

# Automatic Pellet Boilers from 18 to 1.900 kW

**THERMOSTAHL®**  
HEATING POWER  SINCE 1962



PelletStar



PelletSave



PelletCompact



GREEN ENERGY

- > Modern technology
- > High efficiency
- > Alternative energy source from biomass



Economy



Ecology



Safety



Comfort

**Energy solutions**

**... the best choice**

# Pellets : The fuel of the future



## PelletStar Bio Unit

Ecological heating with a complete pellet burning unit

Advantages:

- Automatic operation.
- High and stable efficiency over 91%.
- European burner, silent operation.
- 3-pass of exhaust gases.
- Heavy construction, reduced dimensions.
- Easy cleaning and maintenance.
- Long reload of the silo period (4-8 days).
- Certified boiler under all European standards (CE, TUV, ISO 9001).
- Proper functioning with pellet of 6, 8 or 10mm diameter.
- Proper functioning with oil or gas burner adjusted on the additional flange.
- Ecological combustion, CO<sub>2</sub> neutral.



Aut. cleaning tubes system ACTUS

PelletStar Bio Unit

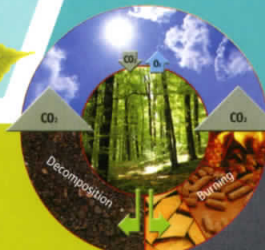


## THE BOILER PELLETSTAR

It is a 3-pass boiler with returned flame to the second combustion chamber, (TRIPLEX system). The construction is certified by EN-303 and ISO 9001.

The boiler is designed in such way that it can alternative burn oil or gas with stable efficiency of 92%.

An additionally flange for installation oil or gas burner is provided. By 3-PASS boiler it is possible to achieve stable performance and low temperature of emitted gases using every fuel (pellet/oil/gas).



## Comparison of emissions

	SO <sub>2</sub> (kg)	CO (kg)	CO <sub>2</sub> (tn)
Oil	200	40	200
Gas	10	90	160
Pellets	50	10	10

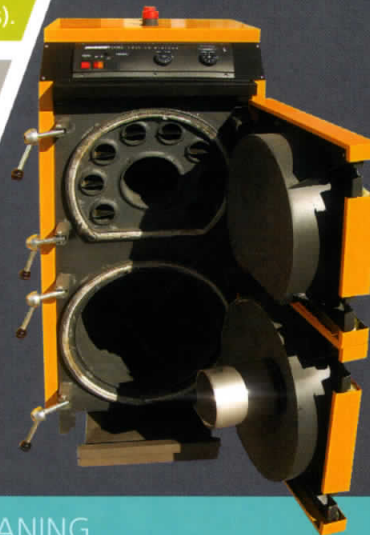
1m<sup>3</sup> pellets ≈ 650 kg  
2 kg pellets ≈ 1 lt oil ≈ 1m<sup>3</sup> natural gas

## FEEDING SYSTEM WITH SILO

Special construction of large volume pellet storage tank and easy fuel forward towards the boiler. It is placed next to boiler and is equipped with an opening cover on its upper part and fuel level inspection window.

Available in 3 sizes: 340lt – 420lt - 560lt.

The fuel is forwarded by a system of a screw and a motoreducer. The feeding screw is commanded by burner's PLC, and it carries a sufficient quantity of pellet/biomass to the combustion chamber. Combustion and pellet transfer are synchronized, because of the electronic device which regulates the amount of pellet that is fed to the combustion chamber.



Automatic pellet burner



## AUTONOMY

The use of 500 lt pellet silo provides 4 to 8 days until the next reload.

