

**Pre-Qualification Criteria (Minimum Eligibility Criteria) to participate in Rate Contract tender of  
Modular Control desk for power plant control rooms**

The bidders intending to participate shall meet the following criteria and such of those bidders shall be pre-qualified for this tender.

Sl.No	Criteria	Documentary Evidence	Vendor compliance/ remarks
1.	<b>Upload Manufacturer authorization:</b> The bidder should be Original Equipment Manufacturer OEM or authorized partner of OEM; Wherever Authorized Distributors are submitting the bid, Manufacturers Authorization Form (MAF) to be furnished along with the bid.	Manufacturer Authorization Form (MAF)	
2.	<b>Performance Criteria:</b> The Bidder or its OEM {themselves or through reseller(s)} should have, manufactured, supplied & commissioned same or similar Category Products to any Central / State Govt Organization / PSU / Public Listed Company for usage in Power Plant Control Rooms / Process Plant Control rooms / Captive Power Plant Control rooms / any other Control room environment and should have successfully Commissioned (during past 5 years)	PO copies along with proof of supply and commissioning / Performance Report / certificate from End user	
3.	In the tender either the bidder on behalf of the Principal / OEM or Principal / OEM itself can bid but both cannot bid simultaneously for the same make/model of the item in the same tender.	NA	
4.	If a bidder submits bid on behalf of the Principal/OEM, the same bidder shall not submit bid on behalf of another Principal /OEM in the same tender for the same item/product.	NA	



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# PURCHASE SPECIFICATION HMI OPERATOR DESK & MODULAR FURNITURE

HMI\_DESK/RC/404

REV No.: 00

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## REVISION HISTORY SHEET

REV No.	DATE	NATURE OF CHANGE	REASON	PREPARED BY	CHECKED BY	REVIEWED BY
00	30.09.2022	FIRST ISSUE	---	JA	AS	BNS

TITLE  
**PURCHASE SPECIFICATION  
HMI OPERATOR DESK**

Dept Code  
404

DRN.	NAME	SIGN	DATE
PREPARED	JA		30.09.2022
CHECKED	AS		30.09.2022
APPROVED	BNS		30.09.2022



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# PURCHASE SPECIFICATION

## HMI OPERATOR DESK & MODULAR FURNITURE

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### SECTION-1

#### CONTROL DESK-7 M

Sl. No.	Specification	Supplier's Remark
1	Desk is required as per drawing enclosed (DRAWING-I). The desk should consist of vertical, horizontal and base support with their coverings for work surface, sliding keyboard trays, mouse pads, monitor shelf and concealed cable and wire way management, perforated trays with covers on both horizontal and vertical.	
2	The top surface of control desk shall be 30mm thick with the top 12mm of acrylic solid surface and remaining 18mm of laminated medium density fiber board. Foot, cantilever beams, Cable managers to be made of Extruded/Cast Aluminum/CRCA laminated steel, Support legs and Horizontal supports (if required) below Work surface to be of minimum 2.0 mm thick suitable extruded Aluminum /CRCA laminated steel profile.	
3	Control Desk (DESK) should be arc-shaped and width and depth to be as per Drawing enclosed (DRAWING-I).	
4	Profiled extended support and cantilevered beam of Aluminum / steel with suspension hook (if required) to support legs to be provided which should have powder coated finish in approved color / shade.	
5	Control Desk should be arc shape. The CPU of OWS etc. shall be located separately on PC racks. The cabling / wiring between OWS & CPU's, power supply cable shall be aesthetically routed and concealed from view.	
6	The Desk can be designed, manufactured and supplied in separate shipping sections. Indicative drawings attached. The general layout of one section is shown in the drawing.	
7	The design of the desk should be modular such that it shall be possible to add / remove any section/s of the desk if required.	
8	CPU Trolleys per section to be included in supply scope	

#### CONTROL DESK-6 M

Sl. No.	Specification	Supplier's Remark
1	Desk is required as per drawing enclosed (DRAWING-II). The desk should consist of vertical, horizontal and base support with their coverings for work surface, sliding keyboard trays, mouse pads, monitor shelf and concealed cable and wire way management, perforated trays with covers on both horizontal and vertical.	
2	The top surface of control desk shall be 30mm thick with the top 12mm of acrylic solid surface and remaining 18mm of laminated medium density fiber board. Foot, cantilever beams, Cable managers to be made of Extruded/Cast Aluminum/CRCA laminated steel, Support legs and Horizontal supports (if required) below Work surface to be of minimum 2.0 mm thick suitable extruded Aluminum /CRCA laminated steel profile.	
3	Control Desk (DESK) should be arc-shaped and width and depth to be as per Drawing enclosed (DRAWING-I).	
4	Profiled extended support and cantilevered beam of Aluminum / steel with suspension hook (if required) to support legs to be provided which should have powder coated finish in approved color / shade.	
5	Control Desk should be arc shape. The CPU of OWS etc. shall be located separately on PC racks. The cabling / wiring between OWS & CPU's, power supply cable shall be aesthetically routed and concealed from view.	

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### HMI OPERATOR DESK & MODULAR FURNITURE

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6	The Desk can be designed, manufactured and supplied in separate shipping sections. Indicative drawings attached. The general layout of one section is shown in the drawing.	
7	The design of the desk should be modular such that it shall be possible to add / remove any section/s of the desk if required.	
8	CPU Trolleys per section to be included in supply scope	

### CONTROL DESK-5 M

Sl. No.	Specification	Supplier's Remark
1	Desk is required as per drawing enclosed (DRAWING-III). The desk should consist of vertical, horizontal and base support with their coverings for work surface, sliding keyboard trays, mouse pads, monitor shelf and concealed cable and wire way management, perforated trays with covers on both horizontal and vertical.	
2	The top surface of control desk shall be 30mm thick with the top 12mm of acrylic solid surface and remaining 18mm of laminated medium density fiber board. Foot, cantilever beams, Cable managers to be made of Extruded/Cast Aluminum/CRCA laminated steel, Support legs and Horizontal supports (if required) below Work surface to be of minimum 2.0 mm thick suitable extruded Aluminum /CRCA laminated steel profile.	
3	Control Desk (DESK) should be arc-shaped and width and depth to be as per Drawing enclosed (DRAWING-I).	
4	Profiled extended support and cantilevered beam of Aluminum / steel with suspension hook (if required) to support legs to be provided which should have powder coated finish in approved color / shade.	
5	Control Desk should be arc shape. The CPU of OWS etc. shall be located separately on PC racks. The cabling / wiring between OWS & CPU's, power supply cable shall be aesthetically routed and concealed from view.	
6	The Desk can be designed, manufactured and supplied in separate shipping sections. Indicative drawings attached. The general layout of one section is shown in the drawing.	
7	The design of the desk should be modular such that it shall be possible to add / remove any section/s of the desk if required.	
8	CPU Trolleys per section to be included in supply scope	

### CONTROL DESK-2 M

Sl. No.	Specification	Supplier's Remark
1	Desk is required as per drawing enclosed (DRAWING-IV). The desk should consist of vertical, horizontal and base support with their coverings for work surface, sliding keyboard trays, mouse pads, monitor shelf and concealed cable and wire way management, perforated trays with covers on both horizontal and vertical.	
2	The top surface of control desk shall be 30mm thick with the top 12mm of acrylic solid surface and remaining 18mm of laminated medium density fiber board. Foot, cantilever beams, Cable managers to be made of Extruded/Cast Aluminum/CRCA laminated steel, Support legs and Horizontal supports (if required) below Work surface to be of minimum	

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	2.0 mm thick suitable extruded Aluminum /CRCA laminated steel profile.	
3	Control Desk (DESK) should be arc-shaped and width and depth to be as per Drawing enclosed (DRAWING-I).	
4	Profiled extended support and cantilevered beam of Aluminum / steel with suspension hook (if required) to support legs to be provided which should have powder coated finish in approved color / shade.	
5	Control Desk should be arc shape. The CPU of OWS etc. shall be located separately on PC racks. The cabling / wiring between OWS & CPU's, power supply cable shall be aesthetically routed and concealed from view.	
6	The Desk can be designed, manufactured and supplied in separate shipping sections. Indicative drawings attached. The general layout of one section is shown in the drawing.	
7	The design of the desk should be modular such that it shall be possible to add / remove any section/s of the desk if required.	
8	CPU Trolleys per section to be included in supply scope	



