

Instrukcja obsługi kotła żeliwnego na paliwa stałe

Cast-iron solid fuel boilers

Installation, Operation & Maintenance Manual

Heizkessel für feste Brennstoffe

Anweisungen für die Aufstellung, Betrieb sowie Wartung und Reparatur

КОТЁЛ СЕРИИ EVO НА ТВЁРДОМ ТОПЛИВЕ

РУКОВОДСТВО ПО УСТАНОВКЕ, ЭКСПЛУАТАЦИИ И УХОДУ



EVO

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Interference may damage the boiler (and possibly also associated equipment !) .

Boiler dimensions :

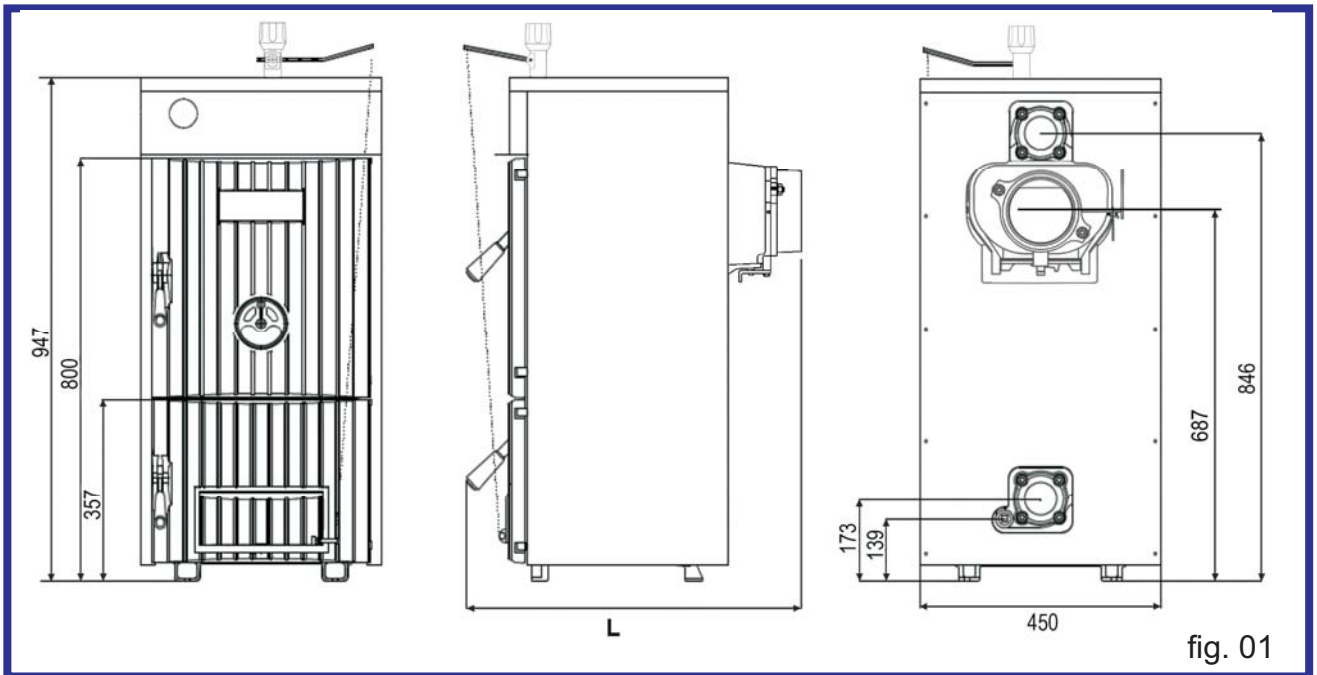


fig. 01

	EVO - 03	EVO - 04	EVO - 05	EVO - 06	EVO - 07	EVO - 08	EVO - 09	EVO - 10
L (mm)	609	709	809	909	1009	1109	1209	1309

Boiler packaging dimensions :

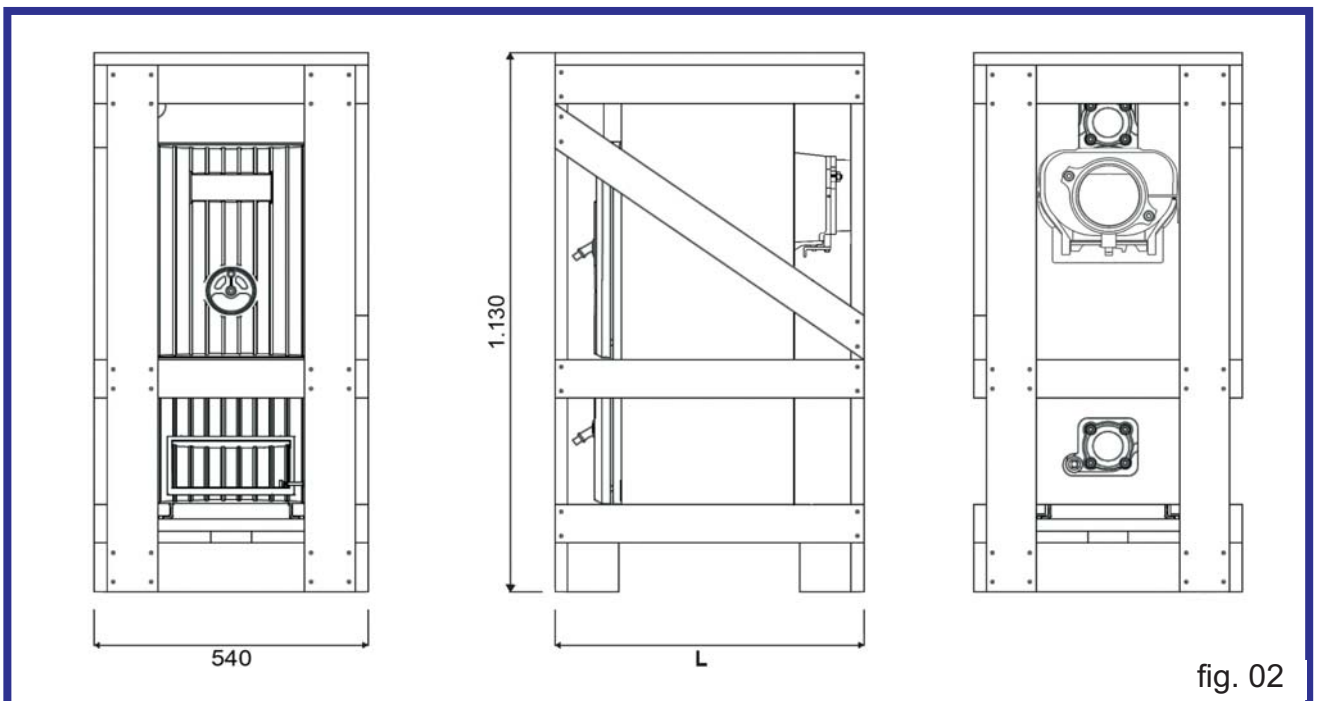


fig. 02

	EVO - 03	EVO - 04	EVO - 05	EVO - 06	EVO - 07	EVO - 08	EVO - 09	EVO - 10
L (mm)	665	765	865	965	1.065	1.165	1.265	1.365

Notice: Please obey to the meanings of the symbols on packaging for healthy care.



Technical parameters

Boiler type		EVO-03	EVO-04	EVO-05	EVO-06	EVO-07	EVO-08	EVO-09	EVO-10
Number Of Elements	Pcs.	3	4	5	6	7	8	9	10
Nominal Heat Output (Black Coal - Walnut)	kW	15,0 - 17,0	24,0 - 27,0	31,0 - 34,0	38,0 - 41,0	43,0 - 46,0	48,0 - 51,0	52,0 - 55,0	56,0 - 60,0
Nominal Heat Output (Hardwood - Split Logs)	kW	12,0 - 14,0	18,0 - 20,0	25,0 - 27,0	30,0 - 33,0	34,0 - 38,0	39,0 - 42,0	42,0 - 44,0	44,0 - 47,0
Minimum Heat Output	kW	9,2	12,1	14,6	18,5	20,4	24,4	24,5	30,6
Heating Water Maximum Temp.	°C	90							
Heating Return Water Minimum Temp.	°C	50							
Safety Valve Temperature Limit	°C	95							
Burning Time For Nominal Output (Black Coal)	h	> 4							
Burning Time For Nominal Output (H.Wood)	h	> 2							
Range Of Temperature Control	°C	30 - 90							
Maximum Pressure of System	bar	4							
Minimum Pressure of System	bar	0.4							
Boiler Water Content	lit.	16,33	20,30	24,27	28,24	32,21	36,18	40,16	44,14
Flue Gas Mass Flow (Black Coal)	kg/s	0.018	0.025	0.031	0.038	0.042	0.048	0.052	0.055
Flue Gas Mass Flow (Wood)	kg/s	0.015	0.018	0.024	0.028	0.034	0.038	0.042	0.046
Minimum Chimney Depression	mbar	0.12	0.14	0.17	0.20	0.22	0.25	0.28	0.30
Exit Flue Connection Diameter	mm	0.12	0.14	0.17	0.20	0.22	0.25	0.28	0.30
Combustion Chamber Dimensions	mm	300 x 380							
	mm	150					180		
Exit Flue Gas Temperature	°C	190 - 260			180 - 245			170 - 210	
Water Inlet - Outlet Connection	"	G 2"							
Inlet - Outlet Connection Temp. Safety Valve	"	G ½"							
Boiler Drain	"	G ½"							
Maximum Noisiness acc. to Valid Norms	dB	45 – 60 (A)							
Boiler Class (EN 303 - 5)		1							
Weight	kg	197	239	279	327	364	405	442	479

