Corrigendum No. – 3

Date: 11-01-2023

Tender Enquiry No- TPSODL/OT/2022-23/113

Work Description - Rate Contract for Repair & Reconditioning of Distribution Transformer of various ratings at Vendor's works.

Clause 1.2 Calendar of Eventsas below

Tender Enquiry No.	**Work Description**	**As per Tender Paper** Last date and time of Receipt of Bid	**Revised** date and time of Receipt of Bid
TPSODL/OT/ 2022-23/113	Rate Contract for Repair & Reconditioning of Distribution Transformer of various ratings at Vendor's works.	13-01-2023 17:00 Hrs	17-01-2023 17:00 Hrs

Additional 78 Nos of Transformer (wound core type) as per annexure-I (From 10kVA to 500kVA).

ANNEXURE I

Schedule for Items

Store Location- CSD Berhampur						
Sr. No.	**Item Description**	**Quantity (EA)**	**Unit Price (Rs.)**	**GST@ 18%**	**All Inclusive Unit Price (Rs.)**	**Total Amount (Rs.)**
1	10 KVA , 11 / 0.230 kV 1 Ph Al wound Core DT	10				
2	16 KVA , 11 / 0.230 kV 1 Ph Al wound Core DT	6				
3	25 KVA , 11 / 0.230 kV 1 Ph Al wound Core DT	6				
4	63 KVA, 11/0.430 Ph Al wound Core DT	2				
5	100 KVA, 11/0.430 Ph Al wound Core DT	2				
6	250 KVA, 11/0.430 Ph Cu wound CRGO Type DT	3				
7	315 KVA, 11/0.430 Ph Cu wound CRGO Type DT.	3				
8	500 KVA, 11/0.430 Ph Cu wound CRGO Type DT.	2				
All Inclusive Total BOQ Value (Rs.)		**34**				

Store Location- Jeypore						
Sr. No.	**Item Description**	**Quantity (EA)**	**Unit Price (Rs.)**	**GST@ 18%**	**All Inclusive Unit Price (Rs.)**	**Total Amount (Rs.)**
1	16 KVA , 11 / 0.230 kV 1 Ph Al wound Core DT	3				
2	25 KVA , 11 / 0.230 kV 1 Ph Al wound Core DT	3				
3	63 KVA, 11/0.430 Ph Al wound Core DT	2				
4	100 KVA, 11/0.430 Ph Al wound Core DT	2				
All Inclusive Total BOQ Value (Rs.)		**10**				

Store Location- Rayagada						
Sr. No.	**Item Description**	**Quantity (EA)**	**Unit Price (Rs.)**	**GST@ 18%**	**All Inclusive Unit Price (Rs.)**	**Total Amount (Rs.)**
1	16 KVA , 11 / 0.230 kV 1 Ph Al wound Core DT	3				
2	25 KVA , 11 / 0.230 kV 1 Ph Al wound Core DT	3				
3	63 KVA, 11/0.430 Ph Al wound Core DT	2				
4	100 KVA, 11/0.430 Ph Al wound Core DT	2				
5	250 KVA, 11/0.430 Ph Cu wound CRGO Type DT	1				
6	315 KVA, 11/0.430 Ph Cu wound CRGO Type DT.	1				
All Inclusive Total BOQ Value (Rs.)		**12**				

Store Location- Bhanjanagar						
Sr. No.	**Item Description**	**Quantity (EA)**	**Unit Price (Rs.)**	**GST@ 18%**	**All Inclusive Unit Price (Rs.)**	**Total Amount (Rs.)**
1	16 KVA , 11 / 0.230 kV 1 Ph Al wound Core DT	3				
2	25 KVA , 11 / 0.230 kV 1 Ph Al wound Core DT	3				

3	63 KVA, 11/0.430 Ph Al wound Core DT	2				
4	100 KVA, 11/0.430 Ph Al wound Core DT	2				
5	250 KVA, 11/0.430 Ph Cu wound CRGO Type DT	1				
6	315 KVA, 11/0.430 Ph Cu wound CRGO Type DT.	1				
All Inclusive Total BOQ Value (Rs.)		**12**				