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## PART-B

### GENERAL SPECIFICATIONS OF CONTROL DESK

Sl. No.	Specification	Supplier's Remark
1.	Finished surface to be free from waves, belies or other imperfections. Surface to be Powder Coated or if Spray painted, 2 coats of inhibitive epoxy primer surface to be applied. Paint with Minimum of 2 coats of Primer and 2 sprays of final finish color to be applied OR powder coated with epoxy paint. Exact color and shade of components will be specified at the time of Order placement. Minimum thickness for Aluminum Sheets: is 30 microns. For MS Components: is 65 microns	
2.	Along with offer detailed drawings showing sectional view, top view, front view, and rear view of desks and tables, electrical wiring diagram with bill of materials for each item to be provided.	
3.	<b>Documents to be submitted for manufacturing approval after placement of Purchase Order:</b> <ul style="list-style-type: none"> <li>▪ Detailed OGA with front view, top view, rear view, sectional view, and floor cut-out details for desks and tables.</li> <li>▪ Electrical Wiring Diagram with BOM of HMI operator desk</li> <li>▪ Quality Plan</li> <li>▪ Color Shade options.</li> <li>▪ All the cutout details along with mounting details shall be furnished by the successful Vendor.</li> </ul>	
4.	Supplier internal Test certificate for dimensions, Visual inspection, paint, HV, IR, electrical functions to be submitted before giving inspection calls to BHEL.	
5.	Inspection by BHEL / CUSTOMER at supplier's work.	
6.	All items will be directly dispatched to project site from supplier works after obtaining necessary clearance from BHEL. Consignee details will be intimated at the time of placement of PO.	
7.	All items shall be packed in complete weather proof packing with sufficient cushioning to avoid transit damage. Suitable pallet shall be provided for handling and transportation	
8.	Name Plates with following details are to be provided for each shipping section. <ul style="list-style-type: none"> <li>▪ Item: <b>As per PO</b></li> <li>▪ Project Name / Unit no: <b>As per PO</b></li> <li>▪ Customer Name: <b>As per PO</b></li> <li>▪ BHEL Order No.: <b>As per PO</b></li> <li>▪ Date of dispatch to site: <b>As per PO</b></li> </ul>	
9.	Assembly, erection and installation, including laying of power cables, keyboard, mouse and monitor extender cables, termination of the cables, at site to be carried out by supplier. Offer to include charges for same along with necessary touch up etc.	
10.	Modifications as per site requirements to be done on free of cost to match with floor opening for cables. Site work for aligning and matching the curvature of desk as shown in enclosed drawing is under supplier scope.	
11.	Warranty: Offer to include "Two years warranty at site" for all items against manufacturing defects from date of supply. Warranty to include all costs towards material, labor, to & fro, traveling, accommodation and stay etc. Exact location of the project site will be intimated at the time of PO.	

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### HMI OPERATOR DESK & MODULAR FURNITURE

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**Note: Supplier is required to submit the filled, signed and stamped copy of this specification along with the offer, failing which offer is liable for rejection.**

### SECTION-II

#### TECHNICAL SPECIFICATION OF MODULAR FURNITURES

Industrial grade furniture items, as per specifications mentioned below, from reputed manufacturers/suppliers, meeting International Standards, are required. The furniture shall be modular and latest with ease of operational features. The furniture shall be modern, aesthetically designed, modular, flexible, space saving and future safe. Each module shall have transparent cover and adjustable partition. It shall have locking provision for security. The components shall be suitable for integration/fabrication without any welding technology

#### PART-A

#### **a. WORKSTATION FURNITURE (SECTION OF 1) AND (SECTION OF 2)**

Modular workstation furniture suitable for mounting programmer stations, PC based systems, shall be as per ANNEXURE I & II . Brief specifications of the same are given below:

Sl. No.	Specification	Supplier's Remark
1	Design, Manufacture / Fabrication and Supply of in Position Control Room Racks as per indicative drawings.	
2	It shall consists of Vertical, Horizontal and Base supports with their coverings and Work surfaces and Pullout Keyboard Trays, concealed wire way management profiled trays with covers in both Horizontal and Vertical Directions complete with clamps, adopter sleeve, switches, foot rest etc.	
3	VERTICAL SUPPORT : Support legs dimensions as per drawing in minimum 2.0 mm thick extruded / profiled aluminium / laminated steel, to hold mounting base, work surface and shelves. Side and top supports / stiffeners to be provided, as required, for strength and supporting wire ways.	
4	WORK SURFACE •Worktop of dimensions as per the drawing. It shall be made of MDF board, laminated/veneered on both sides, having minimum 25mm thickness. •Profiled Steel Support and cantilevered beam, if required, in Die Cast Aluminium/Steel, to support legs and pillars which are to be powder coated in approved color/shade. •Worktop to have keyboard trays of compact design with provisions for sliding, complete with mounting arrangement. •Shelves to hold the CPU to be height adjustable.	
5	Tracking light and foot rest should be provided for each section of the workstation furniture	

#### **b. PC RACK**

Sl. No.	Specification	Supplier's Remark
1	Design, Manufacture / Fabrication and Supply of in Position Control Room Racks as per drawing (Annexure-III). The PC Rack shall be provided to mount CPU's of workstation of OWS/LVS in the control room.	

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2	It shall consists of Vertical, Horizontal and Base supports with their coverings and Work surfaces, wire way management profiled trays with covers in both Horizontal and Vertical Directions complete with clamps, adopter sleeve, switches, etc.	
3	VERTICAL SUPPORT : Minimum 2.0 mm thick extruded / profiled aluminium / laminated steel, to hold mounting base, work surface and Shelves. Side and top supports/stiffeners to be provided, as required, for strength and supporting wire ways.	
4	WORK SURFACE/SHELVES <ul style="list-style-type: none"> <li>• Worktop of dimensions as per drawing. It shall be made of MDF board, laminated/veneered on both sides, having minimum 25mm thickness. Shelves should be capable of sustaining the weight of 2 workstations/PC. The surface should not deform / bend because of the weight.</li> <li>• Profiled steel support and cantilevered beam, if required, in Die Cast Aluminium/Steel, to support legs and pillars which are to be powder coated in approved color/shade.</li> <li>• Shelves to hold the CPU to be height adjustable.</li> </ul>	
5	PC rack width and depth to be as per drawing enclosed. PC rack shall be of modular in design. Each module shall have transparent cover adjustable partition.	
6	PC rack shall have locking provision for security. The component shall be suitable for instigation/fabrication without any welding technology.	
7	For ensuring proper cooling in door closed condition, in front side & rear side, louvers in top tier and bottom tier to be provided and on rear side exhaust fans to be provided in parallel to these louvers.	

**NOTE:**

1. The CPU units of servers / workstations will weigh approximately 20 kgs each, miniUPS and battery together will weigh around 60 kgs totally. The design proposed should be capable of supporting the above load.
2. Dimensions are indicative, detailed component size and specification may be vendor specific within broad specs given above.

As required Nos. of 4 ways, 5/15 Amps power socket strip mounted on each of the shelves

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## PART-B

### GENERAL SPECIFICATIONS FOR MODLAR FURITURES

Sl. No.	Specification	Supplier's Remark
1	Finished surface to be free from waves, belies or other imperfections. Surface to be Powder Coated or if Spray painted, 2 coats of inhibitive epoxy primer surface to be applied. Paint with Minimum of 2 coats of Primer and 2 sprays of final finish color to be applied OR powder coated with epoxy paint. Exact color and shade of components will be specified at the time of Order placement. Minimum thickness for Aluminum Sheets: is 30 microns. For MS Components: is 65 microns	
2	Along with offer detailed drawings showing sectional view, top view, front view, and rear view of desks and tables, electrical wiring diagram with bill of materials for each item.	
3	Documents to be submitted for manufacturing approval: <ul style="list-style-type: none"> <li>▪ Detailed OGA with front view, top view, rear view, sectional view, and floor cut-out details for desks and tables.</li> <li>▪ Electrical Wiring Diagram with BOM of racks, workstation furniture and printer racks.</li> <li>▪ Quality Plan</li> <li>▪ Color Shade options.</li> </ul>	
4	Supplier internal Test certificate for dimensions, visual inspection, paint, HV, IR, electrical functions to be submitted before giving inspection calls to BHEL.	
5	Inspection by BHEL / CUSTOMER at supplier's work.	
6	<b>For PC and Server Rack in order to ensure proper cooling arrangement, in door closed condition, in front side &amp; rear side, louvers in top tier and bottom tier to be provided and on rear side exhaust fans to be provided in parallel to these louvers.</b>	
7	All items will be directly dispatched to project site from supplier works after obtaining necessary clearance from BHEL. Consignee details will be intimated at the time of placement of PO.	
8	All items shall be packed in complete weather proof packing with sufficient cushioning to avoid transit damage. Suitable pallet shall be provided for handling and transportation	
9	Name Plates with following details are to be provided for each shipping section. <ul style="list-style-type: none"> <li>▪ Item: <b>As per PO</b></li> <li>▪ Project Name / Unit no: <b>As per PO</b></li> <li>▪ Customer Name: <b>As per PO</b></li> <li>▪ BHEL Order No.: <b>As per PO</b></li> <li>▪ Date of dispatch to site: <b>As per PO</b></li> </ul>	
10	Assembly, erection and installation, including laying of power cables, keyboard, mouse and monitor extender cables, termination of the cables, at site to be carried out by supplier. Offer to include charges for same along with necessary touch up etc.	
11	Modifications as per site requirements to be done on free of cost to match with floor opening for cables. Site work for aligning and matching the curvature of desk as shown in enclosed drawing is under supplier scope.	
12	Warranty: Offer to include "Two years warranty at site" for all items against manufacturing defects from date of supply. Warranty to include all costs towards material, labor, to fro, traveling, accommodation and stay etc. Exact location of the	

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# PURCHASE SPECIFICATION

## HMI OPERATOR DESK & MODULAR FURNITURE

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project site will be intimated at the time of PO.

