



MANUAL BLASTING BOOTH ANNEXURE -1



MANUAL BLASTING BOOTH

Purpose:

For Shot Blasting of rolled and fabricated structures and also for fabricated cylindrical Components.

1. TECHNICAL SPECIFICATION

SYSTEM FEATURES :

Following Are The Major Components :

- Blast room enclosure with man doors.
- Main Door-Hinge type duly Rubber Lined on both sides.
- Rubber lining for two side wall and Main door of blast room.
- Illumination.
- Portable Abrasive Blaster and Operator's Safety Wears.
- Floor Automatic Media Recovery System.
 - a. Hopper Grating and Screw Conveyor Hopper.
 - b. Media Recovery Screw Conveyor.
 - c. Bucket Elevator and Air wash Media Separation Unit.
 - d. Abrasive Storage Tank
- Pulse jet dust collector with Ducting.
- Electric Control Panel, Wiring and Cabling.

Technical Specification :

Blast Room Enclosure		Qty.
Blast room Size	6500 mm [W] x 6500 mm [H]X32000 mm [L]	1 Lot
Job weight	To be considered as 80 tons	
Door Opening	To be suggested by you	1 Lot
Man Doors	Two on each side	4 Nos.
Rubber Lining	Two Side walls and on Main Doors	1 Lot
Illumination	Suitable for 400 lux	1 Lot

Portable Abrasive Blaster	safety wears	6 Set
Blast Nozzle	10 mm orifice	4 Nos
Blast Hose	32 mm ID	20 Mtrs.

Floor Automatic Media Recovery System-Screw Type		Qty.
Longitudinal Screw conveyor	To be designed by you	
Cross screw conveyor	Geared motor	2 Nos.
bucket elevator	Geared motor	2 Nos.
Belt of Bucket Elevator	100 mm x 10 mm	2 Nos.
Size of bucket elevator	240 mm x 660 mm	2 Nos.
Abrasive Storage Tank	2 MT	2 Nos.

Dust collector bag filter with Pulse jet Cartridge cleaning collector		Qty. 4 Nos.
Fan motor	To be suggested by you	
Fan Capacity	To be suggested by you	
Filter Media	Spun Bonded Polyester	



Filter bag area	90 sq. mtr. approx.	
Bag Cleaning	Pulse jet cleaning controlled by sequential timer	1 No.
Dust discharge	Cam Lock Dustbin will be provided	
Dust Emission Level	Less than 50 mg/N cubic mtrs.	

Compressed air requirement	1050 Cfm at 80-90 Psi
Portable blasting machine	250 CFM at 80-90 psi. for each 10 mm nozzle No of machine 4 Nos. Cfm requirement 250 x 4 Nos.=1000 Cfm at 80-90 psi
Dust collector	50 Cfm for dust collector at 80-90 psi

- 1. Blast Room Enclosure**
- 2. Main Door duly rubber lined**
- 3. Rubber Lining on Two side walls and on Main door**
- 4. Illumination (placement of lights should be such that area blasted should be illuminated)**
- 5. Portable Blasting Machine & Operator's Safety Wears**

2.Remote Control :

It places complete On/Off control of machine in the hand of operator at the blast nozzle. Remote control with dead man handle should be provided with portable blasting machine for ON/OFF of machine.

3.Operator's Safety Wears [A set consist of following] :

- | | |
|---------------------------|------------|
| a. Air fed helmet | : 1 No. |
| b. Helmet hose | : 31 mtrs. |
| c. Helmet air conditioner | : 1 No. |
| d. Hand gloves | : 1 Pair. |
| e. Gum boot | : 1 Pair. |
| f. Breathing Air Filter | : 1 No. |
| g. Operator's suit | : 1 Set |

4. Floor Automatic Media Recovery System-Screw Conveyor Type :

- [A] Screw Conveyor Hopper & Floor Grating on Hopper**
- [B] Media Recovery Screw Conveyor:**
- [C] Bucket Elevator Unit**
- [D] Abrasive Storage Tank**

Rails will be laid at the floor for job handling up to 80 tons. The recovery system should be suitable for this arrangement. The supplier to give recommendation for job handling.

