frequency up to 10,000 Hz and correspondingly DC voltage 150, 350 and 700 V and temperature -60 °C to +200 °C. Wires are resistant to decreased atmospheric pressure down to 1.33 x 10 ⁻⁴ Pa and increased atmospheric pressure to 295 kPa, increased air humidity up to 98 % at temperature 35 °C, short time (for 3 h.) temperature 250 °C.
MSE 36-33 TU 16-505.083-78	500 10 kHz	+200	1 2; 3; 4	0.08-0.35 0.12-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding, silver-plated copper wire screen	Wires are resistant to static, dynamic dust (sand), mold fungi, salt (sea) fog and sunlight. Wires are flame retardant. Toxic gases are emitted when wires are heated to more than 200 °C, and during wire waste incineration.
MSEO 16-13 TU 16-505.083-78	100 10 kHz	+200	2; 3	0.08-0.50	flexible silver-plated copper conductors, fluoroplast film winding, silver-plated copper wire screen, fluoroplast films winding	Minimum running time: - 10,000 hours at temperature 200 °C, - 25,000 hours at temperature 125 °C, - 100,000 hours at temperature 100 °C. Minimum shelf life – 20 years. Minimum service life – 20 years. 95% resource – 15,000 hours at temperature 200 °C.
MSEO 16-33 TU 16-505.083-78	100 10 kHz	+200	2; 3	0.08-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding, silver-plated copper wire screen, fluoroplast film winding	
MSEO 26-13 TU 16-505.083-78	250 10 kHz	+200	1 2; 3	0.08-2.50 0.12-2.50	flexible silver-plated copper conductors, fluoroplast film winding, silver-plated copper wire screen, fluoroplast film winding	
MSEO 26-33 TU 16-505.083-78	250 10 kHz	+200	1 2; 3	0.08-0.35 0.12-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding, silver-plated copper wire screen, fluoroplast film winding	

Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
MSEO 36-13 TU 16-505.083-78	500 10 kHz	+200	1 2; 3; 4	0.08-2.50 0.12-1.50	flexible silver-plated copper conductors, fluoroplast film winding, silver-plated copper wire screen, fluoroplast film winding	Wires are designed for operation with rated AC voltage 100, 250 and 500 V, frequency up to 10,000 Hz and correspondingly DC voltage 150, 350 and 700 and temperature from -60 °C to +200 °C. Wires are resistant to decreased atmospheric pressure down to 1,33x10 ⁻⁴ Pa and increased atmospheric pressure up to 295 kPa, increased air humidity up to 98 %, at temperature 35 °C, short time (for 3 h.) temperature 250 °C, static, dynamic dust (sand), mold fungi, salt (sea) fog and sunlight. Wires are flame retardant. Toxic gases are emitted when wires are heated to more than 200 °C, and during wire waste incineration. Minimum running time: - 10,000 h. at temperature 200 °C, - 25,000 h. at temperature 125 °C, - 100,000 h. at temperature 100 °C. Minimum shelf life – 20 years. Minimum service life – 20 years. 95% resource – 15,000 h. at temperature 200 °C.
MSEO 36-33 TU 16-505.083-78	500 10 kHz	+200	1 2; 3; 4	0.08-0.35 0.12-0.35	flexible silver-plated BrKhCrK alloy conductors, fluoroplast film winding, silver-plated copper wire screen, fluoroplast film winding	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 250 V, frequency 6 kHz, DC voltage 350 V. MK wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi, mineral oil, petrol, direct sunlight, salt (sea) fog. Minimum wire running time: - 5000 hours at temperature 200 °C, - 25,000 hours at temperature 125 °C, - 130,000 hours at temperature up to 50 °C and 500 hours at temperature up to 200 °C. Minimum shelf life – 15 years. Minimum service life – 15 years. 95% resource – 50,000 hours.
MK 26-11 TU 16-705.375-85	250 6 kHz	+200	1 2	0.08-2.5 0.20	flexible nickel-plated copper conductor, fluoroplast and polyimide film insulation	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 250 V, frequency 6 kHz, DC voltage 350 V. MK wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi, mineral oil, petrol, direct sunlight, salt (sea) fog. Minimum wire running time: - 5000 hours at temperature 200 °C, - 25,000 hours at temperature 125 °C, - 130,000 hours at temperature up to 50 °C and 500 hours at temperature up to 200 °C. Minimum shelf life – 15 years. Minimum service life – 15 years. 95% resource – 50,000 hours.
MK 26-31 TU 16-705.375-85	250 6 kHz	+200	1 2	0.08-0.35 0.20	flexible nickel-plated bronze conductor, fluoroplast and polyimide film insulation	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 250 V, frequency 6 kHz, DC voltage 350 V. MK wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi, mineral oil, petrol, direct sunlight, salt (sea) fog. Minimum wire running time: - 5000 hours at temperature 200 °C, - 25,000 hours at temperature 125 °C, - 130,000 hours at temperature up to 50 °C and 500 hours at temperature up to 200 °C. Minimum shelf life – 15 years. Minimum service life – 15 years. 95% resource – 50,000 hours.
MKE 26-11 TU 16-705.375-85	250 6 kHz	+200	1 2	0.08-2.5 0.20	flexible nickel-plated copper conductor, fluoroplast and polyimide film insulation, nickel-plated copper wire screen	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 250 V, frequency 6 kHz, DC voltage 350 V. MK wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi, mineral oil, petrol, direct sunlight, salt (sea) fog. Minimum wire running time: - 5000 hours at temperature 200 °C, - 25,000 hours at temperature 125 °C, - 130,000 hours at temperature up to 50 °C and 500 hours at temperature up to 200 °C. Minimum shelf life – 15 years. Minimum service life – 15 years. 95% resource – 50,000 hours.
MKE 26-31 TU 16-705.375-85	250 6 kHz	+200	1 2	0.08-0.35 0.20	flexible nickel-plated bronze conductor, fluoroplast and polyimide film insulation, nickel-plated copper wire screen	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 250 V, frequency 6 kHz, DC voltage 350 V. MK wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi, mineral oil, petrol, direct sunlight, salt (sea) fog. Minimum wire running time: - 5000 hours at temperature 200 °C, - 25,000 hours at temperature 125 °C, - 130,000 hours at temperature up to 50 °C and 500 hours at temperature up to 200 °C. Minimum shelf life – 15 years. Minimum service life – 15 years. 95% resource – 50,000 hours.
MK 26-12 TU 16-705.375-85	250 6 kHz	+200	1	0.08-2.5	flexible silver-plated copper conductor, fluoroplast and polyimide film insulation	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 250 V, frequency 6 kHz, DC voltage 350 V. MK wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi, mineral oil, petrol, direct sunlight, salt (sea) fog. Minimum wire running time: - 5000 hours at temperature 200 °C, - 25,000 hours at temperature 125 °C, - 130,000 hours at temperature up to 50 °C and 500 hours at temperature up to 200 °C. Minimum shelf life – 15 years. Minimum service life – 15 years. 95% resource – 50,000 hours.
MK 26-32 TU 16-705.375-85	250 6 kHz	+200	1	0.08-0.35	flexible silver-plated bronze conductor, fluoroplast and polyimide film insulation	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 250 V, frequency 6 kHz, DC voltage 350 V. MK wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi, mineral oil, petrol, direct sunlight, salt (sea) fog. Minimum wire running time: - 5000 hours at temperature 200 °C, - 25,000 hours at temperature 125 °C, - 130,000 hours at temperature up to 50 °C and 500 hours at temperature up to 200 °C. Minimum shelf life – 15 years. Minimum service life – 15 years. 95% resource – 50,000 hours.
MKE 26-12 TU 16-705.375-85	250 6 kHz	+200	1	0.08-2.5	flexible silver-plated copper conductor, fluoroplast and polyimide film insulation, silver-plated copper wire screen	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 250 V, frequency 6 kHz, DC voltage 350 V. MK wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi, mineral oil, petrol, direct sunlight, salt (sea) fog. Minimum wire running time: - 5000 hours at temperature 200 °C, - 25,000 hours at temperature 125 °C, - 130,000 hours at temperature up to 50 °C and 500 hours at temperature up to 200 °C. Minimum shelf life – 15 years. Minimum service life – 15 years. 95% resource – 50,000 hours.
MKE 26-32 TU 16-705.375-85	250 6 kHz	+200	1	0.08-0.35	flexible silver-plated copper conductor, fluoroplast and polyimide film insulation, silver-plated copper wire screen	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 250 V, frequency 6 kHz, DC voltage 350 V. MK wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi, mineral oil, petrol, direct sunlight, salt (sea) fog. Minimum wire running time: - 5000 hours at temperature 200 °C, - 25,000 hours at temperature 125 °C, - 130,000 hours at temperature up to 50 °C and 500 hours at temperature up to 200 °C. Minimum shelf life – 15 years. Minimum service life – 15 years. 95% resource – 50,000 hours.

Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
MKEO 26-13 TU 16-705.375-85	250 6 kHz	+200	1-4	0.20-0.75	flexible nickel-plated copper conductor, fluoroplast and polyimide-fluoroplast film insulation, nickel-plated copper wire screen, fluoroplast film sheath	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 250 V, frequency 6 kHz, DC voltage 350 V.
MKEO 26-33 TU 16-705.375-85	250 6 kHz	+200	1-4	0.20-0.35	flexible nickel-plated bronze conductor, fluoroplast and polyimide-fluoroplast film insulation, nickel-plated copper wire screen, fluoroplast film sheath	MK wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impacts, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi, mineral oil, petrol and direct sunlight, salt (sea) fog.
MKEO 26-14 TU 16-705.375-85	250 6 kHz	+200	1-4	0.20-0.75	flexible silver-plated copper conductor, fluoroplast and polyimide-fluoroplast film insulation, silver-plated copper wire screen, fluoroplast film sheath	Minimum wire running time: - 5000 hours at temperature 200 °C, - 25,000 hours at temperature 125 °C, - 130,000 hours at temperature up to 50 °C and 500 hours at temperature up to 200 °C.
MKEO 26-34 TU 16-705.375-85	250 6 kHz	+200	1-4	0.20-0.35	flexible silver-plated bronze conductor, fluoroplast and polyimide-fluoroplast film insulation, silver-plated copper wire screen, fluoroplast film sheath	Minimum shelf life – 15 years. Minimum service life – 15 years. 95% resource – 50,000 hours.
MK 27-11 TU 16-505.779-80	380 10 kHz	+250	1	0.20-2.50	flexible silver-plated copper conductor, glass thread and fluoroplast film insulation	Wires are designed for mobile and fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices with operation AC voltage 380 V, frequency 10 kHz, DC voltage 550 V and impulse voltage 900 V.
MK 27-21 TU 16-505.779-80	380 10 kHz	+250	1	0.20-0.35	conductor twisted from one silver-plated steel-copper wire and six silver-plated copper wires, glass thread and fluoroplast film insulation	Coupling impedance 10 MHz for wire grade MKE – 300 MOhm/m.
MKE 27-11 TU 16-505.779-80	380 10 kHz	+250	1	0.20-2.50	flexible silver-plated copper conductor, glass thread and fluoroplast film insulation, tinned copper wire screen	MK wires are resistant to impact of sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, increased and decreased atmospheric pressure, static dust (sand), mold fungi, mineral oil, petrol and direct sunlight, salt (sea) fog.
MKE 27-21 TU 16-505.779-80	380 10 kHz	+250	1	0.20-0.35	conductor twisted from one silver-plated steel-copper wire and six silver-plated copper wires, glass thread and fluoroplast film insulation, tinned copper wire screen	Wire minimum running time: - 1000 hours at temperature 250 °C, - 25,000 hours at temperature 125 °C, - 100,000 hours at temperature up to 100 °C
MKSh GOST 10348-80	500 400 Hz	+70	2, 3, 5, 7, 10, 14	0.35-0.75	flexible conductor of tinned copper wires, PVC compound insulation, polyethylene-terephthalate film, PVC compound sheath	Minimum service life – 20 years. Minimum service life – 20 years. 95% resource – 1500 hours.
MKESh GOST 10348-80	500 400 Hz	+70	2, 3, 5, 7, 10, 14	0.35-0.75	flexible conductor of tinned copper wires, PVC compound insulation, polyethylene-terephthalate film, PVC compound sheath, copper wire screen	Wires are designed for mobile and fixed installation of interdevice connections in electronic and electric devices.
MKEShng(A) GOST 10348-80 and TT	500 400 Hz	+70	2-5, 7, 10, 14	0.35; 0.50; 0.75; 1.00; 1.50	copper wire flexible conductor, PVC compound insulation, copper wire screen over twisted insulated conductors, flame retardant PVC compound sheath	
MKEShng(A)-LS GOST 10348-80 and TT	500 400 Hz	+70	2-5, 7, 10, 14	0.35; 0.50; 0.75; 1.00; 1.50	copper wires flexible conductor, PVC compound insulation, copper wire screen over twisted insulated conductors, PVC compound sheath with reduced smoke and gas emission	
MKEShv GOST 10348-80 and TT	500 400 Hz	+70	Number of pairs 1; 2; 4; 5; 7; 10; 14	0.35; 0.50; 0.75; 1.00; 1.50	copper wires flexible conductor, PVC compound insulation, copper wire screen over twisted insulated conductors, PVC compound sheath with reduced smoke and gas emission	

