



PARADIP PORT TRUST
INVITATION OF BUDGETARY OFFER
FOR

Supply, Installation, testing and Commissioning of 3 nos. of 5 MVA, 33/11KV Indoor Power Transformer and 3 nos. of 1 MVA, 11/0.433 KV Indoor distribution Transformer at different locations of Port Electrical Division of Paradip Port Trust.

SUBMISSION OF BUDGETARY OFFER
ON OR BEFORE Dt-19.07.2018

EXECUTIVE ENGINEER (ELECT.)
PORT ELECTRICAL DIVISION – II,
PARADIP PORT TRUST,
PARADIP, JAGATSINGHPUR,
ODISHA – 754142

Contact No.9777180842

Email Id: rnsahooeppt@gmail.com

REQUEST FOR BUDGETARY OFFER

(A) GENERAL INFORMATIONS:

Sl. No.	Item	Details
1.	Name of Work	Supply, Installation, testing and Commissioning of 3 nos. of 5 MVA, 33/11KV Indoor Power Transformer and 3 nos. of 1 MVA, 11/0.433 KV Indoor distribution Transformer at different locations of Port Electrical Division of Paradip Port Trust.
2.	Department / Organization	ELECTRICAL & MECHANICAL DEPARTMENT / PARADIP PORT TRUST
3.	Executive Division	Port Electrical Division.
4.	Officer Inviting the Offer	Executive Engineer
5.	Immediate Next Authority	Superintending Engineer
6.	Sanctioning Authority	Dy. Chairman, PPT
7.	Executing Authority	Executive Engineer

(B) OTHER INFORMATIONS:

Sl. No.	Item	Date	Time
1	Publication date	29.06.2018	17:00 Hrs.
2.a)	Document download start date	29.06.2018	17:00 Hrs.
b)	Document download end date	19.07.2018	17:00 Hrs.
3.a)	Start date for seeking Clarification on-line	03.07.2018	17:00 Hrs.
b)	Last date for seeking Clarification on-line	08.07.2018	17:00 Hrs.
4.	Date of uploading response to Clarifications sought	10.07.2018	17:00 Hrs.
5.	Offer Submission end date	19.07.2018	17:00 Hrs.
6.	Offer Validity period	120 days	
7.	Currency of Offer	Indian Rupee	
8.	Language of Offer	English	

Budgetary offer for the work “Supply, Installation, testing and Commissioning of 3 nos. of 5 MVA, 33/11KV Indoor Power Transformer and 3 nos. of 1 MVA, 11/0.433 KV Indoor distribution Transformer at different locations of Port Electrical Division of Paradip Port Trust”.

SCOPE OF WORK

1. The works are to be executed in this tender are as follows:
 - a) The Contractor/Manufacturer shall supply, Installation, testing & commissioning of 3Nos. Indoor type, Copper wound, 33/11 Kv, 5 MVA, Dyn11, ONAN Power transformer with On Load Tap Changer (OLTC) and numeric Remote Tap Changing Cubicle (RTCC) with in-built Automatic Voltage Regulator (AVR).
 - b) The Contractor/Manufacturer shall supply, Installation, testing & commissioning of 3nos. Indoor type, Copper wound, 11 /0.433 KV, 1 MVA, Dyn11, ONAN Distribution Transformer with off load tap changer.
 - c) **The Contractor/Manufacturer shall submit a general technical particulars (GTP) for 33/11 Kv, 5 MVA power Transformer & 11 /0.433 KV, 1 MVA distribution Transformer indicating relevant standard in each technical parameter of GTP in their budgetary offer.**
 - d) **The Contractor/Manufacturer shall give in writing with official seal in their budgetary offer that the parameters mentioned in GTP are as per latest Indian standard.**
 - e) **The Manufacturer must have all relevant type test certificate in respect of offered transformers failing which his offer will not be accepted. Also the manufacturer must have valid ISO certificate inclusive of design.**
 - f) **If the contractor is not a manufacturer, then he must submit authorization from the manufacturer.**
2. The Contractor/Manufacturer shall replace the existing defective transformers by new one as per the direction of Engineer-In-Charge. The manpower, machinery like crane, trailer required for executing the replacement work shall be in the scope of contractor .No extra cost shall be paid by PPT.
3. The Contractor/Manufacturer shall supply all manpower, T&P required to execute the work.
4. The Contractor/Manufacturer may make a site visit for proper assessment of work prior to submission of budgetary offer.
5. The Contractor/Manufacturer shall carry out the work in pre-planned manner in co-ordination with EIC for proper shutdown of existing system.

