

BHARAT HEAVY ELECTRICALS LIMITED

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(A Government of India Undertaking)
HIGH PRESSURE BOILER PLANT
PURCHASE DEPARTMENT - FOSSIL BOILERS
THIRUCHIRAPALLI - 620014
TAMILNADU (INDIA)


PHONE :2577629
GRAMS : BHARATELEC
FAX NO: 2520719
E-mail: srchandran@bheltry.co.in
Web:

429-002/A

Enquiry No	Enquiry Date	Due Date for Quotation
2661400762 - 55	18.10.2014	12.11.2014
Please quote Enquiry No, Date and due date in all correspondences. This is only a request for quotation and not an order		

Item	Description	Unit	Quantity	Delivery Quantity	Schedule Date
10	7503A2201900 BLADE GUIDE AS PER DRG. NO. 4M-03A-22-27199 VENDOR QUALIFYING CRITERIA Only those vendors who satisfy the following conditions will get qualified to participate in the tender: 1.Vendor should have minimum 2 year experience in this field. 2.Previous PO details for supplying similar kind of items should be submitted along with offer. Otherwise offer will be rejected. 3.Company profile details has to be provided along with offer. 4.BHEL reserves the right to visit the vendor's works for verifying the manufacturing facilities and any other credential furnished by the vendor in case the information furnished with the offers found to be false /incorrect, the offer shall be rejected.	NO	12.000	12.00	27.01.15
20	7503A2202000 BLADE GUIDE AS PER DRG. NO. 4M-03A-22-27200-01	NO	12.000	12.00	27.01.15
30	7503A2202100 BLADE GUIDE AS PER DRG. NO. 4M-03A-22-27540	NO	12.000	12.00	27.01.15
40	7503A2202200 BLADE GUIDE AS PER DRG. NO. 4M-03A-22-27541	NO	12.000	12.00	27.01.15
50	7503A1301200 BLADE GUIDE (LEFT) AS PER DRG.NO. 3M-03A-13-12531-01	NO	12.000	12.00	27.01.15
60	7503A1301700 BLADE GUIDE (RIGHT) AS PER DRG. NO. 3M-03A-13-12532	NO	10.000	10.00	27.01.15

The offers should reach us 30 minutes before the time of opening of tenders.
The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening.Late and delayed offers are liable to be rejected.

Yours faithfully,
For **BHARAT HEAVY ELECTRICALS LIMITED**

MANAGER / PURCHASE
(FOSSIL BOILERS)
Yours faithfully,



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)
HIGH PRESSURE BOILER PLANT
PURCHASE DEPARTMENT - FOSSIL BOILERS
THIRUCHIRAPALLI - 620014
TAMILNADU (INDIA)

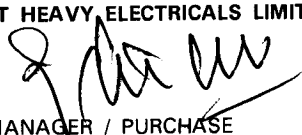
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2661400762 / 18.10.2014

70	7503A1301600 COMP. SPRING AS PER DRG. NO. 4M-03A-13-28085	NO	10.000	10.00	27.01.15
80	7503A1301800 SLEEVE AS PER DRG. NO. 4M-03A-13-28575	NO	6.000	6.00	27.01.15
90	7503A1301900 SLEEVE AS PER DRG. NO. 4M-03A-13-28574	NO	6.000	6.00	27.01.15
100	7515A0701400 SPROCKET AS PER DRG. NO. 4M-15A-07-24513	NO	3.000	3.00	27.01.15
110	7515A0701500 SPROCKET AS PER DRG. NO. 4M-15A-07-24514	NO	3.000	3.00	27.01.15
120	7515A0701200 COMPRESSION SPRING AS PER DRG.NO. 4M-15A-07-26096	NO	20.000	20.00	27.01.15
130	7515A0701600 SPRING RETAINER (TOP) AS PER DRG. NO. 4M-15A-07-27070	NO	5.000	5.00	27.01.15
140	7515A0701700 SPRING RETAINER (BOTTOM) AS PER DRG. NO. 4M-15A-07-27071	NO	5.000	5.00	27.01.15
150	7508B0201200 SHAFT IV AS PER DRG. NO. 3M-08B-02-0981	NO	2.000	2.00	27.01.15
160	7508B0201100 HEAD STOCK SPINDLE AS PER DRG. NO. 2M-08B-02-1042 NOTE: SL.NO. 160 TO 180 ARE MATING COMPONENTS. HENCE THESE ITEMS SHOULD BE PROCURED FROM SINGLE SOURCE ONLY.	NO	2.000	2.00	27.01.15
170	7508B0201300 FRONT BEARING AS PER DRG. NO. 3M-08B-02-0982	NO	2.000	2.00	27.01.15
180	7508B0201400 REAR BEARING AS PER DRG. NO. 3M-08B-02-0984	NO	2.000	2.00	27.01.15
190	7508B0201500 TAIL STOCK SCREW AS PER DRG. NO. 3M-08B-02-1016	NO	2.000	2.00	27.01.15

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tenderers who have submitted their offer and who may like to be present for the tender
opening.Late and delayed offers are liable to be rejected.

Yours faithfully,
For **BHARAT HEAVY ELECTRICALS LIMITED**


MANAGER / PURCHASE
(FOSSIL BOILERS)
Yours faithfully,



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NOTE: SL.NO. 190 AND 200 ARE MATING COMPONENTS. HENCE THESE ITEMS SHOULD BE PROCURED FROM SINGLE SOURCE ONLY.

200	7508B0201600 NUT AS PER DRG. NO. 4M-08B-02-2448	NO	4.000	4.00	27.01.15
210	7508B0201700 SHAFT II AS PER DRG. NO. 3M-08B-02-3483	NO	2.000	2.00	27.01.15
220	7504B0309000 SPRING AS PER DRG. NO. 4M-04B-03-4638	NO	20.000	20.00	27.01.15
230	7504B0308300 COMP. SPRING AS PER DRG. NO. 4M-04B-03-5019	NO	20.000	20.00	27.01.15
240	7504B0304600 COIL SPRING AS PER GRG.NO. 4M-04B-03/05-6693, SL.NO. I	NO	20.000	20.00	27.01.15
250	7504B0304700 COIL SPRING AS PER GRG.NO. 4M-04B-03/05-6693, SL.NO. II	NO	20.000	20.00	27.01.15
260	7504B0304800 COMP. SPRING AS PER GRG.NO. 4M-04B-03-22176	NO	20.000	20.00	27.01.15

General Note:

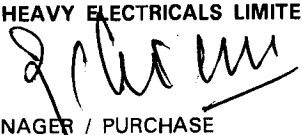
GENERAL NOTE:PLEASE SUBMIT YOUR OFFER IN " TWO PART BID SYSTEM " AS PER THE ANNEXURES ENCLOSED.
ENCLOSURES: ANNEXURE II,III,IV,V,VI,VII.

Enclosures:

"LD clause has to be confirmed without fail."

The offers should reach us 30 minutes before the time of opening of tenders.
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Yours faithfully,
For **BHARAT HEAVY ELECTRICALS LIMITED**


MANAGER / PURCHASE
(FOSSIL BOILERS)
Yours faithfully,

CAPITAL PURCHASE
COMMERCIAL TERMS AND CONDITIONS

1.0 QUOTATIONS

The Bidders shall submit the offer in **TWO INNER ENVELOPES** as indicated below which shall be sealed in one outer envelope.

Envelope I This sealed envelope should contain all the copies of technical bid together with un-priced commercial bid & annexure III. This envelope should be clearly marked **'Part I - Technical and commercial bid'**,

Indicating Enquiry No., Due Date and Address & Reference of the Bidder.

Envelope II This sealed envelope should contain **price as per Annexure-IV format**. This envelope should be clearly marked **"Part II - Price bid"**, indicating **Enquiry No., Due Date and Address & Reference of the Bidder**.

Both the envelopes (Part I & II) shall be put in one cover (**Envelope III**), duly sealed, superscribing as Part I and Part II of Enquiry No., due date of opening and the address and reference of the Bidder

The above offer should reach this office on or before the due date by 14.00 hours (IST). Late offers will not be considered.

Tender should not be addressed to any individual's name but only by designation to

**SENIOR MANAGER /PURCHASE/ CP & SP/ MM / MFG
BHARAT HEAVY ELECTRICALS LIMITED
HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620 014
TAMIL NADU**

Tenders should be free from **CORRECTION AND ERASURES**, Corrections if any, must be attested. All Amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.

Offers should be in **ENGLISH** and accompanied by detailed technical literature, catalogue and detailed dimensional drawings in **ENGLISH** or otherwise, the offers will not be considered.

2.0 OPENING OF TENDERS

The Part I - Technical & commercial bid alone would be opened on the Tender opening date.

The Part II - Price bid of technically suitable Bidders alone would be opened. The Technically Suitable Bidders would be informed about the tender opening date through e-mail.

Clarifications if any required by BHEL for Technical evaluation **would be sought** from Bidders before opening of Part II - price bid

For any queries clarifications the bidders may contact us through our FAX NO. +91 431 2520719 or through e-mail <mmcpmfg1@bheltry.co.in >&< chells@bheltry.co.in>

MM: CP & SP

Annexure For Techno Commercial Bid

Check List - to be filled and submitted along with Technical Bid

BHEL Commercial Terms and Conditions for Indigenous Supplies	Vendor's Confirmation / Comments
Technical confirmation to BHEL's Specification as called for in BHEL Format shall be furnished. If needed additional sheets shall be used.	
Prices shall be quoted Item wise only as per the model format enclosed	
Prices shall be quoted on " FIRM PRICE " basis only The prices should be only on F.O.R / Despatching station basis with Packing & Forwarding charges if any. Applicable % of ED & Sales Tax, Freight & Insurance, Installation & Commissioning Charges should be clearly Indicated	
Validity of offer shall be for a minimum period of 120 days from the date of Tender opening	
Delivery period from the date of Letter of Intent / Purchase order shall be clearly mentioned in the offer	
Liquidated damages @ '0.5% per week subject to a maximum of 10% of the order value shall be applicable for delay in deliveries For Details Refer Annexure- v	
Following Risk Purchase clause shall be applicable The purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the time stipulated or if the same were not available, the best and the nearest available substitute therefore The supplier shall be liable for any loss which the Purchaser may sustain by reason of such risk purchases	
Payment term for supply portion: Payment term is 100% direct payment after 45 days from the date of receipt and acceptance of materials For details Refer Annexure- v	
Erection / commissioning: (if applicable only) Erection / commissioning charges if any has been mentioned in the offer or else confirmation that Erection /commissioning shall be done at free of cost is available in the offer,	
The equipment shall be guaranteed for a period of 12 months from the date of commissioning	
Final inspection and acceptance of equipment will be after installation at BHEL, Trichy	
The vendor shall provide necessary drawings, Test Certificates and Operating Maintenance Manuals etc., as called for in the Technical Specification, in the required number of copies at no extra cost	
Any warranty replacement during warranty period shall be supplied free of charge on FOR BHEL, Trichy basis.	
Offers should be submitted only in sealed cover super-scribing clearly the Enquiry reference and due date.	
% of Excise Duty with cess	
% of TAX (CST/VAT)-(INGST with FORM-17 or CST with C-FORM)	
Packing & Forwarding Charges (if any in % only)	
Percentage of Freight& transit insurance charges, if any Freight charges from Dispatching station to BHEL, Tiruchirappalli • Supplier should quote for F.O.R-BHEL Trichy Stores.	
As per Commercial terms and conditions, acceptance for participation in Reverse auction (RA).Yes/No to be indicated	
Name of the person for participating reverse auction	
Land Line Number	
Fax Number	
Mobile Number	
E-mail ID	

NOTE:-

- It is confirmed that all the terms and conditions stipulated in the Enquiry have been fully understood by us and all clarifications & details have been obtained.
- Your offer should be indicating applicable If any P&F Charges, % of ED, Sales Tax -CST or VAT, Service Tax), Freight, Insurance and Installation and Commissioning Charges etc., as per our Price Format
- Your specific acceptance to our Payment terms, LD & Risk Purchase Clause are essential for consideration of your offer. Other wise your offer is liable for rejection.
- No row shall be left blank. Please indicate NA, in case the item is "not applicable"

Payment Term (Indigenous)	
If materials are receivable at Stores/Trichy <u>without</u> PBG	Payment term is 100% direct payment after 45 days from the date of receipt and acceptance of materials.
If materials are receivable at Stores/Trichy <u>with</u> PBG	Payment term is 100% direct payment after 45 days from the date of receipt and acceptance of materials and against 10% PBG valid for the warranty period.
Any deviation in the above payment term will attract loading as mentioned below. “Base rate of SBI (as applicable on the date of bid opening. Techno-commercial bid opening in case of two part bids) + 6% shall be considered for loading for the period of relaxation sought by bidders.	

Payment through Bank is not preferred. In case of Payment through Bank is opted by Supplier, BHEL prefers documents submission through bank with copy of LR and door delivery of Goods to Site/Stores with Consignee copy attached. In this case Loading will be 3% on the offered value.

Offers of indigenous Suppliers with payment terms as LC/Advance Payment are liable for rejection.

Liquidated Damages / Penalty -

Liquidated damages shall be 0.5% of the total order value per week or part thereof subject to a maximum of 10% of the total order value.

For staggered delivery schedule, LD shall be 0.5% of the undelivered portion per week of the delay or part thereof subject to a maximum of 10% of the total order value.

Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value).

Guarantee / Warranty Period – (if applicable)

Normally No deviation permitted and the deviated offers are liable for rejection.

Ranking-

BHEL will consider the ranking after the loading is applied as referred above wherever deviations are observed.

Performance Bank Guarantee – (if applicable)

Normally No deviation permitted and the deviated offers are liable for rejection.

NOTE:-

1. If the due date of tender opening happens to be a holiday, the tenders will be opened on the next working day.
2. BHEL reserves the right to go for a reverse auction (RA) instead of opening the submitted sealed bid which will be decided after technical evaluation. Information and general terms and conditions covering RA are given in commercial terms and conditions.
3. Corrigendum if any, with respect to this tender will be hosted only in the website <http://www.bhel.com> or <http://tenders.gov.in>. You are requested to visit the website regularly for updates.

Special Provisions for Micro and Small Enterprises (MSE)

1. 20% of the tendered quantity is earmarked for MSE suppliers in this tender.
2. Out of the 20% tendered quantity reserved for MSE suppliers, 4% shall be earmarked for procurement from MSE owned by SC/ST entrepreneurs.
3. In case MSE vendor participating in the tender quotes within the price band of L1+15%, they will be allowed to supply the portion of the requirement subject to acceptance of L1 price by MSE vendor. In case of more than one such MSE, the supply shall be shared proportionately.
4. "MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either EM II certificate having deemed validity (five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or EM II certificate along with attested copy of a CA certificate (Format enclosed at Annexure -VII where deemed validity of EM II certificate of five Years has expired) applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the date of bid opening (Part 1 in case of two part bid). Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry if any deficiency in the above required documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted officer."

