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| PSGSG/2013-14/023-1 | <b>Product specifications for<br/>Expansion Joints with Bellows</b> | Drawing No.:<br>RDDG43506191081<br>Date: 08.06.2017 |
|---------------------|---------------------------------------------------------------------|-----------------------------------------------------|

| S. No. | Feature               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                          | Vendor Compliance(Y/N) |
|--------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 1.     | Purpose               | Expansion joint with bellows for SF6 Gas Insulated Switchgear.                                                                                                                                                                                                                                                                                                                                                                                       |                        |
| 2.     | Item Description      | Expansion joint with Bellows for Segregated 245 kV Busduct.                                                                                                                                                                                                                                                                                                                                                                                          |                        |
| 3      | Drawing No.           | RDDG 435 0519 1081<br>RDDG 435 0519 1013<br>RDDG 435 0519 1023                                                                                                                                                                                                                                                                                                                                                                                       |                        |
| 4.     | Quantity              | 3 Nos.                                                                                                                                                                                                                                                                                                                                                                                                                                               |                        |
| 5.     | Spares and Services   | All the Requisite Spares and necessary service will be provided.                                                                                                                                                                                                                                                                                                                                                                                     |                        |
| 6.     | Mounting Arrangements | Detailed Mounting possible arrangements and angle of mounting shall be provided.                                                                                                                                                                                                                                                                                                                                                                     |                        |
| 7.     | Factory Tests         | Detailed type test reports shall be furnished with technical offer. All routine tests have to be carried out on the equipment being offered and test reports to be submitted along with the supply.                                                                                                                                                                                                                                                  |                        |
| 8.     | Operating Conditions  | A) Temperature<br>Min.: -50 °C<br>Max: 50 °C<br>B) Operating Pressure: 6.5 bar                                                                                                                                                                                                                                                                                                                                                                       |                        |
| 9.     | Testing Conditions    | A) Test Pressure: 15 Bar( for 15 Min.)<br>B) Test Medium: Air/Liquid                                                                                                                                                                                                                                                                                                                                                                                 |                        |
| 10.    | Testing               | Following certificates shall be furnished for acceptance of the component:<br>1 Material certificate,<br>2 Material test certificate,<br>3 Stage wise DP / X-ray tests,<br>4 Pressure withstand test report,<br>5 Electro-polishing schedule,<br>6. Cycle Testing,<br>7. Axial Traverse,<br>8. Angular Rotation,<br>9.Lateral Offset,<br>10 Dimension test report,<br>A certified copy of above documents shall be sent along with the delivery note |                        |
| 11.    | Testing Requirements  | Components / fittings required for all the test shall be arranged by supplier only.                                                                                                                                                                                                                                                                                                                                                                  |                        |

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| PSGSG 2013-14/0012 | Signature |  |
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| 12. | Travel & Cycles          | A) Axial Traverse:<br>Expansion: 30 mm(min.)<br>Compression: 100 mm(min.)<br>B) Angular Rotation: 10 deg.(min.)<br>C) Lateral Offset: 10 mm(min.)                                                                                                                                          |  |
| 13. | Bellows Height           | Bellows height shall be less than to Flange Diameter preferably.                                                                                                                                                                                                                           |  |
| 14. | Lifting Lugs             | Lifting Lugs should be provided at suitable place.                                                                                                                                                                                                                                         |  |
| 15. | Material:                | Flange: SS-304L<br>Bellows: SS-304L<br>Tie Rods: SS-304L<br>Lugs:- SS-304L<br>Gas Stud:- SS-304L<br>Pipe:- SS-304L                                                                                                                                                                         |  |
| 16. | Thickness of pipe:       | As Per Drawing                                                                                                                                                                                                                                                                             |  |
| 17. | Thickness of Bellows:    | Should be such that fulfill above requirements.                                                                                                                                                                                                                                            |  |
| 18. | Dimensions:              | As per Attached Drawing.                                                                                                                                                                                                                                                                   |  |
| 19. | Outside surface          | The outside surface should be degreased, sand blasted and powder coated.<br>Siemens gray color should be painted after powder coating.                                                                                                                                                     |  |
| 20  | Warranty                 | Supplier shall give the warrant of 12 months for any defect.                                                                                                                                                                                                                               |  |
| 21. | Qualifying Requirements: | The supplier shall be of national / International repute with proven record and should have supplied Expansion joint with bellows for high pressure applications. The supplier must submit along with the quotation a few references to whom the supplier has supplied a similar material. |  |

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