

- I** **Bruciatori di gasolio**
- GB** **Light oil burners**
- FR** **Brûleurs fioul domestiques**

Funzionamento monostadio
One stage operation
Fonctionnement à 1 allure



CODICE - CODE	MODELLO - MODEL - MODÈLE
20119424 - 20131439	SIME FUEL 25 ErP
20119426 - 20131442	SIME FUEL 35 ErP

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1 Declaration

Declaration of Conformity in accordance with ISO / IEC 17050-1

These products are in compliance with the following Technical Standards:

- EN 12100
- EN 267

According to the European Directives:

MD	2006/42/EC	Machine Directive
LVD	2014/35/UE	Low Voltage Directive
EMC	2014/30/UE	Electromagnetic Compatibility

The quality is guaranteed by a quality and management system certified in accordance with ISO 9001:2015.

2 Information and general warnings

2.1 Information about the instruction manual

2.1.1 Introduction

The instruction manual supplied with the burner:

- is an integral and essential part of the product and must not be separated from it; it must therefore be kept carefully for any necessary consultation and must accompany the burner even if it is transferred to another owner or user, or to another system. If the manual is lost or damaged, another copy must be requested from the Technical Assistance Service of the area;
- is designed for use by qualified personnel;
- offers important indications and instructions relating to the installation safety, start-up, use and maintenance of the burner.

Symbols used in the manual

In some parts of the manual you will see triangular DANGER signs. Pay great attention to these, as they indicate a situation of potential danger.

2.1.2 General dangers

The **dangers** can be of **3 levels**, as indicated below.



Maximum danger level!

This symbol indicates operations which, if not carried out correctly, cause serious injury, death or long-term health risks.



This symbol indicates operations which, if not carried out correctly, may cause serious injury, death or long-term health risks.



This symbol indicates operations which, if not carried out correctly, may cause damage to the machine and/or injury to people.

2.1.3 Other symbols



DANGER: LIVE COMPONENTS

This symbol indicates operations which, if not carried out correctly, lead to electric shocks with lethal consequences.



DANGER: FLAMMABLE MATERIAL

This symbol indicates the presence of flammable materials.



DANGER: BURNING

This symbol indicates the risks of burns due to high temperatures.



DANGER: CRUSHING OF LIMBS

This symbol indicates the presence of moving parts: danger of crushing of limbs.



WARNING: MOVING PARTS

This symbol indicates that you must keep limbs away from moving mechanical parts; danger of crushing.



DANGER: EXPLOSION

This symbol signals places where an explosive atmosphere may be present. An explosive atmosphere is defined as a mixture - under atmospheric conditions - of air and flammable substances in the form of gases, vapours, mist or dust in which, after ignition has occurred, combustion spreads to the entire unburned mixture.



PERSONAL PROTECTION EQUIPMENT

These symbols indicate the equipment that must be worn and kept by the operator for protection against threats against safety and/or health while at work.



OBLIGATION TO ASSEMBLE THE COVER AND ALL THE SAFETY AND PROTECTION DEVICES

This symbol signals the obligation to reassemble the cover and all the safety and protection devices of the burner after any maintenance, cleaning or checking operations.



ENVIRONMENTAL PROTECTION

This symbol gives indications for the use of the machine with respect for the environment.



IMPORTANT INFORMATION

This symbol indicates important information that you must bear in mind.

- This symbol indicates a list.

Abbreviations used

Ch.	Chapter
Fig.	Figure
Page	Page
Sec.	Section
Tab.	Table

2.1.4 Delivery of the system and the instruction manual

When the system is delivered, it is important that:

- the instruction manual is delivered to the user by the system manufacturer, with the recommendation to keep it in the room where the heat generator is to be installed.
- The instruction manual shows:
 - the serial number of the burner;

.....

- the address and telephone number of the nearest Assistance Centre

.....
.....
.....

- The system supplier must carefully inform the user about:
 - the use of the system;
 - any further tests that may be required before activating the system;
 - maintenance, and the need to have the system checked at least once a year by a representative of the manufacturer or another specialised technician.To ensure a periodic check, the manufacturer recommends the drawing up of a Maintenance Contract.

2.2 Guarantee and responsibility

The manufacturer guarantees its new products from the date of installation, in accordance with the regulations in force and/or the sales contract. At the moment of the first start-up, check that the burner is integral and complete.



WARNING

Failure to observe the information given in this manual, operating negligence, incorrect installation and carrying out of non authorised modifications will result in the annulment by the manufacturer of the guarantee that it supplies with the burner.

In particular, the rights to the guarantee and the responsibility will no longer be valid, in the event of damage to things or injury to people, if such damage/injury was due to any of the following causes:

- incorrect installation, start-up, use and maintenance of the burner;
- improper, incorrect or unreasonable use of the burner;
- intervention of unqualified personnel;
- carrying out of unauthorised modifications on the equipment;
- use of the burner with safety devices that are faulty, incorrectly applied and/or not working;
- installation of untested supplementary components on the burner;
- powering of the burner with unsuitable fuels;
- faults in the fuel supply system;
- continuation of use of the burner when a fault has occurred;
- repairs and/or overhauls incorrectly carried out;
- modification of the combustion chamber with inserts that prevent the regular development of the structurally established flame;
- insufficient and inappropriate surveillance and care of those burner components most likely to be subject to wear and tear;
- use of non-original components, including spare parts, kits, accessories and optional;
- force majeure.

The manufacturer furthermore declines any and every responsibility for the failure to observe the contents of this manual.

