



BHARAT HEAVY ELECTRICALS LIMITED
HEEP HARIDWAR INDIA-PIN 249403
FAX NO: 0091 1334 226462
PHONE NO: 0091 1334 284593

Tender No.: **L/6433/18/1167D1**

Dear Sir,

The Heavy Electricals Equipment Plant (HEEP) located in Haridwar, India is one of the major manufacturing plants of Bharat Heavy Electricals Ltd. The core business of HEEP includes design and manufacture of large steam and gas turbines, turbo generators and so on.

Sealed tenders with the Tender No. and opening date clearly super scribed on the cover are invited from the manufacturers (registered as well as unregistered) for the supply of the following items:-

SL	Tender No.	Description of Item	Qty Nos.	Delivery Schedule	Opening Date
1	L/6433/18/1167D1	1. TLMW62902474 TOOLING PACKAGE FOR HORIZONTAL BORING OPERATIONS OF ALLOY 617M TEST PIECE AS PER SCOPE-1 OF ENCLOSED DRAWING NCT01 AND IT'S ANNEXURES 2. TLMW62902482 TOOLING PACKAGE FOR COMPLETE HORIZONTAL BORING OPERATIONS OF ALLOY 617 HP VALVE CASING AS PER SCOPE-2 OF ENCLOSED ANNEXURES	6 SET 1 SET	31.10.2018 15.05.2019	25.07.2018

1. TECHNICAL DETAILS-CUM-SCOPE OF SUPPLY ARE AS PER ENCLOSED **ANNEXURE-A, 1 & 2**.
2. REFERENCE DRAWINGS ENCLOSED.
3. PQR ARE AS PER **ANNEXURE-B**.
4. VENDORS TO QUOTE ACCORDINGLY AS PER **ANNEXURES – A, 1, 2 & B**.
5. THE TOTAL PACKAGE FOR MATERIAL CODE TLMW62902482 IS TO BE PROCURED FROM SAME SOURCE.
6. VENDOR TO QUOTE BEST POSSIBLE DELIVERY IN THE OFFER.
7. MAXIMUM ONE SET SHALL BE ORDERED ON EACH VENDOR FOR SCOPE-1 (TLMW62902474) AS PER CONDITIONS MENTIONED IN ANNEXURE-A & ANNEXURE-1 ENCLOSED.
8. SEPARATE SEALED PRICE BID FOR SCOPE-1 (TLMW62902474) AND SCOPE-2 (TLMW62902482) ARE TO BE SUBMITTED.
9. PAYMENT FOR SCOPE 1 & 2 SHALL BE DONE AS PER CLAUSE **4.0 & 6 OF ANNEXURE A**.
10. THE QUOTATION SHOULD BE VALID FOR A MINIMUM PERIOD OF 180 DAYS EFFECTIVE FROM THE DATE OF OPENING OF TENDER.
11. **VENDOR TO SPECIFICALLY CONIRM THE FOLLOWING :-**
 - A. YOU WILL NOT RAISE THE PRICES FOR ATLEAST 3 YEARS. HOWEVER, YOU WILL HAVE THE OPTION TO QUOTE LOWER PRICES THAN THE INITIAL PRICES SETTLED WITH YOU, IF YOU SO WISH.
 - B. YOU WILL NOT WILL NOT USE THE DESIGN, TOOLINGS & TECHNOLOGY PASSED ON BY BHEL OR DEVELOPED IN THIS CASE TO ANY THIRD PARTY. YOU WILL ALSO NOT SELL THIS PRODUCT DEVELOPED FOR US, TO ANY THIRD PARTY WITHOUT PRE-CONSENT OF BHEL.
12. AS YOU ARE ALL AWARE, INDIA IS UNDER GST REGIME. IN VIEW OF THIS, PLEASE PROVIDE YOUR GST REGISTRATION NUMBER, HSN NO., CLAUSE NUMBER IN WHICH INSTANT ITEM FALLS, APPLICABLE RATE OF SGST, CGST AND IGST AND OTHER RELEVANT INFORMATION IF ANY.

The tender documents can be downloaded from our web site www.bhel.com or www.bhelhwr.co.in. Before submitting the tender, the bidders are required to go through the details mentioned in "Instruction to Bidders". Intending indigenous bidder must remit **Tender Fee of Rs. 2,000.00** and foreign bidder must remit equivalent amount in foreign currency against the tender if documents (in hard copies) are required from BHEL. Indigenous bidder must also remit the requisite **Ernest Money Deposit (EMD) of Rs. 2,00,000/-** (Rupees Two Lakhs only) and foreign bidder must remit equivalent amount in foreign currency in the form

of Cash (as permissible under Income Tax Act) / Pay Order / Demand draft. **If, Tender Fee (if required) and EMD is not submitted along with offer, then the offer may be out rightly rejected.**

Please submit **separate drafts** for EMD and tender fee in an envelope super-scribed with bold letters. **EMD & Tender Fee to be submitted with Part-I.**

As per PWI, BHEL Haridwar Micro & Small Enterprises (MSEs) are not required to submit EMD & tender fees. A certificate issued from competent authority (NSIC / EM-II / Udyog Aadhar Memorandum) shall be submitted in support of Micro & Small Enterprises (MSEs).

Central / State – PSUs / Government departments are exempted from submission of EMD subject to approval by BHEL management.

Vendors registered with HEEP, BHEL Haridwar in PMD TL013 are exempted from submitting of EMD and Non Disclosure Agreement. However, vendor registered in PMD TL013 has to mention the vendor code in which it is registered with HEEP, BHEL Haridwar. The list of PMD TL013 vendors, registered with HEEP, Haridwar is as under :-

<u>Sl.</u>	<u>Vendor Code</u>	<u>Vendors Name (M/s.)</u>
1.	06220	HITACHI METALS INDIA PVT. LTD. PLOT NO 94 & 95, SEC-8, IMT MA GURGAON
2.	41334	WALTER TOOLS INDIA PVT. LTD. NEW DELHI
3.	41648	TUNGALOY INDIA PVT. LTD.MUMBAI
4.	03549	CERATIZIT INDIA PVT. LTD.KOLKATA
5.	21156	SANDVIK ASIA PRIVATE LIMITED PUNE
6.	21192	CUTFAST CARBIDE TOOLS PUNE
7.	25265	MMC HARDMETAL INDIA PVT. LTD.YESHWANTHPURA, KARNATAKA
8.	25347	KYOCERA CTC PRECISION TOOLS BANGALORE
9.	40011	SECO TOOLS INDIA PVT. LTD.NEW DELHI
10.	40366	KENNAMETAL INDIA LIMITED GURGAON (HARYANA)
11.	41066	TAEGUTEC INDIA PRIVATE LIMITED BANGLORE
12.	72157	INGERSOLL WERKZEUGE GMBH D-35708 HAIGER
13.	72397	HERMANN BILZ GMBH & CO.KG 70730 ESSLINGEN
14.	21128	SAMTEC TOOLS & ACCESSORIES PVT. PUNE
15.	25268	MAPAL INDIA PRIVATE LIMITED, BANGLORE

The date for opening of tender shall be 25.07.2018. Tenders will be received up to **1.45 P.M.** on **25.07.2018** and opened on the same day at 2.00 P.M. in the Tender Room. **Please note that tender received after due date & time (1.45 PM on 25.07.2018) will not be REPEAT will not be opened.** BHEL will not be responsible for any type of postal / courier delay / incomplete information from vendor.

Foreign and Indigenous bidders against open tender will necessarily have to obtain class – III DSCs. Procedure for application is available on www.bhel.com.

The total quantity may undergo change at the time of ordering.

Splitting of items to the MSE vendor is not applicable in this tender.

Amendments/Corrigendum, if any, will be hosted on our web site only. Other terms and conditions will be as per tender documents.

Documents submitted with the offer/bid by the bidder (original registered supplier) shall be signed and stamped in each page by authorized representative of the bidder.

Any vendor who is under hold (for the item)/ delisted/ banned with BHEL on date of opening of Part – 1 will not be allowed to quote for this tender. In case their offer is received, it may be out rightly rejected.

Tenders will be received in Tender Box kept in Tender Room and should be addressed to:
THE HEAD OF MATERIAL MANAGEMENT,
Heavy Electrical Equipment Plant,
Bharat Heavy Electricals Limited,
HARIDWAR-249403 (Uttarakhand), INDIA.

Bids shall be opened at 2.00 PM on the due date in the presence of authorized representative of the bidders who may like to be present. The authorized representative should bring authority letter from their parent company (Manufacturer) for the specific tender no. attending the bid opening.

BHEL will forfeit the EMD if, the successful bidder / vendor refuses to honor the order after award of the same on him and / or withdraws his bid and / or unilaterally changes the offer and / or any of its terms & conditions within the validity period.

Unregistered vendors may please visit our site **www.bhel.com** for filing up the Supplier Registration Form.

KINDLY READ "INSTRUCTIONS TO BIDDERS." QUOTATION NOT IN ACCORDANCE WITH THE INSTRUCTIONS ARE LIABLE TO BE DISQUALIFIED AND IGNORED.

INSTRUCTIONS TO BIDDERS FOR OPEN TENDER

DEFINITION

Registered Vendors - Are those who are registered with BHEL, Haridwar for Megawatt rating/ Size/ Weight of tendered items in respective material grade or machining of such items.

Un-registered Vendors - Are those who are not registered with BHEL, Haridwar for Megawatt rating/ Size/ Weight of tendered items in respective material grade or machining of such items.

ESSENTIAL INSTRUCTIONS

- 1) Un-registered vendors may be approved by BHEL, if found suitable, on the basis of data furnished by them in Supplier Registration Form (SRF) for Foreign Vendors or Indigenous Vendors (as applicable).
- 2) BHEL team may visit the vendor (s) works for verification of capability and capacity claimed in tender documents/offer (s).
- 3) The tenders shall be submitted in **four parts** in separate sub-envelopes clearly super scribing type of bid, tender no., due date and the name of vendor with full contact details.
 - ❖ **Part I** – Tender fee (if hard copy insisted from BHEL), Earnest Money Deposit (if applicable) OR NSIC certificate for exemption of tender fee & Earnest Money Deposit, Non Disclosure Agreement (if applicable) & Prequalifying conditions.
 - ❖ **Part II** – Techno- Commercial Bids for scope-1 and scope-2.
 - ❖ **Part III** – Price Bid for **scope – 1**.
 - ❖ **Part IV** – Price Bid for **scope – 2**.

Note : - All the sub-envelopes (Part-I, Part- II, Part-III & Part-IV) to be put in a single covering envelope Indicating Tender no., due date and the name of vendor, e-mail id, with full contact details. Offer should be complete in all respect (i.e. Part-I, Part- II, Part-III & Part-IV).

- 4) Part-I will be opened on the date and time specified in the tender notice in the presence of those vendors who wish to attend.
- 5) Part-II (Techno-Commercial) bid will be opened of those vendors who successfully qualify the Prequalifying conditions.
- 6) Part – III (Price Bids for scope - 1) along with supplementary price bids, if necessary, will be opened at a later date of only those bidders whose techno-commercial bid will be found acceptable.
- 7) Part – IV (Price Bids for scope - 2) along with supplementary price bids, if necessary, will be opened at a later date of only those bidders, who will be technically suitable as per point no. 5.1 of annexure A.
- 8) Currency exchange rate will be applicable on the date of opening of Part-I for evaluation purpose.
- 9) Please submit your offer only for the above requirement subject to our **GENERAL INSTRUCTIONS AND STANDARD TERMS & CONDITIONS (GISTC: Version June-2017, Rev: 01)**. Please visit our site www.bhelhwr.co.in for General Instructions and Standard Terms & Conditions (GISTC) for Tender enquiries. **All the bidders/vendors must ensure compliance of these GISTC (VERSION: JUNE -2017, REV. 01)**. GISTC can also be referred by login to B2B Portal for Registered Vendors.

- 10) Tender opening date for part-1 shall not be extended. Kindly submit your offer in time.

REFERENCES:

Tender Details & Miscellaneous Annexures (Annexure – A, 1 & 2)

PQR: Pre-Qualifying Condition (Annexure-B)

Relevant Drawings

NDA: Non- Disclosure and Proprietary Information Agreement

Format for CA Certificate - Applicable for MSE vendors

Annexure – 'B'

Pre-Qualifying Conditions :

- a) Only those vendors to quote who are Original tool manufacturer (OEM) or authorized dealer/distributor of Original tool manufacturers. **Authorization certificate from Original tool manufacturer is to be furnished by the vendor with the offer, in case the vendor is dealer/distributor/channel partner of Original Tool manufacturer.**
- b) Vendor should have experience of supplying tools for machining of Austenitic steel/ Inconel/nimonic steel (any one or more).

The following information is to be submitted by the participating vendor about the companies where such type of toolings have been supplied. This is required from all the vendors for qualification of their offer.

- 1) Name and address of the customer / company where such toolings have been supplied.
 - 2) Contact details of the customer.
 - 3) Month & Year of supply
 - 4) Basic details of supplied tools, type of job & Job material.
- c) BHEL reserves the right to verify the above information/performance of referred tool. In case the information provided by vendor is found to be false/ incorrect or not to satisfaction of BHEL, offer shall be rejected.

Annexure – ‘A’

Supply & Successful establishment of Tooling package for complete machining of ESV & CV casing (Drawing no. 0-11222-PP035) on CNC Horizontal Boring machine achieving required accuracy & surface finish.

1. Machining on Test piece (drawing no NCT/01) involving operations for Scope-1 & complete machining of ESV & CV casing (Drg no 0-11222-60035) involving operations for Scope-2 as per Annexure-1 & Annexure-2 respectively on CNC Horizontal Boring machine achieving required accuracy & surface finish. The machining operation shall be carried out with the attachment (CNC Boring head & CNC right angle milling head) available on the machine.
- 1.1 The Material specifications of Forging Alloy 617M Test piece for Scope-1 & ESV & CV casing for Scope-2 shall be as below :

Chemical Properties :-

Elements	Ni	Cr	Fe	Mn	Mo	Co	Al	C	Cu	B
Wt. (%)	Balance	21-23	≤ 1.5	≤ 0.3	8.0 - 10.0	11.0 - 13.0	0.8 - 1.3	0.05 - 0.08	≤ 0.05	0.003 - 0.005

Si ≤ 0.3, S ≤ 0.008, N ≤ 0.05, Ti 0.3 – 0.5

Mechanical Properties :-

0.2% Yields strength: ≥300 N/mm²
Tensile strength: ≥700 N/mm²
% Elongation (L = 5.65√A) ≥ 35%

1.2 Machine Details :

CNC Horizontal Boring machine having major specifications as below:

Spindle dia 200, Ram size 480x520mm, Spindle power 100KW, spindle speed 5-1600 RPM, Table size 4mx4m, spindle taper BT50, RAM & spindle traverse 1200mm each, Load carrying capacity 100 Ton, Internal flood coolant system.

Brief specification of CNC Right angle milling head:

Indexing 1degx360positions, spindle taper BT50, spindle speed 5-1600 RPM, Power 40 KW, external as well as through coolant system.

Brief specification of Programmable CNC Boring head dia 360:

Make D' Andrea, Model UT3-360S, Head Body Dia 360, Max Slide stroke 120 mm, Max, Boring depth 2000 mm with tool, Max speed 250 RPM, flood coolant system, Tool holding : square shank tools of 25x25.

Brief specification of Programmable CNC Boring head dia 500:

Make D' Andrea, Model UT5-500S, Head Body Dia 500, Max Slide stroke 160 mm, Max, Boring depth 2400 mm with tool, Max speed 315 RPM, flood coolant system. Tool holding : square shank tools of 25x25.

2. Vendor to offer tooling package in following two parts with separate price bids having item wise prices:

Scope-1: Complete Tooling Package (one set only) required as per Annexure-1.

Scope-2: Operation wise complete Tooling package (one set only) as per Annexure-2.

- a) The vendor shall offer tooling package (operation wise) for Scope-1 & Scope-2 with all required & recommended tooling items **for each operation separately. No interchangeability** of any tooling items such as adaptors /tools/holders/inserts/spares is allowed between different operations even if they can be carried out with common items.
- b) The offer will be considered for processing only if offered tooling package covers all machining operations, mentioned in both Scope-1 & Scope-2. **Partial solution/offer shall be ignored.**
- c) Vendor should offer each tool set as a separate assembly within each operation also. The extension/holder etc should be separate for each tool set. Each tool set should be complete to carry out the intended operation.
- d) The operation wise offer should be complete in all respect i.e. with tool drgs. for all special items, copies of catalogue pages for all standard items & item wise price. In case, no price is mentioned by vendor against any item in price bid, it shall be considered as included in other quoted prices and no addition or change in prices shall be permitted after submission of offer.

3. Technical Scrutiny, Ordering & Final Acceptance for Scope-1 :

3.1 Technical scrutiny and acceptance of offers of vendor meeting Pre-Qualifying Requirements.

3.2 Technical scrutiny of offers who have cleared Pre-Qualifying Requirements shall be done simultaneously for both Scope-1 & Scope-2 w.r.t technical offers submitted by vendors against Annexure-1 & 2.

3.3 Ordering for Scope-1:

- 3.3.1 For accepted offers after technical scrutiny of documents submitted with the offer for scope-1 only, price bid shall be opened for Scope-1 and L1 vendor shall be finalized for Scope-1 for one set of package offered by vendors.

- 3.3.2 Counter offer for one set shall also be made to L2, L3 and subsequent vendors in order of their bid status for Scope-1 supply at L1 price till maximum 5 additional vendors (L1 + 5) accept the counter offer at L1 price. In case, if the number of vendors who have accepted the counter offer is less than 5, case shall be processed further with lesser number of available vendors. Quantity mentioned as 6 sets against material code for Scope-1 shall be divided to maximum 6 vendors with one set each to individual vendor.
- 3.3.3 Order for one set each shall be placed for Scope-1 on L1 vendor as well as maximum 5 additional vendors who have accepted the counter offer as per 3.3.2 above.

3.4 Final Technical Acceptance criteria for supplied & tried tools after PO placement for Scope-1 shall be their performance as per following :

- 3.4.1 The machining as per Scope-1 using supplied tooling against ordering by BHEL shall be carried out on a forging test piece of material specifications as mentioned at Sl. no. 1.1 on existing CNC Horizontal Boring machine with broad specs. as per Sl. No. 1.2.
- 3.4.2 Schedule of machining on Test piece for each vendor shall be informed by BHEL depending upon receipt of respective supplies and availability of required machine.
- 3.4.3 The specified operation (Sl. No. 1.2.1 & 1.2.2 of Annexure-1) for Scope-1 are to be successfully completed as per technical requirements & conditions mentioned in Annexure-1.
- 3.4.4 The offered quantity in the offer shall be as per Sl. 1.3.1 (for operation mentioned at Sl. No. 1.2.1) and as per Sl. 1.3.2 (for operation mentioned at Sl. No. 1.2.2)
- 3.4.5 Total Cycle time covering operation in Scope-1 as per sl. no. 1.2.1 & 1.2.2 of Annexure-1 shall be recorded for each vendor. The cycle time recording shall be done from start to end of each specified machining operation i.e start of Feed from start of operation to end of feed after completion of that operation & back to start position. Non-cutting time like loading of tool/tool change, approach to start position, checking of tool offset etc shall not be considered for cycle time recording. However, time consumed in each insert indexing/change, done during carrying out specified machining operation, shall be taken into consideration as **3 minutes** per indexing/change & shall be included in Total cycle time. The best performing vendor shall be identified by BHEL who shall be having lowest total cycle time for Scope-1.
- 3.4.6 All vendors **who shall successfully complete all the specified operations** of Scope-1 with supplied tools meeting technical requirements & conditions mentioned in Annexure-1 & shall have total cycle time within 40% higher than total cycle time established by best performing vendor will be considered as technically acceptable. Further, Weightage/Factor for achieved cycle time shall be applied to price quoted by technically accepted vendors while finalizing L1 vendor for Scope-2 as elaborated at Sl. No. 5.2.1.
- 3.4.7 During trial if the process or tools could not be successfully established by vendor in one go, the vendor will be given one more chance for successful establishment or to improve any performance/cutting parameters including cycle time through change of tool/insert/grade/process without any additional financial implications to BHEL. The vendors are advised to keep alternate set of insert/grade ready with them for

supplying, if required, for complete machining as per tender scope to avoid any holdup for trial completion.

4.0 Payment of Supplied tools for Scope-1:

- 4.1 The payment for supplied complete tooling package for Scope-1 shall be subject to successful machining, meeting the final technical acceptance criteria as mentioned at Sl. No. **3.4**
- 4.2 In case of not meeting to "Acceptance Criteria" mentioned at Sl. No. **3.4**, no payment for supplies against Scope-1 shall be released to vendors even if partial scope is successful and such vendors may take their tools back after trials. Also, in such cases, no payment shall be released for any supplied item consumed or damaged during trial.

5.0 Ordering for Scope-2 as per Annexure-2 :

- 5.1 Only technically accepted vendors of Scope-1 shall be considered for price bid opening for Scope-2.
- 5.2 Out of technically accepted vendors, L1 vendor shall be finalized for Scope-2 as per following :
 - 5.2.1 Factor 'F' shall be applied to Final price of technically accepted vendors for evaluation of L1 status of vendors for Scope-2:

Final Price (to be considered for L1 evaluation) = Final Landed cost of complete tooling package of the respective vendor * F

F = Total cycle time achieved by vendor for Scope-1 / Total cycle time achieved by best performing vendor for scope-1

- 5.2.2 Order for Scope-2 shall be placed on L1 vendor, finalized as above.

6 Final Acceptance & Payment of supplied tools for Scope-2 (Annexure-2) after PO placement:

- 6.1 The machining as per Scope-2 using supplied tooling against ordering by BHEL shall be carried out for **ESV & CV Casing** of material specs as mentioned at Sl. no.1.1 on existing CNC Horizontal boring machine with broad specs. as per Sl. No. 1.2.
- 6.2 Schedule of machining shall be informed by BHEL depending upon receipt of supplies and availability of required machine.
- 6.3 Operation wise acceptance of tools supplied for Scope-2 shall be made subject to successful machining as per drawing accuracies & finish and accordingly payment shall be operation wise.

- 6.4 During trial if the process or tools could not be successfully established by vendor in one go, the vendor will be given one more chance for successful establishment or to improve any performance/cutting parameters including cycle time through change of tool/insert/grade/process without any additional financial implications to BHEL. However, the total time period taken in first trial machining, improvement /modification/change in supplied tools, their supply & subsequent trial machining in additional chance shall not be allowed to exceed beyond one month. In case, there is holdup not attributable to vendor, like non availability of machine, the time period shall be accordingly extended to that extent and informed by BHEL
- 6.5 Payment shall be made, operation wise, only for tooling items offered for the operations which have been established successfully by vendor in line with specified requirements.
- 6.6 In case of any failed machining operation or failure to carry out any operation of Scope 2 within specified time, all the tooling items offered for such failed operation shall be considered as rejected and no payment shall be made for such tooling items of failed operation. Also in such cases, no payment shall be made for any supplied item consumed or damaged during machining of that operation.

7 Other Requirements :

- 7.1 Insert design shall be as per recommendation of vendor. The insert geometry & grade should be suitable for smooth chip flow, chip breaking and productive machining.
- 7.2 CNC Programming support shall be provided by BHEL.
- 7.3 In case of any replacement/addition of cutter/item (w.r.t. sl. no. 1.3), if so required by vendor for successful establishment of required machining in scope-1 & scope-2, it shall be done by vendor without any financial implications to BHEL. The vendor will have to keep extra consumables/items of each type ready with them for supplying at short notice, if required, for complete machining as per tender scope to avoid any holdup for project completion.
- 7.4 In case, vendor requires any clarification, they may discuss with BHEL prior to submission of their offer to avoid any gaps at later stage.
- 7.5 All operations are to be completed within best possible time. Broad specifications of the machine have been mentioned at Sl. No. 1.2. Vendors are required to ensure use of optimum cutting parameters by vendors within specified parameters of the machine.
- 7.6 In order to provide best possible solution, the technical offer submitted by the vendor for each Scope (1 & 2) can have tools manufactured by different original tool manufacturers (OEM), if the vendor is authorized by those OEMs. Authorization letter of the OEM is to be submitted with the offer in such cases
- 7.7 Vendor to ensure that the tools offered in scope-2 should be of same/better grade as compared to the tool offered in scope-1. Similarly vendor to ensure that tools/grade established in scope-1 or better shall also be used in scope-2.

SCOPE-1

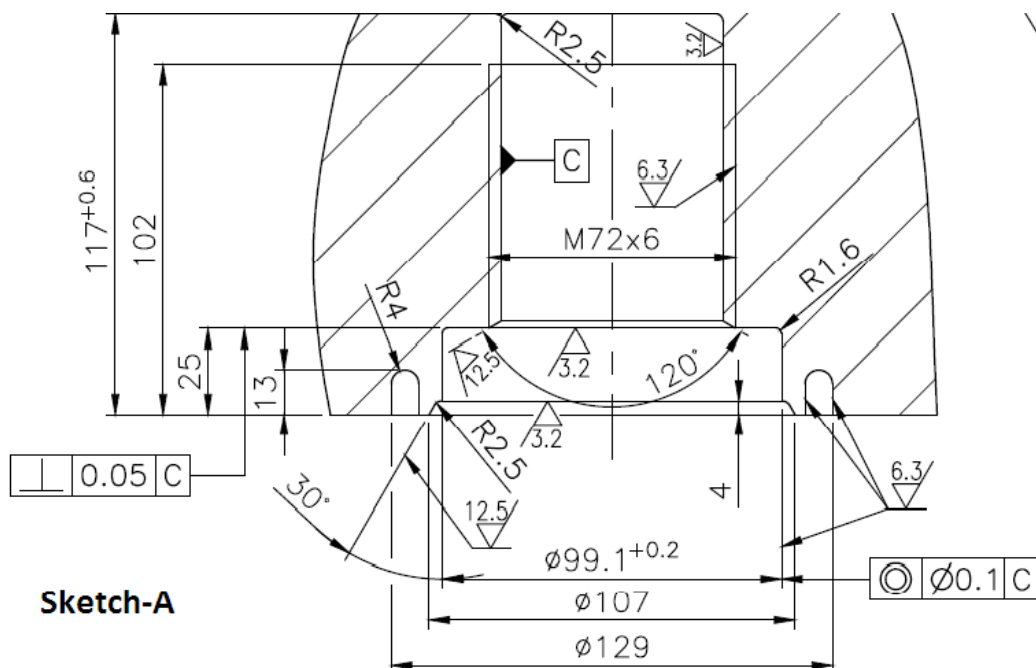
1. Vendor to offer complete tooling package for following operations as mentioned below at Sl. No. 1.2.1 & 1.2.2. The machining shall be carried out on the Test piece forging of material Alloy IN617 (Drg. no. NCT-01) on CNC Horizontal Borer as per details given below :

1.1 Test Piece :

- 1.1.1 Test component of forged alloy IN617 as per drawing no. NCT-01 (enclosed) shall be provided by BHEL for machining trials to all vendors on whom PO shall be placed for Scope-1. Dimensions shown in this drawing may be considered with tolerance of +/- 3mm.
- 1.1.2 Machining on Test component shall be carried out by different vendors at different locations on test component as per availability & suitability of the material.
- 1.1.3 Schedule of machining on Test piece for each vendor shall be informed by BHEL depending upon receipt of respective supplies and availability of required machine.

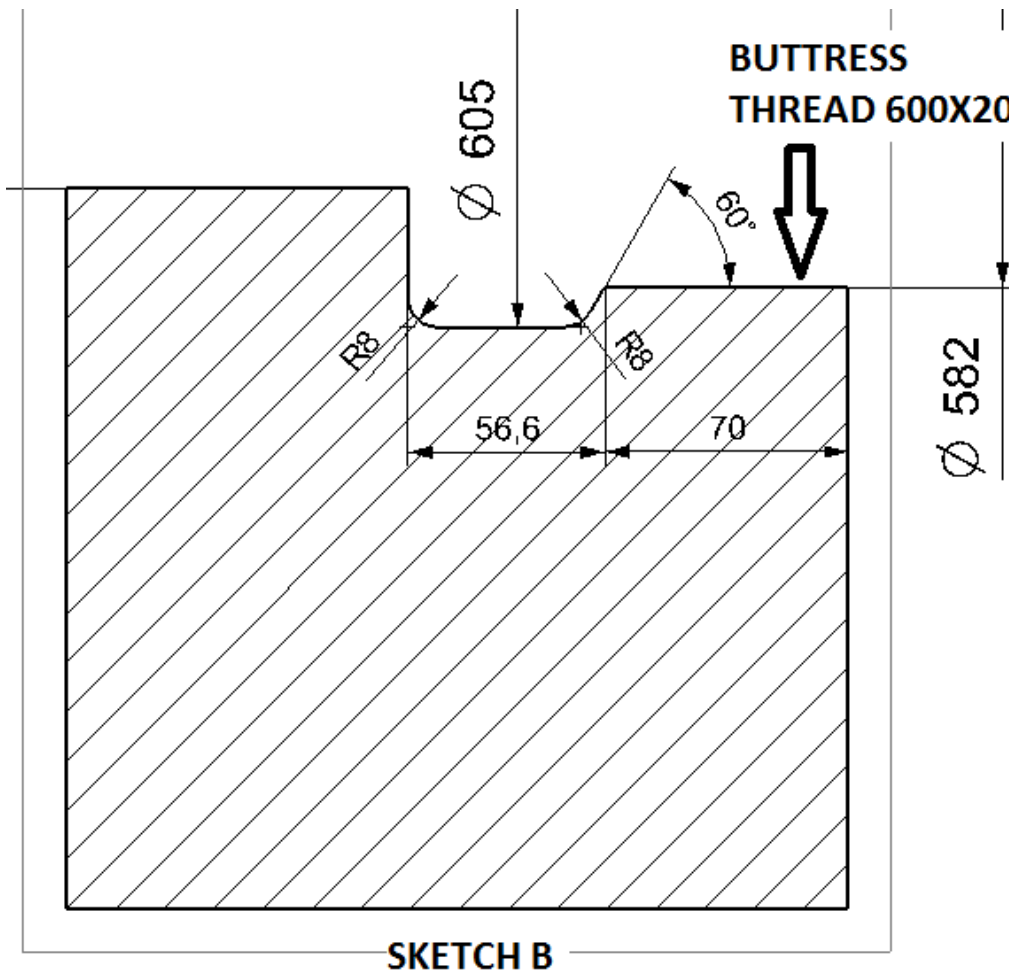
1.2 Machining Operations :

- 1.2.1 Following detail (Sketch-A) is to be machined on the face of test piece. Operations include Facing, Drilling & Boring for M72*6 upto depth 117mm, Thread Whirling M72*6 (through interpolation i.e. thread milling with single tooth) and counter boring dia 99.1 mm upto depth 25mm. Also machining of face groove with bottom radius R4 at dia 129, chamfer 120 deg on hole M72X6 & Profile R2.5 with taper 30 deg upto depth 4 mm. Surface finish of Ra 3.2 on machined surfaces (unless otherwise stated).



1.2.2 Following operations as per sketch B are to be carried out with D'Andrea Boring Attachment available on the machine using square shank tools (25mm x 25mm):

- (a) Complete rough and finish boring of diameters 582 (butress thread dia).
- (b) Rough and finish machining of relieving groove dia 605.
- (c) Butress Threading D600*20 – using standard turning tool SVJBR 2525-K16/ insert VBMT160408 or MVJCR 2525K16/Insert VCMT 160408 (preferably SVJBR).



1.3 Quantity :

1.3.1 The vendor to offer complete tool set for sketch A as per below:

- i) BT50 Adaptor to suit offered cutter – one no. of each type
- ii) Cutter/Tool with extension if any, complete in ready to use condition with inserts mounted on it - one no. of each type
- iii) Carbide Inserts (inserts mounted on cutters are not to be included here) :
 - 50 nos each type for face mill cutter
 - 20 Nos. of each type for drill, boring bar, thread whirling cutter, face grooving boring bar, chamfer & profile cutter (R2.5 & 30deg), End mills.
- iv) 3 nos. of solid carbide cutters (if any)

- v) 5 nos. of insert head /insert blade for chamfering/drilling or profile milling cutter (if used).
- vi) Spare parts – 5 nos. of each type
- vii) Keys/spanners – 1 no. of each type

1.3.2 The vendor to offer complete tool set for sketch B as per below:

- i) Indexable Insert Tool with square shank 25x25- two no. of each type
- ii) Inserts – 20 nos. each type
- iii) Spare parts – 5 nos. of each type
- iv) Keys/spanners – 1 no. of each type

- 1.4 Each machining operation i.e. Facing, Drilling, Boring, Thread Whirling & Counter Boring should be completed by using Single Tool/Cutter without any damage/breakage.
- 1.5 Further, each machining operation should be completed with single set of inserts mounted on it.
- 2. The shank of offered tool/cutter, to match with offered adapter, shall be as per recommendation of vendor to suit the application.
- 3. Tools with preferably indexable inserts are to be used wherever possible.
- 4. Package offered by one vendor for Scope-1, irrespective of types of holders/inserts/spares shall be considered equitable to package offered by other vendor.

