



The **Steam** for you plants



GETABEC

Getabec Public Company Limited

**TECHNOLOGIES
FOR
CORNER TUBE BOILERS
ERK - ECK ROHR KESSEL**



GETABEC YOUR PARTNER FOR STEAM SOLUTIONS

The Company GETABEC German-Thai Engineering Cooperation Ltd. is the biggest manufacturer in Thailand for steam boilers.

With our product Corner Tube Boiler ERK-Eckrohrkessel, that we would like to introduce to you on the following pages we find also for you're the optimal solution with our Corner Tube Boilers.

Getabec solutions are a synonym for technological leadership and long-term customer on hand wherever its customer are at home.

Getabec is a reliable partner for Steam solutions.

GETABEC manufactures the Corner Tube Boiler under the license of Eck Rohr Kessel GmbH, Germany

Our partner the ERK Eck Rohr Kessel GmbH



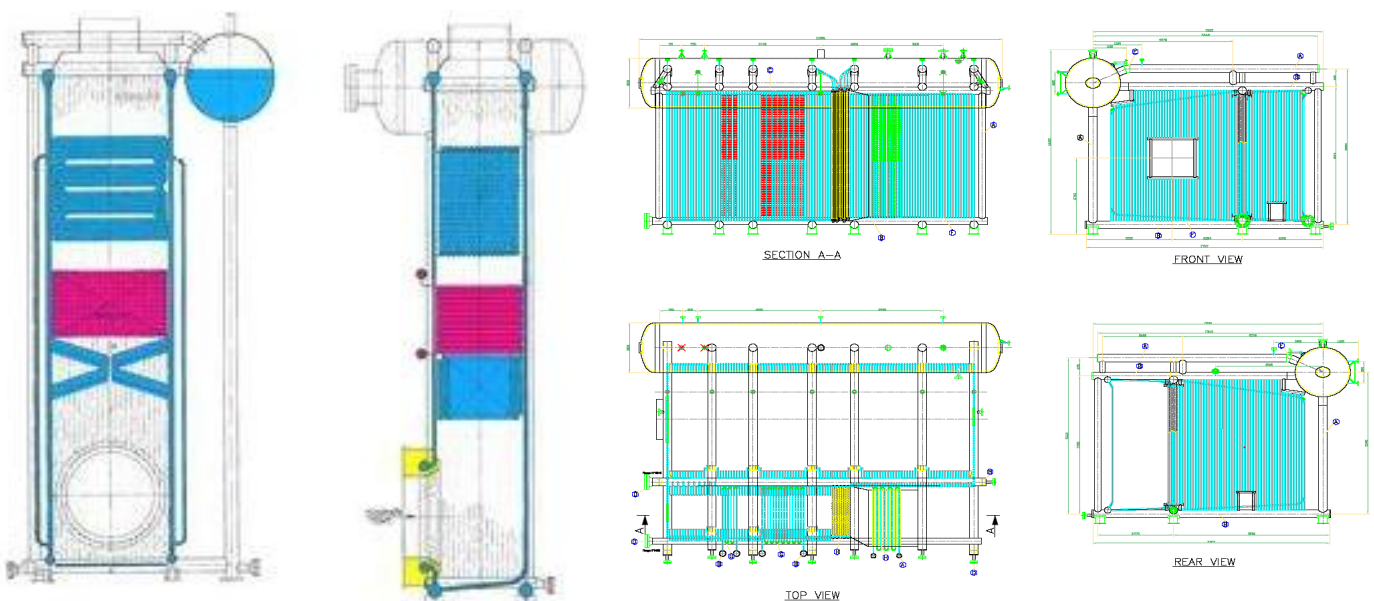
- was developed from an engineering office founded in Berlin over 50 years ago
- is an engineering company offering licenses to manufacture Eck Rohr-Boilers world-wide
- offers engineering services concerning industrial boilers and thermal energy techniques

Eck Rohr industrial boilers for steam, hot water and thermal oil are recognized by its renowned boiler manufactures world-wide with growing performances. Range of operation:

steam rating	from 0.4	to	290 t/h
steam pressure	from 8	to	136 bar
steam temperature		to	535 °C
hot water boiler		to	174 MW

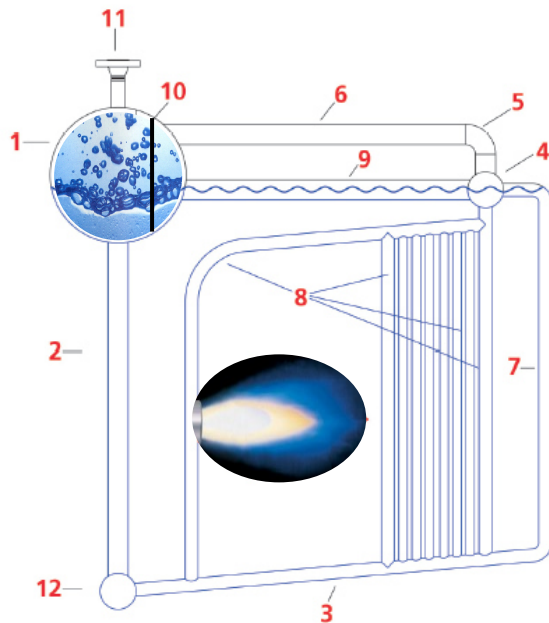
Larger capacities are possible as well. Eck Rohr-boilers differ basically from other boiler types by several characteristic features.

