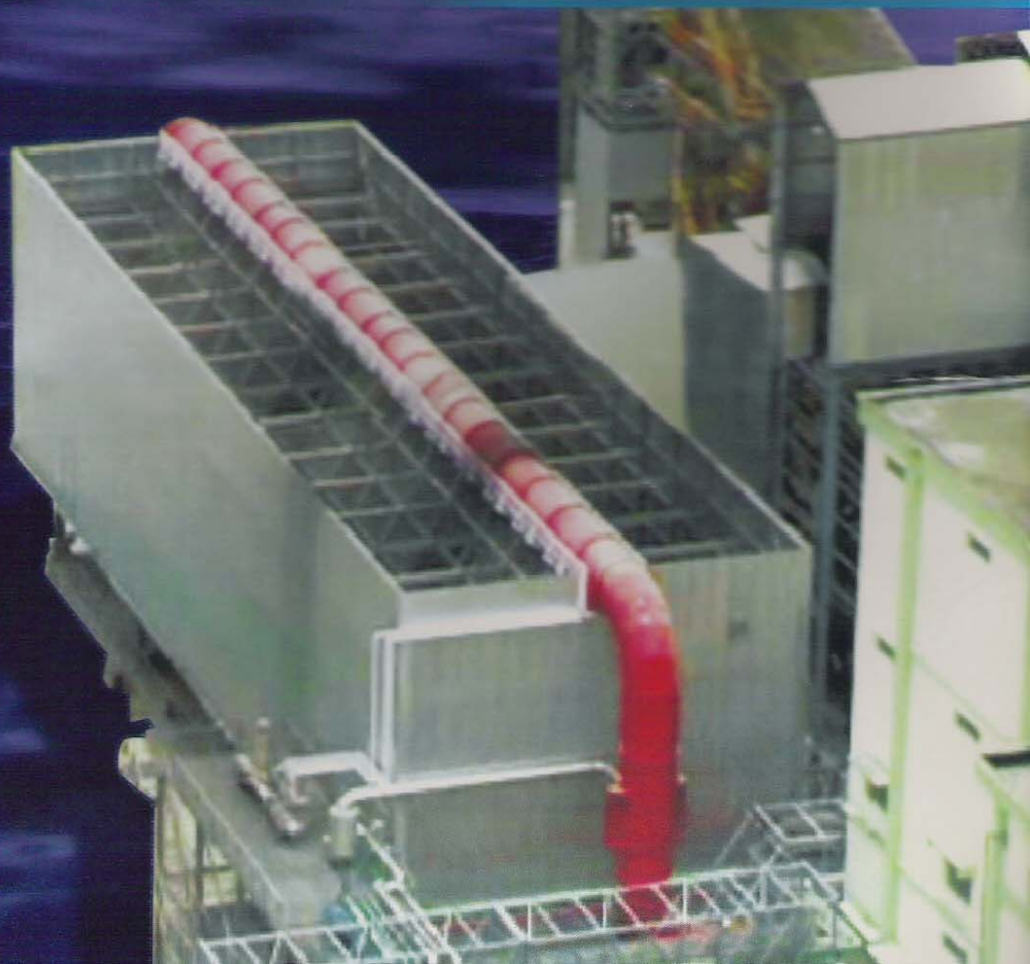


DRH

PAHARPUR



DRH AIR COOLED **STEAM CONDENSER**





INTRODUCTION

Paharpur Cooling Towers Limited designs and manufactures dry cooling equipment for the petroleum, power utility, steel, cement, sugar, chemical and gas-processing industrial sectors. In India Paharpur is long recognised as a leader in dry-cooling equipment design, fabrication, assembly and erection. Paharpur's DRH (Divided Rear Header) air cooled steam condensers can be supplied to perform over wide spectrum of operating requirements and diverse industry applications.

Paharpur has the engineering, manufacturing and installing expertise to supply the best DRH air cooled steam condenser for each particular application. Single-point responsibility assures faster response and economical project execution.

