



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

**BHARAT HEAVY ELECTRICALS LIMITED**

(A Govt. of India Undertaking)

TCN – 13

Ref: PSER:SCT:KLN-M1855:TCN-13

Date: 20-01-2018

Sub	TCN-12
Job	Design, engineering, manufacturing, supply, erection & commissioning, O&M, etc of Compressed Air System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.
Ref	1.0 Tender no PSER:SCT:KLN-M1855:17
	2.0 BHEL's NIT, vide reference no PSER:SCT:KLN-M1855:6104, Dated 03-10-2017
	3.0 BHEL's TCN-01, vide reference PSER:SCT:KLN-M1855:TCN-01, dated 24-10-2017.
	4.0 BHEL's TCN-02, vide reference PSER:SCT:KLN-M1855:TCN-02, dated 10-11-2017.
	5.0 BHEL's TCN-03, vide reference PSER:SCT:KLN-M1855:TCN-03, dated 20-11-2017.
	6.0 BHEL's TCN-04, vide reference PSER:SCT:KLN-M1855:TCN-04, dated 27-11-2017.
	7.0 BHEL's TCN-05, vide reference PSER:SCT:KLN-M1855:TCN-05, dated 05-12-2017.
	8.0 BHEL's TCN-06, vide reference PSER:SCT:KLN-M1855:TCN-06, dated 12-12-2017.
	9.0 BHEL's TCN-07, vide reference PSER:SCT:KLN-M1855:TCN-07, dated 20-12-2017.
	10.0 BHEL's TCN-08, vide reference PSER:SCT:KLN-M1855:TCN-08, dated 22-12-2017.
	11.0 BHEL's TCN-09, vide reference PSER:SCT:KLN-M1855:TCN-09, dated 26-12-2017.
	12.0 BHEL's TCN-10, vide reference PSER:SCT:KLN-M1855:TCN-10, dated 03-01-2018
	13.0 BHEL's TCN-11, vide reference PSER:SCT:KLN-M1855:TCN-11, dated 09-01-2018
	14.0 BHEL's TCN-12, vide reference PSER:SCT:KLN-M1855:TCN-12, dated 15-01-2018
	15.0 All other pertinent issues till date.

With reference to above, following points/ documents, relevant to tender, may please be noted and complied with while submitting offer.

1.0 Clarification to bidder's query as per attached Annexure-A

2.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,  
for BHARAT HEAVY ELECTRICALS LTD

SR ENGR (SCT)

Encl: As above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION, DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : 23211691, 23211798, 23211796

**FORMAT FOR NO DEVIATION CERTIFICATE**  
**(To be submitted in the bidder's letter head)**

BHARAT HEAVY ELECTRICALS LIMITED,  
 Power Sector - Eastern Region,  
 Plot no 9/1, DJ Block, Sector – II, Salt Lake City,  
 Kolkata – 700 091

<b>Sub</b>	No Deviation Certificate.	
<b>Job</b>	Design, engineering, manufacturing, supply, erection & commissioning, O&M, etc. of Compressed Air System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.	
<b>Ref</b>	1.0	Tender no PSER:SCT:KLN-M1855:17
	2.0	BHEL's NIT, vide reference no PSER:SCT:KLN-M1855:6104, Dated 03-10-2017
	3.0	BHEL's TCN-01, vide reference PSER:SCT:KLN-M1855:TCN-01, dated 24-10-2017.
	4.0	BHEL's TCN-02, vide reference PSER:SCT:KLN-M1855:TCN-02, dated 10-11-2017.
	5.0	BHEL's TCN-03, vide reference PSER:SCT:KLN-M1855:TCN-03, dated 20-11-2017.
	6.0	BHEL's TCN-04, vide reference PSER:SCT:KLN-M1855:TCN-04, dated 27-11-2017.
	7.0	BHEL's TCN-05, vide reference PSER:SCT:KLN-M1855:TCN-05, dated 05-12-2017.
	8.0	BHEL's TCN-06, vide reference PSER:SCT:KLN-M1855:TCN-06, dated 12-12-2017.
	9.0	BHEL's TCN-07, vide reference PSER:SCT:KLN-M1855:TCN-07, dated 20-12-2017.
	10.0	BHEL's TCN-08, vide reference PSER:SCT:KLN-M1855:TCN-08, dated 22-12-2017.
	11.0	BHEL's TCN-09, vide reference PSER:SCT:KLN-M1855:TCN-09, dated 26-12-2017.
	12.0	BHEL's TCN-10, vide reference PSER:SCT:KLN-M1855:TCN-10, dated 03-01-2018
	13.0	BHEL's TCN-11, vide reference PSER:SCT:KLN-M1855:TCN-11, dated 09-01-2018
	14.0	BHEL's TCN-12, vide reference PSER:SCT:KLN-M1855:TCN-12, dated 15-01-2018
	15.0	BHEL's TCN-13, vide reference PSER:SCT:KLN-M1855:TCN-13, dated 20-01-2018
	16.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized  
representative of the bidder)