SCOPE-2

1. Vendor to offer tooling package for complete machining of Valve (ESV & CV) casing of forged Alloy IN617 covering all operations as mentioned at Sl. No. 3.1 to 3.18 achieving specified accuracy & surface finish.
2. **Component:**
Valve casing drawing no. 0-11222-60035 (sheet 1 & 2 enclosed)
Rough machined forging Drawing No. 0-11222-PP901 (enclosed).
(Component drawing and rough machined forging drawing can be shared with the vendor after receipt of NDA)
3. **Machining Operations:** The vendors are required to offer tooling package (operation wise) for each of below mentioned operations separately (3.1 to 3.18) as per details shown on Valve casing.
 - 3.1 **Rough and Finish milling of all the faces shown in view O, view R, View P, View Q, detail W, view M, detail X & Detail M1 of sheet 2 and detail X, Detail Z, Section DD, Section PP, Detail S and face with dia 610 shown in sheet 1.**
 - (a) Face mill dia 200 for rough machining of the faces of all the details shown in the drawing.
 - (b) Face mill dia 200 for finish machining of the faces of all the details shown in the drawing. The face generated after finish machining should meet all the requirements of surface finish and flatness as required in the drawing.
 - 3.2 **Machining operations of 32 holes of M42 shown in view O and view R (sec GG) (Sheet 2)**
 - (a) Drilling operation of 32 holes as per section GG (indexable insert drill of any of diameter D32 to D36 mm)
 - (b) Indexable insert adjustable B.Bar dia 37.5 for finishing of bore dia 37.5.
 - (c) Indexable insert adjustable Boring Bar for machining of bottom groove in bore dia 37.5 with bottom radius R2.5.
 - (d) Indexable insert chamfer tool for machining of chamfer 120 deg.
 - (e) Threading/tapping of M42 is to be machined through Thread whirling (Thread milling with single teeth) or tapping.
 - 3.3 **Machining operations of pads shown in view P & view Q (Sheet 2)**
 - (a) Drilling operation of M80 holes as per section N1N1 & section N2N2 (indexable insert drill of any diameter D68 to D72 mm)
 - (b) Indexable insert adjustable B.Bar dia 74 for finishing of bore dia 74.
 - (c) Drilling operation of M72 holes as per section N1N1 (indexable insert drill of of any diameter D60 to D64 mm)
 - (d) Indexable insert adjustable B.Bar dia 66 for finishing of bore dia 66.
 - (e) Indexable insert adjustable Boring Bar for machining of bottom groove of radius R2.5 in bore dia 74 & bore dia 66.
 - (f) Indexable insert chamfer tool for machining of chamfer on hole M80X6 and M72X6 as per drawing.
 - (g) Threading of M80*6 & M72*6 is to be machined through Thread whirling (Thread milling with single teeth).

- (h) Square shoulder End mill dia 32 for roughing of slot with width 50 mm as per detail N3.
- (i) Square shoulder facemill dia 63 for roughing of slot with width 80 mm as per sec P1-P1
- (j) Solid Carbide endmill for finishing of slot with width 50 mm and 80 mm as per drawing accuracies as per detail N3 & Sec P1-P1 respectively.
- (k) Indexable insert chamfer tool for machining of chamfer on edge of pockets with width 80 mm as per section P1-P1.
- (l) Drilling and tapping of 4 holes M10 (2 on each pad) as per view P & view Q.

3.4 Machining operations as per detail W (Sheet 2)

- (a) Drilling for M90*6 (indexable insert drill of any diameter D78 to D82mm)
- (b) Indexable insert adjustable Boring bar of dia 84mm for M90*6
- (c) Threading of M90*6 is to be machined through Thread whirling (Thread milling with single teeth).
- (d) Counter bore dia 64 and depth 3.84mm.
- (e) Drill for hole dia 37mm
- (f) Machining of Bore dia 35mm (+0.025) as per accuracy and finish mentioned on the drawing.
- (g) Chamfering tool for machining chamfer 2x45deg on hole dia 37.
- (h) Indexable insert chamfer tool for machining of chamfer on hole M90X6 as per drawing.

3.5 Machining operations as per view M and section L1-L1 (sheet-2) :

- (a) Indexable insert Drill for 8 holes M30 as per section L1-L1.
- (b) Indexable insert chamfer tool for machining of chamfer 120 deg.
- (c) Threading/tapping of M30 is to be machined through Thread whirling (Thread milling with single teeth) or tapping.
- (d) Indexable insert Drill for hole dia 60.
- (e) Solid carbide endmill dia 20 for machining of counter bore dia 71 upto depth 3.2mm.

3.6 Machining operations as per section HH (view T) and section II (view N) (sheet-2) :

- (a) Indexable insert square shoulder facemill dia 125 for rough machining of flat 140x140 as per section HH (view T) and section II (view N).
- (b) Drilling of 8 holes dia 16 (for AM16) as shown in view N & view T and as per section R-R.
- (c) Chamfer tool for machining of chamfer 120 deg.
- (d) Indexable insert Drill for Bore dia 38 as shown in section HH & section II.
- (e) Indexable insert square shoulder face mill dia 32 for Machining of counter bore dia 53.6 upto depth 2.63 mm and finish machining of flat 140x140 as per section HH (view T) and section II (view N).

3.7 Machining operations of Detail M1 (sheet-2) & Detail X (sheet-1):

- (a) Complete solution for machining hole dia 17(+/- 0.03)mm.
- (b) Indexable insert drill dia 32 for M36.

- (c) Indexable insert square shoulder end mill dia 20 for machining of counter dia 25.9 and counter dia 50.
- (d) Threading/tapping of M36 is to be machined through Thread whirling (Thread milling with single teeth) or tapping.
- (e) Drilling hole dia 14 mm.
- (f) Drilling hole dia 7 mm.
- (g) Machining of flat bottom of hole dia 7 mm.
- (h) Chamfer tool for milling chamfer 60 deg.
- (i) Machining of Counter bore dia 20.
- (j) Machining of fillet R2.5 on counter bore dia 20.
- (k) Threading/tapping of M16 is to be machined through Thread whirling (Thread milling with single teeth) or tapping

3.8 Machining operations as per detail X (sheet-2) :

- (a) Indexable insert Square shoulder facemill dia 80 for machining of outer dia 232 (+1) mm up to the depth 220 and roughing of fillet R50. Also rough machining of dia 138.1 and roughing of taper 6 deg in steps.
- (b) Indexable insert Boring bar for finish machining of bore dia 138.1 up to the depth 190 as shown in the drawing.
- (c) Indexable Round insert facemill of diameter 63 mm for machining of taper 6 deg and finishing of fillet radius R50.

3.9 Machining operations of details shown in section DD (detail Y) & section P-P (Sheet 1)

- (a) Indexable insert drill dia 62 mm.
- (b) Indexable insert adjustable B.Bar set at dia 66 for finishing of bore dia 66.
- (c) Indexable insert adjustable Boring Bar for machining of bottom groove of radius R2.5 in bore dia 66.
- (d) Threading of M72*6 is to be machined through Thread whirling (Thread milling with single teeth).
- (e) Indexable insert chamfer tool for machining of chamfer on hole M72X6 as per drawing.
- (f) Square shoulder facemill dia 50 for roughing of circular pocket dia 99.1 (+0.2).
- (g) Solid Carbide endmill for finishing of circular pocket dia 99.1 (+0.2).
- (h) Indexable insert adjustable boring bar for machining of face groove with dia 129 and bottom radius R4.
- (i) Indexable insert tool for machining of profile with taper 30 deg and radius R2.5 on counter dia 99.1 mm.

3.10 Machining operations of details Z at two places 180 degree apart (Sheet 1)

- (a) Indexable insert drill dia 26 mm.
- (b) Drill for machining hole dia 20 mm.
- (c) Indexable insert B.Bar dia 32 for hole M36. Vendor may offer indexable insert drill dia 32 for hole M36 as an alternate.
- (d) Threading/tapping of M36 is to be machined through Thread whirling (Thread milling with single teeth) or tapping
- (e) Indexable insert chamfer tool for machining of chamfer on hole M32 as per drawing.
- (f) Square shoulder facemill dia 32 for roughing of circular pocket dia 51.1 (+0.2).

- (g) Solid Carbide endmill for finishing of circular pocket dia 51.1 (+0.2).
- (h) Indexable insert adjustable boring bar for machining of face groove with dia 81 and bottom radius R4.
- (i) Indexable insert tool for machining of profile with taper 30 deg and radius R2.5 on counter dia 51.1 mm.

3.11 Machining operations of section A1-A1 (Sheet 1)

- (a) Center cutting solid carbide endmill dia 20 for machining of counter bore dia 35.
- (b) Solution for machining of hole dia 25 (+0.025).

3.12 Face at Distance 1465

- (a) Round insert facemill dia 200 with insert radius R10 for rough and finish machining of face at distance 1465 as shown in section A-A.

Following operations are to be carried out with D'Andrea Boring Attachment mentioned at point no 1.2 of Annexure A, using square shank tools (25mm x 25mm):

3.13 Complete rough and finish boring and facing of following diameters:

- Dia 640, 620, 582 (buttress thread dia), 505, 392 and 390, 380mm and taper 35x45deg.
- diameters 740, 720, 682 (buttress thread dia), 655, 625 and 510, 500, 384, 302 and 300mm.
- Diameter 330 with fillet R50 and taper 30 deg as shown in section BB (sheet-1).
- Rough and finish machining of weldedge as shown in detail S.

3.14 Rough and finish machining of relieving groove dia 605 & 705.

3.15 Rough and finish machining of groove R6 at the end of bore dia 505 as shown in detail V and groove R6 at the end of bore dia 655 & 625 as shown in detail U.

3.16 Buttress Threading D600*20 & D700*20 using standard turning tool SVJBR 2525-K16/insert VBMT160408 or MVJCR 2525K16/insert VCMT 160408 (preferably SVJBR) . Detail dimensions of buttress thread are shown in Fig.2 & Table-2 below. Special CNC program of machining buttress threads using this tool shall be provided by BHEL. Radial incremental depth of cut shall be in range of 0.2mm to 0.5mm (as per recommendation of vendor).

3.17 Rough and finish machining of outer dia 450 with fillet R50as shown in Section AA & outer dia 610(+1) with fillet R50 as shown in section BB.

3.18 Rough and finish machining of dia 192, taper 30 deg and dia 200mm as shown in detail S.

Table-2 & Fig. 2

Dimension of single start , right hand buttress thread (inner) shall be as per Table-2 & Fig.2

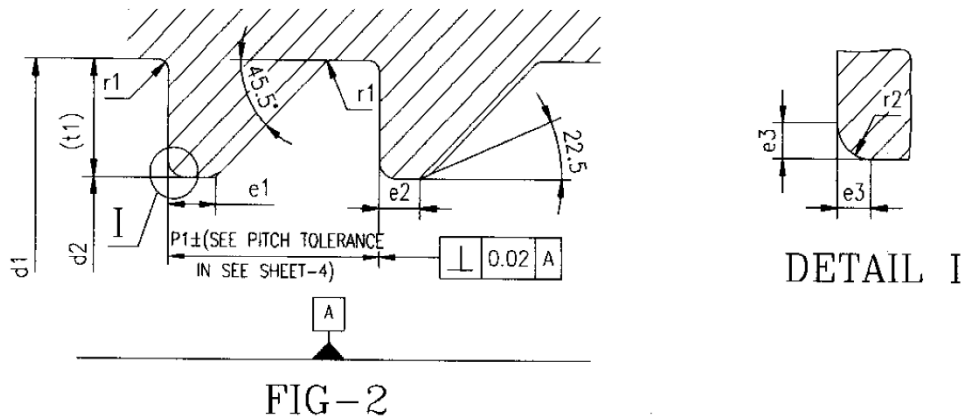


Table-2								
P1	d1 ±0.1	d2 ±0.1	e1	e2	e3	r1	r2±0.15	t1
20	d +3	d -2t1+3	4.5 ±0.15	3.9 ±0.15	1.15 ±0.15	0.8 ±0.15	1.6	10.5

4. Quantity:

The Tooling package, to be offered, shall have following quantity for **each operation** (Sl. Nos. 3.1 to 3.13) **separately**:

Sl. No	Item	Qty.
1. (for operations Sl. 3.1 to 3.12)	BT 50 Adapter with through coolant & with Extensions/Sleeves (if used)	01 Set for each tool set
2. (for operations Sl. 3.1 to 3.12)	Indexable Insert Cutter (in ready to use condition with inserts mounted on it). Or Non Indexable Cutter (Drill, solid carbide cutter, Tap, Reamer, etc.) (Type of cutter as per recommendation of vendor considering Sl. No. 5.1.3)	01 nos. of each type 03 nos. of each type
3 (for operations Sl. 3.13 to 3.18)	Indexable Insert Tool with square shank 25x25	03 nos of each type
4.*	Carbide inserts for Facemill cutter Carbide inserts for Indexable insert Drill Carbide inserts for Boring bar Carbide inserts for Thread whirling cutter Carbide inserts for face grooving cutter Carbide inserts for chamfer cutter	50 nos. of each type 30 nos. of each type 20 nos. of each type 30 nos. of each type 20 nos. of each type 20 nos. of each type

	Carbide inserts for profile cutter Solid crown type carbide head Blade type drill insert for crown type head Carbide insert for Sq. shank turning tool	20 nos. of each type 5 nos. of each type 5 nos. of each type 50 nos. of each type
5.*	Screws	10 nos. of each type
6.*	Spares like shims, clamps, cartridges etc.	03 nos. of each type
7.*	Spanner/Torque wrench/screw driver/ Allen Keys	02 nos. of each type
* Sl. No. 4 to 7: – Applicable to suit tool/cutter offered at Sl. No. 2 & 3. * The Quantity mentioned against sl.no.4 to 7 shall be in addition to quantity mounted on ready to use cutter.		

5. Other Requirements :

5.1 Tool/Cutter requirements:

5.1.1 Shank of offered tool/cutter, to match with offered adapter, shall be as per recommendation of vendor to suit the application.

5.1.2 Wherever tapping is offered/recommended for threading, complete tapping attachment is to be offered by vendor.

5.1.3 Wherever possible, tools with indexable inserts are to be used.

5.1.4 All adaptors/extensions/sleeves must have the provision for internal coolant

5.1.5 Vendor should offer each tool set as a separate assembly within each operation. The extension/holder etc should be separate for each tool set. Each tool set should be complete to carry out the intended operation.

5.2 Operation wise package offered by one vendor for Scope-2, irrespective of types of holders/tools/inserts/spares shall be considered equitable to operation wise package offered by other vendor.

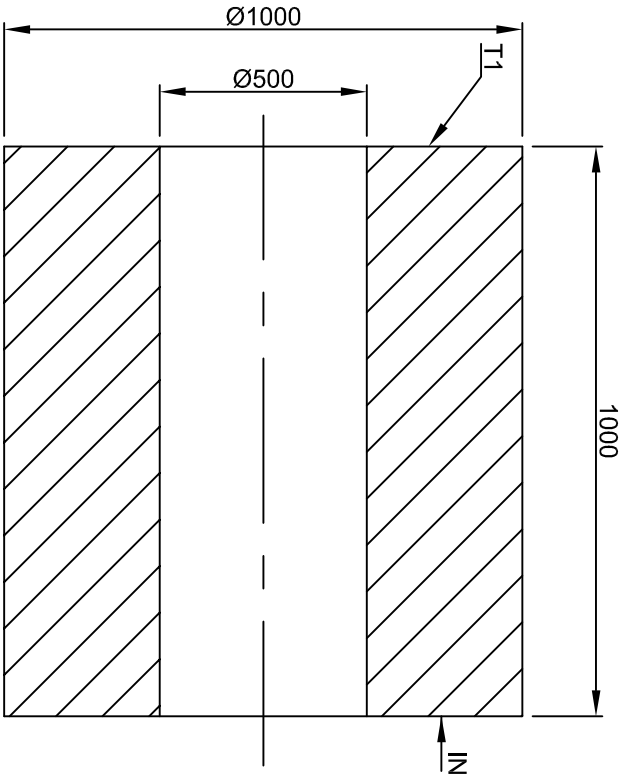
5.3 Evaluation of offers for L1 status for Scope-2 shall be done as per point no. 5 of Annexure-A.

5.4 In case, vendor requires any clarification, they may discuss with BHEL prior to submission of their offer to avoid any gaps at later stage.

10/LCN

DRAWING No.

12.5/ALL OVER



TECHNICAL REQUIREMENTS:

1. PERMISSIBLE TOLERANCES:
OUTSIDE DIMENSION: +1
INSIDE DIMENSION: -1
2. IN CASE OF ORDER, BEFORE START OF MANUFACTURING, VENDOR TO SUBMIT MANUFACTURING, SAMPLING AND TESTING PLAN FOR BHEL APPROVAL.
3. DRAWING NUMBER, MATERIAL GRADE, SUPPLIERS REFERENCE, PURCHASE ORDER NO., HEAT NUMBER ARE TO BE PUNCHED AT LOCATION MARKED WITH IN . SUITABLY PAINTED WITH RUST PREVENTIVE.
4. FORGING SHALL BE SUITABLY PACKED TO PREVENT CORROSION AND DAMAGE DURING TRANSIT.

