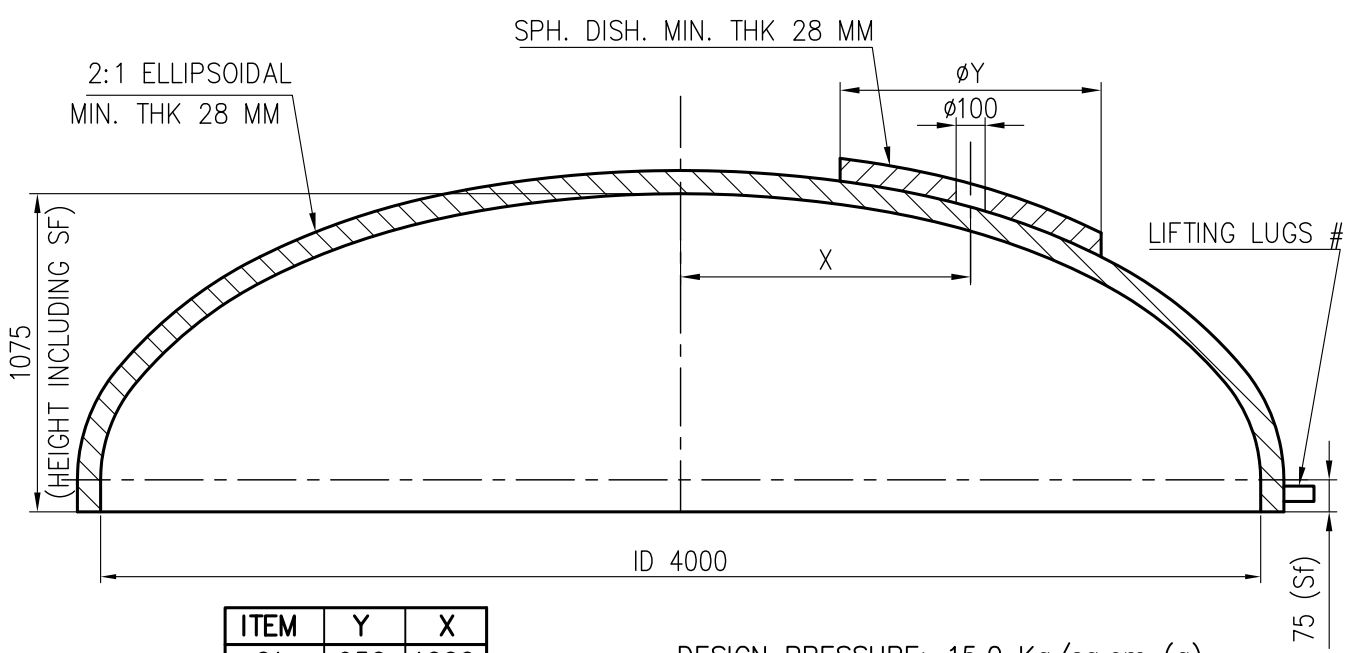


FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. 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

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	ADDITIONAL INFORMATION
										STATUS OF DRAWING
										DISTRIBUTION OF PRINTS



ITEM	Y	X
01	950	1000
02	600	1200

DESIGN PRESSURE: 15.0 Kg/sq.cm (g)
DESIGN TEMPERATURE: 260° C

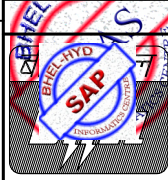
NOTES


- MATERIAL SHALL CONFIRM TO SA516 Gr.70 OF ASME SEC-II PART-A YEAR OF EDITION AS PER INDENT/ PO.
- INSPECTION: BY M/s IBR/DOB & BHEL APPROVED TPIA.
- CERTIFICATION: IBR FORM III-C.
- DESIGN CODE: IBR REGULATIONS (CLASS-1 BOILER).
- PLATE SHALL BE UT TESTED BEFORE FORMING (NOT REQUIRED IF ALREADY UT TESTED AT MILLS)
- SPHERICAL DISH SHALL BE OF SEAMLESS CONSTRUCTION & PROFILE SHOULD MATCH WITH DISHED DISHED END OD AS SHOWN IN THE DRG.
- NORMALISING SHALL BE DONE FOR SPHERICAL DISH ALSO AFTER PRESSING.
- TEST COUPON TESTING IS REQUIRED.
- TECHNICAL & DELIVER CONDITIONS: AS PER PRODUCT STANDARD HE51370.

FOR PLATE WELDING REFER DRG. 4-163-10-00668.

3 NOS. LIFTING LUGS TO BE WELDED ON Sf AT 120° AND TO BE DP CHECKED AFTER WELDING.

ITEM NO.	DESCRIPTION	DRAWING NO.	MATL. CODE	UNIT Wt.
			MATL. SPEN.	QTY.

	BHARAT HEAVY ELECTRICALS LTD.		DRN.	B UMA	SIGN.	B UMA	DATE	01.02.18	NO.OF VAR.
	HYDERABAD		CHD.	BINAY JHA	SIGN.	BINAY JHA	DATE	01.02.18	
			APPD.	SUBRATA RAY	SIGN.	SUBRATA RAY	DATE	01.02.18	

DEPT. HED	GRADE OF TOL.DIM. C/M/F		SCALE NTS	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
CODE 405							

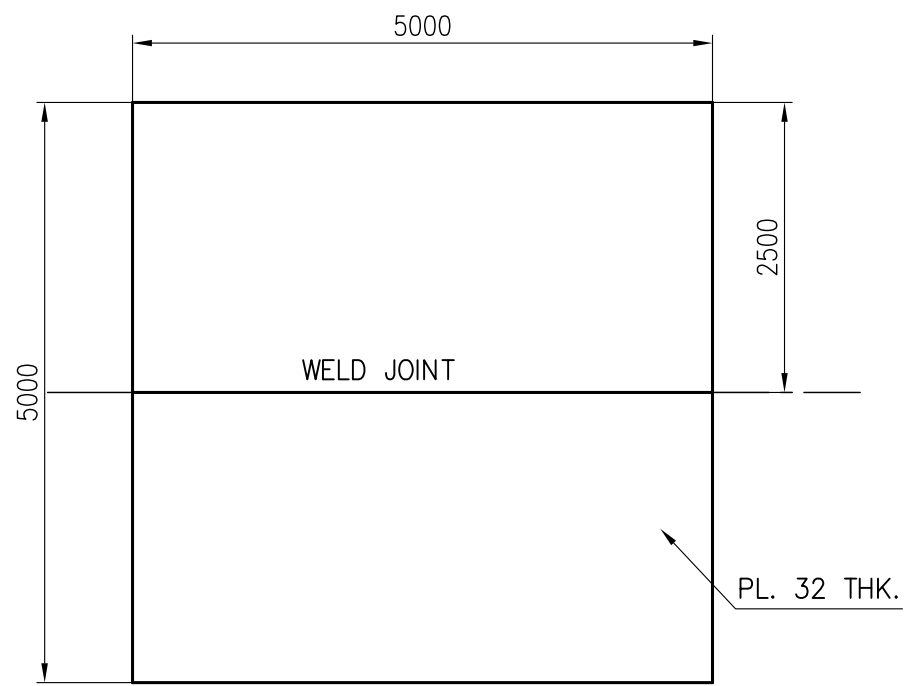
TITLE	SPHERICAL DISH WITH 2:1 ELLIPSOIDAL DISHED END	CARD CODE	DRAWING NO.	REV.
			4-163-10-00666	00
			SHEET NO.	NO OF SHEETS

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. 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

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	ADDITIONAL INFORMATION
										STATUS OF DRAWING
										DISTURIBUTION OF PRINTS



NOTES

1. MATERIAL SHALL CONFIRM TO SA516 Gr.70 OF ASME SEC-II PART-A YEAR OF EDITION AS PER INDENT/ PO.
2. PLATE SHALL BE UT TESTED BEFORE FORMING (NOT REQUIRED IF ALREADY UT TESTED AT MILLS)
3. FOR OTHER DETAILS REFER PRODUCT STANDARD HE51370 & DRG. 4-163-10-00666.
2. REFER DET. J-005/A OR J-009/A OF WELD DETAILS AND WPS. DRG. 2-163-10-00014 FOR PLATE WELDING.

ITEM NO.	DESCRIPTION	DRAWING NO.	MATL. CODE	UNIT Wt.
			MATL. SPEN.	QTY.

	BHARAT HEAVY ELECTRICALS LTD.		DRN.	B UMA	U _{mas} SIGN.	DATE	01.02.18	NO. OF VAR.
	HYDERABAD		CHD.	BINAY K JHA	BINAY K JHA	01.02.18		
			APPD.	SUBRATA RAY	SUBRATA RAY	01.02.18		

DEPT. HED	GRADE OF TOL. DIM. C/M/F		SCALE NTS	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
CODE 405							

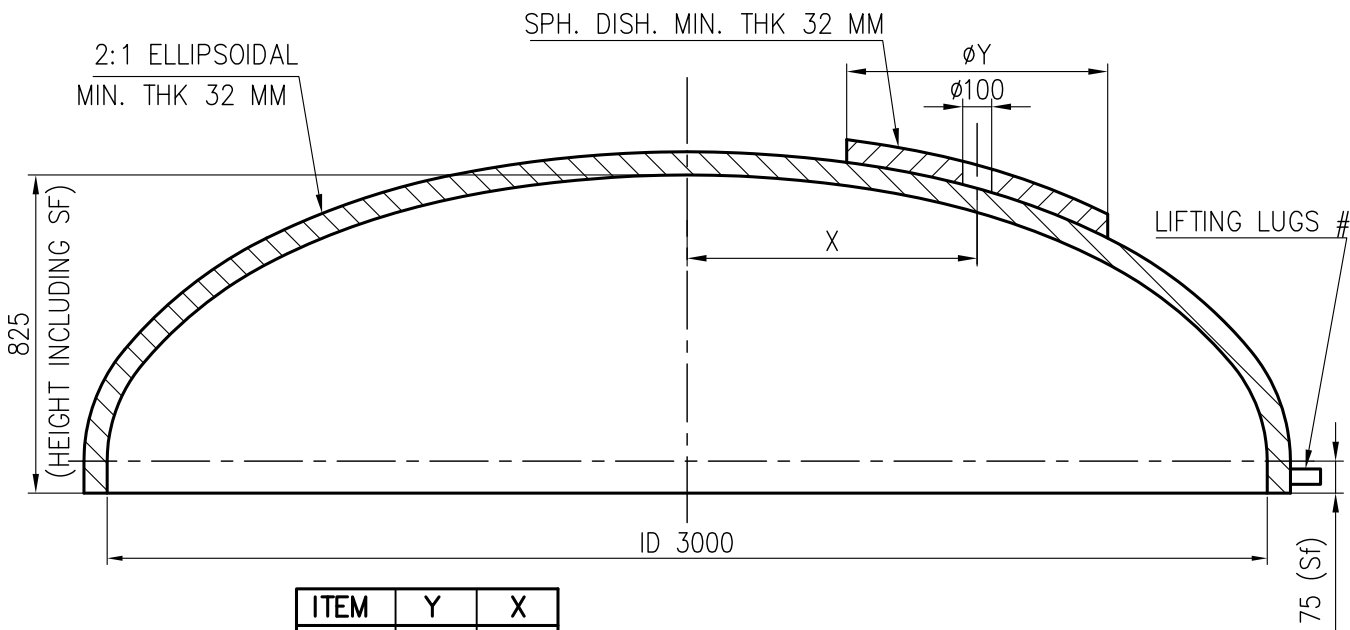
TITLE	CARD CODE	DRAWING NO.	REV.
2:1 ELLIPSOIDAL DISHED END PLATE		4-163-10-00668	00
Feb Fri 2 13:37 2018	Printed by: UMA MAHESWARI BANOTHU-RCP-FME3166 / 6146546 on 01-11-2018 14:24	This Drawing is printed from Engineering Digital Archive System (EDAS). Therefore signatures are not essentially required.	NO OF SHEETS

