



BHARAT HEAVY ELECTRICALS LIMITED

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


PHONE :2577331
GRAMS : BHARATELEC
FAX NO: 2520719
E-mail: srchandran@bheltry.co.in
Web:

	Enquiry No	Enquiry Date	Due Date for Quotation
	2661500051 - 55	11.02.2015	09.03.2015
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	<p>INDUCTOR FOR PIPE OD 720 X THICKNESS RANGE 45-65 MM,ACC. TO DWG.NO. 3M-12A18-14206 Rev.03 (AS PER SR. NO. 03) COMMON NOTE FOR ALL THE ITEMS: (01) Inductor should be made out of Electrolytic copper 99.9% extruded section only without any joints. Cooling rings should be made up of the material as mentioned in respective drawings. (02) Total quantity of raw material shall be offered for inspection by BHEL representative before manufacturing at vendor's works. Test certificate for material composition from govt. approved laboratory to be produced during inspection. One sample piece to be handed over to BHEL for testing the same at BHEL laboratory. (03) Vendor should provide QAP along with offer. (04) All the weld components/joints in inductor and cooling rings should be done by TIG welding for complete fusion to withstand the working temperature and vibration. (05) For all weld joints edge preparation to be carried out before welding. (06) For all the inductors, post heating at 380 deg. C shall be carried out, to relieve the residual stresses developed during welding. (07) All weldments (100%) should be tested for liquid penetrant test. (08) All the manufactured inductors and cooling rings should be ovality free, and permissible limit of ovality is +5 mm only on diameter. (09) Inductor size should be punched on copper flanges for easy identification (example: 762 X 25-45). Number size should be min. 8mm. (10) For each inductor, 12 months performance guarantee should be given. Vendor/s shall submit a performance bank guarantee (PBG) only from any</p>	NO	2.000	2.00	21.04.15

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,



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Page
2/3

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one of the 'Consortium Banks' of the BHEL for 10 % of the purchase order value in the prescribed format for a period of agreed guarantee period with additional 2 months as claim period. All bank charges on account of issuance of PBG will be borne by the vendor/s. (11) All inductor assembly should be offered for inspection for dimensional check and leak testing at supplier's works before despatch. Leak test for inductor should be carried out with water at 10 bar pressure.

(12) For pre evaluation the supplier shall manufacture and supply one number of inductor of the P.O item as per the requirement of BHEL and will be subjected to actual performance test on the machine at BHEL, subsequently clearance will be given for manufacturing and supply of balance quantity, subjected to the satisfactory performance of the inductor on the machine. However all the inductors will be subjected to pre-dispatch inspection at vendor works.

(13) Payment Terms: 80% through bank against documents and balance 20% on acceptance of material.

VENDOR QUALIFYING CRITERIA:

Only those vendors who satisfy the following conditions will get

qualified to participate in the tender:

(A) The vendor should have minimum three years experience in manufacturing of copper inductors for pipe bending application.

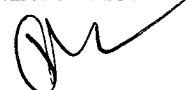
(B) The vendor should submit relevant documents like purchase order copies and performance certificate for trouble free working of minimum one year with details of contact person of customer for previous orders executed.

D1VALUE :

20	INDUCTOR AND COOLING RING ASSEMBLY FOR PIPE OD 865 X THICKNESS RANGE 45-65 MM, FOR PB 1200R AS PER DRG. No: 2M-12A-18-04914. THE ASSEMBLY INCLUDES: INDUCTOR: 3M-12A-18-14206-03 (AS PER SL. No. 04) AIR RING: 3M-12A-24-14044-02 (AS PER SL. No. 10), QUENCH RING: 2M-12A-24-04809-01 (AS PER SL. No.15), , SUB DRG. No:	SET	2.000	2.00	21.04.15
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2661500051 / 11.02.2015

Bend Tube :3M-12A-18-14417-04 (AS PER SL.
No. 10)
Flange :3M-12A-23-14038-01,
Strips and Blocks:2M-12A-18-04364-02,
Strips:4M-12A-18-26664-01.

