

Easy and reliable evaluation of heat-affected workplaces with the help of the WBGT kit from Testo.



Hot workplace in a foundry.

A human has differing levels of performance under different ambient conditions. If the body is influenced by heat, this can lead not only to decreased performance, but also to heat damage even after only a short exposure time. A heat-affected workplace is considered to be one in which an increase in body temperature is caused by the influenc-

ing factors of heat, physical work and clothing. In this case, the body is no longer able to maintain a constant body temperature using the body's own regulatory mechanisms. In order to be able to evaluate the length of time a person can remain at a health-hazardous workplace, the WBGT (Wet Bulb Globe Temperature) is recommended.



Hot workplace at a furnace in the glass industry.

The challenge

In particular at workplaces with considerable heat irradiation such as in the glass industry, in foundries, in road construction or in sports facilities, attention must be paid to ensure that the heat load does not exceed certain target values. Too long exposure otherwise presents the risk of heat damage such as circulatory collapse, seizures or heat stroke. In order to determine the maximum permissible exposure time at such workplaces, and to set load limits, air conditioning engineers, facility managers and work safety officers require a reliable, precise and ISO 7243 / DIN 33403-3 compliant method for determining the WGBT index.

The solution

With the WGBT kit, incl. globe thermometer, ambient temperature probe and wet bulb temperature probe, the Wet Bulb Globe Temperature, derived from three measurement values, can be precisely and reliably calculated with a low level of effort in buildings as well as in outdoor areas.

For the purpose of determining the wet bulb temperature tnw with a Pt100 probe, the thermometer bulb is enclosed in an absorbent stocking. For the measurement, the stock-

ing is completely moistened with distilled water. This must be ensured especially in the case of high heat irradiation. The wet bulb temperature tnw is different to the air temperature inasmuch as tnw is influenced by the natural air movement. The wet bulb temperature is lower than the ambient temperature due to evaporative cooling.

Additionally, the ambient/air temperature ta is measured with a second Pt100 probe.

The globe temperature tg , which indicates the radiant heat, is measured using a thermometer in the centre of a hollow, black sphere. If there is a great difference between the ambient/air temperature ta and the globe temperature tg , there is a high level of radiant heat – for example due to solar irradiation through a window.

The kit, which can be used in combination with the universal IAQ measuring instrument testo 400, is ideally suited to measurements in the steel and building industries, at sports events and at many other workplaces where people are exposed to high levels of heat radiation.

Components of the WBGT kit	Probe	Measuring range	Accuracy
 Incl. transport case and tripod.	 Globe thermometer Ø 150 mm (TC Type K)	0 to +120 °C	Class 1 ¹⁾
	 Ambient temperature probe (Pt100)	+10 to +60 °C	±(0.3 °C + 0.3 % of m.v.)
	 Wet bulb temperature probe (Pt100)	+5 to +40 °C	±(0.3 °C + 0.3 % of m.v.)

¹⁾ According to standard EN 60584-2, the accuracy of Class 1 refers to -40 to +1000°C (type K), of Class 2 to -40 to +1200°C (type K) and of Class 3 to -200 to +40°C (type K). A probe only ever complies with one accuracy class.

Our recommendation
WBGT kit + testo 400



Order no. 0618 7220 **Order no.** 0560 0400



Competition conditions in high-level sports.



Heat-affected workplace on a road construction site.