

Förderverein für Elektrotechnische Normung (FEN) e. V.
Cenelec Electronic Components Committee

CECC

Système Harmonisé d'Assurance de la Qualité
des Composants Electroniques

SPECIFICATION INTERMEDIAIRE:

JEUX DE CONNECTEURS POUR FIBRES ET CABLES OPTIQUES

Type F-SMA

Harmonized System of Quality Assessment for
Electronic Components

SECTIONAL SPECIFICATION:

CONNECTOR SETS FOR OPTICAL FIBRES AND CABLES

Type F-SMA

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

RAHMENSPEZIFIKATION:

STECKVERBINDERSÄTZE FÜR LICHTWELLENLEITER UND LICHTWELLENLEITERKABEL

Bauart F-SMA



1

Edition
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Ausgabe

CECC 86 100

1992

Documents



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of the participating countries listed
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- 1 The Internal Regulations of the FEN e.V.
- 2 The Rules of Procedure of the System
- 3 CECC Specifications of the FEN and National Specifications for the System
- 4 CECC 00 200: Register of Approvals
- 5 CECC 00 300: List of CECC European Standards (ENs), CECC Publications and related national documents
- 6 CECC 00 301: List of CECC Specifications and related Detail Specifications
- 7 Other CECC Publications and publicity documents

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FOREWORD

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The object of the System is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby acceptable in all member countries without further testing.

This specification has been formally approved by the CECC, and has been prepared for those countries taking part in the System who wish to issue national harmonized specifications for fibre optic connectors and accessories series F-SMA. It should be read in conjunction with the current regulations for the CECC System.

At the date of printing of this specification, the member countries of the CECC are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom, and copies of it can be obtained from the addresses shown on the blue fly sheet.

PREFACE

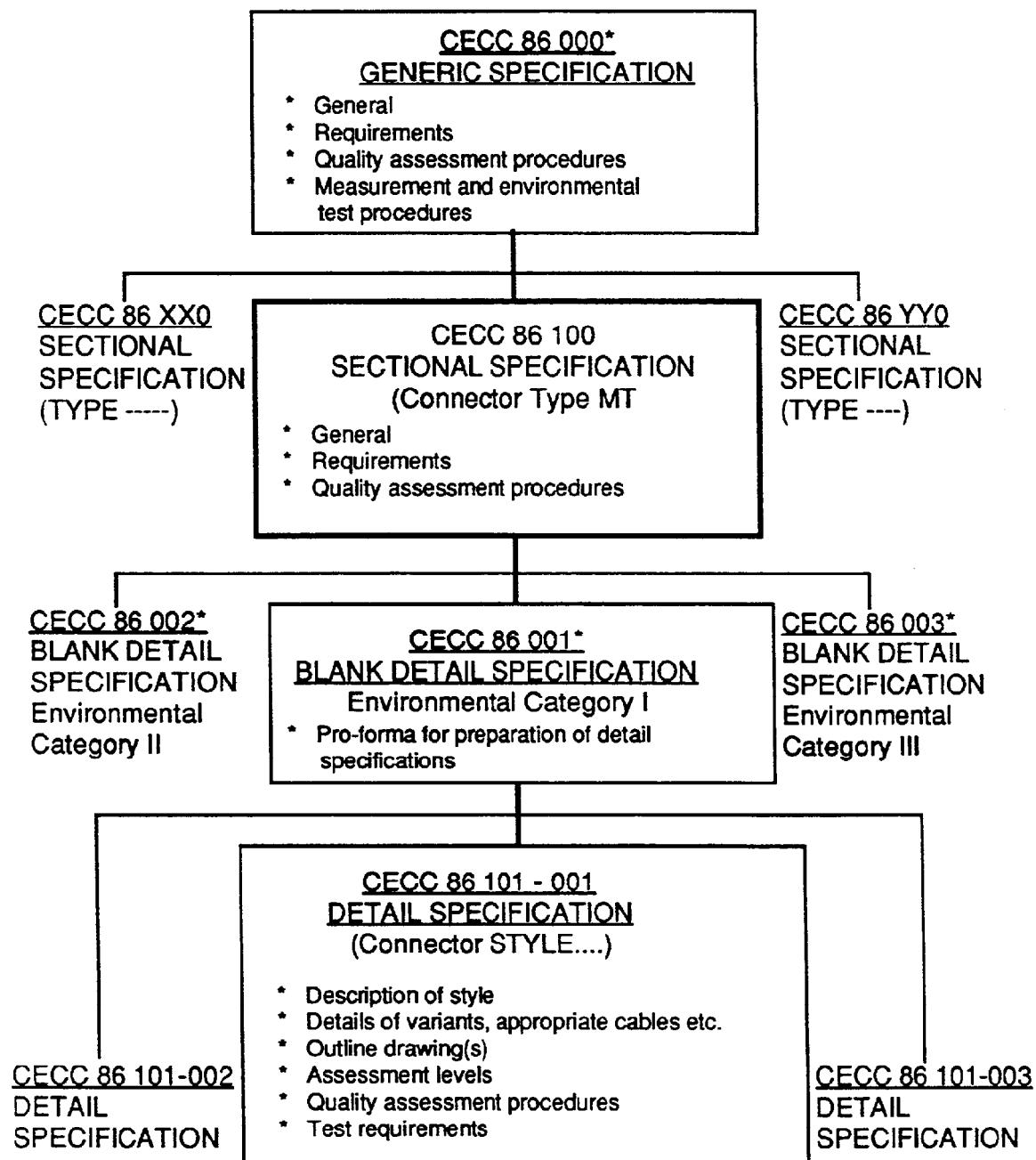
This specification was prepared by CECC WG26 "Fibre Optic Connectors".

