भारत सरकार
अंतरिक्ष विभाग
सतीश धवन अंतरिक्ष केंद्र शार
श्रीहरिकोटा रेंज डा.घ. 524 124
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सत्यमेव जयते

Goverment of India
Department of Space
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GOVERNMENT OF INDIA:: DEPARTMENT OF SPACE
SATISH DHAWAN SPACE CENTER SHAR: SRIHARIKOTA – 524 124
SRI POTTI SREERAMULU.NELLORE DISTRICT (A.P)

TENDER NOTICE NO. SDSC SHAR/Sr.HPS/PT/RO-VALF/22/2022-2023

On behalf of President of India, Sr. Head Purchase and Stores, SDSC SHAR, SRIHARIKOTA invites on line quotations for the following.

Sl No	Ref. No.	Description	Qty.
01.	SHAR/VALF PURCHASE/VALF/2022001331 [Public Tender - Two Part]	Supply of Modular dead weights	03 Nos.

Last Date for downloading of tender documents : 25.10.2022 at 16:00 hrs.
Due Date for submission of bids online : 25.10.2022 at 16:00 hrs.
Due Date for opening of tenders : 26.10.2022 at 14:30 hrs.

Instructions to Tenderers:

Bids shall be submitted on line through EGPS only and No tender fee shall be applicable.

01. For full details/scope of work and terms and conditions etc., please see the enclosed annexures.

02. Interested tenderers can download the e-tender from ISRO e-procurement website ISRO NEW E-PROCUREMENT (www.eproc.isro.gov.in) and submit the offer on line in the e-procurement portal. Offers sent physically by post/courier/in person will not be considered.

03. Tender documents are also available on ISRO website www.isro.gov.in ISRO New e-procurement website (www.eproc.isro.gov.in) and SDSC SHAR, Sriharikota website www.shar.gov.in. The same can be down loaded and offer submitted on line in the new e-procurement portal only.

04. Quotations received after the due date/time will not be considered.

05. The tender documents are available for download upto 25.10.2022 at 1600 hrs. and last date for submission of tenders on line 25.10.2022 at 1600 hrs. and Tender Opening on 26.10.2022 at 14:30 hrs.

06. Interested vendors can attend the Bid opening sessions to know the details. Presence not mandatory to consider the quote for evaluation.

07. Sr. Head, Purchase and Stores, SDSC-SHAR, Sriharikota reserves the right to accept or reject any/or all the quotations.

DT: 21.09.2022

Sr. HEAD PURCHASE AND STORES

ANNEXURE TO INDENT NO:

SDSC SHAR/VALF PURCHASE/VALF/2022001331

Fabrication, Transportation, Erection and Commissioning of Dead Weights for PIF project

SPECIFICATIONS & PRICE SCHEDULE

OWNER : INDIAN SPACE RESEARCH ORGANISATION

PROJECT : PSLV INTEGRATION FACILITIES

LOCATION : SDSC, SHAR, SRIHARIKOTA

PSLV INTEGRATION FACILITIES (PIF)

SATISH DHAWAN SPACE CENTRE

SRIHARIKOTA -524124.

INDIAN SPACE RESEARCH ORGANISATION

SECTION –A

GENERAL TERMS AND CONDITIONS OF THE CONTRACT

PROPOSAL DOCUMENT, CLARIFICATION AND ADDENDUM

Quotations are invited from the interested bidders for the enclosed scope of work in two-part bid. Part-1 technical & unpriced part of the work and Part-2 Priced commercial part.

Only experienced Bidders who are qualifying in bid-qualification criteria given in Section D1 only should quote.

The RFP document is organized in four sections as follows.

Section –A General Specification, Terms and Conditions of the Contract

Section –B Scope of Work & Technical Specifications

Section –C Fabrication drawings

Section –D Annexures.

Title of the proposal: "Fabrication, Transportation, Erection and Commissioning of Dead weights for PIF project

A. PROPOSAL DOCUMENT

1. Successful Bidder shall sign & stamp each page of the tender document (RFP) as token of his acceptance and submit the same before order placement.
2. Proposal documents shall remain the property of SDSC SHAR and shall not be used for any another purpose without the consent of SDSC SHAR.
3. The proposal shall be completely filled in all respects and Bid shall be tendered together with requisite information & Annexure. Any offer incomplete in any particulars is liable to be rejected.
4. The Proposal (Unpriced Techno-commercial bid) with a complete set of the required documents shall be up-loaded in ISRO e-procurement website.
5. The Proposals shall be submitted on-line in ISRO e-procurement portal before the time limit for bid submission specified in the Letter Inviting Bid.

6. Bidders shall set their quotations in firm figures and without variations/additions in the terms of the Proposal documents.

7. AMBIGUITY

Should there be any ambiguity or doubt as to the meaning of any of the tender clause/condition or if any further information is required, the matter shall be immediately brought to the notice of Sr. Head, Purchase & Stores of SDSC SHAR.

B. PREPARATION OF BIDS

1. VALIDITY OF OFFER

Bid shall remain valid for acceptance for a minimum period **of 6 (SIX) months** from the due date of submission of the Bid. The Bidder shall not be entitled during the said period to revoke or revise his Bid or to vary the Bid except and to the extent required by SDSC SHAR in writing. Bid shall be revalidated for extended period as required by SDSC SHAR in writing. In such cases, unless otherwise specified, it is understood that validity is sought and provided without varying either the quoted price or any other terms & conditions of Bid finalized till that time.

2. COST OF BIDDING

All direct and indirect costs associated with the preparation and submission of bid shall be to Bidder's account and SDSC SHAR will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bid process.

3. APPLICABLE LANGUAGE/ MEASUREMENTS

The bid and all correspondences incidental to and concerning the bid shall be in the English Language. For supporting document and printing literature submitted in any other language, an accurate English Translation shall also be submitted. Responsibility for correctness in translation shall lie with the Bidder. All the measurements shall be given in metric system.

4. ARRANGEMENT OF BID

The Bid shall be neatly presented on white paper with consecutively numbered pages. It should not contain any terms and conditions which are not applicable to the Bid. The Bid and all details submitted by the Bidder shall be signed and stamped on each page as token of acceptance, by a person legally authorized to enter into agreement on behalf of the Bidder. (Corrections / alteration, if any, shall also be signed by the same person).

5. SCHEDULE OF PRICES

The schedule of prices shall be read in conjunction with all the sections of proposal document. The price must be filled online in the same format of 'Schedule of Prices' in **Section D1**. Hard copy of Price bid shall not be sent strictly. If hard copy of price bid is received the bid will be summarily rejected.

Price bid shall be filled in Price Bid form in e-procurement only. Price Bid annexures to be submitted in Price Bid supporting documents only and in e-procurement only.

Price bid shall not be enclosed along with Technical & Unpriced Commercial Bid in e-procurement/ hard copy.

6. DOCUMENTS COMPRISING THE BID

Bids shall be arranged in the following order.

A. Part – I: Technical and Unpriced Commercial Part

Technical and unpriced commercial part shall comprise the attachments,

specifying attachment number arranged in the order as follows:

a) Submission of bid letter.
b) Power of attorney in favour of authorized signatory of the bid / proposal documents.
c) All the annexure in Section-D enclosed in proposal duly filled, signed and sealed (D1 un priced copies only).
d) Bid qualification criteria and all supporting documents.

e) Unpriced copy of schedule of prices with all other commercial terms, taxes, duties, exemption certificates and conditions duly filled (Prices to be kept blank), signed and stamped. Bidder to clearly indicate "quoted" / "not quoted" against each sr.no in the price column in the unpriced schedule.

f) Any other relevant document, bidder desires to submit.

B. <u>Part – II: Priced Commercial Bid</u>

Priced commercial bid shall be filled on line in the price bid format in e-procurement. Schedule of prices/ Annexures also to be filled and uploaded in price bid supporting documents in e-procurement portal only.

No deviations, terms and conditions, assumptions, conditions, discounts etc. shall be stipulated in price bid. Department will not take cognizance of any such statement and may at their discretion reject such bids.

C. <u>BID SUBMISSION</u>

Bids duly filled in by the Bidder should invariably be submitted as stipulated in

the Letter inviting bid. Bids shall be submitted in the following manner.

I. PART – I: UN PRICED TECHNO-COMMERCIAL PART OF THE BID FOR THE WORK

Complete Techno–commercial part of the bid shall be filled online in the vendor Specified Terms' form of the e-tender. Any documents related to technical literature, guarantee / warrantee certificates and any other relevant documents as per the tender shall be scanned in lower resolution format and uploaded to the e-tender under 'Documents solicited from Vendor' form only in ISRO e-procurement portal (**https://eproc.isro.gov.in**).

The deviation statement if any, and checklist shall be filled online, without which the bid will not be considered.

II. PART – II : PRICE PART OF THE BID FOR THE WORK

Price bid shall be filled in the on-line 'price bid' form of the e-tender only in ISRO eProcurement website https://eproc.isro.gov.in. Any other terms and conditions given in this part shall not be considered and if insisted upon by the Bidder, bids are liable for rejection.

a. SDSC SHAR may open Part – I of the bid on the due date of opening subject to meeting the minimum evaluation criteria. Price Bids (Part-II) of technically and commercially acceptable offers shall be opened at a later date.

b. SDSC SHAR reserves the right to reject any or all the Bids without assigning any reasons thereof.

c. Any bids/offers with price details in Techno-Commercial Offer (Part –I) shall be rejected.

d. SDSC SHAR reserve rights to place order for either full quantities of all items or partial quantities and partial items based on the unit rates available.

D. Vendor Evaluation Format

SDSC SHAR seeks response to the given questionnaire for assimilating data which would be used for evaluating the capability of the supplier for executing the referred work. Hence, the supplier is requested to provide only genuine data and any discrepancy found at a later point of time may result in rejection of the supplier from purchase process. Furnishing of data cannot be Construed as automatic qualification for participation in the tender. Questionnaire should be signed by a responsible and authorized person of the Company / Agency.

Schedule of general particulars / vendor evaluation format shall be filled as per **Section: D3.**

Note: In order to consider as valid experience, all the experience has to be supported with the technical details, completion certificate and purchase order.

E. DETERMINATION OF RESPONSIVENESS

SDSC SHAR will scrutinize tenders to determine whether the tender is substantially responsive to the requirements of the tender documents. For the purpose of this clause, a substantially responsive tender is one which inter-alia conforms to all the terms and conditions of the entire Tender document without any deviations and reservations. The decision of SDSC SHAR shall be final in this regard.

F. BID EVALUATION

I. During evaluation, SDSC SHAR may request Bidder for any clarification on the bid OR additional documents.

II. Techno-commercial discussion shall be arranged with Bidder, if needed. Bidder shall depute his authorized representatives for attending discussions. The representatives attending the discussions shall produce authorisation from his organisation to attend the discussion and sign minutes of meeting on behalf of his organisation if required. The authorised representative must be competent and empowered to settle/decide on all technical and commercial issues.

III. Bidder must provide the point by point compliance to the technical specifications along with deviations as per "Schedule of deviations" attached in **section D4**. The tender will be rejected, if the deviations are not acceptable to the Department.

IV. Performance of Bidder in similar nature of works executed/ under execution shall be taken into consideration before selecting the Bidder for opening his price bid.

V. SDSC SHAR reserves the right to split the order or alter the quantities specified based on prices quoted for part work or unit rate quoted by BIDDER.

VI. SDSC SHAR reserves the right to accept a bid other than a lowest and to accept or reject any bid in full or part without assigning any reasons. Such decisions by SDSC SHAR shall bear no liability whatsoever consequent upon such decision.

GENERAL SPECIFICATION

1. INTRODUCTION

"Fabrication, Transportation, Erection and Commissioning of Dead Weights for PIF project".

2. SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

The detailed scope of work and technical specifications are given in Sections B of this document. The general terms and conditions are given below.

