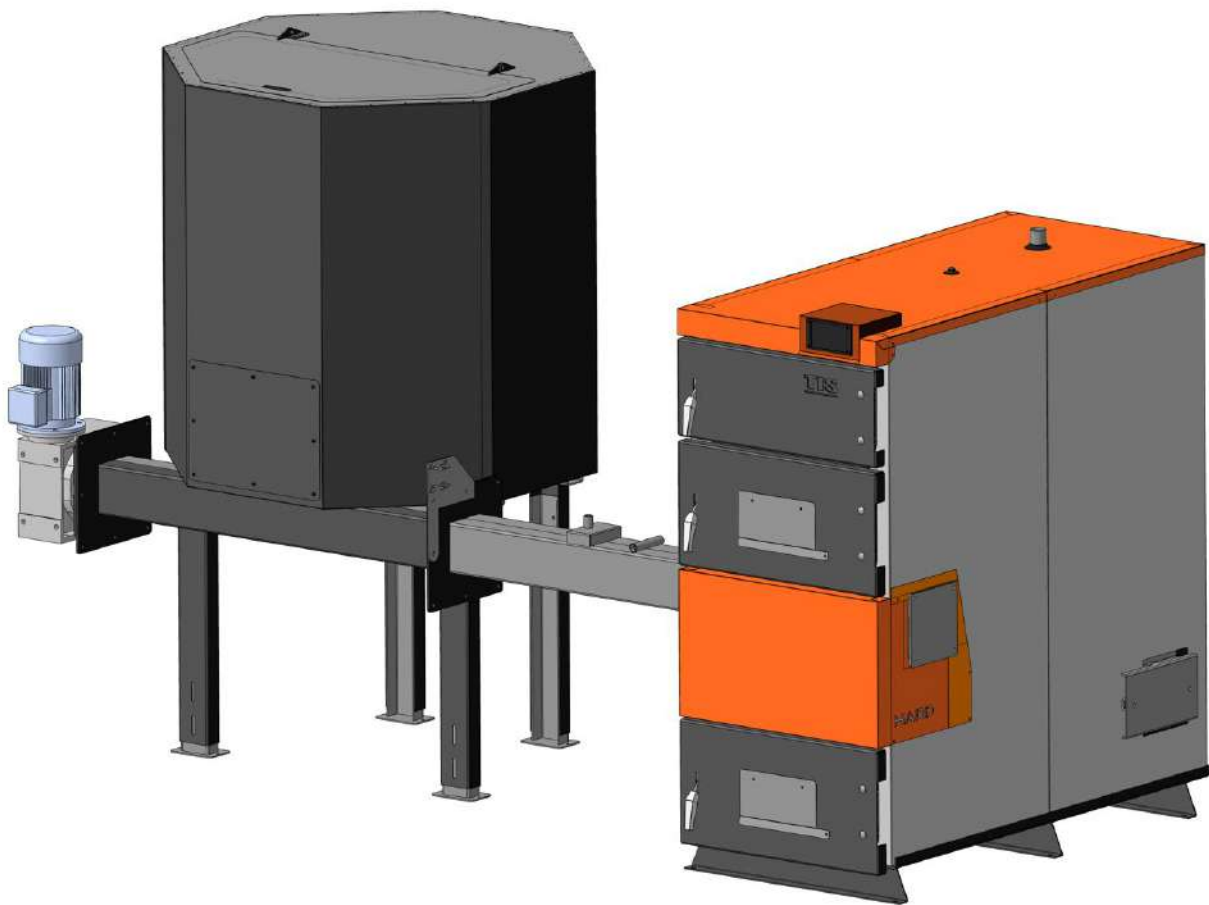
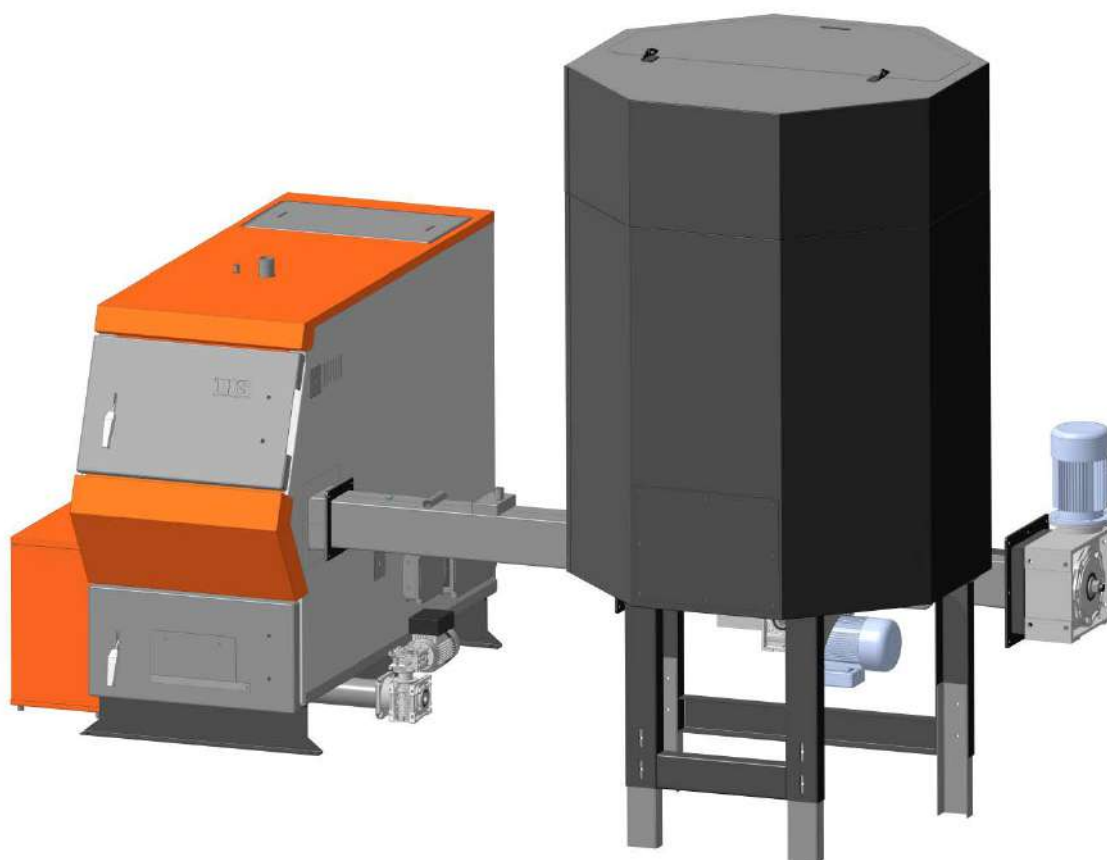




