

INSTRUCTIONS FOR USE

Ceramic furnace

artis neo



Rév. 240122

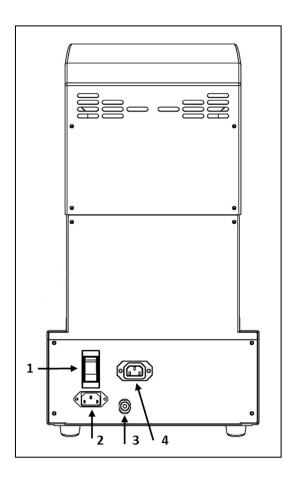
ARTIS NEO

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Non-contractual images Translation into English from original in French

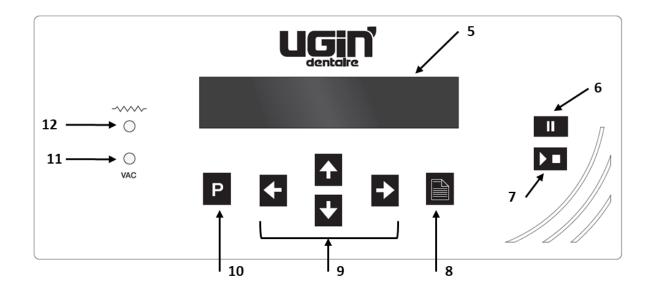
A. Equipment description

a. Rear panel



N°	DESCRIPTION	
1	Main ON/OFF switch	
2	Mains power outlet (230V)	
3	Vacuum hose connector	
4	Vacuum pump connection socket (230V)	

b. Description of programming unit



N°	DESCRIPTION	
5	Alphanumeric display	
6	Stand-by key	
7	Start/Stop key	
8	Page KEY	
9	Arrow keys	
10	PROGRAMMING key	
11	Vacuum indicator	
12	Heating indicator	

B. INSTRUCTIONS FOR USE

1. SAFETY INSTRUCTIONS

1.1. USE

The ceramic furnace ARTIS NEO is intended to firing the ceramic dental prostheses. This furnace has to be operated only by dental professionals.

ARTIS NEO has to use in the conditions and for the uses described in this manual. Any other use that will be made of it (such as firing other materials, heating food products, etc.) is considered inappropriate. In this case, the manufacturer declines all liability and immediately cancels the equipment warranty.

According to the product's instructions and functionalities, **it is imperative to <u>read carefully</u> the instructions for use before furnace installation and use**. Retain the manual for future reference.

1.2. SAFETY INSTRUCTIONS

Pictograms' meaning used in these instructions for use:



General warning



Electrical hazard



Burn hazard - Hot surface

Observe following safety instructions:



- During operation and after use, the furnace head surface, platform and firing base may reach high temperatures: do not touch.
- Wear suitable gloves and the tweezer (delivered in accessories) for handling prosthetic objects and firing base.
- The unit has to be connected to an **electrical installation in accordance** with the applicable standard in the country in which it is being used. This installation has to provide **protection against overcurrent, overload and ground faults.**
- This furnace requires its own power line and has to be connected to a circuit breaker.



- Connect it directly to the mains socket. Do not use multiple sockets.
- Ensure that the **connection cables** are in perfect condition to prevent short circuits.
- Before any **technical intervention**, the unit has to be switched off (with the breaker) and disconnected from the mains power supply.
- **Do not spill liquid** on the ventilation openings or inside the furnace.
- Ensure that the **pneumatic hoses** (power socket and vacuum pump) are in perfect condition.
- Ensure that the **movement of the platform is not blocked by an object**, this may result in malfunction of the unit and damage to certain components.



- The furnace must be placed on a **flat surface**, keeping sufficient clearance around the unit to **ensure proper ventilation**.
- **Do not block the ventilation openings** to avoid overheating.
- Firing base are made up ceramic fibres. Handle carefully.



- <u>The heating chamber contains insulating material</u> composed of high temperature insulation wool (alkaline earth silicate), a substance not classified as dangerous according to Regulation 1272/2008/EC (CLP).
- They can release dust: remove with a vacuum cleaner do not blow or use compressed air.



- For moving, take hold the furnace by its base. Never lift by upper part of furnace: risk material damage.
- Never use the furnace without firing base. Use only those provided by UGIN DENTAIRE. Before
 use, check it (no dirt or damage). If damage: do not use.
- Use only **genuine spare parts**. The use of non-original spare parts voids any warranty for your device.
- **Do not introduce stranger objects inside** the unit during the maintenance operations. It is forbidden to modify the material without authorization.
- **Do not execute different operations of maintenance** from those brought back in the manual. Whichever operation not included in this manual, can involve risks.
- For whichever information concerning installation, maintenance and use, contact the customer's service UGIN DENTAIRE.

