



## **Functional Specifications Phase Closure Drying Oven.**

### **Description of the Oven**

The automatic vacuum drying oven consists of a round chamber with doors on either end that house three usable stainless steel shelves and one non-usable stainless steel radiation shelf. The shelves are supported by a stainless steel plate which serves to direct the air flow over each of the shelves. The exposed edges of the shelves are rounded to provide easy cleaning. Stainless steel radiation baffles in the back and on the front door of the oven serve also to direct the flow of air across the shelves. The stainless steel used in this portion of the oven is 316L and has a finish of 0.5 $\mu$ m. On a panel just below the lowest shelf are located ten (10) female connections for RTD sensors to be used to measure temperatures during validation of the oven and the drying process.

The temperature of the oven is controlled by the temperature of the gas coming from a heat transfer system. The main component of the heat transfer system consists of a manifold. The manifold contains a stainless steel fan, a stainless steel finned heater and a high temperature HEPA filter housed in a stainless steel frame. Gas from the HEPA filter can flow to the inlet stainless steel piping which connects to the oven chamber or to a dry vacuum pump. The direction of the gas flow is directed by two pneumatic stainless steel valves. Gas to the heat transfer manifold stems from a second stainless steel outlet piping which also contains a stainless steel pneumatic valve. All piping in this segment of the oven is fabricated from 304 stainless steel.



	Alarms
	Input batch data
	Data in graphic and tabular form
Graphic recorder	Real time data display
Data Export	USB thumb drive
Total Weight	450 kg
Dimensions:	825 x 1320 x 2032 (mm) (width, length, height)
Air Changes in Oven	20 air changes per hours.
Operating Environment:	Ambient Temperature - 0 °C to 50 °C Storage Temperature -40 °C to 71 °C Humidity <75% @ <40 C
Power:	240 VAC (50Hz)      2500 watts
Air Supply	90 psi
Warranty:	One year (extended warranty available)
<b><u>Suggested Spare Parts</u></b>	Desiccator Unit Pall Cartridge Filter HEPA Filter (ambient temperature) HEPA Filter (high temperature) Finned Heater Recorder Paper Pneumatic Valve

**Class B Oven Environment**

The oven is maintained at all times in a Class B environment by the air passing through HEPA filters during intake, circulation and evacuation. The air exhausted from outer chamber will be Class B by passing through a HEPA filter.

The high temperature and ambient HEPA filters are rated at a minimum efficiency 99.97% for 0.3 micron particles.

Make-up air and vent air for the oven is pre-filtered by a Pall PTFE membrane with a particle rating 0.003  $\mu\text{m}$  before passing through a HEPA filter.

A Class V environment is maintained in the oven by placing it in a Stand-By mode that will ensure the oven remains at Class B even if the classification of the surrounding environment changes.

All filters are readily accessible for validation and replacement.