4-INS-909

Scientific
Laboratory Equipment

INSTALLATION, OPERATION AND CARE MANUAL

REMEMBER TO COMPLETE THE ONLINE
WARRANTY REGISTRATION TO
RECEIVE YOUR FULL TWO YEAR WARRANTY.

WARRANTY

All Scientific equipment comes with a standard ONE year warranty, The 1 Year Extended Warranty is only valid for customers who have registered their warranty online at www.scientific.co.za within the first year after making their purchase.

MANUFACTURED
IN SOUTH AFRICA

www.scientific.co.za

QUALITY GUARANTEED

ALL SCIENTIFIC EQUIPMENT COMES WITH A TWO YEAR WARRANTY ON COMPONENTS AND DEFECTIVE WORKMANSHIP - Ts & Cs APPLY.

Scientific

Scientific | Laboratory Equipment

THANK YOU FOR PURCHASING A SCIENTIFIC PRODUCT!

REGISTER ONLINE TODAY

- Register your warranty on-line at www.scientific.co.za today and learn how to get the best out of your Scientific product.

NO WEB ACCESS?

- If you do not have access to the Web, register by completing this form and Email it to the Scientific head office in South Africa. Email: sales@scientific.co.za

ONLY COMPLETE IF YOU DO NOT HAVE WEB ACCESS

Company _____

Name _____

Surname _____

Telephone _____

Cellphone _____

Email Address _____

Country _____

Postal address _____

_____

_____

Scientific products purchased _____

Product Code (see box label) _____

Serial number (see back of machine) _____

INTENDED USE

- ☐ Agriculture
- ☐ Automotive
- ☐ Biochemistry
- ☐ Botony
- ☐ Chemistry
- ☐ Cosmetics
- ☐ Electronics
- ☐ Food
- ☐ Genetics
- ☐ Industrial
- ☐ Medical
- ☐ Microbiology
- ☐ Mining
- ☐ Nuclear
- ☐ Paper/Packaging
- ☐ Petrochemical
- ☐ Pharmaceutical Physics
- ☐ Power Generation
- ☐ Special Metals
- ☐ Sugar
- ☐ Water
- ☐ Zoology
- ☐ Other (Specify): _____

QUALITY GUARANTEED

ALL SCIENTIFIC EQUIPMENT COMES WITH A TWO YEAR WARRANTY ON COMPONENTS AND DEFECTIVE WORKMANSHIP - Ts & Cs APPLY.

LIMITED WARRANTY

The manufacturer guarantees that this unit is free from defect in materials and workmanship when it leaves the factory and undertakes to replace or repair the unit if it proves defective in normal use or during servicing for a period of 1(one) year from the date of original installation and is for the benefit of the original purchaser only. The liability under this warranty is limited to repairing the defective unit or any part of the unit provided it is sent carriage paid to an authorized dealer. All other Warranties ,expressed or implied , statutory or otherwise, including without limitations any implied Warranty of Merchantability or fitness for purpose are excluded .The Seller shall in no event be liable for direct,indirect or consequential damages in connection with the products.

This unit is at all times to be used according to the instruction manual and for its normal purpose.

This Warranty is not effective if damage occurs because of accident, carelessness,improper installation,lack of proper set-up,supervision when required or if the equipment is installed or operated in any manner contrary to the installation and operating instructions. In these cases,repairs will be made at a reasonable cost. Work performed by unauthorized personnel or unauthorized service agencies voids this Warranty.

FURNACE

INSTALLATION OPERATION AND CARE OF FURNACES
MODELS: 909 R01/930 R01/931 R01

UNPACKING

Unpack the product and check for any damage incurred during transit. This should be reported to the responsible carrier, railway or postal authority, and a request for a damage report should be made.

THESE INSTRUCTIONS MUST BE FOLLOWED FOR US TO GUARANTEE OUR FULL SUPPORT OF YOUR CLAIM FOR PROTECTING AGAINST LOSS FROM CONCEALED DAMAGE. THE FORM FOR FILING SUCH A CLAIM WILL BE PROVIDED BY THE CARRIER.

