

SPECIAL DESIGN OFFICE OF CABLE INDUSTRY (OKB KP)

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**Special Design Office of Cable Industry
was founded in 1956 to develop and manu-
facture cables for the new equipment of the
most important branches, including the nu-
clear industry.**

Wires and cables produced by OKB KP are used in the most extreme conditions: on the earth, under water, in the air, in space, at high radiation, thus, our products meet the main requirements of reliability, quality, durability.

The researchers and engineers of the company keep traditions of development and manufacture of new products for the nuclear industry, including heatproof radio-frequency cables and special radiation-resistant wires for inspection and control tools used to monitor the workflow in the nuclear reactors of NPPs.

See the table 1 for the range of radio-frequency cables produced by OKB KP and recommended for application in the nuclear industry:

In the recent years OKB KP has developed:

– 3PK50-3,7-21 triple-core radio-frequency cable for the control equipment of nuclear reactors; it endures gamma radiation of absorbed dose of 2.108 rad; diameter is 6.0 mm; operating temperature –60 to +100°C;

– KBДP twin core high-frequency cable with the rubber insulation; it is designed for operating at the direct operating voltage of 500 V and

temperature of –60 to +120°C; impedance 50 Ohm. The cable endures radiation flow with the integral dose of 104 rad.

– KCFЭ cable is designed for operation at the voltage of 380 V of alternating current or 220 V of direct current, in hermetically sealed capacities with rare gases. The operating temperature is –60 to +250°C, the integral dose up to 5.108 rad.

In 2007 the company developed КЖСГ and КЖМГ heatproof and fireproof cables casings made of oxygen-free copper or stainless steel of 08X18H10T grade. The cables may be operated at the voltage of 110 V of direct or alternating current, frequency of 50 Hz, temperature –60 to 270°C. The cables are fireproof and survive the flame impact during 180 min, which conforms to the fire-resistance limit of ППСТ 1 in the classification НПБ 248-97. The cables can be operated when exposed to the electromagnetic fields of medium harshness; performance group 3 in terms of noise resistance, operation quality criterion A according to GOST 50746.

PKЭФC-1 radio-frequency cables with impedance of 75 Ohm and PKЭФC-19 cables with impedance of 50 Ohm are designed for fixed laying and operation under ionizing operation with the absorbed dose of not more than 5.106rad. The operating temperature: –60 to +155°C.

OKB KP has developed and manufactures new cables for NPPs (table 2).

OKB KP manufactures and supplies:

- Wires: of ordinary and enhanced heat-resistance, bonding wire, aircraft wire, strip conductors, high-voltage ignitions.
- Cables: pulsed high-voltage cables, anti-vibration cables, radio-frequency cables, control cables, optical cables, composite cables, data cables, pressurized cables, LAN-cables.
- Films, tapes and braids for the embedded network.

Welcome to cooperation!

**Table 1. The range of radio-frequency cables produced by OKB KP
and recommended for application in the nuclear industry**

Grade	GOST, Specification	Main Technical Features			
		Rated voltage, kV	Attenuation coefficient, dB/м	Dimensions, mm	Operating temperature, °C
PK 50-2-21	GOST 11326.35-79	3	1.5 (3)	3.2+0.25	–60 +200
PK 50-2-22	GOST 11326.74-79	2.2	2(3)	3.2+0.25	–60 +200
PK 50-4-21	GOST 11326.37-79	6.4	3.5 (10)	6.5 +0.4	–60 +250
PK 75-2-21	GOST 11326.40-79	2.6	2(3)	3.2+0.25	–60 +200
PK 75-2-22	GOST 11326.77-79	1.9	2(3)	3.2+0.25	–60 +200
PK 75-4-21	GOST 11326.42-79	5	1.7(3)	5.9+0.4	–60 +200
PK 75-4-22	GOST 11326.43-79	5	1.4(3)	5.9+0.4	–60 +250
PK 75-7-22	GOST 11326.45-79	8.5	1 (3)	8.6+0.5	–60 +250

Fire safety of cables conforms to GOST 12176-89, Section 3, Category A

Table 2. New cables for NPPs

No	Grade	GOST, Specification	Impedance, Ohm	Maximum absorbed dose, rad	Maximum operating temperature, °C
1	2 PK 50-1,5-71	TY 16 K76-225-2009	50	10 ⁹	+300
2	2 PK 50-2-72 3 PK 50-2-71	TY 16 K76-172-2000	50	10 ⁹	+300
3	2 PK 50-2-41	TY 16 K76-167-2000	50	10 ⁹	+200
4	2 PK 50-2-18	TY 16 K76-200-2004	50	5–108	+160
5	2 PK 50-2-71	TY 16 K76-149-98	50	10 ⁹	+300
6	2 PK 50-4,6-71	TY 16 K76-198-2004	50	4.4–109	+500
7	2 PK 50-4-72 2 PK 50-4-73	TY 16 705-471-87	50	–	+600 (2.5 hour)
8	2 PK 50-3,7-71	TY OXT 505-363-84	50	–	+500
9	PK 75-3,7-76	TY 16 K76-124-95	75	–	+350
10	PK 75-4-73	TY 16 705-468-87	75	–	+600 (2.5 hour)
11	PK 75-5,6-11	TY 16 K76-201-2004	75	5–108	+160