It was based, wherever possible, on the Publications of the International Electrotechnical Commission (IEC).

The text of this specification was circulated to the CECC for voting in the document indicated below and was ratified by the President of the CECC for printing as a CECC Specification.

<u>Document</u>	<u>Date of Voting</u>	<u>Report on the Voting</u>
CECC (Secretariat) 2519	January 1989	CECC (Secretariat) 2664

Document numbering for fibre optic connector specifications follows 2.2(1) of CECC 00 700: Section IV , in order to permit the issue of more than nine sectional specifications. The approved numbering system applicable to fibre optic connector specifications is illustrated in the following diagram:-



* Editorial note:

Still in voting as EN specifications at date of publication of this specification (December 1992).

SECTION ONE - GENERAL

1.0 General

1.1 Scope

This specification covers Type F-SMA fibre optic connector sets. Type F-SMA defines a singleway connector characterized by a $\frac{1}{4}$ 36 UNS screw thread coupling mechanism and a cylindrical ferrule of 3,175 mm nominal diameter.

The specification contains the requirements for Type F-SMA connector sets.

Detail specifications shall be prepared using the following proforma general blank detail specifications associated with the generic specification. For example:-

CECC 86 002

Environmental Category II

When completed, the detail specifications (DSs) applicable to this sectional specification (SS) shall be re-numbered in accordance with CECC 00 700 (Section IV) Issue 1, clause 4.2, as follows:-

CECC 86 102-XXX

Type F-SMA Environmental Category II

1.2 Related documents

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below.

References made to a specific clause or sub-clause of a standard includes all sub-clauses to the reference unless otherwise specified.

CECC 86 000	Generic specification for connectors for optical fibres and cables.
IEC 825	Radiation safety of laser products; equipment classification, requirements, and user's guide

CECC 86 100 (Issue 1)

1.3 Definitions

All necessary definitions are given in CECC 86 000.

1.4 Safety

- 1.4.1 Optical fibre connectors, when used as part of an optical fibre system, may emit/produce potentially hazardous radiation. The manufacturers of connectors are not obliged to mark them as such; but sufficient information should be made available in the manufacturer's literature to enable the system designer to assess the degree of hazard.

This information shall be given prominence in the detail specification (DS).

