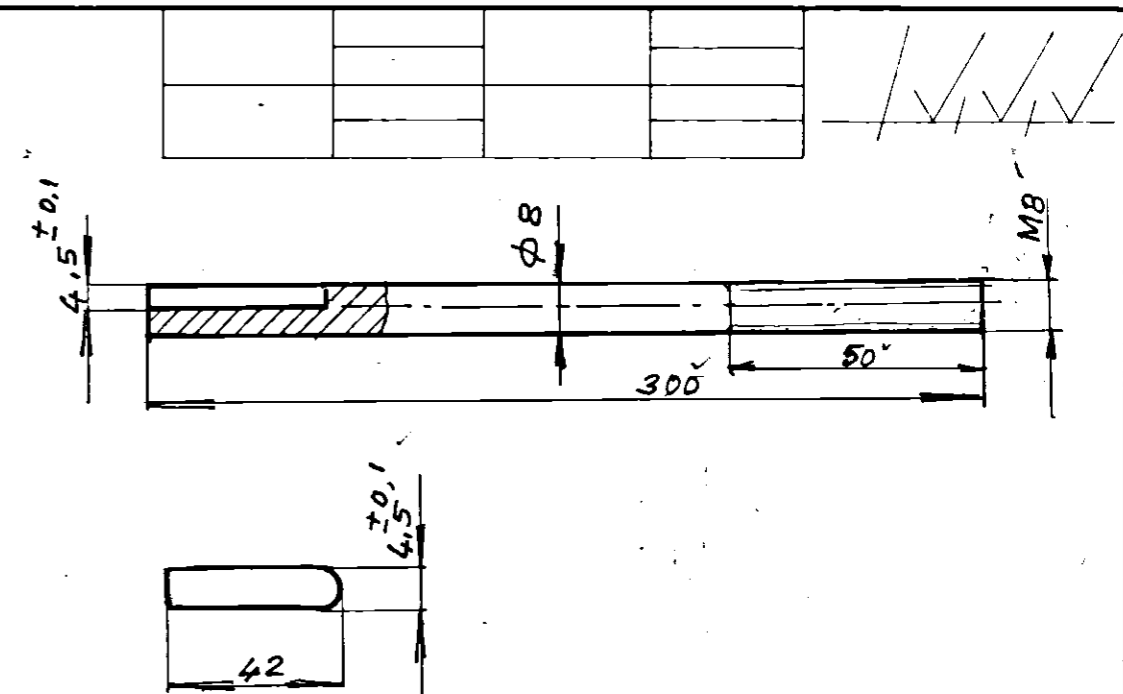
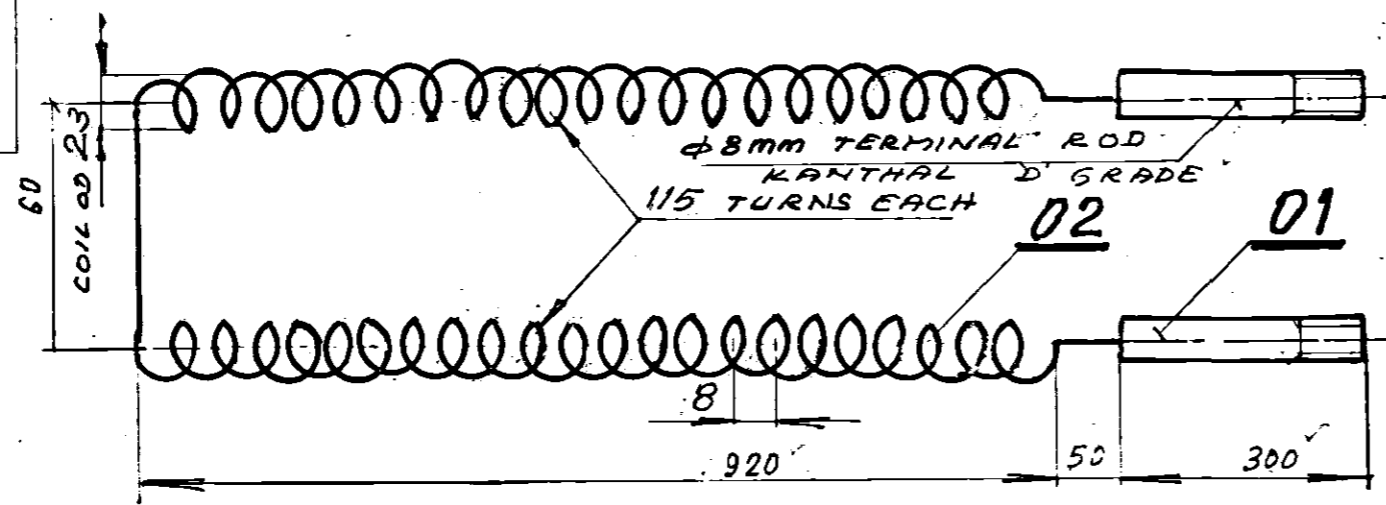