5. Pulsejet Dust Collector, Ducting & Control Panel :

Dust laden air from blast room is sucked into the dust collector due to vacuum created by the exhaust fan. The fine dust is collected around the filter element. The Pulsejet Bag Dust Collector is self-cleaning system. All filter bags are automatically cleaned with the aid of Timer through which Solenoid Valve are activated. The compressed air valves opens and certain volume of compressed air is blown into the filter bags to keep bags clean and thus the clean air is discharged into the atmosphere. Manometer for each dust collector will be provided.



6.Ducting :

All interconnecting ducting and bends of required length will be fabricated from MS Sheet between Blast Room to dust Collector should be supplied you.

7.Exhaust Duct :

Exhaust duct beyond exhaust fan to be suggested by you.

8. Electric Control Panel :

Floor mounted centralized control panel in mild steel construction duly powder coated to be located outside the Blast Room. The motor control panel is housed with switchgear items. The motor control panel shall be mounted with one No. suitable rating switch fuse unit for incoming supply.

Individual MCB, DOL Starter and thermal overload relay shall be mounted for motor below 12.5 HP or Star Delta Starter with MCB and thermal overload relay shall be mounted for motors above 12.5 HP.

The control panel to be designed to operate at dusty atmosphere.

9.Wiring & Cabling:

Cabling to equipment's from the panel shall be through cable trays. Flame resistant wiring to be done for electrical items.



AUTOMATIC BEAM BLASTING MACHINE ANNEXURE -2



AUTOMATIC BEAM BLASTING MACHINE

Purpose: For Shot Blasting of rolled and fabricated structures and also for fabricated cylindrical components.

1.0. TECHNICAL SPECIFICATION:

S.NO.	DESCRIPTION	
1.	Size of Chamber Passage Opening (Width × Height) in mm	Suitable for job of 20000mmx1500mmx2000mm 1500 mm X 2000 mm
2.	Turbines	Bi Direction Belt Driven
	No. of Blast Wheel	8
	No. of Blades	8
	Size of Blast Wheel Aprox.(inches.)	19 ½ X 2 ½
	H.P. of Blast Wheel Aprox	15
	R.P.M. of Blast Wheel	2800
3.	Abrasive Flow	
	Approx. Shots flow rate	10 Tons/Wheel/Hour
	Shot Velocity	70-75 Mtrs./Sec.
	Initial Charge of Shots (Kgs)	5000
4.	Recovery System consisting of	
	Bucket Elevator	
	Longitudinal Screw Conveyor (HP).	
	Cross Screw Conveyor (HP).	
	Recovery Screw Conveyor (HP).	
5.	Roller Conveyor Systems	
	Speed (Variable)	1 –2.0 Mtr./Min.
	Inlet Conveyor Length (Mtrs).	20
	Exit Conveyor Length (Mtrs).	20
	Roller Pitch (mm).	900
	Useful Roller Width (mm).	1500
	Roller Height on Upper Edge of Roller (mm).	2000
	Roller Conveyor (HP). aprox	5
	No. of Roller Conveyor Drive.	2
	Maximum job weight	25 tons
6.	Filter Systems	
	Type of Dust Collector	Pleated Bag or plain bag
	Fan (HP)	30
	CFM of Dust Collector	10000
	No. of Bags	50
	Filter Area	192 Sq. Mtr.
	Bag Cleaning	By Periodic Pulsejet
	Type of cleaning	Pulsejet through solenoid valves.
	Pulsejet cleaning	Through sequential timer.
	Pulse duration and frequency	Adjustable.
	Discharge	Cam Lock Dust Bin.
	Dust Emission Level	<20 Mg/cub.Mtr.
7.	Noise Level	<90 dB (A) at 1 Mtr. From Machine.
8.	Cleaning Degree	SA 2 1/2
9.	Machine Dimensions	To be designed by you



1.1.Abrasive Blasting System:

Blast Cabinet & Liners:

The abrasives are rebounded by the **blast cabinet direct & indirect manganese steel wall liners** of 10 mm thick. As and when, these liners worn out, the particular liner plate/s is only to be replaced easily.