A. POWER TRANSFORMER

The Technical specifications of Copper wound Indoor type 33/11 KV, 5 MVA, Dyn11, ONAN Power transformer with On Load Tap Changer (OLTC) and numeric Remote Tap Changing Cubicle (RTCC) with in-built Automatic Voltage Regulator (AVR) are as follows:-

1	Rated MVA (ONAN rating)	5 MVA with OLTC
2	No. of Phases	3
3	Type of Insulation	Indoor
4	Frequency	50 Hz(\pm 5%)
5	Cooling medium insulating oil	ONAN
6	Type of mounting	On wheels, Mounted on rails
7	Rated voltage	
	a) High voltage winding	33KV
	b) Low voltage winding	11KV
8	Highest continuous system voltage	
	a) Maximum system voltage ratio (HV/LV)	36KV / 12KV
	b) Rated voltage ratio (HV/LV)	33KV / 11KV
9	No. of windings	Two winding Transformers
10	Type of cooling	ONAN
11	MVA Rating corresponding to ONAN cooling system	100%
12	Method of connection	
	HV:	Delta
	LV:	Star
13	Connection symbol	Dyn 11
14	System earthing	Neutral of LV side to be solidly earthed
15	Percentage impedance voltage on normal tap and MVA base at 75°C corresponding to HV/LV rating and applicable tolerance	%Impedance--7.15% Tolerance as per IS:2026
16	Intended regular cyclic overloading of winding	As per IEC-76-1, Clause 4.2
17	a) Anticipated unbalanced loading	Around 10%
	b) Anticipated continuous loading of winding (HV/LV)	110% of rated current
18	a) Type of tap changer	ON-load tap changer
	b) Range of tapping	(-) 15% to (+) 5% in equal steps of 1.25% each on HV winding.
19	Neutral terminal to be brought out	On LV side only
20	Over voltage operating capability and duration	112.5% of rated voltage (continuous)
21	Maximum flux density in any part of core and yoke at rated voltage i.e. 33/11 KV and system frequency of 50	1.5 Tesla

	Hz.	
22	Insulation levels for windings:-	33KV/11KV
	a) 1.2 / 50 micro second wave shape impulse withstand(KVP)	170/75
	b) Power frequency voltage withstand (KVrms)	70/28
23	Type of winding insulation	
	a) HV winding	Uniform
	b) LV winding	Uniform
24	Withstand time for three phase short circuit	2 seconds
25	Noise level at rated voltage and frequency:	As per NEMA publication No-TR-1
26	Permissible temperature rise over ambient temperature of 50°C	
	a) Of top oil measured by thermometer	50°C
	b) Of winding measured by resistance	55°C
27	Minimum clearance in air (mm):-	
	a) HV	Phase to phase-400 Phase to ground-320
	b) LV	Phase to phase-280 Phase to ground-140
28	Terminal (Indoor type)	
	a) HV winding line end 36 KV	Oil filled communicating type porcelain bushings
	b) LV windings 12 KV	Porcelain type of bushing
29	Insulating level of bushing	
	a) Lighting impulse withstand (KVP)	170/75
	b) 1 Minute power frequency withstand voltage (KV rms)	70/28
	c) Creepage distance (mm) (minimum) @ 25mm/KV	900/300
30	Material of HV & LV conductor	Electrolytic copper
31	Maximum current density of HV and LV winding for rated current	2.4 A/mm ²
32	Polarisation index i.e. ratio of megger values at 600 sec. to 60 sec. for HV to earth, LV to earth and HV to LV.	Shall be greater than or equal to 1.5, but less than or equal to 5.
33	Core material	High grade, non-aging cold

		rolled grain oriented (CRGO) Silicon steel laminations conforming to M4 grade with better grade lamination thickness
34	Core assembly	Boltless type
35	Temperature indicator	
	a) Oil	One number
	b) Winding	Two number
36	Maximum permissible no load loss at rated voltage and rated frequency	3.6 KW (+10% tolerance) As per IS:2026
37	Maximum permissible load loss at rated current and at 75°C	21 KW (+10% tolerance) As per IS:2026
38	Overall dimensions:	Wheel-wheel(inside): 1400mm
		Width (across rail) : 4500mm(-10%)
		Depth (along rail) : 4200mm(- 10%)
		Height : 3450mm(-5%)

B. DISTRIBUTION TRANSFORMER:

2.1 The Technical specifications of Copper wound Indoor type, ONAN , 11/0.415kV, 1000kVA Dyn11 Distribution transformer complete with off load tap changer and accessories are as follows.

