

MORMUGAO PORT TRUST
ENGINEERING MECHANICAL DEPARTMENT

Quotation no. CME/XEN/E-HR/H4/06



An ISO 9001 : 2008 Port
ISPS CODE Compliant

LIMITED QUOTATION
FOR “Transformers Testing and Relays Calibration”

Due at 3.30P.Mon03.08.2017

Website:www.mptgoa.com

MORMUGAO PORT TRUST
ENGINEERING MECHANICAL DEPARTMENT

Quotations are invited in single cover system duly super scribed as QUOTATION FOR
“Transformers Testing and Relays Calibration”.

Details about Quotation:

Quotation invited by	CHIEF MECHANICAL ENGINEER, MORMUGAO PORT TRUST
Quotation No.	CME/XEN/E-HR/H4/06
Name of Work	<u>“Transformers Testing and Relays Calibration”</u>
Document Cost	Rs.500/- in the form of DD from Nationalized/Scheduled Banks in favour of the Financial Advisor & Chief Accounts Officer, MPT, payable at Vasco, Goa to be submitted along with the quotation, otherwise the offer <i>shall not be considered.</i> (Quotation Document Fee is not refundable)
Security Deposit	10 % of the contract value.
Completion Period	The work should be completed within 6 weeks from the date of 7 th day of receipt of LOA.
Liquidated Damages	For delay in supply/work Liquidated Damages, equivalent to 1% of the total contract value/per week or part thereof subject to maximum 10% are liable to be deducted from any moneys due or become due to the Contractor
Payment terms	100% payment shall be made within 30 days after satisfactory completion of work on producing invoice complete in all respect. The contractor shall furnish their bank account number PAN card, MICR number Name of the Branch along with Bill for arranging payment made through E.C.S. by the Trust.
Bid Validity	120 Days from the date of opening of the quotation.
Guarantee Period	12 months from the date of completion of the work.
Minimum Eligibility Criteria(MEC)	The contractor should have been accredited by NABL.
Date of Pre-bid meeting	17/07/2017
Date of submission of bids	03/08/2017 till 15:00 Hrs.
Date of Opening of bids	03/08/2017 at 15:30 Hrs
Address for communication and submission of bid:	SE(E-HR) Engineering Mechanical Dept., Mormugao Port Trust, Main Administrative Building, Headland- Sada. Mormugao, Goa – 403804.

Contact Details	Phone :0832-2594215/ 2594579 Email : cme.mgpt@gmail.com , melchior_teles@yahoo.co.in, soaresfreddy@gmail.com
Website	<u>www.mptgoa.com</u>

CHIEF MECHANICAL ENGINEER

TECHNICAL SPECIFICATIONS

1.0. GENERAL

Mormugao Port Trust invites limited Quotations for the work of “**Transformers Testing and Relays Calibration**”.

The Electrical power to Entire Port is received from Electricity Department, Government of Goa at 33 KV Substation A. The power received is then fed to different sub-stations located at different areas viz. Jetty Substation, A.O building Substation and Hospital Substation. The Electrical power is received at 33KV voltage level. The voltage is then stepped down by 5 MVA transformers at 3.3 KV and fed to aforementioned Substations. The Voltage is then stepped down at receiving end at 415 V for use. In order to maintain the safety there are different relays installed for each feeder of the transformers which takes care of downstream level transformers and supply cable also ensuring safety of personnel working in substations.

In order to reduce the damage to electrical equipment's such as transformers and cables and for safety it is necessary that the safety devices are calibrated and tested periodically. Also it is necessary to carry out some of the basic tests on transformers so as to ascertain whether they are working satisfactorily so that prior actions can be taken to eliminate any fault arising in future, thus reducing the chances of power outages at critical operational areas and VIP installations

As such, Port intends to carry out transformer testing and relay calibration for which quotations are solicited from known players in field.

2.0. SCOPE OF WORK:

The work involves carrying out test on transformers and relay calibrations as detailed below:-

a) TEST ON 5 MVA 33KV/3.3KV (Δ/Y) TRANSFORMER

I. Tests on transformer solid Insulation

- Insulation Resistance (IR)
- Polarization Index (PI)
- DC absorption test
- Capacitance & Tan Delta Test
- Leakage current test
- Step up Voltage test.