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. 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

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	ADDITIONAL INFORMATION
										STATUS OF DRAWING
										DISTURIBUTION OF PRINTS



ITEM	Y	X
01	1700	256
02	950	0
03	500	700

DESIGN PRESSURE: 15.0 Kg/sq.cm (g)
DESIGN TEMPERATURE: 415° C

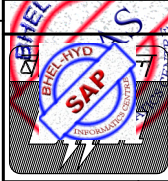
NOTES


- MATERIAL SHALL CONFIRM TO SA516 Gr.70 OF ASME SEC-II PART-A YEAR OF EDITION AS PER INDENT/ PO.
- INSPECTION: BY M/s IBR/DOB & BHEL APPROVED TPIA.
- CERTIFICATION: IBR FORM III-C.
- DESIGN CODE: IBR REGULATIONS (CLASS-1 BOILER).
- PLATE SHALL BE UT TESTED BEFORE FORMING (NOT REQUIRED IF ALREADY UT TESTED AT MILLS)
- SPHERICAL DISH SHALL BE OF SEAMLESS CONSTRUCTION & PROFILE SHOULD MATCH WITH DISHED DISHED END OD AS SHOWN IN THE DRG.
- NORMALISING SHALL BE DONE FOR SPHERICAL DISH ALSO AFTER PRESSING.
- TEST COUPON TESTING IS REQUIRED.
- TECHNICAL & DELIVER CONDITIONS: AS PER PRODUCT STANDARD HE51370.

FOR PLATE WELDING REFER DRG. 4-163-10-00667.

3 NOS. LIFTING LUGS TO BE WELDED ON Sf AT 120° AND TO BE DP CHECKED AFTER WELDING.

ITEM NO.	DESCRIPTION	DRAWING NO.	MATL. CODE	UNIT Wt.
			MATL. SPEN.	QTY.

	BHARAT HEAVY ELECTRICALS LTD.		DRN.	NAME	SIGN.	DATE	NO. OF VAR.
	HYDERABAD		CHD.	BINAY JHA	BINAY JHA	01.02.18	
			APPD.	SUBRATA RAY	SUBRATA RAY	01.02.18	

DEPT. HED	GRADE OF TOL. DIM. C/M/F		SCALE NTS	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
CODE 405							

TITLE	SPHERICAL DISH WITH 2:1 ELLIPSOIDAL DISHED END	CARD CODE	DRAWING NO.	REV.
			4-163-10-00665	00
			SHEET NO.	NO OF SHEETS

Feb/Fri 2 13:34 2018

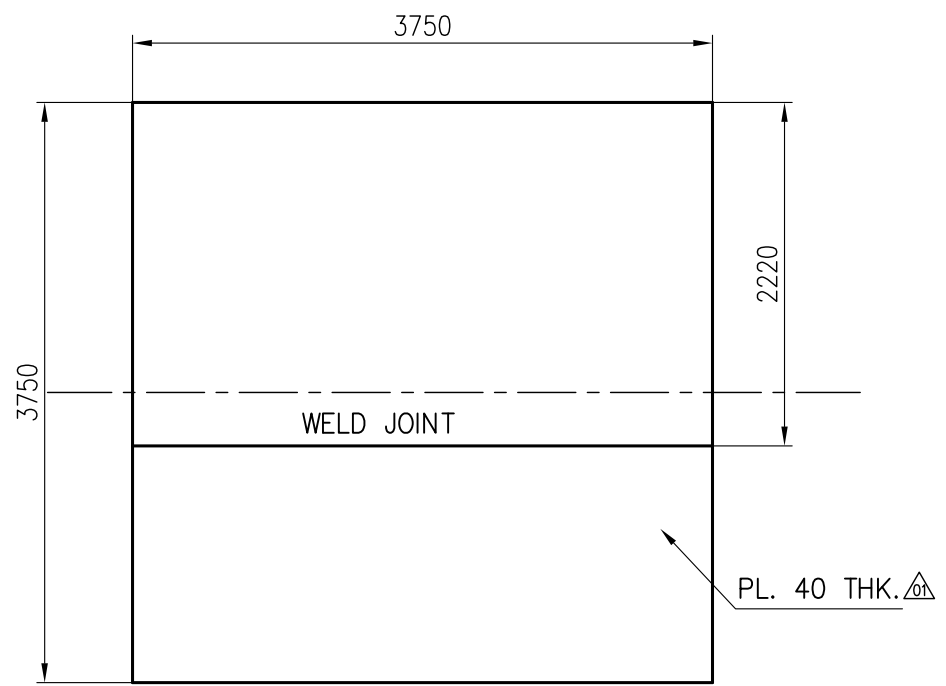
This Drawing is printed from Engineering Digital Archive System (EDAS). Therefore signatures are not essentially required.

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

INVENTORY NO. SIGN. AND DATE REF. DRG. NO. 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

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	ADDITIONAL INFORMATION
△	23.11.23	B UMA	U MENON	U MENON						STATUS OF DRAWING
PLATE THICKNESS INCREASED TO MEET TO THE THINNING PERCENTAGE DURING FORMING.										DISTURIBUTION OF PRINTS



NOTES

1. MATERIAL SHALL CONFIRM TO SA516 Gr.70 OF ASME SEC-II PART-A YEAR OF EDITION AS PER INDENT/ PO.
2. PLATE SHALL BE UT TESTED BEFORE FORMING (NOT REQUIRED IF ALREADY UT TESTED AT MILLS)
3. FOR OTHER DETAILS REFER PRODUCT STANDARD HE51370 & DRG. 4-163-10-00665.
2. REFER DET. J-005/A OR J-009/A OF WELD DETAILS AND WPS. DRG. 2-163-10-00014 FOR PLATE WELDING.

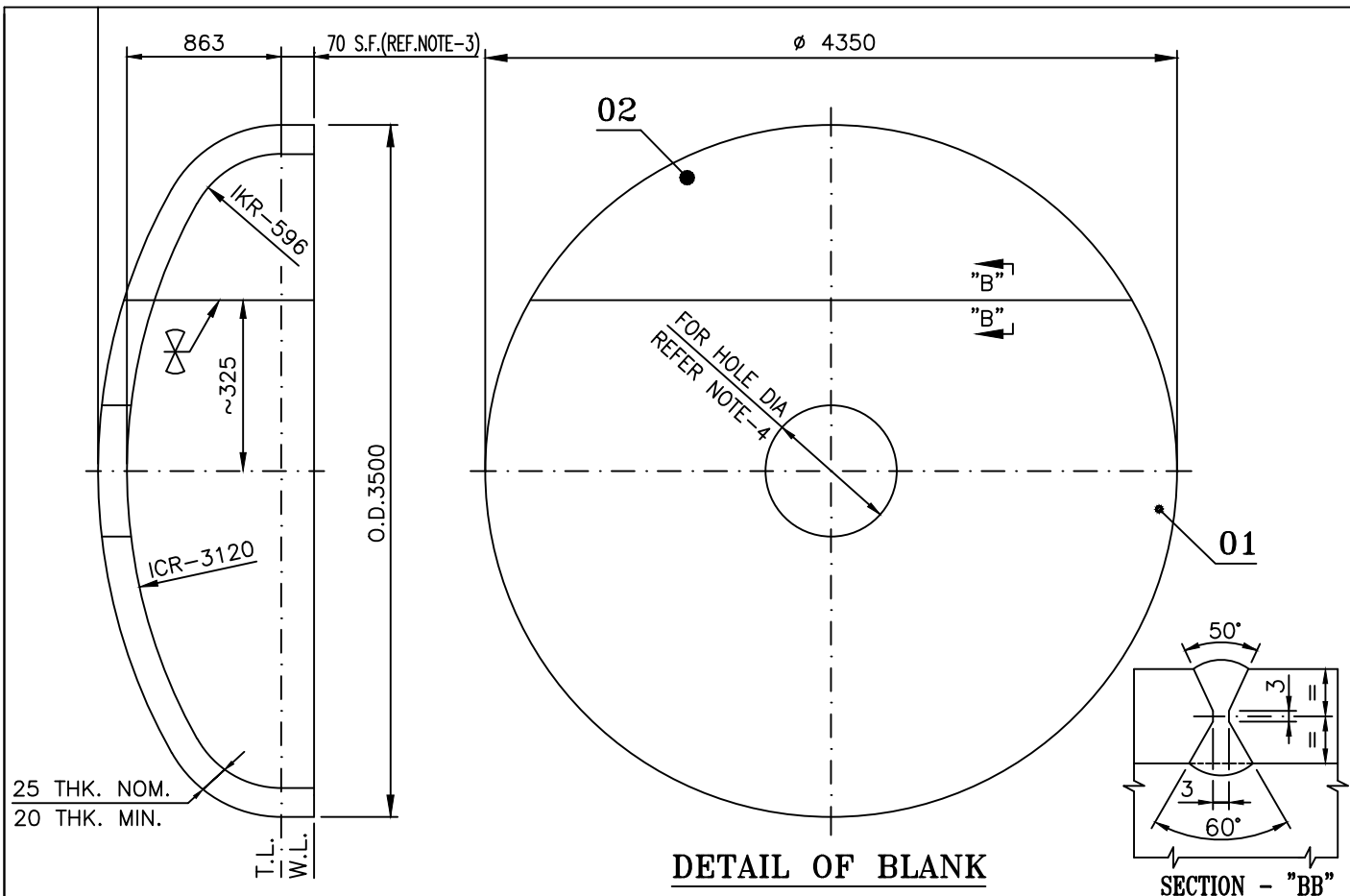
ITEM NO.	DESCRIPTION	DRAWING NO.	MATL. CODE	UNIT Wt.
			MATL. SPEN.	QTY.

