TECHNICAL SPECIFICATION

No. TS250™

MANUFACTURING, INSPECTION & QUALIFICATION REQUIREMENTS FOR

RIVET, BLIND, SELF-PLUGGING, FLUSH-BREAK, MECHANICALLY LOCKED STEM, CORROSION RESISTING STEEL, PLAIN & CADMIUM PLATED

AS64401™, AS64402™, AS64404™ & AS64405™ AS64401L™, AS64402L™, AS64404L™ & AS64405L™

An SAE International Affiliate

RATIONALE	
Second issue of Technical Specification. Specification updated to clarify testing sample plans & sheet take-up fixture. For full details of changes, refer to supplementary SAE ITC Amendment Record document TS250-AR.	
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SAE INDUSTRY TECHNOLOGIES CONSORTIA
AEROSPACE STANDARDS AND PART QUALIFICATION PROGRAM

FOREWORD

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1. SCOPE

1.1 This specification covers the technical requirements for SAE ITC AS series blind, corrosion-resisting steel rivets that are self-plugging & have a mechanically locked, flush break stem, in both the plain & Lock Creator versions.

2. MANUFACTURING REQUIREMENTS

2.1 Material

The material shall be as specified in the relevant SAE ITC AS standard.

2.2 Method of Manufacture

Bodies & stems shall be cold forged.

2.3 Dimensions

Bodies & stems shall be manufactured to the dimensions specified in the relevant SAE ITC AS standard.

2.4 Heat Treatment

Bodies & stems shall be heat treated to a sealed process to meet the performance requirements of this Technical Specification. The sealed process shall not be changed without the agreement of the SAE ITC TSC.

2.5 Surface Treatment

All surface treatments shall be as specified in the relevant SAE ITC AS standard.

2.6 Lubrication

To ensure proper function of the rivet it is permissible to lubricate. All lubricants used shall pass the Lubricant Coating Corrosion Test of Section 10 & shall not be changed without requalification as required by SAE ITC TS201.

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3. QUALIFICATION & INSPECTION REQUIREMENTS

3.1 Qualification

The Qualification procedure shall be as specified in SAE ITC TS202. For a summary of the tests required for qualification see Appendix-G, Table 13.

3.2 Qualification Authority

The Qualification Authority is the SAE ITC Technical Standards Committee.

3.3 Inspection

Clauses 3.4 to 3.7 detail the inspection procedures & requirements that shall be met during both qualification & production.

3.4 Batches

A batch shall consist of the output of a continuous production run of one size of component, from one cast of material, heat treated at one time, free from any interruption or changes such as might be expected to result in a significant variation in the quality of the finished product.

A batch of rivets shall consist of bodies from only one batch, & stems from only one batch.

For a summary of the tests required for batch release, see Appendix-G, Table 14.

3.5 Records

The manufacturer shall maintain batch records for a minimum of 5 years to show the results of the inspection & tests made to the requirements of this specification. The records shall show the batch quantity & the serial numbers of certificates covering acceptance of the material. The acceptance records shall be made available to the customer when required.

3.6 Dimensional Control during Manufacture

The manufacturer shall carry out dimensional checks during manufacture of each batch to a sampling plan in accordance with ISO2859 or ANSI / ASQC Z1.4, to ensure that the quality of the product satisfies the requirements of this Technical Specification.

3.7 Materials Heat Treatments & Surface Treatments

The manufacturer shall ensure that all materials, heat treatments & surface treatments comply with the relevant requirements & that material identity has been maintained throughout all stages of manufacture.

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3.8 **Production Tests**

In addition to the inspection requirements of clause 3.3, production testing shall be carried out by the manufacturer on every batch of rivets produced & shall consist of the following tests :

(a) Installation tests in accordance with Section 4.

(b) Metallographic inspection, in accordance with Section 9, shall be carried out at the start & finish of each production batch run.

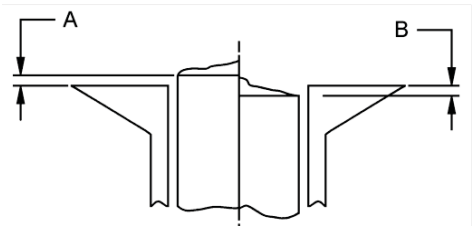
(c) Shear Tests & Tension Tests, in accordance with Sections 6 & 7 respectively, shall be carried out with sufficient frequency to ensure that the quality of the rivets is maintained.

4. INSTALLATION TESTS

From each batch of rivets sufficient samples shall be withdrawn to satisfy the requirements of the following clause :

4.1 **Stem Flushness**

Rivet samples representing both the minimum grip/maximum hole size & the maximum grip/minimum hole size shall be installed in test plates which comply with Appendix-A. The sampling frequency shall be in accordance with ISO2859 or ANSI / ASQC Z1.4, levelS-3, AQL=4. The incidence of split or cracked bodies shall not exceed 1.5% of batch quantity being tested. The lock shall form satisfactorily in the head of the rivet during the placing operation & shall be flush within the limits of Table 1.



The position of the stem shall lie within the dimensions shown. These apply to both flush & protruding head rivets.

Note : All stem dimensions refer to the intersection of the breaker groove & stem surface. No reference is made to the uneven break surface.

Figure 1

Code	Rivet Nominal Diameter		See Figure 1 Dimension 'A'		See Figure 1 Dimension 'B'	
	mm	ins	mm	ins	mm	ins
4	3,2	.125	0,13	.005	0,38	.015
5	4	.156	0	.000	0,51	.020
6	4,8	.190	0	.000	0,76	.030

Table 1 - Stem Flushness Limits

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