1.2.Blast Wheel Assembly:

The unit consists of fabricated steel casing supports different liners made from Ni Hard, rotor, blades, control cage, impeller and feed spout. The blast wheel's throw pattern is adjusted by a control cage opening setting. The abrasive media are centrifuged at a required tangential velocity by blast wheels having eight numbers of equal pitched **blades of high carbon high chromium 23 % material hardened to 65+/- 3 HRC hardness value.**

The fabricated casing of blast wheel assembly can be easily opened up through bolts/levers for examination and replacements of various liners and parts of wheel assembly.

1.3. Abrasive Recycling System:

The thrown spent abrasives fall by gravity into cabinet hopper after striking on the components. The abrasives from hopper slide down into the screw conveyor mild steel trough. The screw conveyor transfers them in to the boot section of the bucket elevator. The screw flight is welded on the seamless pipe, which is connected by drive shaft on one side & driven shaft on other side.

1.4.Bucket Elevator:

The transferred abrasives are elevated to the elevator head section at the desired height with the help of seamless buckets mounted on fabric plied rubber belt. Tensioning arrangement of elevator belt for removal of tensioned belt length is provided at the top portion of the elevator, hence no slippage of belt. The elevator head pulley rotation throws the abrasives centrifugally to the Media Separation Unit. The Separator continuously segregates usable abrasive from unusable abrasive & debris. The usable abrasives are transferred into the hopper. The inspection window is provided to inspect the belt condition & replacement of bucket.

1.5.Abrasive Controls:

The shots/grits flow from the storage hopper can be controlled by electro-pneumatic 4 ways type solenoid operated pneumatic valves, which feed the shots into blast wheel units through feed funnel.

1.6.Job Handling System:

Roller conveyor on inlet and outlet and is driven by a variable AC drive. The rollers are mounted on self-aligning bearings. Power is transmitted by chain and sprockets. The rollers in direct blast zone are fitted with Mn sleeve to retard wear. The total length of inlet and outlet roller conveyor is 20 meters each.

1.7.Blow Off:

Blowers to be provided in the outlet of the tunnel to blow off fine dust from the job.



1.8.Dust Collection System:

Pleated Bag Dust Collector:

Dust laden air drawn into dust collector through inlet due to suction created by exhaust fan and passes through pleated bag elements. The abrasive resistant inlet promotes dropping out high particulate, generates uniform air flow, thus increases filter life. The dust gets deposited on outer surface of pleated bag and the clean air passes through the bags and clean air plenum is exhausted through the blower. Clean air further exit in atmosphere through outlet duct.

Bags are periodically and automatically get cleaned through air purging.



PAINT BOOTH TECHNICAL SPECIFICATION ANNEXURE -3

TECHNICAL BID

1.SIDE DRAFT PAINT BOOTH 1

Technical specification

Paint Spray Booth		Qty.
Paint Booth Size	32000 mm [L] x 6500 mm [W] x 6500 mm [H]	1 Lot
Job weight	80 Tons	
Main Door Opening	To be designed by you	
Man Door	To be designed by you	4 Nos.
Fresh Air intake Filter	On one side wall provided, EU-2 Grade, Multiple layers of wire mesh	1 Lot
Illumination (Flameproof)	Suitable for 600 lux	
Toughened glass window	Across the length will be provided at operator level	

Disposable Type Paint Trap Filter & Exhaust hood		Qty.
Filters	On the face of Exhaust Hood as per CFM requirement	

Exhaust System		Qty: 4 Nos.
Capacity	To be designed by you	
Type	Centrifugal fans.	
Drive motor	To be designed by you	
Exhaust Ducting	To be designed by you	

Total Power Consumption (Fan)	To be designed by you
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2.SIDE DRAFT PAINT BOOTH 2

Paint Spray Booth		Qty.
Paint Booth Size	To Specify	
Job weight		
Main Door Opening	To be designed by you	
Man Door	To be designed by you	4 Nos.
Fresh Air intake Filter	On one side wall provided, EU-2 Grade, Multiple layers of wire mesh	1 Lot
Illumination (Flameproof)	Suitable for 600 lux	
Toughened glass window	Across the length will be provided at operator level	

Disposable Type Paint Trap Filter & Exhaust hood		Qty.
Filters	On the face of Exhaust Hood as per CFM requirement	

Exhaust System		Qty: 4 Nos.
Capacity	To be designed by you	
Type	Centrifugal fans.	
Drive motor	To be designed by you	
Exhaust Ducting	To be designed by you	

Total Power Consumption (Fan)	To be designed by you
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3.SYSTEM FEATURES :

Following are the major components supplied by vendor :

- Paint Booth Enclosures with Man Doors.
- Main Door-Hinge type.
- Illumination. (Non Flameproof)
- Air intake from side wall.
- Disposable Paint Trap Filters & Exhaust Hood.
- Exhaust System.
- Electric Control Panel, Wiring and Cabling.