Information on the boiler plate :

The boiler Serial No. is shown on the plate which is attached to the cover panel of the cast iron body



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EKO-VIMAR ORLAŃSKI®

Kocioł żeliwny na paliwa stałe		Typ: EVO 7	
Cast iron solid fuel boiler		CE 1015	
Festbrennstoff-Gusskessel			
Чугунный котёл на твёрдое топливо			
Paliwo	Węgiel/Drewno	Nominalna moc cieplna	43-46kW/ 34-38 kW
<i>Fuel</i>	<i>Coal/Wood</i>	<i>Nominal heat output</i>	
<i>Brennstoff</i>	<i>Kohle/Holz</i>	<i>Nennwärmeleistung</i>	
<i>Топливо</i>	<i>Уголь/древесина</i>	<i>Номинальная тепловая сила</i>	
Maks. ciśnienie robocze	4 bar	Klasa kotła	1
<i>Max. working pressure</i>		<i>Boiler Class</i>	
<i>Zul. Betriebsdruck</i>		<i>Kesselklasse</i>	
<i>Максимальное рабочее давление</i>		<i>Класс котла</i>	
Maks. temperatura robocza	90 °C	Data produkcji	2009
<i>Max. working temperature</i>		<i>Date of production</i>	
<i>Max. Betriebstemperatur</i>		<i>Baujahr</i>	
<i>Максимальная рабочая температура</i>		<i>Дата продукции</i>	
Pojemność wodna	32,21 L	Nr fabryczny	
<i>Boiler water capacity</i>		<i>Serial number</i>	
<i>Kesselwasserinhalt</i>		<i>Fabriknummer</i>	
<i>Водная ёмкость</i>		<i>Фабричный №</i>	
<p>Ostrzeżenie Kocioł może być zainstalowany tylko w pomieszczeniu gwarantującym stały dopływ powietrza (wentylowanym). Przed rozpoczęciem montażu i pierwszym uruchomieniem należy zapoznać się z instrukcją montażu i obsługi kotła.</p> <p>Warning Boiler must be installed in a place with permanent supply of air necessary for the combustion process. Before installing and first startup of the boiler read carefully installation, operation & maintenance manual.</p> <p>Warnung Der Kessel darf nur im Raum installiert werden, der ständigen Luftzufuß garantiert. Vor der Montage und der Erstinbetriebnahme soll man sich mit der Montage- und Betriebsanleitung bekannt machen.</p> <p>Внимание Котёл может быть установлен только в помещении, гарантирующем постоянный приток воздуха (вентилируемым). Перед началом монтажа и первым введением в действие нужно ознакомиться с инструкцией монтажа и обслуживания котла.</p>			

fig. 03

Introduction :

1. The boiler and all associated equipment must be installed and used in accordance with the installation design, all applicable legal regulations and technical standards and with the manufacturer's instructions. The boiler may be used only for the purpose for which it is intended.
2. The boiler may be installed only in an environment which it is designed for. If the boiler is delivered to the client by the same person who installs it, he must give the user also all accompanying boiler documentation (in particular User Guide, Service Book, etc.). Until the boiler is put into service, the original packaging must be kept in case the boiler has to be transported again.
3. After installation, the boiler must be put into operation by a service organisation authorised by the manufacturer.
4. The boiler complies with regulations applicable in the European Union. When used in the conditions of countries outside at EU, any deviations from local regulations must be identified and rectified.
5. In the event of a defect, call an authorised manufacturer's service organisation—any unauthorised interference may damage the boiler (and possibly also associated equipment!).
6. The service technician putting the boiler into operation for the first time must show the user the various parts of the boiler and how to control the boiler, with the boiler safety elements, their signals and appropriate user reaction to them, with fundamental parts of the boiler and their controls. If the boiler is delivered to the client by the same person who installs it, he must make sure that the original packaging is available in case the boiler has to be transported again.
7. Check the delivery for completeness.
8. Check whether the model and type supplied is suitable for the required use.
9. Whenever you are not certain how to control the boiler, study appropriate instructions in this Operation and installation Guide carefully and proceed accordingly.
10. Never remove or damage any markings and signs on the boiler. Keep the original packaging until the boiler has been put into service, in case the boiler has to be transported again.
11. When making any repairs, only original parts must always be used. It is forbidden to make any changes to the boiler's internal installation, or to interfere with it in any way.
12. At the end of its life cycle, the boiler or its parts must be disposed of in a way avoiding harm to the environment.
13. The manufacturer disclaims any responsibility for damages caused by the failure to abide by:

- The conditions stipulated in this Operation and Installation Guide;
- Applicable regulations and standards;
- Sound installation and operation procedures; and
- Conditions stated in the Warranty Certificate and the Service Book.

Situations might occur in practice, when the following essential precautions must be taken:

- Shut the boiler down every time when there are any (even temporary) flammable or explosive fumes present on the premises from which combustion air is supplied to the boiler (e.g. from paint when painting, laying and spraying molten substances, from gas leaks, etc.) ;
- if it is necessary to drain water from the boiler or from the whole system, the water must not be dangerously hot;
- When water is leaking from the boiler's heat exchanger, or when the exchanger is clogged up with ice, do not attempt to start up the boiler until normal operating conditions have been restored;

Ensuring safety of equipment and people :

- The boiler (and all accessories) complies with the requirements of EN 303 – 5 :1999, its updates and all relevant European standards.
- In order to run and operate the boiler in accordance with the purpose for which it is designed in actual conditions of use (hereafter referred to only as use), it is necessary to abide also by additional requirements the most essential ones of which (i.e.those which must not be omitted) are found in the following regulatory documents:
- In addition to the above mentioned documents, it is necessary when using the boiler to proceed in accordance with this Operation and Installation guide and the accompanying boiler manufacturer's documentation. Any interference by children, persons under the influence of narcotic drugs, certified persons, etc., when using the boiler, must be prevented.

Head Losses :

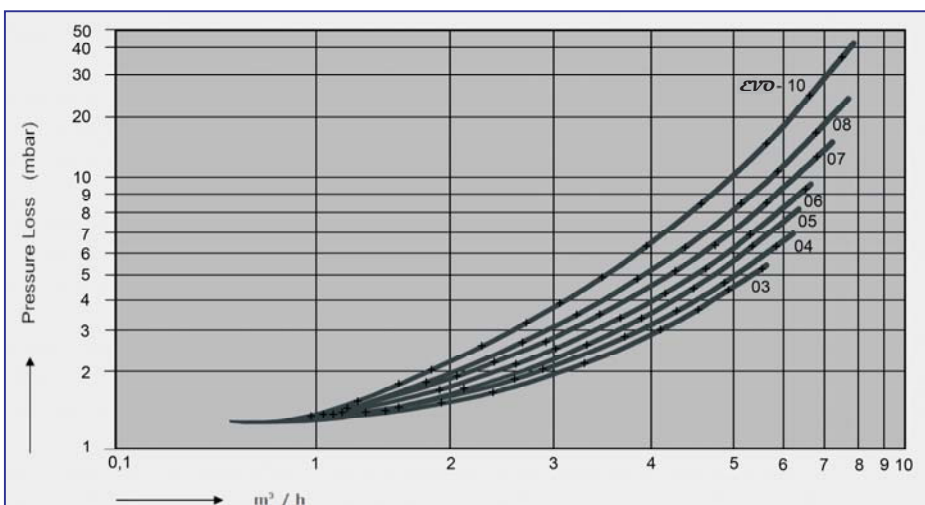


fig. 04

Operating Instructions

Boiler *ENV* – General features :

- *ENV* is a solid fuel fired boiler designed for heating both residential and industrial buildings.
- Besides professional installation, precondition for correct functioning of the boiler is the required chimney thrust and correct operation.
- *ENV* is a boiler designed for heating systems with either forced or natural thrust circulation, with the exception of 8 and 10 segment units, which are suitable for forced circulation systems only.
- Boilers *ENV* are available in seven output series (determined by the number of segments 3,4,5,6,7,8,9,10) from 15 to 60 kW.
- The cast iron boiler body comprises of segments and serves as a combustion chamber (including combustion gases routes), and at the same time as a water reservoir (including water routes). Segments are of three types – front and rear, inserted between which are 1 to 8 middle segments (of the same kind). By assembling and joining together an appropriate number of segments, a boiler body of the required size is constructed (both the combustion chamber and the water reservoir). Assembled boiler body is equipped with necessary pipe sections for water connection. It also has brackets for fitting thermostat sensors and brackets on feet for fastening the boiler to the base. Attached to the cast iron boiler body are sheet metal covers which are fitted on the inside with thermal insulation.
- To ensure that the boiler functions correctly and runs economically, it is important that its nominal output is equal to the thermal losses of the heated premises.
- Choosing a boiler of insufficient output will result in inadequate heating of the premises, and thus failure to provide a heating comfort.
- Choosing a boiler of unnecessarily high output will result in the boiler not running in full output, and as a consequence in tarring and dewing.

