

Notice to Suppliers



Adoption of the International Standard Strain Rate for Tensile Testing

Originator: Laura Wilkinson
Job Title: Technical Programme Manager – R&T and Materials Testing
Business Unit: Materials Engineering

NTS Number: 534
Issue: 1
Date: 03 April 2021

For the attention of the Managing and/or Technical Director

Scope/Applicability:

All Rolls-Royce Civil Aerospace and Defence Suppliers

Dear Supply Partner,

Introduction:

Historically, Rolls-Royce has required a strain rate of 0.002min^{-1} for all tensile testing, enforced through RRMS 30020. This strain rate is a legacy of a superseded British Standard. It is no longer compatible with the current international standards for tensile testing required by RRMS30020, which call out a strain rate of 0.005min^{-1} , namely:

- ASTM E8/E8M and ASTM E21
- EN 2002-1 and EN 2002-2

Rolls-Royce has reviewed all available data for testing conducted at both strain rates and concluded that there is no significant impact on the measured tensile properties.

There is, however, a potential for a change in strain rate to affect Statistical Process Control (SPC) limits, due to an inherently higher scatter at slower strain rates.

Action Required:

For any tensile testing conducted on behalf of Rolls-Royce, Local Operating Procedures shall be updated to reflect the new nominal strain rate of 0.005min^{-1} , with the following exceptions:

- Where the Purchase Order or Rolls-Royce Specification specifies a different strain rate
- Where agreed by the Rolls-Royce Technical Authority and captured in an RSR (see NTS284)
- Where existing SPC limits are agreed with Rolls-Royce, based on a specific strain rate, the same strain rate may be maintained until such time that the SPC limits are redefined (see RRMS 30004)

Please cascade the content of this NTS to your sub-tiers, test laboratories, etc. as appropriate.

Upon receipt of this NTS, please contact the Originator (laura.wilkinson@rolls-royce.com) with:

- The strain rate historically used by your testing laboratory
- Any corrective action required
- Any exceptions required

NTS Category:

Engineering

Authorised by:

Elizabeth Williams-Duncan
Chief of Materials: Projects, Services and CA, Civil

Mary-Lee Gambone
Head of Materials Engineering, Defence