



**Council of Scientific and Industrial Research
NATIONAL AEROSPACE LABORATORIES**

Amendment / Addendum to our Tender No.: NAL/PUR/MSD/590/19-Y

Required number of Ball valves:

In Annexure: Page No (2), Section 2 - Technical Specification for Ball Valves:

The Ball Valve ¼" OD of **8** in numbers for high pressure and anti-corrosive material for hazardous gas shall read as

The Ball Valve ¼" OD of **6** in numbers for high pressure and anti-corrosive material for hazardous gas

Technical Specification for Needle Valves, Oxy Cleaned:

- a) The needle valve ¼" OD of 2 in number for Oxygen Gas line
- b) Valve manufacturer should have ISO 9001 certification and as well as product approvals from TUV, ASME, BSI, DNV, Lloyds Registrar of Shipping & PED.
- c) Every check valve should be factory tested for crack and reseal performance with a liquid leak detector. Every valve is tested to ensure it seals within 5 seconds at the appropriate reseal pressure.
- d) Manufacturer should be able to supply Check valves with specially cleaned and packed to ensure compliance with product cleanliness requirements stated in ASTM G93 Level C for oxygen service.
- e) Design pressure should be at least twice the working pressure & Burst pressure may be almost four times the working pressure of the Check valves.
- f) Manufacturer should be able to provide multiple options for packing materials, O-ring maintenance kits and Handle kits

Pressure ratings of Regulators and Valves
Regulators

SI NO	Regulator	Inlet Pressure range (Bar)	Outlet Pressure range (Bar)	Valve capacity
1	H2 (Primary)	248	0 to 17.2	0.06
2	N2 ,Ar (Primary)	248	0 to 17.2	0.06
3	O2 (Primary)	206	0 to 6.8	0.06
4	H2-(POU/Secondary)	206	0 to 3.4	0.06
5	O2-(POU/Secondary)	206	0 to 3.4	0.06
6	N2,Ar-(POU/Secondary)	34.4	0 to 3.4	0.06

Ball Valves

Orifice size	Pressure rating
0.187 Inches	200 Bar or higher

Check Valves

SI No	Working Pressure	Cracking Pressure
1	Higher than primary regulator inlet pressure	0.03 Bar
2	Higher than primary regulator inlet pressure	0.07 Bar (For Oxygen, Oxy cleaned)

Relief valve

Set Pressure 3.5 Bar

Needle valve

Valve capacity	Orifice size	Working Pressure
0.37	0.172 Inches	Working pressure Higher than primary regulator inlet pressure

Tubing

SI no	Tube	Wall Thickness
1	THT-3R60-6.35-0.89 (Sandvik)	0.035 Inches
2	THT-3R60-6.35-0.89-CQ (Sandvik)	0.035 Inches