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Inventory No.		Sign & Date		Ref.Drawing No.	
REV		DATE		ALTERED	
CHECKED		CHECKED		CHECKED	
REV		DATE		ALTERED	
CHECKED		CHECKED		CHECKED	
GRADE OF UNTOL. DIM		M/CG.- AA0230208 m		WELDING-CLASS 'B' OF AA0621104	
GAS CUTTING-TABLE 3 OF AA0621101		GMS No. /		C B O M	
AGREED		NAME		SIGN	
DEPT		DATE		STATUS OF DRG	
REV		DATE		ALTERED	
CHECKED		CHECKED		CHECKED	
DEPT		SITE		SCALE	
CODE		4011		1:10	
WEIGHT (KG)		4950		REF. TO ASSY. DRG.	
ITEM NO.		---		ITEM NO.	
NO. OF ITEMS		75		77	
TITLE :		FORGING FOR RING		CARD CODE	
DRAWING NO.		NCT/01		SHEET No.	
22		23		24	
7		1		No. OF SHEETS	
1		1		1	
SIZE A3					

MATERIAL : Alloy 617M MATERIAL CODE: TLMW65017552

TYPE OF PRODUCT OR
NAME OF CUSTOMER/PROJECT

 BHARAT HEAVY ELECTRICALS LTD.
RANIPUR, HARDWAR

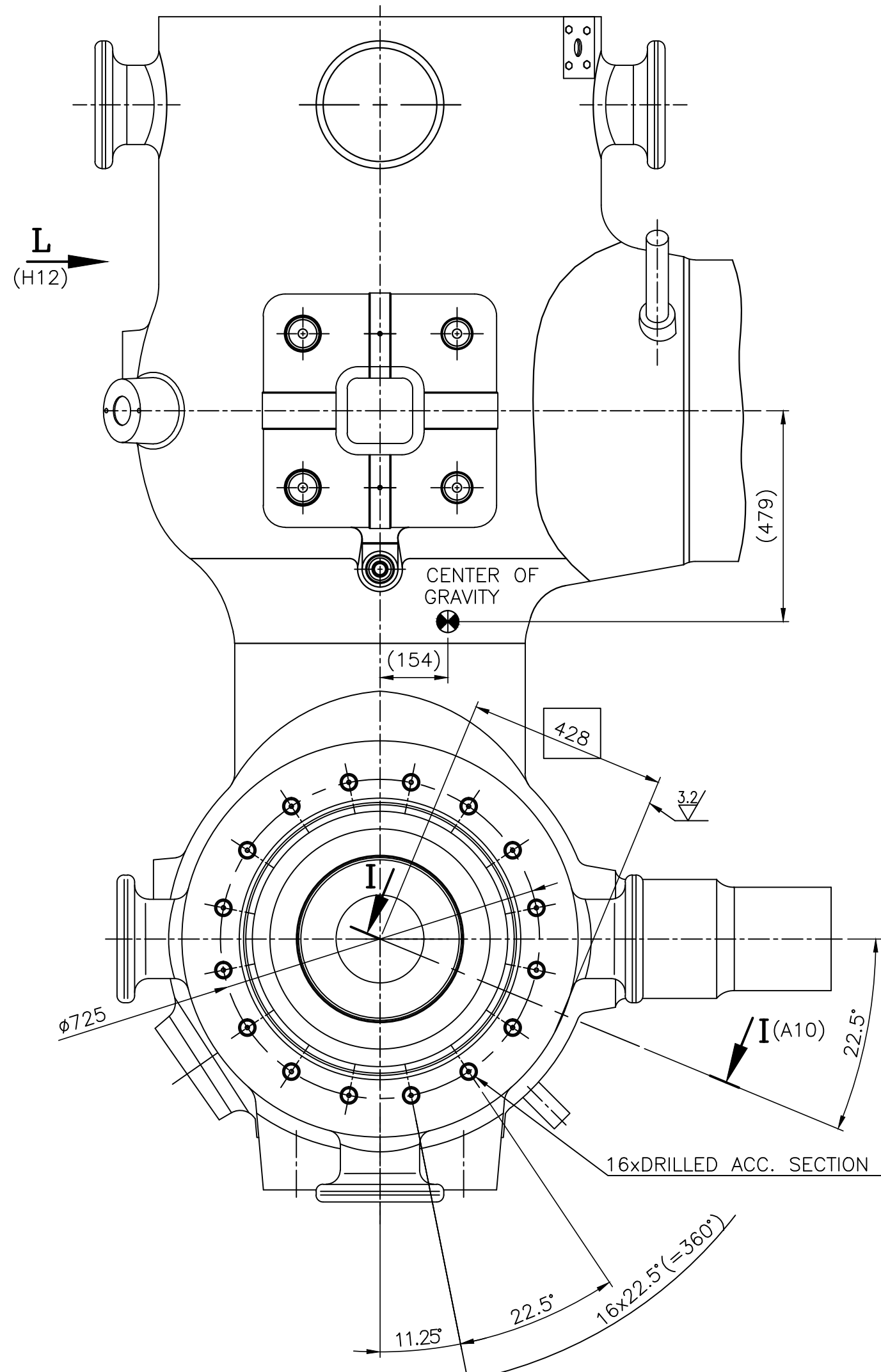
DRN	R.P. Singh	Sd/-	16.02.17	NO. OF
CHD	D.K. Chowdh	Sd/-	16.02.17	VAR
APPD	D.K. Chowdh	Sd/-	16.02.17	73 74

FIRST ANGLE PROJECTION

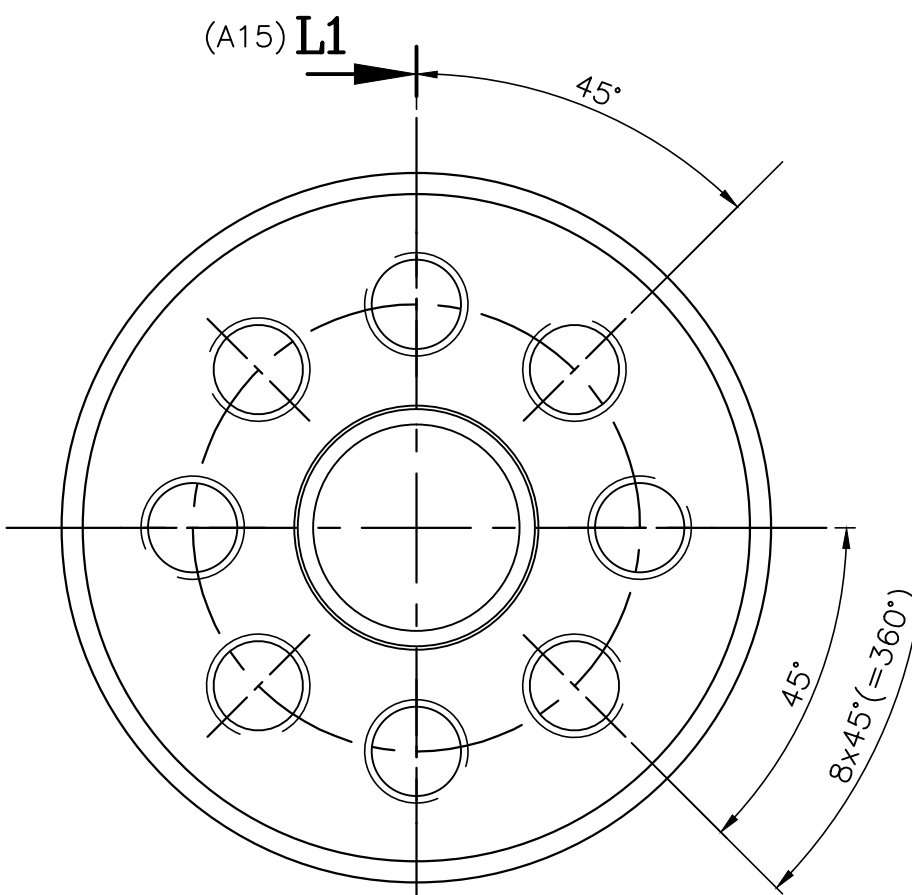
(ALL DIMENSIONS ARE IN mm)

FORM DG 46 (B)

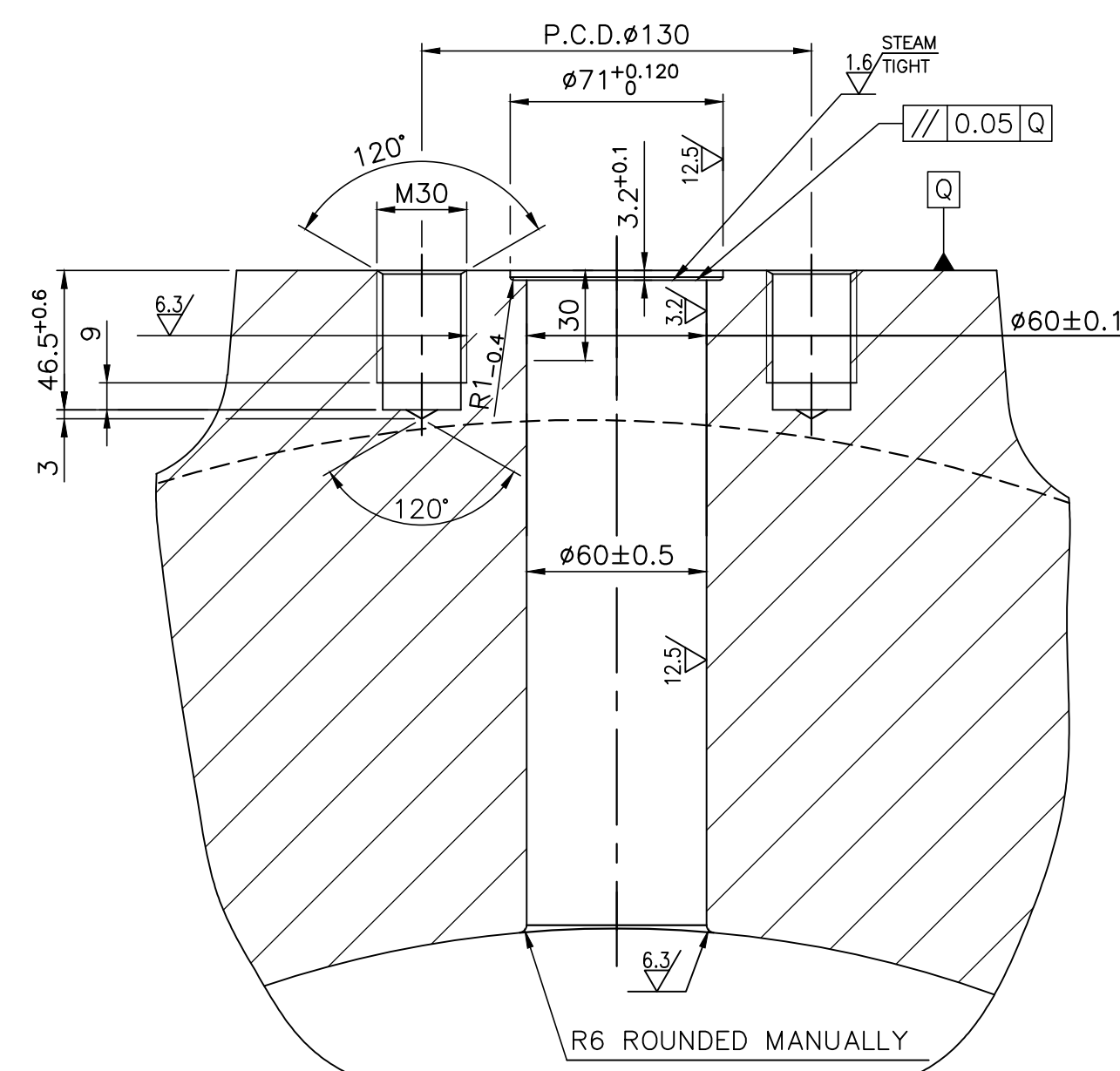
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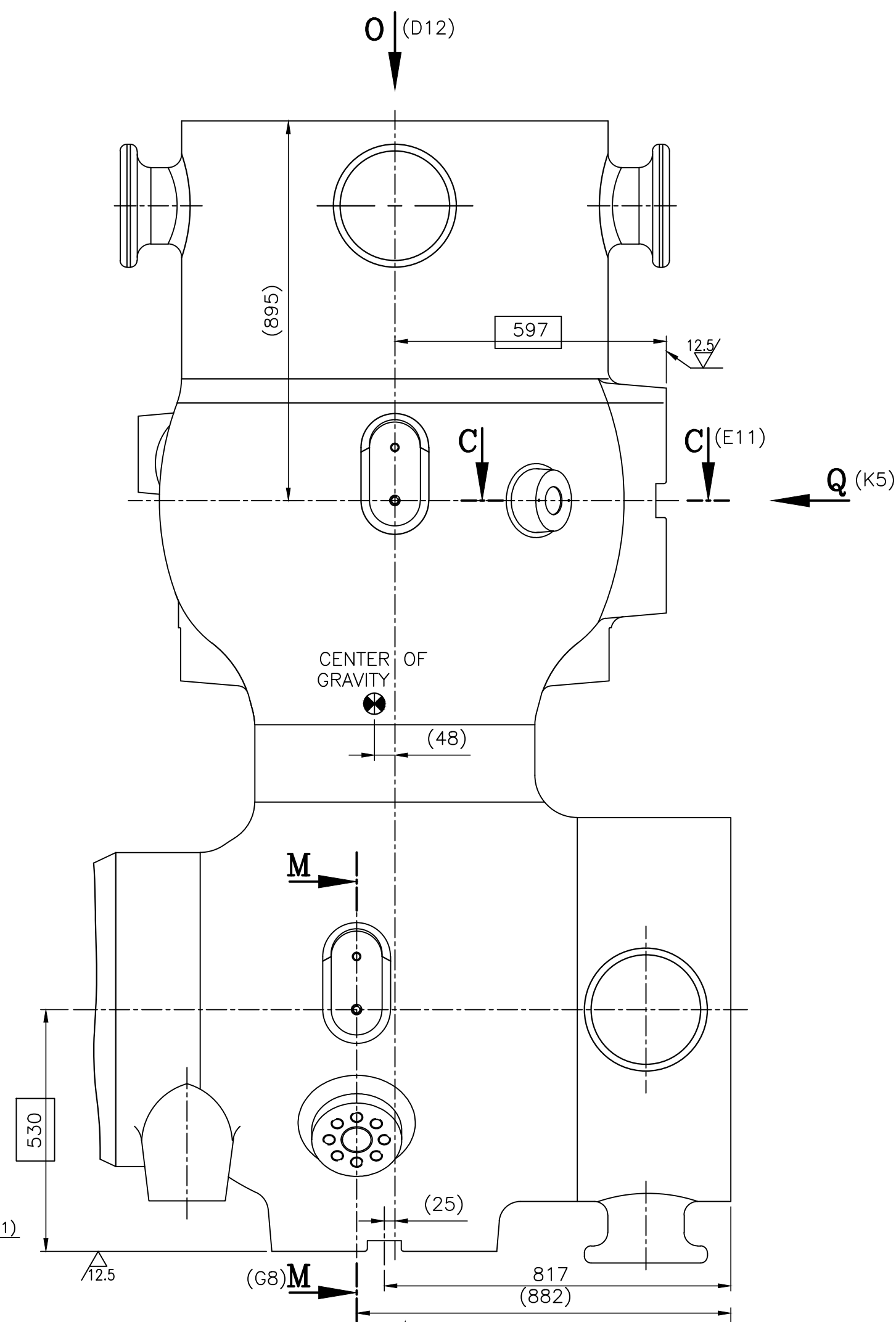
VIEW-R (J10 SH.01)



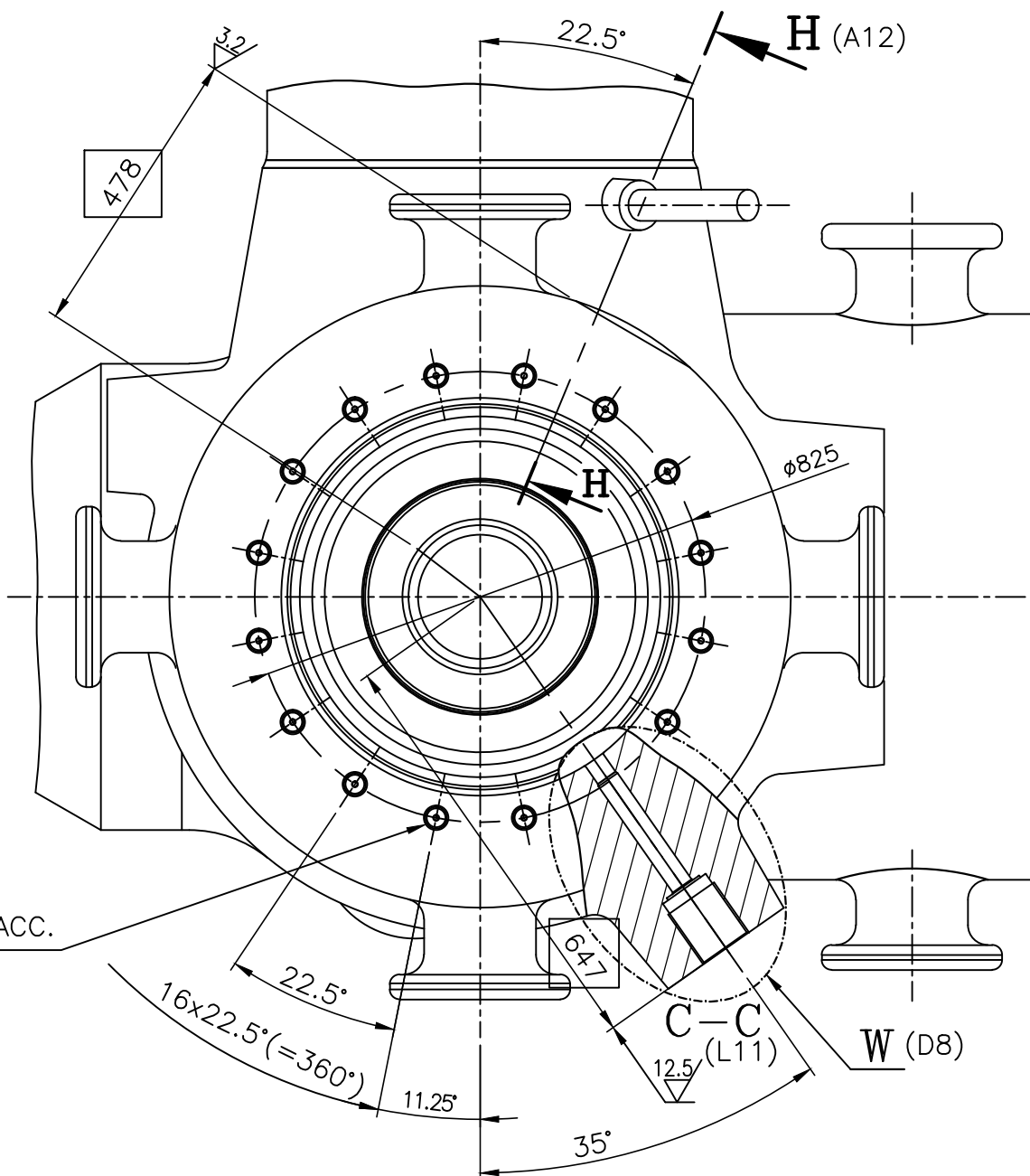
VIEW-M (H7)



