

e-tech^w

Installation, operating and maintenance instructions

E-Tech 09 - 15
Single phase

E-Tech 22 - 28 - 36
Tri phase



excellence in hot water

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WARNINGS

WHO SHOULD READ THESE INSTRUCTIONS

These instructions should be read by:

- the specifying engineer
- the installer
- the user
- the service engineer

SYMBOLS



Essential instruction for the correct operation of the installation.



Essential instruction for the safety of persons and the environment.



Danger of electrocution



Danger of burns

RECOMMENDATIONS



- These instructions are an integral part of the equipment to which they refer and the user must be provided with a copy.
- The product must be installed and serviced by qualified engineers, in compliance with current standards.
- The manufacturer cannot accept liability for any damage resulting from incorrect installation or from the use of components or fittings not specified by the manufacturer.
- Any failure to follow instructions relating to tests and test procedures may result in personal injury or risks of pollution.



It is important to switch the boiler off before carrying out any work.

APPLICABLE STANDARDS



The Boilers have been manufactured to comply with the following standards BS EN60335-2-35: 1998, BS EN55014-2:1997 and BS EN50081-1-1: 1992.

IMPORTANT NOTES

These instructions are an integral part of the equipment to which they relate and must be handed to the user.

The product must be installed and serviced by qualified engineers in accordance with the regulations in force.

The manufacturer declines all liability for any damage caused as a result of incorrect installation or in the event of the use of appliances or accessories that are not specified by the manufacturer.



The manufacturer reserves the right to change the technical characteristics and specification of its products without notice.

the availability of certain versions and their accessories can vary following the market

MANUAL HANDLING INSTRUCTIONS



The weight of this boiler is 36Kg, which could present a risk of injury.



Care should be taken when loading and unloading the boiler to and from vehicles.



We recommend that the boiler be handled by two people until it is securely fixed to a wall.



The safest route from the vehicle to the point of installation should be carefully assessed before unloading the boiler.



Mechanical lifting aids should be utilised whenever possible.

REMOVING THE BOILER FROM THE PACKAGING

- Before lifting the boiler from the packaging, ensure that the installation area is clear and that there are no obstacles making installation difficult or unsafe.
- Lay the boiler on its back (as shown on the box side), open the box and remove the cardboard packaging.
- Remove the polythene cover and the polystyrene corner protection pieces.
- With help from another person, lift the boiler from the packaging holding the lipped front edges of the side panels.
- Do not lift or carry the boiler using the top automatic air vent and bottom pump.

INTRODUCTION

DESCRIPTION OF THE SPECIFICATIONS

This wall hung electric boiler is available in 5 models :

- models 09 and 15 are supplied with 230 Volt single phase
- models 22, 28 and 36 are only supplied with 400 V triphase + N



The maximum power can be adjusted for all models by acting on the terminals bridges.

- Model 09: Adjustable power from 4.2 to 8.4 kW
- Model 15: Adjustable power from 7.2 to 14.4 kW
- Model 22: Adjustable power from 14.4 to 21.6 kW
- Model 28: Adjustable power from 21.6 to 28.8 kW
- Model 36: Adjustable power from 30 to 36 kW

LINING

The boiler is protected by a steel lining that first of all undergoes a degreasing and phosphation process before being lacquered and burnt at 220°C.

HEATING BODY

The boiler heat exchanger is constructed from mild steel with welded joints. It is hydraulic tested under a pressure of 4.5 bar (maximum working pressure = 3 bar).

HEATING ELEMENTS

Immersion heaters, constructed from stainless steel Incoloy 800 and mounted in the top of the boiler, provide the power source for the Boiler.

EQUIPMENT

The boiler is equipped with all the necessary components to allow direct connection to a heating system without the need for a feed and expansion cistern.

These components include; primary 10 litre expansion vessel (suitable for a system water content of up to 160 litres), pressure and temperature gauge, safety valve, circulating pump, low water pressure switch, control and high limit thermostats, on/off and power level switches.

CONNECTION

The boiler is suitable for connection to most heating and hot water systems, with a maximum working pressure of 3bar and a maximum temperature of 85°C. It can also be used in multiple boiler installations allowing greater outputs to be achieved.

The boiler, and connection glands for both the main power supply and optional external controls are provided, suitable for single or three phase electrical supply depending upon boiler output required. An internal 3 amp MCB is linked to the incoming electrical supply to provide the internal control circuit, from which optional controls can be connected e.g. internal or external timeclock, room thermostat or Honeywell Sundial controls.

DUAL STAGE THERMOSTAT

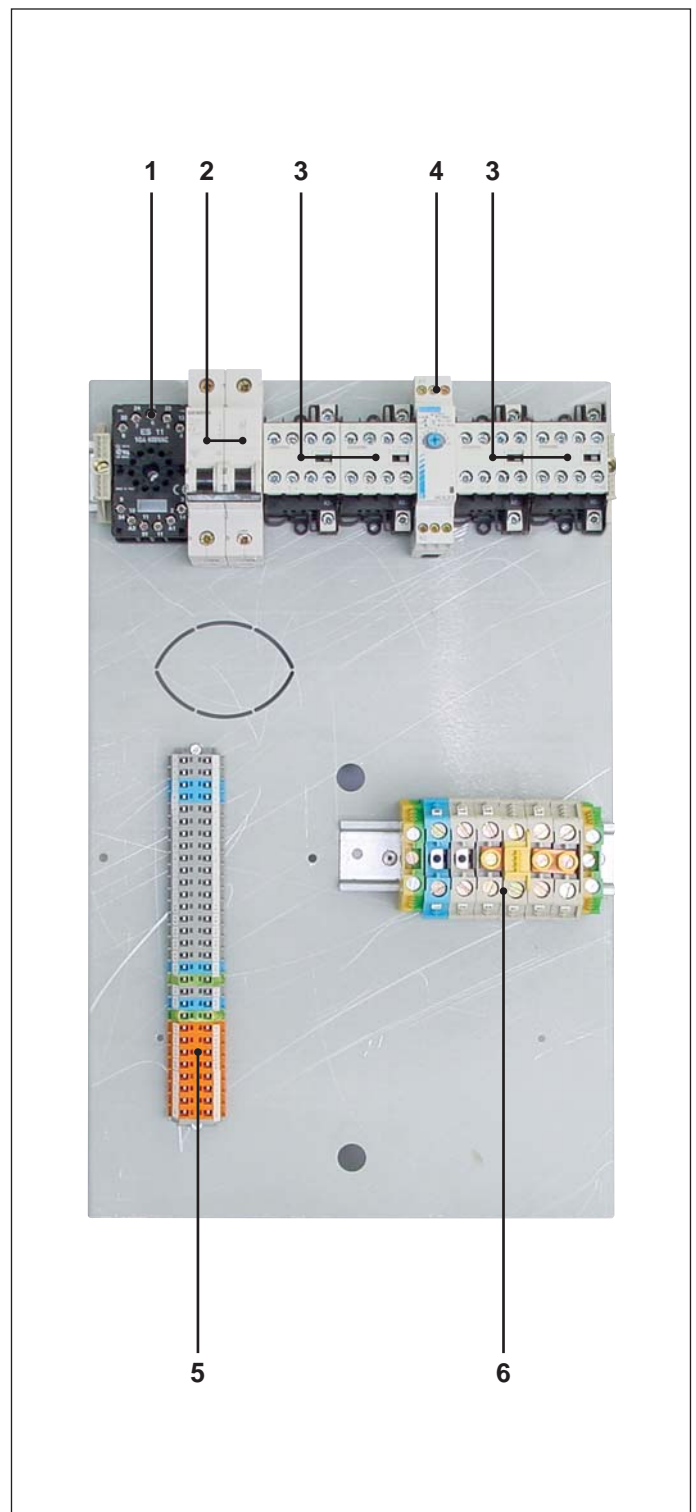
The temperature of the boiler is controlled by a dual stage thermostat which is set by the user to give the desired boiler temperature. When the boiler has heated up to within 7°C of the set temperature, the thermostat switches off one power stage and therefore reduces the heat input. Thanks to this simple but effective form of modulation, the boiler has longer working cycles and requires less stops and starts, thus resulting in a more even temperature across the boiler. It also means less wear and tear on components and, importantly it uses less power once it has reached working temperature.

CERTIFICATION

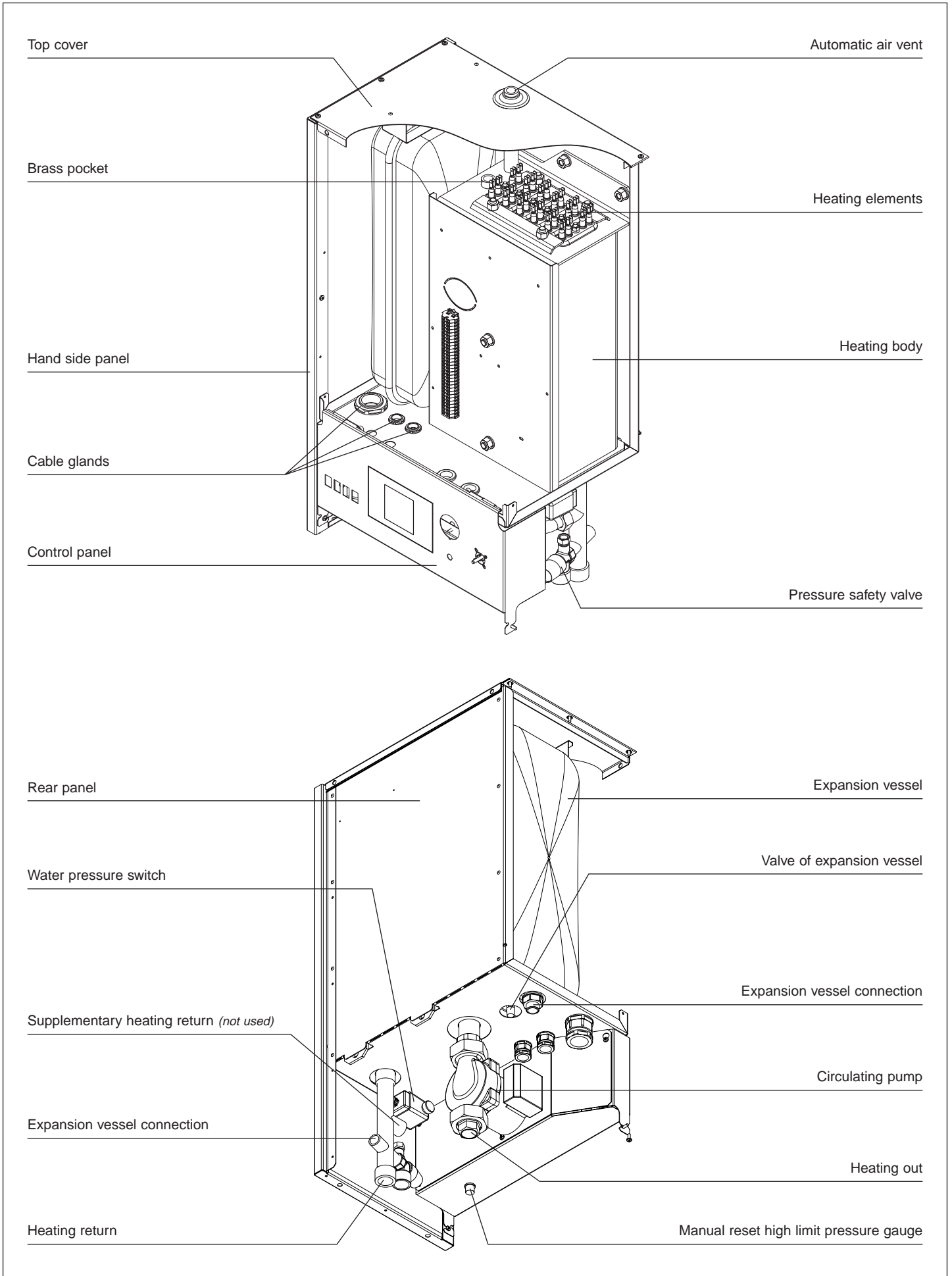
The boilers have been manufactured to comply with the following standards BS EN60335-2-35: 1998, BS EN55014-2:1997 and BS EN50081-1-1: 1992.

LEGEND

1. Base for relay of DWL priority
2. Control circuit
3. Relay
4. Timer
5. Control terminals
6. Power terminals



INTRODUCTION



INSTRUCTIONS

USER DATA

All user controls are situated on the front panel of the boiler, there are no user controls inside the boiler casing.

The following instructions assume that the boiler has been commissioned, and that the system is filled with water and has been fully vented.

SETTING UP

- Before switching on any electrical supplies to the boiler ensure that the combined temperature and pressure gauge reads at least 1 bar and the control thermostat is set to the desired temperature.
- If an internal time clock is fitted ensure that this is switched on (see "Optional Internal Time Clock") and if any other auxiliary controls are fitted e.g. programmer, room thermostats, cylinder thermostats etc, consult appropriate manufacturers' instructions to switch these on.
- Switch on any local means of isolation to boiler.
- Switch the boiler on using the **ON/OFF** switch (the neon light on the switch should now glow).
- Turn on both power level switches - after a short period of time the boiler temperature should start to rise, indicated by the combined temperature and pressure gauge. If the boiler fails to operate, the overheat safety thermostat should be checked. Access to the thermostat reset button is obtained by unscrewing (anti-clockwise) the domed button cover on the front panel (a screwdriver is not required). The reset button can then be seen - press the button, a click should be heard and the button is reset. If no click was heard the device is not at fault and further investigation is required by a suitably qualified engineer.
- The internal clock or external programmer can now be set to allow on/off periods as desired. The ON/OFF switch and 2 power level switches should be left in the ON position during normal use.



the power level switches will automatically switch on and off during normal boiler operation, depending on boiler temperature.