Certificate by Chartered Accountant on letter head

This is to Certify that MIS
(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 per the latest audited financial year as per MSMED Act 2006 is as follows:

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.0,1722(E) dated October 6. 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

(Strike off whichever is not applicable)

The above investment of RsLacs is within permissible limit of
Rs..... Lacs for Micro I 6mall (Strike off which Is not applicable)
Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/ Small) (Strike off which is not
applicable) and the date of graduation of such enterprise from its original category is
(dclimmiyyy) which is within the period of 3 years from the date of graduation of such
enterprise from its original category as notified vide S.D. No. 3322(E) dated 01.11.2013
published in the gazette notification dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

Name -

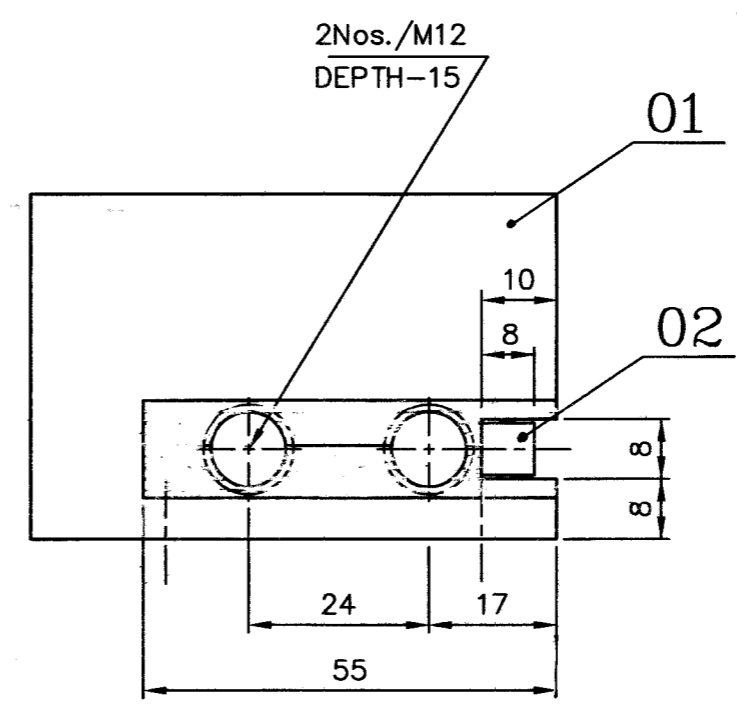
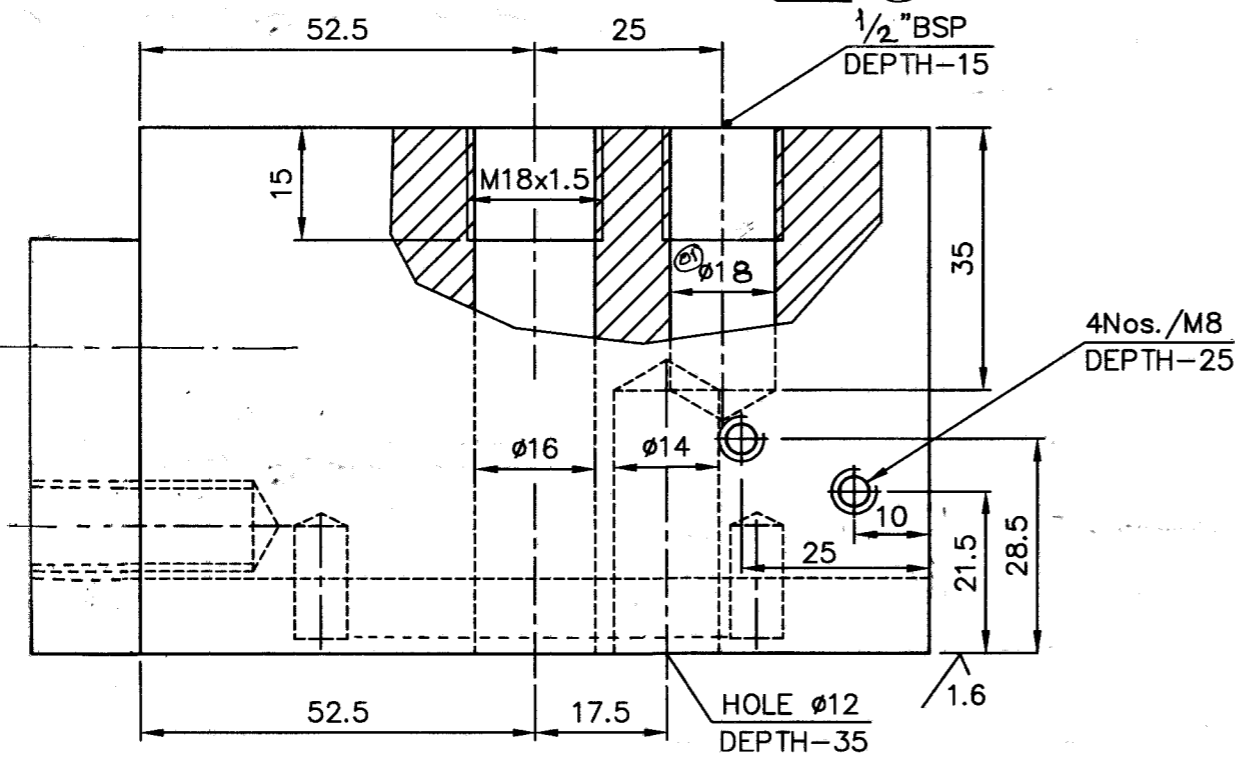
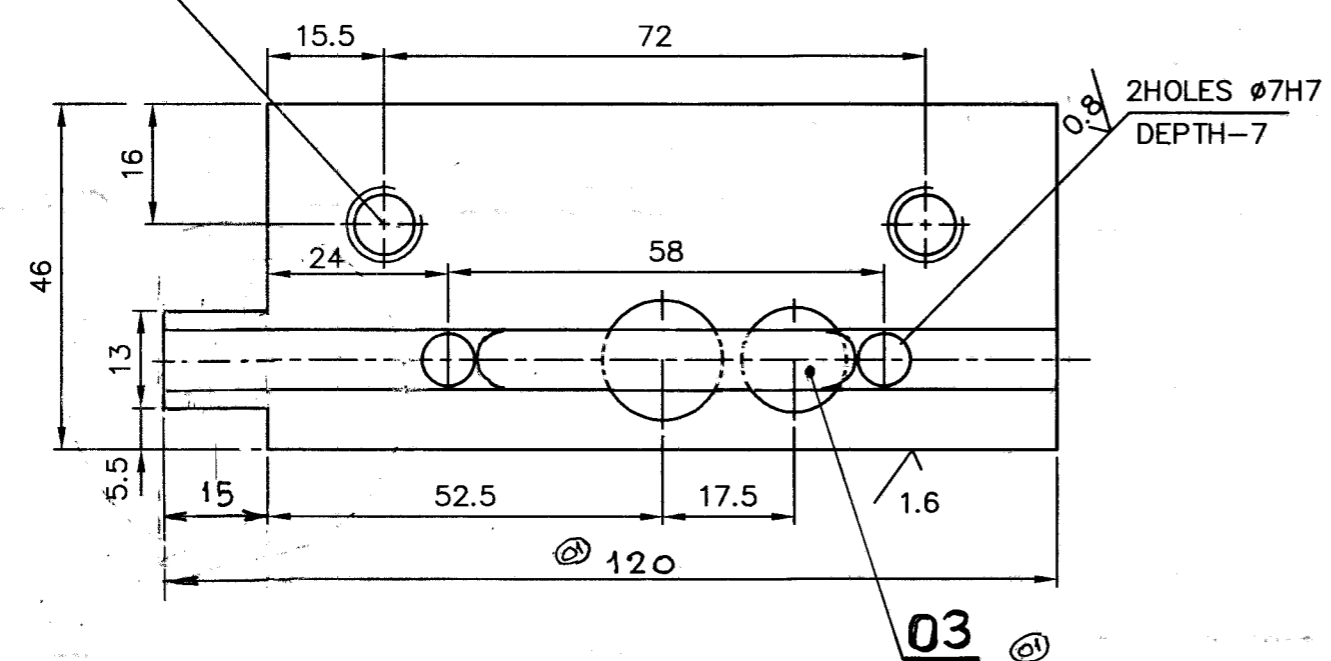
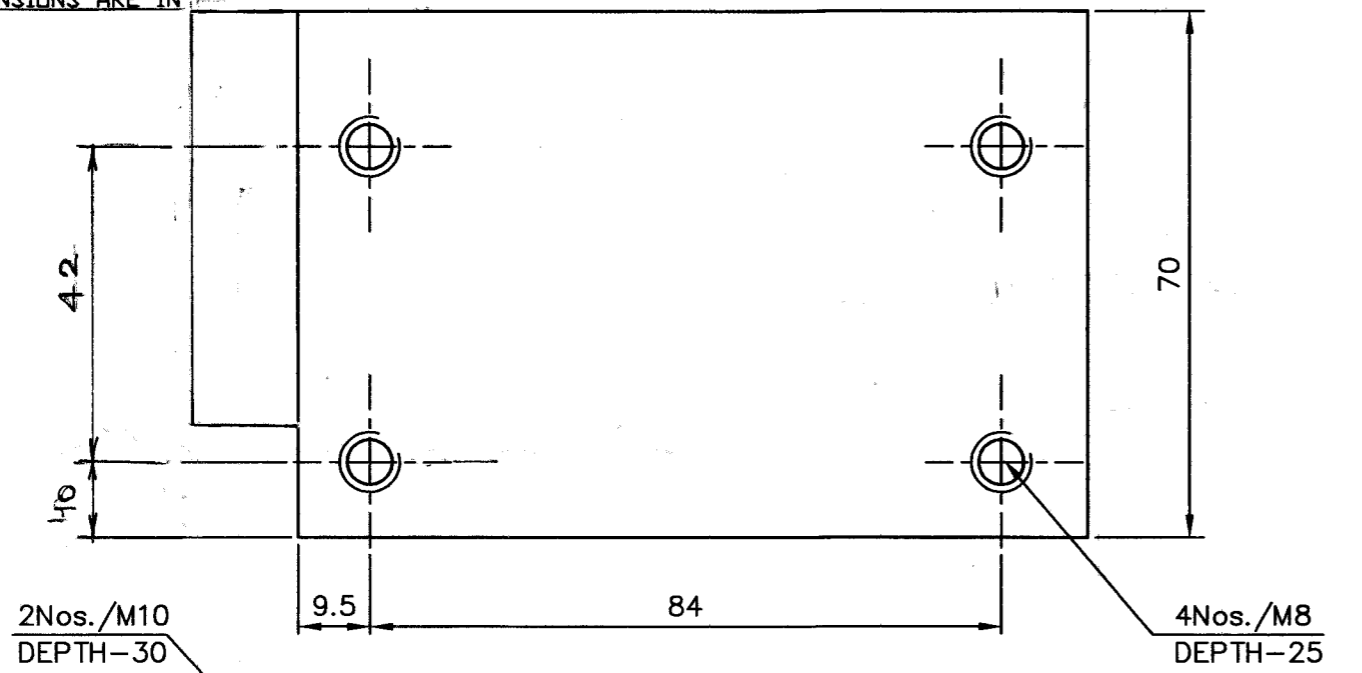
Membership number -

Seal of Chartered Accountant

CAUTION: THIS DRAWING IS OUR SOLE PROPERTY AND SHOULD NOT BE USED IN ANY FORM FOR ANY PURPOSE WITHOUT THE WRITTEN PERMISSION OF BHARAT HEAVY ELECTRICALS LIMITED TRICHIRAPPALLI - 620 014.

ø7H7	+0.015	3.2/1.6/0.8
	+0.000	

ALL DIMENSIONS ARE IN MM



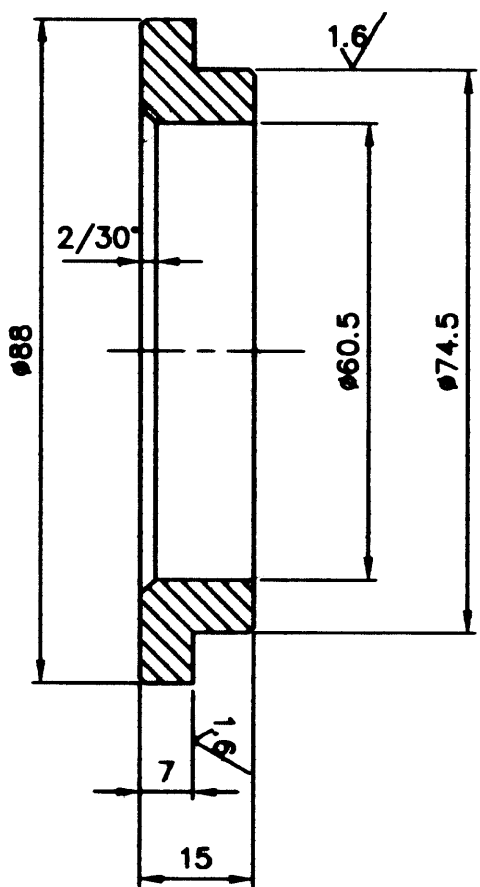
NOTE: ±0.2
HARDENED TO HRC 60
CORNERS TO BE CHAMFERED 1/45°

1	KEY 8x8x51-L	CARBIDE P30		0.03		03
1	CYL.PIN ø7x15L	BPS: 41704	IS: 2393	0.01		02
1	BLADE GUIDE 46x70x120	T215 C-12	IS: 1570	2.80		01
				2.84		
No. of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
	REFERENCE:	ALTERATIONS:		DCN REF	DATE	SIGN.
		1/2" BSP WAS 3/4" BSP				
SCALE	DRAWN	G.G.R.	DIM. 120 WAS 105.		110806	03
	CHECKED	R. Ramamurthy				
	APPROVED					
	DATE	08/12/04				
MACHINE: HEAVY DUTY BANK SAW			TYPE: ROBOTER PEHAKA-650Z			
TITLE: BLADE GUIDE (LEFT) (BLADE GUIDE ASSY.)			DRAWING No:		REV.	
			3M03A1312531		01	
Sheet No:			No. of Sheets:			

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3.2/1.6/✓



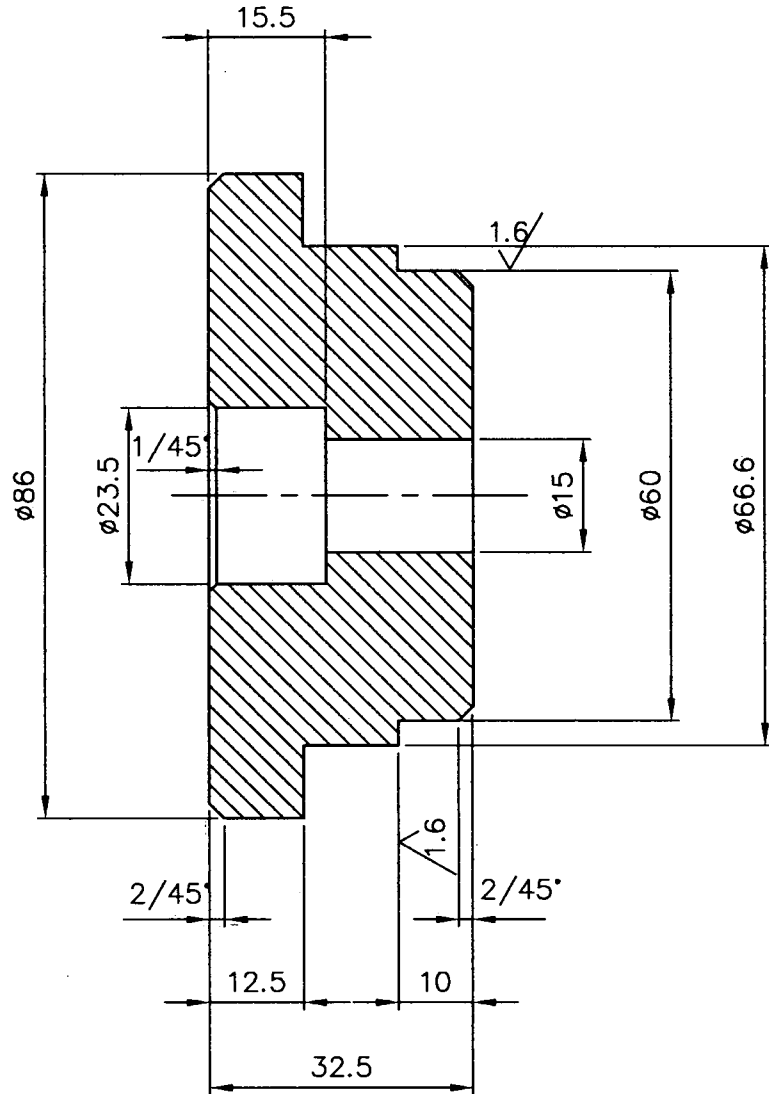
CHAMFER ALL SHARP CORNERS TO 1/45°

X	88x15t		45C8	IS: 7283	0.14	3-M-15A-12267	03
	DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
REFERENCE:				COMPONENT CODE: 00		EQUIPMENT CODE: 07	
				ALTERATIONS:	DCN REF	DATE	SIGN.
SCALE	DRAWN	P.A.ROSS / <i>[Signature]</i>					
	CHECKED	<i>[Signature]</i>					
	APPROVED	<i>[Signature]</i>					
	DATE	23-04-03					
MACHINE: SHERING M/C			TYPE: GODREJ/LVD 20				
	TITLE:			DRAWING No: 07		REV.	
	SPRING RETAINER (BOTTOM) (PLATE HOLDER ASSY.)			4-M-15A-27071			
Haaf Sheets			Sheet No				

ALL DIMENSIONS ARE IN MM

3.2/1.6/✓

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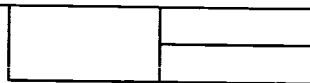
AVOID SHARP CORNERS

SCANNED

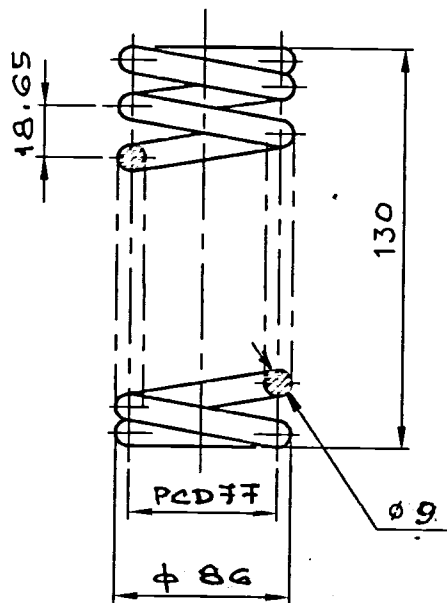
X		ø86x32.5	45C8	IS: 7283	0.90	3-M-15A-12264	65
No. of Pieces	DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
REFERENCE:				COMPONENT CODE: 00		EQUIPMENT CODE: 07	
			ALTERATIONS:		DCN REF	DATE	SIGN.
SCALE	DRAWN	P.A.ROSS / <i>[Signature]</i>					
	CHECKED	<i>[Signature]</i>					
	APPROVED	<i>[Signature]</i>					
	DATE	23-04-03					
MACHINE: SHERING M/C			TYPE: GODREJ/LVD 20				
TITLE: SPRING RETAINER (TOP) (PLATE HOLDER ASSY.)			DRAWING No: 4-M-15A-27070			REV.	
			No. of Sheets:			Sheet No:	

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ALL DIMENSIONS ARE IN MM



~10.8/ ✓ ✓



COIL DETAILS: -

TOTAL NO. OF COILS: 8

NO. OF ACTIVE COILS 6

ENDS CLOSED & SQUARED BY GRINDING.

