Ecoflam
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EN
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MAXFLAM 30 AB
MAXFLAM 50 AB

Technical data
Dati tecnici
Données techniques
Datos técnicos
Технические характеристики

Operating instructions
Istruzioni per l'uso
Notice d'emploi
Manual de uso
Руководство по эксплуатации

Electric diagrams
Schemi elettrico
Schémas électrique
Esquemas eléctrico
Электрические схемы

Spare parts list
Pièces de rechange
Parti ricambi
Piezas de recambio
Запчасти

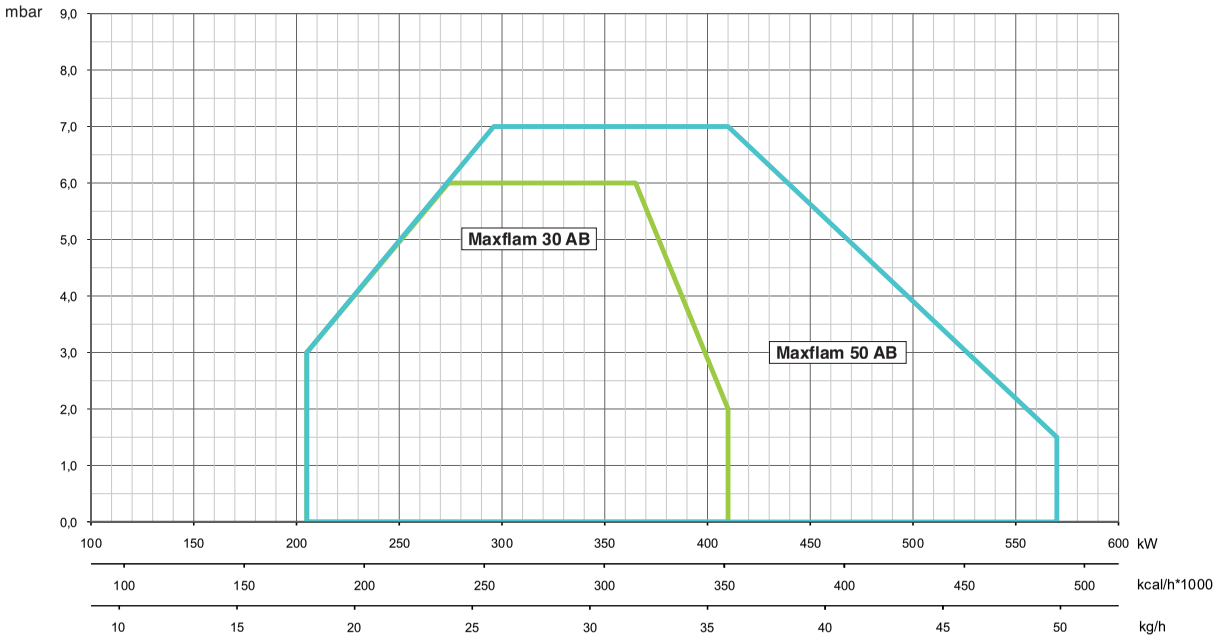
420010405501

MAXFLAM 30 AB TC 230-400-50	3142600
MAXFLAM 30 AB TL 230-400-50	3142601
MAXFLAM 50 AB TC 230-400-50	3142602
MAXFLAM 50 AB TL 230-400-50	3142603

Overview - Index of contents / Panoramica - Indice dei contenuti / Vue d'ensemble - Table des matières Descripción - Sumario / Обзор - Содержание

Technical data - Dati tecnici - Données techniques - Datos técnicos - Технические характеристики					MAXFLAM 30 AB		MAXFLAM 50 AB	
Burner output max/min kW - kcal/h	Potenza bruciatore max/min kW - kcal/h	Puissance du brûleur max/min kW - kcal/h	Potencia del quemador máx/min kW - kcal/h	Мощность горелки макс./мин., кВт -ккал/час	410	205	570	205
					352800	176400	490000	176400
Oil throughput max/min kg/h	Portata gasolio max/min kg/h	Débit de fuel max/min kg/h	Caudal de gasóleo máx/min kg/h	Расход топлива макс./мин., кг/ч	36	18	50	18
Operation type (stage)	Sistema idraulico (stadio)	Système hydraulique 2 allure	Sistema hidráulico 2 etapa	Гидросистема 2 ступень	2		2	
Regulating ratio	Rapporto di regolazione	Rapport de régulation	Relación de regulación	Коэффициент регулирования	1:2			
Fuel oil	Combustibile	Fuel	Combustible	Топливо	Heavy oil (L.C.V. 9.800 kcal/kg max. visc 50°E at 50°C)			
Emission class	Classe di emissione	Classe d'émission	Tipo de emisión	Класс выделения загрязняющих веществ	-			
Control box	Apparecchiatura di controllo	Coffret de sécurité	Cajetín de seguridad	Блок управления и безопасности	Landis LMO 44			
Air regulation Air flap	Regolazione aria Serranda dell'aria	Réglage de l'air Volet d'air	Ajuste del aire Válvula de aire	Настройка подачи воздуха Воздушная заслонка	-		-	
Flame monitor	Rivelatore di fiamma	Surveillance de flamme	Vigilancia de llama	Контроль пламени	photoresistor		photoresistor	
Ignition transformer	Trasformatore d'accensione	Allumeur	Encendedor	Устройство розжига	cofi		cofi	
Fuel-oil pump	Pompa di pressione	Pompe de pulvérisation	Bomba de pulverización	Насос распыления мазут	suntec		suntec	
Electric motor rpm - watt	Motore elettrico giri motore - watt	Moteur rpm - watt	Motor rpm - watt	Электродвигатель об/мин - watt	2800 rpm		2800 rpm	
					740 W		1100 W	
Voltage	Tensione	Tension	Tensión	Напряжение	230/400 V / 50 Hz			
Power consumption (operation)	Potenza elettrica assorbita (Esercizio)	Puissance électrique absorbée (en service)	Pot. eléctrica absorbida (en funcionamiento)	Потребляемая электрическая мощность: (при работе)	6000 W		6500 W	
Net weight	Peso netto	Poids net	Peso neto	Приблизительная масса	65,5 kg		65,5 kg	
Protection level	Classe di protezione	Indice de protection	Índice de protección	Класс электрозащиты	IP40			
Sound pressure level dB(A)	Livello pressione sonora dB(A)	Niveau presion acoustique dB(A)	Nivel de presion acústico dB(A)	Уровень шума, dB(A)	74		76	
Ambient temp. for storage	Temperatura ambiente di stoccaggio	Température ambiante de stockage	Temperatura ambiente de almacenamiento	температура хранения	-20°…+60° C			
Temperature for use	Temperatura d'utilizzazione	Température d'utilisation	Temperatura ambiente de utilización	Рабочая температура	-10°…+60° C			

Overview - Working fields / Panoramica - Curve / Vue d'ensemble - Domaine de fonctionnement / Descripción - Ámbito de funcionamiento / Обзор - Рабочий диапазон



Working field
The working field shows burner output as a function of combustion chamber pressure. It corresponds to the maximum values specified by EN 267 measured at the test fire tube. **The efficiency rating of the boiler should be taken into account when selecting a burner.**

Calculation of burner output:

$$QF = \frac{Q_N}{\eta_K}$$

QF = Burner output (kW)
QN = Rated boiler output (kW)
η_K = Boiler efficiency (%)

Curva
Il campo di attività indica la potenza del bruciatore in funzione della pressione della camera di combustione.
Corrisponde ai valori massimi previsti dalla norma EN 267 misurati sul tubo della fiamma di controllo.
In occasione della scelta del bruciatore si deve tenere conto del rendimento energetico della caldaia.

Calcolo della potenza del bruciatore:

$$QF = \frac{Q_N}{\eta_K}$$

QF= potenza bruciata (kW)
QN= potenza nominale della caldaia (kW)
η_K = rendimento energetico della caldaia (%)

Domaine de fonctionnement
Le domaine de fonctionnement correspond aux valeurs mesurées lors de l'homologation.
Elle correspond aux valeurs max mesurées sur tunnel d'essai d'après l'EN 267.
Pour le choix du brûleur, tenir compte du rendement de la chaudière.

Calcul de la puissance calorifique:

$$QF = \frac{Q_N}{\eta_K}$$

QF= Puissance calorifique (kW)
QN= Puissance nominale chaudière (kW)
η_K = Rendement chaudière (%)

Ámbito de funcionamiento
El ámbito de funcionamiento corresponde a los valores registrados en el momento de la homologación.
Corresponde a los valores máx medidos en el túnel de ensayo según la EN 267.
Para la elección del quemador, se ha de tener en cuenta el rendimiento de la caldera.

Cálculo de la potencia calorífica:

$$QF = \frac{Q_N}{\eta_K}$$

QF = Potencia calorífica (kW)
QN = Potencia nominal de la caldera (kW)
η_K = Rendimiento de la caldera (%)

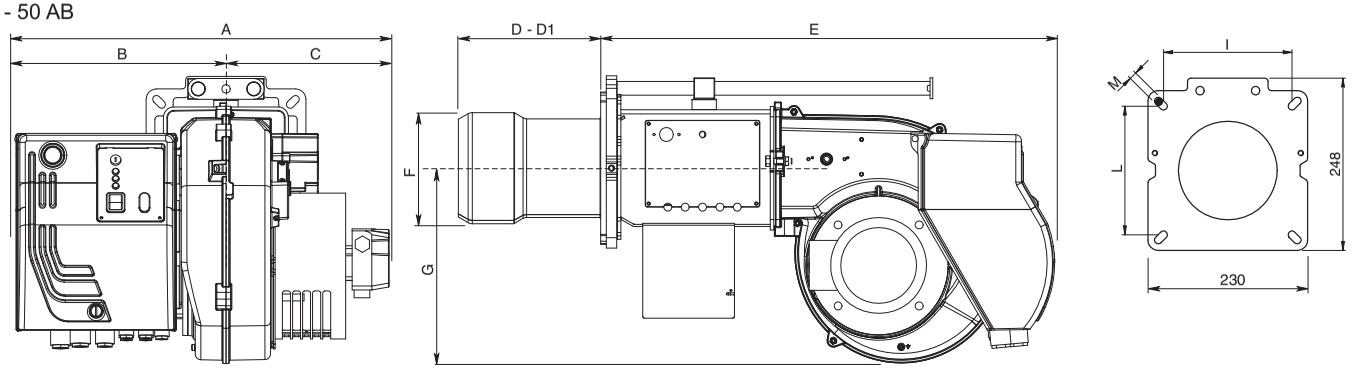
Рабочий диапазон
Рабочий диапазон соответствует значениям, измеренным при сертификации.
Он соответствует максимальным значениям, измеренным в соответствии со стандартом EN 267 в стандартном канале.
При выборе горелки необходимо учитывать КПД котла.