- 1.4.2 The assembly instructions, included in the connector package, shall give a prominent warning to the assembler, of the necessary safe work practices.
- 1.4.3 The responsibility for the safe application of the connector lies with the system design engineer, who should refer to IEC 825. As there is no safety guide for light emitting diodes (LEDs), IEC 825 shall apply to systems using these also.
- 1.4.4 DSs should give the following information in a prominent position:-

WARNING

"Care should be taken when handling small diameter optical fibre, to prevent it puncturing the skin especially in the eye area.

Direct viewing of the end of an optical fibre or a terminated optical fibre, while it is propagating energy is not recommended unless prior assurance has been obtained as to the safe energy of the output level."

1.5 Marking

See 2.6 of CECC 86 000.

SECTION TWO - REQUIREMENTS

2. Requirements

The requirements specified in Section 2 and Section 3 of CECC 86 000 apply.

The requirements for connector set components covered by this specification are as specified herein and in the relevant DS.

2.1 Classification

The connector sets covered by this specification are classified as:-

Type

- type F-SMA
- screw thread coupling
- configurations
 - plug/adaptor/plug
 - plug/socket.

Arrangements

- kit
- pigtail
- patch cord.

Environmental categories

The DS writer shall select the appropriate BDS for the chosen environmental category.

Assessment levels

- level A
- level B
- level C.

The mating face limit dimensions for each connector set configuration are given in Figures 1, 2 and 3.

The applicable configuration, arrangement, style, variants, climatic category, environmental category, and assessment level shall be specified in the DS.