Recommended fuel :

- Recommended fuel for *ENV* boilers is coal, coke and firewood.
- Optimal coal and coke granularity is 24 – 60 mm.
- Optimal firewood size is logs of diameter 40 – 100 mm. Their length will depend on how many segments the boiler has.
- Fuel must be stored in a dry place. To reach the boiler nominal output, water content in firewood must not exceed 20% .
- Approximate stoking intervals are shown in the Technical Data Table on page 24.
- The boiler is stoked manually.

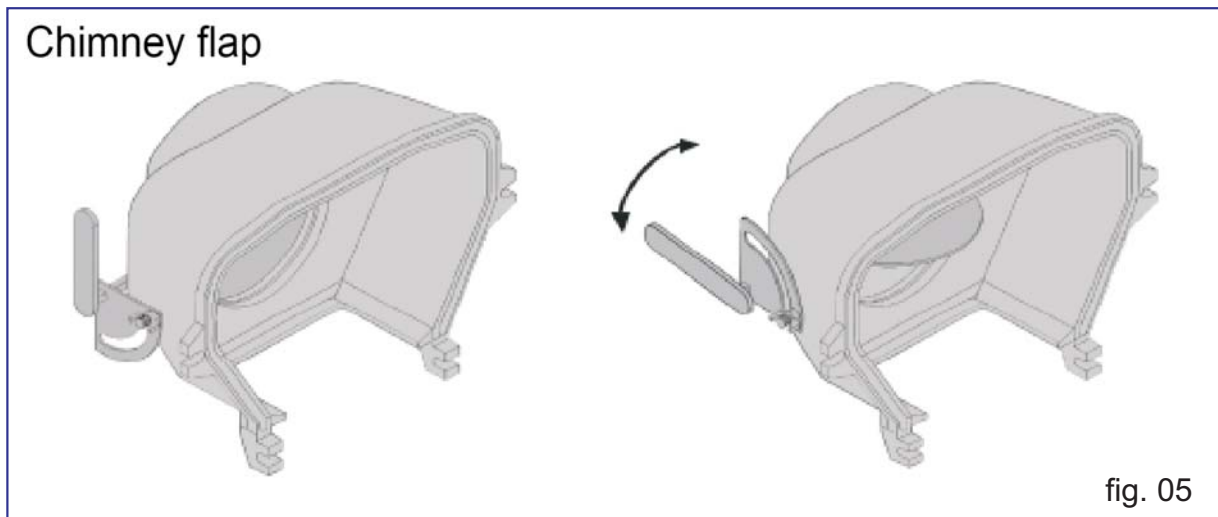
Please note:

The boiler is not intended for burning any type of waste.

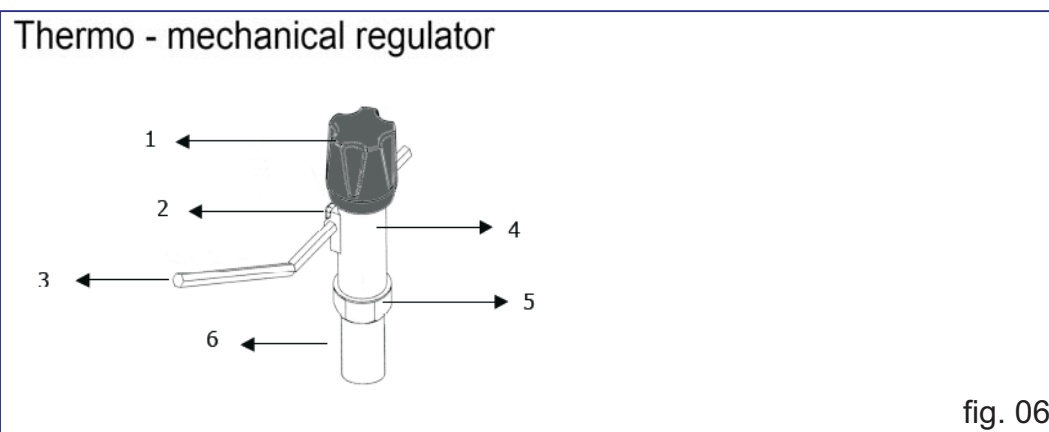
Control and safety elements :

EVO boilers are equipped with three main control elements:

A **chimney flap (Fig. 5)**, by means of which the chimney thrust can be controlled, i.e. the discharge of combustion fumes into the chimney. The flap is situated in the flue neck of the boiler, and is controlled manually.



Another thrust control element is a **thermo-mechanical output regulator (Fig. 6)**. It is situated on the outlet from the boiler cast iron body. It detects temperature of the hot water and regulates the supply of primary combustion air to underneath the boiler stoker, by opening or shutting a flap situated in the ashtray door.



- 1 . Regulation Button
- 2 . Arm holder
- 3 . Arm
- 4 . Regulator body
- 5 . Hexagon
- 6 . Pit



When fitting the sheating and the control elements remember to meet the principles of work safety

Changing the hatch position controls the combustion intensity and thus the boiler output. The thermo mechanical output regulator is connected with the regulating hatch by chain. The chain is connected to the hatch in such a way that its tension can be set (Fig. 7).



Keep object's away from regulation hatch's front and channels for allowing primary air transfer.

Supply of secondary combustion air is controlled by an air rosette (Fig. 8), situated in the boiler's stoking door, which has a direct effect on the level of emission.



Hot water temperature can be checked on a thermo - manometer (Fig. 9), which is situated in the front boiler cover above the stoking door.



Putting the boiler into service

Checking the boiler before turning it on :

Before putting the boiler into operation, the service technician must check:

- whether the installation conforms with the design;
- whether the boiler has been filled in and is under pressure (on the thermo - manometer), and whether there are any leaks in the heating system;
- connection to the chimney - connection must be approved by an authorised chimney sweep (chimney inspection);
- functioning of the heating controls.

Please note:

The service technician must show the user how to control the boiler and enter the date when the boiler was put into service into the Warranty Certificate.

Filling up and draining the heating system :

The system can only be filled up or topped up with water which meets the parameters specified by EN standards. The water must be clear, colourless, free of suspended particles, oil and (chemically corrosive substances, and must not be acidic (pH factor must be greater than 7.2). First of all, the heating system must be thoroughly flushed and all dirt washed out.

Please note:

Water in system must not be reduced or put out unless the boiler is in service or under freezing danger. Against freezing anti-freeze liquid can be added in to system water at the rate of % 15.

Please note:

The failure to meet this requirement may lead to the heat exchanger getting clogged up, and the cast iron block may crack as a result.

During the heating season, a constant volume of water must be maintained inside the heating system. When topping up water, care must be taken that no air is sucked into the system. Water must never be let out of the boiler or the heating system, unless it is absolutely essential, such as before repairs, etc. Draining water and refilling the system with new water increases the risk of corrosion and formation of incrustation.

Please note:

Filling or topping up water to the heating system must always be done with the boiler cold or cooled down; otherwise the boiler segments may crack !

Operation and controls

Starting a fire :

Check on the thermo - manometer whether there is enough water in the heating system. Open the shutting valve between the boiler and the heating system. Spread paper on top of the clean stoker and then enough finely chopped wood. Open the flue flap in the flue adapter and shut the stoking door. Light the paper through the open ashtray door and fully open the regulating flap in the ashtray door. The fire has caught up enough, stoke a layer of main fuel on top of the burning firewood. When the fire is powerful enough, stoke more fuel right up to the bottom edge of the stoking door and level it into.

an even layer throughout the entire boiler depth. If the fuel suddenly turns into dark red blaze, open partially the secondary air supply rosette in the stoking door. When the flame turns yellow, shut the secondary air supply rosette again. When the boiler has reached the required output, it is suitable to partially shut the flue thrust flap to prevent heat from unnecessarily escaping into the chimney.



- * Do not start the boiler without connecting the boiler to the chimney.
- * Control chimney connections before starting the boiler.
- * Adjust the chimney blow as requested level. If chimney blow is under mentioned levels try not to use the boiler.

Setting the outlet water temperature :

When the required outlet water temperature is say 60 °C, heat up the boiler to a temperature for instance 5 °C higher than the required temperature of 60 °C (measured on the thermometer on the boiler outlet pipe). Then turn the control knob to 65 °C and check whether the chain is stretched and the regulating hatch completely shut. This position of the chain and regulating hatch is fine-adjusted by turning the control knob. Then let the regulation process work. When the water temperature drops, the regulating hatch will start opening by the tension applied by the regulator on the chain. When the water temperature suddenly rises, the regulating hatch will start opening. In this way the hot water temperature on the boiler outlet is controlled.

Stoking :

First shut the regulating hatch; this will shut supply of combustion air into the boiler. Then open the chimney flap completely. Partially open the stoking door and wait until all combustion gases have been sucked from the combustion chamber into the chimney. Only then open the stoking door completely and start stoking the boiler. After shutting the stoking door, set the chimney flap again and restore the functioning of the regulating hatch.



- * Boiler doors must not be kept open as the boiler is continuously working.

Overnight heating mode :

This mode is used when you want to maintain the fire in the boiler for instance over night. First scrape all ash out of the combustion chamber, with the chimney flap completely opened. Then stoke the boiler with fuel and shut the boiler up completely. Then shut the chimney flap and also almost shut the regulating hatch. This will reduce the chimney thrust and restrict the supply of combustion air. Shut also the secondary air supply rosette in the stoking door. To restore the boiler's required output, merely open the chimney flap and partially open the regulating hatch to the required boiler output.