4.System Features

Type: The Side Draft (the direction of flow of air is towards the side wall of spray booth) Paint Spray Booth is suitable for conventional, air-less and electrostatic spray painting and its consists of painting chamber, Inlet Air Filter, Paint Trap Filters, flow Fan, electric motor, duct and canopy etc. The design of the paint booth will be of side draft type paint booth with disposable paint trap filters on sidewall. The intake air into the paint booth is filtered by intake filter to avoid foreign particle deposition on the painted surface. The intake air is sucked into the room by the extraction modules located on the sidewalls.



5.Functions :

- Collects over sprayed paint, solid and discharge solvent fumes outside the building.
- Reduces the fire hazard

6.Paint Booth Enclosure :

Spray booth is of rectangular shape rigid bolted construction. The structure is self-supporting and will not need supporting foundation except fixing bolts. Fabricated out of M.S. Sheet panels bolted with structural steel for rigidity. Hinge type door [in four leafs] is provided on one side for Exit & Entry of job and fabrication from MS Sheet.

Vision Glass is fitted in each leaf of the door.Four Man Doors are also provided for emergency exit.

7.Illumination :

Evenly distributed illumination lamps are provided on the roof and sides to provide uniform illumination within the paint room.

8. Fresh Air intake Filter :

Incoming air is filtered through pre filter. These filter panels are coarse filters around 15 microns filter fitted on top of roof to remove suspended fibers & dust particles. These filters need to be cleaned bimonthly by air washing depending on dust accumulation and is required to be changed once in a year.

➤ MEDIA SPECIFICATIONS :

Frame	:	GI housing.
Construction	:	Multiple Layers of Wire Mesh
Pressure drop	:	30 mm WC
Filter Class	:	EU-2

9.Disposable Type Paint Trap Filter :

The Paint Trap filters are fitted on the face of Exhaust hood of paint room along the exhaust system. The flow of air is directed to carry the overspray and paint fumes over the paint trap filters. The disposable Type system enables quick removal & replacement.

Special Disposable type cardboard pleated filter for trapping over sprayed paint. The paint particles are deposited in the holding pocket which is the dead end of the filter and the airflow leaves the filter virtually free of over spray.

Filtration efficiency	:	98.1%
Holding capacity	:	18 Kg/sq mtrs
Max pressure drop	:	0.52 in WC
Air velocity	:	0.50 to 1.00 Mtrs/sec.



10. Manometers :

To check clogging of filter, manometers shall be provided across the filter to measure the pressure drop across them and these are located strategically outside the booth.

11. Exhaust System:

Centrifugal fans are provided at one side to suck the fume and clean air is discharged into the atmosphere.

12. Outlet Duct :

Exhaust Ducting with required bends and Canopy is fabricated M.S. Sheet upto 10 Mtrs height from ground level. However, duct support will be in buyer's scope.

13. Electric Control Panel :

Consists of Push button, DOL Starters for Blower motor, Light switches.

Flame resistant wiring will be done for electrical items in our scope of supply.

Note: Wiring from motor control panel to paint booth will be provided. However, we have considered the Motor control panel at approx 1-2 mtrs distance from paint booth.

14. Track inside and outside room :

The track rail shall be provided with inside the room and also on both sides of room to facilitate movement of trolley. The track quoted per mtr.

15. Painting/ Colour :

Inside and outside surface of equipment will be brush cleaned and given coat of Red Oxide Primer. Final coat on exterior of system is Synthetic Enamel Air Drying, Shade: Feroza blue.

Modular construction can be offered. If offered independent exhaust System shall be given.