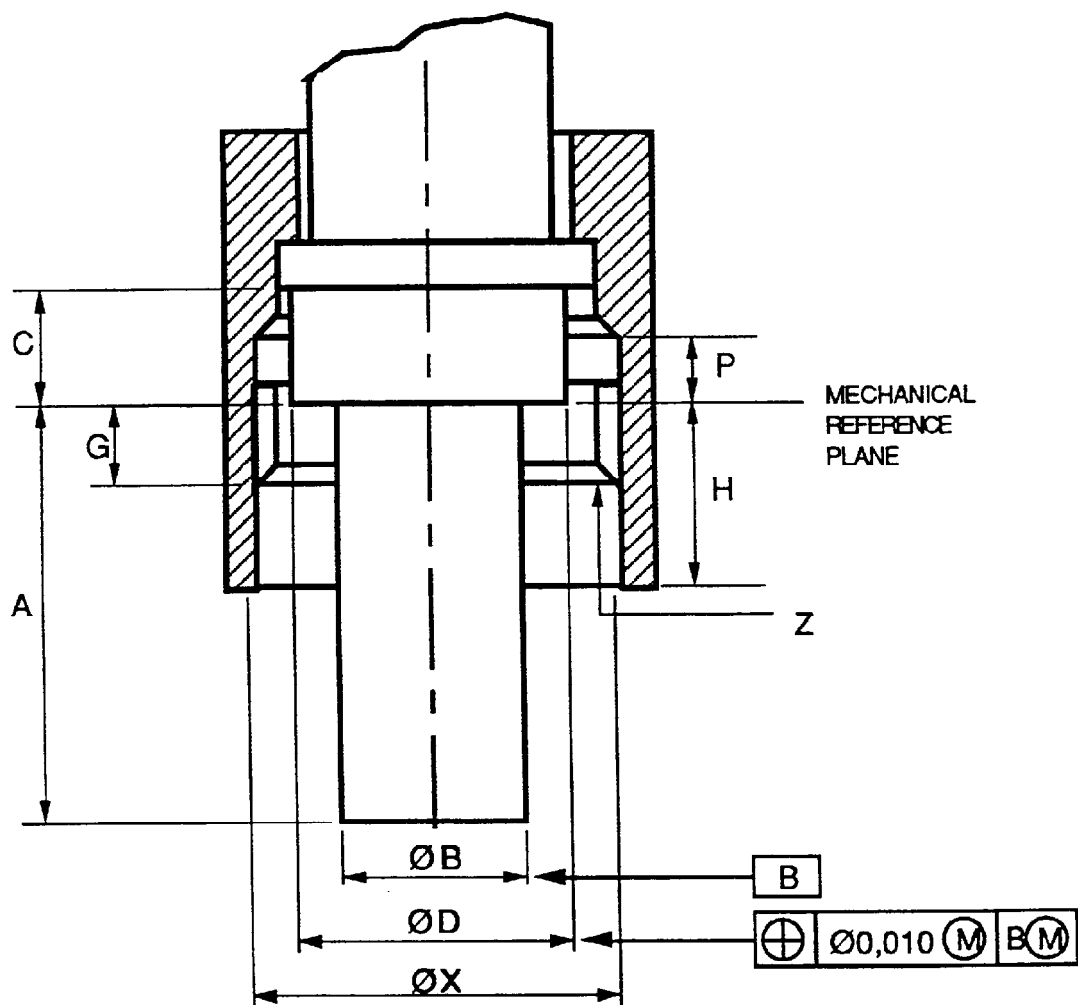


Figure 1 - Plug mating face limit dimensions

REF	DIMENSIONS mm		NOTES
	MIN.	MAX.	
A	-	9,812	2
ØB	-	3,1748	3&5
C	2,00	-	
ØD	-	4,62	
G	1,50	-	
H	-	3,70	
P	2,00	-	8
ØX	6,35	-	
Z	1/4-36-UNS-2B		9

Notes:

- 1 Dimensions for intermateability are shown. See relevant DS for appropriate minimum/maximum requirement.
- 2 Dimension is for terminated finished non-butting connectors. When butting is planned for, this maximum may be exceeded.
- 3 The plug must enter a 3,1750 mm diameter hole gauge.
- 4 For fibre and cable termination dimensions see DSs. To be such that the mechanical performance meets the requirements given in the DS.
- 5 To avoid damage no sharp edges are allowed.
- 6 Where resilient tip or other method of alignment is used, see DS for dimensions.
- 7 If a resilient sleeve style connector is used with another style of connector, or in a receptacle, a half-sleeve must be used.
- 8 Undercut or thread.
- 9 1/4-36-UNS-2B indicates an inch screw thread with nominal diameter 1/4 inch and pitch 36 threads per inch.

