

ANNEXURE-I

BID NO:

DT:

SL NO	PRE QUALIFICATION REQUIREMENT	VENDOR'S COMMENTS
1	For S. No-1 to 4 : Vendors shall be Manufacturer of ANDALUSITE AND MULLITE based refractory bricks. The vendor shall be in the field of refractory manufacturing for a minimum period of 5 years from the date of tender. Udyam certificate/registration certificate to indicate the experience in refractory manufacture for past 5 years or more to be provided.	
1A	For S. No-5 to 25 : Vendors shall be Manufacturer of Refractory bricks containing alumina minimum 55%.The vendor shall be in the field of refractory manufacturing for a minimum period of 5 years from the date of tender. Udyam certificate/registration certificate to indicate the experience in refractory manufacture for past 5 years or more to be provided.	
2	For S. No-1 to 4 : Vendor should have supplied similar ANDALUSITE AND MULLITE bricks to projects with operating temperatures exceeding 1500°C within the past 5 years. The proof of such supply (Executed Purchase Order Copy along with TDS (Tax Deducted at Source) certificate issued by the organization or Form 26 AS or Bank statement for transaction of payment for completion of supply), along with technical specifications of the supplied bricks and performance certificate issued by such buyer to be provided as proof of experience and shall be submitted with the offer.	
2A	For S. No-5 to 25 : Vendor should have supplied similar Refractory shape bricks containing alumina minimum 55% to projects with operating temperatures exceeding 1500°C within the past 5 years. The proof of such supply (Executed Purchase Order Copy along with TDS (Tax Deducted at Source) certificate issued by the organization or Form 26 AS or Bank statement for transaction of payment for completion of supply), along with technical specifications of the supplied bricks to be provided as proof of experience and shall be submitted with the offer.	
3	For S. No-1 to 4 : The vendor shall submit detailed technical specification of andalusite and Mullite bricks of their make for S.No-1 to 4 of their make, equivalent to BHEL required specification. Bidders to submit a signed declaration confirming the authenticity of the offered Andalusite and Mullite bricks and adherence to the specified Andalusite and Mullite content of 90% minimum.	

3A	For S. No-5 to 25 : The vendor shall submit detailed technical specification of Refractory bricks containing alumina minimum 55%, and of their make, equivalent to BHEL required specification.	
	COMMON FOR ALL	
4	If the submitted specifications of vendor supplied material do not match the lab test of supplied bricks conducted at BHEL Plant lab (NABL Accredited) or any independent lab, the entire lot is liable to be rejected and is to be taken back by the vendor at his own cost with in 3 months, failing which the material will be disposed off by BHEL.	
5	Offers not meeting the above requirements shall be liable for rejection. Kindly submit only one OR two relevant document related to Pre-Qualification requirement of previous supply. Avoid sending multiple documents which is liable for rejection.	

ANNEXURE -II

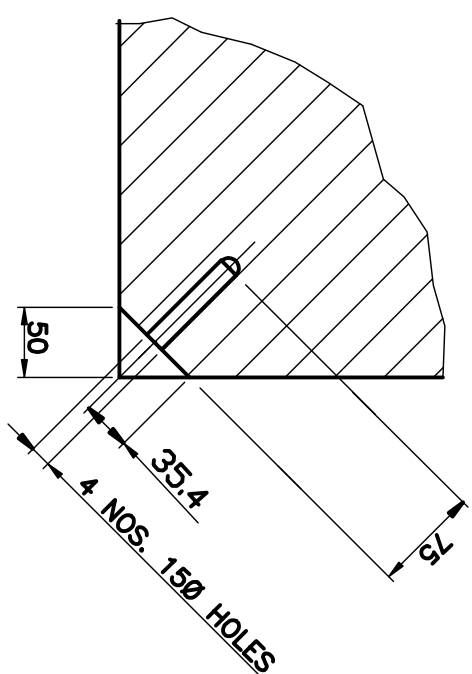
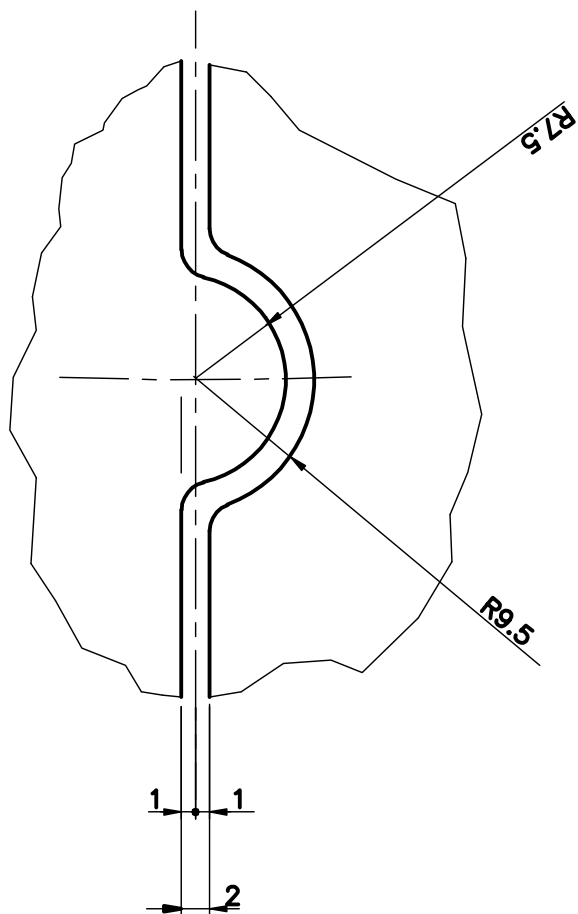
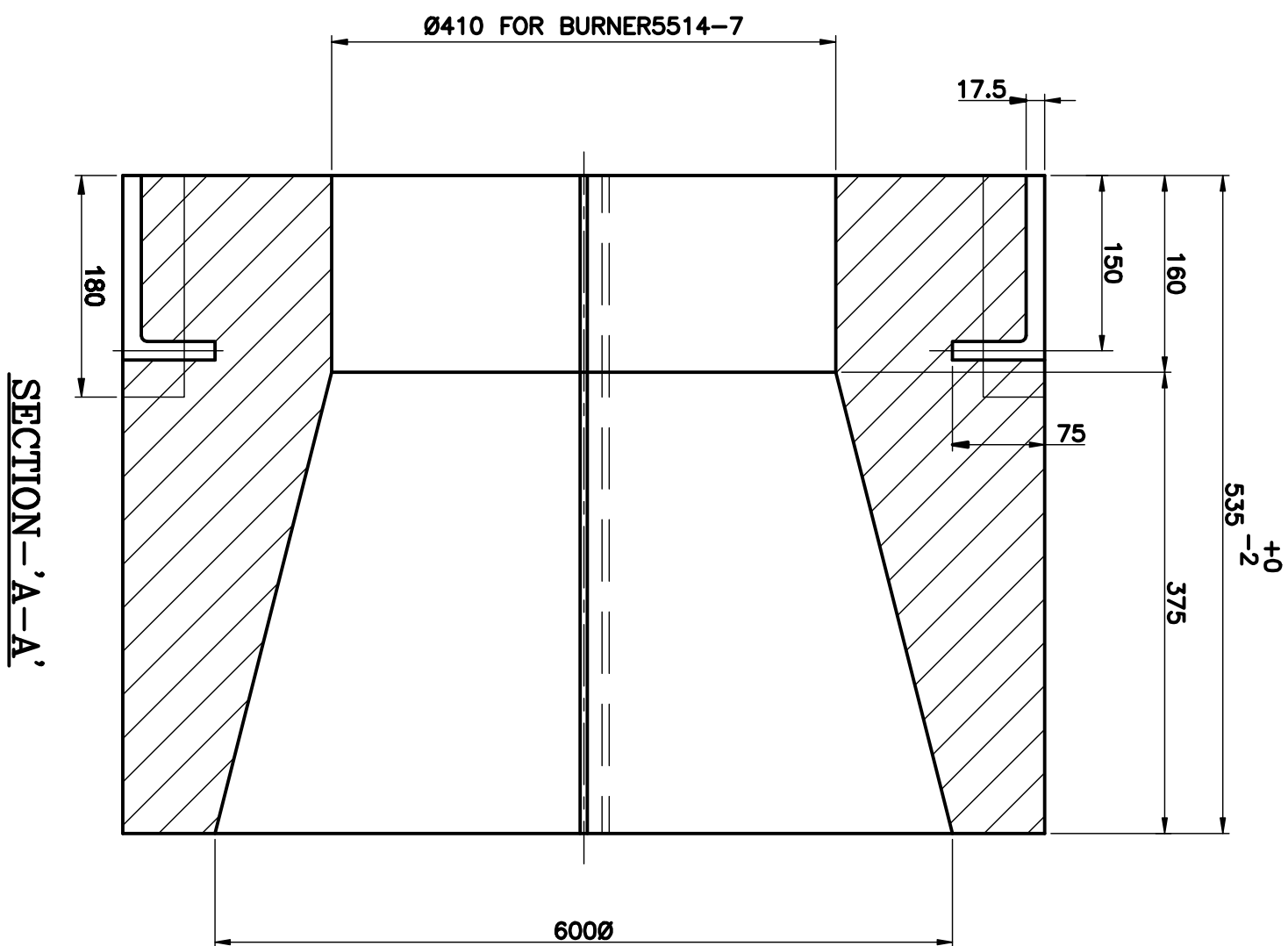
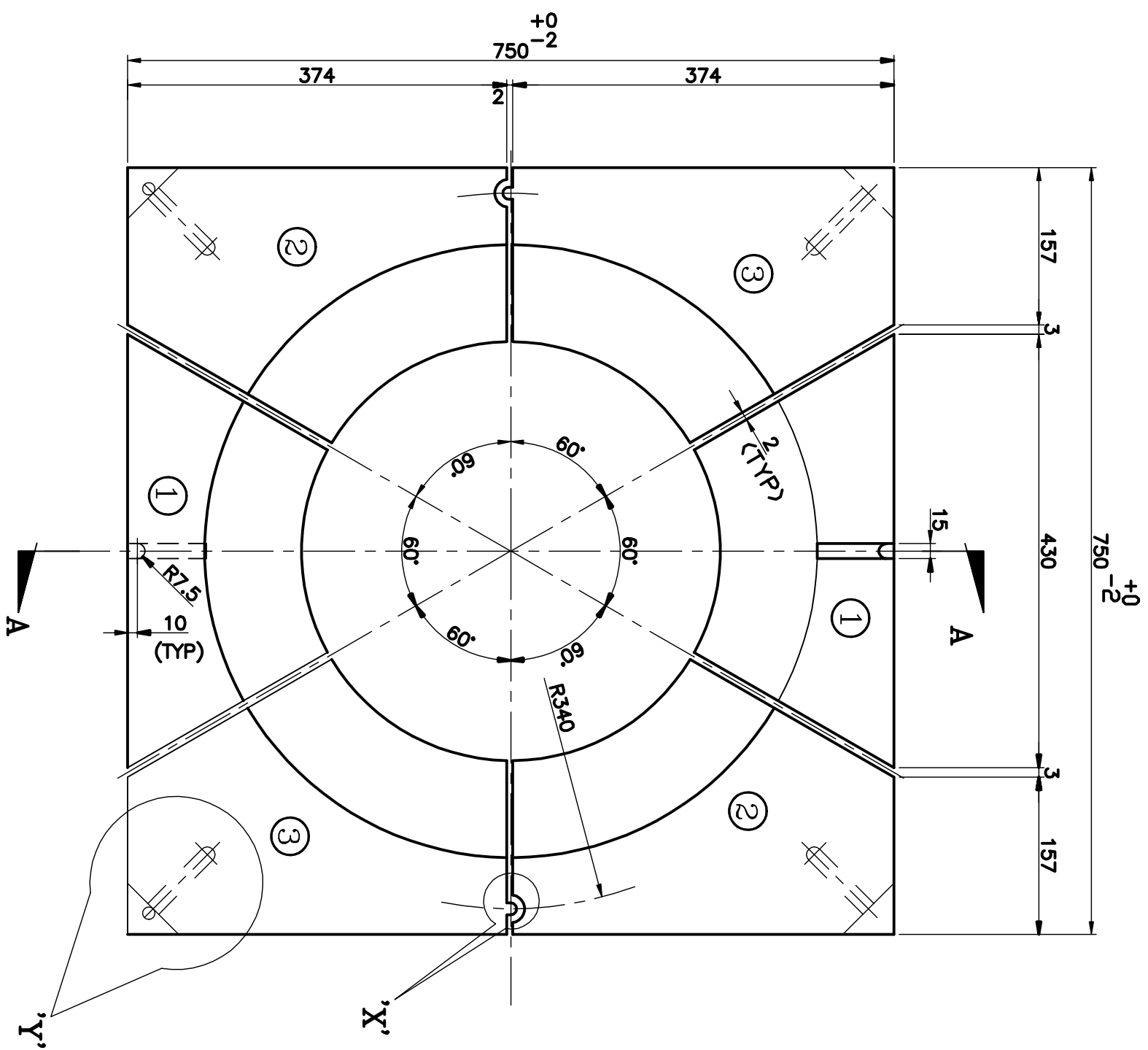
SL NO	Documents requirements	VENDOR'S COMMENTS
1	Signed copy of technical specification and drawing with organization seal/ stamp	
2	For SI No 1 to 4: Executed Purchase Order Copy of andalusite and Mullite based refractory bricks along with performance certificate issued by the organization or Form 26 AS or Bank statement for transaction of payment for completion of supply to meet the requirements in Annexure I SI No 2. Copy of the tax invoice / Delivery challan as well as performance certificate from the customer for the purchase order should be submitted as the documentary proof	
2A	For SI No 1 to 4: Bidders to submit a signed declaration confirming the authenticity of the offered Andalusite bricks and adherence to the specified Andalusite and mullite content of 90% minimum.	
2B	For SI No 5 to 25: Executed Purchase Order Copy of Refractory bricks containing alumina minimum 55%, Form 26 AS or Bank statement for transaction of payment for completion of supply to meet the requirements in Annexure I SI No 2A. Copy of the tax invoice / Delivery challan from the customer for the purchase order should be submitted as the documentary proof	

3	Filled in & signed copy of Annexure I - PQR details with organization seal / stamp	
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4	Filled in & signed copy of Annexure B & C (BHEL Technical Cum Commercial Terms And Conditions) for Indigenous Vendor with organization seal / stamp	
5	The vendor shall submit detailed technical specification and MSDS of bricks of their make, equivalent to or better than BHEL required specification.	

TECHNICAL DELIVERY CONDITIONS

SL NO	TDC	VENDOR'S CONFIRMATION
1	Materials to be delivered through pallet packing to prevent damages during transit. Acceptance of material is based on condition at receipt only.	
2	Original Test Certificates for all specifications and Chemical Composition to be produced along with supply. If the submitted specifications do not meet the lab test conducted at BHEL Plant lab (NABL Accredited) or any independent lab, the entire lot is liable to be rejected and is to be taken back by the vendor at his own cost	
3	Dimensional reports to be provided by random sampling of 1% of total shaped refractory brick, including weight. Weight of each shaped refractory brick can be referred from the reference drawing No.	
4	Material Inspection will be carried out by M/S. BHEL Inspector or BHEL authorised third party Inspection at Supplier's works if necessary prior to dispatch of all materials. Relevant parts IS: 1528 will be reference standard during inspection	
5	Offer is considered only on free door delivery at SSTP STORES including unloading charges	

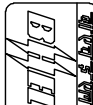



DETAIL - 'X'

DETAIL - 'Y'

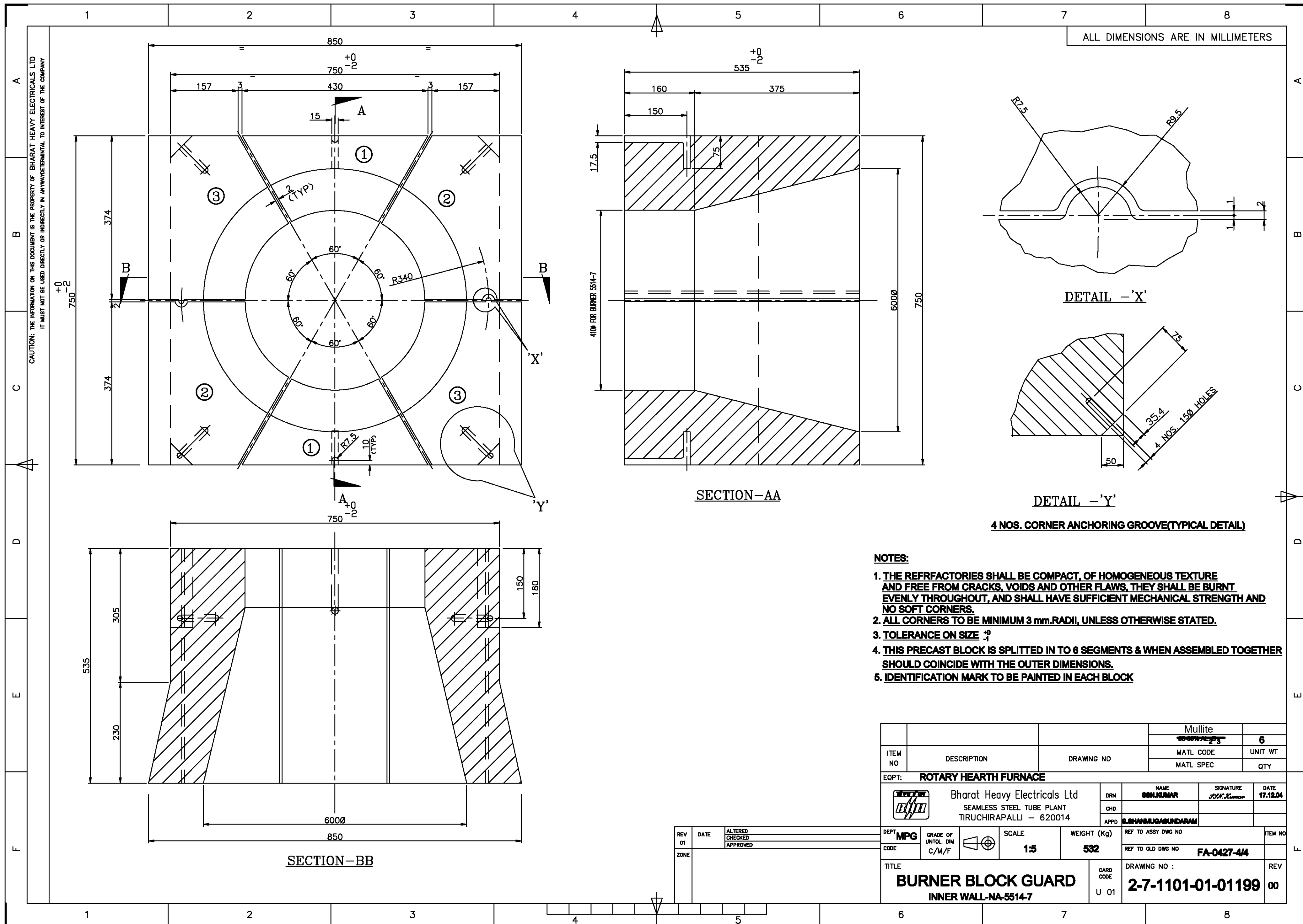
4 NOS. CORNER ANCHORING GROOVE(TYPICAL DETAIL)

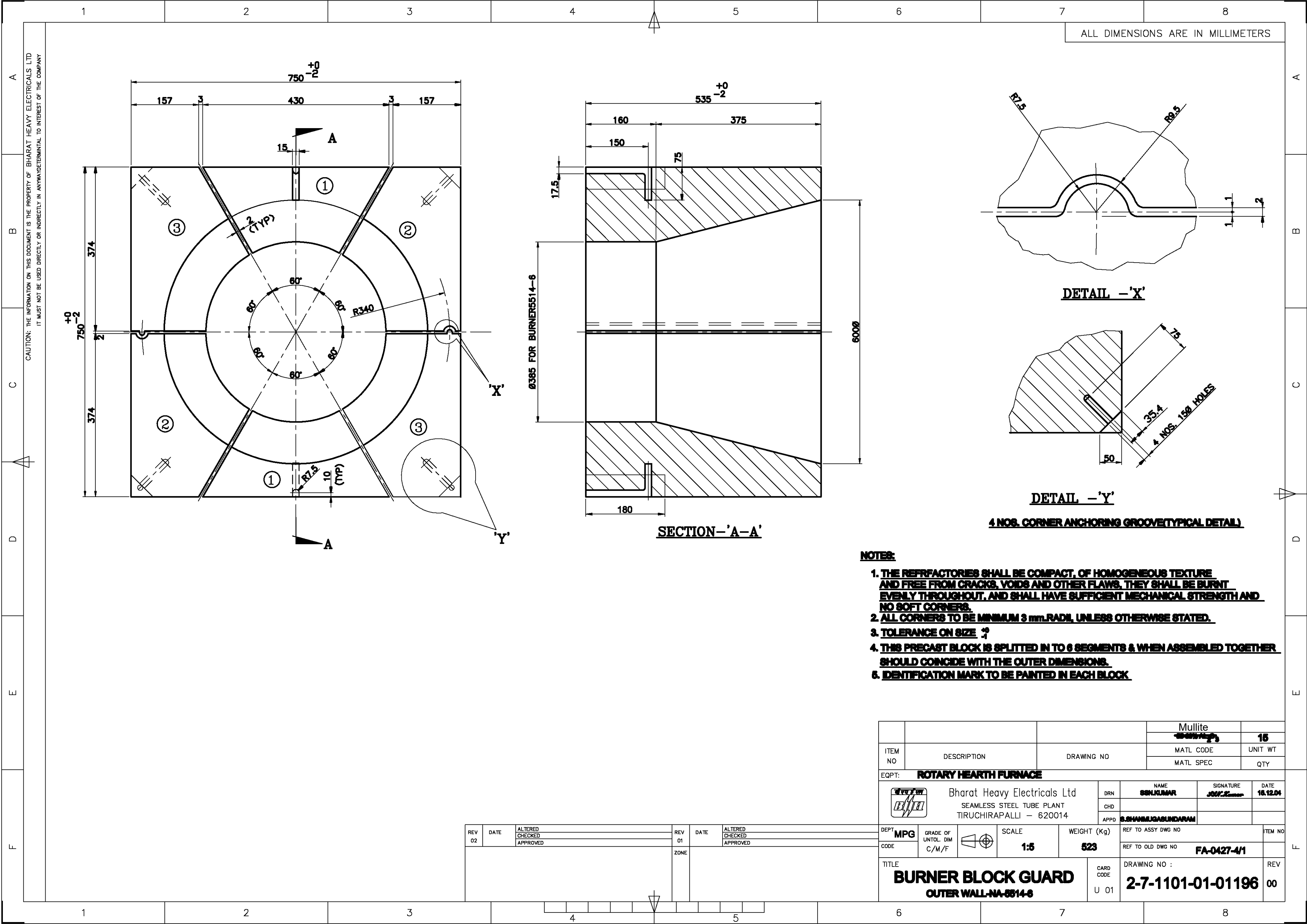
- NOTES:**
- 1. THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, Voids AND OTHER FLAWS. THEY SHALL BE BURNT EVENLY THROUGHOUT, AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.**
 - 2. ALL CORNERS TO BE MINIMUM 3 mm. RADII, UNLESS OTHERWISE STATED.**
 - 3. TOLERANCE ON SIZE ± 1**
 - 4. THIS PRECAST BLOCK IS SPLITTED IN TO 6 SEGMENTS & WHEN ASSEMBLED TOGETHER SHOULD COINCIDE WITH THE OUTER DIMENSIONS.**
 - 5. IDENTIFICATION MARK TO BE PAINTED IN EACH BLOCK**

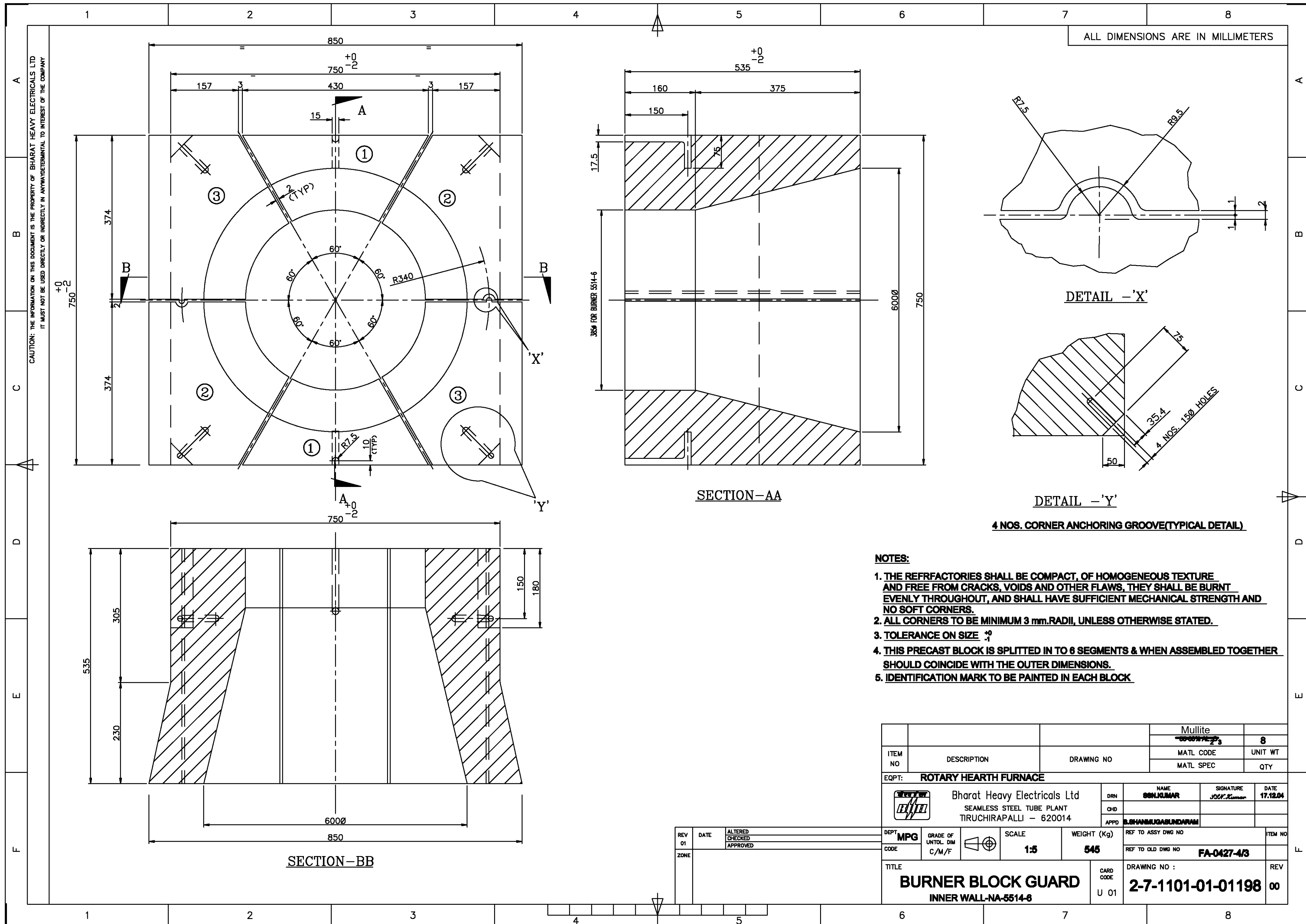
				Multite BURNER P, 3		8	
ITEM NO		DESCRIPTION		DRAWING NO		UNIT WT	
						QTY	
EQUI:		ROTARY HEARTH FURNACE					
 Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DRN		NAME		DATE	
		CHD		SIGNATURE		15.12.20	
		APRD		S. SHANMUGASUBRAMANIAM			
DEPT		SCALE		WEIGHT (Kg)		ITEM NO	
MPG		1:5		510			
GRADE OF UNTOOL DIM C/M/F							
TITLE		CARD CODE		DRAWING NO :		REV	
BURNER BLOCK GUARD		U 01		2-7-1101-01-01197		00	
OUTER WALL-NA-5514-7							
REV DATE		ALTERED		REV DATE		ALTERED	
02		CHECKED		01		CHECKED	
		APPROVED				APPROVED	
ZONE							

ALL DIMENSIONS ARE IN MILLIMETERS

CAUTION: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LTD
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANYWAY DETERMINAL TO INTEREST OF THE COMPANY

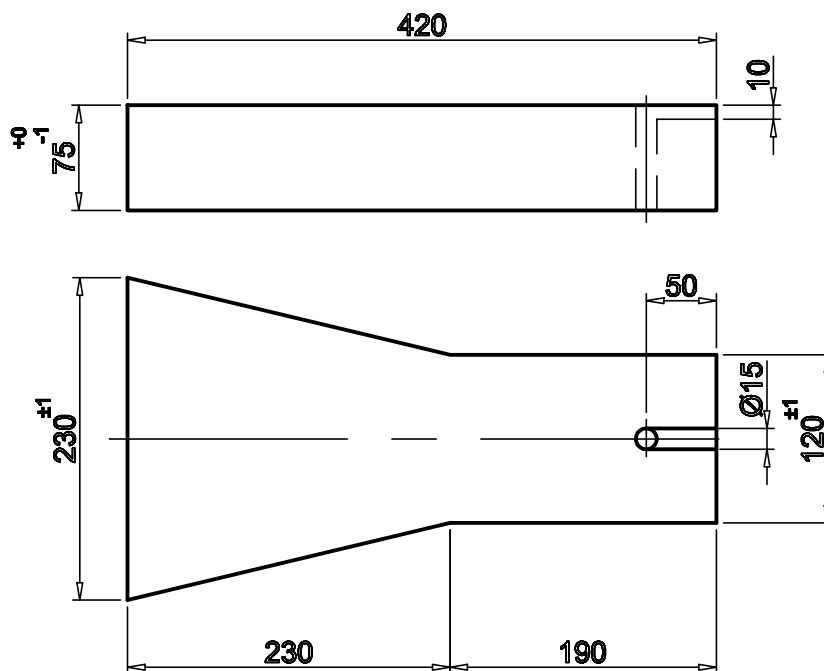






ALL DIMENSIONS ARE IN MM


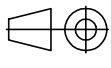
REV 01	DATE 01.09.14	ALTERED	<i>M. Ganesan</i>
		CHECKED	<i>R. K. Singh</i>
		APPROVED	<i>S. Loganathan</i>
New border inserted			



NOTES:

- 1) THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS. THEY SHALL BE BURNT EVENLY THROUGHOUT AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.**
- 2) ALL CORNERS TO BE MIN. 5mmRADII.**

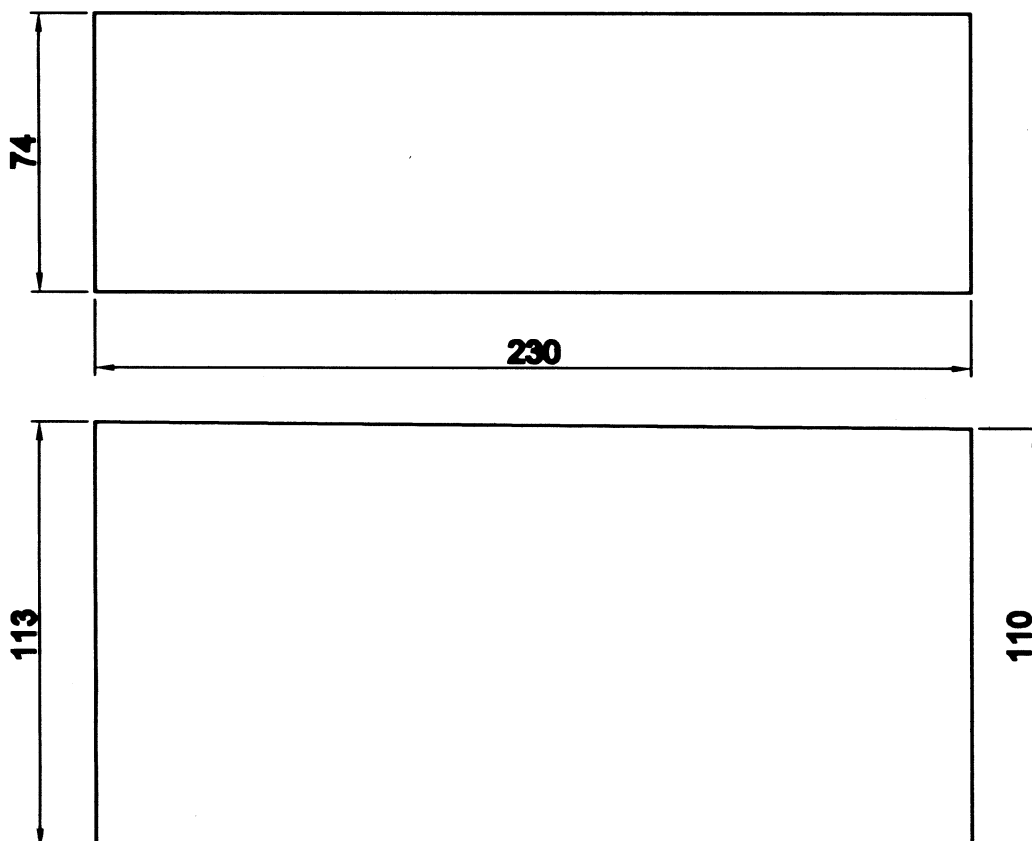
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			55%-60% AL_2O_3		400		
ITEM NO	DESCRIPTION	DRAWING NO	MATL CODE		UNIT WT		
			MATL SPEC		QTY		
EQPT: ROTARY HEARTH FURNACE							
<div></div> <div>Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI – 620014</div>		DRN	NAME P. RAMAKRISHNAN	SIGNATURE <i>P. Ramakrishnan</i>	DATE 29.12.04		
		CHD	SSN.KUMAR	<i>SSN. Kumar</i>	29.12.04		
		APPD	S.S.SUNDARAM	<i>S. S. Sundaram</i>	29.12.04		
DEPT SSTP	GRADE OF UNTOL. DIM <div>$\varnothing/M/F$ IS: 2102</div>	<div></div>	SCALE 1:5	WEIGHT (Kg) 11.8	REF TO ASSY DWG NO —	ITEM —	
CODE 456			REF TO OLD DWG NO 358105 1/2–11				
TITLE RHF - ANCHOR BRICK				CARD CODE U 01	DRAWING NO : 4-7-1101-01-06311		REV 01


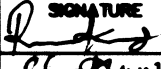

A4-SIZE

ALL DIMENSIONS ARE IN MM

REV 01	DATE	ALTERED
		CHECKED
		APPROVED

**NOTES:**



- 1) THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS. THEY SHALL BE BURNT EVENLY THROUGHOUT AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.
- 2) ALL CORNERS TO BE MIN. 5mm RADII.

					55%-60% AL ₂ O ₃	6050
ITEM NO	DESCRIPTION	DRAWING NO			MATL CODE	UNIT WT
					MATL SPEC	QTY
EQPT: ROTARY HEARTH FURNACE						
		Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DRN	NAME P. RAMAKRISHNAN	SIGNATURE 
				CHD	SENKUMAR	DATE 28.12.04
				APPD	B. SHANMUGASUNDARAM	1/1/05
DEPT MPG	GRADE OF UNTOL DIM C/M/F		SCALE 1:2	WEIGHT (Kg) 4.8	REF TO ASSY DRG	ITEM NO
CODE					REF TO OLD DRG 355185 1/2-1	
TITLE OUTER WALL SUPPORTING BRICK-I				CARD CODE U 01	DRAWING NO : 4-7-1101-01-06301	
					REV 00	

ALL DIMENSIONS ARE IN MM

NOTES:

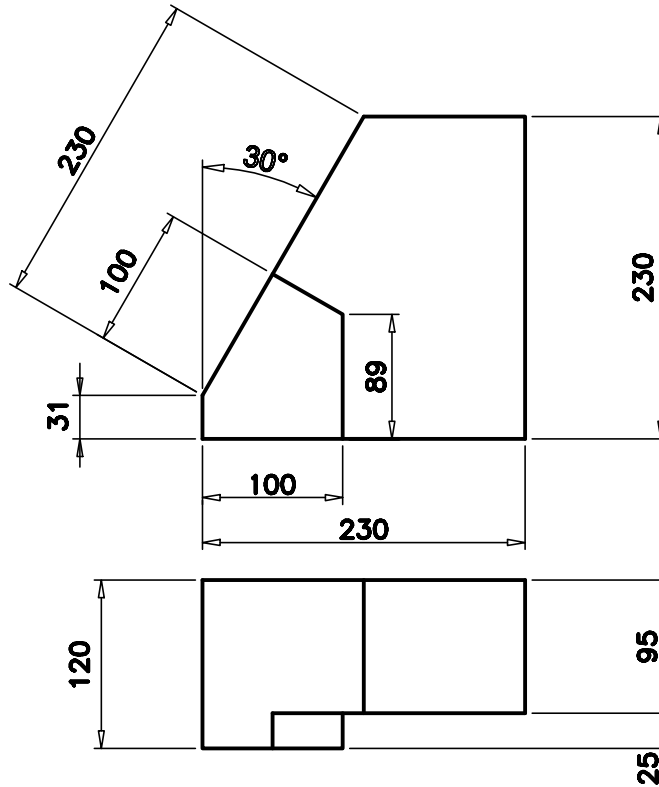
1. THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS, THEY SHALL BE BURNT EVENLY THROUGHOUT, AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.
2. ALL CORNERS TO BE MINIMUM 3 mm.RADII, UNLESS OTHERWISE STATED.
3. TOLERANCE ON SIZE $\begin{smallmatrix} +0 \\ -1 \end{smallmatrix}$

				55-60% Al_2O_3	2
ITEM NO	DESCRIPTION	DRAWING NO		MATL CODE	UNIT WT
				MATL SPEC	QTY
EQPT: ROTARY HEARTH FURNACE					
		Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DRN CHD APPD	NAME SENKUMAR SIGNATURE <i>SEN. Kumar</i> SUBRAMUGASUNDARAM <i>S. Rajan</i>
					DATE 15.12.04 16/12/09
DEPT MPG	GRADE OF UNTOL DIM 2/M/T		SCALE 1:5	WEIGHT (Kg) 10	REF TO ASSY DRG REF TO OLD DRG FA-0427-3/8
CODE					ITEM NO
TITLE SKEW BACK-R.H CHARGING & DISCHARGING DOORS			CARD CODE U 01	DRAWING NO : 4-7-1101-01-06284	
				REV 00	

ALL DIMENSIONS ARE IN MM

REV	DATE	ALTERED	<i>A. Suresan</i>
01	28.08.14	CHECKED	<i>S. S. Sundaram</i>
		APPROVED	<i>S. S. Sundaram</i>


New border inserted



NOTES:

1. THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS, THEY SHALL BE BURNT EVENLY THROUGHOUT, AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.
2. ALL CORNERS TO BE MINIMUM 3 mm. RADII, UNLESS OTHERWISE STATED.
3. TOLERANCE ON SIZE ± 0.1

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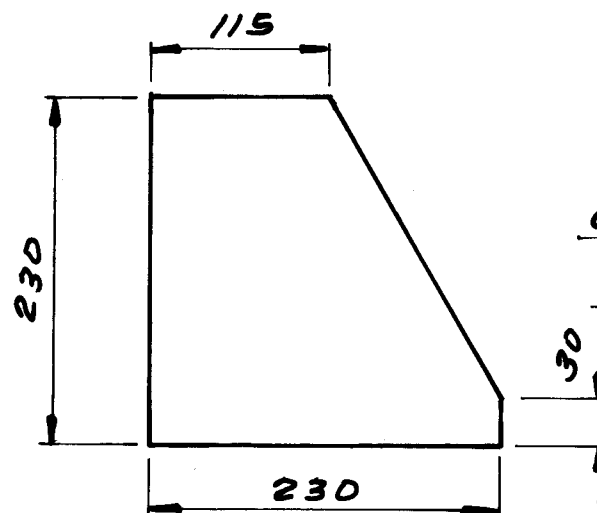
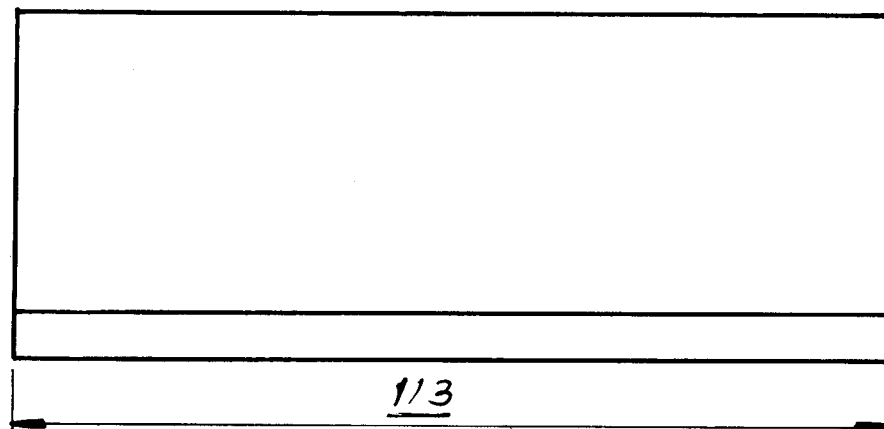
				65-60% AL2O3		2
ITEM NO	DESCRIPTION	DRAWING NO		MATL CODE		UNIT WT
				MATL SPEC		QTY
EQPT: ROTARY HEARTH FURNACE						
		Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DRN	NAME SSN.KUMAR	SIGNATURE <i>SSN.Kumar</i>
				CHD	SSN.KUMAR	<i>SSN.Kumar</i>
				APPD	S.S.SUNDARAM	<i>S.S.Sundaram</i>
DEPT SSTP	GRADE OF UNTOL DM	SCALE		WEIGHT (Kg)	REF TO ASSY DWG NO	ITEM
CODE 456	$\phi/M/F$ IS: 2102	1:1		10	REF TO OLD DWG NO FA-0427-3/9	-
TITLE RHF - SKEW BACK-LH CHARGING & DISCHARGING DOORS				CARD CODE U 01	DRAWING NO : 4-7-1101-01-06285	
					REV 01	

A4-SIZE

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REV 01	DATE 31.12.01	ALTERED <i>[Signature]</i>
		CHECKED <i>[Signature]</i>
ZONE		APPROVED <i>[Signature]</i>
MATL SPEC REVISED AS PER WESMAN REVISION		

P
↓



VIEW 'P'

QUALITY:-

55-60% AL2O3

SILLIMANITE.

