

ITEM: SUPPLY OF TOP & BOTTOM SGI FLANGES [DRG NO. 3 982 18 00721/00 & 39821800722/00]**TECHNICAL PQR, DRAWING, QAP: AS ATTACHED****QUANTITY: AS PER AS ATTACHED BOQ****BILL OF MATERIAL (BOM):**

Sr. No.	Item Code	Description of Item/Specification	Quantity	UOM	Technical Specification/Drg/QAP
1	130222	TOP FLANGE 3 982 18 00721/00 (G)	10	EA	As attached
2	130302	BOT. FLANGE 39821800722/00 (G)	10	EA	As attached

- Bidder to provide signed & Sealed GEM BID & ANNEXURE No. A/12303494/11.05.2023 with the offer.
- To get MSE preference, bidder to choose MSE purchase preference on GEM portal otherwise purchase preference shall not be applicable.
- To get MII preference, bidder to choose MII purchase preference on GEM portal and bidder to submit signed local content declaration otherwise purchase preference shall not be applicable.
- Item shall be manufactured as per attached drawing.
- Delivery Schedule: **Material shall be supplied within 45 days from the date of purchase order to BHEL SBD, Bangalore.**
- Delivery location: BHEL SBD MP Stores Bangalore-560012 as per GeM consignee.
- Price basis: Price shall be firm till completion of the contract. No PVC is applicable.
- Payment terms: Hundred Percent (100%) of basic price of the material supplied as per PO, along with 100% taxes & duties (as applicable) shall be payable on pro-rata as per following manner
 - 45 days for Micro & Small Enterprises (MSEs)
 - 60 days for Medium Enterprises
 - 90 days for Non-MSME
 from the date of receipt of goods at BHEL SBD and receipt of complete documents at BHEL SBD as specified in Clause No. 9 below subject to acceptance of materials. [i.e. date of acceptance of material or date of submission of complete set of documents (whichever is later) shall be considered for reckoning the due date of payment.]
- Documents to be Submitted by Vendor for payment:
 - Original GST compliant invoice. (Original for Buyer copy)
 - Copy of LR/ Delivery Challan for local supplier in place of LR
- Invoice to be made as per the prevailing GST format only. TDS Deductions applicable as per GST Law & TDS certificate shall be issued by BHEL in line with the latest amendment in GST Law.
- LD/Penalty: As per GeM general T&C.
- Technical PQR- requirement attached for one year of Past Experience & supply of 100% of BOQ qty.
- Minimum Average Annual Turnover of the Bidders for last three FY: Not applicable
- Inspection and Quality Clearance: As per attached QAP

BOQ FOR 12303494							
Sl No.	Item Code	Item Description	Quantity	UOM	Unit Price (Inclusive of TAX) [Please mention QUOTED/NOT QUOTED]	Applicable GST %	HSN Code
1	130222	TOP FLANGE 3 982 18 00721/00 (G)	10.00	EA			
2	130302	BOT. FLANGE 39821800722/00 (G)	10.00	EA			



PRE-QUALIFICATION REQUIREMENTS

Ref. No. : SBD/Ins. Prodn /PQR-MP

Dt : 05/05/22

ITEM : Metal Parts for Porcelain Insulators

P.R.No. 12303494

S. No.	BHEL qualification requirement	Documents Required
	I. PRE QUALIFICATION CRITERIA	
1	Vendor must be a manufacturer and doing business of supplying Metal part (Castings). Vendor should have supplied min 10 nos. of similar metal parts to insulator manufacturer(s) during last one year.	Submitted / Not submitted (vendor should provide documentary evidence by way of P.O, Invoice, etc.)
2	Material supplied should be durable and vendor should guarantee for its durability for minimum three years in use.	Acceptable / Not acceptable
3	Vendor should accept for pre despatch inspection of material as per BHEL drawings.	Vendor to confirm Acceptable / Not acceptable

Note: Vendors to indicate clearly for acceptance or non-acceptance against each point. Technical bid can be processed further only when points mentioned above are responded and required documents are submitted.


MANOJ KUMAR
Sr. Mgr/Ins. Production


MANOJ KUMAR
DGM/Ins. Production

ಮನೋಜ್ ಕುಮಾರ್, ಉಪ ಪ್ರಧಾನ ವ್ಯವಸ್ಥಾಪಕರು / ಒಗಾಣೆ ಉತ್ಪಾದನೆ
मनोज कुमार, उप महाप्रबंधक / इन्सुलेटर उत्पादन
MANOJ KUMAR, DGM / Insulator Production
BHEL-SBD, BENGALURU-560012

