



BHARAT HEAVY ELECTRICALS LIMITED

PROJECT ENGINEERING MANAGEMENT

PROJECT : 2x490 MW NTPC DADRI Stage-II-FGD SYSTEM
PACKAGE : COMPRESSED AIR SYSTEM
TENDER ENQUIRY NO.: PE/PG/NTP/E-5913/2018 Dt. 18.04.2018

DATE: - 25.05.2018

Corrigendum-04

In reference to the above mentioned tender enquiry for **COMPRESSED AIR SYSTEM** package please note the following.

Reply of pre-bid queries as below.

All the other terms and conditions of the tender enquiry remain unchanged. All the bidders are requested to quote accordingly.

VINIT KUMAR VERMA
(DY.MGR/BOP Ordering/BHEL-PEM)

Pre Bid Clarification

SI No	Page No	Clause No	Specifications	bidder Clarification Deviation/Clarification	BHEL REPLY
1	33	11.1.9	Compressor and air dryer shall be designed for cooling water (passivated DM water) with inlet temp of thermal 38 deg C (max.) & mechanical 60 deg C with terminal pressure 7.0kg/sqcm (g) and the max temp of hot water from compressor shall be 6 deg. C higher cooling water inlet temp.	Compressor shall be designed for cooling water (passivated DM water) with inlet temp of thermal 36 deg C (max.) & mechanical 60 deg C with terminal pressure 4.5 kg/sqcm (g) and the max temp of hot water from compressor shall be 8 deg. C higher cooling water inlet temp.	Bidder to comply specification requirement.
2			Further the temperature of the air at the outlet of after cooler shall be limited to 7 deg.C above cooling water inlet temperature	Further the temperature of the air at the outlet of after cooler shall be limited to 10 deg.C above cooling water inlet temperature	Bidder to comply specification requirement.
3	33	11.1.11	Only KKS tagging shall be used in all document/drawings and in the field for all items/equipment/signals etc. No other tagging method is acceptable. The successful bidder shall provide detailed drawing with KKS only.	KKS is applicable for field instruments only. KKS tagging nos does not applicable for instruments within compressor and dryer skids.	Noted. However same shall be subjected to NTPC during detail engineering.
4	35	2.3	Two (2) nos air receiver (one each for each compressor) of 10 cu.m capacity located near the compressor house building.	Receiver capacity to be clarified. As per clause no 1.1.4 (Page No 28) capacity of air receiver is 2m3.	Receiver cap. shall be 02 M3 as per page 43 of 328.
5	37	3.3	The quantity and capacity of air receivers shall be as specified in clause no. 2.3 above.	Receiver capacity to be clarified. As per clause no 1.1.4 (Page No 28) capacity of air receiver is 2m3.	Receiver cap. shall be 02 M3 as per page 43 of 328.
6	39	9	SURFACE PREPARATION AND GALVANIZING	shall be excluded from our scope of supply.	Bidder to comply specification requirement.
7	40		MATERIAL OF CONSTRUCTION FOR CARBON STEEL TRAPS/ STRAINER	Our requirement will be very less. Hence, we will supply as per our regulat supply. Normally we use forbes marshall make auto drain traps	Bidder to comply specification requirement.
8	39	13.1	TDS & QAP of Trap and Strainer	being small qty, shall be excluded. And to be considered as CAT-III item	Noted. However same shall be subjected to NTPC during detail engineering.
9	43	3.00.00.C	Two number Air Receiver each of capacity 2 m3 (normal) at the discharge of each Air compressor.	Receiver capacity to be clarified. As per clause no 1.1.4 (Page No 28) capacity of air receiver is 2m3.	Receiver cap. shall be 02 M3 as per page 43 of 328.
