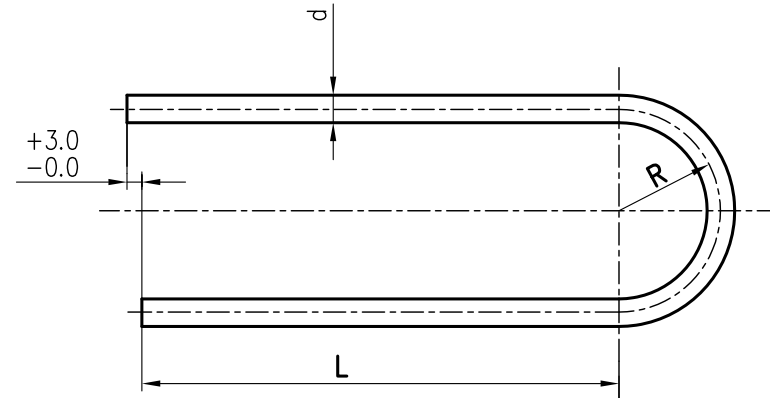


FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-02200

ROW No.	RADIUS 'R'	QTY	H.P.HEATER No. 5		H.P.HEATER No. 6		H.P.HEATER No. 7	
			THK. BWG.	DEV. LENGTH IN METERS	THK. BWG.	DEV. LENGTH IN METERS	THK. BWG.	DEV. LENGTH IN METERS
1	31.7	44	14 MIN.	11.100	14 MIN.	15.100	14 MIN.	12.700
2	49.6	48	14 MIN.	11.156	14 MIN.	15.156	14 MIN.	12.756
3	67.5	47	14 MIN.	11.212	14 MIN.	15.212	14 MIN.	12.812
4	85.4	46	14 MIN.	11.268	14 MIN.	15.268	14 MIN.	12.868
5	103.2	49	14 MIN.	11.324	14 MIN.	15.324	14 MIN.	12.924
6	121.1	46	14 MIN.	11.380	14 MIN.	15.380	14 MIN.	12.980
7	139.0	45	14 MIN.	11.437	14 MIN.	15.437	14 MIN.	13.037
8	156.9	48	14 MIN.	11.493	14 MIN.	15.493	14 MIN.	13.093
9	174.7	47	14 MIN.	11.549	14 MIN.	15.549	14 MIN.	13.149
10	192.6	46	14 MIN.	11.605	14 MIN.	15.605	14 MIN.	13.205
11	210.5	45	15 MIN.	11.661	14 AVG.	15.661	14 MIN.	13.261
12	228.4	44	15 MIN.	11.718	14 AVG.	15.718	14 MIN.	13.318
13	246.2	43	15 MIN.	11.773	14 AVG.	15.773	14 MIN.	13.373
14	264.1	42	15 MIN.	11.830	14 AVG.	15.830	14 MIN.	13.430
15	282.0	39	15 MIN.	11.886	14 AVG.	15.886	14 MIN.	13.486
16	299.9	38	15 MIN.	11.942	14 AVG.	15.942	14 MIN.	13.542
17	317.7	39	15 MIN.	11.998	14 AVG.	15.998	14 MIN.	13.598
18	335.6	38	15 MIN.	12.054	14 AVG.	16.054	14 MIN.	13.654
19	353.5	35	15 MIN.	12.111	14 AVG.	16.111	14 MIN.	13.711
20	371.4	34	15 MIN.	12.167	14 AVG.	16.167	14 MIN.	13.767
21	389.2	33	15 MIN.	12.223	14 AVG.	16.223	14 MIN.	13.823
22	407.1	30	15 MIN.	12.279	14 AVG.	16.279	14 MIN.	13.879
23	425.0	27	15 MIN.	12.335	14 AVG.	16.335	14 MIN.	13.935
24	442.9	26	15 MIN.	12.392	14 AVG.	16.392	14 MIN.	13.992
25	460.7	21	15 MIN.	12.447	14 AVG.	16.447	14 MIN.	14.047
26	478.6	18	15 MIN.	12.504	14 AVG.	16.504	14 MIN.	14.104
27	496.5	12	15 MIN.	12.560	14 AVG.	16.560	14 MIN.	14.160
TOTAL U-TUBES			1030					
TOTAL DEVELOPED LENGTH FOR THE TUBE BUNDLE IN METERS				12078.943		16198.942		13726.943
ESTIMATED WEIGHT OF TOTAL No. OF TUBES IN Kg.				8766		12010		10640



H.P.HEATER 5	H.P.HEATER 6	H.P.HEATER 7
L = 5500	L = 7500	L = 6300
d = 15.875	d = 15.875	d = 15.875
MATL. CODE : HE9718587969	MATL. CODE : HE9718587977	MATL. CODE : HE9718587985

TOTAL TUBE LENGTHS

GAUGE	HPH-5	HPH-6	HPH-7
14 Min.	5290.496	7154.495	13726.943
14 Avg.	---	9044.447	---
15 Min.	6788.447	---	---

NOTES:-

- MATERIAL SPECIFICATION SA688 TP 304 WITH CARBON
AS PER MAX 0.05% ASME SEC-II PART-A (EDITION & ADDENDA AS PER P.O./ INDENT)
- TECHNICAL REQUIREMENTS AS PER PRODUCT
STANDARD HE-5-1103 REV (AS PER P.O./INDENT) AND AS PER MATERIAL SPECIFICATION.
- QUALITY REQUIREMENTS INSPECTION & CERTIFICATION
AS PER QP. HY/HE/004/U-TUBES -REV (AS PER P.O./INDENT.)
- INSPECTION BY M/S CIB AND BHEL APPROVED TPIA (NO CIB IF IMPORTED).
- HYDRO TEST PRESSURE (EACH TUBE) = 398 KG/SQ.CM.(g)
AT ROOM TEMPERATURE. $+20\%$
 -0%
- THICKNESS 14 BWG (MIN) = 2.11 $+20\%$
 -0% THICKNESS 15 BWG (MIN) = 1.83 $+20\%$
 -0%
THICKNESS 14 BWG (AVG) = 2.11 $\pm 10\%$
- MAXIMUM WORKING / DESIGN PRESSURE= 265kg /cm² (g)
- MAXIMUM WORKING /DESIGN TEMPERATURE=282°C
- OPERATING MEDIUM
 - SHELL SIDE - STEAM&DRAIN
 - TUBE SIDE - FEED WATER

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

210 MW MSPGCL KORADI

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

DRN.	NAME	SIGN.	DATE	NO.OF
CHD.	A K SAHOO	AKS	19.08.13	VAR.
APPD.	K KIRAN KUMAR	Kiran	19.08.13	NA
	B.SRINIVAS	B.Srinivas	19.08.13	

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD
ZONE					ZONE					ZONE				

DEPT. HEE	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
CODE 405		NTS	NA	NA	NA	NA
TITLE			CARD CODE	DRAWING NO.		REV.
U-TUBES				3-175-01-02200		00
(FOR HPH-5,6 & 7)				SHEET No. 1		NO OF SHEETS 1

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