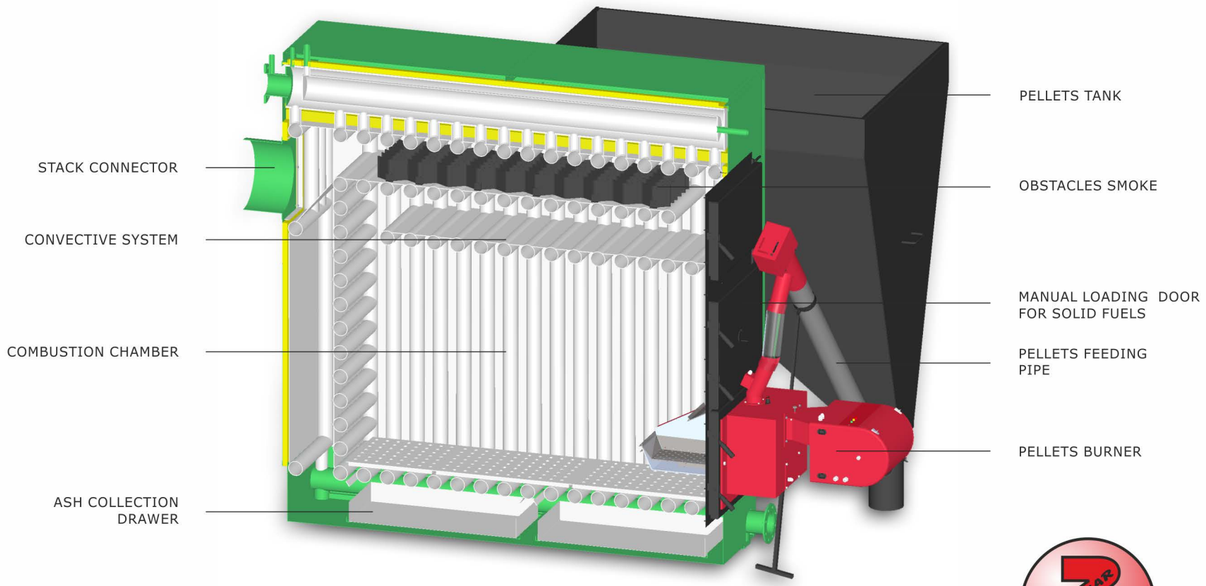
TERMOFARC

BOILER ON PELLETS AND WOOD

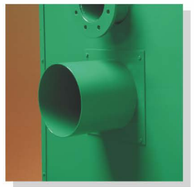
FI-P

FI-P BOILER ON PELLETS AND WOOD



3 YEAR WARRANTY

steel pipe elements structure with large furnace



Boiler turn and stack connector

The furnace doors are covered with refractory material and equipped with sight metal

Interchangeable door for adjusting the burner or automatic sawdust heating equipment

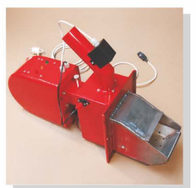
Euro-pallet delivery

Ash collection drawer

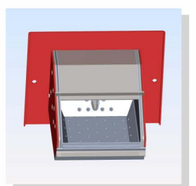
Ash cleaning fire iron and wire brush

Control panel

Thermostat controlled fan for high powers



Pellets burner



Pellets burner built from reluctant stainless steel

Electrical igniter for pellets

Programmable control block

GENERAL ISSUES

The steel boilers of frame-elements, FI-P type, with membrane wall type construction solution, with pressurized fireplace meant for the production of hot water for heating installations, are equipped with pellet-operating automatic burners and plane grills for the layer burning of the solid fuel.
From the constructive point of view, the FI-P boilers bodies are single-block, water-tube, sectional type made of "N" elements of 60 x 3.6 mm or 76 x 3.6 mm pipe that is assembled by common collectors of hot water inlet and discharge, fixed to one another using 4 mm band of black plate continuously welded.
The boiler has a chamber-type fireplace and two convective circuits of burnt gases equipped with jagged turbulence nozzles.
The FI-P boiler installation is made up of two quasi-independent subassemblies:
- Automated burner operating on pellets
- FI-MIXT boiler body

The two subassemblies are coupled through the burner flange, namely the boiler inlet flange.
Their construction enables their use in two operating alternatives:
1. automated operation, being equipped with automated burners on pellets;
2. manual feed operation using solid fuel (wood, coal, coke, sawdust briquettes, wood wastes) in the burning process;

RIGGING

- protection against overheating (all range of powers).
- equipment certified according to the SR EN 303-5 standard, CE marking;
- the boiler pertains to the best class of efficiency and emissions;
- designed for the heating of buildings and production of household hot water.
- the standard pack includes the control panel, the pellets burner, the pellets feeding system made up of the conveyor worm and the pellets tank.

