Compression

Compression Stress Relaxometer

The Wallace Compression Stress Relaxometer (WAC11) allows the operator to easily measure the Compression Stress Relaxation (CSR) characteristics of elastomers and rubber products (e.g. seals, O-rings) as required by the relevant standards.

CSR is a measure of the ability of an elastomer to seal efficiently when held in compression over time and in varying environmental conditions between two rigid faces. The stress at the interface between the elastomer and the rigid faces is important for efficient sealing and is a function of the modulus of the elastomer and the strain applied.

CSR is used by industries including aerospace, automotive and construction to understand the characteristics of elastomeric seals. Seals are used in numerous applications e.g. O-rings in pipe joints or seals in aero and automotive engines. For safety, warranty and product liability reasons, it is essential that these components, whilst under compression, operate without failure for many years.

Features

- **Accurate, repeatable and reproducible measurement**
- **Software allows the brakeforce data from a number of individual jigs to be collected and stored**
- **Discontinuous method, only one instrument for any number of jigs**
- **This WAC11 is backwards compatible with jigs used on previous models**
- **Compression force from 0N to a capacity of 2.2kN (500 lbf)**
- **Units of measurements mN, daN, N, kN, gf, kgf, ozf, lbf**
- **Alternative Load Cell range available**

Accessories

- Wallace supplies a range of both Shawbury-Wallace test jigs (with fixed or adjustable heights/compression percentages) as well as Wykeham Farrance test jigs.

Principle of Operation

The principle of the WAC11 is based on the electrical contact being made between the load cell and the head of the jig. The contact is only broken when the force applied to the Relaxometer marginally exceeds the counterforce exerted by the test sample. The Relaxometer features a ballscrew-driven motorised test frame and load cell designed to apply and measure the required force. At the start of the test cycle the measuring head moves quickly to the jig. At a pre-set position, the measuring head reduces the speed to allow the load cell to more accurately read the force. When the applied force just exceeds the counterforce, the results are displayed graphically and can be saved to a designated folder.

Test Procedure

The test sample is compressed by a known amount in a Wallace Test Jig. The resulting force, at the interface between the sample and the jig, is measured using the WAC11 Compression Stress Relaxometer. The WAC11 is easy to use with a simple onscreen operator interface, allowing the test to be initiated quickly and simply. The force is measured at periodic intervals defined by the relevant standards, and the results are displayed on the computer and stored.

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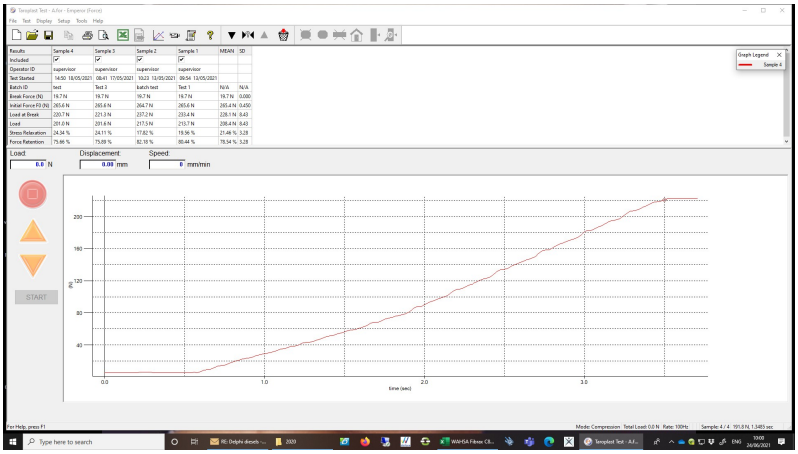
Wallace
www.wallaceinstruments.com

Software

The software allows the brakeforce data from a number of individual jigs to be collected and stored.

- **Windows based, easy-to-use software with almost limitless freedom to design and customise compression tests to suit your needs.**



Specifications

Compression Stress Relaxometer	
Part Number	WAC11
Dimensions	941mm (h) x 290mm (w) x 414mm (d)
Weight	22kg
Max. Power Requirements	250W
Voltage	230VAC 50Hz or 110VAC 60Hz
Available Load Cell Ranges	2 to 50,000 N 0.2 to 55,000 kgf 0.45 to 11,000 lbf
Load Cell Accuracy	±0.1% of full scale 2 to 2.5kN ±0.2% of full scale 5kN to 50kN
Load Cell Resolution	1:6,500
Speed Range	1-1000mm/min
Digital Display of Load/Position/Speed	Yes
Operating Temperature	10°C to 35°C
Humidity Range	Normal industry and laboratory conditions
Output of Test Results to PC/Printer/ Datalogger	Via USB/networks ports RS232 via USB converter in ASCII format

Standards

BS ISO 3384-1 Method B, BS ISO 3384-2 Method B, ASTM D6147 Method B