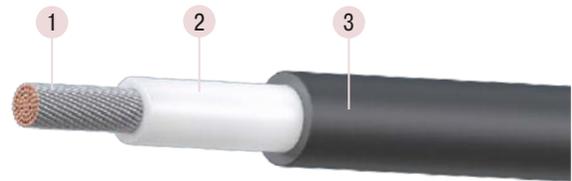
Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
MKEShvng(A) GOST 10348-80 and TT	500 400 Hz	+70	Number of pairs 1; 2; 4; 5; 7; 10; 14	0.35; 0.50; 0.75; 1.00; 1.50	copper wires flexible conductor, PVC compound insulation, copper wire screen over twisted insulated pairs or twisted insulated screened pairs, flame retardant PVC compound sheath	Wires are designed for mobile and fixed installation of interdevice connections in electronic and electric devices.
MKEShvng(A)-LS GOST 10348-80 and TT	500 400 Hz	+70	Number of pairs 1; 2; 4; 5; 7; 10; 14	0.35; 0.50; 0.75; 1.00; 1.50	copper wires flexible conductor, PVC compound insulation, copper wire screen over twisted insulated pairs or twisted insulated screened pairs, PVC compound sheath with reduced smoke and gas emission	
PVMFO TU 16-505.287-81	2 000 2 500 4 000 5 000 6 000 50 Hz	+200	1 1 1 1 1	0.12; 0.20 0.35; 0.50 0.50; 0.75 0.50; 0.75 1.00	flexible tinned copper conductor, fluoroplast film insulation with organic-silicon fluid greasing over conductor and between films, glass fiber braid impregnated with organic silicon lacquer	Wires are designed for fixed installation of intrablock, interblock, intradevice and interdevice connections in electronic and electric devices. Coupling impedance 10 MHz for PVMFEO wires – 200 MOhm/m. Resistant to decreased and increased atmospheric pressure, sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noise, static and dynamic dust (sand), salt (sea) fog, mold fungi, integrated sun and ultraviolet radiation. Minimum running time – 3000 hours. Minimum shelf life – 20 years. Minimum service life – 20 years.
PVMFEO TU 16-505.287-81	2 000 2 500 4 000 5 000 6 000 50 Hz	+200	1 1 1 1 1	0.12; 0.20 0.35; 0.50 0.50; 0.75 0.50; 0.75 1.00	flexible tinned copper conductor, fluoroplast film insulation with organic-silicon fluid greasing over conductor and between films, tinned copper wire screen, fluoroplast film winding, glass threads braid impregnated with organic silicon lacquer	Designed for fixed installation of electric connections during repair of equipment for various applications operating with voltage 250 V AC, frequency 100 kHz, 350 V DC. Coupling impedance 10 MHz – 400 MOhm/m. Resistant to vibration, single and multiple mechanical impact, linear acceleration, acoustic noise. Flame retardant. Minimum running time: - 5000 hours for KGFS, - 3000 hours for KGFE. Minimum shelf life – 20 years.
KGFS TU 16-505-182-82	250 10 kHz	+220	5; 12; 19	0.20	flexible copper conductors, fluoroplast film insulation, fluoroplast film winding over twisted conductors, tinned copper wire screen	Designed for fixed installation of electric connections during repair of equipment for different applications operating with voltage 250 V AC, frequency 200 kHz, 500 V DC or 700 V impulse voltage. Coupling impedance 10 MHz – 500 MOhm/m. Resistant to vibration, single and multiple mechanical impact, linear acceleration, acoustic noise. Flame retardant. Minimum running time: - 14,000 hours at temperature 175 °C, - 1000 hours at temperature 250 °C. Minimum shelf life – 15 years. Minimum service life – 15 years.
KGFE TU 16-505-182-82	250 10 kHz	+220	5; 12; 19	0.20	flexible copper conductors, fluoroplast film insulation, fluoroplast film winding over twisted conductors, tinned copper wire screen	
KTFE TU 16-505-014-82	250 200 kHz	+175	1; 3; 5; 7; 12	1.0-1.5	flexible copper conductors, fluoroplast film insulation, glass thread braid im-pregnated with organic silicon lacquer, fluoroplast film winding over twisted conductors, tinned copper wire screen	

Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
KSFS TU 16-505.798-75	380 5 kHz	+250	4-52	0.20-1.50	flexible silver-plated copper conductors, glass threads and fluoroplast film insulation, fluoroplast film winding over twisted conductors, glass thread sheath in the form of braid, organic-silicon lacquer coating	<p>KSFS cables are designed for mobile and fixed installation of intra- and interblock, intra- and interdevice connections in electronic and electric devices with rated AC voltage 380 V, frequency 5 kHz, DC voltage 550 V or impulse voltage 900 V. Coupling impedance 10 MHz for KESFS, KSFE – 200 MOhm/m, for KESFE – 100 MOhm/m.</p> <p>Resistant to sinusoidal vibration, single and multiple mechanical impact, linear acceleration, acoustic noises, decreased atmospheric pressure, static and dynamic dust (sand), mineral oil, petrol and mold fungi.</p> <p>KSFS, KESFS cables are resistant to salt (sea) fog.</p> <p>Cables are flame retardant.</p> <p>Minimum running time of cables – 1000 hours.</p> <p>Minimum shelf life – 20 years.</p> <p>Minimum service life – 20 years.</p>
KESFS TU 16-505.798-75	380 5 kHz	+250	4-52	0.20-0.50 3; 4; 7x2x0.20; 0.35; 0.50	flexible silver-plated copper conductors, glass thread and fluoroplast film insulation, screen over insulation from tinned copper wires, fluoroplast film winding over twisted conductors, glass tape winding, glass thread sheath in the form of braid, organic silicon lacquer coating	
KSFE TU 16-505.798-75	380 5 kHz	+250	2 3; 4; 10	0.20-1.50 0.35-0.50	flexible silver-plated copper conductors, glass thread and fluoroplast film insulation, fluoroplast film winding over twisted conductors, tinned copper wire screen	
KESFE TU 16-505.798-75	380 5 kHz	+250	4-50	0.35-1.50	flexible silver-plated copper conductors, glass thread and fluoroplast film insulation, screen over insulation from tinned copper wires, fluoroplast film winding over twisted conductors, glass tape winding, tinned copper wire screen	

CABLES FOR PHOTOVOLTAIC ELECTRIC INSTALLATIONS

KFEU construction

1. Tinned copper conductor (flexibility class 5).
2. Cross-linked halogen free polymer compound insulation.
3. Cross-linked halogen free polymer compound outer sheath.



Area of application

Power cables are intended for transmission and distribution of electrical energy in stationary photovoltaic installations designed for rated AC voltage 0.66 kV with frequency 50 Hz or respectively at DC voltage 1 kV.

