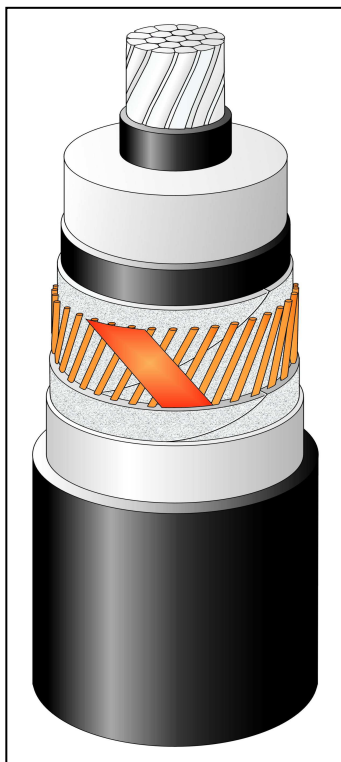


TECHNICAL SPECIFICATION

A2XS(FL)2Y 1x240RM/50 76/132 (145)kV IEC 60840

CONSTRUCTION ^(x)

- Round, stranded and compressed aluminum conductor. Class 2.
- Extruded semi-conducting conductor screen
- Insulation XLPE – dry cured
- Extruded semi-conducting insulation screen
- Semi-conducting swelling tapes
- Metallic screen:
 - copper wire screen and copper equalizing tapes
- Semi-conducting swelling tapes
- Longitudinal aluminum foil
- Sheath – Black HDPE ST7



The picture is informative only
– not in scale

APPLICATION

- Laying in ground (wet or dry locations)
- Laying in air
- Laying in ducts

Highest permissible conductor temperature

- Continuous operation 90°C
- Overload 105°C
- Short circuit 250°C (duration max 5s)

Laying is possible without any special measures at natural cable temperatures and ambient temperature not lower than -5°C, with Tele-Fonika supervising

MARKING

TF KABLE, product name, year of manufacture, standard, meter marking

DESCRIPTION	UNIT	DETAILS
CONSTRUCTION DATA	U_o/U_m	76/132 (145)kV
Conductor		
<input type="checkbox"/> material		Aluminum
<input type="checkbox"/> number of wires	No	34
Nominal cross sectional area	mm ²	240
Conductor diameter and tolerance	mm	17.9 ^{+0.1}
Min./Nom. thickness semi-conducting XLPE on conductor	mm	0.6 / 1.0
Nominal insulation thickness XLPE	mm	16.0
Insulation thickness: minimum at a point	mm	14.4
Diameter over insulation – nominal	mm	51.9
Min./Nom. thickness semi-conducting XLPE on insulation	mm	0.6 / 1.0
Thickness of semi-conducting swelling tape	No x mm	2 x ~ 0.35
Metallic screen	mm ²	50
<input type="checkbox"/> Copper wires	No x mm	60 x 1.04
<input type="checkbox"/> Copper equalizing tapes	No x mm x mm	2 x 10 x 0.18
Mean diameter over metallic screen	mm	56.6
Thickness of semi-conducting swelling tape	No x mm	2 x ~ 0.35
Thickness of aluminum foil	mm	0.2
Diameter over aluminum foil	mm	58.4
Nominal outer sheath thickness / min	mm	3.0 / 2.45
Approximate overall diameter completed cable (D _c)	mm	64.5
Weight of complete cable (approx.)	kg/km	3900
DELIVERY DATA		
Diameter of wooden drum	m	3.2
<input type="checkbox"/> type		32
Length per drum	m	1735
Weight of heaviest reel, including cable	kg	8600