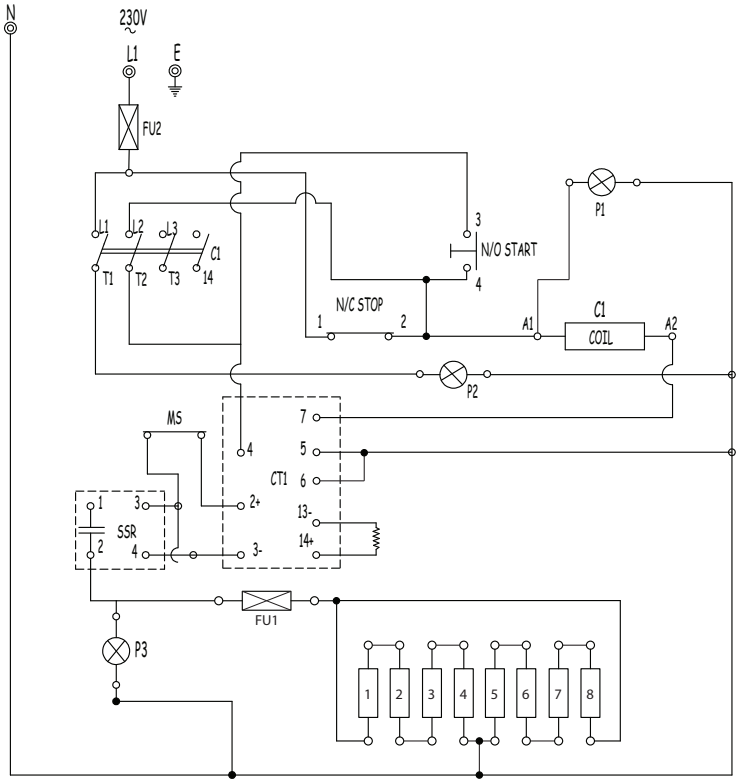
PRODUCT DESCRIPTION

The unit is a bench top Chamber Furnace and can be used for a wide range of applications and in many sectors of industry and research.
The unit is constructed with mild steel ,coated with a textured powder coated finish. Double wall construction ensures a cool outer case.
The unit features an easily removable control panel including the solid state electrical components for easy on site maintenance.

A vertical counterbalanced door mechanism offers easy access and keeps the hot insulation away from the operator. An added safety feature ensures that the power to the elements is isolated whenever the door is opened.
Hard wearing refectories around the chamber entrance and in the chamber base provide excellent resistance to everyday wear and tear whilst secondary low thermal mass insulation ensures maximum thermal efficiency.
Safety is ensured by the use of a factory preset solid state safety controller operating on an independent circuit.
Chamber size is 9 and 30 Liters with maximum temperatures of 1200 ºC.

WIRING DIAGRAM
MODEL: 30L FURNACE
MODEL CODE: 931 R01

LEGEND	DESCRIPTION	PART NUMBER
C1	CONTACTOR	1-220V-CONT-32A
N/O	ON SWITCH	1-PBG-JES0002
N/C	OFF SWITCH	1-PBR-JES0002
P1	MAINS PILOT LIGHT	1-18TRF
P2	OVER TEMP PILOT LIGHT	1-18TRF
CT	CONTROLLER	1-TTM-I4N
SSR	SOLID STATE RELAY	1-SSR-40A
E	ELEMENT, 690W	5-690W-931
MS	MICROSWITCH	1-18-TRF
FU1/FU2	FUSE AND FUSE HOLDER	1-FH-909/1-FUSE-909
P3	CONTROL PILOT LIGHT	1-18TRF



MODEL:30 LITRE FURNACE

MODEL CODE:930 R01

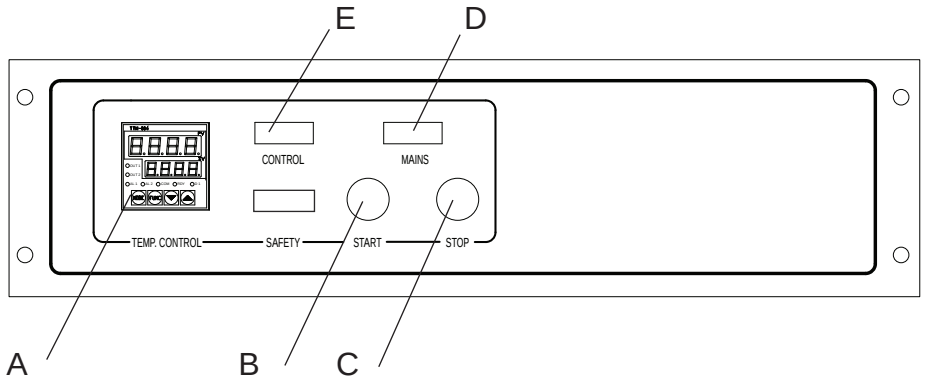
Part No.	Description
1	BODY WRAP
2	EXHAUST ASSEMBLY
3	30 LITRE FURNACE HOT BOX
4	M12 THREADED BAR - 675 LONG
5	TOP & BOTTOM INTERIOR CERAMIC BOARD
6	ELEMENT 2500W
7	RHS HINGE ASSEMBLY
8	LHS HINGE ASSEMBLY
9	FRONT SURROUND PANEL
10	DURA BOARD DOOR PLUG
11	DOOR MICROSWITCH
12	MICROSWITCH BRACKET
13	PEEP HOLE ASSEMBLY
14	DOOR HANDLE NODE
15	DOOR HANDLE TUBE
16	DOOR ASSEMBLY
17	FRAME PLATE
18	SOLID STATE RELAY 25AMP
19	32AMP CONTACTOR
20	CONTROLLER
21	PILOT LIGHT
22	PUSH BUTON GREEN
23	PUSH BUTTON RED
24	FACIA PANEL
25	CONTROL PANEL ASSEMBLY
26	TERMINAL EARTH
27	TERMINAL
28	15AMP FUSE HOLDER PANEL MOUNT
29	11 PIN CONNECTOR BLOCK
30	OVERTEMP CONTROLLER
31	15AMP 10x38mm MEDIUM BLOW CERAMIC FUSE
32	EYE BOLT
33	DOOR SPRING Ø26x265 LONG
34	VERTICAL SPRING BRACKET
35	HORIZONTAL SPRING BRACKET
36	DOOR SUPPORT SPRING
37	CONTACTOR BRACKET
38	LARGE RUBBER FOOT
39	DUST COVER
40	3PHASE CONNECTOR BLOCK
41	BASE ASSEMBLY
42	N-TYPE THERMOCOUPLE
43	EDGE SURROUND
44	REAR PANEL