Technical Specifications for Heating Elements

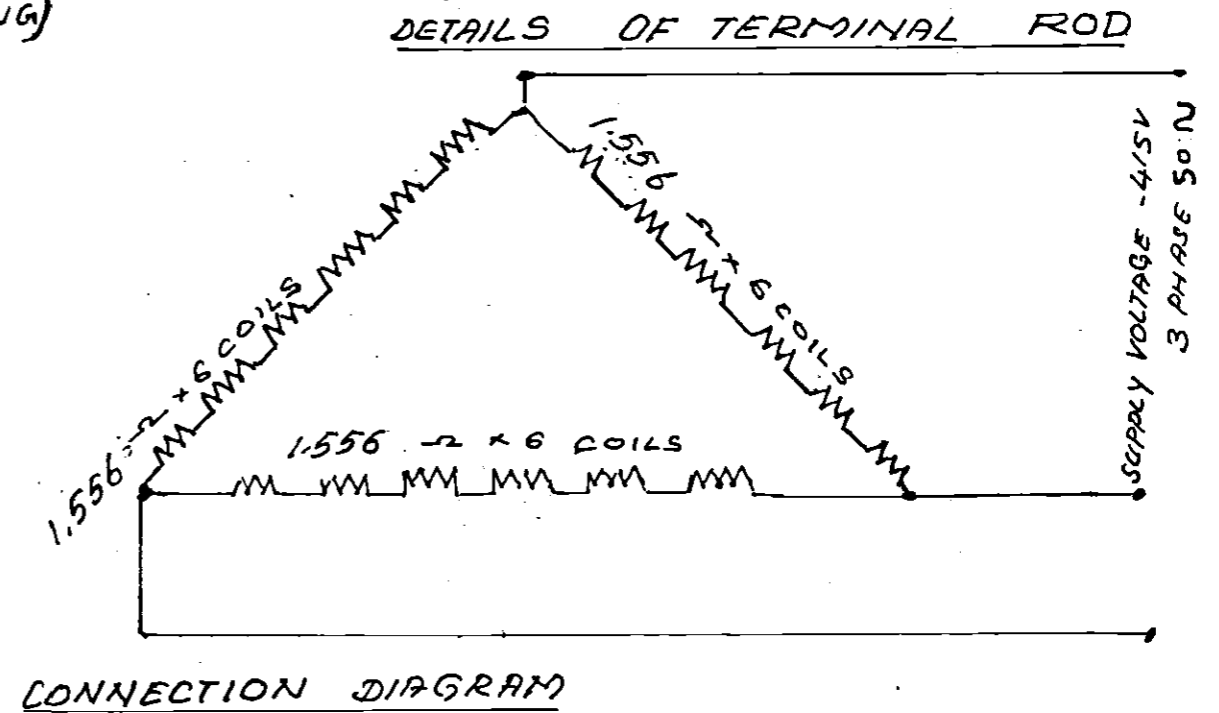
Technical Specifications	Qtys (Nos)
Heating element - Type1 Heating element as per drawing 3E18A1211055	10
Heating element - Type2 Heating element as per drawing 3E18A0411056	10
Heating element - Type3 Heating element as per drawing 3M18A0110987	10
Heating element - Type4 Heating element as per drawing 3E18C0413433	10