3 Safety and prevention

3.1 Introduction

The burners have been designed and built in compliance with current regulations and directives, applying the known technical rules of safety and envisaging all the potential danger situations.

It is necessary, however, to bear in mind that the imprudent and clumsy use of the equipment may lead to situations of death risk for the user or third parties, as well as the damaging of the burner or other items. Inattention, thoughtlessness and excessive confidence often cause accidents; the same applies to tiredness and sleepiness.

It is a good idea to remember the following:

- The burner must only be used as expressly described. Any other use should be considered improper and therefore dangerous.

In particular:

it can be applied to boilers operating with water, steam, diathermic oil, and to other uses expressly foreseen by the manufacturer;

the type and pressure of the fuel, the voltage and frequency of the electrical power supply, the minimum and maximum deliveries for which the burner has been regulated, the pressurisation of the combustion chamber, the dimensions of the combustion chamber and the room temperature must all be within the values indicated in the instruction manual.

- Modification of the burner to alter its performance and destinations is not allowed.
- The burner must be used in exemplary technical safety conditions. Any disturbances that could compromise safety must be quickly eliminated.
- Opening or tampering with the burner components is not allowed, apart from the parts requiring maintenance.
- Only those parts envisaged by the manufacturer can be replaced.



The manufacturer guarantees safety and proper functioning only if all burner components are intact and positioned correctly.

3.2 Personnel training

The user is the person, body or company that has acquired the machine and intends to use it for the specific purpose. He is responsible for the machine and for the training of the people working around it.

The user:

- undertakes to entrust the machine exclusively to suitably trained and qualified personnel;
- undertakes to inform his personnel in a suitable way about the application and observance of the safety instructions. With that aim, the user undertakes to ensure that everyone knows the use and safety instructions for his own duties;
- Personnel must follow all the danger and caution indications shown on the machine.
- Personnel must not carry out, on their own initiative, operations or interventions that are not within their province.
- Personnel are obliged to inform their superiors of every problem or dangerous situation that may arise.
- The assembly of parts of other makes, or any modifications, can alter the characteristics of the machine and hence compromise operating safety. The manufacturing company therefore accepts no responsibility whatsoever for any which may result from the use of non-original parts.

In addition:



- must take all the measures necessary to prevent unauthorised people gaining access to the machine;
- the user must inform the manufacturer if faults or malfunctioning of the accident prevention systems are noticed, along with any presumed danger situation;
- personnel must always use the personal protective equipment envisaged by legislation and follow the indications given in this manual.

4 Technical description of the burner

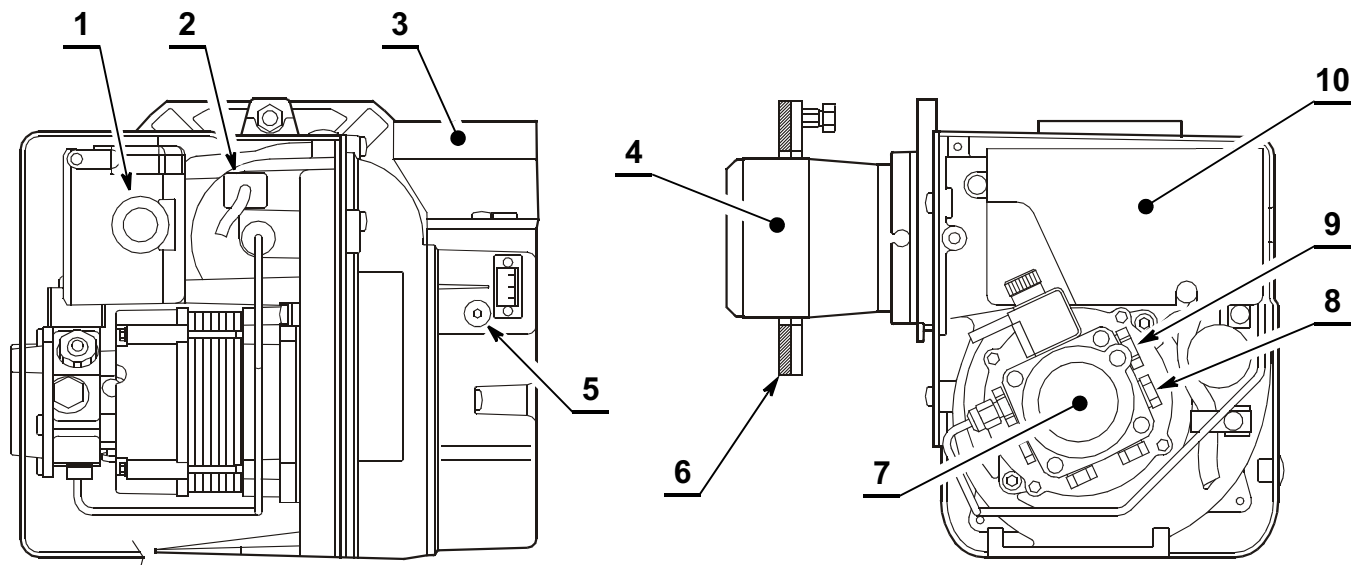
4.1 Technical data

Model		SIME FUEL 25 ErP	SIME FUEL 35 ErP
Delivery ⁽¹⁾	kg/h	2.0	2.7
Thermal output ⁽¹⁾	kW	25.2	32.7
Fuel		Light oil, viscosity 4 – 6 mm ² /s at 20°C	
Electrical supply		Single-phase, ~ 50Hz 230V ± 10%	
Motor	A rpm rad/s	0.68 2700 283	0.76 2700 283
Capacitor	μF	4.5	
Ignition transformer		Secondary 18 kV - 25 mA	
Pump	bar	Pressure: 8 - 15	
Absorbed electrical power	kW	0.18	0.20

Tab. A

- (1) Reference conditions: Ambient temperature 20°C - Barometric pressure 1013 mbar - Altitude 0 m a.s.l. (H_i = 11.86 kWh/kg)
 (2) The intake air temperature must not be over 70°.

