

LOW TEMPERATURE BRITTLINESS APPARATUS

The Ray-Ran **Low**

Temperature

Brittleness Tester

has been designed to study the effects low temperatures have on plastic materials when subject to impact loads and conforms to ASTM D746 and ISO R974 International Test Standards. Many materials which are flexible at normal ambient temperatures become brittle at low temperatures which severely affect the materials impact strength. By plotting the percentage failure rate of the test samples against the reduction in temperature, the brittleness temperature of the test samples can be determined.

The apparatus consists of a low temperature bath with electronic PID temperature controller and a PT100 platinum resistance thermometer accurate to 0.1°C which accurately controls the heating cycle of the test and records the temperature next to the test samples. Precise temperature control is readily achieved by means of a built-in heater which, in conjunction with controlled addition of refrigerant,



enables any temperature down to -70 °C to be readily attained and held. To ensure temperature stability within the bath during the cooling and heating cycle a stirrer motor system is also fitted to the apparatus. Suitable means should be used to ensure the liquid medium can be lowered to the test temperatures required, such as adding solid carbon dioxide (dry ice) to Methyl Alcohol.

The test procedure is very simple to conduct and a sufficient number of test specimens should be tested so the Brittleness Temperature can be calculated on a statistical basis. Test specimens are clamped in a stainless steel cantilever beam fixture which is immersed into the low temperature bath. The specimens are allowed to condition at a maintained temperature in the heat transfer medium and are then simultaneously subjected to a single blow given by a free falling pendulum impact hammer through the means of an intermediate striker at a constant velocity of 2.1 m/s. The samples are then removed and examined to determine whether failure has occurred. Temperatures are then increased or decreased to find the temperature at which 50% of the specimens fail. This is defined as the Brittleness Temperature.

TECHNICAL SPECIFICATION

- Low temperature brittleness determination
- Integrated low temperature bath
- PID electronic temp control
- Resolution 0.1°C
- PT100 PRT sensor accurate to 0.1°C
- Integrated stirrer motor
- Temperature range - 70°C to 100°C
- Stainless steel cantilever clamp
- Easy specimen removal
- Manual pendulum release
- Low friction bearing assembly
- Integrated specimen striker head
- Impact velocity 2.1 m/s
- Test sample cutting die
- Product user manual
- CE declaration certificate
- 1 year return to base warranty
- 110v 60Hz – 240v 50Hz
- 10 amp
- Product user manual
- CE declaration certificate
- 1 year return to base warranty
- Complies with: ISO 974 AND ASTM D746

OPTIONAL ANCILLARIES

- Specimen cutter Type A
- Specimen cutter Type B
- Specimen cutter Type C
- Specimen Clamps to ISO or ASTM test standard.

WEIGHTS & DIMENSIONS: RR/LTB

Net Weight (kg)	35
Width (cm)	60
Depth (cm)	25
Height (cm)	50