TIS BIO DUO 50



TIS HARD BIO 50 – modern boiler with maximum thermal capacity 15-50 kW (50-170 KBTU), equipped by an automatic fuel supply for burning wood chips.

The boiler is designed to work in heating systems of residential and industrial facilities.

The boiler distinctive feature is its ability to work on fuel from wood waste of any quality.

The boiler is completed with a hopper, which has a feeder, and an automation. A reliable security system, that is thermal water protection with a fuel line temperature control sensor, protects the boiler from fuel ignition in the auto feed system.

This boiler special feature is the combustion products degradation chamber.

This boiler is also retrofitted with a combustion products afterburning chamber, which is implemented in the form of ceramic concrete slabs, located in a certain order in the furnace back. The combustion process takes place in the lower part of the boiler. The combustion temperature reaches up to 1300 °C (2372° F). At peak temperatures, the process of decomposition of harmful substances, released during combustion, takes place, so the gases released into the atmosphere comply with environmental standards for emissions. After passing through the degradation chamber, the gases enter the upper heat exchanger and further into the chimney.

Fuel requirements: wood chips with a moisture content of no more than 40%.

Boiler operation on wood chips with a moisture content of up to 60% is possible with a deviation from the factory parameters.

Wood chip size - length 0.2" - 2", thickness no more than 1.2" (maximum allowable length is 3.95", thickness - 2" with a content of no more than 10% in the fuel volume).

Outgoing flue gas temperature is no more than 180°C/ 355°F (when the boiler is operating within the range of the specified operating temperature with Δt no more than 15°C/ 59°F and the return line temperature is no less than 55°C/ 131°F). In case of deviation from the recommended operating conditions, boiler operation parameters and fuel requirements, flue gases may exceed up to 250°C / 482°F. The operating pressure must not exceed 15 psi. The maximum test pressure is 50 psi.