Store Location- Phulbani

Sr. No.	Item Description	Quantity (EA)	Unit Price (Rs.)	GST@ 18%	All Inclusive Unit Price (Rs.)	Total Amount (Rs.)
1	16 KVA , 11 / 0.230 kV 1 Ph Al wound Core DT	3				
2	25 KVA , 11 / 0.230 kV 1 Ph Al wound Core DT	3				
3	63 KVA, 11/0.430 Ph Al wound Core DT	2				
4	100 KVA, 11/0.430 Ph Al wound Core DT	2				
All Inclusive Total BOQ Value (Rs.)		**10**				

Signature & Seal of the Bidder

NOTE:

- The bids will be evaluated commercially on overall lowest cost for each Store as calculated in Schedule of Items [Annexure I].
- The quantity mentioned above is for evaluation purpose only and may vary during the execution. The prices shall be FOR TPSODL Designated Store Locations.
- Unit Price against each line-item total repair cost i.e., (cost of new materials) + (cost of transportation & labour) – (cost of scrap materials).
- The bidders are advised to quote prices strictly in the above format and for all the line items as mentioned above. Failing to do so, bids are liable for rejection.

- The bidder must fill each and every column of the above format. Mentioning "extra/inclusive" in any of the column may lead for rejection of the price bid. No cutting/ overwriting in the prices is permissible.
- HSN/SAC Code for respective line item must be mandatorily provided where ever applicable.
- Value of Scrap will not exceed 50% of total value of new material and services or else this aspect is to be taken care of while finalizing the rates.
- The **Economic limit** for repairing of transformer is as per Annexure-II (Technical Specification).

BOQ for Additional 78 Nos of Transformer (WOUND CORE) added as per annexure (From 10kVA to 500kVA)

Annexure A – 10 kVA and 16 kVA Transformer Price Breakup								
S.No.	Item Description	UOM	Unit price for Bill of quantity for 1 no. Transformer for each rating for evaluation purpose					
			10 KVA , 11 / 0.230 kV			16 KVA , 11 / 0.230 kV		
			1 Ph Al wound core			1 Ph Al wound core		
A	New Materials		Bill of Material for 1 Trf (Qty) x	Unit price with GST y	All Inclusive Price per Trf (x*y)	Bill of Material for 1 Trf (Qty) x	Unit price with GST y	All Inclusive Price per Trf (x*y*1.18)
1	HV leg coil complete with paper insulation only.	Kg	12			24		
2	LV leg coil complete with paper insulation only.	Kg	6			7		
3	LV ph / neutral copper / Al flats (LV termination internal)	Kg	0			0		
4	HV Bushing(11 KV) insulator	EA	2			2		
5	LV Bushing(0.433 KV) Insulator	EA	2			2		
6	Metal parts for HV Bushing(Rod, nut, bolts etc.)	EA	2			2		
7	Metal parts for LV Bushing(Rod, nut, bolts etc.)	EA	2			2		
8	Set of gaskets	Set	1			1		
9	Silica gel breather	EA	0			0		
10	Oil level gauge	EA	1			1		

11	Tapping switch with handle	EA	0			0		
12	Oil drain/Filter valve	EA	1			1		
13	Pair of Arching Horns	EA	2			2		
14	Fresh Transformer oil as per IS 335	Litre	50			60		
15	Sundry items	Set	1			1		
16	Dial type Thermometer of min.10mm with max. temp. Ind.	EA	0			0		
17	Core laminations	Kg	0			0		
18	LT Connectors(Palm with AL bus bars)	EA	2			2		
19	HT Connectors	EA	0			0		
20	New Radiator	Kg	0			0		
21	Conservator tank,EVP,tank top cover etc	Kg	0			0		
22	LT Cable Box	EA	0			0		
TOTAL of New material (A)								
B	**Transportation & labor**							
23	Labour charges for repair/reconditioing of transformers	EA	1			1		
24	Painting charges (external & internal)	EA	1			1		
25	Freight & Insu. (From TPS0DL Store to Repairer Factory)	EA	1			1		
26	Freight & Insu. (From Repairer Works to TPSODL Store)	EA	1			1		
TOTAL of Transportation & labor (B)								
C	**Scrap Materials**							
27	HV & LV leg coil complete with paper insulation only.	Kg	18			31		
28	Metal parts for HV & LV Bushing(Rod,nut,bolts etc) connectors etc	Kg	0			0		