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3 982 18 00721

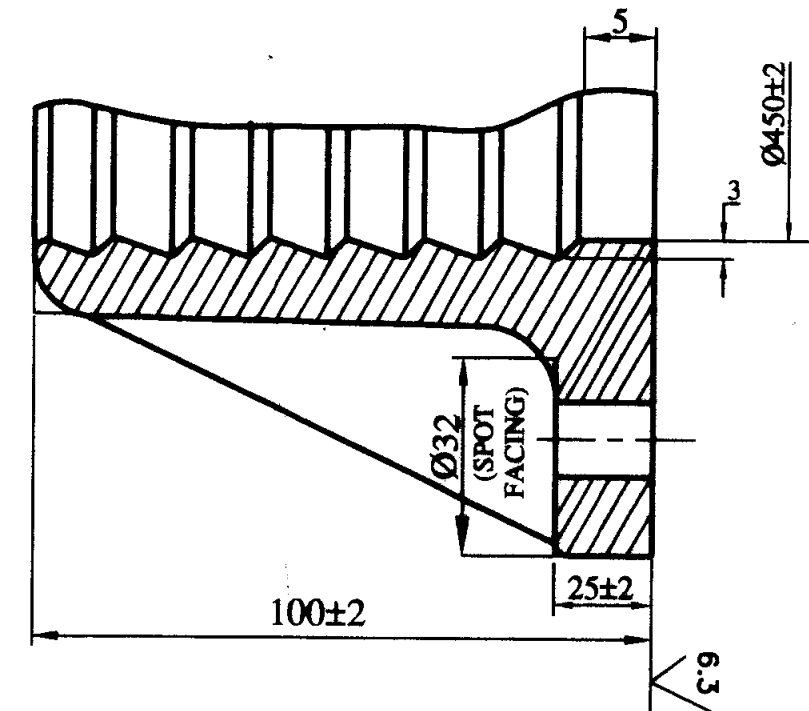
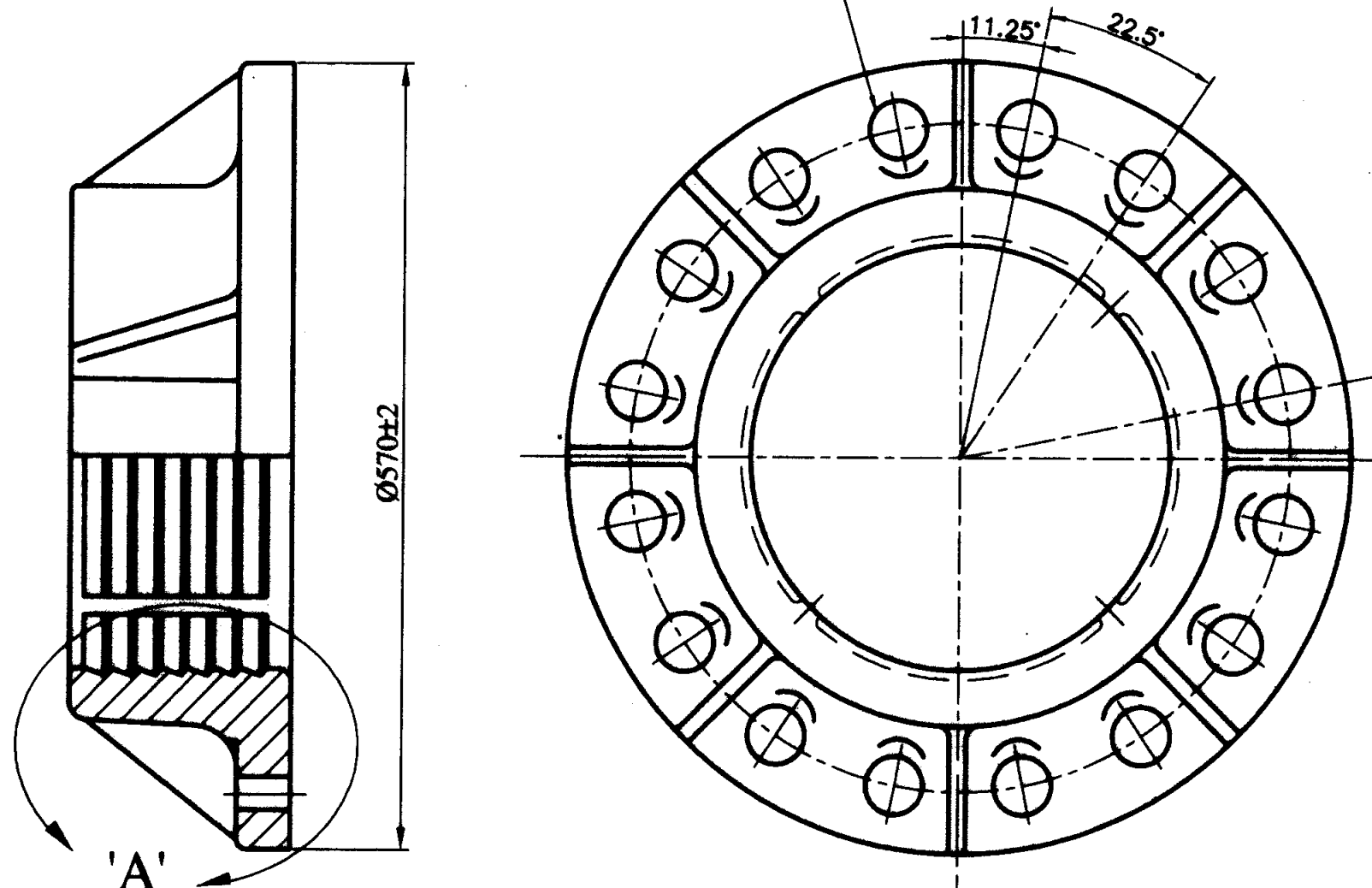
DRG No.

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SIGN AND DATE REF. DRG. No.

INVENTORY No.

REV	DATE	ALTERED	REV	DATE	ALTERED	REV	DATE	ALTERED
		CHECKED			CHECKED			CHECKED

16 DRILLED HOLES, Ø14
SPACED ON 530±0.5 PCD

DETAILS AT- 'A'

CONTROLLED COPY

NOTES:

1. ALL DIMENSIONS ARE AFTER HOT - DIP GALVANIZING.
2. GALVANIZING SHOULD BE DONE AFTER ALL MACHINING AND DRILLING. PREFERABLY BY WET PROCESS.
3. DRILLED HOLE SIZE BEFORE GALVANIZING SHOULD BE $\text{Ø}14.3^{+0.3}_{-0.0}$
4. MACHINING ON $\text{Ø}570 \pm 2$ SHOULD BE DONE WITH REFERENCE TO THE AS CAST INSIDE SURFACE OF THE CASTING.
5. HOLES ARE TO BE DRILLED WITH REFERENCE TO THE OUT SIDE DIA 570 ± 2
6. DRILLED HOLES AND SPOT FACING DIA TO BE CONCENTRIC.
7. ALL SHARP CORNERS TO BE ROUNDED OFF BY R2