1.3. WASTE DISPOSAL

Observe the waste disposal regulations for electrical and electronic equipment: do not dispose of with household waste.

The unit is subject to Directive 2012/19/EU on waste electrical and electronic equipment and to the laws of the country in which it is being used, and must be disposed of in accordance with applicable regulations.

<u>Firing base</u> made up refractory ceramic fibres. They must be disposed in accordance with applicable regulations in force.

<u>The insulating material</u> are composed of high temperature insulation wool (alkaline earth silicate), a substance not classified as dangerous according to Regulation 1272/2008/EC (CLP), and classified as non-hazardous waste for disposal. However, such a waste is normally dusty and so must be properly packaged before for disposal. Check any national or regional applicable regulations.

2. EC DECLARATION OF CONFORMITY

The equipment's EC declaration of conformity is provided as appendix of instructions for use.

Content of the declaration EC:

Name and address of the manufacturer:

UGIN DENTAIRE

25 rue de la Tuilerie

38170 SEYSSINET-PARISET - FRANCE

- UGIN DENTAIRE declares, on its own exclusive responsibility, that the product:
 - Ceramic firing furnace ARTIS NEO
 - Serial number: see the equipment's EC declaration of conformity
- Fulfills the essential requirements of health and safety of the following directives:
 - Machinery directive 2006/42/EC
 - Electromagnetic compatibility directive 2014/30/EU

3. TECHNICAL INFORMATION

3.1. TECHNICAL DATA

Ceramic furnace ARTIS NEO is intended for firing the ceramic dental prostheses. This furnace has to be operated only by dental professionals and in the conditions described in this manual (see chapter 1.1 and 3.2).

Technical data			
Dimensions	570 x 320 x 360mm	Pre-drying time	0 to 30 min
(height x with x depth)		Number of stages	6
Weight	20 Kg	Internal pre-drying	0 to 30 min
Power consumption	1 300 W	Heat-rise rate	0 to 200°C/min
Voltage	230 V	Vacuum start	0 to 1000°C
Frequency	50/60 Hz	Vacuum cancel	0 to 1200°C
Alphanumeric display	2x20 characters	Vacuum level	0 to 99%
Languages	French, English,	Vacuum hold time	0 to 60 min
	German, Spanish, Italian	Final temperature	0 to 1200°C
Free programs	100	Hold time	0 to 60 min
Muffle	Quartz-tube	Internal cooling	0 to 10 min
Standby temperature	0 to 600°C	External cooling	0 to 30 min
Pre-drying temperature	0 to 1000°C	Automatic standby cycle	0 to 60 min

3.2. CONDITIONS OF USE, TRANSPORT AND STORAGE

Authorised conditions of use

- Ambient temperature: +5°C to +40°C
- <u>Humidity range:</u> maximum relative humidity 80% for temperatures until 31°C, without condensation and decrease linear until 50% to 40°C, without condensation.
- Ambient pressure: up to an altitude of 2000 m above sea level.

Authorised conditions of storage

- Ambient temperature: -20°C to +65°C
- Humidity range: maximum relative humidity 80%
- Ambient pressure: up to an altitude of 2000 m above sea level.

Conditions to transport

- Wait the complete cooling before packing/transporting.
- Use the original packaging only, with the protective elements (polystyrene...).
- Take hold the furnace by its base, never lift by upper part of furnace.
- Install the furnace in the packaging with the protective elements. Also protect the accessories for transportation.

3.3. ACCESSORIES

• Accessories delivered with the furnace (included in the packaging):

	CODE UGIN
- 1 firing base	FCE05THE0038
- 1 power supply cord	FCE05ELC0014
- 1 removable storage	FCE06TAB0005

Accessory recommended (not delivered with the furnace – to order separately)

	CODE UGIN
- Vacuum pump	FCE01PPE0001

4. INSTALLATION AND START-UP

4.1. UNPACK

- Unpack ARTIS NEO and check that it is in perfect order (furnace and accessories).
- Any defects can be reported to the carrier.
- Remember to get the carrier to sign the delivery note.