10	43	3.00.00.g	Monorail with Chain pulley block of minimum 2 tons or 125% of heaviest parts of equipment to be lifted whichever is more.	shall be excluded from our scope of supply.	Refer Exclusions at page 29 of 328.
11	43	3.00.00.k	Any additional items required to make the system complete.	Please specify	Bidder to comply specification requirement.
12	43	4.00.00.i	All associated Civil & structural work for air conditioning and Ventilation system and compressed air system.	shall be excluded from our scope of supply.	Refer Exclusions at page 29 of 328.
13	43	4.00.00.iv	All steel / cast iron inserts, plates, bolts, nuts, sleeves, metallic-fasteners etc.to be grouted in concrete work and used to hold/ support the equipment/piping / ducting being supplied and erected under this specifications.	shall be excluded from our scope of supply.	Bidder to comply specification requirement.
14	43	4.00.00.v	Any additional items required to make the system complete.	shall be excluded from our scope of supply.	Bidder to comply specification requirement.
15	47	2.02.00	DESIGN AND CONSTRUCTION	Design shall be as per our manufacturing standards.	Noted. However same shall be subjected to NTPC during detail engineering.
16	48	4.02.00	Outlet temperature of air from intercooler shall be suitable to suit the equipment and outlet temperature of air from the compressor house outlet header shall be limited to 45 deg.C.= However, the instruments or the pneumatic devices requires air temperature less than 45 deg.C., the same shall be achieved at the outlet header.	Compressed air outlet temp shall be Cooling water + 10 Deg C.	Bidder to comply specification requirement.
17	47	4.10.00	Cooler shells, channels and covers shall be of carbon steel (SA 285 Gr C / SA 516 Gr 70 / equivalent).Tube sheet shall be of Brass or SS and the tubes shall be of Admiralty brass or Aluminium brass or Copper or SS 304.	MOC of cooler with in compressor skid shall be as per our manufacturing standards.	Bidder to comply specification requirement.
18	49	5.02.00	Air receivers are to be provided with gasketted inspection manhole of minimum 500 mm diameter with cover plate, lifting handle, davit cap etc.	It is not possible to provide manhole of minimum 500mm diameter in case of capacity of air receiver is 2m3.	Same shall be discussed & finalised during detail engineering.
19	49	6.03.00	The filters shall be designed for an efficiency of not less than 99% for particles 2 microns and larger.	The filters shall be designed for an efficiency of not less than 99% for particles 10 microns and larger.	Bidder to comply specification requirement.
20	51	9.01.07	Lube oil pressure and temperature in the oil circuit of compressor shall be automatically controlled.	We do not have this option in our package.	Same shall be discussed during detail engineering & subjected to NTPC approval.
21	52	9.02.05	The alarms and shutdown scheme mentioned below are suggestive and shall be provided as per manufacturer's standard practice meeting the safe operational requirement of the equipment/system each compressor:-	This is as per our manufacturing standards.	Same shall be discussed during detail engineering & subjected to NTPC approval.

