

Introduction to the Practical Design and Stress Analysis of Self-Piercing Rivet Joints

Booking Form

Date of Seminar	
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Introduction to the Practical Design and Stress Analysis of Self-Piercing Rivet Joints

One-Day Seminar:

Participants will learn:

- To become familiar with joint failure models and their association with joint geometry.
- The influence on the set SPR dimensional parameters that affect joint performance.
- SPR parameters for ACM2 and Impact.

Date	Venue
Monday 18th May 2015	Bletchley Park, Milton Keynes
Monday 15th June 2015	Manchester University, Crewe Campus, Crewe
Monday 27th June 2015	National Motorcycle Museum, Birmingham



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One-Day Seminar:



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It is important to minimise the total number of Self-Piercing Rivets (SPRs) in a product and to be able to predict the joint strength, mode of failure, SPR axial load for Lap or T-Peel joint failure and how to apply SPR for ACM2 analysis.

Joint design and selection using (SPR) technology usually involves a multi-disciplinary approach with engineers that include, CAD, Stress, Weight, Cost and Testing.

With the variety of (SPRs) available and the number of sheets and material types in a stack, it can be difficult and time consuming to select for static strength the appropriate SPR joint architecture that meets all discipline aspirations.

The understanding of dimensional parameters that affect the strength of the SPR joint and the failure modes is the key to make an effective SPR joint design.

Finite element analysis models do not always provide the most time and cost effective methods.

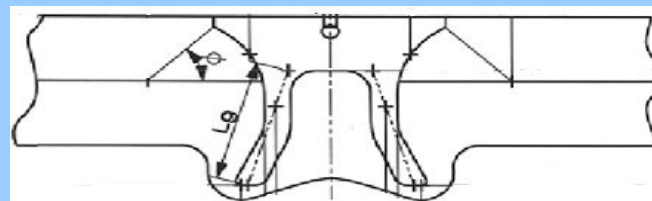
What will the seminar include?

- History, SPR Fastening process, SPR advantages, SPR vs spot welds, SPR applications
- SPR Lap Joints and SPR T-Peel Joints
- SPR Joint Failure Strength modes
- ACM2 Equivalent SPR diameter (Torsion stiffness).
- ACM2 Equivalent SPR+Bond thickness. (Torsion stiffness).
- Adhesive bonded Lap joints. Equal and Unequal thickness adherends.
- Combined SPR and Adhesively bonded lap Joints.
- Rivet axial load at SPR Joint failure (Lap or T-Peel)
- Adhesively bonded T-Peel Joint.
- Adhesive thickness in Joint.
- Dr. Sumanjit's research

Programme

- 09:00 Introduction and Refreshments
- 09:30 SPR Lap Joint strength, failure modes, axial load
- 10:30 Tea/Coffee biscuits break
- 10:45 SPR T-Peel Joints, failure strength, SPR axial load
- 12:30 Buffet Lunch
- 13:00 SPR for ACM2 analysis
- 14:45 Tea/Coffee Biscuits break
- 15:00 Hybrid SPR .
- 15:30 SPR combined with Adhesive Lap Joint
- 16:00 Adhesive T-Peel Joint
- 16:30 Workshop. Sample calculations done in MathCad and with **JSAMS** software
- 16:45 Course Review and Close

JSAMS are a set of software modules offering quick and easy methods to parametrically assess Joint strength of self-piercing rivet and/or combined adhesively bonded Lap and T-Peel joints under load. **JSAMS** is available on the website.



Who should attend?

The SPR course is ideally suitable for Students, Design, Stress, Weight, Cost Engineers and Managers who need to have an understanding of Lap and T-Peel joint strength and design using SPR that maybe combined with adhesive bond will find the contents of this presentation and workshop most helpful.

Seminar Leader

Dr. Warren Leigh has worked for various automotive companies including Jaguar, Bentley and Red Bull. He has supported research with the Austrian Research Council and with one of the early pioneers of the development of Self-Piercing Rivets, Dr. Sumanjit Singh. Dr. Leigh has 40 years engineering experience.

Other Courses

Other courses include:

- **Introduction to the Structural Certification of Aircraft Interiors.**
- **Introduction to Composite materials, Design, Stress analysis and Manufacture.**

Please enquire if you have interest in these courses.

Price

£450 per person including VAT (Refreshments and lunch included). Substitutions may be made at any time. Bookings cancelled less than 14 days prior to the event will be charged in full.

Enquires for Booking

To book a place at this event please complete the booking form overleaf or book online.

Book online: www.green-power.org.uk

Email: jurajet@yahoo.com

Telephone: 0044 (0) 7980 545231