NOTE: keep the original packaging to transport the furnace (see chapter 3.2)

4.2. INSTALLATION

- Install in a room aired. Observe the conditions indicated in chapter 3.2.
- Place the furnace on a <u>level and aired surface</u>. Keep a <u>distance from other objects around not less than</u> <u>10 cm</u>. Keep it away from heat sources (for example, radiators and/or other equipment that release heat). Avoid vibrations and shocks.
- Do not install in a place with explosion hazard.
- Its forbidden placing inflammables, toxic, volatile or explosives around the furnace.
- Place the vacuum pump near to the furnace.



This unit requires its own power line and has to be connected to a circuit breaker.

Grounding is mandatory to avoid accidents and the dangers of overheating the power line. Due to the power of furnace: **connect it directly to the mains**, do not use multiple sockets (risk of electrical interference).

4.3. START-UP

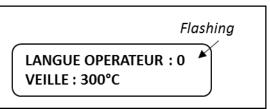
NOTE: for marks, see chapter A – equipment description

- Connect the vacuum pump socket (No. 4).
- Plug the vacuum hose into the connector (No. 3).
- After checking that the mains voltage matches that noted on the rating plate, plug the cord into a standard 10/16 A socket with a ground terminal.
- Turn on the main switch (No. 1), you will hear a beep.
- Press the STAND-BY key (No. 3):
- The platform moves down, stopping in low position (FOR ROUGHLY 5 MINUTES).
- Put the firing base on the platform.
- You may now set the program parameters.

Choose the language

The furnace is delivered with the display screen in "French". To modify:

- Push simultaneously on and



- With the key or choose the language and enter by pressing P

<u>Lanquages:</u>		
0 – French	3 – English	
1 – German	4 – Italian	
2 - Spanish	5 – French	

5. CONFIGURATION

5.1. ALPHANUMERIC DISPLAY

There are two different display modes, which must be clearly differentiated:

A. The programming mode (initiated by pressing the key PROGRAMING P)

In this mode, you can select or modify the parameters in a program, which are displayed flashing.

To change the value of each parameter, press the or arrow.

To move on to the next parameter, press the arrow.

Once you have programmed all the parameters on the page, you move on to the following page by pressing



The programming mode comprises 5 pages.

B. The operating mode (not flashing)

The top line displays:

- the temperature in °C
- the vacuum in %
- the program number, from 0 to 99

The lower line displays:

- the ongoing phase
- the time count

NOTE: If the furnace is on "IDLE", press the or arrow to change the program number. The lower line displays: program name

5.2. STAND-BY KEY

When the furnace is on "*IDLE*" (with the platform in low position) press this key to switch to "*STAND-BY*" position: the platform closes, and the temperature is maintained at 300°C.

When the furnace is not used for 5 minutes, the platform closes automatically.

To exit the "STAND-BY" position, press the key again.

NOTE: You can change the standby temperature and the automatic standby delay timer (see chapter 7 - secondary parameters.

5.3. STAR/STOP KEY

Press this key to initiate the firing cycle.

By pressing the key a second time during the cycle, you interrupt the firing operation and return the furnace to "*IDLE*" (platform in low position).

5.4. PAGE KEY

When programming (push on P), it allows to pen the 5 pages of parameters.

■ <u>Page 1</u>

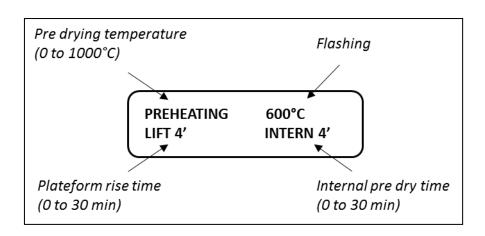


It can be modified by pushing the keys and that gives access to the alphabet (capital and minuscule) as well as number from 0 to 9.

- go to second character (and next) by push on key
- return to precedent by push on key

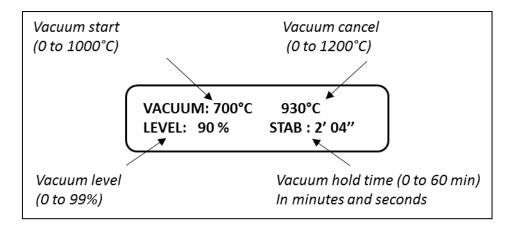
Confirm by push on P or go to the next page with key.

■ Page 2

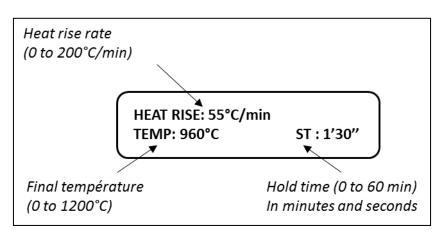


As previously described push the keys and to modify, the parameter flashing. Push the key to go on to the next parameter. The procedure is the same as of page 1.