- If the boiler is not in regular daily use during cold periods, it is recommended that it be fitted with a frost sensing thermostat to override the timeclock and prevent the system from freezing.

- As with most boilers and heating appliances the casing and pipework can get hot during normal running so the boiler must not be covered and the surrounding area must be kept clear.

OPTIONAL INTERNAL TIMECLOCK

- This operates on a 24-hour sequence. Around the outside of the clock there are a number of white tabs - these allow 15 minute switching times. To set a boiler cycle simply push outwards the number of tabs required for your heating period.

Remember : tab OUT = BOILER ON
tab IN = BOILER OFF

The time of day is marked by an arrow on the inner part of the clock - set the outer time to coincide with this arrow.

On the centre part of the clock there is a switch.

This has three positions :

- Switch down - timeclock off
- Switch middle - timeclock timed (normal position)
- Switch up - timeclock on constant.

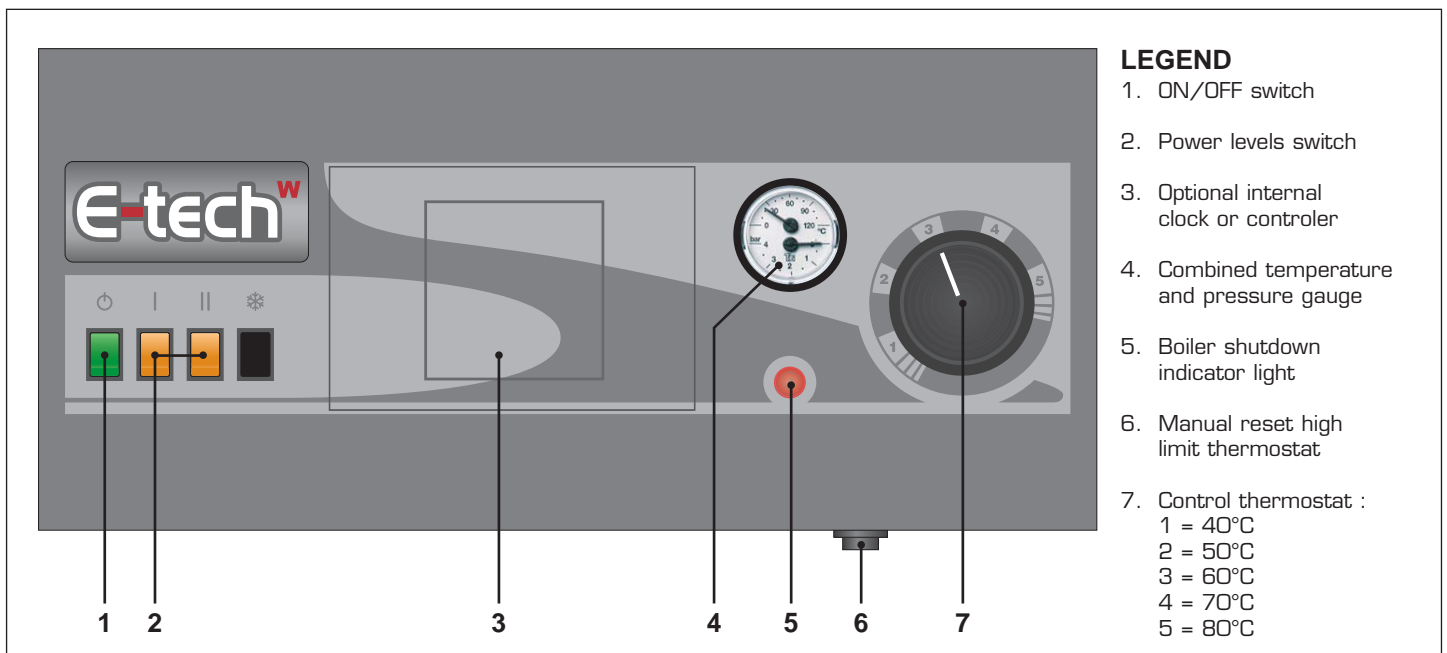
PRESSURE IN THE HEATING SYSTEM

The CH pressure must be a minimum of 1 bar and must be checked by the end user on a regular basis. If the pressure drops under 0.5 bar, the integrated water pressure switch blocks the appliance until the pressure in the system returns to a level above 0.8 bar.

The installer fits the system with a separate fill valve underneath the appliance. Make sure that the appliance is powered off when filling the system. To do this, turn the on/off switch.

For more information, please ask your installer when the system is delivered.

A safety valve is provided underneath the appliance. If the system pressure exceeds 3 bars, this valve opens and drains the water from the system. In this case, please contact your installer.

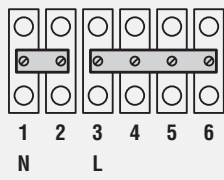
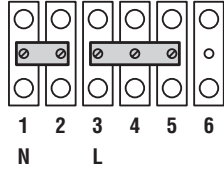
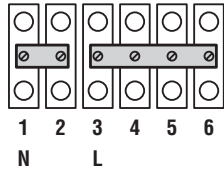
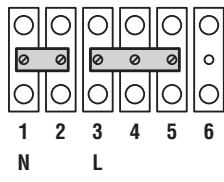


TECHNICAL CHARACTERISTICS

Model	09	15	22	28	36
Power	4.2 to 8.4 kW	7.2 to 14.4 kW	14.4 to 21.6 kW	21.6 to 28.8 kW	30 to 36 kW
Nominal supply voltage	1 x 230 V	1 x 230 V	3 x 400 V + N	3 x 400 V + N	3 x 400 V + N
Ohmic esistance of element	37.8 Ohm	22 Ohm	22 Ohm	22 Ohm	26.45 Ohm
Heating element type	2 x 1.4 kW	2 x 2.4 kW	2 x 2.4 kW	2 x 2.4 kW	3 x 2 kW
Number of elements	3	3	5	6	6
Water capacity (Litres)	13	13	13	13	13
Expansion vessel capacity (Litres)	10	10	10	10	10
Max. working pressure (bars)	3	3	3	3	3
Min. working pressure (bars)	0.8	0.8	0.8	0.8	0.8
Max. working temperature (°C)	85	85	85	85	85
Hydraulic presure drop (mbar)	10	20	45	85	125
Heating connection	3/4"	3/4"	3/4"	3/4"	3/4"
Height (mm)	763	763	763	763	763
Width (mm)	442	442	442	442	442
Depth (mm)	332	332	332	332	332
Weight empty (kg)	45	45	45	45	45

TECHNICAL CHARACTERISTICS

Electrical data of model 09

			STAGE 1	STAGE 2	TOTAL	POWER TERMINALS
Single phase 8.4 kW (*)						
Terminals 1 and 2 shunted	Terminal 3	L1 (A)	24	12	36	
Terminals 3, 4, 5 and 6 shunted	Terminal 1	N (A)	24	12	36	
Relay K3 activated	Power	(kW)	5.6	2.8	8.4	
Single phase 7 kW						
Terminals 1 and 2 shunted	Terminal 3	L1 (A)	24	6	30	
Terminals 3, 4 and 5 shunted	Terminal 1	N (A)	24	6	30	
Relay K3 activated	Power	(kW)	5.6	1.4	7	
Single phase 5.6 kW						
Terminals 1 and 2 shunted	Terminal 3	L1 (A)	12	12	24	
Terminals 3, 4, 5 and 6 shunted	Terminal 1	N (A)	12	12	24	
Relay K3 deactivated (**)	Power	(kW)	2.8	2.8	5.6	
Single phase 4.2 kW						
Terminals 1 and 2 shunted	Terminal 3	L1 (A)	12	6	31.2	
Terminals 3, 4 and 5 shunted	Terminal 1	N (A)	12	6	31.2	
Relay K3 deactivated (**)	Power	(kW)	2.8	1.4	4.2	

This values are based on standard supply voltage in Europe, that is 1 x 230V for single phase and 3 x 400V + N for tri phase.

() Factory configuration / (**) Remove the shunt 17 and 18 in order to deactivate the relay.*

TECHNICAL CHARACTERISTICS

Electrical data of model 15

			STAGE 1	STAGE 2	TOTAL	POWER TERMINALS
Single phase 14.4 kW (*)						
Terminals 1 and 2 shunted	Terminal 3	L1 (A)	41.6	20.8	62.4	
Terminals 3, 4, 5 and 6 shunted	Terminal 1	N (A)	41.6	20.8	62.4	
Relay K3 activated	Power	(kW)	9.6	4.8	14.4	
Single phase 12 kW						
Terminals 1 and 2 shunted	Terminal 3	L1 (A)	41.6	10.4	52	
Terminals 3, 4 and 5 shunted	Terminal 1	N (A)	41.6	10.4	52	
Relay K3 activated	Power	(kW)	9.6	2.4	12	
Single phase 9.6 kW						
Terminals 1 and 2 shunted	Terminal 3	L1 (A)	20.8	20.8	41.6	
Terminals 3, 4, 5 and 6 shunted	Terminal 1	N (A)	20.8	20.8	41.6	
Relay K3 deactivated (**)	Power	(kW)	4.8	4.8	9.6	
Single phase 7.2 kW						
Terminals 1 and 2 shunted	Terminal 3	L1 (A)	20.8	10.4	31.2	
Terminals 3, 4 and 5 shunted	Terminal 1	N (A)	20.8	10.4	31.2	
Relay K3 deactivated (**)	Power	(kW)	4.8	2.4	7.2	

This values are based on standard supply voltage in Europe, that is 1 x 230V for single phase and 3 x 400V + N for tri phase.

() Factory configuration / (**) Remove the shunt 17 and 18 in order to deactivate the relay.*

Power variation (kW) relative to voltage

	220 V	230 V	240 V	3 x 380 V	3 x 400 V	3 x 415 V
E-Tech W 09	7.7	8.4	9.1			
E-Tech W 15	13.2	14.4	15.7			
E-Tech W 22				19.5	21.6	23.3
E-Tech W 28				26.0	28.8	31.0
E-Tech W 36				32.5	36.0	38.8

TECHNICAL CHARACTERISTICS

Electrical data of model 22

			STAGE 1	STAGE 2	TOTAL	POWER TERMINALS
Tri phase 21.6 kW (*)						
Terminals 3 and 4 shunted	Terminal 2	L1 (A)	20.8	10.4	31.2	
Terminals 5 and 6 shunted	Terminal 3	L2 (A)	20.8	10.4	31.2	
Relay K43 activated	Terminal 5	L3 (A)	20.8	10.4	31.2	
	Terminal 1	N (A)	0	0	0	
	Power	(kW)	14.4	7.2	21.6	
Tri phase 14.4 kW						
Terminals 3 and 4 shunted	Terminal 2	L1 (A)	10.4	10.4	20.8	
Terminals 5 and 6 shunted	Terminal 3	L2 (A)	10.4	10.4	20.8	
Relay K3 deactivated (**)	Terminal 5	L3 (A)	10.4	10.4	20.8	
	Terminal 1	N (A)	0	0	0	
	Power	(kW)	7.2	7.2	14.4	

This values are based on standard supply voltage in Europe, that is 1 x 230V for single phase and 3 x 400V + N for tri phase.

() Factory configuration / (**) Remove the shunt 17 and 18 in order to deactivate the relay.*

Electrical data of model 28

			STAGE 1	STAGE 2	TOTAL	POWER TERMINALS
Tri phase 28.8 kW (*)						
Terminals 3 and 4 shunted	Terminal 2	L1 (A)	20.8	20.8	41.6	
Terminals 5 and 6 shunted	Terminal 3	L2 (A)	20.8	20.8	41.6	
Relay K4 activated	Terminal 5	L3 (A)	20.8	20.8	41.6	
	Terminal 1	N (A)	0	0	0	
	Power	(kW)	14.4	14.4	28.8	
Tri phase 21.6 kW						
Terminals 3 and 4 shunted	Terminal 2	L1 (A)	20.8	10.4	31.2	
Terminals 5 and 6 shunted	Terminal 3	L2 (A)	20.8	10.4	31.2	
Relay K4 deactivated (**)	Terminal 5	L3 (A)	20.8	10.4	31.2	
	Terminal 1	N (A)	0	0	0	
	Power	(kW)	14.4	7.2	21.6	

This values are based on standard supply voltage in Europe, that is 1 x 230V for single phase and 3 x 400V + N for tri phase.