Website: www.eckrohrkessel.com



Corner Tube Boilers differ from shell type boilers in that the water is circulated inside the tubes, with the heat source surrounding them. A Corner Tube Boiler is a type of boiler in which water circulates in tubes heated externally by the fire. Corner Tube Boilers are used for high-pressure boilers. Fuel is burned inside the furnace, creating hot gas which heats up water in the steam-generating tubes. The GETABEC Corner Tube Boiler is a natural circulation boiler without any forced water flow.

THE TECHNICAL PRINCIPLE



1	Drum	(unheated)
2	Down comer tubes	(unheated)
3	Bottom tubes	(heated)
4	Upper collector	(unheated)
5	Separation tubes	(unheated)
6	Overflow tubes	(unheated)
7	Return tubes	(unheated)
8	Riser tubes	(heated)
9	Mixture tubes	(unheated)
10	Partition wall	
11	Steam outlet	
12	Lower collector	(unheated)

In the **GETABEC**- Corner Tube Boiler design only the riser tubes (8) and the bottom tubes (3) are heated. The drum (1), the down comers (2 & 7), the separation tubes (5), the mixture tubes (9), the overflow tubes (6) and all collectors are unheated.

The water-steam mixture, generated in the heated riser tubes (8) and the bottom tubes (3) flows up into the unheated upper collector (4) and from there into the mixture tubes. In this area the steam is separated from the water (by gravity) and flows mainly through the separation tubes into the drum (1) in the area behind the partition wall (10) and above low water level LWL. Approximately 50% portion of the separated water flows through the unheated return tubes (7) down to the heated bottom tubes (3) and the residue from the mixture tubes (9) tubes towards the drum (1) into the drum area behind the partition wall (11) and below low water level LWL. From there it flows down through the down comer tubes (2) back into the unheated lower collector (12) from where it is distributed to the bottom tubes (3) and the riser tubes (8) and the cycle starts again!

In all other known water tube boiler designs, especially the Bi-Drum design, the extracted steam is generated somewhere in the system and rises from the bottom of the drum through the water level resulting in fluctuation of the water level along with the risk of a high percentage of "carry over".

The design from this Water Tube Boiler is very flexible and can easily be adapted to the fuels and the plant conditions required by the customer. For any application **GETABEC** choose a particular design, which includes various fuels and combustion systems.

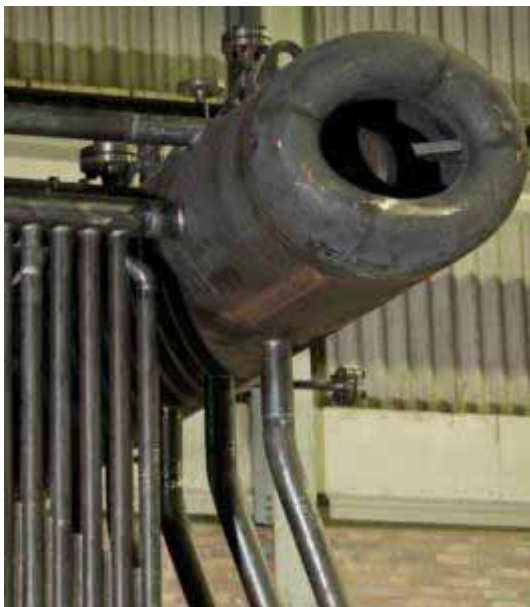
The unique advantages of the **GETABEC**-Eck Rohr Kessel are:

- stable water level with moderate fluctuation even during sudden load changes
- absolute dry steam due to no "carry-over".
- rapid cold start-up within 60 minutes as a result of fast starting water circulation and unheated drum.
- no material stress as result of an unhindered free expanding tube cage which is independent from the unheated drum.
- fast positive and negative load change rate up to 25% per minute.
- self supporting design due to large and strong designed down comer and return tubes
- adapts ideal to the space available.

GETABEC – Eck Rohr Kessel can be operated with a broad range of fuels.

Beside traditional fuels such as oil, gas, coal and wood there are special designs where fuels such as industrial waste, municipal waste, paper, biomass and hazardous waste can be utilized.