22	54	1.11.00	Depending upon the size and system pressure, joints in compressed air pipe work shall be screwed or flanged. The flange shall be welded with the parent pipe at shop and shall be hot dip galvanized before dispatch to site. Alternatively, the flanges on GI pipes may be screwed on flanges also	Request you to allow site welding for interconnecting piping.	Bidder to comply specification requirement.
23	56	2.03.03	All materials shall be new and procured directly from the manufacturers. Materials procured from traders or stockists are not acceptable.	Our quantity will be very less of does not meet the minimum order quantity for some instruments, pipes and pipe fittings, MS plates etc. Hence request you to allow for purchase from authorised stockists.	Same shall be discussed during detail engineering & subjected to NTPC approval.
24	56	2.03.05 & 2.03.09	3. ii) Compressed air (Instrument & service air) ASTM A-53 type E Gr. B galvanized/ IS 1239 Gr heavy galvanized/IS 3589 Gr 410 galvanized. Galvanized shall be to IS- 4736 or equivalent.	3. ii) Compressed air (Instrument & service air) ASTM A-53 type E Gr. B galvanized/ IS 1239 Gr heavy galvanized/IS 3589 Gr 410 / Fe 330 galvanized. Galvanized shall be to IS- 4736 or equivalent.	Bidder to comply specification requirement.
25	57	2.03.07	Pipes of above 150mm Nb shall be to AWWA-C200/ANSI B 36.10/ASTM A-53/IS 3589 Gr.410.	Pipes of above 150mm Nb shall be to AWWA-C200/ANSI B 36.10/ASTM A-53/IS 3589 Gr.410 / Fe 330	Bidder to comply specification requirement.
26	59	2.07.01	However, for pipes up to 150 NB, pipe fittings may be supplied with material and dimension conforming to IS 1239 in case parent pipes also conform to IS 1239.	Request for an approval of ASTM A234 WPB for pipe fittings with minimum pipe thickness.	Bidder to comply specification requirement.
27	117	1.01.00.a	All pressure parts shall be hydraulically tested at not less than 150% of design pressure prior to painting and lining, if applicable. The test pressure will be maintained for 30 minutes	This is not possible. We do not have facilities. Worst case, we can do hydro test for intercooler housing.	Bidder to comply specification requirement.
28	117	1.01.00.e	Rotor shall be statically and dynamically balanced	We can give the reports only.	Bidder to comply specification requirement.
29	118	1.02.00.e	Dew point measurement shall be done.	We can measure dew point at site after installation & Commissioning of air dryer. Dew point can be measured after four to five cycles of dryer operation.	Same shall be discussed during detail engineering & subjected to NTPC approval.
30	188	8.00.00.4	Range -90 Deg.C to 10 Deg.C Dew Point Temperature	Range shall be -80 Deg.C to 20 Deg.C Dew Point Temperature	Bidder to comply specification requirement.
31	189		Instrument Stub Details	Will be discussed during detailed engineering.	Bidder to comply specification requirement.
32	195		Instrument Check list	Our quantity will be very less. Hence we will supply as CAT-III category.	Same shall be discussed during detail engineering & subjected to NTPC approval.
33	222		KKS PHILOSOPHY	Can be complied for field instruments only. KKS tagging philosophy shall be excluded for instruments within Compressor and dryer skid	Same shall be discussed during detail engineering & subjected to NTPC approval.
34	229	3.1	Velocity of air in piping is limited to 6 to 9 Meters / Second	As per clause 1.03.00.b, compressed air velocity is 15Meters/Second. Which is correct.	Page 53 of 328 to be referred.
35	230	4	OIL FREE MULTISTAGE SCREW TYPE COMPRESSORS	Compressor design shall be as per bidder Standards,	Same shall be discussed during detail engineering & subjected to NTPC approval.
36	238	6.1.1.V	to provide gasketed manhole of minimum 500mm diameter	This capacity of air receiver is 2m3. The diameter of will be very less (less than 1000 mm diameter). Hence it is not advisable for manhole of minimum 500mm diameter.	Same shall be discussed during detail engineering & subjected to NTPC approval.
37	238	6.1.4	MOC air receiver.	As per clause 5.06.00, MOC is IS2062. Please confirm MOC of air receivers.	Page 49 of 328 to be referred.
38	239	7.4.6	Minimum three step depressurisation	This is not applicable for HOC type air dryers	Noted.
39	239	7.4.9	All vessels to include manholes / Handholes	This capacity of air dryer is less(690CFM). The diameter of adsorber vessel will be very less (less than 1000 mm diameter). Hence it is not advisable for manhole. We will provide two nos inspection windows per tower	Same shall be discussed during detail engineering & subjected to NTPC approval.
40	240	7.6.2 7.6.6	MOC of Regeneration cooler	MOC shall be SA285GR C/ SA516 GR 70 / A106 Gr B	Page 50 of 328 to be referred.
41	240 - 241	8.1 to 8.7	Various Points	Need to follow NTPC specifications	NTPC portion of specification to be referred priority wise.