BHARAT HEAVY ELECTRICALS LTD.,
ELECTROPORCELAINS DIVISION
BANGALORE - 560 012

NAME	SIGN	DATE
DRN HEMANTH	<i>Hemant</i>	03.11.2014
CHD AVM	<i>A.V.M.</i>	03.11.2014
APPD SSP	<i>SSP</i>	03.11.14
REF TO CASTING DRG	ITEM No.	No. OF ITEMS
3 982 18 00731		
DRAWING No.	REV.	
3 982 18 00721	00	
No. OF SHEETS		

DEPT	GRADE OF	SCALE	WEIGHT (kg)
CODE	TOL DIM	N.T.S	33
	C/M/F		(Approx)
TITLE			
TOP FLANGE (MACHINED)			
CARD CODE			

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN mm.

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A3

3 982 18 00731

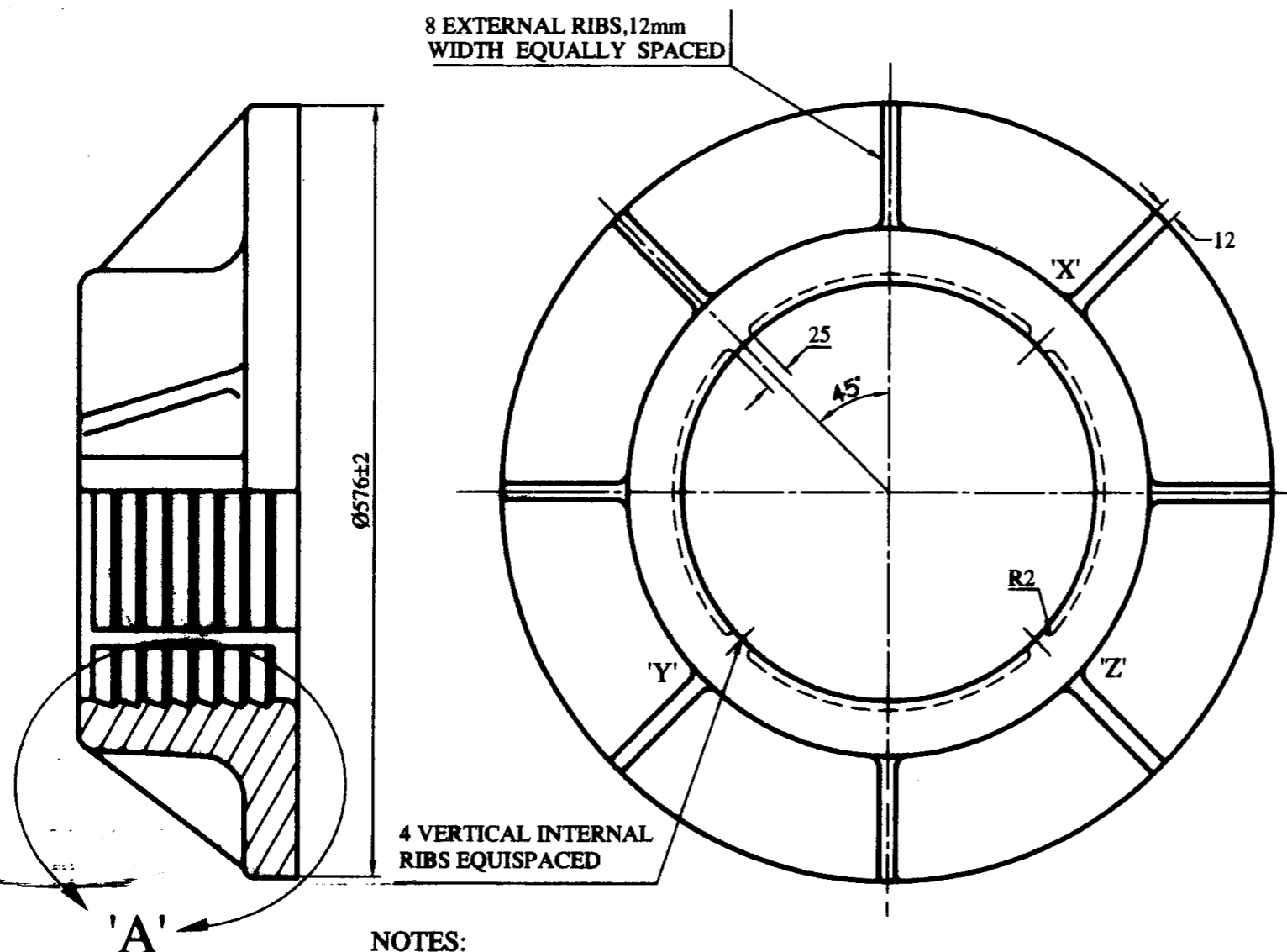
DRG No.

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REF. DRG. No.