ITEM NO.	DESCRIPTION	MATL CODE	UNIT WT
		MATL SPEC	QTY

EQPT: RHF



Bharat Heavy Electricals Ltd.,

SEAMLESS STEEL TUBE PLANT

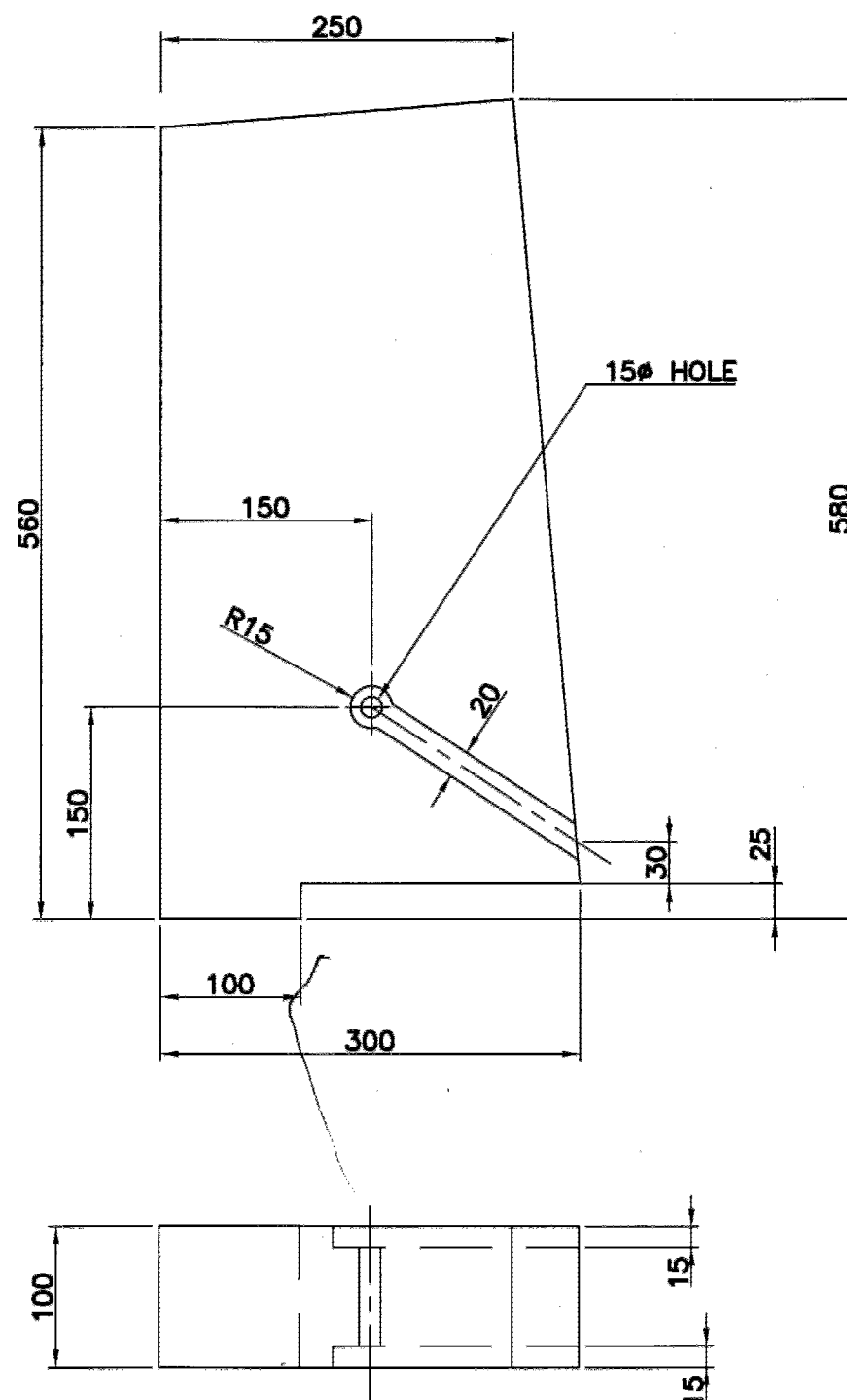
TIRUCHIRAPALLI - 620 014

DRN	NAME SSN. KUMAR	DATE 10.7.91
CHD	<i>[Signature]</i>	11.7.91
APPD	<i>[Signature]</i>	11.7.91

DEPT CODE	GRADE OF UNTOOL DIM C/M/F		1:5	WEIGHT (kg)	REF TO ASSY/OLD DRG 4-1101-58-48*	ITEM NO.
TITLE SKEW BACK				CARD CODE U 01	DRAWING NO. 4-7-1101-01-0445701	REV

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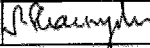

ALL DIMENSIONS ARE IN MILLIMETRES



NOTES:

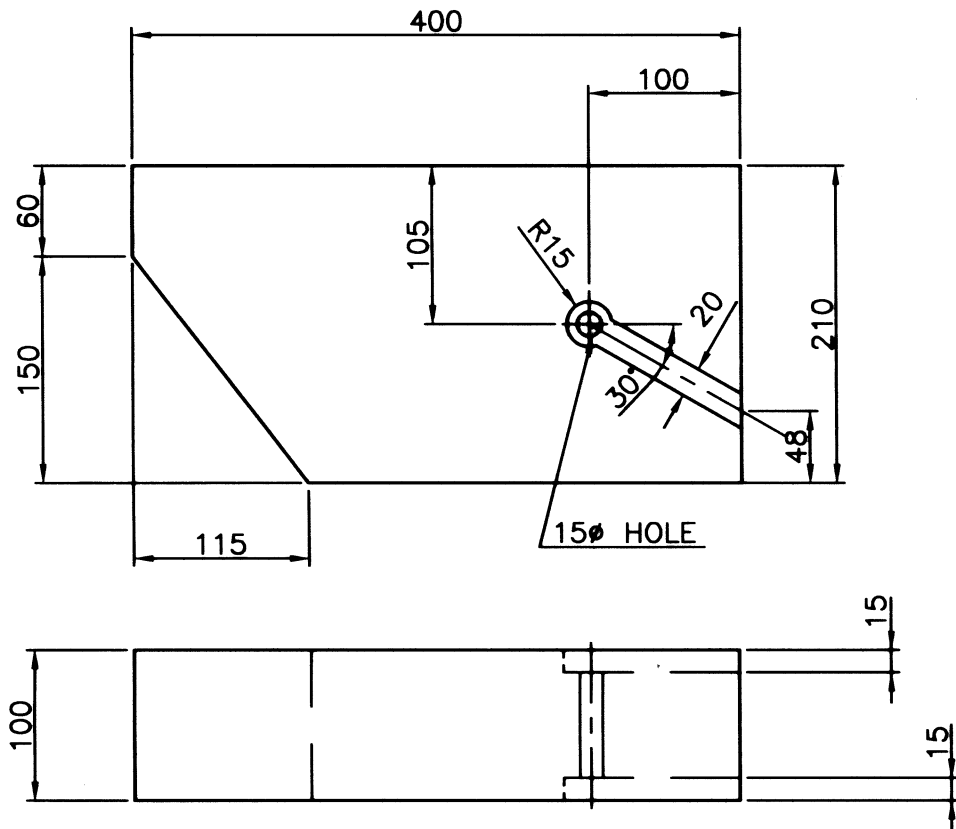
1. THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS, THEY SHALL BE BURNT EVENLY THROUGHOUT, AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.
2. ALL CORNERS TO BE MINIMUM 3 mm.RADII, UNLESS OTHERWISE STATED.
3. TOLERANCE ON SIZE $\begin{matrix} +0 \\ -1 \end{matrix}$

REV 02	DATE	ALTERED :	REV 01	DATE	ALTERED :
		CHECKED :			CHECKED :
		APPROVED			APPROVED
ZONE			ZONE		



				55-60% AL ₂ O ₃	56
ITEM NO	DESCRIPTION	DRAWING NO	MATL CODE		UNIT WT
			MATL SPEC		QTY
EQPT: ROTARY HEARTH FURNACE					
		Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		NAME SSN.KUMAR	SIGNATURE 
		DRN			DATE 15.12.04
		CHD			
		APPD	S.SHANMUGASUNDARAM		16/12/04
DEPT	GRADE OF UNTO, DIM		SCALE	WEIGHT(kg)	REF TO ASSY DWG NO
CODE	2/M/F		1:5	38	REF TO OLD DWG NO
					FA-0427-3/14
TITLE			CARD CODE	DRAWING NO :	
SIDE BLOCK			U 01	3-7-1101-01-04699	
CHARGING & DISCHARGING DOORS					

ALL DIMENSIONS ARE IN MM

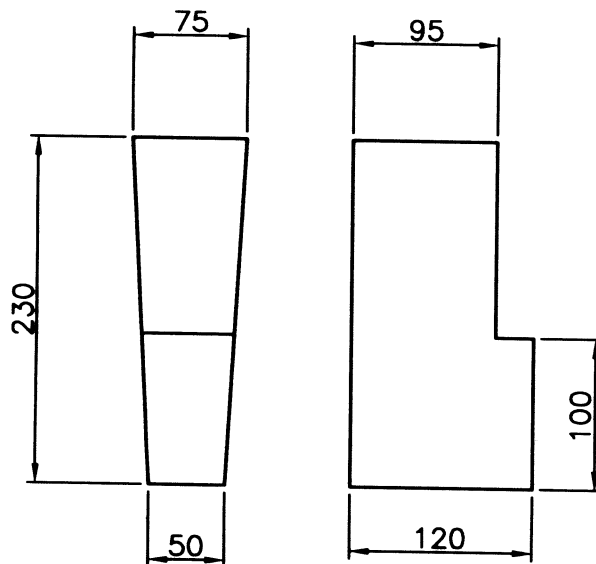
REV 01	DATE	ALTERED
		CHECKED
		APPROVED



1. THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS, THEY SHALL BE BURNT EVENLY THROUGHOUT, AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.
2. ALL CORNERS TO BE MINIMUM 3 mm.RADI, UNLESS OTHERWISE STATED.
3. TOLERANCE ON SIZE $\begin{smallmatrix} +0 \\ -1 \end{smallmatrix}$

				85-90% Al_2O_3	28
ITEM NO	DESCRIPTION	DRAWING NO		MATL CODE	UNIT WT
				MATL SPEC	QTY
EQPT: ROTARY HEARTH FURNACE					
		Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DRN CHD APPD	NAME SUNILKUMAR SIGNATURE <i>Sunil Kumar</i> S.SHANMUGASUNDARAM <i>S. Shanmugasundaram</i>
					DATE 15.12.04 16/12/04
DEPT MPG	GRADE OF UNTOL. DIM <i>2/M/R</i>		SCALE 1:5	WEIGHT (Kg) 16.6	REF TO ASSY DRG
CODE					REF TO OLD DRG FA-0427-3/12
TITLE SILL BLOCK CHARGING & DISCHARGING DOORS				CARD CODE U 01	DRAWING NO : 4-7-1101-01-06288
					REV 00

REV 01	DATE	ALTERED
		CHECKED
		APPROVED

**NOTES:**

- 1. THE REFRRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS, THEY SHALL BE BURNT EVENLY THROUGHOUT, AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.**
- 2. ALL CORNERS TO BE MINIMUM 3 mm.RADII, UNLESS OTHERWISE STATED.**
- 3. TOLERANCE ON SIZE $\begin{smallmatrix} +0 \\ -1 \end{smallmatrix}$**

ITEM NO	DESCRIPTION	DRAWING NO	65-80% Al_2O_3	10
			MATL CODE	UNIT WT
			MATL SPEC	QTY

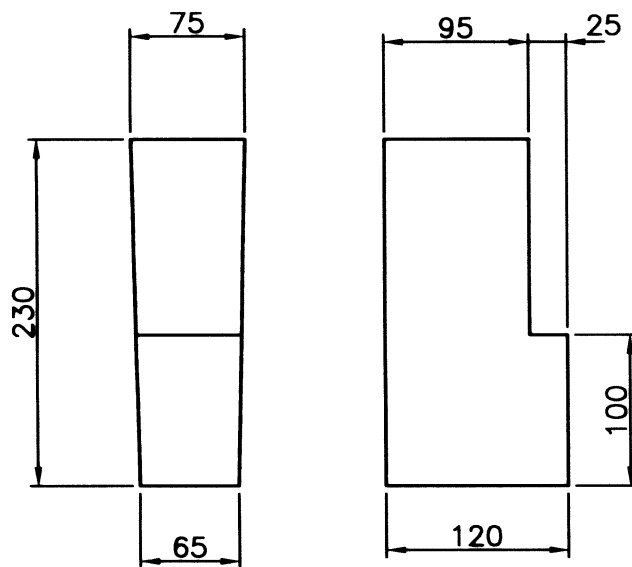
EQPT: **ROTARY HEARTH FURNACE**

Bharat Heavy Electricals Ltd
SEAMLESS STEEL TUBE PLANT
TIRUCHIRAPALLI - 620014



DRN	NAME	SIGNATURE	DATE
CHD	SENJUMAR	SENJUMAR	16.12.04
APPD	S.SHANMUGASUNDARAM	S. Shanmugasundaram	16/12/04

DEPT MPG	GRADE OF UNTOL DIM G/M/Y		SCALE 1:5	WEIGHT (Kg) 3.8	REF TO ASSY DRG	ITEM NO
CODE					REF TO OLD DRG FA-0427-3/10	
TITLE END ARCH CHARGING & DISCHARGING DOORS				CARD CODE U 01	DRAWING NO : 4-7-1101-01-06286	REV 00

REV S	DATE	ALTERED
		CHECKED
		APPROVED

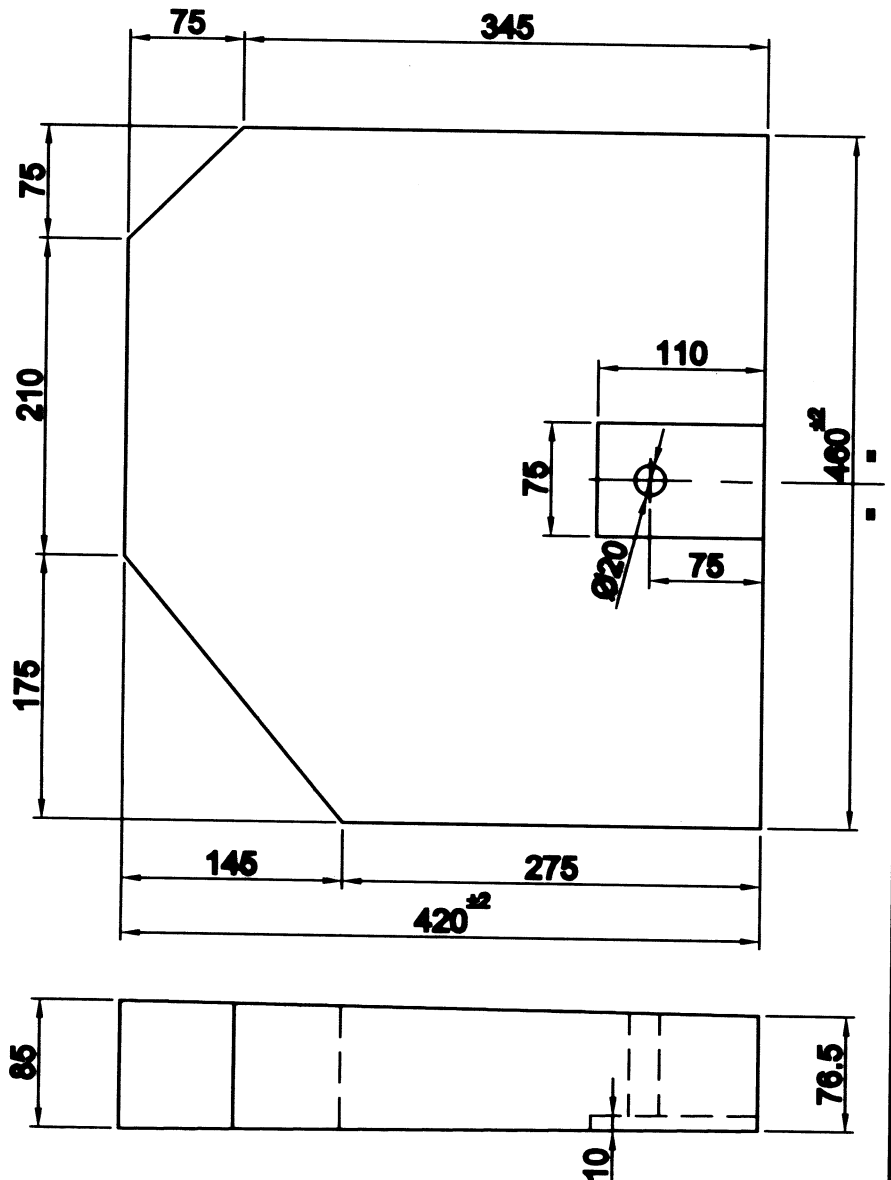
**NOTES:**

- 1. THE REFRFRATORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS, THEY SHALL BE BURNT EVENLY THROUGHOUT, AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.**
- 2. ALL CORNERS TO BE MINIMUM 3 mm.RADII, UNLESS OTHERWISE STATED.**
- 3. TOLERANCE ON SIZE $\begin{smallmatrix} +0 \\ -1 \end{smallmatrix}$**

					85-90% Al_2O_3	10		
ITEM NO	DESCRIPTION	DRAWING NO	MATL CODE		UNIT WT			
			MATL SPEC		QTY			
EQPT: ROTARY HEARTH FURNACE								
 Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014			DRN	NAME SENJUMAR	SIGNATURE <i>S.N. Kumar</i>	DATE 15.12.04		
			CHD					
			APPD	S. BHANMUGASUNDARAM	<i>S. Bhanmugasundaram</i>	16/12/04		
DEPT MPG	GRADE OF UNTOL. DIM 2/M/T		SCALE 1:5	WEIGHT (Kg) 4.2	REF TO ASSY DRG			
CODE					REF TO OLD DRG FA-0427-3/11			
TITLE END ARCH CHARGING & DISCHARGING DOORS				CARD CODE U 01	DRAWING NO : 4-7-1101-01-06287	REV 00		


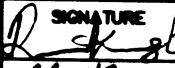
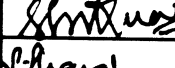
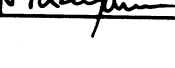
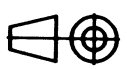
ALL DIMENSIONS ARE IN MM

REV	DATE	ALTERED
01		CHECKED
		APPROVED



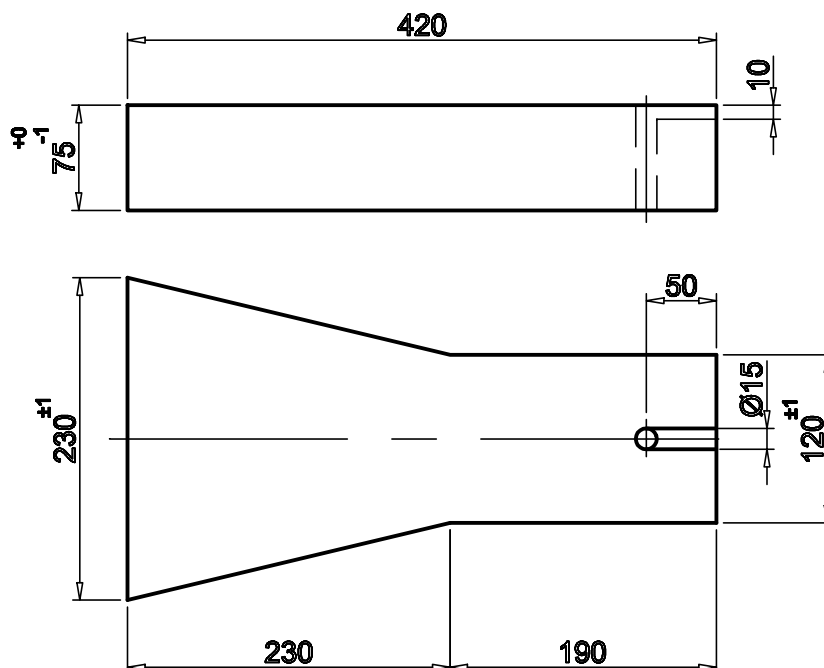
NOTES:

- 1) THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS. THEY SHALL BE BURNT EVENLY THROUGHOUT AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.
- 2) ALL CORNERS TO BE MIN. 5mmRADII.

				55%-60% AL ₂ O ₃		320	
ITEM NO	DESCRIPTION	DRAWING NO		MATL CODE		UNIT WT	
				MATL SPEC		QTY	
EQPT: ROTARY HEARTH FURNACE							
		Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DPN CHD APPD	NAME P. RAMAKRISHNAN SONKUMAR S. SHANMUGASUNDARAM	SIGNATURE   	DATE 28.12.04 1/1/05 01/01/05
DEPT MPG	GRADE OF UNTOL DIM C/M/F		SCALE 1:5	WEIGHT (Kg) 35.5		REF TO ASSY DRG	
						REF TO OLD DRG 388105 1/2-5	
TITLE INNER WALL SUPPORTING BRICK				CARD CODE U 01	DRAWING NO : 4-7-1101-01-06305		REV 00

ALL DIMENSIONS ARE IN MM


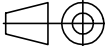
REV 01	DATE 01.09.14	ALTERED	<i>M. Ganesan</i>
		CHECKED	<i>R. K. Singh</i>
		APPROVED	<i>S. Loganathan</i>
New border inserted			



NOTES:

- 1) THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS. THEY SHALL BE BURNT EVENLY THROUGHOUT AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.**
- 2) ALL CORNERS TO BE MIN. 5mmRADII.**

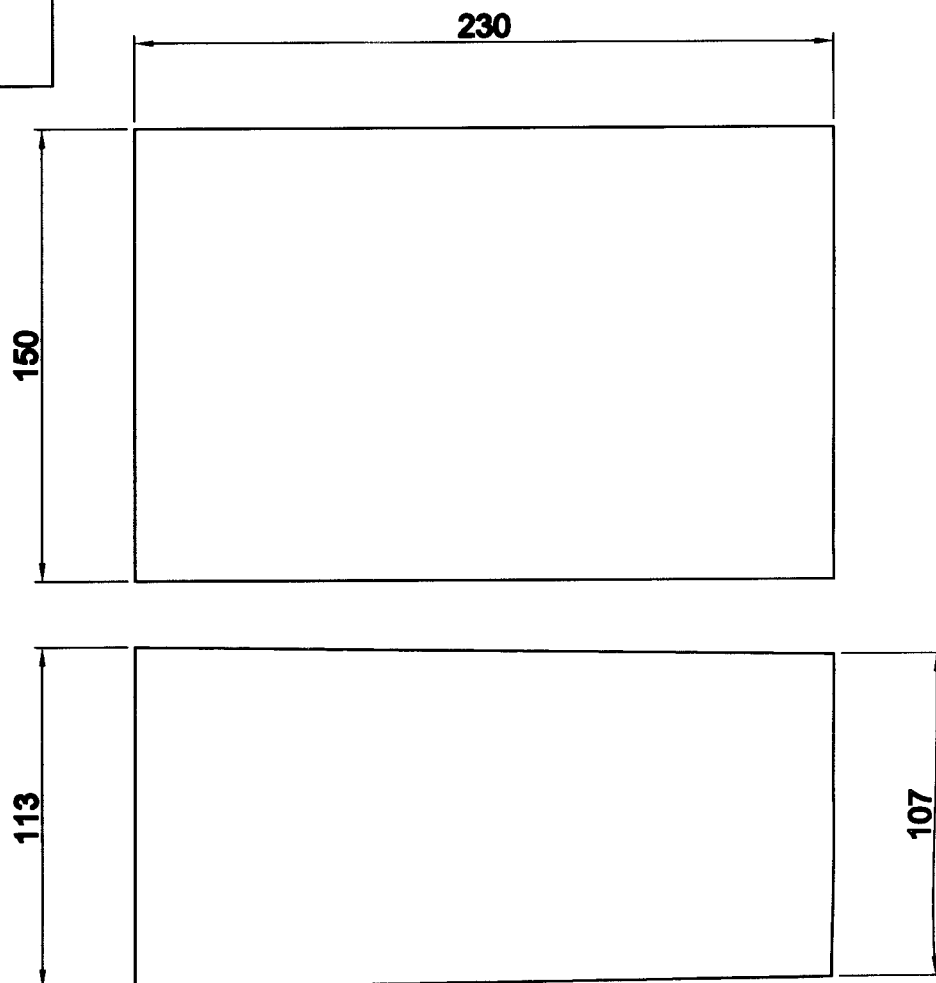
CAUTION: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

			55%-60% AL ₂ O ₃		400
ITEM NO	DESCRIPTION	DRAWING NO	MATL CODE		UNIT WT
			MATL SPEC		QTY
EQPT: ROTARY HEARTH FURNACE					
		Bharat Heavy Electricals Ltd		DRN	NAME P. RAMAKRISHNAN
SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI – 620014		CHD	SSN.KUMAR	SIGNATURE <i>P. Ramakrishnan</i>	
		APPD	S.S.SUNDARAM	DATE 29.12.04	
DEPT SSTP	GRADE OF UNTOL. DIM		SCALE	WEIGHT (Kg)	REF TO ASSY DWG NO
CODE 456	$\phi / M / F$ IS: 2102		1:5	11.8	REF TO OLD DWG NO 358105 1/2-11
TITLE			CARD CODE U 01	DRAWING NO :	REV
RHF - ANCHOR BRICK				4-7-1101-01-06311	01


A4-SIZE

ALL DIMENSIONS ARE IN MM

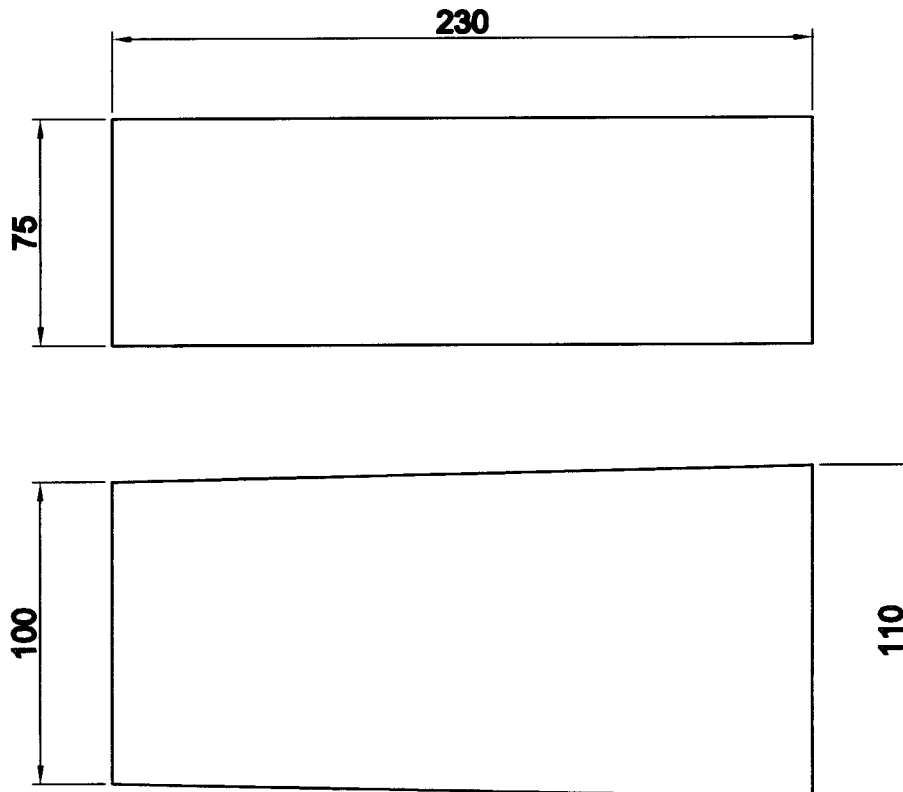
REV 01	DATE	ALTERED
		CHECKED
		APPROVED

**NOTES:**

- 1) THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS. THEY SHALL BE BURNT EVENLY THROUGHOUT AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.
- 2) ALL CORNERS TO BE MIN. 5mmRADII.


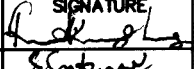
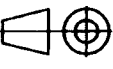
				55%-60% Al_2O_3		220
ITEM NO	DESCRIPTION	DRAWING NO	MATL CODE		UNIT WT	
			MATL SPEC		QTY	
EQPT: ROTARY HEARTH FURNACE						
 Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DRN	NAME P. RAMAKRISHNAN	SIGNATURE <i>P. Ramakrishnan</i>	DATE 29.12.04	
		CHD	SSN.KUMAR	<i>SSN.Kumar</i>	1/1/05	
		APPD	S.SHANMUGASUNDARAM	<i>S. Shanmugasundaram</i>	01/01/05	
DEPT MPG	GRADE OF UNTOL. DIM C/M/F	SCALE 1:2.5	WEIGHT (Kg) 9.5	REF TO ASSY DRG		ITEM NO
CODE				REF TO OLD DRG 358105 1/2-12		
TITLE INNER WALL SHAPE BRICK-I			CARD CODE U 01	DRAWING NO : 4-7-1101-01-06312		REV 00

REV	DATE	ALTERED
9		CHECKED
		APPROVED

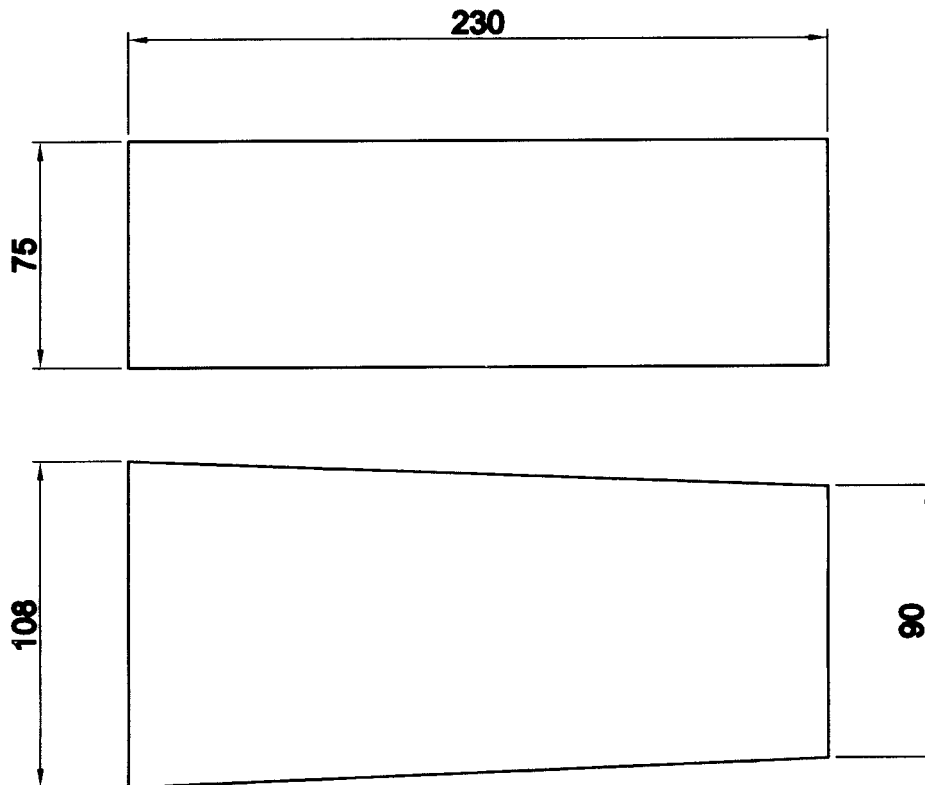


NOTES:

- 1) THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS. THEY SHALL BE BURNT EVENLY THROUGHOUT AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.
- 2) ALL CORNERS TO BE MIN. 5mmRADII.



