

Nortech Technologies Ltd.

(The World Is Within Our Reach)



**Supply and Installation of Complete Aero-condenser Unit
with Steel Structure for Platform and Thermal Expansion**

**Eastern Refinery Limited
North Patenga, Chattogram-4204
Bangladesh**



Project Synopsis:

Nortech Technologies Ltd., serving as the local agent of **Wilton Heat Transfer Services B.V., The Netherlands**, successfully delivered the 4th Aerocondenser unit for Eastern Refinery Limited (ERL), Bangladesh. This project expanded ERL's distillation capacity by installing a unit identical to the existing three aerocondenser systems.

The scope included **design verification, fabrication, and supply** in compliance with ASME VIII Div.1 and API 661 codes. Key deliverables comprised an ASME "U" stamped tube bundle, explosion-proof control stations, type-tested motor control centres, adjustable pitch fans, gearboxes, and thermal expansion joints. A prefabricated carbon steel supporting structure, designed to withstand local wind and rainfall conditions, was also provided.

Comprehensive documentation and certified test reports ensured transparency and compliance. Backed by a 12-month performance guarantee, this project highlights Nortech Technologies Ltd.'s ability to deliver mission-critical refinery equipment through trusted European partnerships, reinforcing its role in Bangladesh's energy sector.

Project Details:

Project	: Aerocondenser Unit (4th) for Atmospheric Distillation Unit
Client	: Eastern Refinery Ltd. (ERL)
Location	: Chattogram, Bangladesh
Date	: From 1 st November to 30 th November, 2021
Duration	: 30 Days
Manufacturer	: Wilton Heat Transfer Services B.V., The Netherlands
Country of Origin	: The Netherlands

Project Objectives – ERL Aerocondenser Supply:

- 1. Capacity Expansion**
 - To enhance ERL's atmospheric distillation unit by installing a 4th aerocondenser identical to the existing three units.
- 2. Compliance with International Standards**
 - To design, fabricate, and supply the aerocondenser in full accordance with **ASME VIII Div.1** and **API 661** codes, ensuring global quality benchmarks.
- 3. Reliable Performance**
 - To deliver a unit capable of meeting the specified **thermal duty of 4,200,000 Kcal/hr**, with guaranteed mechanical and thermal efficiency.
- 4. Structural Integrity**



- To provide a prefabricated carbon steel supporting structure designed to withstand local environmental conditions, including high wind velocity and heavy rainfall.

5. Safety & Control Systems

- To integrate explosion-proof control stations, type-tested MCC panels, and compliant electrical systems for safe operation.

6. Documentation & Transparency

- To furnish complete technical documentation, including fabrication procedures, welding qualifications, mill certificates, and certified test reports.

7. Partnership Delivery

- To successfully execute the project as the **local agent of Wilton Heat Transfer Services B.V., The Netherlands**, reinforcing Nortech Technologies Ltd.'s role as a trusted facilitator of European engineering expertise in Bangladesh.

Scope of Work:

- Supply of one Aerocondenser unit identical to existing three units
- Design verification and fabrication in compliance with **ASME VIII Div.1** and **API 661** codes
- Tube bundle with **ASME "U" stamp**
- Explosion-proof control stations and type-tested MCC panels
- Adjustable pitch fans, gearboxes, and transmissions
- Thermal expansion joints and Ø8" flanges
- Prefabricated carbon steel supporting structure (ASTM A36/A325 standards)
- Hot-dip galvanized steel frame and protective coatings

Technical Specifications:

Technical Specifications – Aerocondenser Unit

Service: Condensation of overhead vapour from Atmospheric Distillation Unit of petroleum crude oil

Performance Data:

- Heat Duty: 4,200,000 Kcal/hr
- Extended Surface Area: 36,933 m²
- LMTD (corrected): 38 °C
- Heat Exchange Rate: 30.4 Kcal/hr·m²·°C

Tube Side:

- Inlet Flow: 37,400 kg/hr (HC vapour + water vapour)
- Outlet Flow: 32,500 kg/hr HC liquid + 3,850 kg/hr HC vapour + 1,050 kg/hr water vapour
- Inlet Temperature: 116 °C
- Outlet Temperature: 60 °C



- Inlet Pressure: 1.74 bar G
- Allowed Pressure Drop: 0.40 bar G

Air Side:

- Inlet Temperature: 35 °C
- Outlet Temperature: 56.7 °C
- Fans: 2 per unit, 35 HP, auto-adjustable pitch

Construction Standards:

- Codes: ASME VIII Div.1 & API 661
- Certification: ASME "U" Stamp
- Calculation Pressure: 3.2 bar g
- Test Pressure: 5.2 bar g
- Calculation Temperature: 131 °C

Materials:

- Tubes: SA179 seamless, OD 1", length 30'
- Fins: Aluminium grade 1050/1060, extruded serrated
- Headers: SA516 carbon steel, ANSI 150 lb RF rating
- Structure: ASTM A36/A325 carbon steel, hot-dip galvanized

Key Components Supplied:

- Tube bundle with frame and headers
- Explosion-proof control stations (ATEX certified)
- Type-tested MCC panels
- Adjustable pitch fans and gearboxes
- Thermal expansion joints (16 units, 8" size)
- Prefabricated steel supporting structure

Guarantee: 12-month thermal and mechanical performance warranty

Country of Origin: The Netherlands

⚙️ Challenges & Solutions:

Challenge	Solution
Matching thermal performance with existing units	Verified thermal ratings and construction specs
Compliance with ASME/API codes	Coordinated certification and documentation
Logistics of large structural components	Prefabricated and bolted assembly design



Results / Outcome:

- Successfully delivered the 4th Aerocondenser unit for ERL, identical to the existing three units.
- Project executed as local agent of Wilton Heat Transfer Services B.V., The Netherlands.
- Full compliance with ASME VIII Div.1 and API 661 codes.
- Supplied ASME "U" stamped tube bundle, explosion-proof control stations, and type-tested MCC panels.
- Integrated adjustable pitch fans, gearboxes, and thermal expansion joints for reliable operation.
- Delivered prefabricated carbon steel supporting structures, designed to withstand local wind and rainfall conditions.
- Provided complete technical documentation: fabrication procedures, welding qualifications, mill certificates, and certified test reports.
- Backed by a 12-month thermal and mechanical performance guarantee.

Client Feedback:

"The procurement and documentation were handled professionally, ensuring readiness for installation and compliance with international standards."

Name : Engr. Md. Enamul Hoq,
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Project Pictures:





Nortech's Value Delivery Summary:

Nortech Technologies Ltd. delivers trusted cross-border procurement and consultancy services, connecting European suppliers with Bangladesh's rapidly growing industrial sectors. Acting as the local agent of Wilton Heat Transfer Services B.V., The Netherlands, Nortech successfully coordinated all aspects of complex projects, including the supply of the 4th Aerocondenser unit for Eastern Refinery Limited (ERL), by liaising with the supplier, bidder, client, and local contractor.

Our value lies in combining global engineering expertise with local market knowledge, providing end-to-end support that includes design verification, documentation, logistics, and stakeholder engagement. By managing local arrangements and ensuring smooth execution, we help minimize delays and ensure compliance with international codes such as ASME VIII Div.1, API 661, and ASTM standards.

Through the delivery of mission-critical equipment supported by performance guarantees, Nortech strengthens client confidence and operational reliability. We pride ourselves on transparency, quality assurance, and strategic partnerships that empower Bangladesh's energy, power, water, pharmaceutical, and defense sectors. Nortech Technologies Ltd. stands as a trusted local agent and reliable partner for sustainable industrial growth.



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