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ПвЭВнгд-45 1х400 ТУ У 31.3-00214534-060:2011

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

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

ПвВнг(B)-LS (RU) • ПвВнг(A)-LS (RU)

Technical cable requirements correspond to IEC 60840

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:

ПвЭВнгд-45 1х400/95 (ОМ) ТУ У 31.3-00214534-060:2011

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:

ПвЭВнгд-45 1х400/95 (г) ТУ У 31.3-00214534-060:2011

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 $\mathcal{L}T\kappa 1$ on smoke-forming ability by smouldering of non-metallic elements (coefficient of smoke formation from 50 to 500 m²/kg)
- class ДΠκ2 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 μ S/mm)







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ПвЭВнгд-45 1х400 ТУ У 31.3-00214534-060:2011

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

TECHNICAL SPECIFICATIONS

Maximum voltage kV 52 Conductor rated area mm² 400 Minimum screen cross-section mm² 35 Partial discharge factor for rated voltage, not more than pC 6 Permissible short circuit current across the screen of minimum cross-section kA 5.1 Maximum permissible short-circuit current in core kA 57.2 Permissible continious current rating by aerial laying * in trefoil formation with double-side screen earthing A 742 + in trefoil formation with single-side screen earthing or cross screen earthing A 793 cross screen earthing A 738 + plane with single-side screen earthing or cross screen A 940 earthing A 603 Permissible continious current rating by burial * in trefoil formation with double-side screen earthing A 651 cross screen earthing A 651 cross screen earthing A 651 cross screen earthing A 683 earthing A 683 maximum permissible conductor temperature C +90	Rated voltage	kV	45
Minimum screen cross-section mm² 35 Partial discharge factor for rated voltage, not more than pC 6 Permissible short circuit current across the screen of kA 5.1 minimum cross-section Maximum permissible short-circuit current in core kA 57.2 Permissible continious current rating by aerial laying * - in trefoil formation with double-side screen earthing A 742 - in trefoil formation with single-side screen earthing or cross screen earthing - plane with double-side screen earthing A 738 - plane with single-side screen earthing or cross screen A 940 earthing Permissible continious current rating by burial * - in trefoil formation with double-side screen earthing or cross screen A 603 - in trefoil formation with double-side screen earthing A 603 - in trefoil formation with single-side screen earthing or cross screen earthing - plane with double-side screen earthing or A 651 cross screen earthing - plane with double-side screen earthing or cross screen A 683 earthing Maximum permissible conductor temperature - Continious - C +90 - in emergency operation - in emergency operation - at short circuit - C +250 Operating temperature range (in climate version NF) - C -25+55 Minimum bending radius by laying mm 896 Rated outer diameter of the cable (for reference) ** mm 56 Cable weight (approximate) Rated factory cable length and gross weight of the delivery on the drums *** # 259Д-100: **** 1119 * 10.		kV	52
Partial discharge factor for rated voltage, not more than Permissible short circuit current across the screen of minimum cross-section Maximum permissible short-circuit current in core Maximum permissible short-circuit current in core Permissible continious current rating by aerial laying * in trefoil formation with double-side screen earthing Interfoil formation with single-side screen earthing or plane with double-side screen earthing or plane with single-side screen earthing or cross screen authing Permissible continious current rating by burial * in trefoil formation with double-side screen earthing or earthing Permissible continious current rating by burial * in trefoil formation with double-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoi	Conductor rated area	mm²	400
Partial discharge factor for rated voltage, not more than Permissible short circuit current across the screen of minimum cross-section Maximum permissible short-circuit current in core Maximum permissible short-circuit current in core Permissible continious current rating by aerial laying * in trefoil formation with double-side screen earthing Interfoil formation with single-side screen earthing or plane with double-side screen earthing or plane with single-side screen earthing or cross screen authing Permissible continious current rating by burial * in trefoil formation with double-side screen earthing or earthing Permissible continious current rating by burial * in trefoil formation with double-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or cross screen earthing Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoil formation with single-side screen earthing or A 651 Cot 103 Interfoi	Minimum screen cross-section	mm²	35
Permissible short circuit current across the screen of minimum cross-section Maximum permissible short-circuit current in core Permissible continious current rating by aerial laying * in trefoil formation with double-side screen earthing rorss screen earthing plane with double-side screen earthing or cross screen earthing earthing Permissible continious current rating by burial * in trefoil formation with double-side screen earthing or cross screen earthing o	Partial discharge factor for rated voltage, not more than		6