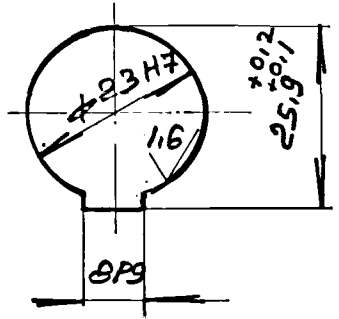
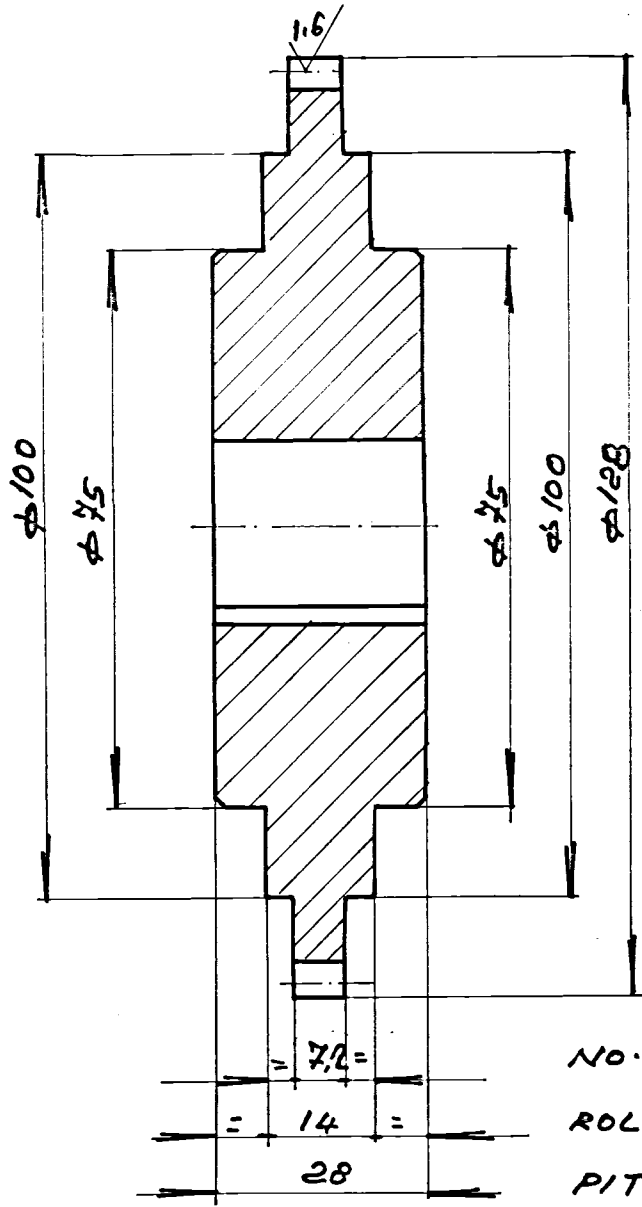
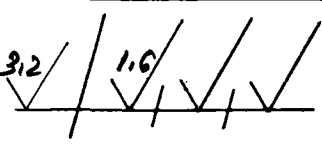
HARDENED AND TEMPERED

X		φ 9 x 130 L	BS: 970 En 42		1.0			
No. of Pieces	DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.		ITEM No.
REFERENCE:				COMPONENT CODE: 18		EQUIPMENT CODE: 07		
SCALE	DRAWN	P.A.ROSS	ALTERATIONS:		DCN REF	DATE	SIGN.	INDEX
NTS	CHECKED	<i>[Signature]</i>						
	APPROVED	<i>[Signature]</i>						
	DATE	27-11-97						
MACHINE: SHEARING M/C			TYPE: GODREJ /LVD 20					
TITLE:			DRAWING No:			REV.		
COMP. SPRING. (OD 86 x 130 L) (PLATE HOLDER ASSY.)			4-M-15A-26096			07		
			No. of Sheets:			Sheet No:		

39-607 A

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$\phi 23 H7$	$+0.021$
	$+0.0093/2$
$8P9$	-0.015
	-0.051



$= 7.2 =$	NO. OF TEETH	30
$= 14 =$	ROLLER DIA	8.51
28	PITCH	12.7

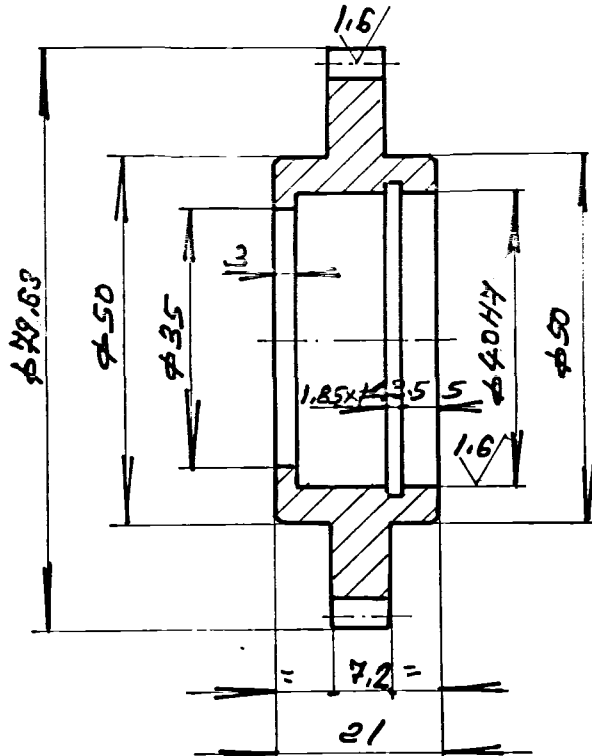
		CL IV	IS: 1375						
No. of pcs.	DESCRIPTION	MATERIAL	STD/BPS	Net wt. (kg)	Gross wt. (kg)	DRAWING No.		Item No.	Index
REFERENCE:			ALTERATIONS		DATE	SIGN.			
SCALE	DRAWN	<i>[Signature]</i>							
1:1	CHECKED	<i>[Signature]</i> 11/4/95							
	APPROVED	<i>[Signature]</i>							
	DATE	22-10-91							
MACHINE: HYD. SHEAR		TYPE: GOREJ LVD		Total wt. (kg.)		REV.			
TITLE		DRAWING No.		No. of Sheets:		Sheet No.			
SPROCKET 30T/ $\phi 128$		4-H-15A-24514		07					

39-607 A

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$\phi 40 H7$ +01025
 +01000

312/16/

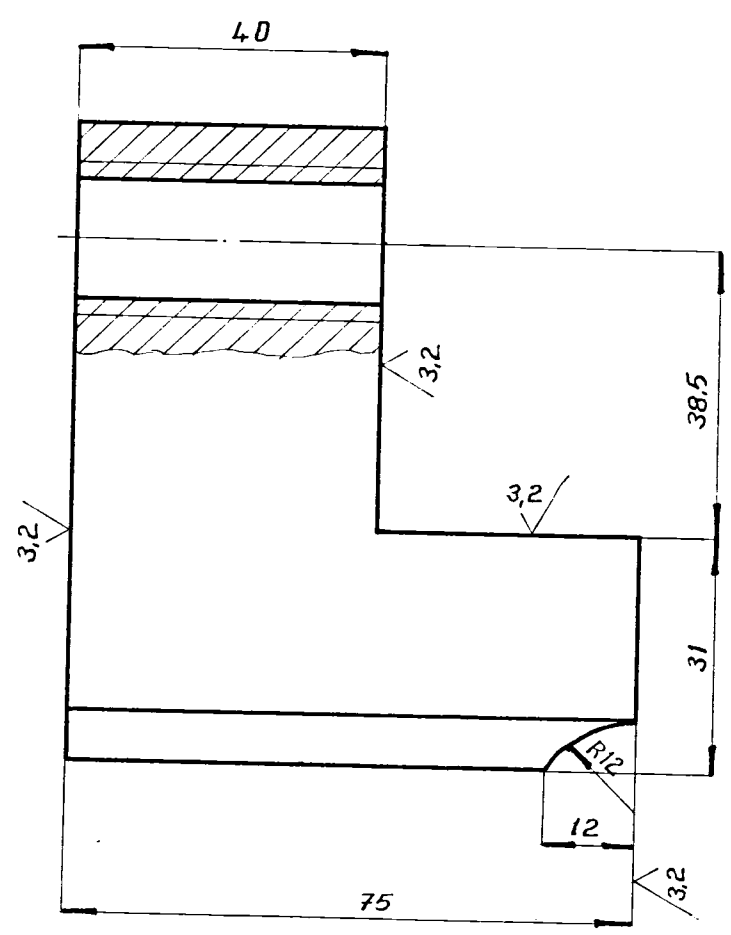
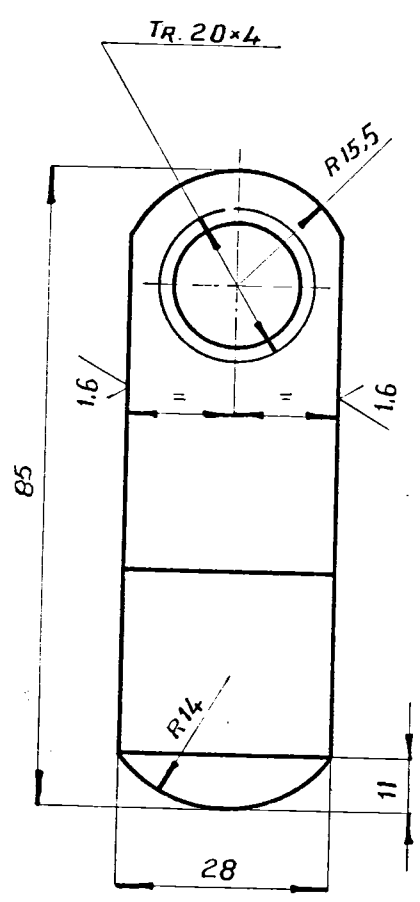


NO. OF TEETH 18
ROLLER DIA $\phi 35$
PITCH 12.7


		CL IV	IS:1875						
No. of pcs	DESCRIPTION	MATERIAL	STD/BPS	Net wt. (kg)	Gross wt. (kg)	DRAWING No.		Item No.	
REFERENCE:			ALTERATIONS			DATE	SIGN.	Index	
SCALE	DRAWN	<i>[Signature]</i>							
1:1	CHECKED	<i>[Signature]</i>							
	APPROVED	<i>[Signature]</i>							
	DATE	22-10-91							
MACHINE: HYD. SHEAR			TYPE: GODREJ LVD		Total wt. (kg.)				
TITLE			DRAWING No.		REV.				
SPROCKET 18T/ $\phi 35$			4-M-15a-24513 ⁰⁷						
No. of Sheets:			Sheet No.						



~ / 1.6 / 3.2 /



FG: 220
IS: 210

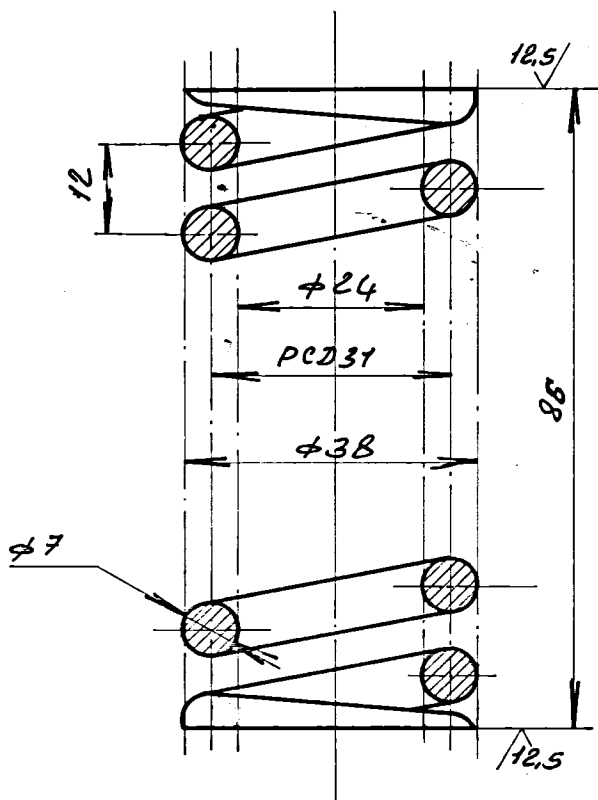
		EAST IRON GR-20 IS-210				2.M-08b-0368		25	
NO. OF PIECES	DESCRIPTION	SEMI PRODUCT	FINAL MATERIAL	INITIAL MATERIAL	SCRAP SORT	NET WT	GROSS WT	DRAWING NO.	ITEM NO.
REMARKS				TOTAL NET wt (kg)					
SCALE	DRAWN	REFERENCE		ALTERATIONS		DATE	SIGNA- TURE	ALTERATION INDEX	
1:1	CHECKED								
	APPROVED								
	STDS. OFFICER								
	DATE	12-1-1968							
		MACHINE: CENTRE LATHE		TYPE: 5V18R		INV. NO.			
		TITLE:		DRAWING NO:					
		NUT (FOR TAILSTOCK SCREW)		4-M-08b-2448 ⁰²					
				NO. OF SHEETS		SHEET NO:			

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 TIRUCHIRAPALLI-14

N/125

INDEX NO. 39 - 607



TOTAL NO. OF COILS : 8
 EFFECTIVE COILS : 6
 ENDS : CLOSED BY GRINDING
 DEFLECTION RATING :
 HARDENED AND TEMPERED :

1			50 Cr. 1V23 18:3431	BS 970 En 42				1-M-046-1815	15
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) 66:18 66:05				
SCALE 1:1	DRAWN	<i>A. Babu.</i>		REFERENCE	ALTERATIONS		DATE	SIGNATURE	INDEX
	CHECKED	<i>K. G. Babu.</i>							
	APPROVED	<i>[Signature]</i>							
	STDS. OFFICER								
DATE		28-05-85							
MACHINE		RADIAL DRILLING		TYPE: VR 8		INV. NO.			
TITLE:		COMP. SPRING [SELF DRIVE ASSY]		DRAWING NO.		D3 4-M-04B-22176			
NO. OF SHEETS				SHEET NO.					