Figure 1 (continued) - Plug mating face limit dimensions

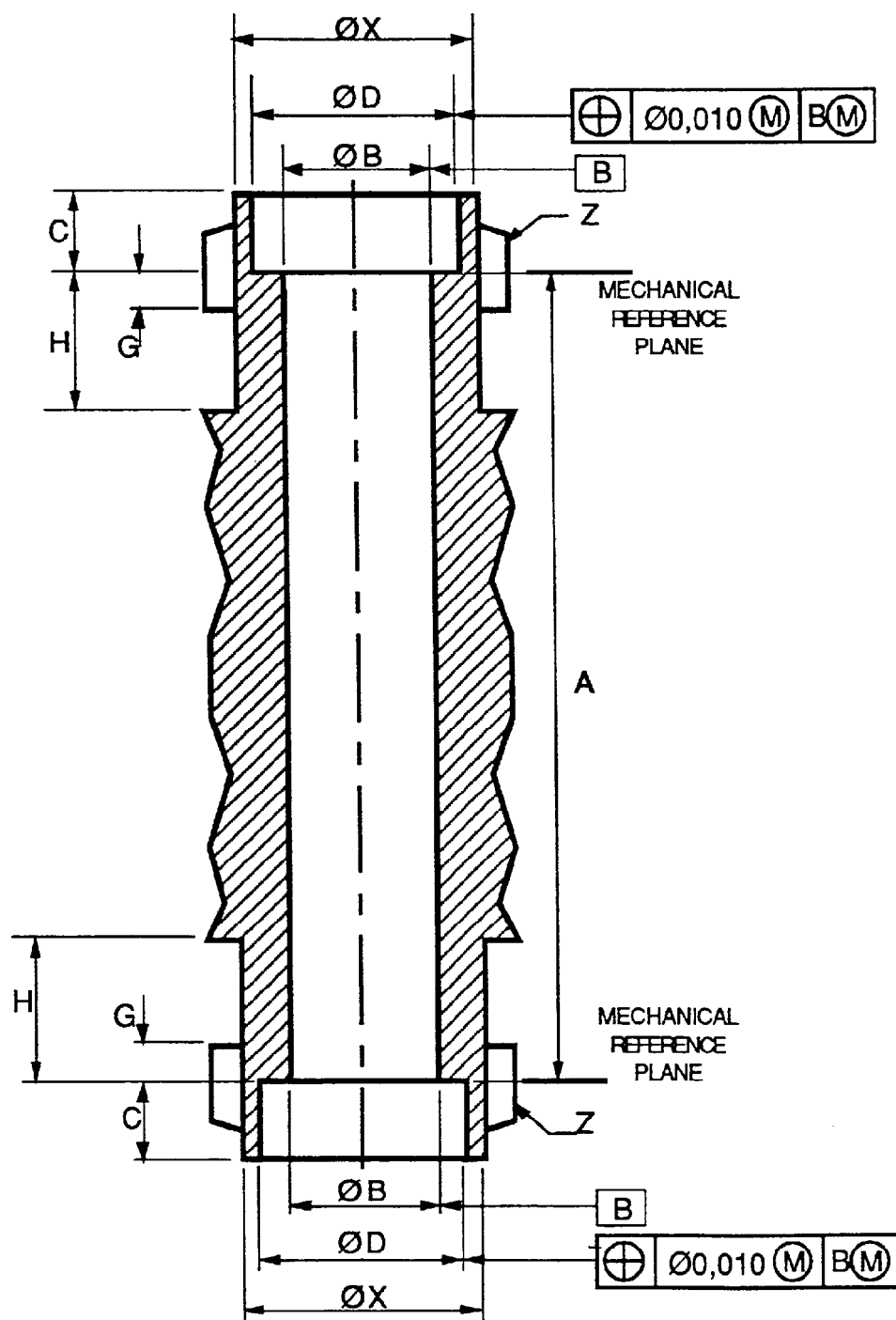


Figure 2 - Adaptor mating face limit dimensions

REF	DIMENSIONS mm		NOTES
	MIN.	MAX.	
A	19,626	-	
ØB	3,1750	-	3
C	-	1,98	
ØD	4,65	-	
G	1,50	-	
H	3,73	-	5
ØX	-	5,48	
Z	1/4-36-UNS-2A		4

Notes:

- 1 Dimensions for interchangeability are shown. See relevant DS for appropriate minimum/maximum requirement.
- 2 To avoid damage no sharp edges are allowed.
- 3 Where captivated resilient alignment sleeve is used this dimension may be less, see DS for dimensions.
- 4 1/4-36-UNS-2A indicates an inch screw thread with nominal diameter 1/4 inch and pitch 36 threads per inch.
- 5 Unobstructed clearance for nut.

Figure 2 (continued) - Adaptor mating face limit dimensions.

