SAHARA - BAKING OVENS

Forced ventilation oven available in two models: with temperature control only (Sahara) and also with humidity control (Sahara Dry). They are designed to perform the following works:

1) Baking of the PCBs, according IPC-1601 standard, should be done at 105-125°C for 4-6 hours into a forced ventilation oven.
All our ovens are equipped with timer, programmable start-up, and countdown mode that is helpful to make sure you do the baking of PCBs only for 4-6 hours, avoiding the risk of an unnecessary oxidation of the printed board circuits.

2) Baking of SMD components according to J-STD-033 that specify three temperatures: 40°C, 90°C and 125°C.
To ensure <5% RH when baking at 40°C or 90°C is recommended the use of the Sahara Dry that are ovens equipped with humidity control. How long to bake depends on the moisture sensitive level and package type and body thickness. In the worst case is 79 days for 40°C baking, 10 days for 90°C baking and 96 hours for 125°C baking. Once baked MSDs have their Floor Life restored to the initial value. It's important to bake in ovens equipped with a programmable timer command like all the ovens in the Sahara line.

3) Thermal cycle.
All the Sahara ovens can execute thermal program (easy editable on a PC) useful for testing and for heating/cooling with settable temperature gradient

Technical specifications:

Outer body :	steel coated in epoxy anti-acid paint.
Inner structure:	in stainless steel AISI304
Heating elements:	not in contact with the internal chamber
Thermal insulation:	with natural mineral fibre
Internal grid shelves:	can be placed at different height
Ventilation opening:	with manual flow control
Temperature range:	+40 / +280°C
Display accuracy:	± 1 °C
Safety thermostat :	with visual alarm and manual reset

SAHARA OVENS

Oven with temperature control only

Temperature Control
Safety thermostat
Ventilation opening

Compliance with:
IPC-1601
Baking PCB

SAHARA DRY OVENS

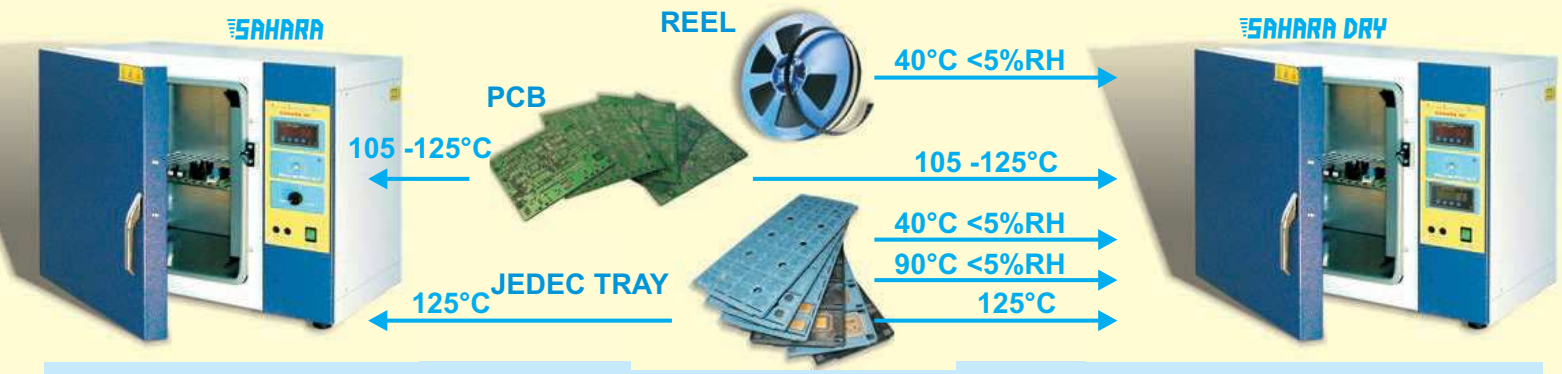
Oven with temperature control and humidity control (<5%RH)

Dehumidification at <5% RH is reached by blowing dry air.

The Sahara Dry ovens, unlike Sahara models, are equipped with a air-tightness improved internal chamber so as to keep the dry environment achieved without having to continually blow dry air.

Temperature Control
Safety thermostat
Humidity Control

Compliance with:
J-STD-033
Baking SMD
IPC-1601
Baking PCB



Temperature Control (Included both on Sahara and Sahara Dry models)

Temperature electronic control with PID regulator and multifunction timer.

Temperature Range: 40-280°C

Accuracy: ± 1.5 °C

Resolution: ± 1 °C

The digital controller has an internal clock with back-up that can keep the right clock for a week without power supply. This is useful to minimize the damage caused by any black-out when the oven is working in "Countdown", "Programmed start-up" or "Thermal programmer" mode.

The Sahara ovens can work in 4 modes:

1) SetPoint:
The oven reaches a setpoint temperature and stays steady.

2) Countdown:
It's like the SetPoint mode but with a time limit. After the countdown time is expired the oven stops.Time limit can be set from 1 minute to 999 hours and 59 minutes.

3) Programmed start-up:
It's useful when you want to start-up the oven on a precise date/time (for example at 6:30 on monday after the weekend the oven start-up to SetPoint 200°C)

4) Thermal programmer:
It's possible to edit on a PC and then download to the digital controller up to 10 programs with 100 steps each. In every step you can set: the temperature setpoint, the maximum gradient to reach it and the duration.

To set the thermal programmer it is necessary to have the 8107.215 option , comprehensive of the PidManager softwareand the special USB cable (see page on the right)

Humidity Control (Included on Sahara Dry models only)

Humidity electronic control

Humidity control:	<5% RH when 40°C ≤ T ≤100°C
Humidity range:	1-95%RH
Accuracy:	±2%RH (10%RH~90%RH) ±3%RH (1%RH~10%, 90%RH~95%)
Resolution:	± 0.1 %RH

It can work in 2 modes:

Fast: dehumidification occurs at the maximum possible speed.

Eco: dehumidification is proportional adjustment to optimize the consumption of compressed air. This mode is for a more rational use of compressed air, in fact, the low level of humidity is reached for subsequent cycles and not in a direct way.

The Sahara Dry Ovens must be fed with dry air from 3 to 8 atm.

? How much should be dry the air supply?

Normally, centralized systems of compressed air are already equipped with dehumidification system good enough to work properly with this humidity control.

For example, a compressed air system to 7 bar with a dew point of less than 3°C is usually sufficient.

? How much is the compressed air consumption?

The dry air is blown into the inner chamber very slowly and only when necessary.

Max consumption: 100 nl per minute

Average consumption: 30 nl per minute

? Can be used the nitrogen and what advantages there are?

Yes. The baking in inert environment reduces oxidation of the PCBs and SMD components..

SAHARA MODEL		Shelves (included/max)	Int. Dimensions (LxPxH)	Ext. Dimensions (LxPxH)	Power W	Weight kg
8107.103	Sahara 40 litre	1/7	348x312x367	686x515x575	800/230V	35
8107.105	Sahara 60 litre	2/7	408x372x422	746x570x605	1200/230V	40
8107.107	Sahara 80 litre	2/8	458x372x472	796x570x680	1200/230V	45
8107.109	Sahara 120 litre	2/9	498x477x512	836x680x720	1600/230V	50
8107.111	Sahara 250 litre	2/14	593x522x797	956x730x1025	3200/230V	90
8107.113	Sahara 400 litre (with wheels)	2/18	693x607x980	901x815x1487	3200/230V	140
8107.108	Sahara DRY 80 litre	2/8	458x372x472	796x570x680	1200/230V	45
8107.110	Sahara DRY120 litre	2/9	498x477x512	836x680x720	1600/230V	50
8107.112	Sahara DRY250 litre	2/14	593x522x797	956x730x1025	3200/230V	90

