

M/S ANDREW YULE & CO.LTD
T & S UNIT,
5/346 OLD MAHABALIPURAM ROAD
PERUNGUDI, CHENNAI :600 096

**TENDER DOCUMENTS FOR SUPPLY OF INSULATION PRESS BOARD
KITS, & MOULDED COMPONENTS AS PER OUR DRAWING**

TENDER NO T-07/16-17

ANDREW YULE & CO. LTD. invites e-Tender under single stage two part system (**Part I: Techno-Commercial Bid and Part II: Price Bid**) for finalizing rate contract for supply of Insulation Board Kits & Moulded components , "**Scope of Work / Technical Specification**" as specified in this tender document.

Tender document may be downloaded from MSTC website www.mstcecommerce.com/eprochome/aycl. Corrigenda or clarifications, if any, shall be hosted on the above mentioned websites only.

AYCL reserves the right to accept or reject any tender.

a) Tenders are invited for supply of Insulation Kits, Angle Ring and Angle washer as per our drawings. For reference we are enclosing typical drawings of the Insulation Kits, Angle Ring and Angle washer. The actual drawings will be issued along with our order and it will be similar to the typical drawings enclosed but the dimension will vary from job to job.

Approximate requirement

- | | |
|-------------------------------------|------------|
| 1) Insulation Kit for Winding | : 80 Sets. |
| 2) Insulation Kit for Coil Assembly | : 80Sets. |
| 3) Insulation Kit for Core | : 80 Sets. |
| 4) Angle Ring | : 80 Sets. |
| 5) Angle Washer | : 80 Sets |

Approximate weight of the Insulation material is 80 MT.

Any clarification or additional information if required, the tenderer should call on us to get those things clarified.

The quantity mentioned in the Tender is our approximate requirement up to 30.06.2017.

The quantities mentioned are indicative only and the order will be released based on actual requirement.

Andrew Yule reserves the right to increase the tender quantity by 30%.

DELIVERY: To be intimated from time to time as per our requirement, commencing within 4 weeks from the placement of our P/Order and as per our requirement.

VALIDITY: Your offer should be valid for acceptance for a minimum period of 90 days from the date of tender opening.

The buyer reserves the right to accept or reject any or all the tenders or to waive any informality, minor deviation or omission without assigning any reasons whatsoever.

Schedule of Tender

1.	TENDER NO.	<u>T-07/2016-17</u>
2.	MODE OF TENDER	e-Procurement System Online submission of Part I - Techno-Commercial Bid and Part II - Price Bid through www.mstcecommerce.com/eprochome/aycl The intending bidders are required to submit their offer electronically through this e-tendering portal. No physical tender is acceptable by AYCL/MSTC
3.	E-Tender No. / Event No.	AYCL/Electrical Division CO/5/16-17/ET/31
4.	Date of publication of e-Tender through publication MSTC/AYCL websites and Central Public Procurement Portal	26.05.2016
5.	Date of availability of NIT to the Vendors for downloading	26.05.2016
6.	Earnest Money Deposit	<ul style="list-style-type: none"> • Earnest Money Deposit” of Rs.50,000 (Rupees Fifty Thousand only) should be paid by thro'NEFT/RTGS • Other document as described in Annexure II & II A
7.	Date of Starting of e-Tender for submission of Online Techno-Commercial Bid and Price Bid at www.mstcecommerce.com/eprochome/aycl	26.05.2016 - 11.00 AM
8.	Date of closing of Online e-tender for submission of Techno-Commercial Bid & Price Bid at www.mstcecommerce.com/eprochome/aycl	09.06.2016 -11.00 AM
9.	Last date of submission/ uploading details of EMD & other documents at www.mstcecommerce.com/eprochome/aycl	09.06.2016 -11.00 AM
10.	Date & time of opening of Part-I (Techno-Commercial Bid)	09.06.2016 – 11.15 AM
11.	Date & time of opening of Part-II (Price Bid)	To be intimated to the eligible vendor separately by email.

List of Annexure

Important Instructions for E-procurement -	Annexure-I
Terms & Conditions	Annexure-II
General Terms& Conditions	Annexure-III
Online Techno commercial terms	Annexure-IV
Price Sheet	Annexure-V
Specification	Annexure -VI

Important Instructions for E-procurement

This is an e-procurement event of *ANDREW YULE & COMPANY LTD Ltd.*

You are requested to read the Terms & Conditions (Annexure- II,III,IV) of this tender before submitting your online tender. Tenderers who do not comply with the Conditions with documentary proof (wherever required) will not qualify in the Tender for opening of Price Bid.

1. Process of E-tender:

A) **Registration:** The process involves vendor's registration with MSTC e-procurement portal which is free of cost. Only after registration, the vendor(s) can submit his/their bids electronically. Electronic Bidding for submission of Techno-Commercial Bid as well as Price Bid over the internet will be done. The Vendor should possess Class III signing type Digital Signature Certificate. Vendors are to make their own arrangement for bidding from a PC connected with Internet. MSTC is not responsible for making such arrangement. (Bids will not be recorded without Digital Signature).

SPECIAL NOTE: THE PRICE BID AND THE COMMERCIAL BID HAS TO BE SUBMITTED ON-LINE AT www.mstcecommerce.com/eprochome/aycl

- 1) **Vendors are required to register themselves online with www.mstcecommerce.com → e-Procurement → PSU / Govt. depts. → Register as Vendor under AYCL- Filling up details and creating own user id and password → Submit.**
- 2) **Vendors will receive a system generated mail confirming their registration in their email which has been provided during filling the registration form.**

In case of any clarification, please contact MSTC/AYCL (before the scheduled time of the e-Tender).

Contact person (ANDREW YULE & COMPANY LTD):

- | | |
|--|--|
| 1. Mr. A T E Pandian
Manager (Materials)
Ph. No: (044) 2496-0793
Email: atepandian@andrewyule.com | 2. Mr Kingsley Rueben
Technical Assistant (EDP)
Mobile No: 91 9884446378
Email: reuben@andrewyule.com |
| 3. Mr. R. Tamilselvan
Engineer (Materials)
Mobile. No: 91 9788520864
Email: tamilselvan@andrewyule.com | |

Contact person (E-Commerce, MSTC Ltd):

- | | |
|---|---|
| 1. Mr. Arindam Bhattacharjee
Deputy Manager (E-commerce)
MobileNo: 09330102643
Email: arindam@mstcindia.co.in | 2) Mr. Sabyasachi Mukherjee
Assistant Manager (E-commerce)
Mobile- 07278030407
Email: smukherjee@mstcindia.co.in |
|---|---|
- Landline: (033) 22901004

Ms Sumona Maity
Management Trainee (E-Commerce)
Mobile-09831155225
Email: sumaity@mstcindia.co.in

System Requirement:

- i) Windows XP-SP3 or above / Windows 7 Operating System
- ii) IE-7 or above Internet browser.
- iii) Signing & Encryption type digital signature
- iv) JRE 7 update 79 software to be downloaded and installed in the system.
Security level should be medium
- v) To enable ALL active X controls and disable 'use pop up blocker' under
Tools → Internet Options → custom level (Please run IE settings from the
page www.mstcecommerce.com once)

2. Part-I: Uploading of EMD & other Documents:

Within specified Date & time the vendor must submit the documents as per the annexure. (Annexure II & II (A))

Bidding in e-Tender:

- a. No interest will be paid on EMD. EMD of the unsuccessful bidder(s) will be refunded by ANDREW YULE & COMPANY LTD. EMD to be paid along with the Document within the last date as mentioned in SOT.
- b. The process involves Electronic Bidding for submission of Techno Commercial Bid as well as Price Bid.
- c. The bidder(s) should submit their Techno Commercial Bids , upload payment details of tender fee, EMD & other documents and Price Bid through online in MSTC website www.mstcecommerce.com → e-procurement → Psu / Govt depts. → Login under AYCL → My Menu → Auction Floor Manager → live event → Selection of the live event.

- d. The bidder should allow to run an application namely en Apple by accepting the risk and clicking on run. This exercise has to be done twice immediately after opening of Bid floor. Then they have to fill up Common terms /Commercial specification and save the same. After that clicking on the Techno-Commercial bid, if this application is not run then the bidder will not be able to save / submit his Techno-Commercial bid.
- e. After filling the Techno-Commercial Bid, bidder should click 'save' for recording their Techno-Commercial bid. Once the same is done, the Price Bid link becomes active and the same has to filled up and then bidder should click on "**Save**" to record their Price Bid. Then once both the Techno-Commercial bid & Price Bid has been saved, the bidder can click on the "**Submit**" button to register their bid.
- f. Vendors are instructed to use link in **My Menu** to **Upload Documents** in document library. Multiple documents can be uploaded. Maximum size of single document for upload is 5 MB.
- g. Once documents are uploaded in the library, vendors can attach documents through *Attach Document* link against the particular tender. For further assistance please follow instructions of vendor guide.
- h. In all cases, bidder should use their own ID and Password along with Digital Signature at the time of submission of their bid.
- i. During the entire e-tender process, the bidders will remain completely anonymous to one another and also to everybody else.
- j. The e-tender floor shall remain open from the pre-announced date & time and for as much duration as mentioned above.
- k. Techno-Commercial bid will be opened electronically on specified date and time as given in the NIT. Bidder(s) can download Technical Comparative statement.
- l. Price bid will be opened electronically on specified date and time given in the NIT. Bidder(s) can download Price Comparative statement.
- m. All entries in the tender should be entered in online Technical & Commercial Formats without any ambiguity.
- n. All electronic bids submitted during the e-tender process shall be legally binding on the bidder. Any bid will be considered as the valid bid offered by that bidder and acceptance of the same by the Buyer will form a binding contract between Buyer and the Bidder for execution of supply. Such successful tenderer shall be called hereafter **SUPPLIER**.
- o. It is mandatory that all the bids are submitted with Digital Signature Certificate otherwise the same will not be accepted by the system.