## WARANTY

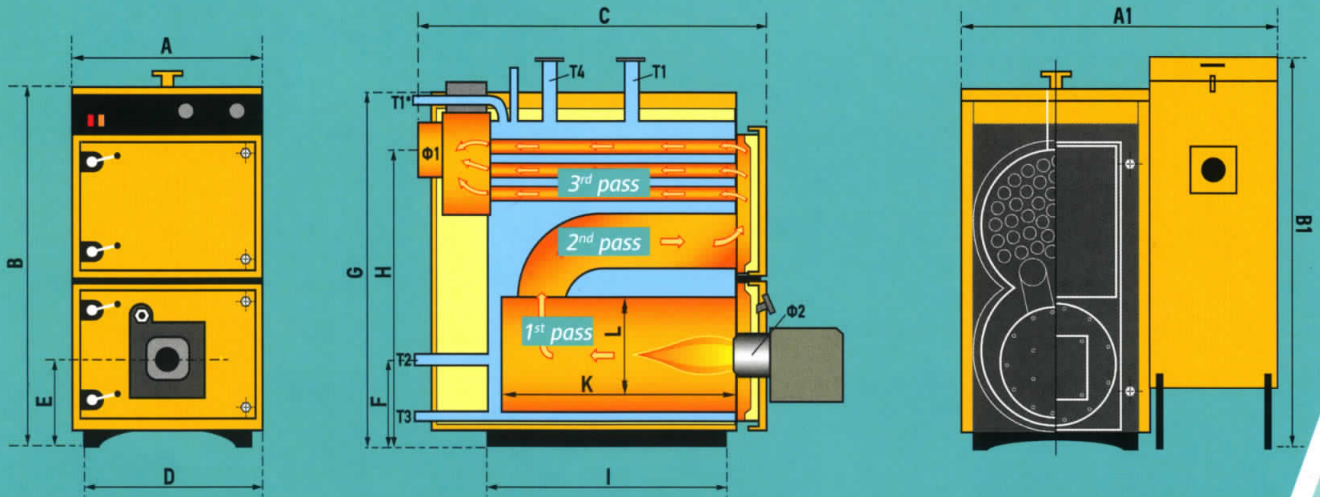
THERMOSTAHL gives 1 year warranty of good operation for the burner and for all the electric parts except the electrical resistance. The warranty of the boiler is 5 years. The warranty is valid only when all conditions of maintenance and all specifications for good operation are complied.

## CLEANING

The ash collector is placed at the bottom of the boiler for easy and quick cleaning without residues. The burner needs to be cleaned every 3 to 5 days. The boiler needs to be cleaned approximately 2 times per month.

The smoke tubes have inside exhaust gas turbulators in order to increase the efficiency.

Optionally, there is automatic mechanism for export ash, in a special collector tank.



Dimensions - Technical Characteristics of PelletStar (PLS)

Boiler Type	Nominal Power		A		B		C		D		E		F		G		H		I		K		L		Φ1	Φ2	T1/T2	T3	T4	Max water operat. press.	Water cont.	Boiler weight (approx.)	Max outlet temp.	Min inlet temp.	Re-quired draft	Back pressure	Fumes flow rate 200°C	Heat- ing surface	Ashtray vol.	Internal press. fall (Δt=25°C)	Efficiency	Fuel	Silo	Ast. ash extract. box volume
	kW	Mcal/h	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	in	in	in	bar	lt	kg	°C	°C	Pa	mm (H <sub>2</sub> O)	m <sup>3</sup> /h	m <sup>2</sup>	lt	mm (H <sub>2</sub> O)	%	mm	lt
PLS 18	18	15,5	570	970	1300	1320	800	500	340	160	1100	900	420	370	394	150	185	1 1/2"	1 1/2"	1"	4	60	215	95	65	10-14	1-2	450	1,8	14	20-30	92-93										340	20	
PLS 23	23,2	20	570	970	1300	1320	900	500	340	160	1100	900	520	470	394	150	185	1 1/2"	1 1/2"	1"	4	80	235	95	65	10-14	1-2	500	2,1	14	25-35	92-93										340	20	
PLS 35	34,9	30	570	970	1300	1320	1000	500	340	160	1100	900	620	570	394	150	185	1 1/2"	1 1/2"	1"	4	100	260	95	65	10-14	1-2	550	2,4	14	35-45	92-93										340	20	
PLS 47	46,5	40	570	970	1300	1320	1100	500	340	160	1100	900	720	670	394	150	185	1 1/2"	1 1/2"	1"	4	120	285	95	65	10-14	1-2	600	2,7	20	45-55	92-93										340	20	
PLS 58	58,1	50	570	970	1300	1320	1200	500	340	160	1100	900	820	770	394	150	205	1 1/2"	1 1/2"	1"	4	140	310	95	65	12-16	2-3	650	3,0	20	55-65	92-93										340	20	
PLS 69	68,8	60	570	970	1300	1320	1300	500	340	160	1100	900	920	870	394	150	205	1 1/2"	1 1/2"	1"	4	160	335	95	65	12-16	2-3	700	3,3	20	65-75	92-93										340	20	
PLS 81	81,4	70	570	970	1300	1320	1400	500	340	160	1100	900	1000	970	394	180	205	1 1/2"	1 1/2"	1"	4	175	355	95	65	12-16	2-3	750	3,6	20	75-85	92-93										340	20	
PLS 93	93,0	80	690	1190	1400	1320	1300	620	380	220	1210	1000	700	650	472	180	230	2"	3/4"	1 1/4"	4	200	410	95	65	15-20	3-4	800	4,0	30	80-90	92-93										420	30	
PLS 116	116,3	100	690	1190	1400	1320	1400	620	380	220	1210	1000	800	750	472	180	230	2"	3/4"	1 1/4"	4	250	460	95	65	15-20	3-4	900	4,5	30	90-100	92-93										420	30	
PLS 140	139,5	120	690	1190	1400	1320	1500	620	380	220	1210	1000	900	850	472	200	230	2"	3/4"	1 1/4"	4	300	510	95	65	15-20	3-4	1000	5,0	30	100-110	92-93										420	30	
PLS 160	162,8	140	690	1290	1400	1320	1600	620	380	220	1230	1000	1000	950	472	200	230	2 1/2"	3/4"	1 1/4"	4	350	560	95	65	20-30	5-6	1100	5,5	40	110-120	92-93										560	30	
PLS 190	186,0	160	690	1290	1400	1320	1700	620	380	220	1230	1000	1100	1000	472	200	260	2 1/2"	3/4"	1 1/4"	4	400	610	95	65	20-30	5-6	1200	6,0	40	120-135	92-93										560	30	
PLS 210	209,3	180	690	1290	1400	1320	1850	620	380	220	1230	1000	1250	1150	472	220	260	2 1/2"	3/4"	1 1/4"	4	470	690	95	65	20-30	5-6	1300	6,8	40	135-150	92-93										560	30	
PLS 230	233	200	690	1290	1400	1320	2000	620	380	220	1230	1000	1400	1250	472	220	260	2 1/2"	3/4"	1 1/4"	4	520	760	95	65	30-40	6-8	1400	7,6	40	150-165	92-93										560	30	
PLS 260	256	220	1070	1820	1900	1320	1850	990	550	340	-	1350	1250	1150	630	250	290	3"	1"	1 1/2"	4	600	980	95	65	30-40	6-8	1600	8,8	70	160-180	92-93										700	40	
PLS 290	291	250	1070	1820	1900	1320	2100	990	550	340	-	1350	1500	1400	630	250	290	3"	1"	1 1/2"	4	680	1110	95	65	30-40	6-8	1800	10,3	70	180-200	92-93										700	40	
PLS 350	349	300	1070	1820	1900	1320	2350	990	550	340	-	1350	1750	1500	630	295	290	3"	1"	1 1/2"	4	760	1230	95	65	40-50	8-10	2100	11,8	90	200-220	92-93										700	40	
PLS 400	407	350	1070	1820	1900	1320	2600	990	550	340	-	1350	2000	1750	630	295	330	3"	1"	1 1/2"	4	840	1370	95	65	40-50	8-10	2400	13,3	90	220-240	92-93										700	40	
PLS 460	465	400	1320	2170	2200	1500	2350	1240	650	380	-	1600	1750	1500	788	345	330	4"	1 1/4"	2"	4	990	1650	95	65	40-50	8-10	2750	15,8	120	230-260	92-93										950	100	
PLS 580	581	500	1320	2170	2200	1500	2600	1240	650	380	-	1600	2000	1750	788	345	330	4"	1 1/4"	2"	4	1180	1840	95	65	50-60	10-12	3500	18,0	120	250-280	92-93										950	100	
PLS 700	698	600	1320	2170	2200	1500	2850	1240	650	380	-	1600	2250	2000	788	345	430	4"	1 1/4"	2"	4	1370	2030	95	65	50-60	10-12	4100	20,2	120	270-300	92-93										950	100	
PLS 800	814	700	1320	2170	2200	1500	3100	1240	650	380	-	1600	2500	2250	788	395	430	5"	1 1/4"	2"	4	1560	2220	95	65	50-60	10-12	4800	22,4	150	300-330	92-93										950	100	
PLS 930	930	800	1320	2320	2200	1500	3350	1240	650	380	-	1600	2750	2500	788	395	430	5"	1 1/4"	2"	4	1740	2410	95	65	60-70	14-16	5500	24,6	150	330-360	92-93										1200	100	
PLS 1050	1047	900	1320	2320	2200	1500	3600	1240	650	380	-	1600	3000	2750	788	395	430	5"	1 1/4"	2"	4	1930	2600	95	65	60-70	14-16	6000	26,8	150	360-390	92-93										1200	100	
PLS 1160	1163	1000	1580	2780	2500	1800	3400	1490	800	480	-	1900	2500	2200	1105	445	530	6"	1 1/2"	2 1/2"	4	2040	3130	95	65	60-70	14-16	7100	31,9	200	380-420	92-93										1500	200	
PLS 1400	1395	1200	1580	2780	2500	1800	3650	1490	800	480	-	1900	2750	2500	1105	445	530	6"	1 1/2"	2 1/2"	4	2290	3420	95	65	70-80	18-22	8800	37,7	200	410-450	92-93										1500	200	
PLS 1600	1629	1400	1580	2780	2500	1800	3900	1490	800	480	-	1900	3000	2700	1105	445	680	6"	1 1/2"	2 1/2"	4	2560	3710	95	65	70-80	18-22	10000	43,3	200	440-480	92-93										1500	200	
PLS 1900	1900	1650	1580	2780	2500	1800	4400	1490	800	480	-	1900	3500	3000	1105	445	680	6"	1 1/2"	2 1/2"	4	3040	4330	95	65	70-80	18-22	12500	54,5	200	470-510	92-93										1500	200	