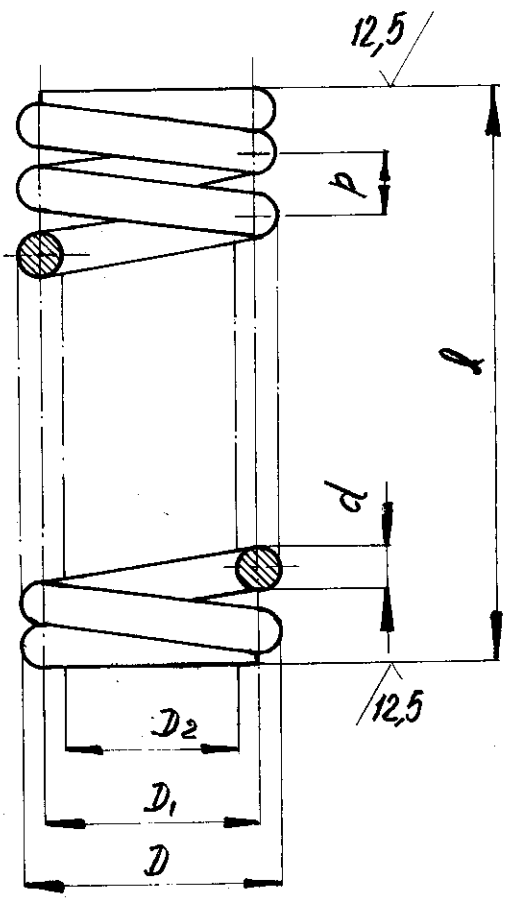


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TIRUCHIRAPALLI-14

N / 12,5

INDEX No. 39 - 607



Sl.No	l	d	p	D	D ₁	D ₂
I	64,5	175WG φ1,42	2,8	10	8,58	7,16
II	40	155WG φ1,83	2,6	10	8,17	6,34

I II
TOTAL NO. OF COILS: 24 16
EFFECTIVE COILS: 22 14
ENDS: CLOSED END COILS
SQUARED BY GRINDING
DEFLECTION RATING: -
HARDENED AND TEMPERED

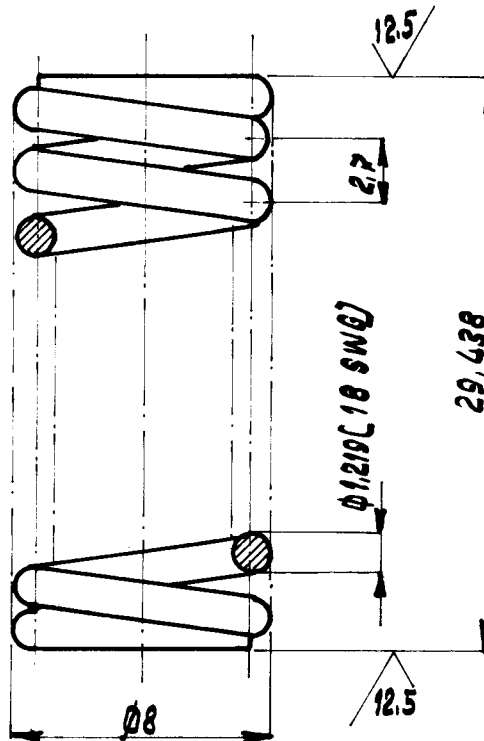
BM-SP1									
NO. OF PIECES	DESCRIPTION	SEMI-PRODUCT	FINAL MATERIAL	INITIAL MATERIAL	SCRAP SORT	NET Wt(kg)	GROSS Wt(kg)	DRAWING NO.	ITEM NO.
REMARKS							TOTAL NET wt (kg)		
SCALE	DRAWN <i>TCD</i>	BY <i>G. Subramanian</i>		REFERENCE	ALTERATIONS		DATE	SIGNATURE	INDEX
	CHECKED	<i>[Signature]</i>							
	APPROVED	<i>[Signature]</i>							
	STDS. OFFICER	<i>[Signature]</i>							
	DATE	13-1-71/22-2-78							
MACHINE RADIAL DRILLING				TYPE: VRB 104		INV. NO.			
TITLE: COIL SPRING				DRAWING NO. 4-M-04b-6693		NO. OF SHEETS			
[FEED SELF ENGAGING LEVER]						SHEET NO.			



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TIRUCHIRAPALLI-14

2 / 12.5



TOTAL NO. OF COILS : 12
 EFFECTIVE COILS : 10
 ENDS: CLOSED END COILS SQUARED BY GRINDING
 DEFLECTION RATING : -
 HARDEN AND TEMPER

				BM-SP1				1.M-04b-0352 1.M-04b-0353		44
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	M. K. M. S. / H. S. S. / H. S. S. / H. S. S.		REFERENCE	ALTERATIONS		DATE	SIGNATURE	INDEX	
	CHECKED	H. S. S.								
	APPROVED	H. S. S.								
	STDS. OFFICER									
	DATE	08 09 '83								
MACHINE		RADIAL DRILLING M/C			TYPE: VR 8 & VR 104		INV. NO.			
TITLE:		COMP. SPRING			DRAWING NO.		4. M. 04b. 5019			
NO. OF SHEETS					SHEET NO.					

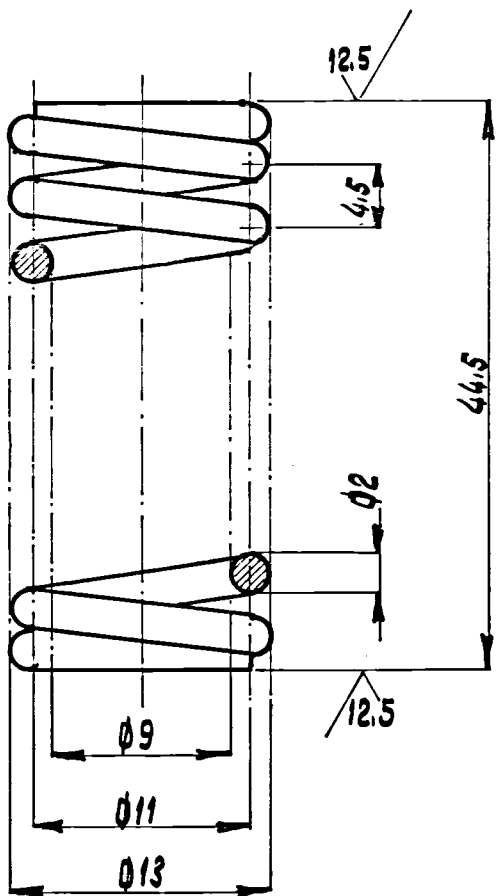


INDEX No. 39 - 607

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TIRUCHIRAPALLI-14

2/125



TOTAL NO. OF COILS : 11
EFFECTIVE COILS : 9
ENDS : CLOSED END COILS SQUARED BY GRINDING
DEFLECTION RATING :

		BM-SP1		BS 970				1-M-04b-0352		47	
				En 42				1-M-04b-0353			
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) CC: 18		EC: 05					
SCALE	DRAWN	<i>U. Narayana Rao</i>		REFERENCE		ALTERATIONS		DATE	SIGNATURE	INDEX	
I	CHECKED	<i>Shankar</i>									
	APPROVED	<i>Donk</i>									
	STDS. OFFICER										
	DATE	08 09 '83									
		MACHINE	RADIAL DRILLING M/C		TYPE: VR 8 & VR 104 A		INV. NO.				
		TITLE:	SPRING		DRAWING NO.		4-M-04b-0353⁰³ 4638				
				NO. OF SHEETS		SHEET NO.					

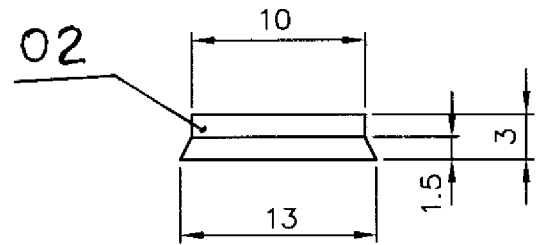
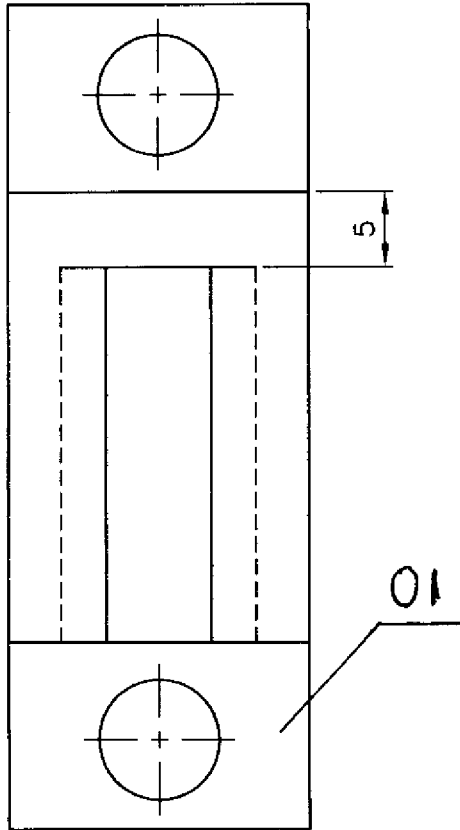
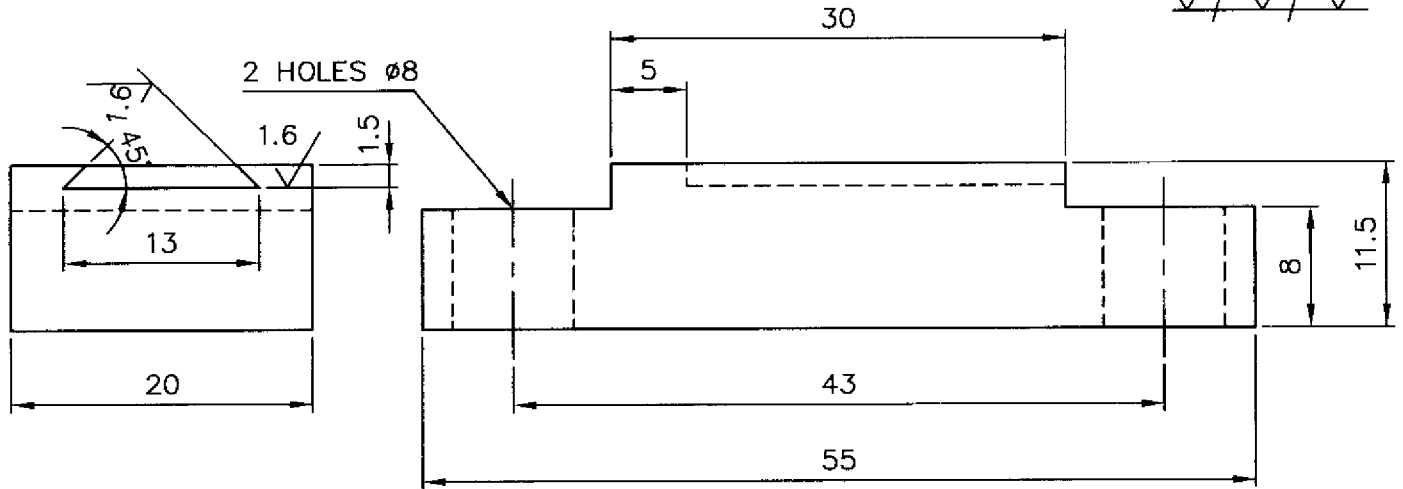
INDEX No. 39 - 607



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ALL DIMENSIONS ARE IN MM

3.2 // 1.6 // ✓



TIP

NOTE: -

- 01. ITEM No.1 HARDENED TO HRc 40⁺²
- 02. ITEM No.1 & 2 SHOULD BE PRESS FIT

	TIP 3x11.5x25L	TUNGSTON CARBIDE SW.T	IS: 4005	0.01		02
	PI.11.5x20x55	55c8	IS: 5517	0.1		01

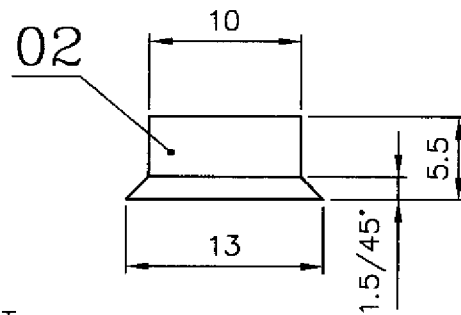
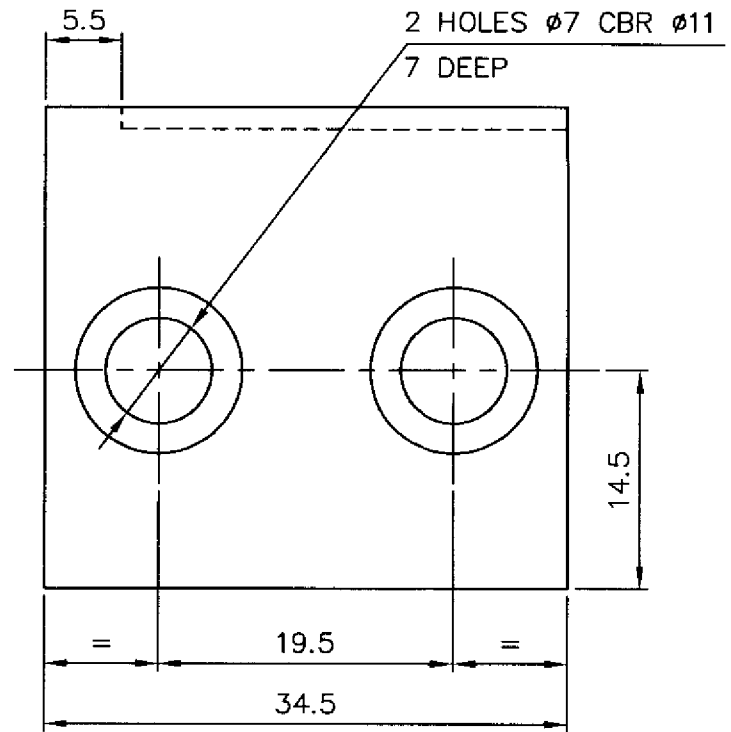
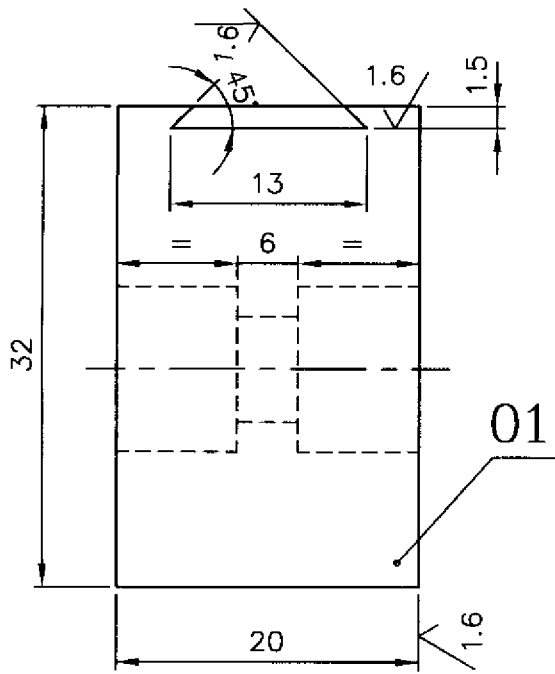
No. of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
	REFERENCE:	ALTERATIONS:		DCN REF	DATE	SIGN.
SCALE	DRAWN	R. Narayanan Dg--				
2:1	CHECKED	R. Ramamurti				
	APPROVED	<i>[Signature]</i>				
	DATE	21.01.05				

	MACHINE: HORIZONTAL BAND SAW	TYPE: DCA 1000	
	TITLE: BLADE GUIDE	DRAWING No:	REV.
		4M03A2227541	
	Sheet No:	No. of Sheets:	

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ALL DIMENSIONS ARE IN MM

3.2 / 1.6 ✓ / ✓ / ✓



NOTE: -

- 01. ITEM No.1 HARDENED TO HRc 40⁺²
- 02. ITEM No.1 & 2 SHOULD BE PRESS FIT

TIP

✱ TUNGSTON CARBIDE G1.T

	TIP 5.5tx13x25L	✱ TUNGSTON CARBIDE G1.T	IS: 4005	0.01		02
	Pl.20tx32x34.5	55c8	IS: 5517	0.17		01

