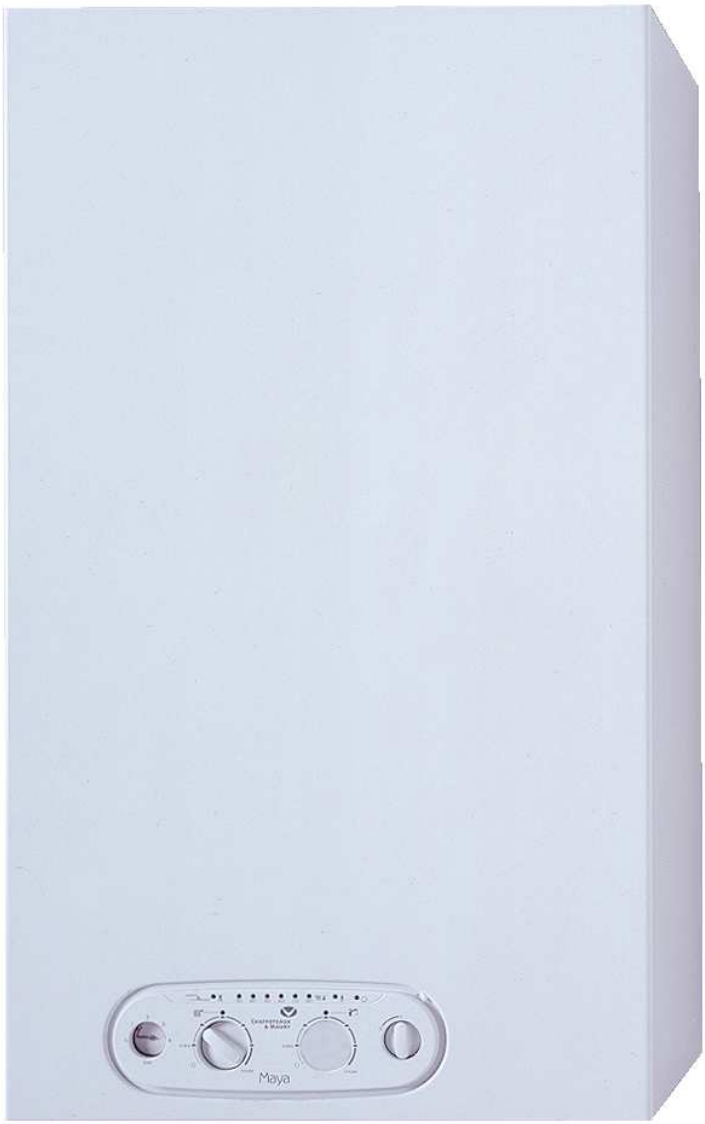
Maya 1-XX



Technical report

Maya 1-20 CF

This boiler for heating only is equipped with the most recent technologies :
- Modulating gas valve
- PCB with microprocessor of new generation
- Motor/generator group not noisy (between 44 and 50 dB(A)

MAIN PARTICULARITIES

- Version only heating from in 20 kW
- 1 kit to adapt the boiler with an external tank

The installation is facilitated by using a paper template for positioning the different connections and hanging bracket.

The maintenance is very easy and fast because all the parts are accessible by the front face.

All the parts of this boiler have proven reliable and robustness for several years.

For the consumer the control panel is easy to use.
It allows also getting technical informations about the working operations of the boiler.
All the disfunctings are indicated by a specific code on the control panel.

CODE						FAULT
30	**40**	**50**	**60**	**70**	**80**	
○	○	○	○	○	●	Overheat sensor switch open
○	○	○	○	●	○	Overheating defect without lock out
○	○	○	○	●	●	No flame detection
○	○	○	●	○	○	Ionisation printed circuit board faulty
○	○	○	●	○	●	Antifreeze mode ON (pump in operation)
○	○	○	●	●	○	Antifreeze mode ON (burner and pump in operation)
○	○	●	○	●	●	Central heating thermistor flow faulty (open circuit)
○	○	●	●	○	○	Central heating thermistor flow faulty (short circuit)
○	●	○	○	○	●	No water circulation or fumes sensor security
○	●	○	○	●	●	Wiring problem

