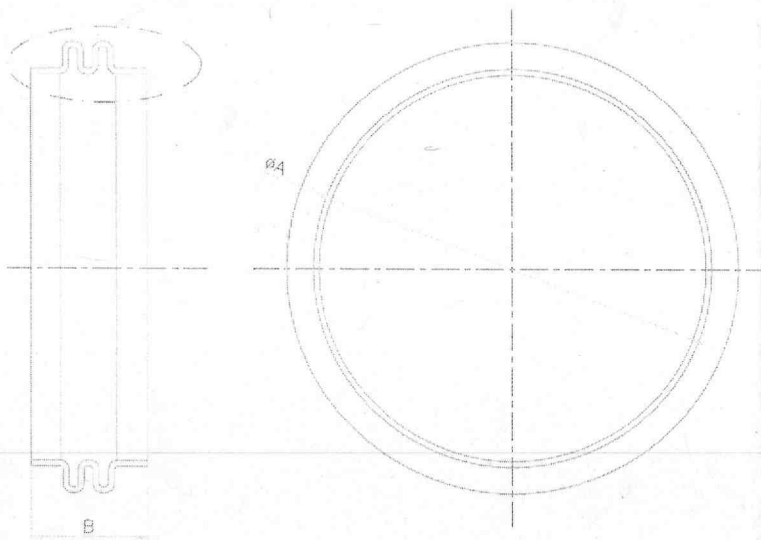


DRAWING NO. 31271410001

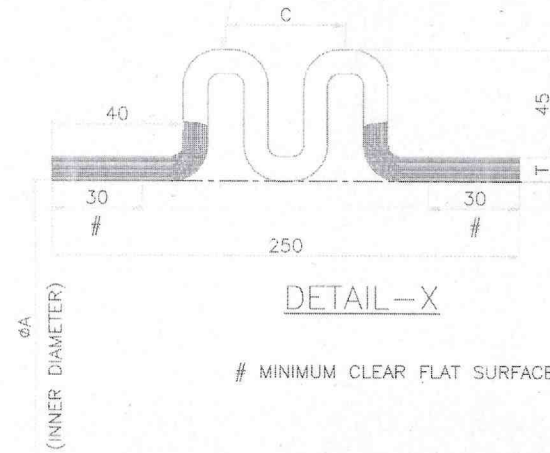
"N" NOs 1mm THICK
AL. LAMINATIONS GRADE: 19501

SEE DETAIL-X



FRONT VIEW

SIDE VIEW



DETAIL-X

MINIMUM CLEAR FLAT SURFACE

DIM- ϕA (I/D)	DIM-T	DIM-C	"N" NOs.	IPB DIA.
886	5	40	5	$\phi 876$

NOTE 1--: Metallic bellow is required with all accessories
needed for its successful erection (refer sheet
no 2-4 of drawing no 31271410001)


NOTE 2--: INNER DIA OF THE METALLIC BELLOW IS 10MM
LARGER THAN OUTER DIA OF ENCLOSURE

FIRST ANGLE PROJECTION
ALL DIMENSIONS IN MILLIMETER
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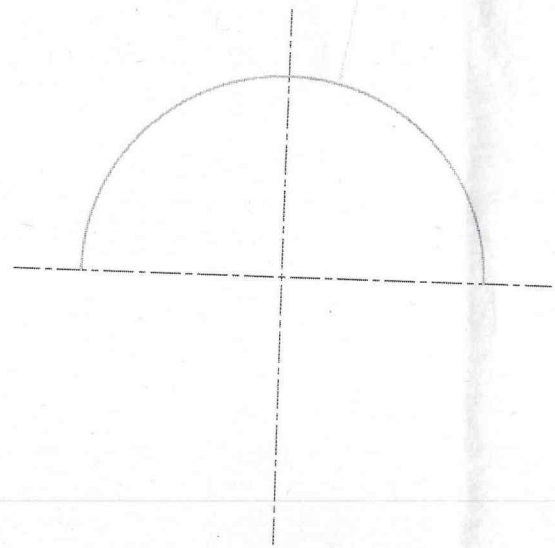
REV.	DATE	ALTERD CHEKED	REV.	DATE	ALTERD CHEKED	REV.	DATE	ALTERD CHEKED