	BHARAT HEAVY ELECTRICALS LTD.		DRN.	B UMA	Umas SIGN.	DATE	01.08.18	NO. OF VAR.
	HYDERABAD		CHD.	BINAY K JHA	BINAY K JHA	01.08.18		
			APPD.	SUBRATA RAY	SUBRATA RAY	01.08.18		

DEPT. HED	GRADE OF TOL. DIM. C/M/F		SCALE NTS	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
CODE 405							

TITLE	CARD CODE	DRAWING NO.	REV.
2:1 ELLIPSOIDAL DISHED END PLATE		4-163-10-00667	01
Printed By : UMA MAHESWARI BANOTHU-WME8019 / 6146546 on 25-11-23 13:27:09 Nov Thu 23 10:48 2023		This Drawing is printed from Engineering Digital Archive System (EDAS). Therefore signatures are not essentially required.	NO OF SHEETS

CAUTION : The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.



DETAIL OF BLANK

FOR TENDER PURPOSE

NOTES:-

- 1.) DIA OF BLANK TO BE CONFIRMED BY VENDOR/ FABRICATOR BEFORE PROCEEDING
- 2.) EDGE PREPARATION FOR BUTT WELDING SHALL BE AS PER CONTRACT DRAWINGS.
- 3.) THE DIMENSION 70mm. INDICATED FOR THE SKIRT IS INCLUSIVE OF MANUFACTURING TOLERANCE FOR EDGE PREPARATION. FINAL REQUIRED DIMENSION WITH EDGE PREPARATION IS 50mm.
- 4.) DEPENDING UPON THE PROCESS OF MANUFACTURE, A PILOT HOLE OF $\phi 20$ mm. (MAXIMUM) MAY BE PERMITTED AT THE LOCATION SHOWN. THE PILOT HOLE SHALL BE CLOSED BY WELDING AND RADIOGRAPHED.
- 5.) MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR.
- 6.) RADIOGRAPHY OF WELD SEAM BEFORE HEAT TREATMENT SHALL BE 100%.
- 7.) HEAT TREATMENT : STRESS RELIEVING SHALL BE DONE AFTER FORMING.
- 8.) OVALITY AT ANY CROSS SECTION SHALL NOT EXCEED 0.5% OF THE NOMINAL DIAMETER AND ACTUAL OVALITY READINGS AT THE SF END ARE TO BE MENTION IN THE DIMENSION REPORT
- 9.) TEMPLATE USED FOR CHECKING THE PROFILE TO BE SENT ALONG WITH DISH END BY THE DISH END FABRICATION VENDOR.
- 10.) THE STRAIGHTNESS OF SF IS TO BE ENSURED AND THE SAME TO BE REPORTED IN THE DIMENSION REPORT.
- 11.) THE O.D. DIMENSION TO BE MEASURED AT SF AND THE SAME TO BE REPORTED IN THE DIMENSION REPORT
- 12.) TOLERANCE IN DEPTH OF DISH HEAD: +20MM-0MM

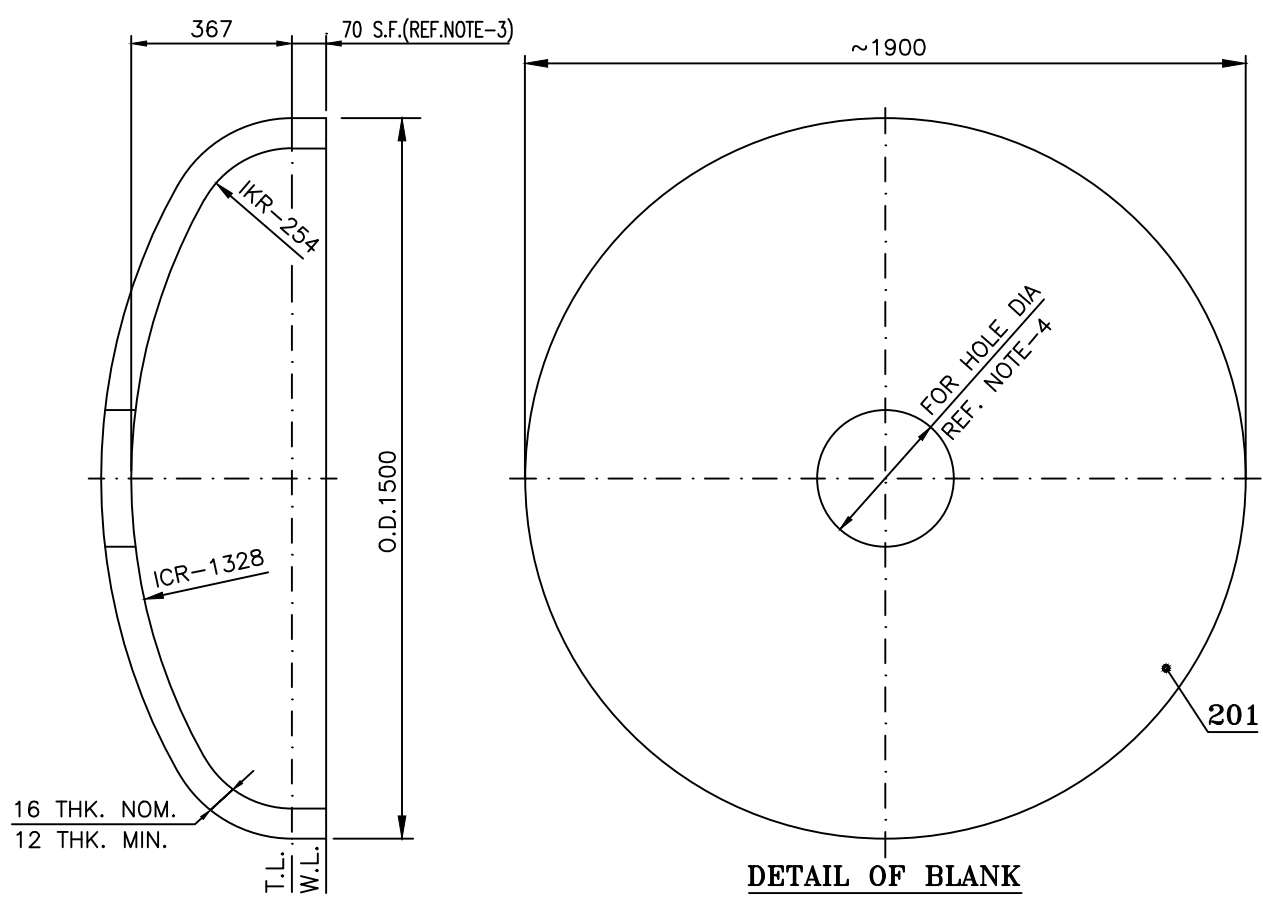
TYPE : 2:1 ELLIPSODIAL S.O.7936

ITEM NUMBER	DESCRIPTION	MATERIAL CODE	A/C/P	L/S	UNIT WEIGHT	QUANTITY
02	PLATE FOR SEGMENT-2 25 x 1850 x 4300	SA516 Gr.70	A		1182.0	1
01	PLATE FOR SEGMENT-1 25 x 2500 x 4350	SA516 Gr.70	A		1734.0	1
REV NO.	BRIEF RECORD OF REVISIONS			DATE	PPD.	CHD.

 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012	DRN	NAME <i>S.P.N. Murthy</i>	SIGNATURE	DATE 23.12.23	
	CHD	D.SATISH		23.12.23	
	APPD	D.SATISH		23.12.23	
DEPT P.P. ENGG. CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 2916.0	REF TO ASSY / OLD DWG -
TITLE DISH HEAD FOR FEED WATER TANK ($\phi 3500$ x 25 THK.)			DRAWING NO : 4-81-026-U4003		REV A

FORM NO. 0420/2

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DETAIL OF BLANK

NOTES:-

- 1.) DIA OF BLANK TO BE CONFIRMED BY VENDOR/ FABRICATOR BEFORE PROCEEDING
- 2.) EDGE PREPARATION FOR BUTT WELDING SHALL BE AS PER CONTRACT DRAWINGS.
- 3.) THE DIMENSION 70mm. INDICATED FOR THE SKIRT IS INCLUSIVE OF MANUFACTURING TOLERANCE FOR EDGE PREPARATION. FINAL REQUIRED DIMENSION WITH EDGE PREPARATION IS 50mm.
- 4.) DEPENDING UPON THE PROCESS OF MANUFACTURE, A PILOT HOLE OF $\phi 20$ mm. (MAXIMUM) MAY BE PERMITTED AT THE LOCATION SHOWN. THE PILOT HOLE SHALL BE CLOSED BY WELDING AND RADIOGRAPHED.
- 5.) MANUFACTURING, INSPECTION AND TESTING SHALL BE AS PER IBR.
- 6.) RADIOGRAPHY OF WELD SEAM BEFORE HEAT TREATMENT SHALL BE 100%.
- 7.) HEAT TREATMENT : STRESS RELIVENG SHALL BE DONE AFTER FORMING.
- 8.) OVALITY AT ANY CROSS SECTION SHALL NOT EXCEED 0.5% OF THE NOMINAL DIAMETER AND ACTUAL OVALITY READINGS AT THE SF END ARE TO BE MENTION IN THE DIMENSION REPORT
- 9.) TEMPLATE USED FOR CHECKING THE PROFILE TO BE SENT ALONG WITH DISH END BY THE DISH END FABRICATION VENDOR.
- 10.) THE STRAIGHTNESS OF SF IS TO BE ENSURED AND THE SAME TO BE REPORTED IN THE DIMENSION REPORT.
- 11.) THE O.D. DIMENSION TO BE MEASURE AT SF AND THE SAME TO BE REPORTED IN THE DIMENSION REPORT
- 12.) TOLERANCE IN DEPTH OF DISH HEAD: +10MM-0MM

FOR TENDER PURPOSE

S.O.7936

TYPE : 2:1 ELLIPSODIAL

2	01	PLATE FOR DISH HEAD BLANK 1900 x 1900 x 16	SA516 Gr.70	A	356.0		
					1		
VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	MATERIAL CODE	A/C/P	UNIT WEIGHT		
			MATERIAL SPECN	H/S	QUANTITY		
REV NO.		BRIEF RECORD OF REVISIONS		DATE	PPD.	CHD.	APPD.

