

**Technical Specifications**

Sl.No	Item Details and Technical Specifications	Qty	UOM	Vendor's Confirmation /Acceptance
1.	Roller - 4M06F0328437 HYLAM ROLLER as per Drg No. 4M06F0328437	50	Nos .	
2.	Shaft - 3M08A1012107 HEAD STOCK ASSY SHAFT as per Drg No. 3M08A1012107	3	Nos .	
3.	Lever - 3M06C0204743 CHANGE OVER LEVER as per Drg No. 3M06C0204743	4	Nos .	
4.	Pinion Shaft - 4M06C0203159 15 T PINION SHAFT as per Drg No. 4M06C0203159	3	Nos .	
5.	Drive Flange - 4M08A0104688 DRIVING FLANGE as per Drg No. 4M08A0104688	3	Nos .	
6.	Screw Rod - 3M08A0408766 SCREW ROD as per Drg No. 3M08A0408766	2	Nos .	
7.	Box nut - 3M08A0408768 BOX NUT as per Drg No. 3M08A0408768	2	Nos .	
8.	Worm Wheel - 4M08D0819966 50 T WORM WHEEL as per Drg No. 4M08D0819966	2	Nos .	
9.	Cross Slide Screw rod - 4M08D0819155 CROSS SLIDE SCREW NUT as per Drg No. 4M08D0819155	2	Nos .	
10.	Bevel Gear - 4M06A0429716 64T BEVEL GEAR as per Drg No. 4M06A0429716	2	Nos .	
11.	Lock Nut - 2M04B1006140 Lock nut as per drawing 2M04B1006140	10	Nos .	
12.	Spline Shaft - 2M04B1000787 Spline Shaft as per drawing 2M04B1000787	5	Nos .	
13.	Claw Clutch - 3M08F1214020 Claw Clutch as per Drg No. 3M08F1214020	10	Nos .	
<b>COMMONG NOTE:</b>				
1. ALL ITEMS ARE TO BE MAINTAINED HARDNESS AS PER DRAWING.				
2. MEASUREMENT OF HARDNESS VALUE SHALL BE SENT ALONG WITH SUPPLY OF MATERIAL.				

Vendor Signature & Seal

## Annexure B

### Pre-Qualification Criteria

<b>A. Pre-Qualification Criteria</b>		
SL. No	Pre-Qualification Criteria	Vendor's Confirmation /Acceptance
	Only those vendors who satisfy the following conditions will get qualified to participate in the tender. If the vendor does not qualify as per PRE-Qualification criteria, the technical offer of such BIDDER / VENDOR offer will not be evaluated.	
1.	The Vendor shall be Manufacturer (or) an authorized dealer of the Manufacturer.	
2.	In case of authorized dealer, vendor shall submit dealership certificate from Manufacturer.	
3.	Previous purchase order (PO) details for supplied similar kind of items to BHEL and/or any-other Organisation should be submitted along with offer.	

Supplier's Signature & Seal

**Annexure – A- Additional Terms and Conditions for GeM Enquiry**

The terms and condition mentioned in this document are applicable in addition to the GeM General Terms and Conditions. Bidders shall furnish pointwise confirmation/details.

<b><i>To be filled by bidder</i></b>		
<b>Description of the Equipment:</b>		
<b>GeM Tender No. &amp; Date</b>		
<b>Name of the firm (Bidder)</b>		:
<b>Address</b>		:
<b>Contact details</b>	<b><u>Contact person 1</u></b> <b>Name:</b> <b>Designation:</b> <b>Office Phone:</b> <b>Mobile:</b> <b>e-mail:</b> <b><u>Contact person 2</u></b> <b>Name:</b> <b>Designation:</b> <b>Office Phone:</b> <b>Mobile:</b> <b>e-mail:</b>	
<b>Offer/Quotation reference with date</b>		:
SI	Terms and conditions	Vendor's confirmation
1.	<b>Technical:</b> Supply of MACHINING ITEM SPARES shall be as per technical Specifications attached with the enquiry. Bidder shall comply the technical specification as per the enquiry. Any clarifications/deviations to the specification requirements are to be clearly indicated in the above format. Hidden deviations indicated elsewhere in the offer will not be evaluated.	
2.	<b>Pre-qualification requirement:</b> Offer shall be considered only if bidder is meeting Tender Prequalification requirement (Annexure-B). Vendor to comply with Pre-Qualification requirement of the tender and submit along with their technical bid - the credentials and other documents as indicated in the PQR in the format prescribed. Otherwise their offer will get rejected.	
3.	Inspection by BHEL/as per Technical specification(if any).	
4.	Vendor offers will be considered for price bid opening subject to fulfilment of techno commercial suitability.	
5.	Evaluation of the tender will be on line item basis.	
6.	<b>Payment terms:</b> <ol style="list-style-type: none"> <li>1. Payment terms for Non MSME Suppliers: Within 90 days after CRAC</li> <li>2. Dealers/Traders (if the quoted items are not manufactured by the supplier) shall be considered as Non-MSME supplier for this tender.</li> <li>3. Payment terms for Micro &amp; Small Enterprises (MSEs): Within 45 days after CRAC. To entitle the above payment terms, the supplier should be manufacturer of the offered item and should upload UDYAM Registration Certificate in proof of MSE.</li> </ol>	

	<p>4. Payment terms for Medium Enterprises: Within 60 days after CRAC. To entitle the above payment terms, the supplier should be manufacturer of the offered item and should upload UDYAM Registration Certificate in proof of Medium Enterprises.</p> <p><b>Payment shall be as per above terms.</b></p> <p>This a mandatory deemed accepted clause if you are submitted your offer through GeM. <b>Any deviation in this clause anywhere in the offer will be ignored. If a supplier has submitted their offer against this enquiry, it shall be construed that they have accepted the above payment terms relevant to their MSME category without any deviation</b> (Dealers/Traders (if the quoted items are not manufactured by the supplier)) shall be considered as Non-MSME supplier for this tender).</p> <p>In case of Auto PRC/CRAC, Payment due date shall be calculated from CRAC date or material acceptance date by BHEL whichever is later.</p>	
7.	<p><b>Firm Price:</b></p> <p>The quoted / finalised rates shall be Firm till execution of the supplies. Offer with PVC clause will not be considered.</p>	
8.	<p><b>Liquidated Damages:</b></p> <p>LD terms shall be as per GeM General Terms and Conditions. Invoice date/Bill of Lading date/Airway Bill date/Lorry way bill date/e-waybill/Railway Receipt date, whichever is later will be considered for LD calculation.</p>	
9.	<p><b>Delivery term:</b></p> <p>The quote shall be on FOR BHEL STORES - Trichy destination basis inclusive of Packing, forwarding, Freight also to yours account. Transit Insurance is under Supplier scope.</p>	
10.	<p><b>Performance Bank Guarantee:</b></p> <p>Not Applicable</p>	
11.	<p><b>Repair &amp; replacements:</b> Within the guarantee period vendor has to replace / rectify the defective/ damaged items on free of cost within a reasonable time of reporting from our end.</p>	
12.	<p><b>Kindly Indicate the HSN Code for all items</b></p>	
13.	<p><b>Rate quoted in GeM portal should be on FOR destination basis inclusive of all taxes, freight etc. Transit Insurance is under Supplier scope.</b></p> <p><b>Please indicate the applicable GST %, P &amp; F and freight cost (in % of material cost), which is included in your quoted rate in GeM portal.</b></p>	
14.	<p>Documents are to be submitted along with technical bid (Part-1)</p> <ol style="list-style-type: none"> <li>01. Covering letter</li> <li>02. Unpriced offer.</li> <li>03. Filled up and signed technical specification (GeM Tender catalogue).</li> <li>04. Filled BHEL Terms and condition sheet (Annexure-A).</li> <li>05. Filled Annexure-B - PQR along with supporting documents.</li> <li>06. Documents required along with offer as per technical specification</li> <li>07. Product Catalogues (if any).</li> <li>08. MSE UDYAM Certificate (if applicable).</li> <li>09. Self-Certification is not applicable as per Make in India clause.</li> </ol> <p><b>Note:</b> All the pages of documents are to be signed and sealed by authorized signatory of the company. Any query during enquiry stage shall be replied within two days failing which offer may be rejected as non-responsive.</p>	

15.	<b>Inspection and testing requirements:</b> Inspection and testing requirements are to be carried out as per the specification and BHEL Technical specifications in the enquiry. All test certificates are to be submitted while supply. If required by BHEL, test certificates to be produced before supply.	
16.	Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GST registration Number (GSTIN) which should be clearly mentioned in the offer. If the dealer is exempted from GST registration, a declaration with due supporting documents need to be furnished for considering the offer. Dealers under composition scheme should declare that he is a composition dealer supported by the screen shot taken from GSTN portal. The dealer has to submit necessary documents if there is any change in status under GST.	
17.	Supplier shall mention their GSTIN in all their invoices (incl. credit Notes, Debit Notes) and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No. which is linked/uploaded in GSTN network shall be clearly indicated), Billed to party (with GSTIN) & Shipped to party details, item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, Place of Supply etc. Wherever E-Invoice is applicable, the tax invoice/ CN / DN submitted by the vendor must contain the QR code generated in E-Invoice Portal & IRN.	
18.	All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).	
19.	Invoices will be processed only upon completion of statutory requirement and further subject to following: <ul style="list-style-type: none"> <li>• Vendor declaring such invoice in their GSTR-1 Return/ IFF</li> <li>• Receipt of Goods or Services and Tax invoice by BHEL.</li> </ul>	
20.	As the continuous uploading of tax invoices in GSTN portal (in GSTR-1/ IFF) is available for all (i.e. both Small & Large) tax payers, all invoices raised on BHEL may be uploaded immediately in GST portal on dispatch of material /rendering of services. The supplier shall ensure availability of Invoice in GSTN portal before submission of invoice to BHEL. Invoices will be admitted by BHEL only if the invoices are available in GSTN portal (in BHEL's GSTR-2A/ GSTR-2B).	
21.	In case of discrepancy in the data uploaded by the supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note or debit note (details also to be uploaded in GSTN portal) for the shortages or rejections in the supplies or additional claims, within the calendar month informed by BHEL.	
22.	In cases where invoice details have been uploaded by the vendor but failed to remit the GST amount to GST Department (Form PMT-08 or Form GST RET-01 to be submitted) within stipulated time, then GST paid on the invoices pertaining to the month for which GST return not filed by the vendor will be recovered from the vendor along with the applicable interest (currently 24% p.a) and all subsequent bills of the vendor will not be processed till filing of the GST return by the vendor	
23.	In case GST credit is denied to BHEL due to non-receipt or delayed receipt of goods and/ or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount claimed in the invoice shall be disallowed to the vendor.	