DESCRIPTION

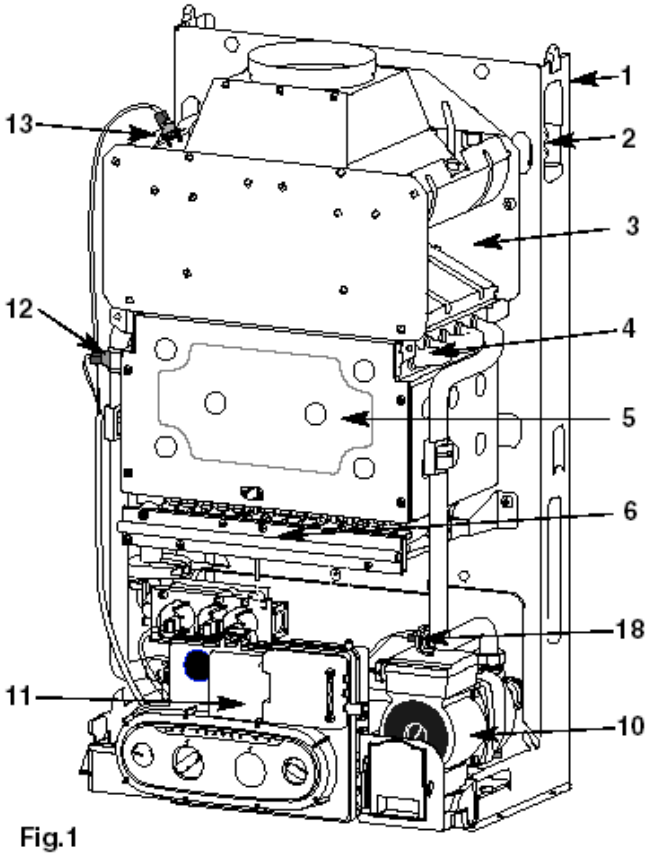


Fig.1

1 : Steel chassis
2 : Expansion vessel
3 : Draugther
4 : Mai heat exchanger
5 : Combustion chanmber
6 : Multi gas burner
7 : Gas valve
10 : Pump
11 : Electrical box
12 : Overheat safety
13 : Spillage safety
15 : NTC
18 : Flow pressure switch
19 : Two position selector switch
21 : Heating flow temperature
22 : Heating temperature indicator
23 : Green indicator – POWER ON
24 : Orange indicator – BURNER ON
25 : Red indicator – Lock out
26 : Reset button
27 : Pressure gauge
29 : Heating mode indicator

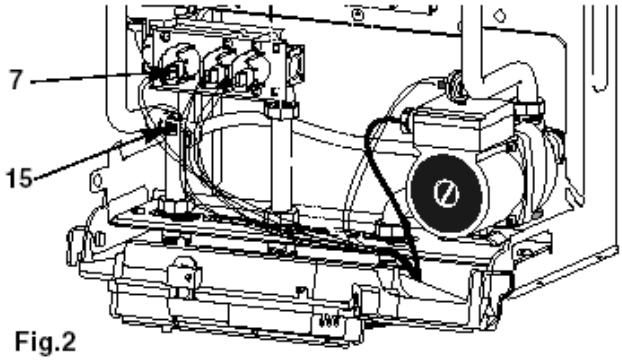
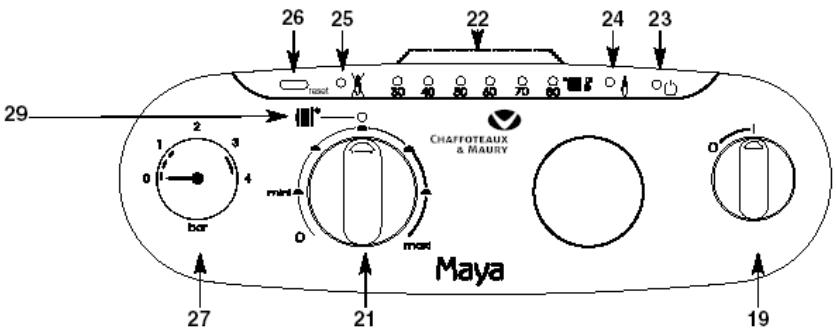