GENERAL INSTALLATION AND OPERATION INFORMATION

1. Position the unit on stable bench
2. Place the in a well-ventilated room, away from other sources of heat, and on a surface which is resistant to accidental spillage hot materials. Do not mount the furnace on an inflammable surface.
3. Ensure that the unit is at least 100mm-200mm from the wall to ensure that the exhaust air duct on the rear of the unit can vent adequately.
4. Ensure that there is free space around the furnace. Do not obstruct any of the vents in the control section: they are needed to keep the controls cool.
5. Ensure that the furnace is placed in such a way that it can be quickly switched off or disconnected from the electrical supply-see below.
6. If the furnace is to be used to heat substances which emit fumes, then a fume extraction duct of about 150mm inlet diameter may be place directly above the chimney outlet.

SPECIFIC INSTALLATION AND OPERATING INFORMATION

MODELS 909/930/931 SLAB ELEMENT CHAMBER FURNACE

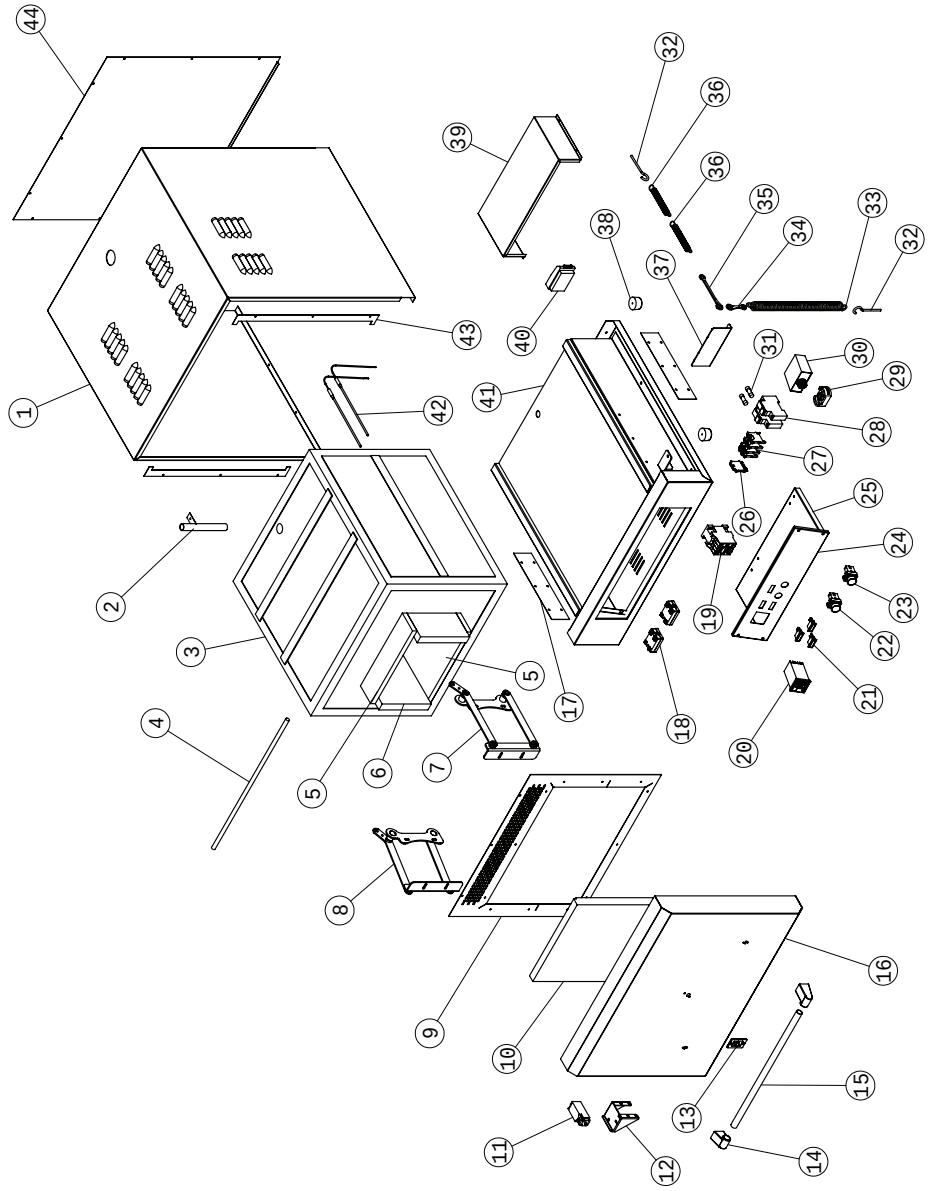


1. Ensure that the power plug of the unit is plugged into the mains power socket. “Mains” pilot lamp ‘D’ will illuminate.
2. Ensure that the furnace door is closed.
3. Push and hold the green “START” button on the control panel for 2 seconds.
4. The digital temperature controller ‘A’ will illuminate.
5. Set the desired control temperature via the temperature con troller A. See details below
6. Control pilot lamp ‘E’ will illuminate when elements are energised.
7. Push Button “STOP” C will cut off all electrical supply to the unit.
8. To restart push in “START” button.
9. The Safety cut out temperature is preset at 1250ºC.
10. If unit reaches 1250ºC the safety thermostat controller will cut off all electrical supply. To restart, allow unit to cool and push “START”.
11. If the door is opened during use, electrical power to the heat ing elements will be cut off until the door is closed again.