<p>पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)          POWER SECTOR EASTERN REGION DJ-9/1, SECTOR-II, SALTLAKE CITY, KOLKATA - 700 091          फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : 23211691, 23211798, 23211796</p>
--

**ANNEXURE-A TO TCN-13**

Design, engineering, manufacturing, supply, erection & commissioning, O&M, etc of Compressed Air System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.

Tender no PSER:SCT:KLN-M1855:17

SPECIFICATION NO. PE-TS-STD-555-A001-SECTION I

Spec. Cl. No.	Description of Tender requirement	Bidder Query	BHEL Reply dated 18.01.2018	Bidder Confirmation
<b>1. SCOPE OF SUPPLY AND SERVICES:</b>				
1.1.13	The Bidder shall provide Vibration monitoring system for all the air compressors (if required). Vibration monitoring system for HT motors shall be in BHEL scope	Vibration system is applicable for HT motor only. For Motor as per Spec shall be under BHEL scope	Not acceptable. Bidder to comply specification requirements complying mentioned at cl. no. 1.1.13 (SECTION I, page nos 8 OF 533. ) of technical specifications. Specific constraints will be discussed during detailed engg.	
<b>9 ADDITIONAL POINTS TO BE NOTED BY BIDDER</b>				
9.4	Bidder to note that RTD/BTD of HT motor of air compressor shall be terminated to temperature scanner (one for each compressor to be provided by bidder) mounted on compressor itself. Signals of RTD/BTD shall be communicated to micro-processor based compressor panel through this temperature scanner (by bidder). Interlocks and protection for RTD/BTD of compressor motor has to be provided from compressor panel itself (By bidder). Cable schedule and inter connection diagram required for transmitting the signals of RTD/BTD through microprocessor to DDCMIS has to be furnished by successful bidder during detailed engineering. Tentative GA drawing of motor is attached for bidder's estimation.	As per Elgi OEM standard Motor RTD and BTD shall be interfaced with compressor controller directly not to a temperature scanner. Sales to take deviation	Bidder to comply specification requirements. Bidder proposal of interfacing RTD/BTD with compressor controller will be discussed during detailed engineering and will be a subject to customer acceptance. Bidder to note and confirm.	
9.5	Control and Instrumentation – Individual compressor control shall be through compressor mounted microprocessor based control panel. Each compressor shall be interfaced with DCS through gateway / convertor for start, stop, load and unload from common control room (CCR) including giving input for developing software at DCS (by BHEL EDN) and hardware link for status monitoring, start/stop, load/unload from CCR	Noted but from DCS only Remote Start/Stop and Remote Unload is possible. All compressor parameters shall be monitored in DCS through soft link .	Bidder to comply requirements of the technical specifications. Control philosophy will be finalised during detailed engg., where in specific constraints/standard practices can be decided and it is a subject of customer approval.	
9.6	All the instruments as required for performance testing shall be arranged by bidder. Instrument for testing shall be calibrated from government certified labs by bidder. Bidder to ensure validity of such reports before conducting the performance tests.	For instruments inside the skid No TC or calibration reports will be provided . Shall comply only for FIELD INSTRUMENTS .	Bidder to comply specification requirements. Any specific constraints will be discussed during detailed engineering while taking approval of air compressor documents.	
<b>SECTION IA (GENERAL TECHNICAL SPECIFICATION)</b>				
	Pag No:30 to 178	This is general spec for plant in which is not applicable to Elgi and Compressor	Bidder reply not acceptable. Bidder to furnish its compliance.	
	B0.6.18.7	Motor Not in ELGI scope.	It is already excluded. Please refer Cl.No.10.4 at Sec-I, page 7 of 7 of specification.	
	Instrumentation and control (Page No:186 of 533)	Inside the compressor skid Elgi shall provide Non smart PT and TT as per OEM standrd and Shall be interfced with compressor controller for process.	Bidder to comply specification requirements. Any specific constraints will be discussed during detailed engineering while taking approval of air compressor documents.	
	<b>Local Instrument and control (Page:187 of 533)</b>	Control a) Local/Remote Selection of compressor is through Function keys on HMI only - Sales to take deviation b) On/Off is through Function keys on HMI <b>Indication Signal and Monitoring</b> a) Line voltage Indicator: NA b) FZ: NA c) O/P current NA f) Na as the motor starter /VCB in Customer Scope	Bidder to follow the technical specification. The control philosophy shall be in line with the customer approved document to be submitted by the successful bidder during the detail engineering stage.	
	B0.6.18.12	Kindly confirm the route length of cable and cable tray.	Please note Air compressor building Layout drawings and Operating floor (location of common control room) are annexed with the specifications. Bidder to estimate route length based on distances from drawings attached as above. These drawings may undergo some changes during detailed engg. No implication will be admissible on account of such changes.	
	B0.6.18.12.2	Kindly confirm the route length of cable and cable tray.		
	B0.6.18.12.2	Kindly confirm the route length of cable and cable tray.		