BENEFITS

- high output, up to 90%;
- the same boiler (fireplace) can be used for the automated operation on pellets and for the manual feed using any kind of solid fuel;
- ecologic and more economical operation than on liquid, electric and LPG fuel; pellets burning release the same amount of CO_2 that the tree absorbed during its life. (Note that the combustion of 1 m^3 of gas loads the environment with 2 kg of CO_2, and the combustion of a liter of liquid fuel releases 2.8 kg of CO_2);
- increased autonomy for the automated operation on pellets;
- the automation elements included in the control panel of the boiler and of the pellets burner enable the operation of the boiler without permanent monitoring being required, by the burner turn off and on (by the control thermostat) when the thermostatic temperature is reached. The safety thermostat conditions the boiler stop when it reaches the temperature of 95 °C, if the adjustment thermostat did not operate;
- for the manual operation on solid fuel the protection against overheating is made up of a safety changer completely immersed into the primary heating agent chamber and heat valve that enables the cooling of the boil ng cold water from the network. This system is actuated when the temperature of 95 - 98 °C is reached, by means of the thermal valve controlled by the thermostat. It should be emphasized that this system protects the boiler also in case of accidental power failure;
- it can also be assembled in a gravitational operation installation or a pump circulation installation using circulation pump;

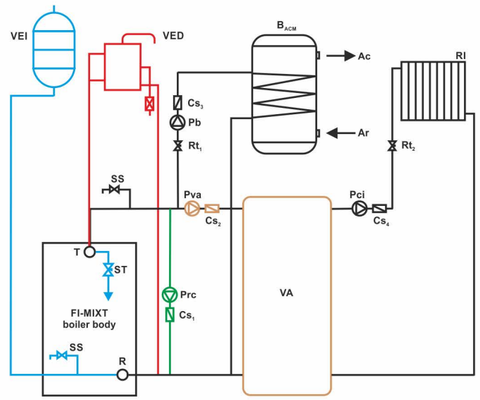
POSSIBLE CONNECTIONS SCHEME

If there is no permanent water source (even if a house water supply plant is being used), the installation option shall mandatory be an open system with open expansion tank.
The open expansion tank shall be assembled at minimum 1.5 m above the last radiator.
The expansion tank is an open expansion tank according to I.S.C.I.R. standards as the solid fuel boilers do not have a prompt control of the combustion.
We recommend the use of the open expansion tank even if the systems operates on the grounds of the thermo-siphoning principle.

If there is a permanent source of water and the assembly of an open expansion tank is difficult / impossible, you can choose the option of a pressurized system with membrane (closed) expansion tank and cooling system (coil protecting the boiler against overheating and safety thermal valve).

To extend the life cycle of the boiler by avoiding condensation and cheaper operation we recommend the assembly between the turn and the return of a thermostat-controlled recirculation pump and a 3-way mixing valve.

For the production of household hot water we recommend the household hot water boilers manufactured by Termofarc.



VEI – closed expansion tank
VED – open expansion tank
T – turn inlet
R – return inlet
SS – safety valve
ST – safety thermal valve
Rt_1, Rt_2 – plug valve
Prc – anti-condensation recirculation pump
Pva – accumulator tank pump
Pb – Household hot water boiler pump
Pci – heating circuit pump
Cs_1, Cs_2, Cs_3, Cs_4 – direction choke

B_{ACM} - Household hot water boiler
RI - radiator
VA – accumulator tank
Ac – hot water
Ar – cold water

FI-P thermal power plant can operate using:

- automatic operation with pellets burner

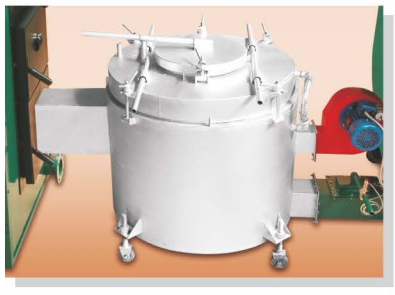
- operation with manual loading on solid fuels;

- operation on liquid fuel by attaching a burner for this purpose;

- operation on sawdust by attaching an automatic heating system operating with sawdust. This system is produced by Termofarc and can be purchased and attached later.