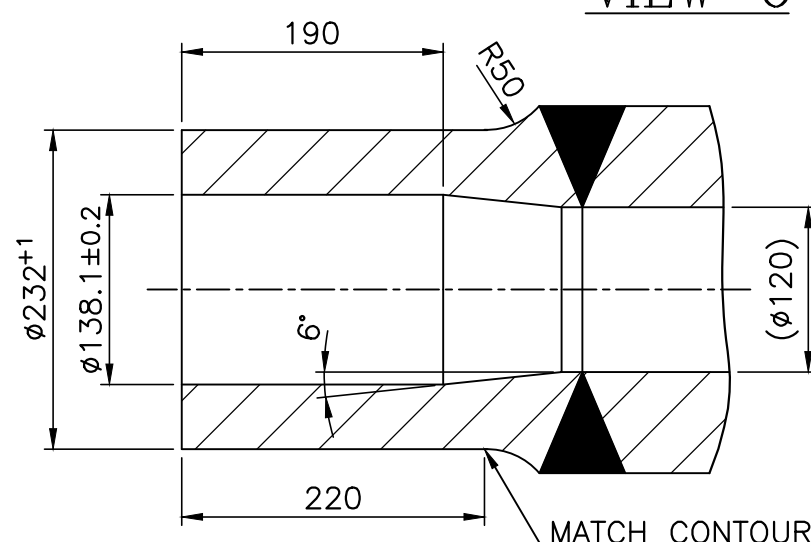
SECTION L1-L1 (G15)



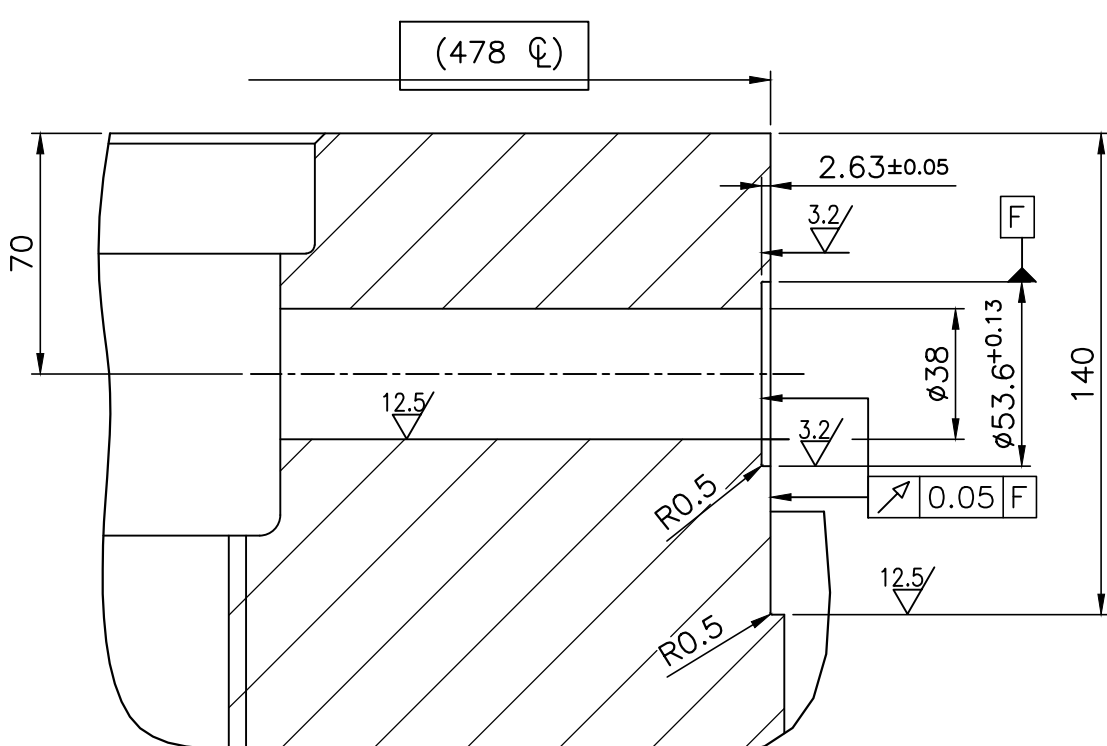
VIEW-L (L16)



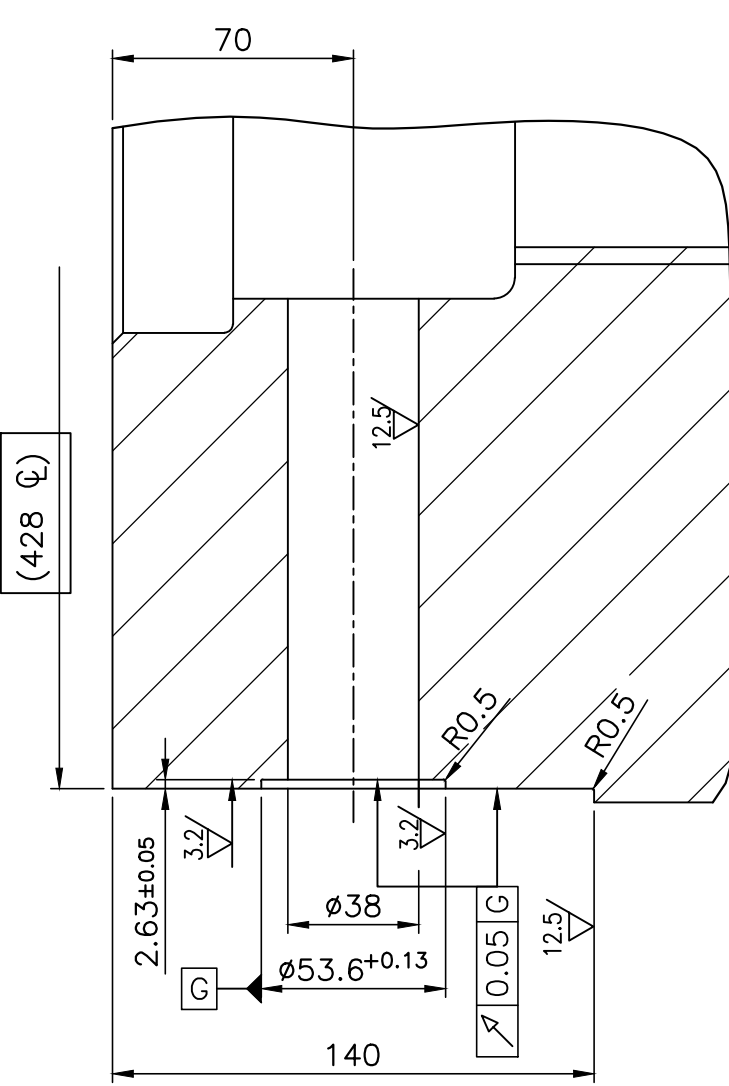
VIEW-Q (M12)



DETAIL X (J9)

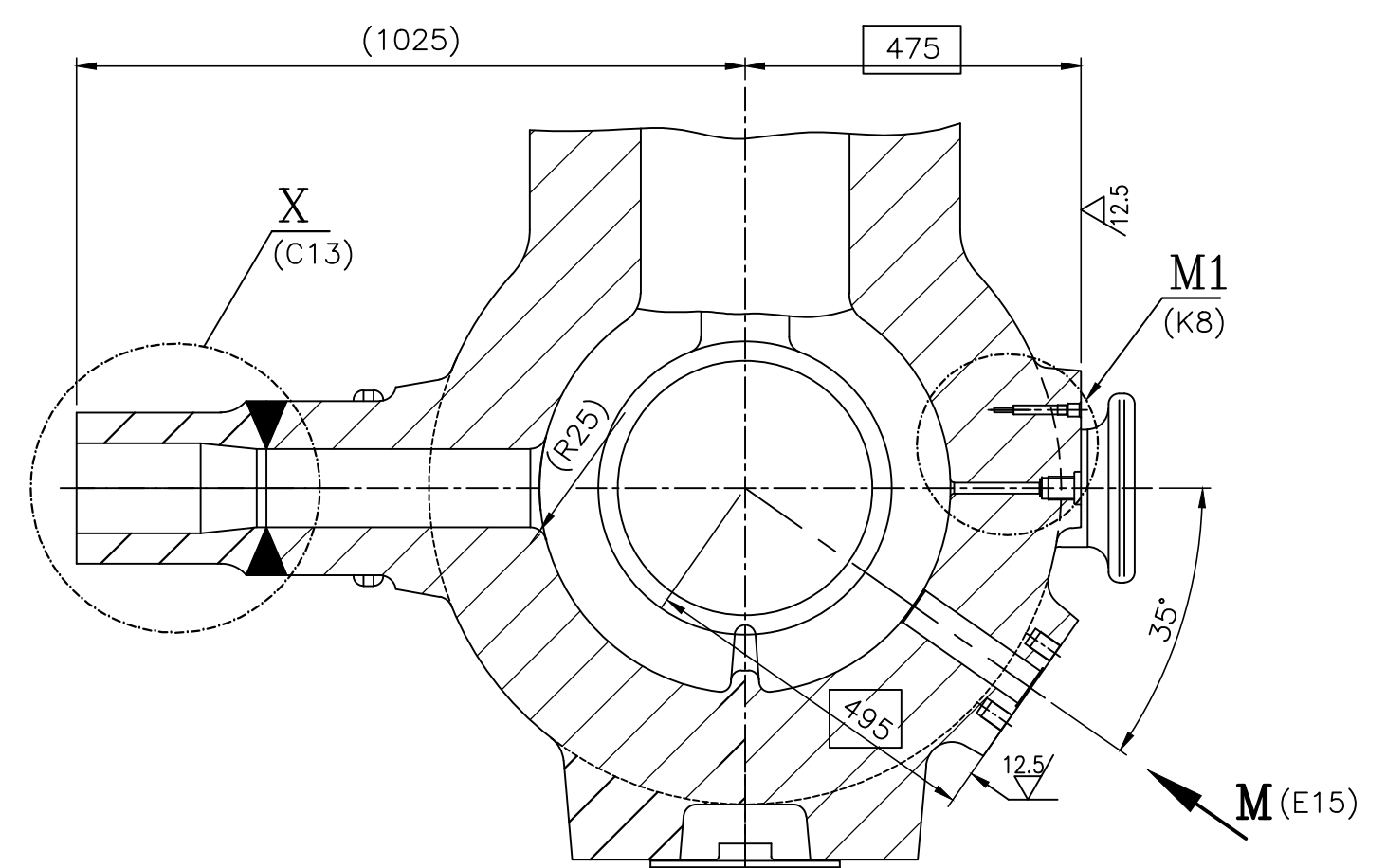


SECTION H-H (G11)

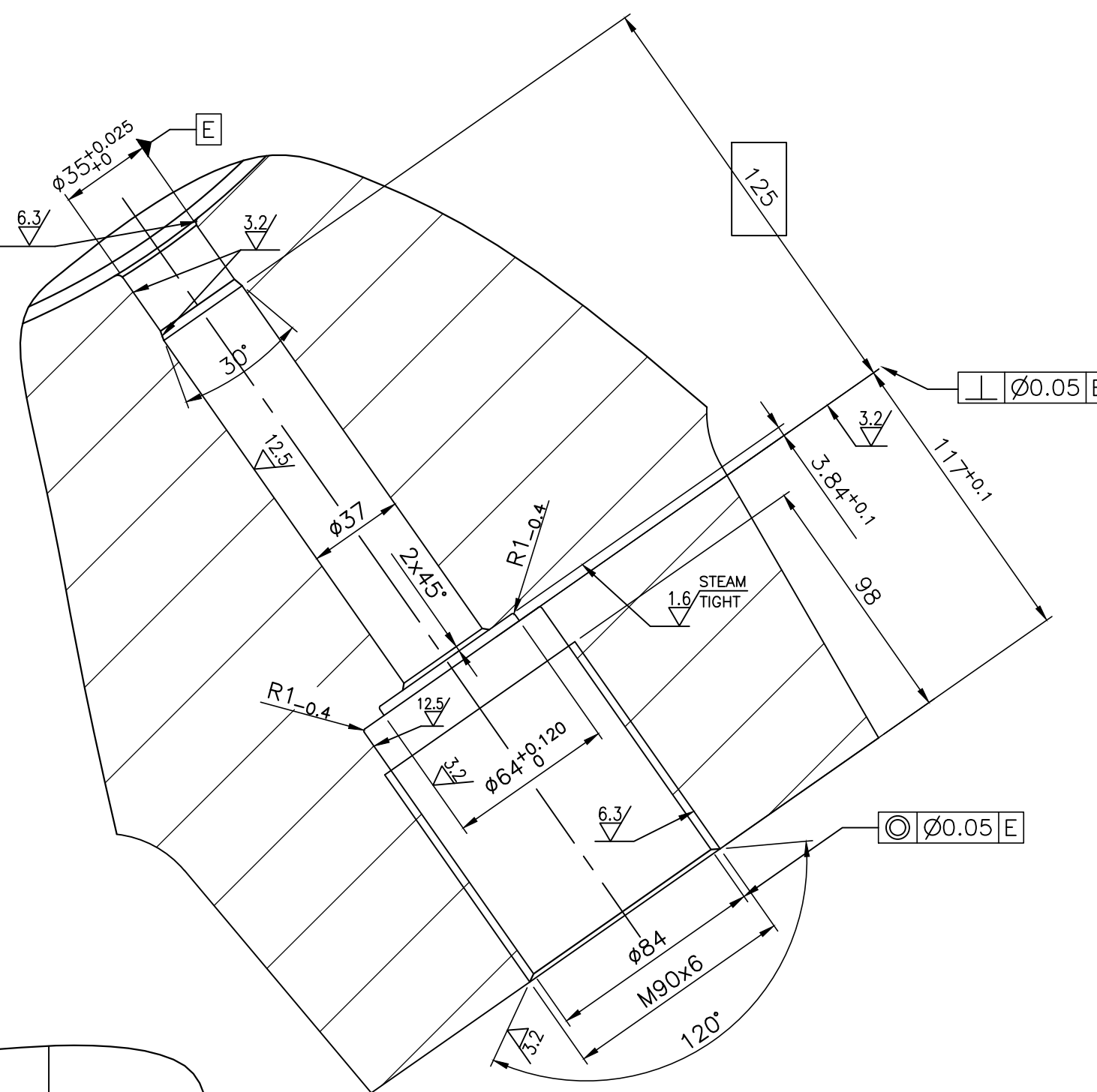


SECTION I-I (J14)