2.2 GUARANTEED TECHNICAL PARTICULARS OF

1,000 KVA, 11/0.433 KV COPPER WOUND DISTRIBUTION TRANSFORMER

Sl. No.	Description	Unit	Particulars
1.	Type		Indoor Type
2.	Normal continuous rating	KVA	1000
3.	Winding Materials		Copper
4.	Frequency	Hertz	50
5.	Rated Voltage		
	Primary	KV	11
	Secondary	KV	0.433
6.	Connection		
	High Voltage		Delta
	Low V voltage		Star
7.	Vector Group		Dyn11
8.	Tapping on HV side for giving voltage & variation of HV by OFF Circuit Switch		+ 5% to -5% @ 2.5%

9.	Temp. rise of OIL/WINDING by thermometer/resistance method over specified ambient temp. of 50°C at principal tap.	°C	50°C / 55°C IS:2026 (Part-2)
10.	Maximum losses at 50% load at rated voltage & frequency and at 75°C.	KW	As per Star-I category Tolerance as per IS:2026.
11.	Maximum losses at 100% load at rated voltage & frequency and at 75°C.	KW	As per Star-I category Tolerance as per IS:2026..
12.	Impedance at rated current at 75 °C	%	5.0 Tolerance as per IS
13.	Insulation Level (KV peak/KV rms)		
a)	For HV Winding		75 KV peak/28 KV rms
b)	For LV Winding		Not Applicable/3 KV rms
14.	Over Load Capacity of Transformer		As per IS:6600
15.	HV/LV Termination & Orientation		Cable terminal Box
16.	Test Required		Routine Test as per IS:2026/

RELEVANT STANDARDS

The contractor / Manufacturer shall insure that the equipments and materials are fulfilling the latest following standards.

	IS : 5	Colour for ready mixed paints
	IS : 335	New insulating oil for transformers, switch gears
	IS : 1271	Classification of insulating materials for electrical machinery and apparatus in relation to their stability in services
	IS : 2026 (Part I to IV) IS: 1180 (Part-1):2014	Power transformer Distribution Transformer
	IS : 2071	Method of high voltage testing
	IS : 2099	High voltage porcelain bushings
	IS : 2174	Degree of porcelain
	IS : 2705	Current transformer
	IS : 3202	Code of practice for climate proofing of electrical equipment
	IS : 3347	Dimensions for porcelain transformer bushings

	IS : 3637	Gas operated relays
	IS : 3639	Fittings and accessories for power transformers
	IS : 5561	Electric power connectors
	IS : 6600/BS:CP 10:0	Guide for loading of oil immersed transformers
	IEC-76 & IS : 2026	Specify the routine test, type test & special test.
	IS : 10028	Code of practice for selection, installation and maintenance of transformers part I, II and III C.B.I.P Publication, Manual on transformer if the standard is not quoted for any item, it shall be presumed that the latest version of Indian Standard shall be applicable to that item. The equipment complying other internationally accepted standard, may also be considered if they ensure performance superior to the Indian Standards.
	IS :3024	Cold rolled grain oriented electrical steel.
	IS:9335 Series	Kraft paper.
	IS:1576	Press board.

Other Commercial Conditions

1. Payment Terms:

The payment will be made as follows:

- (i) 70 % of the price quoted for the goods in the Bill of Quantity will be paid on supply and delivery of materials at Paradip Port in good conditions and verification & acceptance thereof by the Engineer-In-Charge (EIC) with submission of the following documents:
 - Manufacturer's Warranty Certificate;
 - Inspection certificate issued by the third party,
 - Material dispatch challan.
- (ii) Balance 20% of material cost & 90% of installation and commissioning charges will be paid after successful commissioning & acceptance of work thereof by the Engineer-In-Charge (EIC).
- (iii) Balance 10% of the total contract value shall be retained by PPT towards Performance Security Deposit (PSD). The Performance Security Deposit shall be released after successful completion of the warranty period only. The Contractor may furnish a Bank Guarantee of equal value valid till one month after expiry of the warranty period in which case the balance 10% money will be released for payment.

2. Third Party Inspection (In addition to Cl. # 38 of ITB):

The test / inspection of Power and Distribution transformer must be witnessed & certified by Third Party Agency (RITES / EIL).