**Note: Supplier is required to submit the filled, signed and stamped copy of this specification along with the offer, failing which offer is liable for rejection.**

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### **DRAWINGS:**

DRAWING I	-	7 SECTION DESK
DRAWING II	-	6 SECTION DESK
DRAWING III	-	5 SECTION DESK
DRAWING IV	-	2 SECTION DESK

ANNEXURE I	-	Workstation Furniture (Section of 2)
ANNEXURE II	-	Workstation Furniture (Section of 1)
ANNEXURE III	-	PC Rack

DRG. No. 3 659 44 04258

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REF. DRG. No. 36594402806 01

SIGN. & DATE

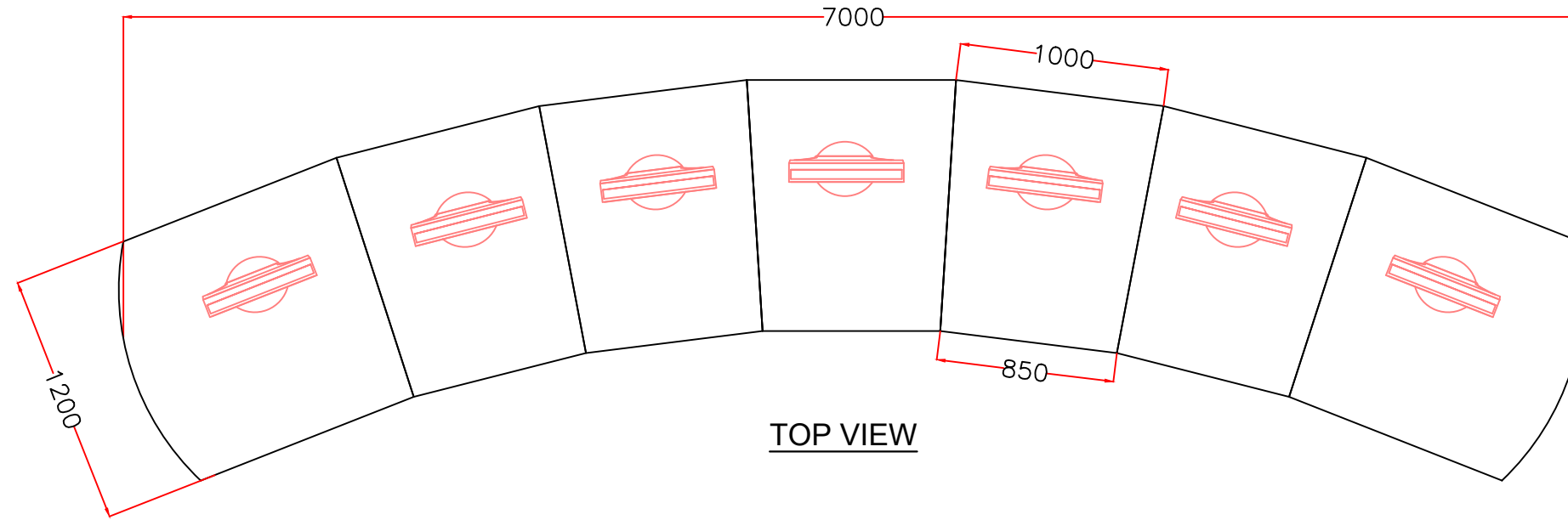
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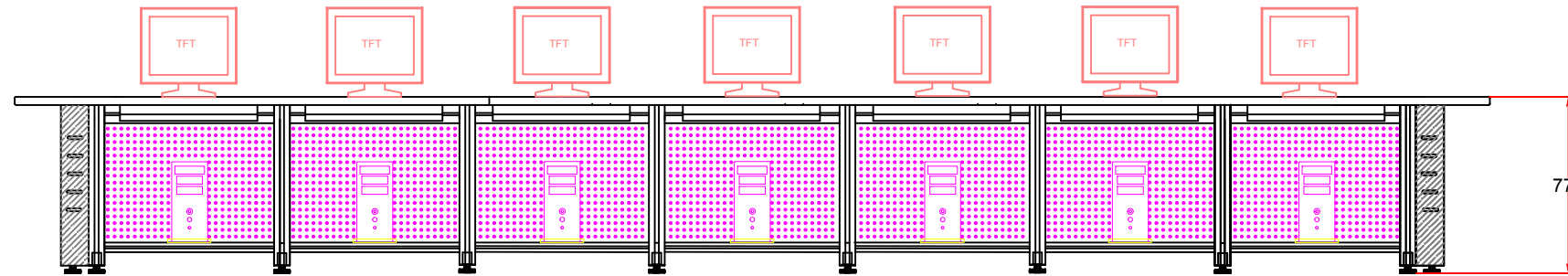
**CONTROL DESK OF 7 SECTIONS**

**NOTES :**

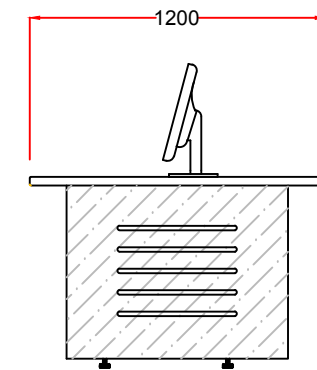
- 1) THE TOP SURFACE OF CONTROL DESK SHALL BE 30MM THICK WITH THE TOP 12MM OF ACRYLIC SOLID SURFACE AND THE REMAINING 18MM OF LAMINATED MEDIUM DENSITY .
- 2) COLOR OF TABLE TOP : AS PER APPROVAL.
- 3) FOOT, CANTILEVER, BEAMS, CABLE MANAGERS TO BE MADE OF EXTRUDE/CAST ALUMINIUM/CRCA LAMINATED STEEL, SUPPORT LEGS & HORIZONTAL SUPPORTS (IF REQUIRED) BELOW WORK SURFACE TO BE OF MINIMUM 2.0MM THICK. SUITABLE DIE/CAST/EXTRUDED ALUMINIUM/CRCA LAMINATED STEEL.
- 4) ALL ALUMINUM EXTRUSIONS WILL BE POWDER COATED IN ALUMINUM GREY
- 5) PAINT SHADE : AS PER APPROVAL
- 6) DIMENSIONS ARE INDICATIVE AND SUBJECT TO CHANGE BASED ON MODEL/SUPPLIER AVAILABILITY.