Paharpur's state-of-the-art manufacturing units are equipped with sophisticated metal-working, finning, welding and material handling machinery. Manufacturing facilities are located at Kolkata in the state of West Bengal and at Sahibabad (near New Delhi) in the state of Uttar Pradesh.

Quality has been the hallmark of any Paharpur product. The standard of excellence of quality is reflected in all stages of the project starting from expertise of design team, procurement of materials to fabrication and finally site erection & plant commissioning. At all stages requirements of the client, specification and applicable internationally accepted codes are strictly adhered to.



BHASA WORKS
(covered Production area
more than 70,000 sq.ft)

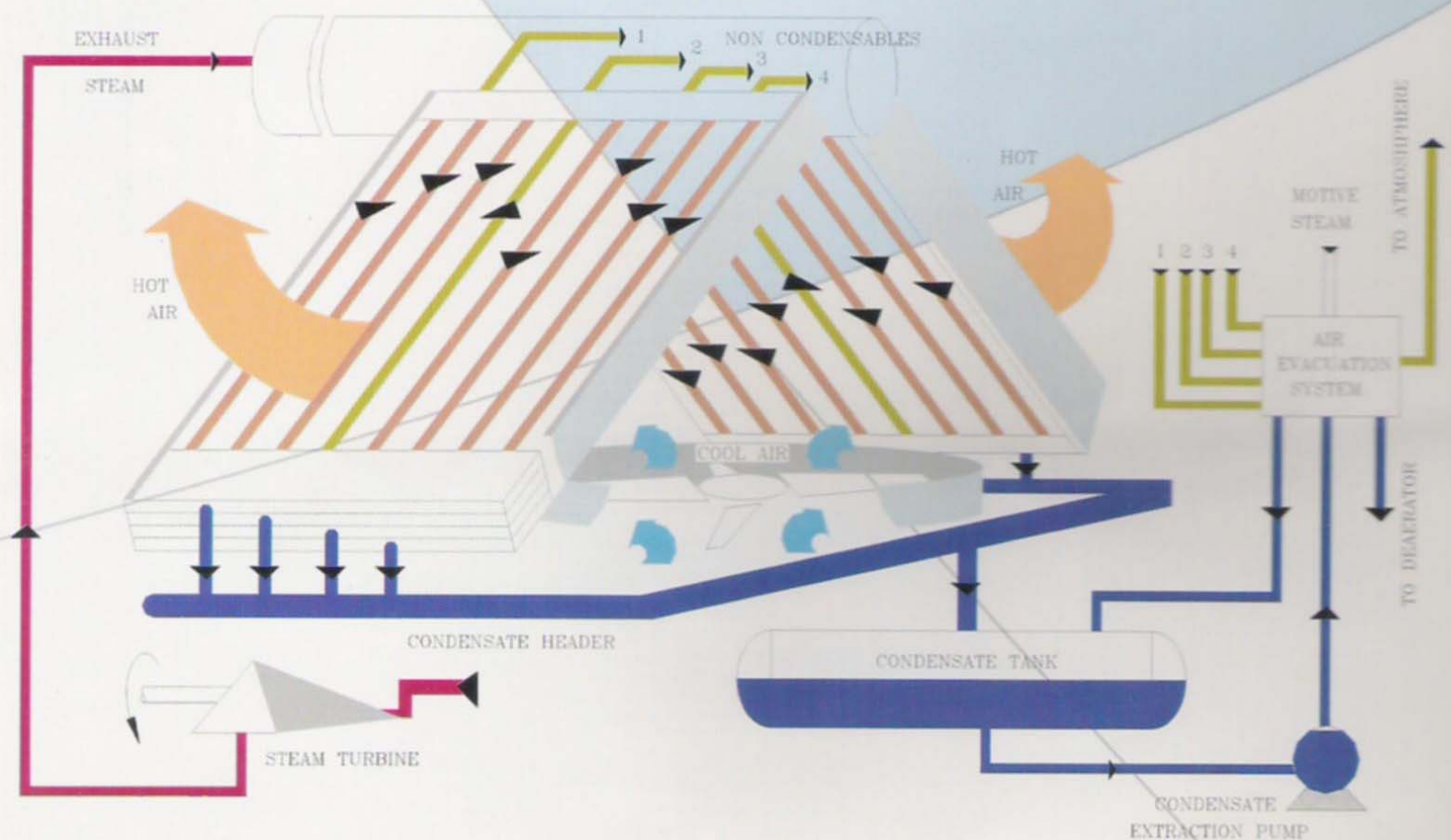


PROCESS FLOW IN DRH STEAM CONDENSER SYSTEM

A typical flow diagram of a A-Frame type steam condenser is furnished below.