^(x) Diameters are calculated values and subject to manufacturing tolerances

ELECTRICAL DATA at 50Hz		
Maximum D.C. conductor resistance at 20°C	Ω/km	0.1250
Maximum A.C. conductor resistance at 90°C	Ω/km	0.1610
Maximum D.C. metallic screen resistance at 20°C	Ω/km	0.350
Maximum D.C. aluminum foil resistance at 20°C	Ω/km	0.670
Operating inductance		
<input type="checkbox"/> trefoil formation	mH/km	0.448
<input type="checkbox"/> flat formation (*)	mH/km	0.633
Induction reactance		
<input type="checkbox"/> trefoil formation	Ω/km	0.141
<input type="checkbox"/> flat formation (*)	Ω/km	0.199
Capacitance	μF/km	0.145 (+ 8 %)
Capacitance reactance	kΩ/km	22.88
Impedance		
<input type="checkbox"/> trefoil formation	Ω/km	0.214
<input type="checkbox"/> flat formation (*)	Ω/km	0.256
Zero sequence reactance	Ω/km	0.089
Max. electric stress at conductor screen / (at insulation)	kV/mm	7.95 / 3.10
Dielectric losses (tgδ = 0.001) – per phase	W/m	0.252
Partial discharge test – at 1.5U ₀	pC	≤ 5
Charging current – per phase	A/km	3.32
Charging power	kVA/km	252
Earth fault current – per phase	A/km	9.96
MECHANICAL DATA		
Recommended min. bending radius for laying	m	1.61
Recommended permissible bending radius at final installation	m	1.30
Maximum permissible pulling force:	kN	7.2
SHORT CIRCUIT CURRENTS		
Maximum permissible thermal short-circuit (IEC 60949) <i>Current for 1.0 sec.</i>		
Phase conductor 90 → 250°C	kA	23.0
Metallic screen 80 → 350°C	kA	10.5
AMPACITY (**) – Bonding of the metallic screens		Single-point / Both-ends
in earth		
<input type="checkbox"/> flat formation (*)	A	443 / 413
<input type="checkbox"/> trefoil formation	A	422 / 414
in air		
<input type="checkbox"/> flat formation	A	548 / 518
<input type="checkbox"/> trefoil formation	A	491 / 485
TESTS		
AC – test voltage – (2,5U ₀ ; 30min)	kV	190
Impulse voltage	kV	650
Partial discharge test	kV	114

Marking: TF-KABLE 5 A2XS(FL)2Y 1x240RM/50 76/132kV IEC 60840 2015

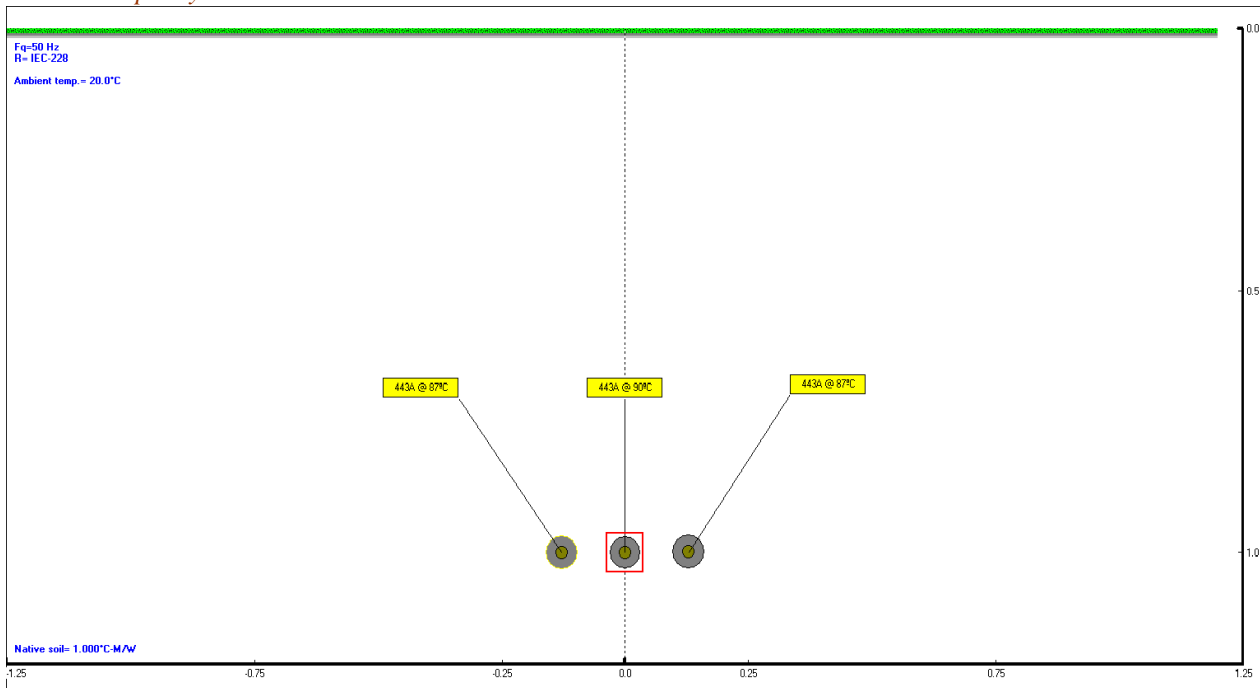
(*) Distance between cable axes laid in flat formation $D_e + D_e$ mm