4.2 Burner description



D4001

Fig. 1

- 1 Reset button with lockout lamp
- 2 Flame sensor
- 3 Snorkel
- 4 Combustion head
- 5 Air damper adjustment screw
- 6 Flange with insulating gasket
- 7 Pump
- 8 Pressure gauge port
- 9 Pump pressure adjustment
- 10 Control box

4.3 Overall dimensions

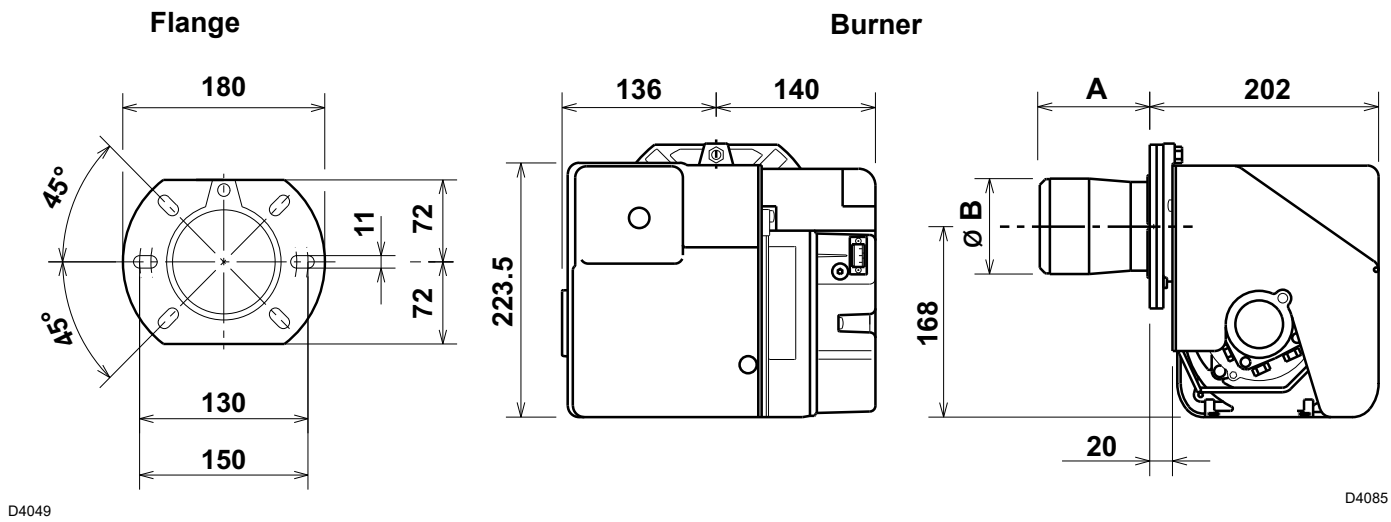


Fig. 2

A	B
86	89

4.4 Burner equipment

- Flange with insulating gasket No. 1
- Screws for fixing the flange to the boiler No. 4
- Screw and nuts for flange No. 1
- Flexible hoses with nipples No. 2

Only for burners code: 20131439 and 20131442:

- instruction manual No. 1
- spare part list..... No. 1

5 Installation

5.1 Notes on safety for the installation

After carefully cleaning all around the area where the burner is to be installed, and arranging for the environment to be illuminated correctly, proceed with the installation operations.



All the installation, maintenance and disassembly operations must be carried out with the electricity supply disconnected.



The installation of the burner must be carried out by qualified personnel, as indicated in this manual and in compliance with the standards and regulations of the laws in force.



Combustion air inside the boiler must be free from hazardous mixes (e.g.: chloride, fluoride, halogen); if present, it is highly recommended to carry out cleaning and maintenance more frequently.

5.2 Handling

The burner is shipped in cardboard packaging, so it is possible to move it when it is still packaged with a transpallet or fork lift truck.



The handling operations for the burner can be highly dangerous if not carried out with the greatest attention: keep any unauthorised people at a distance; check the integrity and suitability of the available means of handling. Check also that the area in which you are working is empty and that there is an adequate escape area (i.e. a free, safe area to which you can quickly move if the burner should fall). When handling, keep the load at not more than 20-25 cm from the ground.



After positioning the burner near the installation point, correctly dispose of all residual packaging, separating the various types of material.



Before proceeding with the installation operations, carefully clean all around the area where the burner will be installed.

5.3 Preliminary checks

Checking the consignment



After removing all the packaging, check the integrity of the contents. In the event of doubt, do not use the burner; contact the supplier.







The packaging elements (wooden cage or cardboard box, nails, clips, plastic bags, etc.) must not be abandoned as they are potential sources of danger and pollution; they should be collected and disposed of in the appropriate places.

Checking the characteristics of the burner

Check the identification label (Fig. 3) of the burner, showing:

- the model and the code burner (A), the type (B);
- Year of manufacture, in cryptographic form (C);
- the serial number (D);
- the electrical supply data (E);
- the types of light oil used and the relative supply pressures (F);
- the minimum and maximum possible output data of the burner (G).

sime		A				R.B.L.		
C 			TIPO/TYP TYPE	icc	A	 G kg/h		
	N. XXXXXXXXXXXX D		B	lmax	A		kW	
			kW		Peso	Kg	E	
Combust. Heizöl / Fuel		max, visc. @	F	mm²/s	RIELLO S.p.A. I-37045 Legnago (VR)			

S9307

Fig. 3



The burner output must be within the boiler's firing rate.