Расчет тепловой мощности:

$$QF = \frac{Q_N}{\eta_K}$$

QF = Тепловая мощность, кВт
QN= Номинальная мощность котла, кВт
η_K = КПД котла, %

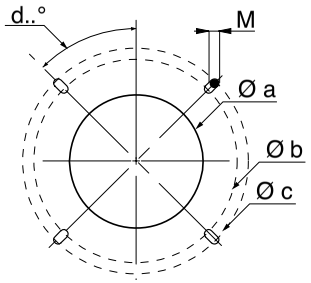
MAX FLAM 30 - 50 AB



Model	A	B	C	D	D1	E	F	G	I	L	M
MAXFLAM 30 AB	562	302	260	205	325	653	160	280	185/200	185/200	M10
MAXFLAM 50 AB	562	302	260	205	325	653	160	280	185/200	185/200	M10

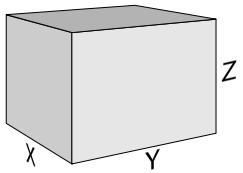
Boiler plate drilling

Model	Ø a	Ø b	Ø c
MAXFLAM 30 AB	170	262	283
MAXFLAM 50 AB	170	262	283



Packaging

Model	X	Y	Z	Kg
MAXFLAM 30 AB	786	1045	565	74
MAXFLAM 50 AB	786	1045	565	74



Contents - Index - General warnings - Conformity declaration

Declaration of conformity for oil burners

We,

Ecoflam Bruciatori S.p.A.

declare under our sole responsibility that the heavy oil burners named

MAXFLAM....

conform to the following standards:
EN 267: 2010
EN 60335-1: 2008
EN 60335-2-30: 2006
EN 60335-2-102: 2007
EN 55014-1: 2008 + A1: 2009
EN 55014-2: 1998 + A1: 2001 + A2: 2008

These products bear the CE mark in accordance with the stipulations of the following directives:

2006/95/EEC Low Voltage Directive
2004/108/EEC EMC Directive
2006/42/EC Machinery directive

Resana, 28th June 2011
M. PANIZZON

Important notes
The MAXFLAM burners are designed for the combustion of heavy oil.

Assembly, commissioning and maintenance must be carried out only by authorised specialists and all applicable guidelines and regulations must be observed.

Burner description
The MAXFLAM burner is a two-stage, fully-automatic monoblock-type burner. It is suitable for use, within its range of performance, with boilers complying with EN 303 or hot-air generators in line with DIN 4794, DIN 30697 or EN 621.
Use for any other application requires the approval of Ecoflam.

The following standards should be observed in order to ensure safe, environmentally sound and energy-efficient operation:

EN 60335-2
Safety of electrical equipment for domestic use.

Installation location
The burner must not be operated in rooms containing aggressive vapours (e.g. spray, perchloroethylene, hydrocarbon tetrachloride, solvent, etc.) or tending to heavy dust formation or high air humidity.
Adequate ventilation must be provided at the place of installation of the furnace system to ensure a reliable supply with combustion air.
Variations may arise as a result of local regulations.

We can accept no warranty liability whatsoever for loss, damage or injury caused by any of the following:
- Inappropriate use.
- Incorrect assembly or repair by the customer or any third party, including the fitting of non-original parts.

Provision of the system and the operating instructions
The firing system manufacturer must supply the operator of the system with operating and maintenance instructions on or before final delivery. These instructions should be displayed in a prominent location at the point of installation of the heat generator, and should include the address and telephone number of the nearest customer service centre.

Notes for the operator
The system should be inspected by a specialist at least once a year. It is advisable to take out a maintenance contract to guarantee regular servicing.

Ecoflam burners have been designed and built in compliance with all current regulations and directives.
All burners comply to the safety and energy saving operation regulations within the standard of their respective performance range. The quality is guaranteed by a quality and management system certified in accordance with ISO 9001:2008.

Contents - Burner description

MAXFLAM 30 AB TC 230-400-50

RANGE NAME BY FUEL TYPE

MAXFLAM	Heavy oil

MODEL SIZE (Gas: kW; Oil: kg/h)

MAXFLAM 30	30 kg/h - 349 kW

OPERATION TYPE

-	1 stage
AB	2 stages

HEAD TYPE

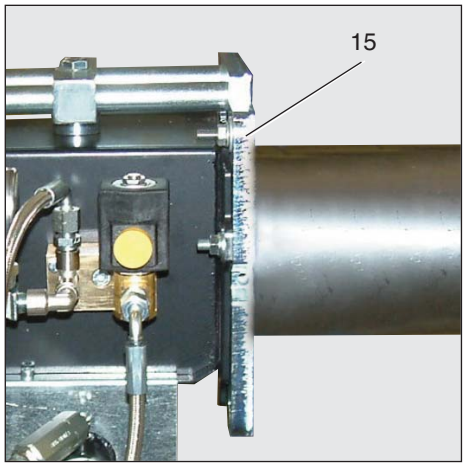
TC	Short head
TL	Long head

FUEL

	Heavy oil

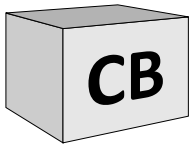
ELECTRICAL POWER SUPPLY

230-400V/50Hz	230-400 Volt, 50 Hz

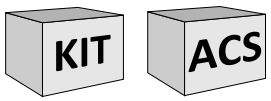


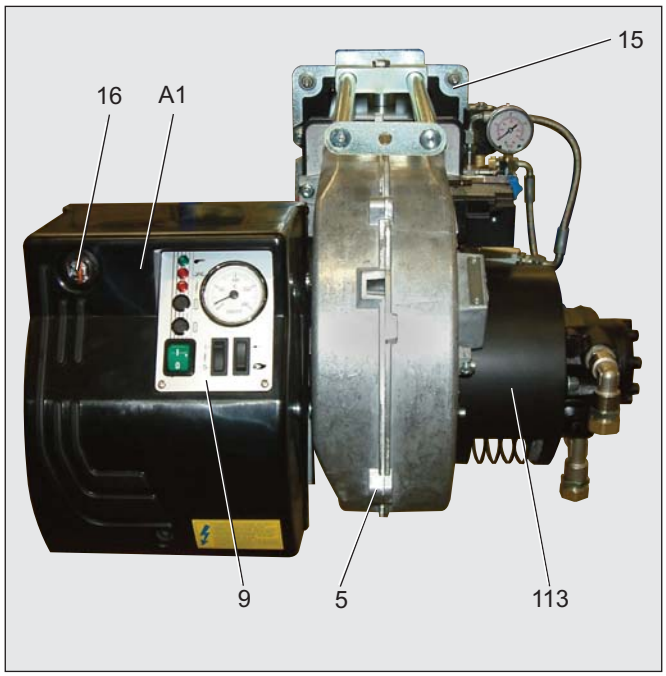
A1	Landis LMO44 control box
M1	Electric motor for pump and blower wheel
T1	Ignition transformer
5	Fastening screws for equipment plate
9	Electric switch board
15	Burner flange
16	Release knob
102	Heavy-oil pump
103B	Air regulation
113	Air intake

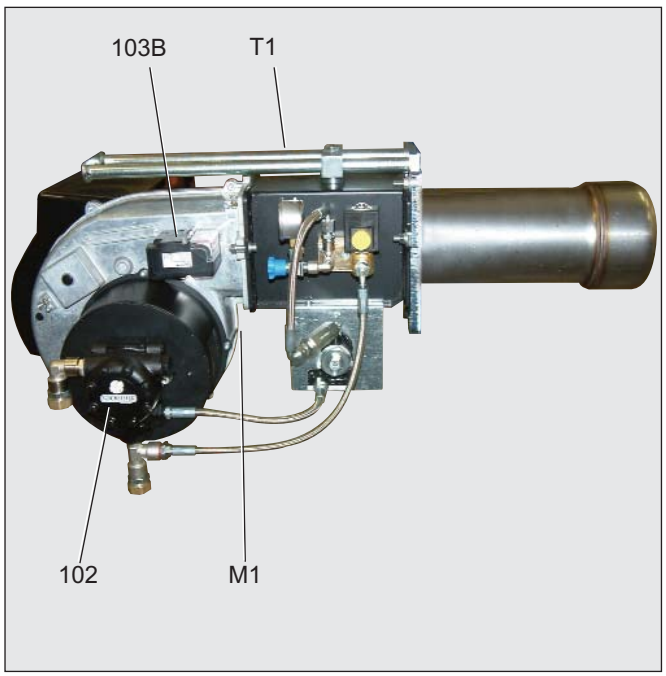
Scope of delivery
CB: COMPLETE BURNER
- 1 bag including :
  - multilanguage technical manual.
  - filter and hoses.
  - nozzle and spanner.
  - screws, nuts and washer.



KIT & ACS delivered separately







Function - General safety functions

Operating function

- Switch-on the burner. When reaching the preset temperature on the working thermostat, and with boiler's thermostat closed, the control box starts the fan, the fuel pump and the ignition transformer. At the same time, the resistors are activated, to keep fuel temperature into the heater at a constant value.
- The motor starts, the igniter is switched on and the preventilation period of 25 seconds commences.
- During the preventilation period, the furnace is monitored for flame signals.
- At the end of the preventilation period, the fuel-oil solenoid valve opens and the burner starts.
- The igniter remains switched off while the burner is in operation.

Controlled shutdown

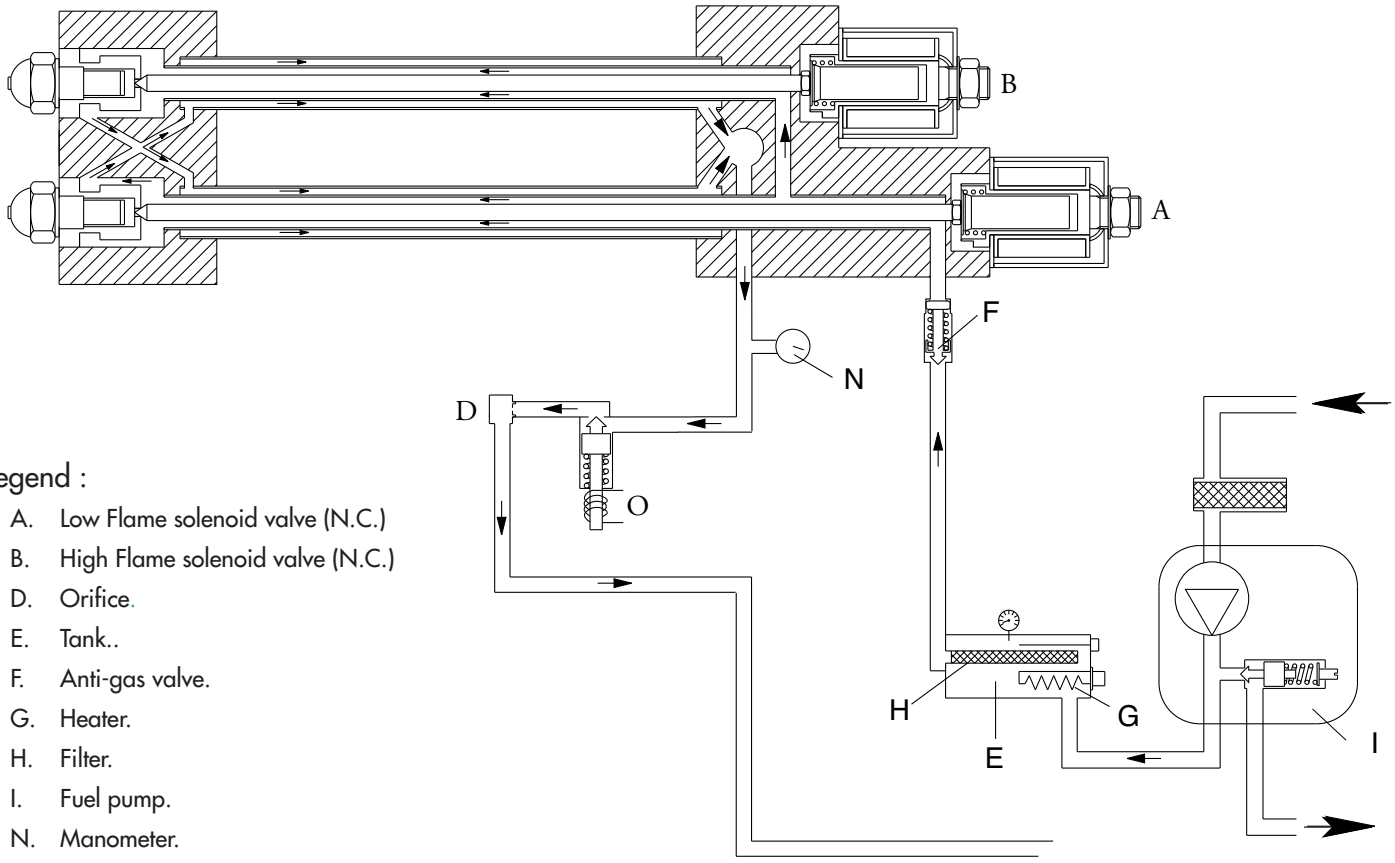
- Boiler thermostat interrupts heat request.
- The fuel-oil solenoid valve closes and the flame is extinguished.
- Burner motor switches off.
- Burner enters standby.