(**) Current rating guideline (Calculated with Cymcap 5.3 based on IEC Pub. 60287 and the following conditions)

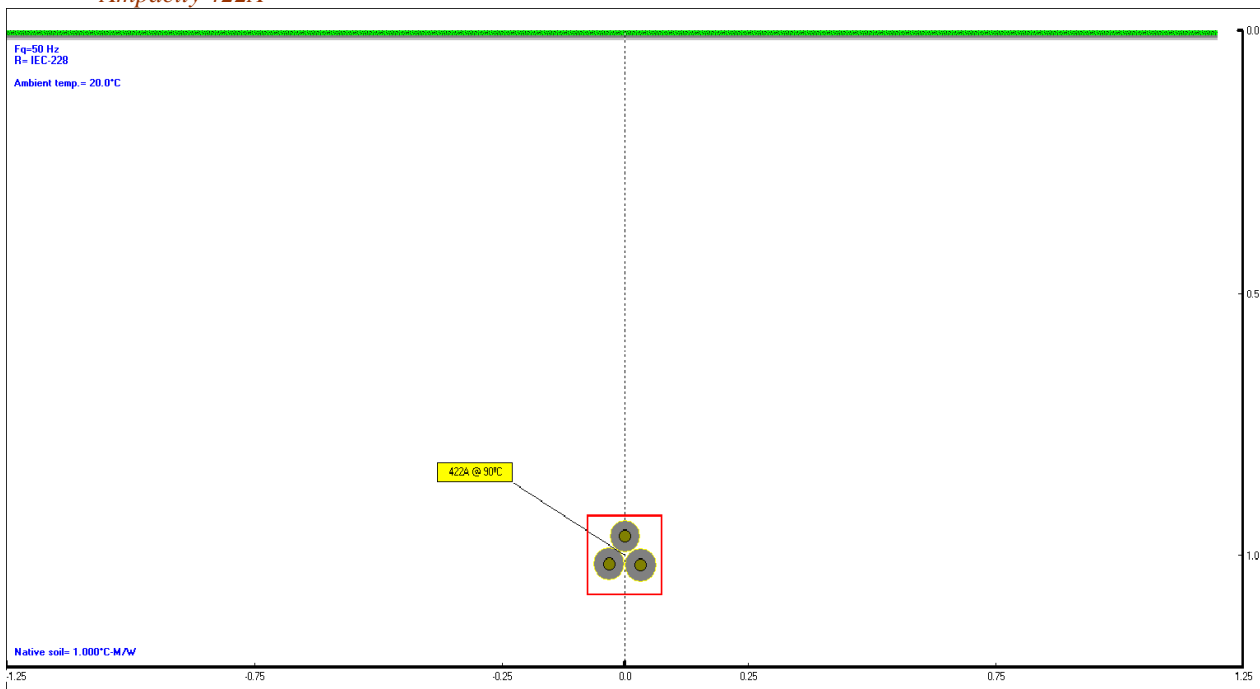
- Ground temperature 20°C
- Laying depth 1.0 m
- Ground thermal resistivity 1.0 K · m/W
- Air temperature 35°C

(⁶³) Diameters are calculated values and subject to manufacturing tolerances

*Cables in earth – single point or cross-bonded
Ampacity 443A*



Ampacity 422A



Date: 2015-09-22; Mp15205
Prepared by: Michał Pstrągowski

⁽⁶⁾ Diameters are calculated values and subject to manufacturing tolerances