24.	Where any GST liability arising on BHEL under Reverse Charge (RCM), the vendor has to submit the invoices to BHEL well within the timeline prescribed in GST Law, to enable BHEL to discharge the GST liability. If there is a delay in submission of invoice by the vendor resulting in delayed payment of GST by BHEL along with Interest, then such Interest payable or paid shall be recovered from the vendor.	
25.	GST TDS will be deducted as per Section 51 of CGST Act 2017 and in line with Notification 50/2018 –Central Tax dated 13.09.2018. GST TDS certificate will be generated in GSTN portal subsequent to vendor accepting the TDS deduction in the GSTN portal & the vendor can directly download the Certificate from the GSTN Portal.	
26.	<p>As per the provisions of Section 194Q of the Income Tax Act, we BHARAT HEAVY ELECTRICALS LIMITED, HPBP, TRICHY having PAN AAACB4146P, had turnover in the preceding financial year for more than Rs 10 Crores.</p> <p>Hence, we are liable as buyer to deduct tax at source on the payment for invoices issued by Supplier on or after 1st July 2021. Accordingly, discontinue charging TCS u/s 206C(1H) on invoices issued from 1st Jul 2021 onward.</p> <p>We shall deduct the eligible TDS u/s 194Q on the payments for invoices issued on or after 1st Jul 2021. TDS deducted so, shall be deposited to the Income Tax Department, and TDS certificate to this effect. Tax credit of such TDS shall reflect in FORM26AS of the supplier at the end of same quarter in which TDS is deducted.</p> <p>For Suppliers who have not filed Income Tax returns for the last 2 preceding assessment years, TDS deduction at higher rates will be applicable as per Section 206AB and Section 206CCA of Income-tax act.</p>	
27.	GST CREDIT: Suppliers are advised to get registered to GSTN portal. Tenderer under "GST credit" shall be preferred.	
28.	Any change in applicable rates of Tax or any other statutory levies (Direct / Indirect) or any new introduction of any levy by means of statute and its corresponding liability for the deliveries beyond the agreed delivery date for reasons not attributable to BHEL will be to vendors account. BHEL will not reimburse the same and any subsequent claim in this respect will be summarily rejected.	
29.	<p><b>BILL PROCESSING METHOD:</b></p> <p>Supplier has to ensure the full quantity of material delivery within given PO delivery date to process the bill for payment. In case supplier fails to deliver full quantity within delivery date, bills received after PO delivery date will be processed after final despatch of the total pending supply. Further, bills will be clubbed and forwarded for payment processing as a single bunch.</p>	
30.	<p><b>MSE /START-UP VENDOR:</b></p> <p><i>UDYAM Registration certificate shall be submitted by MSE vendors to avail MSE benefits. Start-up category certificate shall be submitted by start-up companies to avail exemption in Annual Turnover/Past experience if PQC stipulates requirement of Annual Turnover/Past experience.</i></p>	
31.	<p><b>Make in India Policy:</b></p> <p>Refer the Tender document regarding public procurement policy (Preference to Make in India), Order 2017.</p> <p>Self-certification for local content is not applicable as defined in public procurement (Preference to Make in India), Order 2017</p>	
32.	<p><b>Fraud Prevention Policy</b></p> <p>Bidder along with its associate /collaborators /sub-contractors /sub-vendors / consultants / service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <a href="http://www.bhel.com">http://www.bhel.com</a> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.</p>	

33.	<p><b><u>Risk purchase clause:</u></b></p> <p>a. In the event of any successful Tenderer's failure to fulfil any of the tender / Contract obligations including supply of whole or any part of the ordered items as per Contract / Agreement, BHEL has the right to terminate the contract and purchase from elsewhere, at the risk and cost of the defaulted supplier, either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the time stipulated in the contract or if the same were not available, the best and nearest available substitute thereof. The supplier shall be liable for the additional expenditure/difference in Cost, if any, including consequential losses which BHEL may sustain by reason of risk purchase in addition to the applicable LD as per the Purchase order/contract.</p> <p>b) The decision of BHEL with regard to the additional expenditure / difference in cost and consequential losses incurred by BHEL shall be final and binding on the supplier.</p> <p>c) The amount recoverable under risk purchase shall be recovered from the defaulted supplier in all or any of the following manners:</p> <ol style="list-style-type: none"> <li>i. from dues available in the form of Bills payable to defaulted supplier, SD, BGs against the same contract.</li> <li>ii. from the dues payable to defaulted supplier against other contracts in the same Region/Unit /any other region/unit</li> <li>iii. In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against defaulted supplier.</li> <li>iv. GST will be applicable to the amount recoverable under risk purchase</li> </ol>	
34.	<p><b><u>CONFLICT OF INTEREST:</u></b></p> <p>A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. <b>The bidder found to have a conflict of interest shall be disqualified.</b> A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:</p> <ol style="list-style-type: none"> <li>a) they have controlling partner (s) in common; <b>or</b></li> <li>b) they receive or have received any direct or indirect subsidy financial stake from any of them; <b>or</b></li> <li>c) they have the same legal representative/agent for purposes of this bid; <b>or</b></li> <li>d) they have relationship with each other, directly or through common third parties, <u>that puts them in a position to have access to information about or influence on the bid of another Bidder;</u> <b>or</b></li> <li>e) Bidder participates in more than one bid in this bidding process, Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. <u>However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid;</u> <b>or</b></li> <li>f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorise only one agent/dealer. There can be only one bid from the following: <ol style="list-style-type: none"> <li>1. The principal manufacturer directly or through one Indian agent on his behalf; and</li> <li>2. Indian/foreign agent on behalf of only one principal;</li> </ol> </li> </ol>	

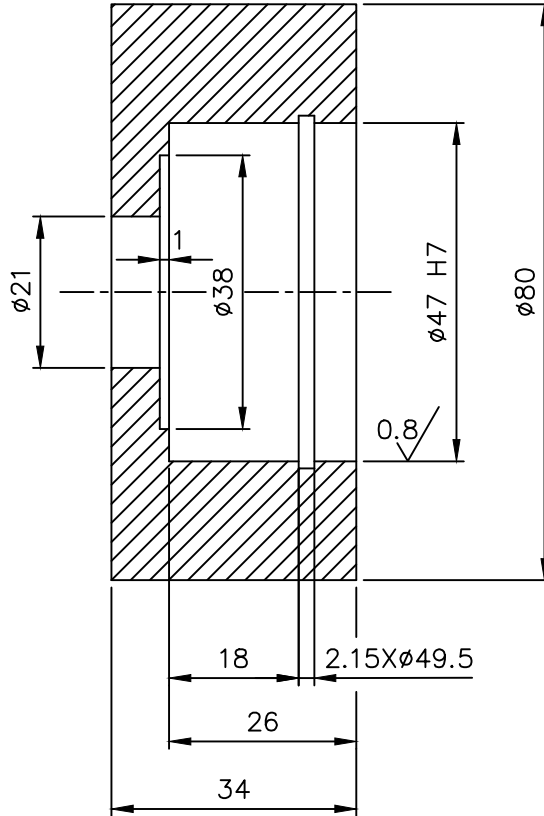
	<p style="text-align: center;"><b>or</b></p> <p>g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid, <b>or</b></p> <p>h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/Management, only one unit shall quote. Similar restrictions would apply to closely related sister companies. Bidder must proactively declare such sister/common business/ management units in same/similar line of business.</p>	
35.	<b>Set off :</b> BHEL shall have the right to recover any money which in the sole opinion of BHEL is due from the supplier from any money due to the supplier under this Contract or any other contract or from the Security Deposit/BG furnished by the supplier under this Contract or any other contract.	
36.	<b>Cartel Formation:</b> The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.	
37.	The offers of the bidders who are under suspension and also the offers of the bidders, who engage the services of the banned firms /principal/agents, shall be rejected. The list of banned firms is available on BHEL web site <a href="http://www.bhel.com">www.bhel.com</a>	
38.	The following documents are to be sent along with consignment to store: One Duplicate for Transporter copy of tax invoice + one extra copy of tax invoice + Delivery challan + LR COPY+E-Way bill+ Test Certificates (if applicable).	
39.	Seller Tax invoice, LR copy, E-Way bill, Courier docket etc. are to be uploaded in GeM portal while updating dispatch details in GeM portal	
40.	Seller Tax invoices (Original for Recipient + Duplicate for Transporter) either in Original hard copies or Digitally Signed Soft copies along with copy of LR + E-Way bill are to be sent to the buyer	
	<p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. In the event of our customer order covering this tender being cancelled /placed on hold / otherwise modified, BHEL would be constrained to accordingly cancel / hold / modify the tender at any stage of execution.</li> <li>2. BHEL may negotiate the L1 rate, if not meeting our budget / estimated cost. BHEL may re-float the tender opened, if L1 price is not acceptable to BHEL.</li> <li>3. BHEL reserves its right to reject an offer due to unsatisfactory past performance by the respective Vendor in the execution of any contract to any BHEL project / Unit.</li> <li>4. <b>Any other commercial terms indicated by the vendor in their offer elsewhere will be ignored. BHEL will proceed with tender evaluation as per Annexure-A and GeM general terms and conditions only.</b></li> </ol>	

Vendor's Seal & Signature

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ALL DIMENSIONS ARE IN MM

ø47 H7	+0.025	3.2/0.8
	+0.000	



NOTE: -

ALL SHARP CORNERS TO BE REMOVED

SHORE HARDNESS: D85

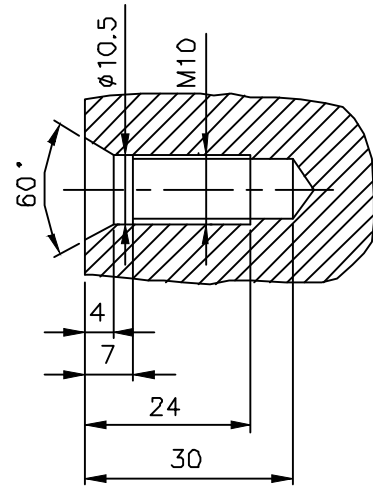
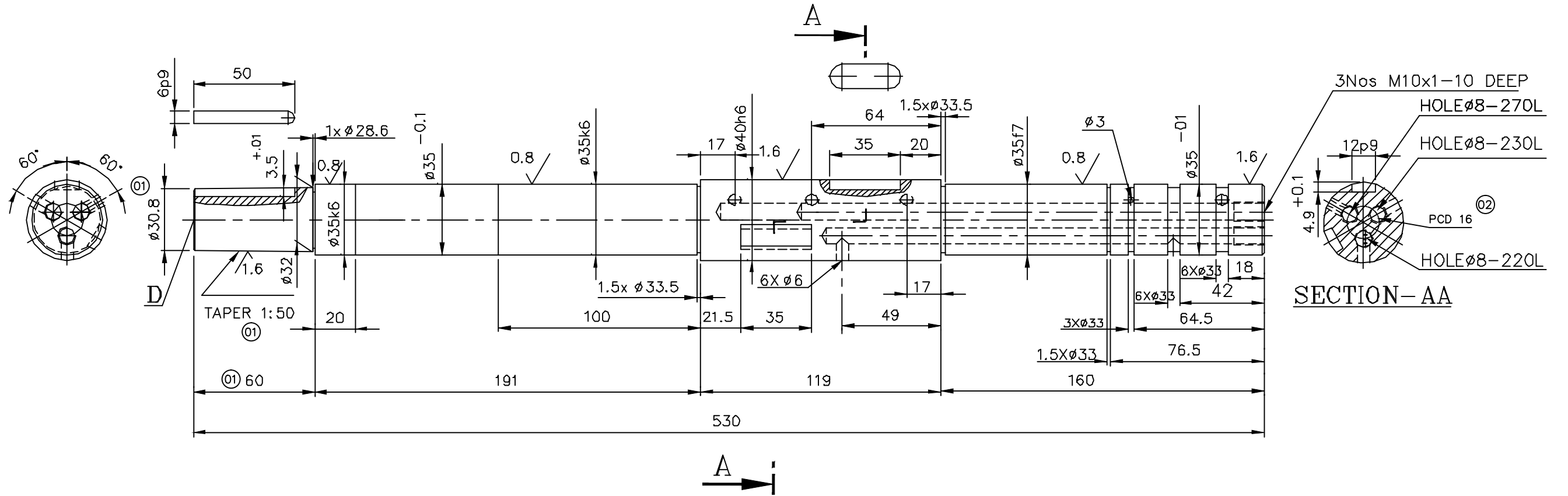
No. of Pieces		DESCRIPTION		MATERIAL		STANDARD		NET.WT.IN KGS.		DRAWING No.		ITEM No.
X		HYLAM										
REFERENCE:		ALTERATIONS:		DCN REF		DATE		SIGN.		INDEX		
SCALE		DRN		P.Albert ross								
1:1		CHD		R.Ramamoorthy								
		APPD		C.S.Jayasheelan								
		DATE		11.11.2009								
MACHINE: CENTRELESS CYLINDRICAL GRINDING		TYPE: GCL 100										
TITLE:		ROLLER		DRAWING No:								
ID.21xOD.80x34 t		(JOB STEADY UNIT)		4M06F0328437								
Sheet No:				No. of Sheets:								



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ALL DIMENSIONS ARE IN MM

ø35k6	+0.018	6P9	-0.012	3.2/1.6/0.8
	+0.002		-0.042	
ø40h6	-0.000	12P9	-0.018	
	-0.016		-0.061	
ø35f7	-0.025			
	-0.050			



DETAIL-D

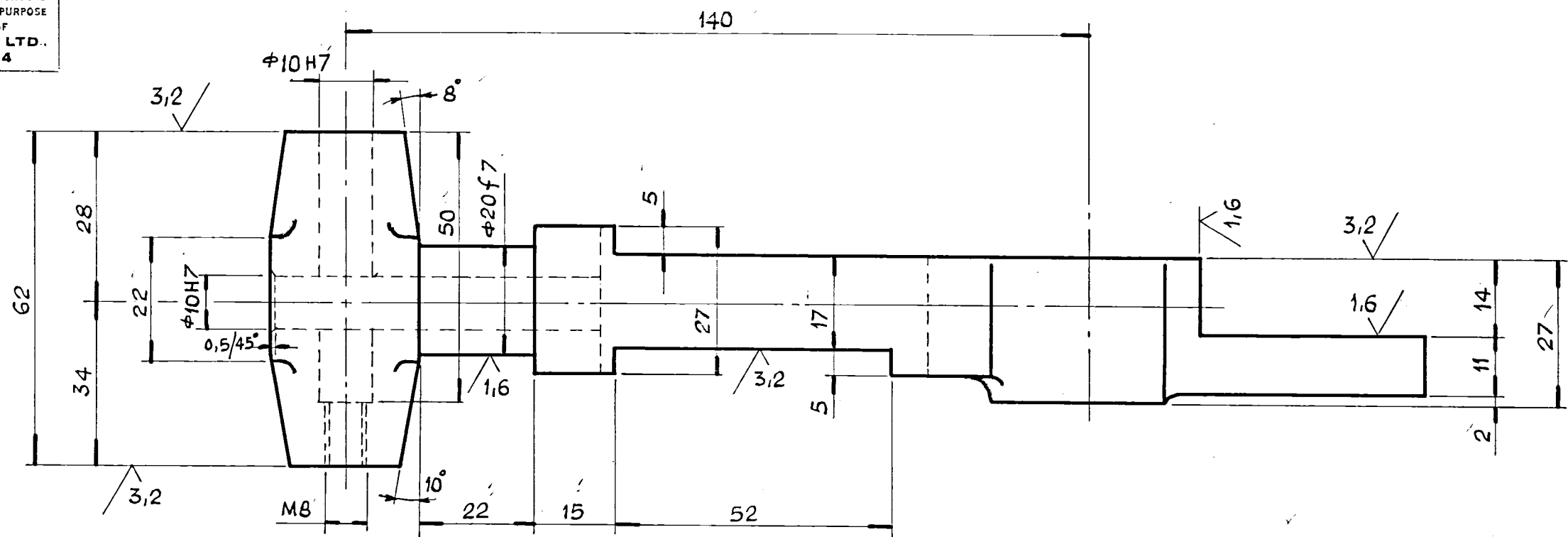
NOTE: -  
 HARDENED TO HRC 60<sup>+2</sup>  
 CASE DEPTH -0.8mm  
 CHAMFER CORNERS FOR 1/45°

No. of Pieces		DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
X		ø40x530L		13Ni 3Cr 80	IS:4432	3.96		
REFERENCE:				ALTERATIONS:		DCN REF	DATE	SIGN.
PAKT NO:735033012								
SCALE	DRAWN	T.T.Balakrishnan		ø30.8, 1:50 TAPPER WAS ø30h6			TTB	01
	CHECKED	R.Ramamoorthy		PCD 16 WAS ADDED			27.03.15	GGR
	APPROVED	C.S.Jayasheelan						
	DATE	01.12.01						
MACHINE: CENTRE LATHE				TYPE: NH 26				
TITLE: SHAF (HEAD STOCK ASSY)				DRAWING No:		REV.		
ø40X530L				3M08A1012107		02		
No. of Sheets:				Sheet No:				

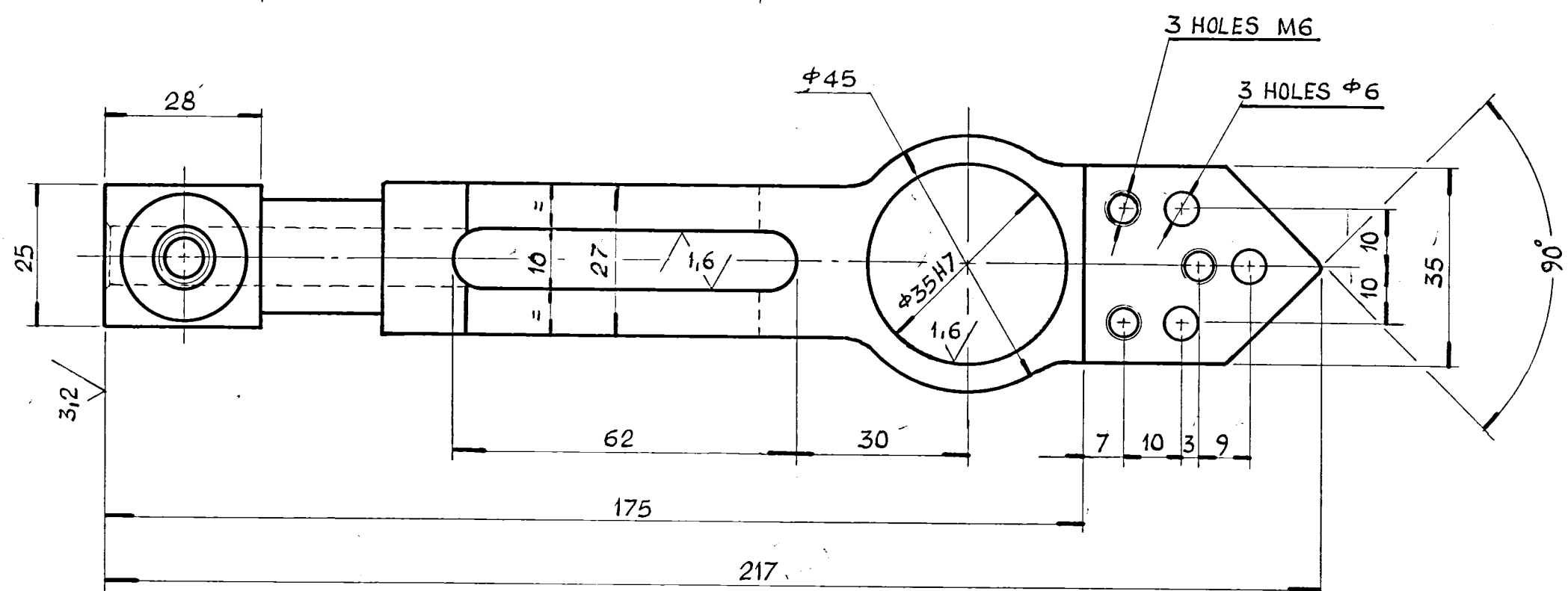
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2 / 3,2 / 1,6 /