**ANNEXURE-A TO TCN-13**

Design, engineering, manufacturing, supply, erection & commissioning, O&M, etc of Compressed Air System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.

Tender no PSER:SCT:KLN-M1855:17

SPECIFICATION NO. PE-TS-STD-555-A001-SECTION I

Spec. Cl. No.	Description of Tender requirement	Bidder Query	BHEL Reply dated 18.01.2018	Bidder Confirmation
	B0.6.18.14	Not In Elgi scope	It is already excluded. Please refer Cl.No.10.4 at Sec-I,page 7 of 7 of specification.	
	B0.6.18.15	Compressor LCP is not a stand alone type it is an integral part of ccompressor skid .Hence the same will be as per OEM standard	Bidder is required to customise the panel requirements as per specification.Specific details of LCP will be discussed with customer during detailed engineering	
	B0.6.19.2	Elgi Offers Micro PLC based Compressor controller . Which is pre programmed at factory and the same is Propretory of Elgi .Hence NO software backup or programming tolles will be provided .	Bidder is required to customise the panel requirements as per specification.Specific details of LCP will be discussed with customer during detailed engineering	
	B0.6.19.5	Kindly confirm the route length of the cable and location of JB.	Please note Air compressor building Layout drawings and Operating floor (location of common control room) are annexed with the specifications. Bidder to estimate route length based on distances from drawings attached as above. These drawings may undergo some changes during detailed engg, No implication will be admissible on account of such changes.	
	B0.6.19.6	Not In Elgi scope	Bidder to comply specification requirements.Any specific applicability of general spec. requirements will be discussed during detailed engineering while taking approval of air compressor documents.	
	B0.6.19.6	Provision to connect 1 No of UPS supply shall be considered in Elch Compressor LCP. UPS , DB and Change over shall be under customer scope	Bidder to comply specification requirements.Any specific applicability of general spec. requirements will be discussed during detailed engineering while taking approval of air compressor documents.	
	B0.6.19.8	All transmitter used inside the compresor skid will be Non smart type as per OEM standrd . Elgi shall comply spec for Field instruments only .	Bidder to comply specification requirements.Any specific applicability of general spec. requirements will be discussed during detailed engineering while taking approval of air compressor documents.	
	B0.6.19.9	All transmitter used inside the compresor skid will be Non smart type as per OEM standrd . Elgi shall comply spec for Field instruments only .	Bidder to follow the technical specification. Specific constraints w.r.t. transmitters employed within compresor skid shall be dicussed during detailed engineering.	
	B0.6.19.10	No gauges applicable Inside the compresor skid . For dryer the Gauges will be as per Oem manufacturing standrd	Bidder to follow the technical specification. Specific constraints w.r.t. measuring instruments employed within compresor skid shall be dicussed during detailed engineering.	
	B0.6.19.12	level Gauge Not applicable	Bidder to comply specification requirements.Any specific applicability of general spec. requirements will be discussed during detailed engineering while taking approval of air compressor documents.	
	B0.6.19.14	Not applicable on LCP of compressor .	Bidder to comply specification requirements.Any specific applicability of general spec. requirements will be discussed during detailed engineering while taking approval of air compressor documents.	