Caution
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39-609 A



KANTHAL HEATING ELEMENT WIRE ϕ 4 MM	KANTHAL AF GRADE
WIRE DIA	4 mm ϕ (8 SWG)
COIL OUTSIDE DIA	23 mm
PITCH	8 mm
LENGTH OF COIL	920 mm
NO. OF TURNS IN EACH COIL	230
NO. OF ELEMENT REQUIRED FOR THE FURNACE	18 NOS
ϕ 8mm TERMINAL ROD - MATL - KANTHAL D GRADE	
TOTAL COLD RESISTANCE FOR THE COIL INCLUDING THE TERMINALS	1.556 Ohm
WT. OF EACH ELEMENT INCLUDING TERMINAL ROD	1.456 K.g.
STRAIGHT LENGTH OF 4 MM WIRE REQUIRED FOR EACH ELEMENT	13.882 metre
W.C. No.	1615-0215



CONNECTION DIAGRAM

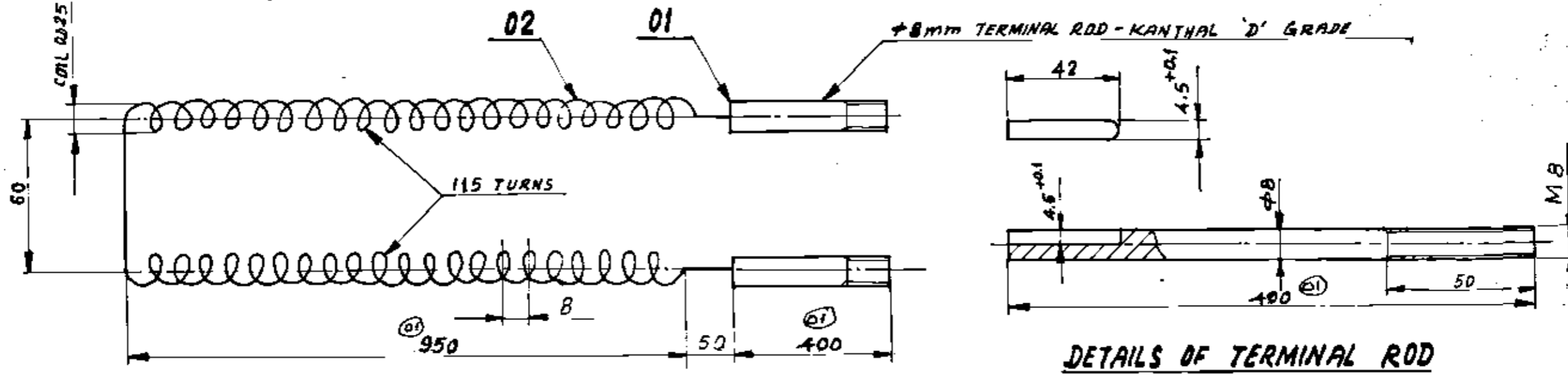
REMARKS:-

THE TERMINAL ROD MUST BE WELDED TO THE END SUITABLY BY TIG WELDING PROCESS.

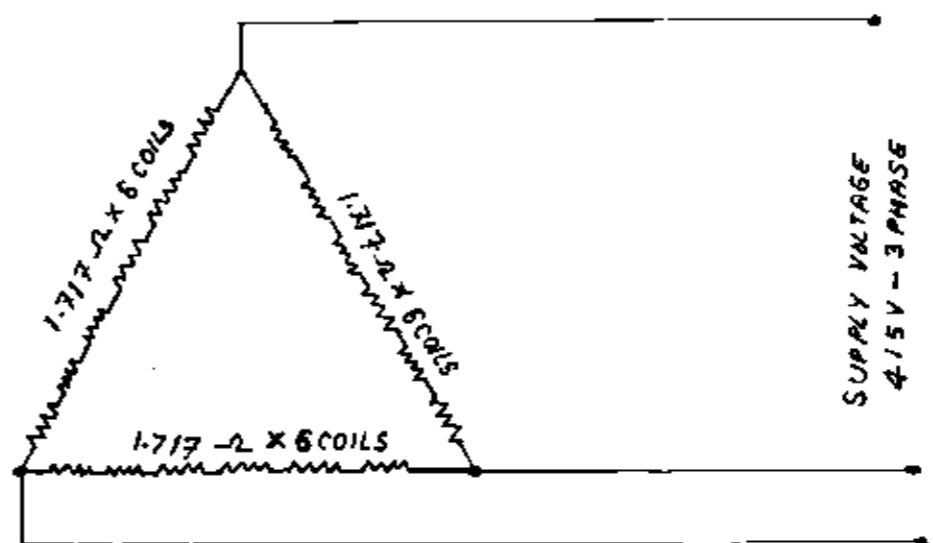
1	WIRE ϕ 4 x 13.882	KANTHAL AF GRADE						02
2	ROD ϕ 8 x 300	KANTHAL D GRADE						01
No. of pcs.	DESCRIPTION	MATERIAL	STD/BIPS	Net wt. (kg)	Gross wt. (kg)	DRAWING No.		Item No.
REFERENCE :			ALTERATIONS EC: 12 CC: 00			DATE	SIGN.	Inde.
SCALE	DRAWN							
	CHECKED							
	APPROVED							
	DATE							
MACHINE: ELECTRICAL FURNACE		TITLE: MODIFIED BOTTOM, ROOF & SIDE WALL HEATING ELEMENTS		TYPL: HN 27 - 48 KW		Total wt. (kg.)		REV.
				DRAWING No. 3-E-18A-11055		12		
				No. of Sheets:		Sheet No.		

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39-609 V



KANTHAL HEATING ELEMENT WIRE MATL :	: KANTHAL AF GRADE
WIRE DIA	: $\phi 4$ mm (8 SWG)
COIL OUTSIDE DIA	: 25 mm
PITCH	: 8 mm
LENGTH OF COIL	: 950 mm
NO. OF TURNS IN EACH COIL	: 230
NO. OF COILS READ. FOR THE FURNACE	: 18
$\phi 8$ mm TERMINAL ROD MATERIAL	: KANTHAL 'D' GRADE
TOTAL COLD RESISTANCE FOR THE COIL INCLUDING THE TERMINALS	: 1.717 Ω / Mb.
WT. OF EACH ELEMENT INCLUDING TERMINAL ROD	: 1.585 kg
STRAIGHT LENGTH OF $\phi 4$ mm WIRE READ. FOR EACH ELEMENT	: 15.325 m
W.C. No:	: 1715-0720



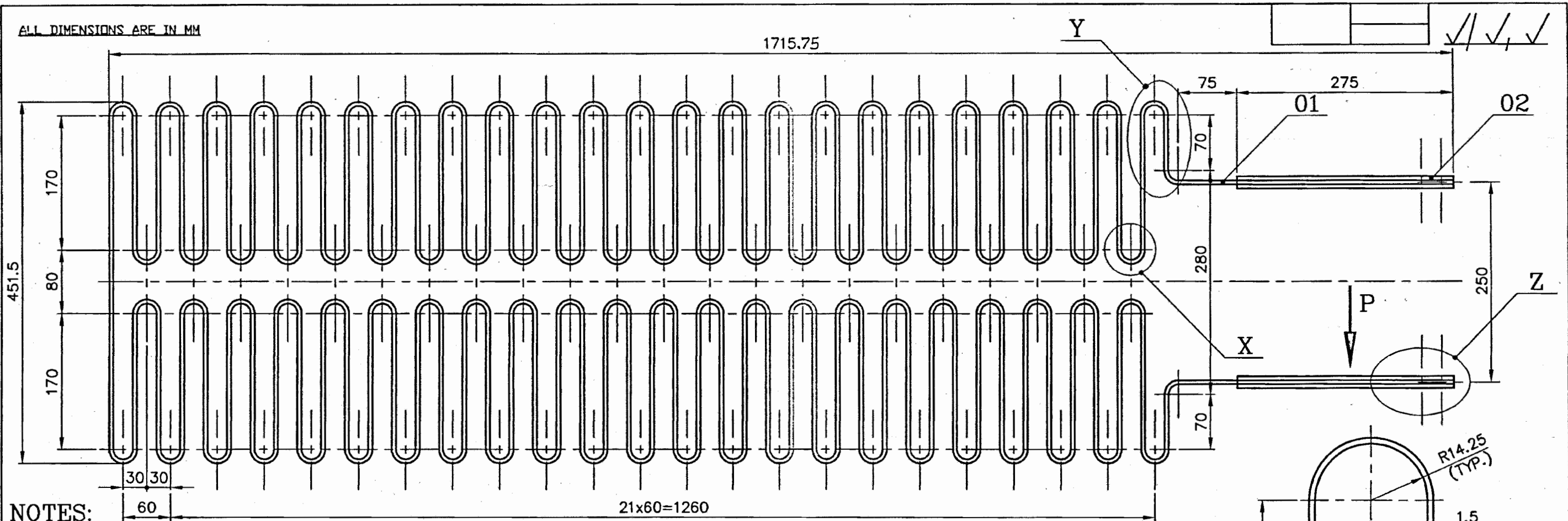
REMARKS:- CONNECTION DIAGRAM
THE TERMINAL ROD MUST BE WELDED TO THE END SUITABLY. BY TIG WELDING PROCESS.