10H7	+0,015
	+0,000
35H7	+0,025
	+0,000
20f7	-0,020
	-0,041



FOR LOC. NO. 5532/1757 REFER DRG. NO. 3-M-05c-6215

NO. OF PIECES		DESCRIPTION		SEMI-PRODUCT	FINAL MATERIAL	INITIAL MATERIAL	SCRAP SORT	NET. WT (kg)	GROSS WT (kg)	DRAWING NO.	ITEM NO.
					CAST IRON GR.20 IS:210			0,8		2-M-06c-0479	07/01
REMARKS											
SCALE	DRAWN	SIGNATURE			REFERENCE	ALTERATIONS		DATE	SIGNATURE	INDEX	
1:1	CHECKED										
	APPROVED										
	STDS. OFFICER										
	DATE	9.10.74									
MACHINE: CYLINDRICAL GRINDING M/C					TYPE: G13/G17/G22		DRAWING NO. 3-M-06c-4743				
TITLE: CHANGE OVER LEVER (TABLE DIRECTION CHANGING UNIT)							NO. OF SHEETS SHEET NO:				

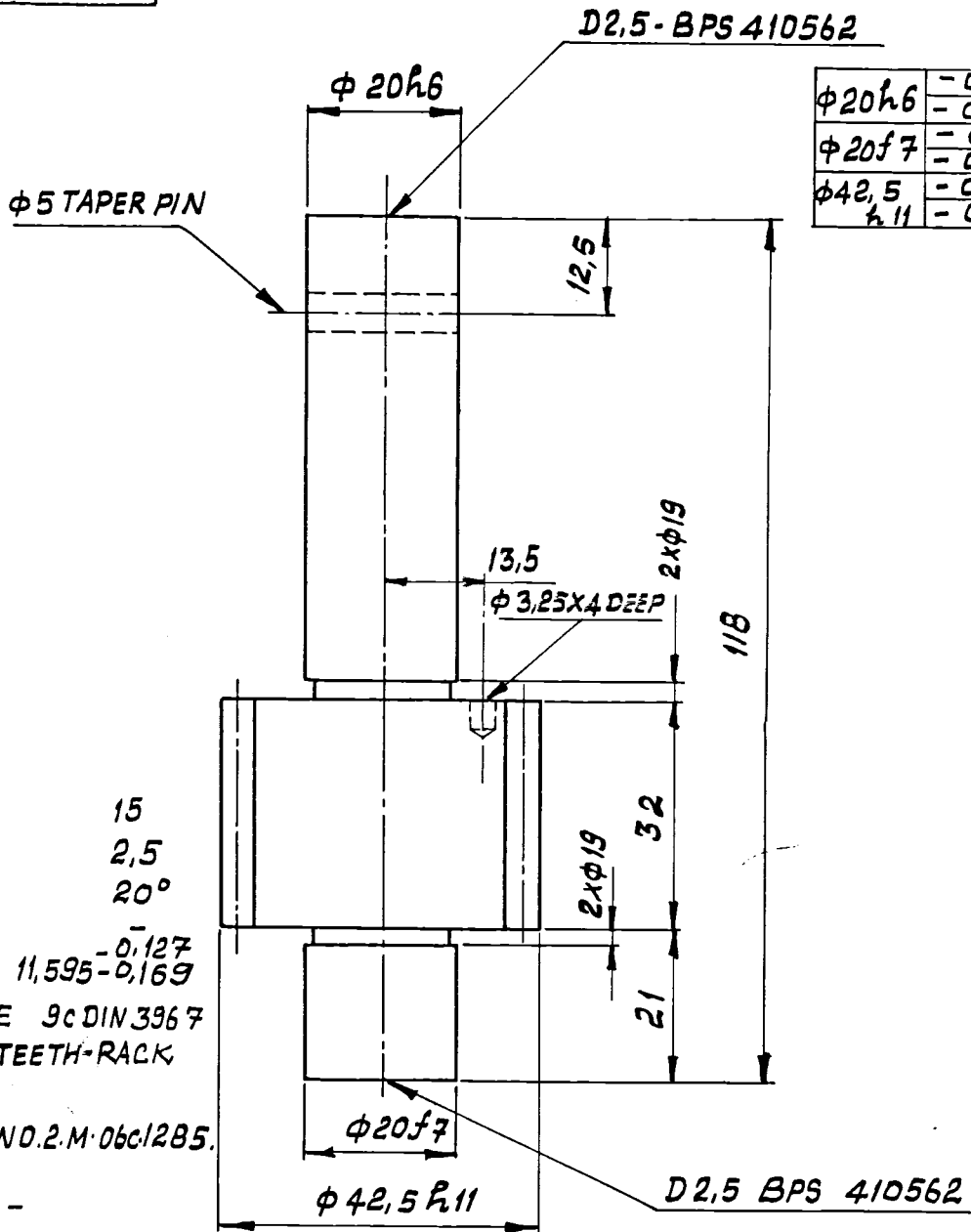
INDEX No. 37 - 608

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**BHARAT HEAVY ELECTRICALS LTD.,**  
 TIRUCHIRAPALLI-14

3,2

INDEX No. 39 - 607



$\phi 20h6$	- 0,000
	- 0,013
$\phi 20f7$	- 0,020
	- 0,041
$\phi 42,5$	- 0,000
$h11$	- 0,160

NO. OF TEETH 15  
 MODULE 2,5  
 PRESSURE ANGLE 20°  
 CORRECTION FACTOR -  
 WIDTH A/C 2T 11,595 - 0,127  
 QUALITY & TOL. ZONE 9c DIN 3967  
 MATING GEAR NO OF TEETH-RACK

MATING GEAR DRG: NO. 2-M-06c/285.  
 CENTRE DISTANCE -

CORNERS TO BE CHAMFERED TO 0.5/45°

45 CB 15:7283

1			BM-C45					2-M-06c-0479	19
NO. OF PIECES	DESCRIPTION	SEMI-PRODUCT	FINAL MATERIAL	INITIAL MATERIAL	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING NO.	ITEM NO.

REMARKS				TOTAL NET wt (kg)					
SCALE 1:1	DRAWN	CPC/TCDS <i>Thirumaval</i>		ALTERATIONS		DATE	SIGNATURE	INDEX	
	CHECKED								
	APPROVED	<i>Kandasamy</i>							
	STDS. OFFICER								
DATE		B-7-'68/18-12-'76							



MACHINE CYL. GRINDING

TYPE: G22U

INV. NO.

TITLE:

**PINION SHAFT**  
 [TAIL STOCK]

DRAWING NO.

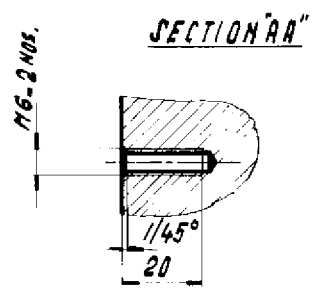
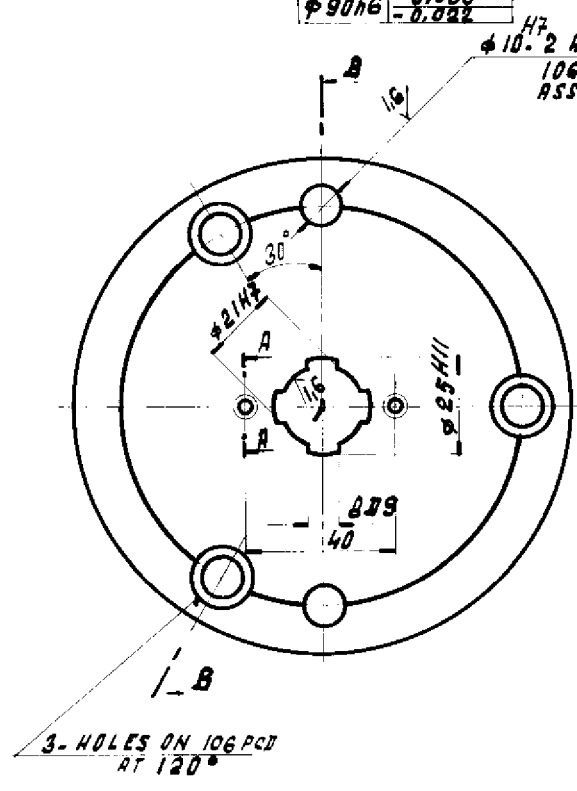
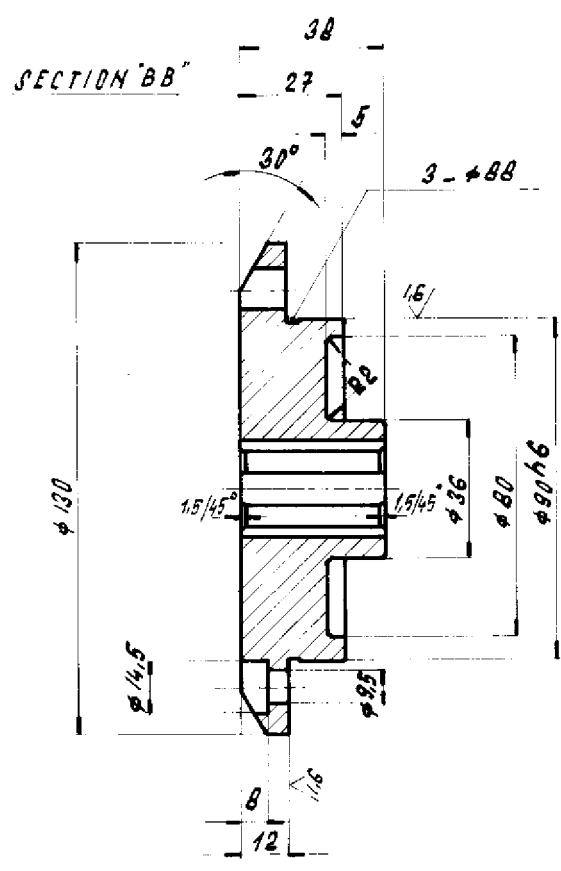
4-M-06c-3159