OPTIONS

8107.1xxW	Door with inspection window, 200x200mm
8107.1xxH	Lateral hole for cables, Ø 50mm

ACCESSORIES

8107.150	Additional shelf for Sahara 40 litre	(max. 7 shelves)
8107.152	Additional shelf for Sahara 60 litre	(max. 7 shelves)
8107.154	Additional shelf for Sahara and Sahara DRY 80 litre	(max. 8 shelves)
8107.156	Additional shelf for Sahara and Sahara DRY 120 litre	(max. 9 shelves)
8107.158	Additional shelf for Sahara and Sahara DRY 250 litre	(max. 14 shelves)
8107.160	Additional shelf for Sahara 400 litre	(max. 18 shelves)

DATALOGGER

All our ovens are equipped with a data logger for traceability and you can print/save graphs of temperature (for sahara ovens) and temperature/humidity (for Sahara DRY ovens)

To analyze the logged data and to set the thermal programmer is required the 8107.215 option which inlude the PidManager software and USB specific cable.

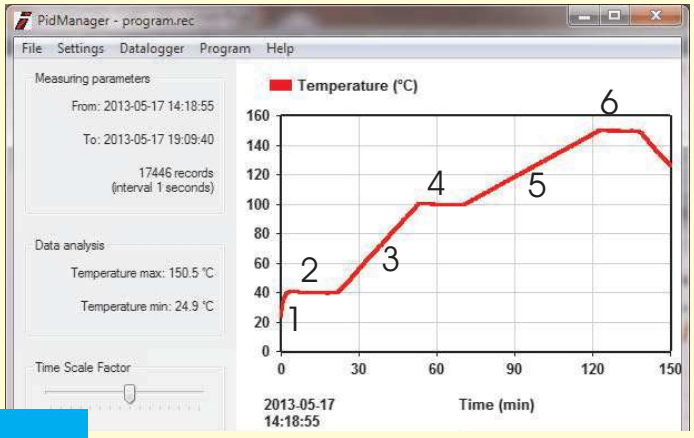
The software is compatible with Windows XP/7/8/10.

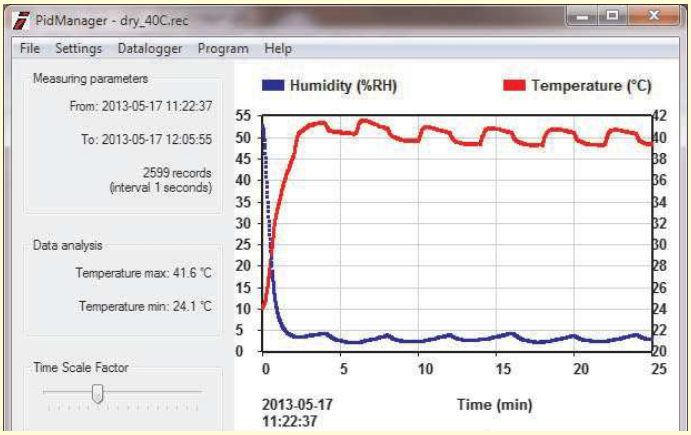
Sample rate:	1, 5, 10, 15,30 sec 1, 5, 10, 15, 30 min
Duration (T) Sahara	from 6 hour(1sec) to 450 day(30min)
Duration (T+RH%) Sahara Dry:	from 3 hour(1sec) to 225 day(30min)

8107.215	PIDManager software and specific USB cable to set the thermal programs and to download and view datalogger records

Thermal Program :

1 **SETPOINT 40°C / gradient MAX.**
2 **WAIT 20min @40°C**
3 **SETPOINT 100°C / GRADIENT<2°C/min**
4 **WAIT 20min @100°C**
5 **SETPOINT 150°C / GRADIENT<1°C/min**
6 **WAIT 20min @150°C**





SAHARA 80L Thermal Program

SAHARA DRY 80L 40°C <5% RH