				55%-60% AL ₂ O ₃		575
ITEM NO	DESCRIPTION	DRAWING NO	MATL CODE		UNIT WT	
			MATL SPEC		QTY	
EQPT: ROTARY HEARTH FURNACE						
		Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DRN	NAME P. RAMAKRISHNAN	SIGNATURE 
				CHD	SSN.KUMAR	DATE 01/11/05
				APPD	S.SHANMUGASUNDARAM	DATE 01/01/08
DEPT MPG	GRADE OF UNTOL. DIM C/M/F		SCALE 1:2.5	WEIGHT (Kg) 4.5	REF TO ASSY DRG	ITEM NO
CODE					REF TO OLD DRG 358105 1/2-13	
TITLE INNER WALL SHAPE BRICK-II				CARD CODE U 01	DRAWING NO : 4-7-1101-01-06313	REV 00

REV	DATE	ALTERED
01		CHECKED
		APPROVED

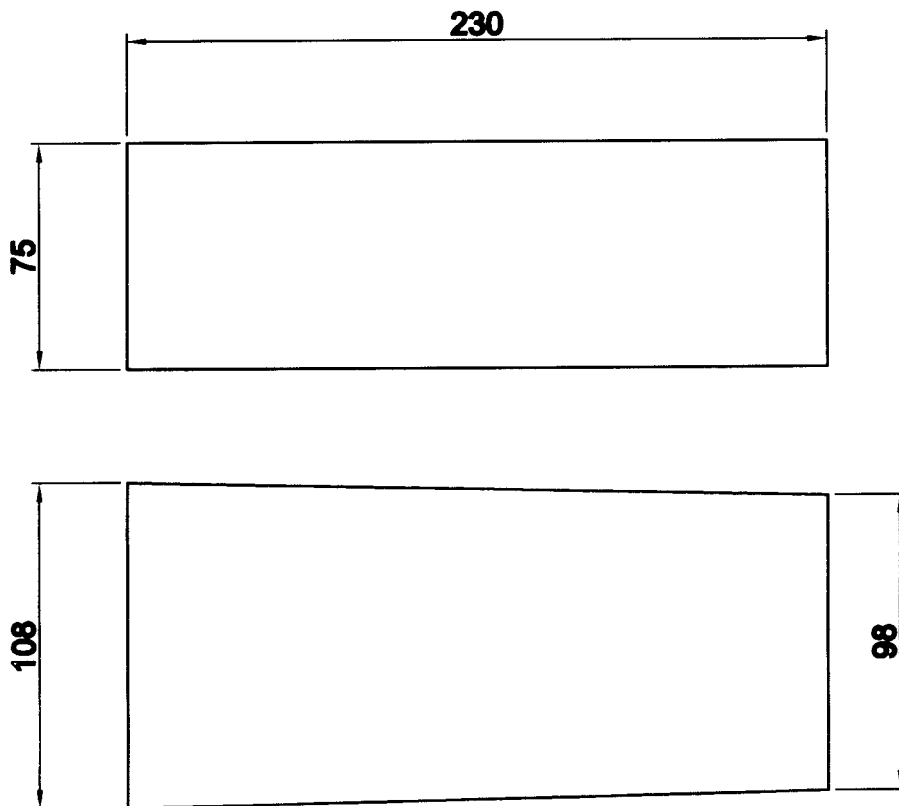


NOTES:

- 1) THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS. THEY SHALL BE BURNT EVENLY THROUGHOUT AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.
- 2) ALL CORNERS TO BE MIN. 5mm RADII.


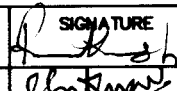
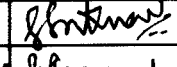
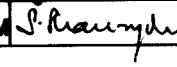
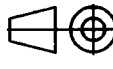
				55%-60% AL ₂ O ₃		620
ITEM NO	DESCRIPTION	DRAWING NO	MATL CODE		UNIT WT	
			MATL SPEC		QTY	
EQPT: ROTARY HEARTH FURNACE						
 Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DRN	NAME P. RAMAKRISHNAN	SIGNATURE <i>P. Ramakrishnan</i>	DATE 28.12.04	
		CHD	SSN.KUMAR	<i>SSN.Kumar</i>	1/1/05	
		APPD	S.SHANMUGASUNDARAM	<i>S. Shanmugasundaram</i>	01/01/05	
DEPT MPG	GRADE OF UNTOL DIM C/M/F	 SCALE 1:2.5	WEIGHT (Kg) 4.3		REF TO ASSY DRG	
CODE					REF TO OLD DRG 358105 1/2-14	
TITLE INNER WALL SHAPE BRICK-III			CARD CODE U 01	DRAWING NO : 4-7-1101-01-06314		REV 00

REV 01	DATE	ALTERED
		CHECKED
		APPROVED



NOTES:

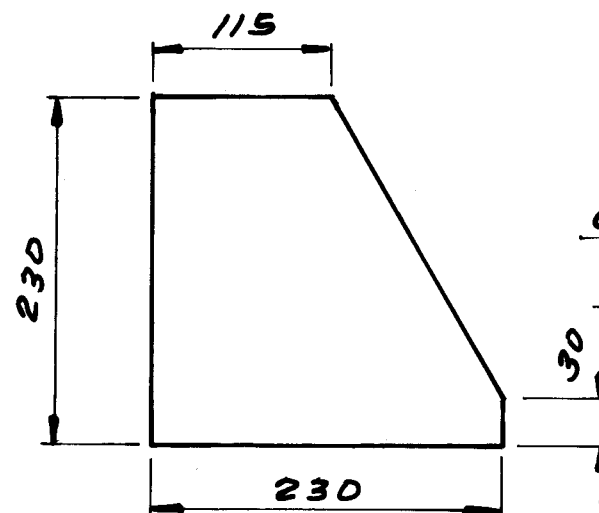
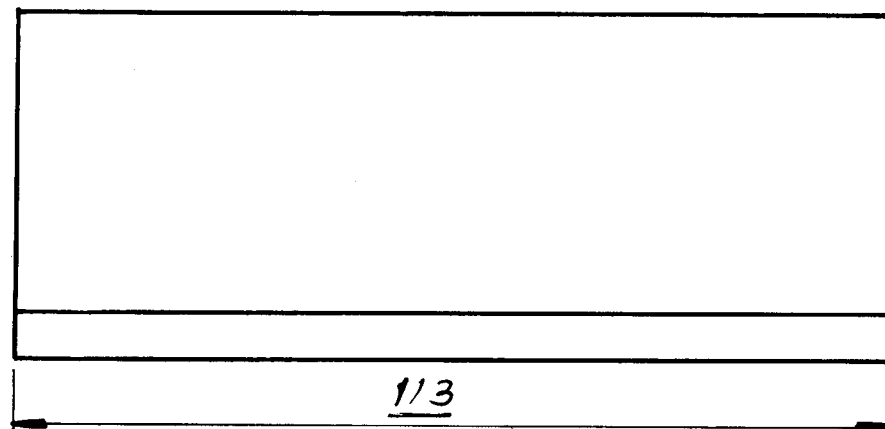
- 1) THE REFRACTORIES SHALL BE COMPACT, OF HOMOGENEOUS TEXTURE AND FREE FROM CRACKS, VOIDS AND OTHER FLAWS. THEY SHALL BE BURNT EVENLY THROUGHOUT AND SHALL HAVE SUFFICIENT MECHANICAL STRENGTH AND NO SOFT CORNERS.
- 2) ALL CORNERS TO BE MIN. 5mm RADII.

				55%-60% AL ₂ O ₃		2850	
ITEM NO	DESCRIPTION	DRAWING NO		MATL CODE		UNIT WT	
				MATL SPEC		QTY	
EQPT: ROTARY HEARTH FURNACE							
		Bharat Heavy Electricals Ltd SEAMLESS STEEL TUBE PLANT TIRUCHIRAPALLI - 620014		DRN	NAME P. RAMAKRISHNAN	SIGNATURE 	DATE 29.12.04
				CHD	SSNKUMAR		1/1/05
				APPD	S.SHANMUGASUNDARAM		01/01/05
DEPT MPG	GRADE OF UNTOL DIM C/M/F		SCALE 1:2.5	WEIGHT (Kg) 4.4	REF TO ASSY DRG		ITEM NO
CODE					REF TO OLD DRG 358105 1/2-15		
TITLE INNER WALL SHAPE BRICK-IV				CARD CODE U 01	DRAWING NO : 4-7-1101-01-06315		REV 00

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REV 01	DATE 31.12.01	ALTERED <i>[Signature]</i>
		CHECKED <i>[Signature]</i>
ZONE		APPROVED <i>[Signature]</i>
MATL SPEC REVISED AS PER WESMAN REVISION		

P
↓



VIEW 'P'

QUALITY:-

55-60% AL2O3

SILLIMANITE.

ITEM NO.	DESCRIPTION	MATL CODE	UNIT WT
		MATL SPEC	QTY

EQPT: RHF



Bharat Heavy Electricals Ltd.,

SEAMLESS STEEL TUBE PLANT

TIRUCHIRAPALLI - 620 014

DRN	NAME SSN. KUMAR	DATE 10.7.91
CHD	<i>[Signature]</i>	11.7.91
APPD	<i>[Signature]</i>	11.7.91

DEPT CODE	GRADE OF UNTOOL DIM C/M/F		1:5	WEIGHT (kg)	REF TO ASSY/OLD DRG 4-1101-58-48*	ITEM NO.
TITLE SKEW BACK				CARD CODE U 01	DRAWING NO. 4-7-1101-01-0445701	REV