

Description:

The PYRTEC Boiler Plant combines in optimum fashion the advantages of underfeed firing with the advantages of grate firing. With its tried and trusted burner trough, drop-type external grate and travelling burn-out grate, outstanding controllability of output and maximum safety against burn-back are obtained along with automatic de-ashing of the furnace. This triple-phase firing system enables all-purpose use of the boiler plant from dry pellets (W5) (with flue gas recirculation system, see Accessories) to wet forest wood chips (W50).

This boiler plant has been inspected and approved in accordance with the latest quality criteria following EN 303-5 heating boiler for solid fuels, the CE certification as per European Machinery Directive 98/37/EC, with continuous quality control by TÜV and consists of:

FEED AUGER WITH ISOLATING LAYER:

A solid and heat-resistant feed auger with a powerful drive moves the material to be burned over the burner trough and into the grate zone, which drops down and travels.

Situated on the conveyor pipe are the holding devices both for the electrical safeguard against burn-back and for the thermal extinguishing valve. Above the auger there is the metering container with a light barrier for setting the level for the fuel isolating layer required according to TRD 414.

The drive is carried out by a maintenance-free spur wheel back-gear motor and chain drive in a dust-tight chain guard.

Inlet flange: 220 x 220 mm

Accessories: extinguishing valve with dirt trap, extinguishing water container with holding device

FIRING BLOCK:

The solid, horizontally positioned and large-volume firing block has been optimised in terms of incineration, consists of a high-quality fireclay brick lining and is multiply insulated for the lowest possible surface temperatures. The burner trough and incineration grates are made of highly refractory cast steel (material no: 1.4823; approx. 12 mm) and are individually replaceable.

In the lower part, the primary airflow is supplied to the incineration grates via a supply air fan (or flue gas recirculation system) in an output-controlled fashion and pre-heated.

In the upper part of the firing block, the secondary airflow is blown into the gas space of the firing system by an output-controlled fan via an encircling ring with high turbulence via individually adjustable nozzles. The firebox door is solidly constructed, air-cooled and very well insulated. Opening the firebox door with solid double-knuckle hinges is an ideal solution for maintenance purposes.

BOILER:

The hot-water boiler resting on the fire block has been thoroughly optimised to provide high heat transmission and a long service life. It is possible to mount the pneumatic cleaning system in the insulated door on the front of the boiler.

Located on top of the boiler is a cover that can be walked on, which makes installation and maintenance easier and protects the thermal insulation from getting damaged.

The boiler and fire block are well insulated and attractively encased.

Max. flow temperature: 100°C

Max. operating pressure: 3.0 bar

EXHAUST FAN:

A fan especially for wood heating systems, very quiet, motor with a solid, heat-resistant design with heat dissipation hub and spring-supported. The fan housing on the intake port rotates infinitely variably, and the blow-out nozzle is round. It is usually mounted on the exhaust gas deduster (separately priced item).

ACCESSORIES include:

- Safety heat exchanger: Built into boiler
- Counter-flange: Forward and return flow, including bolts and seal
- Cleaning utensils: Scraper for firing, cleaning brush (D 52 mm) with spring steel rod

ACCESSORIES for PYRTEC grate firing (Item KPT- ...) at extra charge:

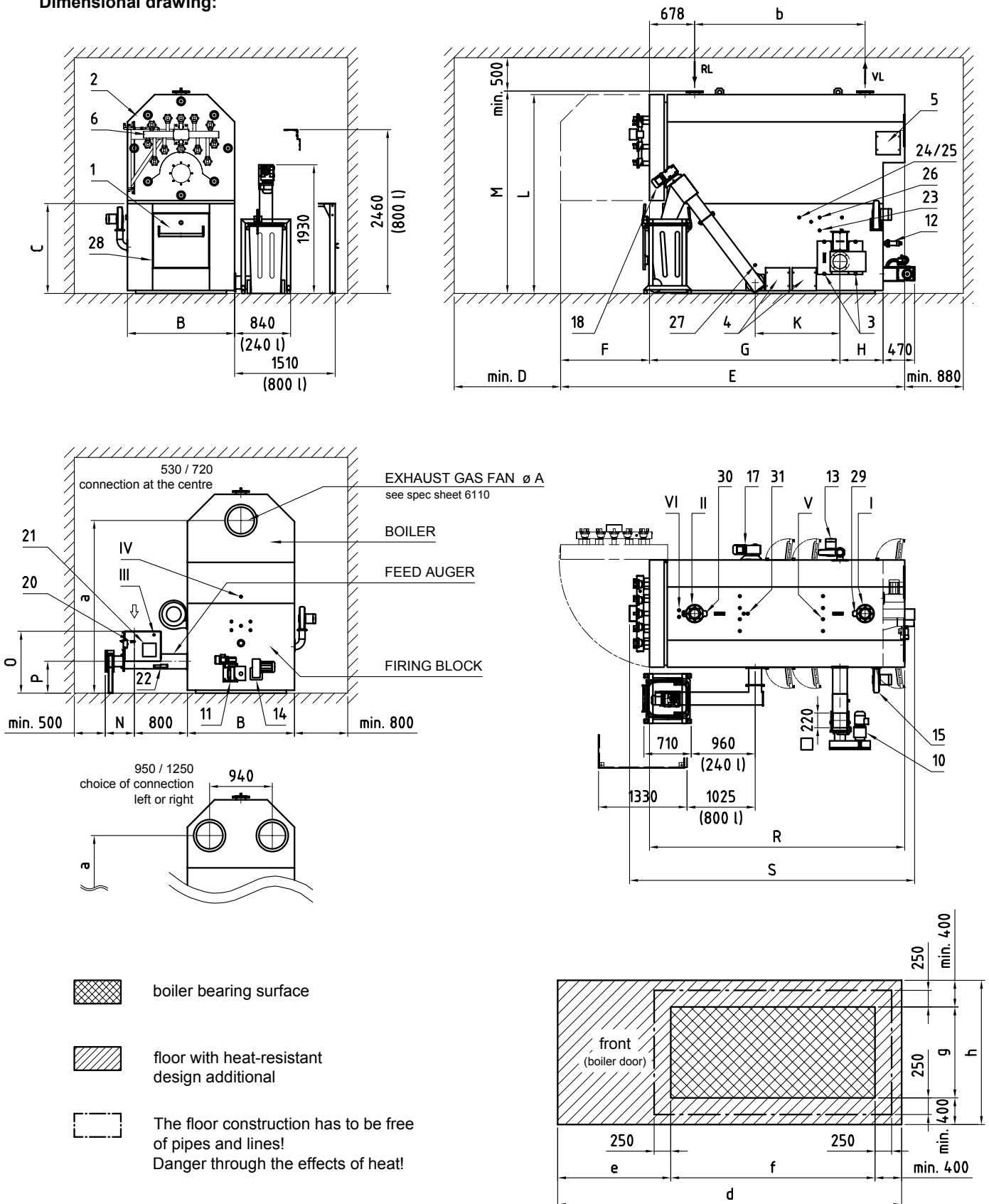
Designation	Item	Text	Dimensions	Use
Exhaust gas de-duster 240 l	KPT-E...-2	6110	6110	Required (exception: pellets)
Exhaust gas de-duster 800 l	KPT-E...-8	6110	6110	Variation of 240-litre
Preparation system for de-ashing	KPT-AV	6120	-	Optional for KPT-A2-S
De-ashing into bin, 240 l	KPT- A2-S	6120	6010	Optional for KPT-AV
De-ashing into skip 800 l	KPT- A8-S	6120	6010	Variation of 240-litre
Pneumatic cleaning system	KPT-W...-S	6120	6010	Optional
Electric ignition system	KPT-ZG-S	6200	6010	not suited for > W40
Permissible operating pressure: 6 bar	KPT-P...	6200	-	Operating pressure $p > 3 < 6$ bar
Set of displacement rods	KPT-V...	6200	-	Base load boiler
Flue gas recirculation system	KPT-R...-S	6200	-	For fuels < W20
Pyrocontrol control system	PYR- ...	6800	-	Required