() Factory configuration / (**) Remove the shunt 19 and 20 in order to deactivate the relay.*

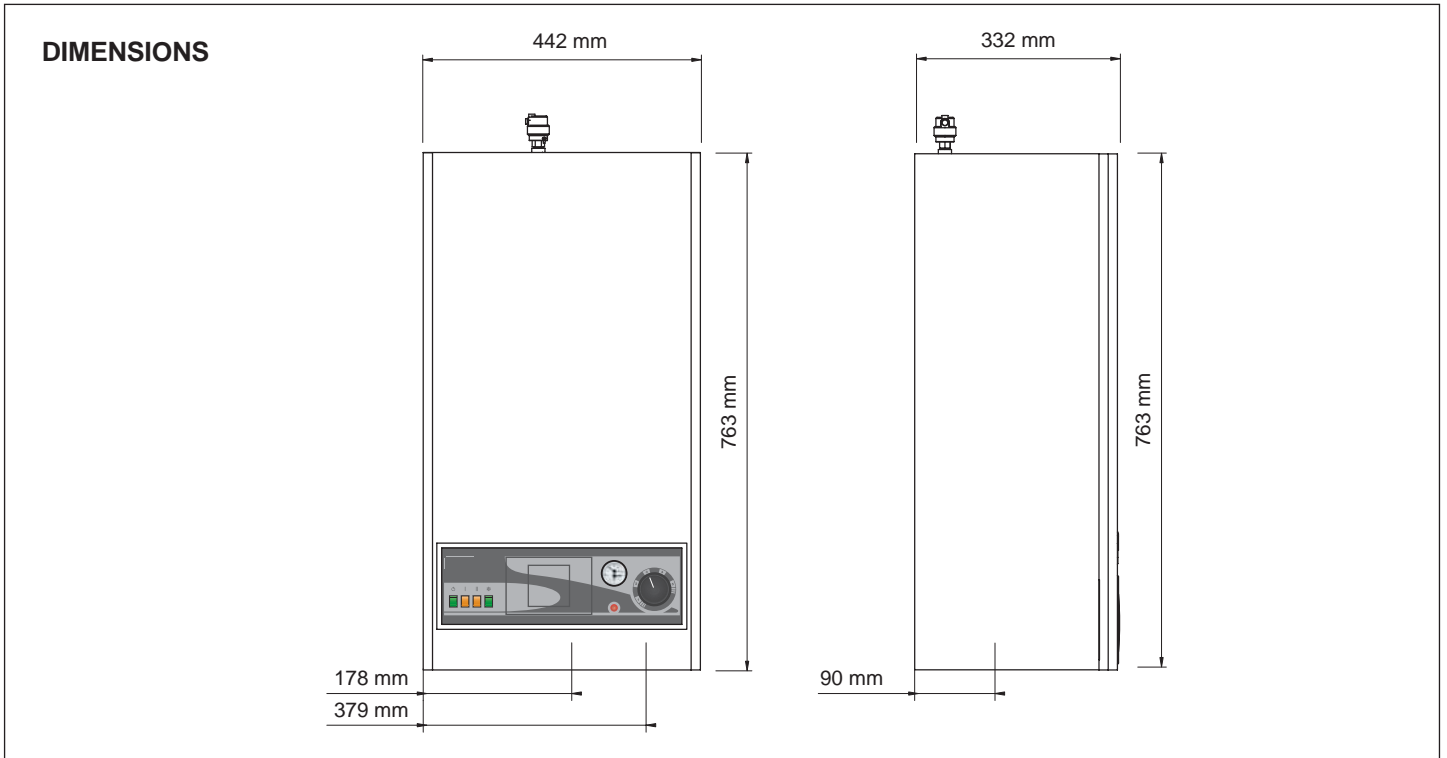
Electrical data of model 36

			STAGE 1	STAGE 2	TOTAL	POWER TERMINALS
Tri phase 36 kW (*)						
Terminals 3 and 4 shunted	Terminal 2	L1 (A)	26	26	52	
Terminals 5 and 6 shunted	Terminal 3	L2 (A)	26	26	52	
Relay K4 activated	Terminal 5	L3 (A)	26	26	52	
	Terminal 1	N (A)	0	0	0	
	Power	(kW)	18	18	36	
Tri phase 30 kW						
Terminals 3 and 4 shunted	Terminal 2	L1 (A)	26	17	43	
Terminals 5 and 6 shunted	Terminal 3	L2 (A)	26	17	43	
Relay K4 deactivated (**)	Terminal 5	L3 (A)	26	17	43	
	Terminal 1	N (A)	0	0	0	
	Power	(kW)	18	12	30	

This values are based on standard supply voltage in Europe, that is 1 x 230V for single phase and 3 x 400V + N for tri phase.

() Factory configuration / (**) Remove the shunt 19 and 20 in order to deactivate the relay.*

MOUNTING



WALL MOUNTING

53,2 mm

48,4 mm

101,6 mm

101,6 mm

48,4 mm

53,2 mm

- The boiler must be fixed to a non flammable wall.
- Observing the clearances shown below, drill 2 off 14mm x 100mm holes.
- Fit the 2 bolts supplied and hang the wall bracket.
- Fit washers and nuts
- Hang the boiler

FROST PROTECTION

The boiler is **NOT** fitted with frost protection. If the boiler is being installed in a position where freezing could take place, then a suitable external frost thermostat should be fitted.

CONNECTING TO THE SYSTEM

The boiler is designed to operate on a sealed system (ie. no open vent or feed and expansion cistern). Hot water expansion within the system is taken up by the internal 10 litre expansion vessel. This is suitable for systems up to 160 litres capacity. If the system capacity is more than this then an additional expansion vessel may be required. This can be fitted external to the boiler at a convenient place on the pipework. Please note that the circulation pump is fitted to the flow connection.

INSTALLATION ROOM

The appliance must be positioned in such a way as to be easily accessible at all times. In addition, the following minimum distances around the appliance must be complied with

Min. 25 mm

Min. 400 mm

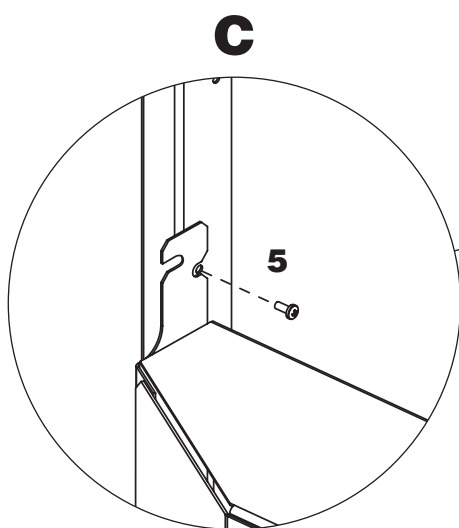
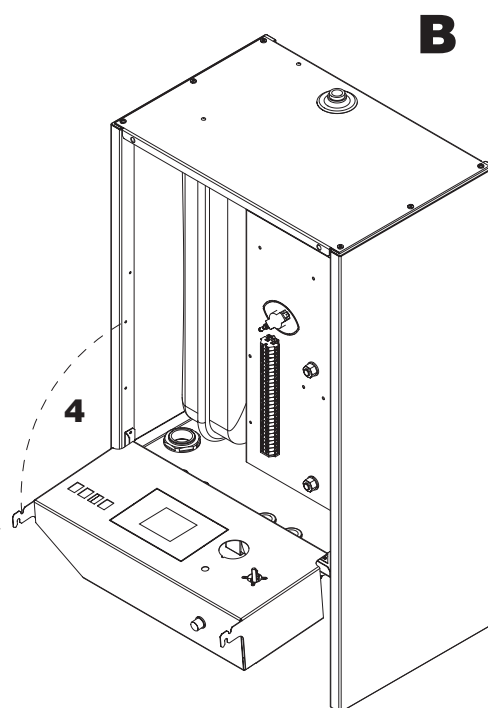
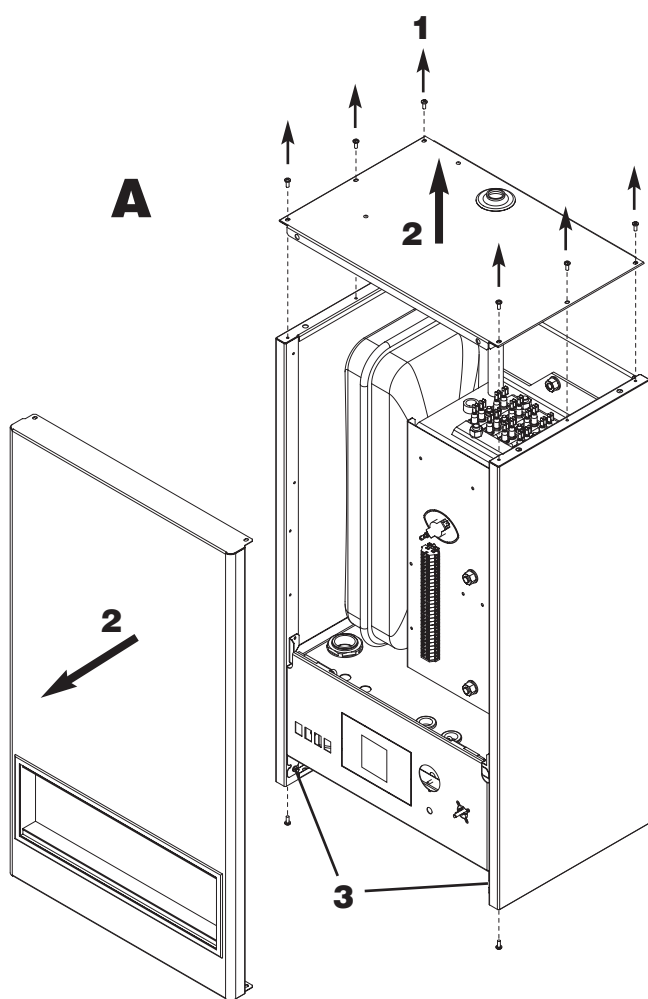
Min. 200 mm

INSTALLATION

DISASSEMBLING

Panel removal and access to hydraulic connections

1. undo screws
2. tilt panel towards you and lift clear remove the top cover
3. loosen screws of the control panel
4. turn up the control panel
5. block the control panel with the screw

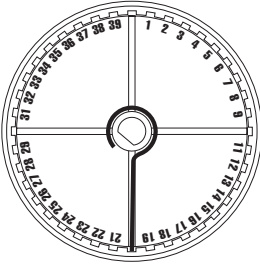


INSTALLATION

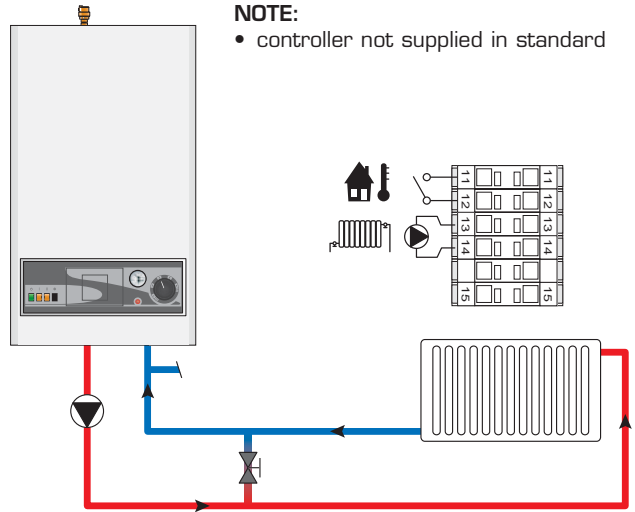
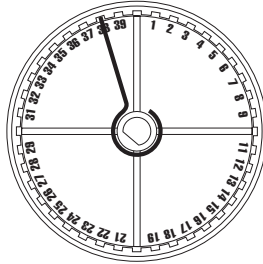
HEATING CONNECTION

Limiting the maximum adjustable temperature

Factory setting
30 - 85°C



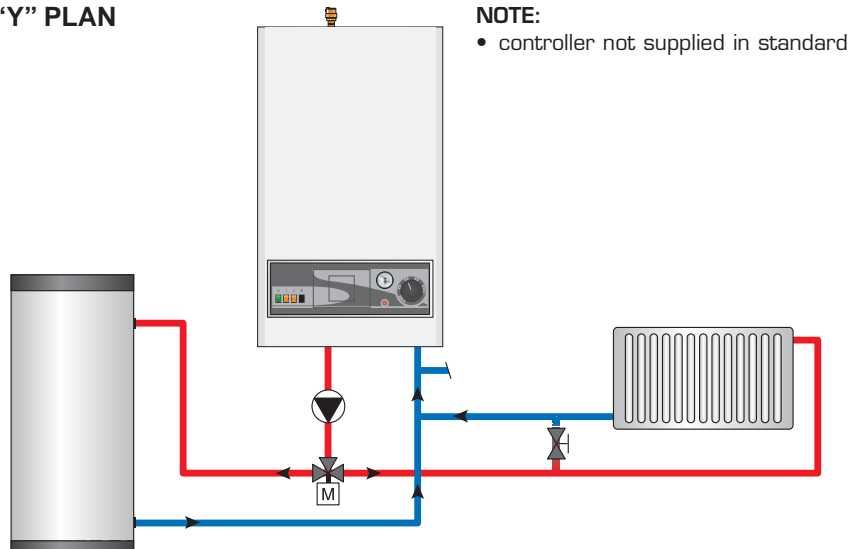
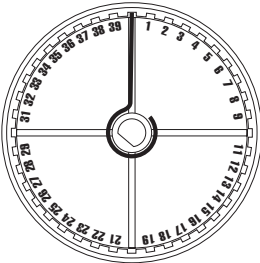
Floor heating
30 - 50°C