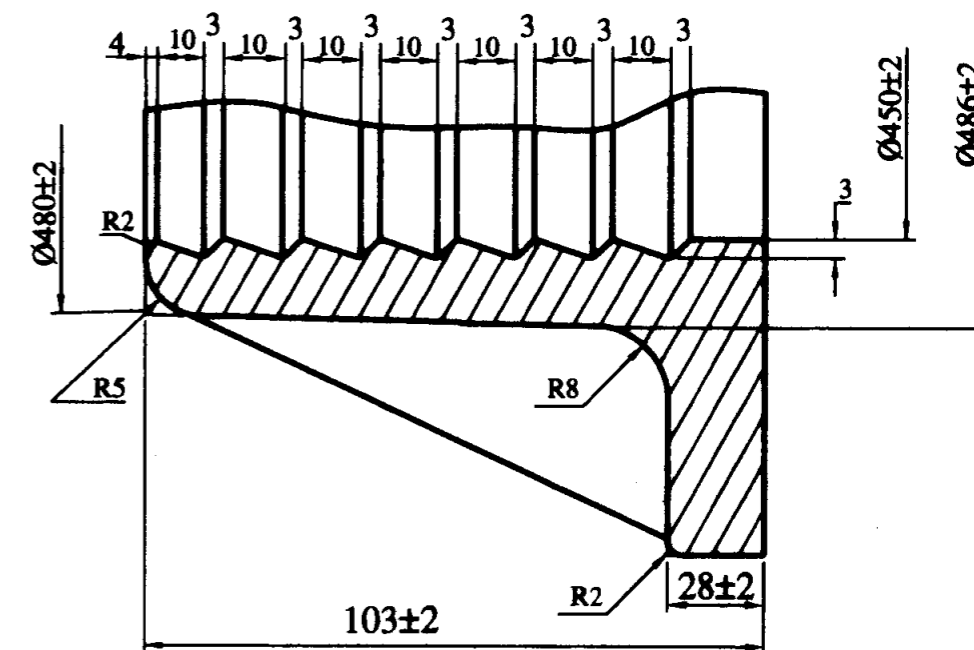
SIGN AND DATE

INVENTORY No.



NOTES:

1. SG IRON SHOULD CONFORM TO Gr.400/15 OF IS:1865-1991.
2. SURFACES SHOULD BE FREE FROM BURRS, SAND INCLUSION ETC.
3. TOLERANCE ON WALL THICKNESS = ± 1.5 mm
4. ALL SHARP CORNERS AND EDGES TO BE ROUNDED OFF BY R2
5. TOLERANCE ON UNTOLERANCED DIMENSIONS SHOULD BE AS PER IS:8349-1977
6. LETTERS 'BHEL' IN 6 mm HEIGHT SHOULD BE EMBOSSED IN PROJECTED FORM AT THE PLACE SHOWN AS 'X'
7. MANUFACTURER'S IDENTIFICATION MARK IS TO BE EMBOSSED IN THE CASTING IN PROJECTED FORM IN THE PLACE SHOWN AS 'Y'
8. NUMBER "2 18 00721" TO BE EMBOSSED IN PROJECTED FORM AT THE PLACE SHOWN AS 'Z'



DETAILS AT - 'A'

CONTROLLED COPY

FINAL DIMENSIONS SHOULD BE AS PER DRG. 3 982 18 00721



BHARAT HEAVY ELECTRICALS LTD.,
ELECTROPORCELAINS DIVISION
BANGALORE - 560 012

DRN	NAME	SIGN	DATE
CHD	SANTHU	<i>[Signature]</i>	03.11.2014
APPD	A V M	<i>[Signature]</i>	02.11.2014
	SSP	<i>[Signature]</i>	02.11.14

DEPT	GRADE OF TOL DIM C/M/F	SCALE	WEIGHT (kg)	REF TO MACHINED DRG	ITEM No.	No. OF ITEMS
CODE		N.T.S	35 (Approx)	3 982 18 00721		
TITLE				CARD CODE	DRAWING No.	REV.
TOP FLANGE (CASTING)					3 982 18 00731	00
					No. OF SHEETS	

SUPERSEDES DRG. No.