**ANNEXURE-A TO TCN-13**

Design, engineering, manufacturing, supply, erection & commissioning, O&M, etc of Compressed Air System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.

Tender no PSER:SCT:KLN-M1855:17

**SPECIFICATION NO. PE-TS-STD-555-A001-SECTION I**

Spec. Cl. No.	Description of Tender requirement	Bidder Query	BHEL Reply dated 18.01.2018	Bidder Confirmation
B0.6.19.15		Inside the compressor skid Elgi shall be as per Oem standard . Shall comply customer for Field instruments if any	Bidder to follow the technical specification. Specific constraints w.r.t. measuring instruments employed within compressor skid shall be dicussed during detailed engineering.	
B0.6.19.17		Inside the compressor skid Elgi shall be as per Oem standard . Shall comply customer for Field instruments if any	Bidder to follow the technical specification. Specific constraints w.r.t. measuring instruments employed within compressor skid shall be dicussed during detailed engineering.	
B0.6.19.18		Inside the compressor skid all control power and instrument cable as per Oem standard . Shall comply customer spec for field instruments	Bidder to follow the technical specification. Specific constraints w.r.t.control power and instrument cable employed within compressor skid shall be dicussed during detailed engineering.	
B0.6.19.19		NA for instruments inside the skid . All PT and TT shall be directly mounted on its respective pipes	Bidder to comply specification requirements.Any specific applicability of general spec. requirements will be discussed during detailed engineering while taking approval of air compressor documents.	
<b>ANNEXURE - I(SUB- VENDOR LIST)</b>				
	Subvendor list and inspection categorisation	Inside the skid all instrument list and accessories shall be a per Oem standrd only	Bidder to follow the technical specification. Sub vendor list shall be subject to customer approval during detailed engineering by successful bidder by duly coverering specific constraints, if any.	
	Junction Box	Since the Qty is very less . Elgi shall offer Rittal Make standrd JB as applicable	Sub vendor list shall be subject to customer approval during detailed engineering by successful bidder by duly coverering specific constraints, if any.	
<b>ANNEXURE - II MDL WITH SUBMISSION SCHEDULE</b>				
<b>LIST OF DELIVERABLES (C&amp;I) FOR COMPRESSED AIR SYSTEM</b>				
	CONTROL SCHEME/LOGIC DIAGRAM (TO BE IMPLEMENTED IN DDCMIS)	NA - shall provide only Control philosophy . Customer to develop the logic further	Bidder to follow the technical specification. All necessary inputs are required to be provided to BHEL to enable interface of compressors with DDCMIS.	
	DRIVE LIST/SOLENOID/ACTUATOR VALVE LIST WITH LOCATION DATA	Not applicable	Bidder to follow the technical specification. All necessary inputs are required to be provided to BHEL to enable interface of compressors with DDCMIS.	
	ANNUNCIATION & SOE LIST	NA	Bidder to follow the technical specification. All necessary inputs are required to be provided to BHEL to enable interface of compressors with DDCMIS.	
<b>ANNEXURE - VIII (APPROVED DESIGN MEMORANDUM OF CAS)</b>				
<b>7. OPERATION, CONTROL &amp; INSTRUMENTATION</b>				

**ANNEXURE-A TO TCN-13**

Design, engineering, manufacturing, supply, erection & commissioning, O&M, etc of Compressed Air System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.