Bid Clarification

CLAUSE	PAGE NO	BHEL SPEC	Bidder Query	BHEL REPLR DT. 25.05.18
	29 of 328	4. SUB-VENDOR ITEMS The make of Sub-vendor items shall be generally as per enclosed sub vendor list, which is subject to customer approval during detail engineering.	Inside the compressor and dryer skid will be as per OEM manufacturing standard	Noted. However the makes within Compressor & Dryer skid shall be inline with previously executed NTPC projects.
	33 of 328	11.1.6 Grouting of equipment's, like Air receiver, Air dryer & foundation bolts etc. are in the scope of the bidder	Ok. Grouting is acceptable upto 50mm thick. If it is more, we will take the handing over of foundations for instillation.	Bidder to comply specification requirement.
SECTION: C2				
CUSTOMER SPECIFICATIONS				
4.00.00-General		All associated Civil & structural work for air conditioning and Ventilation system and compressed air system.	Shall be excluded from our scope	Pl. refer Specification clause no.: 3. EXCLUSIONS, page 29 of 328 for the scope of Civil work.
		iii. One (1) set Special tools and tackles required for maintenance of all the Mechanical, Electrical and C & I equipment under the scope of bidder	No Special tools applicable	Bidder to comply specification requirement.
		All steel / cast iron inserts, plates, bolts, nuts, sleeves, metallic-fasteners etc. to be grouted in concrete work and used to hold/ support the equipment/piping / ducting being supplied and erected under this specifications	Shall be excluded from our scope	Bidder to comply specification requirement.
9.00.00-CONTROL PHILOSOPHY		Any of the compressor and Air drying Plant may be selectable for "shutdown", "working" or "standby" duty. On tripping of working equipment, the standby equipment shall come into operation automatically in case of very low air pressure in the system.	Same to be programmed in Cutomer DCS .	Bidder to comply specification requirement.
9.01.04		All abnormal conditions used for tripping the compressor or any other equipment shall be provided with pre-trip audio-visual indication/annunciation in the control panel	All alarms and trip related to compressor and dryer will be displayed on HMI of controller. No audio indiation possible	Same shall be discussed during detail engineering & subjected to NTPC approval.
9.01.06		The following indications shall be made available in the control panels for repeating the same in main plant Control System / Panels. (a) Status of each compressor (b) Instrument air pressure low/high (c) Service air pressure low/high (d) Dew point of instrument air (e) Status of each ADP	a) Confirm b) NA - Sames to be programmed in DCS c) NA- Sames to be programmed in DCS d) Confirm e) Confirm	Bidder to comply specification requirement.
		The alarms and shutdown scheme mentioned below are suggestive and shall be provided as per manufacturer's standard practice meeting the safe operational requirement of the equipment/system each compressor:- (a) "Air temperature high" at inlet to last stage Alarm & trip (b) "Low lube oil pressure" Alarm & trip (c) "High Lube oil supply temperature" Alarm & trip (d) "High oil filter differential pressure" Alarm (e) "Low lube oil level in lube oil sump" Alarm (f) "High inlet air filter differential pressure" Alarm & trip (g) "Low cooling water flow to air compressor" Alarm	a) Air them at HP element Inlet shall be complied b) Confirm c) Confirm d) Shall comly as NSD e) NA f) Shall comply as NSD g) Water Flow switch shall be comlied	Bidder to comply specification requirement.