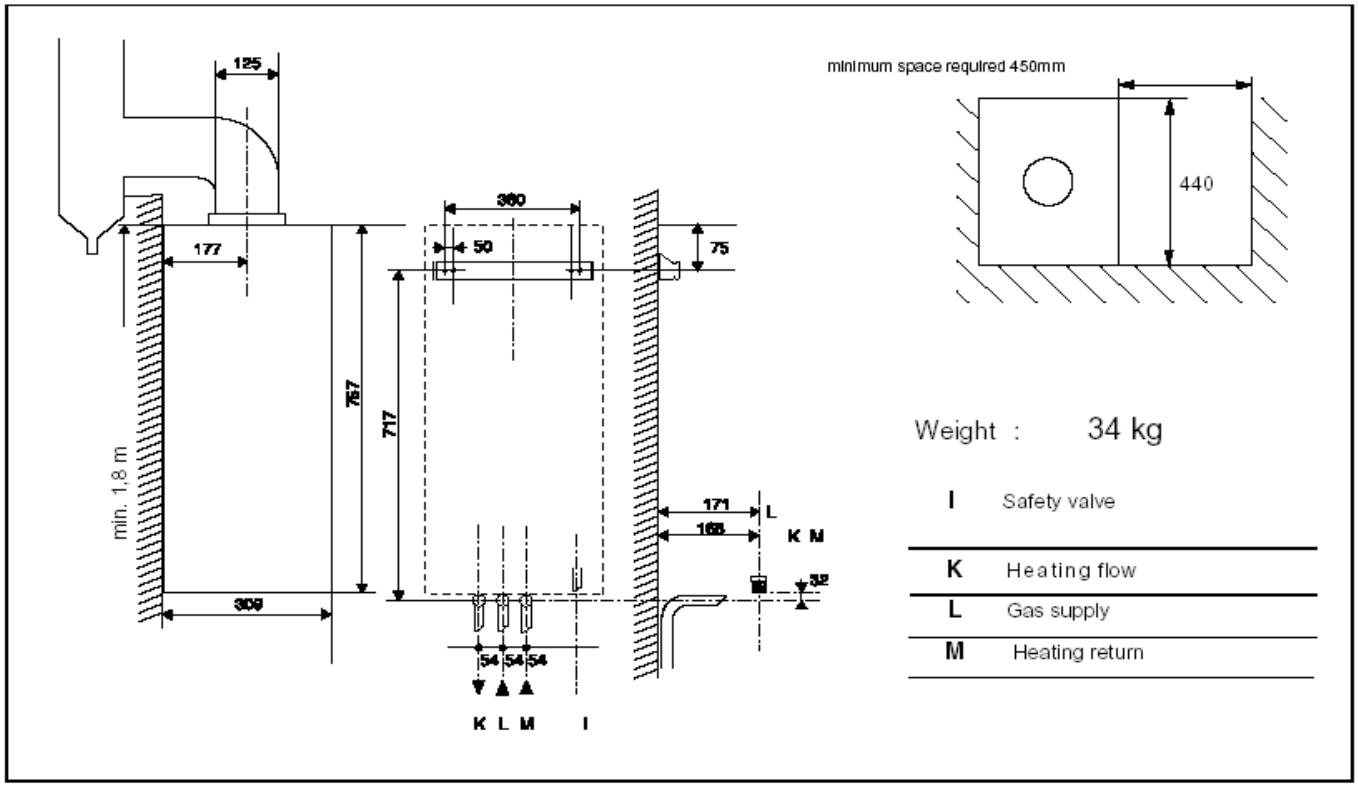
Fig.2



CHARACTERISTIC

- **SIZE :**

SIZE :



RANGE :

Version : **MAYA 1-20 CF**

- Setting point adjustable from 35 to 85°C in heating mode
- **Full modulation** in heating mode from 8 kW to 20 kW

INSTALLATION

Easy to install.

All the parts are integrated in the Maya :

- Expansion vessel,
- Electronic parts
- Hydraulic connections
- Hydraulic bloc with all integrated functions (pump, de aerator, thermistors, etc..)

