

AI-Bakip
sadm#yoo/DRAWING NO. 31611770113

CONDENSER AIR EVACUATION PACKAGE UNIT (VACUUM PUMP PACKAGE)

General Note : Data mentioned in this document supersedes the concerned clauses of BHEL Specification HE57016.

I. DESIGN DATA :

(No. of Condensers per Unit: Two)

Note:

- a. Vacuum Pump to be selected (for supply) as per the followings design criteria.
- b. All Vacuum pump packages to be supplied shall be interchangeable with each other.

A. Design criteria:

- 1) No. of Units required per Condenser : Two (2)
- 2) No. of Units normally working (Holding) : One (1)
- 3) No. of Units working during Start-up (Hogging) : Two (2)
- 4) Design ITD : 7.492 Deg C
- 5) Condenser back pressure : 0.0772 ATA (56.78 mmHg-a)
- 6) Condenser cooling water temp : 33 Deg C
- 7) Cooling water Quality : Normal Water

B. All flanges to be as per ANSI, B16.5

Note: C.W. for Vac.pump Heat Exchanger is same as that of Condenser.

II. CAPACITY OF PUMP (as per HEI) :

- 1) Design capacity (Holding) : 20 SCFM at 1" Hg abs
at design ITD (7.492 deg C)
 - 2) Air+Steam mixture temperature: Sub-cooled by 4.17 °C
 - 3) Volume to be evacuated (approx.) : 2000 m3 (Per condenser)
 - 4) Time for initial evacuation : 30 minutes
(with two pumps in operation)
 - 5) Hogging capacity, each pump : 800 SCFM (minimum)
– at 10 inch Hg (a)
- III. FOR PLATE TYPE HEAT EXCHANGER bidder to provide sizing calculation considering below design parameters:
- 1) TTD : 3 degC (max)
 - 2) Overall Fouling Factor(min)(f) : 0.00008 hr.sq.m.DegC/kcal
 - 3) Overall Heat Transfer Coefficient [U(o)] : As per manufacturer's design
 - 4) Dirty Heat Transfer Coefficient [U(d)] : $[1/(1/U(o)+f)]$
 - 5) Heat Transfer Area (sq.m) : Total Heat Load (in kcal.hr)/[U(d)xLMTD]
 - 6) Area margin to be considered on Heat Transfer Area derived as per III/5 above : 20%
 - 7) Heat Transfer Area of PHE shall be selected based on max. heat transfer rate of 6500 kcal/hr per sq.m of heat transfer plate.

- IV. Vendor to supply Heavy-duty, self-undercutting anchor bolts (Foundation Bolts) along with Vacuum pump package. No Pockets shall be provided in concrete foundation for anchor bolts.
- V. Vibration levels shall be Zone A of ISO 10816 with Vibration Velocity Limit with rms value (mm/sec) as below:
Factory Acceptance Limit : 4.0 mm/sec
In situ Acceptance Limit : 2.5 mm/sec
- VI. Cl. No. 3.8/Design Requirements:
Cooling Water Flow provided at terminal point shall be 80 cubm/hr (maximum) per package. Maximum Temperature rise and maximum pressure drop across vendor's cooling water terminal point shall be 3.0 degC & 3.5 MWC respectively.
- VII. INDUCTION MOTOR (APPENDIX-B) :
 - i. Motor technical specifications and its Type Test requirements shall be as per Annexure-A. This annexure supersedes the requirements specified in HE57016.
- VIII. Guaranteed Auxiliary Power consumption criteria :

Refer details given in Additional Terms & Conditions of tender.
- IX. Vendor to match its scope of piping at terminal point with BHEL specified pipe sizes as shown in (P&ID – Condenser Air Evacuation System).
- X. Inside surfaces of Vacuum Pump, separator tank and associated pipings shall be coated with anti-rust paint/ coating. Coating shall be effective for long storage at site (more than one year).

REV 01	DATE 25/09/24	ALTD LSP	CHD SK	APPD AKS
	SL.NO. X REG. ANTI-RUST COATING ADDED.			

]%Paad ka p'kar yaa ga'ahkÅpiryaaojanaa ka naama TYPE OF PRODUCT OR NAME OF		VACUUM PUMP PACKAGE (CODE NO. W96716155937)			
CUSTOMER/PROJECT Baart noval [laoi@T/kl ilaimaToD,randlpur,hirWar BHARAT HEAVY ELECTRICALS LIMITED, RANIPUR, HARDWAR Anupat/SCALE		naama/NAME LSP SK AKS		hstaxar /SIGN Sd Sd Sd	
ivoBaaga DEPTT. HXE kaod\CODE		Baar ik'ga'a WEIGHT (KG) -		Asaombalal AiBaklp ka saMdBa- REFER TO ASSLY. DRG.	
kaod\CODE		kaD-AiBaklp saM#yaa/DRAWING NO. kaod\CARD CODE		naga EmaaMk ITEM NO.	
SalYa-k/TITLE ANNEX. TO HE57016		kaD-AiBaklp saM#yaa/DRAWING NO. kaod\CARD CODE		naga EmaaMk ITEM NO.	
SalYa-k/TITLE ANNEX. TO HE57016		kaD-AiBaklp saM#yaa/DRAWING NO. kaod\CARD CODE		naga EmaaMk ITEM NO.	

A3 sad[ja, /A3 SIZE

Corrigendum-I

GeM Bid Number: GEM/2024/B/5351490 dtd. 03/09/2024

BHEL ref. No.: B/4222/20241553

Item: Condenser Air Evacuation Package (Vacuum Pump) & its mandatory Spares

Project: 2X800 MW Lara (STG-II) TPP

addendum to Annexure-1-31611770113 R01 (copy attached) issued for including note on Anti-rust coating in vacuum pump package. Updated Annexure-1 (Annexure to HE57016) enclosed in which Note No. X added for anti-rust coating inside vacuum pump, tank and associated piping.

SPECIAL NOTE: All bidders to note that to quote your price (inclusive all i.e. material cost, P&F, Freight, GST etc.). No addition charges shall be paid over and above quoted price on GeM portal.