• The above dimensions are indicative and it is possible that they change in the future without warning, if new improvements require it.  
 • T1\* → For boilers PLS 18-210 the outlet is behind.



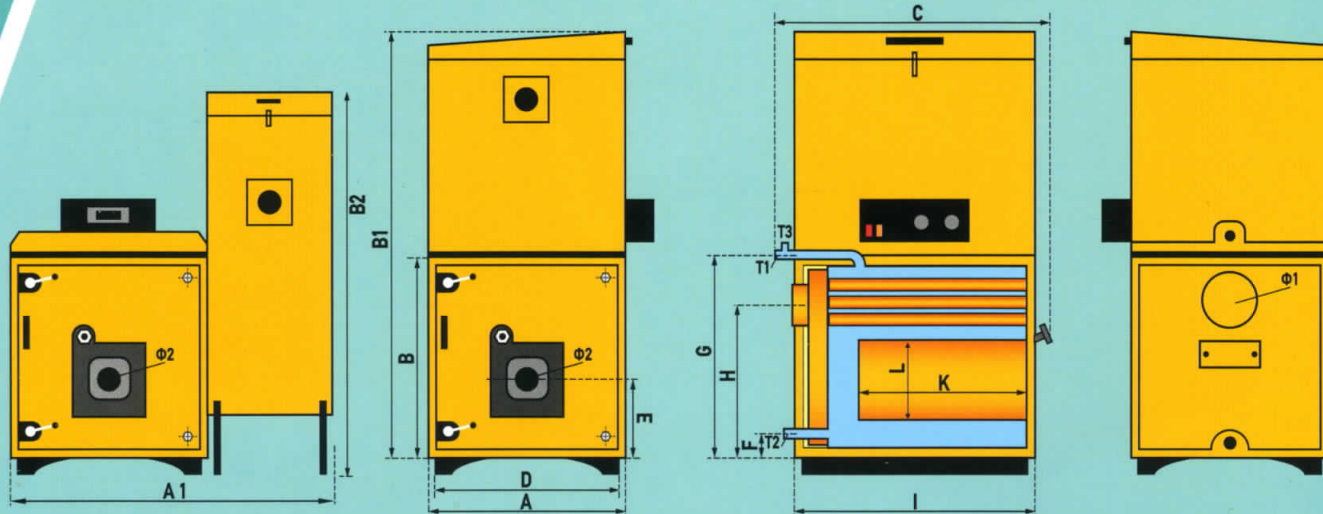
Electronic control panel



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PelletSave Bio Unit

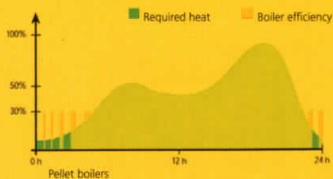
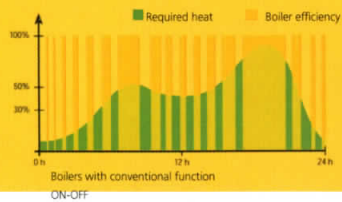
PelletCompact Bio Unit



Dimensions - Technical Characteristics of PelletCompact (PLC) - PelletSave (PSA) boilers

