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## АПвЭВнгд-30 1x1600 ТУ У 31.3-00214534-017-2003

Power cables with aluminium conductors, flame-retardant, with XLPE and PVC compound outer sheath, with low smoke and gas emission

For the cable of this mark correspond the foreign-made analogues:

АПвВнг(B)-LS (RU) · АПвВнг(A)-LS (RU)

Technical cable requirements correspond to IEC 60502-2

Cables are used for laying:

- in premises, tunnels, ducts, mines, dry soil and outdoor under shelter
- · in bunches
- at sites, where low smoke and gas emission are required (NPP, subway, large industrial facilities, high-rise buildings, etc.)

It is possible to manufacture cables with an integrated fiber-optic module.

Order entry example:

АПвЭВнгд-30 1x1600/95 (ОМ) ТУ У 31.3-00214534-017-2003

In conjunction with the DTS system, the integrated fiber-optic module can act as a distributed cable line temperature sensor.

It is possible to manufacture cable with sealed conductor.

Order entry example:

АПвЭВнгд-30 1х1600/95 (г) ТУ У 31.3-00214534-017-2003

Fire safety code in accordance with ДСТУ 4809:2007: ПБ132121000

Products of this mark meet the requirements:

- · single wire cable flame retardance
- bunched cable flame retardance category B
- toxicity class Tk2 of the combustion products of nonmetallic elements (toxicity index from 40 up to 120 g/m³)
- class  $\mu$ TK1 on smoke-forming ability by smouldering of non-metallic elements (coefficient of smoke formation from 50 to 500 m²/kg)
- class ДПк2 on smoke-forming ability by combustion (minimum luminous flux more than 60 %)
- corrosive class  $K\kappa 1$  of combustion products of non-metallic elements (the number of halogen hydrides less than 150 mg/g, pH less than 4.3, specific conductivity more than 10  $\mu$ S/mm)





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Power cables with aluminium conductors, flame-retardant, with XLPE and PVC compound outer sheath, with low smoke and gas emission

### **TECHNICAL SPECIFICATIONS**

Maximum voltagekV36Number and rated area of conductorsmm²1 x 1600Insulation thiknessmm8Minimum screen cross-sectionmm²95Permissible short circuit current across the screen of minimum cross-sectionkA19.3Maximum permissible short-circuit current in corekA151Permissible continious current rating * by aerial laying in trefoil formationA1496. by aerial flat layingA1626. by burial in trefoil formationA963. by burial flatA860Partial discharge factor for rated voltage, not more thanpC6Maximum permissible conductor temperature Continious°C+90. in emergency operation°C+130. at short circuit°C+250Operating temperature range (in climate version NF)°C-50 +50Operating temperature range (in climate version T)°C-25 +65Minimum bending radius by layingmm1392Rated outer diameter of the cable (for reference) **mm87Cable weight (approximate)kg/km9200Rated factory cable length and gross weight of the delivery on the drums ***	Rated voltage	kV	30
Insulation thiknessmm8Minimum screen cross-sectionmm²95Permissible short circuit current across the screen of minimum cross-sectionkA19.3Maximum permissible short-circuit current in corekA151Permissible continious current rating **• by aerial laying in trefoil formationA1496• by aerial flat layingA1626• by burial in trefoil formationA860Partial discharge factor for rated voltage, not more thanpC6Maximum permissible conductor temperature° C+90• in emergency operation° C+130• at short circuit° C+250Operating temperature range (in climate version NF)° C-50 +50Operating temperature range (in climate version T)° C-25 +65Minimum bending radius by layingmm1392Rated outer diameter of the cable (for reference) **mm87Cable weight (approximate)kg/km9200Rated factory cable length and gross weight of the deliverym, t# 30УД-130: ***** 777 * 10.0	Maximum voltage	kV	36
Minimum screen cross-section mm² 95 Permissible short circuit current across the screen of minimum cross-section  Maximum permissible short-circuit current in core kA 151  Permissible continious current rating *	Number and rated area of conductors	mm²	1 x 1600
Permissible short circuit current across the screen of minimum cross-section  Maximum permissible short-circuit current in core kA 151  Permissible continious current rating *  • by aerial laying in trefoil formation A 1496  • by aerial flat laying A 1626  • by burial in trefoil formation A 963  • by burial flat A 860  Partial discharge factor for rated voltage, not more than pC 6  Maximum permissible conductor temperature  • Continious ° C +90  • in emergency operation ° C +130  • at short circuit ° C +250  Operating temperature range (in climate version NF) ° C -50 +50  Operating temperature range (in climate version T) ° C -25 +65  Minimum bending radius by laying mm 1392  Rated outer diameter of the cable (for reference) ** mm 87  Cable weight (approximate) kg/km 9200  Rated factory cable length and gross weight of the delivery m, t #30YД-130: **** 777 • 10.0	Insulation thikness	mm	8
minimum cross-section  Maximum permissible short-circuit current in core  Permissible continious current rating *  • by aerial laying in trefoil formation  • by aerial flat laying  A 1626  • by burial in trefoil formation  A 963  • by burial flat  A 860  Partial discharge factor for rated voltage, not more than  PC 6  Maximum permissible conductor temperature  • Continious  • C +90  • in emergency operation  • at short circuit  • C +250  Operating temperature range (in climate version NF)  Operating temperature range (in climate version T)  Minimum bending radius by laying  Rated outer diameter of the cable (for reference) **  Cable weight (approximate)  Rated factory cable length and gross weight of the delivery  M 151  A 151  151  A 1496  A 1626  A 860  C +963  C +90  C -50  Maximum permissible conductor temperature  C +90  C -50  Maximum permissible conductor temperature  C -25 +65  Minimum bending radius by laying  Rated factory cable length and gross weight of the delivery  M, t #30УД-130: **** 777 • 10.0	Minimum screen cross-section	mm²	95
Maximum permissible short-circuit current in corekA151Permissible continious current rating *. by aerial laying in trefoil formationA1496. by aerial flat layingA1626. by burial in trefoil formationA963. by burial flatA860Partial discharge factor for rated voltage, not more thanpC6Maximum permissible conductor temperature. Continious° C+90. in emergency operation° C+130. at short circuit° C+250Operating temperature range (in climate version NF)° C-50 +50Operating temperature range (in climate version T)° C-25 +65Minimum bending radius by layingmm1392Rated outer diameter of the cable (for reference) **mm87Cable weight (approximate)kg/km9200Rated factory cable length and gross weight of the deliverym, t# 30УД-130: **** 777 • 10.0	Permissible short circuit current across the screen of	kA	19.3
Permissible continious current rating *  · by aerial laying in trefoil formation  · by aerial flat laying  · by burial in trefoil formation  · by burial in trefoil formation  · by burial flat  · by burial flat  A 860  Partial discharge factor for rated voltage, not more than  pC 6  Maximum permissible conductor temperature  · Continious  · in emergency operation  · at short circuit  · at short circuit  ○ C +250  Operating temperature range (in climate version NF)  ○ C -50 +50  Operating temperature range (in climate version T)  C -25 +65  Minimum bending radius by laying  Rated outer diameter of the cable (for reference) **  mm 87  Cable weight (approximate)  Rated factory cable length and gross weight of the delivery  m, t # 30УД-130: **** 777 ⋅ 10.0	minimum cross-section		
• by aerial laying in trefoil formationA1496• by aerial flat layingA1626• by burial in trefoil formationA963• by burial flatA860Partial discharge factor for rated voltage, not more thanpC6Maximum permissible conductor temperature° C+90• continious° C+130• in emergency operation° C+250• at short circuit° C+250Operating temperature range (in climate version NF)° C-50 +50Operating temperature range (in climate version T)° C-25 +65Minimum bending radius by layingmm1392Rated outer diameter of the cable (for reference) **mm87Cable weight (approximate)kg/km9200Rated factory cable length and gross weight of the deliverym, t# 30УД-130: **** 777 * 10.0	Maximum permissible short-circuit current in core	kA	151
<ul> <li>by aerial flat laying</li> <li>by burial in trefoil formation</li> <li>by burial flat</li> <li>by burial flat</li> <li>A 860</li> <li>Partial discharge factor for rated voltage, not more than</li> <li>C 6</li> <li>Maximum permissible conductor temperature</li> <li>Continious</li> <li>c +90</li> <li>in emergency operation</li> <li>c +130</li> <li>at short circuit</li> <li>c +250</li> <li>Operating temperature range (in climate version NF)</li> <li>c -50 +50</li> <li>Operating temperature range (in climate version T)</li> <li>c -25 +65</li> <li>Minimum bending radius by laying</li> <li>mm 1392</li> <li>Rated outer diameter of the cable (for reference) **</li> <li>mm 87</li> <li>Cable weight (approximate)</li> <li>kg/km 9200</li> <li>Rated factory cable length and gross weight of the delivery</li> <li>m, t #30УД-130: **** 777 · 10.0</li> </ul>	Permissible continious current rating *		
<ul> <li>by burial in trefoil formation</li> <li>by burial flat</li> <li>Partial discharge factor for rated voltage, not more than</li> <li>pC</li> <li>6</li> <li>Maximum permissible conductor temperature</li> <li>Continious</li> <li>in emergency operation</li> <li>at short circuit</li> <li>C</li> <li>C</li> <li>25</li> <li>C</li> <li>C</li> <li>C</li> <li>C</li> <li>C</li> <li>C</li> <li>C</li> <li>Derating temperature range (in climate version NF)</li> <li>C</li> <li>C</li> <li>C</li> <li>C</li> <li>C</li> <li>C</li> <li>C</li> <li>Derating temperature range (in climate version T)</li> <li>C</li> <li>D</li> <li>D</li> <li>D</li> <li>C</li> <li>D</li> <li>D<td>by aerial laying in trefoil formation</td><td>Α</td><td>1496</td></li></ul>	by aerial laying in trefoil formation	Α	1496
• by burial flatA860Partial discharge factor for rated voltage, not more thanpC6Maximum permissible conductor temperature• C+90• Continious° C+130• in emergency operation° C+250• at short circuit° C+250Operating temperature range (in climate version NF)° C-50 +50Operating temperature range (in climate version T)° C-25 +65Minimum bending radius by layingmm1392Rated outer diameter of the cable (for reference) **mm87Cable weight (approximate)kg/km9200Rated factory cable length and gross weight of the deliverym, t# 30УД-130: **** 777 • 10.0	by aerial flat laying	Α	1626
Partial discharge factor for rated voltage, not more than pC Maximum permissible conductor temperature  • Continious  • in emergency operation  • at short circuit  Operating temperature range (in climate version NF)  Operating temperature range (in climate version T)  Minimum bending radius by laying  Rated outer diameter of the cable (for reference) **  Cable weight (approximate)  Rated factory cable length and gross weight of the delivery  pC 490  +90  +90  -130  *C +130  *C +250  -50 +50  C -25 +65  mm 1392  Rated outer diameter of the cable (for reference) **  mm 87  Cable weight (approximate)  Rated factory cable length and gross weight of the delivery  m, t #30УД-130: **** 777 • 10.0	by burial in trefoil formation	Α	963
Maximum permissible conductor temperature°C+90• Continious°C+90• in emergency operation°C+130• at short circuit°C+250Operating temperature range (in climate version NF)°C-50 +50Operating temperature range (in climate version T)°C-25 +65Minimum bending radius by layingmm1392Rated outer diameter of the cable (for reference) **mm87Cable weight (approximate)kg/km9200Rated factory cable length and gross weight of the deliverym, t# 30УД-130: **** 777 • 10.0	• by burial flat	Α	860
• Continious° C+90• in emergency operation° C+130• at short circuit° C+250Operating temperature range (in climate version NF)° C-50 +50Operating temperature range (in climate version T)° C-25 +65Minimum bending radius by layingmm1392Rated outer diameter of the cable (for reference) **mm87Cable weight (approximate)kg/km9200Rated factory cable length and gross weight of the deliverym, t# 30УД-130: **** 777 • 10.0	Partial discharge factor for rated voltage, not more than	рС	6
• in emergency operation° C+130• at short circuit° C+250Operating temperature range (in climate version NF)° C-50 +50Operating temperature range (in climate version T)° C-25 +65Minimum bending radius by layingmm1392Rated outer diameter of the cable (for reference) **mm87Cable weight (approximate)kg/km9200Rated factory cable length and gross weight of the deliverym, t# 30УД-130: **** 777 • 10.0	Maximum permissible conductor temperature		
• at short circuit° C+250Operating temperature range (in climate version NF)° C-50 +50Operating temperature range (in climate version T)° C-25 +65Minimum bending radius by layingmm1392Rated outer diameter of the cable (for reference) **mm87Cable weight (approximate)kg/km9200Rated factory cable length and gross weight of the deliverym, t# 30УД-130: **** 777 • 10.0	Continious		+90
Operating temperature range (in climate version NF)  Operating temperature range (in climate version T)  C -50 +50  Operating temperature range (in climate version T)  Minimum bending radius by laying  Rated outer diameter of the cable (for reference) **  Cable weight (approximate)  Rated factory cable length and gross weight of the delivery  m, t #30УД-130: **** 777 • 10.0	in emergency operation	° C	+130
Operating temperature range (in climate version T)  Minimum bending radius by laying  Rated outer diameter of the cable (for reference) **  Cable weight (approximate)  Rated factory cable length and gross weight of the delivery  **C	at short circuit	° C	+250
Minimum bending radius by layingmm1392Rated outer diameter of the cable (for reference) **mm87Cable weight (approximate)kg/km9200Rated factory cable length and gross weight of the deliverym, t# 30УД-130: **** 777 • 10.0	Operating temperature range (in climate version NF)	° C	-50 +50
Rated outer diameter of the cable (for reference) ** mm 87 Cable weight (approximate) kg/km 9200 Rated factory cable length and gross weight of the delivery m, t # 30УД-130: **** 777 • 10.0	Operating temperature range (in climate version T)	° C	-25 +65
Cable weight (approximate)kg/km9200Rated factory cable length and gross weight of the deliverym, t# 30УД-130: **** 777 • 10.0	Minimum bending radius by laying	mm	1392
Rated factory cable length and gross weight of the delivery m, t # 30УД-130: **** 777 • 10.0	Rated outer diameter of the cable (for reference) **	mm	87
	Cable weight (approximate)	kg/km	9200
on the drums ***	Rated factory cable length and gross weight of the delivery	m, t	# 30УД-130: **** 777 · 10.0
	on the drums ***		

