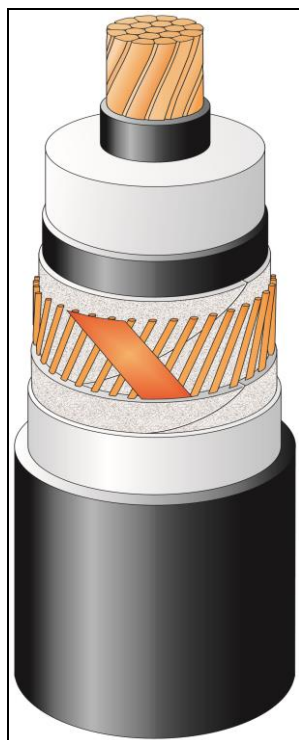


**TECHNICAL SPECIFICATION**  
**2XS(FL)2Y 1x300RM/105 40/69kV acc. to IEC 60840**

**CONSTRUCTION (x)**

- Round, stranded, compacted copper 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
<b>CONSTRUCTION DATA</b>	<b>U<sub>0</sub>/U/U<sub>m</sub></b>	<b>40/69(72.5)kV</b>
Conductor		
<input type="checkbox"/> material		Copper
<input type="checkbox"/> number of wires	No	37
Nominal cross sectional area	mm <sup>2</sup>	300
Conductor diameter and tolerance	mm	20.3 <sup>+0.4</sup>
Min./Nom. thickness semi-conducting XLPE on conductor	mm	0.4 / 0.8
Nominal insulation thickness XLPE	mm	9.0
Insulation thickness: minimum at a point	mm	8.1
Diameter over insulation – nominal	mm	39.9 <sup>±0.5</sup>
Min./Nom. thickness semi-conducting XLPE on insulation	mm	0.4 / 0.8
Thickness of semi-conducting swelling tape	No x mm	1 x ~ 0.35
Metallic screen	mm <sup>2</sup>	105
<input type="checkbox"/> Copper wires	No x mm	66 x 1.44
<input type="checkbox"/> Copper equalizing tapes	No x mm x mm	2 x 10 x 0.10
Mean diameter over metallic screen	mm	44.9
Thickness of semi-conducting swelling tape	No x mm	1 x ~ 0.35
Thickness of aluminum foil	mm	0.2
Nominal outer sheath thickness / min	mm	2.6 / 2.11
Approximate overall diameter completed cable (D <sub>c</sub> )	mm	51.4
Weight of complete cable (approx.)	kg/km	5250
<b>DELIVERY DATA</b>		
Diameter of wooden drum	m	2.8
<input type="checkbox"/> type		280P
Length per drum	m	1000
Weight of heaviest reel, including cable	kg	6840

<sup>(x)</sup> Diameters are calculated values and subject to manufacturing tolerances

<b>ELECTRICAL DATA at 50Hz</b>		
Maximum D.C. conductor resistance at 20°C	Ω/km	0.0601
Maximum A.C. conductor resistance at 90°C	Ω/km	0.0784
Maximum D.C. metallic screen resistance at 20°C	Ω/km	0.175
Maximum D.C. aluminum foil resistance at 20°C	Ω/km	0.883
Operating inductance		
<input type="checkbox"/> trefoil formation	mH/km	0.374
<input type="checkbox"/> flat formation (*)	mH/km	0.559
Induction reactance		
<input type="checkbox"/> trefoil formation	Ω/km	0.118
<input type="checkbox"/> flat formation (*)	Ω/km	0.176
Capacitance	μF/km	0.222 (+8%)
Capacitance reactance	kΩ/km	14.32
Impedance		
<input type="checkbox"/> trefoil formation	Ω/km	0.141
<input type="checkbox"/> flat formation (*)	Ω/km	0.192
Zero sequence reactance	Ω/km	0.064
Max. electric stress at conductor screen / (at insulation)	kV/mm	6.09 / 3.34
Dielectric losses (tgδ = 0.001) – per phase	W/m	0.112
Partial discharge test – at 1.5U <sub>0</sub>	pC	≤ 5
Charging current – per phase	A/km	2.79
Charging power	kVA/km	112
Earth fault current – per phase	A/km	8.38
<b>MECHANICAL DATA</b>		
Recommended min. bending radius for laying	m	1.29
Recommended permissible bending radius at final installation	m	1.03
Maximum permissible pulling force:	kN	15
<b>SHORT CIRCUIT CURRENTS</b>		
Maximum permissible thermal short-circuit (IEC 60949)	<i>Current for →</i>	<i>I s</i>
Phase conductor 90 → 250°C	kA	43.4
Metallic screen 80 → 350°C	kA	21.5
<b>AMPACITY (**) – Bonding of the metallic screens</b>		<b>Single-point / Both-ends</b>
In earth		
<input type="checkbox"/> trefoil formation	A	615 / 577
<input type="checkbox"/> flat formation (*)	A	652 / 539
In air		
<input type="checkbox"/> trefoil formation	A	725 / 690
<input type="checkbox"/> flat formation	A	835 / 699
<b>TESTS</b>		
AC – test voltage (2.5U <sub>0</sub> , 30min)	kV	100
Partial discharge test	kV	60

**Marking: TF-KABLE 5 2XS(FL)2Y 1x300RM/105 40/69kV IEC 60840 2021**

(\*) Distance between cable axes laid in flat formation D<sub>e</sub>+D<sub>e</sub> mm

(\*\*) Current rating guideline (Calculated with CymCap 8.0 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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Prepared by: Maciej Ochocki

<sup>(s)</sup> Diameters are calculated values and subject to manufacturing tolerances