3. SUPPLIER's OBLIGATIONS & FUNCTIONS

3.1. SPECIFICATIONS AND DRAWINGS

The Supplier shall execute the works in compliance with the provisions of CONTRACT, good engineering practices and codes requirements.

4. FABRICATION

4.1. GENERAL

4.2. During works, Department's quality team / their engineer will visit site from time to time with or without Supplier's engineer to establish conformity of the work with specification. Any deviations, deficiencies or evidence of unsatisfactory workmanship shall be corrected as instructed by Department.

4.3. Supplier shall carry out work in a true professional manner and strictly adhere to the approved drawings.

5. Dead weight loading, unloading and trail suiting

5.1. Supplier has to bring suitable mobile crane for loading and unloading the dead weights at PIF complex.

5.2. Supplier shall carry out the works in accordance with the specific Instructions given on the approved drawings, method statements, manufacturer's drawings / documents or as directed by Department. Equipment shall be erected in neat manner so that they are level, plumb, and square and properly aligned and oriented. Tolerances shall be as established in manufactures drawings or as stipulated by Department. No equipment shall be welded or bolted, until its alignment is checked and found acceptable by Department.

5.3. Supplier shall provide all supervision, labour, tools, machines, cranes, equipments, rigging material and incidental material such as bolts, wedges, anchors, etc. required to complete the works. supplier shall also provide at his own cost all such consumables like oxygen – acetylene gas, welding rods, grinding wheels, temporary supports, shims etc. required to complete work.

6. SAFETY

Supplier shall follow the safety regulations / codes and shall take necessary measures at his own cost.

6.1. ERECTION & CONSTRUCTION POWER

6.2. Electrical power subject to availability may be extended by SDSC SHAR on chargeable, as per the tariff rules of State Electricity Board and SDSC SHAR. Reasonable quality of normal Construction power will be made available at one point which is 100m away from the work site (415V, 3 phase, 50 Hz). However onward distribution shall be by the supplier. Installation of necessary power cables of 100m or more, energy meters, switchgear & distribution system, etc. for Construction power in a safe manner in strict conformity with local rules & regulations will be the responsibility of supplier.

6.3. During non-availability of power, supplier shall make his own arrangement of alternate power source at their cost.

7. TAXES AND DUTIES

7.1. Bidders have to consider applicable GST rates

7.2. CGST/SGST/UTGST/IGST (whichever is applicable) shall not be included in the lump sum quote, but indicated (both percentage of tax applicable & amount on which it is applicable) separately in schedule of prices.

7.3. It is the responsibility of the contractor to issue the Tax Invoice strictly as per the format prescribed under the relevant applicable GST law (CGST Act/SGST Act/UTGST Act/IGST Act). Contractor to indicate the proper GSTN Registration/ HSN code in their tax invoices.

7.4. CGST/SGST/UTGST/IGST shall be paid at actuals against Tax Invoice but restricted to the amount and percentage in the contract.

7.5. GST details of SDSC SHAR are given below

GSTIN: 37AAAGS1366J1Z1

LEGAL NAME: SATISH DHAWAN SPACE CENTRE SHAR

VALIDITY FROM:29/08/2017

TYPE OF REGISTRATION: REGULAR

8. STATUTORY VARIATION

Statutory variation for CGST/SGST/UGST/IGST is applicable, provided the actual completion of services does not occur beyond the period stipulated in the order/contract or any extension (without levy of penalty). For variation after the agreed completion periods, the service provider alone shall bear the impact for the upwards revisions.

For downward revisions, the Department shall be given the benefit of reduction in CGST/SGST/UGST/IGST.

9. RISK COVERAGE

The Supplier shall arrange comprehensive risk coverage at his own cost covering the value of equipment including transportation to the site from manufacturer's works. The period of such coverage shall be up to contractual completion period or any extension granted by Department thereof.

10. INCOME TAX

Income tax at the prevailing rate as applicable from time to time shall be deducted from the supplier's bills as per Income Tax Act, 1961 and the rules there-under or any re-enactment or modifications thereof and a TDS certificate shall be issued.

11. WARRANTY

The bidder shall provide ***12 months'*** warranty for the entire system for a defect liability, after final official handing over at his cost.

12. PERFORMANCE BANK GUARANTEE

12.1. The supplier shall guarantee for the performance of the equipment by providing bank guarantee in favour of the Department for an amount equivalent to 3 % (ten percent) of the total value of this contract valid till the warranty period of the contract plus 2 months claim period.

12.2. The performance bank guarantee shall be submitted by the supplier with in fifteen days from the date of acceptance the equipment as per the CONTRACT. Format for the performance bank guarantee shall be obtained from the Department.

13. PACKING AND FORWARDING

13.1. All packing and transport charges, transit handling costs, transit risk coverage and transport fees of agents employed at the place of delivery or elsewhere, shall be deemed included in the price to be paid to the Supplier.

14. FORCE MAJEURE

Should a part or whole work covered under this purchase order be delayed due to reasons of Force Majeure which shall include legal lockouts, strikes, riots, civil commotion, fire accident, quarantines, epidemic, natural calamities and embargoes the completion period for work, equipment referred to in this agreement shall be extended by a period not in excess of the duration of such Force Majeure. The occurrence shall be notified within reasonable time.

15. SCHEDULE OF PRICE

15.1. CONTRACT price shall include all costs of "***Procurement of material, Fabrication, Transportation, painting, erection and commissioning of Dead weights for PIF Project".***

15.2. The rate quoted shall be on FOR SDSC SHAR, Sriharikota basis and firm and fixed.

16. DISCOUNTS

Tenderer shall not indicate any discount separately and quoted price should be after deducting the discount.

17. MODE OF PAYMENT

All the payments due to Supplier will be made in Indian currency by crossed "Account Payee" cheque sent to the registered office of the Supplier. Bidders can submit the banker details and payments can also be made through ECS.

18. TERMS OF PAYMENTS

General guideline terms of payments are as indicted below. Any deviation to these payment terms to be brought out.

18.1. **100%** of total PO value payment plus applicable taxes against receipt of complete fabricated material at Purchasers / Department site and acceptance by CLIP.

19. DELIVERY SCHEDULE

The realization of fabrication works within the schedule is very essential. Hence, bidders are requested to adhere to the schedules given below. Contractor shall follow the following schedule for executing the contract:

S. No	Description of Target	Responsibility	Target Completion Date
1	Purchase Order release	Dept.	T0
2	Procurement of Material ,Fabrication and supply to site	Vendor	T0+ 60 days
3	Department clearance for Trail suiting with existing 50 t dead weight	Dept.	T1
4	Trail suiting and commissioning activities	Vendor	T1 +15 days

20. LIQUIDATED DAMAGES

In the event of the Supplier failing to complete the work within the delivery period specified in the contract agreement or in extension agreed thereto, Department shall reserve the right to recover from the Supplier as liquidated damages, a sum of 0.5 percentage per week or part thereof of the undelivered portion of the total contract price of equipment or work. However, the total liquidated damages shall not exceed **10.0** percentage of the total Contract

price. The LD reckoning date starts from **T_0 + 60 days** for supply portion and **T1+15** days for erection portion.

21. ACCEPTANCE AND REJECTION:

On completion of the work or part of the work as specified in the contract, the representative of the Department referred to, shall check as soon as possible, but in any event within one month of notification of readiness for acceptance that the work performed complies with the contract requirements as regards quantity and quality.

SECTION –B

TECHNICAL SPECIFICATIONS

A. Scope of Work:

The scope of work includes

Procurement of materials, fabrication, supply, inspection, transportation and testing & commissioning of following items as mentioned below with specification and terms & conditions:

1. The modular test loads with a lifting pin/brackets shall be fabricated as shown in the drawing (Drawing no. as mentioned below).
2. Modular test loads outer casing/container shall be made up of structural steel plates.
3. Inside the container/casing reinforcement shall be done with steel rods as per scheme given in drawing.
4. Concrete of required grade / quantity as mentioned in drawing shall be used for filling the modular test loads (inside the container) and top plate shall be closed with steel.
5. The top plate shall be flat for positioning additional loads during testing.
6. Integral handling brackets shall be provided as per drawings for handling the load.
7. All the pins are of alloy steel, as per specifications given in the drawings.
8. The description and details of drawings are mentioned below:

SN	Description of Item	Weight (Tons)	Drawing No.	Quantity
1	10t MODULAR DEAD WEIGHT	Steel + Concrete ~10t (10,000kg $\pm$ 50kg)	10-MECH-12-9-18/A1 (sheet 1 of 1)	01No
2	15t MODULAR DEAD WEIGHT	Steel + Concrete ~15t (15,000kg $\pm$ 100kg)	10-MECH-12-9-17/A1 (sheet 1 of 1)	01No
3	50t MODULAR DEAD WEIGHT (including link plates)	Steel + Concrete ~50t (50,000kg $\pm$ 250kg)	10-MECH-12-9-16/A1 (3 sheets)	01No

Note: Any minor modification/changes during fabrication and supply shall be carried out without any additional cost.

50 t modular dead weight has to be trail suited to the existing 50 t dead weight and any modification / interface required for trail suiting is in the scope of contractor only.

Handling Brackets marking, positioning and final welding to be done after trail positioning with the existing 50 t only.

B. TECHNICAL SPECIFICATIONS, TERMS & CONDITIONS:

1. FOR STEEL-CONCRETE MODULAR TEST LOADS

a. Total steel fabrication and concrete filling is in the scope of supplier only.
b. All the materials required like steel rods, plates, concrete, pins, pipes, bolts and nuts etc. as per drawing shall be is in the scope of supplier.
c. The concrete grade and steel materials shall be as per IS and also as mentioned in drawing.
d. Good quality cement and river sand shall be used for making the concrete and filled to ensure uniform density in the volume of modular test loads.
e. Concrete compacting machines (vibrator machines) shall be used for proper compacting of concrete.
f. Before filling the concrete and before closing each modular test loads with top plate shall be offered for inspection to department Engineer.
g. Safe handling and achieving the suitable dimensions are in the scope of supplier.
h. The modular steel-concrete test loads (mentioned above) fabrication and concrete casting can be carried out at supplier works or in PIF Complex, SDSC SHAR.

i. If the modular test loads are fabricated at supplier works, the following need to be carried out:

   a. Transportation of all modular test loads to PIF Complex VALF, SHAR.

   b. Cost of transportation shall be mentioned separately.

j. Material handling support if any, like mobile crane, fork lift and tractor trailer for handling & internal transportation of materials from storage to fabrication place shall be provided on free of cost subject to availability. Unloading/handling work is the responsibility of supplier in terms of manpower, safety & preventing accidents.

2. RAW MATERIALS

a. All steel raw materials used for concrete load, modular loads shall be of good quality without any defects/inclusions and standard make for all structures.

b. Structural steel confirming to IS: 2062 Gr. B shall be used.

c. All pins shall be from forged material bars and shall be UT tested, MPT/ DPT qualified.

d. All plates of more than 20mm thick shall be ultrasonically tested for defects/ imperfections. Test reports shall be made available during stage / final inspection.

e. All material shall have test certificates with Heat No and Lot No. from original manufacturer.

f. Make of steel shall be: M/s. SAIL/ TATA/ JINDAL /VIZAG STEEL /ESSAR only.

g. Make of alloy steel forgings for pins shall be M/s. SAIL/ JINDAL/ TATA/ ESSAR/ VIZAG-RINL/ Mahindra Ugine Steel (MUSCO) / Hindustan Forgings/Bhushan Steel/Vikrant Forgings/ Bay Forge/ Kalyani Forgings or equivalent.

h. All the fasteners shall be of standard make M/s TVS/UNBRAKO/LPS only.