**TOP VIEW**



**FRONT VIEW**



**SIDE VIEW**

PRODUCT :  
CUSTOMER:

**BHARAT HEAVY ELECTRICALS LIMITED.**  
ELECTRONICS DIVISION, BANGALORE

REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED	NAME	SIGN	DATE

**BHE**

DEPT. CODE

TITLE:

WBS. No.		DRG. No.		No. OF SHEETS	01
CONTROL DESK OF 7 SECTIONS				SHEET No.	01
				REV	00

2

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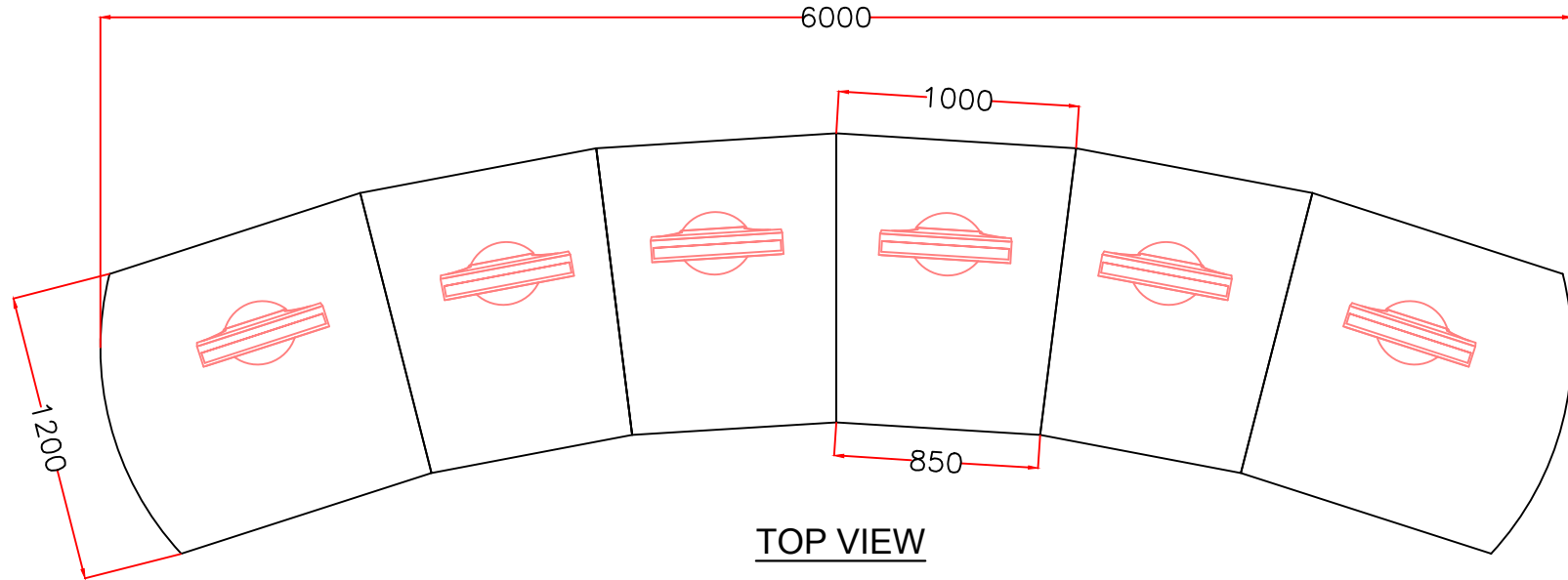
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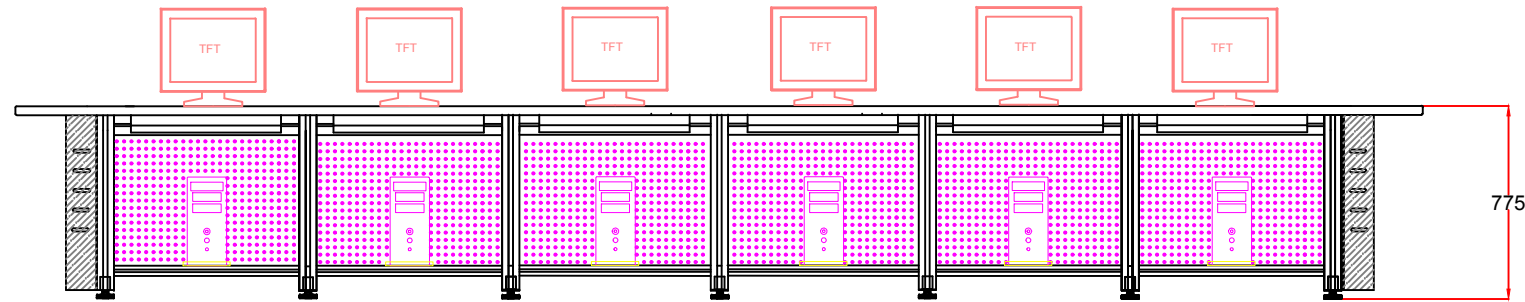
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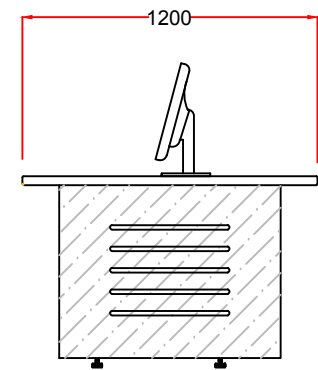
**CONTROL DESK OF 6 SECTIONS**



**TOP VIEW**



**FRONT VIEW**



**SIDE VIEW**

**NOTES :**

- 1) THE TOP SURFACE OF CONTROL DESK SHALL BE 30MM THICK WITH THE TOP 12MM OF ACRYLIC SOLID SURFACE AND THE REMAINING 18MM OF LAMINATED MEDIUM DENSITY .
- 2) COLOR OF TABLE TOP : AS PER APPROVAL.
- 3) FOOT, CANTILEVER, BEAMS, CABLE MANAGERS TO BE MADE OF EXTRUDE/CAST ALUMINIUM/CRCA LAMINATED STEEL, SUPPORT LEGS & HORIZONTAL SUPPORTS (IF REQUIRED) BELOW WORK SURFACE TO BE OF MINIMUM 2.0MM THICK. SUITABLE DIE/CAST/EXTRUDED ALUMINIUM/CRCA LAMINATED STEEL.
- 4) ALL ALUMINUM EXTRUSIONS WILL BE POWDER COATED IN ALUMINUM GREY
- 5) PAINT SHADE : AS PER APPROVAL
- 6) DIMENSIONS ARE INDICATIVE AND SUBJECT TO CHANGE BASED ON MODEL/SUPPLIER AVAILABILITY.

PRODUCT :  
CUSTOMER:

**BHARAT HEAVY ELECTRICALS LIMITED.**  
ELECTRONICS DIVISION, BANGALORE

**CONTROL DESK OF 6 SECTIONS**

REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED	NAME	SIGN	DATE

**BH**

DEPT. CODE

TITLE:

WBS. No.	DRG. No.	REV
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No. OF SHEETS	01
SHEET No.	01

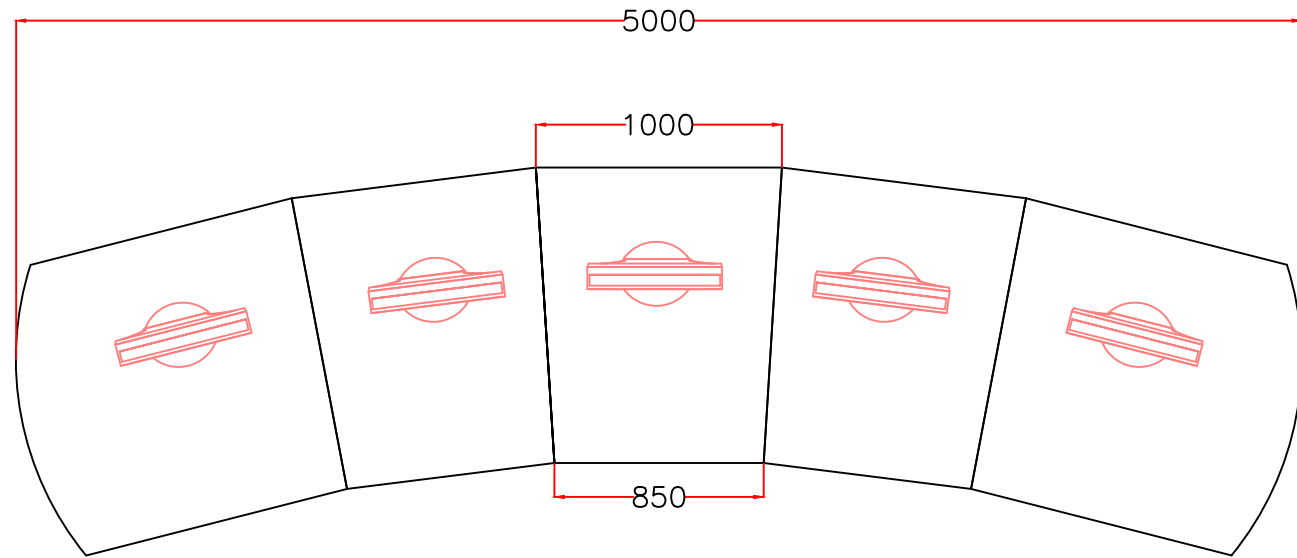
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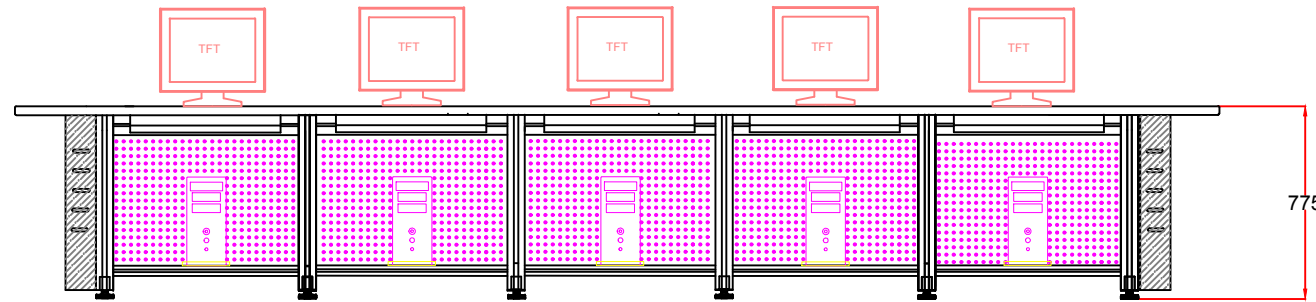
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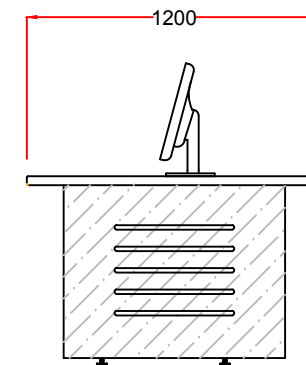
**DRAWING : 3**  
**CONTROL DESK OF 5 SECTIONS**