Safety function

A safety shutdown occurs:

- if a flame signal is present during preventilation (parasitic flame monitoring).
- if no flame is produced within 5 seconds (safety time) of start-up (fuel authorisation).
- if no flame is produced after an unsuccessful restart attempt in the event of flame failure during operation.

A safety shutdown is indicated by the malfunction lamp lighting up and it is then only possible to reenable the burner by pressing the reset button after the cause of the malfunction has been rectified.
For further information, see the automatic combustion control unit description.

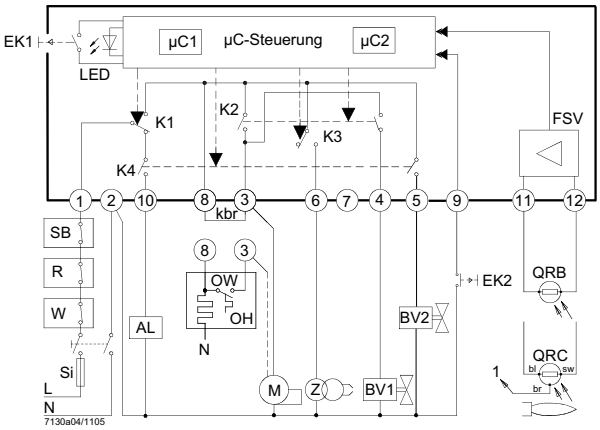


Legend :

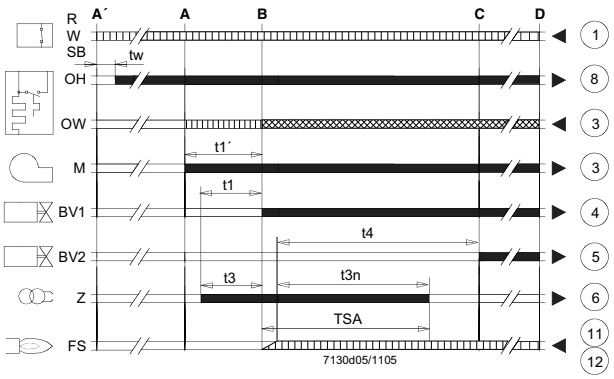
A. Low Flame solenoid valve (N.C.)
B. High Flame solenoid valve (N.C.)
D. Orifice.
E. Tank..
F. Anti-gas valve.
G. Heater.
H. Filter.
I. Fuel pump.
N. Manometer.
O. Solenoid valve (N.O.).
N.C. = Norm. closed
N.O. = Norm. open

Function - Landis LMO44 control and safety unit

Connection diagram and internal diagram LMO44…



Control sequence LMO44…



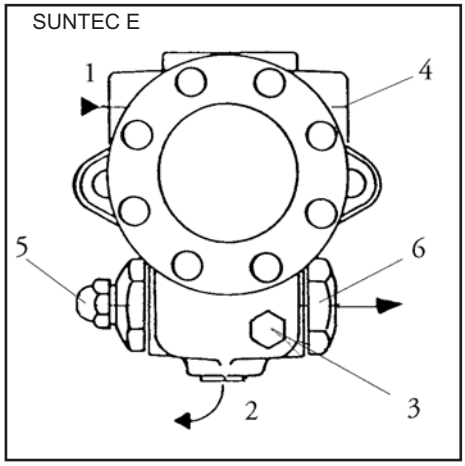
! Always disconnect the power supply before installing or removing the control unit. Do not attempt to open or carry out repairs on the control unit.

AL	Alarm device
BV...	Fuel valve
EK1	Lockout reset button
EK2	Remote lockout reset button
FS	Flame signal
FSV	Flame signal amplifier
K...	Contacts of control relay
	kbr Cable link (required only when no oil preheater is used)
LED	3-color signal lamp
M	Burner motor
OW	Release contact of oil preheater
OH	Oil preheater
QRB...	Photoresistive flame detector
QRC...	Blue-flame detector
	bl = blue, br = brown, sw = black
R	Control thermostat or pressurestat
SB	Safety limit thermostat
Si	External primary fuse
W	Limit thermostat or pressure switch
Z	Ignition transformer
TSA	Ignition safety time
tw	Waiting time
t1	Prepurge time
t1´	Purge time
t3	Preignition time
t3n	Postignition time
t4	Interval from flame signal to release of «BV2»
A´	Start of startup sequence with burners using an «OH»
A	Start of startup sequence with burners using no «OH»
B	Time of flame establishment
C	Operating position
D	Controlled shutdown by «R»

Color code table for multicolor signal lamp (LED)

Status	Color code	Color
Waiting time «tw», other waiting states	❍	Off
Oil preheater on, waiting time «tw»	●	Yellow
Ignition phase, ignition controlled	● ❍ ● ❍ ● ❍ ● ❍ ● ❍ ● ❍ ● ❍ ● ❍ ● ❍ ● ❍ ● ❍	Flashing yellow
Operation, flame o.k.	❑.....	Green
Operation, flame not o.k.	❑ ❍ ❑ ❍ ❑ ❍ ❑ ❍ ❑ ❍ ❑ ❍ ❑ ❍ ❑ ❍ ❑ ❍ ❑ ❍ ❑ ❍	Flashing green
Extraneous light on burner startup du bruleur	❑ ▲ ❑ ▲ ❑ ▲ ❑ ▲ ❑ ▲ ❑ ▲ ❑ ▲ ❑ ▲ ❑ ▲ ❑ ▲ ❑ ▲	Green-red
Undervoltage	● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲	Yellow-red
Fault, alarm	▲.....	Red
Error code output (refer to «Error code table»)	▲ ❍ ▲ ❍ ▲ ❍ ▲ ❍ ▲ ❍ ▲ ❍ ▲ ❍ ▲ ❍	Flashing red
Interface diagnostics	▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲	Red flicker light
Legend:	..... Steady on ▲ Red ❑ Green ❍ Off ● Yellow	

Function - Oil burner pump

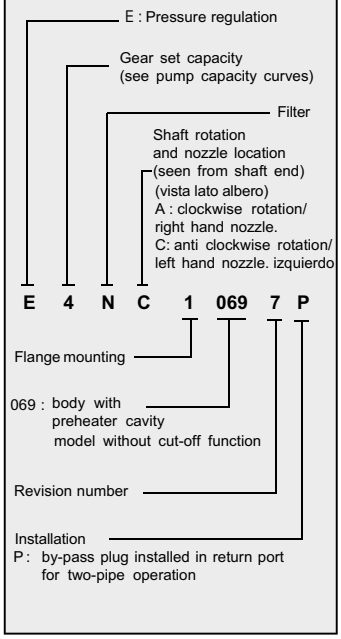


1 suction intake connection.
2 return connection.
3 oil pressure gauge connection.
4 negative pressure gauge connection.
5 oil pressure regulator.
6 pressure connection

The heavy oil burner pump used is a self-priming gear pump, which must be connected as two-line pump via a bleed filter. There is an intake filter and an oil pressure regulator integrated in the pump. Pressure gauges for pressure measurements and negative pressure measurements must be connected before the equipment is commissioned.
NB: before starting the burner, check that the return pipe is open. An eventual obstraction could damage the pump sealing device.

PUMP IDENTIFICATION

(Not all model combinations are available Consult your Suntec representative)



TECHNICAL DATA

General

Mounting	Flange mounting according to EN 225.
Connection threads	Cylindrical according to ISO 228/1
Inlet and return	G 1/2"
Nozzle outlet	G 1/4"
Pressure gauge port	G 1/8"
Vacuum gauge port	G 1/2"
Valve function	Pressure regulating - no cut-off
Filter	Open area: 45 cm Opening size : 550 µm
Shaft	Ø 11mm according to EN 225.
By-pass plug	Inserted in return port for 2 pipe system; to be removed with a 3/16" Allen key for 1 pipe system.
Weight	4 kg

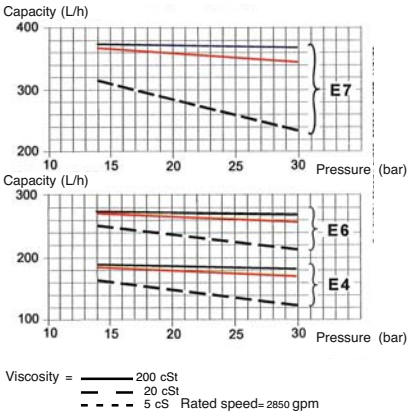
Hydraulic data

Nozzle pressure range	14 - 30 bar
Delivery pressure setting	20 bar
Operating viscosity	3 - 75 cSt
Oil temperature	0 - 130°C max. nella pompa
Inlet pressure	installation to light oil : 0,45 bars max. vacuum to prevent air separation from oil. installation to heavy oil : 3,5 bar max.
Return pressure	installation to light oil : 3,5 bar max. installation to heavy oil : 3,5 bar max.
Rated speed	3600 gpm max.
Torque (to 40 gpm)	0,3 N.m

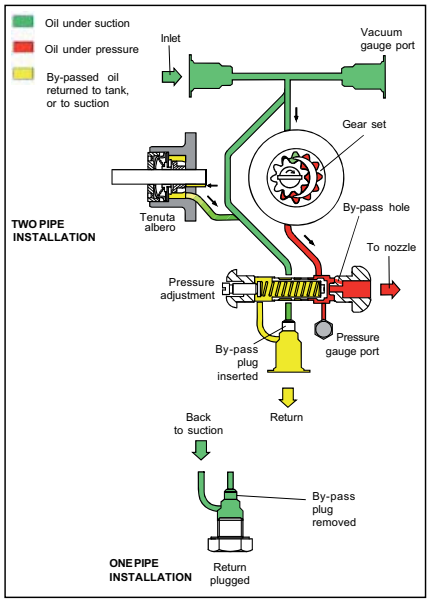
Choice of heater

Crtridge	Ø 12 mm
Fitting	in accordo con EN 50262
Rating	50-80 W

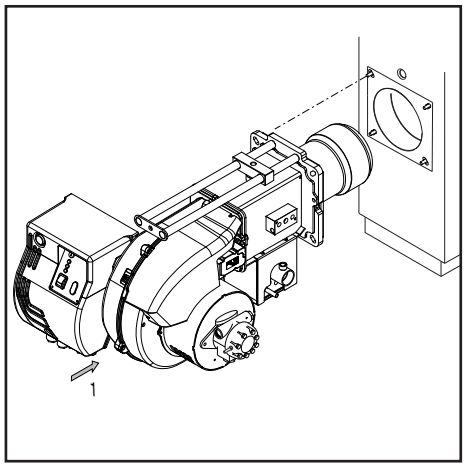
Pump capacity

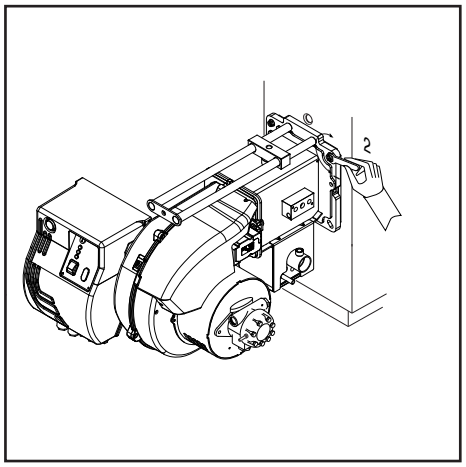


Data shown take into account a wear margin. Do not oversize the pump when selecting the gear capacity.