FI-P thermal plant integrated in an automatic heating system operating with sawdust

awdust bunker with sifting grate, mixer and sneck for sawdust dosing in the drying-burning chamber



Drying-burning chamber

TECHNICAL CHARACTERISTICS

Name	UM	FI-P 200	FI-P 250	FI-P 350	FI-P 460	FI-P 580	FI-P 700	FI-P 800
Boiler width	mm	950	950	1070	1120	1120	1370	1370
Total boiler width	mm	1050	1050	1300	1350	1350	1600	1600
Boiler height	mm	1660	1660	1770	2430	2430	2430	2430
Total height	mm	1820	1820	1820	2480	2480	2480	2480
Boiler length	mm	2290	2550	2550	2570	2920	2920	3280
Total length	mm	2990	3250	3250	3380	3730	3730	4180
System total width	mm	2120	2120	2220	2600	2600	2850	2850
Flue connection height	mm	1125	1125	1300	1800	1800	1800	1800
Flue connection diameter	mm	280	300	320	360	400	420	450
Boiler weight	kg	1230	1385	1618	1883	2145	2461	2742
System weight (no water	kg	1400	1555	1788	2180	2445	2757	3050
Burner weight	kg	47	47	47	96	96	96	100
Maximum operating pressure	bar	3	3	3	3	3	3	3
Maximum test pressure	bar	4,5	4,5	4,5	4,5	4,5	4,5	4,5
Useful heat power on wood	Kcal/h (kW)	175.000 203,5	220.000 256	300.000 348,9	400.000 465,2	500.000 581	600.000 696	700.000 800,4
Useful heat power on pellets	Kcal/h (kW)	160.000 186,2	198.000 230,5	270.000 314,3	360.000 419	450.000 523,8	540.000 628,5	650.000 755
Output (wood)	%	78-82	78-82	78-82	78-82	78-82	78-82	78-82
Output (pellets)	%	87-92	87-92	87-92	87-92	87-92	87-92	87-92
Nominal consumption of wood with H_i= 3500 kcal/kg	Kg/h	64,1	80,6	109,9	146,5	183	219	252
Nominal consumption of pellets with H_i= 4150 kcal/kg	Kg/h	38,75	48	65,4	87,3	109	131	153
Thermo gauge (int.) connection	Inch	¼"	¼"	¼"	¼"	¼"	¼"	¼"
Air vent (ext.) connection	Inch	½"	½"	½"	½"	½"	½"	½"
Turn inlet	mm	Ø 76	Ø 76	Ø89	Ø114	Ø114	Ø114	Ø133
Return inlet	mm	Ø 76	Ø 76	Ø89	Ø114	Ø114	Ø114	Ø133
Flange sizes (int./ext.)	mm	76/145	76/145	89/170	114/200	114/200	114/200	133/220
Cooling coil connection (ext.)	Inch	¾"	¾"	¾"	1"	1"	1¼"	1¼"
Thermal alve probe connection (int.)	Pcs/inch	1 / ½"	1 / ½"	1 / ½"	1 / ½"	2 / ½"	2 / ½"	2 / ½"
Necessary flue draught	mbar	0,3-0,4	0,3-0,4	0,3-0,4	0,3-0,4	0,3-0,4	0,35-0,45	0,35-0,45
Content of water in the boiler	liters	281	318	353	570	654	759	856
Combustion gases temperature	°C	180-250	180-250	180-250	180-250	180-250	180-250	180-250
Maximum operating temperature	°C	90	90	90	90	90	90	90
Recommended operating temperature	°C	70-90	70-90	70-90	70-90	70-90	70-90	70-90
Electric power consumed when lighting up	W	1200	1200	1200	1800	1800	1800	2000
Electric power consumed while operating	W	600	600	600	1000	1000	1000	1200
Power supply voltage / supply frequency	V/Hz	220/50	220/50	220/50	220/50	220/50	220/50	220/50