3. FABRICATION /MANUFACTURING:

a. Plan of fabrication/manufacturing shall be prepared and submitted to department before starting of fabrication.
b. The manufacture includes cutting of rolled sections & plates in required lengths, finishing edges, Edge preparation, welding, inspection of welds, stage inspection, removal of burrs, finishing.
c. The Entire fabrication activity shall be performed in a planned/ sequential manner to achieve desired dimensional/geometrical tolerances specified in the drawing.
d. In assembling and joining parts of a structure or of build-up member the procedure and approved sequence of welding shall be followed such as to avoid distortion and minimize shrinkage stress.
e. The pin shall be of forged steel, finish machined, heat treated and tested as mentioned in drawings.
f. The pin for modular test loads shall be heat treated to required specifications as mentioned in the drawings. The heat treatment charts/oven data shall be provided for record. After hardening & tempering, pin shall be tested for any heat grain with DPT/MPT.
g. Welder qualification, WPS, PQR as per IS shall be submitted. Qualified welders shall be used for this scope of work.
h. Edge preparation for welding to be carried out for all joints as per standard practice.
i. Preheat and inter-pass temperature shall be maintained as required on either side of point of welding as per the welding standards.
j. All fillet welds shall be of minimum 6mm size unless otherwise specified in the drawing. The effective throat thickness of a fillet weld shall be shortest distance from the root to face of the diagrammatic weld.

k. Inside of the box sections of seal welded to leak tight and shall be painted with water resistant epoxy zinc rich primer (two coats) before concreting closing.

l. Wherever welded attachments are used to facilitate fabrication, same shall be removed carefully by cutting or chipping and surface of material shall be finished smooth by grinding.

m. Concreting with compacting machine shall be used to have better concrete loading.

n. Painting of structural materials inner areas before closing and outer areas after closing. Overall painting shall be carried out before handing over.

o. The environment of modular test loads is outside (24x7 hours). The environment is near to sea (i.e., saline atmosphere), with ambient temperature and with relative humidity of 95%. Weather conditions are tropical. Bidder shall consider suitable primer and paints for painting these loads and tackles.

    i. **Surface Cleaning**: The entire surface of fabricated materials are to be sand / grit / abrasive blasted to white metal finish (SA 2½ quality) and cleaned properly off rust, grease & dirt.

    ii. **Painting with Epoxy Primer (Total thickness of 80 microns)** : Two coat of epoxy primer (Apcodur CP 680 of M/s Asian Paints or equivalent) shall be applied to a Dry Film Thickness (DFT) of 80 microns.

    iii. **Painting Epoxy Paint (Total thickness of 120 microns)** : Two coats of epoxy paint of Golden Yellow color (Apcodur CF 693 of M/s Asian Paints or equivalent) shall be applied to a Dry Film Thickness (DFT) of 80 micron and 40 micron for first and second coats with proper drying in between coats. Final touching shall be done if required.

iv. **<u>Total paint thickness including primer</u>**: Not less than 200 microns. This will be tested during stage inspections and final inspection at supplier works & at our site.

v. In addition if any intermediate cleaning required between successive coats of paint are to be carried out as per the recommendation of paint manufacturers and as per the instruction of the Purchaser (SDSC SHAR).

vi. Painting scheme/plan with paint details shall be submitted to department before taking up the work.

vii. Lettering/stenciling shall be carried out on all the individual modular test loads with letter size of 6 inches and colour shall be in black/red as mentioned below :

    1. For Modular test loads : "_____TON" shall be mentioned on all 4 sides.

viii. All the side faces of modular test loads shall be painted with slant black and yellow strips with an inclination of 60° to the horizontal.

ix. All the edges faces of Modular test loads shall be painted with red colour reflective paint of width 100mm.

x. Pin and handle shall be painted with red colour.

4. SHOP/SITE INSPECTION BEFORE STARTING OF WORK

a. Raw material Inspection : All steel raw materials shall be offered for inspection along necessary material & mechanical test reports, UT inspection reports, and heat No. marks.

b. All the welds are to be tested by liquid penetration test as per IS.

c. Liquid penetration test (DPT) shall be conducted on root and final run of all full penetration welds (if any).

d. Member length shall be selected such that no butt welds are required in main load members.

e. Butt welds if any shall be 100% DPT tested & qualified, fillet welds shall be 10% DPT.
f. The pin shall be inspected ultrasonically and qualified.
g. The forged pin shall be thoroughly hardened and tempered as per specification.
h. After hardening & finishing the pin shall be DP tested/MPT for any surface cracks.
i. Fabrication sequence shall be planned in a manner to facilitate inspection of all welds.
j. Dimensions shown in the drawings are final acceptance dimensions. However, any minor modifications if any shall be accomplished by the supplier.
k. Allowances for machining and thinning due to fabrication process shall be added to arrive at material sizes.
l. Steel Concrete Modular test loads shall be offered for inspection after completion of making holes & boring operations before painting.
m. Purchaser can inspect modular test loads at any stage of fabrications with prior intimation. Supplier shall cooperate and arrange for inspection as per standard.
n. Fully finished and painted loads will be inspected by our engineers at your site before dispatch (if the loads is planned to carry out at supplier works).
o. The manufacture include cutting of rolled sections & plates in required lengths, finishing edges, Edge preparation, welding, inspection of welds, stage inspection, removal of burrs, finishing.
p. The Entire fabrication activity shall be performed in a planned/ sequential manner to achieve desired dimensional/geometrical tolerances specified in the

5. **TESTING OF MODULAR TEST LOADS**

a. Modular test loads shall be finally inspected for all dimensional inspection. All dimensions shall be as per drawing within allowable limits.
b. Loads shall be handled individually at SHAR after receipt/fabrication. Party shall depute their personnel and Engineer/supervisor during initial handling.
c. Trail suiting of 50 t modular dead weight with the existing 50 t dead weight. and tenderer has to ensure easy assembly of link plates between new and old dead weights.

6. DOCUMENTATION

a. After Placement of order:

a. Supplier shall submit Quality Assurance Plan for department's approval.

b. Prior to fabrication

i) Raw materials identification & physical and chemical test certificates for all materials used in manufacturing of the equipment.
ii) Heat No. & Lot No. of pin shall be transferred and this shall be visible and traceable after full completion of fabrication in presence of department engineers.
iii) UT test reports for plate thicknesses above 20 mm.
iv) UT test reports of Pins & bars.

c. **During & After completion of fabrication**

v) Hardness test reports & Heat treatment charts for forged pins.
vi) Details of stage wise inspection records, rectification records if any for fabricated items and machined articles.
vii) DP reports for root.
viii) Dimensional inspection reports.
ix) Two sets of all inspection and test reports in hard bound book form shall be provided.

7. **GENERAL CONDITION OF SUPPLY**

a. Supplier shall be responsible for all their materials, personnel during work at our site.
b. All the machined surfaces shall be applied with anti-corrosive varnish.
c. Slant black and yellow paint strips with an inclination of 60° to the horizontal shall be provided. Width of the strip shall be 100mm.
d. All lettering shall be black/red.
e. Pins and handles shall be painted with red colour.
f. Any intermediate cleaning required between successive coats of paint shall also be carried out as per the manufacturer's specification and guidelines.
g. QAP to be submitted by the party for approval before start of fabrication.
h. Supplier shall not off load the contract or part of contract to any sub supplier without prior permission from Department.
i. The party shall deliver the fabricated, finished and painted tackles at SDSC SHAR.

Notes:

- Weights given in document/drawing are indicative only. The final weight may vary and party need to account the same while submitting the quotation.

SECTION-D

ANNEXURES

SCHEDULE OF PRICES (UN PRICED COPY) & GENERAL PARTICULARS

1. Bidders shall not alter the contents of this schedule of prices. If the bidder wants any additions / alterations, these shall be brought out separately in the format as given in this schedule of prices.
2. The quoted price shall be price in Indian Rupees for preparation of fabrication drawings, procurement of material, manufacture, inspection, packing, forwarding, transportation from place of manufacture to site, transit insurance, unloading / receipt at site, storage / handling at site, carrying out performance test at site inclusive of all taxes and duties as applicable indicated in the price bid.
3. Technically suitable L1 only will be considered for placing the order.

Schedule of Price

S. no.	Item	Unit	Qty.	Unit Cost (in Rs)	Total Cost	GST (%)	GST (In Rs.)	Total Cost (in Rs.)
1	Fabrication, supply, painting, erection and commission of 10 t dead weight for PIF project.	Nos	1					
2	Fabrication, supply, painting, erection and commission of 15 t dead weight for PIF project.	nos	1					
3	Fabrication, supply, painting, erection and commission of 50 t dead weight for PIF project. (Includes fabrication of link plates and trail suiting of new 50 t to existing 50t)	Nos	1					

SIGNATURE:

_____

NAME:

_____

DESIGNATION:

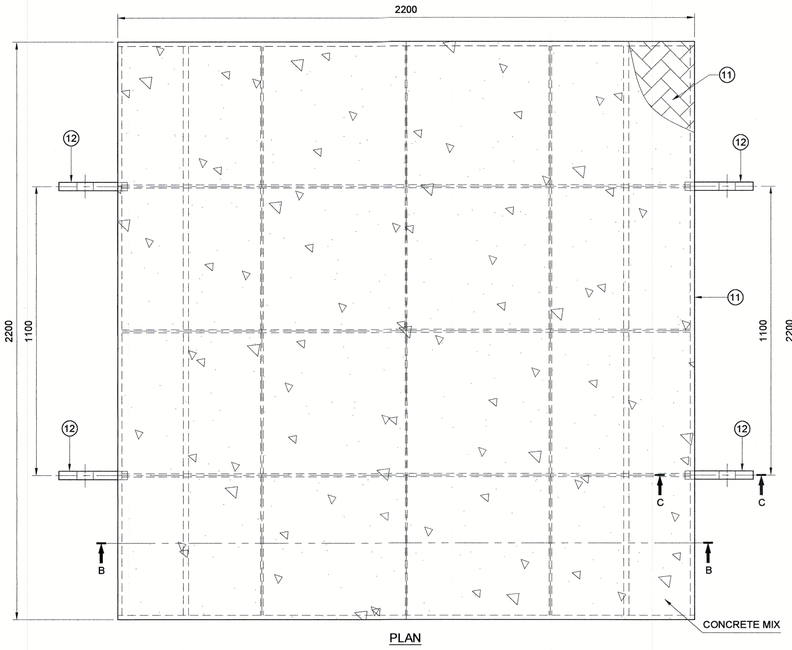
_____

DATE

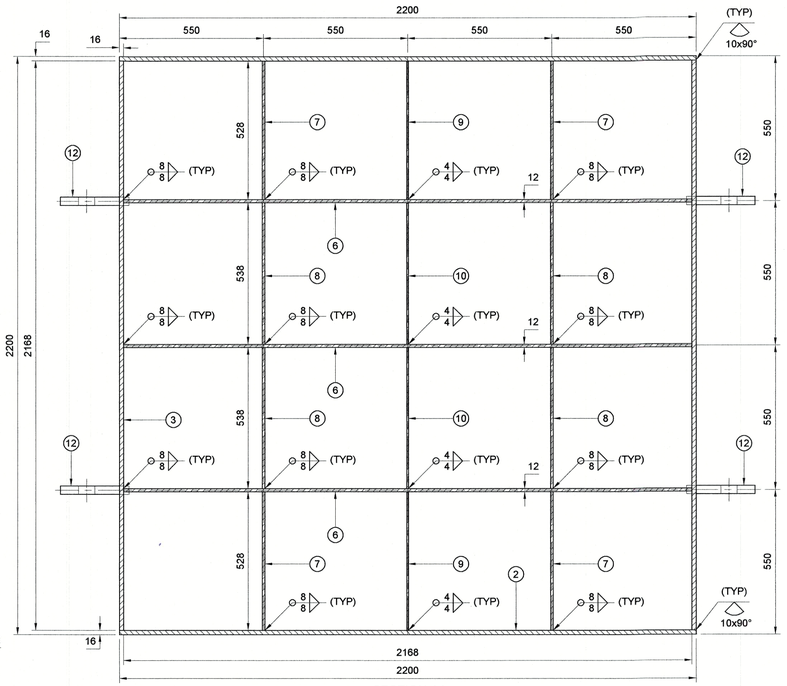
_____

SEAL OF THE COMPANY

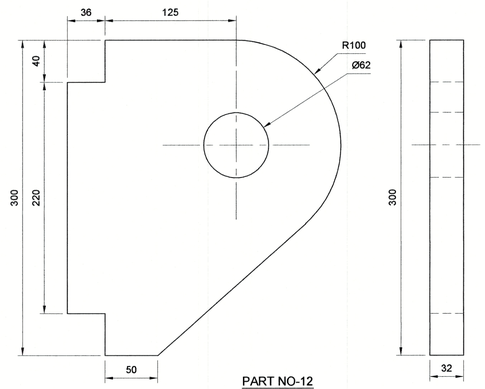
REF. DRG. NO.10-MECH-12-9-18/A1
COM. FILE NO.SCEND/SHIVAJI/AF129/A1/2021/KRISHNA RAO



