

10-02-17-TSE
DRAWING No.

DATA FOR THERMAL INSULATION

QTY.	EQUIPMENT TO BE INSULATED	DRAWING NO.	MAX.TEMP.*C		OUTER DIA OF PIPE IN mm	TYPE OF INSULATION SEE NOTE-1	INSULATION THICKNESS SEE NOTE-2
			MAX.	AT NO LOAD RUN			
1	HP OUTER CASING (INLET)	01050124500	537			A	315
	HP OUTER CASING(EXHAUST)		422	500			315
1	HP SHAFT SEALING COVER (FRONT)	01050529000	490			A	265
1	HP SHAFT SEALING COVER (REAR)	01050624000	360			A	175
2	HP INLET ASSLY.	01051424000	537	537	ø420/ø760	A	315
1	HP EXHAUST ASSLY.	11051546000	422	500	ø725/ø1085	A	250
						C*	115
2	CROSS AROUND PIPE	01071357000	335		ø926/ø955	B	170
4	CAP SUPPORT	01071357000	325			B	170
2	ESV & CV CASING	01122224000	537			A	315
2	IV & CV CASING CASING FLANGES	01132155000	535			A	315
			335			C*	115
2	LP BYPASS VALVE CASING	PR ITEM(REF. 01230101210)	535			A	315

AMBIENT TEMP. : 30°C
 DESIRED COLD FACE TEMP. : 50°C
 WIND VELOCITY : 0.5 M/S
 EMISSIVITY OF ALUMINIUM CLADDING : 0.09

* SUPPLIER TO NOTE THAT IP OUTER CASING FLANGE AND MATING FLANGE OF IV & CV CASING IS CLOSE TO CONCRETE PEDESTAL FOUNDATION; CERAMIC QUILT INSULATION IS FORESEEN ONLY ON FLANGE AREA, REST CASING TO BE APPLIED SPRAYED INSULATION.

NOTES :

1. TYPE OF INSULATION :

- A. ROCKWOOL SPRAYED INSULATION (IS:9742) PROTECTED BY HARD SETTING CEMENT COVER AND WITH OIL RESISTANT PAINT COATING.
- B. ROCK WOOL MATTRESSES (IS:8183) LAGGED WITH ALUMINIUM SHEET.
- C. DRY TYPE INSULATION (CERAMIC LAYERS) FOR IP TURBINE OUTER CASING FLANGE & MATING FLANGE OF IV & CV CASING FLANGE. CERAMIC MATERIAL SHALL CONFORM TO TYPE 1 AS PER IS 15402. FIRST LAYER OF CERAMIC FELT IN THICKNESS 75MM DULY WRAPPED IN CERAMIC CLOTH MAKING QUILT TO BE APPLIED ON FLANGE JOINT. TOTAL THICKNESS OF INSULATION SHALL BE 115 MM AND TO BE ACHIEVED BY PUTTING QUILT LAYERS.

2. INSULATION THICKNESS :

- A. THE VENDOR SHALL BE RESPONSIBLE FOR ACHIEVING SPECIFIED COLD FACE TEMPERATURE.
 - B. DESIGN OF INSULATION THICKNESS TO ACHIEVE SPECIFIED COLD FACE TEMPERATURE AND TO RESTRICT HEAT LOSS TO 180 kCal/m²h IS IN THE SCOPE OF VENDOR. INSULATION THICKNESS GIVEN IN THE TABLE ARE SUGGESTIVE. VENDOR IS FREE TO INCREASE THE INSULATION THICKNESS, IF REQUIRED. THE VENDOR HAS TO SUBMIT THE "k" VALUE TEST CERTIFICATE (NOT MORE THAN 24 MONTHS OLD) FROM A RECOGNIZED TEST HOUSE ALONG WITH INSULATION THICKNESS CALCULATIONS.
 - C. THE INSULATION THICKNESS ON THE BOTTOM HALVES OF HP TURBINE & IP TURBINE SHALL BE 20% EXTRA AS COMPARED TO TOP HALVES OF THESE TURBINES.
3. INSULATING MATERIAL SHOULD CONFORM TO IS:14164 AND FOLLOWING STANDARDS -
- SPRAYED INSULATION : IS : 9742
 - MATTRESSES TYPE INSULATION : IS : 8183 CLASS IV
 - DENSITY OF MATTRESSES : FOR 400°C AND ABOVE-128 kg/m³
 - : FOR BELOW 400°C-100 kg/m³
 - ALUMINIUM SHEET : IS : 737; GR. 19000, ANNEALED.
 - HARD SETTING CEMENT : IS : 9743, TYPE 1
4. OIL RESISTANT PAINT SHOULD CONFORM TO IS:14947 AND ITS APPLICATION SHOULD BE PRECEDED BY APPLICATION OF SEALANT. PAINT SHOULD BE APPLIED ONLY AFTER PROPER CURING OF THE HARD SETTING CEMENT HAS TAKEN PLACE. THE SHADE OF THE OIL RESISTANT PAINT SHALL BE INTIMATED AFTER PLACEMENT OF ORDER.
5. VALVE SUPPORTS CLAMPED WITH VALVES SHALL ALSO BE PARTIALLY INSULATED UP TO THE VALVE INSULATION REQUIREMENTS.
6. FOR ADDITIONAL DETAILS REFER "SPECIFICATION FOR THERMAL INSULATION OF STEAM TURBINE COMPONENTS BY MINERAL WOOL (ROCK WOOL)"-ST29004.

MATERIAL CODE: W90312114435

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31211410284
 Ref.Drawing No>

Sign & Date

Inventory No

-GMS No./- C B O M		STATUS OF DRG
AGREED DEPT	NAME	SIGN
		DATE

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

STEAM TURBINE

GRADE OF UNTOL. DIM
 M/CC. AA0230208 m
 WELDING CLASS 'B' OF AA0621104
 GAS CUTTING TABLE 3 OF AA0621101



BHARAT HEAVY ELECTRICALS LTD.
 BHOPAL

DRN	NAME	SIGN	DATE	NO. OF VAR
SRS		sd/-	23.05.2012	
CHD	ABHINAV	sd/-	23.05.2012	
APPD	A.K.GUPTA	sd/-	23.05.2012	73 74

DEPT STE	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM No.	NO. OF ITEMS
CODE 4011	---	---	-----	---	75 77

TITLE :	CARD CODE	DRAWING NO.	22 23 24
THERMAL INSULATION		TSE-Z1-20-01	
		SHEET No. 1	No. OF SHEETS 1