

# LAB OVENS

 **Froilabo**



# LAB OVENS FOR A VARIETY OF APPLICATIONS

Froilabo offers a wide range of ovens to meet most laboratory applications. Ovens are used for drying, heating, resistance testing, and any other thermal tests or treatments requiring high precision and reliability.



Energy efficient with fast heat-up and temperature recovery on door opening.

Easy to set up and run programs



### Cost effective

Component standardization and heating power variation offer you an excellent price performance ratio without compromise on quality, security and accuracy.



### Perfect homogeneity

Temperature homogeneity is achieved using a convection fan which saves time during heat-up, even with a full load. Flat internal stainless steel walls and two door seals reduce heat conduction to the door.



### Energy efficient

Fast recovery time after door opening, low nominal power demands and high quality insulation contribute towards reduced operating costs.



### Smart Interface

With Air Scientific Ovens, Froilabo developed a new embedded software, easy to use for all applications.



### Sample safety

Your sample safety is assured due to alarm fittings and a hands-free door closing functionality.



### Quick close door

Fast sample retrieval and quick close oven doors, limiting the introduction of air into the chamber and preventing contamination of the remaining samples.



### Robust & durable

Froilabo's ovens are robust and durable due to their unique design and strong manufacturing materials. Thanks to their simple architecture and programmable regulators, they are easy to use.

# AS

## Air Scientific Range

User friendly and intuitive touch screen interface.

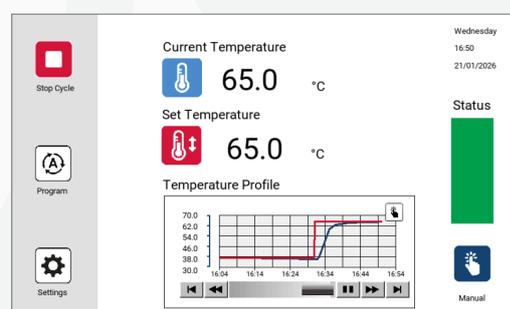
### Smart interface combined with all the well known benefits of Froilabo Ovens

User-friendly software enables efficient instrument control. Interface has been designed to easily set a program for all applications required.



#### BENEFITS OF THE AIR SCIENTIFIC RANGE (AS)

- Heating convection ensured by fan with no risk of conduction or radiation
- Visual and audible alarm
- Cable entry ports to enable validation and calibration of the oven
- Embedded and upgradeable software including manual mode and program mode
- Key information displayed in real-time: temperature value, set temperature value, real-time temperature profile
- Program settings : program name editing, step configuration including up to 16 different temperatures, ramp time, stabilization time, schedule program settings (start time, selected days, ...)
- USB port to export data, logs files
- 2 anti-tip stainless steel shelves included
- Individual quality control certificate
- Temperature range: ambient +10°C to +250°C (50°F to 482°F)
- Turbine ventilation ensuring stability and excellent temperature uniformity (<1°C at 158°C)
- Control by PT 100 ohm probe
- Supplied with INDUS option
- Chamber heating by convection, no risk of conduction or radiation (air inlet at temperature setpoint)
- Adjustable air entry (from 0 to 100%)
- Hands free door closing
- Adjustable over temperature security device Class II as defined in the European norm **NF EN61010-2-010** (equivalent to DIN3.1)
- Conforms to **EN60068-3-11**
- 24 month warranty



Example of the new Froilabo on-board software and touchscreen interface.



#### MODELS AVAILABLE

220-230V / 50Hz	60 L	120 L	240 L
Air Scientific, plain door	AS60INDUS	AS120INDUS	AS240INDUS

110V and 50-60Hz version available.



# AE

## Air Expert Range

### Speed, precision, and homogeneity with greater oven control

The Air Expert oven range has been developed to comply with all applications requiring speed, precision, and homogeneity. Additional functions allows for greater oven control.

Program the Air Expert to perform different temperature cycles.



