



TERMOFARCO

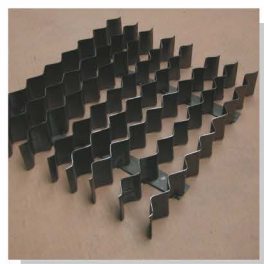
SOLID FUEL THERMAL POWER PLANT

FI-NS



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1. STEEL SEPTUM (RAFFLES)



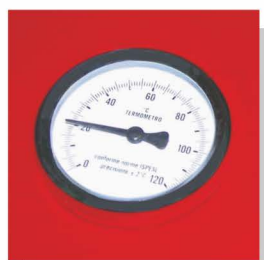
2. MANOMETER



3. AERATOR



4. SAFETY VALVE



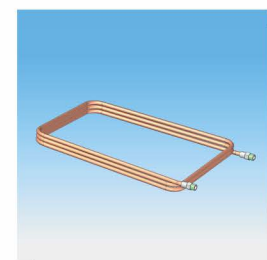
5. THERMOMANOMETER



6. DRAFT THERMO-CONTROLLER



7. ASH COLLECTION DRAWER



- COOLING COIL
- DOMESTIC HOT WATER COIL (17,4 - 58 KW)



CLEANING ACCESSORIES

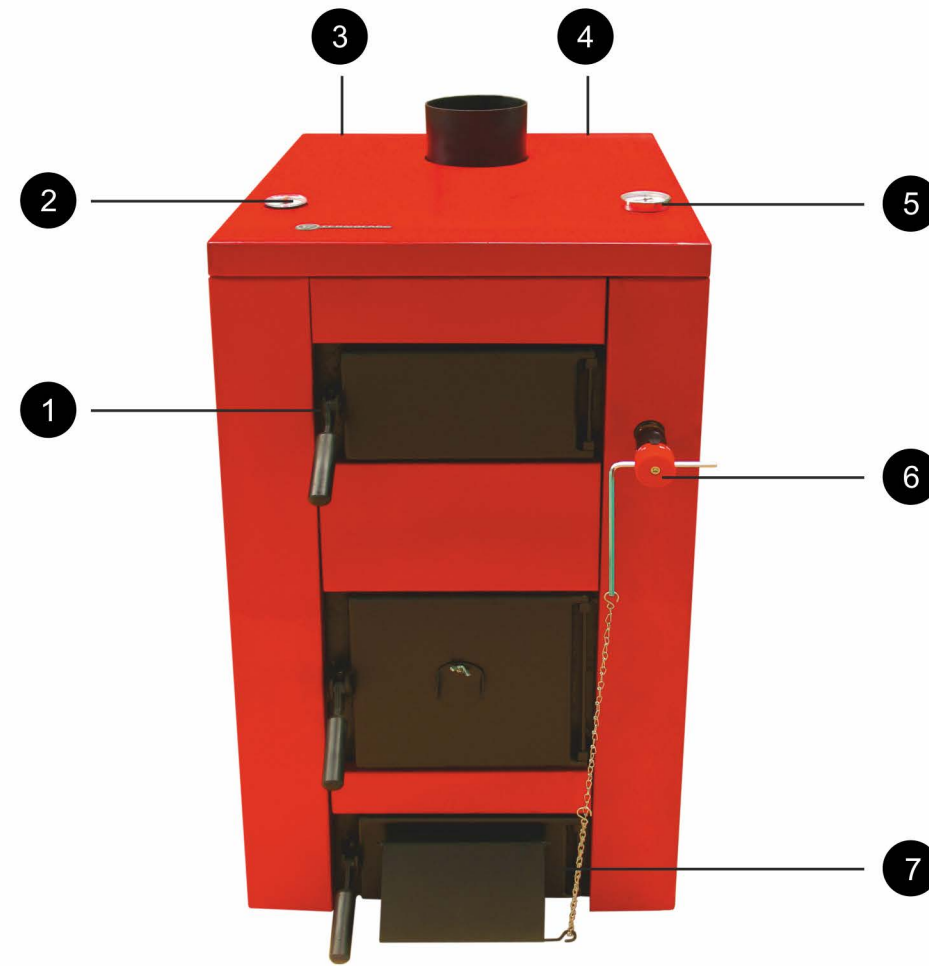


CONTROL PANEL

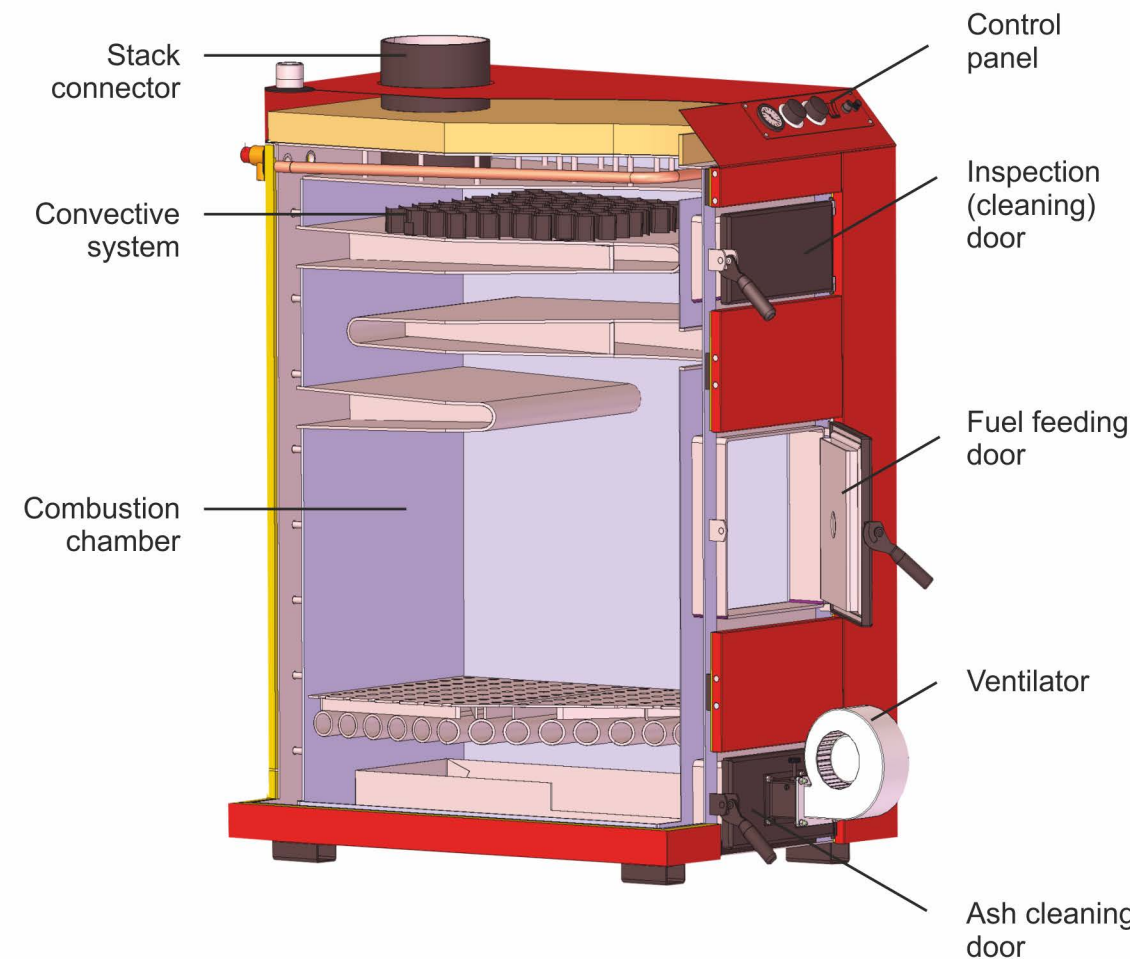


CENTRIFUGAL FAN

Power range
17.4 KW - 58 KW



Power range
69.6 KW - 174 KW



GENERAL

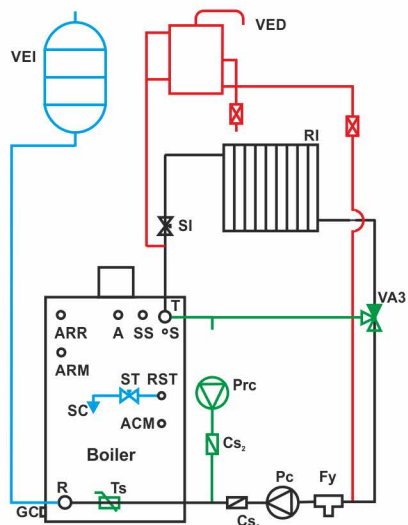
- FI-NS are water chamber boilers, with chamber type furnace and two gas flue convective circuits; they are intended for heating of buildings and production of hot water by using the process of solid fuel combustion (wood, wood chips, coal, coke, sawdust briquettes); they are provided with two heat exchangers: coil for household hot water and cooling coil - boiler protection to overheating.
- the boilers are a steel plate welded construction of high quality (5 mm inner wall, 6 mm respectively (and 4 mm plate of the outer wall); the exterior cover is in steel plate of 0.8 mm and mineral wool insulated;
- equipment certified according to SR-EN 303-5 standard, CE label affixed for marking;
- the boiler is of IInd class (medium) from efficiency viewpoint and IIIrd class (the best) for air pollutant emissions;
