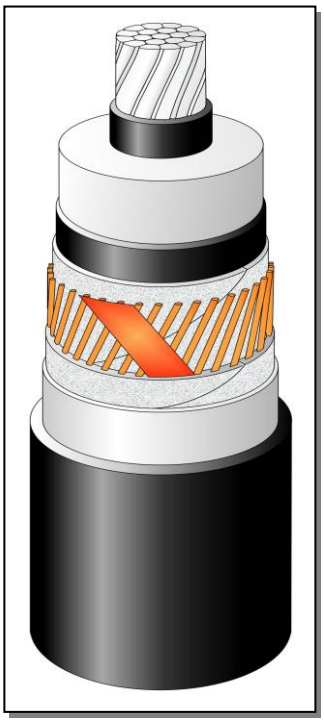
TECHNICAL SPECIFICATION
A2XS(FL)2Y 1x240RM/95 76/132 (145) kV IEC 60840

CONSTRUCTION (x)

- Round, stranded and compacted aluminium conductor. Class 2
- Extruded semi-conducting conductor screen
- Insulation XLPE – dry cured
- Extruded semi-conducting insulation screen
- Semi-conducting swelling tapes
- Metallic screen:
  copper wires screen and
  copper equalizing tapes
- Semi-conducting swelling tapes
- Longitudinal aluminum foil
- Sheath – black HDPE



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 5 s)

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

MARKING

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

DESCRIPTION	UNIT	DETAILS	
CONSTRUCTION DATA	**$U_o/U/U_m$**	**76/132 (145) kV**	
Conductor ❑ Material ❑ Number of wires	 No	 Aluminium 34	
Nominal cross sectional area	mm^2	240	
Conductor diameter and tolerance	mm	$17.9^{-0.2\ +02}$	
Min./ Nom. thickness semi-conducting XLPE on conductor	mm	1.2 / 2.0	
Insulation thickness XLPE – nominal	mm	19.0	
Insulation thickness: minimum at a point	mm	17.1	
Diameter over insulation – nominal	mm	$59.9^{\pm 0.8}$	
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 ❑ Copper wires ❑ Copper equalizing tape	mm^2 No x mm No x mm x mm	95 60 x 1.44 2 x 10 x 0.18	
Mean diameter over metallic screen	mm	65.7	
Thickness of semi-conducting swelling tape	No x mm	2 x ~ 0.35	
Thickness of aluminum foil	mm	0.2	
Nominal outer sheath thickness / min.	mm	3.4 / 2.79	
Approximate overall diameter completed cable (D_e)	mm	74.3	
Weight of complete cable (approx.)	kg/km	5260	
DELIVERY DATA			
Diameter of wooden drum ❑ type	m	2.5 250P	3.2 320P
Maximum length per drum	m	410	1000
Weight of heaviest reel, including cable	kg	3250	7450