FORM NO. 0420/2

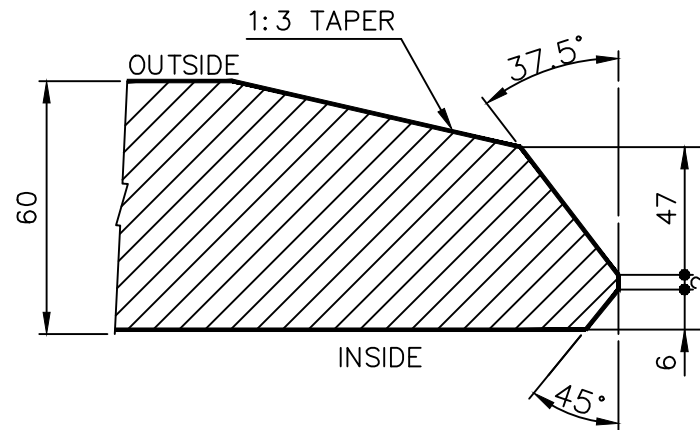
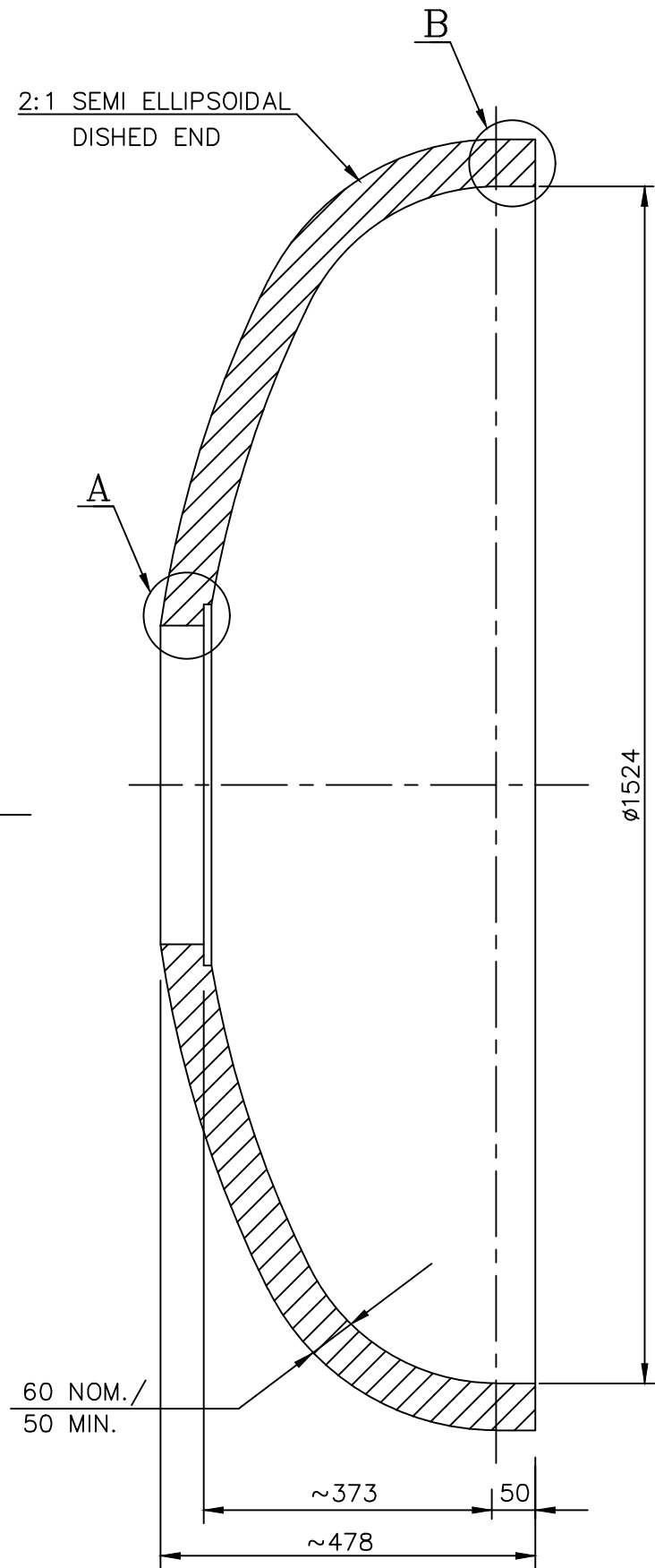


Bharat Heavy Electricals Ltd
UNIT: HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM-530012

DRN	NAME <i>S. P. N. Murthy</i>	SIGNATURE	DATE 23.12.23
CHD	D.SATISH		23.12.23
APPD	D.SATISH		23.12.23

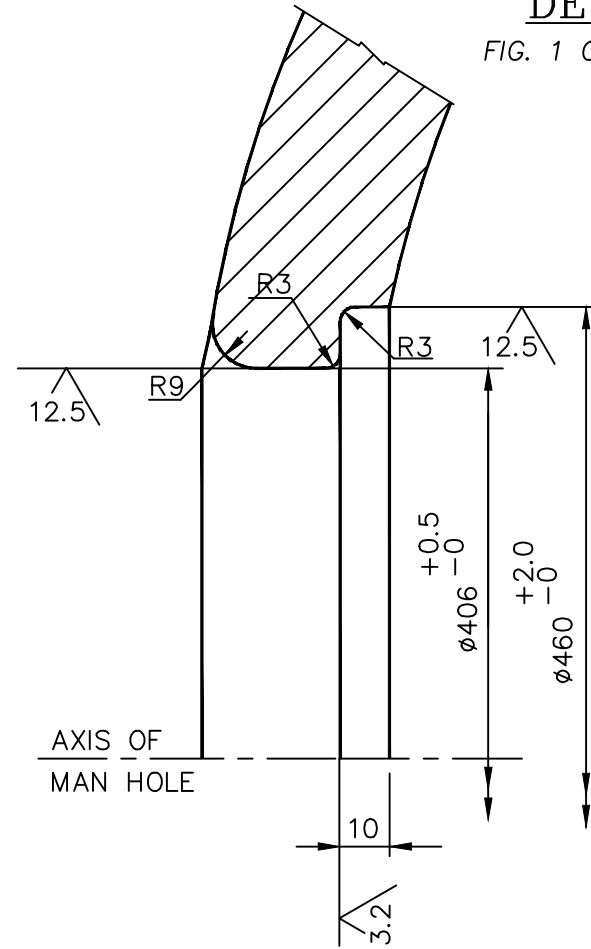
DEPT P.P. ENGG. CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 356.0	REF TO ASSY / OLD DWG -
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TITLE DISH HEAD FOR DEAERATOR ($\phi 1500$ x 16 THK.(NOM.))	DRAWING NO : 4-81-026-U4002	REV A
--	---------------------------------------	-----------------



DETAIL-B

FIG. 1 OF IBR REG.125



DETAIL-A


NOTES: -

01. BLANK DIA 1900.
02. FOR DESIGN PARAMETERS REFER ASSEMBLY DWG. NO. 2-04-114-U8157
03. NORMALISING TO BE DONE AFTER HOT FORMING, IF HOT PRESSING IS NOT COMPLETED WITH IN NORMALISING RANGE OF TEMPERATURE.
04. SA 515 GR.70 IS ALSO ACCEPTABLE IN PLACE OF SA 516 GR. 70.

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
		PL.60;				15 601 905	A		1335.00
						SA 516 GR70			
					VAR NO	MATERIAL SPECN	DI	QUANTITY	

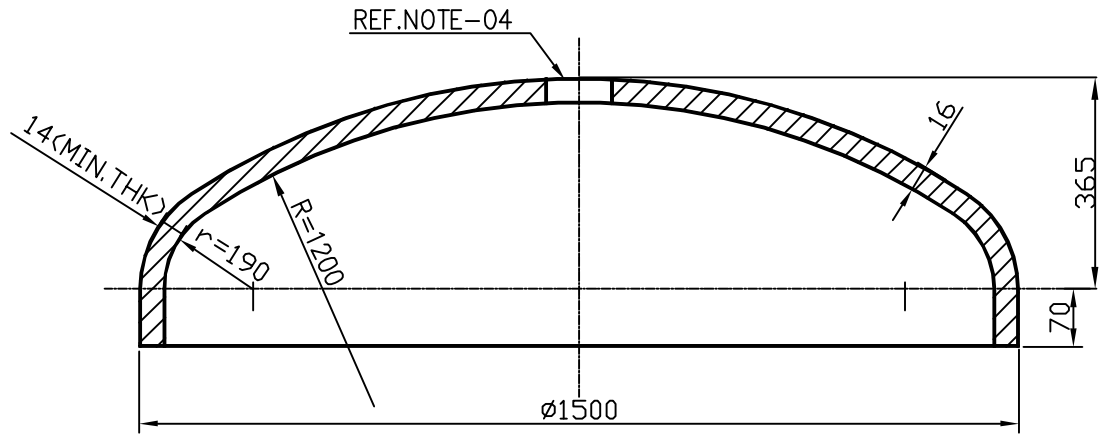
REV	DATE	ALTERED :
		CHD & APPD:
ZONE		MATERIAL SPECIFICATION CHANGED.