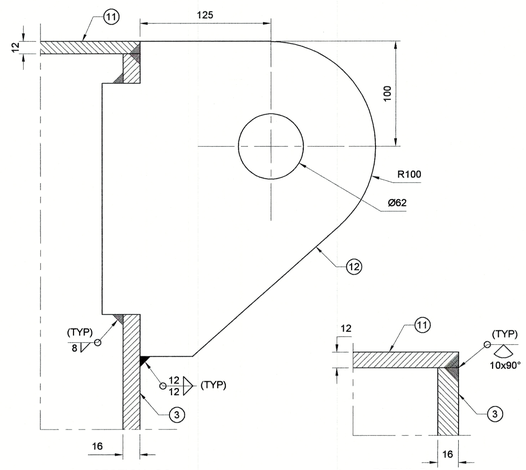
PLAN



SECTION-AA

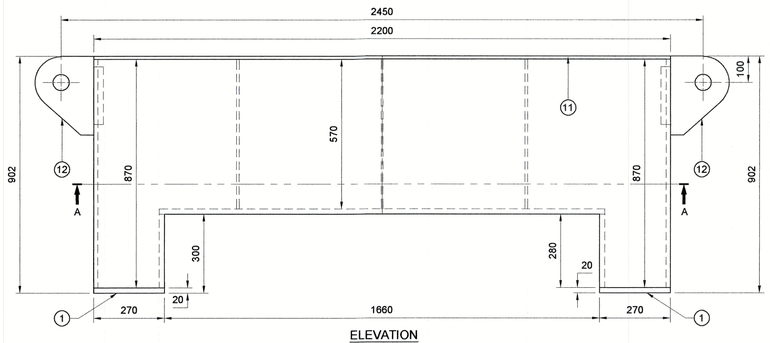


PART NO-12



SECTION -CC

DETAIL-D



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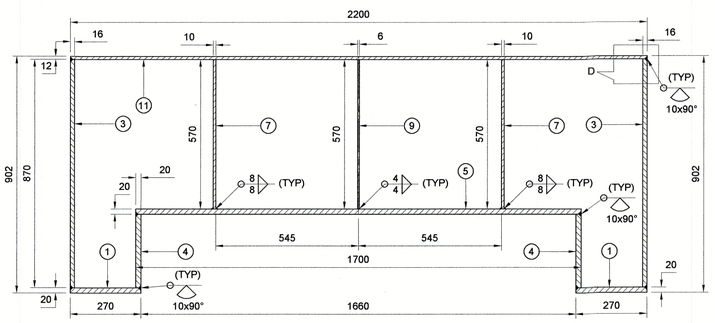
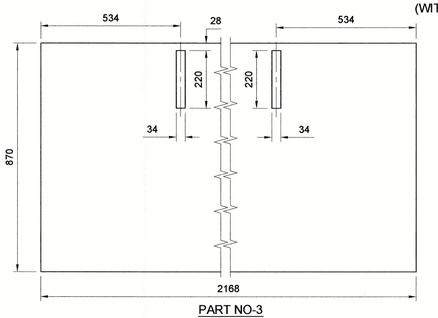
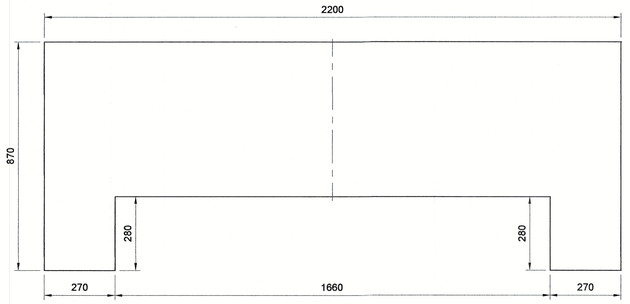


SECTION-BB
(WITH OUT PART NO : 12)



PART NO-3



PART NO-2

TOTAL WEIGHT 2965 Kg(Approx).

S.NO	DESCRIPTION	MATERIAL	QTY	W.T	REMARKS
12	BRACKET 300 x 261 x 32 Thk	IS:2062 Gr-B	4	79	
11	TOP PLATE 2200 x 2200 x 12 Thk	IS:2062 Gr-B	1	456	
10	PLATE 7 570 x 538 x 6 Thk	IS:2062 Gr-B	2	29	
9	PLATE 6 570 x 528 x 6 Thk	IS:2062 Gr-B	2	28	
8	PLATE 5 570 x 538 x 10 Thk	IS:2062 Gr-B	4	96	
7	PLATE 4 570 x 528 x 10 Thk	IS:2062 Gr-B	4	95	
6	PLATE 3 2168 x 870 x 12 Thk	IS:2062 Gr-B	3	389	
5	PLATE 2 2168 x 1700 x 20 Thk	IS:2062 Gr-B	1	579	
4	PLATE 1 2168 x 280 x 20 Thk	IS:2062 Gr-B	2	191	
3	SIDE PLATE 2 2168 x 870 x 16 Thk	IS:2062 Gr-B	2	474	
2	SIDE PLATE 1 2200 x 870 x 16 Thk	IS:2062 Gr-B	2	364	
1	BOTTOM PLATE 2200 x 270 x 20 Thk	IS:2062 Gr-B	2	187	

FINISHED WEIGHTS :

WEIGHT OF STEEL	: 2974kg.
WEIGHT OF REINFORCEMENT	: 60kg.
WEIGHT OF CONCRETE	: 6966kg.
TOTAL WEIGHT	: 10000kg.

NOTES:-

1. ALL DIMENSIONS SHOWN ARE FINAL FINISHED DIMENSIONS.
2. ALL THE WELDS ARE OF 4 mm SIZE FILLET UNLESS OTHERWISE SPECIFIED.
3. ALL WELDS ARE TO BE DP TESTED FOR ROOT AND FINAL PASSES TO ENSURE WELD QUALITY.
4. EDGE PREPARATION OF PLATES SHALL BE CARRIED OUT FOR WELDING.
5. CONCRETE MIX CAN BE > M25 & DENSITY CONSIDERED IS 2400kg/m^3.
6. NOMINAL REINFORCEMENT OF Ø8mm ROD AT 150mm c/c SHALL BE USED ALONG LENGTH, WIDTH & 225mm ALONG HEIGHT.
7. CHECK THE STATUS OF THE DRAWING BEFORE FABRICATION / MACHINING.

STATUS	SIGN	DATE
DISCUSSION / REVIEW		
TENDER PURPOSE		9/9/22
FABRICATION		

UNRESTRICTED | RESTRICTED | CONFIDENTIAL

DO NOT SCALE THE DRAWING
ASK IF IN DOUBT
UNLESS OTHERWISE SHOWN
ALL DIMENSIONS ARE IN MILLIMETERS
REMOVE SHARP EDGES & BURRS
CHAMFER 1 M M X 45°
MACHINING FINISH IN MICRONS :-
▽ 8 - 25 ▽▽ 1.6 - 8
▽▽▽ 0.025 - 1.6 ▽▽▽▽ < 0.025

DEVIATION FOR NON TOLERANCED DIMENSIONS (IS -2102)

DIAMETERS & LENGTHS	LENGTH IN M.M OF SHORTER SIDE OF ANGLE UPTO & INCL
UPTO & INCL 6 ± 0.1	1- 6 + 1°±00'
6 - 30 ± 0.2	6- 30 + 0°±30'
30 - 120 ± 0.3	30-120 + 0°±20'
120 - 315 ± 0.5	120-400 + 0°±10'
315 - 1000 ± 0.8	
1000 - 2000 ± 1.2	
2000 - 4000 ± 2.0	
4000 & ABOVE ± 3.0	

SCEND&ASG

DESIGNED		
DES.CHKD		
DRAWN	SHIVAJI	09.09.22
DRG.CHKD		
APPROVED		
	SIGN.	DATE

TITLE
10t MODULAR WEIGHT FOR PIF PROJECT

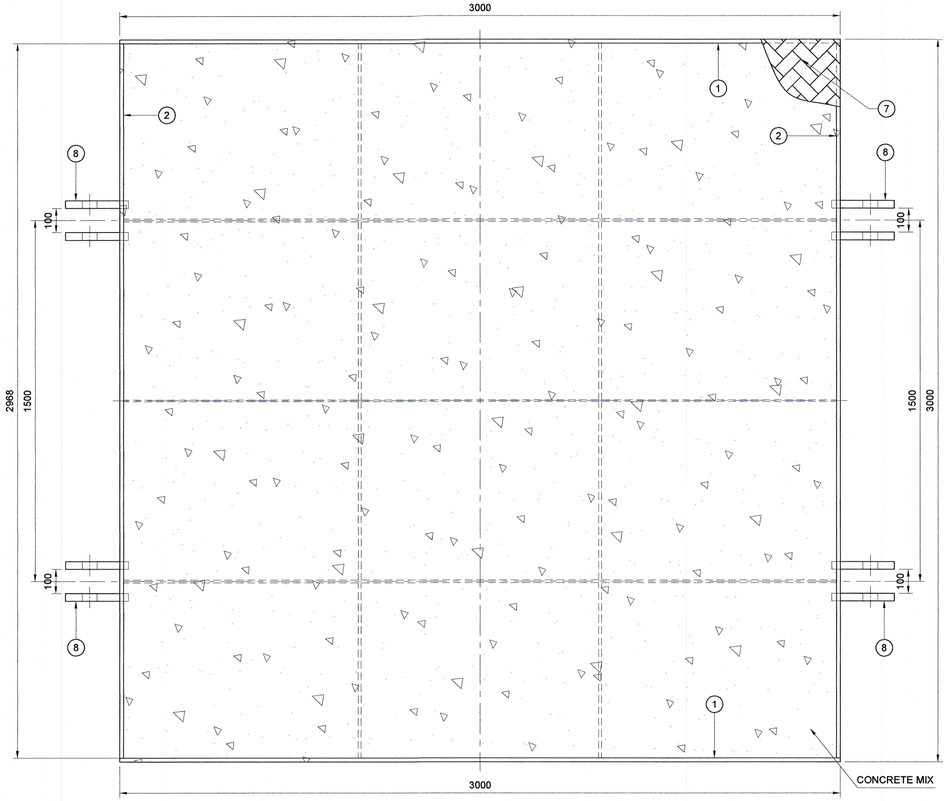
SHAR CENTRAL DESIGNS & ADVANCED SYSTEMS GROUP
SATISH DHAWAN SPACE CENTER SHAR
I.S.R.O SRIHARIKOTA