#### BENEFITS OF THE AIR EXPERT RANGE (AE)

- Heating convection ensured by fan with no risk of conduction or radiation
- Visual and audible alarm
- Cable entry ports to enable validation and calibration of the oven
- Programmable controller with 16 settings to enable temperature cycle up to 8 temperatures and 3 different cycles
- RS485 port for data transfer. Optional software and cable to be ordered separately
- 2 anti-tip stainless steel shelves included
- Individual quality control certificate
- Temperature range: ambient +10°C to +250°C (50oF to 482oF)
- Turbine ventilation ensuring stability and excellent temperature uniformity (<1°C at 158°C)
- Control by PT 100 ohm probe
- PID logic regulator
- Timer : 99h 59min
- Chamber heating by convection, no risk of conduction or radiation (air inlet at temperature setpoint)
- Dual digital display of the oven setpoint & actual temperature (0.1° precision)
- Simplified control panel
- Adjustable air entry (from 0 to 100%)
- Hands free door closing
- Adjustable over temperature security device Class II as defined in the European normNF EN61010-2-010 (equivalent to DIN3.1)
- Conforms to EN60068-3-11
- 24 month warranty



#### INDUS FOR BETTER DRYING

All AE and AS ovens are supplied with an INDUS, an adjustment valve designed to evacuate humidity in a natural way.

#### BENEFITS OF THE INDUS

- Forced air extraction from the rear
- Standard on all 3 volumes
- Better drying with humidity exhaust
- Greater air renewal
- Extend lifespan of oven with reduced risk of corrosion



Air inlet duct (left) and inside view of the stainless steel door (right).



#### MODELS AVAILABLE

220-230V / 50Hz	60 L	120 L	240 L
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Air Expert, plain door

AE60INDUS AE120INDUS AE240INDUS

110V and 50-60Hz version available.



# AP LARGE VOLUME

## Air Performance 414 L and 714 L

### When you need the additional volume

The Air performance large volume range has been developed to comply with all applications requiring speed, precision and homogeneity.



#### APPLICATIONS

Our ovens are well adapted for drying, thermal tests and sterilization of large samples or many samples in one run, and the highly efficient fan will save you precious time.

Industry uses of our ovens include drying raw materials such as concrete, stone, carbon frame, and chemicals. In laboratories they are perfect for drying or sterilizing glass vessels or metallic tools that can not be sterilized by autoclaving.



#### BENEFITS OF THE AIR PERFORMANCE LARGE VOLUME RANGE

- Temperature range: ambient +10°C to +250°C (50°F to 482°F)
- Turbine ventilation ensuring stability and excellent temperature uniformity (<1°C at 158°C)
- Volumes of 414 and 714 Litres
- Control by PT 100 ohm probe
- PID self regulating and self-adaptive programmable controller
- Timer : 99h 59min
- Chamber heating by convection, no risk of conduction or radiation (air inlet at temperature setpoint)
- Dual digital display of the oven setpoint temperature & actual temperature (0.1°C precision)
- Simplified control panel
- Adjustable air entry (from 0 to 100%)
- Visual and audible alarm
- Hands free door closing
- Easy clean stainless steel inner chamber (flat surface, removable shelf holders)
- Conforms to **EN60068-3-11**
- Adjustable over temperature security device Class II as defined in the European norm **NF EN61010-2-010** (equivalent to DIN3.1)
- Individual quality control certificate
- 24 month warranty

Available in  
volumes of  
414 litres or  
714 litres



#### MODELS AVAILABLE

380V / 50Hz	414 L	714 L
Air Performance large volume	AP414	AP714
230V and 50Hz version available on model AP414.		