Due to the excellent reaction on quick load variations and the outstanding quick start-up behaviour, the **GETABEC** – Eck Rohr Kessel is the ideal solution for boiler plants operating with heterogeneous fuels.



For Small Capacities

Capacity 1 t/h up to 10 t/h but high design pressures of up to 100 bar.
The unique advantages of this design are:

- Absolute dry and saturated steam.
- No carryover of boiler water even during sudden peak loads.
- Immune against sudden load rate changes.
- No contamination of products.
- Perfect temperature control of distillation columns.

For Medium Capacities

Capacities up to approx. 100 t/h or 65 MW and design pressures up to approx. 100 bar. The **GETABEC** - Eck Rohr Kessel is available as steam generator and as hot water generator.

- Easy operation and maintenance due to horizontal and compact design.
- Easy access to boiler equipment such as burner and fittings as well. As to the heating surfaces.
- Applicable for all liquid and gaseous fuels.
- Dimensions adaptable to limited space on site.

For High Capacities

Up to approx. 150 t/h and design pressures up to approx. 100 bar.

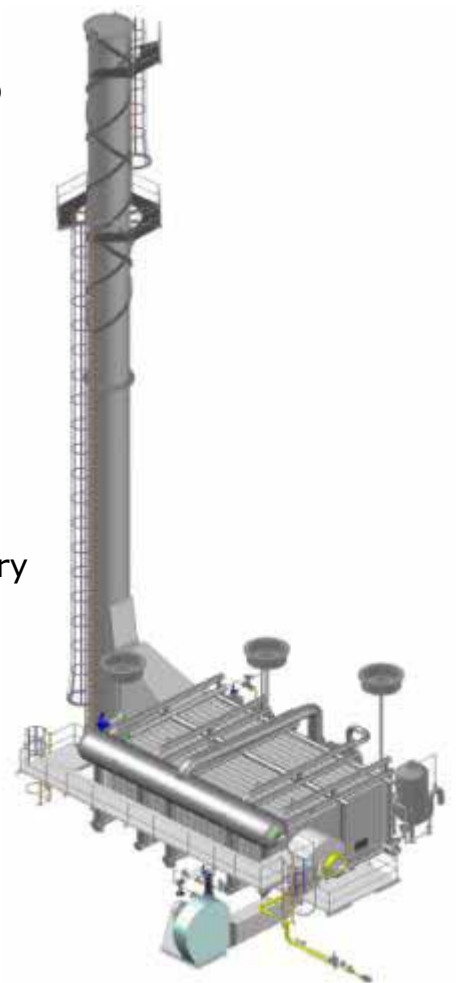
Range of capacity

- Steam rating up to 200 t/h
- Steam pressure up to 100 bar
- Steam temperature up to 500 °C

CUSTOMER FOCUS

Typical industries where we supplies

- Chemical, Petrochemical and Oleo-chemical Industry
- Paper Mills
- Steel Mills
- Food and Beverage Industry
- Industrial Power Plants
- Far Distance Heating Plants



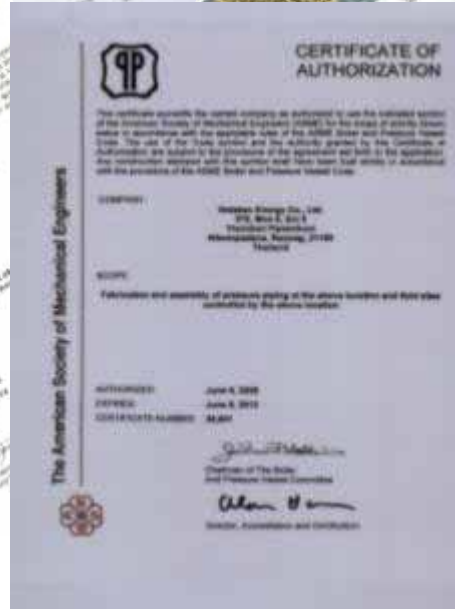
The quality assurance of products and services provided is one of our primary priorities. Our quality system is defined in the quality manual. It is based on the cooperation with an accredited test performance. Defectoscopy laboratories provide non-destructive (x-ray, ultrasonic, capillary and electromagnetic test).