- p. Buyer reserves the right to cancel or reject or accept or withdraw or extend the tender in full or part as the case may be without assigning any reason thereof.
- q. No deviation of the terms and conditions of the tender document is acceptable. Submission of bid in the e-tender floor by any bidder confirms his acceptance of terms & conditions for the tender.
- s. Unit of Measure (UOM) is indicated in the e-tender Floor. Rate to be quoted should be in Indian Rupee as per UOM indicated in the e-tender floor/tender document.

E-tender cannot be accessed after the due date and time mentioned in NIT.

All notices / corrigendum and correspondence to the bidder(s) shall be sent by email only during the process till finalization of tender by ANDREW YULE & COMPANY LTD/MSTC LTD. Hence the bidders are required to ensure that their corporate email I.D. provided is valid and updated at the stage of registration of vendor with MSTC. Bidders are also requested to ensure validity of their DSC (Digital Signature Certificate).

Any order resulting from this open e-tender shall be governed by the terms and conditions mentioned therein.

No deviation to the technical and commercial terms & conditions are allowed.

ANDREW YULE & COMPANY LTD has the right to cancel this e-Tender without assigning any reason thereof.

The online tender should be submitted strictly as per the terms and conditions and procedures laid down in the website www.mstcecommerce.com/eprochome/aycl of MSTC Ltd.

The bidders must upload all the documents required as per terms of NIT. Any other document uploaded which is not required as per the terms of the NIT shall not be considered.

The bid will be evaluated based on the filled-in technical & commercial formats.

Bidders are requested to read the vendor guide and see the video in the page www.mstcecommerce.com/eprochome/mstc of MSTC Ltd. to familiarize them with the system before bidding.

**ANDREW YULE & COMPANY LIMITED
T&S Unit, Electrical Division**

General Information

Ref. Tender No.: T-07/16-17

(This document should be uploaded along with EMD)

The applicants are required to furnish full information to the queries included in this form. In giving the particulars, the supporting documents/certificates as called for per queries at places, must be tagged with the application for evidencing the information furnished in the application.

1. Name of the firm in full :

2. Address, Telephone No.,

Fax No. & E-mail :

a) Address :

b) Telephone No. :

c) Fax No. :

d) E-mail ID :

3. Status of the organization :

4. Trade License No.

**(Please attach a photo
copy of the license) :**

5. Banker's name

(a) Name of the Bank :

(b) Name of the Branch :

(c) Account No. :

Note : A copy of Banker's Certificate to be attached.

6. Sales tax Registration No.

(a) Central :

(b) State / VAT :

7. I. T. Permanent Account No.:

8. Financial Capacity : Year (2014-2015)

(a) Fixed capital :

(b) Working capital :

I/we hereby certify that the particulars furnished by me/us above are true to the best of my / our knowledge and belief and mis-representations of facts will render me/us liable to my/our action as may be deemed fit by Andrew Yule & Co. Ltd. (Chennai Operation) & have the sole discretion to reject or accept my/our candidature.

(Signature of the Applicant)
Office Stamp/Seal.

Place :

Date ;

List of attachments:

Annexure-II (A)

The following documents are to be uploaded online at

www.mstcecommerce.com/eprochome/aycl

1) EMD : Rs. 50,000/= *

*Bidders may request for exemption from submitting EMD (Refer details given in General terms & conditions)

2) Tender fee Rs: 200 /= should be paid by way of RGTS/ NEFT

*Bidders participating in the tender should upload the UTR details towards cost of tender document.

3) Present customer Profile to be upload.

4) For supply of Insulation Kit & Angle Washer purchase orders & Performance Certificate from at least three reputed transformers manufacturers for having supplied Insulation Kit & Angle Washer for transformer above 10 MVA /132 KV rating during the year 2015-2016.Proof to be uploaded.

5) For supplying Angle Rings, purchase orders & Performance Certificate from at least three reputed transformers manufacturers for having supplied Angle Ring for transformer above 10 MVA /132 KV rating during the year 2015-2016. Proof to be uploaded.

6) Bidders should have a minimum turnover of Rs: 80 lakhs per annum in last three financial years (2012-13, 2013-14 & 2014-15), balance sheets and P&L Account Proof to be uploaded.

OFFERS RECEIVED WITHOUT ANY OF THE ABOVE WILL BE REJECTED

** However those who are in the approved list of vendors of Andrew Yule need not submit the documents pertaining to SI No 3 to 5, Annexure II and for SI No 6, balance sheet (P&L A/c) for 2014-15 only needs to be uploaded.

GENERAL & TERMS AND CONDITIONS

- 1) EMD: Rs. 50,000.00 (Rupees Fifty thousand only), should be paid by way of RGTS/ NEFT.

For bidders already enlisted with AYCL- T&S Unit, having outstanding amount more than the EMD amount or who have already submitted the EMD against our earlier tenders or those who have security deposit with Andrew Yule may apply for adjustment of the same. The total EMD should be Rs: 50,000/=

Bidders who are MSMED units may apply for exemption from furnishing EMD by making a specific request in writing and enclosing the necessary document in support of the same.

Bidders whose turnover is more than Rs: 50 crores may apply for exemption from furnishing EMD by making a specific request in writing and enclosing the necessary document in support of the same

If reason for non-submission of EMD or adjustment against the outstanding balance for EMD is not mentioned in Techno-commercial bid of tender, the tender will be rejected.

- 2) The rate quoted should be for individual component of the insulation kits in Rate/Kg basis. The formula for arriving at the weight for calculating the kit cost is as per Annexure A.

For arriving at the L1 price, typical jobs (FO 3371 & FO 3391) will be used for calculating the cost of the Insulation kit and moulded component. The L1 price will be arrived based on the insulation kit cost only and not on the individual components cost.

The order will be released in Kit form only.

- 3) After the finalization of tender, individual rate contract will be issued to all successful bidders and the individual order will be released to all successful bidders based on the distribution of tender quantity as shown below,

Distribution of Tender quantity among all the qualified bidders

Negotiated L1 price will be offered to other bidders whose price bid was opened. The tender quantity will be split among bidders as follows.

- a) If only one bidder (among L2, L3, L4, L5, L6, etc) agrees to match the negotiated L1 bidder's price then tender quantity will be split as follows

L1 bidder will get 70 % of Tender quantity

Other bidder who agreed to match the negotiated L1 price will get 30 % of Tender quantity

b) If two or more bidders (among L2, L3, L4, L5, L6, etc) agree to match the negotiated L1 bidders' price then Tender quantity will be split as follows

L1 bidder will get 60 % of Tender quantity

Next higher bidder than L1 bidder who agrees to match the negotiated L1 price (Bidder 'A') will get 25 % of Tender quantity

Next higher bidder than Bidder 'A' who agrees to match the negotiated L1 price will get 15 % of Tender quantity.

c) If none of the other bidders accept the L1 price, AYCL reserves the right to place the entire tender quantity on the L1 bidder.

4) THE RIGHTS OF THE COMPANY

Bidders who have quote other payment terms & condition having financial implication will be loaded as per Andrew Yule's norms.

We reserves the right to accept or reject any or all the tenders or to waive any informality, minor deviation or omission without assigning any reasons whatsoever.

Our Bank details for making RTGS payment.

Bank Name and Address	ALLAHBAD BANK CHENNAI ADYAR BRANCH 19,1ST STREET, PADMANABHA NAGAR CHENNAI 600 020
IFSC Code	ALLA0211103
Account No	20276303182
Account Name	ANDREW YULE & COMPANY LIMITED

Annexure-IV

TECHNO-COMMERCIAL TERMS FOR INSULATION KIT&MOULDED
COMPONENTS
(**To be filled online in mstc portal**).

Sl. No	Terms & Conditions	Options
1	<p>REQUIREMENT <i>E-Tender offers are invited for Entering into Rate Contract for supply of Insulation Components as per our drawings as per the following details.</i></p> <p><u>Approximate requirement</u></p> <p>1) Insulation Kit for Winding : 80 Sets. 2) Insulation Kit for Coil Assembly : 80Sets. 3) Insulation Kit for Core : 80 Sets. 4) Angle Ring : 80 Sets. 5) Angle Washer : 80 Sets</p> <p>Approximate weight of the Insulation material is 80 MT.</p> <p>The quantity mentioned in the Tender is our approximate requirement up to 30.06.2017.</p> <p>Andrew Yule reserves the right to increase the tender quantity by 30 %.</p>	AGREE
2	<p>EMD : Rs. 50,000/= UP LOADED * Bidders may request for exemption from submitting EMD (Refer details given in General terms & conditions)</p>	Remark field
3	<p>Tender fee Rs: 200 /= should be paid by way of RGTS/ NEFT UP LOADED * Bidders participating in the tender should upload the UTR details towards cost of tender document.</p>	Remark field
4	<p>Customer Profile UP LOADED * Bidders in AYCL-Chennai approved vendor list for Supply of Insulation kits & moulded components need not submit the customer profile.</p>	Remark field
5	<p>For supplying Insulation Kit & Angle Washer purchase orders & Performance Certificate from at least three reputed transformers manufacturers for having supplied Insulation Kit & Angle Washer for transformer above 10 MVA /132 KV rating during the year 2014-2015.Proof to be uploaded. * Bidders in AYCL-Chennai approved vendor list for Supply of Insulation kits & moulded components need not submit the documents.</p>	Remarks field