1. Dry type side draft liquid spray booth inclusive of control panel.
2. Power requirements compressed air requests and space request shall be specified by vendor
3. Exclusion: shall be specified by vendor
4. Pollution through the chimney/EXHAUST shall be specified in the tender and these values should be measured and demonstrated before TREAT. For pollution Board approval the equipment supplies company to present the technical paper to the board and to get approval. (All charges towards this shall be borne by the supplier)
5. The following standards should follow for design and installation and to be demonstrated before TREAT.

- ASHRAE-For air circulation.
- OSHA-For Occupational Health and administration.



- NFPA33-National Fire protection Association.
- OHS-Occupational Health & Safety.
- NEC-National Electrical Code.
- BOCA-National fire prevention code.

16. Commercial Offer

Price for design, manufacture, supply, erection & commissioning the equipment's briefed in the scope of supply. EXCLUSIONS SHALL BE SPECIFIED BY VENDOR

17. Payment Terms And Conditions

- Tax and duties will be paid extra. Please specify the rate of tax.
- Supplier to furnish the performance bank guarantee for 10% of PO value for 1 year validity from the date of commissioning.
- Payment terms to be discussed mutually
- ESI & PF will be recovered by vendor.

Delivery : 90 days from date of receipt of order

Validity : 90 days from date of price bid opening.

Warranty : 18 months from the date of dispatch (OR)

12 months from the date of commissioning whichever is earlier.

18. Erection And Commissioning

Lump sum charges for the erection commissioning of the above systems with Your Labour, Tools, tackles and with your Lifting equipment's, gas cutting set, Welding transformer and consumables etc.,-

POWER AND AIR SUPPLY WILL BE PROVIDED BY TREAT.

ALL ERECTION EQUIPMENT INCLUDING CRANE SHALL BE BY VENDOR.

STORAGE OF MATLS SHALL BE BY VENDOR. SPACE WILL PROVIDED BY TREAT.

19 Two Part Bid System

Tenderer shall submit the offer in two bids and after evaluation techno commercial bid M/s TREAT will inform the date of price bid opening for successful bidders only

Techno Commercial Bid will be opened on 06.03.2015 at 3 PM at TREAT office and price will be kept separately and opening date will be intimated separately.



GENERAL CONDITIONS OF TENDER

COMMERCIAL TERMS & CONDITIONS

TRANSPORTATION: All consignments shall be dispatched by road through reliable transporters on freight to pay and door delivery basis. Necessary Road / State Government Sales Tax Permits/Forms wherever applicable shall be furnished by the supplier. Any demurrage and other charges levied by the transporter for delays in unloading by customer shall be borne by the supplier and settled directly by the supplier with the transporter.

Transit Insurance: Transit Insurance shall be extra and arranged by us.

System lay-out/ GA drawings shall be sent for approval within ONE week of receipt commercially clean purchase order. Order acceptance: shall be sent by email within two days and signed copy shall be sent within four days by courier.

Scope of Supply: Scope of supply should adhere to our Purchase Order, Specification sheet, drawings and terms and conditions.

Short Shipment/Loss/Damage: Short shipment if any shall be replaced by supplier without hindering erection or commissioning with own expenses.

Warranty: supplier shall warrant that the machinery and equipment to be supplied shall be free from any defect due to design, materials and workmanship. Warranty period shall be 18 months from the last date of dispatch or 12 months from the date of commissioning, whichever is earlier.

Penalty Clause / Liquidated Damages:

As the time is the essence in establishing the facility intended under this tender, the risk of delays in supplies needs to be mitigated. Therefore, in case of any delay in the supply of items from the agreed delivery pattern, schedule causing time overrun in implementation of project, the supplier would be subject to liquidated damages.

In case supplier fails to meet the supply, erection & commission schedule released on the supplier and accepted by the supplier as defined in PO, the supplier will be charged 0.50% per week or part thereof, subject to maximum of 10% of PO value.

Jurisdiction: All legal dealings are subject to Tiruchirappalli jurisdiction only.

VALIDITY of offer: As specified in annexure 1,2 and 3.

General:

Purchase order No. and date should be mentioned in all future correspondence.

In case of any change to that mentioned in the purchase order, prior information should be given to us and Purchase order amendment should be collected from us prior to dispatch.