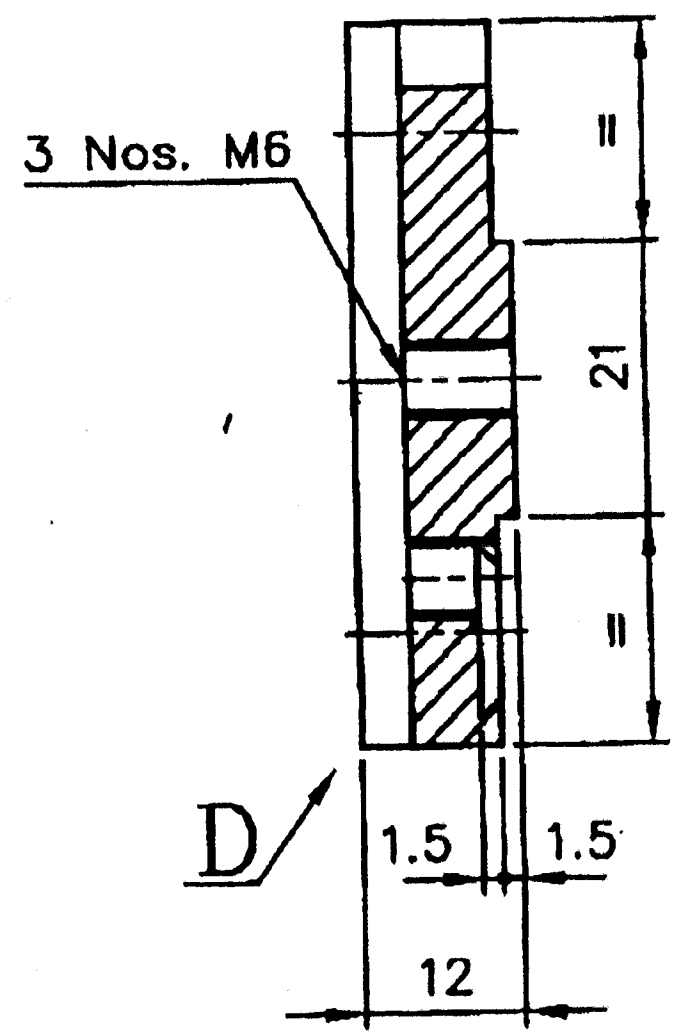
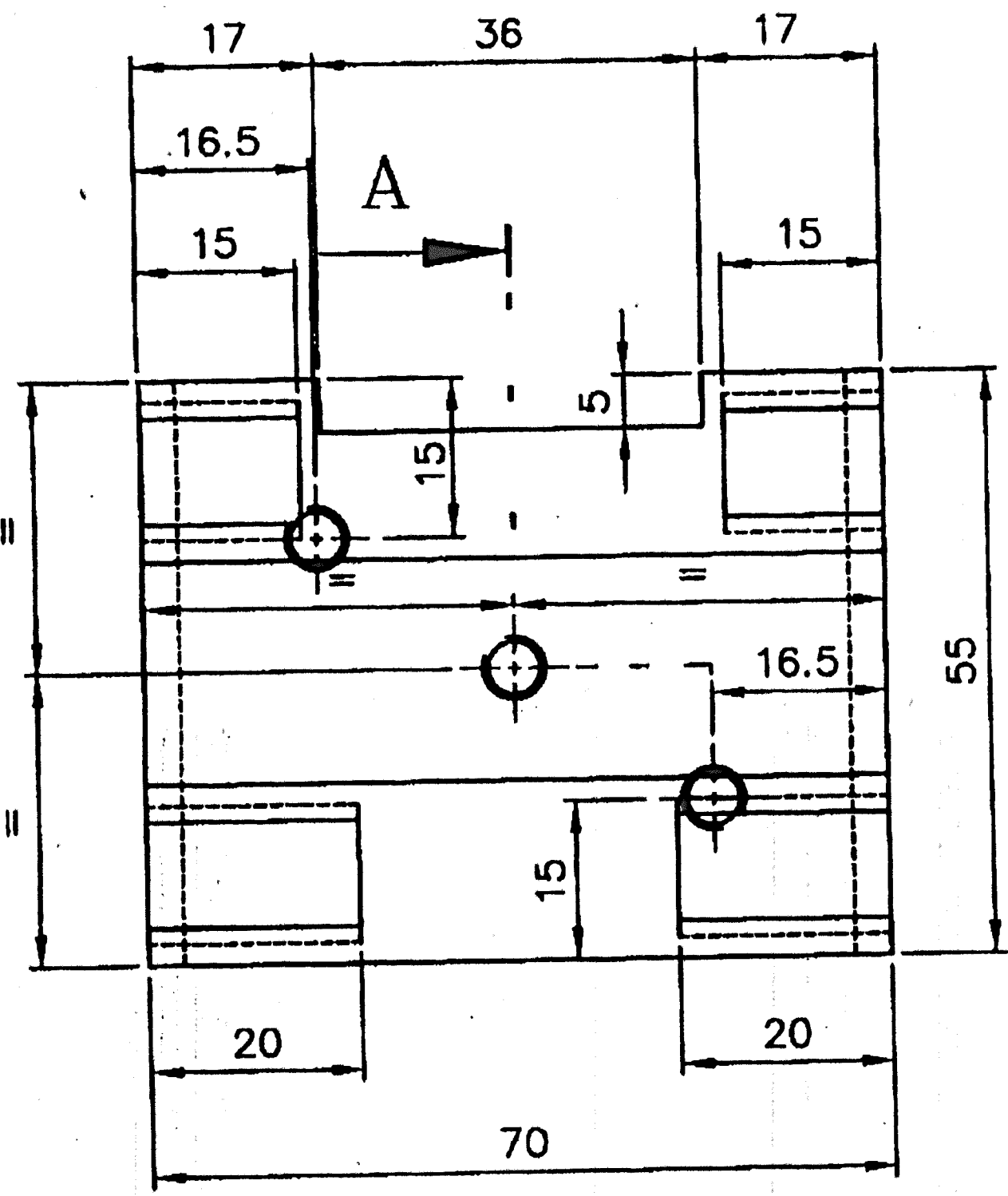
No. of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
	REFERENCE:		ALTERATIONS:	DCN REF	DATE	SIGN.
SCALE	DRAWN	<i>R. Narayanan</i>				
2:1	CHECKED	<i>R. Ramamurthy</i>				
	APPROVED	<i>[Signature]</i>				
	DATE	21.01.05				

	MACHINE: HORIZONTAL BAND SAW	TYPE: DCA 1000				
	TITLE: BLADE GUIDE	DRAWING No:				REV.
		4M03A2227540				
	Sheet No:			No. of Sheets:		

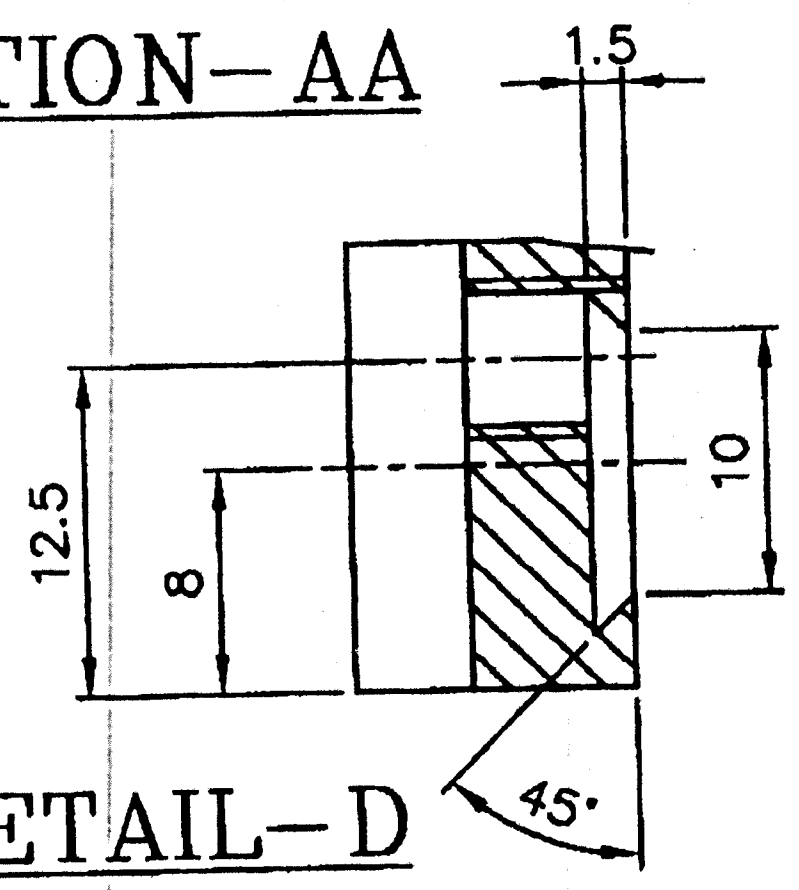
PURPOSE WITHOUT THE WRITTEN PERMISSION OF BHARAT HEAVY ELECTRICALS LIMITED TRICHIRAPPALLI - 620 014.

ALL DIMENSIONS ARE IN MM

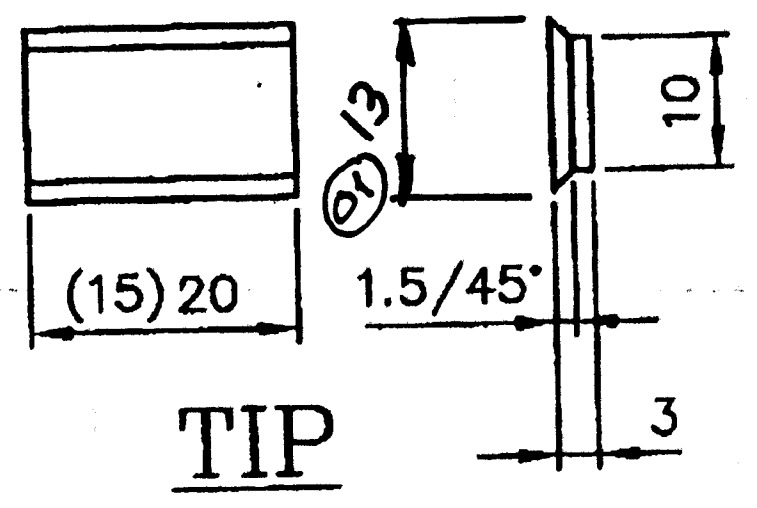
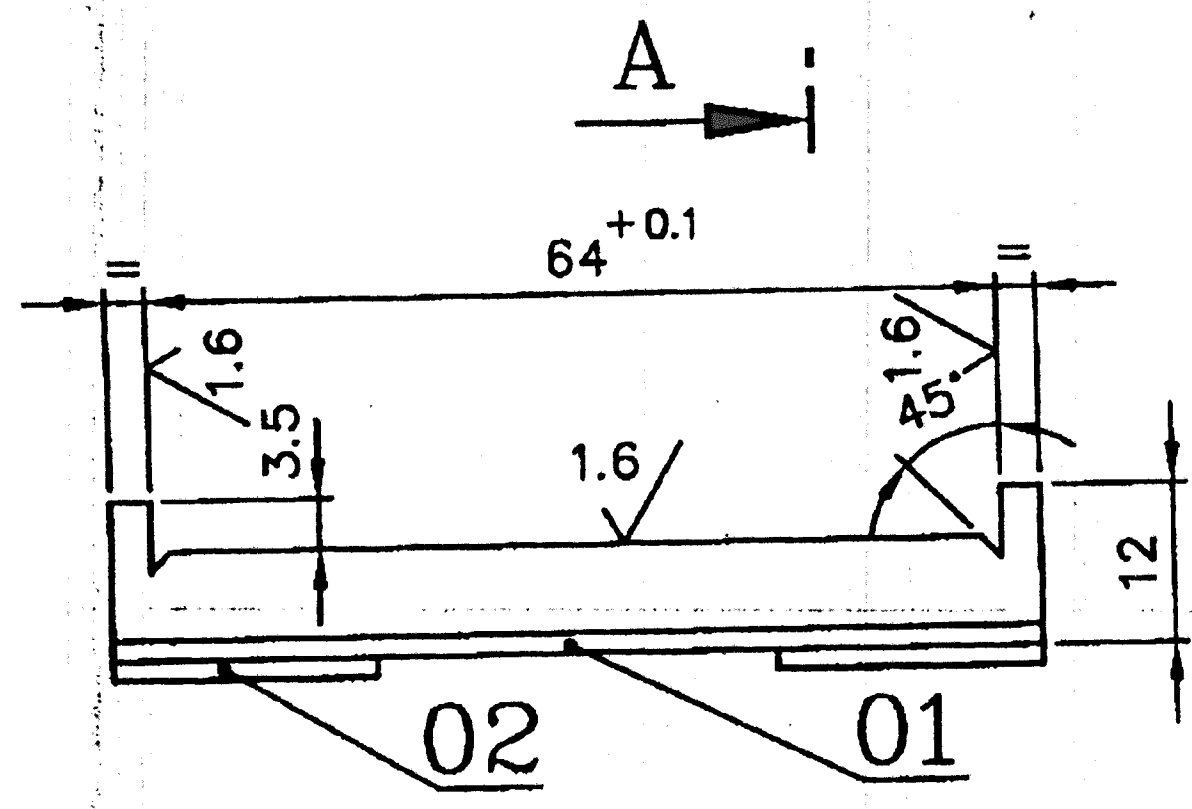
3.2 / 1.6 /



SECTION-AA



DETAIL-D

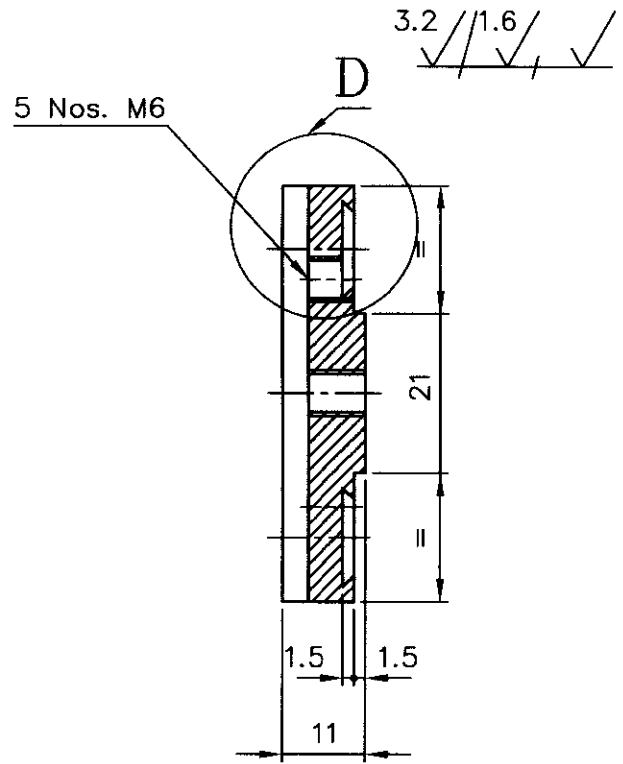
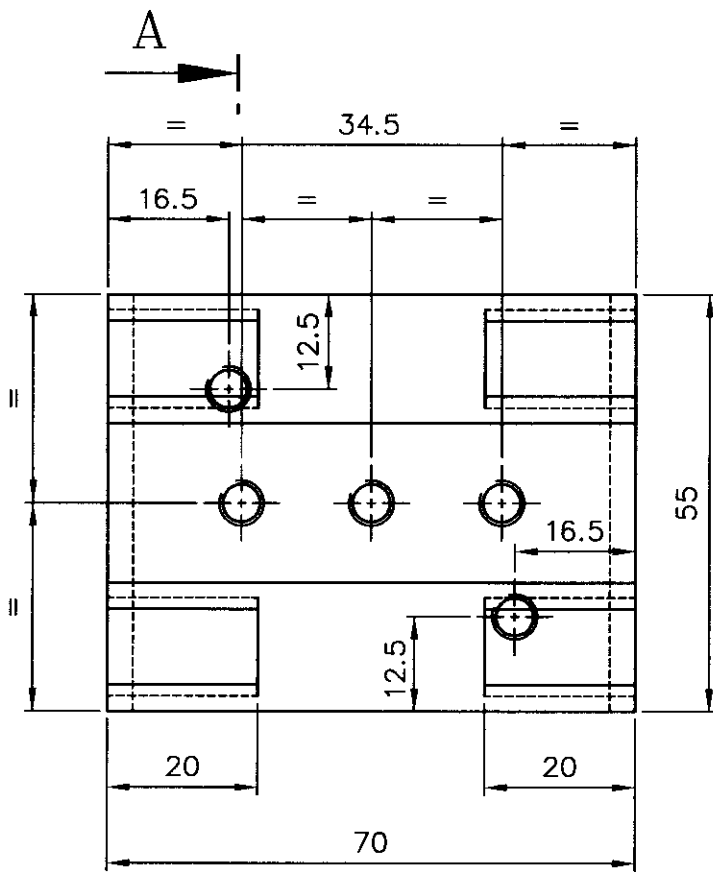