Detailed Engineering Document	76 of 328	xiii) Power Supply Single Line diagram ,Block Logics,Control scheme Etc xiv) Protection system diagram and relay setting xvii) Cable Routing plan xviii) Logic diagrama nd control scheme xix) Alarms and annunciation xx) Sequencing and protection interlock xxiv) Detailed flow chart for digital controlsystem xxvi) civil structure work drawing xxvii) Underground Facility	xiii)- Shall submitted wiring diagram for compressor and dryer- Block Logics,Control scheme not applicable xvii) Cable Routing plan -- Shall be under customer scope xviii) Logic diagrama nd control scheme- NA xix) Alarms and annunciation - Shall be a part of compressor write up /controlphilosophy xx) Sequencing and protection interlock--NA xxiv) Detailed flow chart for digital controlsystem-- NA xxvi) civil structure work drawing --NA xxvii)- NA	xiii) Noted. xvii) Same shall be as per Electrical scope matrix. Refer page 143 of 328. xviii) Noted. xix) Noted. xx) Noted. xxiv) Noted. xxvi) Noted. xxvii) Noted.
22.24..00	97 OF 328	Environmental stress screening 2) Burn in test	Shall be excluded from our scope 2) Not applicable for compressor package	Bidder to comply specification requirement.
25.12.00		Demonstration of application Engineer 1) Logic /Loop ii) Hmi function	Not applicable for CAS package - Compresor with LCP will be performance tested at bidder factory. No sperate LOOP or logic test will be performed .	Bidder to comply specification requirement.
32.01.00		Electical Equipments/Enclosure	Kindly note LCP of compressor and dryer is not a stand alone type it is a part of compressor skid and will be as per OEM manufacturing standard	Bidder to comply specification requirement.
33.00.00		Instrumentation and control	Inside the compressor skid all Electrical and instrumentation will be as per OEM manufacturing standard .	Noted. However same shall be subjected to NTPC approval during detail engineering.
SECTION: C2.D QUALITY ASSURANCE				
	116 of 328	QUALITY ASSURANCE	Being very small quantities, please consider in CAT-III code. We will submit the test certificates for all instruments.	Bidder to comply specification requirement.
SECTION: C 3 TECHNICAL SPECIFICATION (ELECTRICAL PORTION)				
EQUIPMENT & SERVICES TO BE PROVIDED BY BIDDER	140 of 328	Bidder to furnish list of makes for each equipment at contract stage, which shall be subject to customer/BHEL approval without any commercial and delivery implications to BHEL. Vendor to clearly indicate equipment locations and local routing lengths in their cable listing furnished to BHEL.	Inside the skid all electical accessories will be as per OEM manufacaturing standard . Kindly note No cable in bidder scope as per Electrical scope matrix except Communication cable . Hence routing of the same shall be under BHEL /Customer scope only . forr for the special cable length b/w compressor room to DDCMIS required.	Noted. However the makes within Compressor & Dryer skid shall be inline with previously executed NTPC projects. Bidder to comply specification requirement.
7.06.00	150/328	Noise level for all the motors shall be limited to 85dB (A)	Shall be as per I2065	Noted.
7.12.00	151/328	All motors shall be so designed that maximum inrush currents and locked rotor and pullout torque developed by them at extreme voltage and frequency variations do not endanger the motor and driven equipment	Will be as per IS12615(2011)	Noted.

