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Specification for Manufacture and Performance Testing of Quick Release Pins (Ball Type) Imperial (Inch Units)		

NOTE: The issue status of this document remains unchanged as there have been no changes to the technical content.

SAE INDUSTRY TECHNOLOGIES CONSORTIA AEROSPACE STANDARDS AND PART QUALIFICATION PROGRAM

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TECHNICAL SPECIFICATION

No. 221

SBAC SPECIFICATION FOR MANUFACTURE AND PERFORMANCE TESTING OF QUICK RELEASE PINS (BALL TYPE) IMPERIAL (INCH UNITS)

*Issued by: Technical Standards Group
The Society of British Aerospace Companies Ltd
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**SBAC Technical Specification TS 221
for Manufacture, Performance and Testing
of Quick Release Pins (Ball Type) IMPERIAL (Inch Units)**

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(Prepared by the Technical Standards Committee)
The Society of British Aerospace Companies Limited
Registered in England and Wales No. 143447

1. SCOPE

This specification covers the requirements for manufacture, testing and procurement of quick release pins (ball type) in Imperial-inch units required for use in aerospace applications.

2. ASSOCIATED DOCUMENTS

ISO2859-1 (BS6001)	-	Sampling procedure for inspection by attributes.
BS EN 10109	-	Method of Rockwell Hardness Test.
BE EN ISO 6507	-	Method for Vickers Hardness Test
BS M39	-	Penetrant inspection of aerospace materials and components.
BS 1134	-	Surface texture.
DEF STAN 07-55	-	Environmental testing.
MIL-STD-810	-	Environmental test methods and engineering guideline.
AS 64363 to AS 64365	-	Pins, quick release (ball type) single / double acting.
TS200	-	Qualified manufacturers for SBAC aerospace industry standards.
TS201	-	Method change approval for qualified parts.
TS202	-	Qualification test requirements and procedures for aerospace industry standard parts.

3. DEFINITIONS

3.1 Authorities

3.1.1 Design Authority

The design authority is the SBAC Technical Standards Committee (TSC).

3.1.2 Qualification Testing Authority

The qualification testing authority shall be the SBAC Technical Standards Committee or other nominated body approved by the TSC to carry out the testing.

3.1.3 Quality Assurance Authority

The quality assurance authority will be as agreed by the TSC. Generally this is the authority involved in the design activity requesting the use of parts approved to this specification.

3.2 Production Batch

A batch shall consist of quick release pins which are of the same type and diameter, fabricated by the same process from material of the same cast, heat-treated as one lot, and assembled as one continuous run free from any interruptions or changes such as might be expected to result in a significant variation in the quality of the finished product.

3.3 Inspection Lot

An inspection lot consists of quick release pins from a single production batch of the same part number which completely defines the lot.

3.4 Discontinuities

3.4.1 Crack

Rupture in the material which may extend in any direction and which may be intercrystalline or transcrystalline in character.

3.4.2 Seam

Open surface defect.

3.4.3 Lap

Surface defect caused by folding over metal fins or sharp corners and then rolling or forging them into the surface.

3.4.4 Inclusion

Non-metallic particles originating from the material making process. They may exist as discrete particles or strings of particles extending longitudinally.

3.5 Test Temperature

Ambient temperature, unless otherwise specified.

3.6 Simple Random Sampling

The taking of n items from a population of N items in such a way that all possible combinations of n items have the same probability of being chosen.

3.7 Critical Defect

A defect that is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon the considered product, or that is likely to prevent performance of the function of a major end item.

3.8 Major Defect

A defect other than critical, that is likely to result in a failure or to reduce materially the useability of the considered product for its intended purpose.

3.9 Minor Defect

A defect that is not likely to reduce materially the useability of the considered product for its intended purpose, or that is a departure from established specification having little bearing on the effective use or operation of this product.

3.10 Sampling Plan

A plan according to which one or more samples are taken in order to obtain information and possibility to reach a decision.

3.11 Limiting Quality LQ₁₀

In a sampling plan, a quality level which corresponds to a specified and relatively low probability of acceptance - in this case 10% probability of acceptance. It is the limiting lot quality characteristic that a lot of this quality would occur.

When expressed as a percent defective, it may be referred to as a lot tolerance percent defective.

3.12 Acceptable Quality Level

A quality level which in a sampling plan corresponds to a specified but relatively high probability of acceptance.

It is the maximum percent defective (or the maximum number of defects per hundred units) that, for purposes of sampling inspection, can be considered satisfactory as a process average.

3.13 Finished Item

A fully manufactured product ready for use, inclusive of any possible treatments and/or surface coatings, as specified on the relevant definition drawing.

4. QUALITY ASSURANCE

4.1 General

4.1.1 Material and Surface Treatment

- 4.1.1.1 The quick release pin manufacturer shall provide evidence to the quality assurance authority that the controls for the component material and surface treatment process complies with the relevant specifications, and shall also show that the identity of the product material has been maintained throughout all stages of manufacture.

4.1.2 Records

- 4.1.2.1 The manufacturer shall establish a batch record chart (or card) to the satisfaction of the quality assurance authority. The record shall show the batch quantity and the serial numbers of certificates covering approval of the material. The results of the inspections and tests made to the requirements of this specification shall be recorded and correlated with the batch numbers, and the batch chart (or card) shall show the serial numbers of those records to the satisfaction of the quality assurance authority.

4.1.3 Dimensional Control during Manufacture

- 4.1.3.1 The manufacturer shall satisfy the quality assurance authority that the frequency and results of inspections made at each operation during manufacture of each part are adequate.