29	Old LV phase and neutral copper/ Al flats (LV termination internal)	Kg	2			2		
30	Silica gel breather	EA	0			0		
31	Core laminations	Kg	0			0		
32	Radiator	Kg	0			0		
33	Conservator tank,EVP,tank top cover and other iron parts	Kg	0			0		
34	Transformer oil	Ltr	35			42		
35	Tapping switch with handle	EA	0			0		
36	Dial type thermometer	EA	0			0		
TOTAL of Scrap Materials (C)								
Total All Inclusive Unit Price, i.e., Material + Transport - Scrap (A+B-C)								

Annexure B – 25 kVA Transformer Price Breakup

S.No	Item Description	UOM	Unit price for Bill of quantity for 1 no. Transformer for each rating for evaluation purpose					
			25 KVA, 11 / 0.230 kV			25 KVA, 11 / 0.4kV		
			1 Ph Al wound core			3PH, Al wound core		
A	New Materials		Bill of Material for 1 Trf (Qty) x	Unit price with GST y	All Inclusive Price per Trf (x*y)	Bill of Material for 1 Trf (Qty) x	Unit price with GST y	All Inclusive Price per Trf (x*y)
1	HV leg coil complete with paper insulation only.	Kg	26			30		
2	LV leg coil complete with paper insulation only.	Kg	10			15		
3	LV ph/neutral copper/ Al flats (LV termination internal)	Kg	0			0		
4	HV Bushing(11 KV) insulator	EA	2			3		
5	LV Bushing(0.433 KV) Insulator	EA	2			4		
6	Metal parts for HV Bushing(Rod,nut,bolts etc)	EA	2			3		
7	Metal parts for LV Bushing(Rod,nut,bolts etc)	EA	2			4		
8	Set of gaskets	Set	1			1		
9	Silica gel breather	EA	0			1		

10	Oil level gauge	EA	1			1		
11	Tapping switch with handle	EA	0			0		
12	Oil drain/Filter valve	EA	1			2		
13	Pair of Arching Horns	EA	2			3		
14	Fresh Transformer oil as per IS 335	Litre	65			90		
15	Sundry items	Set	1			1		
16	Dial type Thermometer of min.10mm with max.temp. Ind.	EA	0			0		
17	Core laminations	Kg	0			0		
18	LT Connectors(Palm with AL bus bars)	EA	2			4		
19	HT Connectors	EA	0			3		
20	New Radiator	Kg	0			10		
21	Conservator tank,EVP,tank top cover etc	Kg	0			5		
22	LT Cable Box	EA	0			1		
TOTAL of New material (A)								
B	**Transportation & labor**							
23	Labour charges for repair / reconditioning of transformers	EA	1			1		
24	Painting charges (external & internal)	EA	1			1		
25	Freight & Insu. (From TPSODL Store to Repairer Factory)	EA	1			1		
26	Freight & Insu. (From Repairer Works to TPSODL Store)	EA	1			1		
TOTAL of Transportation & labor (B)								
C	**Scrap Materials**							
27	HV & LV leg coil complete with paper insulation only.	Kg	36			45		
28	Metal parts for HV & LV Bushing(Rod,nut,bolts etc) connectors etc	Kg	0			0		
29	Old LV phase and neutral copper/ Al flats (LV termination internal)	Kg	2			4.6		
30	Silica gel breather	EA	0			1		
31	Core laminations	Kg	0			0		
32	Radiator	Kg	0			10		
33	Conservator tank,EVP,tank top cover and other iron parts	Kg	0			5		
34	Transformer oil	Ltr	45.5			63		
35	Tapping switch with handle	EA	0			0		
36	Dial type thermometer	EA	0			0		
TOTAL of Scrap Materials (C)								
Total All Inclusive Unit Price, i.e., Material + Transport - Scrap (A+B-C)								

Annexure 1 –A (c) – 63 kVA, 100 kVA and 200 kVA Transformer Price Breakup								
S.No	Item Description	UOM	Unit price for Bill of quantity for 1 no. Transformer for each rating for evaluation purpose					
			63 KVA, 11 / 0.4kV			100 KVA, 11 / 0.4kV		
			3PH, Al wound core			3PH, Al wound core		
A	New Materials		Bill of Material for 1 Trf (Qty) x	Unit price with GST y	All Inclusive Price per Trf (x*y)	Bill of Material for 1 Trf (Qty) x	Unit price with GST y	All Inclusive Price per Trf (x*y)
1	HV leg coil complete with paper insulation only.	Kg	30			50		
2	LV leg coil complete with paper insulation only.	Kg	20			30		
3	LV ph/neutral copper/ Al flats (LV termination internal)	Kg	0			0		
4	HV Bushing(11 KV) insulator	EA	3			3		
5	LV Bushing(0.433 KV) Insulator	EA	4			4		
6	Metal parts for HV Bushing(Rod,nut,bolts etc)	EA	3			3		
7	Metal parts for LV Bushing(Rod,nut,bolts etc)	EA	4			4		
8	Set of gaskets	Set	1			1		
9	Silica gel breather	EA	1			1		
10	Oil level gauge	EA	1			1		
11	Tapping switch with handle	EA	0			0		
12	Oil drain/Filter valve	EA	2			2		
13	Pair of Arching Horns	EA	3			3		
14	Fresh Transformer oil as per IS 335	Litre	120			210		
15	Sundry items	Set	1			1		
16	Dial type Thermometer of min.10mm with max.temp. Ind.	EA	0			0		
17	Core laminations	Kg	0			0		
18	LT Connectors (Palm with AL bus bars)	EA	4			4		
19	HT Connectors	EA	3			3		
20	New Radiator	Kg	10			10		
21	Conservator tank,EVP,tank top cover etc	Kg	5			5		
22	LT Cable Box	EA	1			1		
TOTAL of New material (A)								
B	Transportation & labor							
23	Labour charges for repair/reconditioing of transformers	EA	1			1		
24	Painting charges (external & internal)	EA	1			1		
25	Freight & Insu. (From TPSODL Store to Repairer Factory)	EA	1			1		

26	Freight & Insu. (From Repairer Works to TPSODL Store)	EA	1			1		
TOTAL of Transportation & labor (B)								
C	**Scrap Materials**							
27	HV & LV leg coil complete with paper insulation only.	Kg	50			80		
28	Metal parts for HV & LV Bushing(Rod,nut,bolts etc) connectors etc	Kg	0			0		
29	Old LV phase and neutral copper/ Al flats (LV termination internal)	Kg	4.6			4.6		
30	Silica gel breather	EA	1			1		
31	Core laminations	Kg	0			0		
32	Radiator	Kg	10			10		
33	Conservator tank,EVP,tank top cover and other iron parts	Kg	5			5		
34	Transformer oil	Ltr	84			147		
35	Tapping switch with handle	EA	0			0		
36	Dial type thermometer	EA	0			0		
TOTAL of Scrap Materials (C)								
Total All Inclusive Unit Price, i.e.,								
Material + Transport - Scrap (A+B-C)								

Annexure D – 250 kVA & 315 kVA Transformer Price Breakup

SN.	Item Description	UOM	250 KVA, 11 / 0.4kV 3PH, Cu wound CRGO Type			315 KVA, 11 / 0.4kV 3PH, Cu wound CRGO Type		
A	**New Materials**		**Bill of Material for 1 Trf (Qty) x**	**Unit price with GST y**	**All Inclusive Price per Trf (x*y)**	**Bill of Material for 1 Trf (Qty) x**	**Unit price with GST y**	**All Inclusive Price per Trf (x*y)**
1	HV leg coil complete with paper insulation only.	Kg	130			240		
2	LV leg coil complete with paper insulation only.	Kg	100			150		
3	LV ph/neutral copper/ Al flats (LV termination internal)	Kg	4			5		
4	HV Bushing(11 KV) insulator	EA	3			3		
5	LV Bushing(0.433 KV) Insulator	EA	4			4		
6	Metal parts for HV Bushing(Rod,nut,bolts etc)	EA	3			3		

7	Metal parts for LV Bushing(Rod,nut,bolts etc)	EA	4			4		
8	Set of gaskets	Set	1			1		
9	Silica gel breather	EA	1			1		
10	Oil level gauge	EA	1			1		
11	Tapping switch with handle	EA	1			1		
12	Oil drain/Filter valve	EA	2			2		
13	Pair of Arching Horns	EA	3			3		
14	Fresh Transformer oil as per IS 335	Litre	430			560		
15	Sundry items	Set	1			1		
16	Dial type Thermometer of min.10mm with max.temp. Ind.	EA	0			1		
17	Core laminations	Kg	5			10		
18	LT Connectors(Palm with AL bus bars)	EA	**4**			4		
19	HT Connectors	EA	**3**			3		
20	New Radiator	Kg	15			50		
21	Conservator tank,EVP,tank top cover etc	Kg	7			10		
22	LT Cable Box	EA	1			1		
TOTAL of New material (A)								
B	**Transportation & labor**							
23	Labour charges for repair/reconditioing of transformers	EA	1			1		
24	Painting charges (external & internal)	EA	1			1		
25	Freight & Insu. (From TPSODL Store to Repairer Factory)	EA	1			1		
26	Freight & Insu. (From Repairer Works to TPSODL Store)	EA	1			1		
TOTAL of Transportation & labor (B)								
C	**Scrap Materials**							
27	HV & LV leg coil complete with paper insulation only.	Kg	230			390		
28	Metal parts for HV & LV Bushing(Rod,nut,bolts etc) connectors etc	Kg	4			5		
29	Old LV phase and neutral copper/ Al flats (LV termination internal)	Kg	5.15			5		
30	Silica gel breather	EA	1			1		
31	Core laminations	Kg	5			0		

32	Radiator	Kg	15			50		
33	Conservator tank,EVP,tank top cover and other iron parts	Kg	7			10		
34	Transformer oil	Ltr	301			392		
35	Tapping switch with handle	EA	1			1		
36	Dial type thermometer	EA	0			1		
TOTAL of Scrap Materials (C)								
Total All Inclusive Unit Price, i.e., Material + Transport - Scrap (A+B-C)								

Annexure D – 500 kVA Transformer Price Breakup

S.No.	Item Description	UOM	500 KVA, 11 / 0.4 kV		
			3 Ph CU Cu wound CRGO Type		
A	**New Materials**		**Bill of Material for 1 Trf (Qty) x**	**Unit price with GST y**	**All Inclusive Price per Trf (x*y)**
1	HV leg coil complete with paper insulation only.	Kg	240		
2	LV leg coil complete with paper insulation only.	Kg	150		
3	LV ph/neutral copper/ Al flats (LV termination internal)	Kg	5		
4	HV Bushing(11 KV) insulator	EA	3		
5	LV Bushing(0.433 KV) Insulator	EA	4		
6	Metal parts for HV Bushing(Rod,nut,bolts etc)	EA	3		
7	Metal parts for LV Bushing(Rod,nut,bolts etc)	EA	4		
8	Set of gaskets	Set	1		
9	Silica gel breather	EA	1		
10	Oil level gauge	EA	1		
11	Tapping switch with handle	EA	1		
12	Oil drain/Filter valve	EA	2		
13	Pair of Arching Horns	EA	3		
14	Fresh Transformer oil as per IS 335	Litre	560		
15	Sundry items	Set	1		

16	Dial type Thermometer of min.10mm with max.temp. Ind.	EA	1		
17	Core laminations	Kg	0		
18	LT Connectors(Palm with AL bus bars)	EA	4		
19	HT Connectors	EA	3		
20	New Radiator	Kg	1		
21	Conservator tank,EVP,tank top cover etc	Kg	1		
22	LT Cable Box	EA	1		
TOTAL of New material (A)					
B	**Transportation & labor**				
23	Labour charges for repair/reconditioing of transformers	EA	1		
24	Painting charges (external & internal)	EA	1		
25	Freight & Insurance (From TPSODL Store to Repairer Factory)	EA	1		
26	Freight & Insu. (From Repairer Works to TPSODL Store)	EA	1		
TOTAL of Transportation & labor (B)					
C	**Scrap Materials**				
27	HV & LV leg coil complete with paper insulation only.	Kg	390		
28	Metal parts for HV & LV Bushing(Rod,nut,bolts etc) connectors etc	Kg	5		
29	Old LV phase and neutral copper/ Al flats (LV termination internal)	Kg	5		
30	Silica gel breather	EA	1		
31	Core laminations	Kg	0		
32	Radiator	Kg	1		
33	Conservator tank,EVP,tank top cover and other iron parts	Kg	1		
34	Transformer oil	Ltr	560		
35	Tapping switch with handle	EA	1		
36	Dial type thermometer	EA	0		
TOTAL of Scrap Materials (C)					
Total All Inclusive Unit Price, i.e., Material + Transport - Scrap (A+B-C)					

ANNEXURE II

SCOPE OF WORK AND SERVICE LEVEL AGREEMENT

1.0 SCOPE

This specification covers scope of the work for repair/reconditioning and testing of various three / single phase oil filled, naturally cooled transformers of sizes from 16 KVA to 1000 KVA as per the standards. The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian, International standards and shall conform to the regulations of the local authorities.

2.0 APPLICABLE STANDARDS

IS 5: 2007	Specification for Colors for ready mixed paints and enamels
IS 104: 1979	Specification for ready mixed paint, brushing, zinc chrome, priming
IS 335 : 1993	Specification for New insulating oils
IS 649: 1997	Testing for steel sheets and strips and magnetic circuits.
IS 1576: 1992	Solid Pressboard for Electrical Purposes –Specification
IS 2026:1977 IEC 60076 -2004	Specification for Power Transformers
IS 2099 : 1986	Specification for Bushings for Alternating Voltages Above 1000 Volts
IS 2362:1993	Determination of water content in oil by Karl in oil Fischer Method – Test Method
IS 3401: 1992	Specification of Silica gel
IS 3347(Part I):1979	Dimensions for Porcelain Transformer Bushings for Use in Normal and Lightly Polluted Atmospheres - Part 1 : Up to and including 1 kV
IS 4253: Part II: 1980	Specification for cork composition sheets- Part II : Cork and Rubber
IS 4257(Part I):1981	Dimensions for Clamping Arrangements for Porcelain transformer Bushings - Part I: For 12 kV to 36 kV Bushings
IS 5082:1998	Wrought Aluminum and Aluminum Alloy bars, Rods , Tubes, Sections, Plates and Sheets for Electrical Applications
IS 5561 : 1970	Specification for Electric Power Connectors
IS 6103 : 1971	Specification for Testing of specific resistance of electrical insulating liquids
IS 6262 : 1971	Method of test for power factor and dielectric constant of electrical insulating liquids
IS 6792:1992	Method for Determination of Electric Strength of Insulating Oil
IS 6600:1972	Guide for loading of Oil-immersed transformer
IS 7421: 1988	Specification for porcelain bushings for alternating voltages up to and including 1000kV.
IS 8603 (Part-1) : 1977	Dimensions for Porcelain Transformer Bushings for Use in Heavily Polluted Atmospheres - Part I:12 kV and 17.5 kV Bushings
IS 9335:1979	Specification for Cellulosic Papers for Electrical Purposes
IS 10028: 1981	Code of Practice for Selection, Installation and Maintenance of Transformers
IS 12444: 1988	Specification for continuously cast and rolled electrolytic copper wire rods for electrical conductors
IS 398 : 1996 (Part 1)	Al. stranded conductors
IS 13964: 1994	Methods of measurement of transformer and reactor sound levels
IEC 60156: 1995	Method of determination of electric strength of insulating oils.
IEC 60296: 2003	Specification for unused mineral insulating oils for transformers and switchgear.

IEC 60529: 2001	Degrees of protection provided by enclosures (IP Code)

3.0 CLIMATIC CONDITIONS OF THE INSTALLATION

The service conditions shall be as follows:

1. Maximum altitude above sea level 1,000m
2. Maximum ambient air temperature 50°C
3. Maximum daily average ambient air temperature 35°C
4. Minimum ambient air temperature 0°C
5. Maximum relative humidity 95%
6. Average number of thunderstorm days per annum (isokeraunic level) 70
7. Average number of rainy days per annum 120
8. Average annual rainfall 150cm
9. Earthquakes of an intensity in horizontal direction - equivalent to seismic acceleration of 0.3g
10. Earthquakes of an intensity in vertical direction - equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)
11. Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr. environmentally, some of the regions, where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas. Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere
12. The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1 g.

4.0 GENERAL TECHNICAL REQUIREMENTS-

Sr. No.	DESCRIPTION	REQUIREMENTS										
1	Application	Outdoor										
2	Continuous rated capacity	10 KVA	16 KVA	25 KVA	25 KVA	63 KVA	100 KVA	200 KVA	250 kVA	500 kVA	750 kVA	990/1000 kVA
3	System voltage (max.) KV	12	12	12	12	12	12	12	12	12	12	12
4	Rated voltage HV KV	11	11	11	11	11	11	11	11	11	11	11
5	Rated voltage LV	250	250	250	433 V-250V	433 V-250V	433 V-250V	433 V-250V	433 V-250V	433 V-250V	433 V-250V	433 V-250V
6	Line current HV(Amp)	0.91	1.45	2.27	1.312	3.31	5.25	10.49	13.12	26.24	39.36	51.96
7	Line current LV(Amp)	40	64	100	33.33	84.01	133.34	266.67	333.34	666.69	999.99	1320
8	Frequency	50 Hz+/-5%	50 Hz+/-5%	50 Hz+/-5%	Hz+/-5%	50 Hz+/-5%	50 Hz+/-5%	50 Hz+/-5%	50 Hz+/-5%	50 Hz+/-5%	50 Hz +/-5%	50 Hz +/-5%
9	No. of Phases	Single	Single	Single	Three	Three	Three	Three	Three	Three	Three	Three
10	Connection HV	_	_	_	Delta	Delta	Delta	Delta	Delta	Delta	Delta	Delta
11	Connection LV	_	_	_	Star	Star	Star	Star	Star	Star	Star	Star
12	Vector group	_	_	_	Dyn-11	Dyn-11	Dyn-11	Dyn-11	Dyn-11	Dyn-11	Dyn-11	Dyn-11
13	Type of cooling	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN	ONAN
14	Tap changing arrangement (off load)	NA	NA	NA	NA	NA	NA	NA	+5.0% to – 10% in steps of 2.5%	+5.0% to – 10% in steps of 2.5%	+5.0% to – 10% in steps of 2.5%	+5.0% to – 10% in steps of 2.5%
15	Short circuit impedance voltage at 75°C	4.00%	4.00%	4.00%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%
16	Insulation Class	A										
17	Maximum Flux Density	1.6 Tesla										
18	Voltage fluctuations permissible	+12.5% to -12.5%										

Note- LV side cable box shall be provided on 200 KVA and above DT. However, same may vary as per the original design of the transformer.

All other tender document remains unchanged.

Regards,

Srikanta Kumar Nayak I Asst.Manager (Procurement)
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