



Proven Technology

The Denapak is a self-supporting, bi-drum boiler with water-cooled furnace walls.

Each boiler meets steam equipment design, fabrication, and safety requirements according to international standards (PED 97/23/EC, EN or ASME codes).

The Denapak uses a natural circulation design, which includes integral steam and lower drums.

To help assure flexible, reliable construction, seamless tubes are expanded to form a thorough seal where they meet drums, thus eliminating heat-affected zones caused by welding.

An evaporator screen of seamless bare tubes protect superheaters against direct radiation from the burner flames.

In order to avoid flue gas condensation, a feedwater preheater can also be installed in the water drum to raise feedwater temperature before it enters the economiser.

For increased efficiency, the Denapak is equipped with an economiser.

Each steam boiler is preassembled and hydro-tested in the workshop prior to transportation.

To meet today's stringent emission requirements, CMI offers a range of options such as low NOx burners, flue gas recirculation, SNCR and SCR systems.

As CMI's reference list illustrates, the Denapak has been a superior-quality, strong, and reliable industrial boiler choice for nearly 50 years.



Main Strengths

- / Operational flexibility: 10 to 100% MCR (Maximum Continuous Rate)
- / High thermal efficiency up to 97.5%
- / High availability up to 99.5%
- / Compact boiler design
- / Simplified foundation
- / Low-corrosion
- / Guaranteed low NOx
- / Short on-site erection time

Operational Data

| | |
|--|--------------------|
| Steamflow | 20 up to 250 T/h |
| Pressure | 10 up to 70 bar(g) |
| Saturated/ superheated steam temperature | up to 520°C |

Fuel

- / Natural gas
- / Heavy fuel oil
- / Light fuel oil
- / Waste fuels, inorganic free

Competences

Process Engineering

- / Process Flow Diagram (PFD)
- / Process and Instrumentation Diagram (P&ID)
- / Risk analyses (HAZOP/SIL)

Mechanical & Electrical Engineering

- / Steel structure
- / Piping
- / Ducting
- / Insulation and cladding
- / Electricity and instrumentation (E&I)

Process Control

- / DCS, Digital Control System
- / ESD, Emergency Shut Down System
- / CEMS, Continuous Emission Monitoring System

Equipment Engineering

- / Boilers according to EN and ASME codes
- / Rotating equipment (pumps, fans, turbines, ...)
- / Flue gas cleaning (DeNOx, DeSOx, Dustfilter, ESP, ...)

EPC Contracting

Certificates

- / ISO 9001
- / ISO 14001
- / ASME 'S' – 'U' – 'PP'
- / VCA Petrochemical

References

Chemical and petrochemical industries especially appreciate the high standard concept of the DENAPAK Boiler.

| Customer | Country | Steam production (t/h) | Design Pressure (barg) | Working Pressure (barg) | Temp (°C) |
|-------------------------------|--------------|------------------------|------------------------|-------------------------|-----------|
| Kuwait Petroleum Europort | Netherlands | 120 | 55 | 45 | 385 |
| Cargill | Belgium | 40 | 73 | 60 | 480 |
| Nerefco | Netherlands | 130 | 37 | 30 | 355 |
| Total Refinery Antwerp | Belgium | 60 | 76 | 65 | 410 |
| Mopa 2 / Dcn | France | 60 | 51 | 45 | 345 |
| CCT | Italy | 70 | 63.5 | 53 | 300 |
| Fanapel | Uruguay | 45 | 30 | 22 | 100 |
| Hydro Agri | France | 60 | 72 | 60 | 500 |
| Ancap | Uruguay | 55 | 52 | 42 | 400 |
| Fanapel | Uruguay | 45 | 22 | | 400 |
| Bayer Lo | Belgium | 60 | 45 | 40 | 420 |
| Ministry of Defence | Saudi Arabia | 45 | 13 | 12 | Sat |
| Belgomilk | Belgium | 25 | 25 | 30 | Sat |
| Marmara | Turkey | 62 | 52 | 43 | 425 |
| Henkel Ireland Ltd. | Ireland | 12 | 20 | 16 | Sat |
| Solvay - Antwerp (John Brown) | Belgium | 14 | 44 | 40 | Sat |
| Südzucker - Werk Löbau | Germany | 30 | 73 | 64 | 480 |

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