Installation - Burner assembly

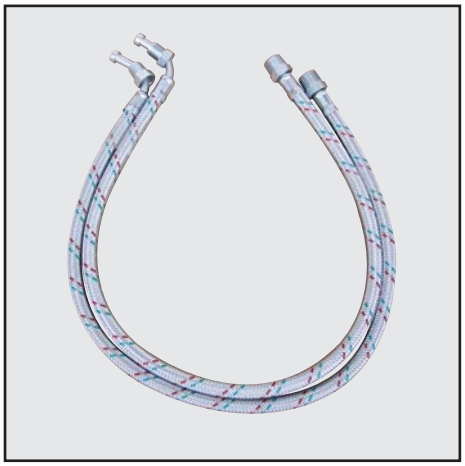




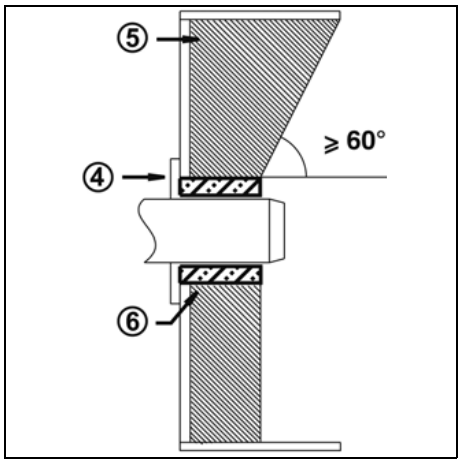
Burner assembly
The burner is fixed by the flange and therefore to the boiler.

Installation:
- To fix the flange to the boiler with the screws.

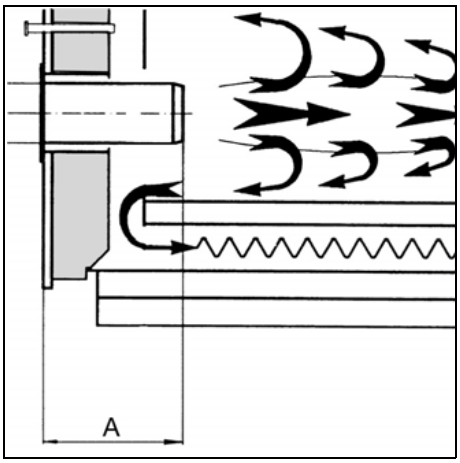
Removal:
- Loosen the screws.
- To slowly slide the the burner from the boiler.



Oil connection
The filter must be located in such a way that the correct hose routing cannot be impaired. The hoses must not kink.

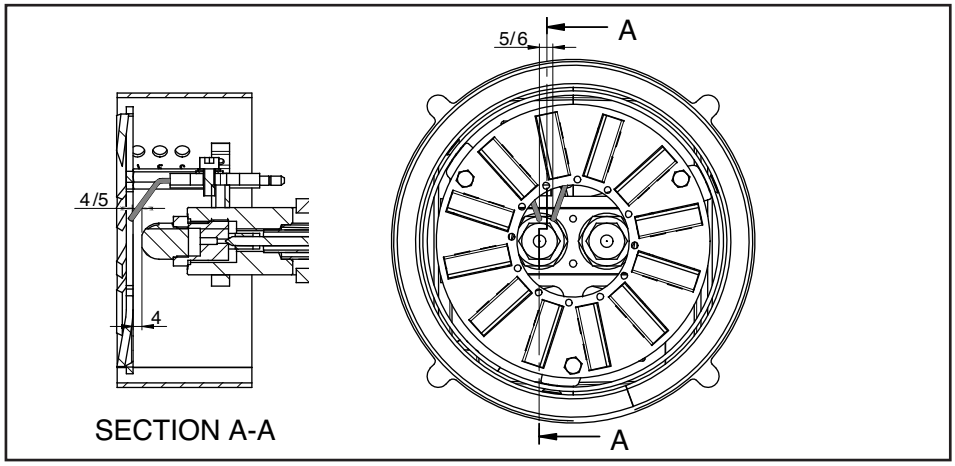


Burner pipe insertion depth and brickwork
Unless otherwise specified by the boiler manufacturer, heat generators without a cooled front wall require brickwork or insulation 5 as shown in the illustration. The brickwork must not protrude beyond the leading edge of the flame tube, and should have a maximum conical angle of 60°. Gap 6 must be filled with an elastic, non-combustible insulation material. For boilers with reverse firing, the minimum burner tube insertion depth A as specified in the boiler manufacturer's instructions must be observed.



Exhaust system
To avoid unfavourable noise emissions, right-angled connectors should not be used on the flue gas side of the boiler.

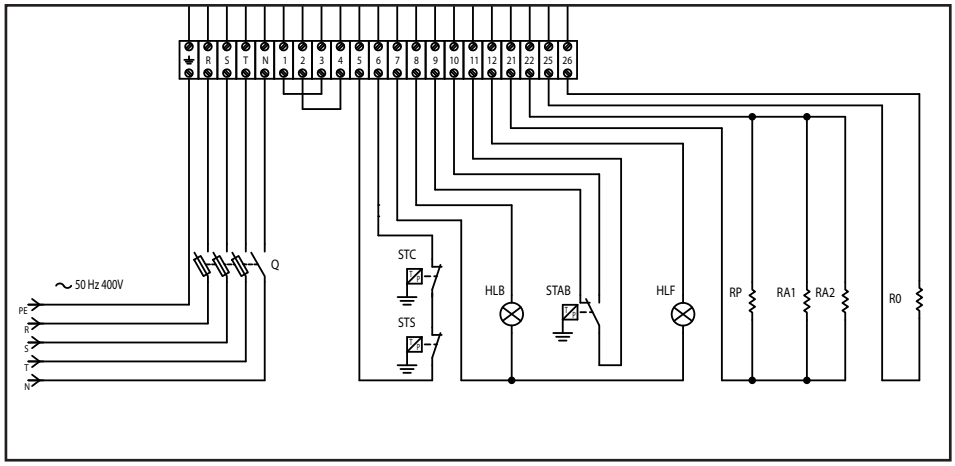
Installation - Electrical connection - Checks before commissioning



Position of electrodes
Note: Always check the position of electrodes after having replaced the nozzle (see illustration). A wrong position could cause ignition troubles.

Electrical connection
The electrical installation and connection work must only be carried out by an authorised electrical specialist.
All applicable rules and regulations must be observed.
The electrical installation should include a type A circuit breaker.
The applicable guidelines and directives must be observed, as well as the electrical circuit diagram supplied with the burner!

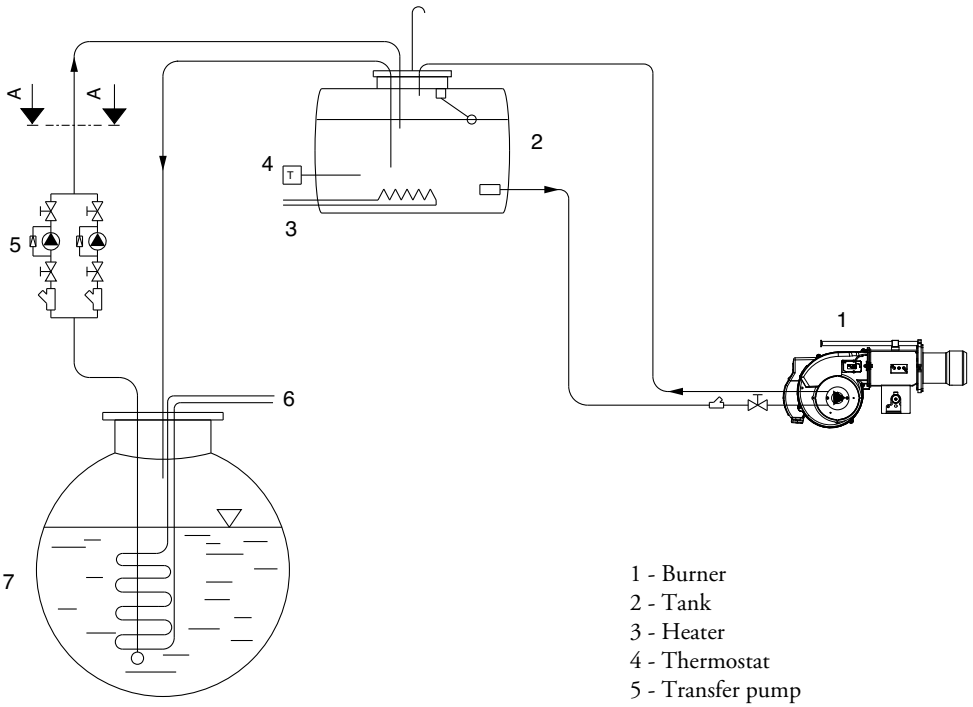
- Check to ensure that the power supply voltage is as specified in the electric diagram and in data plate.
- Burner fuse: 5 A.



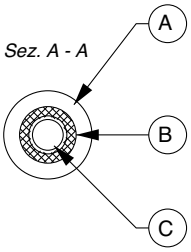
Checks before commissioning
The following must be checked before initial commissioning:
- That the burner is assembled in accordance with the instructions given here.
- That the burner is pre-set in accordance with the values in the adjustment table.
- Setting the combustion components.
- The heat generator must be ready for operation, and the operating regulations for the heat generator must be observed.
- All electrical connections must be correct.
- The heat generator and heating system must be filled with water and the circulating pumps must be in operation.
- The thermostats, pressure regulator, low water detectors and any other safety or limiting devices that might be fitted must be connected and operational.
- The exhaust gas duct must be unobstructed and the secondary air system, if available, must be operational.
- An adequate supply of fresh air must be guaranteed.
- The heat request must be available.
- Fuel tanks must be full.
- The fuel supply lines must be assembled correctly, checked for leaks and bled.
- A standard-compliant measuring point must be available, the exhaust gas duct up to the measuring point must be free of leaks to prevent anomalies in the measurement results.