D1VALUE:

30	INDUCTOR FOR PIPE OD 965 X THICKNESS RANGE 45-65 MM, ACC. TO DWG.NO. 3M-12A18-14206 Rev.03 (AS PER SR. NO. 06) D1VALUE:	NO	2.000	2.00	21.04.15
40	INDUCTOR FOR PIPE OD 965 X THICKNESS RANGE 25-45 MM,ACC. TO DWG.NO. 3M-12A18-14209 Rev. 03 (AS PER SR. NO. 08) D1VALUE:	NO	2.000	2.00	21.04.15
50	INDUCTOR FOR PIPE OD 762 X THICKNESS RANGE 25-45 MM,ACC. TO DWG.NO. 3M-12A18-14209 Rev.03(AS PER SR. NO. 05) D1VALUE:	NO	2.000	2.00	21.04.15
60	INDUCTOR FOR PIPE OD 864 X THICKNESS RANGE 25- 45 MM, FOR PB 1200R AS PER DRG. No.3M-12A18-14209 Rev.03(AS PER SL. No. 06) D1VALUE:	NO	2.000	2.00	21.04.15
70	INDUCTOR FOR PIPE OD 914 X THICKNESS RANGE 25- 45 MM, FOR PB 1200R AS PER DRG. No: 3M-12A-18-14209 Rev.03 (AS PER SL. No. 07) D1VALUE:	NO	2.000	2.00	21.04.15

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."

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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 @ 10.5% 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, TIRUMAYAM • Supplier should quote for F.O.R-BHEL TIRUMAYAM 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"

Annexure For Price Bid

**Bharat Heavy Electricals Limited TIRUCHIRAPPALLI CAPITAL PURCHASE
MODEL PRICE BID FORMAT FOR INDIAN BIDDERS**

Annexure-IV

Enquiry No. & Date:

Bidder's Offer No. & Date:

Sl No	Description of item	Unit	Quantity	Rate in Rs.	Value in Rs.
	TOTAL VALUE IN RS.				
	Packing & Forwarding charges in % if any				
	Freight & Insurance Charges In % if freight charges are not mentioned it will be considered as FOR-BHEL TRICHY.				
	Excise Duty (indicate in %)				
	A) TNGST — VAT (%)				
	B) CST with C-FORM — (%)				
	C) CST without C-Form — (%)				
	Approximate Net weight of the total consignment				
	Approximate Gross weight of the total consignment				
	Approximate Dimensions of the Consignment				
	The price indicated shall be inclusive of all accessories, spares etc. as given in the scope of supply. Individual item-wise break-up price shall be attached as an annexure to this price bid format.				

Signature & Seal of Vendor

NOTE:

1. The price bid should be submitted only as per the above format. No row shall be left blank. Please indicate NA, in case the item is "not applicable".
2. Prices shall be quoted item-wise only as per the above format.
3. If Price quoted is Inclusive of ED, the included ED Value and Base Value shall be indicated item-wise.

Payment Term (Indigenous)	
If materials are receivable at Stores/Trichy without 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 with 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 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:

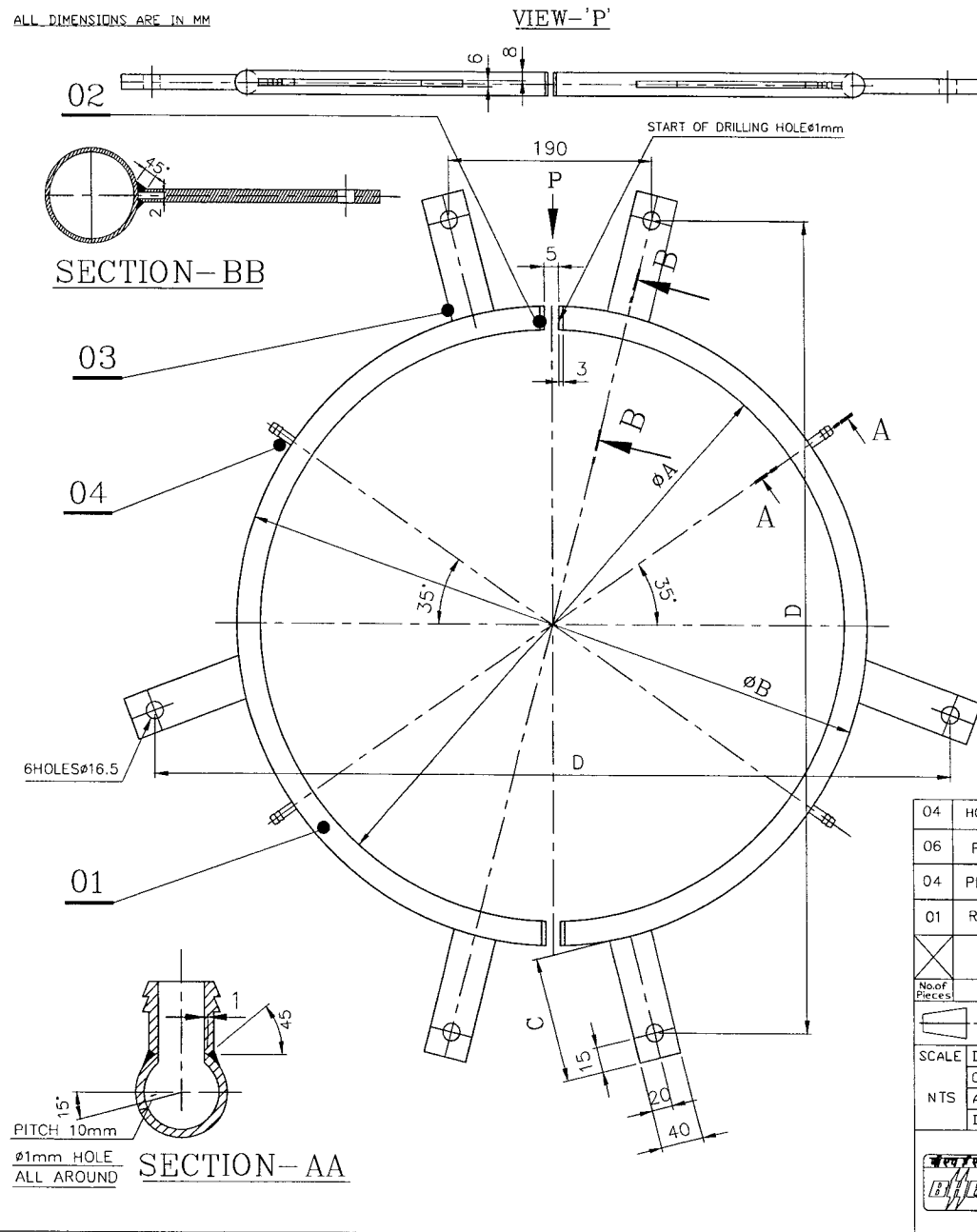
(Signature)

Name -

Membership number -

Seal of Chartered Accountant

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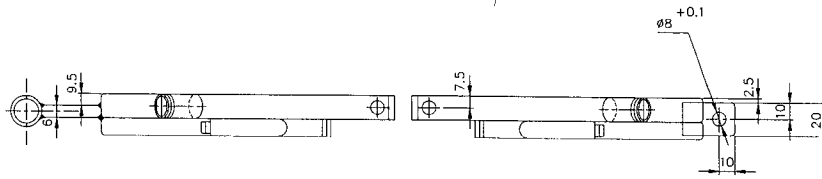
SL.NO.	PIPE ϕ	ϕA	ϕB	C	D
01	508	570	614	95	750
02	526	588	632	95	750
03	543	607	651	94	800
04	559	622	666	94	800
05	610	674	718	92	850
06	670	737	781	90	900
07	720	789	833	88	950
08	762	831	875	87	1000
09	813	884	928	85	1050
10	864	936	980	84	1100
11	914	989	1033	82	1150
12	965	1041	1085	80	1200
13	1016	1094	1138	79	1250

NOTE: 01. ALL JOINTS BY TIG WELDING
 02. QUALITY SHOULD BE +
 03. FOR ALL WELD JOINTS, SUITABLE EDGE PREPARATION TO BE CARRIED OUT BEFORE WELDING
 04. ALL TUBES ARE EXTRUDED AND MADE UP OF SINGLE PIECE WITHOUT ANY JOINTS