Removing solid combustion residuals :

This is done by removing and emptying the ashtray situated underneath the stoker in the ash compartment. This must be done on a regular basis to prevent ash from accumulating and blocking the supply of air to the combustion chamber from underneath the stoker.

Dewing and tarring :

When starting fire in a cold boiler, water condensates on the walls and runs down into the ash compartment, which may make an impression that the boiler is leaking. This dewing will disappear after the astray has settled on the boilers inside walls. When running the boiler with low water temperature usually below 65°C, or when using damp fuel, water condensates in combustion gases and the condensate runs down the boiler's cold walls. Low temperature heating also reduces the chimney life. Therefore it is recommended to equip the boiler with for instance a four-way blending valve which will ensure that the temperature of return water does not drop below 50°C. Boiler tarring occurs under similar conditions (lack of combustion air, the boiler is choking). To prevent dewing and tarring, we recommend you run the boiler at temperatures higher than 65 °C and choose a boiler to match the required heating system output. An oversized boiler suffers unnecessarily, because it has to be run at low temperatures.

Boiler shutdown :

We do not recommend that you try to speed up the boiler combustion process. The fuel must burn completely on its own on the stoker.

Short term shutdown :

After shutting the boiler down, clean it, remove all combustion residuals, empty the ashtray, clean the stoking door contact surfaces and the ash compartment, and then shut the boiler's stoking door and ash compartment door.

Long term shutdown :

When shutting the boiler down for a protracted period of time (heating season end), the boiler must be thoroughly cleaned from all soot and ash sediments, in which dampness accumulates and causes excessive corrosion of the boiler body.

Important information :

- The boiler may only be operated by an adult person familiar with these Operating Instructions.
- Shut the boiler down every time there are any (even temporary) flammable or explosive fumes present on the premises from which combustion air is supplied to the boiler (e.g. From paint when painting, laying and spraying molten substances, from gas leaks, etc.).
- It is forbidden to light the boiler with explosive substances.
- It is forbidden to overheat the boiler.
- At the end of the heating season the boiler, flue and flue adapter, must be thoroughly cleaned. Lubricate all hinges, the flue flap mechanism and other moving.

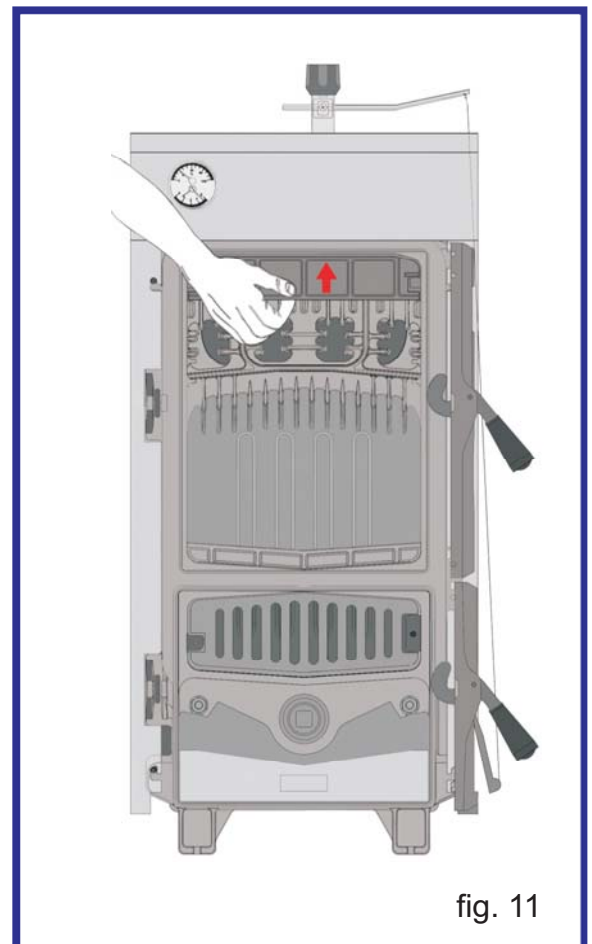
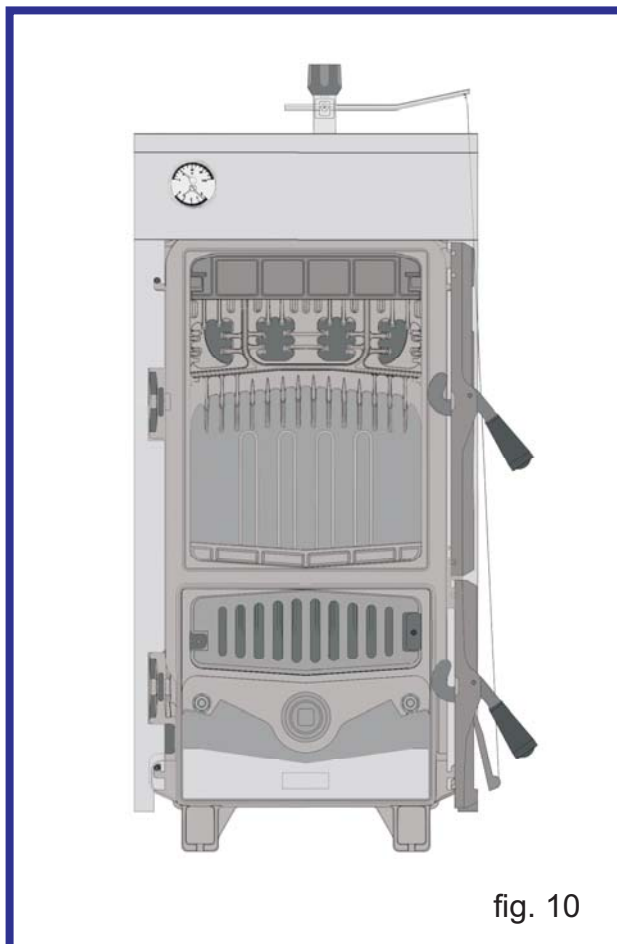
Boiler cleaning :

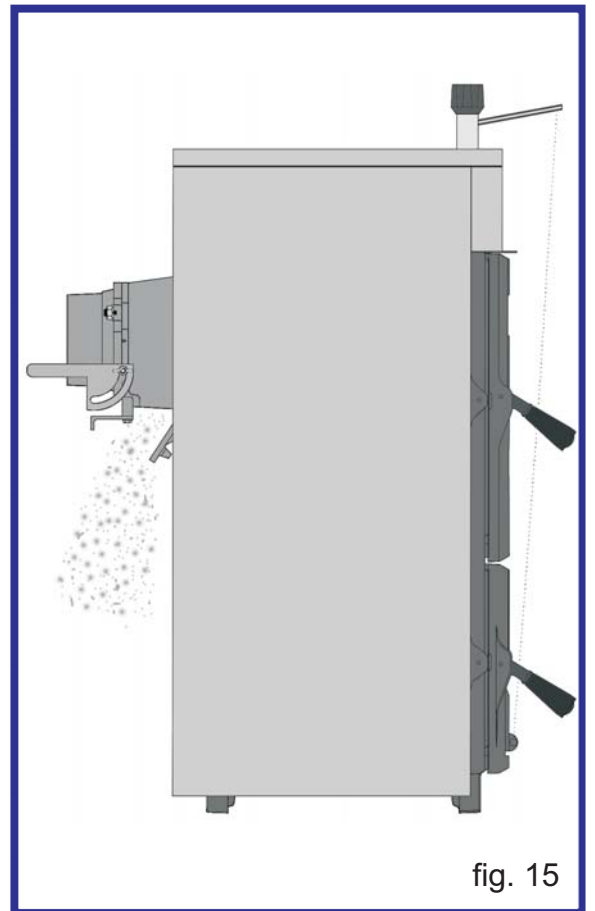
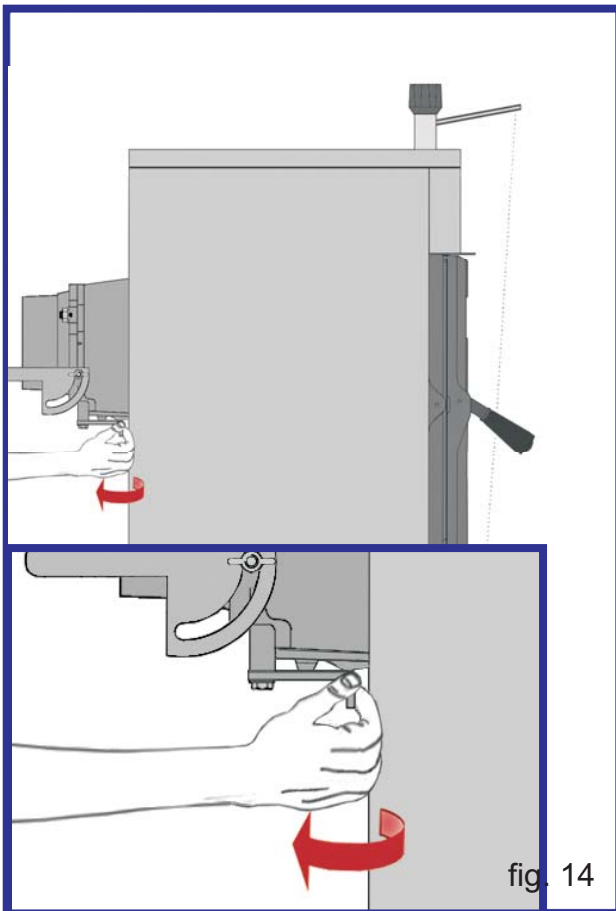
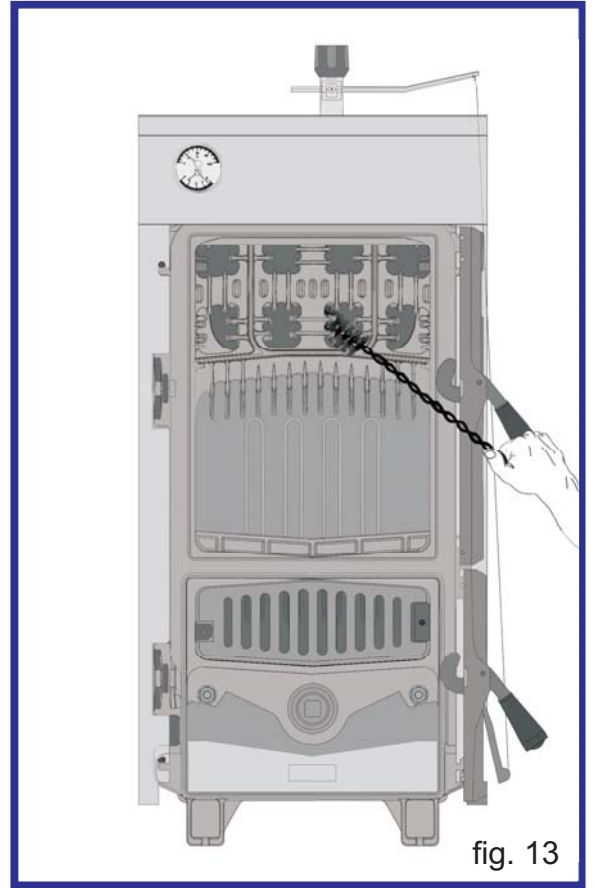
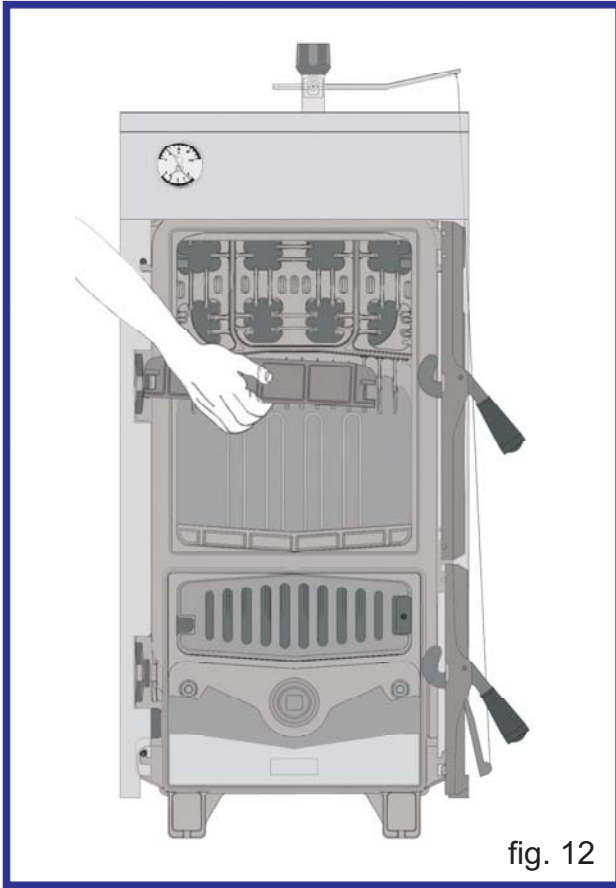
When the boiler is used, soot and fine ash accumulates on the boiler walls, mainly on heat exchanger ribs and in the flue neck, which reduces heat transfer and the boiler output. The actual quantity of soot and fine ash will depend on the quality of the fuel used and on the boiler operating conditions.

If the boiler is oversized or was for some reason run at low temperatures, more soot is generated. This may also result in inadequate chimney thrust.

The boiler must be cleaned regularly, at least once a month, which is done with a steel brush through an open boiler door.

All boiler walls inside the combustion chamber and combustion gases routes should be cleaned. If a larger quantity of tar has accumulated on internal walls of the combustion chamber, it must be removed with a scraper or burnt with hard wood (or coke), running the boiler at maximum operating temperature.





Boiler repairs :

The boiler may be repaired by an authorised service technician or organisation only. The user or owner may do only normal maintenance and simple replacements of some parts—e.g. sealing cords.

Please note:

When repairing the boiler, original parts must always be used.

Warranty and Warranty Conditions :

ENV boilers are covered by warranty specified in the Warranty Certificate and User and Installation Guide (chapter Introduction, Installing the boiler).

Boiler delivery :

ENV boilers are supplied completely assembled and functionally tested.

The delivery includes:

1. Boiler
2. Operating and Installation Instructions
3. Thermo-mechanical output regulator
4. Cleaning kit (brush, poker)

Installation Instructions

Boiler installation - General information :

EVO boilers must be put into service by an authorised services. A network of authorised service organisations which meet these conditions is available for all boiler installations, putting them into service and for warranty repairs. These networks are organised by EKO-VIMAR ORLAŃSKI Sp. z o.o. agreed distributors outside of Poland.

The boiler is designed to supply heating systems with gauge pressure up to 400 kPa which use water that meets the requirements of related standards (under no circumstances may the water be acidic, i.e. it must have $\text{pH} > 7$, and it should have minimum carbon hardness).

The heating system must be designed in such a way that hot water can circulate all the time through at least some of the radiators.

Antifreeze fluids – because of their unsuitable properties, we do not recommend to use them. They have a reduced ability to transfer heat, have large volumetric expansion, age and damage rubber components. If under concrete circumstances there is no other option how to reliably prevent .

Before final installation, the heating system distribution piping must be flushed several times with pressurised water. In old, already used systems, the flushing must be done in opposite direction to the hot water circulation. In new systems, all radiators must be cleaned from conservation material and rinsed with warm water under pressure.

We recommend installing a sludge trap upstream of the boiler (i.e. on hot water return pipe). The sludge trap design should allow emptying in regular intervals, without the need to drain a lot of hot water. The sludge trap may be combined with a filter; however, a filter alone will not provide an adequate protection.

Please note:

- System must be connected to open expansion tank for safety reasons.
- Any valve must not be connected to safety input and safety output lines.
- For increasing safety of the system, by-pass line must be installed on the line between input and output of circulation pumps, as shown in diagrams.
- By-Pass line's valve must be kept closed as the boiler is working normally.
- By-Pass line's valve can be used in electricity problems and must be opened if there is a risk of overheating in system water caused by an electricity cut or problem.
- The pipe used in by-pass line must be at least in the diameter of plumbing systems pipe.
- UPS (Power Supply Units) can be used for preventing electricity problems.

Please note:

Any problems (malfunctions) caused by boiler clogging with dirt from the heating system and/or malfunctions induced by clogging, are not covered by the boiler warranty.

Please note:

The filter as well as the sludge trap must be checked and cleaned regularly.

Heating water requirements :

Heating water requirements are specified in EN Standards. When the sum of concentrations of calcium and magnesium in the water exceeds 1.8 mmol/l , additional non - chemical treatments preventing lime deposition must be considered (e.g. Magnetic or electrostatic field treatment).

Boiler location :

EVD boilers can be located both on non-habitable premises (e.g. in boiler room, cellar, corridor...) and in habitable rooms. The room in which the boiler is located must have a permanent supply of air necessary for the combustion process. The air must be free of halogen hydrocarbons and corrosive vapours, and must not be excessively humid and dusty. The room must be protected against frost, with ambient temperature within the range +5 °C to +35 °C and relative humidity not exceeding % 80.

To comply with fire regulations, the boiler must be installed:

- on floor constructed of non-flammable material
- on a non-flammable mat overlapping the boiler footprint by 20 mm on each side and covering the entire depth of the boiler body.
- if the boiler is installed in a cellar, we recommend to put it on a socket at least 50 mm high, positioning the boiler in the middle

To comply with standards, at least 600 mm manipulation space must be left in front of the boiler. Minimum distance between the back of the boiler and the wall must be also 600 mm, and a free space of at least 600 mm must be left between one side of the boiler and the wall, to allow access to the rear of the boiler. Fuel must never be stacked directly behind or next to the boiler at a distance less than 800 mm. If there are two boilers in the boiler room, no fuel may be stacked in the space between them. We recommend to keep a minimum distance of 800 mm between the boiler and fuel (**Fig. 16**), or keep fuel in a room different than the one in which the boiler is installed.



* Do not put flammable materials on top of the boiler or near the boiler than specified safety distance.