II. Tests on transformer conductor and OLTC

- DC winding resistance
- Ratio test and phase angle error test
- Floating neutral point measurement

III. Test on Transformer Core

- Excitation Current test (at High voltage)
- Magnetic Current test
- Magnetic Balance test
- Sweep Frequency response analysis(SFRA)

IV. Test on Transformer HV bushings.

- Capacitance and Tan delta test.

V. Test on transformer Oil :(OLTC/top/bottom).

- Interfacial tension
- Neutralization number
- Moisture content
- Flash point
- Sludge
- Dielectric dissipation factor
- Dielectric strength
- Resistivity
- Furan analysis
- Dissolved gas analysis:
 - Methane, ethane, ethylene, acetylene, carbon dioxide, carbon monoxide, Hydrogen, total gas content.

b) Test on 2 MVA 33KV/440 V (Δ/Y), 3.3KV/440V- 630 KVA (Δ/Y) and 3.3 KV/440 V(Δ/Y) -500 KVA Transformer

I. Tests on transformer solid Insulation

- Insulation Resistance (IR)
- Polarization Index (PI)
- DC absorption test
- Capacitance & Tan Delta Test
- Leakage current test
- Step up Voltage test.

II. Test on Transformer Core

- Excitation Current test (at High voltage)
- Magnetic Current test
- Magnetic Balance test
- Sweep Frequency response analysis(SFRA)

III. Test on transformer Oil :(OLTC/top/bottom).

- Interfacial tension
- Neutralization number
- Moisture content
- Flash point
- Sludge
- Dielectric dissipation factor
- Dielectric strength
- Resistivity
- Furan analysis
- Dissolved gas analysis:

- Methane, ethane, ethylene, acetylene, carbon dioxide, carbon monoxide, Hydrogen, total gas content.

c) **Relay Calibration and testing to be carried out on following:**

- Inverse overcurrent relay - Thaisoon Electric India Pvt. ICC type
- Earth Leakage Fault relay-Mysore Electric Instrument Bangalore. IEF type
- Inverse overcurrent relay- Mysore Electric India. ICC type
- Auxiliary Relay- English Electric. VAA capacitor type
- Tripping Relay- English Electric.VA type
- Alstom –MICOM P121 B00F22
- MICOM P111 relay

3.0 TESTING AND CALIBRATION:

- Testing of transformers, relay and relay calibration to be carried out to the satisfaction of the Engineer in charge
- There can be minimum downtime while carrying out the work.However all work should be done as best as possible without any downtime. Detailed schedule of work with dates to be submitted for prior approval of the Port authorities before carrying out the work.
- Any costs towards errors or damages to the existing equipment while carrying out the work will be recovered or made good by the contractor as the case may be

4.0 GENERAL TERMS AND CONDITIONS:

4.1 Validity:

The validity period for the offer shall be 120 days from the date of opening of the quotation.

4.2 Price:

The offered rates shall be inclusive of all taxes and duties. Service Tax shall be paid as applicable.

4.3 Security Deposit:

a. Security deposit:

The DD of 10% of the contract value rounded off to nearest 100 rupees shall be submitted within 10 days of issue of Letter of Acceptance.

- b. The contractor shall furnish the Security Deposit in the form DD from Nationalized in favour of the Financial Advisor & Chief Accounts Officer, MPT, payable at Vasco, Goa within 10 days from the date of issue of Letter of Acceptance(LOA). This Security Deposit shall be converted to Performance Guarantee during the guarantee period and will be returned to the contractor at the end of guarantee period.

4.4 Completion Period:

The entire work shall be completed within 6 weeks from the 7th day of receipt of LOA.

4.5 Guarantee Period:

The Contractor shall offer the guarantee for a period of 12 months from the date of completion of the work and taking over by the Port. Any defect observed during the guarantee period, the same shall be made good by the Contractor, free of cost. However, The Security Deposit shall be converted to Performance Guarantee during the guarantee period.

4.6 Payment Terms:

- i. 100% payment shall be made on within 15 days after satisfactory completion of work on producing invoice complete in all respect.
- ii. The contractor shall furnish their bank account details for the payment through ECS by the Trust. A copy of the PAN card, Service Tax Registration no., EPF& ESI shall be furnished. MICR number Name of the Branch along with Bill for arranging payment made through E.C.S. by the Trust.