Boiler Type	Nominal Power	A	A1	B	B1	B2	C	D	E	F	G	H	I	K	L	Ø1	Ø2	T1/T2	T3	T4	Max water operat. press.	Water cont.	Boiler weight (approx.)	Max outlet temp.	Min inlet temp.	Re-quired draft	Back pressure	Fumes Row rate 200°C	Heat- ing surface	Ashtray vol.	Internal press. fall (Δp-25°C)	Efficiency	Fuel	Pellet (Ø) 6 - 8 X (L) 20-30	Siló 1	Siló 2	Aut. ash extract. box volume
PLC / PSA 18	18	15,5	660	1060	835	1740	1320	850	585	345	125	860	575	450	400	427	150	185	1½"	½"	1"	3	80	225	95	65	12-16	2-3	450	1,6	20	20-30	90-91	170	340	20	
PLC / PSA 23	23,2	20	660	1060	835	1740	1320	950	585	345	125	860	575	550	500	427	150	185	1½"	½"	1"	3	100	245	95	65	12-16	2-3	500	1,9	20	25-35	90-91	170	340	20	
PLC / PSA 35	34,9	30	660	1060	835	1740	1320	1050	585	345	125	860	575	650	600	427	150	185	1½"	½"	1"	3	120	270	95	65	12-16	2-3	550	2,2	20	35-45	90-91	200	340	20	
PLC / PSA 47	46,5	40	660	1060	835	1740	1320	1150	585	345	125	860	575	750	700	427	150	185	1½"	½"	1"	3	140	295	95	65	12-16	2-3	600	2,5	20	45-55	90-91	200	340	20	
PLC / PSA 58	58,1	50	660	1060	835	1740	1320	1250	585	345	125	860	575	850	800	427	150	205	1½"	½"	1"	3	160	320	95	65	15-20	2-3	650	2,8	30	55-65	90-91	230	340	20	
PLC / PSA 69	68,8	60	660	1060	835	1740	1320	1350	585	345	125	860	575	950	900	427	150	205	1½"	½"	1"	3	180	345	95	65	15-20	3-4	700	3,1	30	65-75	90-91	230	340	20	
PLC / PSA 81	81,4	70	660	1060	835	1740	1320	1400	585	345	125	860	575	1000	950	427	180	205	1½"	½"	1"	3	190	370	95	65	15-20	3-4	750	3,4	30	75-85	90-91	230	340	20	
PLC / PSA 93	93,0	80	773	1275	905	1810	1320	1350	698	385	135	930	610	700	650	507	180	230	2"	¾"	1¼"	3	220	420	95	65	20-30	3-4	800	3,8	35	80-90	90-91	250	420	30	
PLC / PSA 116	116,3	100	773	1275	905	1810	1320	1450	698	385	135	930	610	800	750	507	180	230	2"	¾"	1¼"	3	260	470	95	65	20-30	3-4	900	4,3	35	90-100	90-91	250	420	30	
PLC / PSA 140	139,5	120	773	1275	905	1810	1320	1550	698	385	135	930	610	900	850	507	200	230	2"	¾"	1¼"	3	300	520	95	65	20-30	4-5	1000	4,8	35	100-110	90-91	250	420	30	
PLC / PSA 160	162,8	140	773	1275	905	1810	1320	1650	698	385	135	930	610	1000	950	507	200	230	2½"	¾"	1¼"	3	340	570	95	65	30-40	4-5	1100	5,3	35	110-120	90-91	300	560	30	
PLC / PSA 190	186,0	160	773	1275	905	1810	1320	1750	698	385	135	930	610	1100	1000	507	200	260	2½"	¾"	1¼"	3	380	620	95	65	30-40	4-5	1200	5,8	45	120-135	90-91	300	560	30	
PLC / PSA 210	209,3	180	773	1275	905	1810	1320	1900	698	385	135	930	610	1250	1150	507	220	260	2½"	¾"	1¼"	3	440	690	95	65	30-40	6-7	1300	6,5	45	135-150	90-91	300	560	30	