Steam routed through the exhaust steam duct enters the condenser bundles at the top and the condensate flows out through the lower end.

Non-condensables are vented out of each row of the condenser using individual steam jet air ejectors or vacuum pumps.



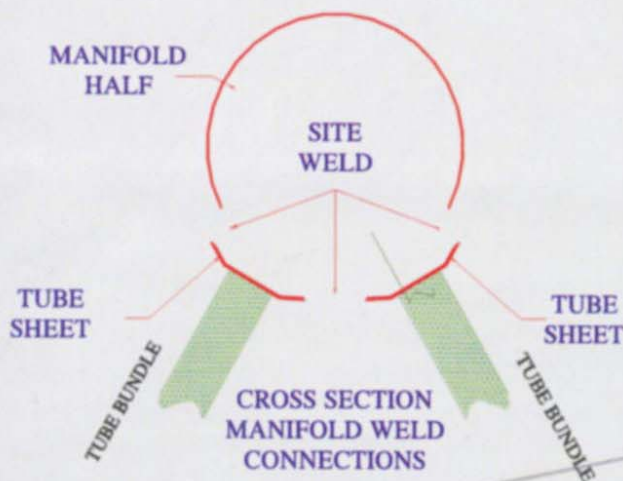
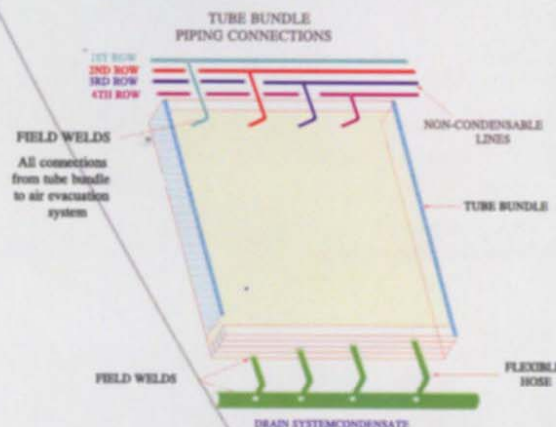


MAJOR FEATURES

Paharpur's independent tube row design with Divided (separate) Rear Headers prohibit back flow of steam to eliminate non-condensables trapping in individual tube rows and formation of dead zone for heat transfer. The design is flexible and system efficiency is maintained over a wide range of temperature and varying operating loads. Condensate and non condensables are evacuated from each row separately thereby maintaining positive fluid separation qualities of a single row condenser.

DRH (Divided Rear Header) Air Cooled Steam Condenser

The different condensing capability in each tube row is attended by providing 2 nos. 1.5" F tube rows at the bottom (where large condensation of steam occurs) and 2 nos. 1.25" F tube rows on the top.

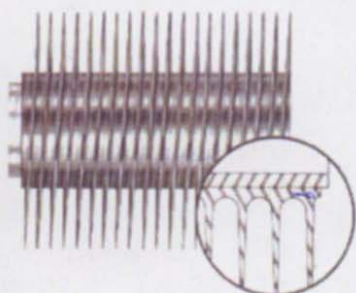




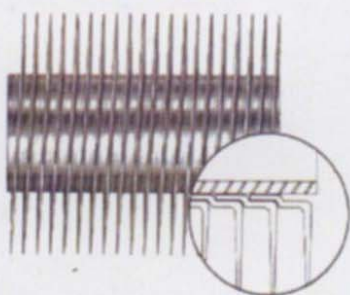
Advantages of Paharpur DRH type condenser over other available designs

- Due to separate evacuation of each row chances of vapour locking and formation of 'dead zones' are eliminated.
- Flexibility to adopt to any off-design conditions at part load which is not possible in dephlegmator type of configuration
- Easy identification and repair of any leaking tube-to-tubesheet joint as the rear headers can be lifted mechanically without dismantling the bundle.
- Provision of progressive thermal expansion is accommodated in tube layout pattern.
- Unequal condensation in tube rows across the bundle is compensated by varying the finned tube diameter.

