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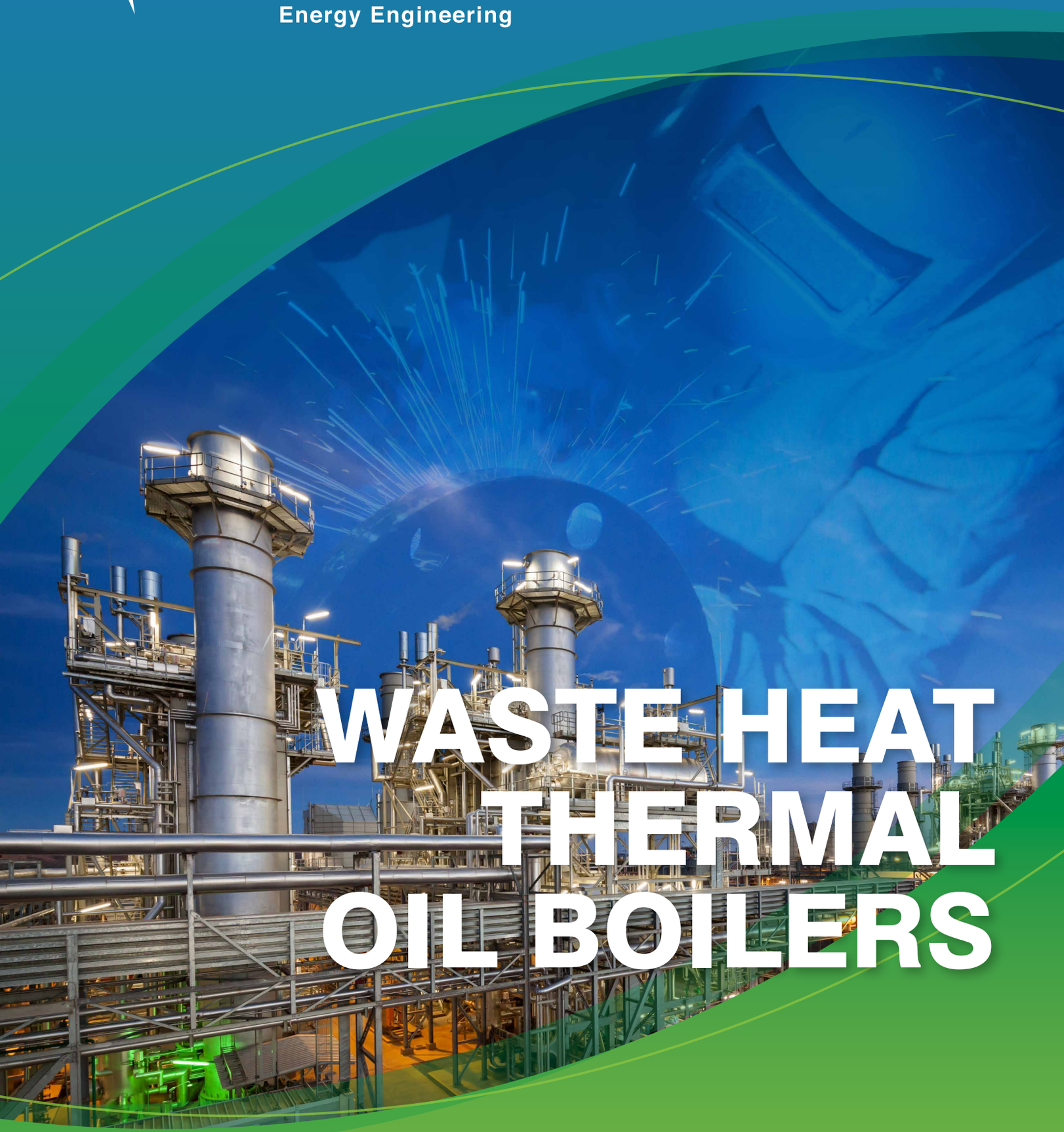
Energy Engineering