PLC / PSA 230	233	200	773	1275	905	1810	1320	2050	698	385	135	930	610	1400	1250	507	220	260	2½"	¾"	1¼"	3	500	770	95	65	40-50	6-7	1400	7,3	45	150-165	90-91	300	560	30	
PLC / PSA 260	256	220	1320	1870	1620	-	1520	1900	1240	480	220	-	750	1250	1150	680	250	290	3"	1"	1½"	3	630	950	95	65	40-50	8-10	1600	8,0	70	160-180	90-91	300	700	40	
PLC / PSA 290	291	250	1320	1870	1620	-	1520	2150	1240	480	220	-	750	1500	1400	680	250	290	3"	1"	1½"	3	710	1060	95	65	40-50	8-10	1800	9,5	70	180-200	90-91	300	700	40	
PLC / PSA 350	349	300	1320	1870	1620	-	1520	2400	1240	480	220	-	750	1750	1500	680	295	290	3"	1"	1½"	3	790	1170	95	65	50-60	10-12	2100	11,0	90	200-220	90-91	400	700	40	
PLC / PSA 400	407	350	1320	1870	1620	-	1520	2650	1240	480	220	-	750	2000	1750	680	295	330	3"	1"	1½"	3	880	1280	95	65	50-60	10-12	2400	12,5	90	220-240	90-91	400	700	40	
PLC / PSA 460	465	400	1580	2430	1980	-	1520	2400	1490	620	260	-	980	1750	1500	860	345	330	4"	1¼"	2"	3	1070	1610	95	65	50-60	12-14	2750	14,2	120	230-260	90-91	400	950	100	
PLC / PSA 580	581	500	1580	2430	1980	-	1520	2650	1490	620	260	-	980	2000	1750	860	345	330	4"	1¼"	2"	3	1250	1800	95	65	60-70	12-14	3500	16,3	120	250-280	90-91	400	950	100	
PLC / PSA 700	698	600	1580	2430	1980	-	1520	2900	1490	620	260	-	980	2250	2000	860	395	430	4"	1¼"	2"	3	1430	1990	95	65	60-70	14-16	4100	18,4	120	270-300	90-91	500	950	100	
PLC / PSA 800	814	700	1580	2430	1980	-	1520	3150	1490	620	260	-	980	2500	2250	860	395	430	5"	1¼"	2"	3	1610	2180	95	65	60-70	14-16	4800	20,5	150	300-330	90-91	500	950	100	
PLC / PSA 930	930	800	1580	2580	1980	-	1520	3400	1490	620	260	-	980	2750	2500	860	395	430	5"	1¼"	2"	3	1790	2370	95	65	70-80	16-18	5500	22,6	150	330-360	90-91	600	1200	100	
PLC / PSA 1050	1047	900	1580	2580	1980	-	1520	3650	1490	620	260	-	980	3000	2750	860	395	430	5"	1¼"	2"	3	1970	2610	95	65	70-80	16-18	6000	24,7	150	360-390	90-91	600	1200	100	
PLC / PSA 1160	1163	1000	2070	3270	2420	-	1720	3500	1980	850	320	-	1250	2500	2200	1244	445	530	6"	1½"	2½"	3	2180	2970	95	65	70-80	18-22	7100	29,8	200	380-420	90-91	600	1500	200	
PLC / PSA 1400	1395	1200	2070	3270	2420	-	1720	3750	1980	850	320	-	1250	2750	2500	1244	445	530	6"	1½"	2½"	3	2480	3260	95	65	80-90	18-22	8800	35,3	200	410-450	90-91	600	1500	200	
PLC / PSA 1600	1628	1400	2070	3270	2420	-	1720	4000	1980	850	320	-	1250	3000	2700	1244	445	680	6"	1½"	2½"	3	2780	3550	95	65	80-90	20-25	10000	40,8	200	440-480	90-91	800	1500	200	
PLC / PSA 1900	900	1650	2070	3270	2420	-	1720	4500	1980	850	320	-	1250	3500	3000	1244	445	680	6"	1½"	2½"	3	3350	4120	95	65	80-90	20-25	12500	51,8	200	470-510	90-91	800	1500	200	