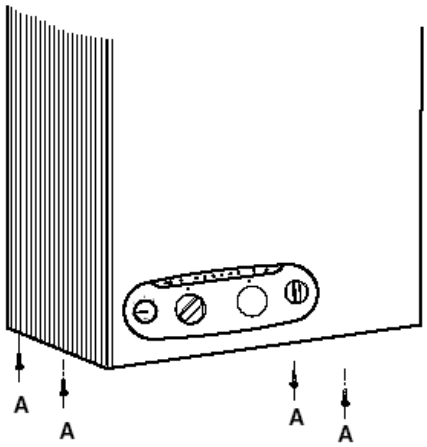


Fig. 8

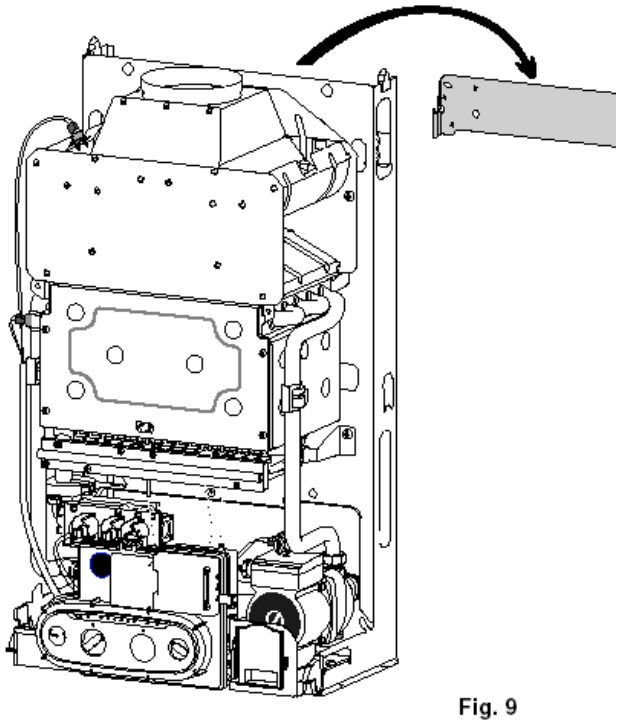


Fig. 9

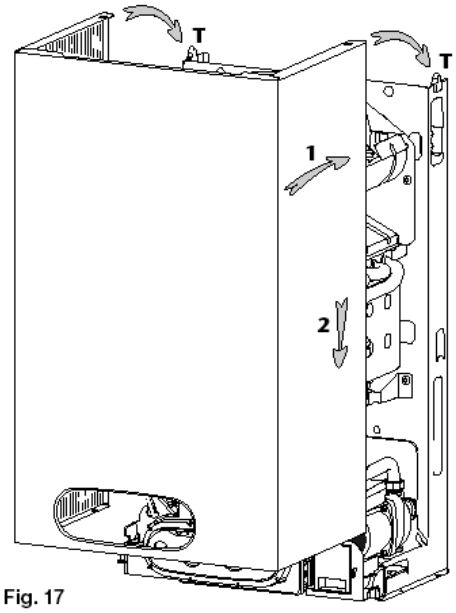
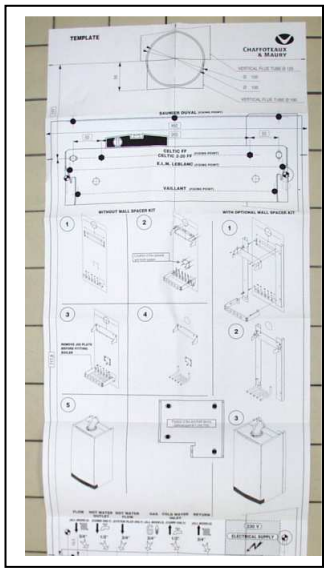


Fig. 17

Paper template



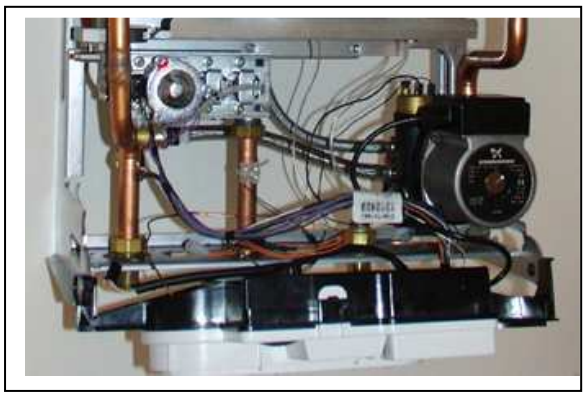
- A paper template indicates the location of the fitting holes, the location of the fluids and the location of the hole for the exhaust flue

Very easy accessibility to the hydraulics and electrical connections

After moving the electrical box, all the access to the connections are made in front of you