A burner label that has been tampered with, removed or is missing, along with anything else that prevents the definite identification of the burner makes any installation or maintenance work difficult.

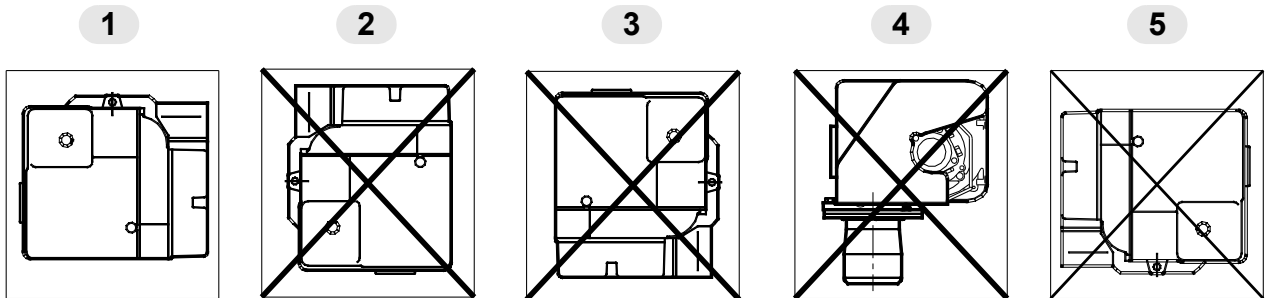
5.4 Operating position



The burner is designed to operate only in the position 1.



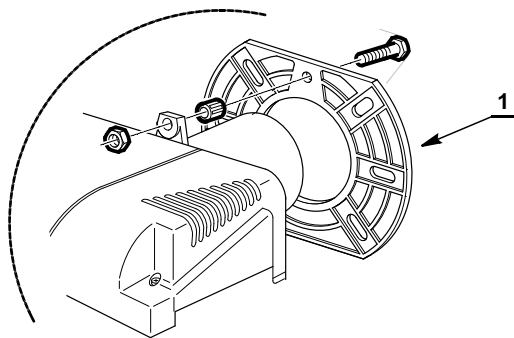
Any other positioning could compromise the correct operation of the appliance.



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Fig. 4

5.5 Boiler fixing



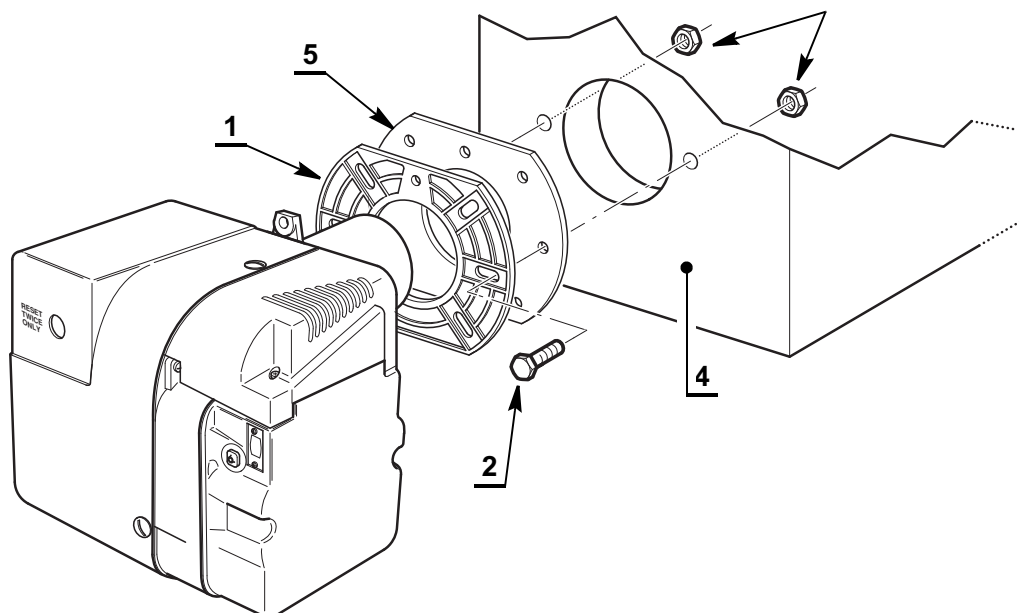
E9148

- Put on the flange 1)(Fig. 5) the screw and two nuts.
- Fix the flange 1)(Fig. 6) to the boiler door 4) using screws 2) and (if necessary) the nuts 3) interposing the insulating gasket 5).



The seal between burner and boiler must be airtight.

Fig. 5



E9149

Fig. 6

5.6 Burner assembly

CF Application

In case of **CF** applications, the burner shall not operate without protection **(A)** of the suction inlet (Fig. 7).

BF Application



For correct BF application, the burner must be installed on an appropriate of boiler.

In case of **BF** applications an optional snorkel and gasket are available replacing **(A)** with **(B)**. This item can be supplied separately (Fig. 8).

The combustion air supply is through a flexible or rigid pipe connected to the air intake.