Technical specs:

			PYRTEC Grate Firing System			
			530	720	950	1250
Trade name						
Item No:	KPT-530	KPT-720	KPT-950	KPT-1250		
Performance data						
Rated heat output ¹⁾	Q _N [kW]	530	720	950	1250	
Minimum heat output ²⁾	Q _{min} [kW]	160	216	285	375	
Heat output, W45 chips	Q _{W45} [kW]	515	700	920	1210	
Efficiency in operation to be performed ³⁾	[%]	> 90				
Maximum water content ⁴⁾	[%]	W 50				
Size of the chips ⁵⁾		G 30 / G 50 as per ÖNORM M7133				
Exhaust gas figures						
Mass flow rate	Q _N ; W5; O ₂ 8%; [g/s]	297	404	532	700	
Volume flow	Q _N ; W5; O ₂ 8%; 150°C [m³/s]	0.36	0.48	0.63	0.83	
Mass flow rate	Q _{W45} ; W45; O ₂ 10%; [g/s]	412	560	736	968	
Volume flow	Q _{W45} ; W 45; O ₂ 10%; 150°C [m³/s]	0.50	0.67	0.88	1.15	
Average exhaust gas temperature at Q _N ⁶⁾	[°C]	150 / 180				
Average exhaust gas temperature at Q _{min} ⁶⁾	[°C]	110 / 120				
Electrical connections						
Electrical connections (Σ boiler plant)	[kW]	7.02	8.12	9.35	11.15	
Ignition device	[kW]	1.6				
Exhaust gas fan	[kW]	1.1	2.2	2.2	4.0	
Feed auger	[kW]	1.5	1.5	2.2	2.2	
Primary airflow fan 1	[kW]	0.3	0.3	0.48	0.48	
Primary airflow fan 2	[kW]	0.9				
Secondary airflow fan	[kW]	1.5	1.5	1.85	1.85	
Grate drive unit	[kW]	0.12				
Electric power consumption at Q _N	[kW]	3.57	4.56	5.17	6.79	
Electric power consumption at Q _{min}	[kW]	2.9	3.71	4.15	5.47	
Heating-relevant specs						
Volume on heating gas side	[l]	2280	2830	4050	5210	
Volume of ash container for grate ash	[l]	240 / 800				
Volume of ash container for exhaust gas de-duster	[l]	240 / 800				
Chimney draught required	[Pa]	+0				
Water-bearing resistance (Diff. 15 K)	[mbar]	23	43	26	45	
Boiler water volume	[l]	1218	2082	2320	2730	
Heating surface	[m²]	42.50	55.50	74.80	91.00	
Test pressure ⁷⁾	[bar]	5				
Maximum operating pressure ⁷⁾	[bar]	3				
Maximum boiler temperature	[°C]	100				
Minimum return temperature	[°C]	65				
Weights						
Weight of fire block	[kg]	3833	4665	5892	7252	
Weight of heat exchanger	[kg]	1986	2562	4128	5431	
Boiler weight without water	[kg]	6575	8054	11013	13809	
Weight of exhaust gas de-duster	[kg]	463	463	695	695	
Weight of feed auger	[kg]	126	126	148	148	