- A electrical wire of 1m is delivered and connected at the boiler

- No flame failure if inversion between phase and neutral



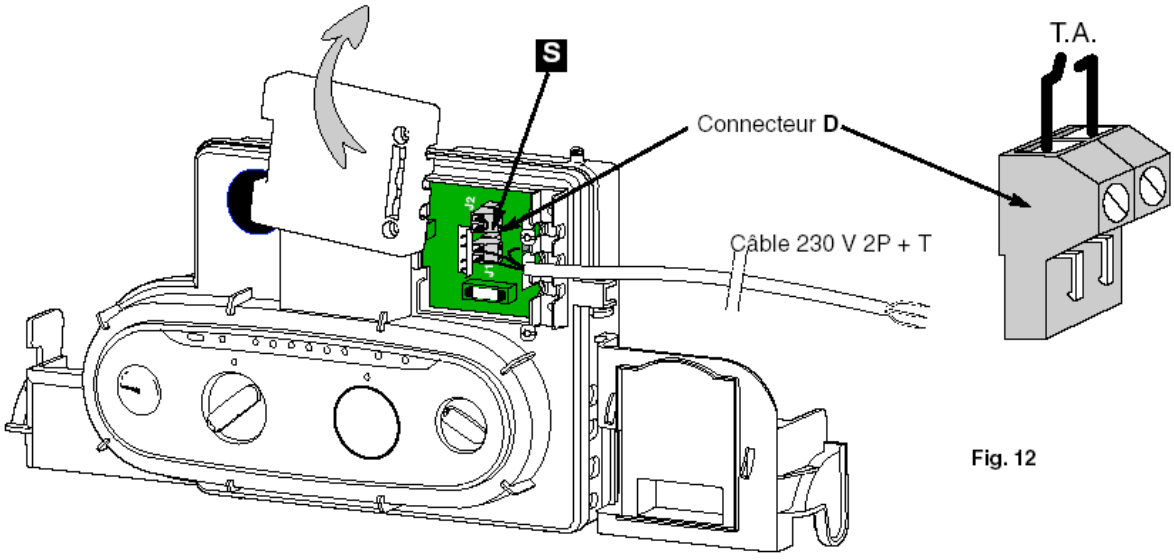


Fig. 12

CONTROL BOARD

- Electronic with microprocessor
- Autodiagnostic default

For the user, very easy to use control panel :

- LED series with indications of the temperature in heating mode and indication of a default code in case of trouble
- 3 control lights : green indicator Power ON, orange indicator Burner ON, red indicator Lock OUT flame failure
- 1 reset button

Adjustements:

- **For the user** :
  ***** Setting adjustment for heating temperature

- **For the installer** ,

➔ *Boiler setting*

* Room Thermostat or not
* Pump speed (2 speeds)
* Ant cycling heating (0,5 to 3 mn)
* Central heating maximum output limitation (8 to 24)

➔ *Configuration of the boiler :*

* Nominal power of the boiler
* Room thermostat

➔ *Default register*

* Display the last default

➔ *Incorrect description function :*

* Overheating lock out
* Overheating defect without lock out
* No flame detection
* Ionisation printed circuit board faulty
* Anti freezing system pump ON
* Antifreezing system pump et burner ON
* Central heating thermistor open
* Central heating thermistor in short circuit
* Wiring problem
* No water circulation or fumes sensor security

30	40	50	60	70	80
○	○	○	○	○	●
○	○	○	○	●	○
○	○	○	○	●	●
○	○	○	●	○	○
○	○	○	●	○	●
○	○	○	●	●	○
○	○	●	○	●	●
○	○	●	●	○	○
○	●	○	○	●	●
○	●	○	○	○	●

