BRITISH STANDARD

BS EN
3733-001:2009

Aerospace series — Connector, optical, circular, single channel, coupled by self-locking ring, operating temperature up to 150 °C continuous

Part 001: Technical specification

ICS 49.060

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BSI
British Standards

National foreword

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The UK participation in its preparation was entrusted to Technical Committee ACE/6, Aerospace avionic electrical and fibre optic technology.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Foreword

This document (EN 3733-001:2009) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2010, and conflicting national standards shall be withdrawn at the latest by February 2010.

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1 Scope

This standard specifies the general characteristics, the conditions for qualification, acceptance and quality assurance as well as the test programs and groups for self-locking ring coupling, single channel, circular fibre-optic connectors intended for operating temperatures up to 150 °C for aerospace applications.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2591-100, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 100: General*[1]

EN 9133, *Aerospace series - Quality management systems - Qualification procedure for Aerospace Standard Parts*

EN 3197, *Aerospace series — Installation of aircraft electrical and optical interconnection systems*[2]

EN 3733-002*, Aerospace series — Connectors, optical, circular, single channel, coupled by self-locking ring, operating temperature 150 °C continuous — Part 002: List of product standards*[2]

ISO 1817, *Rubber, vulcanized — Determination of the effect of liquids*

MIL-STD-810F, *Environmental engineering Considerations and Laboratory Tests*[3]

MIL-PRF-7808L, *Lubricating Oil, Aircraft Turbine Engine, Synthetic Base*[3]

MIL-PRF-23699F, *Lubricating Oil, Aircraft Turbine Engine, Synthetic Base, NATO Code Number O-156*[3]

QPL-5606-31, *Hydraulic Fluid, Petroleum Base; Aircraft; Missile and Ordnance*[3]

SAE-AMS 1424, *Fluid, Deicing/Anti-Icing, Aircraft, SAE Type 1*[3]

3 Terminology

For the purposes of this standard, the definitions given in EN 2591-100 apply.

4 Description

4.1 General

All connectors shall be environmentally sealed to the level specified in Table 2.

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1 All parts quoted in Tables 2, 6 and 7.

2 Published as ASD prestandard at the date of publication of this standard.

3 Published by: Department of Defense (DOD), the Pentagon, Washington, DC 20301, USA.

Connectors shall be thread coupled.

Connectors shall incorporate a cable strain relief mechanism, if specified in the product standard.

A range of optical ferrules (optical contacts) and cable restraint assemblies shall be made available to suit different fibres and cables.

Connectors shall be resistant to Class A or Class B fluids as detailed in Tables 4 and 5 dependent upon user requirements.

4.2 Component description

4.2.1 Plug

The coupling ring permanently fitted on the front plug assembly shall enable the connectors to be coupled and uncoupled. The screwing up torque shall be lower than the unscrewing torque. The coupling ring shall be knurled.

The plug connector shall have an anti-vibration mechanism to prevent unintentional un-mating.

All plug connectors shall incorporate a split alignment sleeve.

4.2.2 Receptacle

The receptacle mounting style may be:

a) square flange — four holes fixing;

b) oval flange — two holes fixing;

c) by jam-nut, with sealing by "O" ring at the attachment.

Dummy receptacles are also available in the above mounting styles.

4.2.3 Protective cover

Protective covers shall be made available for flange and jam nut receptacles.

4.2.4 Terminator cover

Terminator covers shall be made available for receptacles if required.

4.2.5 Ferrule (Optical contact)

Ferrules shall be made available as a separate deliverable. The ferrule is withdrawn from the rear of a connector.

4.2.6 Strain relief boot

Strain relief boots shall be made available as a separate deliverable if required.

4.2.7 Plug sub-assembly

Plug sub-assemblies shall be made available as a separate deliverable if required.

4.2.8 Receptacle sub-assembly

Receptacle sub-assemblies shall be made available as a separate deliverable if required.

4.2.9 Epoxy resin

Epoxy resin shall be specified as a deliverable if required.

4.3 Materials

4.3.1 General

When materials are not specified or not specifically described, they shall be as light as possible consistent with the required use.

When similar or dissimilar metals are in close contact, adequate protection against corrosion shall be used for the electromotive force of the cell not to exceed 0,25 V (see EN 3197).

4.3.2 Housings

The material of the housings for the connectors and for the fittings shall be of a lightweight, corrosion-resistant material such as passivated stainless steel or nickel-copper alloys as detailed in the applicable product standards.

4.3.3 Ferrules (Optical contacts)

The material for the ferrules shall be ceramic (zirconia or alumina), corrosion-resisting steel, or other material as detailed in the applicable product standards.

4.3.4 Seals and strain relief boots

The material used for seals and strain relief boots shall be consistent with the required use.

5 Design features

The connector shall have five keys on the plug made with five key-ways on the receptacle, for polarisation.

The plug and receptacle shall use face contact or physical contact optical ferrule technology.

The cable strain relief shall be secured to the connector housing, for plug and receptacle.

The optical ferrule in the plug shall be spring loaded.

Optical mating faces shall be accessible for cleaning with minimal disassembly.

6 Definition, dimensions and masses

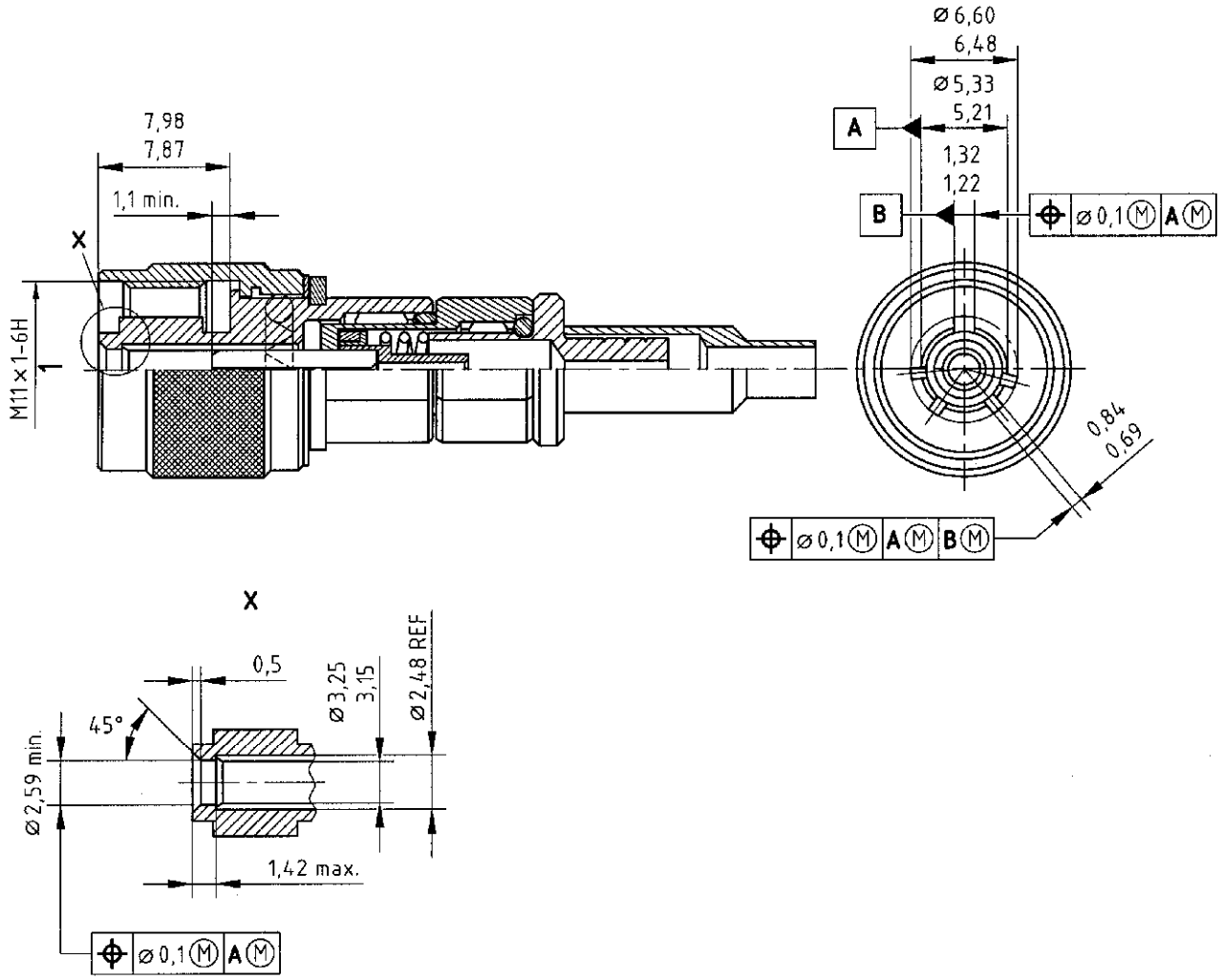
6.1 General

The general dimensions and masses for receptacles, plugs, covers, dummy receptacles and ferrules are given in the product standards. Refer to the list given in EN 3733-002.

6.2 Interface dimensions of the plug

See Figure 1.