HEATING CONNECTION + DHW : "Y" PLAN

Limiting the minimum adjustable temperature

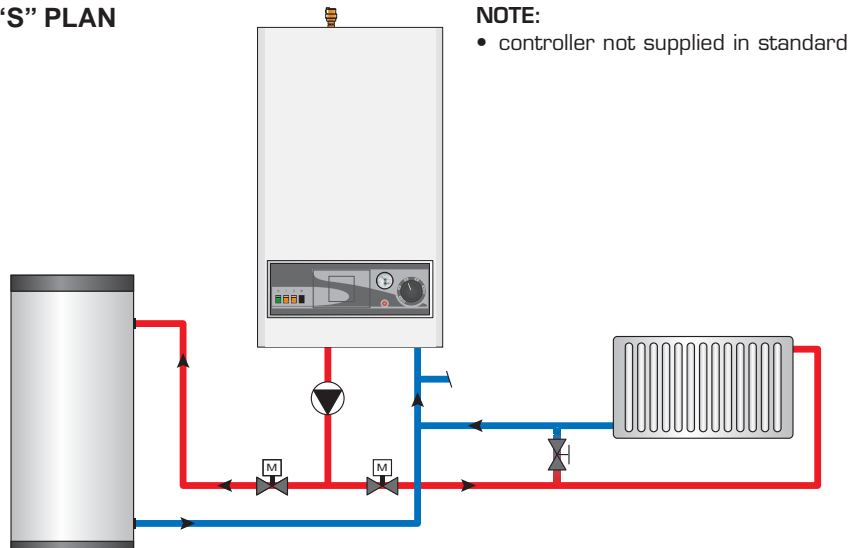
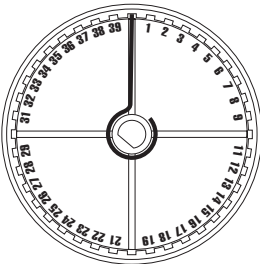
60 - 85°C



HEATING CONNECTION + DHW : "S" PLAN

Limiting the minimum adjustable temperature

60 - 85°C



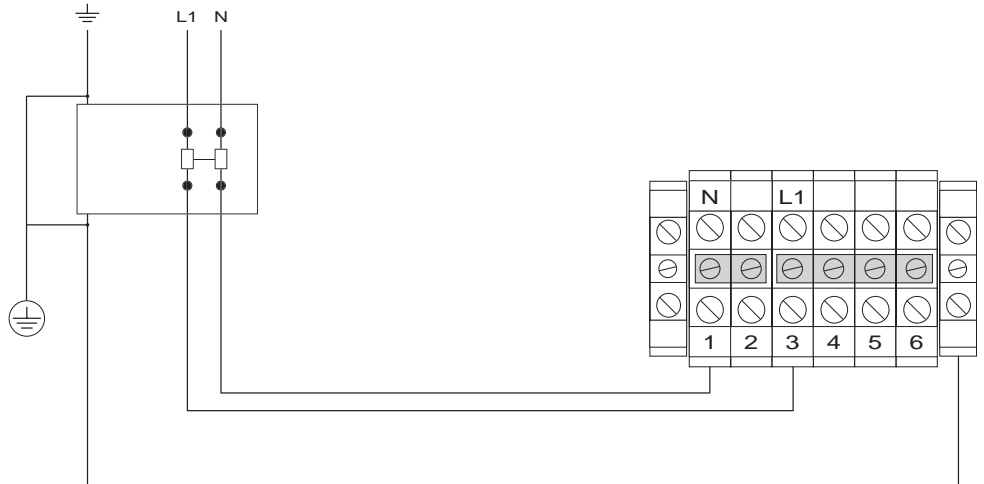
INSTALLATION

ELECTRIC CONNECTION / MODELS : 09 - 15

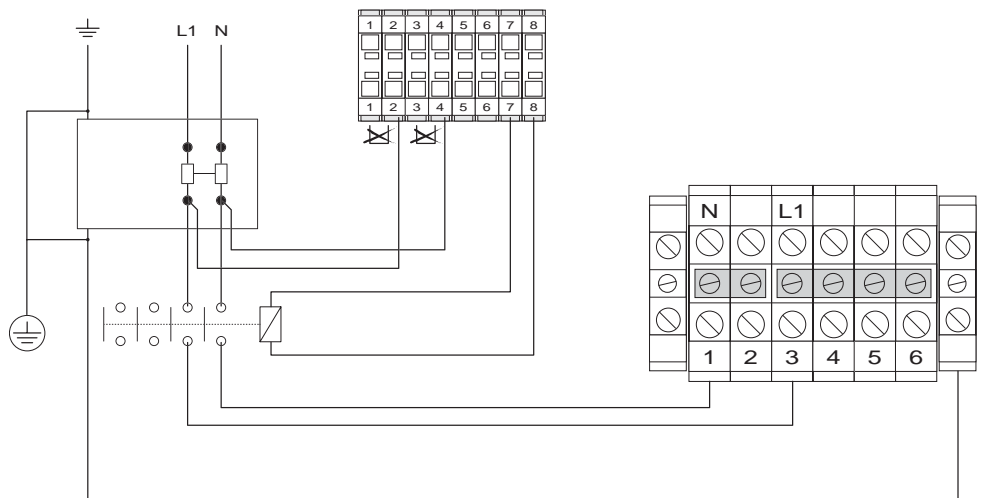


- This appliance must be permanently connected to fixed wiring and must be earthed.
- The wiring must be carried out by a competent person and be in accordance with the current IEE Wiring Regulations.
- Isolation device must be provided with a minimum contact clearance of 3mm.
- The MCB must be readily accessible and adjacent to the appliance.

Power supply
230 V mono



Power supply
230 V mono +
Safety contactor



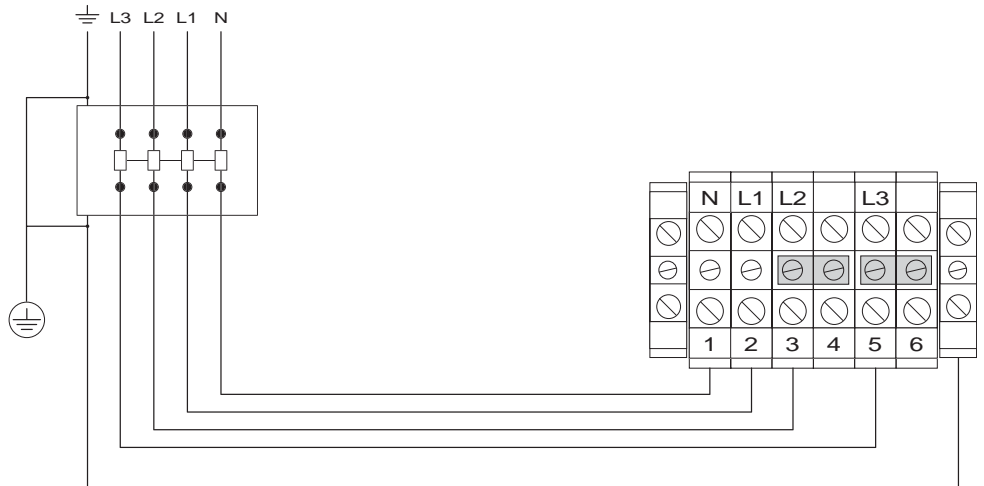
INSTALLATION

ELECTRIC CONNECTION / MODELS : 22 - 28 - 36

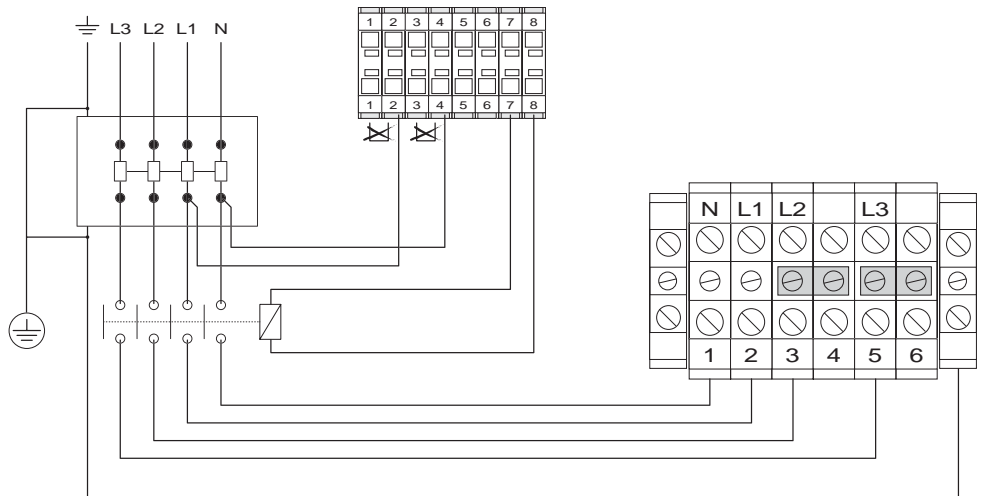


- This appliance must be permanently connected to fixed wiring and must be earthed.
- The wiring must be carried out by a competent person and be in accordance with the current IEE Wiring Regulations.
- Isolation device must be provided with a minimum contact clearance of 3mm.
- The MCB must be readily accessible and adjacent to the appliance.

**Power supply
3 x 400 V + Neutral**



**Power supply
3 x 400 V + Neutral +
Safety contactor**



SIZING OF SUPPLY WIRES

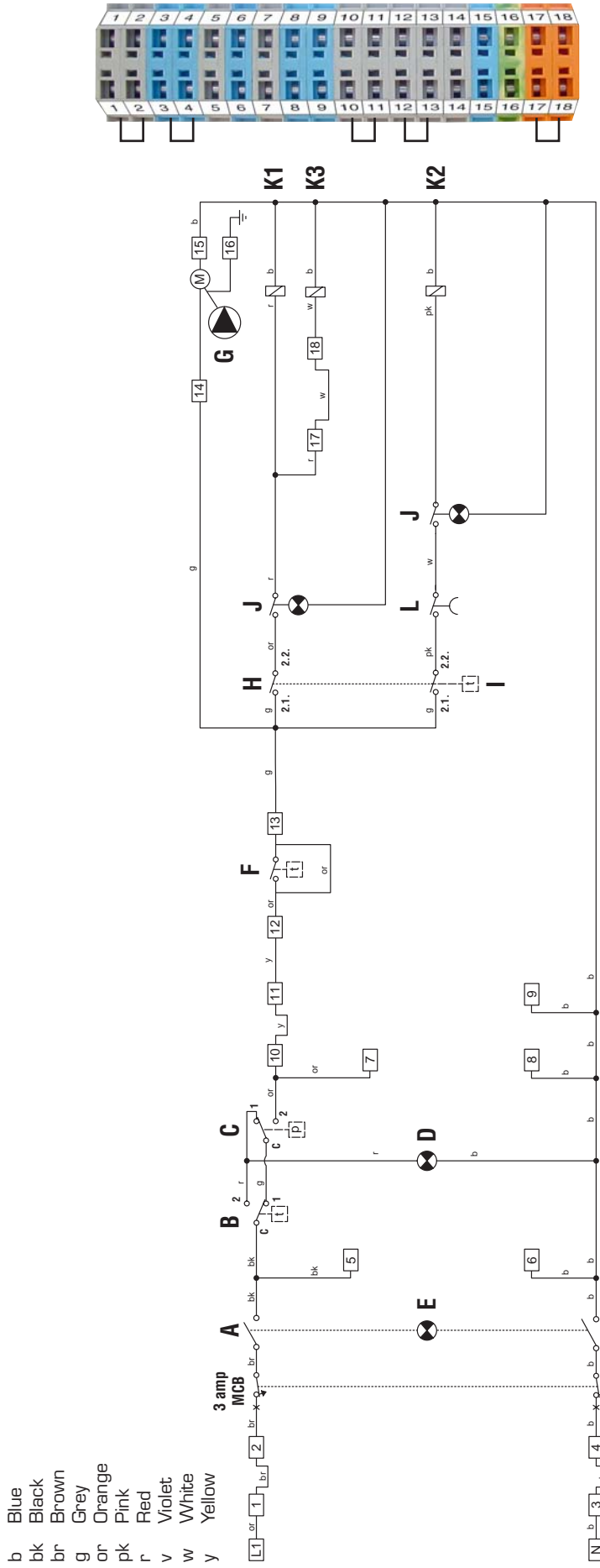
the supply wires are sized depending of the type and current of the MCB, this last is firstly sized depending of the nominal current of the boiler. The admissible current of the supply wires depends of the ambient temperature, the section and the length of the wires, the wires insulation, the wires canalisation, the mounting type and the environment.

The following values are given for information for an ambient temperature of 30°C and a maximal length of 5 meters. In all the cases, the installation must be in accordance with the current IEE Wiring Regulations.