Consequently, you must comply with the following requirements and instructions:

- The combustion air intake tube must be:
 - fastened securely to the burner;
 - made of a suitable material, with temperature characteristics in the range - 30 °C to 80 °C;
 - in compliance with all requirements of applicable regulations in force in the country of destination.
- The intake-tube / burner system must not allow a loss of over 2 m³/h at 0.5 mbar: for instance, the above requirements will be met if you use flues for pressure exhaust of flue gases (the condensation kind).
- Make sure the air intake tube's inlet is positioned so that it is not likely to be obstructed by foreign matter and, where necessary, use suitable screens.
- The temperature of the incoming air must not exceed 40 °C;
- The inside diameter of the hose must be at least 80 mm.
- The intake tube can be up to 6 metres in length.



Length is reduced if there are bends in the intake section.

For instance, using a tube with a smooth inside surface, you must allow for the following losses:

- for each 45° bend, tube length is reduced by 0.5 m;
- for each 90° bend, tube length is reduced by 0.8 m.

NOTE:

burner installation must, in any case, comply with the flue systems included within the boiler approved configuration.



- Under no circumstances should the air's entry in the hose intake area be obstructed.
- The hose must not be blocked in any way or feature a shutting device (valves, membranes etc.).

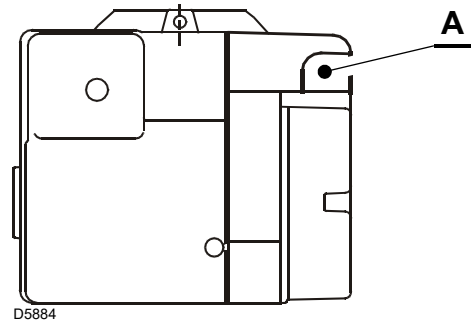


Fig. 7

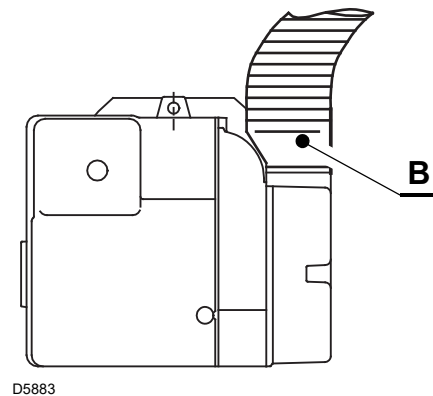


Fig. 8

5.7 Hydraulic systems



Explosion danger due to fuel leaks in the presence of a flammable source.

Precautions: avoid knocking, attrition, sparks and heat.

Make sure the fuel interception tap is closed before performing any operation on the burner.



WARNING

The fuel supply line must be installed by qualified personnel, in compliance with current standards and laws.

5.7.1 Pump



WARNING

Before starting the burner, make sure that the tank return line is not clogged.

Obstructions in the line could cause the sealing organ located on the pump shaft to break.

The pump is designed to allow working with two pipes.

In order to obtain one pipe working it is necessary to unscrew the return plug 2)(Fig. 9), remove the by-pass screw 3) and then screw again the plug 2).

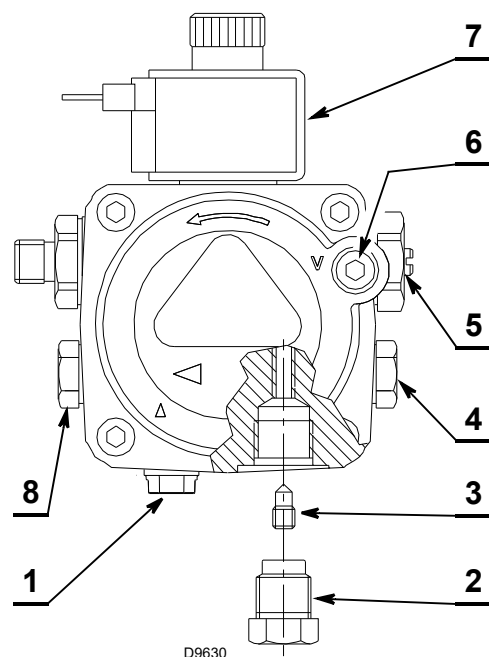


Fig. 9

Key (Fig. 9)

- | | |
|------------------------|----------------------------------|
| 1 Gas oil suction line | 5 Pressure adjuster |
| 2 Return line plug | 6 Vacuum connection |
| 3 By-pass screws | 7 Gas oil solenoid |
| 4 Manometer connection | 8 Auxiliary pressure test points |



WARNING

Check periodically the flexible pipes conditions.
If necessary, install a filter on the fuel supply line.

5.7.2 Priming pump

In the system of Fig. 10 just loosen the connection of the vacuum meter 6)(Fig. 9) and wait for the fuel to come out.

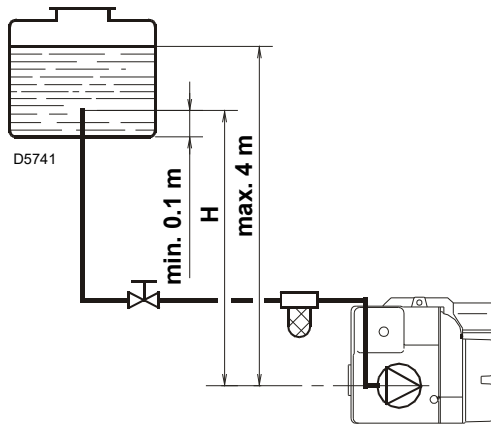


Fig. 10

H metres	L metres	
	Ø (8 mm)	Ø (10 mm)
0.5	10	20
1	20	40
1.5	40	80
2	60	100

Tab. B

In the systems of Fig. 11 and Fig. 12 start the burner and wait for the priming.