Dimensions in millimetres



Key

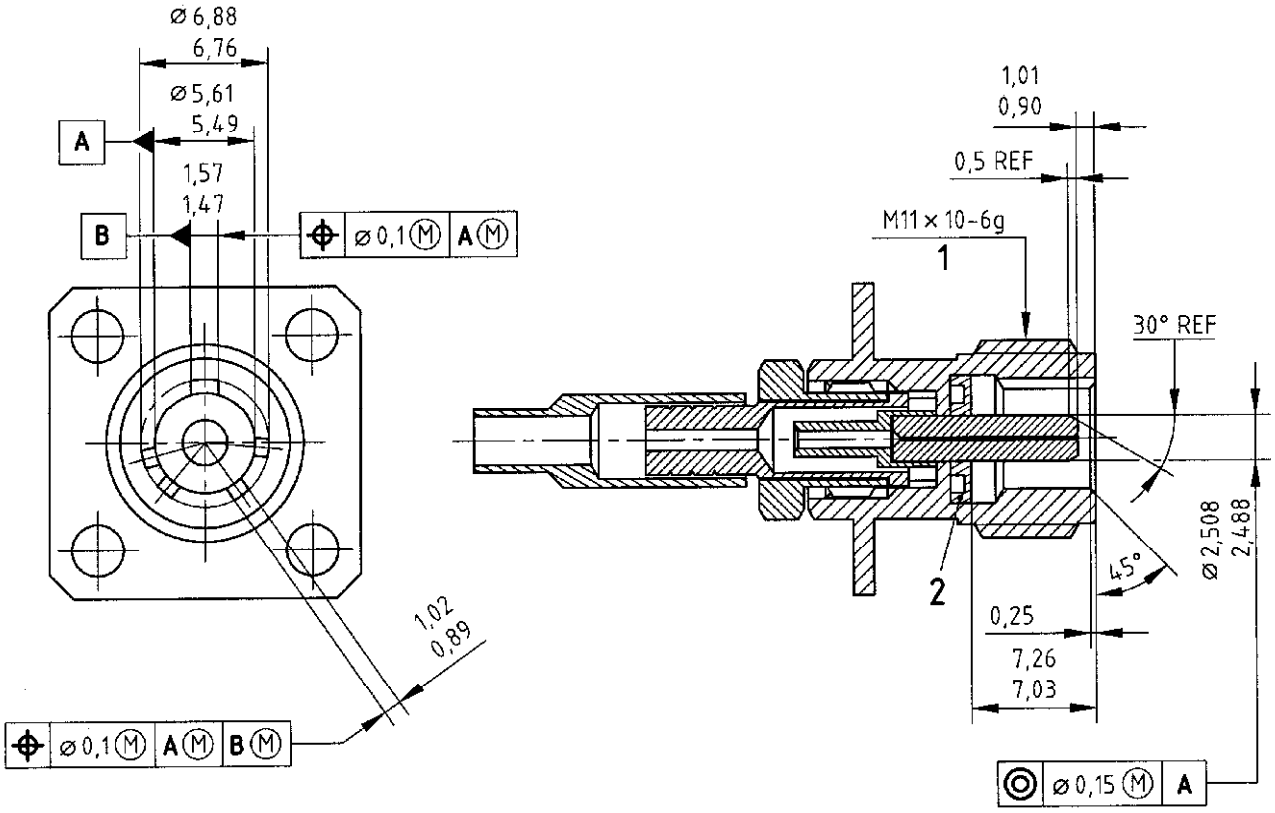
1 Thread

Figure 1 — Plug interface dimensions

6.3 Interface dimensions of the receptacle

See Figure 2.

Dimensions are in millimetres



Key

1 Thread

2 Elastomeric face seal

Figure 2 — Receptacle interface dimensions

6.4 Polarization