- air inlet automatic adjustment for combustion with draught thermostatic adjustor;
- standard equipped with thermometer, manometer, draught thermostatic adjustor, safety valve, cooling coil, household hot water preparation (range 17,4 - 58 kW), aerator, ash collection drawer, door sealing gasket in ceramic non-asbestos material, steel baffles, fire iron and wire brush;

ADVANTAGES

- long service intervals, easy to maintain and repair (can be reconditioned by welding as a difference from cast iron boilers whose elements are irretrievably deteriorated);
- large savings using solid fuels;
- increased operating time thanks to full automation/instrumentation;
- large furnace and large loading opening allowing the use of large size logs;
- overheating protection provided by the cooling coil;
- as opposed to other boilers available on the market and thanks to the position of the loading door which is lower than the upper side of the furnace, when loading logs the smoke is not released in the boiler's room even if the stack does not have sufficient draught;
- operating safety regardless the conditions:
 - an expansion tank, cooling coil, heating valve and safety valve will be fitted in the case of mains pressure systems;
 - In the case of a non mains pressure system an open expansion tank and safety valve will be fitted;
- in order to extend the service life of the boiler by avoiding condensate and for a more efficient the following are recommended:
 - assembly between turn and return of a thermostat controlled recirculation pump;
 - 3-way mixture valve between turn and return;
- in case of power failure, where there is a great difference between turn and return, the structure and the material of the boiler does not allow its cracking, which often happens with cast-iron boilers;
- for the range of powers between 17.4 and 58 kW - unique system available on the market for the preparation of household hot water directly by the boiler, without a hot water tank (covers the needs of a kitchen and of a bathroom). For a larger water consumption the option is an hot water tank manufactured by Termofarc;
- the choice is two assembly versions:
 - outer coating separately assembled, so that in order to transport the boiler's body a small vehicle can be used;
 - entirely assembled and packed on euro pallet.

POSSIBLE CONNECTION DIAGRAMS

TECHNICAL CHARACTERISTICS



- SS - safety valve
- S - heating valve marker
- VED - open expansion tank
- VEI - closed expansion tank
- RI - radiator
- A - aerator
- R - return connection
- T - tour connection
- S₁ - straight-way valve
- Pc - circulation pump
- Cs₁ - directional valve
- ARM - household cold water
- ACM - household hot water
- ARR - network cold water
- RST - heating valve inlet
- ST - safety heating valve
- SC - discharge inlet connected to sewerage
- Prc - recirculation pump
- Cs - directional valve
- VA₃ - 3 way mixing valve

