

de Havilland Inc.

Material Specification

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| TITLE: | ALUMINUM ALLOY EXTRUSION, D54S |
| SPECIFICATION NUMBER: | DHMS M2.10 |
| ISSUE: | Original |
| AMENDMENT: | 1-1 |
| DATE: | November 9, 1964 |
| PAGE: | 1 of 5 |

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Prepared by:

SIGNED ORIGINAL ON FILE

C.M. Andrews
Materials Technology

Approved by:

D.S. Binnington

P.D. Hedgecock

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1 SCOPE

This specification covers the requirements for 5083 Aluminum Alloy Extrusion.

2 INTRODUCTION

The clauses of this specification are written under the following headings:

| <u>Title</u> | <u>Section</u> |
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3 APPLICABLE SPECIFICATIONS

3.1 Standards

Federal Standard 184
Federal Test Standard Number 151

4 REQUIREMENTS

4.1 Composition

5083 Aluminum Alloy Extrusion shall be composed of the following elements in percent by weight:

| | |
|-----------------------|-------------|
| Magnesium | 4.0 - 4.9 |
| Manganese | 0.30 - 1.0 |
| Iron | 0.40 |
| Chromium | 0.05 - 0.25 |
| Silicon | 0.40 |
| Copper | 0.10 |
| Zinc | 0.25 |
| Titanium | 0.15 |
| Other Elements, Each | 0.05 |
| Other Elements, Total | 0.15 |
| Aluminum | Remainder |

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NOTE: Except where a range is shown, the percentages are maximum values.

4.1.1 The subcontractor shall furnish an analysis of each lot showing the percentage of each of the elements shown above, or a certified report stating that the product conforms to the requirements of 4.1.

4.1.2 Analysis shall be made regularly only for the elements specifically mentioned above. If, however, the presence of other elements is indicated in the course of routine analysis, further analysis shall be made to determine that these other elements are not present in excess of the limits specified herein.

4.2 Condition

The material shall be available in the H111 tempered condition.

4.3 Mechanical Properties

The mechanical properties in the direction of extrusion shall be as follows:

| | |
|--------------------|-------------|
| Ultimate Ten. Stg. | 40 ksi min |
| Yield Strength | 24 ksi min. |
| Elongation (%) | 12 min. |

4.4 Tolerances

4.4.1 The tolerances of this material shall be as negotiated between De Havilland Aircraft of Canada and the supplier, as shown on applicable drawings.

4.5 Workmanship

4.5.1 The material shall be uniform in quality and condition, clean, sound and free from foreign materials and from internal and external defects detrimental to fabrication or to performance of parts.

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5 IDENTIFICATION

- 5.1 Unless otherwise specified each shape shall be marked in accordance with Federal Standard 184. The number of this specification D.H.M.S. M2.10 and the lot number shall be spot marked on each piece. The marking shall be clearly legible and shall be applied to the material by suitable marking fluid, which cannot be obliterated by normal handling, at intervals of not more than 15-18" between each repeated series. These markings shall be capable of being removed by solvent wiping or vapour degreasing. Where it is not practicable to mark as specified above because of size or shape of the material, oil proof cloth or metal tags marked by ink and impression stamping respectively and showing the above information shall be securely fastened to each bundle.

6 TESTING

- 6.1 Tensile test specimens shall be taken from each lot and tested in compliance with the requirements of Federal Test Standard Number 151. Whenever practicable, the material shall be tested in full section. For material less than 1/2 inch in section thickness and of suitable width, which is not tested in full section, a test specimen of type 5 shall be used. For material 1/2 inch or more in section thickness, which is not tested in full section, a test specimen of type 1 or 4 shall be used. For shapes from which a standard test specimen cannot be taken and which cannot be tested satisfactorily in full section, a strip taken from the section shall be tested. Test specimens shall meet the requirements laid down in Section 4.3.

7 PACKAGING

- 7.1 Unless otherwise specified, material shall be preserved and packed in substantial commercial containers of the type, size and kind commonly used for the purpose in such a manner as to ensure acceptance by carrier for transportation and to afford maximum protection from normal hazards of transportation and handling.

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8 ORDERING DATA

8.1 Procurement documents should specify the following:

- Title, number and issue of this specification
- Temper
- Die number and length

9 REJECTIONS

9.1 Material not conforming to this specification or to authorized modifications will be subject to rejection.