Installation - Heavy oil feeding and suction line

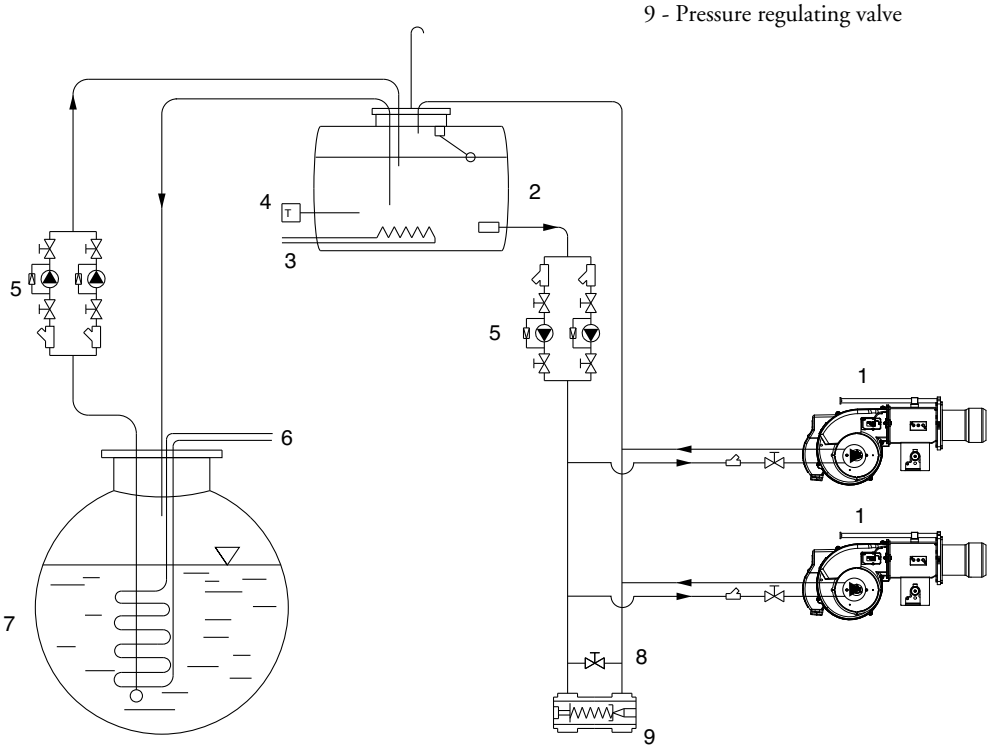
HEAVY OIL FEED SYSTEM UP TO 15°E AT 50°C



1 - Burner
2 - Tank
3 - Heater
4 - Thermostat
5 - Transfer pump
6 - Header
7 - Tank
8 - By-pass
9 - Pressure regulating valve



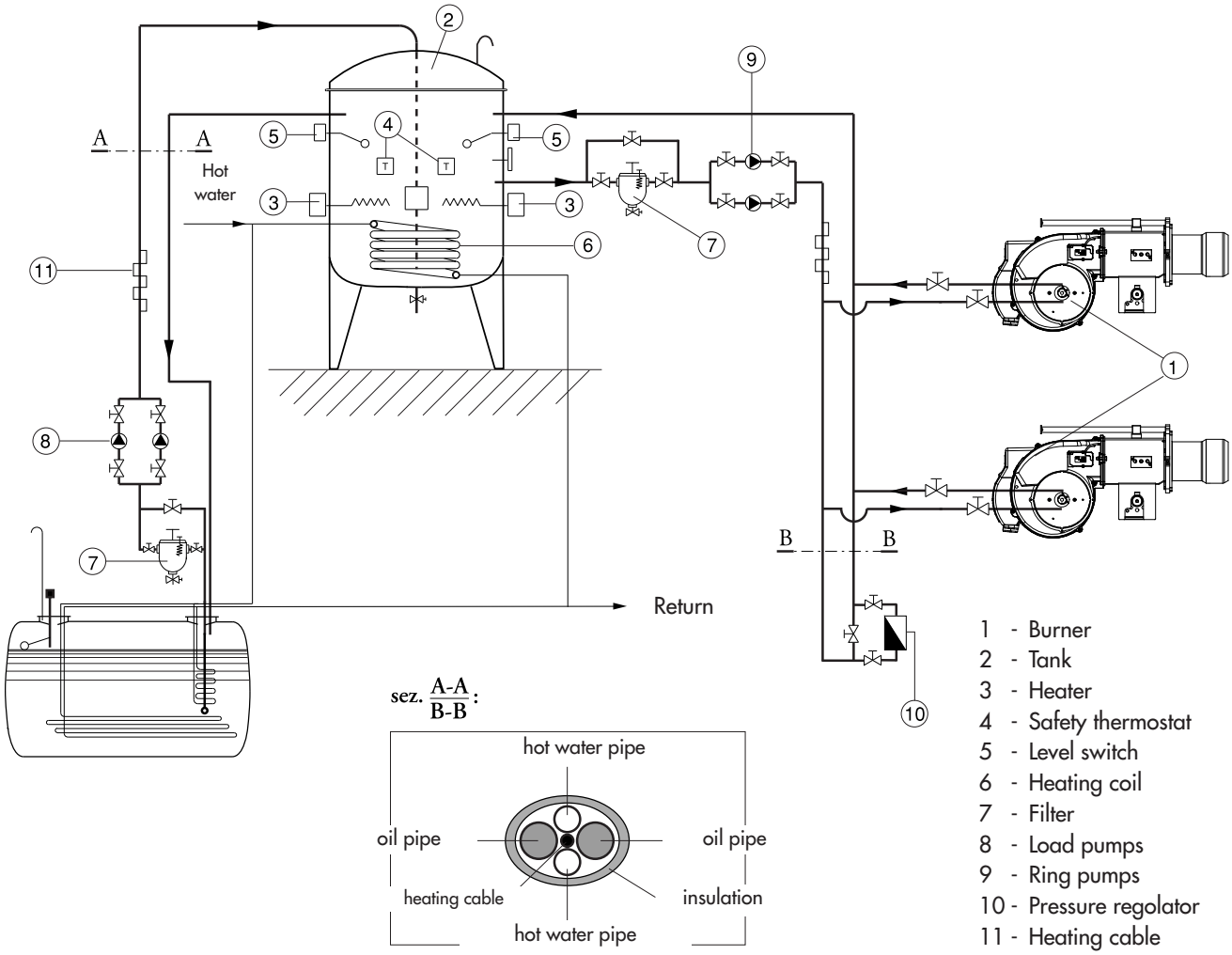
A - Isolation gasket
B - Heater
C - Pipe heavy oil



IMPORTANT: All fuel pipings are heated (see section A-A of the picture)

Installation - Heavy oil feeding and suction line

HEAVY OIL FEED SYSTEM UP TO 50°E AT 50°C



1 - Burner
2 - Tank
3 - Heater
4 - Safety thermostat
5 - Level switch
6 - Heating coil
7 - Filter
8 - Load pumps
9 - Ring pumps
10 - Pressure regolator
11 - Heating cable

IMPORTANT: All feed piping are heated (see sec. A-A)

Start up - Setting data table - Air regulation

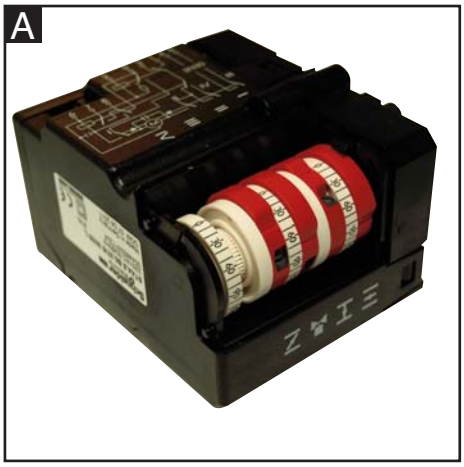
Maxflam 30 AB											
burner output kW		pressure in combustion chamber mbar		oil output kg/h		nozzle 60° HO		pump pressure bar	firing head setting	air damper setting	
1° stage	2° stage	1° stage	2° stage	1° stage	2° stage	1° stage	2° stage			1° stage	stage
205	274	1,6	3,3	18	24	3,00	1,00	23	1	18°	30°
239	**331**	**1,3**	**3,7**	**21**	**29**	**3,50**	**1,50**	**23**	**2**	**20°**	**40°**
274	388	1	4	24	34	4,00	2,00	23	3	20°	60°

Maxflam 50 AB											
burner output kW		pressure in combustion chamber mbar		oil output kg/h		nozzle 60° HO		pump pressure bar	firing head setting	air damper setting	
1° stage	2° stage	1° stage	2° stage	1° stage	2° stage	1° stage	2° stage			1° stage	stage
205	296	1,5	3,5	18	26	3,00	1,50	23	1	15°	40°
262	**388**	**1,3**	**4**	**23**	**34**	**4,00**	**2,00**	**22**	**2**	**20°**	**50°**
308	479	1,4	4,7	27	42	4,50	2,50	23	3	20°	50°

The settings above are **basic settings.** These adjustment values are normally suitable for commissioning the burner. These values have been determined in our test labs and are useful for the first switch-on as final setting must be done using a combustion analyzer. Favourable combustion values can be achieved using the following nozzles:

DANFOSS H÷S 80°÷60°
DELAVAN W 60°
STEINEN S 60°

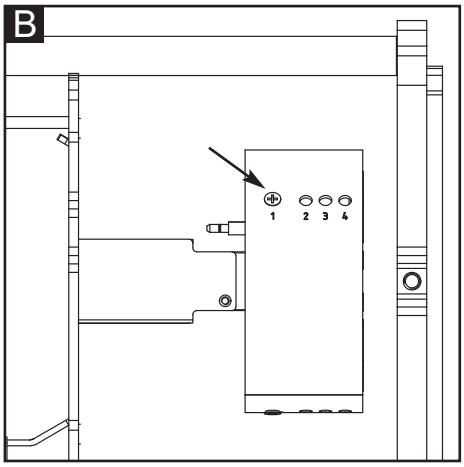
A



Air damper setting (A).
Remove the cover to gain access to the adjustment cams. The cams are adjusted using the screwdriver.
Description:
I - Limit switch for the “HIGH FLAME“ position of the air damper (MAX POWER).
II - Adjusting cam for the air damper position at shut down (0°).
III - Auxiliary switch for the release of the second stage valve (HIGH FLAME).
IV - Limit switch for the “LOW FLAME“ position of the air damper.

Note : Cam III (to enable the stage two electrovalve to open) is adjusted to an intermediate position between the low flame and high flame positions (to an angle approximately 5° greater than the low flame position).

B



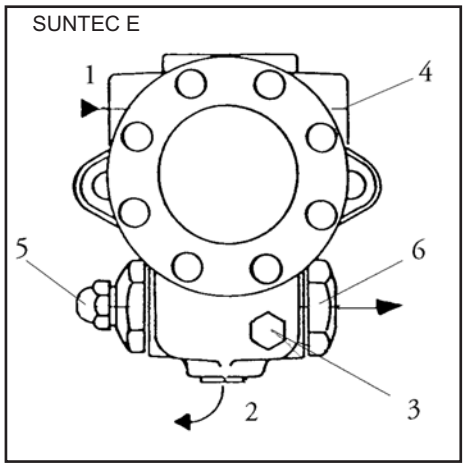
Firing head setting (B).
Slide the burner out off mounting flange. Modify air cilynder position (1,2,3,4) as shown in fig.B using a screwdriver. Slide again the burner in the mounting flange end fix to the boiler.