- 1) Performance data applicable: For fuels with water content less than W40
- 2) Q ≥ Q_{min}: Operation with modulated control
 Q ≤ Q_{min}: Low load with ON Q_{min} / OFF or ON Q_{min} / ember maintenance operation
- 3) Efficiency: Specification with displacement rods and flue gas recirculation system for dry fuels (W5 to W20) without flue gas recirculation system-reduced values
- 4) Wet fuels: >W45 further restrictions in terms of output, efficiency and control behaviour
- 5) Specification: See Spec Sheet 1010, Minimum Requirements for Wooden Fuels
- 6) Depending on: Lower values with displacement rods (base load boiler), high values without displacement rods (controlled boiler)
- Other influences: Fuel, water content, ash content, pneumatic cleaning system yes/no; track time (number of operating hours without cleaning)
 The information provided represents average values for the track time according to maintenance instructions.
- 7) At extra charge: 7.8 bar test pressure; 6 bar operational pressure;

Dimensional drawing:



Connections/dimensions:

PYRTEC [Item no.]		KPT-530	KPT-720	KPT-950	KPT-1250
Water connections PN 6 (see Spec Sheet 6960)					
I	Boiler forward flow	DN 100	DN 100	DN 125	DN 125
II	Boiler return flow	DN 100	DN 100	DN 125	DN 125
III	Connection for extinguishing water	R ¾" AG	R ¾" AG	R ¾" AG	R ¾" AG
IV	Drain valve for boiler	R 1 ½" IG	R 1 ½" IG	R 1 ½" IG	R 1 ½" IG
V	Safety heat exchanger	4 x R ½" AG	8 x R ½" AG	8 x R ½" AG	8 x R ½" AG
VI	Dipping shell for thermal run-off safety valve	1 x R ½" IG	2 x R ½" IG	2 x R ½" IG	2 x R ½" IG
Connection for exhaust gas pipe Ø [mm]		A	350	350	450
Location of the connections [mm]		a	2359	2491	2444
		b	1922	2562	2562
Dimensions of the foundations [mm]		d	4272	4912	5096
		e	1400	1400	1630
		f	2472	3112	3066
		g	1112	1112	1360
		h	1912	1912	2160
Dimensions of the boiler [mm]		B	1380	1380	1612
		C	1283	1413	1371
		D	760	1430	1050
		E	4617	5257	5447
		F	1380	1380	1612
		G	2353	2993	2861
		H	577	577	657
		K	1200	1200	1275
		L	2654	2784	2981
		M	2702	2834	3035
		N	308	308	440
		O	803	803	929
		P	453	453	479
		R	3237	3877	3835
		S	3794	4434	4392

Parts for maintenance

1	Fire box door with solid double hinging			
2	Boiler door			
3	Cleaning lid for burner trough			
4	Cleaning lid for external grate			
5	Cleaning lid for heat exchanger			
6	Pneumatic cleaning system		Item KPT-W...-S	Spec Sheet 6120

Electric drives; ignition

10	Feed auger			
11	Drive for feed grate			
12	Ignition device			
13	Primary airflow fan 1			
14	Primary airflow fan 2			
15	Secondary airflow fan			
16	Exhaust gas fan	Dimensions:		/ Spec Sheet 6110
17	De-ashing, fire box auger	Item KPT-A.-S		/ Spec Sheet 6120
18	De-ashing, ascending conveyor auger	Item KPT-A.-S		/ Spec Sheet 6120

Switches and sensors These items are part of the Pyrocontrol control system Item PYR-... / Spec Sheet 6800

20	Light barrier for feed auger			
21	Limit switch for maintenance cover			
22	Temperature sensor for feed auger			
23	Light barrier for embers			
24	Fire box temperature sensor (insertion side)			
25	Negative pressure sensor (opposite insertion side)			
26	Overpressure monitor for fire box			
27	Light barrier for de-ashing			
28	Limit switch for fire box door			
29	Boiler sensor			
30	Return flow sensor			
31	Temperature-limiting safety switch (TLSS)			
32	Exhaust gas sensor	Location:		Spec Sheet 6110
33	Lambda sensor with measuring transducer	Location:		Spec Sheet 6110