Nominal section (mm ²)	Nominal current of the MCB (A)
1.5	16
2.5	25
4	32
6	40
10	63
16	80

WIRING DIAGRAMS / MODELS : 09 - 15 - 22

INSTALLATION



- 1-2: Life (230V ~ 50Hz)
- 3-4: Neutral
- 5-6: Time clock (optional)
- 7-8: Master Relay (optional)
- 10-11: Stop Bridge
- 12-13: Room thermostat (optional)
- 14-15: Boiler pump
- 17-18: Relay K3 deactivated

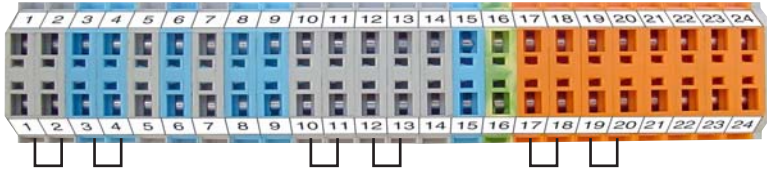
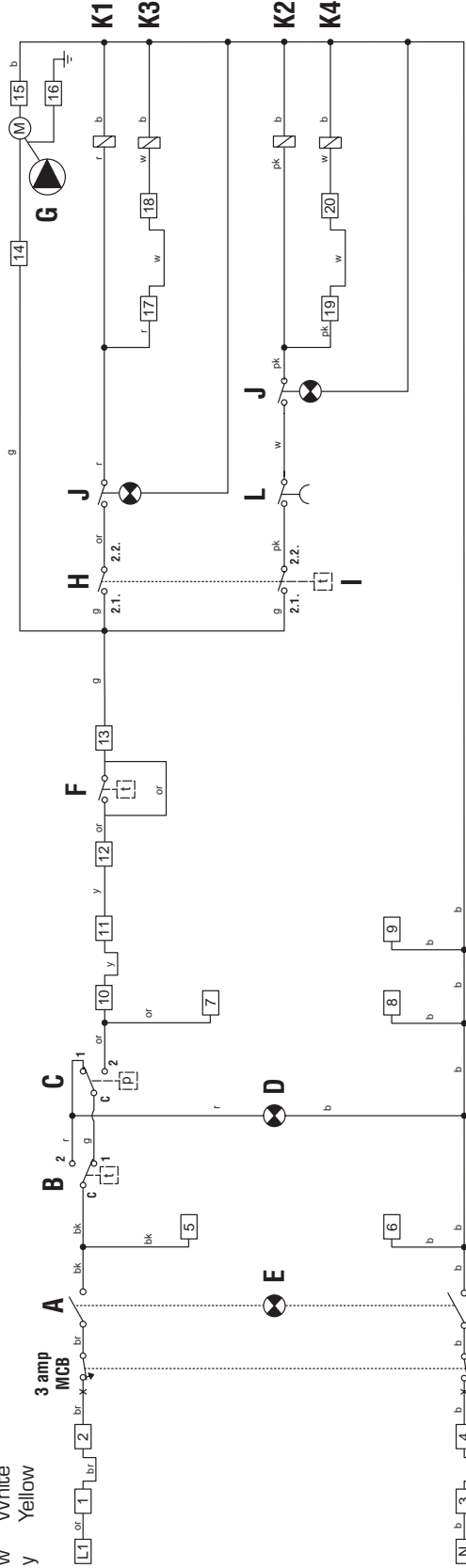
- A ON/OFF switch
- B Manual reset high limit thermostat
- C Water pressure switch
- D Alarm indicator
- E Optional room thermostat
- F Boiler thermostat 60 - 85°C
- G Boiler thermostat 53 - 78°C
- H Boiler thermostat 60 - 85°C
- I Boiler thermostat 53 - 78°C
- J Power level switch
- K1 Power relay 1 - level 1
- K2 Power relay 1 - level 2
- K3 Power relay 2 - level 1
- L Timer



WIRING DIAGRAMS / MODEL : 28

INSTALLATION

- b Blue
- bk Black
- br Brown
- g Grey
- or Orange
- pk Pink
- r Red
- v Violet
- w White
- y Yellow



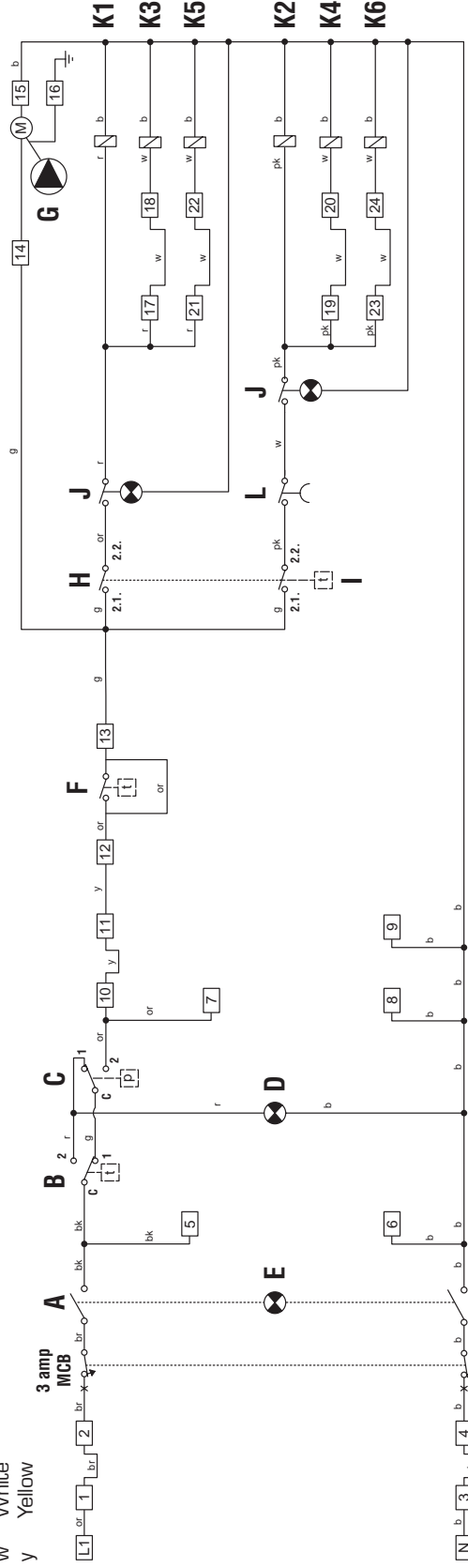
- 1-2: Life (230V ~ 50Hz)
- 3-4: Neutral
- 5-6: Time clock (optional)
- 7-8: Master Relay (optional)
- 10-11: Stop Bridge
- 12-13: Room thermostat (optional)
- 14-15: Boiler pump
- 17-18: Relay K3 disactivated
- 19-20: Relay K4 disactivated

- A ON/OFF switch
- B Manual reset high limit thermostat
- C Water pressure switch
- D Alarm indicator
- E Optional room thermostat
- F Boiler thermostat 60 - 85°C
- G Boiler thermostat 53 - 78°C
- H Power level switch
- I Power relay 1 - level 1
- J Power relay 1 - level 2
- K1 Power relay 2 - level 1
- K2 Power relay 2 - level 2
- L Timer

WIRING DIAGRAMS / MODEL : 36

INSTALLATION

- b Blue
- bk Black
- br Brown
- g Grey
- or Orange
- pk Pink
- r Red
- v Violet
- w White
- y Yellow



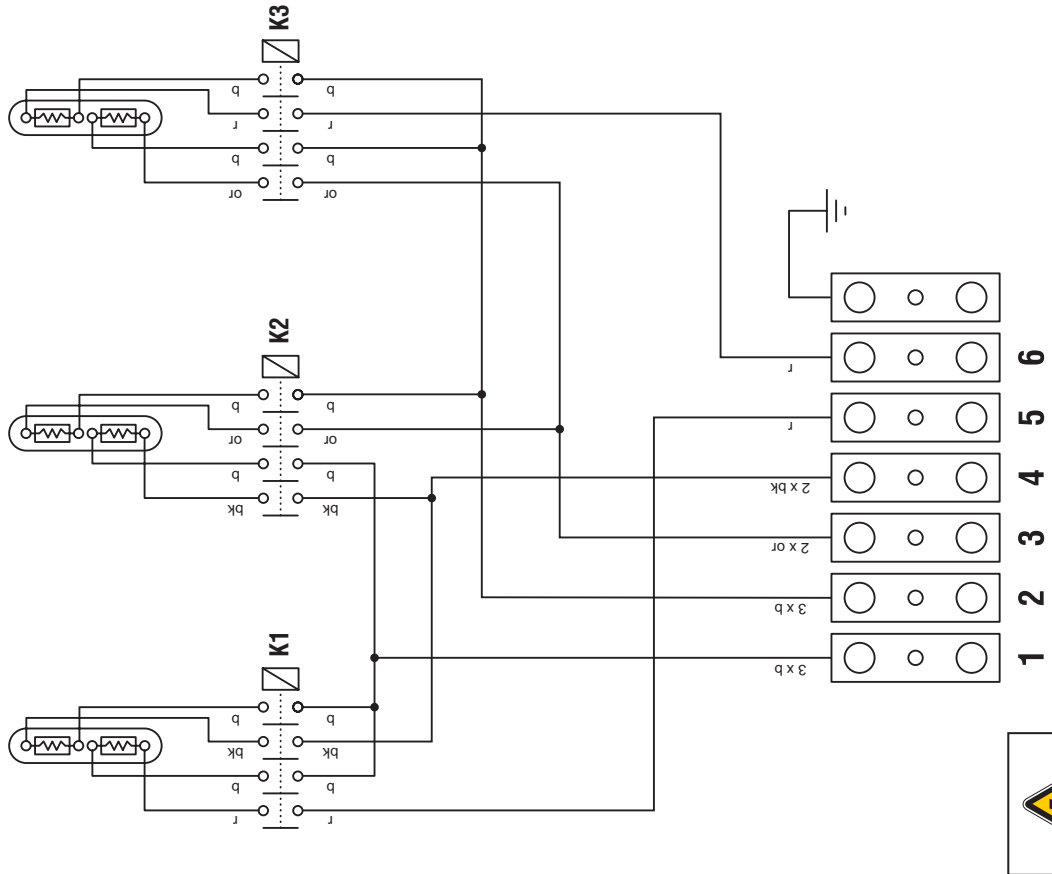
- A ON/OFF switch
- B Manual reset high limit thermostat
- C Water pressure switch
- D Alarm indicator
- E Optional room thermostat
- F Boiler thermostat 60 - 85°C
- G Boiler thermostat 53 - 78°C
- H Power level switch
- I Power relay 1 - level 1
- J Power relay 1 - level 2
- K1 Power relay 2 - level 1
- K2 Power relay 2 - level 2
- K3 Power relay 3 - level 1
- K4 Power relay 3 - level 2
- K5 Power relay 3 - level 1
- K6 Power relay 3 - level 2
- L Timer

- 1-2: Life (230V ~ 50Hz)
- 3-4: Neutral
- 5-6: Time clock (optional)
- 7-8: Master Relay (optional)
- 10-11: Stop Bridge
- 12-13: Room thermostat (optional)
- 14-15: Boiler pump
- 17-18: Relay K3 disactivated
- 19-20: Relay K4 disactivated
- 21-22: Relay K5 disactivated
- 23-24: Relay K6 disactivated