NO. OF SHEETS

SHEET NO.

6.3/16

φ21 H7	+0.031
	+0.000
φ25 H11	+0.130
	+0.000
φ10 H7	+0.015
	+0.000
φ8 J9	+0.026
	+0.048
φ90 h6	-0.000
	-0.022

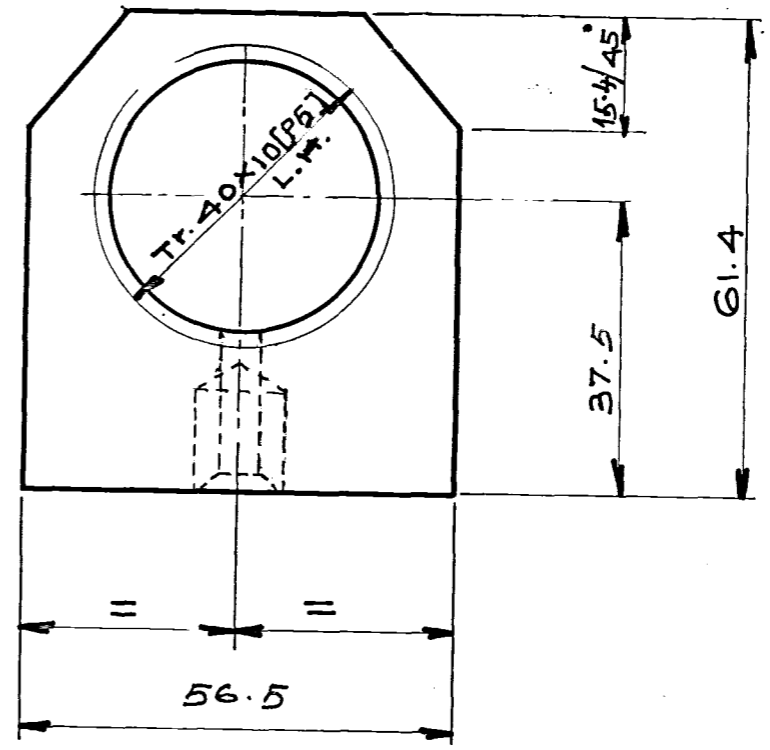
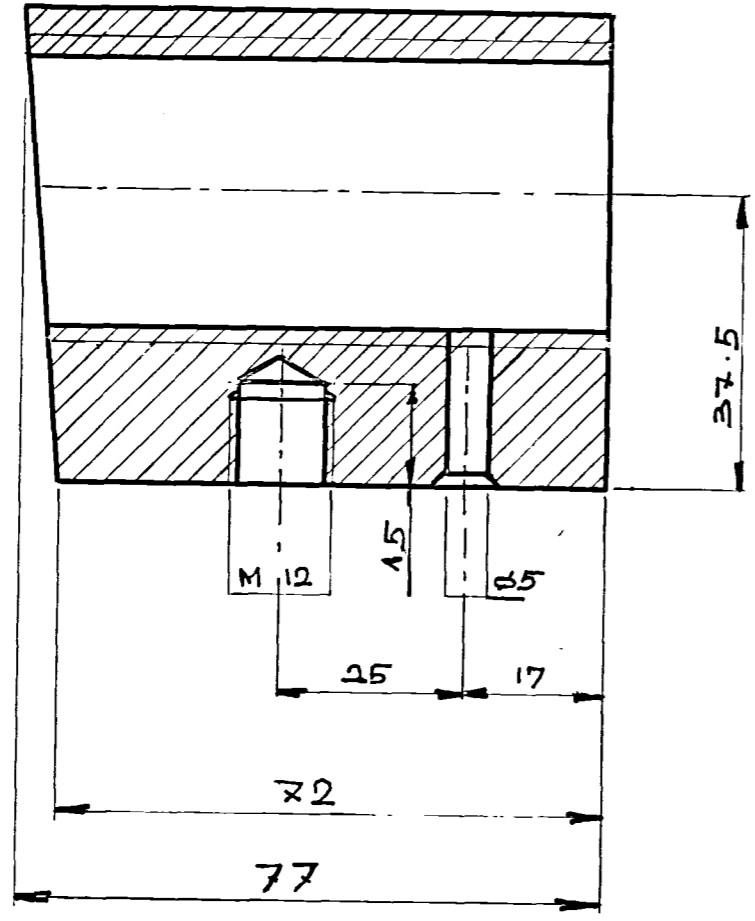


		30CB IS:7283	BM-C30				O-M-08a-0098	38
NO. OF PIECES	DESCRIPTION	SEMI-PRODUCT	FINAL MATERIAL	INITIAL MATERIAL	SCRAP SORT	NET wt(kg)	GROSS wt(kg)	DRAWING NO.
REMARKS				TOTAL NET wt (kg)		LC 00 EC 01		WT: 1.34
SCALE	DRAWN BY	REFERENCE		ALTERATIONS	DATE	SIGNATURE	ALTERATION INDEX	
1:2	CHECKED BY							
	APPROVED BY							
	ETDS. OFFICER							
	DATE	23.8.69						
MACHINE CENTRE LATHE				TYPE: LB 17, 20 & 25		INV. NO.		
TITLE:				DRAWING NO.				
<b>DRIVING FLANGE</b>				<b>4-M-08a-4688</b>				
SPEED BOX LB17-30-242				NO. OF SHEETS		SHEET NO :		





**CAUTION**  
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MATING SCREW REFER ORG. NO. 3.M-08b-8766.

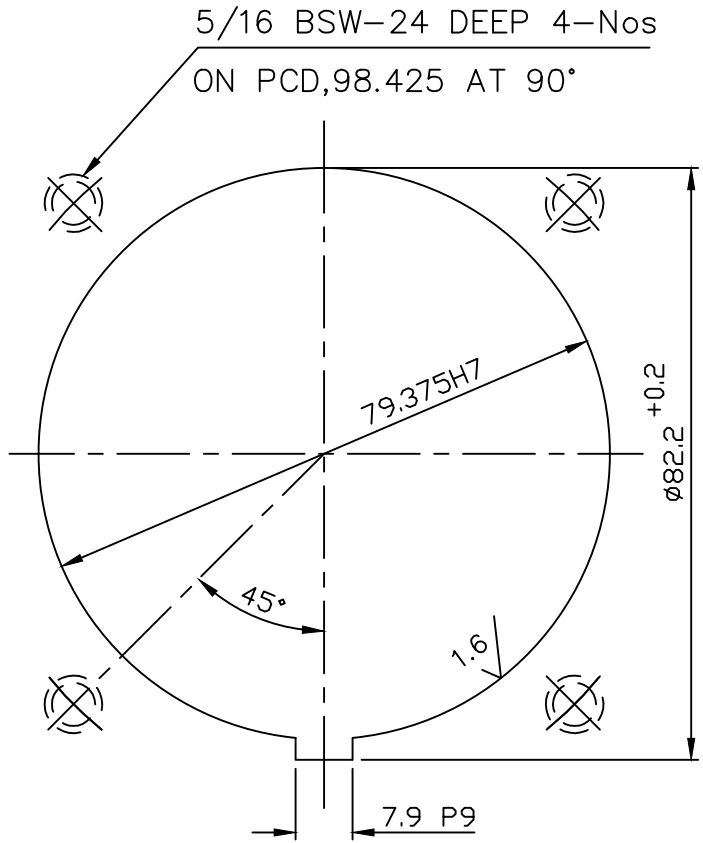
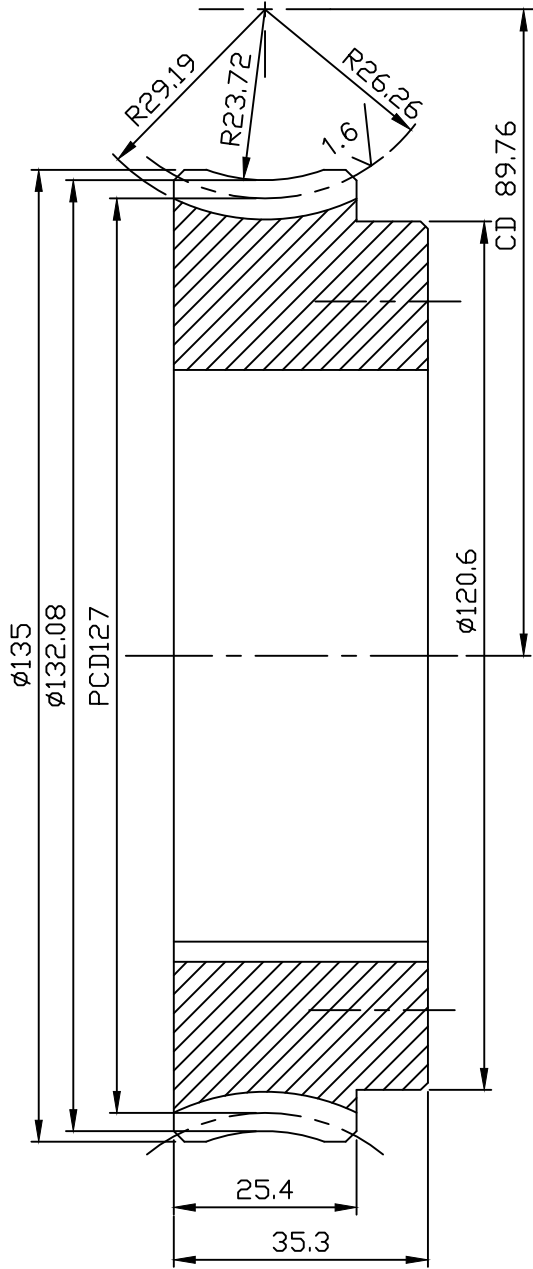
		Pcu. sn 7 18:28.				1.3			
NO. OF PIECES	DESCRIPTION	SEMI-PRODUCT	FINAL MATERIAL	INITIAL MATERIAL	SCRAP SORT	NET WT	GROSS WT	DRAWING NO.	ITEM NO.
REMARKS				TOTAL NET wt. (kg) CC.24. EC 04					
SCALE	DRAWN	P. Guna Subrahmaniam		REFERENCE					
1:1	CHECKED	M. K.							
	APPROVED								
	STDS. OFFICER								
	DATE	18-4-1983.							
MACHINE: CENTRE LATHE.			TYPE: L 45						
TITLE: BOX NUT [Tr. 40x10 [P5] L.H.]			DRAWING NO. 3.M.8A.8768						
NO. OF SHEETS:			SHEET NO.						