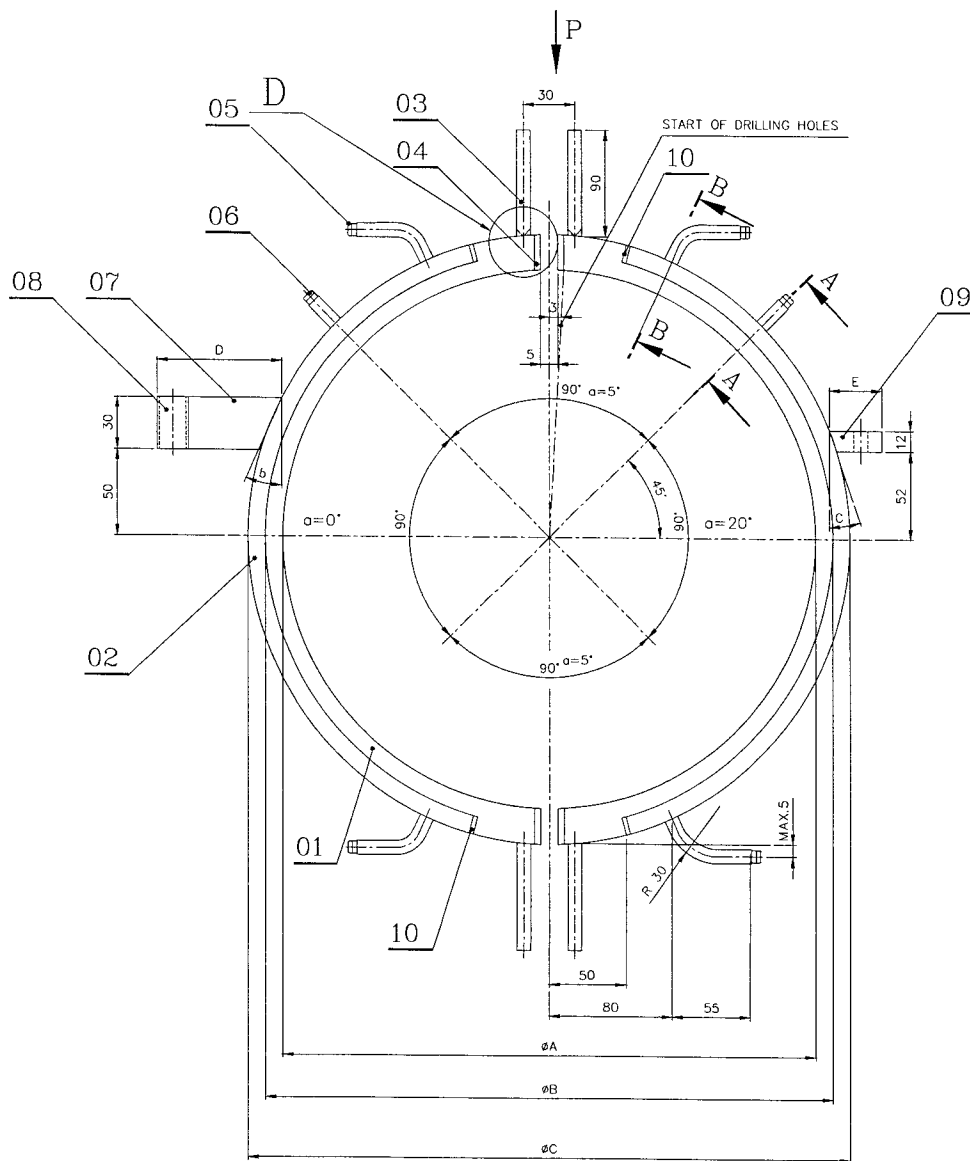
04	HOSE CONNECTION FOR HOSE OD:13	BRASS	IS: 6912						04
06	PLATE BAR 8x40xC	CuZn39Pb3	ASTM 455 C 38500						03
04	PLATE 2x ϕ 22	CuZn39Pb3	ASTM 455 C 38500						02
01	RING TUBE ϕ 22x1.5txL	CuZn37	IS: 410						01
								2M12A2404810 2M12A1804914	01
No. of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.			
	REFERENCE:	ALTERATIONS:		DCN REF	DATE	SIGN.	INDEX		
SCALE	DRAWN/TCD	S.Selvamanickam	TABULATION ADDED						01
	CHECKED	R.RAMAMOORTHY	ITEM No-3 PL 8MM WAS 6MM		12.05.11				02
NTS	APPROVED	C.S.JAYASHEELAN							
	DATE	19.12.09/24.02.10							
MACHINE:	INCREMENTAL PIPE BENDER		TYPE:	PB1400HE (PB1200R)					
TITLE:	AIR RING (PIPE ϕ 508- ϕ 1016)			DRAWING No:	3M12A2414044			REV.	D2
Sheet No:			No. of Sheets:						

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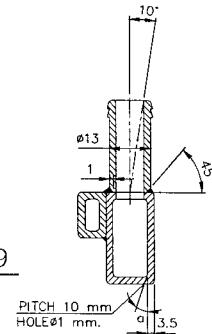
ALL DIMENSIONS ARE IN MM