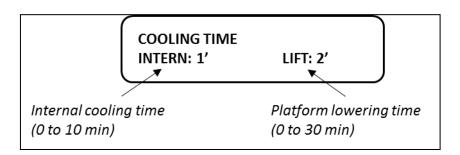
Page 3



Page 4



■ <u>Page 5</u>



5.5. ARROW KEY TO RIGHT

- During programming, press this key to switch from one parameter to the next.
- During a firing cycle, press this key to cancel the ongoing phase and move on to the next.

5.6. ARROW KEY UPWARD

- When the furnace is in "IDLE": press this key to change the program number.
- During programming: press this key to change the value of the flashing parameter.
- During a firing cycle: press this key to cancel the ongoing phase and move on to the next.

5.7. ARROW KEY DOWNWARD

- When the furnace is in "IDLE": press this key to change the program number.
- During programming: press this key to change the value of the flashing parameter.
- During firing: press this key to cancel the cycle and switch to "IDLE".

5.8. ARROW KEY TO LEFT

During programming, press this key to return to the preceding parameter.

5.9. PROGRAMMING KEY

Use this key to initiate the programming mode.

After pressing P, you can enter or modify the firing parameters.

Once the program is entered, press P again to "confirm" the program settings.

5.10. VACUUM INDICATOR VAC

This indicator shows that the pump is in operation.

The pump continues to operate until the programmed vacuum level has been reached.

It is normal for the pump to stop and start several times during the firing cycle.



This indicator shows that the muffle is heating.

As the temperature rises, it goes on and off regularly as the muffle heats up at the programmed rate.

6. FIRING PARAMETERS

Pre-drying Temperature: 0 to 1000°C

Once the furnace has completed a cycle, the temperature drops to 300°C. After placing the porcelain on the firing base, you then initiate the next cycle. At that point, the temperature rises from 300°C to the value set for the "pre-dry temperature". The platform will only begin to rise once the "pre-drying" temperature has been reached.

Platform rise time: 0 to 30 min

The platform rise time is divided into 6 stages.

The platform will only begin rising once the pre-drying temperature has been reached.

That temperature will be maintained as long as the platform continues to rise.

Internal pre-drying: 0 to 30 min

While the platform is closed, the temperature is maintained at the "pre-dry temperature" for a period programmable from 0 to 30 minutes.

The temperature will only begin to rise at the end of that time.

■ Vacuum start: 0 to 1000°C

Use this function to create a vacuum in the heating chamber at a different temperature from the introduction temperature.

For a cycle without vacuum, program:

- Vacuum start: 0 - Vacuum stop: 0

- Vacuum level: 0 - Hold: 0

Vacuum stop: 0 to 1200°C

For vacuum firing, use this function to either cancel the cycle or maintain it starting at a defined temperature.

■ Vacuum level: 0 to 99%

The programming unit on the **ARTIS NEO** furnace has an electronic vacuum sensor. As it is more accurate and reliable than a conventional pressure gage, the vacuum level can be adjusted to within ± 3% of the programmed value. Unit conversion: see chapter 10.

NOTE: The vacuum pump UGIN DENTAIRE has a 95% vacuum level capacity.

Vacuum hold time: 0 to 60 min

Starting at the vacuum stop temperature, you can prolong the vacuum time by 0 to 60 minutes.

■ Heat-rise rate: 0 to 200°C/min

The temperature rises at a perfectly linear rate from the beginning to the end of the firing cycle. You can adjust the temperature degree by degree. The heat-rise rate is maintained, even if the supply voltage varies within a maximum of \pm 20 volts.

Final temperature: 0 to 1200°C

The programming unit maintains the temperature within \pm 2°C of the programmed value. This temperature can be maintained with or without vacuum (see hold time below).

Hold time: 0 to 60 min

The final temperature in the heating chamber can be maintained for a period ranging from a few seconds to 60 minutes. This function is programmed in minutes and seconds.

a) Hold time without vacuum

The VACUUM STOP temperature is lower than or equal to the final temperature: the vacuum hold time is programmed at 0.

b) Hold time with vacuum

- If the VACUUM STOP <u>temperature</u> is <u>higher than the final temperature</u>: the entire hold time will be run with vacuum.
- If the VACUUM STOP temperature is lower than or equal to the final temperature, but the VACUUM HOLD function has been programmed: the programming unit runs through the entire hold time, part of which may be with a vacuum.