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ALL DIMENSIONS ARE IN MM

ø79.375H7	+0.030	7.9P9	-0.015
	+0.000		-0.051

3.2/1.6



NO.OF TEETH	50
MODULE	2.54 (10DP)
PRESSURE ANGLE	20°
HELIX ANGLE	5° 31' 29"
HAND OF HELIX	RH
MATING GEAR NO.OF STARTS	2
MATING GEAR DRAWING NO:	4M08D0819969
CENTRE DISTANCE	89.76

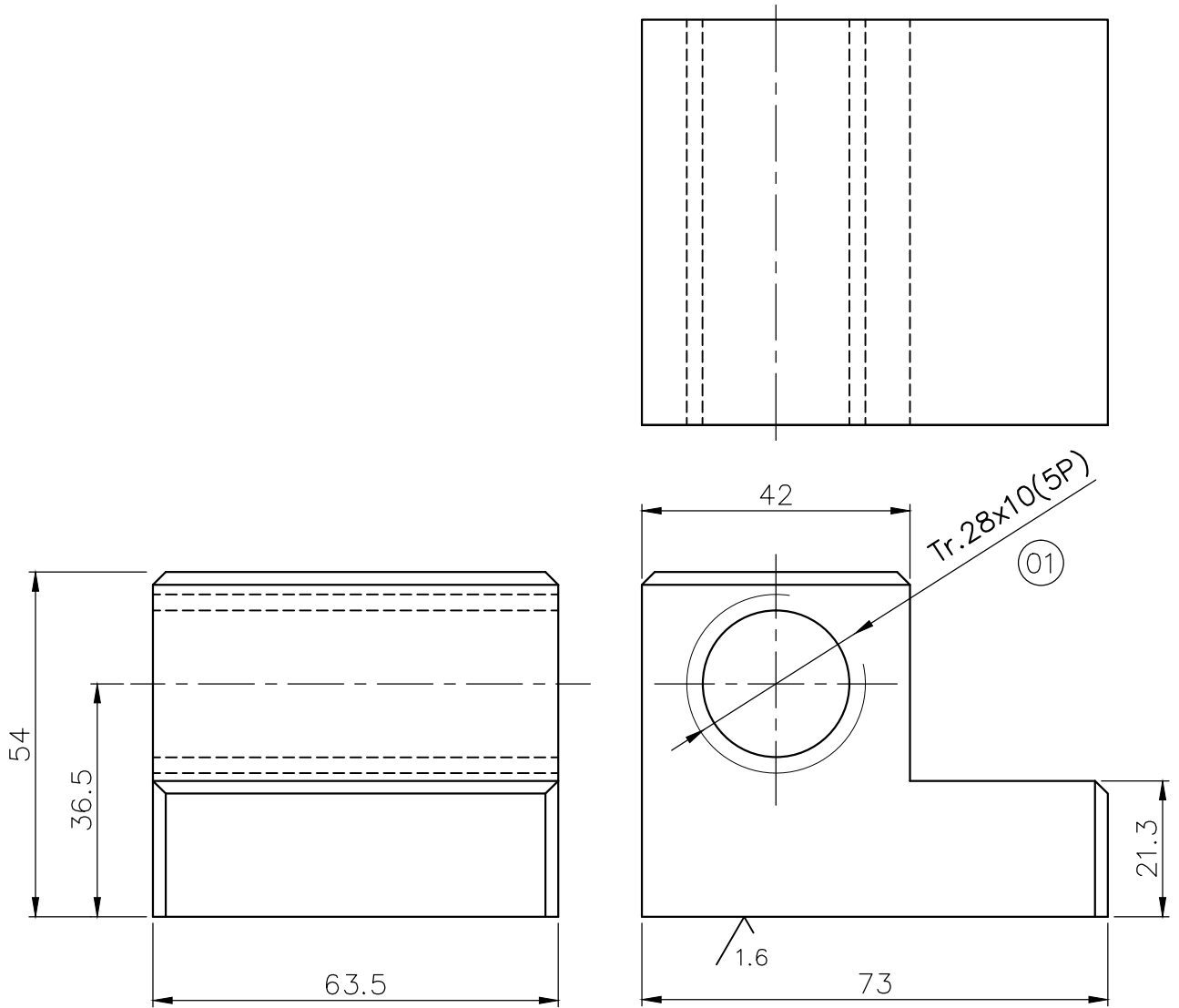
Ø135x36	45C8	IS: 2004	2.13			
No. of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
	REFERENCE: PART.No.1159,		ALTERATIONS:	DCN REF	DATE	SIGN.
SCALE	DRAWN/TCD (TTB)		DRG. MODIFIED TO DATE		15.03.12	CSJ
1:1	CHECKED	R.RAMAMOORTHY				
	APPROVED	C.S.JAYASHEELAN				
	DATE	21.07.80/23.07.09.				
MACHINE: TURRET LATHE	TITLE: WORM WHEEL ø135/50T (APRON ASSY)		TYPE: HERBERT 9C 30			
			DRAWING No:			RE
			4M08D0819966			01
			Sheet No:		No. of Sheets:	

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CAUTION:

ALL DIMENSIONS ARE IN MM

3.2/1.6



NOTE:

FOR MATING SCREW REF.DRG.No. 2M08D0802450

SHARP CORNERS TO BE REMOVED 2/45°

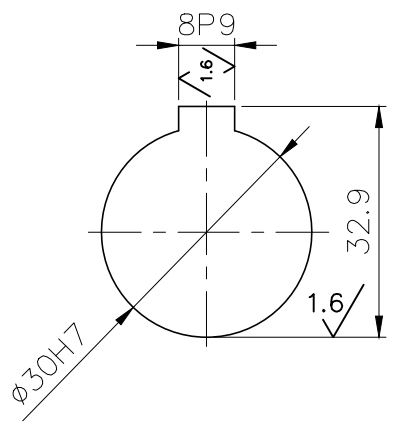
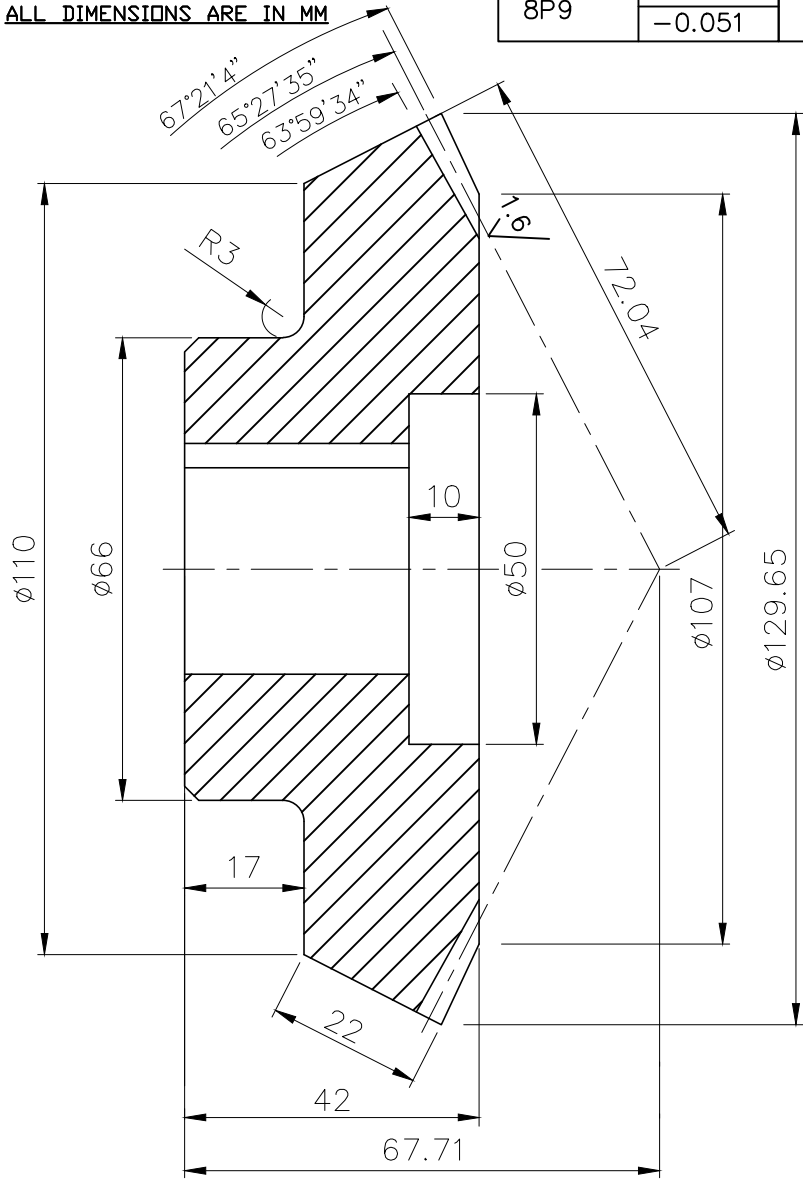
No. of Pieces		DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.		ITEM No.
SCALE		DRN.	REFERENCE:		ALTERATIONS:	DCN REF	DATE	SIGN.	INDEX
1:2		CHD.	G.Govindaraj		THREAD SIZE ARE CHANGED		21/02/13	K.R	(01)
		APPD	R.Ramamorthy		ALL HOLES ARE REMOVED				
		DATE	K.Ramanan						
			21/02/13/21/02/13						
MACHINE:		TURRET LATHE			TYPE:		HERBERT 9C		
TITLE:		CROSS SLIDE SCREW NUT			DRAWING No:		REV		
		Tr.28x10(5P) LH			4M08D081915501		01		



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ALL DIMENSIONS ARE IN MM

8P9	-0.015	ø30H7	+0.021	3.2//1.6/0.8//
	-0.051		+0.000	



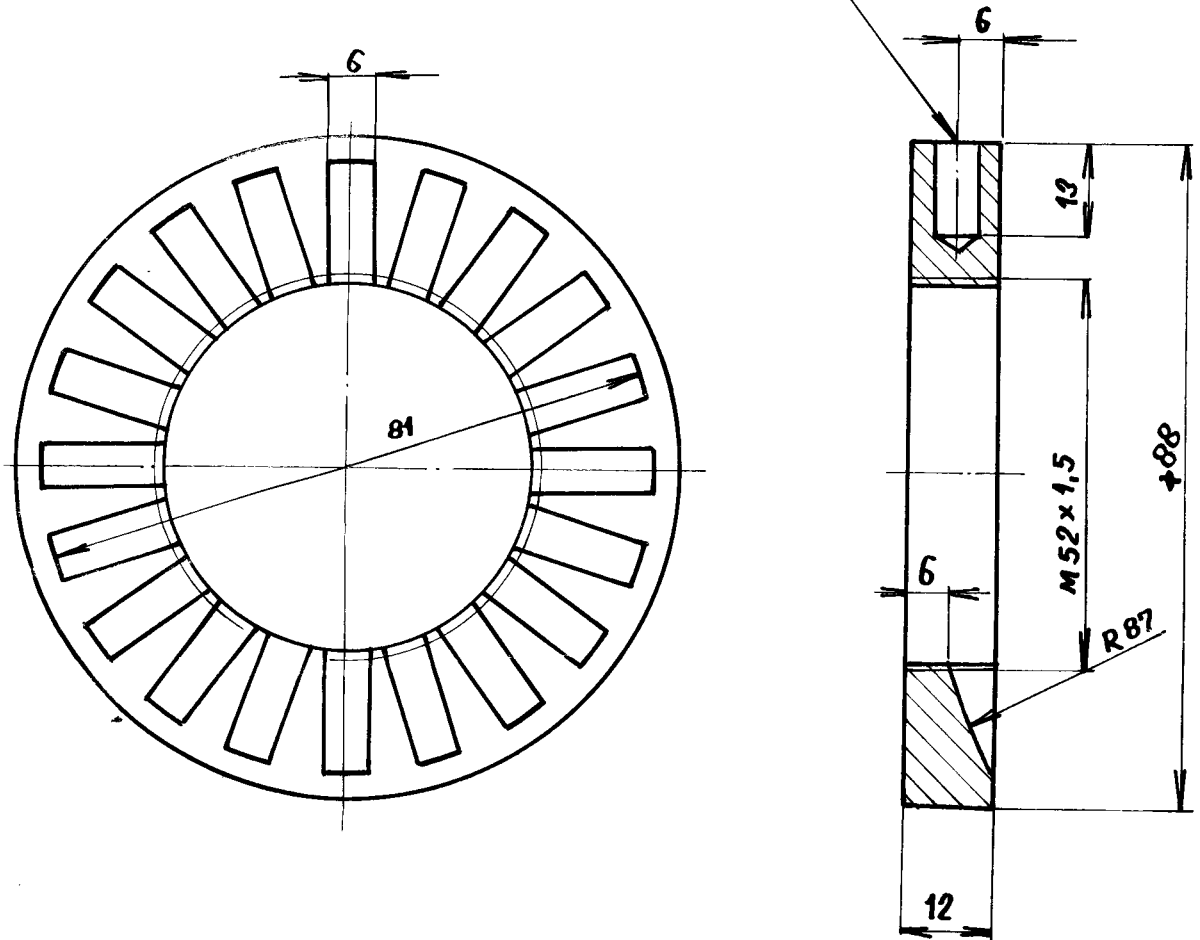
NOTE:  
CHAMFERED CORNERS FOR 1/45°

NO.OF TEETH	64
MODULE	2
PRESSURE ANGLE	20°
SHAFT ANGLE	90°
MATING GEAR NO.OF TEETH	29
MATING GEAR DRG.NO.:	-

OD130x42L		TUFLON	-	-	-
No.of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.
REFERENCE:		ALTERATIONS:		DCN REF	DATE
SIGN.		INDEX			
SCALE	DRN	G.Govindaraj			
1:1	CHD	R.Ramamurthy			
	APPD	K.Ramanan			
	DATE	04/06/13			
MACHINE: UNIVERSAL TOOL&CUTTER		TYPE: BN 102			
TITLE: BEVEL GEAR		DRAWING No:		REV	
OD129.65x64Tx42L		4M06A0429716			
		Sheet No:		No.of Sheets:	



φ6- 5HOLES EQUALLY SPACED



45 CB IS: 7283

			BM-C45	45CB IS: 7283					0-M-04b-0093	21
NO. OF PIECES	DESCRIPTION	SEMI-PRODUCT	FINAL MATERIAL	INITIAL MATERIAL	SCRAP SORT	NET wt (kg)	GROSS wt (kg)		DRAWING NO.	ITEM NO.

REMARKS				TOTAL NET wt (kg)			
SCALE	DRAWN BY	REFERENCE	ALTERATIONS	DATE	SIGNA- TURE	ALTERATION INDEX	
1:1	CHECKED BY						
	APPROVED BY						
	STDS. OFFICER						
	DATE	28-8-70					



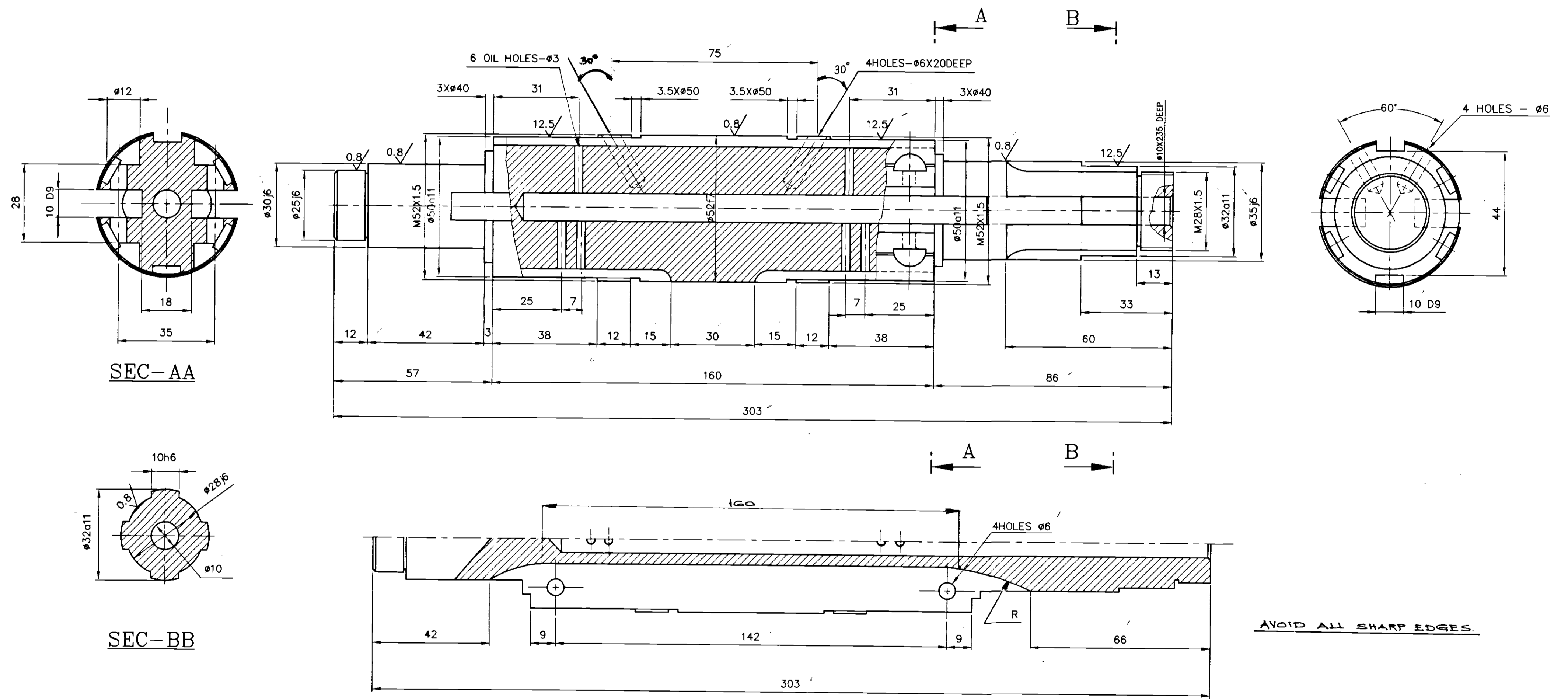
MACHINE RADIAL DRILLING  
TITLE :  
**NUT M52x1.5**