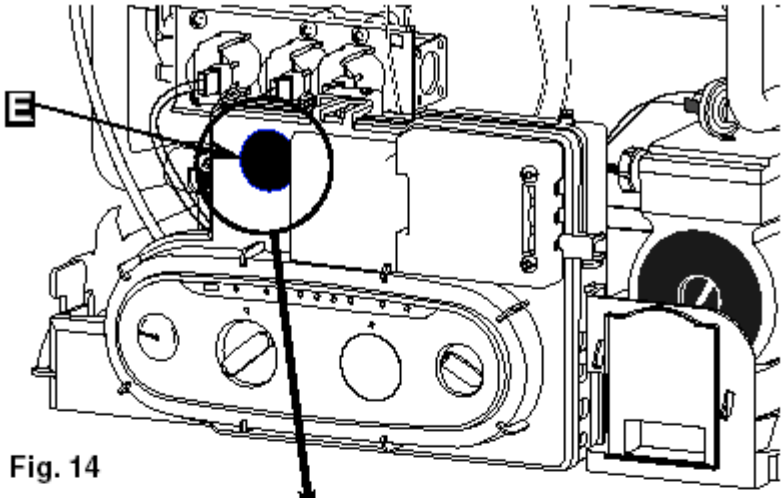


Fig. 14

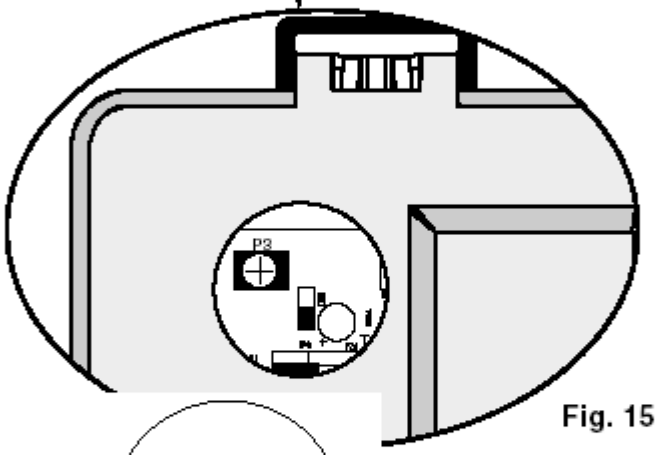
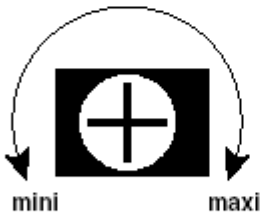


Fig. 15



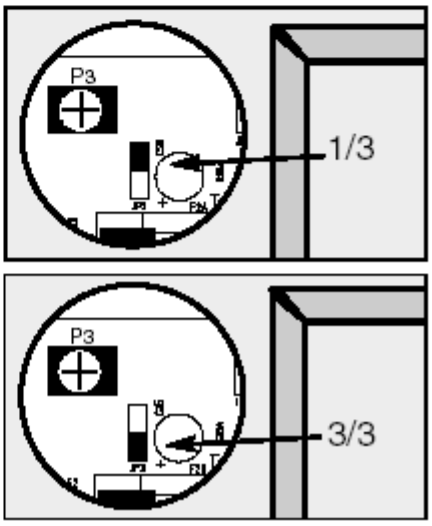
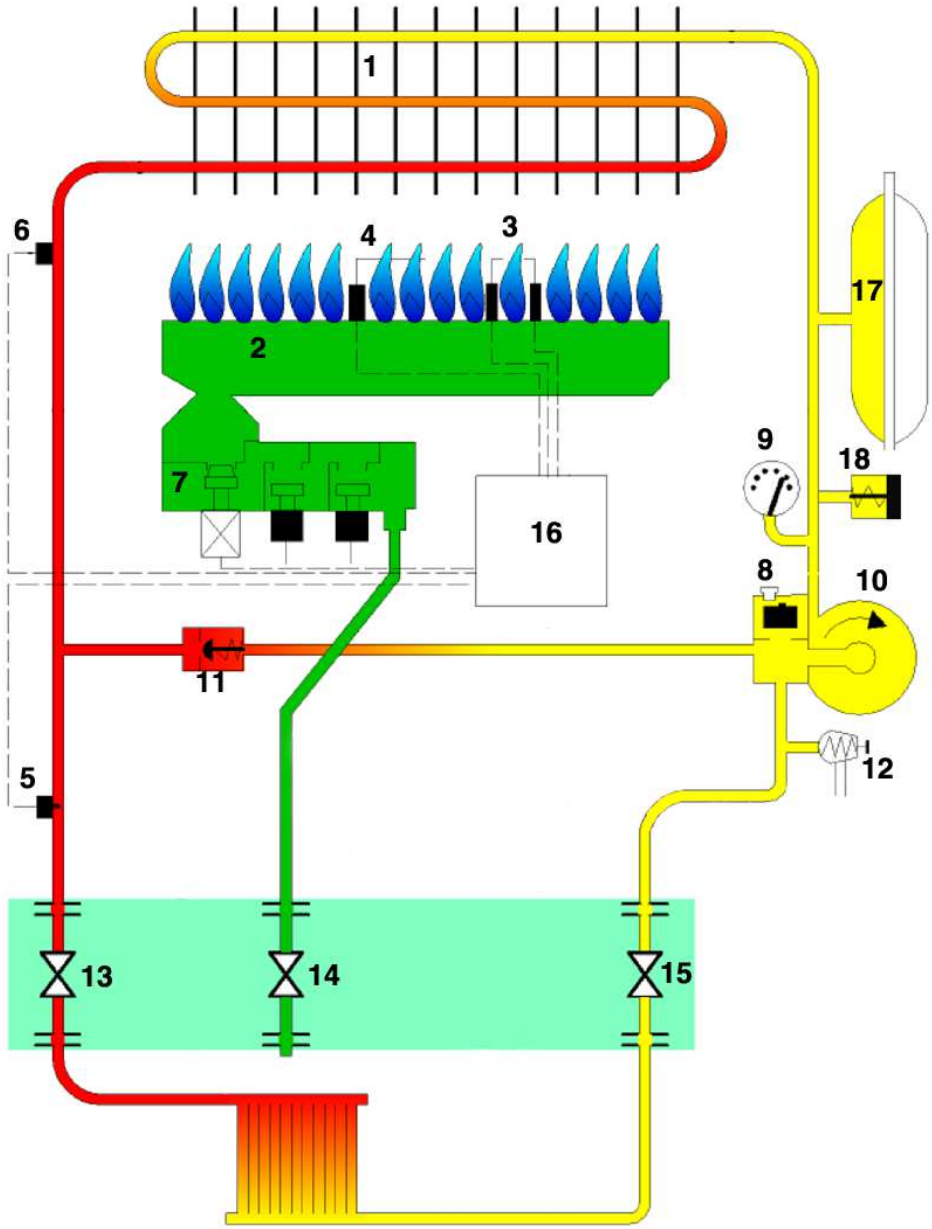