OPERATING INSTRUCTIONS OF ELECTRONIC TEMPERATURE CONTROLLER

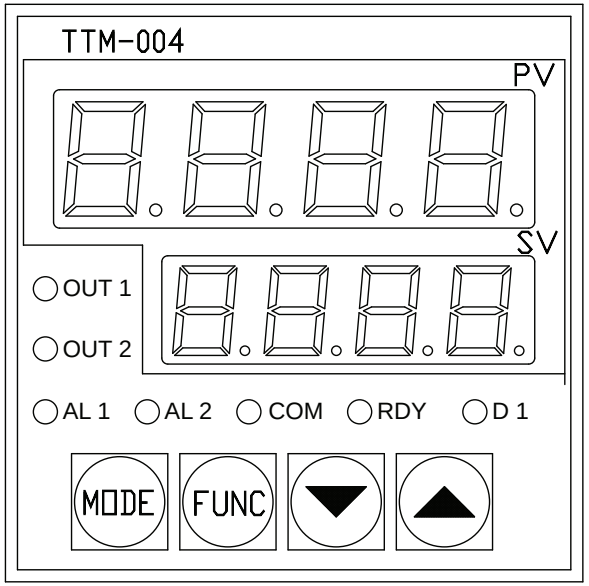
1. The temperature controller has four buttons on the front face. These are used to set the required temperature, initiate Auto-Tuning, and enter any adjustments to the program.
2. To set the required temperature, ensure that the unit is connected and switched “ON” in the appropriate manner.
3. The top display (green) shows the actual temperature (PV) in the unit, the bottom display (red) is the setting temperature (SV) and must be adjusted to the required temperature. To adjust the setting, press the function button.
   This action will start one of the digits in the lower display flashing. By touching this button again, the flashing will move to the left. Once the flashing red display is on the number that needs to change, use the UP/DOWN buttons to attain the required settings.
4. By moving the flashing digit left the desired temperature required can be set. Once the correct temperature has been entered, press MODE to enter the setting.

EXPLODED DIAGRAM
30L FURNACE
MODEL: 930 R01



MODEL : 9 LITRE FURNACE
MODEL CODE : 909 R01

Part No.	Description
1	BODY WRAP
2	FRONT PANEL
3	9 LITRE FURNACE HOT BOX
4	M12 THREADED BAR - 545 LONG
5	DOOR ARM ASSEMBLY
6	MICRO SWITCH BRACKET
7	DURA BOARD DOOR PLUG
8	DOOR MICROSWICH
9	DOOR ASSEMBLY
10	DOOR HANDLE NODE
11	PEEP HOLE
12	DOOR HANDLE
13	CONTROLER
14	PILOT LIGHT
15	PUSH BUTON GREEN
16	PUSH BUTTON RED
17	SOLID STATE RELAY 25AMP
18	32AMP CONACTOR
19	CONNECTOR BLOCK
20	CONTROL PANEL ASSEMBLY
21	11 PIN CONNECTOR BLOCK
22	OVERTEMP
23	LARGE RUBBER FOOT
24	CONTACTOR BRACKET
25	EYE BOLT
26	MAIN DOOR SPRING
27	VERTICAL SPRING BRACKET
28	HORIZONTAL SPRING BRACKRT
29	DOOR SPRING
30	CABLE GRIP
31	POWER CORD
32	BASE ASSEMBLY
33	THERMOCOUPLE
34	DUST COVER
35	EXHAUST
36	REAR PANEL