CUSTOMER		PROJECT/PRODUCT GENERAL			
 BHARAT HEAVY ELECTRICALS LIMITED RUDRAPUR		NAME	SIGN.	DATE	NO. OF VAR.
		DRN.	SURAJ		
		CKD.	ARVIND		
DEPTT. ENGG.	UNTOL.DIM.GR.	SCALE	WEIGHT-KG	REF.TO ASSY.DRG.	IT.NO.
TITLE	METALLIC BELLOW FOR $\phi 876$ IPBD				NO. OF ITEM
DRAWING NO.		31271410001		REV. 00	
SHEET NO.- 01		NO.OF SHEETS- 04		SIZE- A3	

1 2 3 4 5 6

FIRST ANGLE PROJECTION

6 Tk 876 ID AL ENCLOSURE BONDING



Material : AL
 QUANTITY : 4 Nos. / METALLIC BELLOW


BONDING STRIP
METALLIC BELLOW

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REV.	DATE	ALTERD CHECKED	REV.	DATE	ALTERD CHECKED	REV.	DATE	ALTERD CHECKED

CUSTOMER				PROJECT/PRODUCT			
 BHARAT HEAVY ELECTRICALS LIMITED RUDRAPUR				GENERAL			
				DRN.	NAME	SIGN.	DATE
DEPTT.	UNTOL.DIM.GR.	SCALE	WEIGHT-KG	REF.TO ASSY.DRG.	IT.NO.	NO.OF ITEM	
ENGG.							
TITLE				DRAWING NO.		REV.	
G.A. METALLIC BELLOW FOR Ø876 IPBD				31271410001		00	
SHEET NO.- 03		NO.OF SHEETS-04		SIZE- A3			

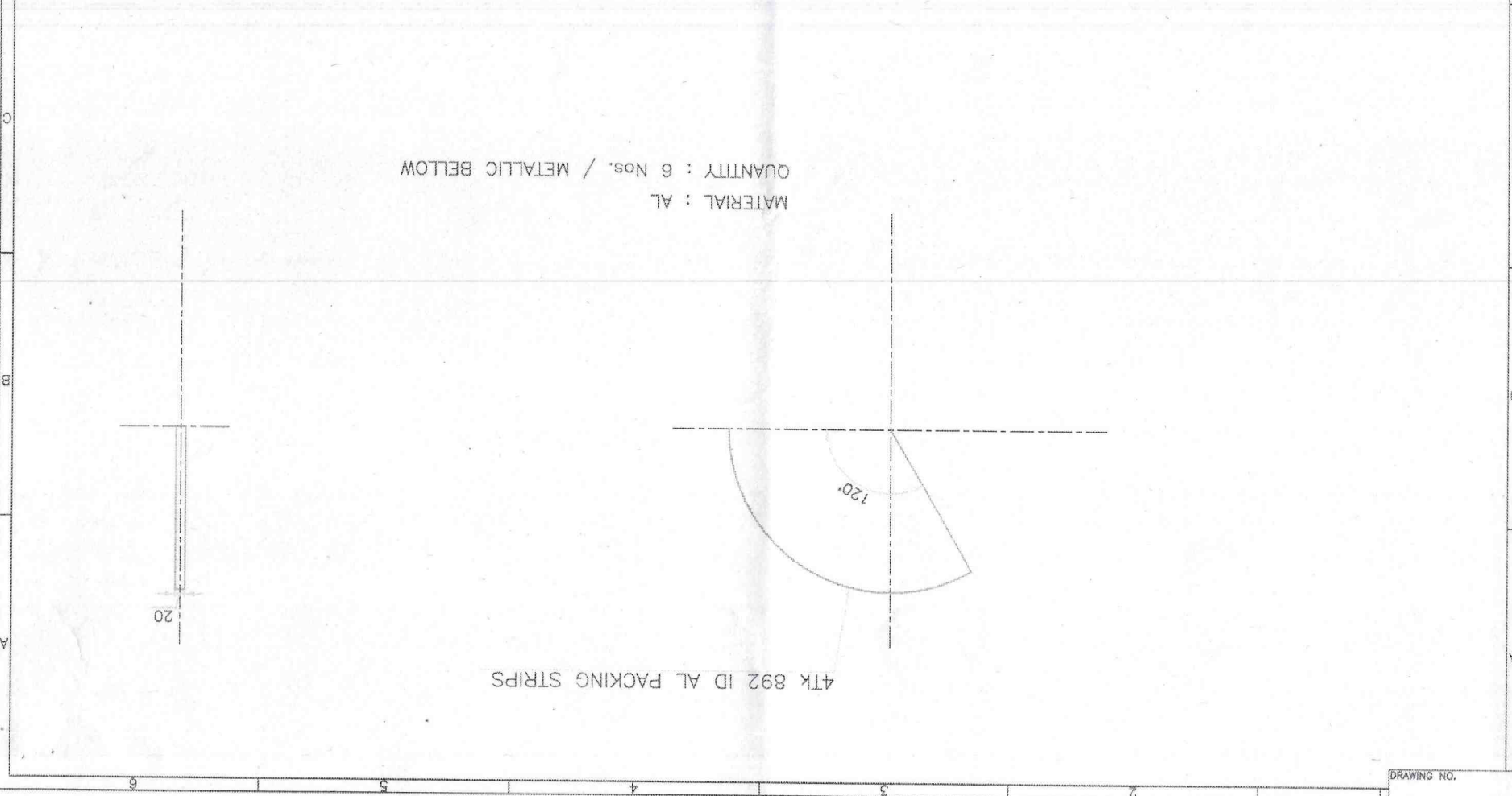
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ALL DIMENSIONS IN MILLIMETER

