



Containerised Steam Boiler Rooms

A containerized boiler room (KK) is a transportable source of saturated or superheated steam for heating and technological purposes. It can be used as a source of heat for both centralized and decentralized heating and as a source of steam for technological purposes. It is of special advantage at sites where it is necessary to install a heat source in a short time. The boiler room installation requires minimum space and minimum site preparation, minimum electrical installations and system of measuring and control. The standard boiler room modification is supplied with a burner for burning gaseous fuels. The boiler room may be fitted with the equipment for steam-boiler plants operating without constant supervision according to TRD 602 and TRD 604.

Technical Specifications

A containerized steam boiler room is completely fitted with machinery and electrical equipment housed in a transportable container. The boiler room includes a water treatment plant with a corresponding capacity of treated and thermally deaerated water with regards to the respective rate of the condensate-return. (In the standard modification, the water treatment plant is designed for 80 % condensate-return). The boiler room is fitted with the respective electrical installations and system of measuring and control for automated operation. The set also includes a self-supporting steel chimney. MKJ modules with co-generating units based on gas engines or diesel generator sets or MPTG modules with steam turbo-generators, added to the containerized boiler room, generate power to be supplied into the distribution network or used to supply the boiler room operation in the case of non-stable electricity supply or at locations without access to the electricity supply system. MKJ modules displayed in the following chart are added to the boiler rooms to assure the boiler room "island" operation. Waste heat arising during the operation of these units can be used for heating utility water or within the heating system. The unit is supplied in a separate container of the same type. The supply includes a gas regulating station and condensation water heating system. The outputs are given in the basic technical data table (see below) range up to 10 000 kg/hr. The company, however, is able to supply boiler rooms with outputs up to 30 000 kg/hr. These boiler rooms, in their turn, are not housed in unified containerized modules, but they are transported to the operation site in pieces, in separate module containers, where they are assembled into one block. Boiler rooms may be supplied as low-pressure steam or hot water boiler rooms within the entire output range.

Boiler Room Modulation

The required thermal power unit may be obtained by combining individual containerized boiler rooms of a modular system (see below).

Supply and Storage

A containerized boiler room is supplied as a unit, including a case (boiler, water treatment plant, system protection, operating heavy current wiring, system of measuring and control) and a container with a co-generating unit, including a self-supporting steel chimney. To facilitate transport, the chimney is supplied in dismantled state, in sections approximately 6 m long.

Testing and Certification

Transportable boiler rooms are designed and produced according to CSN standards in force, and the boiler holds a certificate of approved design, issued by the Safety Standards Inspectorate. The construction and the first pressure test in accordance with CSN 070623 are performed in a production plant, and the result is recorded in an inspection book, which is part of the technical documents supplied with the boiler room, together with a certificate of tests carried out on materials used in accordance with CSN 420090.

Technical Parameters

KK boiler room	Units	KK 1000	KK 2000	KK 4000	KK 5000	KK 6000	KK 8000	KK 10000
Steam boiler room rated output	kg/hr	1000	2000	4000	5000	6000	8000	10000
Number and type of boilers (unit without 100% back-up)	ks	KU 1000	KU 2000	KU 4000	KU 5000	KU 4000 KU 2000	KU 4000 KU 4000	KU 5000 KU 5000
Maximum steam overpressure	MPa	0,9; 1,4 ; 1,8;						
Minimum steam overpressure	MPa	0,2 - 0,5						
Rated temperature of overheated steam	°C	up to 450°C						
Boiler efficiency: Natural gas / LO	%	91/89						
Boiler efficiency with economiser Natural gas /LO	%	92÷94,5/91÷93						
Rated temperature of feed water	°C	105						
Temperature of sucked air	°C	20						
Maximum fuel consumption - Natural gas - LO	Nm ³ /h kg/hr	76,7 68,7	154 137	300 275	375 354	466 412	621 550	776 688
Maximum of air for combustion (lambda=1.1)	Nm ³ /h	860	1720	3400	4250	4900	6500	8125
Maximum amount of flue gases	Nm ³ /h	970	1940	3880	4850	5820	7760	9700
Electrical wiring		3 x 380V/50Hz						
Installed capacity for electrical appliances	kW	14	15	25	18	25	28	30
Total boiler room power input	kW	25	28,5	53	46	53	56	58
Emissions								
Natural gas - standard / low emission	mg/Nm ³	NOx - 160, CO - 100 / NOx - 100, CO - 100						
LO	mg/Nm ³	NOx - 450, CO - 175, SO ₂ - 1000, solid substances - 100, smoke rate < 2						
KK boiler room weight								
Total weight	kg	12000	15000	19000	20000	32000	35000	50000
Operating weight	kg	18000	20000	24000	30000	55000	62000	70000
Water condensation recovery rate	%	Min. 50						
MKJ module with co-generating unit for combined production of electricity and heat								
MKJ module	-	MKJ45	MKJ45	MKJ75	MKJ75	MKJ75	MKJ75	MKJ75
Power output per unit	kW	45	45	75	75	75	75	75
Thermal output per unit	kW	80,5	80,5	125	125	125	125	125

Emission relate to 3% of O₂ in dry combustion products at t = 0°C and barometric pressure.