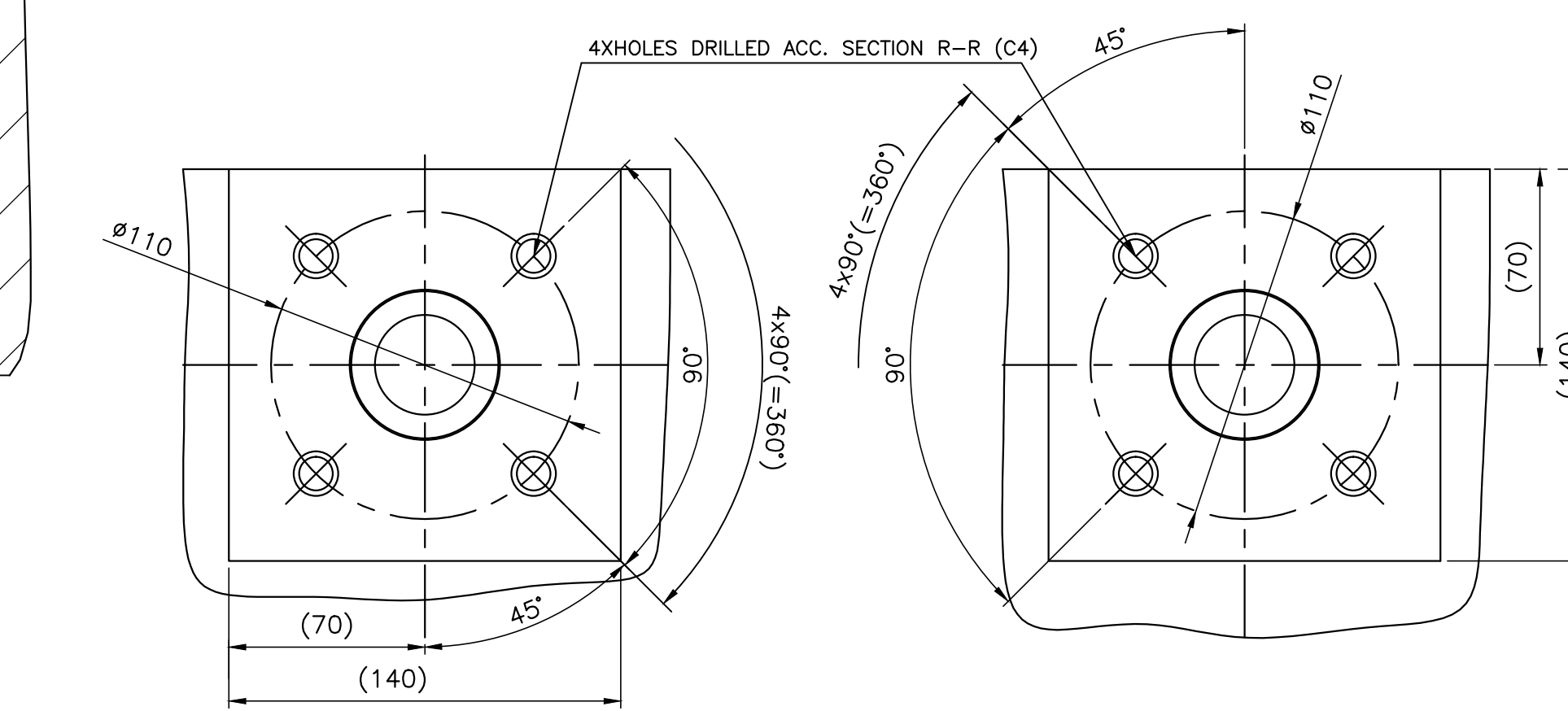
N(A8)



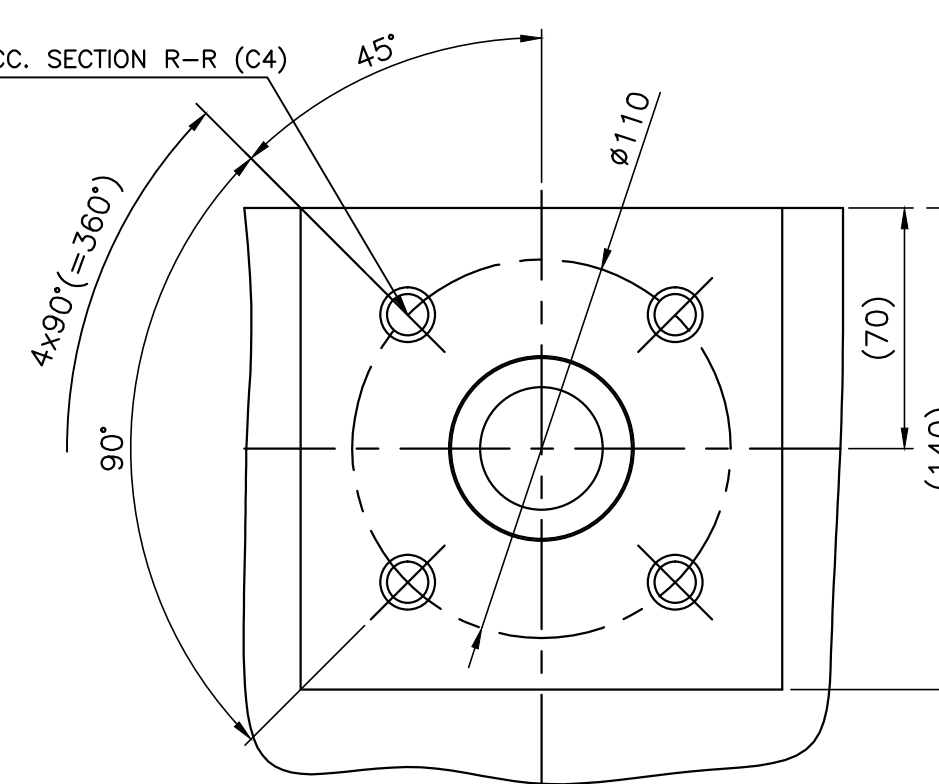
SECTION M-M (H12)



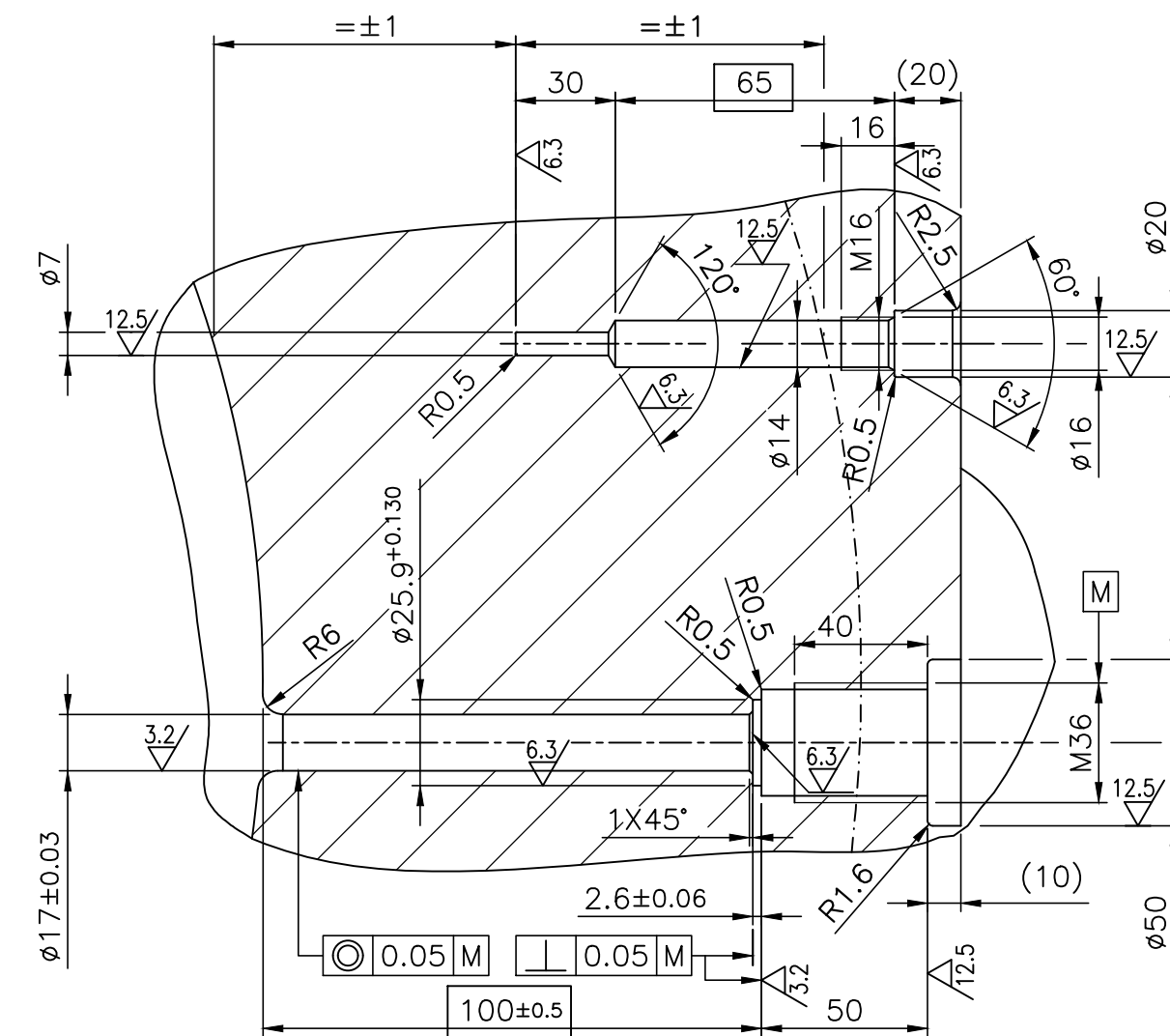
DETAIL W (E11)



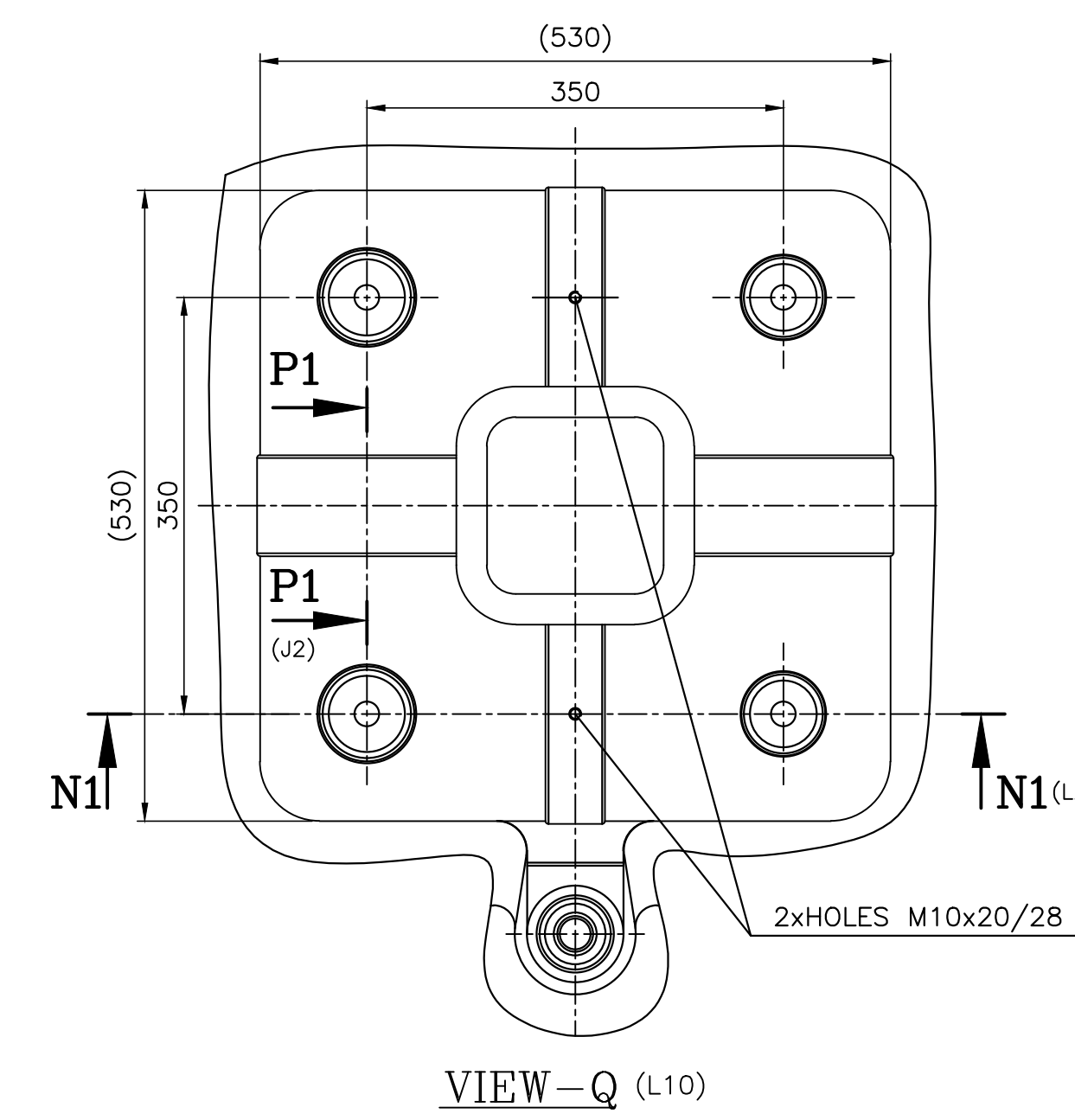
VIEW-N (A10)



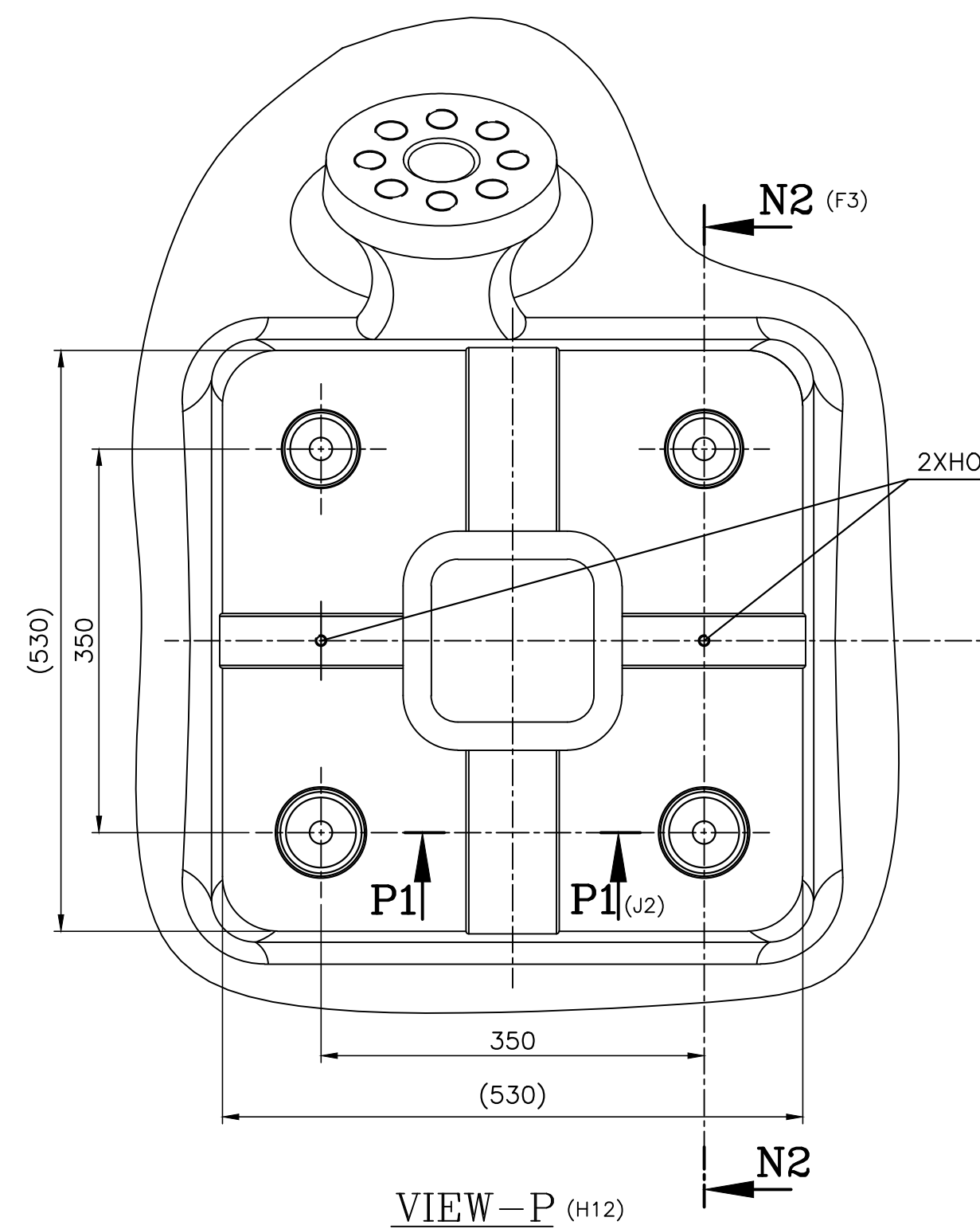
VIEW-T (B11)