Minimum Distances :

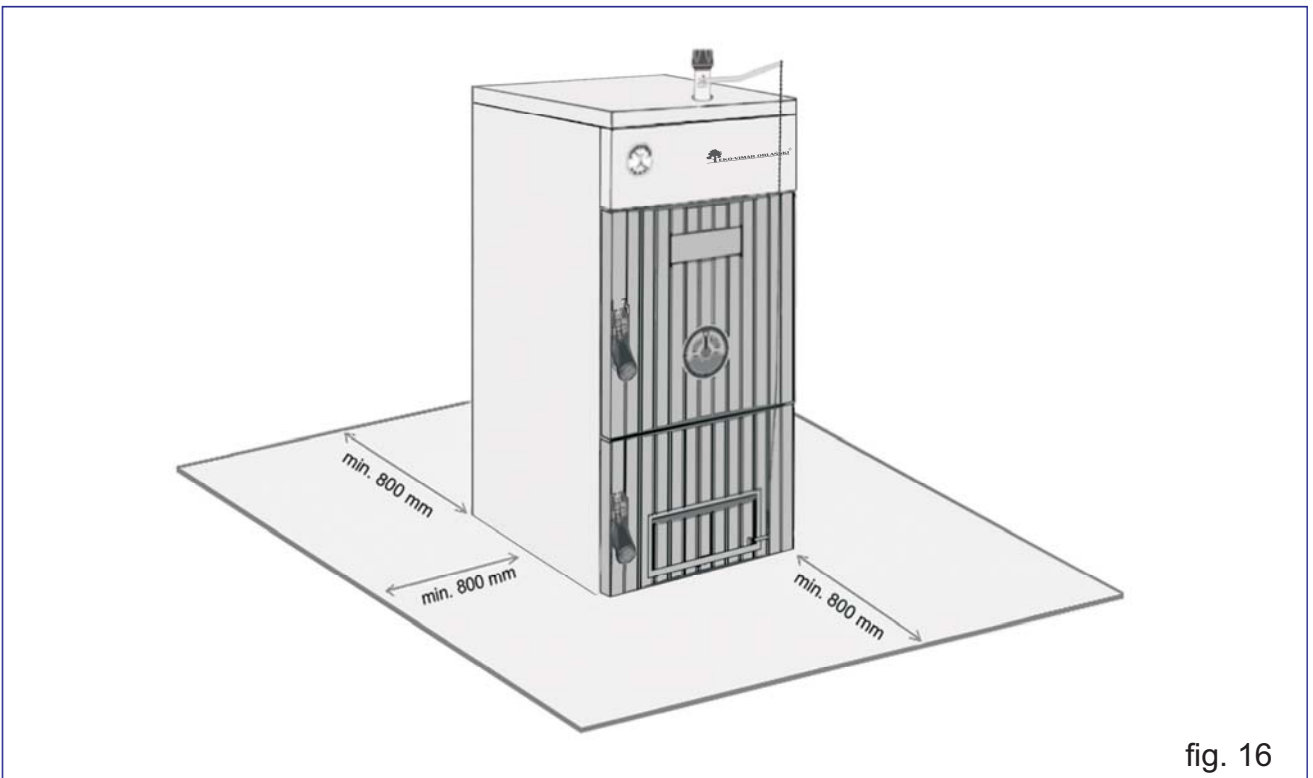
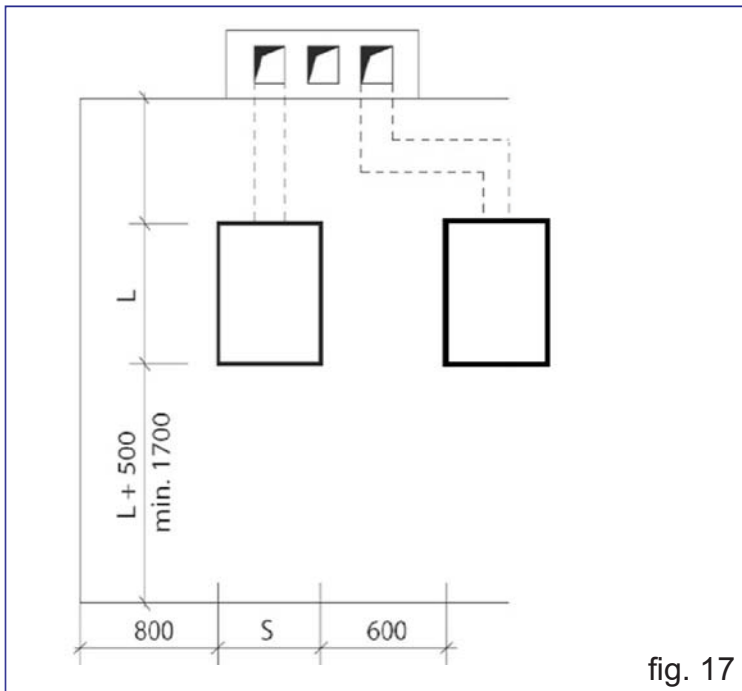


fig. 16

Boiler room disposition layout :

(Fig. 17) illustrates minimum distances which must be kept in order to ensure safe operation of the boiler room and allow manipulations with the boiler, such as cleaning and stoking. The distance between the front of the boiler and the wall should be at least the boiler length L plus 500 mm. Minimum distances between the boiler side and rear should be 800 mm, with the distance of the rear also determined by the way the boiler is connected to the chimney.



* Do not touch hot water connections or the flue outlet when the boiler is operating.

Installation procedure :

- Place the boiler body on a non - flammable mat.
- Install a temperature safety valve. Watch for the arrow indicating the water flow direction. It must be as shown in.
- After connecting the boiler to the heating system, screw filling and drain stopcocks into the back section.

- Screw the flue adapter with smoke flap onto the boiler combustion gases outlet.
- Put a flue over the flue adapter and insert it into the chimney connection hole. The flue diameter is 150 mm
- Install a thermo-mechanical output regulator into the opening in the top part of the front section.
- We recommend fitting shutting valves on the hot water inlet and outlet, without which it would be necessary to drain the entire heating system before the filter can be cleaned.
- No shutting valve may be installed between the boiler and the expansion vessel.

Boiler description :

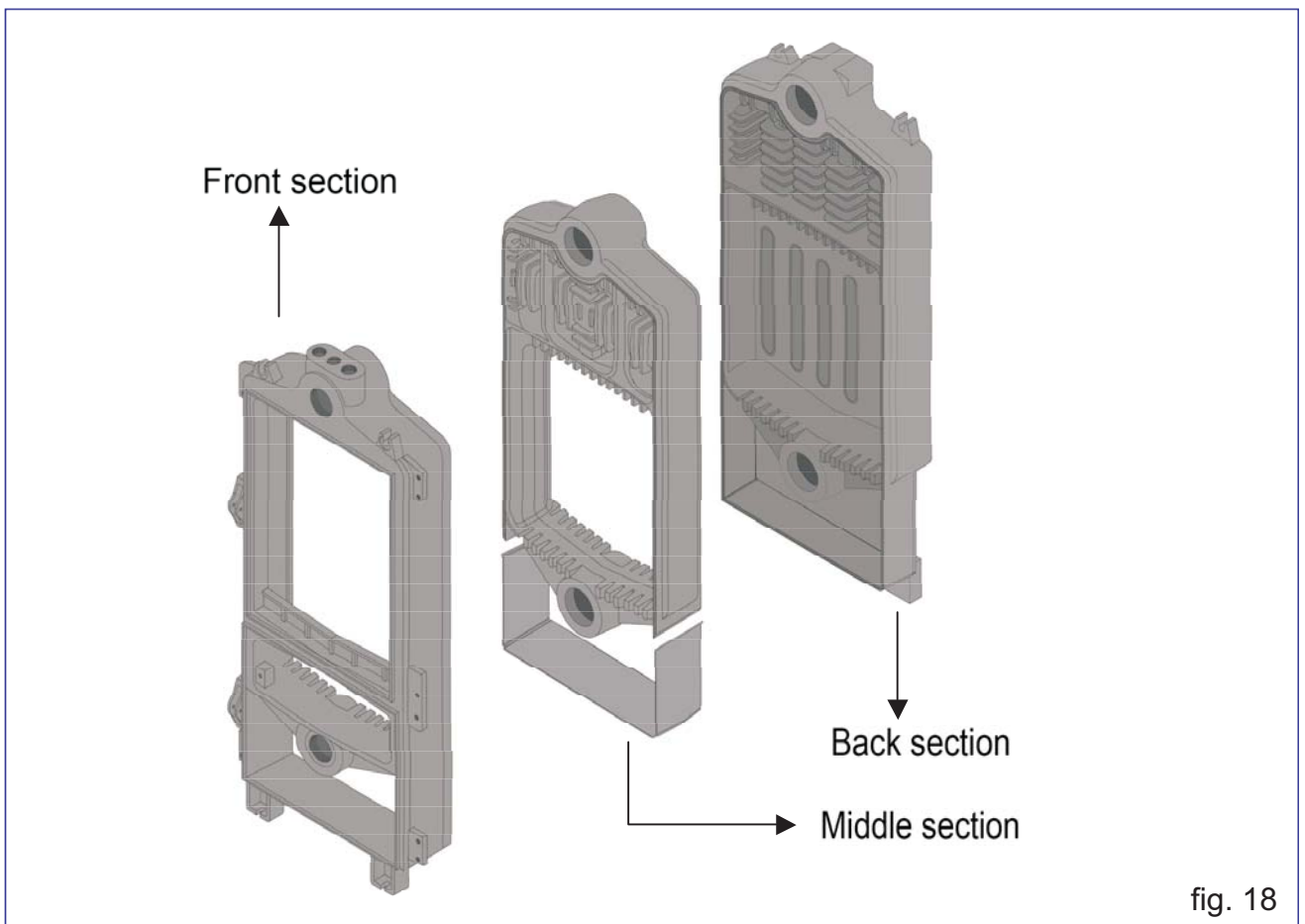


fig. 18

EVO boiler parts :

