



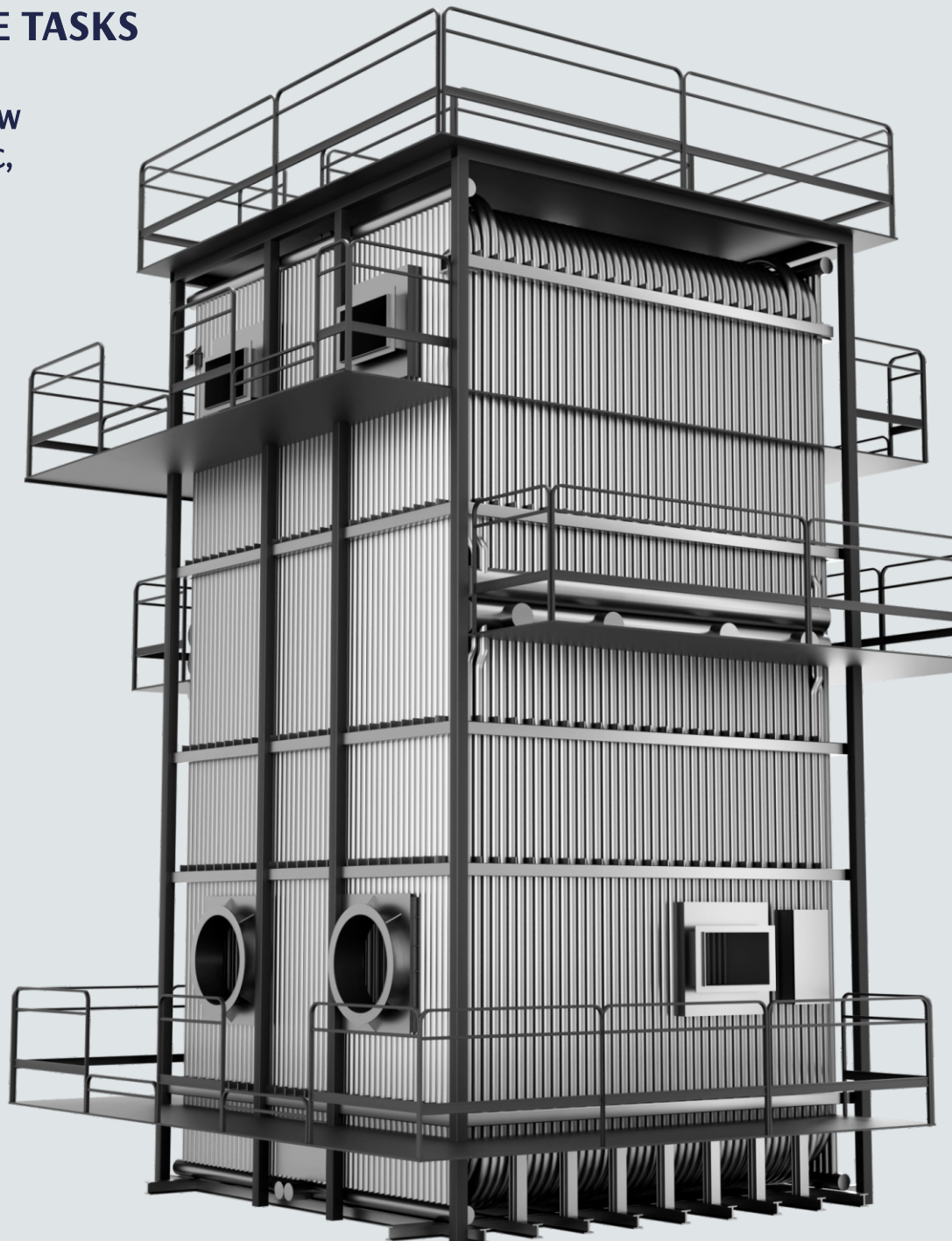
BOILTE MEGA X

WATER-TUBE SHAFT VERTICAL BOILER FOR MEGAWATT-SCALE TASKS

POWER: 30000 – 210000 kW

TEMPERATURE: up to 170°C,

PRESSURE: 16 bar



Boilte Mega X

FUEL: GAS / DIESEL / HEAVY FUEL OIL / HEATING OIL / WASTE OIL

Megawatt-scale engineering

When it comes to heating large industrial clusters, entire residential areas, or strategic facilities, standard solutions cease to work. Boilte Mega X is not just a boiler, but a complete energy module designed for tasks where power is measured in hundreds of megawatts, and reliability is an unconditional requirement.

Mega X is a water-tube shaft vertical boiler for superheated water, designed to produce hot water at temperatures up to 170°C and pressures up to 16 bar. The equipment is used as a primary or peak heat source in heating plants, CHP stations, and for domestic and industrial hot water supply.

The tube system includes the combustion chamber, convective tube bundles, headers, and membrane panels mounted on a support frame with fixed and sliding supports. The boiler frame is equipped with stiffening rings and load beams for suspending the tube system. All heated surfaces are covered with high-efficiency basalt wool insulation and protective steel sheet cladding with a polymer coating. All internal boiler piping – transfer, drain, and vent lines with shut-off valves – are installed within the equipment footprint.

For combustion monitoring, sight ports with heat-resistant glass are provided, and access doors in the lower part of the panels allow inspection and repair of internal surfaces.