TIP

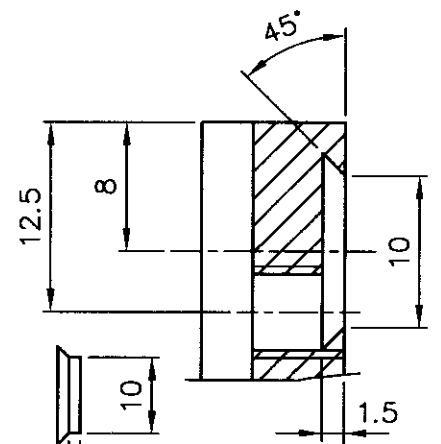
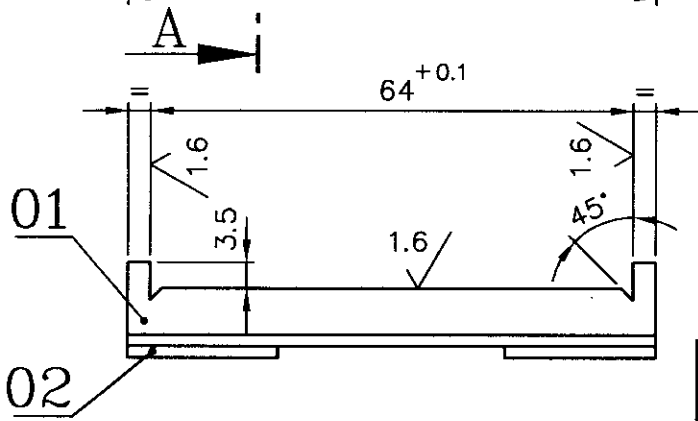
NOTE: ITEM NO: 01 HARDENED TO HRC 40 ± 2

2+2	TIP	3tX13 X20L 3tX13 X15L	TUNGSTON CARBIDE G1.7	IS:4005	0.04		02
01	PL.	12x55x70	SSCB	IS:5517	0.24		01
					0.28		
No. of Pieces	DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	
	REFERENCE:			ALTERATIONS:	DCN REF	DATE	SIGN.
				21M. 13 WAS 11.5		25/11/2	CSJ
SCALE 1:1	DRAWN	R. Narayanan					
	CHECKED						
	APPROVED						
	DATE	10.09.03					
	MACHINE: HORIZONTAL BAND SAW			TYPE: IT1000 DCA			
	TITLE: BLADE GUIDE			DRAWING No:		C.C:00	REV.
				4M03A2227200			01
				Sheet No:		No. of Sheets:	

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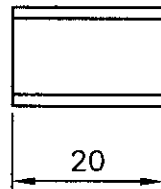


SECTION-AA



DETAIL-D

NOTE:- ITEM NO:01 HARDENED TO HRC 40 \pm 2



TIP

4	TIP 3tX11.5X20L	TUNGSTON CARBIDE GHT	IS:4005	0.04		02
1	PL. 11tX55X70	SSCB	ISSIT	0.27		01
				031		

No. of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
	REFERENCE:		ALTERATIONS:	DCN REF	DATE	SIGN.
SCALE	DRAWN	R. Narayanan				
1:1	CHECKED					
1:2	APPROVED					
	DATE	10.09.03				

	MACHINE: HORIZONTAL BAND SAW	TYPE: IT1000 DCA
	TITLE: BLADE GUIDE	DRAWING No: 4M03A2227199
		C.C:00
	Sheet No:	No. of Sheets:

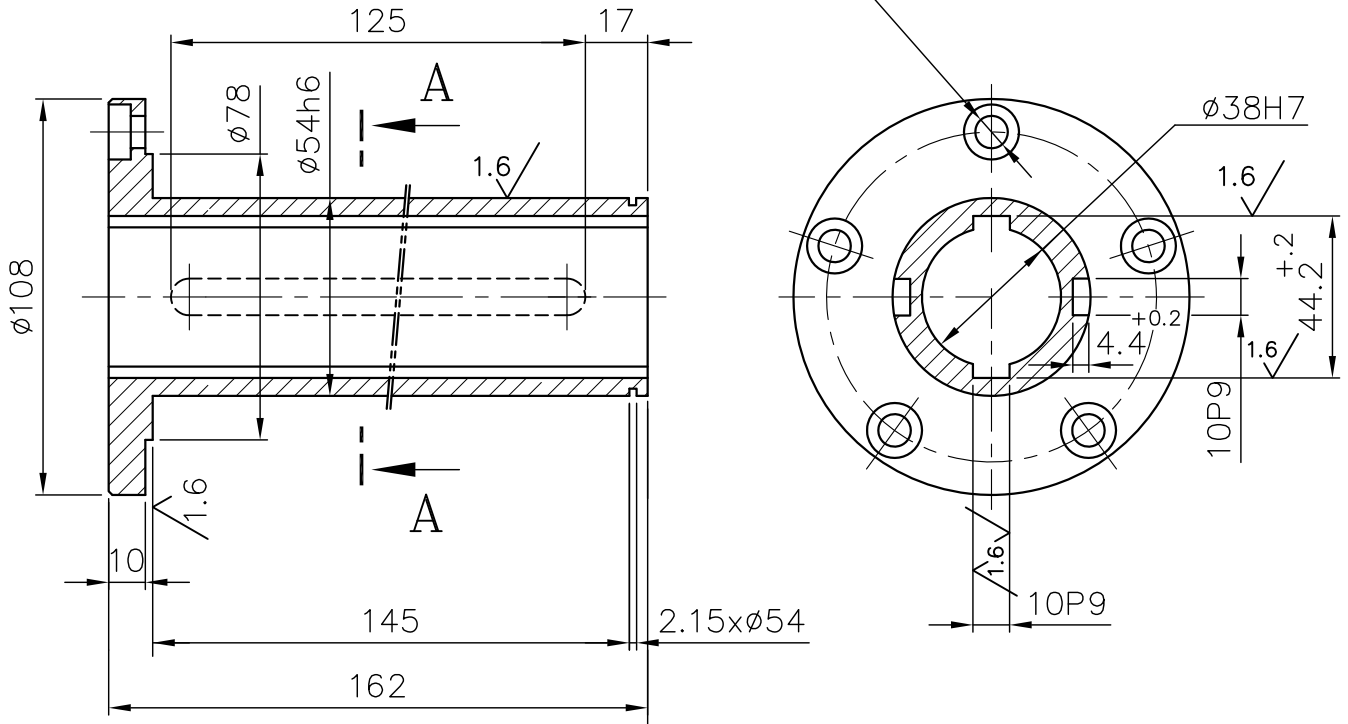
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ALL DIMENSIONS ARE IN MM

ø54h6	-0.000	10P9	-0.015
	-0.019		-0.051
ø38H7	+0.025		
	0.000		

3.2//1.6//

ø5HOLES ø8.8 CBR
ø15-6DEEP ON PCD90



NOTE:

CHAMFER CORNERS FOR 1.5/45°

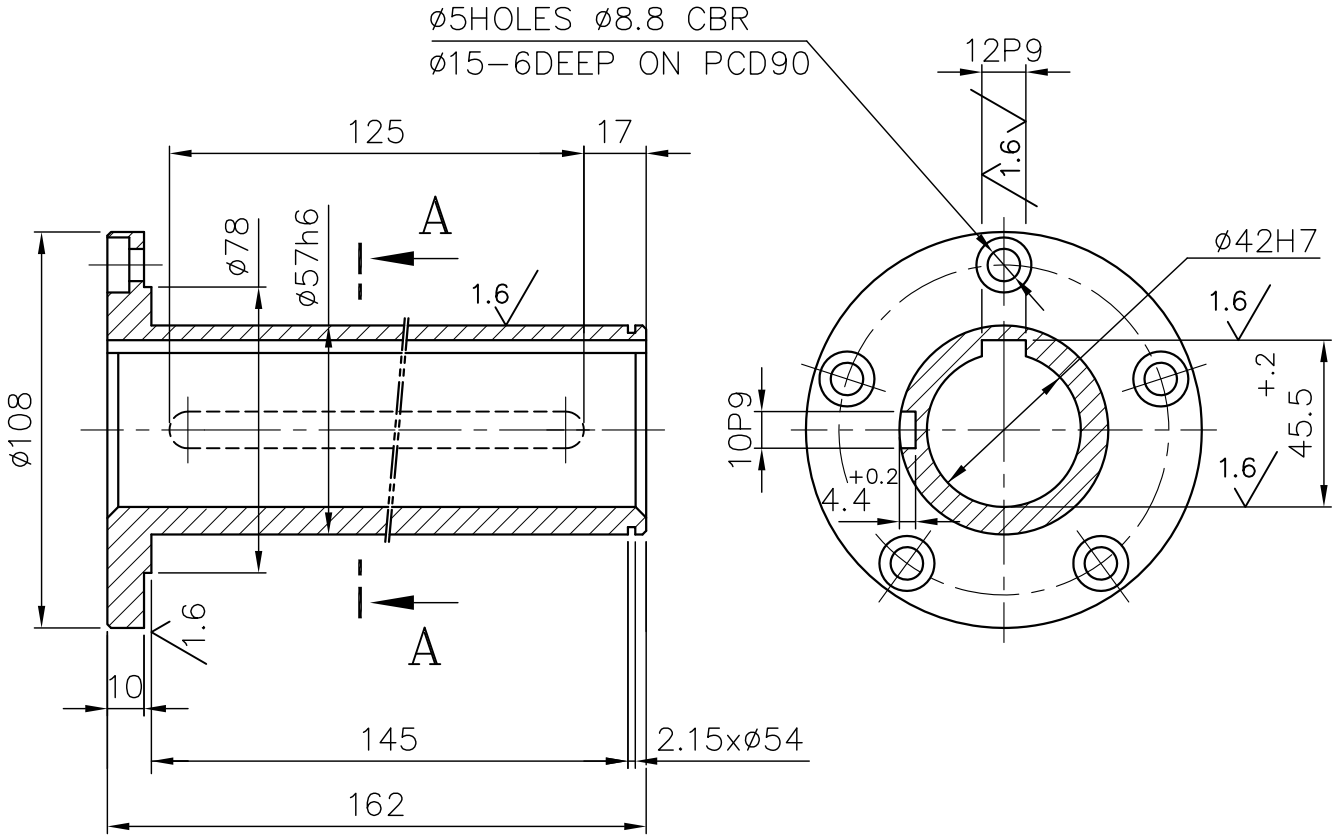
X		ø108x162L	45C8	IS: 7283	2.00		
No. of Pieces	DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	
	REFERENCE:			ALTERATIONS:	DCN REF	DATE	SIGN.
	SCALE	DRAWN	S.selvamanickam				
1:2	CHECKED	R.RAMAMOORTHY					
	APPROVED	C.S.JAYASHEELAN					
	DATE	20.06.10'					
	MACHINE: HEAVY DUTY BAND SAW			TYPE: ROBOTER PEHAKA -650Z			
	TITLE: SLEEVE ø108x162L			DRAWING No:			REV.
	(VARIATOR)			4M03A1328575			
			Sheet No:			No. of Sheets:	

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ALL DIMENSIONS ARE IN MM




ø57h6	-0.000	10P9	-0.015
	-0.019		-0.051
ø42H7	+0.025	12P9	-0.018
	0.000		-0.061

3.2/1.6



NOTE:

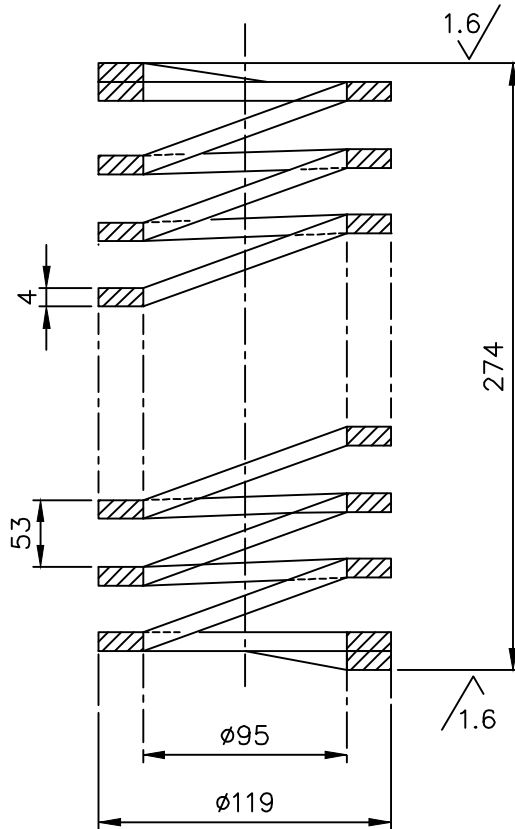
CHAMFER CORNERS FOR 1.5/45°

X		ø108x162L	45C8	IS: 7283	2.00		
No. of Pieces	DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	
 	REFERENCE:			ALTERATIONS:	DCN REF	DATE	SIGN.
	SCALE	DRAWN	S.selvamanickam				
1:2	CHECKED	R.RAMAMOORTHY					
	APPROVED	C.S.JAYASHEELAN					
	DATE	20.06.10'					
MACHINE: HEAVY DUTY BAND SAW				TYPE: ROBOTER PEHAKA -650Z			
		TITLE:		DRAWING No:		REV.	
		SLEEVE ø108x162L		4M03A1328574			
		(VARIATOR)		Sheet No:		No. of Sheets:	

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ALL DIMENSIONS ARE IN MM

3.2/1.6



TOTAL NO.OF COILS : 6
 NO.OF EFFECTIVE COILS : 5

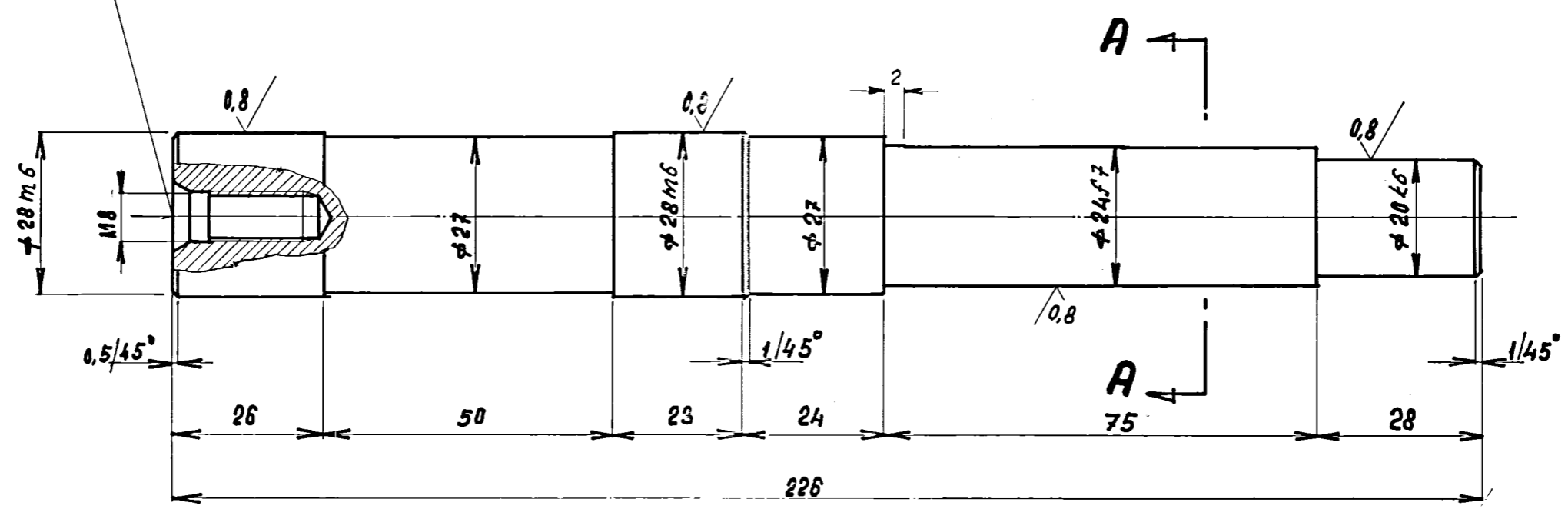
NOTE: -
ENDS TO BE SQUARED BY GRINDING
HARDENED & TRMPERED

	4tx12x2150 L(~)	50 Cr.4V2	IS: 2507	0.81		
No.of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
	REFERENCE:		ALTERATIONS:	DCN REF	DATE	SIGN.
SCALE	DRAWN	P.Albertrose				
	CHECKED	R.Ramamoorthy				
N.T.S	APPROVED	C.S.Jayasheelan				
	DATE	23-10-07				
	MACHINE: HEAVY DUTY BAND SAW	TITLE:		TYPE: ROBOTER PEHAKA 650Z		
		COMP. SPRING (MAIN DRIVE ASSY.)		DRAWING No:		
				4M03A1	328085	
				Sheet No:	No.of Sheets:	