WASTE HEAT THERMAL OIL BOILERS

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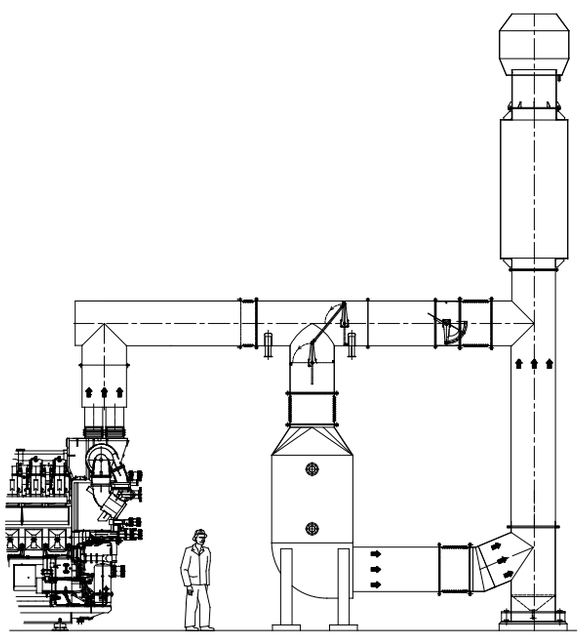
WASTE HEAT THERMAL OIL BOILERS

- Waste heat thermal boilers (WHTOB) utilize exhaust gas of engines or some processes to produce valuable heat energy transferring it to thermal oil circuit. These boilers may be smoke tube or water tube type depending on exhaust and oil temperatures, flows and gas stream dust load.
- When designing the boiler, oil film temperature is specially considered to be in a safe region in oil degragation curve.
- Exhaust and oil side pressure drops are other main specifications for determining boiler design.
- All of these parameters are processed carefully to create an optimum designed boiler.
- Our waste heat thermal oil boilers are suitable also for ORC plants which need high temperature oil circuit to feed ORC heat exchangers.
- Our boilers are designed vertical as much as possible for easy draining and safe operation as well.
- WHTOBs could be bared water tube or finned water tube type depending on the conditions, besides, all fin to tube connections are made with contunious TIG welding or high frequency welding for a long boiler service life.
- All tubes are free to thermally expand and tube renewing is very easy thanks to our special tube to tube plate attachment design.
- Flow directions of oil and exhaust sides are opposite to each other as much as possible to obtain maximum heat transfer rate-minimum footprint.
- Boilers are generally insulated from external side (hot casing) with rock wool and covered with aluminium plate.



PRODUCT SPECIFICATION

- Water tube, finned tube and smoke tube construction according to application
- Vertical or horizontal options acc. to space requirements
- Design Capability 20 MW thermal capacity and 320 oC Oil temperature
- Maximum oil circulation and mimimum film temperature
- Carbon steel and stainless steel options up to customer needs
- Optimized back pressures and compact heat transfer surface
- Design acc. to EN 12952 / 53 and 2014/68 EU PED CE certification up to request
- Oil side equipments in accordance with DIN4754 norm
- All oil side flanges as per EN 1092-1 Type 11 weld neck type for safe operation
- Minimum oil flow control with orifice flow element and flow switch

DELIVERY OPTIONS

- Armature, pump unit and instrumentation according to DIN 4754
- Flow meters and heat computers for capacity monitoring
- Soot blowers for dust loaded exhaust streams
- Manual differential pressure monitoring for exhaust side clogging control
- By pass damper and actuator (pneaumatic or electrical driven)

COMMON APPLICATIONS

- Cogeneration systems (Gas engine, gas turbine)
- Biogas and landfill engine systems
- Steel and aluminium process stacks
- Industrial process stacks (Drying, cooking)
- Cement and gyspum furnace / cooler stacks
- Naval engine stacks

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