GENERAL OPERATING GUIDELINES

1. The life of the heating elements is shortened by the continuous use at temperature close to maximum. Do not leave the furnace at high temperature when not required.

2. When heating materials which produce smoke or fumes, chimney must be unobstructed. Otherwise, soot accumulates in chamber and could possibly cause an electrical breakdown of the heating elements.

4. If the maximum is used to heat materials, which emit smoke or fumes, regularly heat it up to maximum temperature for one hour without load to burn away the soot.

5. Materials such as case hardening compounds and other reactive salts may penetrate the furnace chamber lining and reduce the life of the liner. Use of a hearth tile may be advisable.

WARNING

Burn Hazard.
Do not touch hot,liquid or heating surfaces while equipment is heating or operating

Hot surfaces and liquid can burn skin. Allow the hot surfaces to cool before handling

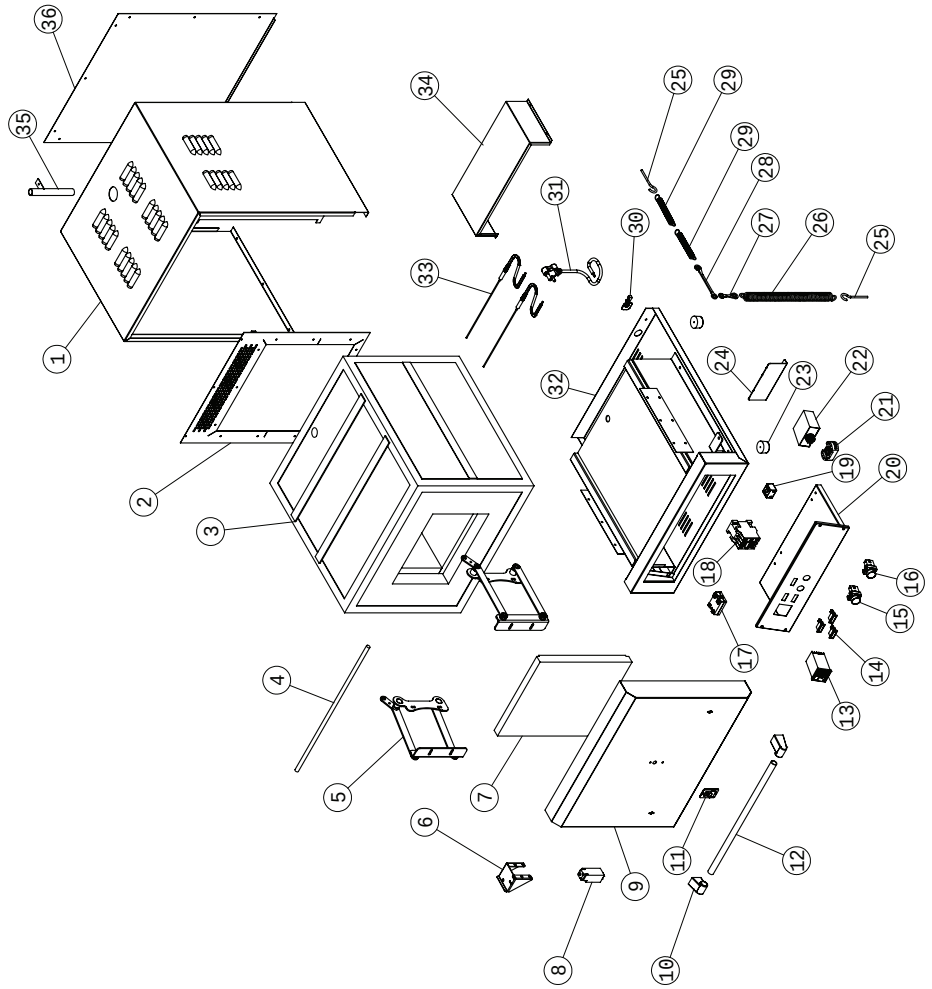
CLEANING

BEFORE CLEANING THE UNIT, DISCONNECT THE POWER PLUG FROM THE MAINS SOCKET!