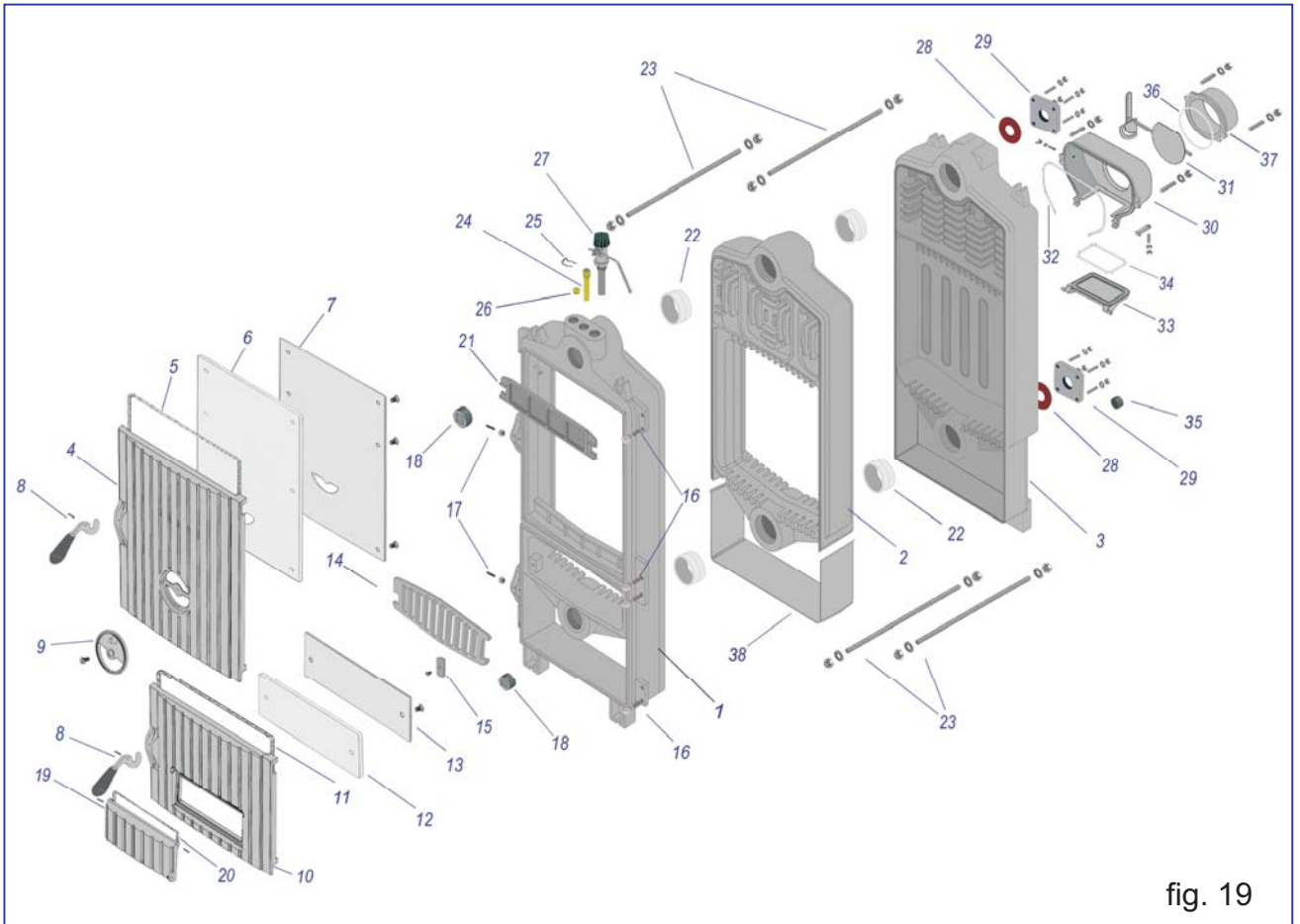


fig. 19

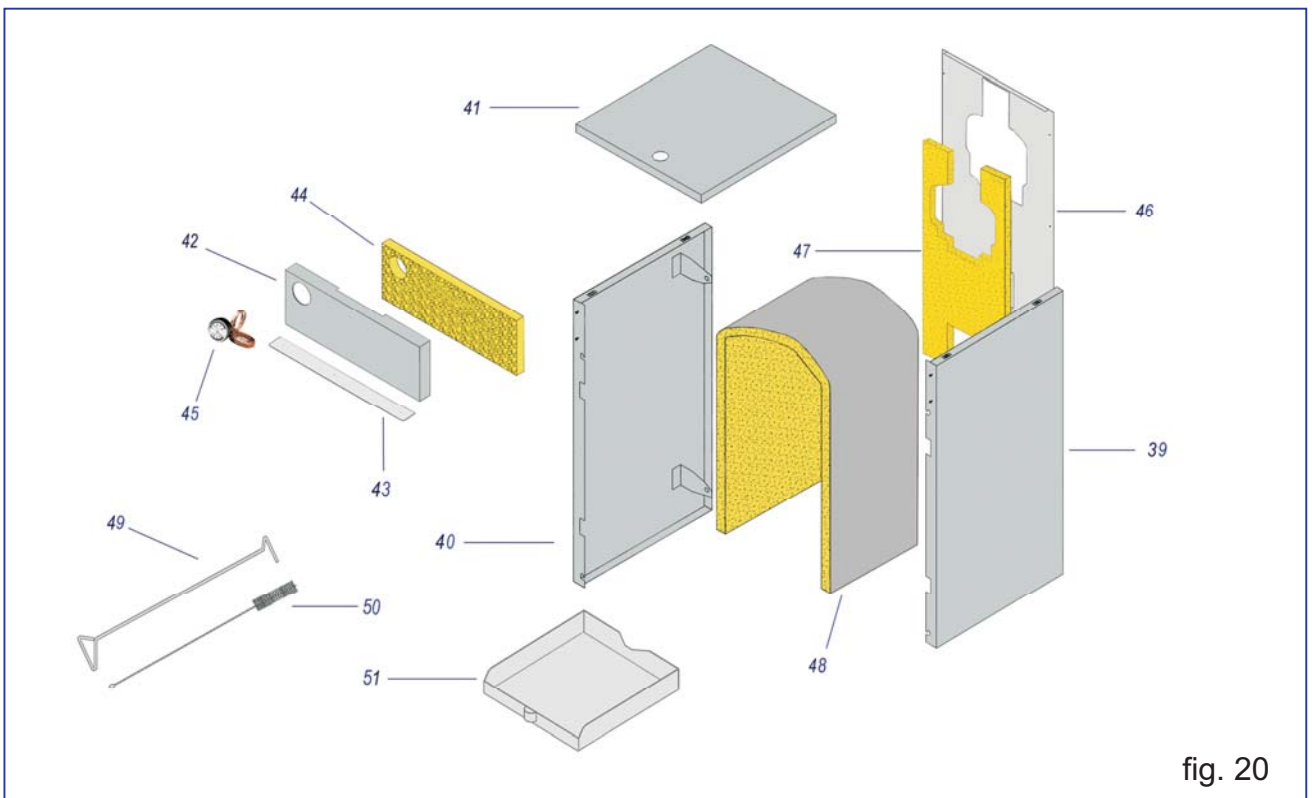


fig. 20

Spare parts list :