#### Notes:

When ordering it is neccesary to agree the factory length of the product with the manufacturer

<sup>\*</sup> Long permissible current loads are calculated for the following conditions: conductor temperature 90 °C, air temperature 30 °C, soil temperature 20 °C, thermal resistivity of soil 1.5 °K • m/W, laying depth in the soil 0.8 m, while laying in flat formation the distance between cables in clear is equal to the cable diameter, while laying in trefoil formation cables are laid side by side, shields are earthed on both ends of the line

<sup>\*\*</sup> The external diameter may differ from the rated up to  $\pm$  10 %

<sup>\*\*\*</sup> Отклонение фактической массы брутто от указанного значения может составлять  $\pm$  7 %

<sup>\*\*\*\*</sup> Option delivery on not full drum



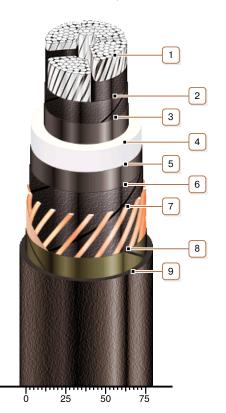




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### **CONSTRUCTION**

- 1. Aluminium multiwire compacted conductor
- It is possible to manufacture cable with sealed conductor.
- · Conductor segment twisting is not illustrated
- 2. Lapping layer of semiconductive swellable tape
- 3. Inner extruded semiconducting layer
- 4. XLPE insulation
- 5. Outer extruded semiconducting layer
- 6. Lapping layer of semiconductive swellable tape
- 7. Copper screen
- 8. Lapping layer of glass tape
- 9. Low fire-risk PVC compound outer sheath