- Clean the outside of the unit using a damp cloth with soapy water.
- Soot deposits may form inside the furnace, at appropriate intervals remove these by heating the unit up to maximum temperature for one hour without load
- Under no circumstances should steel wool be used.
- Do not clean with organic solvents.
- It is normal for the stainless steel flange to adapt a slightly yellow discolouration when exposed to continuous high temperature.

CLEAN THE STAINLESS STEEL PARTS WITH WATER AND SOAP. AVOID THE USE OF DETERGENTS CONTAINING ABRASIVE SUBSTANCES. ALWAYS RINSE WELL AND DRY CAREFULLY AFTER CLEANING. DO NOT USE PRODUCTS CONTAINING AGGRESSIVE CHEMICALS, ACIDS OR PRODUCTS WITH CHLORINE TO CLEAN THE STAINLESS STEEL EVEN IF DILUTED

EXPLODED DIAGRAM
9L FURNACE
MODEL: 909 R01



WIRING DIAGRAM
MODEL: 30L FURNACE
MODEL CODE: 930 R01

LEGEND	DESCRIPTION	PART NUMBER
C1	CONTACTOR	1-220V-CONT-32A
N/O	ON SWITCH	1-PBG-JES0002
N/C	OFF SWITCH	1-PBR-JES0002
P1	MAINS PILOT LIGHT	1-18TRF
P2	SAFETY PILOT LIGHT	1-18TRF
P3	CONTROL PILOT LIGHT	1-18TRF
OT	OVER TEMP PILOT SAFETY	1-OT-909
CT	CONTROLLER	1-DC-909
SSR	SOLID STATE RELAY	1-SSR-40A
E1/E2	ELEMENT 2500W/230V	5-2500W-930
MS	MICROSWITCH	1-18TRF
FU1/FU2	FUSE AND FUSE HOLDER	1-FH-909/1-FUSE-909

WARNING

Electric Shock Hazard.
Keep water and other liquids from entering the inside of the equipment. Liquid inside the equipment could cause an electrical shock

Do not spray water or cleaning products. Liquid could contact the electrical components and cause a short circuit or an electrical shock.
Do not use equipment if power cord is damaged or has been modified

SAFETY

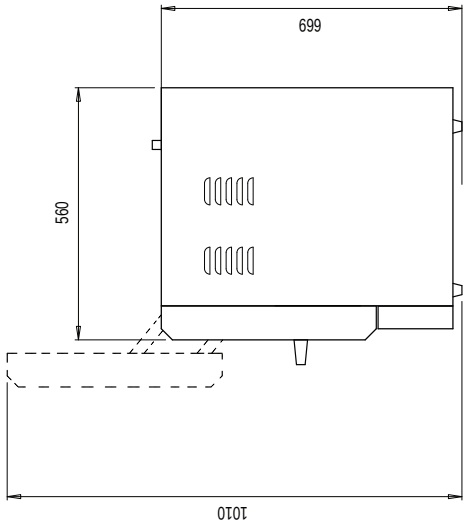
READ ALL INSTRUCTIONS BEFORE USE. FAILURE TO FOLLOW THESE PRECAUTIONS COULD RESULT IN INJURY TO YOURSELF AND OTHERS

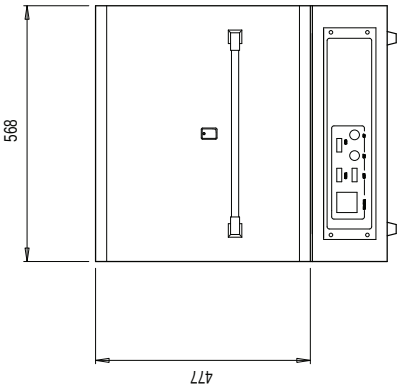
1. Use the furnace incubator on an individual 15A mains outlet only. **DO NOT OVERLOAD THE CIRCUIT.**
2. Ensure that the equipment and the power supply cord does not come into contact with hot surfaces.
3. This unit is only to be used by properly trained laboratory staff.
4. If the supply cord is damaged, it must be replaced with a new cord assembly available from the suppliers agent.
5. Use only earthed outlets matching the serial plate voltage.
6. Have equipment installed by a qualified personnel in accordance with local codes and ordinances.
7. Use equipment in a flat level position.
8. Do not operate if equipment has been damaged or is malfunctioning in any way.
9. These units are designed to run only on alternating current (A.C.) **DO NOT CONNECT TO DIRECT CURRENT (D.C)**

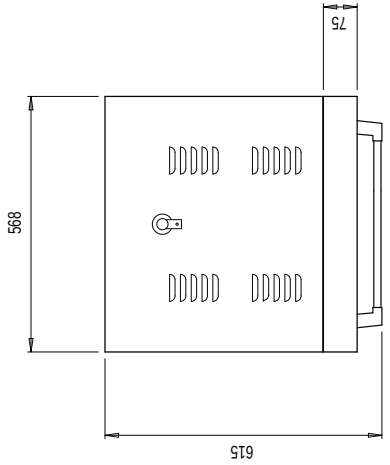
SAFETY RECOMMENDATIONS

1. The furnace incorporates a safety switch which interrupts the heating elements circuit when the door is open. This prevents the furnace from heating up if the door is left open. The operation of this switch should be checked periodically.
2. Avoid burns: furnace surfaces can be hot. Before removing a hot object from the furnace make sure there is a suitable storage place available for the object.
3. When opening the door of the unit, stand a distance away for the fumes to escape which may be harmful.