\* The above dimensions are indicative and it is possible that they change in the future without warning, if new improvements require it.



An important advantage of pellet boilers is that they can operate at part load (up to 30% of the force). They adapt to the current heating conditions. Oil or gas boilers do not have the ability to make this adjustment.



## PelletSave - Bio unit

Complete pellet burning system including pellet boiler and automatic ignition

### Included:

- Steel boiler PelletSave
- Pellet burner with automatic ignition, feeding screw and control panel.
- Silo with base for pellet storage
- INOX exhaust gas turbulators
- Ash pot
- Cleaning tools
- Flange for adjusting oil burner

Horizontal flame

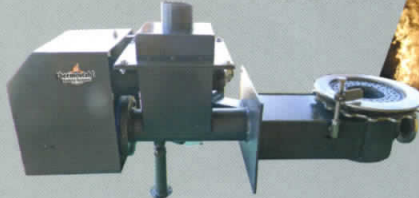


PelletSave Bio Unit



Ecostahl burner

Vertical flame



Biomass ESL- 2-axis burner



Motor

Inspection doors

Ventilator

Bearing

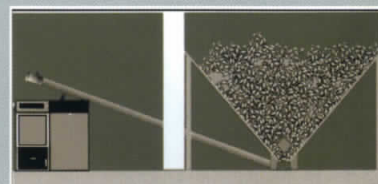
Ash remover

Klinger cleaner

ESL- 3-axis burner

PelletSave and PelletCompact boilers can work also with biomass burners.