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		PROJECT : NTPC-TALCHER S.O. NO. : 7936		
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012 355-055		DRN	NAME RAJU	DATE 27-11-2023
DEPT HTE	ALL DIMENSIONS ARE IN MM	CHD	A.N.V.K.KISHORE	27-11-2023
CODE 320		APPD	A.N.V.K.KISHORE	27-11-2023
PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
	N.T.S	1335.00		
TITLE			DRAWING NO :	REV
DISHED END FOR UPPER DRUM			3-04-114-U8420	00

CAUTION : The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

TENDER PURPOSE



NOTES: -

01. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
02. EDGE PREPARATION FOR BUTT WELDING SHALL BE AS PER CONTRACT DRAWINGS.
03. THE DIMENSION 70mm. INDICATED FOR THE SKIRT IS INCLUSIVE OF MANUFACTURING TOLERANCE FOR EDGE PREPARATION. FINAL REQUIRED DIMENSION WITH EDGE PREPARATION IS 50mm.
04. DEPENDING UPON THE PROCESS OF MANUFACTURE, A PILOT HOLE OF $\phi 20$ mm. (MAXIMUM) MAY BE PERMITTED AT THE LOCATION SHOWN. THE PILOT HOLE SHALL BE CLOSED BY WELDING AND RADIOGRAPHED.
05. DESIGN PRESSURE AT 343° C : 9 Kg/Sq.Cm.

VARIANT NO.	PLATE 16 x $\phi 1860$	STD	15 942 112 0000	C	341.00
			SA 515 Gr.70		
DESCRIPTION			MATERIAL CODE	A/C	UNIT WT(kg)
			MATERIAL SPECN		QUANTITY

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.

	Bharat Heavy Electricals Ltd		NAME	SIGNATURE	DATE
	UNIT: HEAVY PLATES & VESSELS PLANT		DRN	S.S.N.MURTY	23.12.17
	VISAKHAPATNAM-530012		CHD	D.SATISH	23.12.17
			APPD	D.SATISH	23.12.17

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S		

TITLE TORI SPHERICAL DISHED END $\phi 1500 \times 16$	DRAWING NO : 4-81-005-U8047	REV 00
--	---------------------------------------	------------------

FORM NO. 0420/2



A Maharatna Company

एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)
(Formerly National Thermal Power Corporation Ltd.)
(केंद्रीय कार्यालय नोएडा)
Corporate Center NOIDA

Reference : CC-ENGG-4540-001-110-QVM-Q-185

Date : 15/11/2023

From : CHANDEKAR PRADEEP GOPAL
DY. GENERAL MANAGER

To : BHARAT HEAVY ELECTRICALS LTD
NEW DELHI
110049
IN

Cc : singhj@bhel.in

Subject : EPC TTPP3 (2x660MW)

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : HY/QA/HEF/MQP/581/05
Orgn. Drg. No. : 4540-001-110-QVM-Q-185
Revision No. : 00
Drg. Title : MQP FOR DEARATOR HEADER & STORAGE TANK
App. Category : CAT-I
Release Date : 15/11/2023





Scan to verify

Comments : Approved in Cat-I with minor comments.



Engineering Division
ISO 9001:2008 Certified

अभियांत्रिकी कार्यालय परिसर, प्लॉट नं.- ए 8ए, सेक्टर-24, पोस्ट बॉक्स नं.- 13, नोएडा (उ.प्र.) पिन-201 307
टेलिफोन नं.- 0120-2410333, 2410116 फैक्स-0120-2410136, 2410137
पंजीकृत कार्यालय: एनटीपीसी भवन, स्कोप कॉम्प्लेक्स, 7 इंस्टीट्यूशनल परिसर, लोडू रोड, नई दिल्ली-110 003
टेलिफोन नं.- 011-24361018 फ़ैक्स-011-24361018, वेबसाइट: www.ntpc.co.in
ENGINEERING OFFICE COMPLEX, Plot No: A-8A, Sector-24, Post Box No: 13, Noida (UP), Pin-201 307
Telephone No: 0120-2410333, 2410116 Fax-0120-2410136, 2410137
Registered Office: NTPC Bhawan, Scope Complex, 7 Institutional Area, Lodhu Road, New Delhi-110 003
Telephone No: 011 24360100 Fax: 011 24361018, Website: www.ntpc.co.in

OWNER 	<p style="text-align: center;">NTPC Ltd (A Government of India Enterprise)</p>	
MAIN SUPPLIER 	<p style="text-align: center;">BHARAT HEAVY ELECTRICALS LTD HPEP , RC PURAM HYDERABAD</p>	
<p>PROJECT : 2x660 MW NTPC Talcher EPC Pkg</p>		
<p>TITLE: MQP for DEARATOR HEADER & STORAGE TANK</p>		
<p>DOCUMENT NO : 4540-001-110-QVM-Q-185 Rev.00</p>		
<p>INDEX SHEET FOR QUALITY PLANS (INCLUDING RAW MATERIALS)</p>		
SI No.	Description	Page No.
1	QP of DEAERATOR &FST	A1 -8
2	QP FOR CS DISHEDEND	B1-4
<p>CONTRACT NO: CS-4540-001-110</p>		

QP approved in CAT-I.



MANUFACTURER'S NAME & ADDRESS:
 BHARAT HEAVY ELECTRICALS LIMITED
 R.C. PURAM, HYDERABAD / BHEL VIZAG

MANUFACTURING QUALITY PLAN
 QP No HY/QA/HEF/MQP/581/05
 Rev. No.:00
 DATE: 06.11.2023
 Page:Page A.1 of 8

PROJECT: 2x660 MW NTPC Talcher BPC Pkg
 PACKAGE: TG & AUX
 CONTRACT NO: CS-4540-001-110
 MAIN SUPPLIER: HPEP, BHEL HYDERABAD
 BHEL SALE ORDER NO:MPA 1087
 BHEL WO NO: W-1032421300,W-1032421400

SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/N				M	C	N	
1.	2.	3.	4.	5.	6	7	8	9.	D*	**10.	11.		

1.0 RAW MATERIAL & BOIS

1.1 AT SUPPLIERS WORKS

1.1.1	SHELL PLATES	A. CHEMICAL COMPOSITION	CRITICAL	CHEM.	1/ LOT	MATERIAL GRADE AS PER NTPC APPROVED GA DRAWING , BHEL SPEC	SUPPLIER'S TC	✓	P	V	Plates, pipes from NTPC agreed sources
		C. UT EXAM. AS PER DRG	CRITICAL	NDE	100%	SA 435					
		D. DIMENSIONAL EXAMINATION	MAJOR	MEASRT.	100%	BHEL PART DRAWING/PO					

1.2 AT BHEL

1.2.1	SHELL PLATES	A. VERIFICATION & CORRELATION OF MATERIAL WITH TC	MAJOR	VISUAL	100%	MATERIAL GRADE AS PER NTPC APPROVED GA DRAWING , BHEL SPEC	SUPPLIER'S TC	✓	P	V	
		C. SURFACE EXAMINATION	MAJOR	VISUAL	100%	BHEL PART DRAWING/PO/SPEC					
1.2.2	PIPES FOR NOZZLES	A. VERIFICATION & CORRELATION OF MATERIAL WITH TC & SURFACE EXAM.	MAJOR	VISUAL	100%	MATERIAL GRADE AS PER NTPC APPROVED GA DRAWING , BHEL SPEC					Plates, pipes from NTPC agreed sources
1.2.3	FLANGES	A. VERIFICATION & CORRELATION OF MATERIAL WITH TC, DIM. & SURFACE EXAM.	MAJOR	VISUAL	100%	BHEL MANUFACTURING DRAWING					
1.2.4	PLATES FOR PADS	A. VERIFICATION & CORRELATION OF MATERIAL WITH TC, DIM. & SURFACE EXAM.	MAJOR	VISUAL	100%	BHEL MANUFACTURING DRAWING					

 ALOK BEHERA MGR/ QA MANUFACTURER / SUB-SUPPLIER	 B. ASHOK KUMAR AGM/QA MAIN SUPPLIER	LEGEND: * RECORDS IDENTIFIED WITH (✓)SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M.MANUFACTURER / SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION. AS APPROPRIATE "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W".		DOC.NO.: 4540-001-110-QVM-Q-185 REV 00 ITEM CATEGORY : CAT I	REVIEWED BY	APPROVED BY	APPROVAL SEAL
					FOR NTPC USE		



MANUFACTURER'S NAME & ADDRESS:
 BHARAT HEAVY ELECTRICALS LIMITED
 R.C. PURAM, HYDERABAD / BHEL VIZAG

MANUFACTURING QUALITY PLAN
 QP No HY/QA/HEF/MQP/581/05
 Rev. No.:00
 DATE: 06.11.2023
 Page:Page A.2 of 8

PROJECT: 2x660 MW NTPC Talcher BPC Pkg
 PACKAGE: TG & AUX
 CONTRACT NO: CS-4540-001-110
 MAIN SUPPLIER: HPEP, BHEL HYDERABAD
 BHEL SALE ORDER NO:MPA 1087
 BHEL WO NO: W-1032421300,W-1032421400

SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/N				M	C	N	
1.	2.	3.	4.	5.	6	7	8	9.	D*	**10.		11.	
1.2.5	TRAY ASSEMBLIES	VERIFICATION OF TCs AS PER NTPC APPROVED QAP : 4540-001-110-QVM-Q-307							SUPPLIER'S TC/CHP	✓	P	V	
1.2.6	SPRAY VALVES	VERIFICATION OF TCs AS PER NTPC APPROVED QAP : 4540-001-110-QVM-Q-309							SUPPLIER'S TC/CHP	✓	P	V	
1.2.7	SHELL DISHED ENDS	VERIFICATION OF TCs AS PER NTPC APPROVED QAP : 4540-001-110-QVM-Q-185 A							SUPPLIER'S TC/CHP	✓	P	V	

2.0 IN PROCESS INSPECTION

2.1	SHELL FABRICATION	A. TRANSFER OF IDENTIFICATION MARKS AND CHECK FOR DIMENSIONAL MARKING	MAJOR	VISUAL	100%	TC & BHEL DRG	TC & BHEL DRG	INSP. RECORD			P			
		B. SURFACE EXAM. OF PLATES AFTER ROLLING & EDGE PREPARATION	MAJOR	VISUAL	100%	ASME SEC VIII DIV.1	ASME SEC.VIII DIV.1	INSP. RECORD				P		
		C. VERIFICATION OF APPROVED WPS, PQR & WQR	MAJOR	VISUAL	100%	AS PER SEC.IX	AS PER SEC.IX	-				P	V	
		D. FIT UP OF L & C SEAMS INCLUDING SHELL TO DISHED ENDS	MAJOR	MEASRT.	100%	BHEL DRG & ASME SEC.VIII DIV.1	BHEL DRG & ASME SEC.VIII DIV.1	INSP. RECORD				P		
2.1	SHELL FABRICATION	E. PT AFTER BACK CHIP	MAJOR	NDE	100%	ASME SEC.V ART.6	ASME SEC.VIII APPX.8	INSP. RECORD				P	V	
		F. IDENTIFICATION OF ALL WELDS (WELD NO. PUNCHED FOR CORRELATION WITH WELDER)	MAJOR	VISUAL	100%	-	-	INSP. RECORD				P		
		G. RT OF WELDS	CRITICAL	NDE	100%	ASME SEC.V ART.2	ASME SEC.VIII DIV.1 UW 51	INSP. RECORD	✓			P	V	RVIEW OF RT FILM
		H. PT EXAM. OF L & C SEAMS OF THE OUTER SHELL WELDS	MAJOR	NDE	10%	ASME SEC.V ART.6	ASME SEC.VIII DIV.1 APPX.8	INSP. RECORD	✓			P	W	10 % BY NTPC

Alok Behera
ALOK BEHERA
 MGR/ QA

MANUFACTURER / SUB-SUPPLIER

SIGNATURE

B. ASHOK KUMAR
 AGM/QA

MAIN SUPPLIER

SIGNATURE

FOR NTPC USE

LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M.MANUFACTURER / SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION. AS APPROPRIATE "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W".