SHT.24 SIZE A3 420 x 297

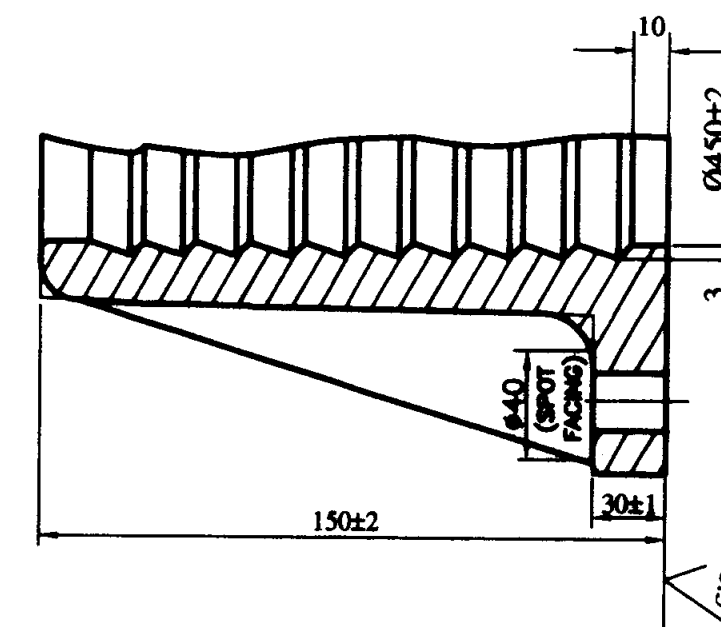
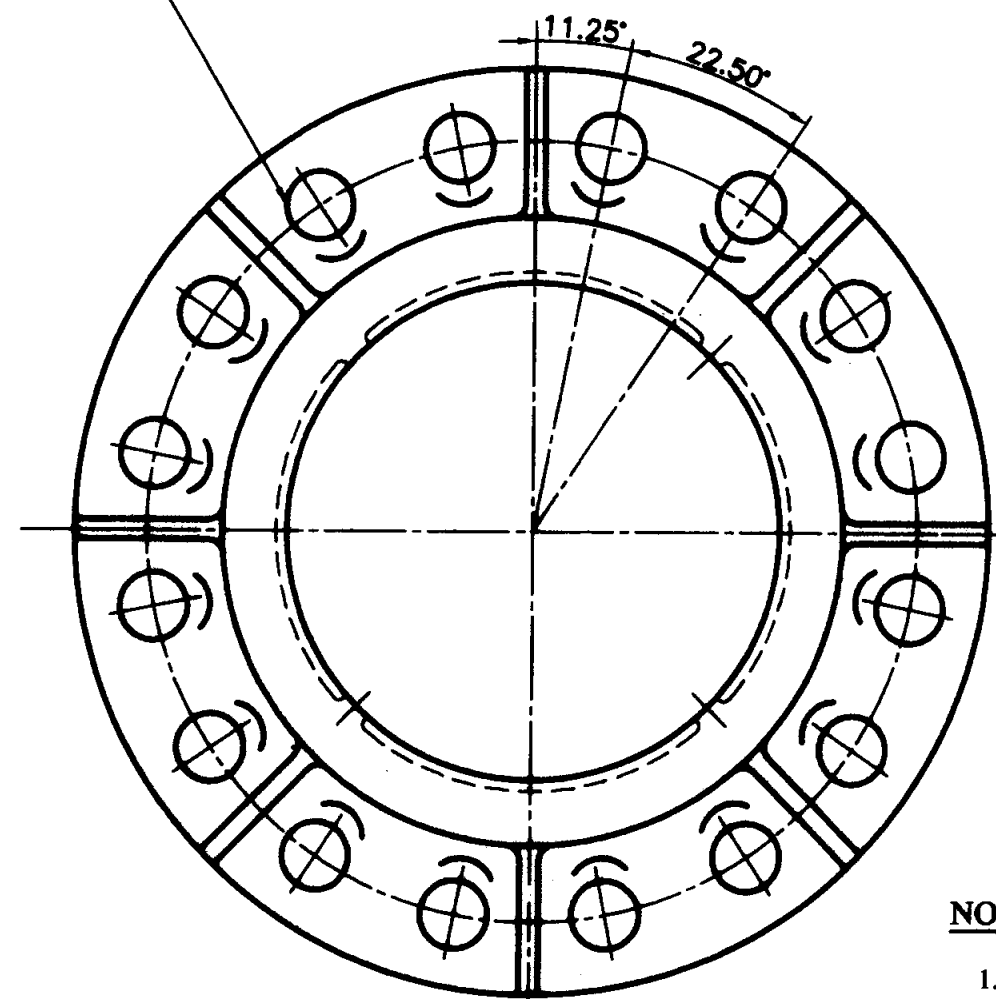
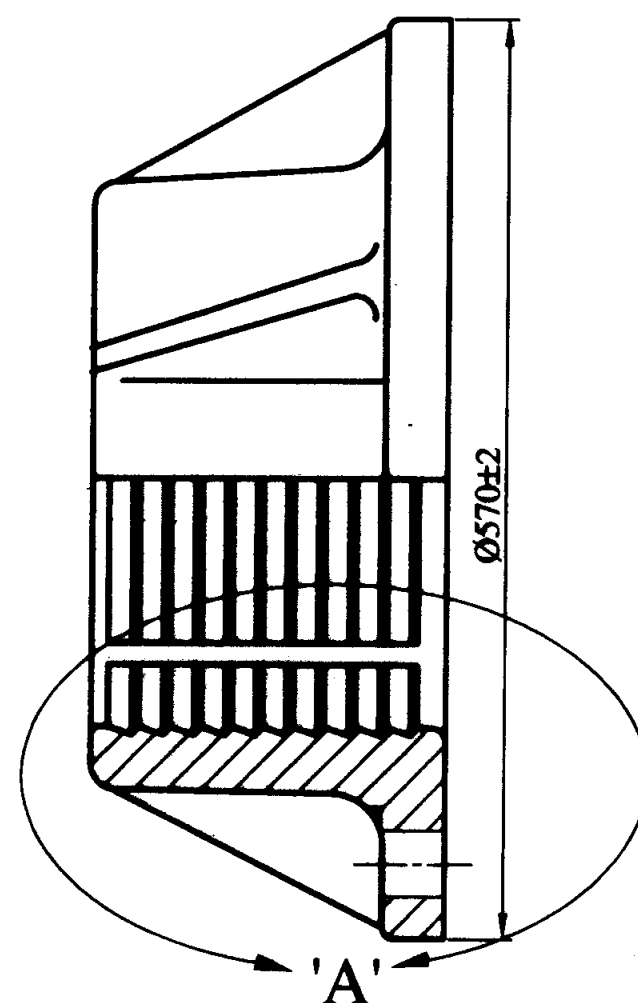
FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN mm.

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3 982 18 00722

DRG No.

16 DRILLED HOLES, Ø19
SPACED ON 530±0.5 PCD

DETAILS AT- 'A'

CONTROLLED COPY

NOTES:

1. ALL DIMENSIONS ARE AFTER HOT - DIP GALVANIZING.
2. GALVANIZING SHOULD BE DONE AFTER ALL MACHINING AND DRILLING. PREFERABLY BY WET PROCESS.
3. DRILLED HOLE SIZE BEFORE GALVANIZING SHOULD BE $\varnothing 19.3^{+0.3}_{-0.0}$
4. MACHINING ON $\varnothing 570 \pm 2$ SHOULD BE DONE WITH REFERENCE TO THE AS CAST INSIDE SURFACE OF THE CASTING.
5. HOLES ARE TO BE DRILLED WITH REFERENCE TO THE OUT SIDE DIA $\varnothing 570 \pm 2$
6. DRILLED HOLES AND SPOT FACING DIA TO BE CONCENTRIC.
7. ALL SHARP CORNERS TO BE ROUNDED OFF BY R2

FINAL DIMENSIONS SHOULD BE AS PER DRG. 3 982 18 00722

SIGN AND DATE

REF. DRG. No.