# OPTIONS & SPECIFICATION

## OPTIONS & CONFORMITIES

### OPTIONS LIST

Stainless steel wire shelf

Stainless steel shelf with anti-tilt safety

Reinforced stainless steel shelf with anti-tilt safety

Base with 4 casters (Diam: 80 mm, 2 with brakes, total H: 250 mm)

Stacking kit including 2 spacers, a key and an explanatory note

Data recovery software (RS485 cable to USB for PXR4 regulator)

Key door lock

16 segment programmable controller

4 casters (Diam: 80 mm, 2 with brakes)

Additional cable entry port 50 mm with sealing plug

Additional Pt 100 Ohms probe + DIN plug for recorder connection

PT 100 Ohms probe, delivered with 3 points COFRAC verification

Electronic recorder 1 way, continuous plot

Variable flow extractor from 0 to 200 m<sup>3</sup> / hour Ø 75 mm

External door with glass, Viewing door

### SUPPLIED WITH

1 shelf

1 power cord

User manual

### CERTIFICATION / CONFORMITIES

Equipment meets the specifications and CE compliant to

EN60068-3-11

2014/35/UE – Low voltage directive

2014/30/UE – EMC directive, Class A device

## SPECIFICATIONS

SPECIFICATIONS		AE60	AE120	AE240	AS60	AS120	AS240	AP414	AP714
Temperature Range		Amb +10°C to 250°C							
Temperature uniformity +/- (°C)*	at 70°C	0.7	0.6	0.7	0.7	0.6	0.7	0.8	0.8
	at 150°C	1.5	1.4	1.5	1.5	1.4	1.5	1.7	1.5
	at 250°C	5	5	5	5	5	5	4	4
Temperature stability (°C)		0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2
Time for temperature elevation (min)**	at 70°C	8	9	10	8	9	10	10	9
	at 150°C	20	30	24	20	30	24	30	26
	at 250°C	38	50	45	38	50	45	60	60
Recovery time after door opening of 30 secs (min)**	at 70°C	1.5	2	2	1.5	2	2	2	3
	at 150°C	2.5	3	3.5	2.5	3	3.5	5	8
	at 250°C	3.5	4	4.5	3.5	4	4.5	12	19

ELECTRICAL SPECIFICATIONS		AE60	AE120	AE240	AS60	AS120	AS240	AP414	AP714
IP rating		Front panel IP55							
Power supply		220-230V 50/60Hz 10A			220-230V 50/60Hz 10A			380V 50Hz 16A	
Power (W)		1000	1000	2000	1000	1000	2000	3100	4900

EXTERNAL DIMENSIONS		AE60	AE120	AE240	AS60	AS120	AS240	AP414	AP714
Length (mm)		526	626	626	530	630	630	1130	1130
Height (mm)		640	750	1230	740	850	1330	1170	1780
Depth (mm)		579.5	679.5	679.5	630	730	730	855	855
Exterior depth (mm)		26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5
Side clearance (mm)		100	100	100	100	100	100	100	100
Height (mm) stackable kit		30	30	30	30	30	30	-	-

INTERIOR DIMENSIONS		AE60	AE120	AE240	AS60	AS120	AS240	AP414	AP714
Actual volume (L)		58	118	230	58	118	230	414	735
Length (mm)		400	500	500	400	500	500	990	990
Height (mm)		390	500	980	390	500	980	760	1350
Depth (mm)		370	470	470	370	470	470	550	550
Shelves standard/max (AP)		2/6 (1/6)	2/10	2/18	2/6 (1/6)	2/10	2/18	2/10	2/10
Weight per shelf/total (kg)		20/50	20/70	20/90	20/50	20/70	20/90	35/90	35/90
Shelf dimensions L X D (mm)		380x320	480x430	480x430	380x320	480x430	480x430	480x430	480x430
Empty weight/Gross weight (kg)		39/53	53/69	79/97	39/53	53/69	79/97	200/235	230/265

\* Not including measurement uncertainties, FROILABO procedure : 9 points characterization according to NFX15-140 norm

\*\* 98% of the value

Testing at an ambient temperature of 25°C and a variation in the supply voltage of +/- 10%

## TECHCOMP GROUP

In addition to Froilabo, Techcomp Europe comprises of the following companies:



## Contact us

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