TYPE: BM 52,62 INV. NO.  
DRAWING NO. **10 & 12**  
**4-M-04b-6740**  
NO. OF SHEETS SHEET NO :

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ALL DIMENSIONS ARE IN MM

10Dg	+0.076	φ52f7	-0.030	3.2 / 12.5 / 0.8
	+0.040		-0.060	
10h6	+0.009	φ35j6	+0.011	
	+0.000		-0.005	
φ32a11	-0.310	φ25j6	+0.009	
	-0.470	φ28j6	-0.004	
φ50a11	-0.320	φ30		
	-0.480			



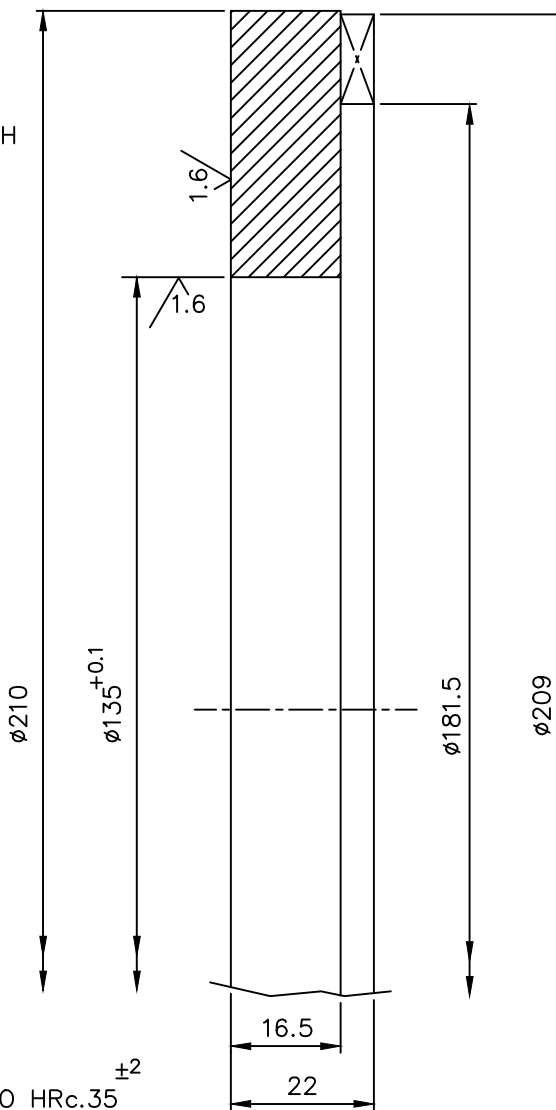
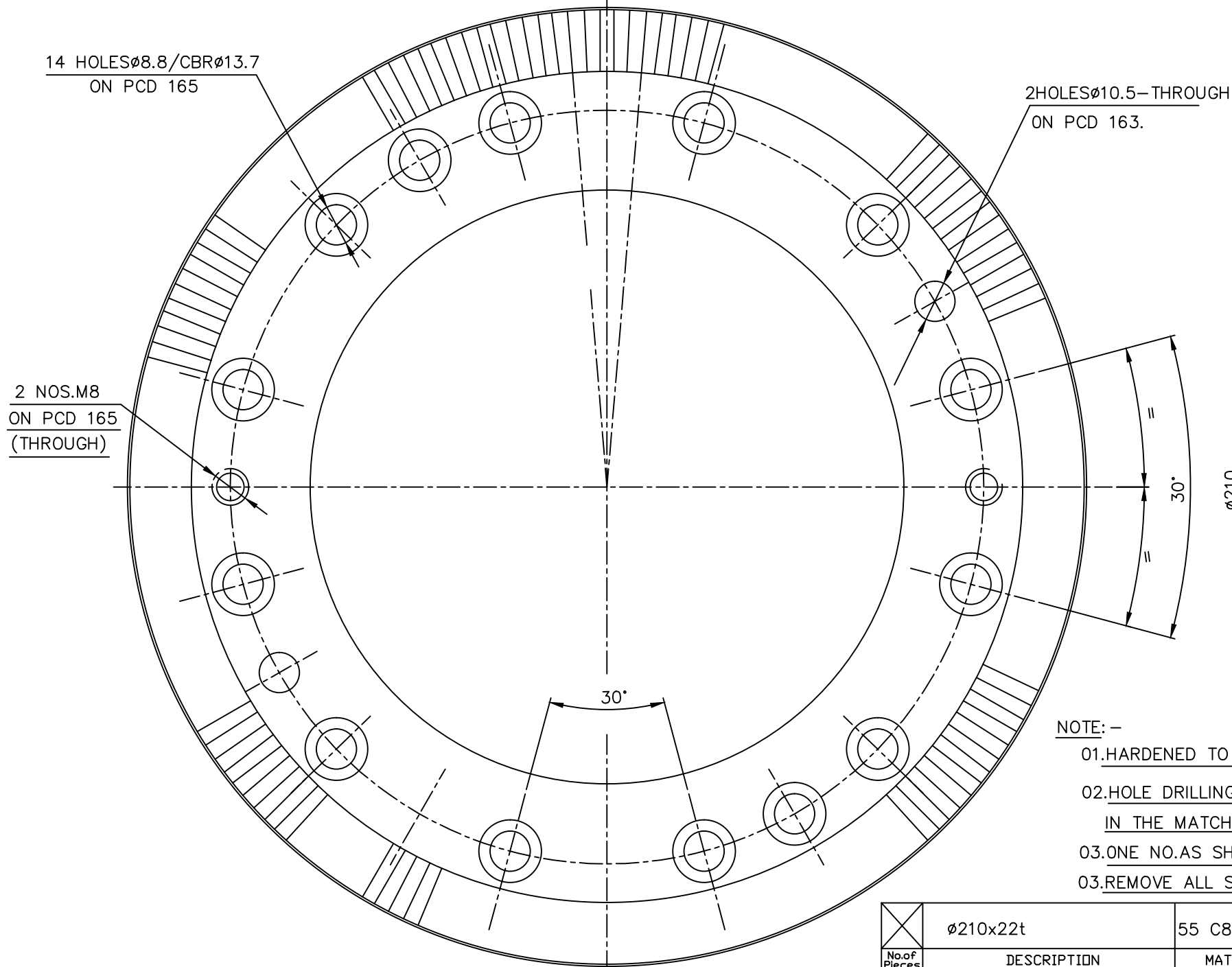
Avoid all sharp edges.

<input checked="" type="checkbox"/> Rod φ52x303L.		45C8	IS: 7283	3.51	0-M-04B-00093	11
No. of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
REFERENCE:	R-56-45-200. A95 5200		COMPONENT CODE: 02	EQUIPMENT CODE: 10,12		
SCALE	DRAWN/TC: R.NARAYANAN	ALTERATIONS:	DCN REF	DATE	SIGN.	INDEX
1:1	CHECKED: R.Narayanan					
	APPROVED: <i>R.Narayanan</i>					
	DATE: 10-01-98/28-08-70					
MACHINE: RADIAL DRILLING			TYPE: RM-52,62			
TITLE: SPLINED SHAFT-II			DRAWING No: 10		REV.	
			2-M-04B-00787			
No. of Sheets:			Sheet No:			

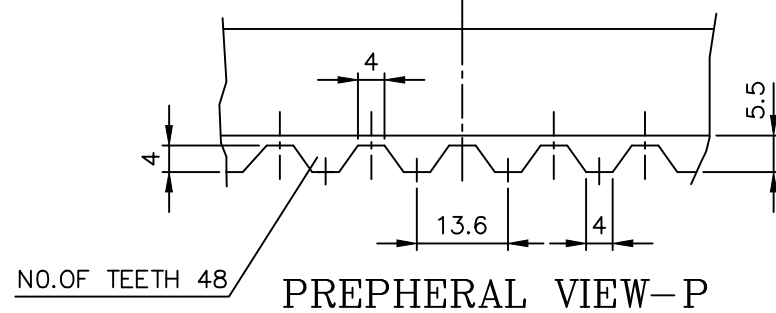
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ALL DIMENSIONS ARE IN MM

3.2/1.6



- NOTE: -
- 01. HARDENED TO HRc.35  $\pm 2$
  - 02. HOLE DRILLING TO BE DONE IN THE CLUTCH JAWS IN THE MATCHED CONDITION ONLY.
  - 03. ONE NO. AS SHOWN; ANOTHER ONE IS IN THE OPPOSITE HAND
  - 03. REMOVE ALL SHARP CORNERS.



	$\phi 210 \times 22t$	55 C8	IS: 5517	2.75		
No. of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT. IN KGS.	DRAWING No.	ITEM No.
	REFERENCE:		ALTERATIONS:	DCN REF	DATE	SIGN.
SCALE	DRAWN	P. A. ROSS				
	CHECKED	R. RAMAMOORTHY				
1:1	APPROVED	C. S. JAYASHEELAN				
	DATE	01-12-09				
	MACHINE:	CNC SLANT BED LATHE		TYPE:	HMT-STC 25	
	TITLE:	CLAW CLUTCH-48T (TURRET ASSY.)		DRAWING No:	3M08F1214020	
	Sheet No:			No. of Sheets:		
						REV.