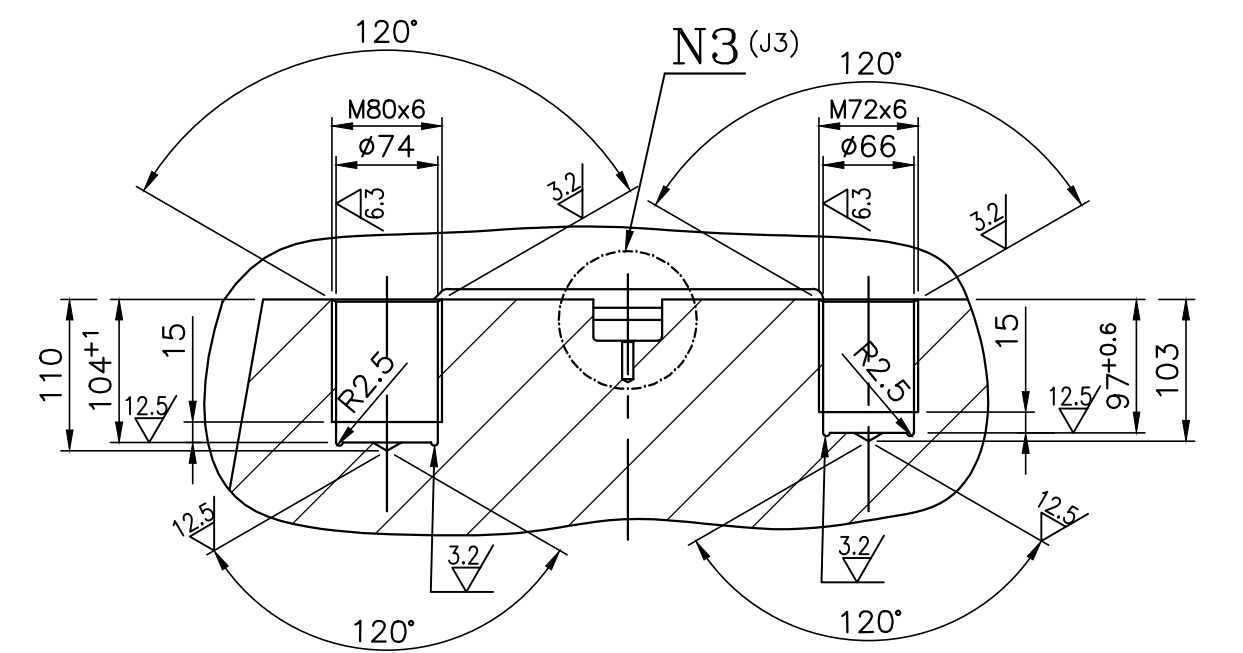
DETAIL-M1 (J7)



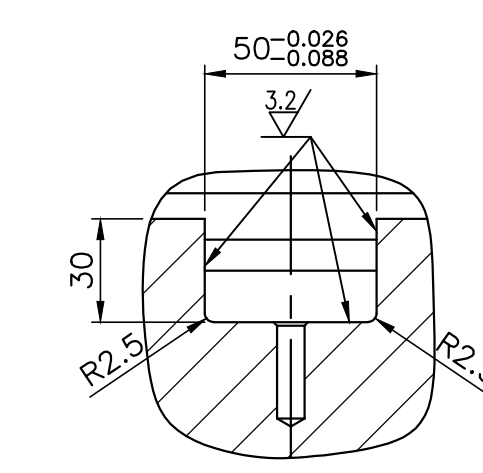
VIEW-Q (L10)



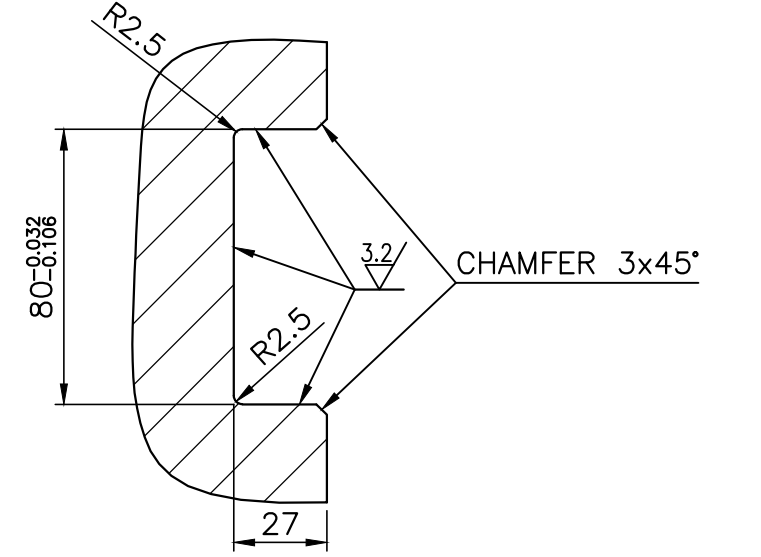
VIEW-P (H12)



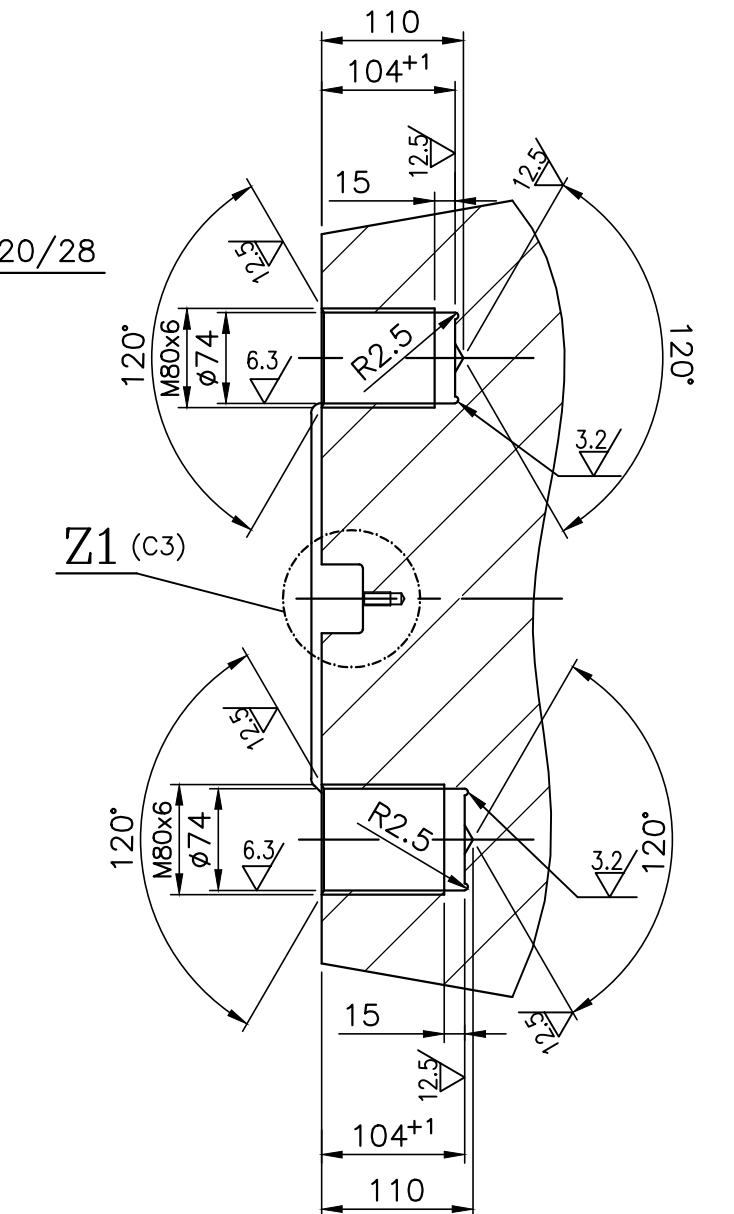
SECTION N1-N1 (L4)



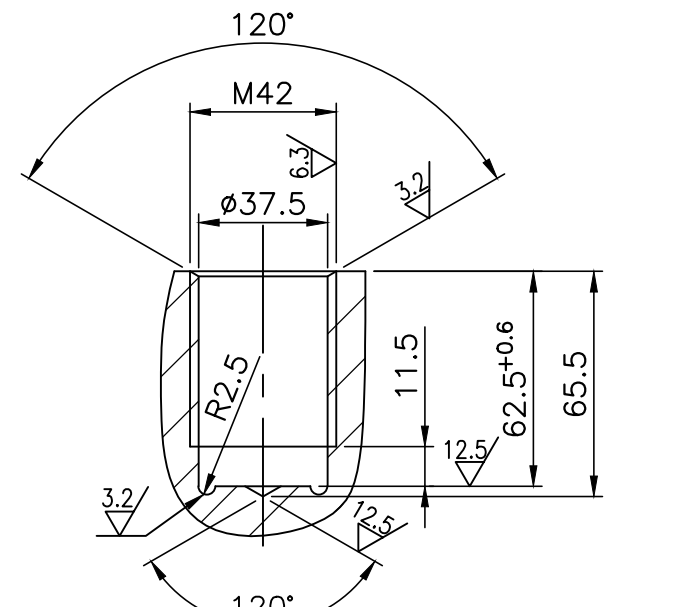
DETAIL-N3 (M2)



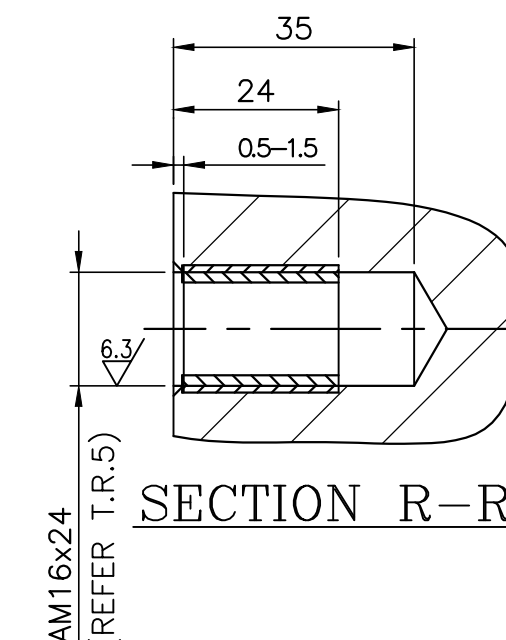
SECTION P1-P1 (L5,G5)



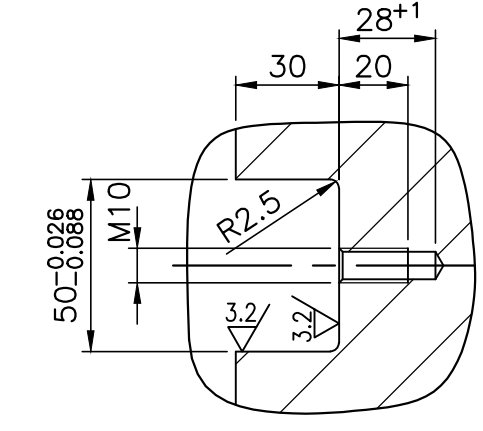
SECTION N2-N2 (J5)



SECTION G-G (H14,E13)



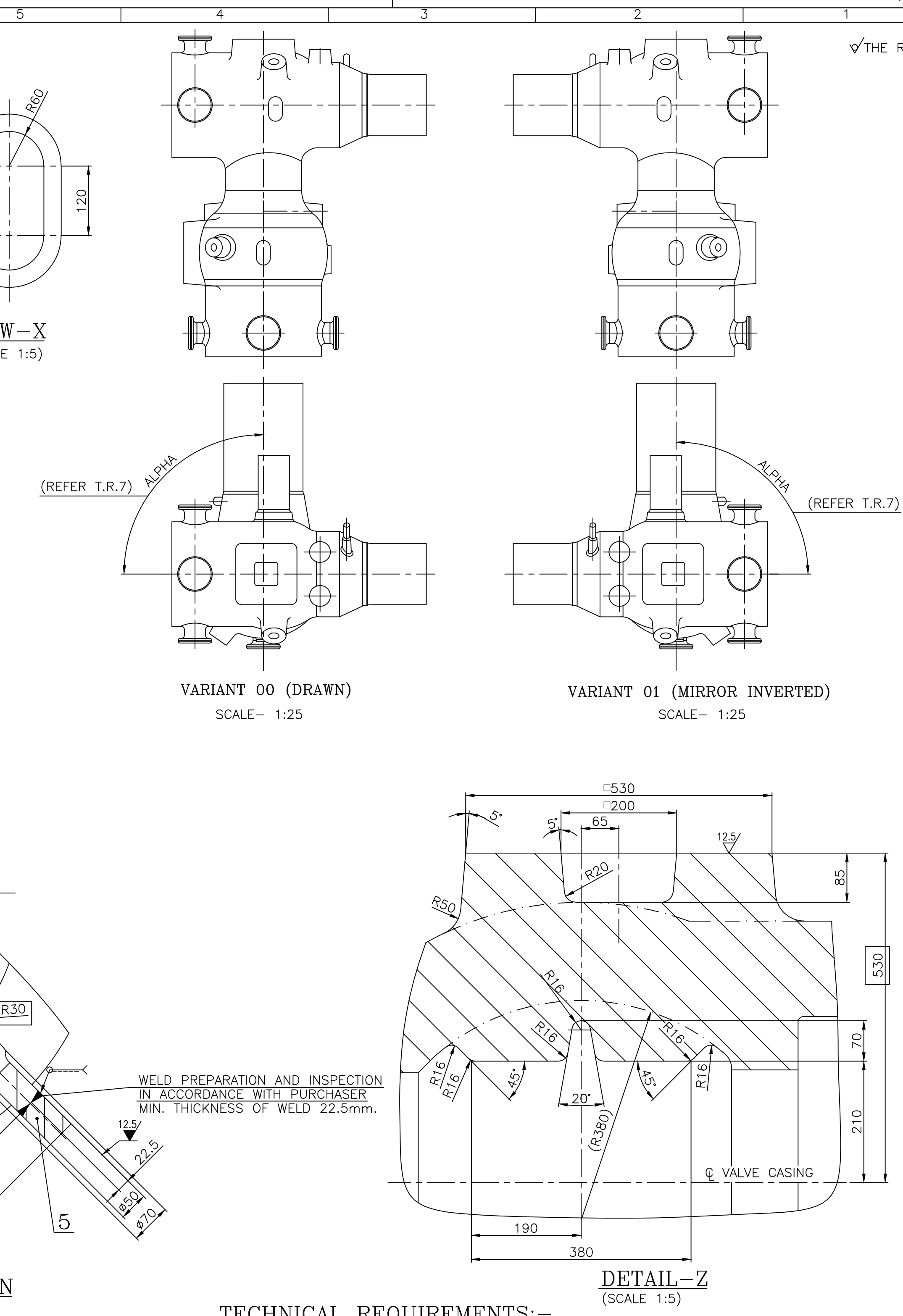
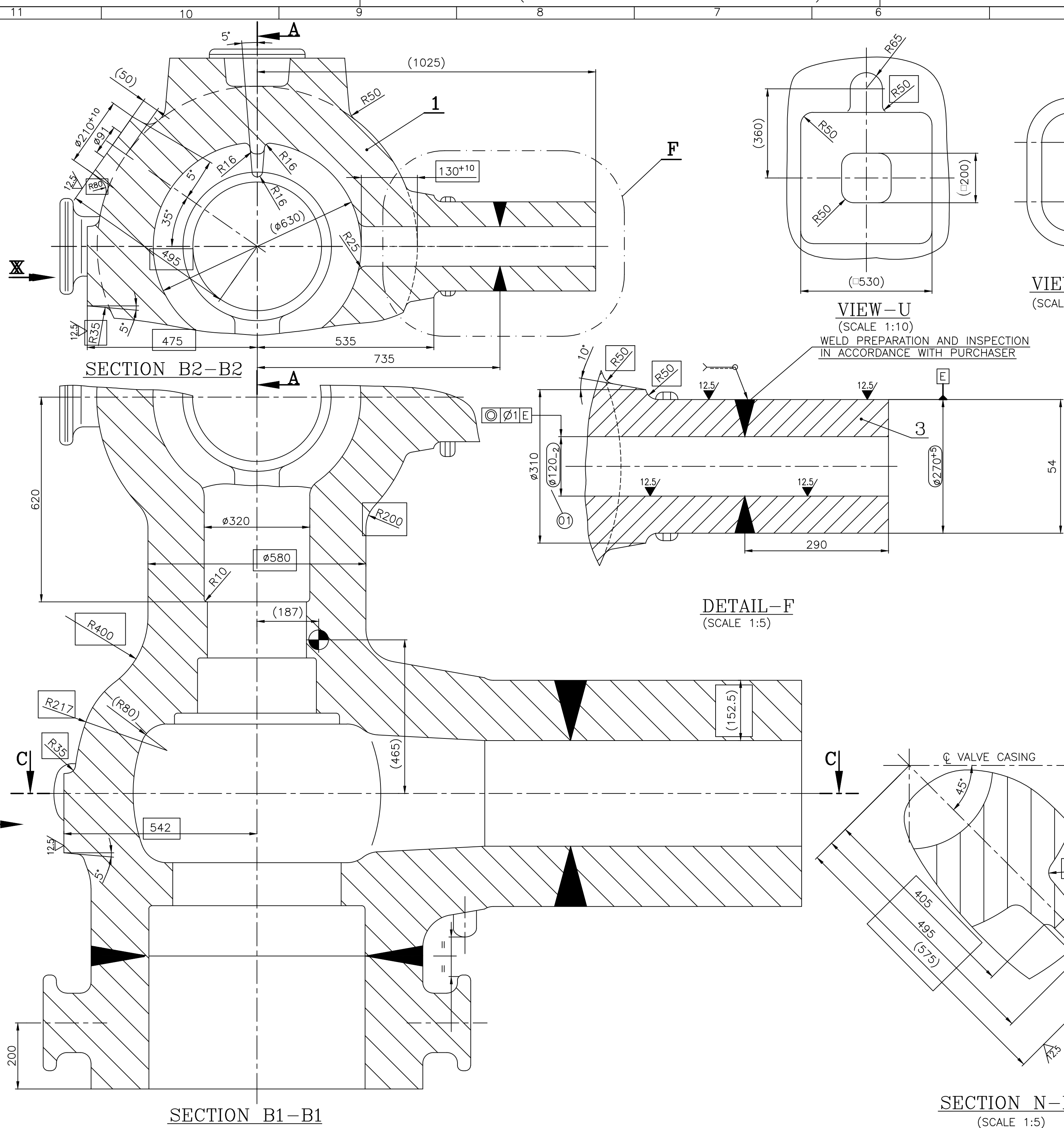
SECTION R-R (G7)