The key advantage: modular delivery of the boiler. Depending on capacity, the equipment is supplied in 4 or 8 blocks (or individual components), with dimensions allowing transport by any means – road, rail, or sea. This significantly improves welding and assembly quality by performing work under factory conditions, minimises on-site installation and commissioning costs, and shortens project timelines.

The core feature of Mega X: it is the choice for large-scale energy projects. Industrial CHP plants, large district and neighbourhood boiler plants, heating of industrial clusters and residential areas – any task requiring a reliable and efficient source of superheated water with high thermal output. Efficiency reaches 95%,

and the design service life exceeds 20 years.

Construction: strength built into every element

Mega X is based on a water-tube shaft (vertical) configuration, delivering maximum efficiency with a minimal footprint.

Mega X provides:

- Operation in both base-load and peak-load modes – equally effective under constant load and during peak heat demand.
- Load control range of 30–100% of rated output – flexibility to adapt to any heat consumption profile.
- Suspended tube system design – expands freely downward, eliminating thermal stresses and deformation.
- Horizontal stiffening rings – ensures structural stability under cyclic loads.
- Removable insulation and cladding – fast access to heating surfaces for inspection and maintenance.

Efficiency and environmental performance

- Efficiency up to 95%. Achieved through a gas-tight design eliminating air infiltration, optimised heating surface layout, and effective heat transfer in the convective section.
- Low NOx emissions – below 90 mg/Nm³. With flue gas recirculation (FGR), emission levels meet the strictest environmental standards.
- Reduced operating costs. Pressurised operation without an ID fan, reduced excess air in the combustion chamber – all improving efficiency and reducing fuel consumption.

Optimised for rapid start-up and load following

Mega X's vertical water-tube design and large water volume enable rapid start-up from cold and fast response to load changes. This makes it particularly suitable for district heating networks where demand can fluctuate significantly within short timeframes, and for CHP plants requiring quick start-up after planned or unplanned outages.

Comprehensive factory pre-assembly for faster site erection

Mega X's modular block design allows extensive factory pre-assembly of major sub-assemblies, including tube

panels, collectors, and support structures. This reduces on-site field welding by up to 70% compared to field-erected boilers, significantly shortening installation schedules, reducing labour costs, and improving overall build quality through controlled shop conditions.

Built for heavy fuels and challenging applications

The Mega X combustion chamber and heat transfer surfaces are engineered to accommodate a wide range of fuels, including heavy fuel oil and residual oils. The generously sized combustion volume and advanced burner port configuration ensure complete burnout even with heavier fuel grades, minimising soot accumulation on heat transfer surfaces and extending operating intervals between cleaning cycles.

Quality control: from steel to run-in

Each Mega X boiler undergoes a multi-stage quality control system:

- Incoming material inspection – certificate verification, chemical and mechanical property checks for each steel batch.
- Manufacturing control – automated laser cutting and robotic welding of membrane panels. 100% non-destructive testing of welded joints (radiography, ultrasound, capillary inspection).
- Assembly control – step-by-step geometry, alignment, and internal cleanliness verification.
- Hydraulic tests – at 1.5 times the working pressure.
- Final tests – comprehensive functional tests on the test stand: automation verification, interlock checks, combustion parameters, thermal performance tests.
- Documentation – passport, NDT and hydraulic test reports, material certificates, Rostekhnadzor permit, certificates, operation manual.

Where Mega X is applied

- Power generation and district heating – CHP plants, peak load coverage, large heating networks, and emergency heat supply for urban districts
- Municipal boiler plants – primary heat source for residential areas, social infrastructure, and municipal facilities requiring high thermal output
- Industrial enterprises – process heating for chemical, metallurgical, and food processing plants with high-temperature water demands
- Oil and gas – heating of gas treatment plants, oil

gathering stations, pipeline freeze protection in remote and harsh environments

- Metallurgy – superheated water for pickling lines, electrolytic refining, and furnace cooling systems in steel production

Standard scope of supply

Basic package (included in the boiler price):

Structural elements:

- Support frame with fixed and sliding supports
- Tube system (combustion chamber, convective tube bundles, headers, membrane panels)
- Stiffening rings and load beams for tube system suspension
- High-density basalt wool insulation
- Steel sheet cladding with polymer coating
- Internal boiler transfer, drain, and vent lines with shut-off valves
- Sight ports with heat-resistant glass
- Access doors in the lower part of panels for inspection and repair

Optional extras (on request):

- Flue gas recirculation system
- Gas-impulse cleaning system for heavy fuel oil operation
- Convective section wash system with heating network water
- Burner unit (gas, combination, heavy fuel oil)
- Automation panel (PLC, operator interface, remote monitoring)
- Site supervision and commissioning

Why choose Boilte Mega X?

- Lifetime warranty on the boiler heat exchanger and main load-bearing components – an unconditional manufacturer's obligation, legally confirmed.
- Full certification package (GOST, TR EAEU, EN, optionally ASME, PED) – for trouble-free commissioning.
- Engineering support at every stage – selection, site supervision, commissioning, start-up, staff training, and ongoing service.
- Factory-direct pricing – optimised logistics, no intermediaries, no hidden markups.

BOILTE[®]
engineered trust