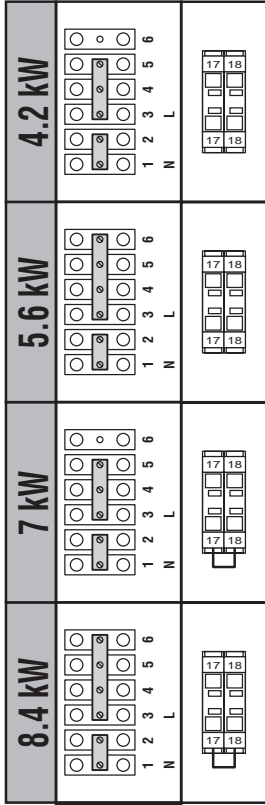


POWER WIRING / MODELS : 09-15

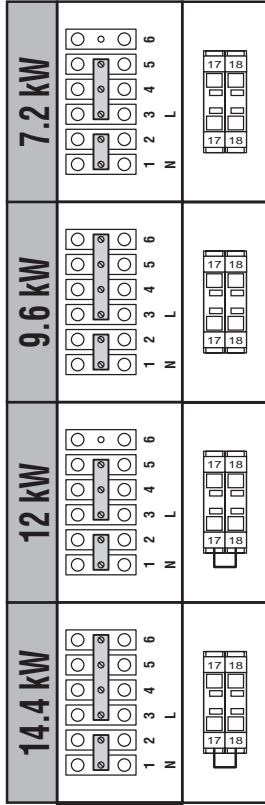
INSTALLATION



Type 9
MONO
PHASE

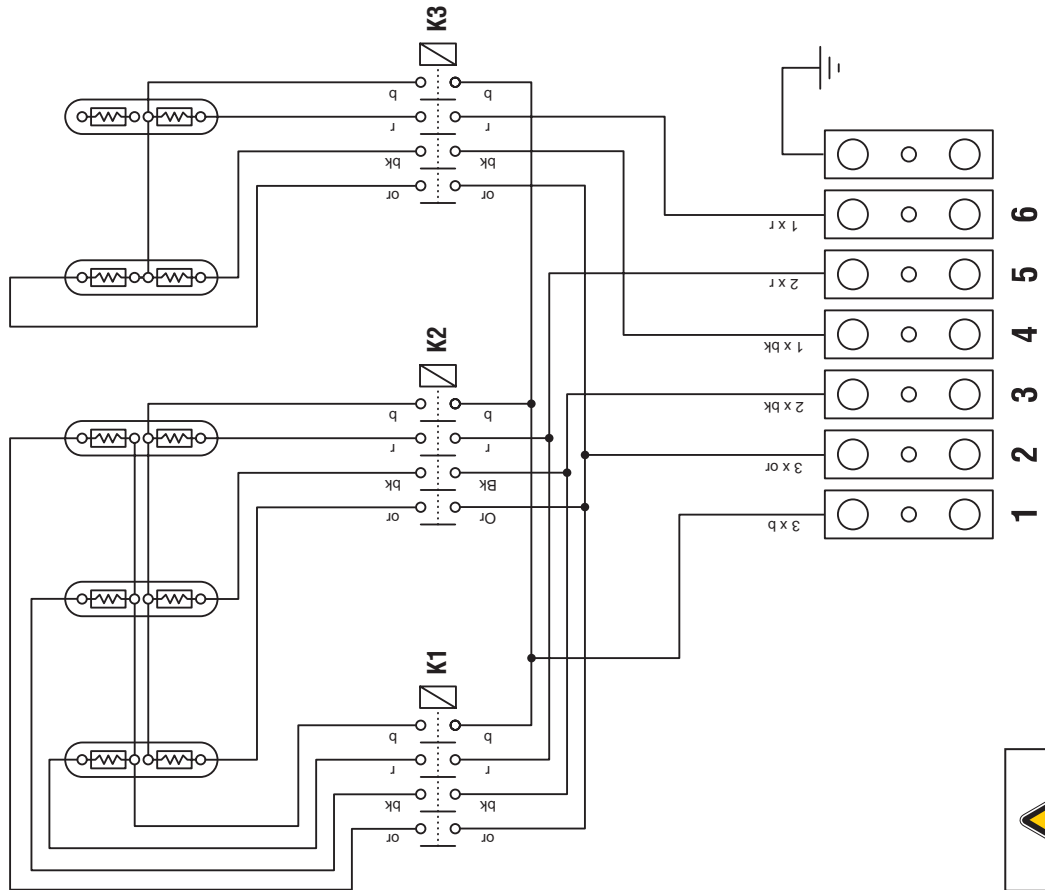


Type 15
MONO
PHASE



POWER WIRING / MODEL : 22

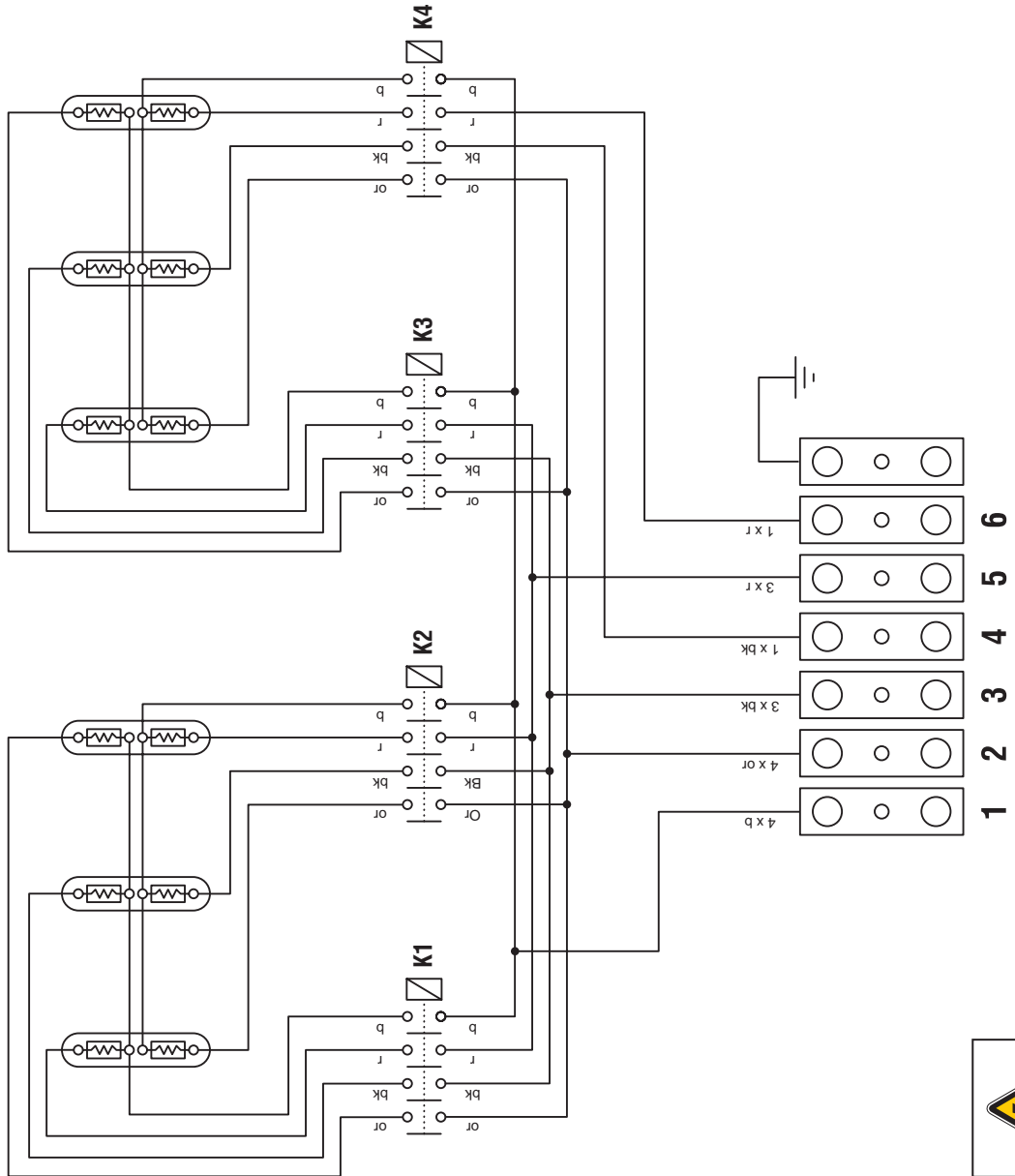
INSTALLATION



Type 22	21.6 kW	14.4 kW
TRI PHASE		

POWER WIRING / MODEL : 28

INSTALLATION

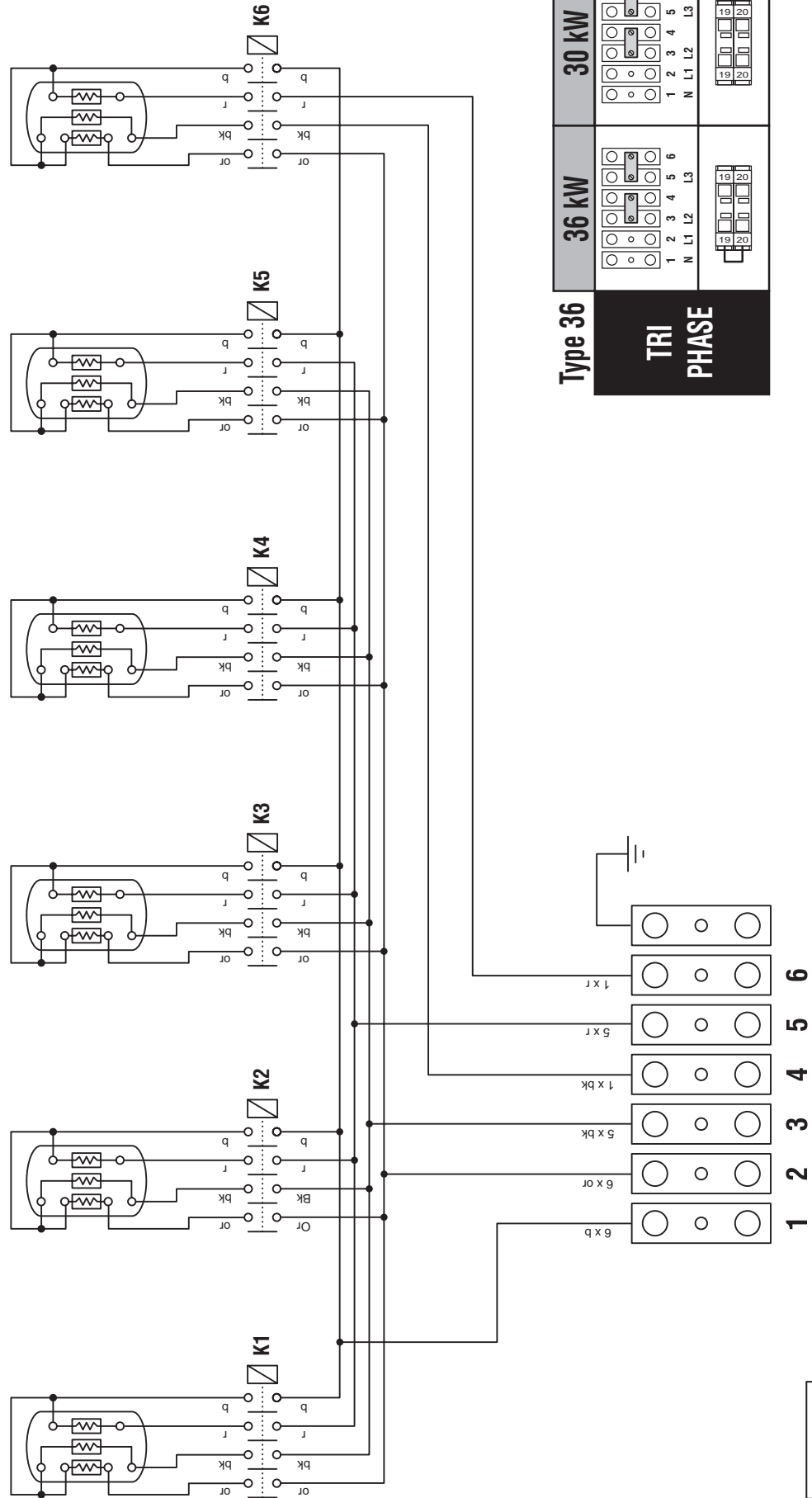


Type 28	28.8 kW	21.6 kW
TRI PHASE	<p>1 2 3 4 5 6 N L1 L2 L3</p>	<p>1 2 3 4 5 6 N L1 L2 L3</p>
	<p>19 20</p>	<p>19 20</p>