10.03.00	154/328	All acceptance and routine tests as per the specification and relevant standards shall be carried out. Charges for these shall be deemed to be included in the equipment price	Routine Test witness shall be completed with additional price implication	Bidder to comply specification requirement.
10.04.00	154/328	The type test reports once approved for any projects shall be treated as reference. For subsequent projects of NTPC, an endorsement sheet will be furnished by the	Type Test witness shall be completed with additional price implication	Bidder to comply specification requirement.
GENERAL TECHNICAL REQUIREMENTS FOR LV MOTORS SPECIFICATION NO.: PE-SS-999-506-E101 Rev 00		Motors shall be continuously rated at the design ambient temperature specified in Data Sheet-A and other site conditions specified under Project Information Motor ratings shall have at least a 15% margin over the continuous maximum demand of the driven equipment, under entire operating range including voltage & frequency variation specified above	Please clarify in clause no. 4.00.00 RATING the margin required is specified as 10%.	The power rating of the driver shall be selected such that a minimum margin of 10% is available over the power required to deliver rated capacity against rated pressure.
4.7.1	162/328	Unless otherwise stated in Data Sheet-A, motors of rating 110 kW and above will be controlled by circuit breaker and below 110 kW by switch fuse-contactor. The terminal box of motors shall be designed for the fault current mentioned in data sheet "A".	Noted in that case bidder shall provide Starter less compresosr . ACB motor feeder shall be under BHEL scope	Specification requirement is clear. Bidder to comply specification requirement.
4.7.2	162/328	unless otherwise specified or approved, phase terminal boxes of horizontal motors shall be positioned on the left hand side of the motor when viewed from the non-driving end	Kindly note offered motor shall be skid mounted hence the TB positioning shall be as per OEM manuaftcturing stanard only	Within compressor skid TB position is acceptable as per OEM standard.
3.01.00	167/328	Cable trays, Fittings & Accessories	shall comply 50 and 100MM cable tray	Specification requirement is clear. Bidder to comply specification requirement.
SECTION: C 4 TECHNICAL SPECIFICATION (C&I PORTION)				
2	177/328	Integrated 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 FGD DCS (FGD DCS in BHEL scope) shall be monitored. Protocol MODBUS for connectivity to FGD DCS shall be applicable. In addition to the soft link, provision for hardwired START, STOP and LOAD & UNLOAD commands, Dew point measurement from FGD DCS to all the compressors & their status feedbacks to FGD DCS shall also be provided. Bidder to furnish the configuration diagram of control system of compressor showing communication with FGD DCS along with the bid. Bidder to furnish signal exchange list between FGD DCS and compressed air system in BHEL format attached elsewhere	Inside the compressor and dryer skid redundancy cannot be complied by any means As standard bidder shall provided Midbus TCP/IP or modbus RTU (Non redundant) to DCS .	Bidder to comply the specification. Any specific constraint shall be discussed with end customer during detailed engineering.
6	177/328	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.	Kindly note inside the compressor and dryer skid all instruments provided will be non samart as per OEM manuaftcturing standard . shall comply smart for Field instruments only	Bidder to comply the specification. Any specific constraint shall be discussed with end customer during detailed engineering.
9	177/328	The junction boxes for termination of instruments /actuator limit switches/solenoid valve limit switches etc. are in bidder's scope	bidder shall consider standard Rittal JB for Field instrumetns Cable trmination inside the compressor House	Bidder to follow cl no: 30 of specific technical requirement from C&I regarding make of instruments/JB.
10	177/328	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 in this case bidder shall provided UPS DB simsrtp to NTPC GADARWARA project.However there shall be a single incoming UPS feeder on compresosr and dryer	UPS PD scheme shall be decided during detailed engineering.
12	178/328	Power supply derived for Transmitters, contact interrogation, interposing relay and solenoid shall generally be ungrounded 24V D.C only. In all cases redundancy in power modules shall be considered	Power supply for instruments inside the skid will be non redundant . Kindly note Field instruments will be terminated to Field JB . Loop power shall be under BHEL scope	Bidder to comply the specification. Any specific constraint shall be discussed with end customer during detailed engineering.
13	178/328	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 & JBs/Racks should be protruding on the walkway.	NA - ALL instruments will be direct pipe mounted .	Noted.
15	178/328	Bidder to provide erection hardware including junction boxes, canopies, structural steel as required	Canopy not aplicable as the same is indoor application	Noted.
16	178/328	Integral to equipment which are not indicated in the tender drawings, but are required to control, monitoring and operation of the equipment/plant system for which no P&IDs are enclosed, all the instruments shall be provided to meet the actual system requirements and meeting redundancy and other requirements under technical specifications subject to Employer's approval.	Redundance cannot be complied .	Bidder to comply the specification. Any specific constraint shall be discussed with end customer during detailed engineering.
18	178/328	Temperature elements, electronic transmitters etc. are to be provided for all the cases. Use of process actuated switches is acceptable only in the cases as indicated in the tender drawings.	Inside the compresosr skid will be as per OEM standard .	Bidder to comply the specification. Any specific constraint shall be discussed with end customer during detailed engineering.
19	178/328	Single input DIN rail mounting type temp transmitters (mounted in JBs) shall be provided by the Contractor for all temperature elements under Contractor's scope	NA shall be direct pipe monuted	Noted.
25	179/328	Bidder to perform tests of C&I items/instruments/systems as per quality plans/type test attached in the specification	NA- There will not be any specific test on C&I of compresor . Compressor as a whole will be performance tested as per Compressor QAP .	Bidder to follow the specification.
28	179/328	The make/model of various instruments/items/systems shall be subject to approval of owner/purchaser during detailed engineering stage. No commercial implication in this regard shall be acceptable. In case of any conflict and repetition of clauses in the specification, the more stringent requirements among them are to be complied with. In case of any contradiction most stringent clause/condition shall prevail	NA - Inside the skid will be as per OEM manuaftcturing stanard .	Bidder to comply the specification. Any specific constraint shall be discussed with end customer during detailed engineering.