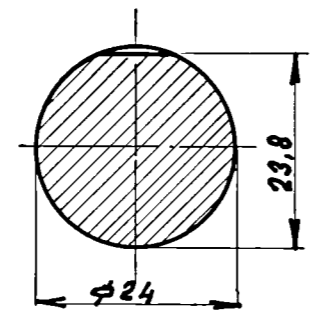
3.2 ✓ / 0.8 ✓

φ 20k6	+0,015 +0,002
φ 24f7	-0,020 -0,041
φ 28m6	+0,021 +0,008

THREADED CENTRE HOLE
WITHOUT PROTECTED EDGES
BPS : 410503



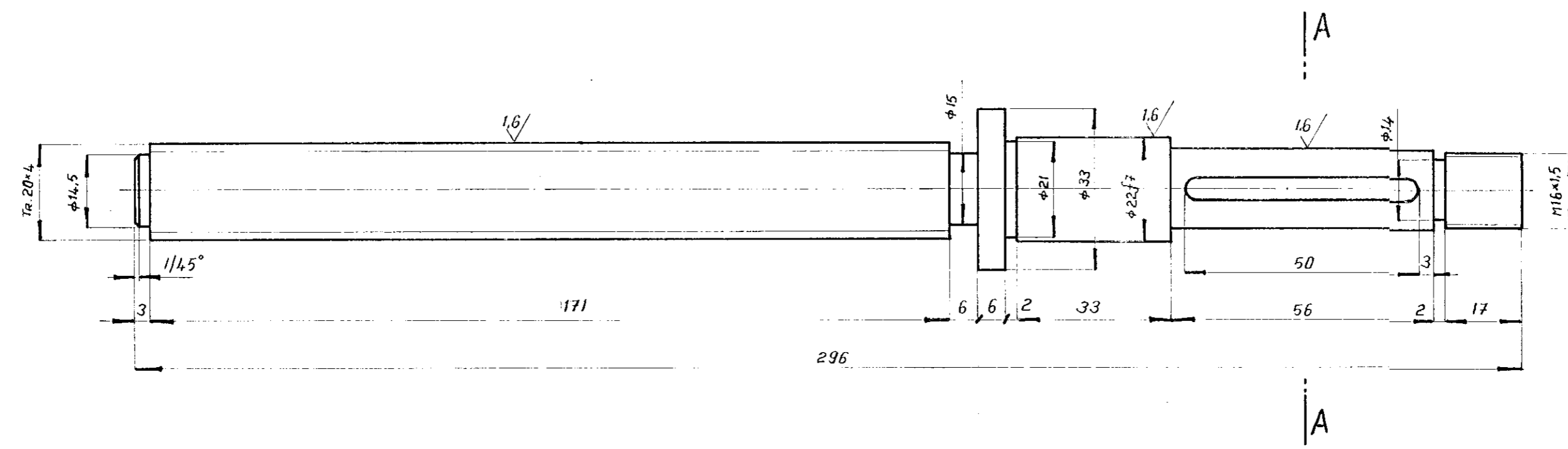
SECTION -AA'



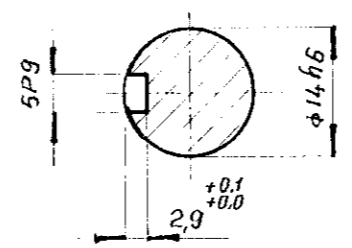
		BM.CQ45				2.M.08B.0383		13		
NO. OF PIECES	DESCRIPTION	SEMI-PRODUCT	FINAL MATERIAL	INITIAL MATERIAL	SCRAP SORT	NET wt(kg)	GROSS wt(kg)	DRAWING NO.	ITEM NO.	
REMARKS				TOTAL NET wt (kg)						
SCALE	DRAWN	Spandan		REFERENCE		ALTERATIONS		DATE	SIGNATURE	ALTERATION INDEX
1:1	CHECKED	[Signature]								
	APPROVED	[Signature]								
	STDS. OFFICER									
	DATE	13-7-72								
MACHINE: CENTRE LATHE		TYPE: SV18R		INV. NO.		DRAWING NO:				
TIRUCHY		TITLE: SHAFT II		3-M.08B ⁰² -3483		NO. OF SHEETS:		SHEET NO:		

3,2 / 1,6

φ14h6	+0.000
	-0.018
5P9	-0.012
	-0.042
φ22f7	-0.020
	-0.041



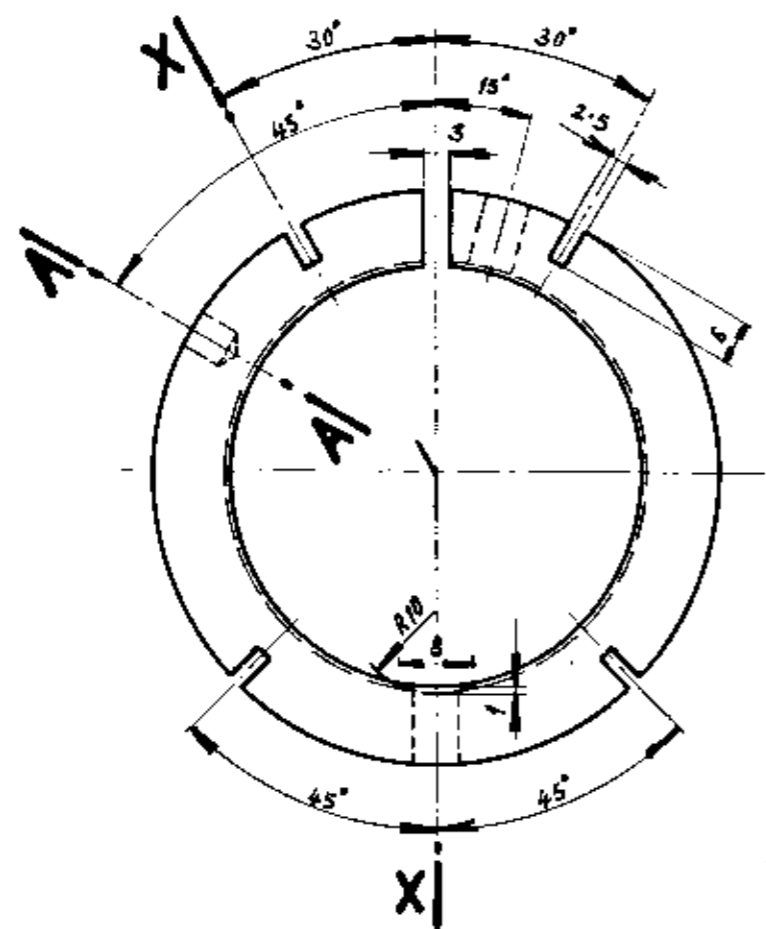
SECTION A-A



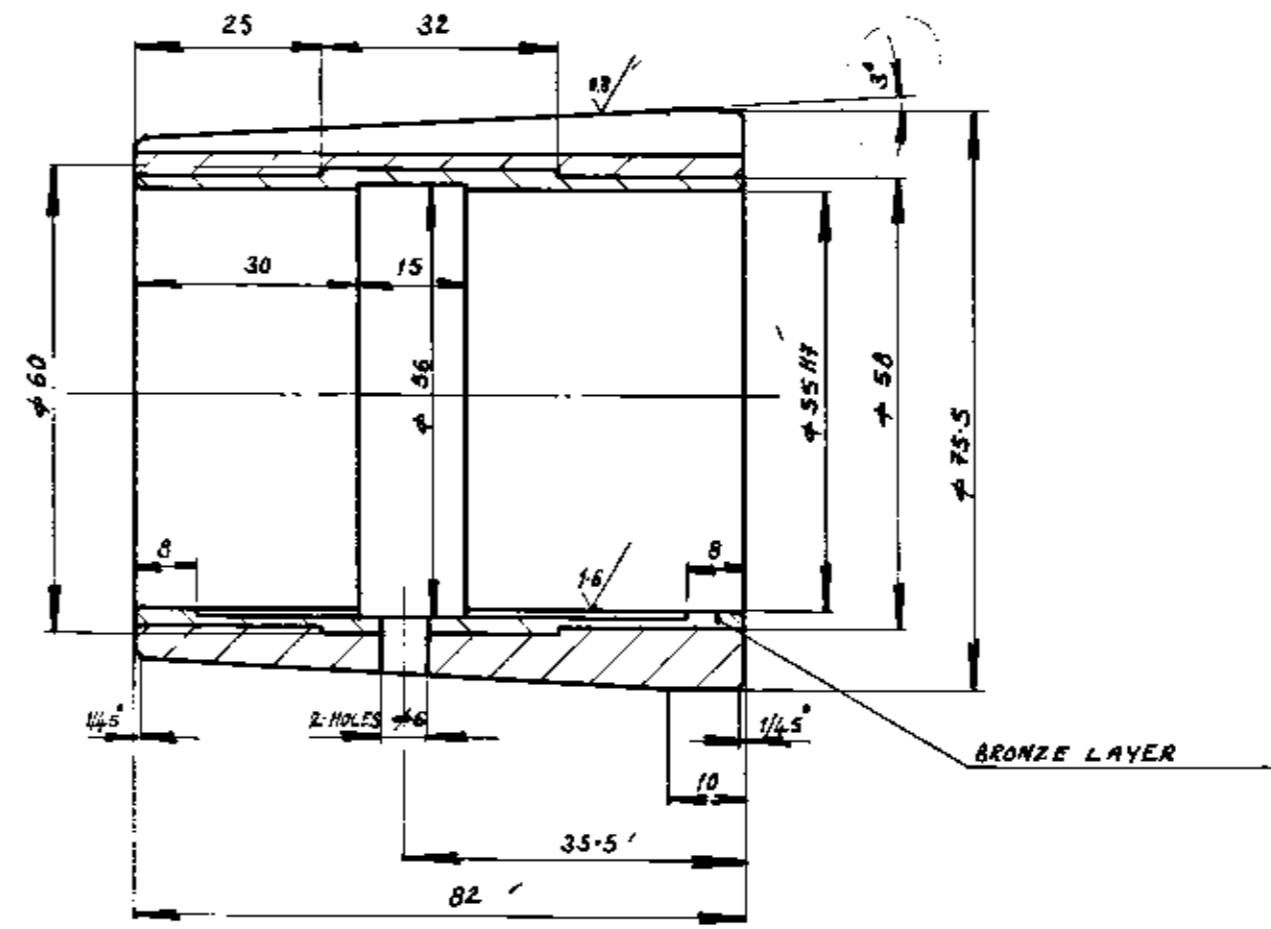
NO. OF PIECES		DESCRIPTION		SEMI PRODUCT		FINAL MATERIAL		INITIAL MATERIAL		SCRAP SORT		NET WT		GROSS WT		DRAWING NO.		ITEM NO.			
						HM-C45										2-M-08b-0368		20			
REMARKS										TOTAL NET wt (kg)											
SCALE		DRAWN		CHECKED		APPROVED		STDS. OFFICER		DATE		REFERENCE		ALTERATIONS		DATE		SIGNATURE		ALTERATION INDEX	
1:1										12-1-1968											
MACHINE: CENTRE LATHE										TYPE: 5V18R											
TITLE: TAILSTOCK SCREW										DRAWING NO: 3-M-08B-1016 ⁰²											
NO. OF SHEETS:										SHEET NO:											

63/16/03

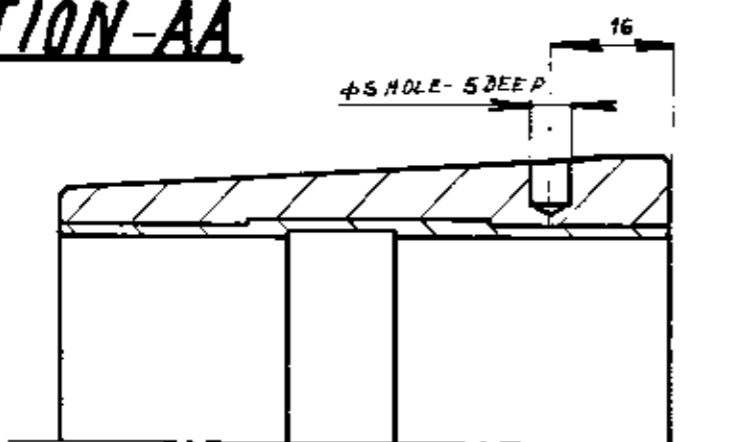
φ55H7	+0.030
	+0.000



SECTION-XX



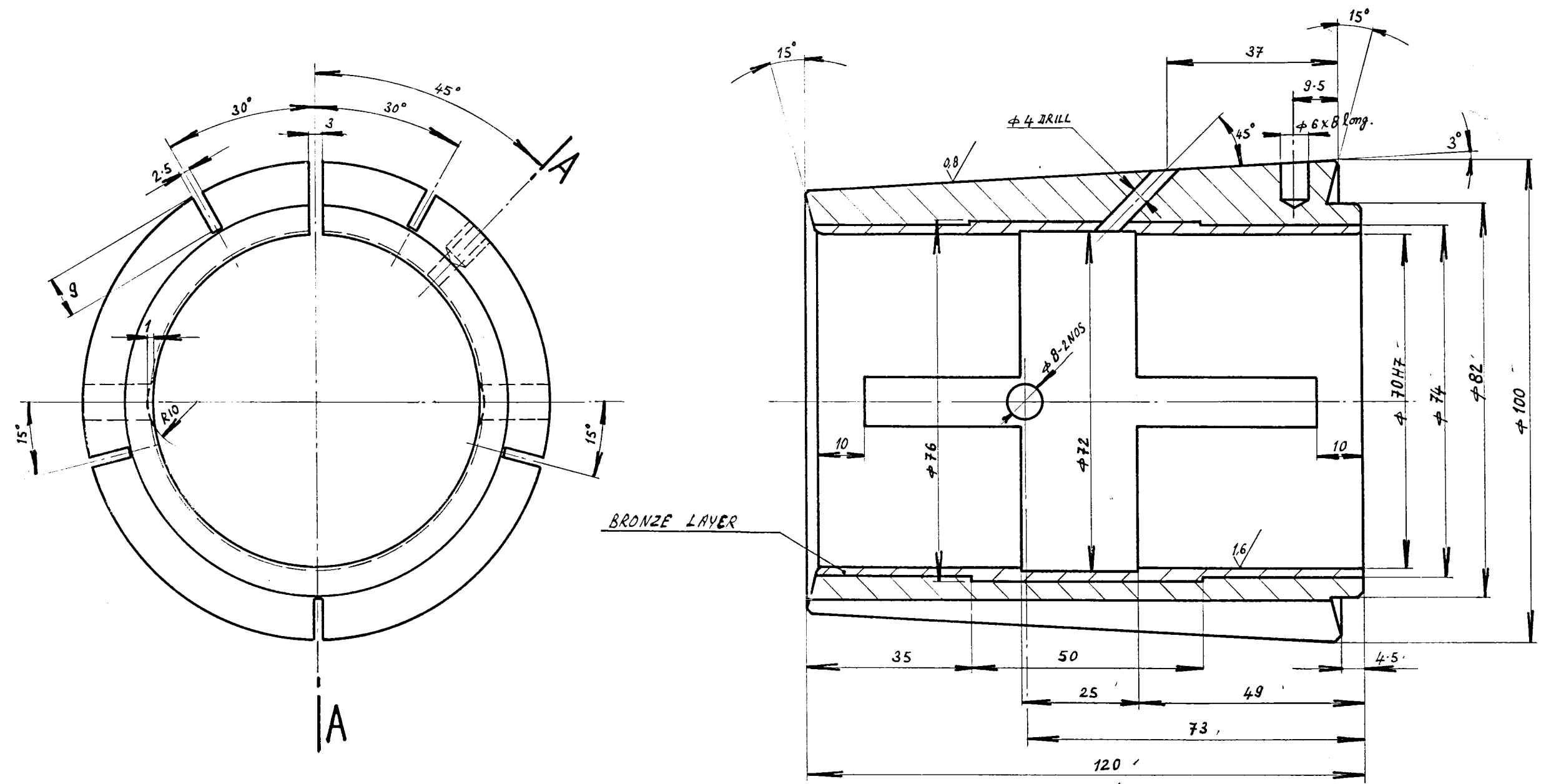
SECTION-AA



NO. OF PIECES		DESCRIPTION		SEMI PRODUCT	FINAL MATERIAL	INITIAL MATERIAL	SCRAP SORT	NET WT	GROSS WT	DRAWING NO.	ITEM NO.
					BM C-30 BRONZE					2-M-086-0363	30
REMARKS						TOTAL NET WT (kg)					
SCALE	DRAWN	C. Shanmugam.			REFERENCE	ALTERATIONS	DATE	SIGNATURE	ALTERATION INDEX		
1:1	CHECKED	Manday									
	APPROVED	27/1/68									
	STDS. OFFICER										
	DATE	2-1-1968									
MACHINE: CENTRE LATHE					TYPE: SV-1BR		INV. NO.				
TITLE: REAR BEARING HEAD STOCK					DRAWING NO:		3-M-086-02-0984				
NO. OF SHEETS:					SHEET NO:						

