Proven Technology

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

- Meets steam equipment design, fabrication and safety requirements (ASME, PED 2014/68/EU or EN codes)
- Natural circulation design, includes integral steam and lower drums
- Flexible, reliable construction
- Seamless tubes form a thorough seal where they meet drums to eliminate heat-affected zones caused by welding
- Evaporator screen protect superheaters against direct radiation
- Optional installed feedwater preheater in the water drum to avoid flue gas condensation
- For increased efficiency, the Denapak is equipped with an economizer
- Preassembled and hydro-tested in the workshop prior to transportation
- For Larger capacity units shop fabrication will be optimized to reduce field erection cost
- Low NOx burners, flue gas recirculation and/or SCR systems can be provided to meet required emissions

As John Cockerill’s reference list (see table on reverse) shows, the Denapak has proven to be a strong, and reliable industrial boiler choice for over 50 years.
Denapak Boilers
D-Style Packaged Boilers

Operational Data
Steam flows: 50,000 to 550,000 lb/hr
Pressures up to 1,015 psig
Steam temperatures up to 1000°F

Main Strengths
- Operational flexibility: 10 to 100% MCR (Maximum Continuous Rate)
- High thermal efficiency up to 97.5% (LHV)
- High availability up to 99.5%
- Compact boiler design
- Simplified foundation
- Guaranteed low NOx
- Maximized shop assembly

Fuels
- Heavy fuel oil
- Light fuel oil
- Waste liquid fuel
- Refinery gas
- Waste gas
- Blast furnace gas
- Coke oven gas

References
John Cockerill's DENAPAK Boilers are particularly well suited for the higher demands of Chemical and Petrochemical industries.

<table>
<thead>
<tr>
<th>Customer</th>
<th>Country</th>
<th>Steam Production (lb/hr)</th>
<th>Design pressure (psig)</th>
<th>Working Pressure (psig)</th>
<th>Temp (°F)</th>
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<td>Egypt</td>
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</tbody>
</table>

Our offer
- Boiler Proper with structures/platforms
- Economizer
- External Piping & Ductwork
- Stack
- Burner Systems
- Emissions Control Systems (SCR, FGR, CO)
- Fans & Motors
- Feed Pumps
- Deaerator Skids
- Chemical Feed & Sampling Systems
- Electrical & Instrumentation Systems

Process Control
- Burner Controls
- Boiler Controls
- Emissions Controls
- ESD, Emergency Shut-down System

Equipment Engineering
- Structural/Civil Design
- Piping Design
- Transient (Start-up) Analysis
- CFD Studies
- Design Life Studies

EPC Contracting
Certificates
- ISO 9001:2015
- ISO 14001
- ASME ‘S’ – ‘U’ – ‘PP’
- VCA Petrochemical

John Cockerill Energy Worldwide:
Belgium – USA – Canada – Mexico – China

Industrial boilers business line
- Erie, PA – USA Tel. +1 502 819 0614
- Belgium Tel. +32 3 860 08 60
industrial.boilers@johncockerill.com

johncockerill.com/industrial-boilers