31	180/328	Instrument installation and accessories required shall be in Bidder's scope. Vendor submitted 'Instrument Installation Diagram' shall be subject to customer approval during detail engineering without any commercial and time implication. For instruments for which Installation Diagram is not attached, vendor's Installation Diagram for such items will also be subject to customer approval during detail engineering without any commercial and delivery implication.	Shall comply for Field instruments only .	Bidder to comply the specification. Any specific constraint shall be discussed with end customer during detailed engineering.
JB/RACKS SPECIFICATION		Material & thickness - Fiberglass Reinforced Polyester (FRP) of 4 mm (minimum thickness. Terminal blocks - Rail mounted cage-clamp type suitable for conductor size upto 2.5 mm ² . Other requirements - Earthing stud, Weather & dust proof IP-65, Suitable for mounting on walls, columns, structures, brackets, bolts, nuts, screws, glands required for erection shall be of SS.	NA - bidder shall provide Standard Rittal JB of IP65 with 2.5 Sqmm TB as the spec is not complied by any vendor for 2 nos of Qty .	Bidder to follow the specification.
KKS PHILOSOPHY		For identifying (tagging) an instrument / equipment in Power plant KKS numbering scheme is used. The purpose is to assign a unique number to every equipment in the power plant. For C&I equipment unique number are to be provided up to the signal level so that a unique number Input / Output exist in DCS for every signal	KKS tag will be complied only for instruments out side the compresor and dryer skid . Inside the skid will be as per OEM manufacturing standard	Noted.
9.6.1	241	Pressure Indicator and Vacuum Gauge	Kindly note No Gauges applicable inside the compresors	Bidder to follow the specification.
9.6.2	242	Pressure switch	Inside the compresor and dryer skid all instruments will be as per OEM manufacturing standard only . Sales to take deviation . PS shall be provide for Blow OFF and 1st satge outlet temp . Rest all will be Non smart PT and TT	Bidder to follow the specification.
9.6.4	242	Temp -Switch	Inside the compresor and dryer skid all instruments will be as per OEM manufacturing standard only . Sales to take deviation . PS shall be provide for Blow OFF and TS for 1st satge outlet temp . Rest all will be Non smart PT and TT	Bidder to follow the specification.
ANNEXURE-I LIST OF MAKES OF SUB-VENDOR ITEMS	243	1) Air receiver 2) Safety Valve 3) DP Switch 4) Transmitter 5) Flow switch 6) Cable Tray 7) Junction Box	1) Additional vendor M/s Summits is required. 3) As applicable inside the skid will be as per OEM manufacturing standard 4) Inside the skid will be as per OEM manufacturing standard 5) Inside the skid will be as per OEM manufacturing standard 6) Shall comply Coimbatore based make such as Geetanjali Engineering as the Qty is very less . 7) bidder shall provide Standard Rittal JB with IP65 only as the Qty is very less	Bidder to comply the specification. Any specific constraint shall be discussed with end customer during detailed engineering.
ANNEXURE-III PAINTING & COLOUR SCHEME	260	Painting scheme for compresor and dryer and accessories	We will comply for air receiver only.	Bidder to comply the specification. Any specific constraint shall be discussed with end customer during detailed engineering.
ANNEXURE-VIII MASTER DRAWING LIST WITH SCHEDULE OF SUBMISSION	276	1) TDS OF INSTRUMENTS FOR FGD COMPRESSED AIR SYSTEM	1) Shall comply only for field instruments	Bidder to comply the specification. Any specific constraint shall be discussed with end customer during detailed engineering.