Specifications

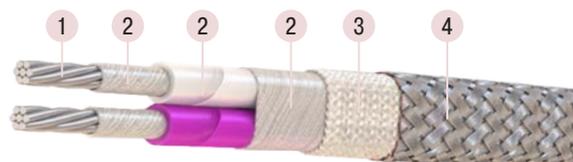
Rated AC voltage at 50 Hz frequency, kV	0.66
Conductor operating temperature, °C	+90
Allowable conductor heating temperature in emergency mode, °C	+250
Operation at ambient temperature, °C	-60/+120
Installation without preheating at temperature, min., °C:	-30
Minimum bending radius, min., outer diameters	4
Ambient temperature, °C	-50/+50
Ambient temperature (for cables in cold resistant design), °C	-60/+40
Ambient temperature (for cables with polyethylene protection hose), °C	-60/+50
Service life, years	25
Guarantee period, years	3

Type and standard	U, kV	Number of conductors	Cross-section, mm ²	Design	Area of application
KFEU TU 16.K180-049-2016	0.66	1	1.5-16	tinned copper conductors, cross-linked halogen free polymer compound insulation and sheath flame retardant at single laying	For connection of photoelectric modules and also as extender cables for connection of individual modules to DC-to-AC current converter

THERMOCOUPLE WIRES

■ SFKE-KhA, SFKE-KhK construction

1. Conductor twisted from wires.
2. Insulation:
 - Glass thread winding,
 - Fluoroplast tape winding,
 - Glass thread winding impregnated with organic- silicon lacquer.
3. Glass thread braid impregnated with organic silicon lacquer.
4. Tinned copper wire screen.

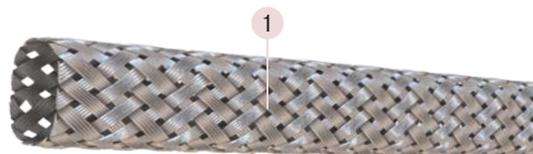


Type and standard	U, V	T _{max} , °C	Number of conductors	Cross-section, mm ²	Design	Area of application
SFKE-KhA, SFKE-KhK, SFKE-P TU 16-505.944-76, TT	1 000	+175	2	0.5; 1.5; 2.5	conductor, insulation: glass thread and fluoroplast tape winding, glass thread braid, tinned copper wire screen	Designed for fixed connection of thermocouples. Wires are resistant to turbine oil 46, spindle oil AU and diesel fuel DS. Do not burn.
PTK-1-Kh, PTK-1-K, PTK-1-A TU 16.K19-161-2007	500 50 Hz	+400	1	0.30; 0.50	single-wire conductor from chromel (T), copel (K) or alumel (A) alloy, single-layer (1) or double-layer (2) silica thread insulation impregnated with organic silicone lacquer	Wires are designed for fixed connection of thermocouple output terminals to temperature metering devices in absence of mechanical loads on insulation during operation. Wires are designed for boreal climate. Wire insulation is resistant to abrasion. Flame retardant if laid single. Should not be exposed to crushing and impact loads.
PTK-2-Kh, PTK-2-K, PTK-2-A TU 16.K09-161-2007	700 50 Hz	+400	1	0.30; 0.50		

METAL SCREENING MATS

■ PMLON construction

1. Nickel-plated copper wire

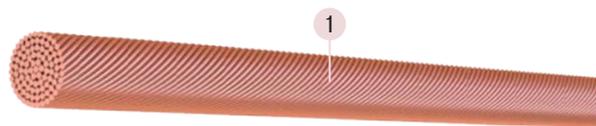


Type and standard	T _{max} , °C	Size, mm	Design	Area of application
PML TU 4833-002-08558606-95	+150	2x4, 4x5, 3x6, 6x10, 10x16, 16x24, 24x30, 30x40, 40x55	tin-lead solder-plated POS-40 or lead-plated copper wire	Metal screening mats are designed to screen wires, cables and other similar items. Mats lifetime is min. 25 years (20 years for grade PML). Guarantee period – 12 months (6 months for grade PML).
PMLOO TU 16.K168-003-2007	+150	2x4, 4x6, 6x10, 10x16, 16x24, 24x32, 32x40, 40x55	tinned copper wire	
PMLOS TU 16.K168-003-2007	+200	2x4, 4x6, 6x10, 10x16, 16x24, 24x32, 32x40, 40x55	silver-plated copper wire	
PMLON TU 16.K168-003-2007	+200	2x4, 4x6, 6x10, 10x16, 16x24, 24x32, 32x40, 40x55	nickel-plated copper wire	
PBAMO TU 16.K168-003-2007	+150	2x4, 4x6, 6x10, 10x16, 16x24, 24x32, 32x40, 40x55	bimetallic Al-Cu (aluminum-copper) wire, lightweight, with tin coating	

UNINSULATED FLEXIBLE WIRES

■ PMG4 construction

1. Copper wire



■ Area of application

For use in electrical devices, apparatus and installations.

