

## **Ventolab® Agro** 14-21 trays (6-10 racks) Experimental Plant & Crop dryer



**Ventolab® Agro** is our well proven small experimental dryer, addressed to Universities, Research Stations & Companies running drying experiments with different plants - crops in order to develop different drying schedules for different crops. It can follow precisely any required typical or experimental extreme drying process and assists operator in developing the most suitable drying regime for each crop.

**Ventolab® Agro** is a miniature of a big dryer equipped with the latest sophisticated drying controls. It is designed and manufactured in 2 sizes: with **14 trays & 21 trays** (or alternatively for tobacco, **6 racks & 10 racks**).

**Trays** are **Stainless steel** with grid in **AISI 304**.

Each tray's dimensions: 500 mm wide x 1230 mm long x 50 mm deep net, ~0,62 m<sup>2</sup>/tray, each one holding ~1- 15 kgs green weight depending on the crop to dry.

Trays can be overloaded up to ~ 20 cms high when drying plants with big leaf -branch volume.



**Ventolab® Agro** can be equipped alternatively with 6 -10 racks for drying big tobacco leaves & plants with big branches, stevia etc

It can be partially loaded and can dry crop either in its trays or racks or hanging strings (big leaf). It is designed to be shipped on truck or in container (a 20' container can take up to 4 Ventolabs).

**Ventolab® Agro** is **Indirect** fired, **Upflow**, **7 tiers** high, **1 row** wide, equipped with the **Vk 981(RH) Smart** drying control of the latest technology with **data transmission** & access through **Internet**,

a **fan with frequency** converter (inverter) regulating the air supply to the crop & an auto misting jet (optional) with solenoid valve control, in case of running tobacco leaf curing experiments with extended overcoloring stages.



Ventolab's **heat supply** can be **either** through:

- **Electric** Resistances 9 KW (**Ventolab Agro E**) or
- **Hot water** radiator (**Ventolab Agro HW**) if there is close by a hot water source (boiler).

### Technical Characteristics:

Fan : Vencon FS(T) 280 Centrifugal single inlet direct driven

Fan motor : 1 KW – 4 poles, 3 phase, 400 Volts-50 Hz.(standard).

Other Voltage available.

Variable Frequency Drive : type : LG iG5, 2 hp (400 V) 3 phase input- 3 phase output.



**Ventolab® Agro E** is an **Electric** dryer, equipped with Electric Resistances heating element.

It is the ideal experimental dryer in case of absence of hot water supply to run a Ventolab HW®.

Connect the dryer's electrical panel to your electrical 3 phase +Neutral + Ground supply.

**Ventolab® Agro E** is ready to run.

Heating element : Electrical resistances (3X3) total 9KW.



Ventolab	Surface	#	Green capacity max		Fan	El.Resistances	Size			Approx
			kgs / cycle				in meters			
			In trays	In racks			L	W	H	Weight
<b>Agro HW</b>	m <sup>2</sup>	of trays			Power KW	Power KW				Kgs
<b>14 T/6r</b>	~ 8,6	14	<b>210</b>	<b>300</b>	1	3x3 =9 KW	1,80	1,47	2,22	500
<b>21T/10r</b>	~13	21	<b>315</b>	<b>500</b>	1	3x3 =9 KW	2,30	1,47	2,22	570

## Ventolab ®Agro HW

is a **Hot water** dryer, equipped with a radiator (**fan coil**) with progressive 3way water valve.

It is the ideal experimental dryer in case of:

- a) several Ventolabs installed in one site where 1 boiler can supply with hot water all of them,
- b) absence of enough electrical power to run an Electric Ventolab E®.

Connect the dryer's two 3/4" pipes ( one supply & one return) to the two hot water lines from your hot water unit , connect the dryer's electrical panel to your electrical supply 3 phase ( or single 220V)+Neutral + Ground supply .  
**Ventolab ®Agro HW** is ready to run .

*Heating element* : Copper Aluminum Hot water radiator with 3 way progressive water valve .

*Hot water supply* : from customer's Hot water unit ( required heating capacity ~ 10.000 kcal/hr per dryer).

Ventolab Agro HW	Surface all trays m2	# of trays	Green capacity max		Fan Power KW	Required Boiler's Heating capacity Kcal/hr	Size			Approx Weight Kgs
			kgs / cycle				in meters			
			In trays	In racks			L	W	H	
<b>14 T /6r</b>	~ 8,6	14	<b>210</b>	<b>300</b>	1	10.000 kcal/hr	1,80	1,47	2,22	510
<b>21T /10r</b>	~13	21	<b>315</b>	<b>500</b>	1	10.000 kcal/hr	2,30	1,47	2,22	580

### NOTES:

-1 hot water boiler can supply hot water to more than 1 Ventolab as long as it's heating capacity is enough.