The given emission levels may be maintained only provided that the liquid fuel contains (except for values according to CSN 656506) maximally: S < 5 000 mg/kg, N < 1 000 mg/kg, asphaltenes < 3 %.

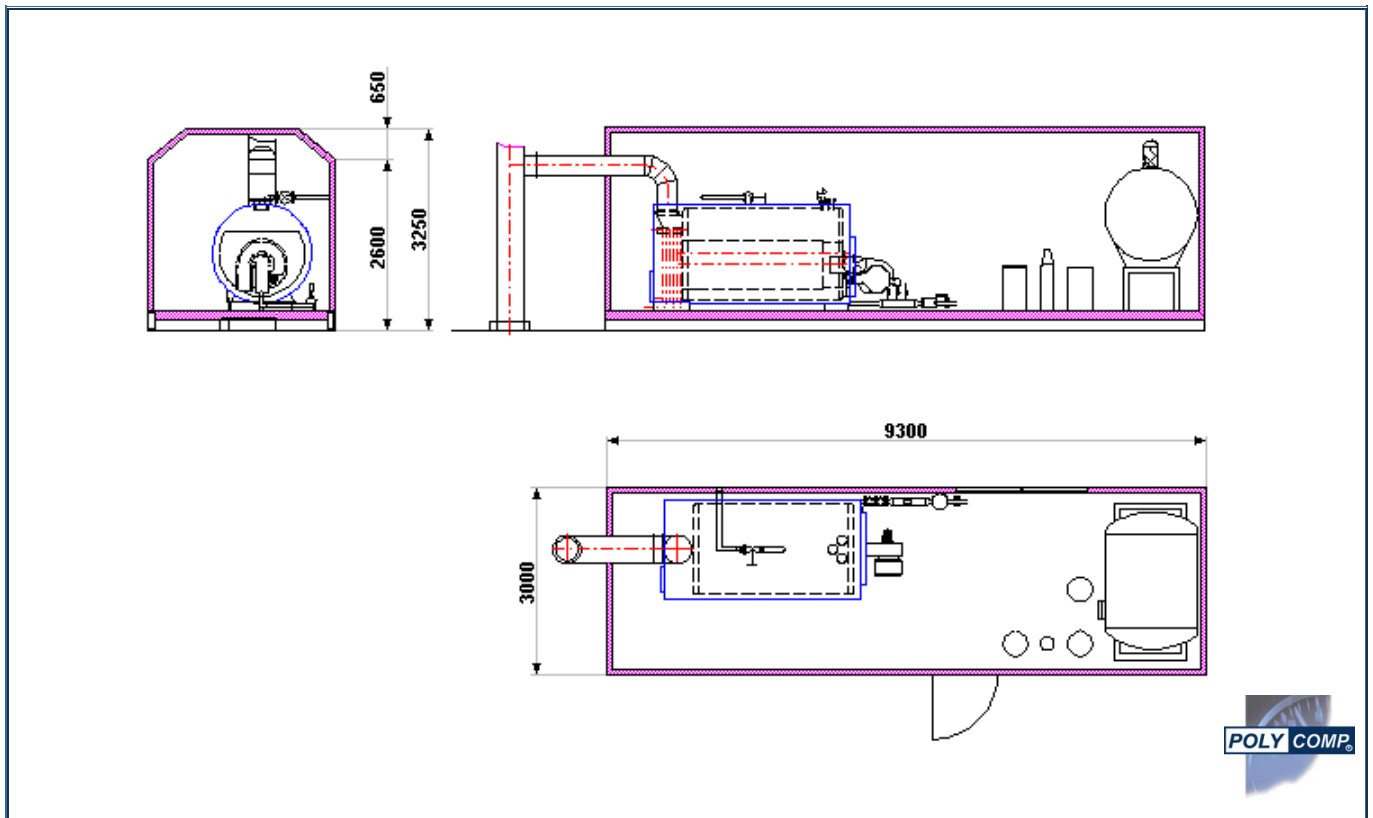
Boiler room with outputs of 12 000 – 30 000 kg/hr are designed individually on request.



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Containerised Steam Boiler Rooms KK 200 - 5000 kg/hr



Containerised Steam Boiler Rooms KK 6000 - 10000 kg/hr