Automatic feeding systems from a central silo



PelletCompact Bio Unit



Automatic ashes extraction

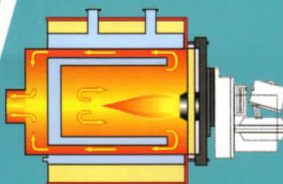
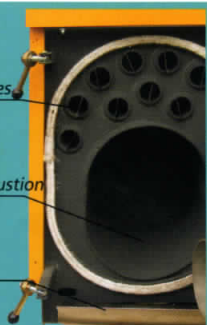
## Steel pellet boiler Compact unit

- Unit with small volume
- Easy transportation
- High efficiency (92%)
- 3-pass of exhaust gases boiler.
- Easy cleaning and maintenance
- Perfect for small boiler rooms
- The best quality at the right price

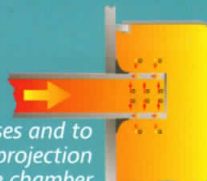
Smoke tubes

Oval combustion chamber

Ash pot



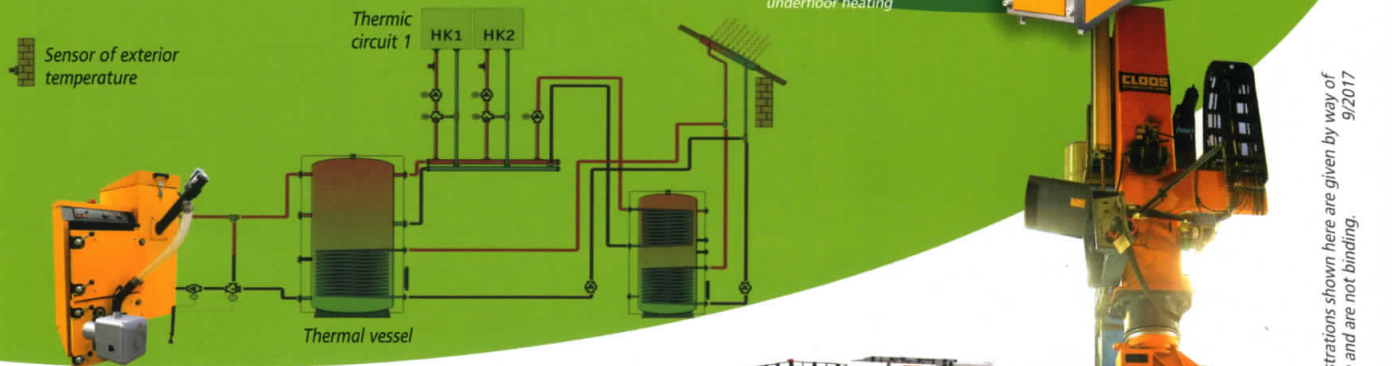
In order to avoid condensates and to increase the efficiency, there is a projection of the flamepipe into the smoke chamber



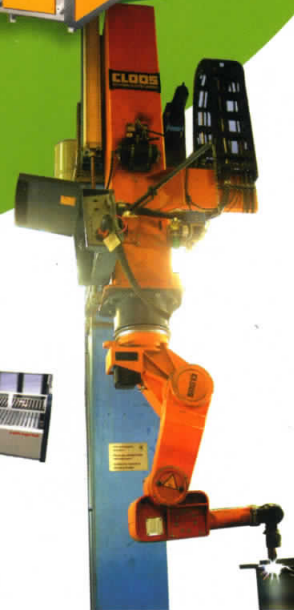
## The perfect combination - Heating system and Domestic Hot Water

All devices cooperate perfectly together and offer high efficiency, eco-friendly performance, reliability, comfort and safety. They combine different energy sources (biomass, oil, solar energy) in order to save energy and reduce the emissions.

### Solid-fuel-boilers' installation scheme



Modern  
Technology  
Equipment



The illustrations shown here are given by way of  
example and are not binding. 9/2017



1962-2018

56 years of  
action and energy  
efficiency



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Representative :