1	WIRE $\phi 4 \times 15325$	KANTHAL AF GRADE			02
2	ROD $\phi 8 \times 300$	KANTHAL D GRADE			01
					33
DRAWING No. 1-M-18A-02286					
No. of	DESCRIPTION	MATERIAL	STD/BPS	WT.	TERMINAL No.
1	WIRE $\phi 4 \times 15325$	KANTHAL AF GRADE			02
2	ROD $\phi 8 \times 300$	KANTHAL D GRADE			01
REFERENCE :			ALTERATIONS CC:00/CC:04	DATE :	SIGN. :
			DIMENS. 950, 400 HERE 950, 300	231008	01
			& MATL GRADE AF WAS AF	200709	02
			MATL. GRADE AF WAS AF		
SCALE	DRAWN	APPROVED		DATE	
		31-01-95			
MACHINE : ELECTRICAL FURNACE		TYPI : METCO-48KW		Total wt. (kg.)	
TITLE		DRAWING No.		REV.	
MODIFIED BOTTOM, ROOF & SIDE WALL HEATING ELEMENTS		3-E-18A-11056		02	
		Sheet No.			

FOR ALTERNATE DESIGN REFER Dwg No: 3-E-18A-13419

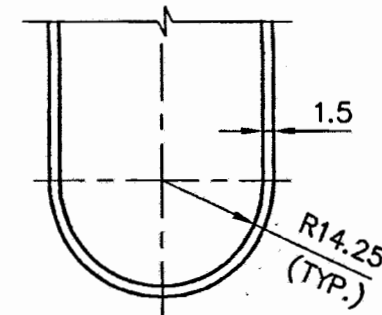
CAUTION: THIS DRAWING IS OUR SOLE PROPERTY AND SHOULD NOT BE USED IN ANY FORM FOR ANY PURPOSE WITHOUT THE WRITTEN PERMISSION OF BHARAT HEAVY ELECTRICALS LIMITED TRICHIRAPPALLI - 620 014.

ALL DIMENSIONS ARE IN MM

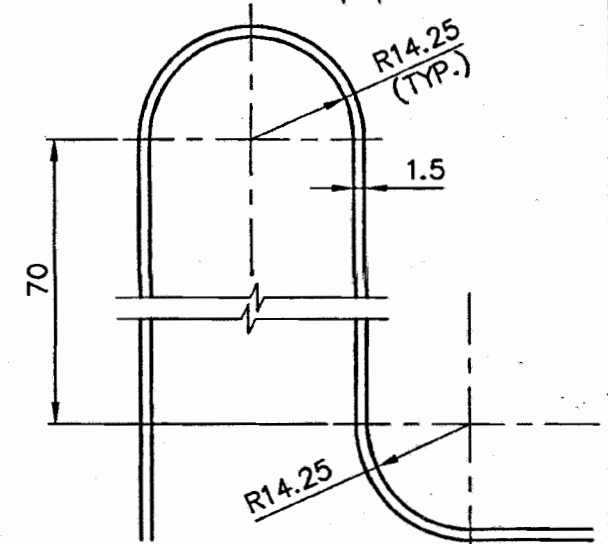


NOTES:

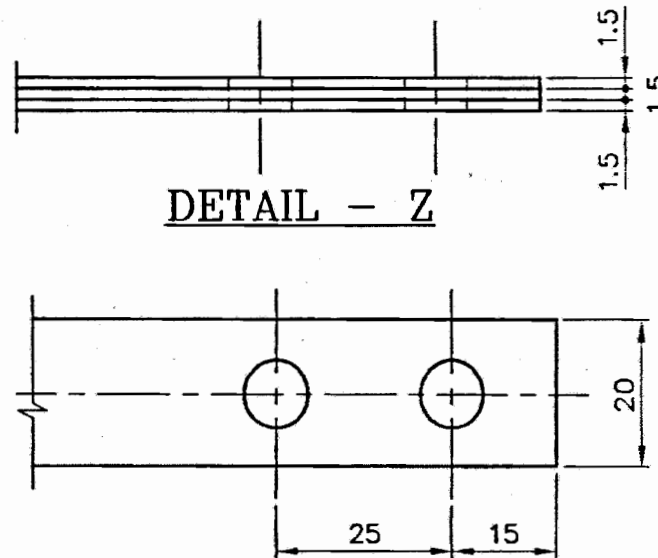
- 01 . HEATING ELEMENT MATERIAL : KANTHAL BRAND AF GRADE.
- 02 . SIZE OF STRIP : 20mm WIDTH x 1.5mm THICK.
- 03 . NO OF TURNS IN EACH ELEMENT : **46**
- 04 . STRETCHED LENGTH OF STRAIGHT STRIP FOR EACH ELEMENT INCLUDING THE TERMINALS OF KANTHAL AF GRADE STRIP ONLY-20.508 METRE.
- 05 . COLD RESISTANCE OF EACH ELEMENT INCLUDING THE TERMINALS - 0.932 OHM.
- 06 . WEIGHT OF EACH ELEMENT INCLUDING THE TERMINALS - 4.662 KG.
- 07 . CONNECTION DIAGRAM OF HEATING ELEMENTS.



