de Havilland Inc.

Material Specification

TITLE:	**DOUBLE BRAIDED DACRON CORD**
SPECIFICATION NUMBER:	**DHMS P 1.10**
ISSUE:	**B**
AMENDMENT:	**1**
DATE:	**JULY 15, 1997**
PAGE:	**1 of 7**

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DOUBLE BRAIDED DACRON CORD

REVISION RECORD

Issue	Page	Description and Reason for Change
A		This is a complete revised issue. Detail changes have not been noted.
B		This is a complete revised issue. Detail changes have not been noted.
Amd. 1	7	QPL: supplier's address has been changed.

1 SCOPE

This specification covers hi-tensile Dacron (polyester fiber) double braided cord to be used as a flexible, non-stretching, non-shrinkable cord for aircraft applications.

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. In the event of conflicting requirements between this and the specifications listed below, the requirements of this specification shall govern. Where a specific issue of a document is not specified, the current issue shall be used.

Federal Standard No. 191 - Textile Test Methods

3 REQUIREMENTS

3.1 Materials

The Dacron yarn shall be a high tensile commercial type and twisted from commercial and nominal deniers specified in **Table 1**.

Finished double braided cord shall have a nominal diameter of 0.110"± 0.010"

Table 1: Construction of Double Braided Dacron Cord

Core Braid	16 strands 1300 denier hi-tensile Dacron. 7 picks per inch, corded braid (yarn runs in pairs).
Sheath Braid	16 strands 1300 denier hi-tensile Dacron. 20 picks per inch, standard braid separate strands.
Colour	White

3.2 Mechanical Properties

The cord shall be tested in accordance with Method 6016 of Federal Standard 191 for breaking strength and elongation. The average of six samples shall meet the requirements of **Table 2**.

Table 2: Mechanical Properties of Dacron Yarn

Breaking Strength	155 lb. min.
Elongation under 10 lb. load	0.5% max.

3.3 Physical Properties

3.3.1 Workmanship

Unless otherwise specified, the outer braded sheath shall be a snug fit around the braided core.

The finished cord shall be clean and evenly braided, and free from internal or external imperfections that would be detrimental to fabrication or performance.

3.3.2 Visual Examination

Defects with regard to winding shall be considered to exist if any of the following are determined during inspection:

(a) Cord that is improperly or not firmly wound, resulting in kinking, knotting, entanglement or slippage during unwinding or anything affecting the free unhampered unwinding of the cord

(b) Knots or other discontinuities

(c) Cord not in a continuous length

(d) Put-up not as specified

(e) Any end not heat sealed.

4 QUALITY ASSURANCE

4.1 Qualification

4.1.1 A supplier is responsible for the performance of all qualification testing, as specified in **Table 3** of this specification.

4.1.2 A supplier desiring qualification shall submit one copy of a report showing actual qualification test data and a sufficient quantity of product for de Havilland evaluation tests.

4.1.3 Upon review of supplier's data and de Havilland tests, the supplier will be advised either of product qualification or reasons for disqualification.

4.1.4 Products that are qualified will be listed in the Qualified Products List of this specification.

4.1.5 No changes in the method of manufacture and/or formulation shall be made without notification and prior written approval of Materials Technology and Quality Assurance Departments of de Havilland Inc.

4.1.6 Requalification of the product may be requested by the purchaser if there are any changes in the method of manufacture and/or formulation.

4.2 Qualification by Similarity

Where a product has been qualified to another similar specification, the supplier may submit the qualification data applicable to this specification for consideration. The similar specification may be a government, company, or other specification where the requirements are similar to this specification.

4.3 Acceptance Tests

4.3.1 Unless otherwise specified in the contract or purchase order, the supplier is responsible for all Lot Acceptance Tests, as specified in **Table 3** of this specification.

4.3.2 The supplier, performing Lot Acceptance Tests, as per **Para.4.3.1**, shall furnish with each lot of product one copy of a Lot Acceptance Test Report showing actual test data conformance to the acceptance tests specified in **Table 3**. The report shall include the supplier's lot identification.

4.3.3 de Havilland Inc. reserves the right to perform any or all of the tests set forth in this specification to ensure that the product continues to meet specification requirements. Any products not meeting the requirements of this specification will be returned to the supplier at the supplier's expense.

Table 3: Qualification and Acceptance Tests

Test	Paragraph	Qualification	Acceptance
Core Braid	**Table 1**	x	
Sheath Braid	**Table 1**	x	
Colour	**Table 1**	x	x
Breaking Strength	**Table 2**	x	x
Elongation under 10 lb. load	**Table 2**	x	x
Workmanship	**Para.3.3.1**	x	x
Visual Examination	**Para.3.3.2**	x	x

4.4 Definitions

Batch is defined as the end product of all the raw materials mixed and/or manufactured at the same time and place. The weight or volume may vary, depending upon the capacity of the manufacturer's facilities.

Lot is defined as the total quantity of product in a shipment taken from the same batch.

5 ORDERING DATA

5.1 Procurement Documents

Procurement documents shall specify the following:

- Title, Number, Issue and Amendment Number of this Specification
- Length and Diameter
- Manufacturer's Product Identification
- Total Quantity

6 PREPARATION FOR DELIVERY

6.1 Preservation and Packing

The nylon cord shall be packaged in such a manner as to ensure that, during shipment and storage, the product will be protected against damage from exposure to hazards which would adversely affect the property conformance to specification requirements.

Each package shall be permanently and legibly marked with the following information:

- Double Braided Dacron Cord
- DHMS P1.10, and Amendment if applicable.
- de Havilland Purchase Order Number
- Length and Diameter
- Manufacture's Name and Product Identification
- Total Quantity

6.2 Shipping Documentation

The shipping documentation shall include:

- de Havilland Purchase Order Number
- Specification Number
- Quantity
- Number of Containers or Packages
- Batch or Lot Number

Each shipment shall contain a copy of the Material Safety Data Sheet.

7 HEALTH AND SAFETY DATA

When supplying samples for qualification per **Para.4.1.3**, the supplier shall submit a Material Safety Data Sheet (MSDS) complying with the "Controlled Products Regulations" of the Hazardous Products Act (also known as W.H.M.I.S. Regulations). The document must state all hazardous ingredients, safe-handling procedures, first-aid measures, fire and explosion data, re-activity data, physical properties, preparation information and procedures for storage and disposal.

This (MSDS) must then be supplied with a completed DH 4339 "Application To Introduce A New Material" form to the Material Safety Committee.

Upon receipt of DH 4340 "Recommendation" form that approves the use of the material, it can then be included on the Qualified Products List.

NOTE: Any changes in the formulation of the material require a re-submission of the Material Safety Data Sheet.

QUALIFIED PRODUCTS LIST

MANUFACTURER'S NAME AND ADDRESS	MANUFACTURER'S PRODUCT IDENTIFICATION NO.	MATERIAL SAFETY DATA SHEET NO.	DE HAVILLAND QUALIFICATION SHEET NO.	DATE OF PRODUCT APPROVAL
Braids and Laces Ltd., 60 West Wilmot St., Unit #20 Richmond Hill, Ontario L4B 1M6 Ph: (905) 494-0350	.110 Dia. Double Braided Dacron Cord	N/A	PQS #1	Sept.24, 1986