6	<p>For supplying Angle Rings, purchase orders & Performance Certificate from at least three reputed transformers manufacturers for having supplied Angle Ring for transformer above 10 MVA /132 KV rating during the year 2014-2015. Proof to be uploaded.</p> <p>* Bidders in AYCL-Chennai approved vendor list for Supply of Insulation kits & moulded components need not submit the documents.</p>	Remarks field
7	<p>Bidders should have a minimum turnover of Rs: 80 lakhs per annum in last three financial years (2012-13, 2013-14 & 2014-15), balance sheets and P&L Account Proof to be UP LOADED</p> <p>* For Bidders who are in the approved list of vendors of Andrew Yule, balance sheet (P&L A/c) for 2014-15 only needs to be uploaded.</p>	Remarks field
8	The lead time required for the supply of Insulation Kit & Moulded Component should be clearly indicated here.	Remarks field
9	The committed delivery quantity of Insulation kits, Angle Washer and Angle Ring per month should be clearly indicated here.	Remarks field
10	VALIDITY: The offer should be valid for acceptance for a minimum period of 90 days from the date of tender opening and for supplies up to 30.06.2017.	AGREE
11	Security Deposit - The EMD amount of the successful Bidder will be retained as security deposit towards the execution of the order and the same will be released after completion of order.	AGREE
12	The credit period will start from the date of receipt of material at Andrew Yule, Perungudi, Chennai.	AGREE
13	PAYMENT TERMS: -Minimum 90 Days direct credit from the date of receipt of materials at our works. Please confirm acceptance.	Remarks field
14	Please indicate the number of days of direct credit. (Andrew Yule <i>payment</i> terms is minimum 90 days direct credit. If the offered payment terms is less than 90 days , bids will be opened at the sole discretion of Andrew Yule & price will be loaded as per Andrew Yule norms)	Remarks field
15	Liquidated damage - If the delivery is delayed beyond the scheduled date of dispatch in the purchase order, penalty will be levied @ 1/2% per week subject to a maximum of 5%	AGREE
16	Risk purchase clause: The company reserve the right to impose risk purchase clause as " For delay in execution / supply we shall have every right to do the same through some other agency/s which shall deemed fit and the additional cost of the same (Incidental/Consequential) shall be to your account which with respect to our intimation or observation whatsoever.	AGREE

17	<p>Legal condition: Any contract entered against this tender will be as per the following legal condition</p> <p>It is recorded that this purchase order / contract / agreement is executed and concluded by and between the parties hereto at premises No.5/346, Old Mahabalipuram Road, Perungudi, Chennai 600 096 and in the event any dispute arises out of this agreement between the parties only the appropriate Civil Court in the City of Kolkata shall have the exclusive jurisdiction to entertain, try and determine the said proceedings in exclusion of all other courts.</p>	AGREE
18	<p>a) INSULATION KITS : As per AYCL material Specification : SMI 104 R 0</p> <p>b) ANGLE RING & ANGLE WASHER: IEC 60641-3-1 B4.1/WEIDMANN T III.</p> <p>The raw material used for manufacturing the Insulation kits, Angle ring & Angle washer should be manufactured by any one of AYCL, Chennai approved suppliers as indicated below only.</p> <p>1) M/s ABB (RAMAN BOARDS LTD)., MYSORE.</p> <p>2) M/s SENAPATHY WHITELEY PVT LTD., BANGALORE.</p> <p>3) M/s H.WEIDMANN, GERMANY.</p> <p>4) M/s FIGEHOLMS BRUK, SWEDEN.</p> <p>5) M/S THE WESTERN INDIA PLYWOODS, KANNUR.</p>	AGREE
19	While supplying the Insulation Kit for core, the listels are to be pasted over the yoke insulation.	AGREE
20	Insulation kit for winding are to be supplied with the spacers & dove tails in assembled condition and the ducts pieces are to be pasted on base strip.	AGREE
21	Material test Certificate should be send along with each consignment	AGREE
22	The rate quoted should be on FOR destination basis.	AGREE
23	All the Insulating kits, Angle washer and Angle ring are to be supplied in transit worthy packing to avoid any transit damage. If any transit damage happens due to poor packing then the damaged material has to be replaced immediately on free of cost basis	AGREE
24	We request you to enter whether the rate offered is inclusive of ED or exclusive of ED and also the ED applicable at present.	Remarks field
25	If Sales tax is applicable. Please enter the tax in the remarks field.(At present CST 2% against Form C or At present TN VAT 5%)	Remarks field

BG SPECIMEN

(To be typed on Rs.100/- non-judicial stamp paper)
BANK GUARANTEE FOR EARNEST MONEY DEPOSIT

TO BANK GUARANTEE NO....
M/S ANDREW YULE & CO.LTD
T & S UNIT,
5/346 OLD MAHABALIPURAM ROAD
PERUNGUDI, CHENNAI :600 096

IN ACCORDANCE WITH YOUR TENDER for the supply INSULATION KITS ,ANGLE WASHER & ANGLE RING, M/s (hereinafter called the "Bidder") having its Registered Office at, wish to participate in the said bid for the supply INSULATION KITS ,ANGLE WASHER & ANGLE RING as an irrevocable Bank Guarantee against Earnest Money Deposit for an amount of Rs. (Rupees.....) valid up to 30.09.2017, is required to be submitted by the bidder as a condition precedent for participating in the said bid, which amount is liable to be forfeited by the Purchaser on (1) the withdrawal or revision of the offer by the bidder within the validity period, (2) Non acceptance of the Letter of Indent / Purchase order by the Bidder when issued within the validity period, (3) failure to execute the contract as per contractual terms and condition with in the contractual delivery period and (4) on the happening of any contingencies mentioned in the bid documents.

During the validity of this Bank Guarantee: -

We,(Bank name) having its registered Office atguarantee and undertake to pay immediately on first demand by Andrew Yule & Company Ltd., Chennai 600 096, the amount of Rs.....(Rupees.....) without any reservation, protest, demur and recourse. Any such demand made by the purchaser shall be conclusive and binding on the Bank irrespective of any dispute or difference raised by the Bidder.

The Guarantee shall be irrevocable and shall remain valid up to 30.09.2017. If any further extension is required, the same shall be extended to such required period on receiving instruction from the Bidder, on whose behalf this Guarantee is issued.

Notwithstanding anything contained herein:

* Our liability under this Bank Guarantee shall not exceed

`. (Rupees.....)

* This Bank Guarantee shall be valid up to 30.09.2017.

- We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or a demand on or before 30.09.2017.

In witness whereof the Bank, through its authorized officer, has set its hand and stamp on day of 2016 at.....

ANNEXURE - A

FORMULA FOR ARRIVING AT THE WEIGHT OF INDIVIDUAL COMPONENTS

CORE KIT

FLITCH PLATE	L X B X T X D/1000000
YOKE INS	L X B X T X D/1000000
CORE SHEET	L X B X T X D/1000000
LISTEL	L X B X T X D/1000000
FOOT IRON	L X B X T X D/1000000

WINDING KIT

DOVE TAIL LISTEL	L X B X T X D/1000000
SPACER	L X B X T X D/1000000
RECT RUNNER	L X B X T X D/1000000
CYLINDER	L X B X T X D/1000000
PACKING STRIP	L X B X T X D/1000000
DISTANCE PIECE	L X B X T X D/1000000
BASE STRIP	L X B X T X D/1000000
DUCT PIECE	L X B X T X D/1000000

COIL ASSY KIT

WASHER	ODXODXTXD/1000000
SEGMENT	ODXODXTXD/4000000
END RING	3.14 XODX B(Max) X T X D/1000000
CYLINDER	L X B X T X D/1000000
COMMON BLOCK	L X B(Max) X T X D/1000000
BLOCK	L X B X T X D/1000000
RECT RUNNER	L X B X T X D/1000000
SWG CONN PAD	L X B X T X D/1000000
BARRIER	L X B X T X D/1000000
P.WALL	L X B X T X D/1000000
FLITCH PLATE	L X B X T X D/1000000

L- LENGTH IN MM
B- BREADTH IN MM
T- THICKNESS IN
MM
D- DENSITY IN g/cc
Density of PCPB -
1.2, PB-1.1 & GR
4.3 - 1.0

PRICE BID FORMAT FOR INSKIT ITEMS

A) CORE KIT	FLITCH PLATE	YOKE INS	CORE SHEET	LISTEL			FOOT IRON
				a)Up to 6 mm	b)8 mm - 10 mm	c) > 10 mm	
	PB	PB	PB	PCPB	PCPB	PCPB	PB
	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg

B) WINDI NG KIT	DOVE TAIL LISTEL			SPACER		RECT RUNNER		
	a)Upto 6 mm	b)8 mm - 10 mm	c) > 10 mm	a)Length Up to 30 mm	b)Length above 30 mm	a)Upto 6 mm	b)8 mm - 10 mm	c) > 10 mm
	PCPB	PCPB	PCPB	PCPB	PCPB	PCPB	PCPB	PCPB
	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg

B) WINDING KIT	CYLINDER		PACKING STRIP		DISTANCE PIECE		BASE STRIP	
	Up to 3 mm		a)Upto 3 mm	b) > 3 mm	a)Upto 3 mm	b) > 3 mm	a)Upto 3 mm	b) > 3 mm
	PCPB	PB	GR 4.3	GR 4.3	GR 4.3	GR 4.3	GR 4.3	GR 4.3
	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg

B) WINDING KIT	DUCT PIECE	
	a)Upto 3 mm	b) > 3 mm
	PB	PB
	Rs/Kg	Rs/Kg

C) COIL ASSY KIT	WASHER		SEGMENT		CYLINDER		COMMON BLOCK	
		3 mm	5 mm	a)Upto 5 mm	b) > 5 mm	Up to 3 mm		a)Upto 5 mm
	PCPB	PCPB	PCPB	PCPB	PCPB	PB	PCPB	PCPB
	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg

C) COIL ASSY KIT	BLOCK		RECT RUNNER			SWG CONN PAD		BARRIER	
		a)Upto 5 mm	b) > 5 mm	a)Upto 6 mm	b) 8 mm-10 mm	c) >10 mm			
	PCPB	PCPB	PCPB	PCPB	PCPB	PCPB	PB	PCPB	PB
	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg

C) COIL ASSY KIT	P.WALL		FLITCH PLATE		END RING	
						a)Upto 5 mm
	PCPB	PB	PCPB	PCPB	PCPB	PCPB
	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg	Rs/Kg

D) ANGLE WASHER

PRICING FORMULA :

TO BE INDICATED BY THE BIDDER

E) ANGLE RING

PRICING FORMULA :

TO BE INDICATED BY THE BIDDER

DUCT DETAILS NOS.	BASE STRIP (FIG 5)			DUCT PIECE (FIG 6)			PASTING DETAILS		
	W	L	THK	QTY.	W	b	THK	QTY.	PITCH (P) =
HT (MAY)	206	1480	76	39	40	21	4	4	205
HT (MAY)	25	8	1480	48	8950	26	26	6	6
HT (MAY)	25	8	1480	48	8950	26	26	6	6
HT (MAY)	25	8	1480	48	8950	26	26	6	6

DUCT NOS.	BASE STRIP (FIG 5)			DUCT PIECE (FIG 6)			PASTING DETAILS		
	W	L	THK	QTY.	W	b	THK	QTY.	PITCH (P) =
HT (MAY)	206	1480	76	39	40	21	4	4	205
HT (MAY)	25	8	1480	48	8950	26	26	6	6
HT (MAY)	25	8	1480	48	8950	26	26	6	6
HT (MAY)	25	8	1480	48	8950	26	26	6	6

MODE	RECT. LISTEL (MATL: POPB)			SPACER X (MATL: POPB)			RECT. BANNER X (MATL: POPB)			CYLINDER X (MATL: P-B)								
HT	A	E	L	QTY.	A	B	C	D	E	F	A	B	L	QTY.	L	B	THK	QTY.
HT	206	1480	76	39	40	21	4	4	4	4	205	1380	48	1710	1380	15	3	
HT	25	8	1480	48	8950	26	26	6	6	6								

NOTE:
 BALANCE SPACERS FIG.4 AFTER ASSEMBLY SPACERS SHOULD BE SENT AS LOOSE ITEM.

HT (MAY)	HT (MAY)	HT (MAY)
2 th spacers nos. 2 nos.	2 thK → 78 nos	2 thK → 10 nos
3 thK → 17 nos	3 thK → 14 nos	3 thK → 14 nos
3 thK → 17 nos	3 thK → 14 nos	3 thK → 14 nos
3 thK → 17 nos	3 thK → 14 nos	3 thK → 14 nos

HT TAPPING

HT (MAIN)

HT (MAY) 2 th spacers nos. 2 nos.
 HT (MAY) 3 thK → 17 nos
 HT (MAY) 3 thK → 14 nos
 HT (MAY) 3 thK → 14 nos
 HT (MAY) 3 thK → 14 nos

Sno	ID	SIZE		QTY	MATL
		D.D	THK		
1	426	820	3	3	PCPB
2	452	820	3	3	PCPB

WASHER X

SRND	SIZE		QTY	MATL	
	L	B THK			
1	50	79	50	PCPB	
2	50	29	100	PCPB	
3	70	102	10	50	PCPB
4	70	70	10	100	PCPB
5	70	97	10	50	PCPB
6					PCPB
7					PCPB
8					PCPB
9					PCPB
10					PCPB
11					PCPB
12					PCPB
13					PCPB
14					PCPB
15					PCPB

BLOCK X

SRND	BREADTH	LENGTH	BREADTH	THK	QTY	MATL
2	2025	1300	1.5	9	PB	
3	2105	1280	1.5	6	PB	
4						PB
5						PB

CYLINDER X

SRND	BREADTH	LENGTH	THK	QTY	MATL	
						1
2						PB
3						PB
4						PB
5						PB

FLITCH PLATE INSULATION X

SRND	BREADTH	LENGTH	THK	QTY	MATL	
						1
2	25	1000	7	50	PCPB	
3	25	100	3	50	PCPB	
4	25	100	2	50	PCPB	
5						PCPB
6						PCPB
7						PCPB
8						PCPB
9						PCPB

