Annex – A

Technical Requirement and Scope of Work

Material of Construction for Air cooler tube bundle:-

Tubes	SS304
Fins	Aluminum
Tube sheet, plates and baffles	As per IS-2062

Material of Construction for Oil cooler:-

Tubes	Admiralty Brass
Tube Sheet	as per IS-2062
Baffles	Brass Plates

Scope of Work:-

- Indent is based on the indicative drawing. Vendor to visit site for actual measurement, prepare & submit detailed drawing before actually starting manufacturing of coolers tube bundle.
- 100% tube expansion is to be done to ensure complete contact between tubes and fins. 10% checking of tube expansion is to be carried out at Vendor's work in presence of BHEL representative as stage inspection.
- Hydraulic testing of the cooler bundle (tube side) is to be done at Vendor's work at pressure 1.5 times of the working pressure before dispatch in presence of BHEL representative. Working pressure of Air cooler is 7.5 Kg/Cm2 and that of Oil cooler is 4Kg/Cm2.
- Gaskets, End plates etc. required for fitting of tube bundles into the cooler shell shall be supplied by the Vendor.
- Installation, i.e. fitting of newly manufactured tube bundle into the cooler housing available at BHEL shall be in the scope of supplier.
- One used full set of intercoolers including oil cooler is available with BHEL. The same can be made available to the vendor for design and manufacturing purposes. BHEL can permit the vendor to transport/carry these used intercooler set to his premises for such purposes and the same shall be returned to BHEL alongwith freshly manufactured tube bundles. However, all transportation cost shall be borne by the vendor.

16/02/17

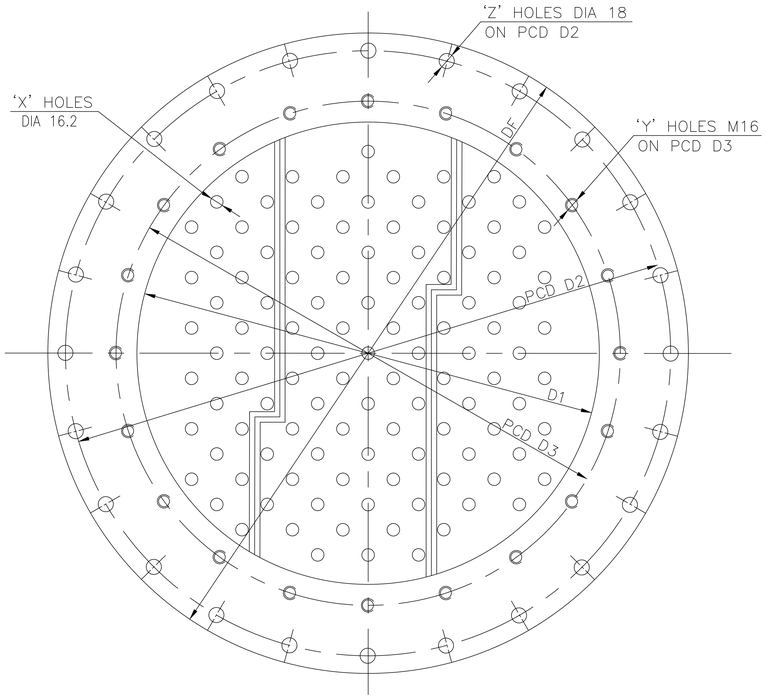
Sr. Engr. (WEX-SP)