PROJECTION

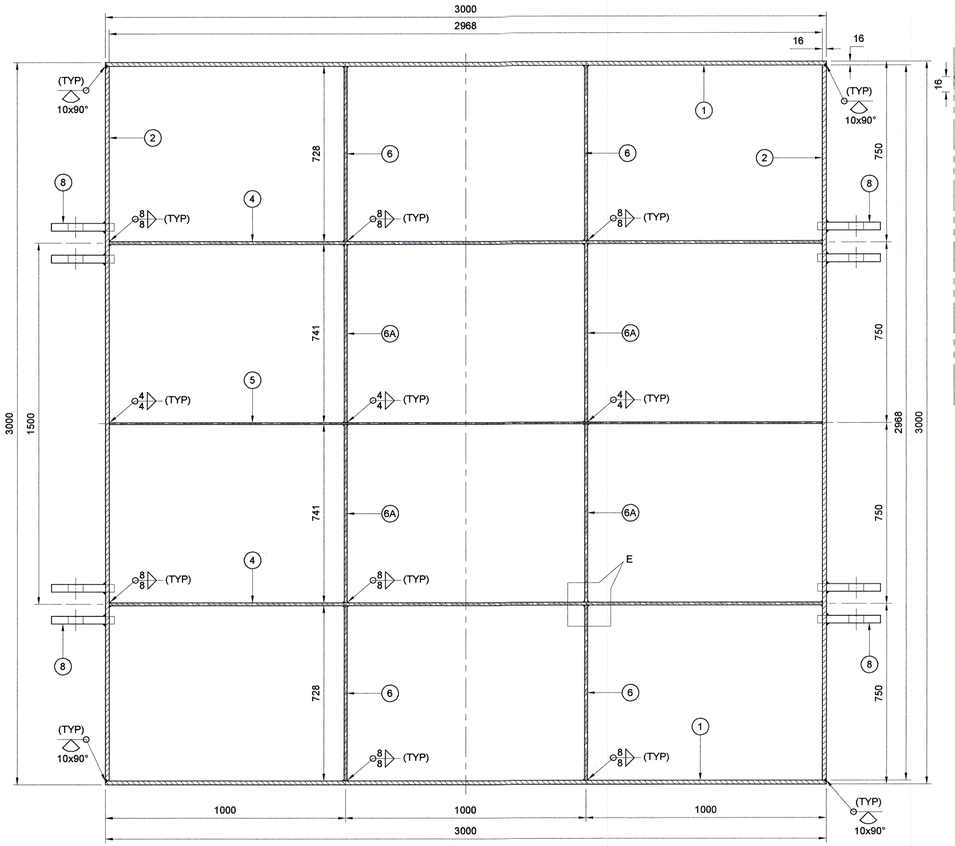
SCALE 1:10 | DRG. NO. 10-MECH-12-9-18/A1 | SHEET 1 OF 1

SCEND/SHIVAJI/AF129/A1/2021/KRISHNA RAO

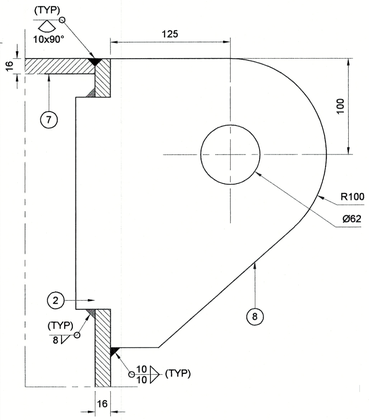
REF. DRG. NO.10-MECH-12-9-17/A1
COM. FILE NO.SCEND/AF128/A1/2022/SHIVAJI/KRISHNA



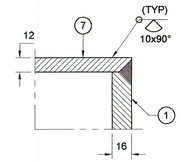
PLAN



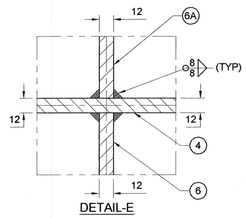
SECTION-AA



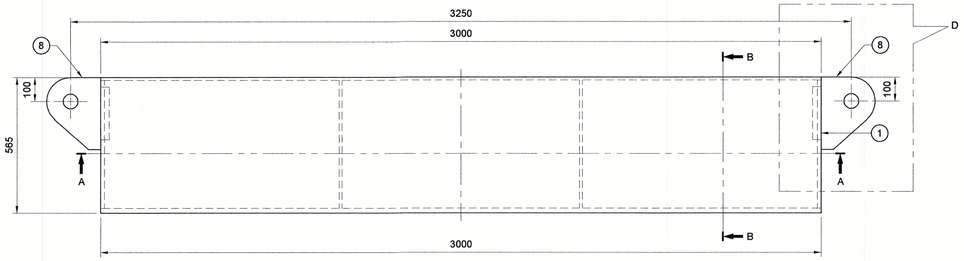
DETAIL-D
(SECTIONAL VIEW)



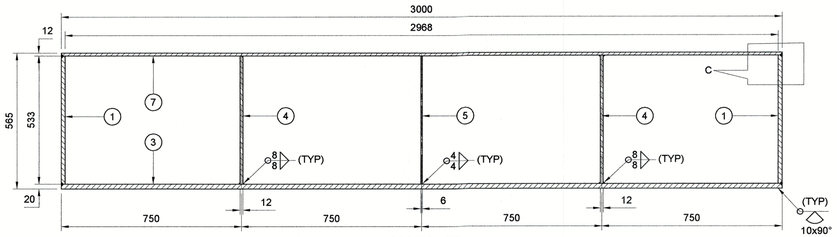
DETAIL-C



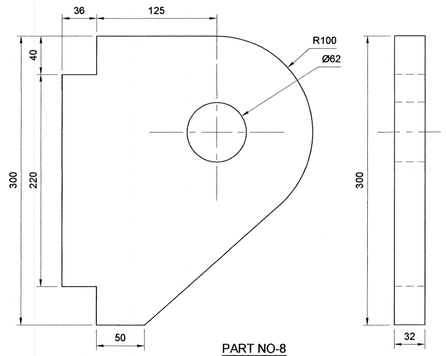
DETAIL-E



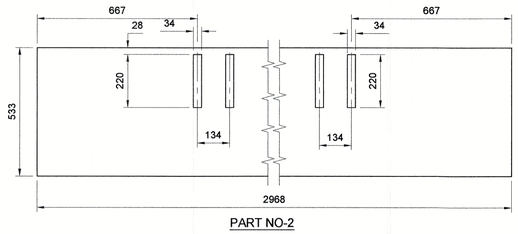
ELEVATION



SECTION-BB



PART NO-8



PART NO-2

FINISHED WEIGHTS :

WEIGHT OF STEEL	: 3889kg.
WEIGHT OF REINFORCEMENT	: 47kg.
WEIGHT OF CONCRETE	: 1164kg.
TOTAL WEIGHT	: 15000kg.

NOTES:-

1. ALL DIMENSIONS SHOWN ARE FINAL FINISHED DIMENSIONS.
2. ALL THE WELDS ARE OF 4 mm SIZE FILLET UNLESS OTHERWISE SPECIFIED.
3. ALL WELDS ARE TO BE DP TESTED FOR ROOT AND FINAL PASSES TO ENSURE WELD QUALITY.
4. EDGE PREPARATION OF PLATES SHALL BE CARRIED OUT FOR WELDING.
5. CONCRETE MIX CAN BE > M25 & DENSITY CONSIDERED IS 2400kg/m^3.
6. NOMINAL REINFORCEMENT OF Ø8mm ROD AT 150mm c/c SHALL BE USED ALONG LENGTH, WIDTH & 220 ALONG HEIGHT.
7. CHECK THE STATUS OF THE DRAWING BEFORE FABRICATION / MACHINING.

TOTAL WEIGHT 3791 Kg(Approx).

S.NO	DESCRIPTION	MATERIAL	QTY	W.T	REMARKS
8	BRACKET 300 x 261 x 32 Thk	IS:2062 Gr-B	8	63	
7	TOP PLATE 3000 x 3000 x 12 Thk	IS:2062 Gr-B	1	848	
6A	PLATE 3 741 x 533 x 12 Thk	IS:2062 Gr-B	4	149	
6	PLATE 3 728 x 533 x 12 Thk	IS:2062 Gr-B	4	146	
5	PLATE 2 2968 x 533 x 6 Thk	IS:2062 Gr-B	1	75	
4	PLATE 1 2968 x 533 x 12 Thk	IS:2062 Gr-B	2	298	
3	BOTTOM PLATE 3000 x 3000 x 20 Thk	IS:2062 Gr-B	1	1413	
2	SIDE PLATE 2 2968 x 533 x 16 Thk	IS:2062 Gr-B	2	397	
1	SIDE PLATE 1 3000 x 533 x 16 Thk	IS:2062 Gr-B	2	402	

STATUS	SIGN	DATE
DISCUSSION / REVIEW		
TENDER PURPOSE		09/09/22
FABRICATION		

UNRESTRICTED	RESTRICTED	CONFIDENTIAL

DO NOT SCALE THE DRAWING
ASK IF IN DOUBT
UNLESS OTHERWISE SHOWN
ALL DIMENSIONS ARE IN MILLIMETERS
REMOVE SHARP EDGES & BURRS
CHAMFER 1 M M X 45°
MACHINING FINISH IN MICRONS :-
▽ 8 - 25 ▽▽ 1.6 - 8
▽▽▽ 0.025 - 1.6 ▽▽▽▽ < 0.025

DEVIATION FOR NON TOLERANCED DIMENSIONS (IS -2102)

DIAMETERS & LENGTHS	LENGTH IN M M OF SHORTER SIDE OF ANGLE UPTO & INCL.
UPTO & INCL 6 ± 0.1	
6 - 30 ± 0.2	1- 6 + 1°±00'
30 - 120 ± 0.3	6- 30 + 0°±30'
120 - 315 ± 0.5	30-120 + 0°±20'
315 - 1000 ± 0.8	120-400 + 0°±10'
1000 - 2000 ± 1.2	
2000 - 4000 ± 2.0	
4000 & ABOVE ± 3.0	