RECTANGULAR RUNNER X

SRND	BREADTH	LENGTH	THK	QTY	MATL
2	250	1600	5	1	PB

BELT X

SRND	BREADTH	LENGTH	THK	QTY	MATL

P.WALL X

SRND	BREADTH	LENGTH	THK	QTY	MATL

COMMON BLOCK X

SRND	SIZE			QTY	MATL	
	A	B	L THK			
1	50	70	200	15	50	PCPB
2	50	70	190	20	50	PCPB
3						PCPB
4						PCPB

SEGMENT X

Sno	ID	O.D	THK	QTY	MATL	
						1
2	536	594	20	12	PCPB	
3						PCPB

S.C.PAD X

SRND	BREADTH	LENGTH	THK	QTY	MATL
2	250	1600	5	1	PB

AT 90° ANGLE

COMMON BLOCK

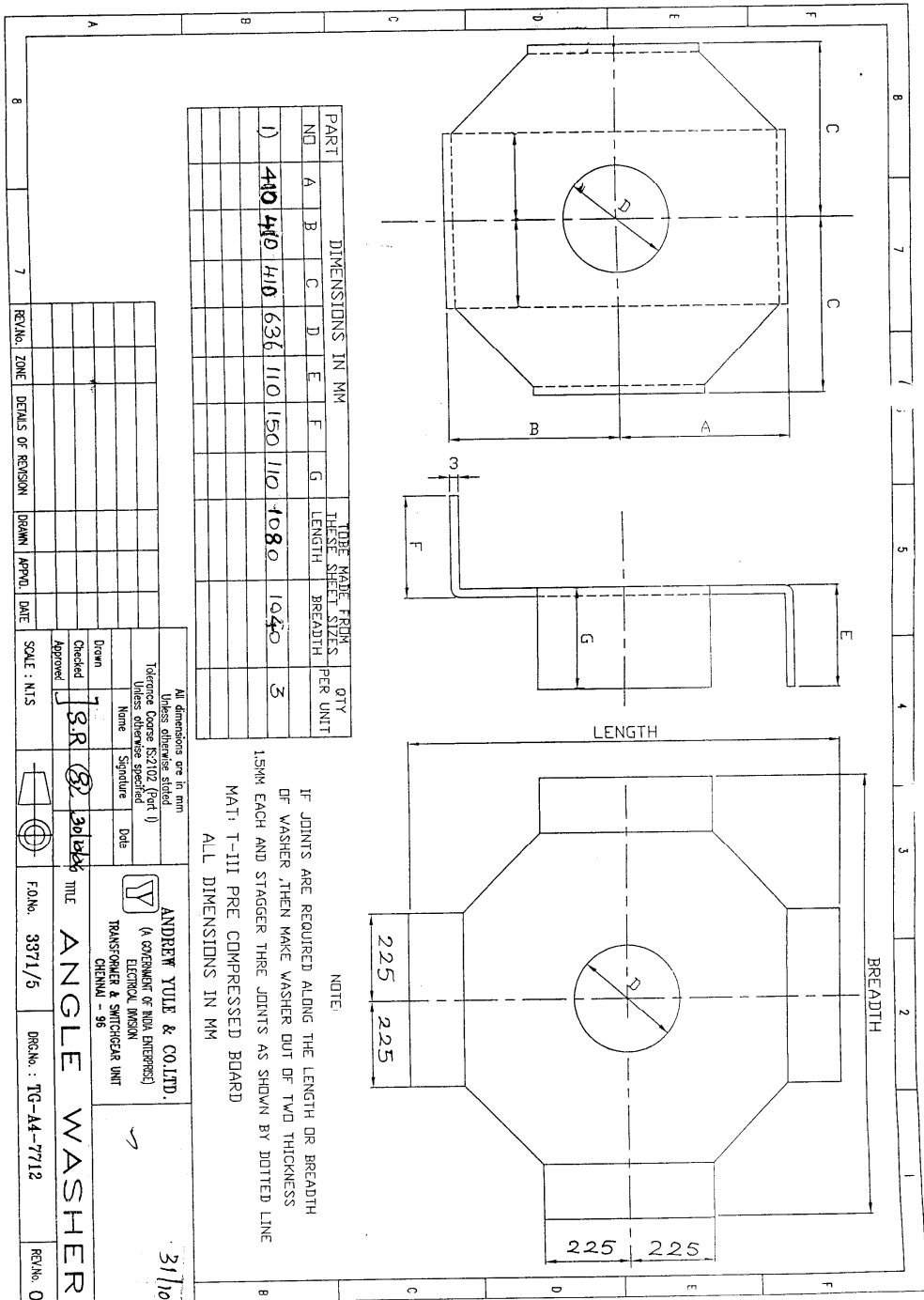
WASHER

SEGMENT

BELT

RECTANGULAR RUNNER

FLITCH PLATE INSULATION

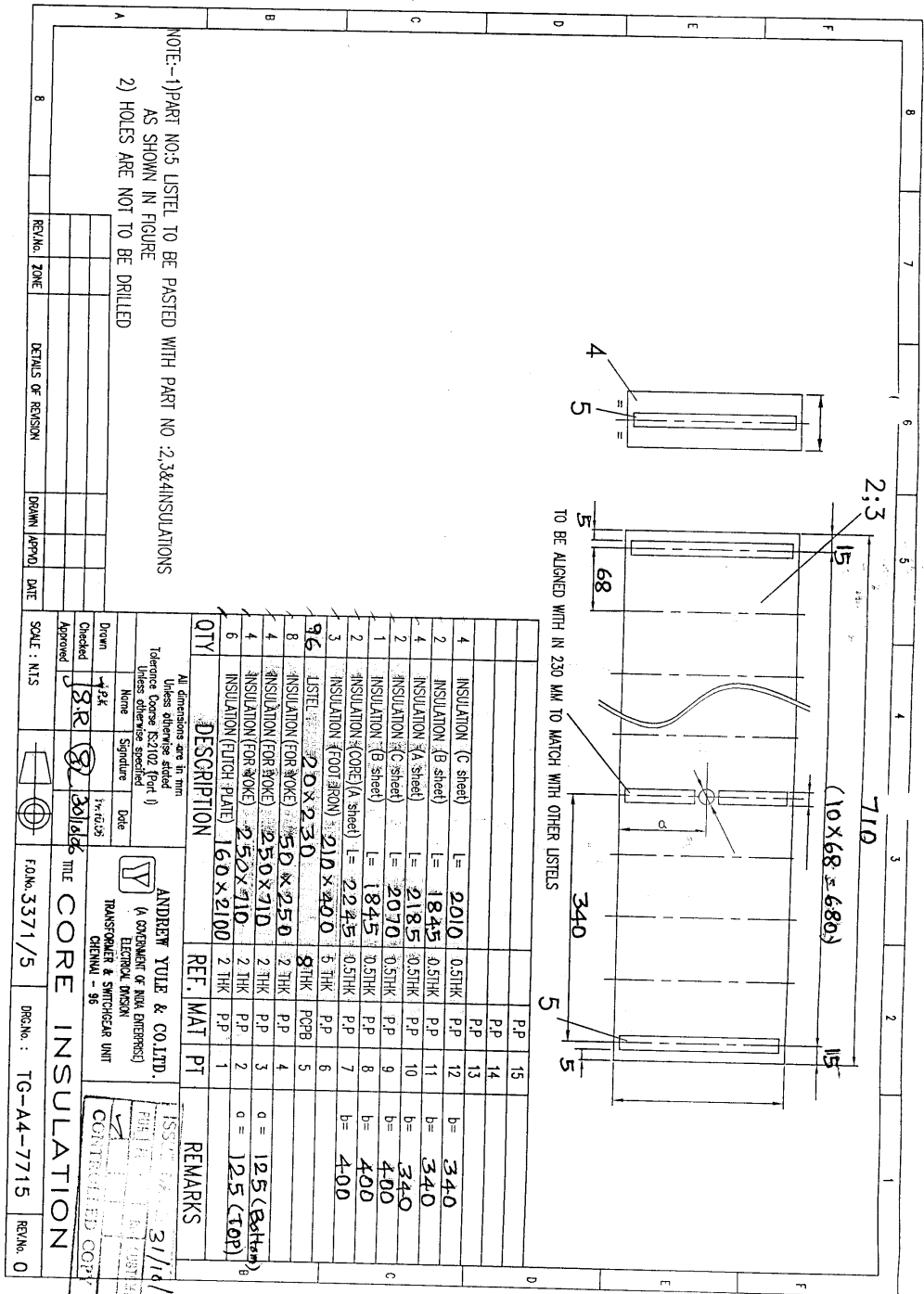


PART NO	DIMENSIONS IN MM							TOP FLANGE FROM THESE SHEET SIZES		QTY PER UNIT
	A	B	C	D	E	F	G	LENGTH	BREADTH	
1)	410	410	410	636	110	150	110	1080	1040	3

NOTE
 IF JOINTS ARE REQUIRED ALONG THE LENGTH OR BREADTH OF WASHER, THEN MAKE WASHER OUT OF TWO THICKNESS 15MM EACH AND STAGGER THREE JOINTS AS SHOWN BY DOTTED LINE
 MAT: T-III PRE COMPRESSED BOARD
 ALL DIMENSIONS IN MM

Tolerance Govern (ISO 102 Part 1) Unless otherwise specified
 Name
 Signature
 Date
 Checked
 Approved
 Scale: N:1.5
 F.O.No. 3871/5
 DRS.No. TG-A4-7712
 REV.No. 0

ANDREW YULE & CO LTD.
 (A COMPANY OF RUKA ENTERPRISES)
 ELECTRICAL WIRING
 TRANSFORMER & SWITCHGEAR UNIT
 CHENNAI - 96
 TITLE: ANGLE WASHER
 31/10/06



NOTE--1) PART NO.5 LISTEL TO BE PASTED WITH PART NO. 2, 3 & 4 INSULATIONS
 AS SHOWN IN FIGURE
 2) HOLES ARE NOT TO BE DRILLED

QTY	DESCRIPTION	REF.	MAT	PT	REMARKS
4	INSULATION (C sheet) L = 2010 0.5THK P.P	12			b = 340
2	INSULATION (B sheet) L = 1845 0.5THK P.P	11			b = 340
4	INSULATION (A sheet) L = 2185 0.5THK P.P	10			b = 340
2	INSULATION (C sheet) L = 2070 0.5THK P.P	9			b = 400
1	INSULATION (B sheet) L = 1845 0.5THK P.P	8			b = 400
2	INSULATION (CORE) (A sheet) L = 2245 0.5THK P.P	7			b = 400
3	INSULATION (CORE) (A sheet) L = 2245 0.5THK P.P	6			
96	LISTEL 20 X 230 8THK P.P	5			
8	INSULATION (FOR STROKE) 50 X 250 2 THK P.P	4			
4	INSULATION (FOR STROKE) 250 X 710 2 THK P.P	3			0 = 125 (Bottom)
4	INSULATION (FOR STROKE) 250 X 710 2 THK P.P	2			0 = 125 (TOP)
6	INSULATION (FITCH PLATE) 160 X 2100 2 THK P.P	1			

Approved: J.R. 30/10/16
 Checked: J.R. 30/10/16
 Scale: 1:1.5

DATE: 31/10/16

ANDREW YULE & CO. LTD.
 (A COMPANY OF NUK ENTERPRISES)
 ELECTRICAL DIVISION
 TRANSPORTER & SWITCHGEAR UNIT
 CHENNAI - 96

CONTROLLED COPY

Drawn: J.R. 30/10/16
 Name: J.R. Signature: J.R. Date: 30/10/16

REVISIONS:

NO.	DESCRIPTION	DATE

REMARKS: 0

WIDG.	DOVETAIL LISTEL. (MATEL. POPPB)			SPACERS (MATEL. POPPB)			RECT. RUNNER (MATEL. POPPB)			CYLINDER (MATEL. POPPB)					
	A	B	L	A	B	C	D	E	F	A	B	L	B	THK.	QTY.
LT	25	8	1650	48	78	50	26	26	6	6					
				FIG. 1	QTY: 2 THK: 8592	3 THK: 8592			FIG. 2						FIG. 3
HT (MAIN)	25	8	1650	48	95	60	26	26	6	6					
				FIG. 1	QTY: 2 THK: 4896	3 THK: 2736			FIG. 2						FIG. 3
HT (TAP)															
				FIG. 1	QTY: 2 THK: 3 THK:				FIG. 2						FIG. 3

WIDG.	PACKING STRIP (FIG 5) (MATEL. 4.3 GRADE)			DISTANCE PIECE (FIG 6) (MATEL. 4.3 GRADE)				
	W	L	THK	QTY.	W	b	THK	QTY.
LT	9.6	2080	1.0	160	9.6	40	2.7	1050
HT (MAIN)	15.3	2890	1.0	220	15.3	40	3.2	300
HT (TAP)	13.9	2890	1.0	100	13.9	40	3.4	100

2 th spacers 1 nos.
3 th spacers 9 nos.

2th - 4 Nos.
3th - 2 Nos.
2th - 3Nos 14st
3th - 1No
2th - 3Nos
3th - 11Nos.
2th - 3Nos } 35d
3th - 1No }
3th - 3Nos
3th - 11Nos.
2th - 3Nos } 11 5+1-
3th - 1No }
2th - 2Nos.
3th - 2Nos.
2th - 2No.

2th - 2Nos.
3th - 2 Nos.
2th - 3Nos 14st
3th - 1No
2th - 3Nos
3th - 11Nos.
2th - 3Nos } 35d
3th - 1No }
3th - 3Nos
3th - 11Nos.
2th - 3Nos } 11 5+1-
3th - 1No }
2th - 2Nos.
3th - 2 Nos.
2th - 2No.

2th - 2Nos.
3th - 2 Nos.
2th - 3Nos 14st
3th - 1No
2th - 3Nos
3th - 11Nos.
2th - 3Nos } 35d
3th - 1No }
3th - 3Nos
3th - 11Nos.
2th - 3Nos } 11 5+1-
3th - 1No }
2th - 2Nos.
3th - 2 Nos.
2th - 2No.

2th - 2Nos.
3th - 2 Nos.
2th - 3Nos 14st
3th - 1No
2th - 3Nos
3th - 11Nos.
2th - 3Nos } 35d
3th - 1No }
3th - 3Nos
3th - 11Nos.
2th - 3Nos } 11 5+1-
3th - 1No }
2th - 2Nos.
3th - 2 Nos.
2th - 2No.