Should lockout occur prior to the arrival of the fuel, await at least 20 seconds before repeating the operation.

The pump vacuum should not exceed a maximum of 0.4 bar (30 cm Hg).

Above that level, gas leaks out from the fuel.

The pipes must all be perfectly sealed.

H metres	L metres	
	Ø (8 mm)	Ø (10 mm)
0	35	100
0.5	30	100
1	25	100
1.5	20	90
2	15	70
3	8	30
3.5	6	20

Tab. C

In vacuum systems (Fig. 12) you are advised to bring the return line to the same height as the suction line.

In this case a non-return valve is not required.

Should however the return line arrive over the fuel level, a non-return valve is required.

This solution however is less safe than previous one, due to the possibility of leakage of the valve.

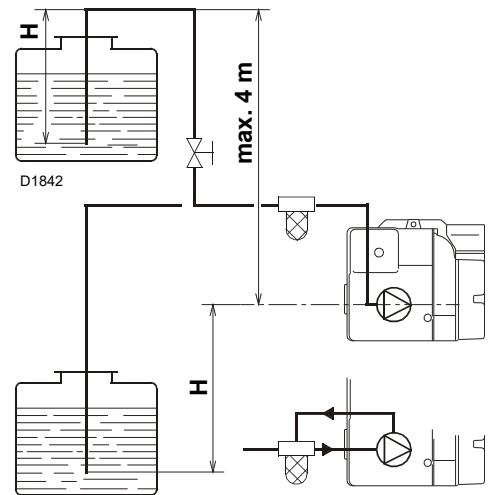


Fig. 11

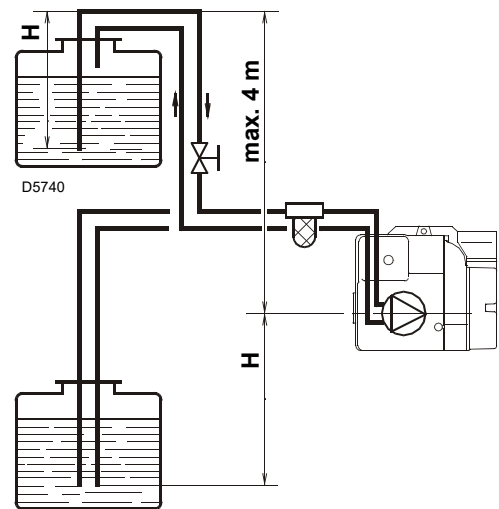


Fig. 12

- H = Difference of level
L = Maximum suction line length
Ø = Inner diameter of the pipe

6 Start-up, calibration and operation of the burner

6.1 Notes on safety for the first start-up



The first start-up of the burner must be carried out by qualified personnel, as indicated in this manual and in compliance with the standards and regulations of the laws in force.



Check the correct working of the adjustment, command and safety devices.

6.2 Combustion adjustment

In conformity with EN 267, the application of the burner on the boiler, adjustment and testing must be carried out observing the instruction manual of the boiler, including verification of the CO and CO₂ concentration in the flue gases, their temperatures and the average temperature of the water in the boiler.



The combustion air is sucked from outside, therefore, there can be sensitive temperature variations that can influence the percentage value of the CO₂. It is advisable to adjust the CO₂ according to the diagram.

For example: with an external air temperature of 10°C, adjust the CO₂ to 12.5% (± 0.2%).

To suit the required appliance output, choose the proper nozzle and adjust the pump pressure and the air damper opening in accordance with the following data.

The values refer to 11.6% of CO₂ at sea level, and with the light oil and ambient temperature at 10°C.

The values in Tab. D are obtained on a boiler (according to EN267). They refer to 12.5 % CO₂, at sea level and with an ambient and light oil temperature of 20 °C.

Burner		Nozzle			Pump pressure	Burner output	Combustion head adjust.	Air Damper adjustment
Code	Model	Type	GHP	Angle	bar	kg/h ± 4%	Set-point	Set-point
20119424 20131439	SIME FUEL 25 ErP	Danfoss	0.55	60°S	12.5	2.0	Fixed	5.0
20119426 20131442	SIME FUEL 35 ErP	Danfoss	0.65	80°S	13.0	2.7	Fixed	4.75

Tab. D

6.3 Recommended nozzles

The burner complies with the emission requirements of the EN 267 standard.

In order to guarantee that emissions do not vary, recommended and/or alternative nozzles specified by manufacturer in the Instruction and warning booklet should be used.



It is advisable to replace nozzles every year during regular maintenance operations.



The use of nozzles other than those specified by manufacturer and inadequate regular maintenance may result into emission limits non-conforming to the values set forth by the regulations in force, and in extremely serious cases, into potential hazards to people and objects.

The manufacturing company shall not be liable for any such damage arising from non-observance of the requirements contained in this manual.

- Delavan type W
- Steinen type Q
- Danfoss type S

6.4 Pump pressure

The pump is calibrated in the factory as shown in Tab. D.

6.5 Electrodes setting



These dimensions Fig. 13 must be respected.

Before removing or assembling the nozzle, loosen the screw (A, see Fig. 13) and move the electrodes ahead.