Routine test of above mentioned transformers shall be conducted in the firm's works or in the Govt. Laboratory / NABL approved test laboratory **as per relevant IS regulations in presence of Third party Agency**. The firm shall also submit the type test certificate of similar or higher rated Transformer to Third Party Agency for verification. After conducting the routine test & reviewing the type test reports, the Third party Agency shall certify that the Transformer has passed the test and as per approved drawings / GTP and scope of work. The said routine tests are to be witnessed by Third Party Agency, PPT at their discretion may depute their representative to witness the testing.

If the firm will conduct the tests in his works, the testing equipments should be tested and calibrated by Govt. laboratory or NABL accredited test laboratory and should have validity for testing. The fees & other expenditure of the third party inspection shall be to the Contractor's account. Accordingly, the bidder shall submit his offer.

Functional & composite testing of equipments are to be conducted at site in presence of PPT representative during commissioning.

The Inspection shall be carried out by Third party Agency / PPT at two stages of manufacture i.e. (i) inspection during manufacturing and , (ii) final inspection & testing The firm shall keep the purchaser (PPT) informed in advance for inspection during final testing.

3. TRANSFORMER LOSSES (5MVA ,/11 kV Transformers):

The contractor shall ensure that the test value for load loss of transformer shall be guaranteed maximum to 21 KW & 3.6 KW respectively. However (+10%) tolerance will be allowed as per IS-2026 (Part-I to IV) of Power Transformer. If any bidder quotes losses of Load & No-load more than the above allowable guaranteed value, the additional losses shall be taken for evaluation of bid as per the capitalization cost of losses.

For comparing the bid prices, the total cost evaluation of a bid shall be made considering the capitalized cost of losses which shall be calculated at the following rates per one kilo Watt of loss to be added to the bid prices:

- (i) No load loss – Rs.4,42,630/- per kW additional loss
- (ii) Load loss – Rs.2,25,898/- per kW additional loss

If the loss tolerance is more than +15% of the guaranteed value, the bid shall not be taken for evaluation. No Bonus will be given for (-) tolerance.

4. Penalty:-

If during the test, the load loss & no-load losses are found more than their quoted loss, a penalty will be charged on the contractor for additional losses in the double rate i.e.

- (i) Rs. 8,85,260/- per KW for additional No-load loss.
- (ii) Rs. 4,51,796/- per KW for additional load loss.

The fraction of KW shall be treated as one KW.

5. Execution Period:

The execution period of the work shall be 180 days from the date of issue of LOI.

6. Warranty:

The entire work shall warrant for the period of 1 year from the date of completion & acceptance.

Note:

- 1) GST percentage to be mentioned extra against each item.
- 2) Any query in this regard may be raised to the following email id prior to dt. 08.07.2018 (up to 17:00 hrs.) which will be clarified by dt.10.07.2018 (up to 17:00 hrs.) by uploading in the website for facilitating submission of a competitive budgetary offer.
- 3) Budgetary offer shall be submitted to the following address (through email or by Registered post).

Executive Engineer (Elect).

Port Electrical Division-II,

Paradip Port Trust.

Po:- Paradip,

Dist:- Jagatsinghpur

Odisha—754142

Contact No. 97771-80842

Email id: rnsahooeppt@gmail.com

BILL OF QUANTITY

Sub.: Supply, Installation, testing and Commissioning of 3 nos. of 5 MVA, 33/11KV Indoor Power Transformer and 3 nos. of 1 MVA, 11/0.433 KV Indoor distribution Transformer at different locations of Port Electrical Division of Paradip Port Trust.

Sl. No.	Description of Work	Qty.	Unit	Rate (in Rs.)	Amount (in Rs.)	Remarks
1	Supply of Copper wound, Indoor type 33/11 Kv, 5 MVA, Dyn11, ONAN power transformer with On Load Tap Changer (OLTC) and numeric Remote Tap Changing Cubicle (RTCC) with in-built Automatic Voltage Regulator (AVR) as per specifications attached in scope of work.	3	Nos.			
2	Supply of. Copper wound, Indoor type 11 /0.433 KV, 1 MVA, Dyn11, ONAN Transformer with off- load tap changer as per specifications attached in scope of work.	3	Nos.			
3	Installation, Testing and commissioning of Indoor type 33/11 Kv, 5 MVA, Dyn11, and ONAN power transformer with On Load Tap Changer (OLTC) and numeric Remote Tap Changing Cubicle (RTCC) with in-built Automatic Voltage Regulator (AVR).	3	Nos.			
4	Installation, Testing and commissioning of Indoor type 11 /0.433 KV, 1 MVA, Dyn11, ONAN Transformer with off load tap changer.	3	Nos.			
TOTAL:						

Note: GST percentage to be mentioned extra.