**TOP VIEW**



**FRONT VIEW**



**SIDE VIEW**

- NOTES :**
- 1) THE TOP SURFACE OF CONTROL DESK SHALL BE 30MM THICK WITH THE TOP 12MM OF ACRYLIC SOLID SURFACE AND THE REMAINING 18MM OF LAMINATED MEDIUM DENSITY .
  - 2) COLOR OF TABLE TOP : AS PER APPROVAL.
  - 3) FOOT, CANTILEVER, BEAMS, CABLE MANAGERS TO BE MADE OF EXTRUDE/CAST ALUMINIUM/CRCA LAMINATED STEEL, SUPPORT LEGS & HORIZONTAL SUPPORTS (IF REQUIRED) BELOW WORK SURFACE TO BE OF MINIMUM 2.0MM THICK. SUITABLE DIE/CAST/EXTRUDED ALUMINIUM/CRCA LAMINATED STEEL.
  - 4) ALL ALUMINUM EXTRUSIONS WILL BE POWDER COATED IN ALUMINUM GREY
  - 5) PAINT SHADE : AS PER APPROVAL
  - 6) DIMENSIONS ARE INDICATIVE AND SUBJECT TO CHANGE BASED ON MODEL/SUPPLIER AVAILABILITY.

PRODUCT :  
CUSTOMER:

**BHARAT HEAVY ELECTRICALS LIMITED.**  
ELECTRONICS DIVISION, BANGALORE

REV.	DATE	ALTERED	CHECKED	APPROVED	REV.	DATE	ALTERED	CHECKED	APPROVED	NAME	SIGN	DATE

**BH**

DEPT. CODE

TITLE:

WBS. No.

CONTROL DESK OF 5 SECTIONS		No. OF SHEETS	01
		SHEET No.	01
DRG. No.		REV	00

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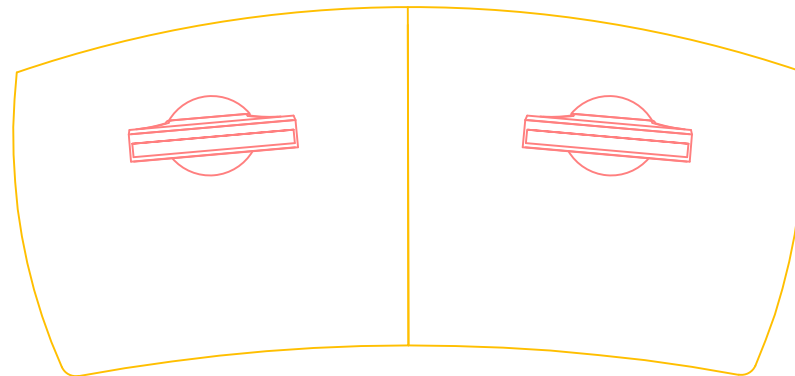
REF. DRG. No.  
36594402806 01

SIGN. & DATE

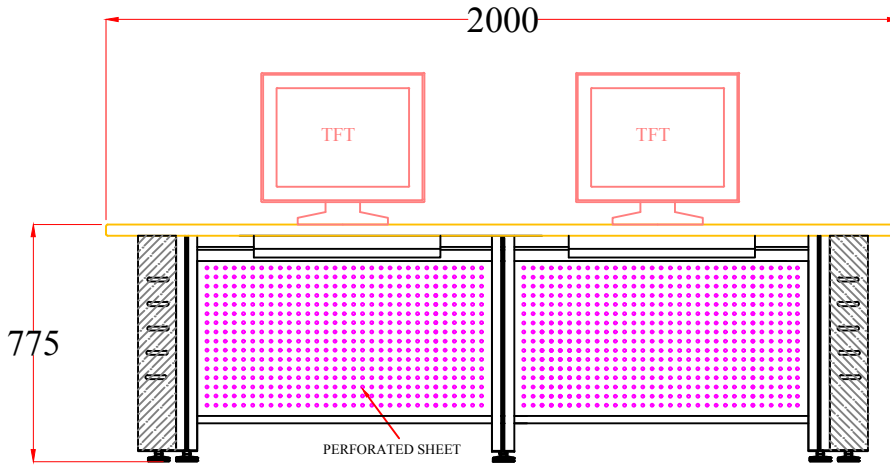
INVENTORY No.

DRG. No.

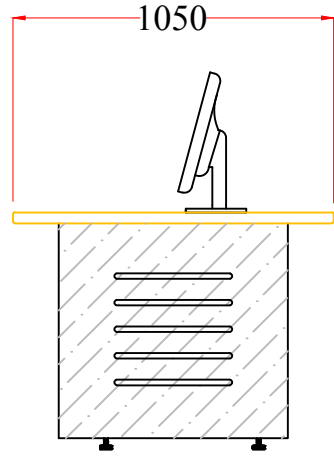
# CONTROL DESK OF 2 SECTIONS



TOP VIEW



FRONT VIEW



SIDE VIEW

**NOTES :**

- 1) THE TOP SURFACE OF CONTROL DESK SHALL BE 30MM THICK WITH THE TOP 12MM OF ACRYLIC SOLID SURFACE AND THE REMAINING 18MM OF LAMINATED MEDIUM DENSITY .
- 2) COLOR OF TABLE TOP : AS PER APPROVAL.
- 3) FOOT, CANTILEVER, BEAMS, CABLE MANAGERS TO BE MADE OF EXTRUDE/CAST ALUMINIUM/CRCA LAMINATED STEEL, SUPPORT LEGS & HORIZONTAL SUPPORTS (IF REQUIRED) BELOW WORK SURFACE TO BE OF MINIMUM 2.0MM THICK. SUITABLE DIE/CAST/EXTRUDED ALUMINIUM/CRCA LAMINATED STEEL.
- 4) ALL ALUMINUM EXTRUSIONS WILL BE POWDER COATED IN ALUMINUM GREY
- 5) PAINT SHADE : AS PER APPROVAL
- 6) DIMENSIONS ARE INDICATIVE AND SUBJECT TO CHANGE BASED ON MODEL/SUPPLIER AVAILABILITY.