Maximum permissible short-circuit current in core Permissible continious current rating by aerial laying * · in trefoil formation with double-side screen earthing or cross screen earthing · plane with double-side screen earthing or cross screen earthing · plane with double-side screen earthing or cross screen · plane with single-side screen earthing or cross screen earthing Permissible continious current rating by burial * · in trefoil formation with double-side screen earthing or cross screen earthing · in trefoil formation with single-side screen earthing or cross screen earthing · plane with double-side screen earthing or A 651 cross screen earthing · plane with single-side screen earthing or cross screen earthing · plane with single-side screen earthing or cross screen A 683 earthing Maximum permissible conductor temperature · Continious · C +90 · in emergency operation · C +130 · at short circuit · 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 56 Cable weight (approximate) Rated factory cable length and gross weight of the delivery on the drums *** # 25VJ90: 1028 · 9.1 # 26VJ100: **** 1119 · 10.		kA	5.1
Permissible continious current rating by aerial laying * • in trefoil formation with double-side screen earthing or cross screen earthing or • in trefoil formation with single-side screen earthing or cross screen earthing • plane with double-side screen earthing or cross screen • plane with single-side screen earthing or cross screen • plane with single-side screen earthing or cross screen • plane with single-side screen earthing or cross screen • plane with single-side screen earthing • in trefoil formation with double-side screen earthing or • in trefoil formation with single-side screen earthing or • plane with double-side screen earthing • plane with single-side screen earthing • plane with single-side screen earthing or cross screen • plane with single-side screen earthing or cross screen • plane with single-side screen earthing • containing Maximum permissible conductor temperature • Continious • C +90 • in emergency operation • C +130 • at short circuit • C -50 +50 Operating temperature range (in climate version NF) • C -55 +65 Minimum bending radius by laying Rated outer diameter of the cable (for reference) ** mm 56 Cable weight (approximate) Rated factory cable length and gross weight of the delivery on the drums *** # 25VJ-90: 1028 • 9.1 # 26YJ-100: **** 1119 • 10.	minimum cross-section		
• in trefoil formation with double-side screen earthing A 742 • in trefoil formation with single-side screen earthing or cross screen earthing A 793 • plane with double-side screen earthing or cross screen A 940 earthing B940 Permissible continious current rating by burial * • in trefoil formation with double-side screen earthing A 603 • in trefoil formation with single-side screen earthing or cross screen earthing A 651 • plane with double-side screen earthing or cross screen earthing A 549 • plane with single-side screen earthing or cross screen A 683 earthing A 683 Maximum permissible conductor temperature • 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 896 Rated outer diameter of the cable (for reference) ** mm 56 Cable weight (approximate) kg/km 7310 </td <td>Maximum permissible short-circuit current in core</td> <td>kA</td> <td>57.2</td>	Maximum permissible short-circuit current in core	kA	57.2
• in trefoil formation with single-side screen earthing or cross screen earthing A 793 • plane with double-side screen earthing or cross screen earthing A 940 • plane with single-side screen earthing or cross screen earthing A 603 • in trefoil formation with double-side screen earthing or cross screen earthing or cross screen earthing A 651 • in trefoil formation with single-side screen earthing or cross screen earthing A 654 • plane with double-side screen earthing or cross screen A 683 • arthing A 549 Maximum permissible conductor temperature C +90 • in emergency operation ° C +90 • in emergency operation ° 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 896 Rated outer diameter of the cable (for reference) ** mm 56 Cable weight (approximate) kg/km 7310 Rated factory cable length and gross weight of the delivery on the drums *** # 25УД-90: 1028 • 9.1 # 25УД-90: 1028 • 9.1 # 25УД-100: **** 1119 • 10.	Permissible continious current rating by aerial laying *		
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 plane with double-side screen earthing plane with single-side screen earthing or cross screen earthing Permissible continious current rating by burial * in trefoil formation with double-side screen earthing in trefoil formation with single-side screen earthing or cross screen earthing plane with double-side screen earthing plane with single-side screen earthing or cross screen plane with single-side screen earthing or cross screen continious C in emergency operation at short circuit C C C Derating temperature range (in climate version NF) C C C C Derating temperature range (in climate version T) C C C Minimum bending radius by laying mm 896 Rated outer diameter of the cable (for reference) ** mn plane with double-side screen earthing A 603 <li< td=""><td>in trefoil formation with single-side screen earthing or</td><td>Α</td><td>793</td></li<>	in trefoil formation with single-side screen earthing or	Α	793
· plane with single-side screen earthing or cross screen earthing Permissible continious current rating by burial * · in trefoil formation with double-side screen earthing or cross screen earthing or cross screen earthing · plane with double-side screen earthing or cross screen earthing · plane with double-side screen earthing or cross screen · plane with single-side screen earthing or cross screen A 683 earthing Maximum permissible conductor temperature · Continious	cross screen earthing		
Permissible continious current rating by burial * · in trefoil formation with double-side screen earthing	plane with double-side screen earthing	Α	738
Permissible continious current rating by burial * · in trefoil formation with double-side screen earthing	plane with single-side screen earthing or cross screen	Α	940
• in trefoil formation with double-side screen earthingA603• in trefoil formation with single-side screen earthing or cross screen earthingA651• plane with double-side screen earthingA549• plane with single-side screen earthing or cross screen earthingA683Maximum permissible conductor temperatureC+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 layingmm896Rated outer diameter of the cable (for reference) **mm56Cable weight (approximate)kg/km7310Rated factory cable length and gross weight of the delivery on the drums ***# 22УД-60: 499 • 4.6# 25УД-90: 1028 • 9.1# 25УД-90: 1028 • 9.1# 26УД-100: **** 1119 • 10.			
