

**INDEPENDENT POWER TRANSMISSION OPERATOR S.A.**

**TNPRD/ SUBSTATION SPECIFICATION & EQUIPMENT SECTION**

March 2018

**TECHNICAL DESCRIPTION TD-102/4**

**SINGLE CORE UNDERGROUND 400 kV CABLES**

**WITH CROSS - LINKED POLYETHYLENE INSULATION (XLPE)**

**ATTACHMENT "A"**

Failure to provide all information will result in rejection of the offer.

**A. General**

1. Manufacturer ………………………………

………………………………

1. Cable type ………………………………

………………………………

1. Rated voltage U0/U(Um) …………………………kV

**B. Conductor**

1. Nominal conductor cross section …………………..……mm2
2. Conductor material ………………………………
3. Minimum outer diameter …………………..………mm
4. Maximum outer diameter …………………………..mm
5. DC resistance at 20°C …………………..…….μΩ/m
6. AC resistance at 90°C ……………………..… μΩ/m
7. Number of wires …………………..…………
8. Nominal diameter of each wire …………………………mm

**C. Semi-conducting layers**

Conductor semi-conducting layer

1. Nominal thickness mm
2. Minimum outer diameter mm
3. Maximum outer diameter mm
4. Specific electrical resistance Ω.m
5. Material of the semi-conducting layer ………………………………

Shielding semi-conducting layer

1. Nominal thickness mm
2. Minimum outer diameter mm
3. Maximum outer diameter mm
4. Specific electrical resistance Ω.m
5. Material of the semi-conducting layer ………………………………

**D. Insulation**

1. Material of the insulation
2. Nominal thickness mm
3. Minimum outer diameter mm
4. Maximum outer diameter mm
5. Nominal dielectric stress at conductor (Ei) kV/mm
6. Nominal dielectric stress at shielding (Eo) kV/mm

**E. Shielding wires (if existing)**

1. Material ………………………………

………………………………

1. Nominal thickness mm*.*
2. Minimum outer diameter mm
3. Maximum outer diameter mm
4. Tension strength .N/mm2

**F. Metallic Sheath**

1. Material ………………………………

………………………………

2. Nominal thickness mm*.*

3. Minimum outer diameter mm

4. Maximum outer diameter mm

5. Tension strength .N/mm2

6. Material and data of the longitudinal moisture protection

7. Material and data of the radial moisture protection

**G. Cable outer sheath**

1. Nominal thickness of the sheath …………………..………mm 2. Material and method of application of

the conducting sheath .................................

**H. Cable data**

1. Maximum outer diameter of the single core cable …………………..………mm

2. Minimum outer diameter of the single core cable …………………..………mm

3. Cable inductive reactance (XL)

trefoil installation ……………….……Ω/km

flat installation, 400mm distance ……………….……Ω/km

4. Nominal capacitance between conductor and shielding ……….……………μF/km

5. Maximum continuous current for one circuit (3 cables)

conductor temperature of 90°C, trefoil installation and

the metallic sheaths earthed at both ends …………………………Α

6. Maximum continuous current for one circuit (3 cables),

conductor temperature of 90°C, flat installation at 400mm

distance and the metallic sheaths earthed at both ends …………………………Α

7. Positive sequence impedance of

one circuit (3 cables)

trefoil installation ……………….……Ω/km

flat installation, 400mm distance ……………….……Ω/km

8. Zero sequence impedance of  
one circuit (3 cables)

trefoil installation ……………….……Ω/km

flat installation, 400mm distance ……………….……Ω/km

9. Losses of one circuit (3 cables)

- load losses at conductor and shielding (maximum continuous current)

trefoil installation ……………….…….……W/m

flat installation, 400mm distance ……………….…….……W/m

- dielectric (nominal voltage) ……………….…….……W/m

10. Short circuit current capability

* for conductors …………..…….kA for 1 s
* for the shielding ………………...kA for 0.5 s

11. Impulse withstand voltage …..……………………….…kV

12. AC withstand voltage, 50Hz, 60min …..……………………….…kV

13. Weight of the cable kg/m

14. Minimum bending radius …………………………m

15. Maximum pulling tension …………………..………daN

16. Does the offered cable meet the  
 requirements of paragraphs XI, XII, XIII? ………………………………