

# SELF-SUPPORTING WIRES

ГОСТ 31946-2012

GOST 31946-2012

## Insulated and protected, for aerial power lines

ТУ 16-705.500-2006

TU 16-705.500-2006

## Insulated, flame-retardant, for aerial power lines

ТУ 16.K17-463-2014

TU 16.K17-463-2014

### APPLICATION

СИП-1, СИПН-1 : for main aerial power lines (HV lines) and line branches from HV lines for nominal voltage up to and including 0,6/1 kV 50 Hz in air atmosphere of types I and II according to GOST 15150-69.

СИП-2, СИПН-2 : for main aerial power lines (HV lines) and line branches from HV lines for nominal voltage up to and including 0,6/1 kV 50 Hz in air atmosphere types II and III according to GOST 15150-69, including coasts of seas and salt lakes, in industrial areas and in areas of saline sands.

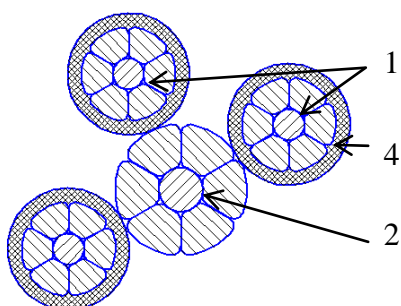
СИП-3 : for aerial power lines for nominal voltage 20 kV (for networks for voltage 10, 15, 20 kV) and 35 kV (for networks for 35 kV) with nominal frequency 50 Hz in air atmosphere types II and III acc. to GOST 15150-69, including coasts of seas and salt lakes, in industrial areas and in areas of saline sands.

СИП-4, СИПН-4 : for line branches from HV lines to enter and for laying on building walls and engineering constructions in air atmosphere types II and III acc. to GOST 15150-69

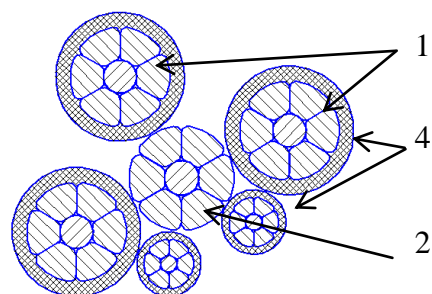
Climatic category: B, Location categories: 1, 2 and 3 acc. to GOST 15150-69.

### BASIC TECHNICAL AND OPERATIONAL PROPERTIES

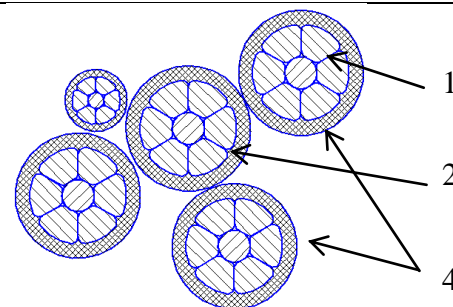
Nominal voltage, kV	0,66/1; 20 and 35
Operation at ambient temperature, °C	from minus 60 to plus 50
Factory length, m, min.	300
Permissible continuous conductor temperature during operation, max., °C	90
Service life*, years	40
* - starting from the date of the cables manufacture	



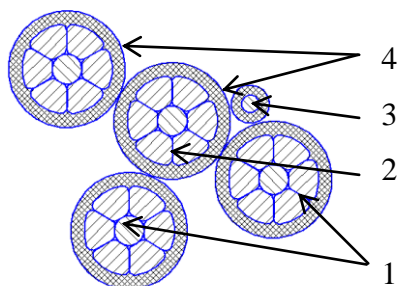
СИП-1, СИПН-1



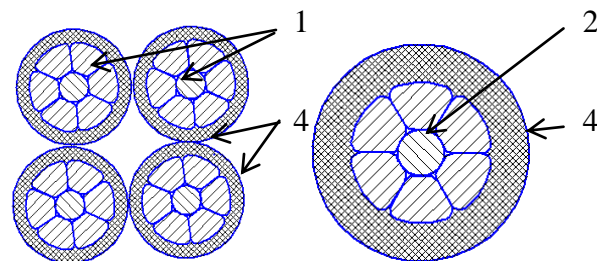
СИП-1, СИПН-1 with two auxiliary conductors



СИП-2, СИПН-2 with one auxiliary conductor



СИП-1, СИП-2 with one auxiliary conductor for outdoor lighting circuits



СИП-4, СИПН-4

СИП-3

### DESIGN

1. Conductor - stranded round aluminum wires, round, compacted.
2. Conductor - stranded round aluminum alloy wires, serve as supporting element and neutral working (N) or neutral protective (PE) conductor.
3. Conductor - round copper wire (for outdoor lighting circuits).
4. Conductor insulation - light-stabilized XLPE. There are two kinds of insulation depending on wall thickness:
  - conductor insulation of self-supporting insulated wires for aerial power lines for voltage up to 0,6/1 kV ensuring normal operation of aerial power lines and protection from electric shock (СИП-1, СИП-2, СИП-4, СИПН-1, СИПН-2, СИПН-4);
  - insulation layer of protected wires for aerial power lines for voltage 10—35 kV, it ensures decrease in the probability of short-circuits in case of accidental wire contact with a grounded element or contact of different phase wires of aerial power lines (СИП-3).

Insulated wires have different colours or different numerical identifications applied by printing.

5. Stranding – insulated conductors stranded around the neutral supporting conductor. Stranding direction - right-hand.

Permissible current loads for wires, calculated at ambient temperature 25 °C, wind speed 0.6 m/s and solar intensity 1000 W/m<sup>2</sup>:

#### BASIC RANGE OF PRODUCTS

Nominal cross-section of main conductors, mm <sup>2</sup>	Permissible current load, A, max.			Permissible current short-circuit for 1 sec., kA, max.	
	self-supporting insulated wires СИП-1, СИП-2, СИП-4	protected wires СИП-3		self-supporting insulated wires	protected wires
		20 kV	35 kV		
16	100	-	-	1,5	-
25	130	-	-	2,3	-
35	160	200	220	3,2	3,0
50	195	245	270	4,6	4,3
70	240	310	340	6,5	6,0
95	300	370	400	8,8	8,2
120	340	430	460	10,9	10,3
150	380	485	520	13,2	12,9
185	436	560	600	16,5	15,9
240	515	600	670	22,0	20,6

The cable bending radius when laying and when installed on poles shall be min. 10 cable outer diameters.

The cable installation shall be performed at ambient temperature not less than minus 20 °C.

The cables are manufactured according to GOST 31946-2012.

#### DELIVERY

The cables are delivered on wooden drums according to GOST 5151-79 «Wooden Drums for Electrical Wires and Cables». Packing and marking are in accordance with GOST 18690-2012 «Cables, Wires, Cords and Cable Accessories».