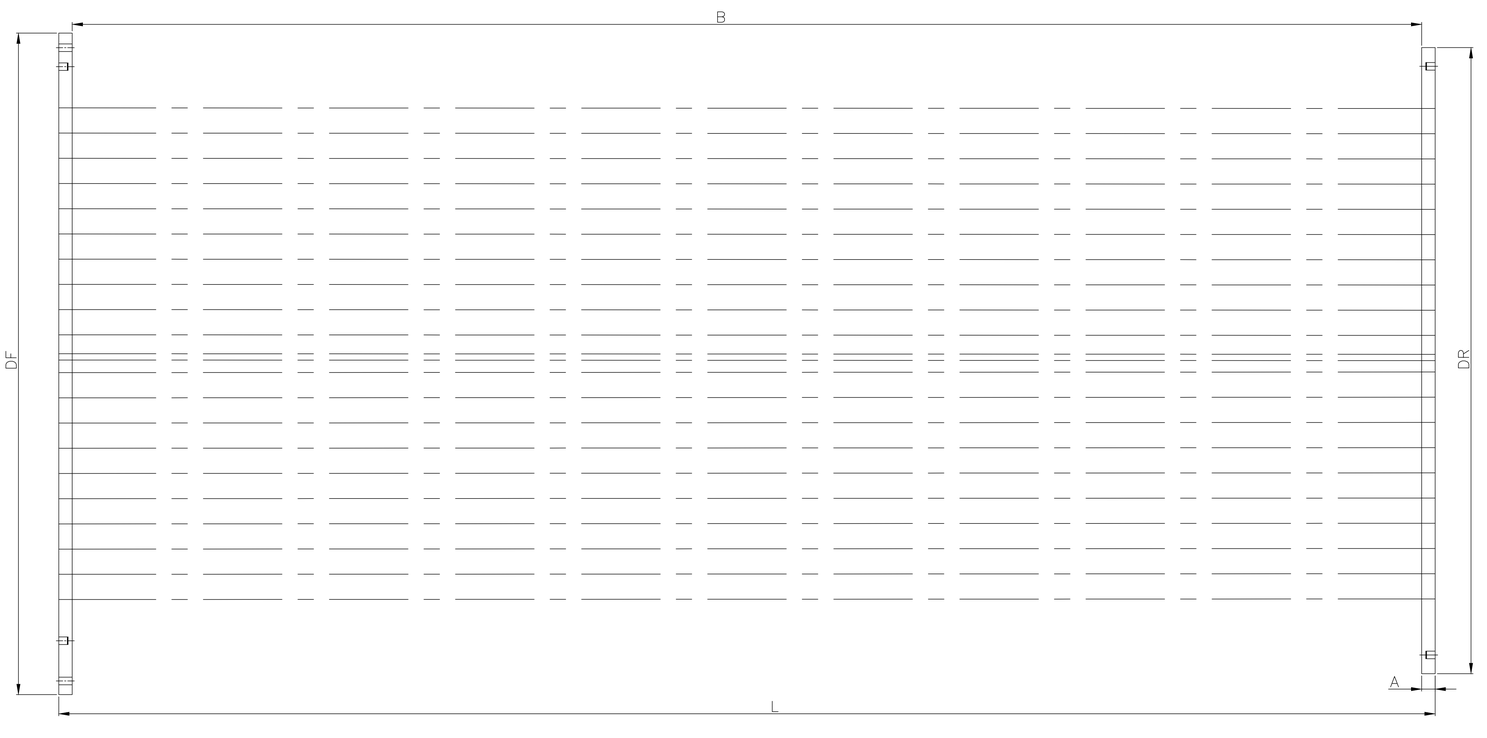
REF. DRG NO.
TRACING

SIGN & DATE

INVENTORY NO.

∇ THE REST





SL.NO.	DIMENSION	FIRST STAGE	SECOND STAGE	THIRD STAGE
1.	L	1983	1680	1752
2.	A	32	32	32
3.	B			
4.	DF	762	634	556
5.	DR	641	555	436
6.	D1	555	435	360
7.	D2	718	592	518
8.	D3	600	474	397
9.	'X'	228	122	95
10.	'Y'	20	12	12
11.	'Z'	24	20	16
12.	FINS PER INCH (FPI)	20	20	20
13.	FINS THICKNESS	0.5–0.8	0.5–0.8	0.5–0.8

NOTE:–

ALL DIMENSIONS ARE IN MM.

M.O.C TUBES :–SS–304

FINS :– AL

FLANGE :– MS

GRADE OF UNTOL. DIM.:–
M/CG– X/Q/M/Y AA 0230208
WELDING–A/B/C/D–AA621104
GAS CUTTING–T3'AA621101

REV.	DATE	ALTERED / CHECKED
		—

CBOM NO. —

STATUS OF DRG.

AGREED DEPT.	NAME	SIGN	DATE
—			

REV.	DATE	ALTERED / CHECKED
		—

TYPE OF PRODUCT COMPRESSURE
OR
NAME OF CUSTOMER/ PROJECT

PLAN NO.–D001

BLOCK–COMP. HOUSE

BHARAT HEAVY ELECTRICALS LTD.
HARDWAR

	NAME	SIGN	DATE	NO.OF VAR.
DRN			04-05-2016	—
CHD				—
APD				73, 74

DEPT WEX
CODE DESIGN

SCALE NTS

WEIGHT(Kg.) —

REF. TO ASSY. DRG. —

ITEM NO. — NO.OF ITEMS — 75, 77

TITLE AIR COOLER

DRAWING NO. CAC-IC-SP-01 00

SHEET NO. 01 NO.OF SHEETS 01

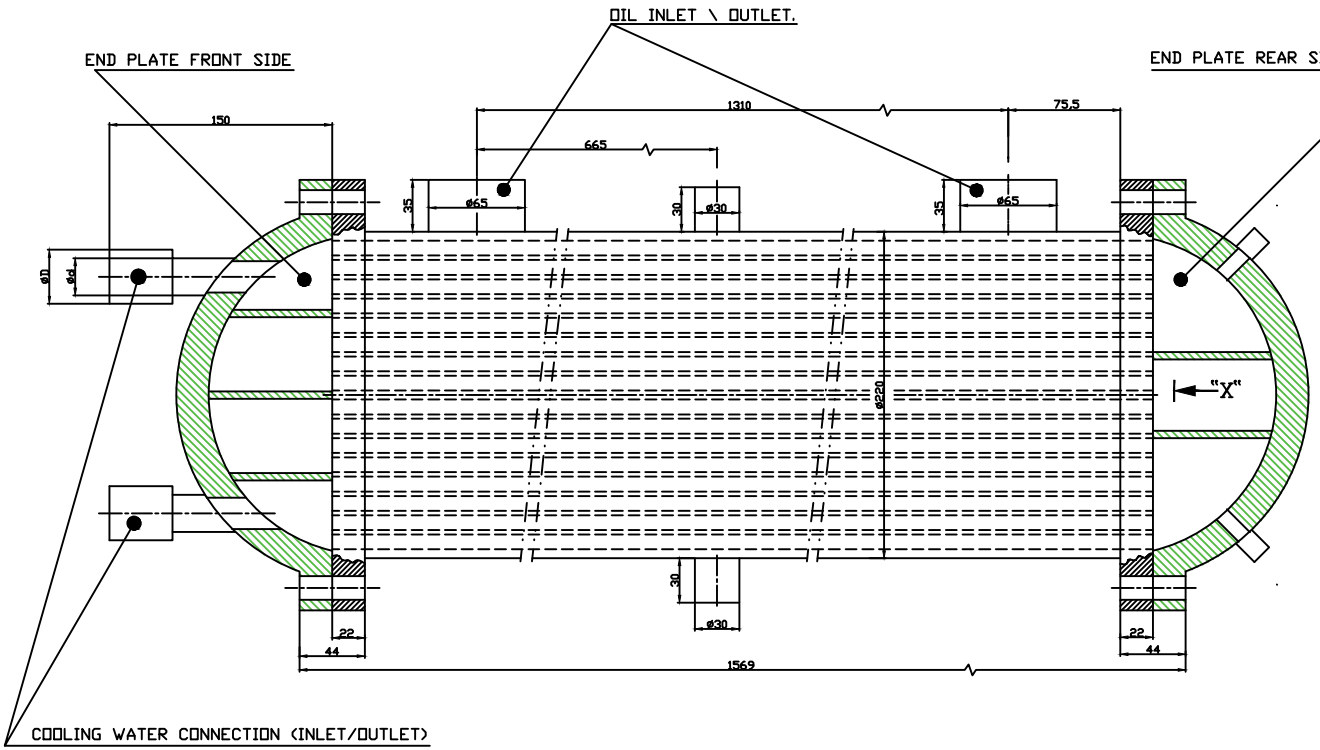
SIZE A0

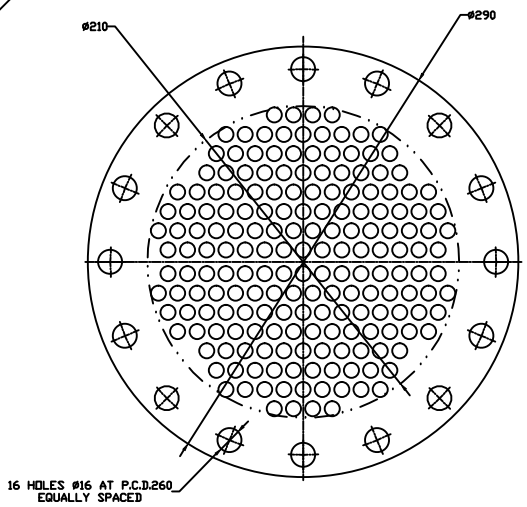
FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

FORM: DG 44(B)

DRAWING NO. CAC-DC-SP-01

63 THE REST





VIEW AT -X

1- NO. OF TUBES- 187 Nos.
2- TUBE MATERIAL-ADMIRALTY BRASS.
3- SHELL MATERIAL- CARBON STEEL.

SCKETCH REF. DRG NO.

SIGN & DATE

16-09-01/171 INVENTORY NO.

CBOM NO. —

STATUS OF DRG.

AGREED DEPT.	NAME	SIGN	DATE

GRADE OF UNTOL. DIM.:-
M/CG- X/E/M/F AA 0230208
WELDING-A/B/C/D-AA621104
GAS CUTTING-'T3'AA0621101

REV.	DATE	ALTERED / CHECKED
		—

REV.	DATE	ALTERED / CHECKED
		—

TYPE OF PRODUCT COMPRESSURE
OR
NAME OF CUSTOMER/ PROJECT

PLAN NO.-
BLOCK-COMP. HOUSE

BHARAT HEAVY ELECTRICALS LTD.
HARDWAR

	NAME	SIGN	DATE	NO.OF VAR.
DRN	M.K.Sarkar		08-09-2016	—
CHD				
APD				

73, 74

DEPT WEX
CODE DESIGN

SCALE 1:2

WEIGHT(Kg.) —

REF. TO ASSY. DRG. —

ITEM NO. —

NO.OF ITEMS —

75, 77

TITLE OIL COOLER

1 3 —

DRAWING NO. DEG-SP-177 00

7, 22, 23, 24

SHEET NO. 01 NO.OF SHEETS 01

SIZE A2