REV.	DATE	ALTERED	REV.	DATE	ALTERED	NAME	SIGN	DATE
		CHECKED			CHECKED			
		APPROVED			APPROVED			
						DRAWN		
						CHECKED		
						APPROVED		

DEPT. ENGG    CODE 404

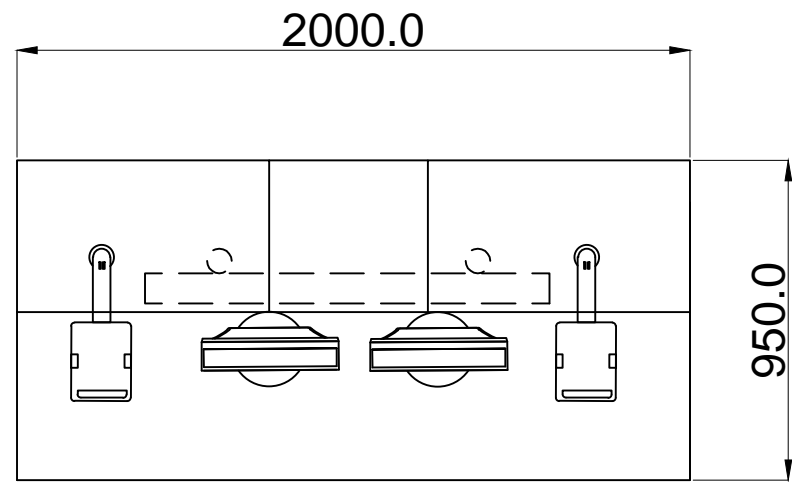
PRODUCT :  
CUSTOMER:

BHARAT HEAVY ELECTRICALS LIMITED.  
ELECTRONICS DIVISION, BANGALORE

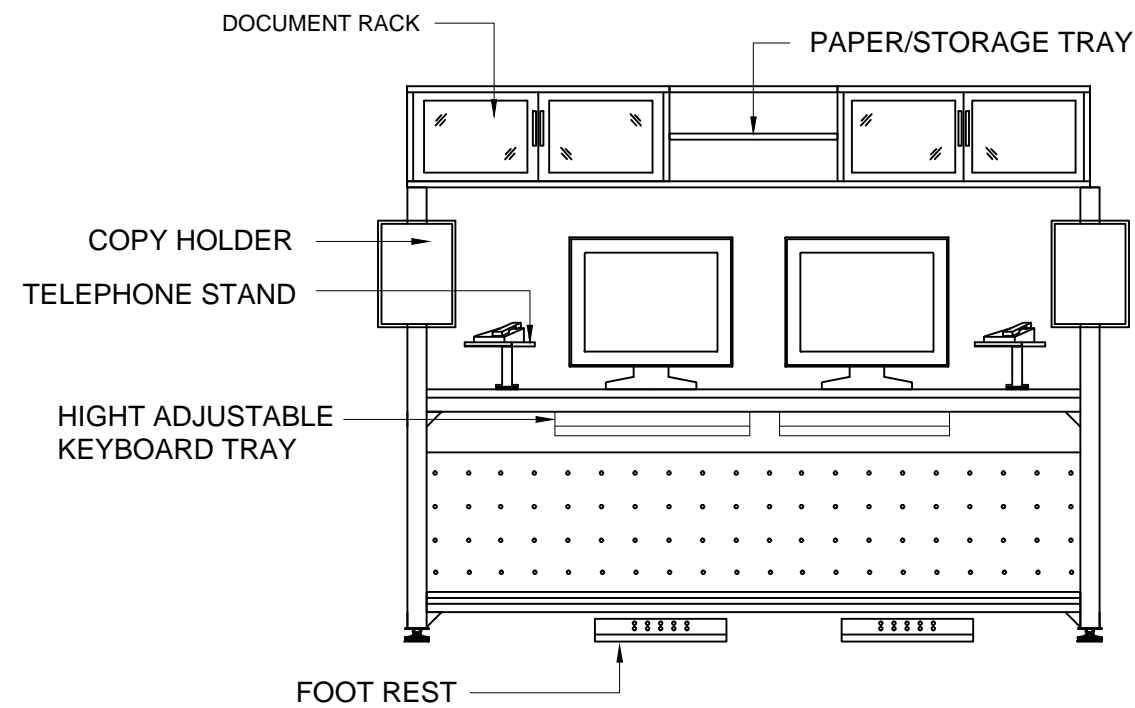
TITLE:	No. OF SHEETS	01
OGA OF CONTROL DESK OF 2 SECTIONS	SHEET No.	01
WBS. No.	DRG. No.	REV
		00

ANNEXURE - I

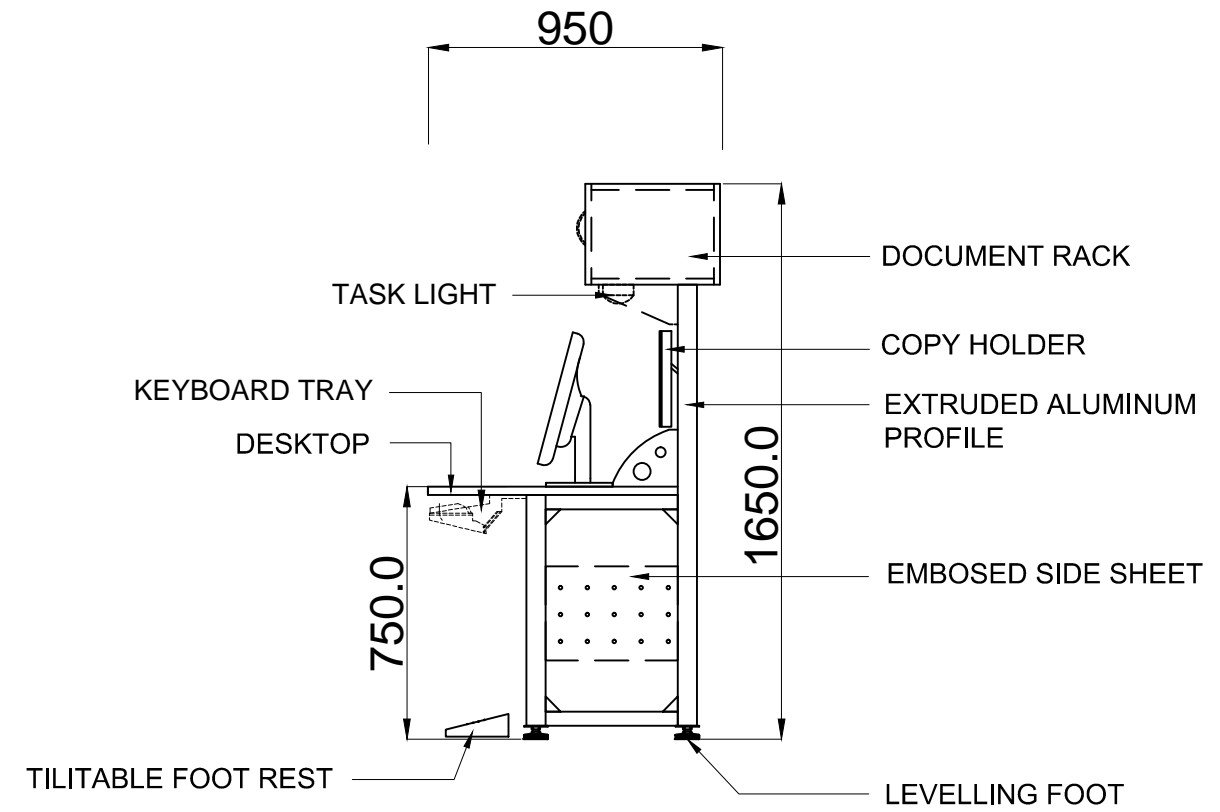
WORKSTATION FURNITURE (SECTION OF 2 )



TOP VIEW



FRONT VIEW

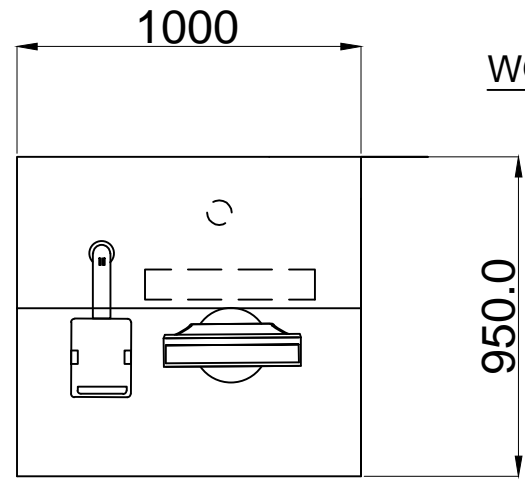


SIDE VIEW

NOTE :

- 1) WORK SURFACE THK : 25 MM (MDF BOARD)
- 2) COLOR OF LAMINATE - AS PER APPROVAL
- 3) PAINT SHADE  
SIDE & BACK SHEET - AS PER APPROVAL
- 4) PAINT THICKNESS  
MS COMPONENTS : MIN. 60 MICRON
- 5) TOTAL ALUMINIUM EXTRUSION - CROMATISED & THEN  
POWDER COATED IN ALUMINIUM GREY (RAL 9006)
- 6) CPU DIMENSIONS : 445(H) X 171(W) X 471(D) MM.  
UPS DIMENSIONS : 220(H) X 150(W) X 410(D) MM.  
22" MONITOR DIMENSIONS : 514 (W) X 65 (D) X 306(H) MM.  
UPS & BATTERY DIMENSIONS : 250 (W) X 550(H) X 550(D) MM.
- 7) COLOR OF PVC EXTRUSION - RAL 5012 OR SIMILAR
- 8) 4 WAY SPIKE BUSTER (5/15 A RATED)  
TO BE PROVIDED FOR EACH SECTION OF WORKSTATION
- 9) CPU's & MONITORS ARE SHOWN FOR  
ILLUSTRATION PURPOSE ONLY, IT IS NOT PART OF  
THIS OGA .
- 10) TRACKING LIGHT AND FOOT REST TO BE  
PROVIDED FOR EACH SECTION