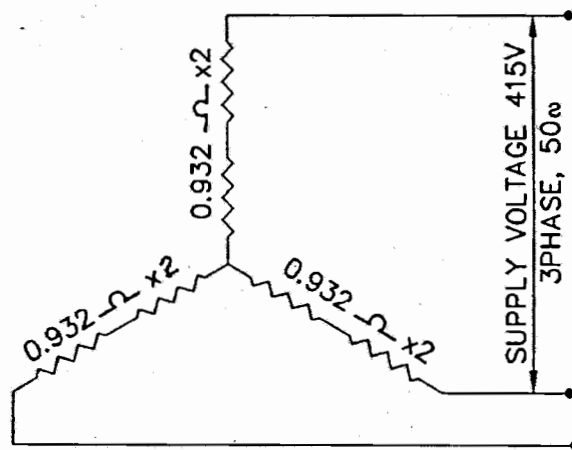
DETAIL - X



DETAIL - Y



DETAIL - Z

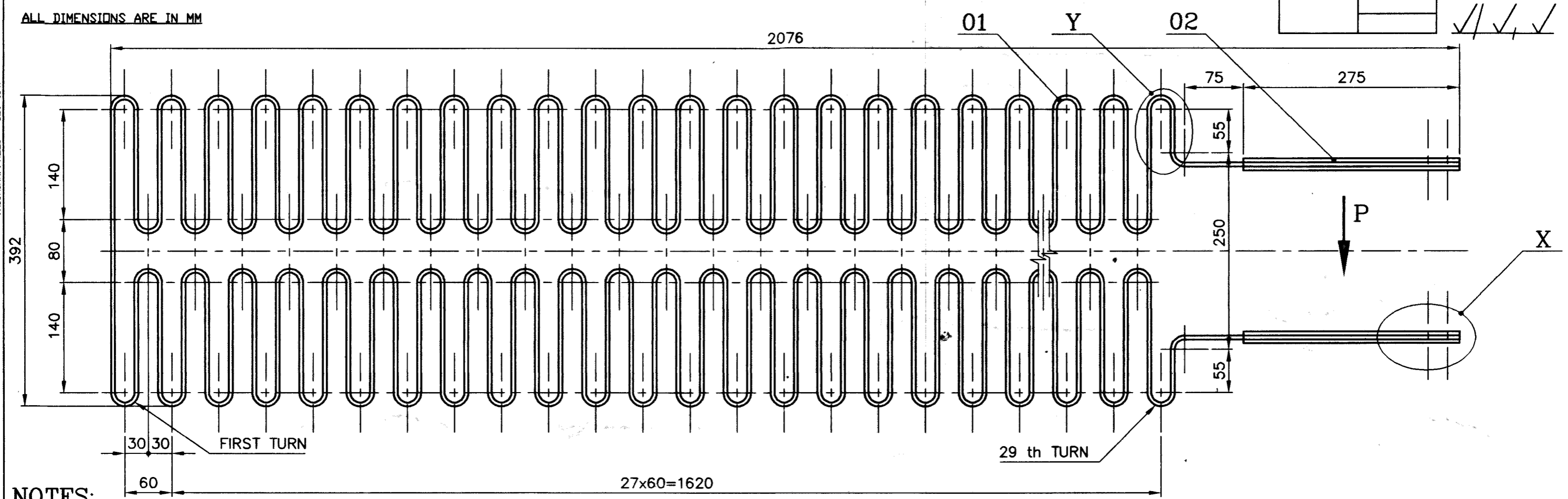


VIEW - P

04	PL1.5x20x275	KANTHAL	D- GRADE	0.237		02		
01	PL1.5x20x8445	KANTHAL	AF GRADE	4.425		01		
				4.662		04		
No. of Pieces		DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.	
REFERENCE:			COMPONENT CODE: 00		EQUIPMENT CODE: 03			
SCALE:			ALTERATIONS:		DCN REF	DATE	SIGN.	INDEX
1:5 & 1:1	DRAWN	A.RAJA <i>(Signature)</i>		NO OF TURNS IN EACH ELEMENT				
	CHECKED	R. Ramamurthy		46 WAS 23				
	APPROVED	<i>(Signature)</i>		9502/KR (01)				
	DATE	09.12.1997						
MACHINE: ELE. CAR BOTTOM FURNACE				TYPE: PRECON-1T-96KW				
TITLE: STRIP ELEMENT				DRAWING No: 18A01		REV.		
				3-M-18-10987		01		
No. of Sheets:				Sheet No:				

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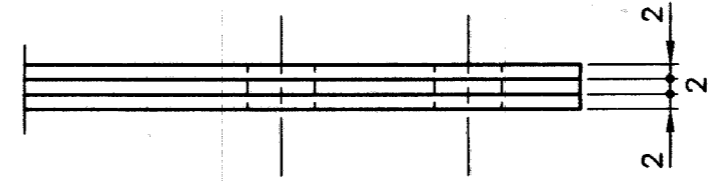
ALL DIMENSIONS ARE IN MM



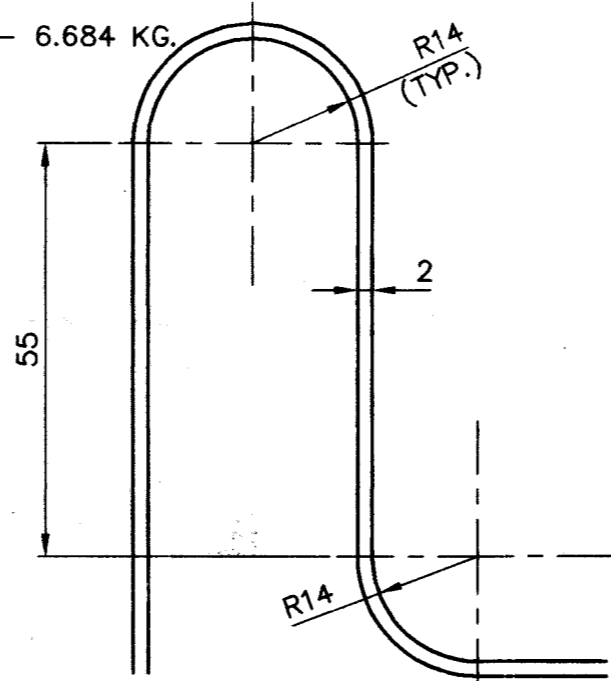
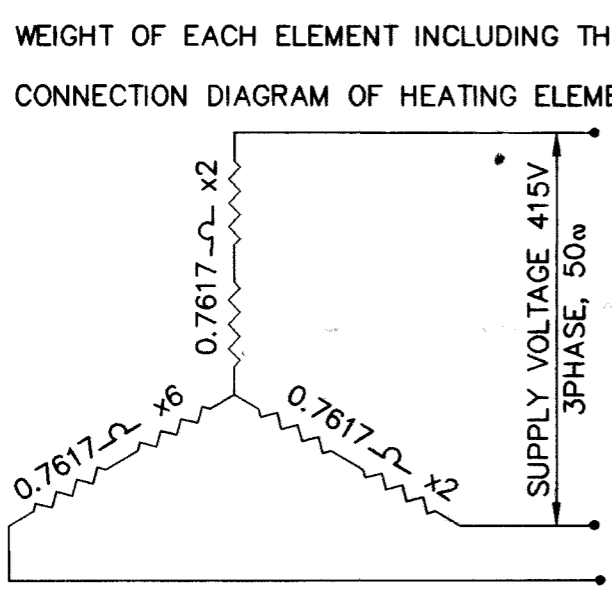
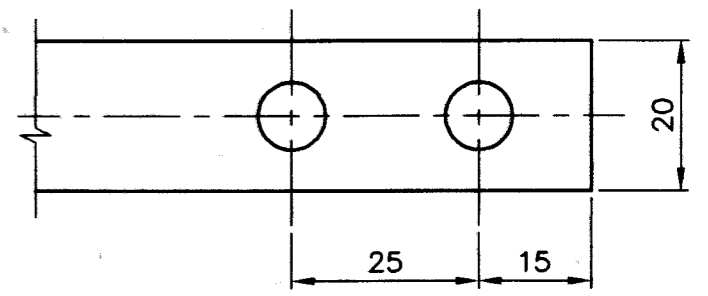
NOTES:

- 01 . HEATING ELEMENT MATERIAL : KANTHAL BRAND AF GRADE.
- 02 . SIZE OF STRIP : 20mm WIDTH x 2mm THICK.
- 03 . NO OF TURNS IN EACH ELEMENT : 29
- 04 . STRETCHED LENGTH OF STRAIGHT STRIP FOR EACH ELEMENT INCLUDING THE TERMINALS OF KANTHAL AF GRADE STRIP ONLY-22.269 METRE.
- 05 . COLD RESISTANCE OF EACH ELEMENT INCLUDING THE TERMINALS - 0.7617 OHM.
- 06 . NO OF HEATING ELEMENTS IN THE FURNACE 06 NOS.
- 07 . WEIGHT OF EACH ELEMENT INCLUDING THE TERMINALS - 6.684 KG.
- 08 . CONNECTION DIAGRAM OF HEATING ELEMENTS.

DETAIL - X



VIEW - P



DETAIL - Y

04	PL 2x20x275	KANTHAL	D- GRADE	0.315		02	
01	PL 2x20x22269	KANTHAL	AF GRADE	6.369		01	
				6.684			
No. of Pieces		DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
REFERENCE:		COMPONENT CODE: 00		EQUIPMENT CODE: 04			
SCALE		DRAWN		DATE		SIGN.	INDEX
1:5 & 1:1		A.RAJA		09.12.1997			
CHECKED		APPROVED		DATE		SIGN.	INDEX
		R. Ramamoorthy		09.12.1997			
MACHINE: ELE. CAR BOTTOM FURNACE				TYPE: ELHEAT-3T-120KW			
TITLE: STRIP ELEMENT				DRAWING No: 04		REV.	
				3-E-18C-13433			
No. of Sheets:				Sheet No:			

Annexure B

Pre-Qualification Criteria, Vendor Confirmation to Technical Specifications & Vendor's Details

A. Pre-Qualification Criteria		
SL. No	Pre-Qualification Criteria	Vendor's Confirmation /Acceptance
	The BIDDER / VENDOR has to compulsorily meet the following requirements to get qualified for consideration of the technical offer. If the vendor does not qualify as per PRE-QUALIFICATION CRITERIA, the technical offer of such BIDDER(s) / VENDOR(s) offer will not be evaluated.	
1.	Only bidders who have experience of supplying Furnace Heating elements to industries/organisations shall quote.	
2.	Vendor shall necessarily furnish at least one purchase order copy of customer to whom similar Furnace Heating elements have been supplied.	
B. Technical Specifications		
SL. No	Description and Technical Specification of the item	Vendor's Confirmation/Acceptance
1.	Heating element - Type1 Heating element as per drawing 3E18A1211055	
2.	Heating element - Type2 Heating element as per drawing 3E18A0411056	
3.	Heating element - Type3 Heating element as per drawing 3M18A0110987	
4.	Heating element - Type4 Heating element as per drawing 3E18C0413433	
C. Supplier/Vendor details		
1	Supplier Name & Address	
2	Contact Person Name, email id and Mobile Number	
3	HSN code for the quoted items	
4	GST% included in the quoted price	

Vendor Signature & Seal