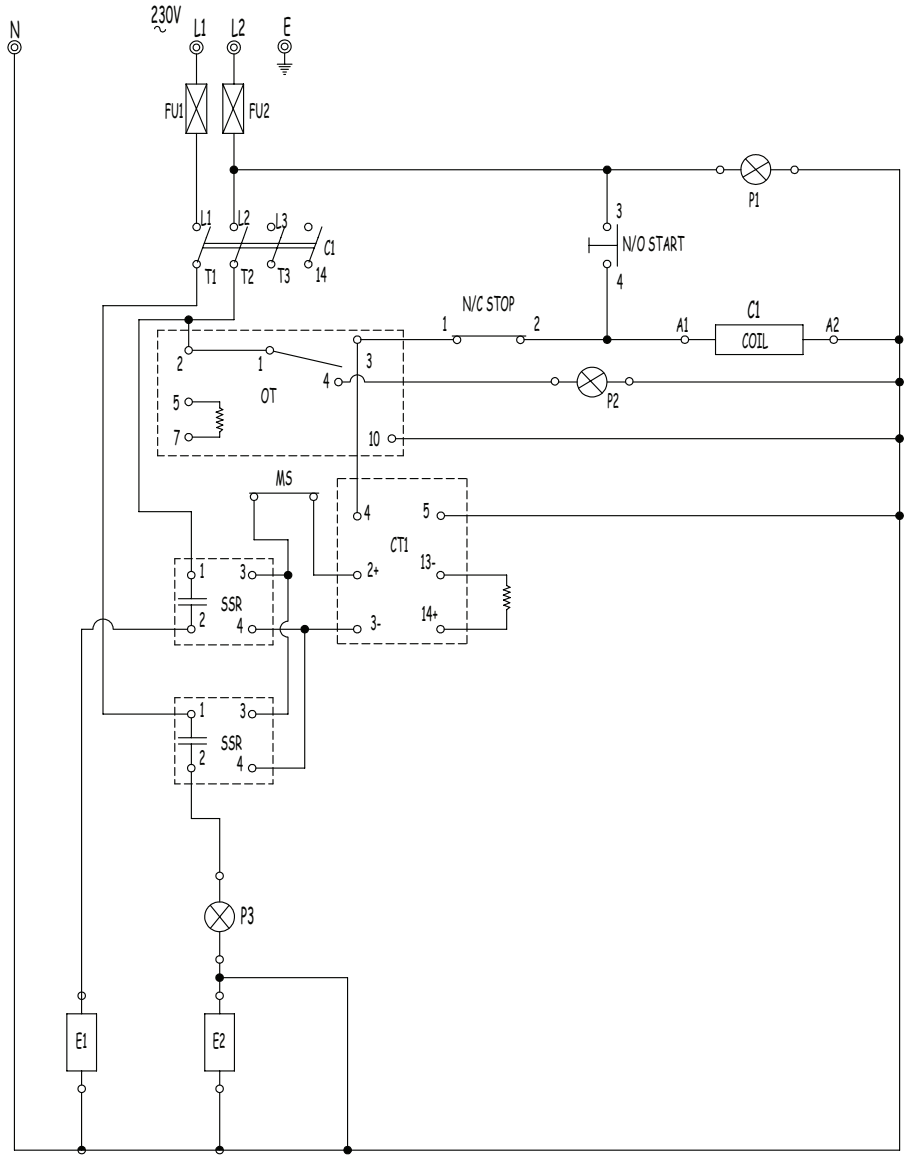
POSITIONING DIAGRAM
9L FURNACE
MODEL: 909