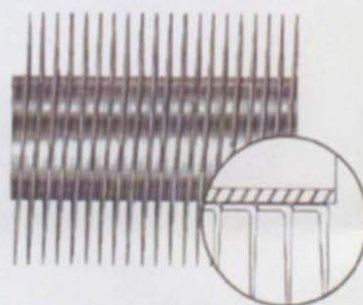
Extruded Fin



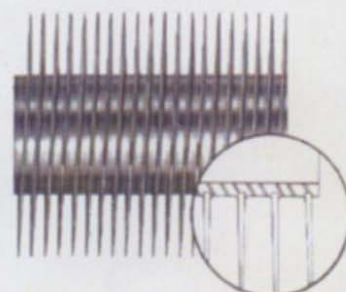
Double 'L' Fin



Single 'L' Fin



Embedded 'G' Fin



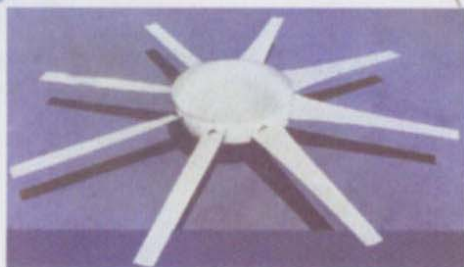
PAHARPUR FINNED TUBES

Paharpur's DRH steam condensers are available with a variety of finned tube configuration to suit the application and environment.

Condenser tubes are available with extruded, embedded or wrap-on type fins. The finning is carried-out in-house using state-of-the-art McElroy tube finning machines.



MECHANICAL EQUIPMENTS



Paharpur Fans

DRH condensers achieve low power and noise requirements by using Paharpur fans. Statically balanced multi-bladed fans with are available for a wide range of diameters from as low as 3 ft to 10 meters.

Drivers

DRH condensers are supplied with high quality TEFC induction motors of single or dual speed. Also motors suitable for Variable speed application are supplied.



Paharpur Gear Box

Paharpur's spiral bevel gear boxes are designed to operate continuously under difficult duty conditions. These time-tested rugged units are also provided with on-line lubrication facility. Thousands of Paharpur make gear boxes are performing satisfactorily around the globe.

Vibration Switches

Paharpur make vibration limit switches are supplied to protect the air-moving equipment from any vibration hazards.

Package Equipment

DRH condensers constitutes a host of bought-out components like ejectors, pumps, steam dumping device/ PRDS, fin cleaning system, expansion bellows etc. Paharpur has developed a strong integrated sub-vendor database to cater to varied requirement and schedule of any project.



SITE ACTIVITIES

DRH condensers require extensive site work.. The tube bundles and structurals are despatched in knocked-down sub assemblies which are assembled at site to form the complete unit. Paharpur's project execution experience is reflected in the workmanship of the erection task force.

Commissioning and Training Specialists are deployed to synchronise the condenser and train the client's operation team during final commissioning and plant hand-over.

AFTER-SALES SERVICE

Paharpur's sales and service network assures ready availability of technical experts for any operational or field related problems and ready availability of spares as required.

MANUFACTURING

DRH Condenser bundles, fans, gear boxes are manufactured in Paharpur's state-of-the-art manufacturing units. Quality of product is maintained at all stages from material procurement to final testing before despatch.



An ISO 9001 Company

Paharpur Cooling Towers Limited

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Domestic Sales Representatives in:

Ahmedabad, Bhilai, Bhubaneswar, Durgapur, Gauhati, Jamshedpur, Kochi, Rourkela, Visakhapatnam, etc.

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SouthKorea, Thailand, U.A.E, U.S.A.

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