■ Internal cooling: 0 to 10 min

At the end of the hold time, it is possible to leave the porcelain inside the muffle for slow cooling. The slow cooling time may be programmed to last for 0 to 10 minutes.

To open the platform immediately, set INTERNAL COOLING at 0.

Platform lowering: 0 to 30 min

The platform lowering time is divided into 6 stages.

When the platform is in low position, the temperature drops naturally to the standby temperature.

Example:

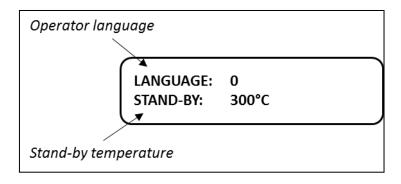
- Platen descent 0 → the platen descends at the end of the cycle.
- Platen descent $5' \rightarrow$ opening taking 5 minutes in total is in 6 stages.

7. SECONDARY PARAMETERS

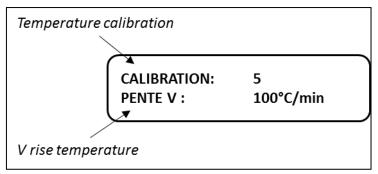
This is a second series of parameters that can be modified. These parameters correspond to the appliance's technical data, but only some of them affect the firing functions.

To access the latter when the furnace is on "STAND-BY" or "IDLE" position: press both the and keys at the same time.

■ Page 1

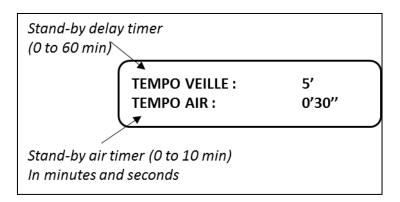


■ *Page 2*

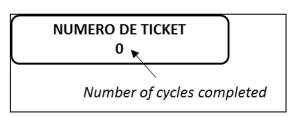


PENTE V: temperature rise speed from standby mode to preheating mode (20 to 200°C/min).

■ *Page 3*



Page 4



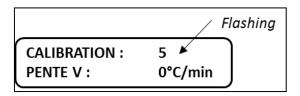
8. TEMPERATURE CALIBRATION

The furnace has been subjected to a temperature test using a temperature calibrator. The setting is exact (SET VALUE = 5) during factory calibration and while the muffle is new. However, should you not find the initial setting satisfactory; you can change the set value.

Temperature calibration change

To change this setting:

- press both the and keys at the same time.
- Go to page 2 : press PAGE key
- The display screen will show:



- If the result indicates:
 - o on overly high firing temperature: increase the setting value (6 or 7)
 - o an inadequate firing temperature: decrease the setting value (4 or 3)

Set value	Value	Кеу
7	= 2 points = -10°C	
6	= 1 point = -5°C	and P to confirm
5	Factory calibration	
4	= 1 point = +5°C	
3	= 2 points = +10°C	ightharpoonup and $ ightharpoonup$ to confirm

9. MAINTENANCE





Before to carry out the maintenance work and/or cleaning, ARTIS NEO has to:

- disconnected from the main power supply (switch OFF and unplug to mains socket),
- at room temperature: wait the cooling after use (risk of burns and/or damage).

Observe the following recommendations to ensure the longevity of the device:

- Do not use abrasive, solvents or flammables products for cleaning (outside and inside).
- Clean the machine outside with a soft, dry cloth.
- Replacing the muffle after 3000 hours of service
- **Clean the joint of the platform with alcohol regularly**, to ensure the proper functioning of the vacuum system. To avoid any risk of adhesion, it is recommended to sprinkle it with a thin layer of talc powder.
- **Visual inspection of the firing base before use.** If necessary, clean with a vacuum cleaner to remove any particles (dust). Do not use compressed air. If the base is damaged or cracked: do not use and replace-it.
- For **press the control panel keys never use metal or very hot instruments** which would damage the plastic film.
- **Keep hot pieces away from the panel** to avoid the risk of damage by heat radiation.
- Leave the furnace always hooked up, except during prolonged absence.
- Never run a cycle without a firing base as the platform may be damaged.

NOTE: do not use compressed air to cleaning: risk of damage to the accessories and the suspension of particles of the refractory material.