4.7 Liquidated Damages:

In the event of failure by the contractor to complete the execution of the work within the time stipulated in the contract or by the expiry of any period of extension granted by the Board's terms thereof, the contractor shall pay the Board as Liquidated Damages for delay to complete the work, a sum of 1% of contract price per week or part thereof subject to a maximum of 10% and the Board shall have the power to deduct this amount from the payment of the amounts due to the contractor or from his deposit.

4.8 Other terms and conditions:

- i. All tools and tackles involved in the work shall be arranged by the Contractor at their own cost.
- ii. Contractor should take Prior approval of dates for execution of works.
- iii. The Bidders can visit the site if they find necessary and get acquainted regarding the nature of the work involved at site conditions before quoting the rate.
- iv. The scope of work and bill of quantities of prices and quantities "ANNEXURE-1" to be read in conjunction to ensure the actual works involved.
- v. Necessary Entry passes either manual or online/RFID shall be obtained by the Contractor well in time at their own cost with the approval of Port Officials.
- vi. The Trust will not be responsible for any loss or damage of the men/materials/ tools/plants engaged by the firm during the work at site or transportation.
- vii. The Contractor shall take utmost care during the execution of the work, if any damage to Port property, the cost of the damage shall be deducted from the Contractor's bill.
- viii. Address for communication and submission of bid: Superintending Engineer (E-HR), Engineering Mechanical Department, Mormugao Port Trust. Administrative Office, Mormugao Goa 403802. Contact no: 0832-2594215, 0832-2594579.
- ix. Further amendments if any, visit our Website www.mptgoa.com

CHIEF MECHANICAL ENGINEER

PRICE SCHEDULE

Sr.no	Test	Unit	Qty.	Unit Rate	Amount
				₹	₹
A	All Test on 5 MVA Transformer as detailed below	Nos	2		
1	Tests on transformer solid Insulation				
2	Tests on transformer conductor and OLTC				
3	Tests on transformer core				
4	Tests on transformer HV Bushings				
5	Tests on Transformer Oil: (OLTC/Top/Bottom)				
				Sub total	
B	All Test on 2 MVA Transformer as detailed below	Nos	1		
6	Tests on transformer solid insulation				
7	Tests on transformer core				
8	Tests on Transformer oil(OLTC/Top/Bottom)				
				Sub total	
C	All Test on 630 KVA Transformer as detailed below	Nos	4		
9	Tests on transformer solid insulation				
10	Tests on transformer core				
11	Tests on Transformer oil(OLTC/Top/Bottom)				
				Sub total	
D	All Test on 500 KVA Transformer as detailed below	Nos	3		
12	Tests on transformer solid insulation				
13	Tests on transformer core				
14	Tests on Transformer oil(OLTC/Top/Bottom)				
				Sub total	
C	Relay calibration and testing				
15	Inverse overcurrent relay - Thaisoon Electric India Pvt. ICC type	Nos	1		

Sr.no	Test	Unit	Qty.	Unit Rate ₹	Amount ₹
16	Earth Leakage Fault relay-Mysore Electric Instrument Bangalore. IEF type	Nos	1		
17	Inverse overcurrent relay- Mysore Electric India. ICC type	Nos	1		
18	Auxiliary Relay- English Electric. VAA capacitor type	Nos	1		
19	Tripping Relay- English Electric.VA type	Nos	1		
20	Alstom –MICOM P121 B00F22	Nos	11		
21	MICOM P111 relay	Nos	2		
				Sub total	
				Grand total	

All taxes will be paid extra as applicable

Location of Transformer and Relay

Sr.no	Description	Location
1	5 MVA Transformer	33 KV Sub-station A
2	2 MVA Transformer	33 KV Sub-station A
3	630 KVA Transformer	02 no at Sub-station A, 01 no at Jetty Substation and 01 no at AO Building Substation.
4	500 KVA Transformer	01 no at jetty Sub-station, 01 No at Hospital and 01 No at AO building.
5	Inverse overcurrent relay - Thaisoon Electric India Pvt. ICC type	01 Hospital
6	Earth Leakage Fault relay-Mysore Electric Instrument Bangalore. IEF type	01 Hospital
7	Inverse overcurrent relay- Mysore Electric India. ICC type	01 No Hospital
8	Auxiliary Relay- English Electric. VAA capacitor type	01 No Substation A
9	Tripping Relay- English Electric.VA type	01 No Substation A
10	Alstom –MICOM P121 B00F22 Relay	11 Nos Substation A
11	MICOM P111 relay	02 Nos Jetty Substation