• in trefoil formation with double-side screen earthingA603• in trefoil formation with single-side screen earthing or cross screen earthingA651• plane with double-side screen earthingA549• plane with single-side screen earthing or cross screen earthingA683Maximum permissible conductor temperatureC+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 layingmm896Rated outer diameter of the cable (for reference) **mm56Cable weight (approximate)kg/km7310Rated factory cable length and gross weight of the delivery on the drums ***# 22УД-60: 499 • 4.6# 25УД-90: 1028 • 9.1# 25УД-90: 1028 • 9.1# 26УД-100: **** 1119 • 10.	Permissible continious current rating by burial *		
cross screen earthing • plane with double-side screen earthing or cross screen • plane with single-side screen earthing or cross screen earthing 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 on the drums *** # 25 УД-60: 499 • 4.6 # 25 УД-90: 1028 • 9.1 # 26 УД-100: **** 1119 • 10.		Α	603
• plane with double-side screen earthingA549• plane with single-side screen earthing or cross screenA683earthingMaximum 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 layingmm896Rated outer diameter of the cable (for reference) **mm56Cable weight (approximate)kg/km7310Rated factory cable length and gross weight of the delivery on the drums ***# 22УД-60: 499 • 4.6# 25УД-90: 1028 • 9.1# 25УД-90: 1028 • 9.1# 26УД-100: ***** 1119 • 10.	in trefoil formation with single-side screen earthing or	Α	651
• plane with single-side screen earthing or cross screen earthing Maximum permissible conductor temperature • Continious • in emergency operation • in emergency operation • at short circuit Operating temperature range (in climate version NF) Operating temperature range (in climate version T) Operating temperature range (in climate version T) C -25 +65 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 on the drums *** # 25УД-60: 499 • 4.6 # 25УД-90: 1028 • 9.1 # 26УД-100: **** 1119 • 10.	cross screen earthing		
earthingMaximum 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 layingmm896Rated outer diameter of the cable (for reference) **mm56Cable weight (approximate)kg/km7310Rated factory cable length and gross weight of the delivery on the drums ***m, t# 22УД-60: 499 • 4.6***** # 25УД-90: 1028 • 9.1# 26УД-100: ***** 1119 • 10.	plane with double-side screen earthing	Α	549
Maximum 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 layingmm896Rated outer diameter of the cable (for reference) **mm56Cable weight (approximate)kg/km7310Rated factory cable length and gross weight of the delivery on the drums ***m, t# 22УД-60: 499 • 4.6V 25УД-90: 1028 • 9.1# 25УД-90: 1028 • 9.1# 26УД-100: ***** 1119 • 10.	plane with single-side screen earthing or cross screen	Α	683
· 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 layingmm896Rated outer diameter of the cable (for reference) **mm56Cable weight (approximate)kg/km7310Rated factory cable length and gross weight of the delivery on the drums ***m, t# 22УД-60: 499 • 4.6*** 25УД-90: 1028 • 9.1# 26УД-100: **** 1119 • 10.	earthing		
• 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 layingmm896Rated outer diameter of the cable (for reference) **mm56Cable weight (approximate)kg/km7310Rated factory cable length and gross weight of the delivery on the drums ***m, t# 22УД-60: 499 • 4.6# 25УД-90: 1028 • 9.1# 26УД-100: **** 1119 • 10.	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 layingmm896Rated outer diameter of the cable (for reference) **mm56Cable weight (approximate)kg/km7310Rated factory cable length and gross weight of the delivery on the drums ***m, t# 22УД-60: 499 • 4.6**** # 25УД-90: 1028 • 9.1# 26УД-100: **** 1119 • 10.	Continious	°C	+90
Operating temperature range (in climate version NF)°C-50 +50Operating temperature range (in climate version T)°C-25 +65Minimum bending radius by layingmm896Rated outer diameter of the cable (for reference) **mm56Cable weight (approximate)kg/km7310Rated factory cable length and gross weight of the delivery on the drums ***m, t# 22УД-60: 499 • 4.6*****# 25УД-90: 1028 • 9.1# 26УД-100: *****1119 • 10.	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 on the drums *** Minimum bending radius by laying mm S6 Kg/km 7310 # 22УД-60: 499 • 4.6 # 25УД-90: 1028 • 9.1 # 26УД-100: **** 1119 • 10.	at short circuit	°C	+250
Minimum bending radius by laying mm 896 Rated outer diameter of the cable (for reference) ** mm 56 Cable weight (approximate) kg/km 7310 Rated factory cable length and gross weight of the delivery on the drums *** # 22УД-60: 499 • 4.6 # 25УД-90: 1028 • 9.1 # 26УД-100: **** 1119 • 10.	Operating temperature range (in climate version NF)	°C	-50 +50
Rated outer diameter of the cable (for reference) **mm56Cable weight (approximate)kg/km7310Rated factory cable length and gross weight of the delivery on the drums ***m, t# 22УД-60: 499 • 4.6# 25УД-90: 1028 • 9.1# 26УД-100: **** 1119 • 10.	Operating temperature range (in climate version T)	°C	-25 +65
Cable weight (approximate)kg/km7310Rated factory cable length and gross weight of the delivery on the drums ***m, t# 22УД-60: 499 • 4.6# 25УД-90: 1028 • 9.1 # 26УД-100: **** 1119 • 10.	Minimum bending radius by laying	mm	896
Rated factory cable length and gross weight of the delivery on the drums *** # 22УД-60: 499 • 4.6 # 25УД-90: 1028 • 9.1 # 26УД-100: **** 1119 • 10.	Rated outer diameter of the cable (for reference) **	mm	56
on the drums *** # 25УД-90: 1028 • 9.1 # 26УД-100: **** 1119 • 10.	Cable weight (approximate)	kg/km	7310
# 26УД-100: **** 1119 • 10.	Rated factory cable length and gross weight of the delivery	m, t	# 22УД-60: 499 • 4.6
# 26УД-100: **** 1119 • 10.	on the drums ***		# 25УД-90: 1028 • 9.1
0			
			0