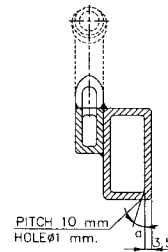
VIEW-P



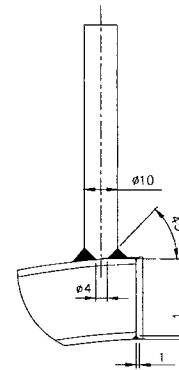
ONLY FOR 6"-8"-10"



SECTION-AA



SECTION-BB



DETAIL-D

18	Ø1016	1092	1122	1152	36	61
17	Ø965	1041	1071	1101	37	61
16	Ø914	983	1013	1043	38	61
15	Ø864	933	963	993	39	61
14	Ø813	882	912	942	40	61
13	Ø762	831	861	891	42	62
12	Ø720	780	810	840	42	62
11	Ø670	722	752	782	44	62
10	Ø610	672	702	732	46	63
09	Ø559	621	651	681	47	63
08	Ø543	606	636	666	47	63
07	Ø526	588	618	648	48	61
06	Ø508	570	600	630	48	61
05	Ø457	517	547	577	50	65
04	Ø406	463	493	523	53	65
03	Ø355	410	440	470	56	65
02	Ø273	328	358	388	59	65
01	Ø219	275	305	335	54	70
SL. No.	PIPE Ø	ØA	ØB	ØC	D	E

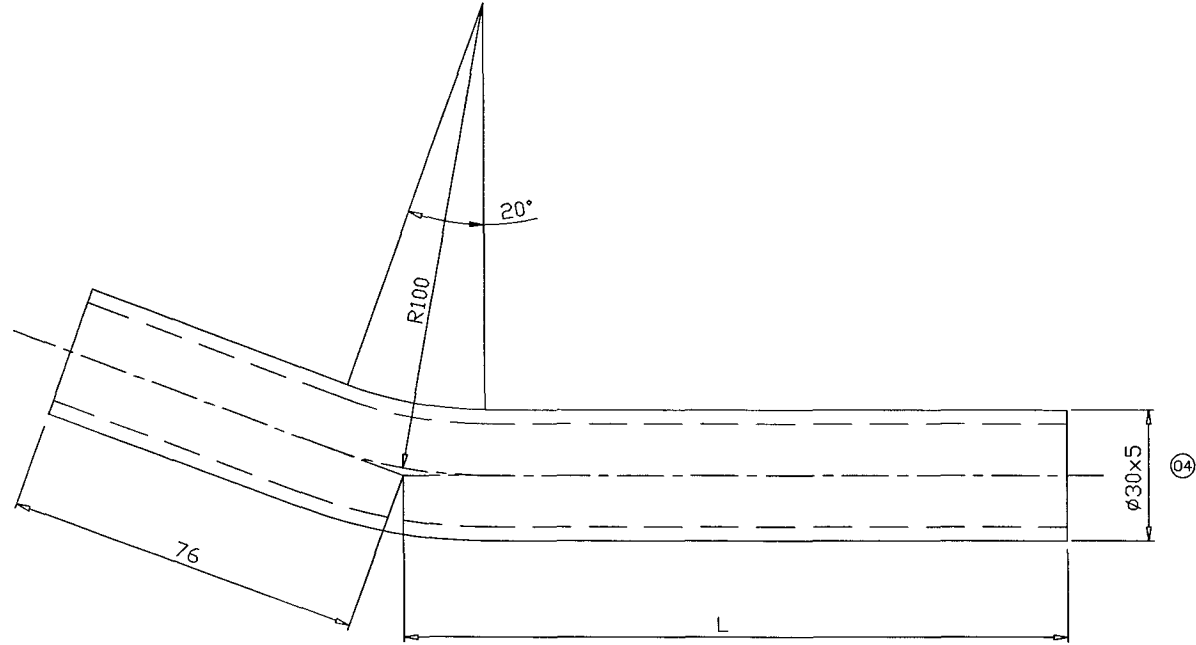
NOTE:

- ALL JOINTS BY TIG WELDING
- OVALITY SHOULD BE +5mm
- FOR ALL WELD JOINTS, SUITABLE EDGE PREPARATION TO BE CARRIED OUT BEFORE WELDING
- ALL TUBES ARE EXTRUDED AND MADE UP OF SINGLE PIECE WITHOUT ANY JOINTS
- ITEM No.6-HOSE CONNECTOR: 2Nos. FOR PIPE SIZES BELOW Ø500 AND FOR PIPE SIZES ABOVE Ø500-4Nos AT 90° INTERVAL