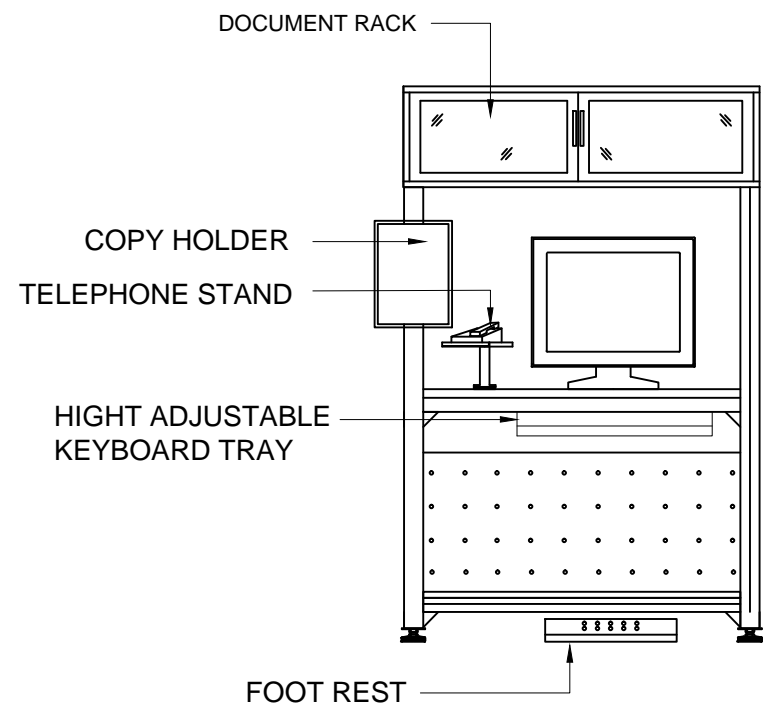
ANNEXURE - II



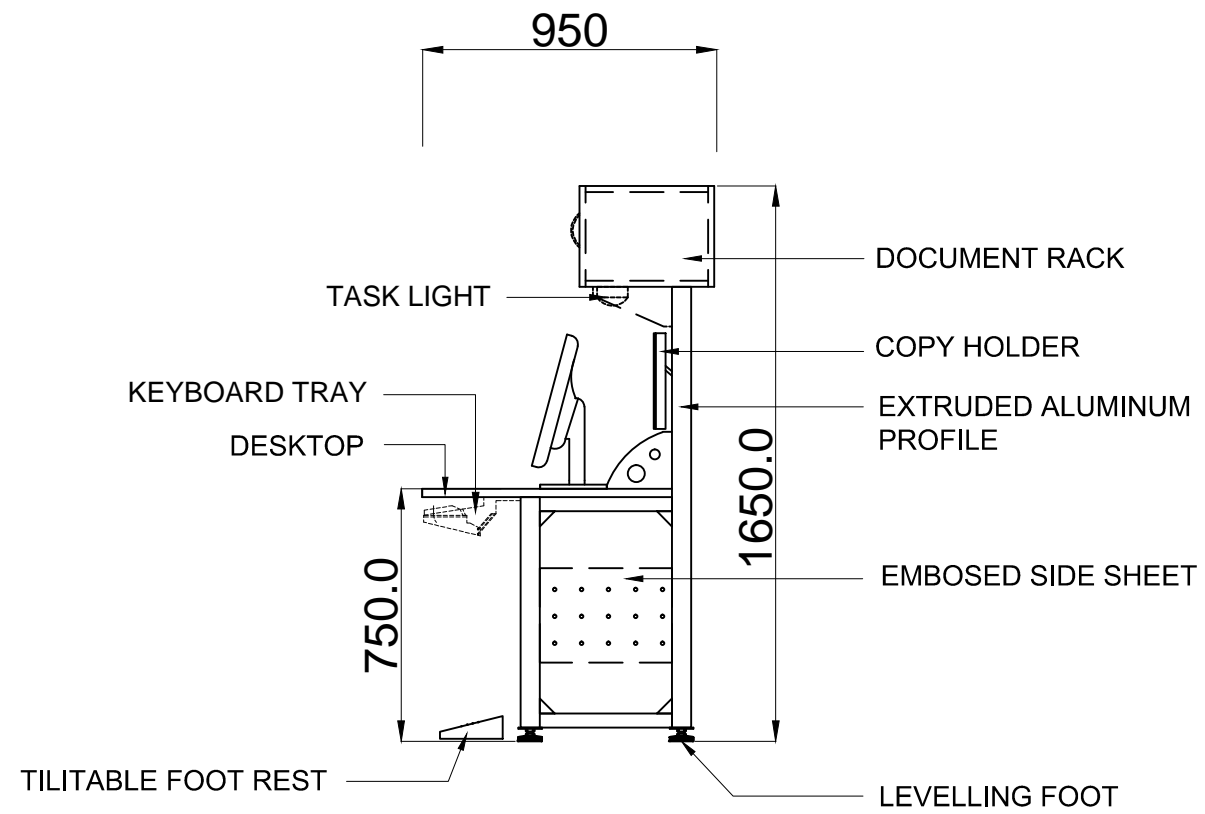
TOP VIEW

WORKSTATION FURNITURE (SECTION OF 1)

- NOTE :**
- 1) WORK SURFACE THK : 25 MM (PARTICLE BOARD)
  - 2) COLOR OF LAMINATE - AS PER APPROVAL
  - 3) PAINT SHADE  
SIDE & BACK SHEET - AS PER APPROVAL
  - 4) PAINT THICKNESS  
MS COMPONENTS : MIN. 60 MICRON
  - 5) TOTAL ALUMINIUM EXTRUSION - CROMATISED & THEN  
POWDER COATED IN ALUMINUM GREY (RAL 9006)
  - 6) CPU DIMENSIONS : 445(H) X 171(W) X 471(D) MM.  
UPS DIMENSIONS : 220(H) X 150(W) X 410(D) MM.  
22" MONITOR DIMENSIONS : 514 (W) X 65 (D) X 306(H) MM.  
UPS & BATTERY DIMENSIONS : 250 (W) X 550(H) X 550(D) MM.
  - 7) COLOR OF PVC EXTRUSION - RAL 5012 OR SIMILAR
  - 8) 4 WAY SPIKE BUSTER (5/15 A RATED)  
TO BE PROVIDED FOR EACH SECTION OF WORKSTATION
  - 9) CPU's & MONITORS ARE SHOWN FOR  
ILLUSTRATION PURPOSE ONLY, IT IS NOT PART OF  
THIS OGA.
  - 10) TRACKING LIGHT AND FOOT REST TO BE  
PROVIDED FOR EACH SECTION



