



Powerful

First-Class Boiler and Combustion Systems &
Complete Engineering Services



Background Eckrohrkessel

History

- Eckrohr (corner tube) boiler technology was developed in the mid 1940's
- First licensees started to build Eckrohr-boilers worldwide
- Outsourcing of the ERK technology from La Mont Boiler Ltd. in 1977
- ERK is headquartered in Berlin, Germany, with a global licensee network
- ERK provides engineering services while licensees manufacture, supply, and install boiler/heater systems
- Today 35 licensees in 26 countries worldwide ranging from small boiler manufacturers to turn-key suppliers, e.g. John Thompson, JFE, and Thyssen Krupp





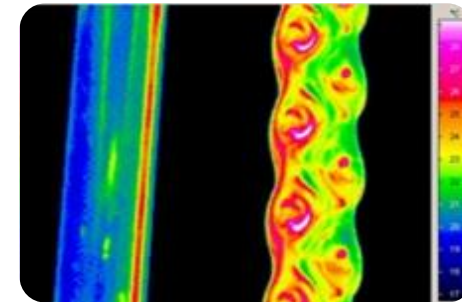
Background Eckrohrkessel

Business areas

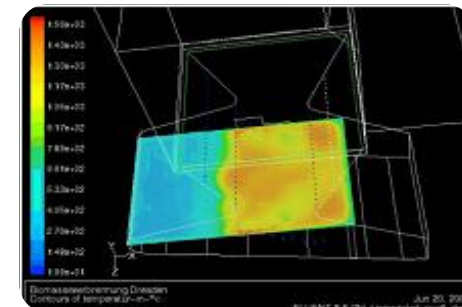
- Licenses for ERK boiler and combustion system designs with ongoing engineering and development support
- Boiler/ combustion system engineering services, including detail engineering, expert reports, boiler optimisation etc.
- Rankine and Brayton cycle optimisation with unique boiler and heater equipment expertise
- ip tube technology to improve component performance, size, and weight
- Research and development