SCEND&ASG

DESIGNED		
DES.CHKD		
DRAWN	SHIVAJI	09.09.22
DRG.CHKD		
APPROVED		
	SIGN.	DATE

TITLE
15t MODULAR WEIGHT
FOR PIF PROJECT

SHAR CENTRAL DESIGNS & ADVANCED SYSTEMS GROUP
SATISH DHAWAN SPACE CENTER SHAR
I.S.R.O SRIHARIKOTA

PROJECTION

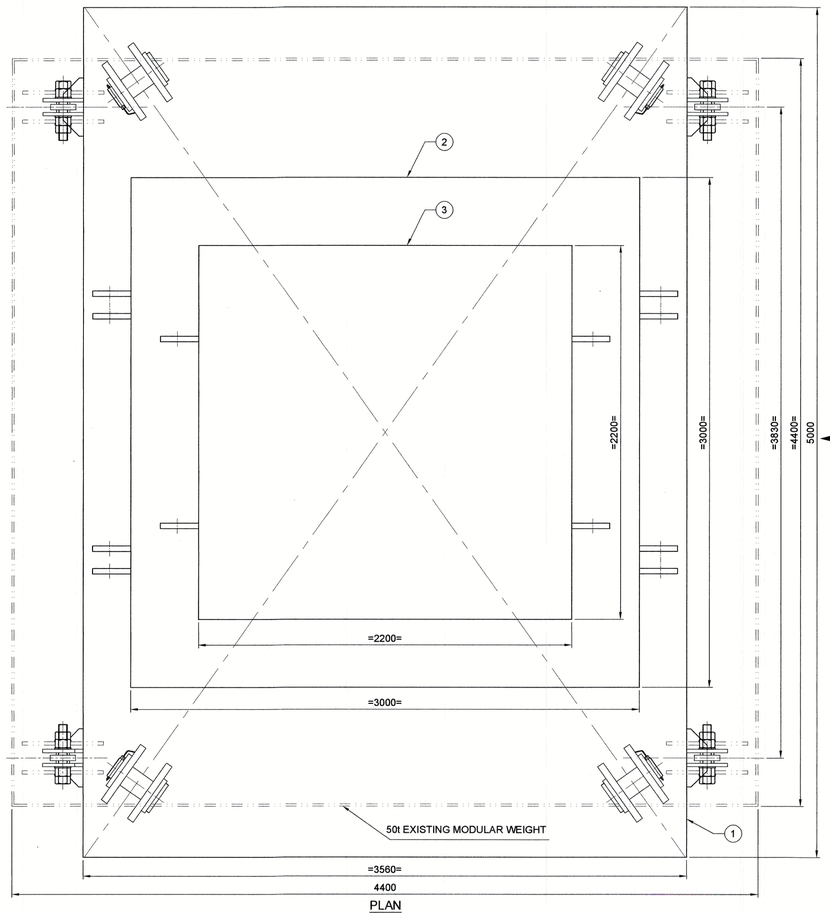
SCALE 1:10

DRG. NO. 10-MECH-12-9-17/A1

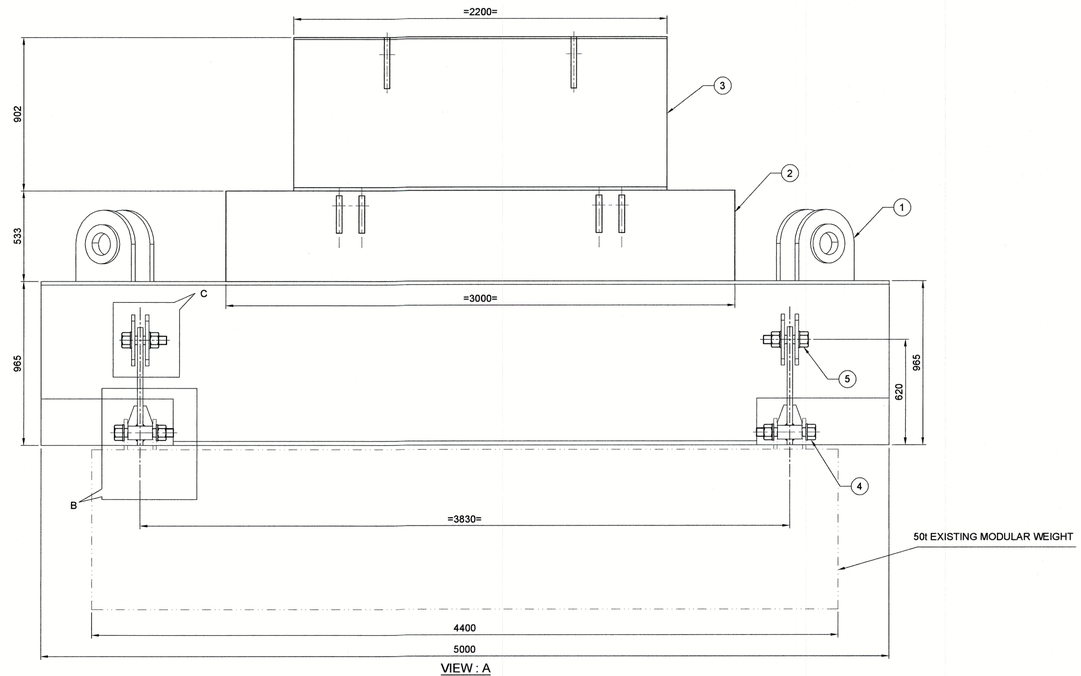
SHEET 1
OF 1

SCEND/AF128/A1/2022/SHIVAJI/KRISHNA

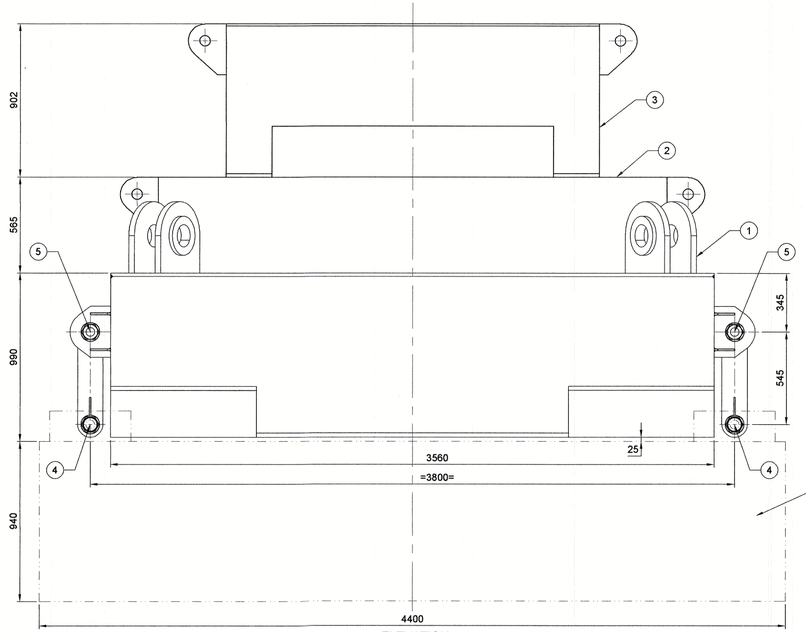
REF. DRG. NO.10-MECH-12-9-16/A1
COM. FILE NO. SCEND/AF127/A1/2022/SREENU.P/KRISHNA



PLAN



VIEW : A



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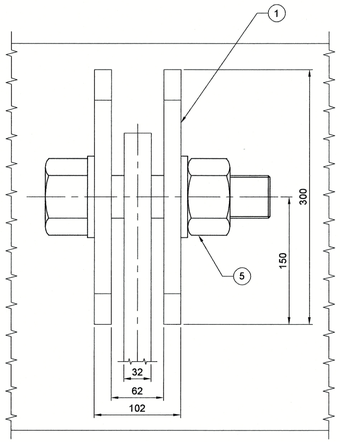
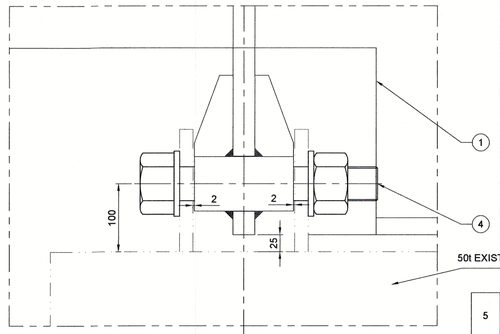


DETAIL : C



DETAIL : B

TOTAL WEIGHT: 21752 Kg(Approx.)

S.NO	DESCRIPTION	MATERIAL	QTY	W.T	REMARKS
5	M50 HEX,BOLT&NUT WITH TWO WASHERS - 215Lg,THREAD LENGTH- 120Lg	IS : 1364	4	-	PROPERTY CLASS : 10.9
4	M50 HEX,BOLT&NUT WITH TWO WASHERS - 300Lg,THREAD LENGTH- 115Lg	IS : 1364	4	-	PROPERTY CLASS : 10.9
3	10t MODULAR DEAD WEIGHT	-	2	2965	REFER DWG NO: 10-MECH-12-9-18/A1
2	15t MODULAR DEAD WEIGHT	-	1	3753	REFER DWG NO: 10-MECH-12-9-17/A1
1	50t MODULAR DEAD WEIGHT	-	1	15034	REFER SHEET NO : 2 OF 3

NOTES:-

1. ALL DIMENSIONS SHOWN ARE FINAL FINISHED DIMENSIONS.
2. CHECK THE STATUS OF THE DRAWING BEFORE FABRICATION / MACHINING.
3. THE INTERFACE BETWEEN EXISTING 50t AND NEW MODULAR WEIGHT IS TO BE MODIFIED FROM Ø40mm TO 52mm AND CORRESPONDING PIN DIAMETER ALSO ENHANCED TO 50mm.

STATUS	SIGN	DATE
DISCUSSION / REVIEW		
TENDER PURPOSE		05/09/22
FABRICATION		

UNRESTRICTED | RESTRICTED | CONFIDENTIAL

DO NOT SCALE THE DRAWING
ASK IF IN DOUBT
UNLESS OTHERWISE SHOWN
ALL DIMENSIONS ARE IN MILLIMETERS
REMOVE SHARP EDGES & BURRS
CHAMFER 1 M.M. X 45°
MACHINING FINISH IN MICRONS :-
▽ 8 - 25 ▽▽ 1.6 - 8
▽▽▽ 0.025 - 1.6 ▽▽▽▽ < 0.025

DEVIATION FOR NON TOLERANCED DIMENSIONS (IS :2102)

DIAMETERS & LENGTHS		LENGTH IN M.M. OF SHORTER SIDE OF ANGLE UPTO & INCL.	
UPTO & INCL.	6 ± 0.1	1-	6 + 1°±00'
6 -	30 ± 0.2	6-	30 + 0°±30'
30 -	120 ± 0.3	30-	120 + 0°±20'
120 -	315 ± 0.5	120-	400 + 0°±10'
315 -	1000 ± 0.8		
1000 -	2000 ± 1.2		
2000 -	4000 ± 2.0		
4000 & ABOVE	± 3.0		

SCEND&ASG

DESIGNED			
DES.CHKD			
DRAWN	SREENU.P	09-09-2022	
DRG.CHKD.			
APPROVED			
		SIGN.	DATE

TITLE: ASSEMBLY OF 50t MODULAR DEAD WEIGHT FOR PIF PROJECT

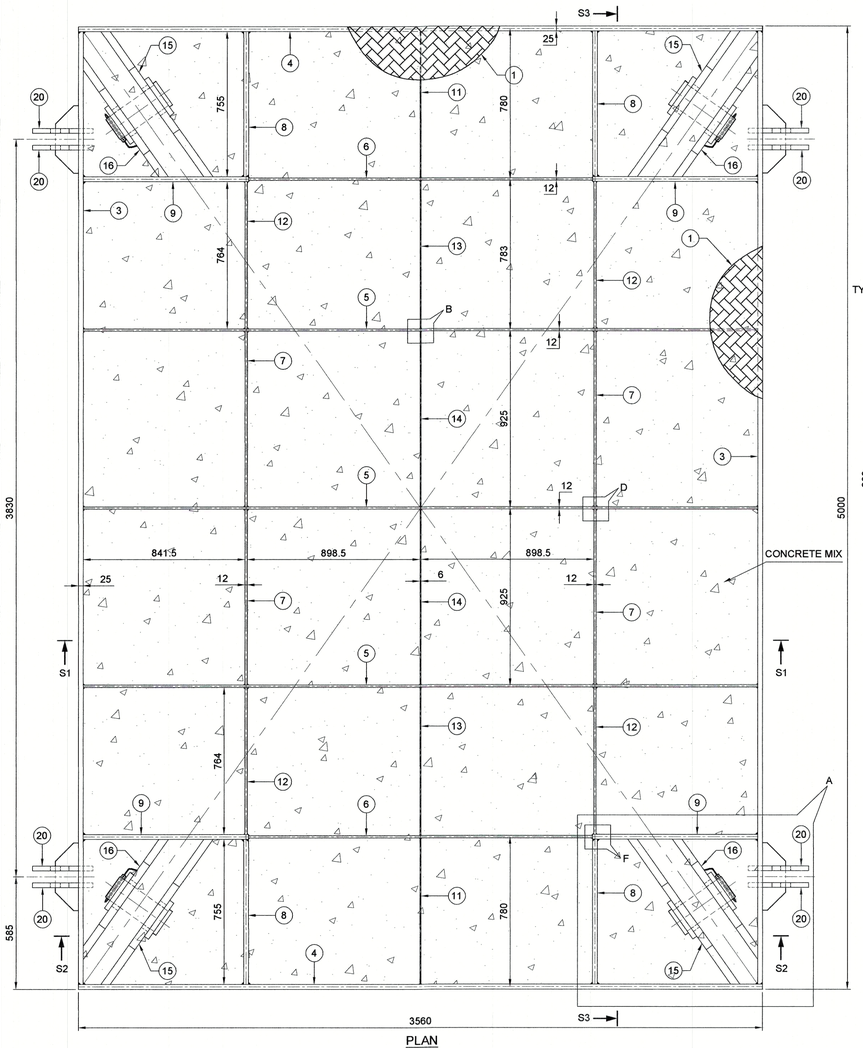
SHAR CENTRAL DESIGNS & ADVANCED SYSTEMS GROUP
SATISH DHAWAN SPACE CENTER SHAR
I.S.R.O SRIHARIKOTA