Fig. 16

Functionning :



1 - Heat exchanger	7 - Gas valve	13 - Heating flow valve
2 - Burner	8 - Automatic air separator	14 - Gas service cock
3 - Ignition electrodes	9 - Pressure gauge	15 - Heating return valve
4 - Ionisation probe	10 - Pump	16 - Control box
5 - Heating thermistor	11 - Manual by-pass	17 - Expansion vessel
6 - Overheat thermostat	12 - Pressure relief valve	18 - Primary pressure switch

In heating mode

- Heating setting point adjustable from 35 to 80°C

The Maya can work with or without room thermostat thanks to a shunt
If room thermostat (R.T) is "ON":

➔ The pump 10 works
➔ The primary flowswitch is "ON" if primary pressure over 0,8 bar
➔ The exhaust fan start working and drive the modulating gas valve 7. The fan speed is fixed.
➔ The burner 2 light and heat the heat exchanger 1
➔ The NTC 5 manage the CH regulation

A by pass 11 can be adjust to adapt the water flow rate in the heat exchanger

In case of overheating, the sensor 6 stops the burner but the pump continues to run.

Frost protection device

If the temperature ≤ 7°, the circulator start working.

2 possibilities :

- The primary temperature increase and if this one reaches 15°C, the pump stop.
- If temperature continues to decrease less than 4°C, the burner light until the temperature reaches 15°C. Beyond that, burner and pump stop.

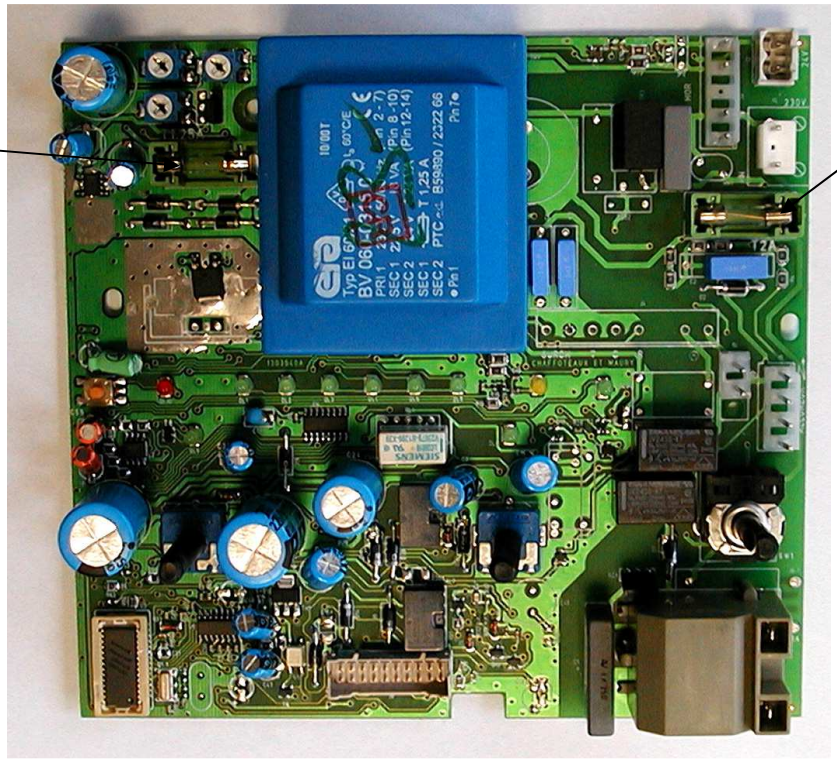
7°C = Pump On

4°C = Burner On Until 15°C

In Central Heating

PCB

- Electronic with microprocessor



Mains functions driven by the electronic

- Autodiagnostic
- Anti seizing pump every 23h
- Anti freezing function
- Combustion rate mode control for the adjustments
- Flame detection
- Temporisation

