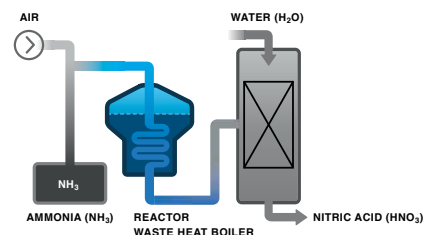


# Waste Heat Boiler Downstream Ammonia Combustion



## WHB Leuna Caprolactam Plant

Proven Design  
High Availability  
Flexibility Increase

Application	Product Range	Scope of Supply
<p><b>Heat Recovery for Catalytic Ammonia Combustion:</b></p> <p>HNO<sub>3</sub> and caprolactam production, HCN synthesis and similar processes</p> <p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>• Tailor made design to meet customer specific requirement</li> <li>• Energy savings</li> <li>• High availability</li> <li>• Increase in operational flexibility</li> <li>• Capacity increase within existing footprint</li> <li>• Reliable design based on decades of experience</li> </ul>	<ul style="list-style-type: none"> <li>• Fire tube design (natural circulation)</li> <li>• Water tube design, spiral and meander type (forced circulation)</li> <li>• Integrated superheater</li> <li>• Catalyst basket</li> </ul> <p><b>Technical Data</b></p> <ul style="list-style-type: none"> <li>• Gas temperature: up to 1200°C</li> <li>• Gas pressure: up to 10 bar</li> <li>• Steam pressure: up to 80 bar</li> <li>• Steam temperature: up to 500°C</li> </ul>	<ul style="list-style-type: none"> <li>• Consultancy</li> <li>• Optimization concepts</li> <li>• Process engineering</li> <li>• Mechanical design</li> <li>• Supply of Waste Heat Boiler (WHB) including burner hood and catalyst basket</li> <li>• Pumps &amp; auxiliary equipment</li> </ul>

Reference List Excerpt

## Waste Heat Boiler Downstream Ammonia Combustion

Scope	Client
Engineering and supply of a waste heat boiler in a nitric acid plant downstream catalytic ammonia oxidation, 160 t/h, Ince, Cheshire, Great Britain	Grow How UK Ltd., Ince, Cheshire, Great Britain
Engineering and supply of secondary path downstream NH <sub>3</sub> combustion including superheater, 160 t/h, Ince, Cheshire, Great Britain	Grow How UK Ltd., Ince, Cheshire, Great Britain
Engineering and supply of a waste heat boiler for catalytic HCN-Synthesis, 156 t/h throughput, Solvay/Butachimie, France	Solvay/Butachimie, Chalampe, France
Engineering and supply of heating surface bundles for a capacity upgrade to 170 % downstream catalytic ammonia oxidation in a caprolactam plant, Leuna, Germany	Domo Caproleuna GmbH, Leuna, Germany
Engineering and supply of a waste heat boiler in a nitric acid plant downstream catalytic ammonia oxydation, Glomfjord, Norway	Balcke-Dürr GmbH, Ratingen, Germany for Yara Norge AS, Glomfjord, Norway
Engineering and supply of a waste heat boiler in a formaldehyde plant, Ludwigshafen, Germany	BASF AG, Ludwigshafen, Germany
Engineering and supply of a process gas cooler E5205 (vertical fire tube boiler) for nitric acid plant Radici Zeitz, Germany	Krupp Uhde GmbH, Dortmund, Germany
Engineering and supply of a process gas cooler 30 E 005 (horizontal fire tube boiler) for ammonium nitrate plant, Moura, Queensland, Australia	Krupp Uhde GmbH, Dortmund, Germany
Engineering and supply of a process gas cooler (vertical fire tube boiler) for nitric acid plant Suslo Sala, Slovenia	Chemoproject A.S., Prague, Czech Republic
Engineering and supply of a process gas cooler (water tube boiler) for nitric acid plants in Geismar and Baytown, Texas, USA	ICF Kaiser Engineers Inc., Oakland, USA
Engineering and supply of a process gas cooler E5205 (vertical fire tube boiler) for nitric acid plant Belfast, North Ireland	Babcock-King-Wilkinson Ltd., Buckinghamshire, Great Britain
Engineering and supply of a waste heat boiler in a nitric acid plant, Geleen, Netherlands	Didier Engineering, Essen, Germany

**Legend:**

PS – Power Station  
PF – Pulverized Fuel  
CHP – Heat and power plant

SCR – Selective Catalytic Reduction  
STP – Standard Temperature and Pressure  
HRSG – Heat Recovery Steam Generator

FGD – Flue Gas Desulphurization  
CFB – Circulating Fluidized Bed  
ESP – Electrostatic Precipitator

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