6.3 / 1.6 / 0.8

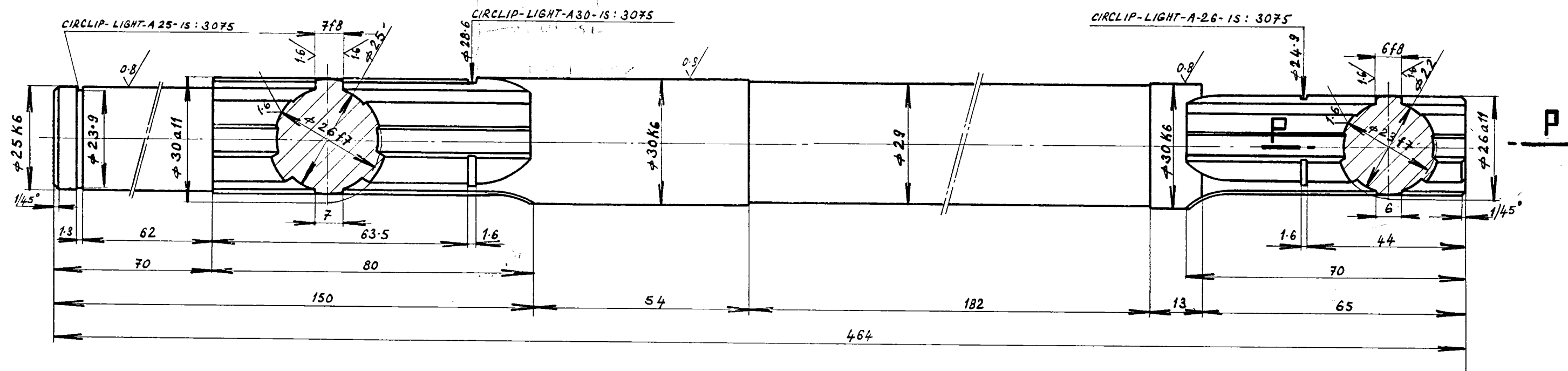
±0.030
±0.000



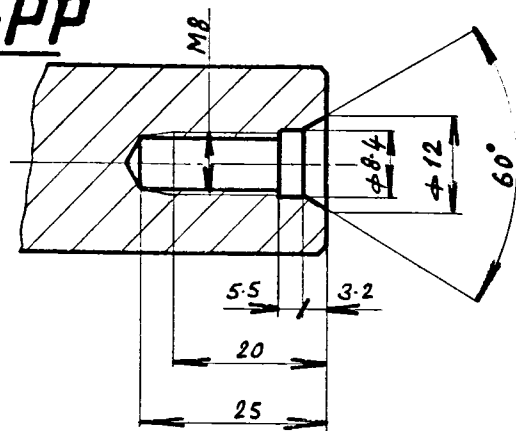
BRONZE LAYER

		BMC-30 BRONZE				2-M-086-0363 19			
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)					
SCALE	DRAWN	<i>P. Shammugam.</i>	REFERENCE	ALTERATIONS		DATE	SIGNA- TURE	ALTERATION INDEX	
1:1	CHECKED	<i>Handasamy</i>							
	APPROVED	<i>[Signature]</i>							
	STDS. OFFICER								
	DATE	29-12-1967							
MACHINE: CENTRE LATHE			TYPE: SV-18R		INV. NO.				
TITLE: FRONT BEARING HEAD STOCK			DRAWING NO: 3-M-086-0982 02		NO. OF SHEETS: SHEET NO:				

63	16	0.8
6f8	-0.013	
7f8	-0.035	
φ 23f7	-0.020	
φ 26f7	-0.041	
φ 26a11	-0.300	
φ 30a11	-0.430	
φ 25K6	+0.015	
φ 30K6	+0.020	



SECTION-PP



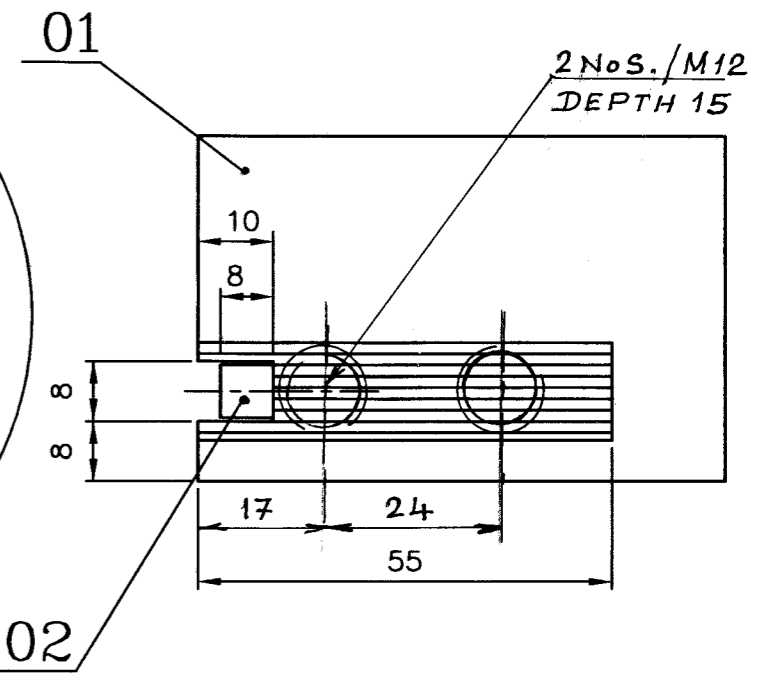
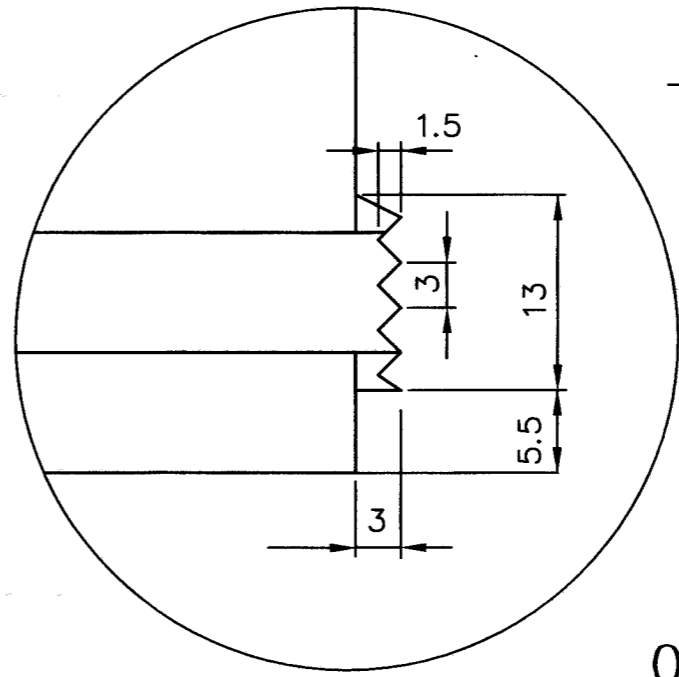
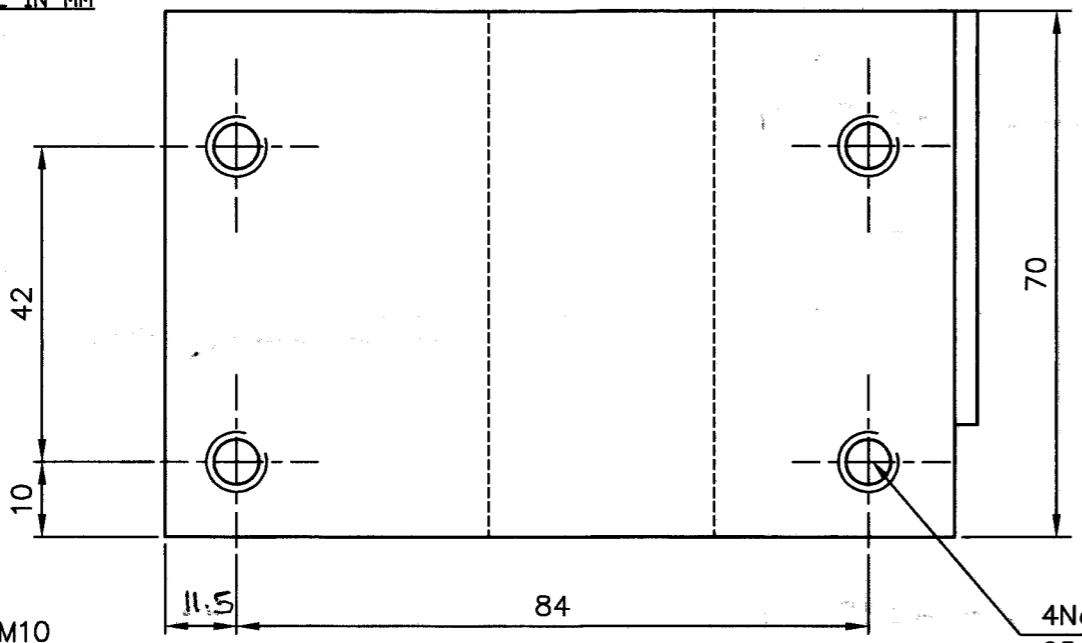
CASEHARDEN TO HRc 60, ±1.

		BM-CH3				2-M-086-0363		14
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)				
SCALE	DRAWN	REFERENCE		ALTERATIONS	DATE	SIGNATURE	ALTERATION INDEX	
1:1	C. Shanmugam							
	CHECKED							
	APPROVED							
	STDS. OFFICER							
	DATE	29.12.1967						
MACHINE: CENTRE LATHE			TYPE: SV18R		INV. NO.			
TITLE: SHAFT IV HEAD STOCK			DRAWING NO: 3-M-086-0981 ⁰²					
NO. OF SHEETS:			SHEET NO:					

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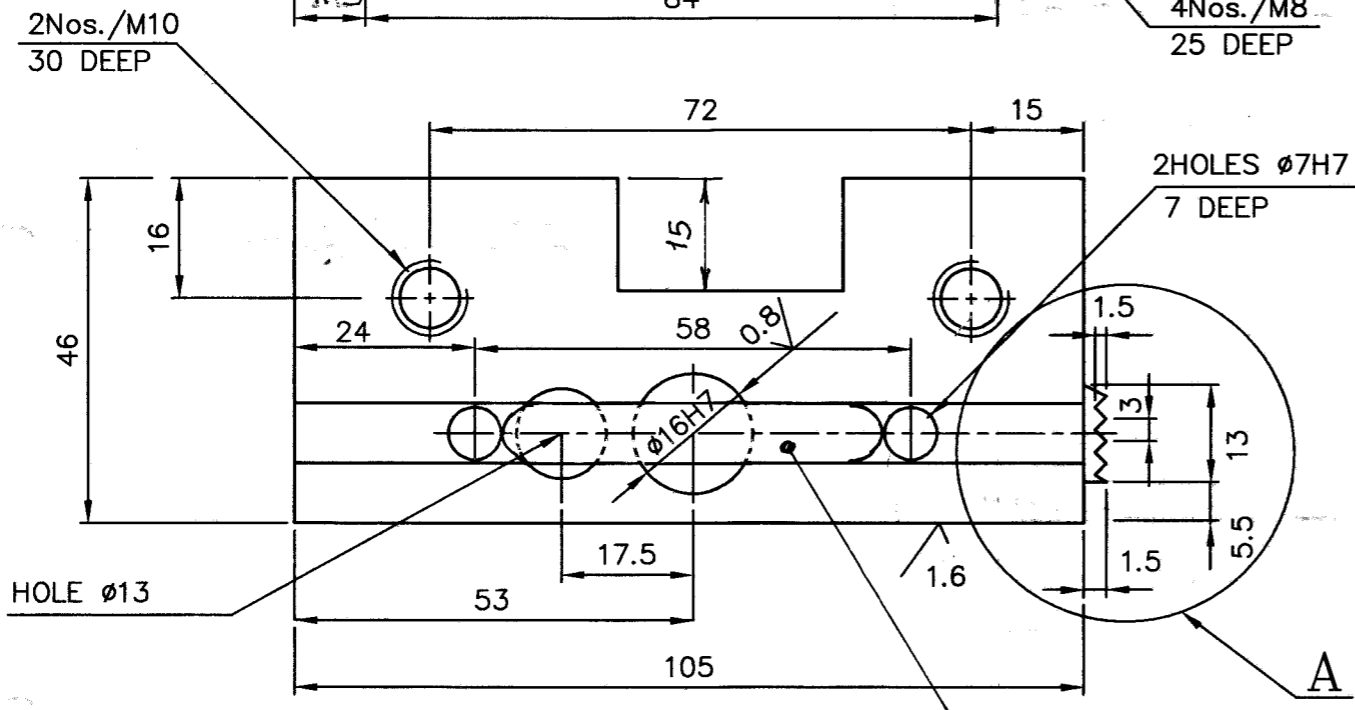
ALL DIMENSIONS ARE IN MM

Ø16H7	+0.000	3.2/1.6/0.8/
	+0.025	



DETAIL-A

VIEW-P

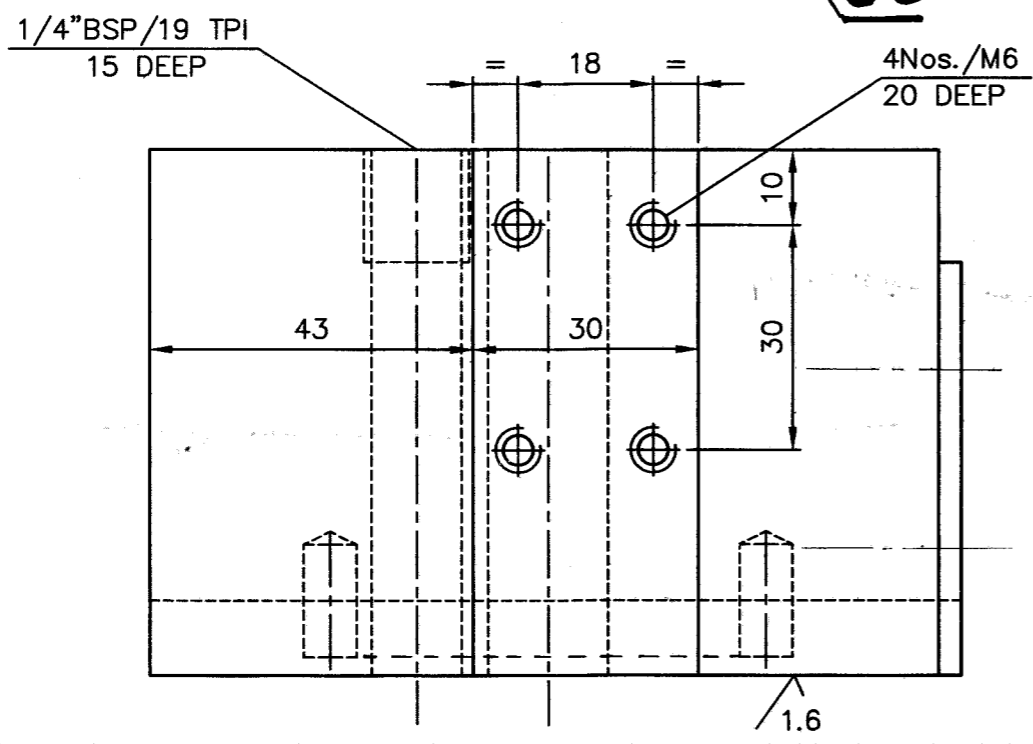


p

03

NOTE: ±0.2
HARDENED TO HRC 60
CORNERS TO BE CHAMFERED 1/45°

SCANNED



1	KEY 8x8x51.L	CARBIDE P30		0.03		03
1	CYL.PINØ7x15L	BPS: 41704	IS: 2393	0.01		02
1	BLADE GUIDE 46X70X105	T 215 Cr12	IS: 1570	2.4		01
				2.44		
No. of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
	REFERENCE:		ALTERATIONS:	DCN REF	DATE	SIGN. INDEX
SCALE	DRAWN	G.G.R/				
1:1	CHECKED	R.Ramamthy				
	APPROVED					
	DATE	08/12/04				
MACHINE: HEAVY DUTY BAND SAW			TYPE: ROBOTER PEHAKA-650Z			
TITLE: BLADE GUIDE (RIGHT) (BLADE GUIDE ASSY.)			DRAWING No:		REVISION	
			3M03A1312532			
			Sheet No:		No. of Sheets:	