FIRST ANGLE PROJECTION

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REV.		DATE	ALTERED	CHECKED	REV.		DATE	ALTERED	CHECKED	REV.		DATE	ALTERED	CHECKED
DEPT.		UNTO. DIM. GR.	SCALE	WEIGHT-KG	REF. TO ASSY. DRG.	IT. NO.	NO. OF ITEM	DRAWING NO.		SHEET NO. - 04		NO. OF SHEETS - 04	SIZE - A3	
TITL		G.A. METALIC BELLOW FOR Ø876 IPBD												
CUSTOMER		BHARAT HEAVY ELECTRICALS LIMITED												
PROJECT/PRODUCT		GENERAL												
NAME		RUDRAPUR												
SIGN.		SURAJ												
DATE		ARVIND												
NO. OF VAR.		ARVIND												



DRAWING NO.

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PRODUCT STANDARD
BUSDUCT ENGINEERING DIVISION

Annexure-I
Ref: REF:
TAPOVAN/ 906/
TS/MB/R00

PAGE 1 OF 3

**MANUFACTURING SPECIFICATION & TESTING REQUIREMENTS
OF METALLIC BELLOWS**

1.0 APPLICATION:

METALLIC BELLOW IS USED FOR ELECTRICAL CONTINUITY OF BUSDUCT ENCLOSURE (HAVING RATED CONTINUOUS CURRENT OF BUSBAR) WITHOUT OVER-HEATING. IN ADDITION TO THIS, METALLIC BELLOW ALSO PROVIDES FLEXIBILITY.

2.0 MANUFACTURING PARAMETERS/REQUIREMENTS OF METALLIC BELLOW:

- I. THE METALLIC BELLOW AND PART ASSEMBLIES SHALL BE SUPPLIED AS PER DRAWING NO. 31271410001 Rev 00 SUITABLE FOR 876 MM OD BUSDUCT ENCLOSURE.
- II. BELLOW SHALL BE MANUFACTURED BY DIE PRESSING METHOD SO AS TO MAINTAIN FLEXIBILITY IN BELLOW. IN CASE ANY ALTERNATIVE METHOD OF MANUFACTURING IS SUGGESTED, THIS SHOULD BE ACCOMPANIED WITH SUITABLE AND PROPER JUSTIFICATION TO THE SATISFACTION OF BHEL BEFORE CLEARING OF TECHNICAL OFFERS. PARTY SHOULD HAVE PRIOR EXPERIENCE OF MANUFACTURING METALLIC BELLOWS OF AT LEAST 500 MM DIA. PARTY WILL SUBMIT PROOF FOR THE SAME ALONGWITH OFFER.
- III. IT SHOULD CONSIST OF STRIPS PRESSED TOGETHER. THICKNESS OF STRIPS TO BE USED TO BE BETWEEN 0.6mm TO 1.0mm. HOWEVER, TOTAL THICKNESS OF BELLOW CALCULATED BY ADDING STRIP THICKNESSES SHOULD NOT BE LESS THAN 10MM.
- IV. EACH STRIP SHOULD BE FIRMLY PRESSING ONE OVER THE OTHER WITH NO UNEVENNESS IN BETWEEN. ALSO, THERE SHOULD BE NO DENTS OR VOIDS ON THE SURFACE, PEAKS AND CRESTS OF THE BELOW. FOR THIS PURPOSE, HYDRAULIC PRESSING IS SUGGESTED.