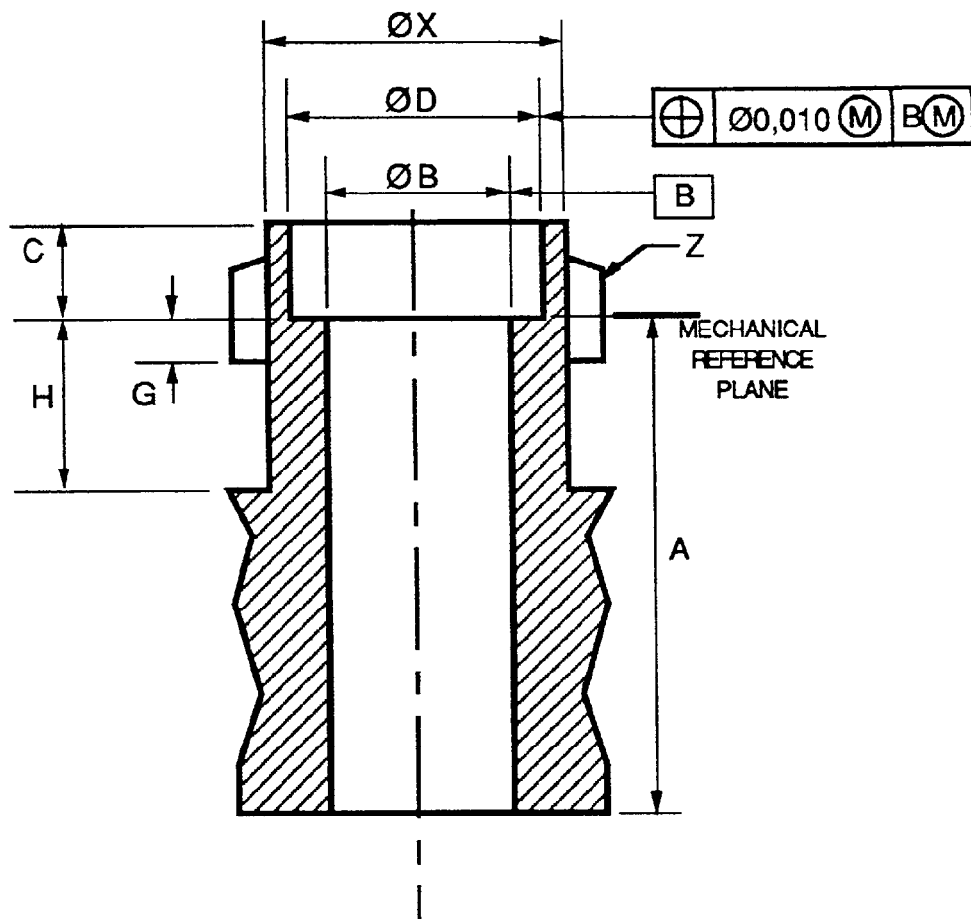


Figure 3 - Socket mating face limit dimensions

REF	DIMENSIONS mm		NOTES
	MIN.	MAX.	
A	9,813	-	2
ØB	3,1750	-	3
C	-	1,98	
ØD	4,65	-	
G	1,50	-	
H	3,73	-	5
ØX	-	5,48	
Z	1/4-36-UNS-2A		4

Notes:

- 1 Dimensions for intermateability are shown. See relevant DS for appropriate minimum/maximum requirement.
- 2 To avoid damage no sharp edges are allowed.
- 3 Where captivated resilient alignment sleeve is used this dimension may be less, see DS for dimensions.
- 4 1/4-36-UNS-2A indicates an inch screw thread with nominal diameter 1/4 inch and pitch 36 threads per inch.
- 5 Unobstructed clearance for nut.

Figure 3 (continued) - Socket mating face limit dimensions.

2.2 Reference components

Reference components, if required, shall be defined in the DS.

2.3 Gauges

Gauges, if required, shall be defined in the DS.

SECTION THREE - QUALITY ASSESSMENT PROCEDURES

3. Quality assessment procedures

The quality assessment procedures of CECC 86 000 Section 3 apply.

3.1 Qualification approval

3.1.1 Qualification by fixed sample procedure

When specified, the fixed sample procedure shall be in accordance with 3.3.1 of CECC 86 000.

The relevant BDS contains the minimum mandatory test schedules and performance requirements for qualification by the fixed sample procedure. The complete set of mandatory test schedules and performance requirements shall be specified in the DS.

Qualification approval will be granted for the complete range of variants submitted as structurally similar upon successful completion of the tests.

Sample size

The sample size for qualification by fixed sample procedure shall be as specified in the DS. The specimens shall be variants for the smallest fibre core diameter specified in the DS.

Following completion of the Group 0 test, the specimens for the other groups shall be randomly selected from the Group 0 specimens.

In addition, the following specimens shall be provided:-

- one specimen of each plug variant to be qualified by structural similarity to the one used for Group 0
- one specimen of each adapter variant to be qualified by structural similarity to the one used for Group 0
- one specimen of each socket variant to be qualified by structural similarity to the one used for Group 0.