INVENTORY No.

REV	DATE	ALTERED	REV	DATE	ALTERED
		CHECKED			CHECKED

BHARAT HEAVY ELECTRICALS LTD.,
ELECTROPORCELAINS DIVISION
BANGALORE - 560 012DEPT
CODEGRADE OF
TOL DIM
C/M/FSCALE
N.T.S.WEIGHT (kg)
46
(Approx)

TITLE

BOTTOM FLANGE
(MACHINED)CARD
CODEDRAWING No.
3 982 18 00722REV.
00

NAME	SIGN	DATE
DRN HEMANTH		03.11.2014
CHD AVM		02.11.2014
APPD SSP		03.11.14

REF TO CASTING DRG
3 982 18 00732ITEM No.
No. OF ITEMS

No. OF SHEETS

SUPERSEDES DRG. No.

SHT.24 SIZE A3 420 x 297

00

3 982 18 00732

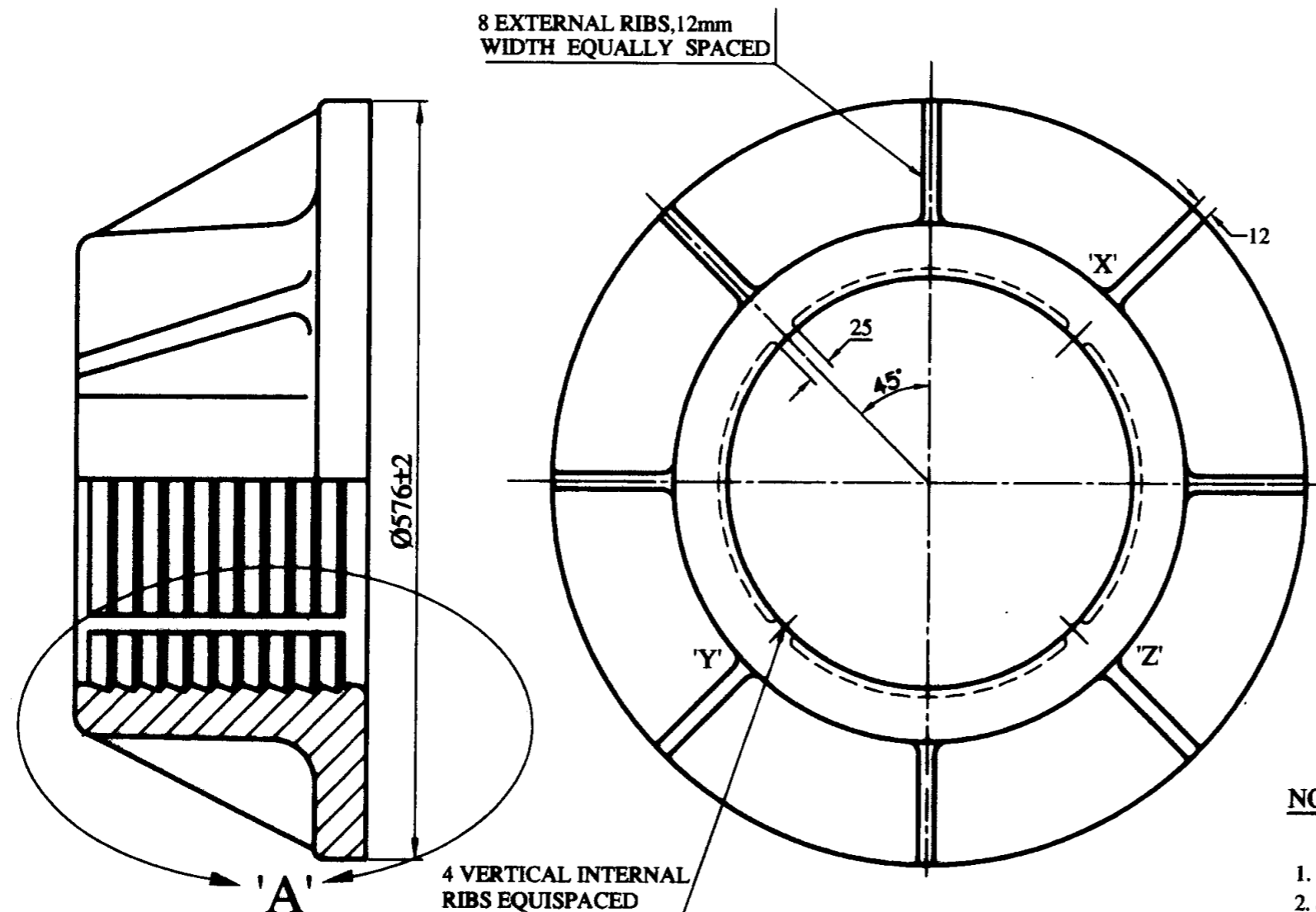
DRG No.

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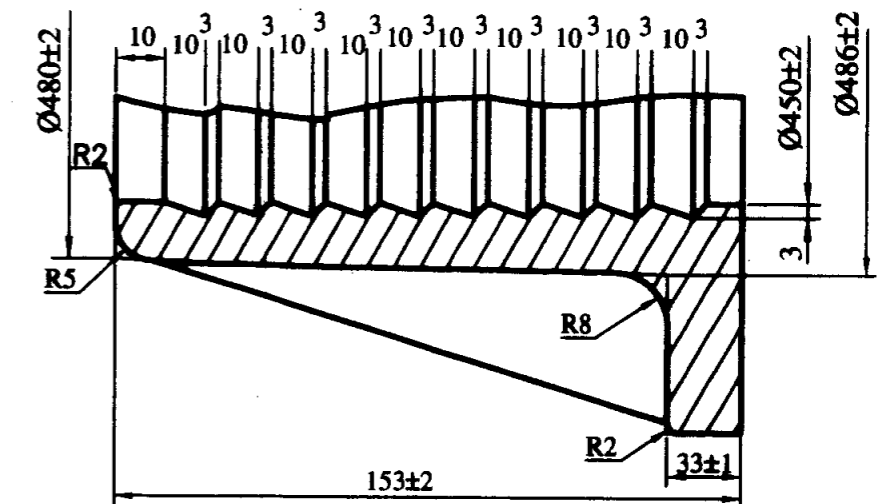
SIGN AND DATE REF. DRG. No.

INVENTORY No.

REV	DATE	ALTERED	REV	DATE	ALTERED	REV	DATE	ALTERED
		CHECKED			CHECKED			CHECKED



FINAL DIMENSIONS SHOULD BE AS PER DRG. 3 982 18 00722



DETAILS AT- 'A'

CONTROLLED COPY

NOTES:


1. SG IRON SHOULD CONFORM TO Gr.400/15 OF IS:1865-1991.
2. SURFACES SHOULD BE FREE FROM BURRS, SAND INCLUSION ETC.
3. TOLERANCE ON WALL THICKNESS = ± 1.5 mm
4. ALL SHARP CORNERS AND EDGES TO BE ROUNDED OFF BY R2
5. TOLERANCE ON UNTOLERANCED DIMENSIONS SHOULD BE AS PER IS:8349-1977
6. LETTERS 'BHEL' IN 6 mm HEIGHT SHOULD BE EMBOSSED IN PROJECTED FORM AT THE PLACE SHOWN AS 'X'
7. MANUFACTURER'S IDENTIFICATION MARK IS TO BE EMBOSSED IN THE CASTING IN PROJECTED FORM IN THE PLACE SHOWN AS 'Y'
8. NUMBER " 2 18 00722" TO BE EMBOSSED IN PROJECTED FORM AT THE PLACE SHOWN AS 'Z'.



BHARAT HEAVY ELECTRICALS LTD.,
ELECTROPORCELAINS DIVISION
BANGALORE - 560 012

NAME	SIGN	DATE
DRN	SANTHU	03.11.2014
CHD	A V M	03.11.2014
APPD	SSP	03.11.14
REF TO MACHINED DRG		
3 982 18 00722		
ITEM No.		
No. OF ITEMS		
DRAWING No.		
3 982 18 00732		
REV.		
00		
No. OF SHEETS		

DEPT	GRADE OF	SCALE	WEIGHT (kg)
CODE	TOL DIM	N.T.S	48
	C/M/F		(Approx)
TITLE			
BOTTOM FLANGE			
(CASTING)			

 BHBL-SBD		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION PROF.C.N.R RAO CIRCLE, IISc POST MALLESHWARAM, BENGALURU-560012				STANDARD QUALITY ASSURANCE PLAN ITEM: SGI CASTINGS FOR PORCELAINS INSULATOR (FLANGES, TOP CAP, BOTTOM CAP ETC.)		QP NO.: EPD_QP_IP_2020-21_0006 REV. NO.: 00 DATE: 22.01.2021 PAGE 2 OF 3					
		SL. NO		ITEM/ COMPONENT	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	
		1.	2.	3.	4.	5.	6.	7.	8.	9.	D*	M B	11.
B INSPECTION AT BHEL WORKS													
B.1	SGI Castings (Flanges, Top Cap, Bottom Cap etc.)	Visual	Major	Physical	IS:2500 Ptl AQL 0.25%	BHEL Drg./BHEL Spec	BHEL Drg./BHEL Spec	Inspection Report	-	-	P		
B.2		Gauge Inspection	Major	Physical	IS:2500 Ptl AQL 0.65%		BHEL Drg./BHEL Spec	Inspection Report	-	-	P		
B.3		Dimensions & Markings	Major	Physical	2 per 1000 & part thereof		BHEL Drg./ BHEL Spec	Inspection Report	-	-	P		
B.4		Soundness	Major	Physical	IS:2500 Ptl AQL 0.25%	WI-QY/2302/10	Clear ringing sound on striking with light hammer	Inspection Report	-	-	P		
B.5		Tensile Test, % Elongation, Hardness on Test Bar	Major	Mechanical	1/heat	IS 1865:1991 /BHEL Drg.	IS 1865:1991 /BHEL Drg.	Inspection Report	-	-	P	Vendor to provide test bar per heat per	
B.6		Microstructure on Test bar	Major	Metallurgical	1 per lot			Inspection Report	-	-	P	lot	
B.7		Mass/ Thickness of Zinc coating	Major	Physical	Min 3 per 1000 & part thereof	BHEL Spec./ BHEL Drg.	BHEL Drg./ BHEL Spec	Inspection Report	-	-	P		
B.8		Uniformity of Zinc coating for castings weight less than 4 Kg	Major	Chemical	Min 3 per 1000 & part thereof	IS 2633/ BHEL Spec	No permanent deposit of copper for 1 min each after 6 dips	Inspection Report	-	-	P		

Notes:

- For first time supply of any new item by the vendor, vendor should take sample approval before bulk manufacturing from Quality/Engg.
- The SQAP shall be read in conjunction with BHEL Specification mentioned in Purchase Order and shall deem to include any additional tests as per the specification/Standard.
- Material supplied shall be in line with BHEL Purchase Order, Technical Specification, Approved Drawings, applicable Standard References, or any other document/references.