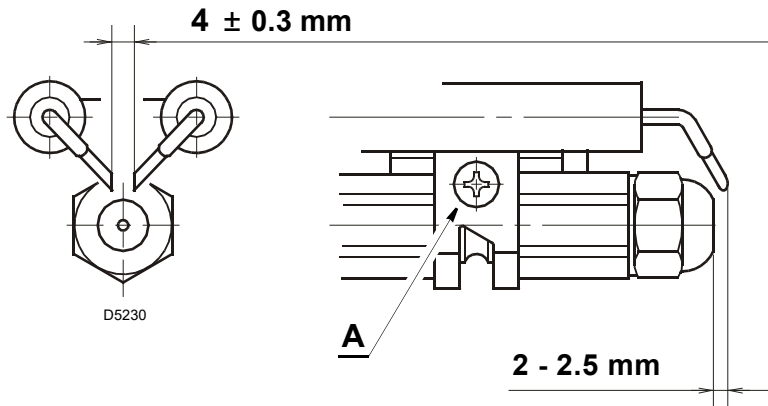


Fig. 13

6.6 Fuel heating

In order to obtain smooth starting and operation across its output range the burner is fitted with an electric resistance, which heats up the light oil in the nozzle line.

This resistance is energized when the thermostat calls for heat and after a delay of approximately two minutes depending on room temperature, the motor will start.

The resistance remains energised during working and cuts out when burner shuts-down.

6.7 Air damper adjustment

The settings indicated in the schedule are purely indicative. Each installation however, has its own unpredictable working conditions: actual nozzle output; positive or negative pressure in the combustion-chamber, the need of excess air, etc.

All these conditions may require a different air-damper setting.

6.8 Electrical system

Notes on safety for the electrical wiring



DANGER

- The electrical wiring must be carried out with the electrical supply disconnected.
- The electrical wiring must be carried out in conformity with the regulations in force in the countries of destination, and by qualified personnel. Refer to the wiring diagrams.
- The manufacturer declines all responsibility for modifications or connections different from those shown in the wiring diagrams.
- Do not invert the neutral with the phase in the electrical supply line.
- Check that the electrical supply of the burner corresponds to that shown on the identification label and in this manual.
- The burners have been calibrated for intermittent operation. This means that they must stop once every twenty four hours to permit the control box to check its efficiency at start up. Normally the boiler's thermostat/pressure switch ensures the stopping of the burner.
If this is not the case, a timer should be fitted in series to L-N to stop the burner at least once every 24 hours. Refer to the wiring diagrams.
- The electrical safety of the device is obtained only when it is correctly connected to an efficient earthing system, made according to current standards. It is necessary to check this fundamental safety requirement. In the event of doubt, have the electrical system checked by qualified personnel.
- The electrical system must be suitable for the maximum power absorption of the device, as indicated on the label and in the manual, checking in particular that the section of the cables is suitable for that level of power absorption.
- For the main power supply of the device from the electricity mains:
 - do not use adapters, multiple sockets or extensions;
 - provide for an omnipolar switch, as required by current safety regulations.
- Do not touch the device with wet or damp body parts and/or in bare feet.
- Do not pull the electric cables.

Before carrying out any maintenance, cleaning or checking operations:



DANGER

Disconnect the electrical supply from the burner by means of the main system switch.



DANGER

Turn off the fuel interception tap.

Avoid condensate, ice and water leaks from forming.

6.8.1 Control box



DANGER

All installation, maintenance and dismantling operations should be carried out with the power switched off.



WARNING

The replacement of the electric control box must be carried out by qualified personnel, as indicated in this manual and in accordance with standards and regulations in force.

To remove the control box from the burner, proceed as follows:

- unscrew the screw 1)(Fig. 14) and open the protection 2).
- Disconnect all the components.
- Remove the coil 3) from the oil pump.
- Unscrew the two screws 4) and remove the control box.
- Refit the control box following the procedure in the reverse order to the one described above.

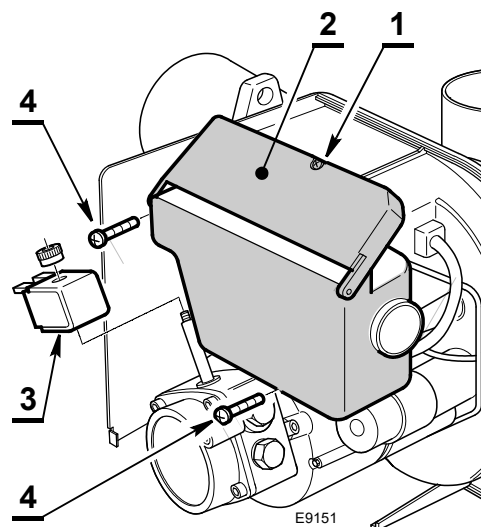


Fig. 14

6.10 Burner start-up cycle

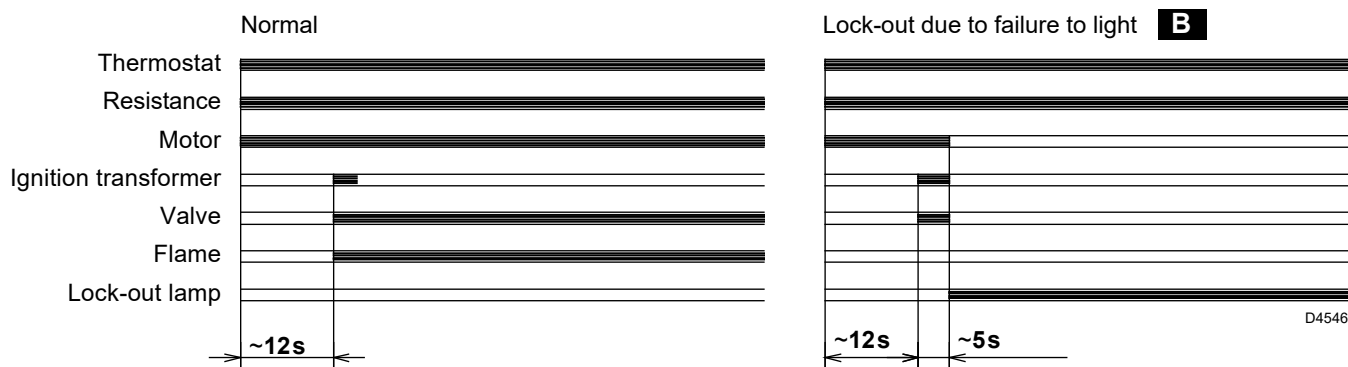


Fig. 16

B Lock out is indicated by a lamp on the control box 1)(Fig. 1).