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

ELECTRICAL DATA at 50 Hz		
Maximum D.C. conductor resistance at 20°C Maximum A.C. conductor resistance at 90°C	Ω/km Ω/km	0.125 0.1609
Maximum D.C. metallic screen resistance at 20°C	Ω/km	0.188
Maximum D.C. aluminum foil resistance at 20°C	Ω/km	0.614
Operating inductance ❑ trefoil formation ❑ flat formation (*)	 mH/km mH/km	 0.473 0.658
Induction reactance ❑ trefoil formation ❑ flat formation (*)	 Ω/km Ω/km	 0.149 0.207
Capacitance	µF/km	0.133 (+ 8 %)
Capacitance reactance	kΩ/km	24.02
Impedance ❑ trefoil formation ❑ flat formation (*)	 Ω/km Ω/km	 0.219 0.262
Zero sequence reactance	Ω/km	0.094
Max. electric stress at conductor screen / (at insulation)	kV/mm	6.90 / 2.52
Dielectric losses (tg δ = 0.001) – per phase	W/m	0.240
Partial discharge test – at 1.5Uo	pC	≤ 5
Charging current – per phase	A/km	3.16
Charging power	kVA/km	240
Earth fault current – per phase	A/km	9.49
MECHANICAL DATA		
Recommended min. bending radius for laying	m	1.85
Recommended permissible bending radius at final installation	m	1.48
Maximum permissible pulling force:	kN	7.2
SHORT CIRCUIT CURRENTS		
Maximum permissible thermal short-circuit (IEC 60949) *Current for 1.0 sec.* Phase conductor 90 → 250°C Metallic screen 80 → 350°C	 kA kA	 23.0 19.5
AMPACITY (**) – Bonding of the metallic screens		**Single-point / Both-ends**
in earth ❑ flat formation (*) ❑ trefoil formation in air ❑ flat formation ❑ trefoil formation	 A A A A	 441 / 404 416 / 404 537 / 502 487 / 478
ROUTINE TESTS		
AC – Test voltage – (2.5Uo; 30min) Impulse test 1.2/50 µs Partial discharge test	kV kV kV	190 650 114

Marking: TF-Kable 5 A2XS(FL)2Y 1x240RM/95 76/132 (145) kV IEC 60840 2021

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

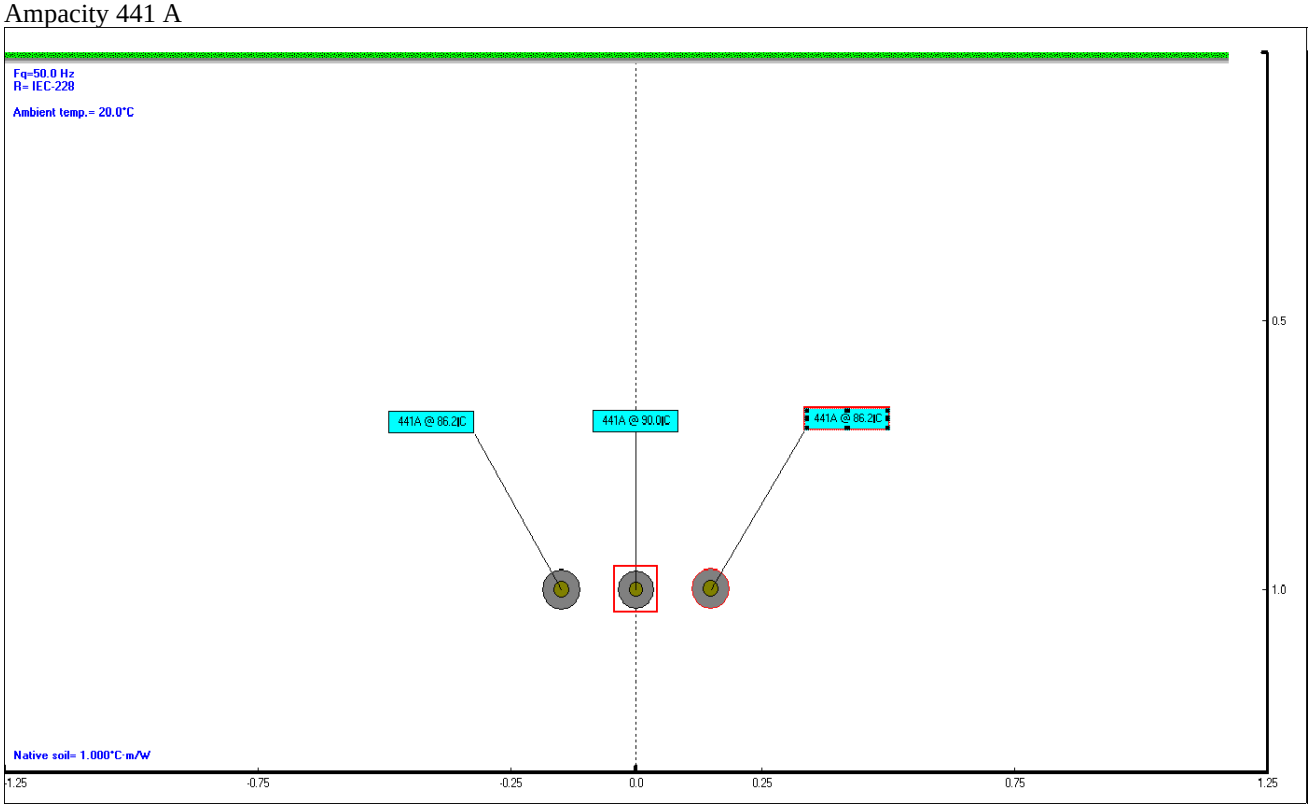
(**) Current rating guideline (Calculated with Cymcap 8.0 based on IEC Pub. 60287 and the following conditions)

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

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

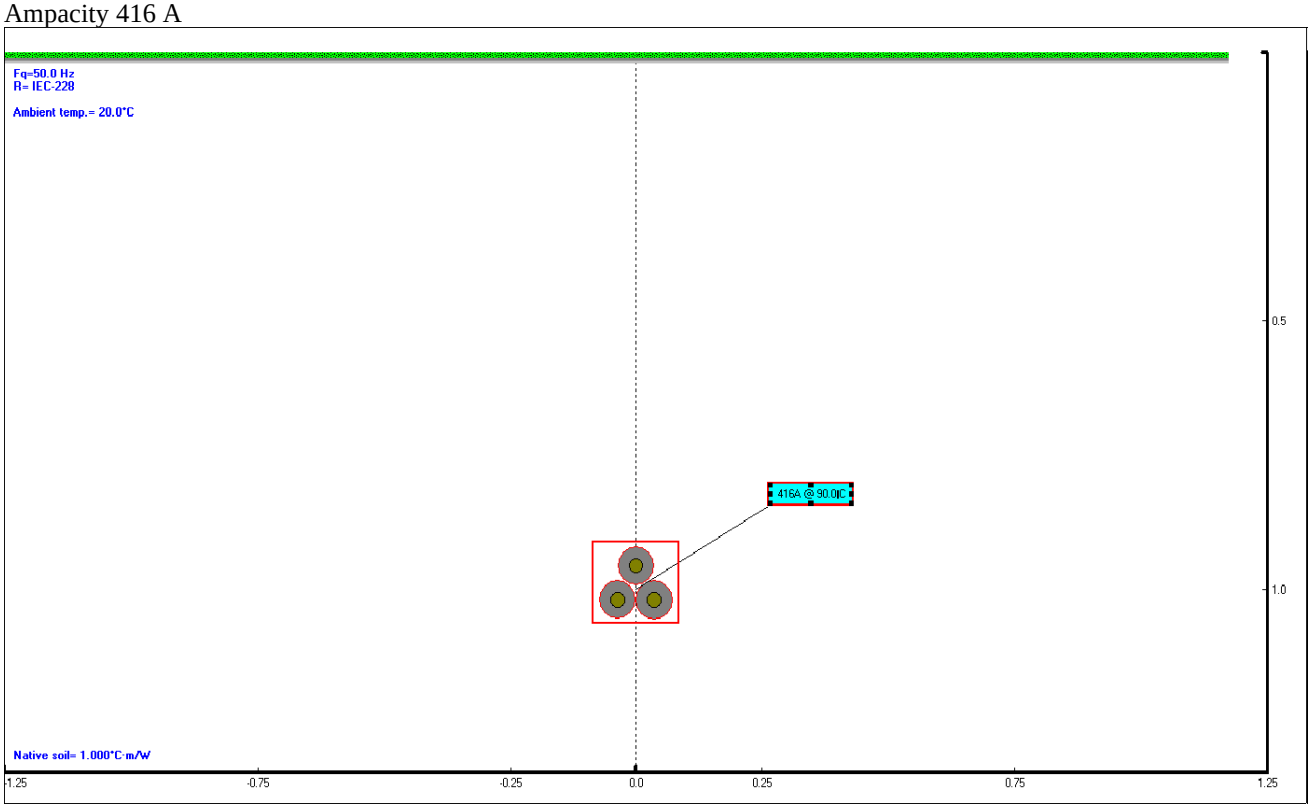
Cables in earth, Single-point, flat

Ampacity 441 A



Cables in earth, Single-point, trefoil

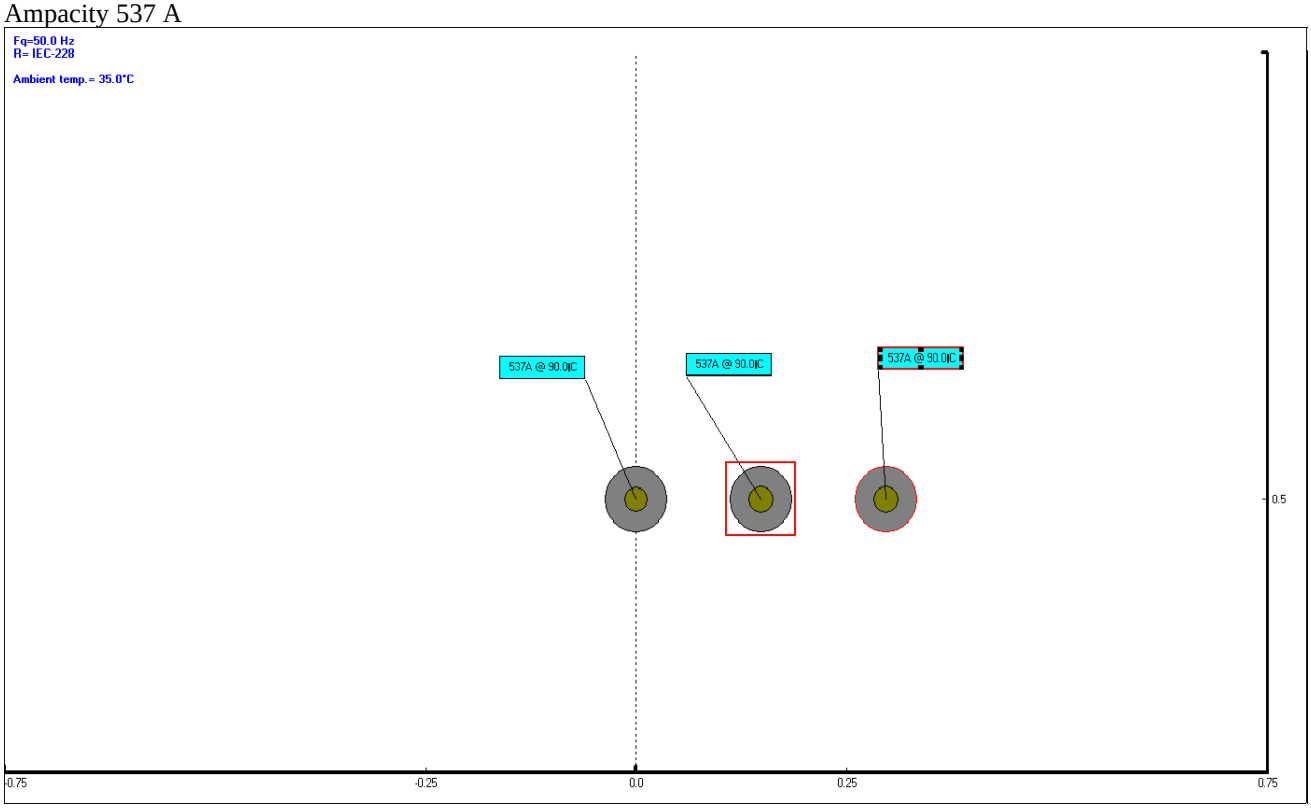
Ampacity 416 A



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

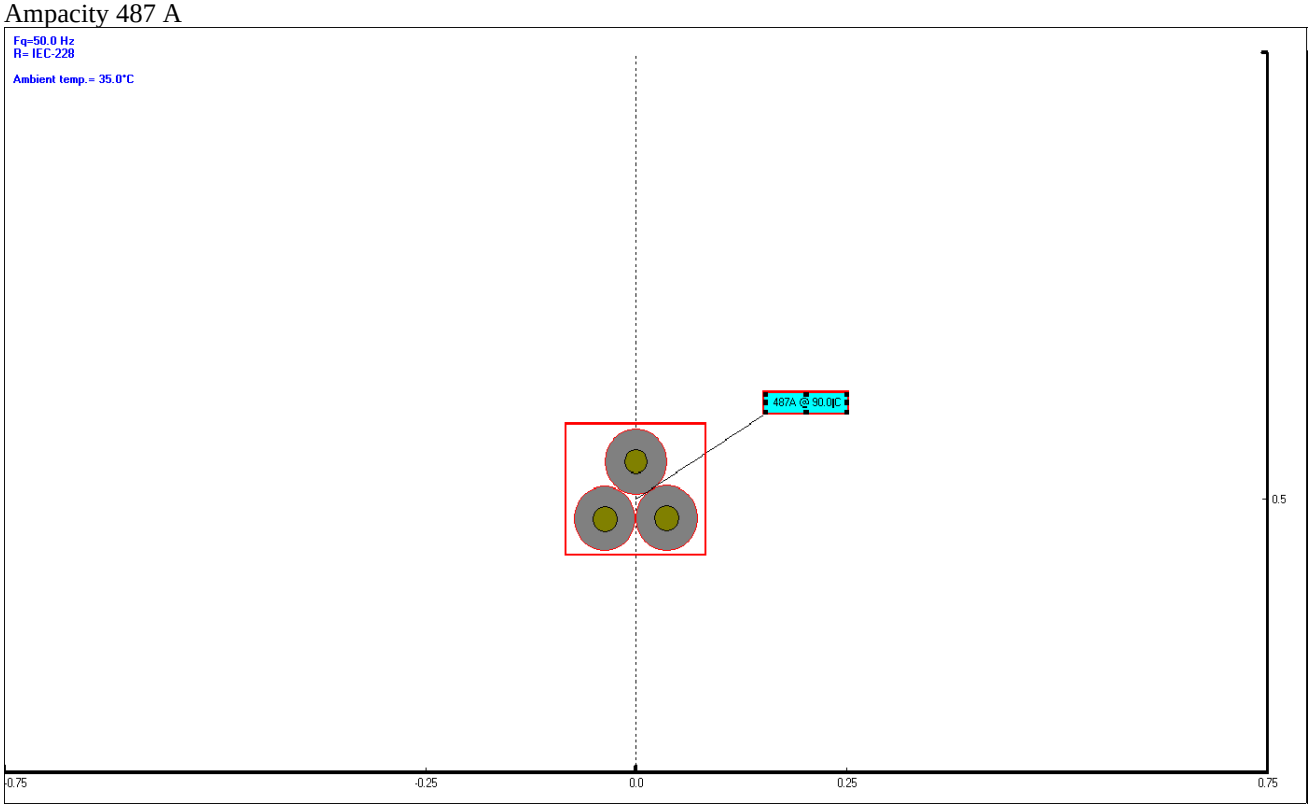
Cables in air, Single-point, flat

Ampacity 537 A



Cables in air, Single-point, trefoil

Ampacity 487 A



Date: 2021-03-17; PK21053
Prepared by: Przemysław Krawczykowski

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