BOILER	TYPE	FI-15NS	FI-22NS	FI-27NS	FI-33NS	FI-40NS	FI-50NS
Number of main elements	nr	7	8	9	10	11	12
Rated heating power	kcal	15000	22000	27000	33000	40000	50000
Rated heating power	kW	17,4	25,6	31,4	38,4	46,5	58
Efficiency	%	75-78	75-78	75-78	75-78	75-78	75-78
Stack necessary draught	mbar	0,2-0,3	0,2-0,3	0,2-0,3	0,2-0,3	0,2-0,3	0,2-0,3
Water content in the boiler	liters	94	103	109	137	146	162
Maximum operating temperature	°C	95	95	95	95	95	95
Maximum working pressure	bar	2	2	2	2	2	2
Test pressure	bar	4	4	4	4	4	4
Total height	mm	1115	1115	1115	1305	1305	1305
Width	mm	540	540	595	595	595	635
Boiler's length	mm	595	650	705	760	815	870
Total length (maximum overall size)	mm	770	825	880	935	990	1045
Weight	kg	215	231	267	322	338	375
Stack inlet	mm	Ø 150	Ø 150	Ø 150	Ø 170	Ø 170	Ø 170
Turn /return inlet	inch	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Safety valve inlet	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Boiler discharge outlet	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
ACM coil inlet /cooling coil	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Household hot water flow, Δt=30°C	l/min	9	9	9	13	13	13
Furnace volume	dm ³	58	65	89	142	155	185
Maximum length of wood	mm	400	450	500	550	600	650
COSUMPTION AT RATED POWER							
Dry wood H _i = 3500 kcal/kg	kg/h	5,5	8,06	9,89	12,09	14,65	18,3
Coal H _i = 4200 kcal/kg	kg/h	4,58	6,72	8,24	10,07	12,21	15,26
Sawdust briquettes H _i =5100 kcal/kg	kg/h	3,7	5,53	6,78	8,3	10	12,57
Coke H _i = 6100 kcal/kg	kg/h	3,15	4,62	5,67	6,93	8,4	10,51

In the case current water supply network is absent (even a house water supply plant is used), the assembly version will be mandatory with open expansion tank.

The open expansion tank is provided at the height of minimum 1.5 m above the last radiator.

The expansion tank is of open type according to ISCIR standards, the solid fuel boilers not having a prompt control over the combustion.

The open expansion tank version is recommended to be used in case the system operates on thermo siphon principle as well.

In the case of permanent water source and if the assembly of an open expansion tank is difficult /impossible to achieve, the choice is the membrane (closed) pressure expansion tank and cooling system (boiler overheating coil and safety heating valve)

The safety valve on the boiler is mandatory for both versions.

In order to extend the life service of the boiler by avoiding condensing and for a more efficient operation, it is recommended:

- to assemble between turn and return a thermostat controlled recirculation pump and a 3 way mixing valve.

For a higher consumption of household hot water, a hot water boiler manufactured by Termofarc can be connected to the installation.

BOILER	TYPE	FI-60NS	FI-80NS	FI-100NS	FI-130NS	FI-150NS
Number of main elements	nr	13	17	19	19	22
Rated heating power	kcal	60000	80000	100000	130000	150000
Rated heating power	kW	69,6	83	116	150,8	174
Efficiency	%	78-80	78-80	78-80	78-80	78-80
Stack necessary draught	mbar	0,3-0,4	0,3-0,4	0,3-0,4	0,3-0,4	0,3-0,4
Water content in the boiler	liters	191	238	296	325	359
Maximum operating temperature	°C	95	95	95	95	95
Maximum working pressure	bar	2	2	2	2	2
Test pressure	bar	4	4	4	4	4
Total height	mm	1305	1305	1420	1420	1420
Width	mm	700	725	800	935	935
Boiler's length	mm	980	1230	1340	1380	1530
Total length (maximum overall size)	mm	1155	1405	1515	1555	1705
Weight	kg	430	542	661	795	875
Stack inlet	mm	Ø 200	Ø 200	Ø 220	Ø 250	Ø 250
Turn /return inlet	inch	1 1/2"	2"	2"	2 1/2"	2 1/2"
Safety valve inlet	inch	3/4"	1"	1"	1"	1"
Boiler discharge outlet	inch	1/2"	1/2"	1/2"	1/2"	1/2"
ACM coil inlet	inch	-	-	-	-	-
Cooling coil	inch	3/4"	3/4"	3/4"	3/4"	3/4"
Household hot water flow, Δt=30°C	l/min	-	-	-	-	-
Furnace volume	dm ³	248	342	571	630	700
Maximum length of wood	mm	750	1000	1100	1150	1300
COSUMPTION AT RATED POWER						
Dry wood H _i = 3500 kcal/kg	kg/h	21,4	28,6	35,7	46,5	53,6
Coal H _i = 4200 kcal/kg	kg/h	17,8	23,8	29,8	38,7	44,7
Sawdust briquettes H _i - 5100 kcal/kg	kg/h	14,7	19,6	24,5	31,9	36,8
Coke H _i = 6100 kcal/kg	kg/h	12,3	16,4	20,5	26,7	30,8

Local representative: