



**Scame fornì industriali S.p.A.**  
 Azienda certificata EN ISO 9001-2008 Kiwa KI-049792  
 Via E. Fermi, 27 Z.I. Ramera  
 31010 MARENO DI PIAVE (TV)  
 Tel: +39 0438 308880 Fax: +39 0438 308944  
 P. IVA IT01934140268  
 http: [www.scameforni.com](http://www.scameforni.com) Email:



## ADJUSTMENT PRESCRIPTIONS OF SCAME FURNACES TO NORMS AMS 2750 E / CQI9

For the heat treatment of high quality materials used in the aerospace and automotive industries, the adjustment of the heat treatment equipment to the following norms describing the fundamental thermic requisites is needed:

- AMS 2750 E ( Aerospace Material Specifications)
- CQI-9 applied to the manufacturing of the automotive components

These norms describe in details the controls and requisites needed by the thermic process and what parameters should be constantly kept under control.

The necessary controls are the following:

- ❖ Uniformity inside the usable working chamber (TUS)
- ❖ Use of the control device (adjustment and measurement)
- ❖ Calibration certificate of the thermocouple chain o the thermoregulator (IT)
- ❖ Check of the system precision (SAT)
- ❖ Storage and print of the control documentation

By abiding by the requisites of the norms it is possible to have a constant and repeatable series production and have an historic archive that always allows to search for the data-related production.

Uniformity, used instrumentation and frequency of the tests are governed by the type of production and class of the furnace.

Depending on the required quality of the part to be produced, the uniformity class of the furnace and the instrumentation determining the composition of the adjustment and control system of the heat treatment are determined by the customer. The more the requisites determining the class of the furnace, the more precise the instrumentation have to be. In the case of conveyor belt continuous furnaces, besides the control of the thermic system, it is advisable to control the process both from the thermic standpoint and from the protective atmosphere standpoint, as the transmission of heat also occurs through the controlled atmosphere.

Necessary instrumentation	Types					Furnace class	Temperature uniformity
	A	B	C	D	E		
One thermocouple connected to the device for each adjustment zone	X	X	X	X	X	1	+/- 3°C
registration of the temperature measured on the adjustment thermocouple	X	X	X	X		2	+/- 6°C
Thermocouples for the registration of the extremities	X		X			3	+/- 8°C
One registration thermocouple for each adjustment zone	X	X				4	+/- 10°C
One under/over temperature alarm for each adjustment zone	X	X	X	X		5	+/- 14°C
						6	+/- 24°C

### Tests

The heat treatment equipment and the furnace should be manufactured and engineered in order to always meet the requisites of the norm AMS 2750E and in a reproducible way.

Depending on the furnace class, the norms require the test intervals for the instrumentation:

- ❖ SAT System Accuracy Test

and the temperature uniformity:

- ❖ TUS Temperature Uniformity Survey

SAT and TUS tests should be carried out with different instrumentation from the one used for the adjustment.

It is advisable to always have the test chains (thermocouple, thermoregulator and compensating wire) yearly certified by a SIT calibration accredited board.

The following schematic shows the composition of the control system in compliance with the AMS 2750 E norms.