Notes:

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

^{*} Long permissible current loads are calculated for the following conditions: conductor temperature 90 °C, air temperature 30 °C, soil temperature 20 °C, load factor 1.0, thermal resistivity of soil 1.0 °K • m/W, laying depth in the ground 1.5 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

^{**} The external diameter may differ from the rated up to \pm 10 %

^{***} Отклонение фактической массы брутто от указанного значения может составлять $\pm~7~\%$

^{****} Option delivery on not full drum



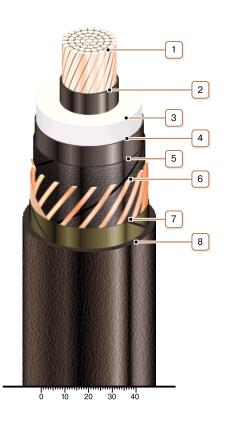




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Power cables with copper conductor, flame-retardant, with XLPE and PVC compound outer sheath and with low smoke and gas emission



CONSTRUCTION

1. Copper multiwire compact conductor

Note: It is possible to manufacture cable with sealed conductor.

- 2. Inner extruded semiconducting layer
- 3. XLPE insulation
- 4. Outer extruded semiconducting layer
- 5. Lapping layer of semiconductive swellable tape
- 6. Copper screen

Note: It is possible to manufacture a cable with a fiber optic module built into the screen, including as a DTS system sensor

- 7. Lapping layer of glass tape
- 8. Low fire-risk PVC compound outer sheath