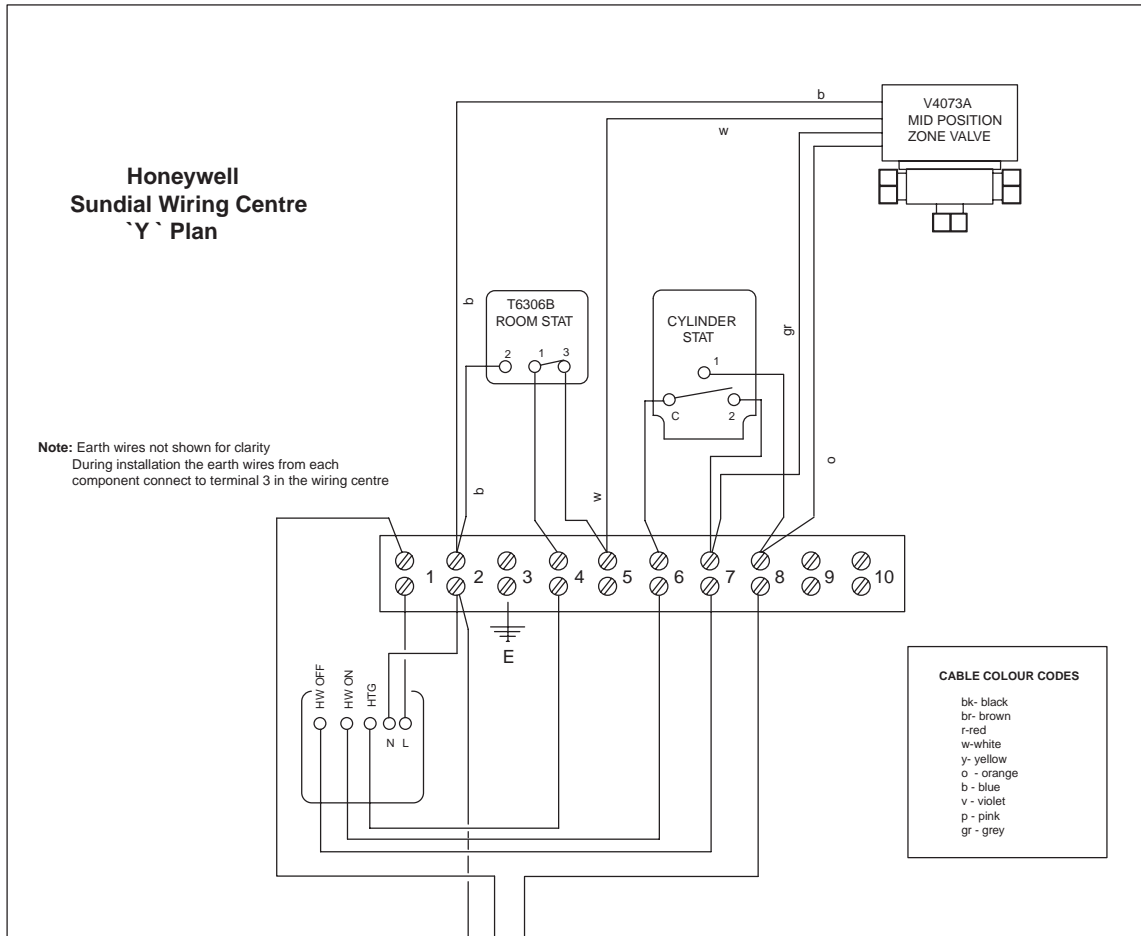


POWER WIRING / MODEL : 36

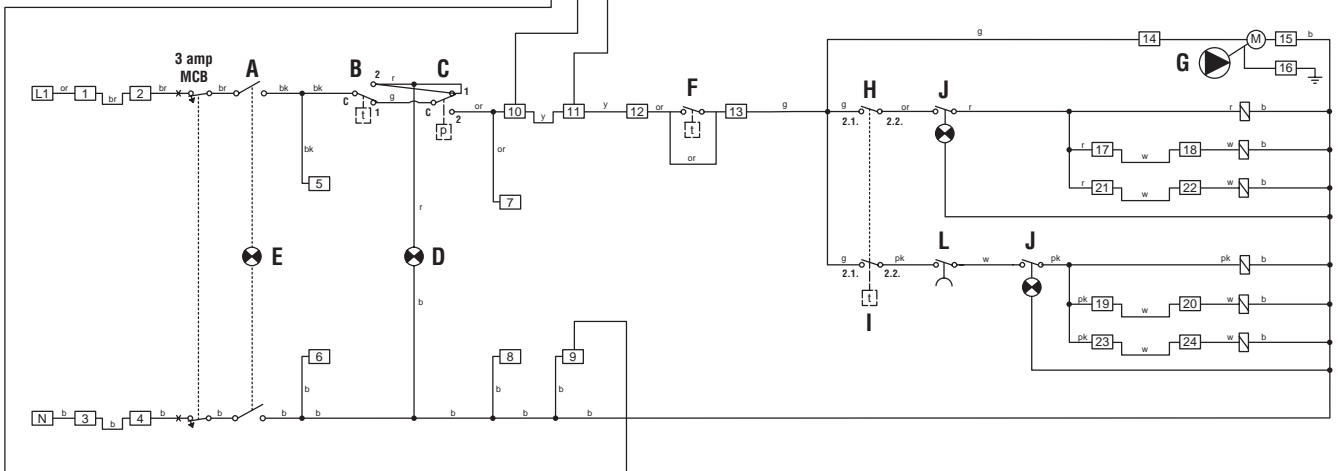
INSTALLATION



HONEYWELL SUNDIAL WIRING DIAGRAMS



Note: All bold numbers indicate a DIN rail terminal connection



Note: Illustrated model = 36 kW Tri Phase

COMMISSIONING AND MAINTENANCE

COMMISSIONING - WATER

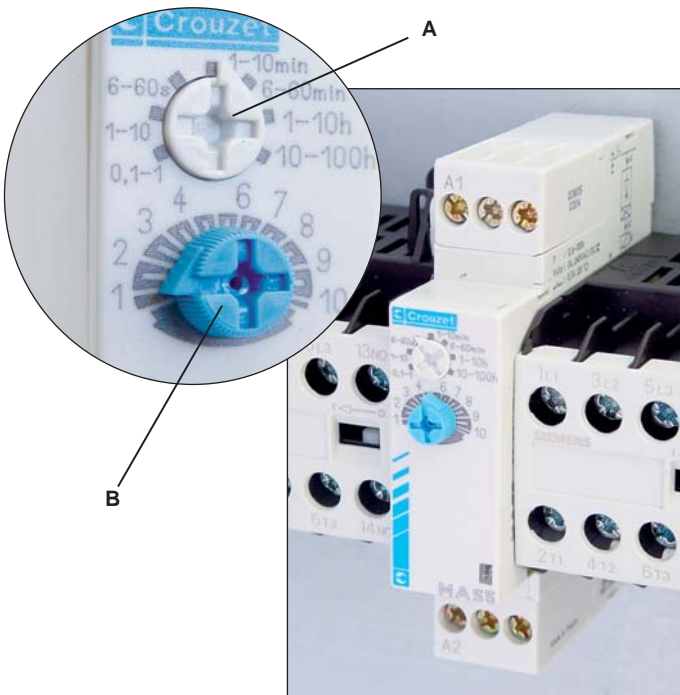
1. The system must be thoroughly cleansed prior to connection of the boiler. The system water should be treated to prevent general corrosion and deposition of scale or sludge in the boiler; please refer to BS7593. If installing the boiler onto an existing system, ACV recommend that an approved system cleaner is used.
2. Fill and pressurise the boiler and system to 1.5 bar; making sure to vent the boiler via the automatic air vent on top of the boiler. Note that the black dust cap on the air vent should be left loose to allow the auto vent to function.
3. Check for leaks.
For specialist advice on water treatment products, contact:

Fernox, Britannia Works
Clavering, Essex CB11 4QZ
Tel 01799 550811

COMMISSIONING - ELECTRICAL

The Electrical installation supplying this boiler must conform to the current IEE Regulations.

1. Remove the front panel and check all electrical connections for tightness.
2. Ensure all internal relays, contactors etc are secure on the DIN rails.
3. Set all panel control switches to off.
4. Check the power stage delay timer settings - Adjuster (A) is factory set to the 1 to 10 minute position which is the optimum setting for the boiler and should be verified during commissioning.
- Adjuster (B) is used to set the DELAY ON time of the following stage contactors, the available settings are in 1 minute increments if A is set to 1 to 10 minutes.
This function is particularly useful in areas where gradual switching of electrical load is required and the resulting maximum demand kept to a minimum. The timers add to the flexibility of the installation but must be optimised by a qualified engineer. The normal setting is 1.
5. Set internal MCB to off position.
6. Set the control thermostat to desired temperature.



STARTING THE BOILER

1. Switch on the internal or external timeclock (if fitted)
2. Switch on internal MCB
3. Switch on local isolator to boiler
4. Turn the boiler on using the ON/OFF switch
5. Switch on the power levels switch stage 1, the first stage contactors will energise
6. Switch on the power levels switch stage 2, after a short delay the second stage contactors will energise. Note: the power stage delay timer settings should be verified as shown in item 4 under "Commissioning - Electrical"
7. The boiler temperature will now rise as indicated by the combined temperature and pressure gauge
8. The temperature will continue to rise until the control thermostat temperature setting is reached then the boiler will switch off.

Once these procedures have been followed the system can be left to operate normally by the following method.

1. Ensure that boiler thermostat is set to the desired temperature
2. Turn the boiler on using the ON/OFF switch
3. Turn on power level switch 1
4. Turn on power level switch 2
5. Set timeclock (if fitted) and/or external controls to desired boiler operating on/off times.

After one week of operation all electrical connections should be re-checked for tightness and the boiler water system checked for leaks and air and rectified if necessary.

MAINTENANCE

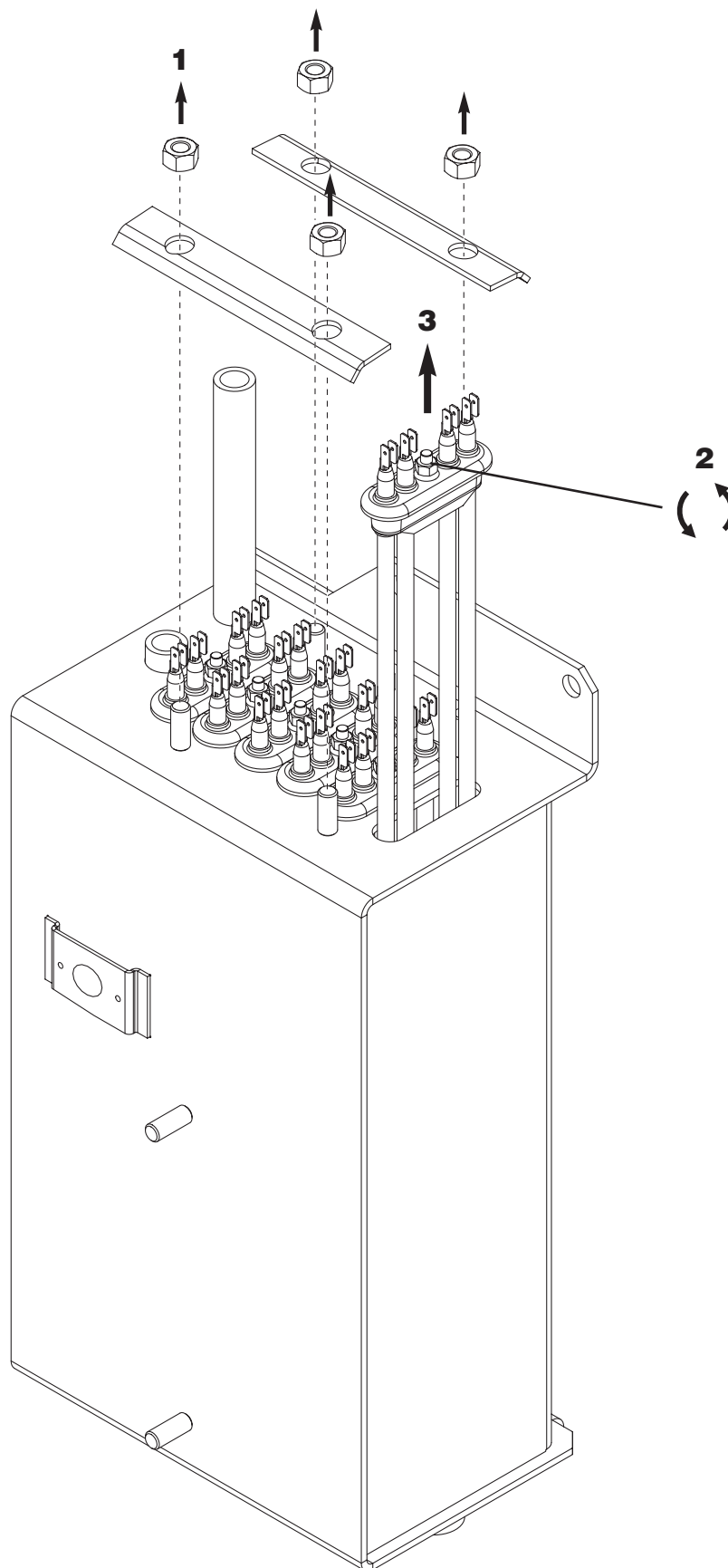
For safety reasons it is recommended that the boiler is serviced annually and that servicing is carried out by a qualified service engineer.



Before carrying out any work on the system ensure that the boiler is cool and all electrical supplies are isolated.

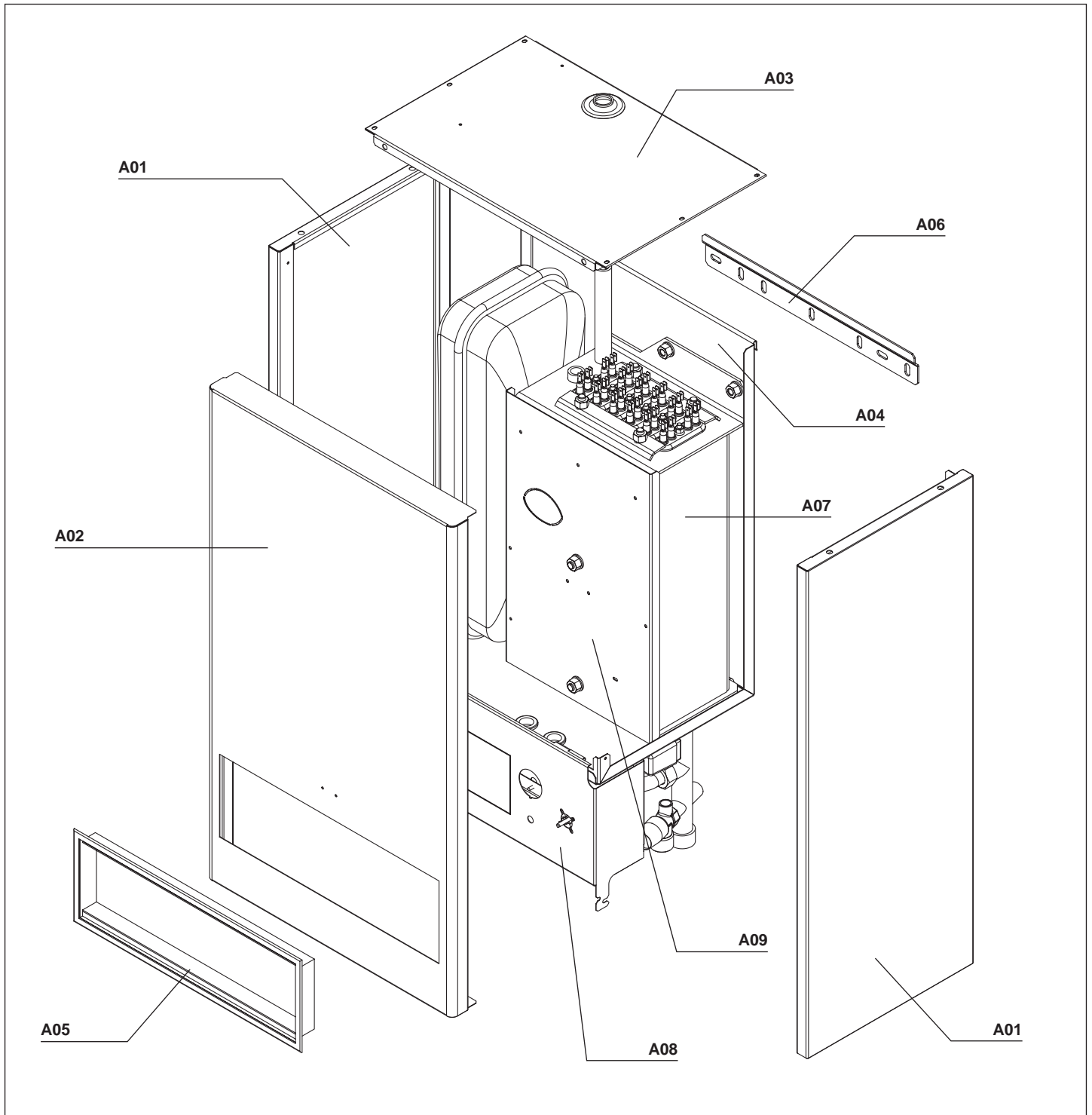
1. After removing front cover undo the four screws retaining the front control panel and gently let the panel suspend on the wiring to the rear of the panel. Undertake a visual inspection of the boiler looking out for signs of water leakage from joints, expansion vessel, and the area around the elements on top of the boiler.
2. Undertake a visual inspection of all cabling in the boiler casing checking for signs of overheating or burning.
3. Check all push-on electrical connectors for tightness and good connection to the relative components.
4. Using a correct fitting screwdriver check all electrical terminals on DIN rails and on all components for tightness.
5. Check the settings on the internal timers in accordance with the "Commissioning - Electrical" section.
6. Replace the control panel and the boiler front cover and refit screws.
7. Reinstat the electrical supply and follow the procedures set out in the commissioning section.