Tender no PSER:SCT:KLN-M1855:17

**SPECIFICATION NO. PE-TS-STD-555-A001-SECTION I**

Spec. Cl. No.	Description of Tender requirement	Bidder Query	BHEL Reply dated 18.01.2018	Bidder Confirmation
	Individual compressor control shall be through microprocessor based control system as per OEM standard. Soft link connectivity shall be provided in between Microprocessor panels and DCS for monitoring critical parameters in DCS. Additionally hardwired connectivity shall be provided for Start / Stop of Compressors remotely from DCS.	Noted . Elgi offered Compressor controller shall have Modbus TCP/IP as standard protocol to interface with DCS . Below List of Signals shall be Extended as maximum 1.Compressor Run FB 2.Compressor General Warning 3.Compressor General Trip 4.Compressor Ready 5.Compressor In Remote Mode 6.Remote Start/Stop	Bidder to follow the technical specification. Specific constraints, if any, will be discussed with customer during detailed engg. while taking approval.	
	7.4-In case of failure of working compressor, standby compressor shall come into operation automatically.	Na this has to be programmed in Customer DCS	Not acceptable. Bidder to comply specification requirements and employ the required logics in sequential/local controller.	
	7.6 In order to clock more or less equal number of running hours for each Instrument Air Compressor and Service air compressor, an OEM standard microprocessor based panel shall be provided in addition of microprocessor based panel integrated to compressor. Due to this feature, the compressor which had clocked set number of running hours shall be stopped and the standby compressor shall come into operation. This feature will help in equal running of working and standby compressors and also equal wear & tear of each machine. The duration of time is adjustable at site from the panel	To comply this spec . Elgi need to provide a CCP panel . In this case all Hard wirted signal from compressor will be interface to CCP and CCP will be interface to DCS	Bidder to follow the technical specification by cnisidering all necessary infra logics.	
	7.8 Being HV motors, vibration sensor shall be provided for vibration monitoring of compressor motor.	Same shall be under Customer scope	It is already excluded. Please refer Cl.No.10.4 at Sec-I,page 7 of 7 of specification.	
SECTION-IB SPECIFIC TECHNICAL REQUIREMENT - ELECTRICAL				
ELECTRICAL SCOPE BETWEEN BHEL AND VENDOR				
	Junction box for control & instrumentation cable	JB shall be provided for terminating Field instrumentation cable . Rest all cables shall be directly connected to LCP and CCP	Sub vendor list shall be subject to customer approval during detailed engineering by successful bidder by duly coverering specific constraints, if any.	
	Any special type of cable like compensating, co-axial, prefab, MICC, etc	BHEL to provide Cable distance b/w Compressor House to DCS	Please note Air compressor building Layout drawings and Operating floor (location of common control room) are annexed with the specifications. Bidder to estimate route length based on distances from drawings attached as above. These drawings may undergo some changes during detailed engg. No implication will be admissible on account of such changes.	
SECTION -C SPECIFIC TECHNICAL REQUIREMENT				

**ANNEXURE-A TO TCN-13**

**Design, engineering, manufacturing, supply, erection & commissioning, O&M, etc of Compressed Air System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.**

**Tender no PSER:SCT:KLN-M1855:17**

**SPECIFICATION NO. PE-TS-STD-555-A001-SECTION I**

Spec. Cl. No.	Description of Tender requirement	Bidder Query	BHEL Reply dated 18.01.2018	Bidder Confirmation
	Integrated redundant microprocessor based control system along with suitable operator interface shall be provided for each Instrument Air Compressor, Service Air Compressor & their Dryers. All PT, DPT, TE, and other instruments inside & outside the compressor skid shall also be hooked-up to this system. Critical signals exchange among the compressors shall be hardwired. Further critical signals through redundant soft link (MODBUS) between combox (integrating the soft communication among various compressors) to DCS (DCS in BHEL scope) shall be monitored. Protocol MODBUS for connectivity to DCS shall be applicable. In addition to the soft link, provision for hardwired START, STOP and LOAD & UNLOAD commands from DCS to all the compressors & their status feedbacks to DCS shall also be provided. Bidder to furnish the configuration diagram of control system of compressor showing communication with DCS along with the bid. Bidder to furnish signal exchange list between DCS and compressed air system in BHEL format attached elsewhere	Inside the compressor and dryer skid the Microprocessor based controller shall not be redundant by any means. As standard Elgi Shall provide Modbus TCP/IP as standard soft link interface provision	Bidder to follow the technical specification. Specific constraints w.r.t. redundancy and other aspects will be discussed during detailed engineering, while taking approval of control philosophy of air compressors.	
	The scope of C&I cable shall be referred in Electrical scope split sheet in Electrical portion of the specification. FO Cable from Combox to DCS for softlink shall be in BHEL scope	Elgi shall offer a TCP/IP to FO converter. Same will be placed inside the compressor house. As per Spec Scope of FO cable will be under BHEL scope	Bidder to follow the technical specification.	
	5. Compressors operation and bearing temperature / vibration monitoring in main DCS shall be through redundant bus serial link interface between Compressor control system and DCS.	NA - redundancy cannot be complied by any means for the offered system	Bidder to follow the technical specification. Specific constraints w.r.t. redundancy and other aspects will be discussed during detailed engineering, while taking approval of control philosophy of air compressors.	
	7. All transmitters shall be smart type and shall have 4-20mA DC signal with superimposed digital communication (HART). Each Temperature element shall be complemented with temperature transmitters, compensating cable, JB/rack & other erection hardware. All transmitters shall be fitted with a local analog/digital indicator displaying appropriate physical units which may be read clearly from an easily accessible position	Inside the skid all instrument will be non smart as per OEM standard. Shall comply Smart for field instruments.	Bidder to comply specification requirements. Any specific constraints will be discussed during detailed engineering while taking approval of air compressor documents.	
	8. Instruments must have separate tapping lines. Sharing of the same tapping pipe for redundant instruments or various different instruments is not acceptable.	NA	Bidder to follow the technical specification. Specific constraints w.r.t. instruments will be discussed during detailed engineering, while taking approval of control philosophy of air compressors.	
	10. As a general rule, measuring points and measuring equipment for critical protection shall be separate from and not combined with measuring equipment for the automatic control equipment	NA - Inside the compressor skid will be as per OEM standard.	Bidder to follow the technical specification. Specific constraints w.r.t. instruments will be discussed during detailed engineering, while taking approval of control philosophy of air compressors.	
	14. The solenoid operated valves shall have limit switches for open/close feedback	NA for SV inside the skid. Shall comply for field instruments	Bidder to follow the technical specification. Specific constraints will be discussed during detailed engineering, while taking approval of control philosophy of air compressors.	
	17. 230V 1Ø AC UPS supply shall be provided by BHEL at a single point, further distribution to various instruments/equipments of the CAS shall be in Bidder's scope. Bidder to include the necessary power distribution board in his scope. Any power supply other than the above, if required for any instrument/equipment has to be derived from the above supply & all the necessary hardware for the same shall be in Bidder's scope.	Noted shall provide a UPS DB. However from UPS DB to individual compressor and dryer single supply will be provided. In UPS DB the switching will be of control contactor based.	Bidder to follow the technical specification. Specific constraints will be discussed during detailed engineering, while taking approval of control philosophy of air compressors.	
	20. Bidder to note that all the transmitters/instruments supplied by Bidder shall be rack mounted. The racks shall be preassembled and provided by Bidder. Also no instruments / analyzers & JB's/Racks should be protruding on the walkway.	Na for instruments inside the skid.	Bidder to follow the technical specification. Specific constraints w.r.t. instruments will be discussed during detailed engineering, while taking approval of control philosophy of air compressors.	

