

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

**TNPRD/ SUBSTATION SPECIFICATION & EQUIPMENT SECTION**

June 2017

**SPECIFICATION No SS-133/12**

**400 kV METAL OXIDE SURGE ARRESTERS WITHOUT GAPS**

**"ATTACHMENT A"**

INFORMATION BY BIDDERS

1. Type of offered surge arrester : .............………………..

2. External housing characteristics

a. Insulation material of the external

housing : ........…………….………

b. Lightning impulse voltage withstand

(1,2/50μs) : ...........………………….

c. Switching impulse voltage withstand, wet

(250/2500μs) : ...........………………….

d. Creepage distance : ...........………………….

e. Dry arcing distance : ...........………………….

3. Number of units of which the surge

arrester consists of : ...........………………….

4. Surge arrester required characteristics

a. Continuous operating voltage (COV) Uc : ........…………….………

b. Rated voltage, Ur  : ........…………….………

c. Rated frequency : ........…………….………

d. Class and duty : ........…………….………

e. Designation : ........…………….………

f. Nominal discharge current In (8/20μs) : ........…………….………

g. Residual voltage at steep current

impulse (1/<20μs) at 20 kA,

excluding inductive voltage

contribution : ........…………….………

h. Residual voltage at steep current

impulse (1/<20μs) at 20 kA,

including inductive voltage

contribution (STIPL) : ........…………….………

i. Residual voltage at lightning

impulse (8/20μs)

at 10 kA : ........…………….………

at 20 kA (LIPL) : ........…………….………

at 40 kA : ........…………….………

j. Residual voltage at switching current

impulse (>30/60μs) at 2 kA (SIPL) : ........…………….………

k. Thermal energy rating Wth : ........…………….…….

l. Repetitive charge transfer rating Qrs : ........…………….………

m. Rated short circuit current Is : ........…………….………

n. Reference current at 20°C : ........…………….………

o. Range of acceptance of

reference voltage at 20°C : ........…………….………

p. Maximum allowable resistive

leakage current at 231 kV and 20°C : ........…………….………

5. Is the surge arrester equipped with

a surge counter which also includes

a leakage current meter? : ........…………….………

6. Does the leakage current meter

provide measurement of the

resistive leakage current, using

third harmonic analysis? : ........…………….………

7. Are four (4) support insulators

provided for the installation

of the surge counter/leakage

current meter? : ........…………….………

8. Measuring range of the leakage

current meter for the

total leakage current : ...........………………….

9. Measuring range of the leakage

current meter for the

resistive leakage current : ...........………………….

10 Number of digits of the surge

counter : ……………………………

11. Maximum allowable length of cable

between arrester and surge counter :……..…………….……………

12. Maximum allowable length of conductor

between surge counter and earthing grid :……..…………….……………

13. Type of material, shape

and dimensions of the line

terminal : ........…………….………

........…………….………

14. Type of material and shape

of the earth terminal : .............………………..

15. Are all metal fittings of the

arrester made of hot-dip galvanized

steel or of aluminum alloy or of

stainless steel? : ..…………......................

16. Are the bolts, nuts and washers

which are needed for the mounting

of the arrester part of the supply? : ........…………….…….…

17. Are the bolts, nuts and washers

of hot dip galvanized steel or

stainless steel? : ........…………….………

18. Is the surge arrester equipped

with one or more grading rings? : ........…………….………

19. Type of material of the grading rings : ........…………….………

20. Diameter of the widest grading ring : ........…………….………

21. Required radial clearance of other metallic

structures from the axis of the arrester,

to ensure correct operation of the arrester : .............………………..

22. Is the surge arrester without

or with enclosed gas volume? : .............………………..

23. Percentage of enclosed gas volume

to total internal volume of arrester

(if applicable) : ...........………………….

24. Is the arrester equipped

with a pressure relief diaphragm?

(if applicable) : ........…………….………

25. Seal leak rate (if applicable) : ...........………………….

26. Internal partial discharge level : ........…………….………

27. Radio interference voltage level : ........…………….………

28. Cantilever strength of the

surge arrester : ...........…………………

29. List of all internal components of

the surge arrester : ...........…………………

...........…………………

...........…………………

...........…………………

30. Technical data of any internal grading

equipment, e.g. capacitors, resistors

(if applicable) : ........…………….………

........…………….………

........…………….………

........…………….………

........…………….………

31. Weight of the arrester : .............………………..

32. Indicate the size of the

earthing lead and the type of material

which shall consist of : ...........…………………

33. Type of silicon rubber used

in the proposed arrester : ........…………….………

34. Is the offered silicon rubber

hydrophobic and resistant to pollution

and UV radiation? : ...........………………….

35. Is the surge arrester suitable for

upright vertical mounting on steel structure? : ...........………………….

36. Lightning impulse voltage withstand

level of the support insulators : …………………………..

37. Does the packaging follow the

requirements of par. XV ? : ……………………………