Boiler/heater engineering



ip tube technology

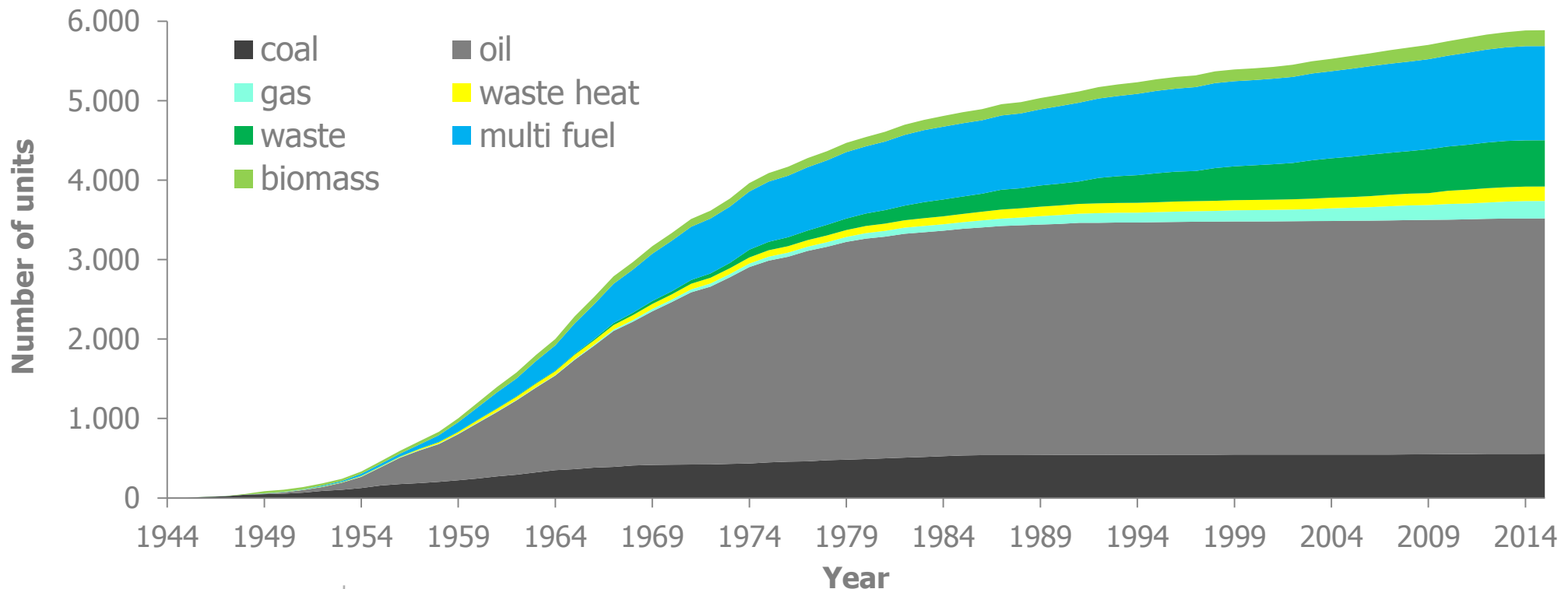


CFD simulations

Background Eckrohrkessel

References

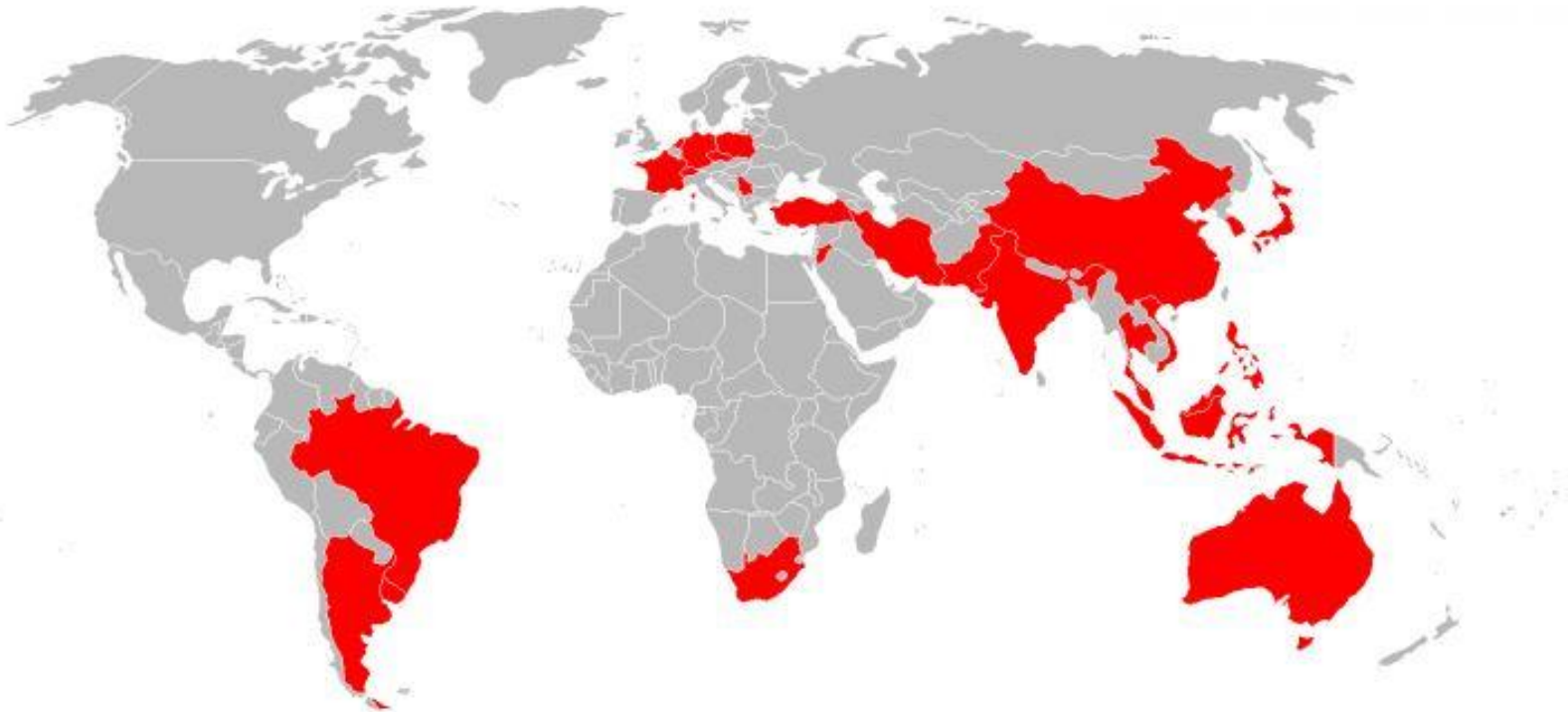
- More than 6,000 boiler and heater references with capacities from 0.3-250MW
- Broad fuel spectrum with >80,000MW installed capacity worldwide
- Expertise with steam, thermal oil, hot water, and chemical heating systems