LEGEND: *D: RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY VENDOR IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-VENDOR, B: BHEL/BHEL NOMINATED INSPECTION AGENCY P: PERFORM W: WITNESS AND V: VERIFICATION.		FOR BHEL USE	
PREPARED BY: B D RANGAPPA		APPROVED BY: ADITYA KUMAR MOURYA	
QUALITY ASSURANCE		QUALITY ASSURANCE	



BHARAT HEAVY ELECTRICALS LIMITED
SOLAR BUSINESS DIVISION
PROF.C.N.R RAO CIRCLE, IISc POST
MALLESHWARAM, BENGALURU-560012

STANDARD QUALITY ASSURANCE PLAN

ITEM: SGI CASTINGS FOR PORCELAINS
INSULATOR (FLANGES, TOP CAP, BOTTOM CAP
ETC.)

QP NO.: EPD_QP_IP_2020-21_0006

REV. NO.: 00

DATE: 22.01.2021

PAGE 1 OF 3

SL. NO	ITEM/ COMPONENT	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY		REMARKS
										M	B	
1.	2.	3.	4.	5.	6.	7.	8.	9.	D*	**	10.	11.
A	INSPECTION BY SUPPLIER AT THEIR WORKS											
A.1	SGI Castings (Flanges, Top Cap, Bottom Cap etc.)	Visual	Major	Physical	100%	BHEL Drg./BHEL Spec	BHEL Drg./BHEL Spec	Inspection Report	✓	P	V	
A.2		Gauge Inspection (as applicable)	Major	Physical	100%			Inspection Report	✓	P	V	
A.3		Dimensions & Markings	Major	Physical	10 per 1000 & part thereof			Inspection Report	✓	P	V	
A.4		Soundness	Major	Physical	100%	Casting Supplier Standard	Clear ringing sound on striking with light hammer	Inspection Report	✓	P	V	
A.5		Magnetic Particle Inspection (MPI)	Major	NDT	100%	IS 3703	No Crack	Inspection Report	✓	P	V	
A.6		Tensile Strength	Major	Mechanical	1/heat	IS 1865:1991/BHEL Drg.	As per Grade in drawing	Inspection Report	✓	P	V	
A.7		% Elongation	Major	Mechanical	1/heat			Inspection Report	✓	P	V	
A.8		Hardness	Major	Mechanical	1/heat			Inspection Report	✓	P	V	
A.9		Microstructure	Major	Metallurgical	1/heat			Inspection Report	✓	P	V	
A.10		Chemical Composition	Major	Chemical	1/heat			Casting Supplier Standard	Inspection Report	✓	P	V
A.11		Mass/ Thickness of Zinc coating	Major	Physical	Min 3 per 1000 & part thereof	BHEL Spec./ BHEL Drg.	BHEL Drg./ BHEL Spec	Inspection Report	✓	P	V	
A.12		Uniformity of Zinc coating for castings weight less than 4 Kg	Major	Chemical	Min 3 per 1000 & part thereof	IS 2633/ BHEL Spec	No permanent deposit of copper for 1 min each after 6 dips	Inspection Report	✓	P	V	
A.13		Purity of Zinc Ingot used for Galvanizing	Major	Chemical	One sample per Ingot Lot	IS 209:1992	% Zinc ≥ 99.5	Manufacturer Test Certificate & Third party Lab Test report	✓	V	V	Vendor to give COC for Manufacturer TC for usage in BHEL PO

LEGEND: *D: RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY VENDOR IN QA DOCUMENTATION.

** M: MANUFACTURER/SUB-VENDOR, B: BHEL/BHEL NOMINATED INSPECTION AGENCY
P: PERFORM W: WITNESS AND V: VERIFICATION.

FOR BHEL USE


PREPARED BY: B D RANGAPPA

APPROVED BY:

ADITYA

QUALITY ASSURANCE

BHEL-EPD Bengaluru-560012

 BHBL-SBD		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION PROF.C.N.R RAO CIRCLE, IISc POST MALLESHWARAM, BENGALURU-560012		STANDARD QUALITY ASSURANCE PLAN			QP NO.: EPD_QP_IP_2020-21_0006 REV. NO.: 00 DATE: 22.01.2021 PAGE 3 OF 3					
				ITEM: SGI CASTINGS FOR PORCELAINS INSULATOR (FLANGES, TOP CAP, BOTTOM CAP ETC.)								
SL. NO	ITEM/ COMPONENT	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY		REMARKS
										M	B	
1.	2.	3.	4.	5.	6.	7.	8.	9.	D*	**	10.	11.

4. In case of any contradiction between this SQAP, BHEL Specifications the following precedence shall be followed:
 1st: BHEL Purchase Order Specification;
 2nd: This STANDARD QUALITY ASSURANCE PLAN & Applicable standard;
 3rd: Manufacturers plant standards
5. Packing shall be as per BHEL purchase order.
6. BHEL reserves the right for pre-dispatch inspection at vendor works by BHEL or BHEL nominated agency.
7. In case of pre-dispatch inspection, Supplier shall raise the inspection call in the CQIR with inspection agency as BHEL SBD URL: www.cqir.bhel.in and shall upload Test Certificates, Internal Tests Report as per this SQAP in CQIR Portal. TC to be verified w.r.t to inspected item during inspection and to be signed by the inspector.
8. Original Test Certificates, Internal Tests Report (Duly Sealed & signed), test bar per heat per lot as per this SQAP shall be sent along with lot for review.
9. Magnetic Particle Inspection will be done randomly for supplies received. If any discrepancy is found, corresponding lot will be rejected.

LEGEND: *D: RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY VENDOR IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-VENDOR, B: BHEL/BHEL NOMINATED INSPECTION AGENCY P: PERFORM W: WITNESS AND V: VERIFICATION.	FOR BHEL USE	
	PREPARED BY: B D RANGAPPA	APPROVED BY: ADITYA KUMAR MOURYA, Sr Engineer, QUALITY ASSURANCE

BHEL-EPD, Bengaluru-560012