9.1. DECONTAMINATION PROGRAM

Carry out regular decontamination program:

Set the program parameters as follows:

- Pre-drying temperature	= 700°C	- Vacuum hold time	= 2 min
- Platform rise time	= 0 min	- Heat-rise rate	= 100°C/min
- Internal pre-drying	= 0 min	- Final temperature	= 1040°C
- Vacuum start	= 700°C	- Hold time	= 4 min
- Vacuum stop	= 1030°C	- Internal cooling	= 2 min
- Vacuum level	= 94%	- Platform lowering	= 0 min

■ Then place the "CARBONET" decontamination graphite on the firing base.

Initiate the cycle by pressing the key



9.2. TROUBLE-SHOOTING

Type of <u>fault displayed continuous alarm sounds</u>: operator action required.

- First stop the alarm by pressing the key
- Depending on the type of fault displayed, consult the list below to <u>determine the cause or causes of failure</u> and contact your After-Sales Service.
- The different types of faults are numbered.

PROBLEME	CAUSE	
FAILURE 1: THERMOCOUPLE MALFUNCTION	The thermocouple is broken and/or connecting cable (orange).	
FAILURE 2:	Programmed final temperature exceed by + 50°C. It is generally caused by:	
HEAT MALFUNCTION	- an anomaly in TRIAC on the furnace circuit board,	
	- a new cycle start too near to the previous one.	
FAILURE 4:	There are two main causes:	
VACUUM PUMP	- the pump is out of order,	
MALFUNCTION	- the electric or pneumatic connection is defective or non-existent.	
	Check the cleanness of the platform and the seal (ceramic splinter).	
FAILURE 8:	The solenoid valve is clogged or improperly connected to the board	
AIR MALFUNCTION	(GREEN/GREEN WIRE).	
FAILURE 16-32:	The platform is blocked in position. Several possible reasons:	
PLATFORM MALFUNCTION	- the back-geared motor is out of order,	
(UP-DOWN)	- the transmission belt is broken,	
	- the electric connection on the board is defective (RED/BLUE WIRE),	
	- the motor pinion is loose on the motor shaft.	

- **After the correction of the problem**, push the button in order to restore the normal display. Start the cycle again for verification (just for a test, no-load).

CAUTION: the list given above is only partial, in that certain displays may combine several failures. Example: $FAILURE\ 22 = FAILURE\ 16+4+2$

Whatever the case, it is essential that you contact your After-Sales Service.

9.3. PROTECTION

PROGRAMS

Your programs are protected by an EEPROM memory, which operates without batteries.

OVERVOLTAGE

The power supply to furnaces with micro-processing units requires perfect filtering. The ARTIS NEO furnace is protected against over-voltage by a system of active and passive filters. However, very high over-voltages may interfere with your programs.

As a precautionary measure, we recommend that you keep a record of your programs in the notebook provided for that purpose.

■ "WATCHDOG"

A separate circuit continually monitors microprocessor operation. In the event of a malfunction, it switches the unit to safeguard status.

OUTLET VOLTAGE VARIATION

Within a limit of ±20 volts, the furnace self-corrects the variation and maintains the same accuracy.

■ INTERRUPTION OF POWER SUPPLY

If the power supply is cut off, the cycle stops but will begin again at the same point once the mains voltage is re-established.

Depending on the length of the interruption, the operator will decide whether to continue or cancel the cycle.

10. VACUUM UNITS CONVERSION TABLE

% vacuum	mm Hg	in Hg	mbar
0	0	0	0
5	38	1.49	50.663
10	76	2.99	101.33
15	114	4.48	151.99
20	152	5.98	202.65
25	190	7.48	253.31
30	228	8.97	303.98
35	266	10.47	354.64
40	304	11.96	405.3
45	342	13.46	455.96
50	380	14.96	506.63
55	418	16.45	557.29
60	456	17.95	607.95
65	494	19.44	658.61
70	532	20.94	709.28
75	570	22.44	759.94
80	608	23.93	810.6
85	646	25.43	861.26
90	684	26.92	911.93
95	722	28.42	962.59
99	752	29.60	1002.6
100	760	29.92	1013.3

CONVERSION FORMULA	EXAMPLE
P (% vacuum) = P (mm Hg) / 7.6	700 mm Hg / 7.6 ≈ 92%
P (% vacuum) = P (inch Hg) / 0.299	27 inch Hg / 0.299 ≈ 90.3%

11. TEMPERATURE UNITS CONVERSION

CONVERSION FORMULA	EXAMPLE
T (°C) = [T (°F) – 32]/ 1.8	(700°F – 32) / 1.8 = 371.11°C
T (°F) = T (°C) x 1.8 + 32	600°C x 1.8 + 32 = 1112°F

°C: degrees Celsius

°F: degrees Fahrenheit