4	PL.2t x 15x10	E-Cu57	IS: 410				10
1	FLAT BAR 20x12, C=24	CuZn39Pb3	ASTM 455 C 38500				09
1	TUBE Ø25x2X30L	CuZn37	IS: 410				08
1	FLAT BAR 30x6 b=28	E-Cu57	IS: 410				07
2	HOSE CONNECTION FOR HOSE 13 O.D	BRASS	IS: 6912				06
4	HOSE CONNECTION FOR HOSE 10 O.D	BRASS	IS: 6912				05
4	PL.2t x 15x30	E-Cu57	IS: 410				04
1	ROD Ø10x90L	CuZn39Pb3	ASTM 455 C 38500				03
1	REC.TUBE 15x10x2XL	Sf.Cu	ASTM B75 C 12200				02
1	REC.TUBE 30x15x2XL	Sf.Cu	ASTM B75 C 12200				01
						2M12A2404810 2M12A1804914	02
No of Pieces		DESCRIPTION	MATERIAL	STANDARD	NET.WT IN KGS.	DRAWING No.	ITEM No.
		REFERENCE: 48.55-0152/2	ALTERATIONS:		DN REF	DATE	SIGN.
SCALE		DRAWN/TCN P.A. ROSS	TABULATION ADDED				01
1:2.5		CHECKED R.RAMAMOORTHY					
1:5		APPROVED C.S.JAYASHEELAN					
DATE		01-01-10					
MACHINE: INCREMENTAL PIPE BENDER		TYPE: PB 1400HF (1200R)					
DRAWING No:		2M12A2404810		REV.:			
TITLE:		QUENCHING RING		2M12A2404810		01	
		(Ø219-Ø1016)		Sheet No:		No of Sheets:	

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ALL DIMENSIONS ARE IN MM



					12	(45-65)	969	343	
⑬	24	(85-100)	646	497	11	(45-65)	914	370	
⑬	23	(65-85)	524	558	10	(45-65)	864	397	
⑬	22	(65-85)	480	580	09	(25-45)	813	418	
⑬	21	(25-45)	965	343	08	(06-25)	762	360	
⑬	20	(25-45)	914	368	07	(45-65)	720	470	
⑬	19	(25-45)	864	393	06	(45-65)	660	500	
⑬	18	(45-65)	813	424	05	(45-65)	564	551	
⑬	17	(25-45)	711	470	04	(25-45)	558	549	
⑬	16	(06-25)	711	470	03	(65-85)	508	568	
⑬	15	(06-25)	660	500	02	(45-65)	457	607	
⑬	14	(25-45)	610	520	01	(25-45)	323	669	
⑬	13	(06-25)	610	520	SL No.	PIPE THICK	PIPEø	LENGTH	WT.IN KGS.