WIRING DIAGRAM
MODEL: 30L FURNACE
MODEL CODE: 930 R01



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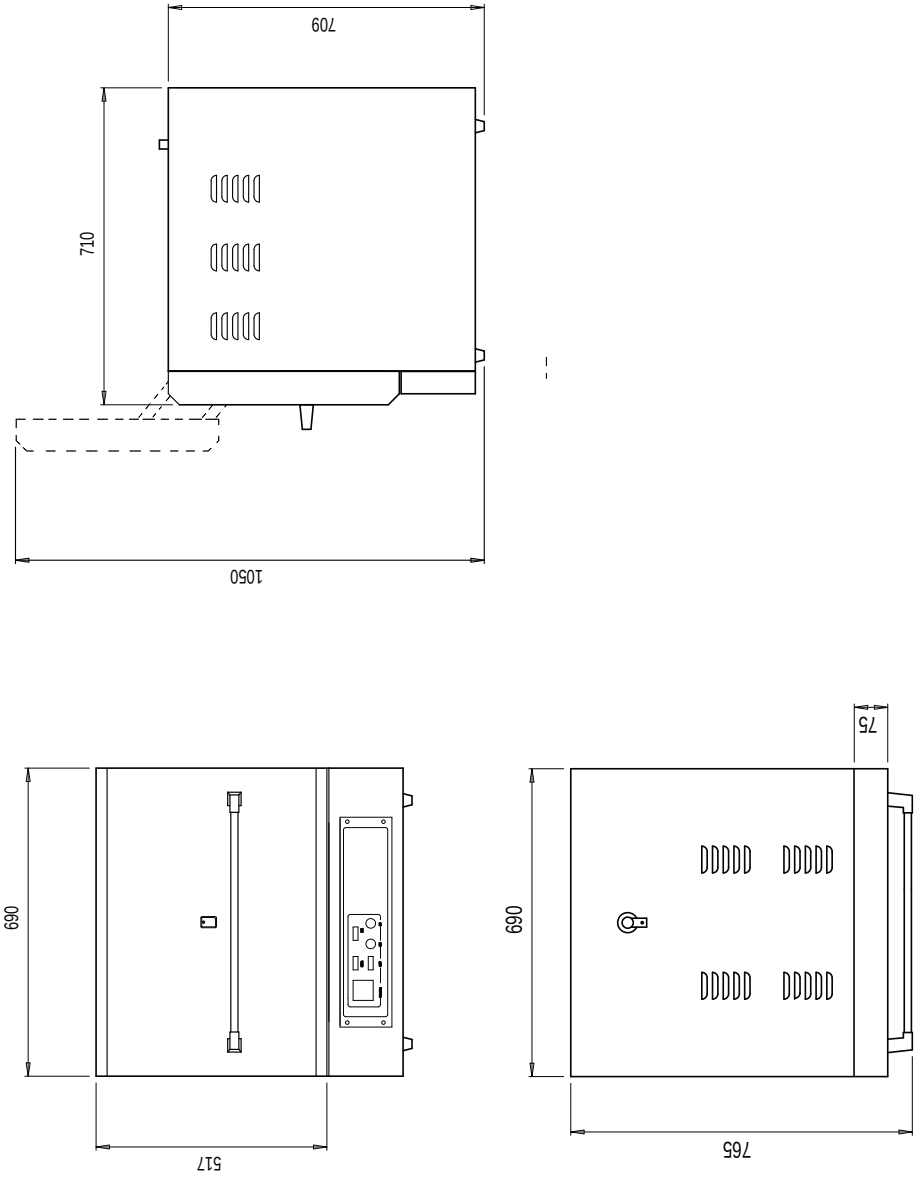
P1	MAINS PILOT LIGHT	1-18TRF
P2	SAFETY PILOT LIGHT	1-18TRF
P3	CONTROL PILOT LIGHT	1-18TRF
OT	OVER TEMP SAFETY	1-OT-909
CT	CONTROLLER	1-DC-909
SSR	SOLID STATE RELAY	1-SSR-40A
E	ELEMENT 3300W/230V	5-3300W-909
MS	MICROSWITCH	1-18TRF

POSITIONING DIAGRAM
30L FURNANCE
MODEL: 930/931



ELECTRICAL AND TECHNICAL INFORMATION

MODEL	DESCRIPTION	VOLTS (V/Hz)	POWER (WATTS)	MAX TEMP. ºC	CHAMBER SIZE (mm)
909	9LT SLAB FURNACE	230/50	3300	1200	180x170x300
930	30LT SLAB FURNACE	380/50 2P	5000	1200	310x205x455

THE CONTROL COMPARTMENT OF THIS UNIT CONTAINS DANGEROUS VOLTAGES. MAINTENANCE AND SERVICING REQUIRING THE REMOVAL OF ANY PANELS OR COVERS SHOULD BE DONE BY QUALIFIED SERVICE PERSONNEL ONLY.

IT IS ESSENTIAL TO MAKE SURE THAT THE INCOMING VOLTAGE IS THE SAME AS THE RATED VOLTAGE OF THE OF THE UNIT AS FOUND ON THE SERIAL PLATE. THE SERIAL PLATE IS LOCATED AT THE REAR OF THE UNIT ADJACENT TO THE INCOMING CABLE ENTRY.

WIRING DIAGRAM
MODEL: 9L FURNACE
MODEL CODE: 909 R01