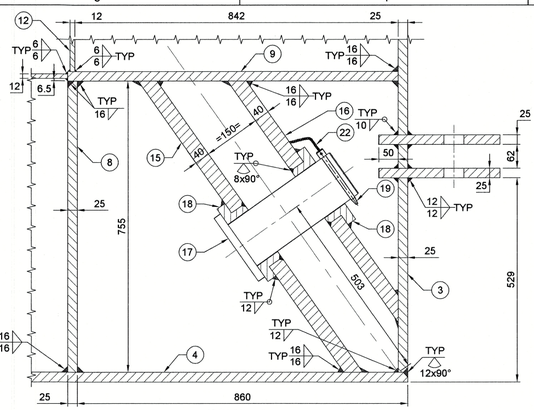
PROJECTION

SCALE 1 : 10 | DRG. NO. 10-MECH-12-9-16/A1 | SHEET 1 OF 3

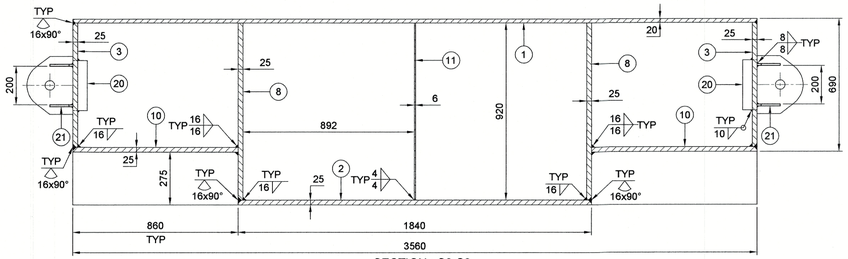
SCEND/AF127/A1/2022/SREENU.P/KRISHNA

REF. DRG. NO. 10-MECH-12-9-16/A1
COM. FILE NO. SCEND/AF127/A1/2022/SREENU.P/KRISHNA

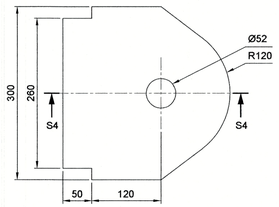




DETAIL : A
(SECTIONAL VIEW)



SECTION : S2-S2
(WITH OUT PIN & LIFTING PLATES)



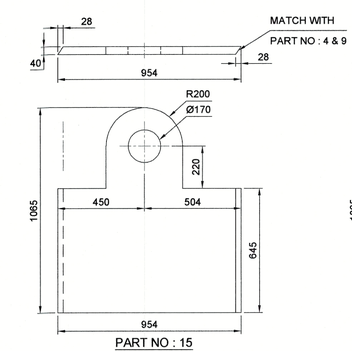
PART NO : 20

SECTION : S4-S4

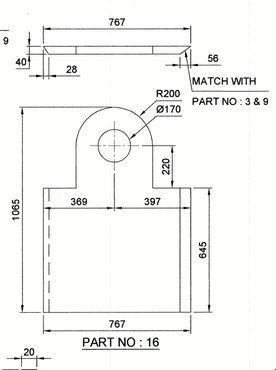
DETAIL : B

DETAIL : D

DETAIL : F



PART NO : 15



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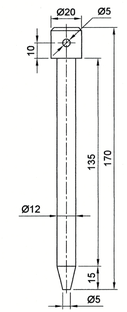

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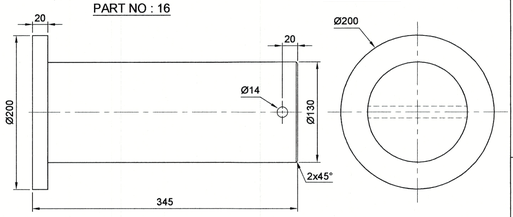

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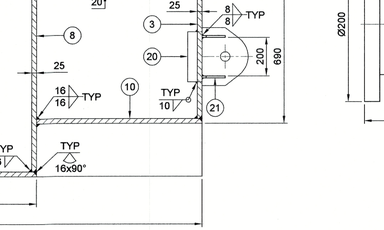
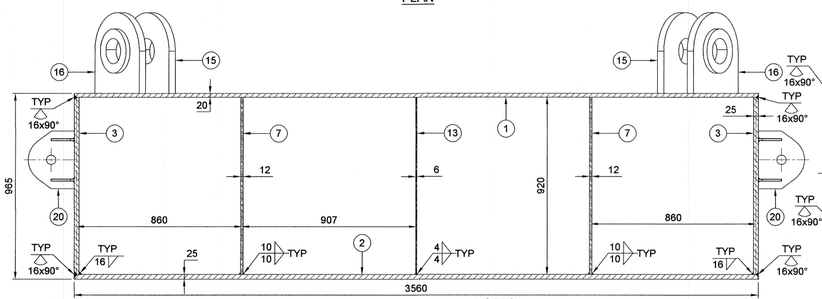
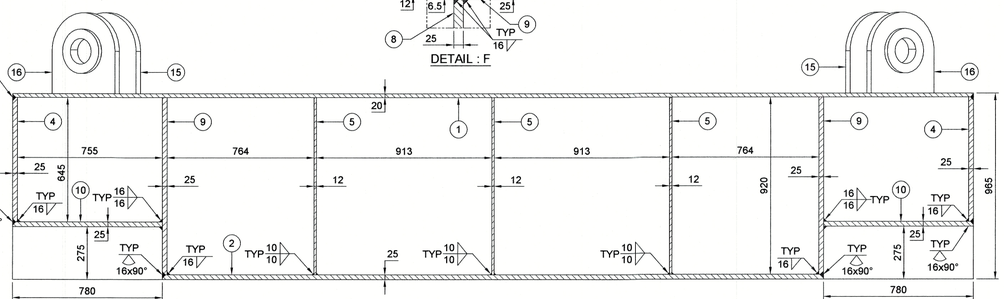


SECTION : S5-S5

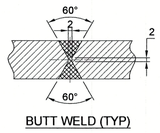
PART NO : 18



SECTION : S1-S1
(WITH OUT PIN AND CONCRETE)



SECTION : S3-S3
(WITH OUT PIN)



BUTT WELD (TYP)

NOTES:-
1. ALL DIMENSIONS SHOWN ARE FINAL FINISHED DIMENSIONS.
2. ALL THE WELDS ARE OF 6 mm SIZE FILLET UNLESS OTHERWISE SPECIFIED.
3. ALL WELDS ARE TO BE DP TESTED FOR ROOT AND FINAL PASSES TO ENSURE WELD QUALITY.
4. ALL JOINTS SHALL BE OF BUTT WELD.
5. EDGE PREPARATION OF PLATES SHALL BE CARRIED OUT FOR WELDING.
7. CONCRETE MIX CAN BE > M25 & DENSITY CONSIDERED IS 2400kg/m^3.
8. NOMINAL REINFORCEMENT OF Ø8mm ROD AT 150mm c/c SHALL BE USED ALONG LENGTH, WIDTH & 250mm C/C ALONG HEIGHT.
9. PART NO : 1 & 2 ARE DIVIDED IN THREE EQUAL PARTS.
10. PART NO 15 & 16 SHALL BE CUT AS PER SITE CONDITION.
11. PART NO : 15 & 16 WELDED TO STRUCTURE WHILE PIN IN CONTACT WITH 15 & 16 PLATES WITH OUT MISS MATCH.
12. CHECK THE STATUS OF THE DRAWING BEFORE FABRICATION / MACHINING.

STATUS	SIGN	DATE
DISCUSSION / REVIEW		
TENDER PURPOSE		05/07/22
FABRICATION		

UNRESTRICTED	RESTRICTED	CONFIDENTIAL

DO NOT SCALE THE DRAWING
ASK IF IN DOUBT
UNLESS OTHERWISE SHOWN
ALL DIMENSIONS ARE IN MILLIMETERS
REMOVE SHARP EDGES & BURRS
CHAMFER 1 M.M. X 45°
MACHINING FINISH IN MICRONS :-
▽ 8 - 25 ▽▽ 1.6 - 8
▽▽▽ 0.025 - 1.6 ▽▽▽▽ < 0.025

DEVIATION FOR NON TOLERANCED DIMENSIONS (IS :2102)

DIAMETERS & LENGTHS UPTO & INCL		LENGTH IN M.M OF SHORTER SIDE OF ANGLE UPTO & INCL	
6	± 0.1	1	6 + 1°±00'
30	± 0.2	6	30 + 0°±30'
120	± 0.3	30	120 + 0°±20'
315	± 0.5	120	400 + 0°±10'
1000	± 0.8		
2000	± 1.2		
4000	± 2.0		
4000 & ABOVE	± 3.0		

SCEND&ASG

DESIGNED		
DES.CHKD		
DRAWN	SREENU.P	09-09-2022
DRG.CHKD		
APPROVED		
	SIGN.	DATE

FINISHED WEIGHTS :

WEIGHT OF STEEL : 14500kg.	: 14500kg.
WEIGHT OF REINFORCEMENT	: 184kg.
WEIGHT OF CONCRETE	: 35316kg.
TOTAL WEIGHT	: 50000kg.

TOTAL WEIGHT: 15034 Kg(Approx.)

S.NO	DESCRIPTION	MATERIAL	QTY	W.T	REMARKS
23	50T MODULAR DEAD WEIGHT PLATE DETAILS	-	1	122	REFER SHEET NO : 2 OF 2
22	CHAIN - 300Lg	MS	1	-	
21	STIFFENER 120 x 120 x 10Thk	IS : 2062 Gr : B E250	16	18	
20	BRACKET PLATE 300 x 290 x 25Thk	IS : 2062 Gr : B E250	8	137	
19	LOCK PIN Ø20 x 170Lg	IS : 2062 Gr : B E250	4	-	
18	BUSH OD230 x ID132 x 65Thk	IS : 2062 Gr : B E250	8	105	
17	PIN Ø200 x 345Lg	En24-T	4	155	
16	LIFTING PLATE - 2 1065 x 770 x 40Thk	IS : 2062 Gr : B E250	4	1026	
15	LIFTING PLATE - 1 1065 x 955 x 40Thk	IS : 2062 Gr : B E250	4	1276	
14	PLATE 920 x 915 x 6Thk	IS : 2062 Gr : B E250	2	79	
13	PLATE 920 x 775 x 6Thk	IS : 2062 Gr : B E250	2	67	
12	PLATE 920 x 765 x 12Thk	IS : 2062 Gr : B E250	4	265	
11	PLATE 920 x 765 x 6Thk	IS : 2062 Gr : B E250	2	66	
10	PLATE 860 x 780 x 25Thk	IS : 2062 Gr : B E250	4	527	
9	PLATE 920 x 860 x 25Thk	IS : 2062 Gr : B E250	4	621	
8	PLATE 920 x 755 x 25Thk	IS : 2062 Gr : B E250	4	545	
7	PLATE 920 x 915 x 12Thk	IS : 2062 Gr : B E250	4	316	
6	PLATE 1790 x 920 x 12Thk	IS : 2062 Gr : B E250	2	310	
5	PLATE 3510 x 920 x 12Thk	IS : 2062 Gr : B E250	3	913	
4	FRONT PLATE 3560 x 920 x 25Thk	IS : 2062 Gr : B E250	2	1100	REFER SHEET NO : 2 OF 2
3	SIDE PLATE 4950 x 920 x 25Thk	IS : 2062 Gr : B E250	2	1624	REFER SHEET NO : 2 OF 2
2	BOTTOM PLATE 5000 x 3560 x 25Thk	IS : 2062 Gr : B E250	1	2967	REFER SHEET NO : 2 OF 2
1	TOP PLATE 5000 x 3560 x 20Thk	IS : 2062 Gr : B E250	1	2795	REFER SHEET NO : 2 OF 2