NOTE:
 (1) BALANCE SPACER & BASE STRIP AFTER ASSEMBLY SHOULD BE SENT SEPARATELY
 (2) 2% EXTRA SPACER IN ALL SIZES ARE TO BE SENT SEPARATELY
 (3) DUCT ASSEMBLY SHOULD BE SENT AS EXTRA

REVNO.	ZONE	DETAILS OF REVISION	DRAWN	APPROV.	DATE
8					

All dimensions are in mm
 Unless otherwise stated
 Tolerance: Coarse IS:2102 (Part 1)
 Unless otherwise specified

Drawn: [Signature]
 Checked: [Signature]
 Approved: [Signature]

SCALE: NTS

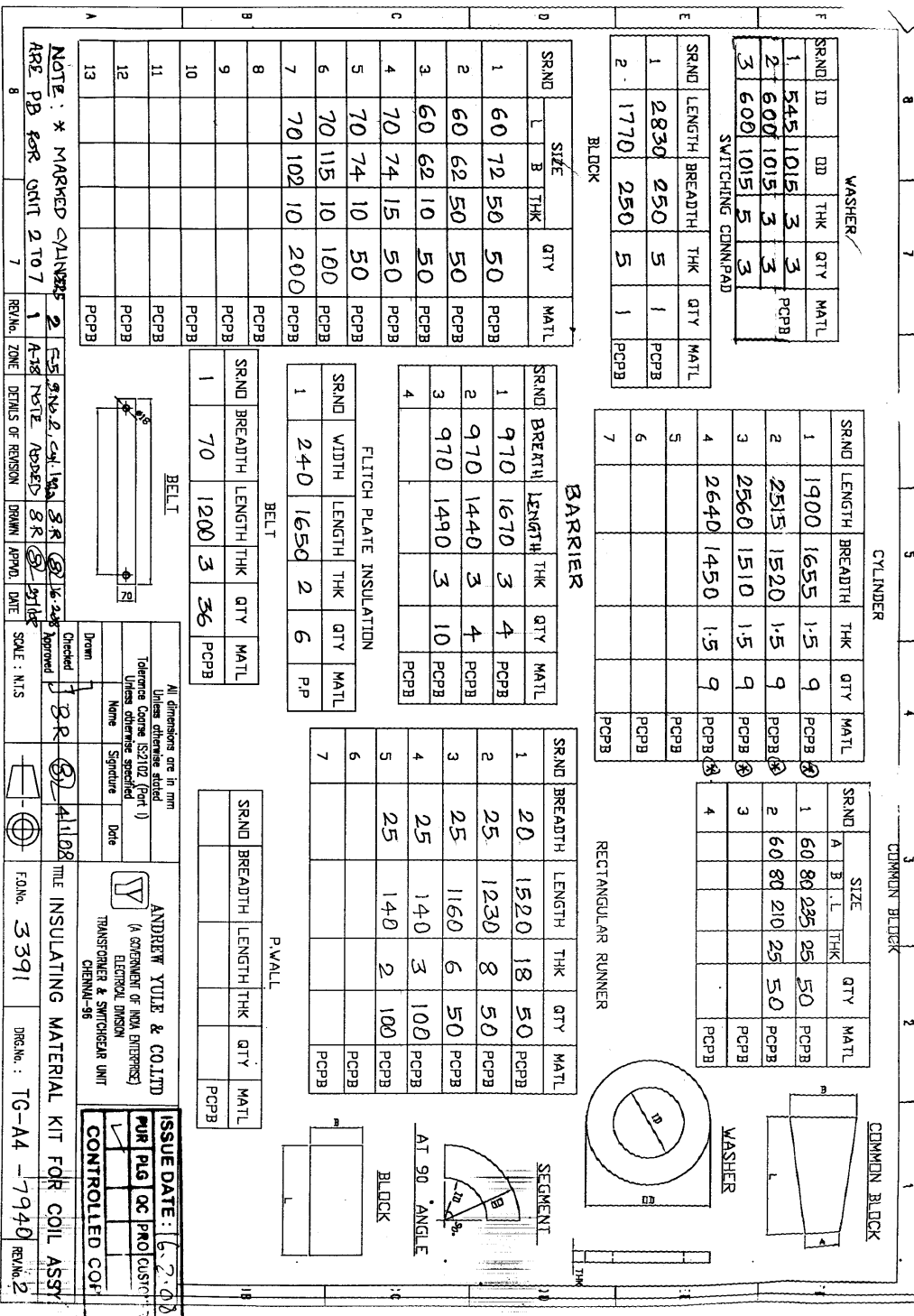
ANDREW YULE & CO LTD
 (A GOVERNMENT OF INDIA ENTERPRISE)
 ELECTRICAL DIVISION
 TRANSDUCER & SYNCH-GEAR UNIT
 MADRAS

TITLE: INSULATION KIT (WINDING)

ISSUE DATE: 08.01.88

CONTROLLED COPY

FO No: 3391
 DRG No: TG-A4-7939
 REV No: 0



WASHER

SRND	ID	OD	THK	QTY	MATL
1	545	1015	3	3	PCPB
2	600	1015	3	3	PCPB
3	600	1015	5	3	PCPB

SWITCHING CONN/PAD

SRND	LENGTH	BREADTH	THK	QTY	MATL
1	2830	250	5	1	PCPB
2	1770	250	5	1	PCPB

CYLINDER

SRND	LENGTH	BREADTH	THK	QTY	MATL
1	1900	1655	1.5	9	PCPB
2	2515	1520	1.5	9	PCPB
3	2560	1510	1.5	9	PCPB
4	2640	1450	1.5	9	PCPB
5					PCPB
6					PCPB
7					PCPB

COMMON BLOCK

SRND	SIZE			QTY	MATL
	A	B	L		
1	60	80	235	25	50
2	60	80	210	25	50
3					
4					

RECTANGULAR RUNNER

SRND	BREADTH	LENGTH	THK	QTY	MATL
1	20	1520	18	50	PCPB
2	25	1230	8	50	PCPB
3	25	1160	6	50	PCPB
4	25	140	3	100	PCPB
5	25	140	2	100	PCPB
6					PCPB
7					PCPB

BARRIER

SRND	BREADTH	LENGTH	THK	QTY	MATL
1	970	1670	3	4	PCPB
2	970	1440	3	4	PCPB
3	970	1490	3	10	PCPB
4					PCPB

FLITCH PLATE INSULATION

SRND	WIDTH	LENGTH	THK	QTY	MATL
1	240	1650	2	6	PP

BELT

SRND	BREADTH	LENGTH	THK	QTY	MATL
1	70	1200	3	36	PCPB

P-WALL

SRND	BREADTH	LENGTH	THK	QTY	MATL
					PCPB

Issue Date: 6-2-00

FOR PLG OC PRO

CONTROLLED COF

NOTE: * MARKED DIMENSIONS

ARE PB FOR UNIT 2107

REV. No. 2

DATE: 21/07/00

SCALE: N:15

APPROVED: [Signature]

DESIGNED: [Signature]

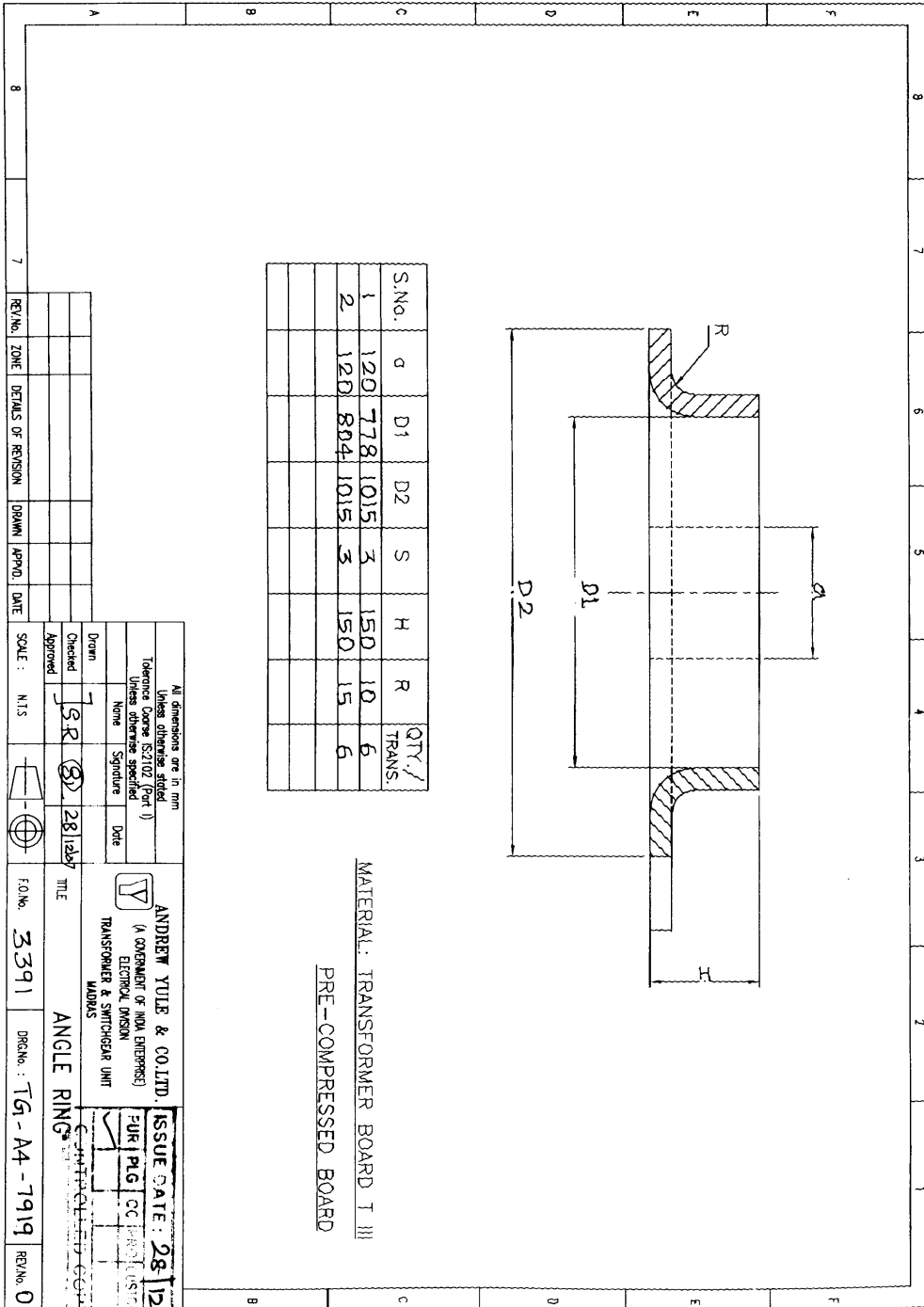
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DATE: [Date]