FRONT VIEW

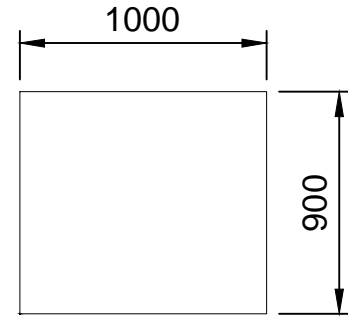


SIDE VIEW

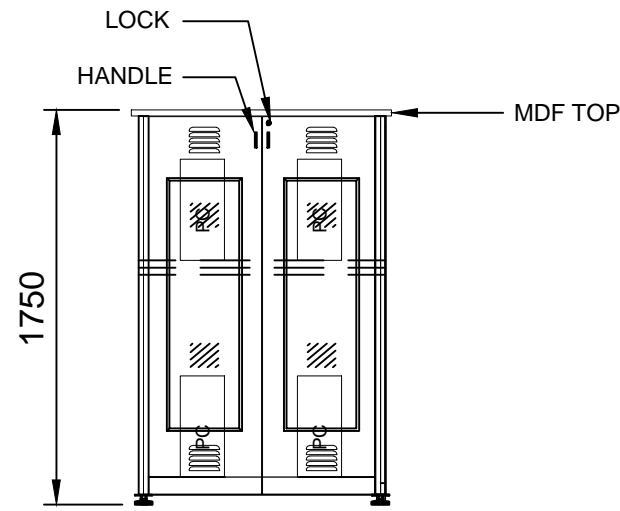


# ANNEXURE - III

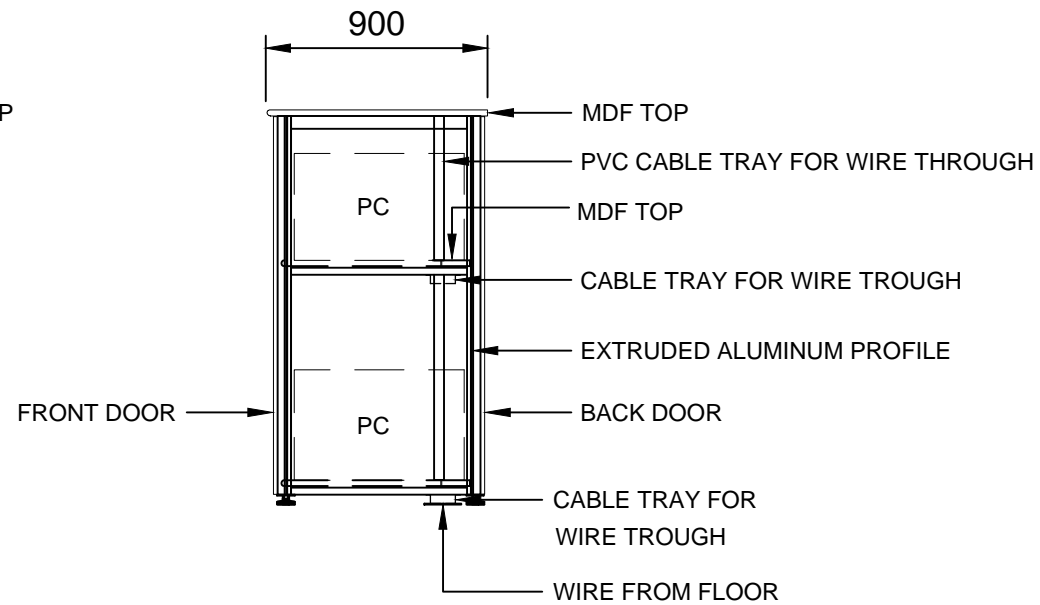
## PC RACK (RACK BEHIND LVS)



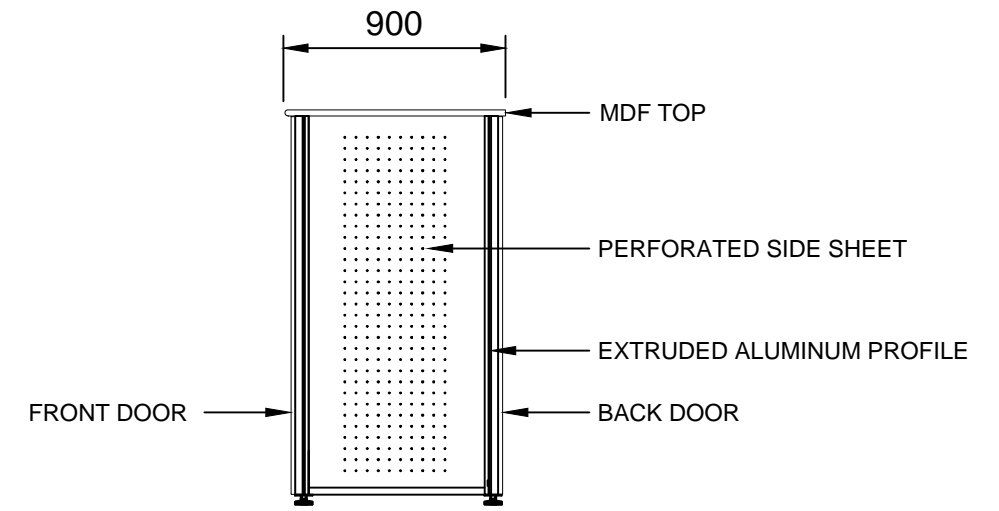
TOP VIEW



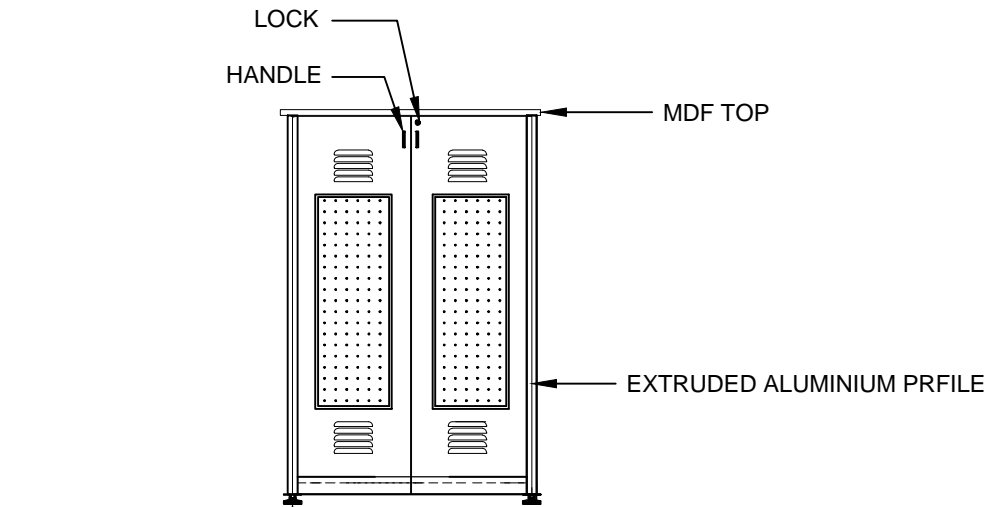
FRONT VIEW



SECTIONAL SIDE VIEW



SIDE VIEW



BACK VIEW

**NOTE :-**

1. SHELVES THK : 25 MM (MDF)  
SIDE SHEET THICKNESS - 1.6mm
2. COLOR OF LAMINATE - AS PER APPROVAL
3. PAINT SHADE  
SIDE COVER & BACK DOOR - (AS PER APPROVAL)
4. EXTREME SIDE COVERS WILL BE EMBOSSED
5. ALL ALUMINIUM EXTRUSION WILL BE POWDER COATED  
IN ALUMINIUM GREY.
6. WORKSTATIONS OF OWS WILL BE KEPT IN CLOSED RACK WITH  
GLASS DOOR (FRONT) & PERFORATED SHEET DOOR (REAR).
7. THE CPU UNITS OF SERVERS / WORKSTATIONS WILL WEIGH APPROXIMATELY  
20 KGS EACH, THE DESIGN PROPOSED SHOULD BE CAPABLE OF SUPPORTING  
THE ABOVE LOAD

8.) IN FRONT & REAR SIDE : LOUVERS TO BE PROVIDED IN TOP TIER AND  
BOTTOM TIER.

ON REAR SIDE : EXHAUST FAN TO BE PROVIDED IN PARALLEL TO THE  
LOUVERS

Control Desk and Modular Furniture: Quantity Table							
	2 Section Control Desk	5 Section Control Desk	6 Section Control Desk	7 Section Control Desk	Workstation Furniture Single Section	Workstation Furniture Two Section	PC Rack
<b>PROJECT NAME</b>							
MOUDA-I FGD (2x500)	2	1				3	4
NTPC North Karanpura 3 x 660 MW TPS-FGD	3		1			3	5
Korba STPS Stg-III 1x500MW (Lot-3) FGD	1	1				3	5
NTPC Ramagundem Stg-I 3x200MW (Lot-3) FGD NTPC Ramagundem Stg-II 3x500MW (Lot-3) FGD	6			1		2	10
Kothagudam FGD		1					
Manuguru FGD							
Yadadri FGD		1					
NSPCL BHILAI FGD (2X250MW)	2	1			1	2	5
BRBCL Nabinagar 4x250MW (Lot-1A) FGD	4			1	1	2	8
NPGCL Nabinagar 3x660MW (Lot-1A) FGD	3		1		1	2	7
Barh FGD Stg-I 3x660 MW, Stg-II 2x660 MW	5			1	1	2	
NTPC Telangana (Supply for additional LVS PC)							2
<b>Sub Total</b>	<b>26</b>	<b>5</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>19</b>	<b>46</b>
<b>10% prospective Orders</b>	<b>3</b>	<b>1</b>			<b>1</b>	<b>2</b>	<b>5</b>
<b>Total Quantity</b>	<b>29</b>	<b>6</b>	<b>2</b>	<b>3</b>	<b>6</b>	<b>21</b>	<b>51</b>