Start up - Adjusting burner output - Oil pressure regulation

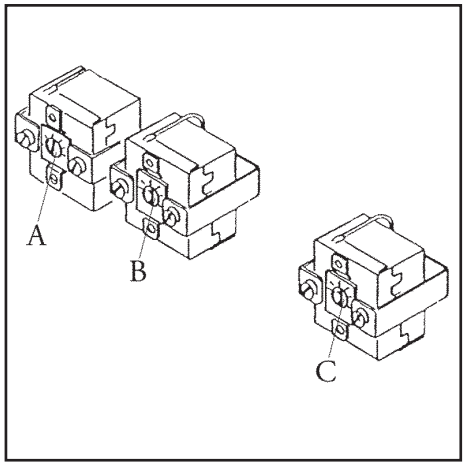
> **!** Risk of air blast!
> Continuously check CO, CO_2 and soot emissions when adjusting the output of the burner. Optimise combustion values in the event of CO formation. CO must not exceed 50 ppm.

Burner start
Before starting the burner, draw oil in until the filter is completely filled.
Then start the burner by switching on the boiler regulator. Open the bleed screw on the oil filter to allow the oil line to bleed fully during the preventilation phase. The negative pressure must not fall below 0.4 bar. Close the bleed screw when the filter is completely filled with oil and oil is flowing out without bubbles.

Burner output adjustment
Use the pressure regulator to adjust the oil pressure in accordance with the burner output desired. Monitor the combustion values continuously as you do so (CO, CO_2, soot test). Adjust the airflow gradually if necessary.



1 suction intake connection.
2 return connection.
3 oil pressure gauge connection.
4 negative pressure gauge connection.
5 oil pressure regulator.
6 pressure connection



Adjustment of fuel thermostats
The working resistor thermostat must be set to 100°-140°C, while the safety thermostat is preset. Said adjustments can be slightly modified following the type of fuel and particular uses.

A - Working thermostat (100°-140° C).
B - Stand-By thermostat (150° C).
C - Firing head thermostat (120°-140° C).

Operating check
Flame monitoring must be checked for safety as part of initial commissioning and also after servicing or if the system has been out of operation for any significant period of time.

- Starting attempt with flame monitor unlit: the automatic combustion control unit must switch to malfunction at the end of the safety time
- Start with flame monitor lit: the automatic combustion control unit must switch to malfunction after 5 seconds of preventilation
- Normal start-up: flame monitor goes out when burner in operation; the automatic combustion control unit must switch to malfunction after the restart and end of the safety time

Optimising combustion values
If the combustion values are not satisfactory modify the position of the combustion head. By doing this the burner ignition conditions and the combustion values change. Compensate for the change in airflow if necessary by adjusting the air flap position.

Note: observe the minimum required flue gas temperature specified by the boiler manufacturer and the requirements demanded of flue gas ducts for avoiding condensation.

Oil pressure regulation
The oil pressure, and therefore burner output, is adjusted using oil pressure regulator **5** in the pump.
Turn to
- right: to increase pressure
- left: to reduce pressure

Connect a pressure gauge at point **3** (with R1/8" thread).

Checking negative pressure
The vacuum meter for checking negative pressure must be connected to point **4**, R1/8". Maximum permissible negative pressure is 0.4 bar. At higher negative pressures, the fuel oil gasifies, which causes scraping noises in the pump and ultimately leads to pump damage.

Service - Maintenance

Burner and boiler servicing must only be carried out by qualified personell. The system operator is advised to take out a service contract to guarantee regular servicing.

Attention

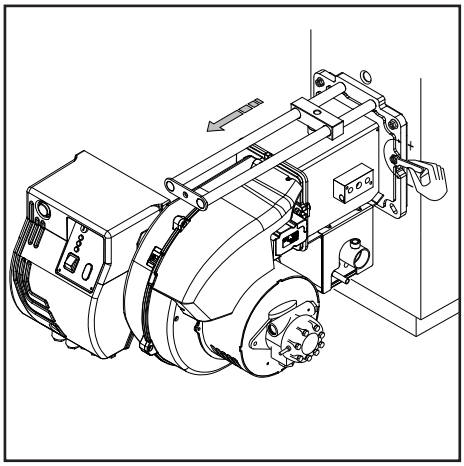
- Disconnect the electrical supply before carrying out any maintenance or cleaning work.
- The blast tube and firing head may be hot.

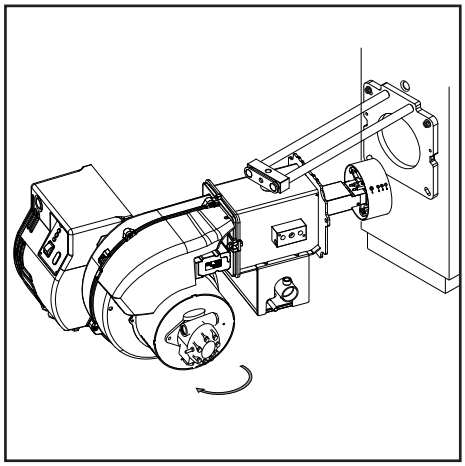
Checking the exhaust gas temperature

- Check the flue gas temperature at regular intervals.
- Clean the boiler if the flue gas temperature is more than 30°C above the value measured at the time of commissioning.
- To simplify the check, use a flue gas temperature indicator.

Burner maintenance positions

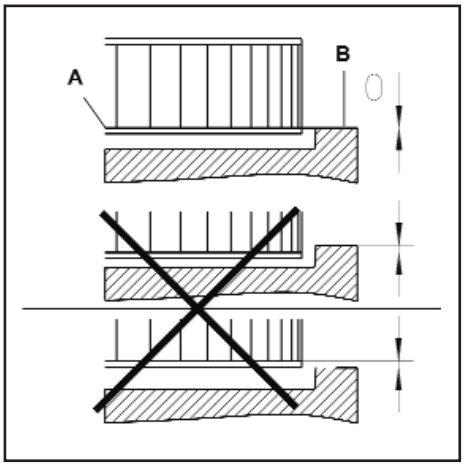
• After removing the screws pull the burner out of the flange and turn to maintenance (as show in picture) to :
nozzle change
electrodes change and setting
combustion disc cleaning/change
air cylinder setting





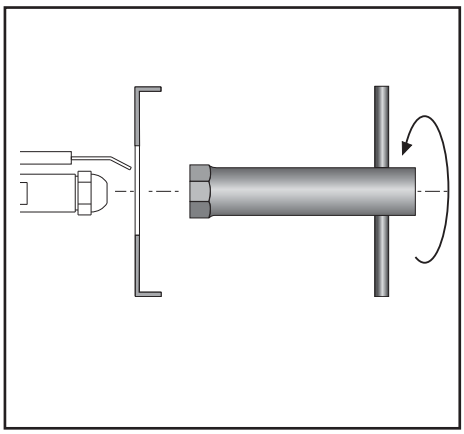
Maintenance on the burner

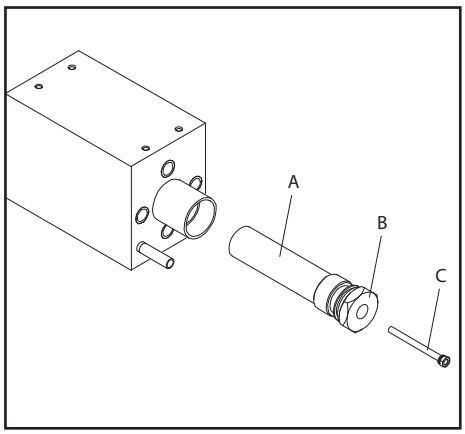
- Clean fan and housing and check for damage.
- Check and clean the combustion head.
- Replace oil nozzle.
- Check ignition electrodes, readjust or replace as necessary.
- Fit combustion head. Observe adjustment dimensions.
- Fit burner.
- Start burner, check flue gas data, correct burner settings if necessary.
- Check oil supply components (tubes, pumps, oil feed tube) and their connections for leaks or signs of wear, replace if necessary.
- Check electrical connections and connection cables for damage, replace if necessary.
- Check pump filter and clean if necessary.



Fan assembly

Observe the positioning diagram below when replacing the motor and blower wheel. The inside flange **A** of the blower wheel must be fitted at the same level as the equipment plate **B**. Insert a straight edge between the wing of the blower wheel and set **A** and **B** to the same height, tighten the set screw on the blower wheel.





Cleaning of filter on the preheater

Removing of the filter:
1 Switch-off the burner and make cold to leave.
2 Take off oil thermometer bulb C.
3 Loosen screw B and drain part of the fuel from the heater, until the fuel level drop below the filter.
4 Unscrew and pull out the stem filter A from its seat.
5 Clean the filter and reassemble the parts as shown by the picture, then fit it in its own seat.
It is advisable to replace all filter and valve gaskets whenever they are removed.
Note: that when the burner is working the heater has a pressure of abt. 23 bar, and that it becomes very dangerous to carry out said operations with the burner running.

Nozzle and cleaning replacement

Use only the suitable box wrench provided for this operation to remove the nozzle, taking care to not damage the electrodes. Fit the new nozzle by the same care.

Note: Always check the position of electrodes after having replaced the nozzle (see illustration). A wrong position could cause ignition troubles.

Service - Troubleshooting

Fault diagnosis and repair
In the event of a malfunction, first check that the prerequisites for correct operation are fulfilled:
1. is the system connected to the power supply?
2. is there oil in the tank?
3. are all shut-off valves open?
4. are all control and safety devices, such as the boiler thermostat, low-water detector, limit switch, etc. adjusted correctly?
If the malfunction persists, use the following table.
It is not permitted to repair any components relevant to safety. These components must be replaced by parts with the same order number.