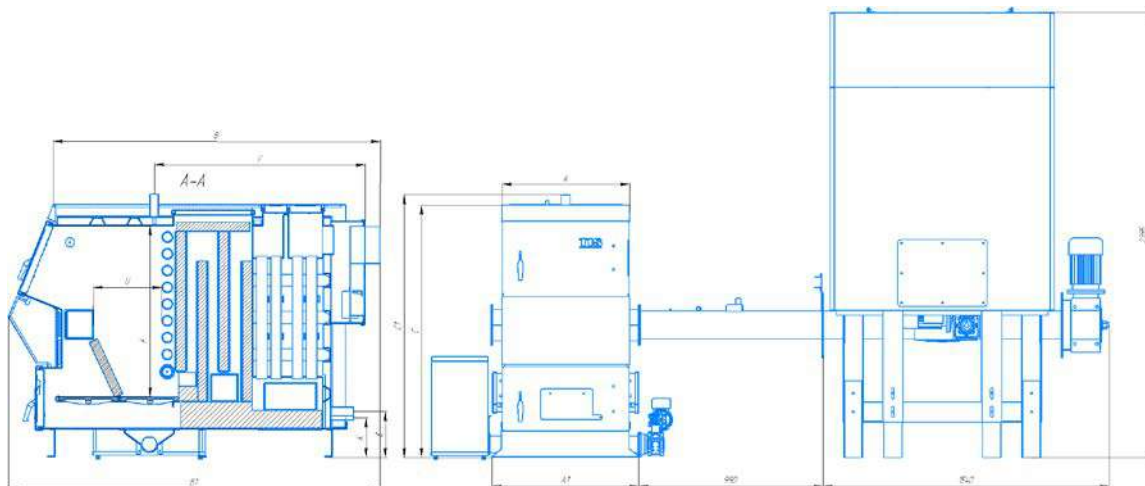
Boiler features:

- Rated power efficiency – no less than 86 %;
- Maximum allowable humidity - 60%;
- Maximum allowable fuel length is 3.95", thickness - 2" (containing no more than 10% in the fuel volume);
- ** – when the boiler is operating in the range of the specified operating temperature with Δt no more than 15°C/ 59°F and the return line temperature is no less than 55°C / 131°F;
- It is possible to reach up to 250°C/ 482°F depending on the operating conditions and parameters of the boiler; – The boiler is made of European high-strength boiler steel;
- Thermal insulation is 2" thick;
- Powder coated boiler casing;
- Wide door opening angle;
- The boiler cleaning and maintenance are carried out from the boiler front;
- It is possible to complete with an ash removal system;
- Equipped with TIS TRONIC 660HD automation.

Automation TIS TRONIC 660HD combines the following features:

- Boiler fan control;
- Boiler feeder control;
- Boiler circuits and heating system circulation pumps control;
- Exhaust gas temperature control;
- Boiling protection;
- It is possible to connect a room temperature controller and the Internet module TIS TRONIC 520_