■ Specifications

Maximum conductor operating temperature, °C:

PMG4, PMG5, PMGE, PMLG

+90

Service life, years

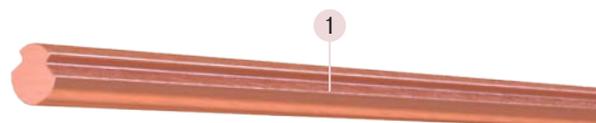
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Type and standard	T _{max} , °C	Size, mm	Design	Area of application
PMG4 TU 16.K09-129-2003	1	185-500	copper wire	Wires are designed to be used in electrical units and installations.
PMG5 TU 16.K09-129-2003	1	1.5-500	copper wire	Wires are resistant to increased (up to 294 kPa) and reduced (down to 133 x 10 ⁻⁴ Pa) atmospheric pressure, atmospheric precipitation (rain, dew, frost, fog), dust.
PMGE TU 16.K09-129-2003	1	240-500	copper wire	Wires are designed for operation at ambient temperature from minus 60°C up to plus 55 °C with relative air humidity up to 98% at temperature up to plus 35 °C
PMLG TU 16.K09-129-2003	1	1.5-240	tinned copper wire	

CONTACT WIRES

■ MF construction

1. Shaped copper wire



■ Specifications

Wires are designed for sliding contact with mobile current consumers.

■ Технические характеристики

Maximum conductor operating temperature, °C

+80

Guarantee period, years

20

Type and standard	T _{max} , °C	Cross-section, mm ²	Design	Area of application
MF GOST 2584-86 GOST R 55647-2013	1	85 100 120	shaped copper wire	Designed for use in air contact network to transmit power to electric transport. Allowable voltage, no more than 120 MPa (11202,2 kgF/mm ²). Specific electric resistance, MOhm x m – 0.0177

WIRES, SECTIONS, BUS BARS

MML construction

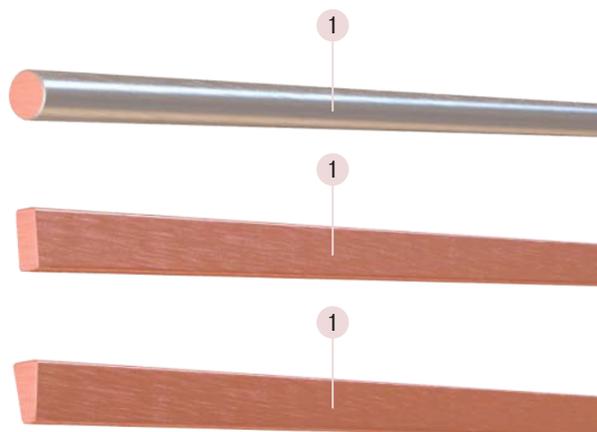
- 1. Tinned copper wire

PMT construction

- 1. Copper wire

PKM construction

- 1. Copper sections



Type and Standard	Number of conductors	Diameter/rated size, mm	Design	Area of application
MML TU 16-505.850-75	1	0.1-4.60	tinned copper wire	Wire is designed for application in electrical units and devices.
MM TU 16-705.492-2005	1	0.20-11	copper wire	
MT TU 16-705.492-2005	1	0.06-11	copper wire	
AVL TU 16-705.472-87	1	1.25-5	aluminum wire	
AT, AM TU 16.K71-088-90	1	0.8-15	aluminum wire	
PMT, PMM GOST 434-78 TU 16-501.021-86	1	in bundle «a» 1.5-5.6 «b» 7.5-14 on spool «a» 0.80-5.6 «b» 2-15	copper wire	
PAT, PAM TU 16-705.451-87	1	«a» 1.5-5.6 «b» 3.35-14	aluminum wire	
PKM TU 16-501.033-87	1	«H» 5-14 «T» 2-6	copper sections	

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