WARNING

To reset the control box, press the reset or remote reset button.



WARNING

In the event the burner stops, in order to prevent any damage to the installation, do not unblock the burner more than twice in a row. If the burner locks out for a third time, contact the customer service.



DANGER

In the event there are further lockouts or faults with the burner, the maintenance interventions must only be carried out by qualified, authorised personnel, in accordance with the contents of this manual and in compliance with the standards and regulations of current laws.

7 Faults / Solutions

Here below you can find some causes and the possible solutions for some problems that could cause a failure to start or a bad working of the burner.

A fault usually makes the lock-out lamp light which is situated inside the reset button of the control box.

When lock out lamp lights the burner will attempt to light only after pushing the reset button. After this if the burner functions correctly, the lock-out can be attributed to a temporary fault.

If however the lock out continues the cause must be determined and the solution found.

Faults	Possible causes	Solution
The burner will not start when the limit thermostat closes	Lack of electrical supply	Check presence of voltage in the L - N clamps of the control box
		Check the conditions of the fuses
		Check that safety thermostat limit is not lock out
	The flame sensor sees false light	Eliminate the light
	Resistance or start thermostats are faulty	Replace them
Burner runs normally in the prepurge and ignition cycle and locks out after 5 seconds ca.	The connections in the control box are wrongly inserted	Check and connect completely all the plugs
	The flame sensor is dirty	Clear it
	The flame sensor is defective	Change it
	Flame moves away or fails	Check pressure and output of the fuel
		Check air output
		Change nozzle
Burner starts with an ignition delay	The ignition electrodes are wrongly positioned	Check the coil of solenoid valve
		Adjust them according to the instructions of this manual
		Set the air output
	Air output is too high	Set the air output
	Nozzle dirty or worn	Replace it

Tab. E



WARNING

The manufacturer cannot accept responsibility for any damage to persons, animals or property due to error in installation or in the burner adjustment, or due to improper or unreasonable use or non observance of the technical instruction enclosed with the burner, or due to the intervention of un-qualified personnel.

8 Maintenance

8.1 Notes on safety for the maintenance

The periodic maintenance is essential for the good operation, safety, yield and duration of the burner.

It allows you to reduce consumption and polluting emissions and to keep the product in a reliable state over time.



The maintenance interventions and the calibration of the burner must only be carried out by qualified, authorised personnel, in accordance with the contents of this manual and in compliance with the standards and regulations of current laws.

Before carrying out any maintenance, cleaning or checking operations:



Disconnect the electrical supply from the burner by means of the main system switch.



Turn off the fuel interception tap.



Wait for the components in contact with heat sources to cool down completely.

8.2 Maintenance programme

8.2.1 Maintenance frequency



The combustion system should be checked at least once a year by a representative of the manufacturer or another specialised technician.

8.2.2 Checking and cleaning



The operator must use the required equipment during maintenance.

Combustion

The optimum calibration of the burner requires an analysis of the flue gases.

Significant differences with respect to the previous measurements indicate the points where most care should be exercised during maintenance.

Combustion head

Open the burner and make sure that all components of the combustion head are in good condition, not deformed by the high temperatures, free of impurities from the surroundings and correctly positioned.

Fan

Check to make sure that no dust has accumulated inside the fan or on its blades, as this condition will cause a reduction in the air flow rate and provoke polluting combustion.

Boiler

Clean the boiler as indicated in its accompanying instructions in order to maintain all the original combustion characteristics intact, especially the flue gas temperature and combustion chamber pressure.

Pump

If the pressure is unstable, or the pump runs noisily, the flexible hose must be detached from the line filter and the fuel must be sucked from a tank located near the burner. This measure permits the cause of the anomaly to be traced to either the suction line or the pump.

If the problem lies in the suction line, check the filter is clean and that air is not entering the piping.

Filters

Check the filtering baskets on line and at nozzle present in the system.

Clean or replace if necessary.

If rust or other impurities are observed inside the pump, use a separate pump to lift any water and other impurities that may have deposited on the bottom of the tank.

Nozzles

It is advisable to replace nozzles every year during regular maintenance operations.

Do not clean the nozzle openings.

Hoses

Check that these are in good conditions.

Fuel tank

Approximately every 5 years, suck any water on the bottom of the tank using a separate pump.

Combustion

In case the combustion values found at the beginning of the intervention do not respect the standards in force or, in any case, do not correspond to a proper combustion, contact the Technical Assistant in order to carry out the necessary adjustments.

Leave the burner working without interruptions for 10 min. and set rightly all the components stated in this manual.

Then carry out a combustion check verifying:

- Smoke temperature at the flue;
- Percentage of CO₂;
- CO content (ppm);
- Smoke value according to opacity smokes index according to Bacharach scale.



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