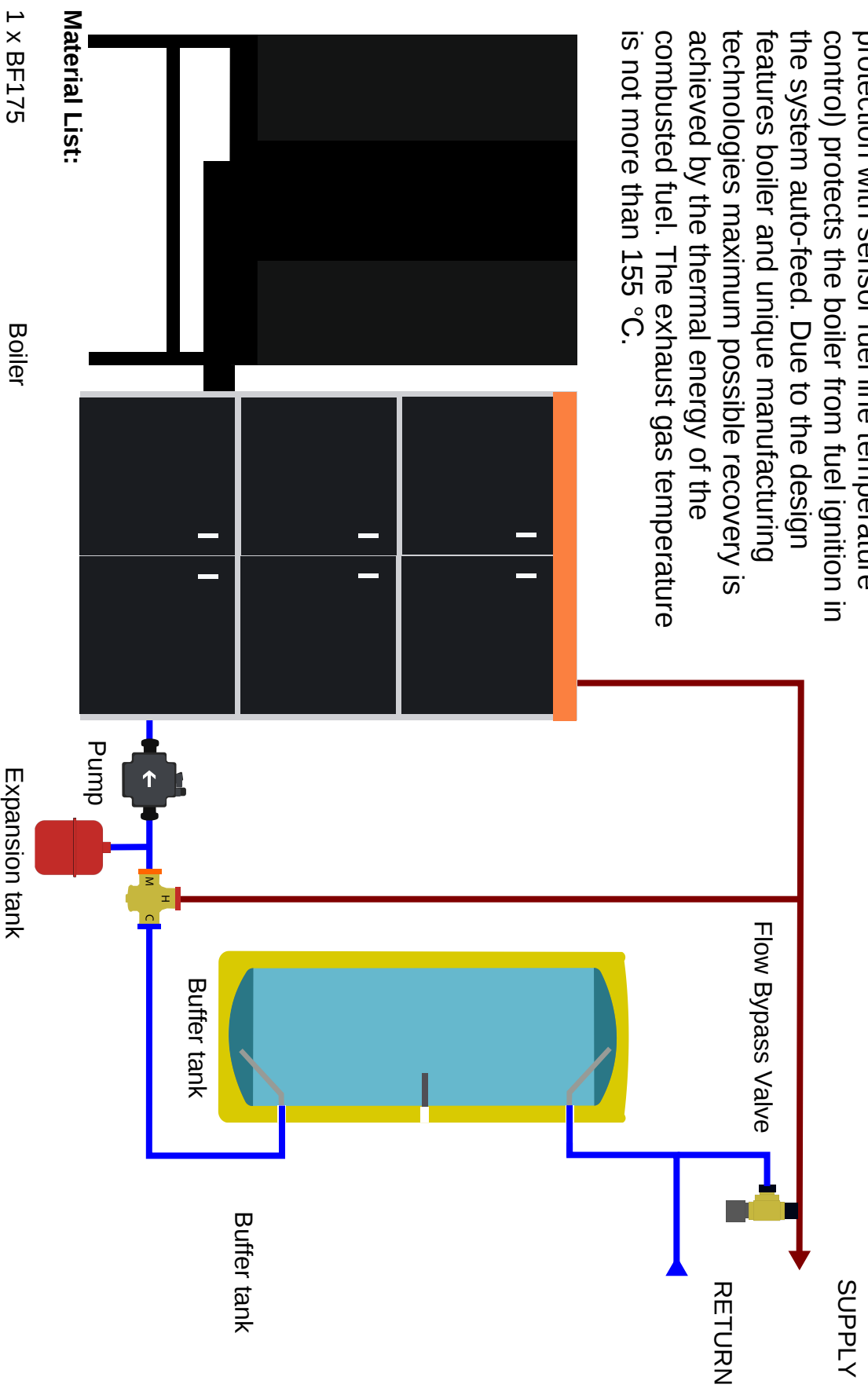
TIS BIO DUO 50 BOILER



Boiler parameters	UOM	TIS BIO 50
Power (heating capacity)	KBTU	50-170
Maximum operating temperature	°C/°F	85 / 185
Maximum working water pressure	psi	15
Minimum vacuum in the boiler furnace	psi	0.003
Coefficient of efficiency	%	86
Heating surface	inch ²	43
Maximum fuel consumption	lb/h	21.6
Water flow through the boiler	gpm	9.7
Water volume in the boiler	gal	37
Hydraulic resistance	psi	2.9
Connections	"/mm(Dy)	2
Chimney diameter	inch	8
Boiler weight	lbs	4078
Hopper weight	lbs	1433
Boiler width (A)	inch	26.80
Boiler depth (B)	inch	69.30
Boiler height (C)	inch	53.15
Size A1	inch	31.10
Size B1	inch	78.80
Size C1	inch	55.52
Size D	inch	57.10
Size E	inch	9.45
Size V	inch	44.50
Size K	inch	8.27
Furnace volume	gal	159
Furnace width	inch	21.65
Furnace depth (U)	inch	14.57
Furnace height (F)	inch	36.22
Note: Possible deviation of dimensions and weights is within ±5%		
Estimated fuel type, calorific value	MJ/kg (kcal/kg)	Wood chips 10,2 (2438)

TIS BIO DUO 50 BOILER

HARD BIO 50: System safety (thermal water protection with sensor fuel line temperature control) protects the boiler from fuel ignition in the system auto-feed. Due to the design features boiler and unique manufacturing technologies maximum possible recovery is achieved by the thermal energy of the combusted fuel. The exhaust gas temperature is not more than 155 °C.



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