

## Section 7. Technical Specifications

The Goods and Related Services shall comply with following Technical Specifications:

Sl. No	Description	Technical Specification and Standards	Quantity of Units Required
01	<p><b>Supply, Installation, Testing and Commissioning of (Turn Key Basis) Instrument Air Compressor.</b></p> <p>Instrument Air Compressor set will be installed to supply compressed air to existing receiver tank and maintain the required air pressure in the receiver tank. It will be "Turn Key Basis" contract. It has to be incorporated in the existing header.</p>	<p><b>Technical Specification of the Instrument Air Compressor Set:</b></p> <ol style="list-style-type: none"> <li>1. Type: Oil free, no water injected, fixed speed, 2 stage rotary screw compressor.</li> <li>2. Operating Pressure: <math>\geq 9.3</math> barg</li> <li>3. Air flow capacity (FAD): <math>\geq 9.4</math> m<sup>3</sup>/min at operating pressure <math>\geq 9.3</math> barg</li> <li>4. Ambient Temperature= 0°C to 40°C</li> <li>5. Air Quality: 99.9% eff. at 3 micron &amp; above</li> <li>6. Rotor Material: Stainless Steel/ Cast Iron Alloy/ Forged Steel with high performance &amp; corrosion resistant coating</li> <li>7. Air Discharge flange connections: 2 inch, Class ANSI #150, Facing: SORF (Slip On Raised Face), Material: F304L</li> <li>8. Cooling water supply &amp; return flange connections: 1-1/4 inch, Class ANSI #150, Facing: SORF (Slip On Raised Face), Material: F304L. Cooling water inlet &amp; outlet valves (1-1/4 inch) are in Supplier scope.</li> <li>9. Cooling water supply pressure: 3 barg</li> <li>10. Air Discharge line gate valve (Size: 2 inch, Class ANSI #150, Body: F304L, Stem: 316, Disc &amp; seat: HF, API 602, 230 psi@100°F) is in Supplier scope.</li> <li>11. Air Compressor Brand: Gardner Denver (CompAir)/ KOBELCO/ Atlas Copco/ Ingersoll Rand/ Hitachi</li> <li>12. Country of Origin &amp; Country of Manufacture: EU/G7</li> <li>13. Other specifications: As per international standard.</li> </ol> <p><b>Electrical &amp; Instrumentation Control requirements:</b></p> <ol style="list-style-type: none"> <li>01. Installation, Testing, Commissioning and On-site Training must be provided by expert from Manufacturer or Manufacturer</li> </ol>	2 sets

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		<p>Authorized Representative regarding Controller, Instrumentation and Electrical Equipment.</p> <p>02. Control System (PLC) and HMI brand must be Siemens, Allen Bradley, Elektronikon Mk5 (Atlas Copco), BanglaCat XE Series Controller or Delcos XL.</p> <p>03. Control System (PLC) detail specification with drawing must be provided with tender documents which must be compatible with our existing DCS (Existing Drawing is attached). Total number of I/O and their functions must be matched with existing system. I&amp;C and DCS expert from manufacturer/ manufacturer authorized representative is encouraged to visit the site for ensuring the compatibility between compressor and DCS.</p> <p>04. HMI must be user friendly and detail of every operation and components must be well written and provided by hard copy.</p> <p>05. Software for main program and HMI program must be provided via CD/Pen-Drive with license keys (minimum 25 years validation).</p> <p>06. All the program backup (both main and HMI) must be provided via CD/Pen Drive. Also Function diagram and logic diagram must be included in soft copy and hard copy drawing.</p> <p>07. All level of password for accessing HMI and Controller must be provided in written format. Program /software license validation period must be at least 25 years.</p> <p>08. Proper On-site training on upload / download the program (both main and HMI) must be provided by an expert.</p> <p>09. Different data must be stored for analysis. Data Storage capacity must be at least meet the existing capacity.</p> <p>10. Proper drawing and detailing of disassembly procedure of heavy parts i.e. motor must be provided.</p> <p>11. All instrument i.e. pressure measuring, temperature measuring, solenoid coil, magnetic contactor etc. must be high</p>	

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Sl. No	Description	Technical Specification and Standards	Quantity of Units Required
		<p>quality and preferable brand Siemens, Wise, Huba or equivalent.</p> <p>12. Cable management (both new and existing) must be performed by contractor which must be well organized.</p> <p>13. Two years of mandatory spare parts including HMI (Programmed and plug &amp; play), I/O Card, CPU (Programmed and plug &amp; play) must be provided.</p> <p>14. All the panels must be well sealed as it is outdoor type. Panel IP certification must be mentioned.</p> <p>15. Any calibration of equipment or modification of set points must be performed by the Supplier on site by an expert.</p> <p>16. Country of Origin (Made in) of Control system, HMI, all Instrument must be G7/EU.</p> <p>17. VFD/ Inverter is not allowed.</p> <p>18. Detail bill of material with catalogue and part no. for every item must be submitted by hard copy and soft copy.</p> <p>19. System supply volt must be 440 Volt AC three phase.</p> <p>20. Power rating must be not more than 80 KW.</p> <p>21. Must have reliable protection system for motor and other electrical parts. Detail specification, type test certificate and drawing must be provided with tender documents.</p> <p><b>The following items have to be provided by the Supplier:</b></p> <ol style="list-style-type: none"> <li>1. Minimum 3 days O&amp;M training has to be provided by supplier at APSCL site.</li> <li>2. Minimum 6 (Six) copies of Original Erection Manual and O&amp;M Manual as well as softcopy has to be provided by supplier. The O&amp;M manual must include the clear cross-sectional drawing, proper assembly-disassembly procedure, troubleshooting procedure etc. of the air compressor set.</li> <li>3. The supplied equipment will be installed in the existing foundation and space. If any modification in existing foundation is need that must be done by the Supplier.</li> </ol>	

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		<p>4. The supplied equipment must match with the existing system.</p> <p>5. All types of civil works like foundation, storm resistant fence &amp; shed for supplied equipment etc. must be provided by supplier. Existing compressor set removal is in Supplier's scope.</p> <p>6. All types of necessary accessories parts (intercooler, aftercooler, lube oil system, motor, HMI &amp; necessary electrical panel etc.) will be in Supplier's scope.</p> <p>7. 5 set of All types of filter (i.e, Suction Air filter-5 set, Lube oil filter-5 set etc.), All Coupling Buffer-5 set each, Auto drain vavle-5 set, Discharge nonreturn valve-5 set, Pressure relief valve- 5 set, Oil Breather- 5 set will be provided by Supplier as spare parts along with the compressor set which are beyond the warranty spare parts.</p> <p><b>Others:</b></p> <p>01. Equipment which does not meet the requirements will not be certified.</p> <p>02. Quality will be certified after successful operation in the field.</p> <p>03. Before submitting the tender, site visit is encouraged.</p> <p>04. At site, if any modification of the existing system is required that must be done by the Supplier.</p>	


