

	 HSCC					LINE ITEM No. 2
	PG - III Department					
	PROJECT: Medical Oxygen Pine Line Construction at LRSI, New Delhi					
	Name of Work: Bill of Quantity of Medical Oxygen Pine Line Construction, LRSI, New Delhi					
Sl. No.	Description of Item	Unit	Qty.	Rate in Rs. (in figures)	Rate in Rs. (in words)	Amount in Rs. (in figures)
1	2	3	4	5	6	
I	PIPING					
A	DISTRIBUTION PIPING (INDIGENOUS)					
1. 00	Copper Pipe - 22.0 mm x 0.9 mm for supply of Medical Oxygen Gas	running metre	300			
	Planning, Designing, Detailing, Supplying, Erection, Testing and Commissioning of Copper Pipe for supply of Medical Oxygen Gas for use in MDR Lab. The pipe requires to be drawn from existing Manifold Plant room to the outlets present at MDR Lab. & works etc required to complete the package, getting approval from HSCC/client etc.					
	a) The copper pipes shall be drawn, tempered, seamless, phosphorus deoxidized, nonarsenic and degreased for oxygen services conforming to BS EN 1057: 1996. The pipes should be accompanied with manufacturers test certificate for the physical properties & the chemical composition shall be as per BS - 6017: 1981 Table 2, Cu-DHP grade. Copper pipe will also have reputed third party inspection certificate (see Note 6).					
	b) Each pipe shall be capped at both ends before					
	c) The Copper Pipes shall be of following Size:					
	i) Outer Diameter: 22.00 mm					
	ii) Thickness: 0.90 mm					

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	d) Fitting used for connecting copper tubing and suitable for a steam working pressure of 17 bar and shall be made of Copper and brazed type connection as per BS: 864: Part 2: 1983.					
	e) The isolation Valves, if any, will be made of Chromium plated brass and Non Lubricated Ball type. All Valves shall be pneumatically tested for twice the working pressure and Factory Degreased for medical gas service.					
B	INSTALLATION AND TESTING					
	a) Installation of piping shall be carried out with utmost cleanliness. Only pipes, fittings and valves that have been degreased and fittings brought in polythene sealed bags will be used at site. Pipes fixing clamps shall be of non - ferrous and non - deteriorating plastic suitable for the diameter of the pipe.					
	b) All pipe joints shall be made using gas, flux less silver brazing method (Silver Brazing). Continuous purging with oil free nitrogen to be carried out while brazing is done. All joints shall be made of copper-to copper and brazed by silver brazing filler material without flux.					
	c) Adequate supports shall be provided while laying pipelines to ensure that the pipes do not snag. Suitable sleeves shall be provided where pipes cross through walls / slabs. All pipe clamps shall be non-reactive to Copper.					
	d) After erection, the pipes will be flushed with dry nitrogen gas and then pressure tested with dry nitrogen at a pressure equal to twice the working pressure or 150 psig, whichever is higher for a period not less than 24 Hrs.					
	e) All the piping system shall be tested in the presence of the site-engineer/ client or their authorised representatives.					
C	PAINTING					
	All exposed pipes should be painted with two coats of synthetic enamel paint and colour codification should be as per IS:2379 of 1963.					
	The Pipe Sizes to be used are from among as under:					

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	Pipe OD (in mm) 15					
	Thickness (in mm) 0.9					

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II	BPC (OXYGEN) FLOW METERS	nos.	100			
a)	The strong and reliable BPC Flow Meters is to be made by imbibing latest technical improvements for a precise measuring of the flow with $\pm 5\%$ accuracy.					
b)	The Flow Meters should also hav following:					
i)	Chrome Plated Brass Body.					
ii)	Graduated Flow Tube and cover made of Polycarbonate and are unbreakable.					
iii)	Back pressure compensated.					
iv)	Standard Flow 0 - 15 Litres per min (lpm).					
v)	Inlet filter made of Stainless Steel wire net.					
III	GAS OUTLET POINT (FRONT LOADED)	nos.	60			
a)	Medical Gas outlets combines case of installation and low cost Maintenance.					
b)	Non-interchangeable self-sealing quick connect gas outlet for Oxygen.					
c)	Should be wall mount units.					
d)	Double locking (secondary) facility.					
e)	Front fascia of Gas outlets are non-interchangeable and gas colour coded.					
f)	Secondary isolating value allows the maintenance of the gas outlet without the need for a pipeline system shutdown.					
NOTE	Length of pipe & Nos. of Flow Metres mentioned are approximate.					
	However, firm should give actual requirement before the start of the work keeping in mind that unit cost will prevail.					
	Payment will be made on actual basis based on the unit cost. However, quoting firm should visit the site & acquaint themselves with the installtion site. Evaluation will be done as per above mentioned					

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