TITLE
50t MODULAR DEAD WEIGHT FOR PIF PROJECT

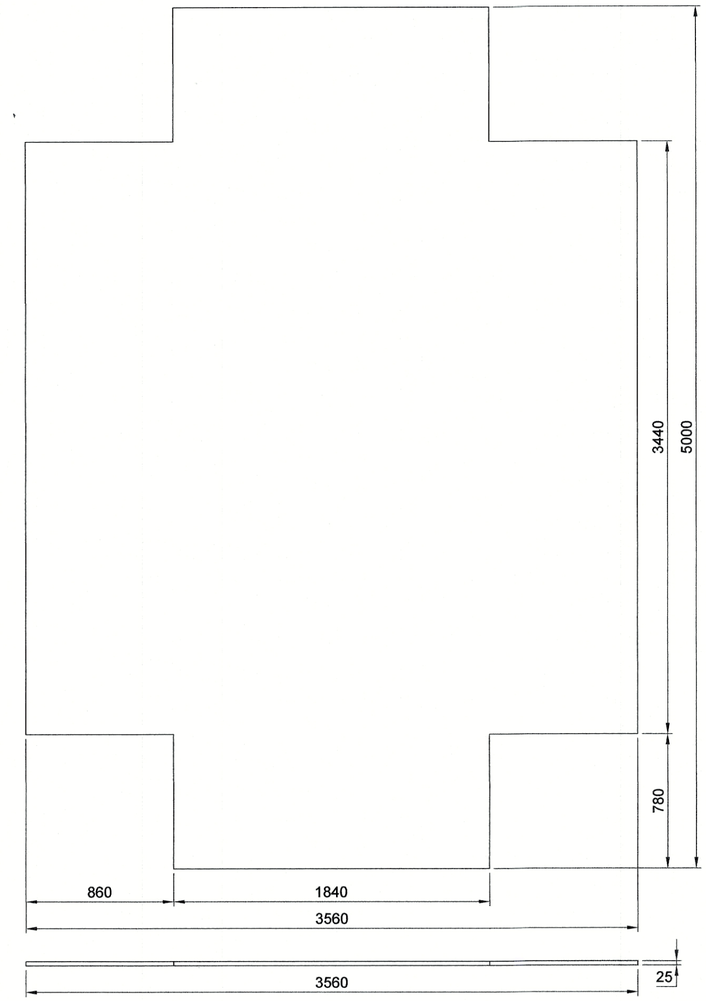
SHAR CENTRAL DESIGNS & ADVANCED SYSTEMS GROUP
SATISH DHAWAN SPACE CENTER SHAR
I.S.R.O SRIHARIKOTA

PROJECTION

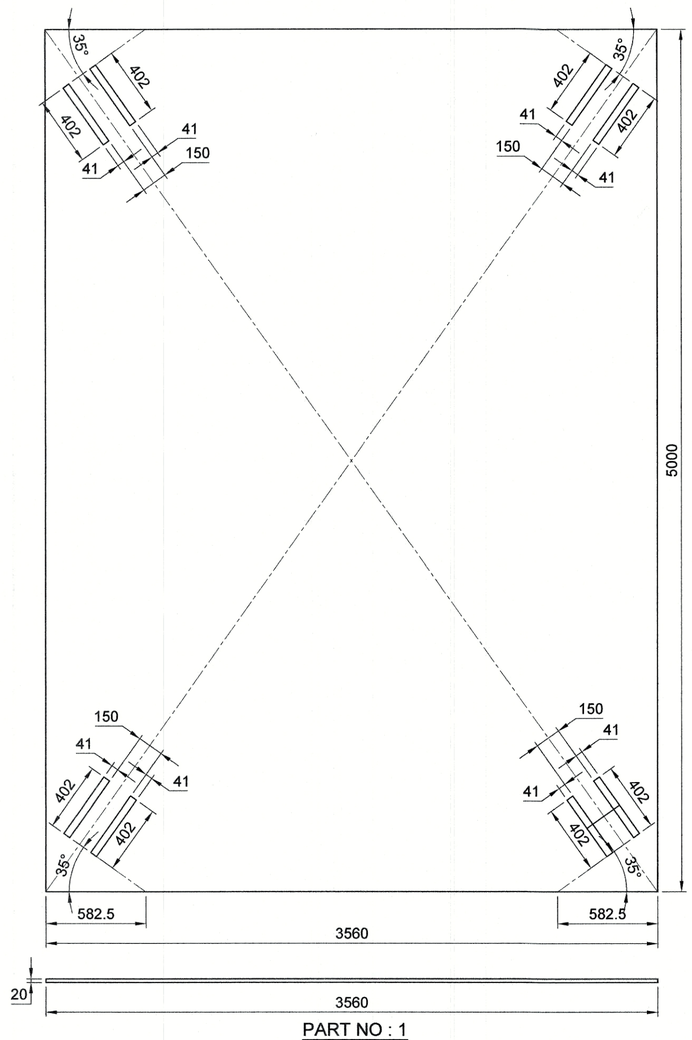
SCALE 1 : 10
DRG. NO. 10-MECH-12-9-16/A1
SHEET 2
OF 3

REF. DRG. NO. 10-MECH-12-9-16/A1

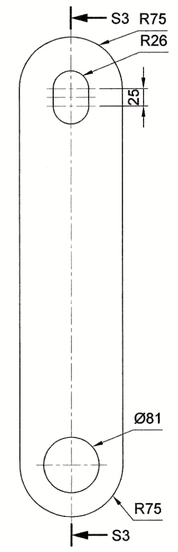
COM. FILE NO. SCEND/AF127/A2/2022/SREENU.P/KRISHNA



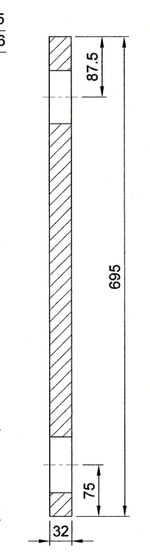
PART NO : 2



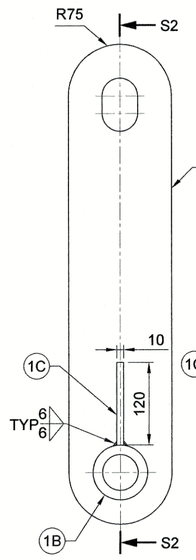
PART NO : 1



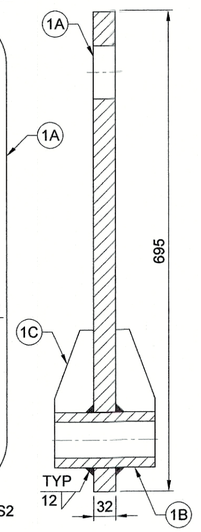
PART NO : 1A



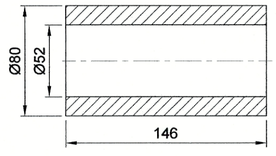
SECTION : S3-S3



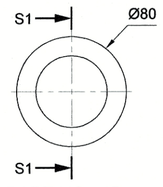
LINK ASSEMBLY



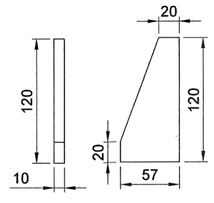
SECTION : S2-S2



SECTION : S1-S1



PART NO : 1B



PART NO : 1C

NOTES:-

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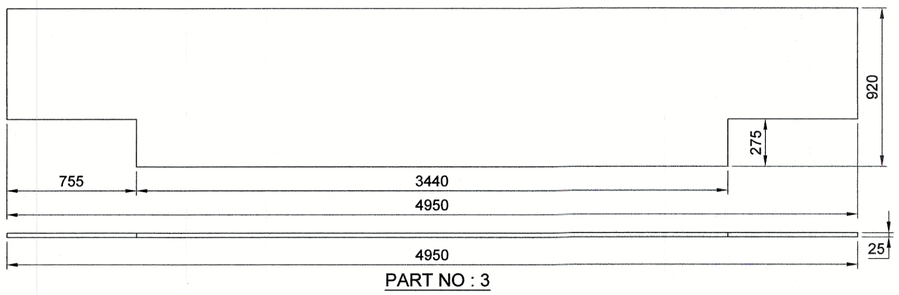
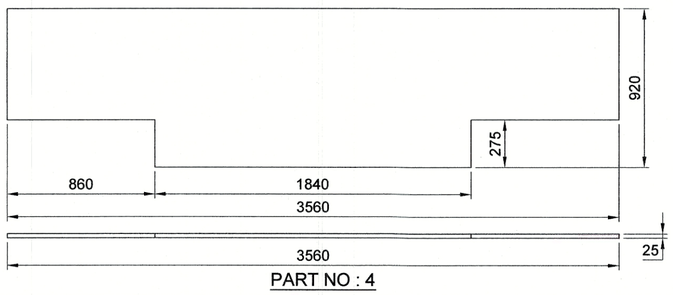
3. ALL WELDS ARE TO BE DP TESTED FOR ROOT AND FINAL PASSES TO ENSURE WELD QUALITY.
4. CHECK THE STATUS OF THE DRAWING BEFORE FABRICATION / MACHINING.



PART NO : 3



PART NO : 4

TOTAL WEIGHT: 122 kg(Approx.)

S.NO	DESCRIPTION	MATERIAL	QTY	W.T	REMARKS
1C	STIFFENER 120 x 57 x 10Thk	IS : 2062 E 250 Gr : B	8	4	
1B	BUSH OD80 x ID 52 x 146 Lg	IS : 2062 E 350 Gr : B	4	13	
1A	LINK PLATE 695 x 150 x 32Thk	IS : 2062 E 350 Gr : B	4	105	

STATUS	SIGN	DATE
DISCUSSION / REVIEW		
TENDER PURPOSE		09/09/22
FABRICATION		

UNRESTRICTED | RESTRICTED | CONFIDENTIAL

DO NOT SCALE THE DRAWING
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UNLESS OTHERWISE SHOWN
ALL DIMENSIONS ARE IN MILLIMETERS
REMOVE SHARP EDGES & BURRS
CHAMFER 1 M.M. X 45°
MACHINING FINISH IN MICRONS :-

▽ 8 - 25 ▽▽ 1.6 - 8
▽▽▽ 0.025 - 1.6 ▽▽▽▽ < 0.025

DEVIATION FOR NON TOLERANCED DIMENSIONS (IS -2102)

DIAMETERS & LENGTHS UPTO & INCL.	
6	±0.1
6 - 30	±0.2
30 - 120	±0.3
120 - 315	±0.5
315 - 1000	±0.8
1000 - 2000	±1.2
2000 - 4000	±2.0
4000 & ABOVE	±3.0

LENGTH IN M.M. OF SHORTER SIDE OF ANGLE UPTO & INCL.	
1- 6	± 1°-00'
6- 30	± 0°-30'
30-120	± 0°-20'
120-400	± 0°-10'

SCEND&ASG

	SIGN.	DATE
DESIGNED		
DES.CHKD		
DRAWN	SREENU.P	09-09-2022
DRG.CHKD		
APPROVED		

TITLE

50t MODULAR DEAD WEIGHT PLATE DETAILS

SHAR CENTRAL DESIGNS & ADVANCED SYSTEMS GROUP
SATISH DHAWAN SPACE CENTRE SHAR
I.S.R.O SRIHARIKOTA

PROJECTION

SCALE 1 : 25

DRG. NO. 10-MECH-12-9-16/A2

SHEET 3 OF 3