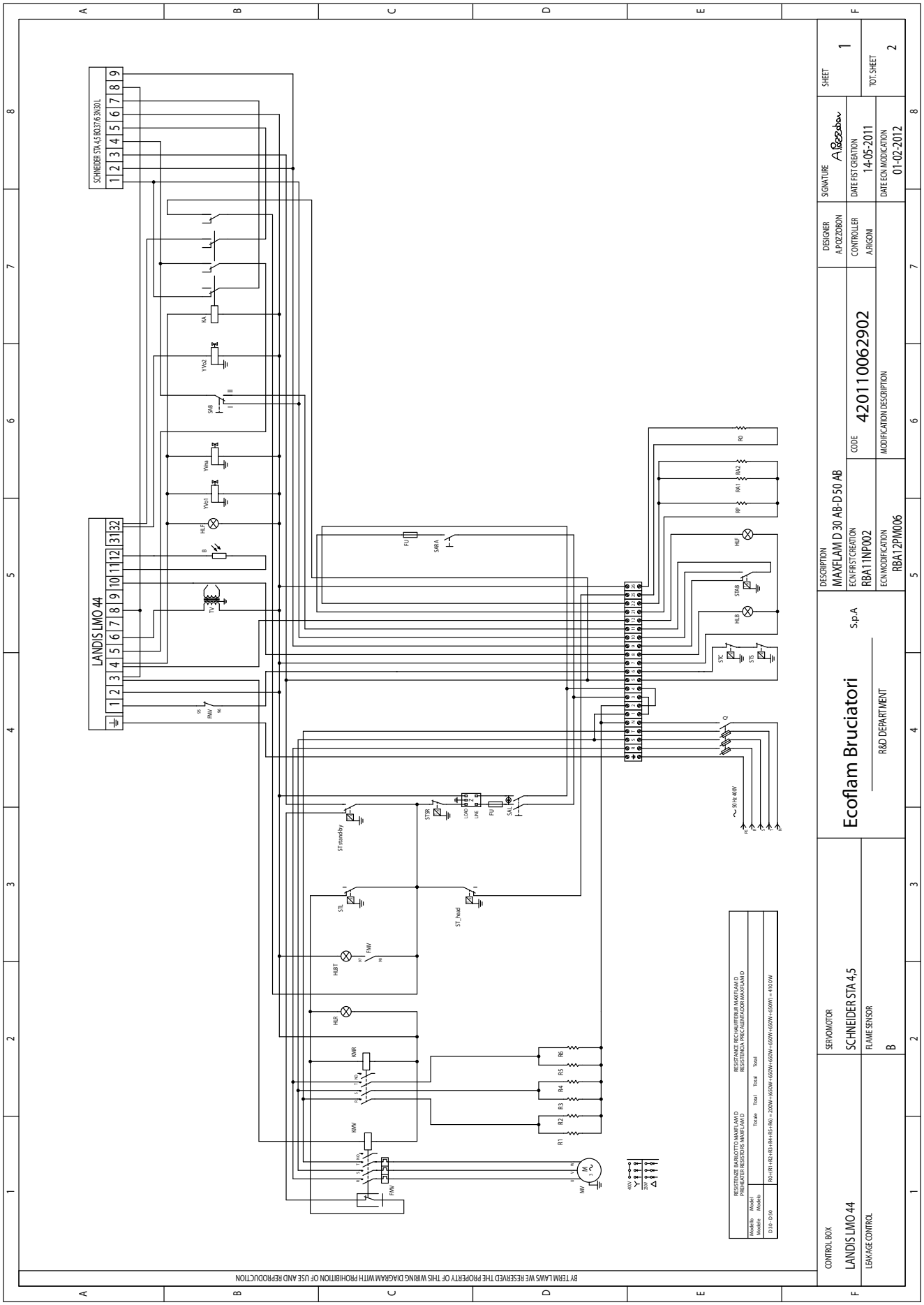
Only use original spare parts.

NB: after each operation:
• under normal operating conditions (doors closed, hood fitted, etc.), check combustion and check the individual lines for leaks.
• Record the results in the relevant documents.

Error code table

Red blink code of signal lamp (LED))	«AL» at term. 10	Possible cause
2 blinks	on	No establishment of flame at the end of «TSA» - Faulty or soiled fuel valves - Faulty or soiled flame detector - Poor adjustment of burner, no fuel - Faulty ignition equipment
3 blinks	on	Free
4 blinks	on	Extraneous light on burner startup
5 blinks	on	Free
6 blinks	on	Free
7 blinks	on	Too many losses of flame during operation (limitation of the number of repetitions)- Faulty or soiled fuel valves. - Faulty or soiled flame detector - Poor adjustment of burner.
8 blinks	on	Time supervision oil preheater - Oil preheater failed 5 times during prepurging
9 blinks	on	Free
10 blinks	off on	Wiring fault or internal fault, output contacts,other faults. 3 times temporary fault of the output contacts

Overview - Electric diagrams / Panoramica - Schemi elettrici / Vue d'ensemble - Schémas électrique / Descripción - Esquemas eléctrico / Обзор - Электрические схемы



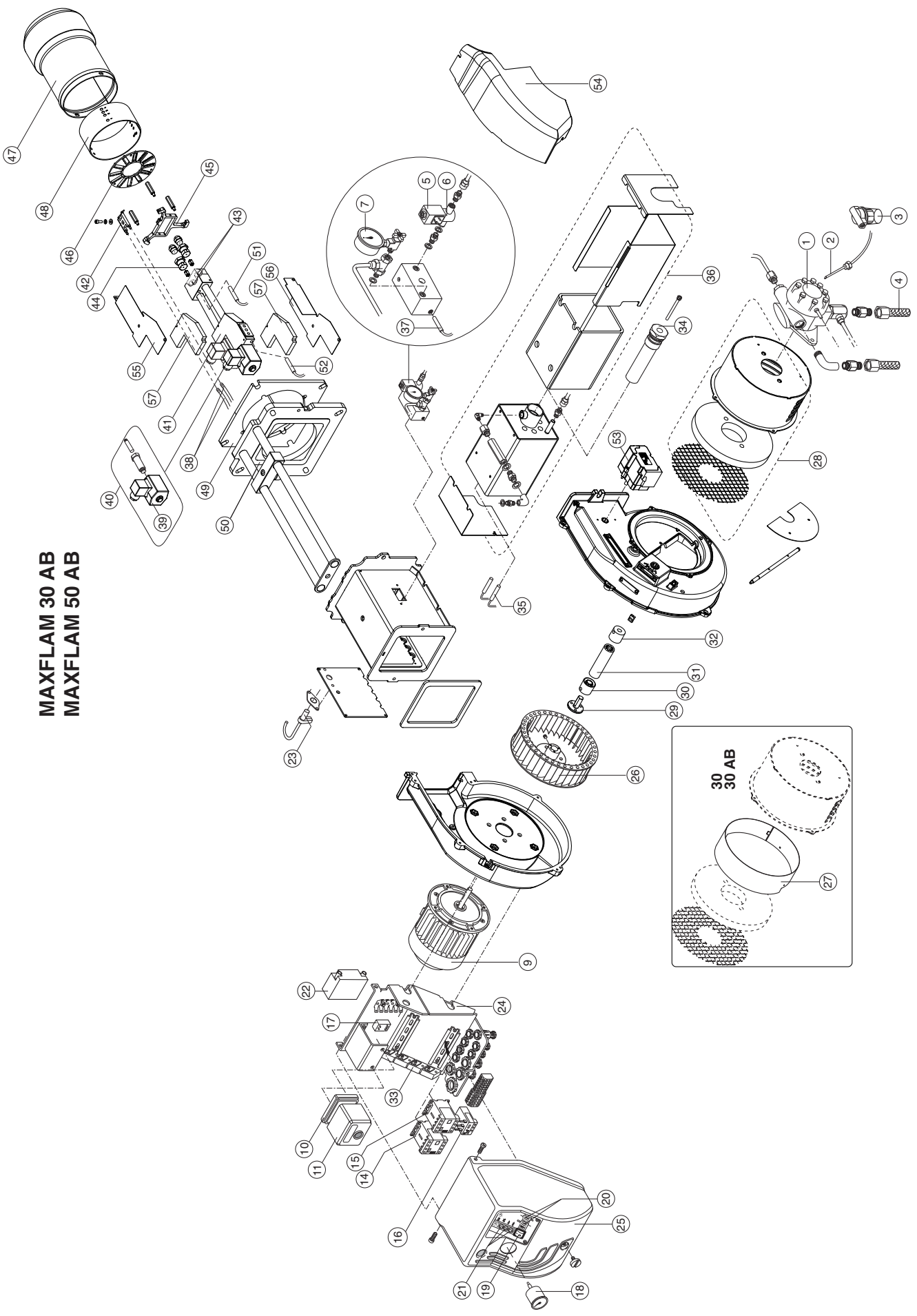
Overview - Electric diagrams / Panoramica - Schemi elettrici / Vue d'ensemble - Schémas électrique / Descripción - Esquemas eléctrico / Обзор - Электрические схемы

B	FOTORESISTENZA PHOTO-RESISTOR PHOTORESISTANCE FOTORESISTENCIA
Q	INTERRUTTORE GENERALE CON FUSIBILE MAIN SWITCH WITH FUSE INTERRUPTEUR GENERAL AVEC FUSIBLE INTERRUPTOR GENERAL CON FUSIBLE
Z	FILTRO ANTIDISTURBO ANTIJAMMING FILTER FILTRE ANTIPARASITES FILTRO DE PROTECION ANTIDISTURBIO
FU	FUSIBILE FUSE FUSIBLE FUSIBLE
KMR	CONTATTORE RESISTENZE RESISTOR REMOTE CONTROL SWITCH TELERUPTEUR RESISTANCES TELERRUPTOR RESISTENCIAS
MV	MOTORE VENTILATORE MOTOR FAN MUTEUR VENTILATEUR MOTOR VENTILADOR
RA1 RA2	RESISTENZA AUSILIARIA AUXILIARY RESISTOR RESISTANCE AUXILIAIRE RESISTENCIA AUXILIARIA
RP	RESISTENZA POMPA PUMP RESISTOR RESISTANCE POMPE RESISTENCIA BOMBA
TV	TRASFORMATORE IGNITION TRANSFORMER TRANSFORMATEUR D'ALLUMAGE TRANSFORMADOR
R0	RESISTENZA DELLA TESTA DI COMBUSTIONE FIDING HEAD AUXILIARY RESISTOR RESISTENCE AUSILIAIRETETE DE COMBUSTION RESISTENCIA AUXLIAR CABEZA DE COMBUSTION
R1 R4 R2 R5 R3 R6	RESISTENZA DI LAVORO WORK OF RESISTOR RESISTANCE DE TRAVAIL RESISTENCIA DE TRABAJO
HLF	LAMPADA DI FUNZIONAMENTO WORKING LAMP LAMPE DE FONCTIONNEMENT ESPIA DE FUNCIONAMIENTO
HLR	LAMPADA RESISTENZE RESISTOR LAMP TEMOIN RESISTENCES INDICADOR RESISTENCIAS
KMV	CONTATTORE MOTORE VENTILATORE REMOTE CONTROL SWITCH (FAN MOTOR) CONTACTEUR MOTEUR VENTILATEUR TELERRUPTOR MOTOR VENTILATOR
SAL	INTERRUTTORE DI LINEA WORKING SWITCH INTERRUPTEUR DE LIGNE INTERRUPTOR DE LINEA
STL	TERMOSTATO DI LAVORO WORKING THERMOSTAT THERMOSTAT TRAVAIL TERMOSTATO DE TRABAJO