DOC.NO.: 4540-001-110-QVM-Q-185 REV 00
 ITEM CATEGORY : CAT I

REVIEWED BY	APPROVED BY	APPROVAL SEAL		

PROJECT: 2x660 MW NTPC Talcher PPC Pkg
 PACKAGE: TG & AUX
 CONTRACT NO: CS-4540-001-110
 MAIN SUPPLIER: HPEP, BHEL HYDERABAD
 BHEL SALE ORDER NO:MPA 1087
 BHEL WO NO: W-1032421300,W-1032421400

MANUFACTURING QUALITY PLAN
 QP No HY/QA/HPEP/MQP/581/05
 Rev. No.:00
 DATE: 06.11.2023
 Page:Page A.3 of 8

ITEM: DEARATOR & FST
 SUB SYSTEM: TG & AUX PKG

MANUFACTURER'S NAME & ADDRESS:
 BHARAT HEAVY ELECTRICALS LIMITED
 R.C. PURAM, HYDERABAD / BHEL VIZAG

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 BHARAT HEAVY ELECTRICALS LIMITED
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MANUFACTURER'S NAME & ADDRESS:
 BHARAT HEAVY ELECTRICALS LIMITED
 R.C. PURAM, HYDERABAD / BHEL VIZAG

SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/N				M	C	N	
1.	2.	3.	4.	5.	6	7	8	9.	D*	**10.		11.	
		I. DIMENSIONAL CONFORMITY INCLUDING OVALITY	MAJOR	MEASRT.	100%	ASME SEC.VIII DIV.1 & BHEL DRG	ASME SEC.VIII DIV.1 & BHEL DRG	INSPECTION RECORD	✓	P	V		
NOZZLE FABRICATION (FOR NOZZLES FABRICATED FROM PLATES)													
2.2.1	NOZZLE FABRICATION WITH PLATE MATERIAL	A. TRANSFER OF IDENTIFICATION MARKS B. FIT UP OF 'L' SEAMS C. PT AFTER BACK CHIP D. RT OF THE ABOVE WELD E. DIMENSIONAL CONFORMITY	MAJOR	VISUAL	100%	TC	TC	INSPECTION RECORD		P	V		
2.2.2	FABRICATION OF NOZZLES WITH SHELL	A. CHECK MARKINGS OF NOZZLE OPENINGS PRIOR TO CUTTING B. TRANSFER OF IDENTIFICATION MARKS ON NOZZLES C. CHECK FOR DIMN. CONFORMITY OF NOZZLE WELDS; VISUAL AND DIMEN. EXAM OF WELD D. FIT UP OF FLANGE TO PIPE E. BRANCHES TO SHELL FIT UP	MAJOR	VISUAL	100%	BHEL DRG	BHEL DRG	INSPECTION RECORD	✓	P	V	REFER CL 2.2.1 A	
2.2.2	FABRICATION OF NOZZLES WITH SHELL	A. CHECK MARKINGS OF NOZZLE OPENINGS PRIOR TO CUTTING B. TRANSFER OF IDENTIFICATION MARKS ON NOZZLES C. CHECK FOR DIMN. CONFORMITY OF NOZZLE WELDS; VISUAL AND DIMEN. EXAM OF WELD D. FIT UP OF FLANGE TO PIPE E. BRANCHES TO SHELL FIT UP	MAJOR	VISUAL	100%	BHEL DRG	BHEL DRG	INSPECTION RECORD	-	P	V		

LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M-MANUFACTURER / SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION. AS APPROPRIATE "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W".

DOC.NO.: 4540-001-110-QVM-Q-185 REV 00
 ITEM CATEGORY : CAT I

Alok Behera
 ALOK BEHERA
 MGR/ QA
 MANUFACTURER / SUB-SUPPLIER

B. ASHOK KUMAR
 AGM/QA
 MAIN SUPPLIER

SIGNATURE

FOR NTPC USE

REVIEWED BY

APPROVED BY

APPROVAL SEAL

PROJECT: 2x660 MW NTPC Talcher PPC Pkg
 PACKAGE: TG & AUX
 CONTRACT NO: CS-4540-001-110
 MAIN SUPPLIER: HPEP, BHEL HYDERABAD
 BHEL SALE ORDER NO: MPA 1087
 BHEL WO NO: W-1032421300, W-1032421400

MANUFACTURING QUALITY PLAN
 QP No HY/QA/HEP/MQP/581/05
 Rev. No.:00
 DATE: 06.11.2023
 Page: Page A.4 of 8

ITEM: DEARATOR & FST
 SUB SYSTEM: TG & AUX PKG

MANUFACTURER'S NAME & ADDRESS:
 BHARAT HEAVY ELECTRICALS LIMITED
 R.C. PURAM, HYDERABAD / BHEL VIZAG

SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS		
1.	2.	3.	4.	5.	M	C/N	8	9.	M	C	N	
		F. PT/MT EXAM OF NOZZLE TO SHELL WELDS & WELD EDGE PREPARATION	MAJOR	NDE	100%	ASME SEC.V ART.6/7	ASME SEC.VIII APPX.8/6	INSP. RECORD ✓		P	W	20% WITNESS BY NTPC
		A. FIT UP OF PADS TO SHELL	MAJOR	MEASRT.	100%	BHEL DRG	BHEL DRG	INSP. RECORD		P		
		B. FIT UP OF SADDLE TO THE SHELL	MAJOR	MEASRT.	100%	BHEL DRG	BHEL DRG	INSP. RECORD		P		
		C. DIM. EXAM. OF EXTERNAL SUPPORTS	MAJOR	MEASRT.	100%	BHEL DRG	BHEL DRG	INSP. RECORD		P		
		D. FIT UP OF INTERNAL CONNECTION	MAJOR	MEASRT.	100%	BHEL DRG	BHEL DRG	INSP. RECORD		P		
		E. CHECK FOR CLEARANCE / FIT UP OF TRAY ENCLOSURE	MAJOR	MEASRT.	100%	BHEL DRG	BHEL DRG	INSP. RECORD		P		
		F. VISUAL EXAM. OF ALL WELDS	MAJOR	VISUAL	100%	ASME SEC.VIII DIV.1	ASME SEC.VIII DIV.1	INSP. RECORD		P	V	
		G. VISUAL & DIMENSIONAL EXAM OF TRAY ENCLOSURE	MAJOR	VISUAL	100%	BHEL DRG	BHEL DRG	INSP. RECORD ✓		P	V	
		H. PT EXAM OF PADS & SADDLE SUPPORT	MAJOR	NDE	100%	ASME SEC.V ART.6	ASME SEC.VIII DIV.1 APPX.8	INSP. RECORD ✓		P	V	
		A. PWHT OF HEATER AND STORAGE TANK	MAJOR	MEASUR E TIME, TEMP.	100%	ASME SEC VIII DIV.1 UCS56	ASME SEC VIII DIV.1 UCS56	HT CHART ✓		P	V	
		B. SOAP SOLUTION TEST FOR PADS	MAJOR	NDE	100%	HE-7-1022 /01	HE-7-1022 /01	INSP. RECORD ✓		P	W	20% BY NTPC
		C. CHECK FOR STACKING OF STEY ASSEMBLIES AND FIXING OF SPRAY NOZZLES	MAJOR	VISUAL	100%	PROCEDURE & BHEL DRG	PROCEDURE & BHEL DRG	INSP. RECORD ✓		P	W	20% WITNESS BY NTPC
		D. VISUAL & DIMN. CHECK OF COMPLETE TRAY ASSEMBLIES	MAJOR	MEASRT.	100%	BHEL DRG	BHEL DRG	INSP. RECORD ✓		P	W	20% BY NTPC

LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M-MANUFACTURER / SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION. AS APPROPRIATE "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W".

DOC.NO.: 4540-001-110-QVM-Q-185 REV 00
 ITEM CATEGORY : CAT I

FOR NTPC USE

REVIEWED BY

APPROVED BY

APPROVAL SEAL

MANUFACTURER / SUB-SUPPLIER

SIGNATURE

ALOK BEHERA MGR/ QA

B. ASHOK KUMAR AGM/QA

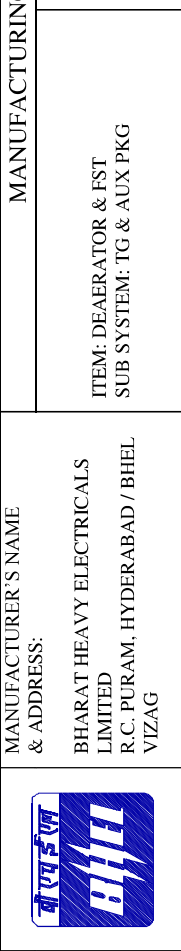
MAIN SUPPLIER

PROJECT: 2x660 MW NTPC Talcher PPC Pkg
PACKAGE: TG & AUX
CONTRACT NO.: CS-4540-001-110
MAIN SUPPLIER: HPEP, BHEL HYDERABAD
BHEL SALE ORDER NO.: MPA 1087
BHEL WO NO.: W-1032421300, W-1032421400

MANUFACTURING QUALITY PLAN
QP No: HY/QA/HEF/MQP/581/05
Rev. No.: 00
DATE: 06.11.2023
Page: Page A.5 of 8

