

## NGSY Uo/U (Um) 12/20(24) kV PH6

Cable for underground power distribution and subtransmission.

### Description

### Application

Underground power distribution and subtransmission. As transformer feeders in substations. In power plants, industrial and operation installations, in residential areas and mining installations, in dry or wet locations.

### Construction

1. Conductor: Copper, class 2.
2. Inner semi-conductor: Extruded.
3. Insulation: HEPR.
4. External semi-conductor: Extruded strippable.
5. Screen: Copper wires + copper tape in open spiral.
6. Tape: Polyester.
7. Outer sheath: Compound polyvinyl chloride PVC.

### Main characteristics

Conductor temperature of 105°C for normal operation, 130°C for emergency overload and 250°C for short circuit conditions. Excellent properties against heat aging. Resistance to abrasion, moisture and sunlight. Adequate resistance to greases and oils. Flame retardant.

### Gauge:

35 mm<sup>2</sup>

### Marking:

INDECO S.A. NGSY 12/20(24) kV Section - PH6 - Year.

### Packing:

Non returnable wooden reels.

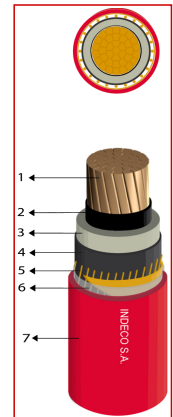
### Colour:

Insulation: Natural.

Outer sheath: Red.

### National standards

**NTP-IEC 60228:** Conductors of insulated cables.



### Standards

**International** IEC 60228;  
IEC 60332-1; IEC 60502-2;  
IEC 60811-1-1; IEC 60811-1-2;  
IEC 60811-1-3; IEC 60811-1-4;  
IEC 60811-2-1; IEC 60811-3-1;  
IEC 60811-3-2

**National** NTP-IEC 60228; NTP-IEC 60502-2; UL 1581



Lead free  
Yes



Rated Voltage Uo/U  
(Um)  
12 / 20 (24) kV



U.V resistance  
UL 1581 - Sunlight  
Resistance



Flame retardant  
IEC 60332-1



Oil resistance  
Good



Maximum operating  
temperature  
105 °C

## NGSY Uo/U (Um) 12/20(24) kV PH6

**NTP-IEC 60502-2:** Power cables with extruded insulation and their accessories for rated voltages from 6 kV up to 30 kV.

### International standards

**IEC 60228:** Conductors of insulated cables.

**IEC 60332-1:** Test for vertical flame propagation for a single insulated wire or cable.

**IEC 60502-2:** Power cables with extruded insulation and their accessories for rated voltages from 6 kV up to 30 kV.

**IEC 60811-1-1:** Measurement of thickness and overall dimensions - Test for determining the mechanical properties.

**IEC 60811-1-2:** Thermal ageing methods.

**IEC 60811-1-3:** Water absorption tests - Shrinkage test.

**IEC 60811-1-4:** Tests at low temperature.

**IEC 60811-2-1:** Ozone resistance, hot set and mineral oil immersion tests.







**IEC 60811-3-1:** Pressure test at high temperature - Tests for resistance to cracking.

**IEC 60811-3-2:** Loss of mass test - Thermal stability test.

**UL 1581 Section 1200 (Sunlight resistance):** Reference standard for electrical wires, cables, and flexible cords - Carbon-Arc and Xenon-Arc Tests- Sunlight resistance.

### Characteristics

Construction characteristics	
Conductor material	Copper
Material of the inner semi-conductor	Extruded
Insulating material	HEPR
Material of the external semi-conductor	Extruded strippable
Screen	Copper wire + copper tape
Outer sheath	PVC
Sheath colour	Red
Lead free	Yes
Dimensional characteristics	
Screen section	6 mm <sup>2</sup>
Electrical characteristics	
Rated Voltage Uo/U (Um)	12 / 20 (24) kV
Resistance of the screen	3.08 Ohm/km

					
Lead free Yes	Rated Voltage Uo/U (Um) 12 / 20 (24) kV	U.V resistance UL 1581 - Sunlight Resistance	Flame retardant IEC 60332-1	Oil resistance Good	Maximum operating temperature 105 °C

## NGSY Uo/U (Um) 12/20(24) kV PH6

### Usage characteristics

U.V resistance	UL 1581 - Sunlight Resistance
Flame retardant	IEC 60332-1
Oil resistance	Good
Maximum operating temperature	105 °C

### Dimensional and Usage Data

Cross section [mm <sup>2</sup> ]	Total nb wires	Conductor diam. [mm]	Nom. insulation thick. [mm]	Diam. over insulation [mm]	Diam. over screen [mm]	Diam. over sheath [mm]	Approx. weight [kg/km]	Min. bend. rad. installed [mm]
35	7	6.86	5.5	18.12	20.9	23.6	804	284


### Electrical Data - I



Cross section [mm <sup>2</sup> ]	Max. DC Resist. Cond. 20°C [Ohm/km]	A.C. Conductor resist. at 105°C - trefoil formation [Ohm/km]	Phase reactance 60 Hz - trefoil formation [Ohm/km]
35	0.524	0.699	0.164

### Electrical Data - II

Cross section [mm <sup>2</sup> ]	Perm. current rating buried 20°C - trefoil formation [A]	current rating in air 30° C - trefoil [A]	short circuit conductor 1s [kA]	short circuit screen 1s [kA]
35	171	207	4.7	.77

### Product List

Nexans ref.	Name	Cross section (mm <sup>2</sup> )	Conductor diam. (mm)	Nom. insulation thick. (mm)	Diam. over insulation (mm)	Diam. over screen (mm)	Diam. over sheath (mm)
 P00012534-1	NGSY 12/20 kV 35 mm <sup>2</sup> PH6	35	6.86	5.5	18.12	20.9	23.6







 = Make to order,  = In stock

### Calculation of Current Condition Singlecore M.V. 105°C

#### CALCULATION OF CURRENT CONDITION

#### BASED ON ABNT NBR 14039

Maximum conductor temperature: 105°C

					
Lead free Yes	Rated Voltage Uo/U (Um) 12 / 20 (24) kV	U.V resistance UL 1581 - Sunlight Resistance	Flame retardant IEC 60332-1	Oil resistance Good	Maximum operating temperature 105 °C

## NGSY Uo/U (Um) 12/20(24) kV PH6

Ambient air temperature: 30°C

Ground temperature: 20°C

Depth of laying: 0.9 m

Thermal resistivity of soil: 1.5 K.m/W



Lead free  
Yes



Rated Voltage Uo/U  
(Um)  
12 / 20 (24) kV



U.V resistance  
UL 1581 - Sunlight  
Resistance



Flame retardant  
IEC 60332-1



Oil resistance  
Good



Maximum operating  
temperature  
105 °C