STAB	TERMOSTATO DI ALTA-BASSA FIAMMA HIGH-LOW FLAME THERMOSTAT THERMOSTAT GRANDE-PETIRE ALLURE TERMOSTATO DE ALTA-BAJA LLAMA
STC	TERMOSTATO CALDAIA BOILER THERMOSTAT THERMOSTAT CHAUDIERE TERMOSTATO CALDERA
STS	TERMOSTATO DI SICUREZZA SAFETY THERMOSTAT THERMOSTAT DE SECURITE TERMOSTATO DE SEGURIDAD
YVna	ELETTROVALVOLA NORMALMENTE APERTA NORMALLY OPEN SOLENOID VALVE ELECTROVANNE NORMALEMENT AUVERT ELECTROVALVULA NORMALMENTE ABIERTA
YVo1	ELETTROVALVOLA OLIO DI PRIMA FIAMMA FIRST STAGE HEAVY OIL SOLENOID VALVE ELECTROVANNE 1° ALLURE ELECTROVALVULA FUEL PESADO DE 1^ LLAMA
SARA	INTERRUTTORE RESISTENZE AUSILIARIE AUX HEATERS WITCH INTERRUPTEUR DES RESISTACES AUXILIAIRES INTERRUPTOR RESISTENCIA AUXILIAR
ST head	TERMOSTATO DELLA TESTA DI COMBUSTIONE FIDING HEAD THERMOSTAT THERMOSTAT TETE DE COMBUSTION TERMOSTATO CABEZA DE COMBUSTION
ST stand-by	TERMOSTATO DI SOSTA STAND-BY THERMOSTAT THERMOSTAT D'ENTRETIEN TERMOSTATO DE MANTENIMIENTO
STSR	TERMOSTATO DI SICUREZZA RESISTENZE RESTOR SAFETY TERMOSTAT TERMOSTAT DE SECURITE RESISTANCES TERMOSTATO DE SEGURIDAD RESISTENCIAS
FMV	RELE' TERMICO MOTORE VENTILATORE MOTOR THERMAL RELAY (FAN MOTOR) RELAIS THERMIQUE MOTEUR VENTILATEUR RELE' TERMICO MOTOR VENTILADOR
KA	RELE' RELAY RELAIS RELE'
YVo2	ELETTROVALVOLA OLIO DI SECONDA FIAMMA SECOND STAGE HEAVY OIL SOLENOID VALVE ELECTROVANNE 2° ALLURE ELECTROVALVULA FUEL PESADO DE 2^ LLAMA
SAB	INTERRUTTORE ALTA-BASSA FIAMMA HIGH-LOW SWITCH INTERRUPTEUR GRANDE-PETIRE ALLURE INTERRUPTOR DE ALTA-BAJA LLAMA
HLBT	LAMPADA DI BLOCCO TERMICO THERMAL LOCK-OUT LAMP LAMPE DE THERMAL DE SECURITE ESPIA DE BLOQUEO RELE TERMICO

CONTROL BOX: LANDIS LMO 44	SERVOMOTOR: SCHNEIDER STA 4,5	Ecoflam Bruciatori S.p.A R&D DEPARTMENT	DESCRIPTION: MAXFLAM D 30-D 50 AB		DESIGNER: A.POZZOBON	SIGNATURE: A.Pozzobon	SHEET: 2
LEAKAGE CONTROL	FLAME SENSOR: B		ECN FIRST CREATION: RBA11NP002	CODE: 420110062902	CONTROLLER: A.RIGONI	DATE FIST CREATION: 14-05-2011	TOT. SHEET: 2
			ECN MODIFICATION: RBA12PM006	MODIFICATION DESCRIPTION:		DATE ECN MODICATION: 01-02-2012	

Overview - Spare parts list / Panoramica - Parti di ricambio / Vue d'ensemble - Pièces de rechange / Descripción - Piezas de recambio / Обзор - Запчасти



Overview - Spare parts list / Panoramica - Parti di ricambio / Vue d'ensemble - Pièces de rechange / Descripción - Piezas de recambio / Обзор - Запчасти

N°	DESCRIPTION	DESCRIZIONE	НАИМЕНОВАНИЕ		MAXFLAM 30 AB code	MAXFLAM 50 AB code
1	PUMP	POMPA	НАСОС	SUNTEC E 4NC 10695	65322954	65322954
2	HEATING ELEMENT PUMP	RESISTENZA	НАГРЕВАТЕЛЬНЫЙ ЭЛЕМЕНТ	50 W	65323072	65324208
3	FILTER	FILTRO		70104-03	65324806	-
				70501/03 GR	-	65324103
4	HOSES	FLESSIBILI	ГИБКИЕ ШЛАНГИ	TN 18X1500	65323182	65323182
5	COIL	BOBINA	КАТУШКА	Parker JB 18	65323781	65323781
6	VALVE	ELETTROVALVOLA	ЭЛЕКТРОКЛАПАН	Parker SCEM 120 8AR JB 18	65323628	65323628
7	MANOMETER	MANOMETRO	МАНОМЕТР	CEWAL R1/4 D	65324105	65324105
8	CAPACITOR	CONDENSATORE	КОНДЕНСАТОР		-	-
9	MOTOR	MOTORE	ДВИГАТЕЛЬ	740 W	65322834	-
				1100 W	-	65325323
10	CONTROL BOX BASE	ZOCCOLO	МОНТАЖНАЯ ПЛАСТИНА АППАРАТУРЫ УПРАВЛЕНИЯ	LANDIS	65320092	65320092
11	CONTROL BOX	APPARECCHIATURA DI CONTROLLO	КОНТРОЛЬНАЯ АППАРАТУРА	LANDIS LMO44.255C2	65320024	65320024
12	RELAY BASE	ZOCCOLO RELE'	МОНТАЖНАЯ ПЛАСТИНА РЕЛЕ'		-	-
13	RELAY	RELE'	РЕЛЕ		-	-
14	REMOTE CONTROL SWITCH	CONTATTORE RESISTENZE	ПУСКАТЕЛЬ ТЭНов	AEG LS05.10	65323132	65323132
15	REMOTE CONTROL SWITCH MOTOR	CONTATTORE MOTORE	ПУСКАТЕЛЬ ВЫРАВНИВАЮЩИХ ТЭНов	AEG LS05.10	65323132	65323132
16	MOTOR THERMAL RELAY	RELE' TERMICO MOTORE	ТЕПЛОВОЕ РЕЛЕ ДВИГАТЕЛЯ	AEG 2,2-3,2A	65323122	-
				AEG 3-4,7A	-	65323116
17	ANTIJAMMING FILTER	FILTRO ANTIDISTURBO	ФИЛЬТР ПОДАВЛЕНИЯ ПОМЕХ		65323170	65323170
18	THERMOMETER	TERMOMETRO	THERMOMETER	IMIT 0-200	65323093	65323093
19	MAIN SWITCH	INTERRUTTORE BIPOLARE CON LED VERDE	ВЫКЛЮЧАТЕЛЬ 2-ПОЗИЦИОННЫЙ С СВЕТОДИОДОМ ЗЕЛ. ЦВЕТА	cod.40100I1509	65323064	65323064
20	SWITCH	DEVIATORE	ПЕРЕКЛЮЧАТЕЛЬ РЕЖИМОВ МОЩНОСТИ	cod.360000001	65323065	65323065
21	LAMP	LAMPADA	ИНДИКАТОРНАЯ ЛАМПОЧКА	EL/N-SC4 Elettrospring	65322053	65322053
22	IGNITION TRANSFORMER	TRASFORMATORE	ТРАНСФОРМАТОР		65323257	65323257
23	PHOTORESISTOR	FOTORESISTENZA	ФОТОРЕЗИСТОР	LANDIS QRB1A-A050B70A2	65320076	65320076
24	BOX SUPPORT	SUPPORTO CASSETTA	BOX SUPPORT		65320478	65320478
25	BOX	CASSETTA	BOX		65320477	65320477
26	FAN	VENTOLA	РАБОЧЕЕ КОЛЕСО ВЕНТИЛЯТОРА	200X80	65325272	65325272
27	AIR WAISTBAND	FASCIA	AIR WAISTBAND		65325545	-
28	COVER AIR INLET	CASSETTO	ВОЗДУХОЗАБОР		65325281	65325282
29	GIUNTO PER MOZZO VENTOLA	GIUNTO PER MOZZO VENTOLA			65325308	65325308
30	COUPLING (FAN)	GIUNTO VENTOLA	ВОЗДУХОЗАБОР		65324205	65324205
31	COUPLING	GIUNTO GOMMA	МУФТА РАБОЧЕГО КОЛЕСА ВЕНТИЛЯТОРА		65324200	65324200
32	COUPLING (PUMP)	GIUNTO POMPA	ПРОМЕЖУТОЧНАЯ МУФТА		65324204	65324204
33	THERMOSTAT	TERMOSTATO	ТЕРМОСТАТ	IMIT TR2 40/200	65323147	65323147
				2455RC-9098-506	65325309	65325309
34	FILTER	FILTRO	ФИЛЬТР	FAG 90025	65325059	65325059
35	HEATER	RESISTENZE	НАГРЕВАТЕЛЬНЫЕ ЭЛЕМЕНТЫ		65324206	65324206
36	OIL TANK	BARILOTTO	БАЧОК-ПОДОГРЕВАТЕЛЬ		65325283	65325283
37	HEATING	RESISTENZA	НАГРЕВАТЕЛЬНЫЙ ЭЛЕМЕНТ	50 W	65323072	65323072
38	CABLE	CAVO	ПРОВОД		65324194	65324194
39	COIL	BOBINA	КАТУШКА	Parker JB 18	65323781	65323781
40	OIL VALVE	ELETTROVALVOLA	ЭЛЕКТРОКЛАПАН	Parker SCEM 120 8AR JB	65323629	65323629
41	FIRING HEAD	TESTA DI COMBUSTIONE	ОГНЕВАЯ ГОЛОВКА	TC	65325310	65325310
				TL	65325311	65325311
42	ELECTRODES	ELETTRODI	ЭЛЕКТРОДЫ		65320924	65320924
43	ROD NOZZLE HOLDER	GRUPPO ASTA SPILLO	ШТОК	TC	65325284	65325284
				TL	65325285	65325285
44	NOZZLE HOLDER	SUPPORTO UGELLO	ДЕРЖАТЕЛЬ ФОРСУНКИ		65073960	65073960
45	DIFFUSER HOLDER	CROCIERA DIFFUSORE			65325312	65325312
46	DIFFUSER	DIFFUSORE	РАССЕКАТЕЛЬ		65325313	65325313
47	BLAST TUBE	BOCCAGLIO	СТАКАН	TC	65325314	65325314
				TL	65325315	65325315
48	AIR CYLINDER	FASCIA	AIR CYLINDER		65325316	65325316
49	GASKET	GUARNIZIONE	УПЛОТНИТЕЛЬНАЯ ПРОКЛАДКА		65324701	65324701
50	GASKET	GUARNIZIONE	УПЛОТНИТЕЛЬНАЯ ПРОКЛАДКА		65325317	65325317
51	IN FRONT OF HEAD HEATER	RESISTENZA TESTA DAVANTI		200 W	65324208	65324208
52	BEHIND HEAD HEATER	RESISTENZA TESTA DIETRO		30 W	65324207	65324207
53	AIR DAMPER MOTOR	MOTORIDUTTORE	ЭЛЕКТРОПРИВОД ВОЗДУШНОЙ ЗАСЛОНКИ	STA4,5 B0.37/6 3N30 L	65325269	65325269
54	COVER	COPERCHIO	КРЫШКА		65325268	65325268
55	UP COVER	COPERCHIO SUPERIORE TESTA		TC	65325318	65325318
				TL	65325319	65325319
56	DOWN COVER	COPERCHIO INFERIORE TESTA		TC	65325320	65325320
				TL	65325321	65325321
57	FIRING HEAD ISOLATION	ISOLAMENTO TESTA			65325322	65325322

TC = Testa corta / Short Head / Tete courte / Cabeza corta / **КОРОТКАЯ ОГНЕВАЯ ГОЛОВКА** **TL** = Testa lunga / Long Head / Tete longue / Cabeza larga / **ДЛИННАЯ ОГНЕВАЯ ГОЛОВКА**