DETAIL-Z1 (H3)

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REV. DRAWING No. 1/2/59035
SHEET No. 22 OF 24
NO. OF SHEETS 24
NO. OF ITEMS 38

GWS-No./ C.B.O.M				STATUS OF DRG				TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT			
APPROV	DATE	NAME	SIGN	DATE	NAME	SIGN	DATE	STEAM TURBINE			
TTX	-	-	-	-	-	-	-	BHARAT HEAVY ELECTRICALS LTD.			
NCT	-	-	-	-	-	-	-	RANPUR, HARWAR			
MTE	-	-	-	-	-	-	-	DEPT STE			
GRADE OF UNTOL.DIM				M/CG.-E/M/F AAO230208				SCALE			
WELDING-X/B/E/B AAO621104				GAS CUTTING-T3/AAO621101				N.T.S.			
REV	DATE	ALTERED	CHECKED	REV	DATE	ALTERED	CHECKED	WEIGHT (KG)			
01	-	-	-	01	-	-	-	13250.00			
MODIFIED DRG.				FOR AUSC 800 MW				CARD CODE			
CODE 4011				TITLE :				DRAWING NO.			
VALVE CASING				0-11222-PP035				0-11222-PP035			
SHOP DWG.				SHEET No.				NO. OF SHEETS			
22 OF 24				22 OF 24				22 OF 24			



- TECHNICAL REQUIREMENTS:-

1. THE VALVE CASING SHALL BE SUPPLIED IN ROUGH MACHINED CONDITION WITH 5 ± 1 MM. ALLOWANCE ON ALL SURFACES MARKED WITH $\frac{125}{\sqrt{\quad}}$ MACHINING SYMBOL.
2. SURFACE MARKED WITH $\frac{125}{\sqrt{\quad}}$ ARE TO BE SUPPLIED AS PER DRAWING DIMENSION WITHOUT MACHINING ALLOWANCE FOR FINAL MACHINING.
3. THE CASING SHALL BE DELIVERED TO MEET FULLY THE REQUIREMENTS AS PER SPECIFICATION MENTIONED IN PURCHASE ORDER.
4. UNLESS OTHERWISE SPECIFIED THE QUALITY LEVEL OF THE CASING SHALL BE LEVEL 2.
5. IDENTIFICATION NUMBER SHALL BE PUNCHED ON THE LOCATION SHOWN IN DRG. NO. AND SUPPLIER'S EMBLEM SHALL BE PUNCHED ON THE LOCATION SHOWN [REDACTED].
6. PADS 25MM. SQ. SHALL BE WELDED BY SUPPLIER IN ACCORDANCE WITH ST29002 PAGE 7 TYPE II.
7. MAIN STEAM CONNECTION ANGLE $\alpha = 90^\circ$.
8. CASING SHALL BE HYDRAULICALLY TESTED AT 465 kg/cm^2 . FOR 30 MINUTES AT BHEL AFTER MACHINING. SUPPLIER SHALL GUARANTEE THAT THE CASING SHALL NOT LEAK DURING HYDRAULIC TESTING AT BHEL. (EXACT VALUES TO BE GIVEN AT THE TIME OF ORDER).

NOTES:—

1. **MB** DIMENSION REFERENCE PLANE FOR ROUGH MACHINING BY SUPPLIER.
2. DIMENSIONS IN  ARE CRITICAL TO QUALITY.
3. * MACHINING ALLOWANCE WITH SMOOTH CONTOUR.
4. * * CAN BE BORED OUT BY THE SUPPLIER BEFORE CHECKING.

VALVE CASING IS REQUIRED IN FORGED VARIANT WITH MATERIAL ALLOY 617M.

PRELIMINARY

REV.01- *WELD PIECES MARKED

STEAM TURBINE

GRADE OF UTOLINTOM.				NAME OF CUSTOMER/PROJECT											
M/CG.-G/M/F A00230208				NAME, RAJAL, CH											
WELDING-K/B/E/B A00621104				SIGN _____ DATE _____ NO. VAR _____											
GAS CUTTING-T3/A00621104				APPRO T.S.G.											
REV	DATE	ALTERED	CHECKED	REV	DATE	ALTERED	CHECKED	 BHARAT HEAVY ELECTRICALS LTD. RANPUR, HARDWAR				DRG. NO. _____ NAME, RAJAL, CH SIGN _____ DATE _____ NO. VAR _____ APPRO T.S.G.			
				DEPT. MTE		SCALE		WEIGHT (KG)		REF. TO ASSY. DRG.		ITEM No.		NO. OF ITEMS	
				CODE 4300		 N.T.S.		13370.00							
				TITLE "H.P. VALVE CASING (PORING VARIANT, ROUGH MACHINED, WELDS SHOWN)"								DRAWING NO. 0-1222-PP901		22 23 24	
				CARD CODE 2								SHEET NOS. 01		NO. OF SHEETS 01	

NON-DISCLOSURE AND PROPRIETARY INFORMATION AGREEMENT

BETWEEN

_____(Name of the Vendor),, having its registered offices in
_____(Address of Vendor), registered under the no. _____
of the Companies' register of _____(Name of Place and Country),
capital stock of _____(Value), with a place of business in
_____(Name of Place and Country) (hereinafter referred to as
"_____(Name of Vendor)");

AND

Bharat Heavy Electricals Ltd a company incorporated under the Indian Companies Act 1956 having its registered offices at BHEL House, Siri Fort, New Delhi -110 049 and having one of its works at Heavy Electrical Equipment Plant, Ranipur, Haridwar-249403 (Uttarakhand), India registered under the No. 4281 of 1964-65 of the companies register of Delhi, capital stock of Rs 4895.2 million with a place of registered office in New Delhi (hereinafter referred to as "BHEL") hereinafter also referred to individually as "the Party" or collectively as "the Parties".

BACKGROUND

This Agreement sets forth the rights and obligations of the Parties with respect to the use, handling, protection and safeguarding of Proprietary Information that is disclosed by and between the Parties.

WHEREAS

A) the Parties wish to pursue exploratory discussions concerning a possible collaboration between them in relation to the Program defined in Exhibit 1;

B) during the ensuing discussions and negotiations it may occur that either Party discloses to the other technical, financial or business information of a proprietary or confidential nature, which the Parties intend to protect against, making it available, by any means to any third person, and other unauthorized use and/or further disclosure by the recipient, in accordance with the terms and conditions set forth herein;

NOW, THEREFORE, the Parties have agreed as follows:

1. The term “Proprietary Information” shall mean any information or data of whatsoever kind of a confidential or proprietary nature, including but not limited to, commercial information, know how and technical information in the form of designs, drawings, concepts, requirements, specifications, software, interfaces, components, processes, or the like, that have been or will be disclosed by either Party to the other pursuant to this Agreement, either in writing, orally or other form, which is designated as “Proprietary” or “Confidential” by the disclosing Party by means of formal declaration or an appropriate stamp, legend or any other written or orally notice .
2. Proprietary Information may be conveyed, without limitation, through any written or printed documents, samples, models, electronic form on disk, tape, other storage media or any other means of disclosing such Proprietary Information that either Party may elect to use during the life of this Agreement, but if an originating Party originally discloses information orally or visually, the receiving Party will protect such information as Proprietary Information to the extent that the originating Party :
 - identifies the Information as Proprietary at the time of original disclosure,
 - summarizes the Proprietary Information in writing .

Information stored in electronic form on disk, tape, other storage media will be adequately marked if a proprietary legend displays when the information originally runs on a computer system and when the information is printed from its data file.

Proprietary Information also includes any information which can be obtained by examination, testing or analysis of any hardware or material substance or any component part of such hardware or material substance provided by the Disclosing Party even though the requirements in Clause 1 for marking and designation have not been fulfilled.

3. Each Party, to the extent of its rights to do so, shall disclose to the other only the Proprietary Information which the disclosing Party deems appropriate to fulfil the objectives of this Agreement. The Parties hereby represent that the disclosure of Proprietary Information by and between themselves shall be made in compliance with, and subject to the laws and regulations of the Disclosing Party's country.
4. The receiving Party hereby agrees and covenants that, from the effective date of this Agreement until the expiry date as per article 11 and the following period as per article 12, the Proprietary Information that either Party receives from the other shall:
 - a) be protected and kept in strict confidence by the receiving Party which must use the same degree of care it uses to protect its own confidential information and in no case less than a reasonable care;
 - b) be only disclosed to and used by those persons within the receiving Party's organization or that of its parent or controlled companies who have a need to know and solely for the purposes specified in this Agreement, and be treated by such persons or entities with the same degree of care and subject to the same restrictions;
 - c) to procure that each third party to whom Proprietary Information is disclosed under this Agreement is made aware of the provisions of this Agreement prior to such disclosure to it and that each such third party is

bound by obligations of confidentiality which are no less onerous than those contained in this Agreement;

- d) neither be disclosed nor caused to be disclosed or made available, either directly or indirectly, to any third Party or persons other than those mentioned in subparagraph b) above or other persons upon which both of the contractual Parties shall agree in an amendment to this Agreement;
- e) not to copy, reproduce or reduce to writing any part of such Proprietary Information except as may be reasonably necessary for the purpose referred to in the Recitals of this Agreement

PROVIDED THAT the Receiving Party shall be entitled to make any disclosure required by court order or government or regulatory requirement of the Disclosing Party's Proprietary Information subject to notifying the Disclosing Party as soon as possible of such requirement

- 5. Any Proprietary Information and copies thereof disclosed by either Party to the other shall remain the property of the disclosing Party and shall be immediately returned or destroyed by the receiving Party upon request.
- 6. The receiving Party shall have no obligations or restrictions with respect to any Proprietary Information for which the receiving Party can prove that:
 - a) is in or which comes into the public domain otherwise than as a result of a breach of this Agreement by any person to whom a disclosure of Proprietary Information is made as permitted under this Agreement or of any other duty of confidentiality relating to the Proprietary Information of which the Receiving Party has knowledge; or
 - b) it has been in its possession without restriction at the time of the disclosure, as evidenced by written documentation in its files; or
 - c) it has been lawfully received from a third Party without breach of this Agreement; or

- d) it has been or is published without violation of this Agreement; or
 - e) it has been independently developed in good faith by employees of the receiving Party who did not have access to the Proprietary Information; or
 - f) it has not been properly declared, designated or confirmed as Proprietary or Confidential; or
 - g) the protection period has expired according to articles 11 and 12 of this Agreement.
7. With respect to any exchange of Proprietary Information which may occur as a result of this Agreement, it is expressly understood and agreed that the persons listed in Exhibit 2 shall, on behalf of the respective Parties, be the exclusive individuals authorized to receive from and transmit to the other Party Proprietary Information under this Agreement. Each Party may replace at any time its respective authorized individuals identified in such Exhibit 2, within its own organization. Any such new designation by a Party shall be made by written notice to the other at the address indicated in such Exhibit 2.
8. Any Proprietary Information which is identified as “Classified Information”, or whose export is subject to an export license, shall be identified as such by the disclosing Party at the time of disclosure and the disclosure, protection, use and handling thereof, shall remain subject to the security procedures and restrictions imposed by the disclosing Party's Government.
9. The disclosure of Proprietary Information under this Agreement by either Party to the other shall not be construed as granting to the receiving Party any right, whether express or implied by licence or otherwise, on the matters, inventions or discoveries to which such information pertains, or as granting any trademark, patents, copyrights, trade secret right or other form of intellectual property right.

10. Nothing in this Agreement may be construed as an obligation of either Party to disclose any Proprietary Information to the other, or to enter into any subsequent contractual relationship with such other Party.
11. This Agreement covers the exchange of Proprietary Information which may be made by either Party to the other until ten years from signing of the agreement or any extension thereto which may be agreed upon by the Parties in writing. Proprietary information relevant to the Program detailed in Exhibit 1, already made available to the other contractual Party before the effective date, shall also be protected under this Agreement.

It is understood by the parties that, prior to disclosure, the Disclosing Party shall have obtained any government authorisation needed for the export of the Proprietary Information

12. The expiry of the period contemplated in Article 11 of this Agreement shall not relieve the receiving Party from complying with the obligations imposed by Article 4 here above with respect to the use and protection of the Proprietary Information, received prior the date of such expiry, for a period of ten (10) years after such expiry.
13. The Parties are independent contractors. Each will bear all costs and expenses in connection with this Agreement. This Agreement is intended to facilitate only the exchange of Proprietary Information and is not intended to be, and shall not be construed to create a teaming agreement, joint venture, association, partnership, or other business organisation or agency arrangement and no Party shall have the authority to bind the other without the other Party's separate prior written agreement .
14. This Agreement shall be governed by and shall be interpreted in accordance with the substantive Indian laws. Irrespective of the foregoing each Party shall remain

bound by the provisions of its own national laws and regulations with respect to the transfer or use of Classified Information or information whose export is subject to an export license.

15. All disputes among the Parties, in connection with or arising out of the existence, validity, construction, performance and termination of this Agreement (or any terms thereof), which the Parties are unable to resolve among themselves, shall be finally settled by an Arbitration. The Arbitration shall be held in Haridwar (India), in English language, in accordance with the rules laid down in the arbitration and reconciliation act of India.
16. The foregoing constitutes the entire Agreement among the Parties with respect to the subject matter hereof and supersedes and cancels all prior representations, negotiations, commitments, undertakings, communications, either oral or written, acceptances, understandings and agreements among the Parties with respect to or in connection with any of the matters to which such Agreement applies or refers.
17. Notices to _____(**Name of Vendor**) shall be made at the following address:

(Complete Address of Vendor)

Attention: Mr. _____(**Name of the Authorised Person of Vendor**)

Notices to BHEL shall be made at the following address:

BHARAT HEAVY ELECTRICALS LIMITED,
HEAVY ELECTRICAL EQUIPMENT PLANT,
Ranipur, Haridwar-249403 (Uttarakhand), India

Attention: _____(**Name of the PPX Incharge**)

18. The effective date of this Agreement shall be the date of the last signature appearing herein.

IN WITNESS WHEREOF, each of the Parties has caused this Agreement, to be executed by its duly authorized officer.

Date :

Signed for and on behalf of

Signed for and on behalf of

(Name of Vendor)

BHEL

By:

By:

Title:

Title:

Signature:

Signature:

EXHIBIT 1

to the

NON-DISCLOSURE AGREEMENT

between

_____(**Name of Vendor**)

and

BHARAT HEAVY ELECTRICALS LIMITED

dated:

The Non Disclosure Agreement covers the exchange of Proprietary Information which may occur during the discussions and negotiations in view of a possible cooperation between the Parties in the following programs:

-Description of Material or Services for which the order is placed

_____(**Name of Vendor**) list of products that require an exchange of Proprietary Information which may be occur during the discussions and negotiations in view of a possible cooperation for the above programs :

EXHIBIT 2

to the
NON-DISCLOSURE AGREEMENT
between

_____ **(Name of Vendor)**

and

Bharat Heavy Electricals Ltd.

dated:

Personnel of the Parties authorized to receive and/or transmit Proprietary Information
under this Agreement:

For **(Name of Vendor)**

(Name of Person)

Tel.

Fax

Address.

For Bharat Heavy Electricals Ltd.

Mr.

Tel. 01334

Fax 01334

Address. Main Administration Building

BHEL, HEEP, Haridwar

India

Mr.

Tel. 01334

Fax 01334

Address. Main Administration Building

BHEL, HEEP, Haridwar

India

Tel.

Fax

Address.

Certificate by Chartered Accountant on letter head

This is to Certify that M/S
(hereinafter referred to as 'company') having its registered office at
..... is registered under MSMED Act 2006, (Entrepreneur
Memorandum No (Part-II) dtd:.....,
Category: (Micro/Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as on
date..... as per MSMED Act 2006 is as follows:

1. **For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost
excluding land and building and the items specified by the Ministry of Small Scale Industries vide its
notification No.S.O.1722(E) dated October 5, 2006 :
Rs.....Lacs
2. **For Service Enterprises:** Investment in equipment (original cost excluding land and building and
furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED
Act, 2006:
Rs.....Lacs

The above investment of Rs.....Lacs is within permissible limit of
Rs.....Lacs forMicro / Small (Strike off which is not applicable)
Category under MSMED Act 2006.

Date:

(Signature)

Name -

Membership number -

Seal of Chartered Accountant