FORM No. 3391

DRG. No.: TG-A4-7940

REV. No. 2



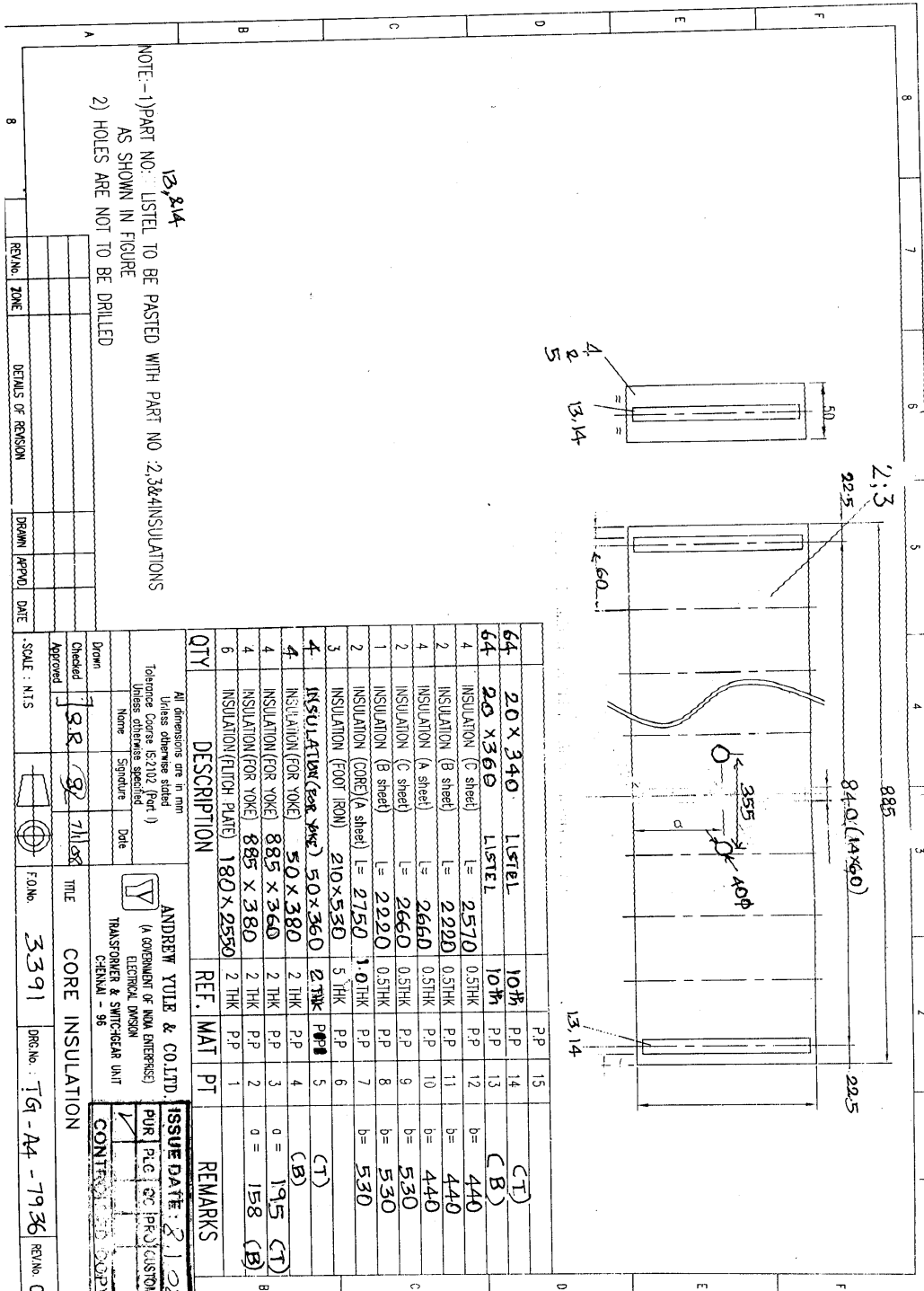
MATERIAL: TRANSFORMER BOARD T III
 PRE-COMPRESSED BOARD

All dimensions are in mm
 Unless otherwise specified
 (A GOVERNMENT OF INDIA ENTERPRISE)
 ELECTRICAL DIVISION
 TRANSFORMER & SWITCHGEAR UNIT
 MADRAS

ANDREW YULE & CO. LTD.
 ISSUE DATE: 28/12/07

Checked: J.R. (S) 28/12/07
 Approved: [Signature] 28/12/07

FO.No. 3391
 Dwg.No. TG-A4-7919
 REV.No. 0



NOTE:-1) PART NO: LISTEL TO BE PASTED WITH PART NO: 2:3& INSULATIONS AS SHOWN IN FIGURE
 2) HOLES ARE NOT TO BE DRILLED

13,814

REV. NO.	ZONE	DETAILS OF REVISION	DRAWN (APPD)	DATE

QTY	DESCRIPTION	REF.	MAT	PT	REMARKS
64	20 X 340 LISTEL	10th	PP	15	(C1)
64	20 X 360 LISTEL	10th	PP	14	(C1)
4	INSULATION (C sheet) L= 2570	12	PP	12	b= 440
2	INSULATION (B sheet) L= 2220	11	PP	11	b= 440
4	INSULATION (A sheet) L= 2660	10	PP	10	b= 440
2	INSULATION (C sheet) L= 2660	9	PP	9	b= 530
1	INSULATION (B sheet) L= 2220	8	PP	8	b= 530
2	INSULATION (CORE) (A sheet) L= 2750	7	PP	7	b= 530
3	INSULATION (FOOT IRON) 210x530	5	THK	6	(C1)
4	INSULATION (FOR YAKE) 50x360	2	THK	5	(B)
4	INSULATION (FOR YAKE) 50x380	2	THK	4	0 = 195 (C1)
4	INSULATION (FOR YAKE) 885 x 360	2	THK	3	0 = 158 (B)
4	INSULATION (FOR YAKE) 885 x 380	2	THK	2	(B)
6	INSULATION (RITCH PLATE) 180 x 2550	2	THK	1	

Drawn: [Signature] 7/1/28
 Checked: [Signature] 7/1/28
 Approved: [Signature] 7/1/28

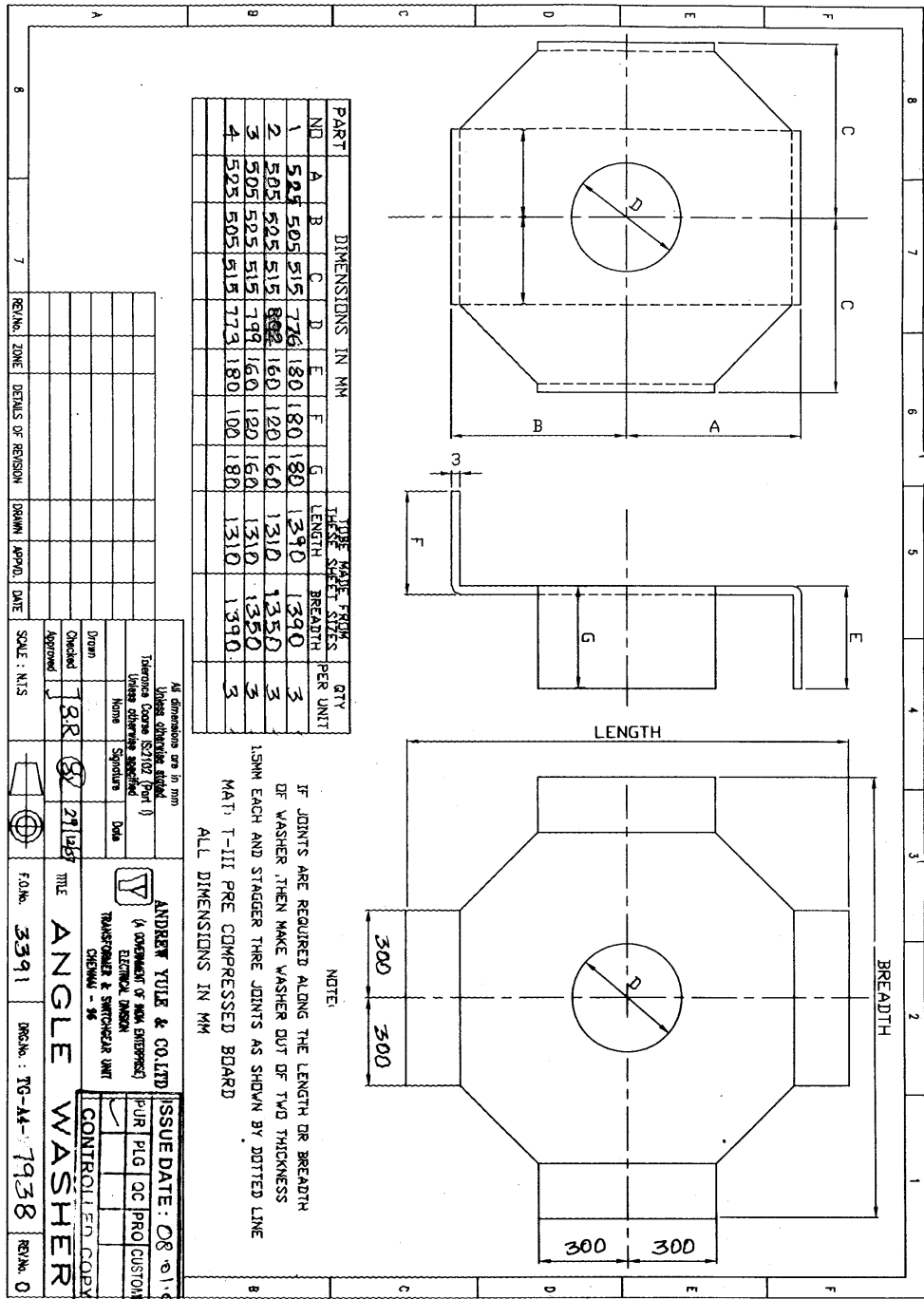
SCALE: N.T.S.

F.O.No. 3391 DRC No. 19-A4-7936 REV.No. 0

TITLE: CORE INSULATION

ANDREW YUJE & CO.LTD.
 (A GOVERNMENT OF INDIA ENTERPRISE)
 ELECTRICAL DIVISION
 TRANSFORMER & SWITCHGEAR UNIT
 CHENNAI - 96

ISSUE DATE: 21/08
 PUR | P.L.G. OF I.P.O. CUSTOMER
 CONTROLLER COPY



PART NO	A	B	C	D	E	F	G	TO BE MADE FROM	QTY
1	525	505	515	776	180	180	180	1390	3
2	505	505	515	882	160	120	160	1350	3
3	505	525	515	799	160	120	160	1350	3
4	525	505	515	773	180	100	180	1390	3

NOTE:
IF JOINTS ARE REQUIRED ALONG THE LENGTH OR BREADTH OF WASHER, THEN MAKE WASHER OUT OF TWO THICKNESS 15MM EACH AND STAGGER THREE JOINTS AS SHOWN BY DOTTED LINE

ALL DIMENSIONS IN MM
MATERIAL: T-III PRE COMPRESSED BOARD

Issue Date: 08.01.08
 PUR | PFG | QC | PRO | CUSTOMER
 ANDREW YULE & CO LTD
 (A COMPANY OF AWA GROUP)
 TECHNICAL DESIGN
 TRANSDUCER & SWITCHGEAR UNIT
 CHENNAI - 60
 TITLE: ANGLE WASHER
 F.No: 3391
 Dwg.No: TG-A4-1938
 REV.No: 0
 Scale: M:1.5
 Drawn: 18R
 Checked: 27LBS
 Approved: [Signature]



ANDREW YULE & CO. LTD.
T & S UNIT
MADRAS - 600 096.

MATERIAL INSPECTION PLAN QAP - 107/R.-1
PRESS BOARD, PRECOMPRESSED BOARD,
SPACER STRIPS, RUNNERS, ANGLE RING AND
ANGLE WASHERS.

Method of inspection :

1. Verification of manufacturer's test certificates for the following parameters:
 - a) Thickness
 - b) Density
 - c) Electrical strength
 - d) Tensile strength
 - e) Compressibility
 - f) Oil absorption
 - g) Moisture content
 - h) Shrinkage
 - i) Conductivity
 - j) Ash content
2. Checks on the material at our works.
 - a) Thickness
 - b) Dimension
 - c) Physical verification

Acceptance by Sampling Inspection.
Sampling procedure as per IS 2500 part -I (1992)

MATERIAL DESCRIPTION	INSPECTION LEVEL	AQL	MODE OF INSPECTION
PRESS BOARDS	L - III	4.0	REDUCED
PRE COMPRESSED BOARDS	L - III	4.0	REDUCED
STRIPS	L - III	1.5	TIGHTENED
RUNNERS	L - III	1.5	TIGHTENED
SPACERS	L - III	1.5	TIGHTENED

ANGLE RING, ANGLE WASHERS - 100% Inspection.

Prepared by : *B. Mahalingam*
 Designation : A.M. - QC
 Date : *12/1/95*

Approved by : *[Signature]*
 Designation : D.M. - QC
 Date : *12/1/95*



ANDREW YULE & CO. LTD.
T & S. UNIT, MADRAS.

SPEC. No. SMI 104

PAGE No. 1 of 2

SPECIFICATION FOR PRESS BOARDS

I. GENERAL REQUIREMENTS

1. Type : Calendered pressboards (type C&D)
pre-compressed pressboards
2. Application : Used in transformer as electrical
insulating material

II. SPECIFICATIONS

1. Standards to be adopted : IS 1576/92 for pressboards, IEC
641-3-2 for precompressed press
boards
2. Material composition
 - a. Pressboard type C : Mixture of cotton and other fibres such as
jute and wood pulp
 - b. Pressboard type D : Vegetable fibre – usually made from chemical
woodpulp
 - c. Precompressed pressboard : 100% sulphate wood pulp.



3. Material Characteristics

CHARACTERISTICS	UNIT	TYPE C		TYPE D		PRE-COMPRESSED	
		REQUIRED VALUE	TOLERANCE	REQUIRED VALUE	TOLERANCE	REQUIRED VALUE	TOLERANCE
Thickness	Mm	As per PO	+/-7.5%	As per PO	+/-7.5%	As per PO	+/-7.5%
Finish		Calendered		Calendered		Calendered	
Density	G/cc	1.10	MAX	1.10	MIN	1.1 to 1.3	
Electrical strength							
i) In air	KV/mm	7.0	MIN	8.0	MIN	12.0	MIN
ii) In oil	KV/mm	9.0	MIN	10.0	MIN	28.0	MIN
Tensile strength							
i) Machine direction	Kg/Sq.cm	500	MIN	800	MIN	1100	MIN
ii) Cross direction	Kg/Sq.cm	250	MIN	400	MIN	800	MIN
Compressibility							
i) In air	%	8	MAX	5	MAX	6	MAX
ii) In oil	%	12	MAX	9	MAX		
Shrinkage in air							
i) Machine direction	%	1.0	MAX	1.0	MAX	0.5	MAX
ii) Cross direction	%	1.5	MAX	1.5	MAX	0.7	MAX
iii) Perpendicular direction	%	4.0	MAX	6.0	MAX	4.5	MAX
Shrinkage in oil							
i) Machine direction	%	0.3	MAX	0.3	MAX	N.A	
ii) Cross direction	%	0.3	MAX	0.3	MAX	N.A	
iii) Perpendicular direction	%	1.5	MAX	1.5	MAX	N.A	

0	THIRD ISSUE			
Revision	Description	Prepared	Approved	Date
				10.1.97

GDD111



ANDREW YULE & CO. LTD.
T & S UNIT, MADRAS.

SPEC. No. SMI 104

PAGE No.2of 2

CHARACTERISTICS	UNIT	TYPE C		TYPE D		PRE-COMPRESSED	
		REQUIRED VALUE	TOLERANCE	REQUIRED VALUE	TOLERANCE	REQUIRED VALUE	TOLERANCE
Oil Absorption	%	15	MIN	15	MIN	9	MIN
Conductivity of aqueous extract	mho/cm.	85	MAX	80	MAX	80	MAX
pH value of aqueous extract		7 to 9.5		5 TO 9.5		5.5 TO 9.0	
Moisture content	%	%	MAX	8	MAX	6	MAX
Mineral Ash	%	2	MAX	1	MAX	1	MAX

III. TESTS

Routine tests to be conducted for all the characteristics mentioned in clause II.3 as per IS 1576 and IEC 641.

IV. EXTENT OF CHECK

Sampling as per IS 1576.

V. PACKING

Pressboards shall be packed to protect it from absorbing moisture and mechanical injuries in polythylenc bags and cascs.

Each consignment shall be legibly marked on a suitable place with the following Information:

- i. Manufacturer's name
- ii. Grade
- iii. Thickness
- iv. Quantity in Kgs.

VI. DOCUMENTS

Test Certificate shall accompany each consignment

VII. ACCEPTANCE CRITERIA

As per SPT 119 (For Internal use only).

0	THIRD ISSUE				
Revision	Description	Prepared	Approved	Date	
		<i>A.Y.</i>		10.1.97	

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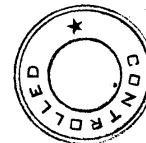
SPEC. No. SPT 119

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SPT 119

I ACCEPTANCE CRITERIA FOR PRESS BOARDS FOR SPEC. NO.SMI 104

CHARACTERISTICS	UNIT	TYPE C		TYPE D		PRE-COMPRESSED	
		REQUIRED VALUE	TOLERANCE	REQUIRED VALUE	TOLERANCE	REQUIRED VALUE	TOLERANCE
THICKNESS	mm	As per PO	+/-7.5%	As per PO.	+/-7.5%	As per PO	+/-7.5%
Electric strength							
I) In Air	KV/mm	7.0	MIN	8.0	MIN	12.0	MIN
II) In Oil	KV/mm	9.0	MIN	10.0	MIN	28.0	MIN
Oil Absorption	%	15	MIN	15	MIN	9.0	MIN
Moisture content	%	8	MAX	8	MAX	6.0	MAX
Length	mm	As per PO.	+/- .5%	As per PO.	+/- .5%	As per PO.	+/- .5%
Width	mm	As per PO.	+/- .5%	As per PO.	+/- .5%	As per PO.	+/- .5%



0	FIRST ISSUE	<i>R. M.</i>		10.1.97
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