ITEM	DESCRIPTION	DRAWING NO	PART NUMBER						
			EVD - 03	EVD - 04	EVD - 05	EVD - 06	EVD - 07	EVD - 08	EVD - 010
01	FRONT SECTION	SF 20080100	SF - MD.060	SF - MD.060	SF - MD.060	SF - MD.060	SF - MD.060	SF - MD.060	SF - MD.060
02	MIDDLE SECTION	SF 20080101	SF - MD.050	SF - MD.050	SF - MD.050	SF - MD.050	SF - MD.050	SF - MD.050	SF - MD.050
03	BACK SECTION	SF 20080102	SF - MD.070	SF - MD.070	SF - MD.070	SF - MD.070	SF - MD.070	SF - MD.070	SF - MD.070
04	STOKING DOOR	SF 20080103	SF - PD.010	SF - PD.010	SF - PD.010	SF - PD.010	SF - PD.010	SF - PD.010	SF - PD.010
05	STOKING DOOR ISOLATION ROPE	SF 20080104	SF - CY.011	SF - CY.011	SF - CY.011	SF - CY.011	SF - CY.011	SF - CY.011	SF - CY.011
06	STOKING DOOR ISOLATION	SF 20080105	SF - SE.012	SF - SE.012	SF - SE.012	SF - SE.012	SF - SE.012	SF - SE.012	SF - SE.012
07	STOKING DOOR ISOLATION COVER	SF 20080106	SF - ST.013	SF - ST.013	SF - ST.013	SF - ST.013	SF - ST.013	SF - ST.013	SF - ST.013
08	DOOR HANDLE	SF 20080107	SF - BD.014	SF - BD.014	SF - BD.014	SF - BD.014	SF - BD.014	SF - BD.014	SF - BD.014
09	AIR ROSETTE	SF 20080108	SF - PD.015	SF - PD.015	SF - PD.015	SF - PD.015	SF - PD.015	SF - PD.015	SF - PD.015
10	ASHTRAY DOOR	SF 20080109	SF - PD.020	SF - PD.020	SF - PD.020	SF - PD.020	SF - PD.020	SF - PD.020	SF - PD.020
11	ASHTRAY DOOR ISOLATION ROPE	SF 20080110	SF - CY.021	SF - CY.021	SF - CY.021	SF - CY.021	SF - CY.021	SF - CY.021	SF - CY.021
12	ASHTRAY DOOR ISOLATION	SF 20080111	SF - SE.022	SF - SE.022	SF - SE.022	SF - SE.022	SF - SE.022	SF - SE.022	SF - SE.022
13	ASHTRAY DOOR ISOLATION COVER	SF 20080112	SF - ST.023	SF - ST.023	SF - ST.023	SF - ST.023	SF - ST.023	SF - ST.023	SF - ST.023
14	GRID	SF 20080113	SF - PD.030	SF - PD.030	SF - PD.030	SF - PD.030	SF - PD.030	SF - PD.030	SF - PD.030
15	GRID LOCK HINGE	SF 20080114	SF - PD.031	SF - PD.031	SF - PD.031	SF - PD.031	SF - PD.031	SF - PD.031	SF - PD.031
16	LOCK HINGE (24)	SF 20080115	SF - ST.090	SF - ST.090	SF - ST.090	SF - ST.090	SF - ST.090	SF - ST.090	SF - ST.090
17	DOOR LOCK CYLINDER	SF 20080116	SF - ST.041	SF - ST.041	SF - ST.041	SF - ST.041	SF - ST.041	SF - ST.041	SF - ST.041
18	STOPPER 1 ¼	SF 20080117	SF - SD.080	SF - SD.080	SF - SD.080	SF - SD.080	SF - SD.080	SF - SD.080	SF - SD.080
19	REGULATION HATCH	SF 20080118	SF - PD.024	SF - PD.024	SF - PD.024	SF - PD.024	SF - PD.024	SF - PD.024	SF - PD.024
20	REGULATION HATCH ISOLATION ROPE	SF 20080119	SF - CY.025	SF - CY.025	SF - CY.025	SF - CY.025	SF - CY.025	SF - CY.025	SF - CY.025
21	FRONT SECTION PLATE	SF 20080120	SF - ST.200	SF - ST.200	SF - ST.200	SF - ST.200	SF - ST.200	SF - ST.200	SF - ST.200
22	NIPPLE	SF 20080121	SF - ST.110	SF - ST.110	SF - ST.110	SF - ST.110	SF - ST.110	SF - ST.110	SF - ST.110
23	CONNECTION ROD	SF 20080122	SF - ST.123	SF - ST.124	SF - ST.125	SF - ST.126	SF - ST.127	SF - ST.128	SF - ST.130
24	THERMOSTAT BULB	SF 20080123	SF - PM.140	SF - PM.140	SF - PM.140	SF - PM.140	SF - PM.140	SF - PM.140	SF - PM.140
25	THERMOSTAT BULB SEGMENT	SF 20080124	SF - ST.141	SF - ST.141	SF - ST.141	SF - ST.141	SF - ST.141	SF - ST.141	SF - ST.141
26	THERMOMETER CHECK VALVE	SF 20080125	SF - PM.131	SF - PM.131	SF - PM.131	SF - PM.131	SF - PM.131	SF - PM.131	SF - PM.131
27	THERMOSTATIC REGULATOR	SF 20080126	SF - IM.150	SF - IM.150	SF - IM.150	SF - IM.150	SF - IM.150	SF - IM.150	SF - IM.150
28	FLANGE GASKET	SF 20080127	SF - KC.300	SF - KC.300	SF - KC.300	SF - KC.300	SF - KC.300	SF - KC.300	SF - KC.300
29	WATER INLET - OUTLET FLANGE	SF 20080128	SF - PD.215	SF - PD.215	SF - PD.215	SF - PD.215	SF - PD.215	SF - PD.215	SF - PD.215
30	CHIMNEY	SF 20080129	SF - PD.450	SF - PD.450	SF - PD.450	SF - PD.450	SF - PD.450	SF - PD.450	SF - PD.450
31	CHIMNEY FLAP	SF 20080130	SF - PD.405	SF - PD.405	SF - PD.405	SF - PD.405	SF - PD.405	SF - PD.405	SF - PD.405
32	CHIMNEY ISOLATION ROPE	SF 20080131	SF - CY.451	SF - CY.451	SF - CY.451	SF - CY.451	SF - CY.451	SF - CY.451	SF - CY.451
33	CHIMNEY CLEANING DOOR	SF 20080132	SF - PD.402	SF - PD.402	SF - PD.402	SF - PD.402	SF - PD.402	SF - PD.402	SF - PD.402
34	CHIMNEY CLEANING D.ISOLATION ROPE	SF 20080133	SF - CY.403	SF - CY.403	SF - CY.403	SF - CY.403	SF - CY.403	SF - CY.403	SF - CY.403
35	STOPPER ½	SF 20080134	SF - SD.085	SF - SD.085	SF - SD.085	SF - SD.085	SF - SD.085	SF - SD.085	SF - SD.085
36	RIGHT SIDE COVER PANEL	SF 20080135	SF - ST.603	SF - ST.604	SF - ST.605	SF - ST.606	SF - ST.607	SF - ST.608	SF - ST.610
37	LEFT SIDE COVER PANEL	SF 20080136	SF - ST.653	SF - ST.654	SF - ST.655	SF - ST.656	SF - ST.657	SF - ST.658	SF - ST.660
38	TOP COVER PANEL	SF 20080137	SF - ST.703	SF - ST.704	SF - ST.705	SF - ST.706	SF - ST.707	SF - ST.708	SF - ST.710
39	FRONT COVER PANEL	SF 20080138	SF - ST.753	SF - ST.753	SF - ST.753	SF - ST.753	SF - ST.753	SF - ST.753	SF - ST.753
40	PROTECTION STEEL SHEET	SF 20080139	SF - ST.773	SF - ST.773	SF - ST.773	SF - ST.773	SF - ST.773	SF - ST.773	SF - ST.773
41	FRONT COVER PANEL ISOLATION	SF 20080140	SF - CY.763	SF - CY.763	SF - CY.763	SF - CY.763	SF - CY.763	SF - CY.763	SF - CY.763
42	THERMOMETER	SF 20080141	SF - IM.160	SF - IM.160	SF - IM.160	SF - IM.160	SF - IM.160	SF - IM.160	SF - IM.160
43	REAR COVER PANEL	SF 20080142	SF - ST.900	SF - ST.900	SF - ST.900	SF - ST.900	SF - ST.900	SF - ST.900	SF - ST.900
44	REAR COVER PANEL ISOLATION	SF 20080143	SF - CY.901	SF - CY.901	SF - CY.901	SF - CY.901	SF - CY.901	SF - CY.901	SF - CY.901
45	CASTING BODY INSULATION	SF 20080144	SF - CY.553	SF - CY.554	SF - CY.555	SF - CY.556	SF - CY.557	SF - CY.558	SF - CY.560
46	MIXING ROD	SF 20080145	SF - ST.903	SF - ST.904	SF - ST.905	SF - ST.906	SF - ST.907	SF - ST.908	SF - ST.910
47	CLEANING BRUSH	SF 20080146	SF - ST.803	SF - ST.804	SF - ST.805	SF - ST.806	SF - ST.807	SF - ST.808	SF - ST.810
48	ASHTRAY	SF 20080147	SF - ST.503	SF - ST.504	SF - ST.505	SF - ST.506	SF - ST.507	SF - ST.508	SF - ST.510
49	MIDDLE SECTION COVER	SF 20080148	SF - GZ.103	SF - GZ.104	SF - GZ.105	SF - GZ.106	SF - GZ.107	SF - GZ.108	SF - GZ.110
50	STOKING DOOR PLATE	SF 20080149	SF - PD.103	SF - PD.104	SF - PD.105	SF - PD.106	SF - PD.107	SF - PD.108	SF - PD.110

Accumulator tank capacity :

NOTE : The heat can be supplied for example by an accumulator tank. The following applies as a reference for the minimum storage boiler content :

$$V_{sp} = 15T_b \times Q_N (1-0,3 \times (Q_H/Q_{min}))$$

- V_{sp} : Accumulator tank capacity in L
- Q_N : Nominal heat output in kW
- T_b : Burning period in h
- Q_H : Heating load of the premises in kW
- Q_{min} : Minimum heat output in kW

Heating boilers using several allowable fuels should have the tank size based on the fuel which requires the largest accumulator tank.

The accumulator tank is not necessary when the required volume is less than 300 l.

Transportation and storage :

The manufacturer handles the boiler that is on a pallet and secured against shifting (with screws). The boiler may not be transported in a different position than on its base.

At least regular storage conditions shall be ensured during boiler storage and transportation (non - aggressive environment, air humidity lower than 75 %, temperature range from 5 °C to 55 °C, low dustiness and preventing influence of biological factors).

The force may not be applied on the boiler coverings and panel during storage and transportation.



Boiler must not be carried or transported without using forklifts, transpallettes or other wheeled carrying vehicles.

