James Heal
Extraordinary Testing Solutions

TECH NOTE

General Requirements for James Heal Equipment

Studies have shown that temperature increases of 10°C (15°F) above 20°C (70°F) reduce long-term electronics reliability by 50 percent. The table below gives the temperature and humidity requirements for operating James Heal equipment.

Temperature and Humidity Requirements

Condition	Operating Requirement	Comments
Temperature	10° to 32° Celsius (59° to 90° Fahrenheit)	All equipment must be protected from frost (<5°C)
Relative humidity	10 to 90 percent relative humidity, non-condensing*	All equipment must be protected from liquid water and water vapour

The ambient temperature range of 20 to 23°C (68 to 74°F) is optimal for equipment reliability and operator comfort. Most equipment can operate in a wide temperature range, but near 20°C (68°F) is desirable because it is easier to maintain safe humidity levels. All equipment must be protected from frost and ingress of liquid water and water vapour.

Relative humidity (RH) is the percentage of the total water vapour that can exist in the air without condensing, and is inversely proportional to air temperature. Relative humidity goes down when the temperature rises, and goes up when the temperature drops. For example, air with a relative humidity of 45 percent at a temperature of 24°C (75°F) but has a relative humidity of 65 percent at a temperature of 18°C (64°F). As the temperature drops, *the relative humidity rises with the potential to form water droplets.

The ambient relative humidity range of 40 to 70 percent is suitable for most textile testing operations. However, most equipment can operate in a wide range of 20 to 80 percent.

Equipment for physical testing is designed for optimum operation in controlled environments specifically for testing, such as 20°C at 65% RH and 20°C at 50% RH, but the above paragraph also applies if used outside of these environments.

Note: Electrostatic discharge (ESD) is easily generated, and hard to dissipate in areas of low relative humidity, such as below 35 percent. ESD becomes critical when humidity drops below 30 percent. ESD can damage sensitive electronic components.

Dust Protection

If the equipment is located in a laboratory with a controlled environment and a positive pressure is maintained then the amount of external dust will be minimised. Clean the equipment as directed below after each use.

Equipment located outside a controlled environment should be wiped with a clean damp (not dripping wet) lint free cloth after use. This will also maintain the good appearance of the equipment. The use of a soft brush can also aid removal of dust, as will using a portable/hand-held vacuum cleaner. Dust covers are invaluable when the equipment is used infrequently.

Vibration

All equipment should be located away from any sensible vibration. Equipment such as Titan are particularly sensitive to external vibrations which can be picked up through the loadcell. Laboratories located in manufacturing environments can be subject to vibration from plant operating in the vicinity.