MAINTENANCE

- Fast and very easy maintenance
- All the parts are accessible from the front
- Ignition electrodes and ionisation can be changed without removing the burner

CHARACTERISTICS MAYA

Efficiency :

Maya 1-20 CF

- Full power at 60 / 80°C = **89,6 %**
- 30% of power = **89,8 %**
-

Modèle	**Maya 1.20 CF**
Puissance chauffage .....Pn	7,75 à 20 kW
Niveau de performance .....Haut rendement	B 500
Pertes à l'arrêt .....inférieures à	500 W
Classe I - Type B11BS	
(tirage naturel - cheminée - sécurité de débordement).	
Catégorie	II 2E+3+
Débit d'air neuf requis pour l'alimentation en air de combustion V	43 m³/h
Débit massique des produits de combustion.....M	20 g/s
Température moyenne des produits de combustion	110 °C
Débit minimal du circuit chauffage central	300 l/h
Pression maximale circuit chauffage .....Pw max	3 bar
Température départ chauffage réglable	de 35 à 85°C
Tension électrique	230 volts mono - 50 Hz
Puissance électrique absorbée	90 W
Protection électrique.....	IP 44

Débit nominal de gaz (15°C-1013 mbar).....	Débit maxi.	Débit mini.
.....Qn	22,45 kW	9,5 kW
G 20 (GN H - Lacq) 34,02 MJ/m³ sous 20 mbar ....Vr	2,37 m³/h	1,00 m³/h
G 30 (butane) 45,6 MJ/kg sous 28-30 mbar .Vr	1,77 kg/h	0,74 kg/h
G 31 (propane) 46,4 MJ/kg sous 37 mbar .....Vr	1,74 kg/h	0,72 kg/h
.....	**Nat**	**Prop**
Repérage nourrice.....	G20	G30-G31
Marquage.....	1010030 NAT	1010175 PRO
Injecteurs en 1/100 de mm	118	70
Nb d'injecteurs	16	16
Diaphragmes gaz montés sur les électrovannes		
Nombre	1	1
Diamètre/repérage **1/3 gaz**	2,3	1,55
Diamètre/repérage **Plein gaz**	4,9	3,8

Heat losses :

Maya 1-20 CF		heat losses for ΔT°=30 K
- Length flue 1m	Ø=125mm	**176 W**

Emissions of CO_2 and CO :

Maya 1-20 CF				***CO (ppm)***	***CO_2 (%)***
Length flue 1m	diaph Ø=125mm	G20 (20mb) :		24	5,62

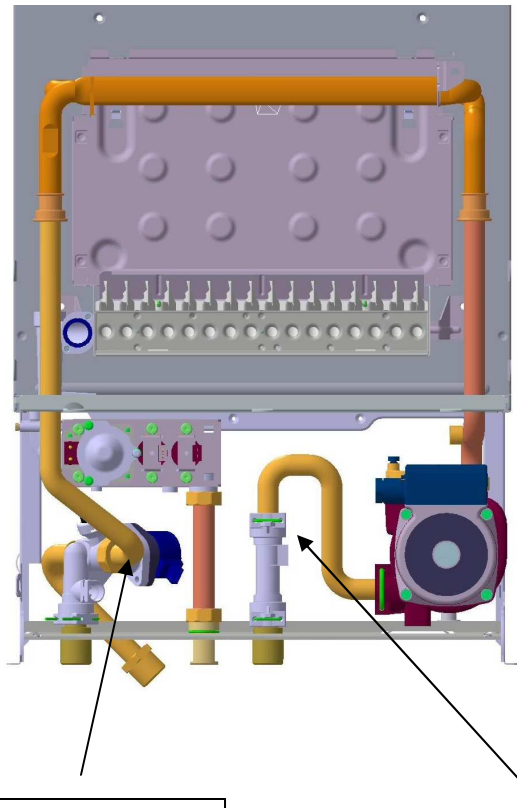
Flue gas temperature :

Maya 1-20 CF				
Length flue 1m	diaph Ø=125mm	G20 (20mb) :		110°C°C

Acoustic levels :	***at***	***Pmin***	***Pmax***
Maya 1-20 CF		44 dB(A)	50 dB(A)

Kit to adapt the boiler with an external tank

The kit is used to transform the heating boiler in heating and storage domestic hot water cylinder .



3 way valve with integrated piping

Connecting pipe with flow switch

Kit details

The kit consist of several elements :

- three-way valve with piping
- D.H.W flow switch

The Three-way valve and D.H.W flow switch are integrated inside the boiler