- Mount a stainless steel (insulated )stack on your hot water unit's exhaust .  
Stack must end ~50 cms higher than Ventolab's roof.

- When Voltage is different than the standard European (220 V-50 Hz), the hot water boiler ( wall mounted Gas water heater etc ) should be purchased from the local market meeting the country's electrical specs .

### Hot Water Units

The dryer can be supplied with hot water from customer's

- hot water unit (hot water gas heater)

installed:

- either on the side of the dryer  
( wall mounted gas water heater)
- or close by in a cabinet,
- or from the house's hot water boiler  
firing the **locally available fuel**.



the wall mounted units

**Natural gas or LP Gas** is usually fired in with atmospheric burners or in water boilers with pressure burners

**Diesel oil** is fired in boilers with pressure burners

**Agropellets** are fired in boilers

either with the latest pressure pellet burners

or with underfeed stockers

**Biomass**( kernel – woodchips etc) is fired in boilers with underfeed or chain stockers.



**Ventobacco®**  
 “Smart” Drying control  
**VK 981(RH)**  
 2014 s.version -2.01

**General Info**



**:VK 981 SMART CONTROLS** are available in 2 versions :

- our classic **VK 981(A)** & our latest **VK 981(RH)**.
- An **RH % interface** is also available to retrofit the older VK 981(A) and Honeywell W.B. controls from WB sensors with **wet wick** to **dry RH% sensors**.

**Controls operate both on degrees C and F .**

**Burner control (Heat Control) :**

Both versions control Heat (Dry.Bulb temp. ,Dry.Bulb.Temperature Advance and  $\Delta T$  ( D.B. temp.difference between top & bottom of the dryer)) through 2 dry D.B. temperature sensors ,one placed under the lower crop mass and the other above the upper crop mass in the dryer.

VK 981(RH) has a progressive(analog) port too ( besides the on –off relay) to progressively control the operation of a hot water valve or progressive burner.

**Fresh air intake damper Control (Ventilation control):**

Damper operation ( speed of moisture removal )is controlled by a progressive (analog) 24 V servomotor taking order from: either a **Dry Relative humidity sensor** or the classic **Wet bulb sensor** with wet wick dipped in water tube.

- **VK 981 (A)** version controls damper’s operation and displays W.B temp **with a Wet bulb sensor**.
- **VK 981(RH)** version controls the damper’s operation **with either the classic Wet bulb** with wet wick & water bottle **or our latest electronic dry Relative humidity sensor** displaying both **W.B. temperature and RH%**
- **VV RH% interface** is designed to retrofit the VK 981(A)( & Honeywell )controls which are measuring Wet bulb temperature with a wet wick sensor **to dry Relative humidity sensor .**

• **Relative Humidity % dry sensor**

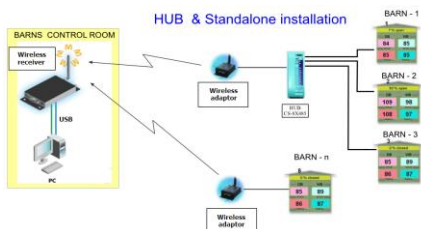
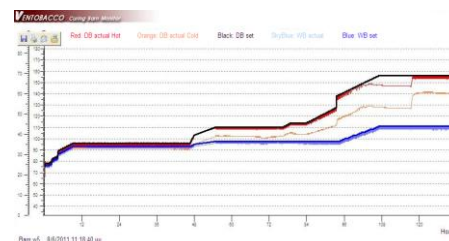
**VV RH % sensor** used on the **VK 981(RH) & RH% interface** is a state of the art reliable & accurate humidity sensor with ~2 % accuracy and a condensation filter built in, resisting temperatures up to 185°F .

- **VK 981 (RH)** version includes the possibility of introducing drying hold points wherever operator wishes.

• **Data Monitoring**

Both versions are equipped with a data port allowing data transfer either through wires or wirelessly to a PC.

Drying data and graphs can be printed and stored for future access.



Drying process can be accessed through smart phone , through *Internet* from any place in the world.

Operator can be alerted with *emails* &*sms* messages about any drying alert he wishes.

**For detailed information on remote setup & monitoring consult our Ventomonitor 15™ quick guide .**