ITEM: DEAERATOR & FST
SUB SYSTEM: TG & AUX PKG

MANUFACTURER'S NAME & ADDRESS:
 BHARAT HEAVY ELECTRICALS LIMITED
 R.C. PURAM, HYDERABAD / BHEL VIZAG



SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/N				M	C	N	
1.	2.	3.	4.	5.	6	7	8	9.	D*	**10.			11.
3.0	PRE-DESPATCH INSPECTION	E. MATCHING OF FIXTURE WITH FST AND HEATER (IF APPLICABLE)	MAJOR	VISUAL	100%	BHEL DRG. & FIXTURE	BHEL DRG. & FIXTURE	INSP. RECORD	✓	P	W		
		F. HYDRO TEST OF DEAERATOR HEADER	MAJOR	VISUAL	100%	TEST PRESSURE AS PER NTPC APPROVED GA DRAWING, HY0852061 latest rev HOLDING TIME 30 MINUTES		HYDROSTATIC TEST REPORT	✓	P	W		
		G. VISUAL EXAMINATION OF ALL WELDS (ACCESSIBLE)	MAJOR	VISUAL	100%	ASME SEC. VIII DIV 1, DRG		INSP. RECORD	✓	P	W		
		A. DIMENSIONAL INSPECTION OF HEATER & STORAGE TANK	MAJOR	VISUAL	100%	BHEL DRG	BHEL DRG	AS BUILT DRG.	✓	P	V		
		B. MATCH MARKING OF STORAGE TANK SECTIONS FOR SITE ASSLY.	MAJOR	VISUAL & MEASRT.	-	BHEL DRG & PROCEDURE	BHEL DRG & PROCEDURE	INSP. RECORD	✓	P	W		
		C. CHECK FOR COMPLETENESS, VERIFICATION OF TEST / INSPECTION RECORDS	CRITICAL	VISUAL	100%	QP, TECH. SPEC. BHEL DRG & DATA SHEET	QP, TECH. SPEC. BHEL DRG & DATA SHEET	MANUFACTURER TC		P	V		
		D. CLEANLINESS AFTER SAND/ SHOT BLASTING OF INTERNAL/ EXTERNAL SURFACES OF FST & EXTERNAL SURFACE OF HEATER	MAJOR	VISUAL	100%	BHEL STD	BHEL STD	INSP. RECORD		P			
		E. CLEANING, PAINTING & PACKING FOR DISPATCH INCLUDING BLANKING OF ALL OPENINGS	MAJOR	VISUAL	100%	BHEL STD	BHEL STD	INSP. RECORD	✓	P	V		
		F. PRESERVATION OF WELD EDGE PREPARATION	MAJOR	VISUAL	100%	BHEL STD	BHEL STD	INSP. RECORD	✓	P	V		

LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M-MANUFACTURER / SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION. AS APPROPRIATE "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W".

DOC.NO.: 4540-001-110-QVM-Q-185 REV 00
 ITEM CATEGORY : CAT I

ALOK BEHERA
MGR/ QA

MANUFACTURER / SUB-SUPPLIER

SIGNATURE

B. ASHOK KUMAR
AGM/QA

MAIN SUPPLIER

FOR NTPC USE

REVIEWED BY

APPROVED BY

APPROVAL SEAL



MANUFACTURER'S NAME & ADDRESS:
 BHARAT HEAVY ELECTRICALS LIMITED
 R.C. PURAM, HYDERABAD / BHEL VIZAG

MANUFACTURING QUALITY PLAN
 QP No HY/QA/HEF/MQP/581/05
 Rev. No.:00
 DATE: 06.11.2023
 Page:Page A.7 of 8

PROJECT: 2x660 MW NTPC Talcher PPC Pkg
 PACKAGE: TG & AUX
 CONTRACT NO: CS-4540-001-110
 MAIN SUPPLIER: HPEP, BHEL HYDERABAD
 BHEL SALE ORDER NO:MPA 1087
 BHEL WO NO: W-1032421300,W-1032421400

ITEM: DEAERATOR & FST
 SUB SYSTEM: TG & AUX PKG

SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS		
1.	2.	3.	4.	5.	M	C/N	7	8	M	C	N	11.
GENERAL LEGENDS												
NDE		NON DESTRUCTIVE EXAMINATION		ASSLY		ASSEMBLY		CHEM		CHEMICAL		
UT		ULTRASONIC TEST		QC		QUALITY CONTROL		MECH		MECHANICAL		
PT		DYE PENETRANT TEST		TPIA		THIRD PARTY INSPECTION AGENCY		TC		TEST CERTIFICATES		
MT/MP/IR		MAGNETIC PARTICLE INSPECTION		WPS		WELDING PROCEDURE SPECIFICATION		VERFN		VERIFICATION		
RT		RADIOGRAPHY TEST		WOR		WELDER QUALIFICATION RECORD		IGC		INTER GRANULAR CORROSION		
MEASRT		MEASUREMENT		PQR		PROCEDURE QUALIFICATION RECORD		HT		HEAT TREATMENT		
DIMN		DIMENSION		IR		INSPECTION REPORT		QA		QUALITY ASSURANCE		

REVISION HISTORY			
SL NO.	REVISION DETAILS	DATE OF REV	APPROVED BY
1	FIRST ISSUE	06.11.2023	AB
			BAK
			BAK

 ALOK BEHERA MGR/ QA MANUFACTURER / SUB-SUPPLIER	 B. ASHOK KUMAR AGM/QA MAIN SUPPLIER	 FOR NTPC USE	DOC.NO.: 4540-001-110-QVM-Q-185 REV 00 ITEM CATEGORY : CAT I	
			REVIEWED BY	APPROVED BY
LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M.MANUFACTURER / SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION. AS APPROPRIATE "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W".		APPROVAL SEAL		

MANUFACTURING QUALITY PLAN
 QP No HY/QA/HEF/MQP/581/05
 Rev. No.:00
 DATE: 06.11.2023
 Page:Page A.8 of 8

PROJECT: 2x660 MW NTPC Talcher EPC Pkg
 PACKAGE: TG & AUX
 CONTRACT NO: CS-4540-001-110
 MAIN SUPPLIER: HPEP, BHEL HYDERABAD
 BHEL SALE ORDER NO:MPA 1087
 BHEL WO NO: W-1032421300,W-1032421400

MANUFACTURER'S NAME & ADDRESS:
 BHARAT HEAVY ELECTRICALS LIMITED
 R.C. PURAM, HYDERABAD / BHEL VIZAG


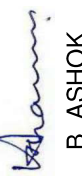

ITEM: DEAEARATOR & FST
 SUB SYSTEM: TG & AUX PKG

MANUFACTURER'S NAME & ADDRESS:
 BHARAT HEAVY ELECTRICALS LIMITED
 R.C. PURAM, HYDERABAD / BHEL VIZAG

SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS
1.	2.	3.	4.	5.	6	7	8	9.	M C N	11.

Approved DEAEARATOR FABRICATOR as per LOA of NTPC Talcher Project PAGE NO 39&40 /43, SL NO 61

SL	ITEM DESCRIPTION	VENDOR	LOCATION
1		BHEL-HPVP	VISHAKAPATNAM
2		ISGEC	YAMUNA NAGAR
3		GODREJ & BOYCE MANUFACTURING COMPANY LTD	MUMBAI
4		TEMA INDIA LTD	MUMBAI
5	DEAEARATOR FABRICATOR	ALTECH	BHIWADI
6		BGR ENERGY SYSTEM	CHENNAI
7		SWATHI INDUSTRIES	HYDERABAD
8		V.R.K. INDUSTRIES	HYDERABAD

 ALOK BEHERA MGR/ QA MANUFACTURER / SUB-SUPPLIER	 B. ASHOK KUMAR AGM/QA MAIN SUPPLIER	LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M.MANUFACTURER / SUB-SUPPLIER, C-MAIN SUPPLIER, N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION. AS APPROPRIATE "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W".		DOC.NO.: 4540-001-110-QVM-Q-185 REV 00 ITEM CATEGORY : CAT I	
				REVIEWED BY	APPROVED BY

PROJECT: 2x660 MW NTPC Talcher EPC
 PACKAGE: TG & AUX
 CONTRACT NO: CS-4540-001-110
 MAIN SUPPLIER: HPEP, BHEL HYDERABAD
 BHEL SALE ORDER NO: MPA 1087
 BHEL WO NO: W-1032421300, W-1032421400

MANUFACTURER'S NAME & ADDRESS:
BHARAT HEAVY ELECTRICALS LTD.
 HYDERABAD


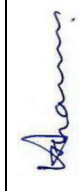

ITEM: **DISHED END (CS)**
BHEL SPEC: HE51370 REV 00

MANUFACTURING QUALITY PLAN
 QP No 4540-001-110-QVM-Q-185A
 Rev. No.: 00
 DATE: 06.11.2023
 PAGE: Page B.1 of 4

SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/N				M	C	N	
1.	2.	3.	4.	5.	6	7	8	9.	D*	**10.			11.

1	PLATE MATERIAL	VERIFICATION OF MILL TEST CERTIFICATE AND IDENTIFICATION MARKS FOR MECHANICAL AND CHEMICAL PROPERTIES	MAJOR	VISUAL	100%	MATERIAL GRADE AS PER NTPC APPROVED GA DRAWING , BHEL SPEC	TEST CERTIFICATE	✓	V	V	V	Plates from NTPC agreed source
		1. PT ON WELD EDGE PREPARATION	MAJOR	NDE	100%	ASME SEC.V ARTICLE 6	SUPPLIER TC	✓	P	V	V	
		2. RT OF WELD JOINT BEFORE FORMING	MAJOR	NDE	100%	ASME SEC.V ARTICLE 2	IR	✓	P	V	V	
		3. MECHANICAL TEST ON TEST COUPON	MAJOR	VISUAL	SAMPLE	MATERIAL GRADE AS PER NTPC APPROVED GA DRAWING , BHEL SPEC	SUPPLIER TC	✓	P	W /V	V	Note-4
2	WELD SEAM OF BLANKS (IF APPLICABLE)	1 UT OF PLATE BEFORE FORMING	MAJOR	NDE	100%	SA 435	SUPPLIER TC/IR	✓	P	V	V	NOTE 1
		2 DIMENSIONAL CONFORMITY INCLUDING CHECKING FOR MINIMUM THICKNESS	MAJOR	MEASURE MENT	100%	BHEL DRAWING	IR	✓	P	W	W	
		3 RT ON WELD SEAM AFTER FORMING (IF APPLICABLE)	MAJOR	NDE	100%	ASME SEC VIII ARTICLE 2	IR,RT FILM	✓	P	V	V	
		4 VERIFICATION OF PWHT CHARTS FOR NORMALISING AFTER FORMING	MAJOR	VISUAL	100%	ASME SEC VIII DIVISION I UCS 56	HT CHART,IR	✓	P	V	V	

LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M-MANUFACTURER /SUB-SUPPLIER, C-MAIN SUPPLIER / MAIN SUPPLIER TPIA. N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION. AS APPROPRIATE "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"

 ALOK BEHERA MGR/ QA	 B. ASHOK KUMAR AGM/QA		DOC. 4540-001-110-QVM-Q-185 A ITEM CATEGORY CAT-I	
			FOR NTPC USE	REVIEWED BY APPROVED BY APPRO VAL SEAL
MAIN SUPPLIER		SIGNATURE		

PROJECT: 2x660 MW NTPC Talcher EPC
 PACKAGE: TG & AUX
 CONTRACT NO: CS-4540-001-110
 MAIN SUPPLIER: HPEP, BHEL HYDERABAD
 BHEL SALE ORDER NO: MPA 1087
 BHEL WO NO: W-1032421300, W-1032421400

MANUFACTURING QUALITY PLAN
 QP No 4540-001-110-QVM-Q-185A
 Rev. No.: 00
 DATE: 06.11.2023
 PAGE: Page B.2 of 4

MANUFACTURER'S NAME & ADDRESS:
BHARAT HEAVY ELECTRICALS LTD.
 HYDERABAD

ITEM: **DISHED END (CS)**
BHEL SPEC: HE51370 REV 00

SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS	
									M	C	N		
1.	2.	3.	4.	5.	6	7	8	9.	**10.			11.	
3	IN PROCESS	5 PT / MT ON ENTIRE SURFACE AFTER FORMING 6 CHECK FOR THICKNESS AFTER REMOVAL OF SCALES 7 MT OF WELD SEAMS ON INSIDE AND OUTSIDE SURFACES AFTER FORMING AND NORMALISATION (IF APPLICABLE) 8 UT ON OUTER SURFACE AFTER FORMING 9 LIFTING LUG ARRGT PT LIFTING LUG WELD 10 MATCHING OF DISHED ENDS DIAMETER 11 MARKING OF DISHED ENDS 12 MECHANICAL TESTS ON TEST COUPON	MAJOR	NIDE	100%	ASME SEC.V ARTICLE 6/7	ASME SEC.VIII DIVISION 1 APPENDIX 8/6	IR	✓	P	V	V	
			MAJOR	MEASUREMENT	100%	BHEL DRAWING	BHEL DRAWING	IR		P	V	V	
			MAJOR	NIDE	100%	ASME SEC.V ARTICLE 7	ASME SEC.VIII DIVISION 1 APPENDIX 6	IR	✓	P	W	V	
			MAJOR	NIDE	100%	SA 435	SA 435	IR	✓	P	W	W	
			MAJOR	VISUAL NIDE	100%	BHEL DRG, ASME SEC.V ARTICLE 6	BHEL DRG, ASME SEC.VIII DIVISION 1 APPENDIX 8	IR	✓	P	W	V	
			MAJOR	MEASRT	100 %	BHEL DRG, SPEC	BHEL DRG, SPEC	IR	✓	P	V	V	NOTE -5
			MAJOR	VISUAL	100%	BHEL DRAWING, SPEC	BHEL DRAWING, SPEC	IR	✓	P	V	V	
			MAJOR	VISUAL	SAMPLE	MATERIAL GRADE AS PER NTPC APPROVED GA DRAWING , BHEL SPEC		IR	✓	P	W	V	NOTE -4

Alok Behera
ALOK BEHERA
 MGR/ QA

B. ASHOK KUMAR
 AGM/QA

FOR NTPC USE

MAIN SUPPLIER

SIGNATURE

REVIEWED BY

APPROVED BY

APPROVAL SEAL

NTPC

DOC. 4540-001-110-QVM-Q-185 A
 ITEM CATEGORY CAT-I

LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M-MANUFACTURER / SUB-SUPPLIER, C-MAIN SUPPLIER / MAIN SUPPLIER TPIA. N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION. AS APPROPRIATE "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"

PROJECT: 2x660 MW NTPC Talcher EPC
 PACKAGE: TG & AUX
 CONTRACT NO: CS-4540-001-110
 MAIN SUPPLIER: HPEP, BHEL HYDERABAD
 BHEL SALE ORDER NO: MPA 1087
 BHEL WO NO: W-1032421300, W-1032421400

MANUFACTURING QUALITY PLAN
 QP No 4540-001-110-QVM-Q-185A
 Rev. No.: 00
 DATE: 06.11.2023
 PAGE: Page B.3 of 4

MANUFACTURER'S NAME & ADDRESS:
BHARAT HEAVY ELECTRICALS LTD.
 HYDERABAD



SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/N				M	C	N	
1.	2.	3.	4.	5.	6	7	8	9.	D*	** I0.		11.	

Notes:

- NOT REQUIRED IF ALREADY UT TESTED AT MILL.
- PROJECT SPECIFIC REQUIREMENTS, IF ANY, AS PER P.O. SHALL ALSO BE COMPLIED WITH.
- ALL REQUIREMENTS AS PER BHEL SPECIFICATION AND DRAWING ARE TO BE COMPLIED WITH.
- VALID IBR TC SHALL BE FURNISHED AS PER IBR 1950 REGULATION. VERIFICATION SHALL BE BY BHEL /BHEL TPIA IF WITNESSED BY IBR.
- WHEN DISHED ENDS OF DEAEARATOR ARE ORDERED IN PAIRS. MATCHING OF DISHED ENDS DIAMETER SHALL BE ENSURED.
- IN CASE OF SPINNING METHOD IS ADOPTED, THE CENTRAL HOLE SHALL BE PLUGGED AND RADIOGRAPHED 100%. REVIEW OF RT FILMS BY BHEL TPI
- VERIFICATION OF WPS, WPQ AS PER ASME SEC-IX BY BHEL TPIA.
- MATERIAL OF CONSUTRCTION SHALL BE AS PER NTPC APPROVED GA DRAWING OF EQUIPMENT.
- IN CASE OF DIFFERING/CONFLICTING REQUIREMENTS, ANOMALIES, ANY DRAWING/SPECN SHALL PREVAIL OVER QUALITY PLAN
- THIS QP IS APPLICABLE ONLY FOR NTPC APPROVED VENDORS AS PER LOA APPROVED VENDOR LIST.
- THIS QP IS APPLICABLE FOR THE MAIN AS WELL AS SUBSEQUENT SPARE SUPPLIES.
- FOR IMPORTED VENDORS, BHEL & NTPC WITNESS SHALL BE CONSIDERED VERIFICATION
- THIS QP IS ALSO APPLICABLE FOR OTHER VENDORS APPROVED BY NTPC DURING DETAILED ENGINEERING
- ALL THE MATERIAL SHALL BE AS PER NTPC APPROVED DRG. /DATASHEET MEETING NTPC TECH. SPECIFICATION.

GENERAL LEGENDS

NDE	NON DESTRUCTIVE EXAMINATION	ASSLY	ASSEMBLY	CHEM	CHEMICAL
UT	ULTRASONIC TEST	QC	QUALITY CONTROL	MECH	MECHANICAL
PT	DYE PENETRANT TEST	TPIA	THIRD PARTY INSPECTION AGENCY	TC	TEST CERTIFICATES
MT/MPI	MAGENTIC PARTICLE INSPECTION	WPS	WELDING PROCEDURE SPECIFICATION	VERFN	VERIFICATION
RT	RADIOGRAPHY TEST	WQR	WELDER QUALIFICATION RECORD	IGC	INTER GRANULAR CORROSSION
MEASRT	MEASUREMENT	PQR	PROCEDURE QUALIFICATION RECORD	HT	HEAT TREATMENT
DIMN	DIMENSION	IR	INSPECTION REPORT	QA	QUALITY ASSURANCE
COC	CERTIFICATE OF COMPLIANCE	DRG /DS	DRAWING /DATA SHEET	PO	PURCHASE ORDER


Alok Behera
ALOK BEHERA
 MGR/ QA

Behara
B. ASHOK KUMAR
 AGM/QA

MAIN SUPPLIER

SIGNATURE

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	DOC. 4540-001-110-QVM-Q-185 A ITEM CATEGORY CAT-I	
	FOR NTPC USE	APPROVED BY REVIEWED BY APPRO VAL SEAL

PROJECT: 2x660 MW NTPC Talcher EPC
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MANUFACTURING QUALITY PLAN
 QP No 4540-001-110-QVM-Q-185A
 Rev. No.: 00
 DATE: 06.11.2023
 PAGE: Page B.4 of 4

MANUFACTURER'S NAME & ADDRESS:
BHARAT HEAVY ELECTRICALS LTD.
 HYDERABAD



SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS
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Approved Vendors as per LOA of NTPC Talcher Project PAGE NO 32& 33 /43, SL NO 51

SL	ITEM DESCRIPTION	VENDOR	LOCATION
1		METAL ENGINEERS,	HYDERABAD
2		SATYA FABRICATORS PVT LTD.	HYDERABAD
3		MAHENDRA DISH ENDS	THANE
4		CEREC	FRANCE
5		CEREC	VADODARA
6	DEAERATOR-FABRICATOR DISHED ENDS	THE ANUP ENGINEERING LTD	INDIA
7		KONIG & CO. GMBH,	GERMANY
8		ICEM ENGEENING COMPANY LTD.	THANE
9		DISH INDIA	DELHI (Vendor approval extension email dttd 19.09.2023)

 ALOK BEHERA MGR/ QA	 B. ASHOK KUMAR AGM/QA		LEGEND: * RECORDS IDENTIFIED WITH (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. M.MANUFACTURER /SUB-SUPPLIER, C-MAIN SUPPLIER / MAIN SUPPLIER TPJA. N-NTPC. INDICATE "P" PERFORM "W" WITNESS AND "V" VERIFICATION. AS APPROPRIATE "CHP" NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"	DOC. 4540-001-110-QVM-Q-185 A	
				ITEM CATEGORY CAT-I	
MAIN SUPPLIER		FOR NTPC USE	REVIEWED BY	APPROVED BY	APPRO VAL SEAL
SIGNATURE					