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The collection, evaluation and analysis of the data were originally carried out at British Aerospace, Woodford and are now carried out by Mr A.P. Johnson. The work was initially funded by a United Kingdom Government contract and, since January 1986, has been funded by ESDU International plc. The Handbook was Ministry of Defence Standard (Def Stan) 00-932 until August 1999 at which time, due to changes in the role of the Ministry of Defence in providing such standards, the Def Stan status was removed and the Handbook was renamed 'ESDU 00932, The Metallic Materials Data Handbook'.

Although this Handbook is intended primarily for use in aerospace applications, both military and civil, it is expected to be of use in a wide range of other applications. United Kingdom Government contracts that involve the use of aerospace materials will not normally refer directly to this Handbook because it does not state design requirements. However, where such a contract calls up the Design Requirements of Ministry of Defence Standard 00-970² or 08-5³, the Handbook will be referenced, where appropriate, with a statement that the Handbook provides information that may be of assistance in the selection of metallic materials. Where the data employed in the analysis of values quoted in this Handbook were provided under a UK Government contract the contract report carries Crown Copyright. The Controller of Her Majesty's Stationery Office granted permission for ESDU to use such data.

The Metallic Materials Data Handbook covers aluminium alloys, copper alloys, heat resisting alloys, magnesium alloys, titanium alloys, corrosion and non-corrosion resisting steels (to EN, DTD, L, S, T, TA, HR, HC, and B specifications).

The data presented in this Handbook have been obtained through an extensive collection and evaluation exercise. Sections 1 to 5 give the details of the presentation of the data, their statistical basis and interpretation, particularly with respect to airworthiness requirements, together with the standards of testing demanded. A full understanding of these five sections is necessary if proper use is to be made of the data provided in subsequent sections.

Sections 6 to 12 provide individual Data Sheets for each material specification. Each section deals with a well-defined material group. The Handbook contains Data Sheets covering a wide range of materials in common use in the aerospace industry. Although a number of these materials have now been superseded or declared 'Obsolescent', the Data Sheets will be retained in the Handbook to support existing designs. The designer selecting materials for new design is recommended to select materials listed in the SBAC Technical Specification TS95. Within each section the Data Sheets are placed in alphanumerical order. (This ignores the prefixed specification issue numbers where they exist.) The format of the Data Sheets is standardized as much as possible. However, the wide range of materials and forms has necessitated many minor variations in presentation, all of which must be interpreted in strict accordance with Sections 1 to 5. All the dimensional values provided throughout the Handbook use SI Units. A list of factors for conversion from the British System of units is provided at the front of Volume 1. For some materials some of the properties for different forms of the same material are identical. In these cases the properties are given on one Data Sheet which is referenced in the section headed 'Additional data' on Page 2 of the Data Sheets relating to other forms of the material.

A Location Schedule and List precede each of Sections 6 to 12 inclusive. This is provided to assist the rapid location within the section of material of the desired form and condition. A complete alphanumerical listing of all specifications for which Data Sheets are provided is given at the front of each volume.

As new data become available the Data Sheets will be extended or amended accordingly and reissued. Upon reissue of a Data Sheet, it is recommended that the old issue be removed

² Previously AvP 970

³ Previously AvP 32

from this Handbook, clearly marked 'Superseded', and filed elsewhere. This will keep the Handbook up to date and provide an archival record to support calculation files.

15 Volumes

Gives allowable and specification values for:

- tensile strength
- 0.1% and 0.2% proof stresses
- elastic moduli, Poisson's ratio, elongation
- torsional proof stress, pin shear stress
- bearing proof and ultimate stress
- fracture toughness, charpy or izod values
- temperature effects on proof stresses & moduli
- density, thermal & electrical conductivity, specific heat capacity
- coefficient of expansion, fatigue S/N data, creep data
- ratings for weldability, corrosion resistance, stress corrosion cracking and exfoliation corrosion

The Metallic Materials Data Handbook is recommended by the UK MOD as *the* source for reliable metallic materials data for UK and European specifications materials for use in aerospace design.

It is applicable to aerospace manufacturers and designers worldwide. It also is of interest to Formula One designers and engineers.

The database is available on the Internet! Another electronic version on CD-ROM is in the form of a Microsoft Access database with a user-friendly interface which will facilitate the search for, and retrieval of, specific materials data.

The database and its content is fully searchable. Easier to search and retrieve the information the engineer needs. The engineer can retrieve information by listing either (a) requirements of the design (b) or, by metallic material.

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