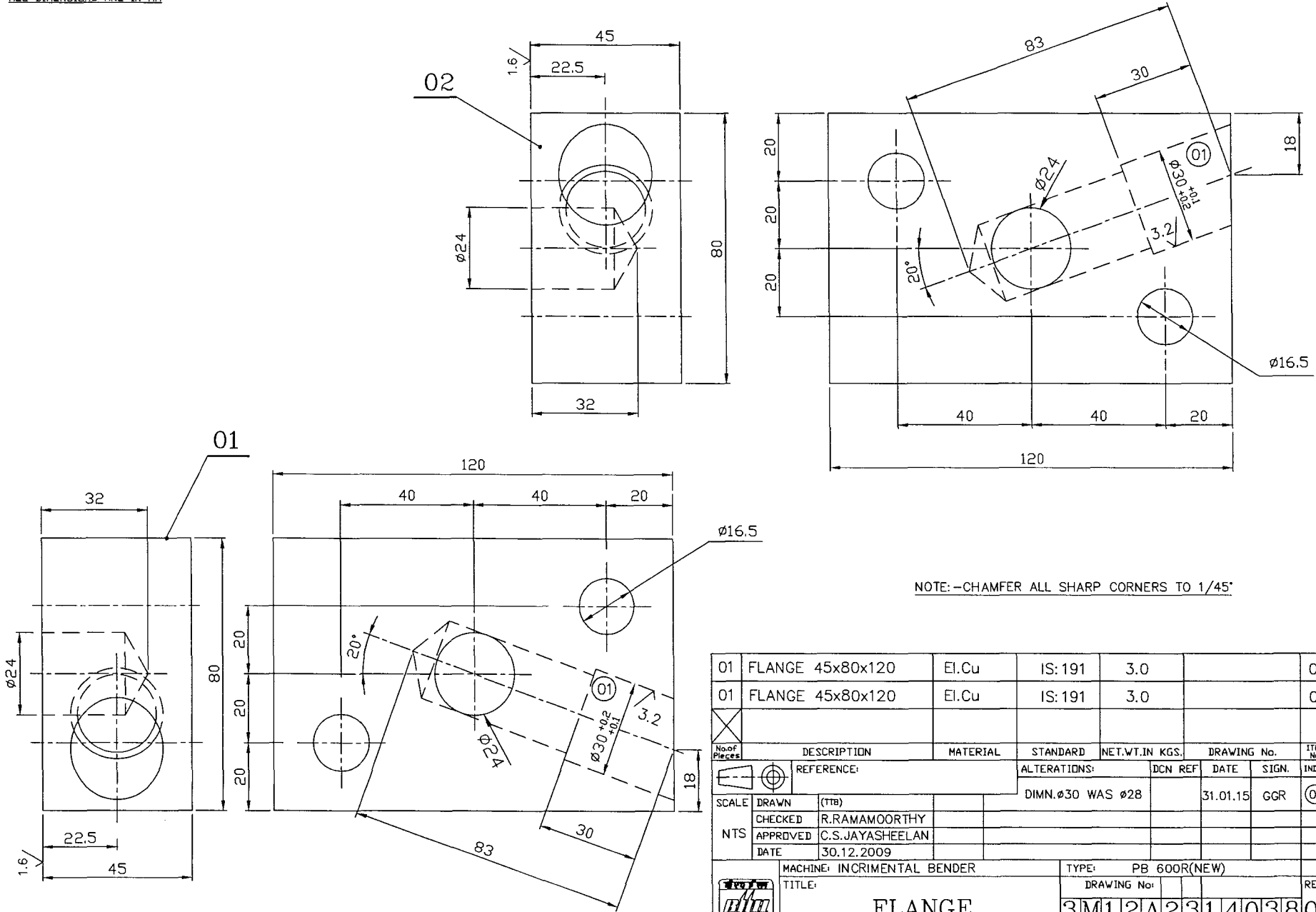
NOTE:

ALL TUBES ARE EXTRUDED AND MADE UP OF SINGLE PIECE WITHOUT ANY JDINTS

No. of Pieces	TUBE ø28x3.5xL		Sf.Cu	ASTM B75 C 12200			03
	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.		ITEM No.
SCALE	REFERENCE:		ALTERATIONS:		DCN REF	DATE	SIGN.
	NTS	MACHINE: INCREMENTAL BENDER		TYPE: PB 1200R			REV.
	DRAWN	(TTB)	TABULATION ADDED				
	CHECKED	R.RAMAMOORTHY	SL.No. 08 ADDED (762)			20.06.11	①
	APPROVED	C.S.JAYASHEELAN	SL.No. 13 TO 24 ADDED			18.06.13	K.R ②
	DATE	30.12.2009	DIMN. ø30x5 WAS ø28x3.5			31.01.15	G.G.R ③
	TITLE: BEND TUBE		DRAWING No:		3M12A181441704		
	Sheet No:		No. of Sheets:				

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ALL DIMENSIONS ARE IN MM



NOTE:-CHAMFER ALL SHARP CORNERS TO 1/45°

01	FLANGE 45x80x120	EI.Cu	IS: 191	3.0			02
01	FLANGE 45x80x120	EI.Cu	IS: 191	3.0			01
No. of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.	
	REFERENCE:		ALTERATIONS:	DCN REF	DATE	SIGN.	INDEX
SCALE	DRAWN (TTB)		DIMN.Ø30 WAS Ø28		31.01.15	GGR	01
	CHECKED R.RAMAMOORTHY						
NTS	APPROVED C.S.JAYASHEELAN						
	DATE 30.12.2009						
	MACHINE: INCREMENTAL BENDER				TYPE: PB 600R(NEW)		
	TITLE: FLANGE				DRAWING No:		REV.
					3M12A231403801		
					Sheet No:		No. of Sheets:

