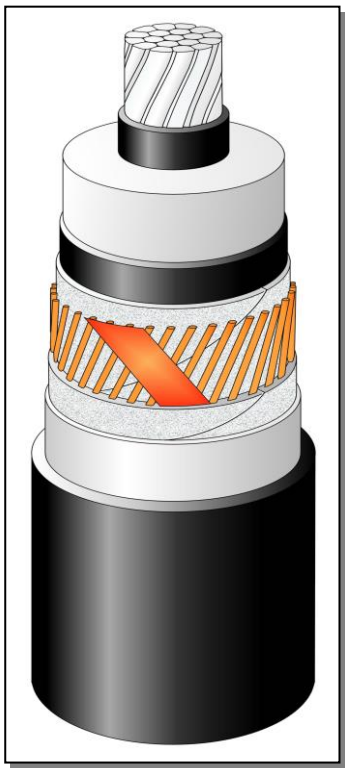
TECHNICAL SPECIFICATION
NA2XS(FL)2Y 1x240RM/95 76/132(145)kV acc. to DIN VDE 0276-632

CONSTRUCTION (x)

- Round, stranded and compacted 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



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	**$U_o/U/U_m$**	**76/132(145)kV**
Conductor		
❑ material		Aluminum
❑ number of wires	No	34
Nominal cross sectional area	mm^2	240
Conductor diameter and tolerance	mm	$17.9^{+0.2}$
Min./Nom. thickness semi-conducting XLPE on conductor	mm	1.0 / 1.5
Nominal insulation thickness XLPE	mm	17.0
Insulation thickness: minimum at a point	mm	15.3
Diameter over insulation – nominal	mm	54.9
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	95
❑ Copper wires	No x mm	60 x 1.44
❑ Copper equalizing tapes	No x mm x mm	2 x 10 x 0.18
Mean diameter over metallic screen	mm	60.7
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	3.2 / 2.62
Approximate overall diameter completed cable (D_e)	mm	69.0
Weight of complete cable (approx.)	kg/km	4710
DELIVERY DATA		
Diameter of wooden drum	m	3.0
❑ type		30AP
Length per drum	m	1000
Weight of heaviest reel, including cable	kg	6900

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

ELECTRICAL DATA at 50Hz		
Maximum D.C. conductor resistance at 20°C Maximum A.C. conductor resistance at 90°C	Ω/km Ω/km	0.125 0.161
Maximum D.C. metallic screen resistance at 20°C	Ω/km	0.189
Maximum D.C. aluminum foil resistance at 20°C	Ω/km	0.660
Operating inductance ❑ trefoil formation ❑ flat formation (*)	 mH/km mH/km	 0.458 0.643
Induction reactance ❑ trefoil formation ❑ flat formation (*)	 Ω/km Ω/km	 0.144 0.202
Capacitance	μF/km	0.138 (+ 8 %)
Capacitance reactance	kΩ/km	23.06
Impedance ❑ trefoil formation ❑ flat formation (*)	 Ω/km Ω/km	 0.216 0.258
Zero sequence reactance	Ω/km	0.091
Max. electric stress at conductor screen / (at insulation)	kV/mm	7.55 / 2.90
Dielectric losses (tgδ = 0.001) – per phase	W/m	0.251
Partial discharge test – at 1.5Uo	pC	≤ 5
Charging current – per phase	A/km	3.30
Charging power	kVA/km	251
Earth fault current – per phase	A/km	9.89
MECHANICAL DATA		
Recommended min. bending radius for laying	m	1.75
Recommended permissible bending radius at final installation	m	1.40
Maximum permissible pulling force:	kN	7.2
SHORT CIRCUIT CURRENTS		
Maximum permissible thermal short-circuit (IEC 60949) Phase conductor 90 → 250°C Metallic screen 80 → 350°C	*Current for →* kA kA	***1s*** 22.9 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	 440 / 400 420 / 410 545 / 510 490 / 480
TESTS		
AC – test voltage (2.5Uo, 30min) Impulse test Partial discharge test	kV kV kV	190 650 114

Marking: TF-KABLE 5 NA2XS(FL)2Y 1x240RM/95 76/132(145)kV DIN VDE 0276-632

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

(**) Current rating guideline (Calculated with CymCap 7.3 based on IEC Pub. 60287 and the following conditions)

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

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