**ANNEXURE-A TO TCN-13**

Design, engineering, manufacturing, supply, erection & commissioning, O&M, etc of Compressed Air System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.

Tender no PSER:SCT:KLN-M1855:17

SPECIFICATION NO. PE-TS-STD-555-A001-SECTION I

Spec. Cl. No.	Description of Tender requirement	Bidder Query	BHEL Reply dated 18.01.2018	Bidder Confirmation
	23. Redundancy of sensors shall be provided by bidder as per following: (i) Triple redundancy for all analog and binary inputs required for protection of system /drives. (ii) For all other control functions & alarms dual redundancy of the sensors shall be provided by the bidder.	NA	Bidder to follow the technical specification. Specific constraints w.r.t. redundancy and other aspects will be discussed during detailed engineering, while taking approval of control philosophy of air compressors.	
	24. Bidder to perform tests of C&I items/instruments/systems as per quality plans/type test attached in the specification	Na for instruments inside the skid shall confirm for Field instruments	Bidder to follow the technical specification. Specific constraints w.r.t. instruments will be discussed during detailed engineering, while taking approval of control philosophy of air compressors.	
	29. Typical hardwired scheme is provided in section D. Same shall be used by bidder for deciding signal interface between Microprocessor panel & MCC/SWGR/DCS/Solenoid valve/Actuator/Field instruments etc.	Shall be as per Oem standard .	Bidder to follow the technical specification. All necessary inputs are required to be provided to BHEL to enable interface of compressors with DDCMIS.	
	30. Vibration monitoring system is envisaged for compressed air system which is in BHEL scope. However, mounting of vibration sensors/probe, bidder to provide vibration pad for mounting of sensors and a notch/slot for mounting of key phasor.	Vibration system is applicable for HT motor only .For Motor as per Spec shall be under BHEL scope	Not acceptable. Bidder to comply specification requirements complying mentioned at cl. no. 1.1.13 (SECTION -I, page nos 8 OF 533. ) of technical specifications. Specific constraints, if any, will be discussed during detailed engg. with customer while seeking approval of control philosophy.	
	34. The identification and numbering of equipment, systems, items, etc. of supply, as well as of all documents and drawings shall be in accordance with the VGB guideline RDS-PP (Reference Designation System for Power Plants - KKS system).	Shall comply for Field instruments . Inside the skid NO KKS will be followed	BHEL noted bidder reply. Please note that this issue will be finalised during detailed engineering while taking approval of compressor documents.	
	Hardwired interface philosophy			
	Annexure-1: hard wired interface/w compressor ,dcs,htswgr	Elgi noted and confirm ,except the RTD and BTM signals which will be directly interfaced with compressor controller and Remote mode selection possible only through HMI . TO DCS details of Temperature will be shared through Soft link only	Bidder to comply specification requirements. Bidder proposal of interfacing RTD/BTD with compressor controller will be discussed during detailed engineering and will be a subject to customer acceptance. Bidder to note and confirm.	
	page 381 of 533 STANDARD QUALITY PLAN FOR LOCAL CONTROL PANEL	No separate QAP shall be followed for LCP of compressor and Dryer . Single QAP shall be followed for entire compressor	Bidder to comply specification requirements. Specific issues wrt QAP approval will be taken up during detailed engineering.	
	APPLICABLE CABLE TYPES	Inside the compressor and dryer skid all cables used will be copper and will be as per OEM standard . As per Scope matrix No cable in Elgi scope except the communication cable	Scope shall be driven as per contract specification.	
	SIGNAL EXCHANGE LIST	Shall be provided during DDE	BHEL noted bidder reply.	