We hold the following certificates

- ISO 9001 certificate since 2003
- AD-Merkblatt HP O / TRD 201 certificate since 2001
- ASME S/U/R certificate since 2008
- NB certificate since 2008

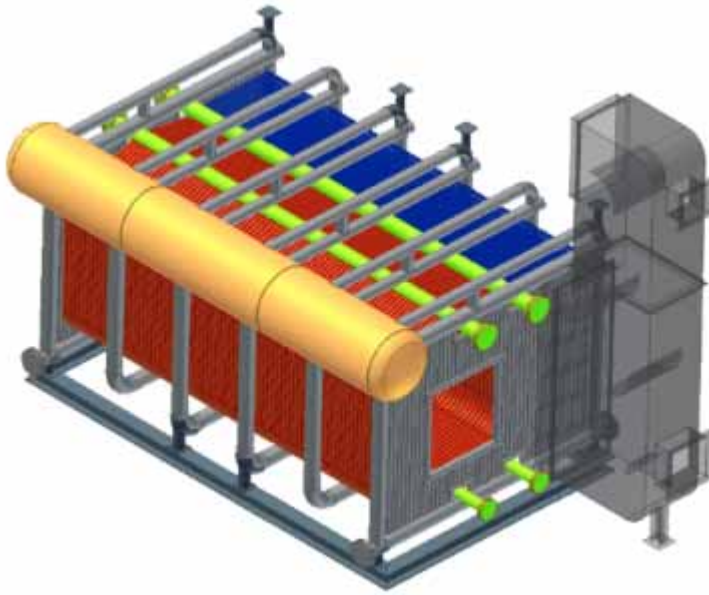
We supply our boiler with various standards

- EN / PED
- DIN / TRD
- ASME – S / U
- British Standard



Bridgestone

Customer	: Thai Bridgestone Co., Ltd.
Location	: Bangkok (Thailand)
Boiler type	: ERK 20000
Boiler parameters	: Output 20.0 t/h Outlet steam pressure – 28 bar (a) Outlet steam temperature – 232 °C



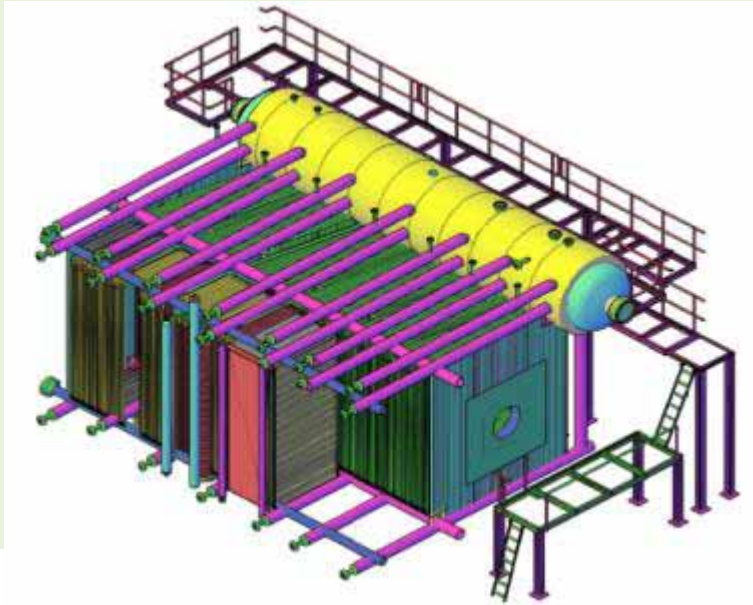
PTTUT Cup II

Customer	: Thai Shinryo Co., Ltd.
Location	: Rayong (Thailand)
Boiler type	: ERK 50000 and ERK 70000
Boiler parameters	: Output 50.0 t/h and 2 x 70.0 t/h Outlet steam pressure – 50 bar (a) Outlet steam temperature – 430 °C



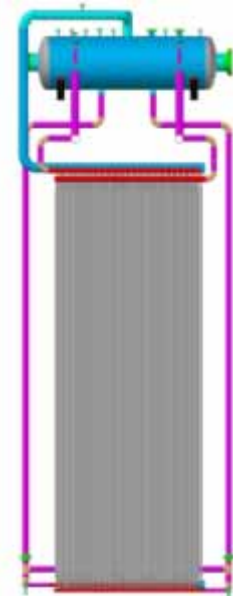
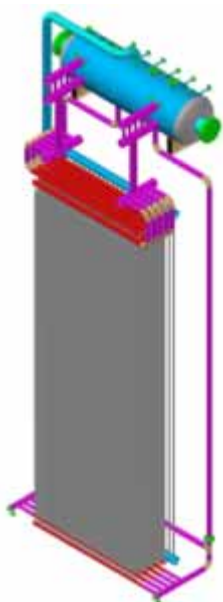
Power Plant PTT CHEM

Customer	: PTT Chemical Company Limited
Location	: Rayong (Thailand)
Boiler type	: ERK 70000
Boiler parameters	: Output 2 x 70.0 t/h Outlet steam pressure – 56 bar (a) Outlet steam temperature – 430 °C



Heat Recovery Steam Generator after Gas Turbine

Customer	: Thai Oil Power Company Limited
Location	: Rayong (Thailand)
Boiler type	: HRSG 18000
Boiler parameters	: Output 20.0 t/h Outlet steam pressure – 3.6 bar (a) Outlet steam temperature – 169 °C





Design by Andreas Teichmann 2020

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