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ALTD.			Arvind Narayan		
APPD.			PREPARED	ISSUED	DATE
DATE.			Suraj	M	19.05.16



PRODUCT STANDARD
BUSDUCT ENGINEERING DIVISION

Annexure-I
Ref: Ref: REF: TAPOVAN/
906/TS/MB/R00

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- V. NO CIRCUMFERENTIAL BUTT WELDING IS ALLOWED (EXCEPT FOR BOTH EXTREME ENDS) FOR MANUFACTURING THE BELLOW.
- VI. LONGITUDINAL WELDING BETWEEN CURVES OF STRIPS IS ALLOWED. HOWEVER WELDING IN EACH STRIP SHALL BE STAGGERED. (IT WILL NOT MATCH WITH LOCATION OF WELDING WITH OTHER STRIPS). THIS MEANS LOCATION OF WELD JOINT IN EACH CIRCULAR STRIP SHALL BE AT DIFFERENT LOCATION. MOREOVER, ONLY ONE NO. OF WELDED JOINTS IN EACH CYLINDER OF STRIP SHALL BE ALLOWED.
- VII. PROPER FINISHING OF LONGITUDINAL WELDING OF STRIP TO BE ENSURED.

3.0 TESTING REQUIREMENT: FOLLOWING TESTS TO BE CONDUCTED ON EACH BELLOW:

1. VISUAL INSPECTION.
2. DIMENSIONAL VERIFICATION
3. IN PROCESS CHECKS: PHYSICAL VERIFICATION OF WELDING JOINTS OF LONGITUDINAL WELDING OF ALL STRIPS.
4. MEASUREMENT OF COMPRESSION & RECOVERY (+/-5mm)
5. MILLI VOLT DROP TEST.
6. 100% DP TEST ON WELDED JOINTS

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APPD.			PREPARED	ISSUED	DATE
DATE.			Suraj	H	19.05.16



PRODUCT STANDARD
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Annexure
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4.0 INSPECTION:

- a) STAGE INSPECTION MAY BE DONE BY BHEL BEFORE PRESSING OF STRIPS.
- b) FINAL INSPECTION SHALL BE DONE BY BHEL AFTER COMPLETE ASSEMBLY.

5.0 DOCUMENTS TO BE SUBMITTED AT THE TIME OF OFFER:

1. QAP.
2. SIGNED AND SEALED COPY OF DRAWINGS.
3. SIGNED AND SEALED COPY OF THIS SPECIFICATION.
4. A BRIEF WRITE-UP ON PROCESS TO BE FOLLOWED.
5. DETAILS OF EARLIER SUPPLY OF METALLIC BELLOW OF SIZE 500 MM DIA OR MORE.

6.0 DOCUMENTS TO BE SUBMITTED ALONGWITH SUPPLY:

1. RAW MATERIAL TC
2. GUARANTEE CERTIFICATE.
3. INSPECTION/TESTING REPORTS (OF TESTS AS PER CLAUSE 3.0)

7.0 IDENTIFICATION:

EACH UNIT SHALL BE WITH PROPER AND PERMANENT IDENTIFICATION AT SUITABLE LOCATION ON METALLIC BELLOW. THIS WILL INCLUDE

- I. VENDOR CODE
- II. MONTH & YEAR OF MANUFACTURING
- III. SERIAL NO. OF BELLOW
- IV. P.O. NO.

7.0 PACKING REQUIREMENT:

EACH UNIT SHALL BE PACKED IN COMPLETELY COVERD WOODEN BOXES. PROPER CUSHIONING TO BE PROVIDED TO AVOID DAMAGE DURING TRANSIT/STORAGE AS DONE FOR FRAGILE ITEMS.

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