Background Eckrohrkessel

35 licensees in 26 countries

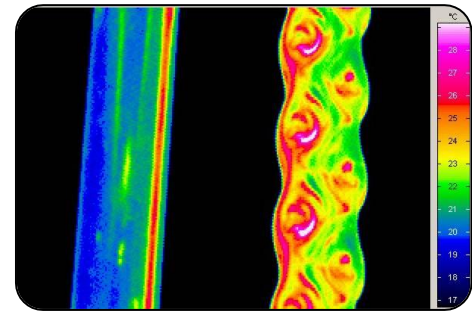
- **Large number of licensees not only enables large number of references but also rapid implementation of innovations through local contacts**
- **ERK is a European SME with global reach**



ip tube technology

Concept and benefits

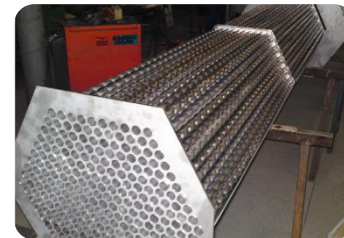
- ip tube = industrial power tube
- Patented technology with IP protection for various applications, designs, and manufacturing processes
- ip tubes can double heat transfer rates without tube side pressure drop increase; Heat transfer rate increase of up to 4.5 possible
- Heat transfer is enhanced through turbulent flow on the tube inside and outside
- Specially shaped dimples individually engineered for various purposes, such as heat transfer, pressure drop, fouling, and acoustics
- Beneficial fouling behavior through induced turbulences proven in various applications
- More than 150 ip tube references available worldwide and active marketing through ERK's licensee network



ip tube technology

Markets

- Heat recovery smoke tube boiler
- Directly fired smoke tube boiler
- Shell & tube heat exchanger
- Marine boiler systems
- Flue gas condenser
- Thermal oxidiser
- Air preheater
- Heating surfaces for refuse and biomass fired boilers, WHB in cement industry and other high dust applications



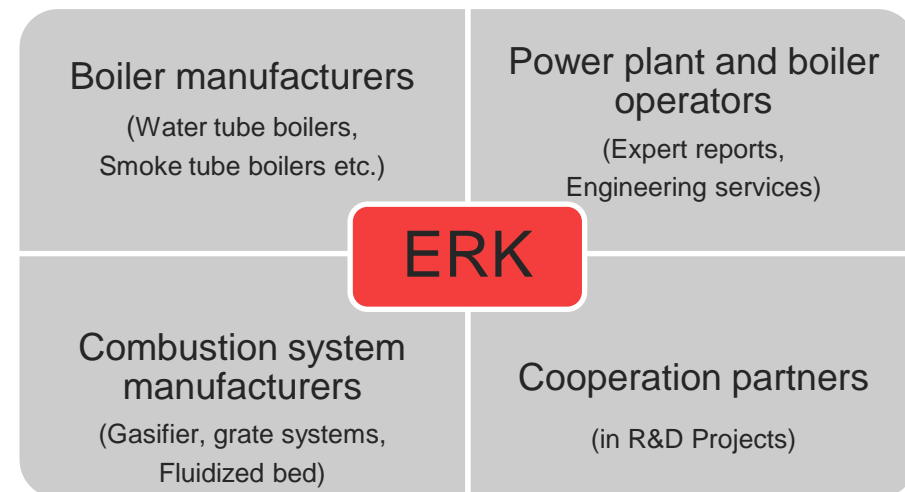


ERK in Asia – Technological perspective

- Gasification of Biomass and Agro by-products for urban wastes. eg: Thailand, Malaysia, Indonesia
- Hybrid boiler designs for electricity generation, cogeneration, and process heat
- Combustion technology combined with Boiler technology to handle wastes (hazardous, chemical) eg: in Japan more than 600 boilers including waste incineration
- “Made in Germany” and experience in Research and Development projects
- More than 120 patents in process engineering and thermal technology
- History of innovation makes ERK unique



Evaporator flags - ERK invention (1958)



ERK's partners worldwide

ERK in Asia – Business development approach

- **Trial project agreements for a better understanding between ERK and partners in Asia**
 - **Successful trial projects lead to partnership agreement**
- **Exclusive representatives and partnership in selected countries. Eg. South Korea and China**
 - **On-Spot acquisitions and business development**
- **In-country employees**
 - **Local knowledge and market understanding**
 - **Successful in Australia & India**
- **Foreign employees**
 - **Native language and culture**
 - **Market understanding**



ERK in Asia – Maintain relationship

- ERK Conferences (bi-annual) Know-how transfer
 - Youngsters Treffen - Engineers training
 - Annual Conference - Experience sharing
- Organizing boiler visits worldwide
- Value relationships



ERK Annual Conference with licensees 2014 in Freiburg



Boiler visit with SCBC (China) in Bamberg

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