Annexure-II

Technical Specification of Industrial Gases Pipelines

1. This specification covers supply at site, fabrication, erection, testing, flushing, cleaning, corrosion protection, earthing, painting and commissioning of Industrial gases pipelines i.e. (i) Oxygen gas pipelines (ii) Co2 gas pipelines & (iii) DA gas pipelines including safety fittings and other features on Turn Key Basis in Carriage Repair Shop, Heavy Repair Shop and Light Repair Shop of Harnaut Rail Karkhana.

2.0 Description of Work:
2.1 The gas pipeline would generally run over head position throughout inside shops at height stipulated normally along the structure / column and shall be clamped on support bracket to be fixed on the column / beam girder etc. Out side shop, the pipe lines shall be clamped on bracket carried on support structure without infringing any equipment / structure suitable for wind and other loads. The support structure should be fabricated from standard steel section conforming to IS:226 latest version.

2.2 Main lines for all three gas pipelines shall be of MS seamless pipes of 40 mm NB with 3.2 mm wall thickness confirming to IS :1239 (Pt-I)-2004 and of reputed make.

All pipelines shall be connected at the corners by suitable elbow joints and pipe bends and sufficient expansion loop and bends shall also be provided.

2.3 Drop lines for all three gas pipelines shall be of MS seamless pipes of 25 mm NB with 3.2 mm wall thickness confirming to IS : 1239)Pt-I) – 2004 and of reputed make and terminated at a height of 1.5 M from the floor level and clamped rigidly using required fittings.

2.4 The welding / brazing for joining pipelines shall be done as per relevant IS standards.

2.5 The standard pressure gauges shall be provided at beginning and end of each main lines for all three gases which should be fitted at height from floor level for easy visibility of readings.
2.6 The system shall be fitted with all safeguard and safety feature stipulated by statutory board and other regulations enforce from time to time such as Indian explosive acts and Indian factory act etc and shall be executed as per relevant Indian Standards.

2.7 All the pipelines shall be cleaned with nitrogen gas / suitable other gases for leak testing of pipelines.

2.8 Painting – All pipes shall be de-greased, cleaned inside and outside including welded portion and painted as per the specification IS : 2379 latest version.

2.9 There shall be total 90 Nos. down take points, 50 in carriage repair shop, 20 each in heavy repair shop & light repair shop.

3. This drawing is for tender purpose only and is indicative of the nature and extent or work covered in this specification and shall from the basis of further engineering. The successful tenderer shall, however, prepare additional drawings and Bill of Quantities, as required to facilitate fabrication of fittings, supports etc.

4. The successful tenderer shall carry out erection, testing, flushing, cleaning and commissioning of all pipe works from the Gas supply sources.

5. The tenderer shall also include for supply and erection of earthing for pipe work as and when requires.

6. This tenderer shall obtain approval of all work covered in his scope from relevant statutory authorities such as Factory Inspectorate, Electrical Inspectorate, Chief Controller of Explosives and others. He shall prepare necessary drawings, designs and explanations for obtaining such approvals and shall also include fees for such approvals.

7. Co-ordination with other suppliers where needed.
8. The components of all equipment shall be designed, manufactured, assembled and tested in accordance with the latest revisions of relevant standards published by the Bureau of Indian Standard and the relevant Interplant Standards for Steel Industries (IPSS) wherever applicable so that specific aspects under Indian conditions are taken care of. Where suitable India Standards are not available, other International Standards such as BS, ASTM, ANSI, ASME, DIN, may be adopted with the prior approval of the purchaser.

9. Pressure Testing:

The working pressure for the pipelines vis (i) Oxygen gas pipelines gas – 8 Kg/cm2, (ii) Co2 gas pipelines – 4 Kg / cm2 and DA gas pipelines – 0.65 Kg/cm2. All the gas pipeline should be tested for leakage and pressure drop at least two times the working pressure. Soap solution or other suitable shall be applied all welded joints, flange fittings / valves etc. to find out any leak. Further each pipelines will be charged with the respective gas and will be kept in the system for 24 hours to find out any pressure drop. The contractor should make on his arrangement for requisite equipment / gadgets to conduct the testing. The whole system along with installation should be certified by the contractor for the satisfactory working to the EPI and/or EPI’s Client.