REMOVAL THE HEATING ELEMENTS



SPARE PARTS

N°	Casing	09	15	22	28	36
A01	Side panel	21471421	21471421	21471421	21471421	21471421
A02	Front panel	21473421	21473421	21473421	21473421	21473421
A03	Top cover	21475421	21475421	21475421	21475421	21475421
A04	Rear panel	21474421	21474421	21474421	21474421	21474421
A05	Control panel ABS	497B1025	497B1025	497B1025	497B1025	497B1025
A06	Wall mounting	21480069	21480069	21480069	21480069	21480069
A07	Body heating	30537482	30537482	30537482	30537482	30537482
A08	Control panel	21477421	21477421	21477421	21477421	21477421
A09	Electric support	21479421	21479421	21479421	21479421	21479421



SPARE PARTS

N°	Accessories	09	15	22	28	36
B01	Base for relay	54428195	54428195	54428195	54428195	54428195
B02	Control circuit "Siemens"	54766015	54766015	54766015	54766015	54766015
B03	Relay Siemens 3TG	54452082	54452082	54452082	54452082	54452082
B04	Timer "Crouset"	54428192	54428192	54428192	54428192	54428192
B05	Blocking	54452092	54452092	54452092	54452092	54452092
B06	Terminal WKN 16/U blue	54767014	54767014	54767014	54767014	54767014
B07	Terminal 16 mm ² WKN 16/U	54428179	54428179	54428179	54428179	54428179
B08	Terminal end APN 16 mm ²	54428091	54428091	54428091	54428091	54428091
B09	Terminal WKN10 sl/u	54428155	54428155	54428155	54428155	54428155
B10	Shunt IVBWK 16-2	54428278	54428278	54428278	54428278	54428278
B11	Control terminal block	54767015	54767015	54767015	54767015	54767015
B12	Green switch	54766016	54766016	54766016	54766016	54766016
B13	Yellow switch	54766017	54766017	54766017	54766017	54766017
B14	Combined T° and pressure gauge Ø 40mm	54763012	54763012	54763012	54763012	54763012
B15	Red alarm indicator Ø 10mm / 240V	54766001	54766001	54766001	54766001	54766001
B16	Control thermostat 2 Stages	54764017	54764017	54764017	54764017	54764017
B17	Button thermostat	54764021	54764021	54764021	54764021	54764021
B18	Manual reset high limit thermostat 103°C	54764009	54764009	54764009	54764009	54764009
B19	Cable gland (PG29)	54428113	54428113	54428113	54428113	54428113
B20	Brass pocket	63438003	63438003	63438003	63438003	63438003
B21	Heating element 2 x 1.4 kW	54428183	-	-	-	-
B22	Heating element 2 x 2.4 kW	-	54428182	54428182	54428182	-
B23	Heating element 3 x 2 kW	-	-	-	-	54428204
B24	Water pressure switch	557D3011	557D3011	557D3011	557D3011	557D3011
B25	Circulating pump	557A4009	557A4009	557A4009	557A4009	557A4009
B26	Pressure safety valve 3 bars Ø 1/2"	55426017	55426017	55426017	55426017	55426017
B27	Automatic air vent	55445007	55445007	55445007	55445007	55445007
B28	Flexible tube					
B29	Expansion vessel 10 Litres	557A7006	557A7006	557A7006	557A7006	557A7006
B30	Complete control panel	24614142	24614142	24614143	24614144	24614145

SPARE PARTS



B01



B02



B03



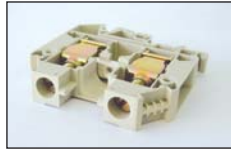
B04



B05



B06



B07



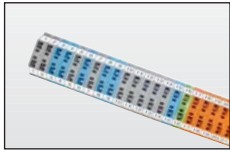
B08



B09



B10



B11



B12



B13



B14



B15



B16



B17



B18



B19



B20



B21



B22



B23



B24



B25



B26



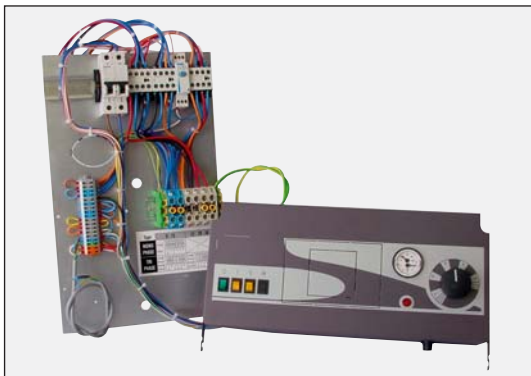
B27



B28



B29



B30





A series of horizontal dotted lines for writing, spanning the width of the page.





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INTERNATIONAL

ACV international n.v
KERKPLEIN, 39
B-1601 RUISBROEK - BELGIUM
TEL.: +32 2 334 82 20
FAX: +32 2 378 16 49
E-MAIL: international.info@acv-world.com

BELGIUM

ACV BELGIUM nv/sa
KERKPLEIN, 39
B-1601 RUISBROEK-BELGIUM
TEL.: +32 2 334 82 40
FAX: +32 2 334 82 59
E-MAIL: belgium.info@acv-world.com

CHILE

ALBIN TROTTER Y ACV LTDA
SAN PABLO 3800
QUINTA NORMAL - SANTIAGO - CHILE
TEL.: +56 2 772 01 69
FAX: +56 2 772 92 62/63
E-MAIL: chile.info@acv-world.com

CZECH REPUBLIC

ACV CR SPOL. s.r.o
NA KRECKU 365
CR-109 04 PRAHA 10 - CZECH REPUBLIC
TEL.: +420 2 720 83 341
FAX: +420 2 720 83 343
E-MAIL: ceskarepublika.info@acv-world.com

DEUTSCHLAND

ACV WÄRMETECHNIK GMBH & CO KG
GEWERBEGBIET GARTENSTRASSE
D-08132 MÜLSEN OT ST. JACOB - DEUTSCHLAND
TEL.: +49 37601 311 30
FAX: +49 37601 311 31
E-MAIL: deutschland.info@acv-world.com

ESPAÑA

ACV ESPAÑA
C/DE LA TEIXIDORA, 76
POL. IND. LES HORTES
E-08302 MATARÓ - ESPAÑA
TEL.: +34 93 759 54 51
FAX: +34 93 759 34 98
E-MAIL: spain.info@acv-world.com

ARGENTINA

TECNO PRACTICA
ALFEREZ BOUCHARD 4857
1605 CARAPACHAY - BUENOS AIRES
TEL.: +54 11 47 65 33 35
FAX: +54 11 47 65 43 07
E-MAIL: jchas@tecnopractica.com

AUSTRALIA

HUNT HEATING PTY LTD
10 GARDEN BOULEVARD
3172 VICTORIA - AUSTRALIA
TEL.: +61 3 9558 7077
FAX: +61 3 9558 7027
E-MAIL: enquiries@hunheat.com.au

BRAZIL

SIMETAL INDUSTRIA E COMERCIO DE FERRAMENTAS LTDA
RUA GERSON ANDREIS 535
95112 - 130 CAXIAS DO SUL - BRAZIL
TEL.: +55 54 227 12 44
FAX: +55 54 227 12 26
E-MAIL: export@simetal.com.br

BULGARIA

PROXIMUS ENGINEERING LTD
7 BIAL KREM STR.
9010 VARNNA - BULGARIA
TEL.: +359 52 500 070
FAX: +359 52 301 131
E-MAIL: info@proximus-bg.com

CHINA

BEIJING HUADIAN HT POWER TECHNOLOGY DEVELOPMENT CO. LTD
ROOM B-912, TOWER B, COFCO PLAZA
N°. 8, JIANGUOMENNEI AVENUE
BEIJING 100005 - PEOPLE'S REPUBLIC OF CHINA
TEL.: +86 10 652 30 363/393 EXT 101
FAX: +86 10 652 27 071
E-MAIL: li.zheng@acv-world.com

SHANGHAI COOLTECH LTD

14/F E. CHINA MERCHANTS PLAZA
N°. 333 CHENGDU ROAD (N)
200041 SHANGHAI - CHINA
TEL.: +86 21 52 98 11 22 - 820
FAX: +86 21 52 98 13 58
E-MAIL: cooltech@cooltech.sh.cn

FRANCE

ACV FRANCE sa
31, RUE AMPERE - Z.I MI - PLAINE
F-69680 CHASSIEU - FRANCE
TEL.: +33 4 72 47 07 76
FAX: +33 4 72 47 08 72
E-MAIL: france.info@acv-world.com

ITALIA

ACV ITALIA
VIA PANA 92
I-48018 FAENZA (RA) - ITALIA
TEL.: +39 0546 64 61 44
FAX: +39 0546 64 61 50
E-MAIL: italia.info@acv-world.com

NEDERLAND

ACV NEDERLAND bv
POSTBUS 350
NL-2980 AJ RIDDERKERK - NEDERLAND
TEL.: +31 180 42 10 55
FAX: +31 180 41 58 02
E-MAIL: nederland.info@acv-world.com

POLAND

ACV POLSKA sp. z o.o.
UL. WITOSA 3
87 - 800 WŁOCŁAWEK - POLAND
TEL.: +48 54 412 56 00
FAX: +48 54 412 56 01
E-MAIL: polska.info@acv-world.com

PORTUGAL

BOILERNOX LDA
RUA OUTEIRO DO POMAR
CASAL DO CEGO, FRACÇÃO C,
PAVILHÃO 3 - MARRAZES
2400-402 LEIRIA - PORTUGAL
TEL.: +351 244 837 239/40
FAX: +351 244 823 758
E-MAIL: boilernox@mail.telepac.pt

RUSSIA

ACV RUSSIA
1/9, MAL'YI KISEL'NYI
103031 MOSCOW - RUSSIA
TEL.: +7 095 928 48 02 / +7 095 921 89 79
FAX: +7 095 928 08 77
E-MAIL: russia.info@acv-world.com

DENMARK

VARMEHuset
FRICHSVEJ 40 A
8600 SILKEBORG - DENMARK
TEL.: +45 86 82 63 55
FAX: +45 86 82 65 03
E-MAIL: vh@varmehuset.dk

ESTONIA

TERMOMAX AS
TAHE 112A
51013 TARTU - ESTONIA
TEL.: +372 736 73 39
FAX: +372 736 73 44
E-MAIL: termomax@termomax.ee

GREECE

ESTIAS
MARASLI STREET 7
54248 THESSALONIKI - GREECE
TEL.: +30 23 10 31 98 77 / +30 23 10 32 03 58
FAX: +30 23 10 31 97 22
E-MAIL: info@genikithermanseon.gr

ÎLE MAURICE

SOTRATECH
29, RUE MELDRUM
BEAU BASSIN - ÎLE MAURICE
TEL.: +230 46 76 970
FAX: +230 46 76 971
E-MAIL: stech@intnet.mu

LITHUANIA

UAB "GILIUS IR KO"
SAVARNORIŲ PR. 192
3000 KAUNAS - LITHUANIA
TEL.: +370 37 308 930
FAX: +370 37 308 932

MAROC

CASATHERM
PLACE EL YASSIR
20300 CASABLANCA - MAROC
TEL.: +212 22 40 15 23
FAX: +212 22 24 04 86

SLOVAK REPUBLIC

ACV SLOVAKIA s.r.o.
PLUHOVÁ 49
831 04 BRATISLAVA - SLOVAK REPUBLIC
TEL.: +421 2 444 62 276
FAX: +421 2 444 62 275
E-MAIL: slovakia.info@acv-world.com

SLOVENIA

ACV D.O.O. SLOVENIA
OPEKARNA 22b
1420 TRBOVLJE - SLOVENIA
TEL.: +386 356 32 830
FAX: +386 356 32 831
E-MAIL: slovenia.info@acv-world.com

UK

ACV UK Ltd
ST. DAVID'S BUSINESS PARK
DALGETY BAY - FIFE - KY11 9PF
TEL.: +44 1383 82 01 00
FAX: +44 1383 82 01 80
E-MAIL: uk.info@acv-world.com

USA

TRIANGLE TUBE PHASE III
FREEWAY CENTER - 1 TRIANGLE LANE
BLACKWOOD NJ 08012 - USA
TEL.: +1 856 228 8881
FAX: +1 856 228 3584
E-MAIL: sales@triangletube.com

NEW ZEALAND

ENERGY PRODUCTS INTERNATIONAL
8/10 BELFAST PLACE
PO BOX 15058 HAMILTON - NEW ZEALAND
TEL.: +64 7 847 27 05
FAX: +64 7 847 42 22
E-MAIL: pmckenzie@tycoint.com

ÖSTERREICH

PROTHERM HEIZUNGSTECHNIK GmbH
TRAUNFURERSTRASSE 113
4052 ANSFELDEN - ÖSTERREICH
TEL.: +43 7229 804 82
FAX: +43 7229 804 92
E-MAIL: protherm@nextra.at

ROMANIA

SC TRUST EURO THERM SA
D.N PIATRA NEAMT - ROMAN
km 2 C.P 5 O.P 3 jud. Neamt
5600 PIATRA NEAMT - ROMANIA
TEL.: +40 233 20 62 06
FAX: +40 233 20 62 00
E-MAIL: office@eurotherm.ro

TUNISIE

SO.CO.ME CHAUMAX
BOÎTE POSTALE N°44
1002 TUNIS - TUNISIE
TEL.: +216 71 78 15 91
FAX: +216 71 78 87 31

UKRAINE

UKRTEPLOSERVICE LTD
PR. LAGUTENKO 14
83086 DONETSK - UKRAINE
TEL.: +38 062 382 60 47/48
FAX: +38 062 335 16 89