



NADCAP AMS2750E Ovens



NADCAP Introduction

Genlab have been supporting Aerospace and Defence industries with our range of NADCAP (National Aerospace and Defense Contractors Accreditation Program) ovens since its launch in 1990. Working closely with blue chip companies such as Rolls Royce, Leonardo and GKN, we have a wealth of experience to lead this market with innovative designs. Partnering with leading AMS instrumentation manufacturer, Eurotherm, our range of NADCAP ovens can be designed in any of our standard ranges, but tailored to your NADCAP requirements.

We take pride in understanding the requirements of our customers and we offer a range of NADCAP ovens from basic class E designs through to class A with unique features to lower on going calibration costs associated with NADCAP requirements. Our ovens have been designed with a team of expert thermal engineers who have a wealth of experience in the calibration and servicing of ovens.

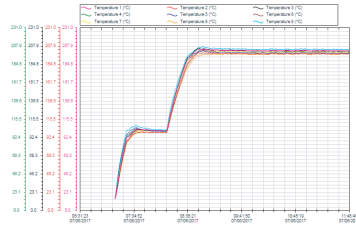
Genlab Options

- Exterior mounted sensor pockets for SAT
- Break in calibration points for calibrations
- Internal high temp banks for load sensors
- Floorless, insulated floor, channeled floor, reinforced floors
- Explosion relief panels
- Choice of powder coated mild steel or stainless steel
- Choice of any colours to suit your corporate image.
- Fan speed control and selectable motor sizes
- Approved safety interlocks and safety shut down systems
- Choice of control panel position or remote monitoring
- Manual, high speed automatic, top opening and pneumatic door mechanisms
- Power ratings and voltages tailored to your process
- Bespoke ventilation systems
- Bespoke shelving and internal oven fabrications
- Timer and profiler options for batch control and recording
- Closed loop, manual, cascade or PLC controlled systems
- Full range of communications.

Oven/Furnace Classification

The first stage of specifying a new NADCAP oven is to decide on the classification. There are 6 stages of classification depending in the maximum temperature uniformity allowed as shown below. This defined area if the working area of your oven and not the internal volume of the oven. Many clients allow at least a 50mm gap from the oven walls on Class 1 designs, the working area may be ½ the volume of the oven.

- Class 1 +/- 3 °C
- Class 2 +/- 6 °C
- Class 3 +/- 8 °C
- Class 4 +/- 10 °C
- Class 5 +/- 14 °C
- Class 6 +/- 28 °C



All of Genlab NADCAP ovens come with a UKAS traceable Temperature Uniformity Survey, at your requested temperature range, to confirm the oven class. On ovens less than 6.3 m³, a 9 point survey is required, larger ovens require a 14 point survey.

Instrumentation Type

The second stage of specification is to decide on which instrument class you are looking for. Within each zone specified, a thermocouple is installed. Class E does not require any trending, class D to A required a permanent chart recorder and class B to A also require trending via a load sensor.

Instrument Type	Control	Controller Recorded	Overtemp Recorded	Hot Recorded	Cold Recorded	Load Recorded
A	Y	Y	Y	Y	Y	Y
B	Y	Y	Y			Y
C	Y	Y	Y	Y	Y	
D	Y	Y	Y			
E	Y					



All of Genlab NADCAP ovens come with a traceable UKAS certificate for each zone.



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System Accuracy Test

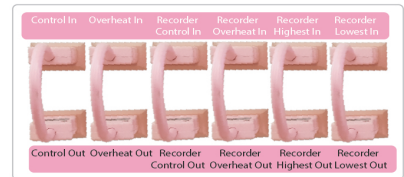
NADCAP ovens require continuous calibrations after installation. In selecting the most appropriate instrument class, please note that the frequency of System Accuracy Test frequency is effected. SAT is performed to assess the accuracy of the complete measurement system of each zone. This is done by placing an independent calibrated thermocouple less than 75mm away from the sensor under test and ensuring it is within the specification table below.

Furnace Class	Temp. Uniformity	Minimum Instrument Type	Normal SAT Interval	Max. Allowable SAT Interval	Max. SAT Difference		Max. Permitted Adjustment (Offset)	
	°C				°C	% of reading	°C	% of reading
1	±3	D	Weekly	Weekly	±1.1	0.2	±1.5	-
		B,C	Weekly	Biweekly				
		A	Biweekly	Monthly				
2	±6	D	Weekly	Weekly	±1.7	0.3	±3	-
		B,C	Biweekly	Monthly				
		A	Monthly	Quarterly				
4	±10	D	Biweekly	Monthly	±2.2	0.4	±6	0.38
		B,C	Monthly	Quarterly				
		A	Quarterly	6 Monthly				

To reduce future calibration costs for SAT, Genlab have developed a special temperature sensor that allows quick access from the exterior of the oven to each internal location. This option allows your calibration engineer to gain excess to each zone whilst the oven is running to do their SAT, allowing for a much quicker test.

Future Calibrations

Calibrations are performed regular to ensure the process instruments are providing a true reading (within limits)



to the actual temperature being measured. A calibrated field instrument with to a higher level of accuracy is used to inject signals into the Process instruments.

Genlab NADCAP ovens can be designed with sensor break in panels so future calibrations can be done without having to disassemble the oven. Each temperature loop is calibrated at 3 points using UKAS calibrated equipment on manufacture, however, the unique sensor break in panels offer quicker calibration routines for future calibrations.