Polarization is achieved by varying the position of the secondary keys and key-ways relative to the main key or key-way. See Figure 3.

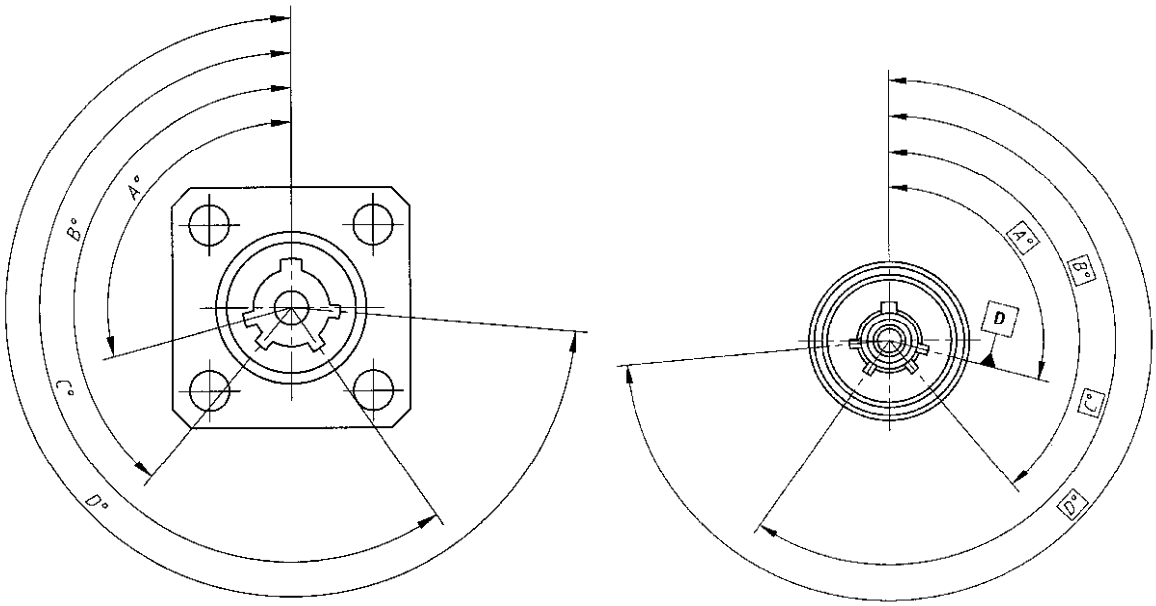


Figure 3 — Key-ways

Table 1 – Key positions

Dimensions in grade

Key position	*A*	*B*	*C*	*D*
Normal	105	140	215	265
A	102	132	248	320
B	80	118	230	312
C	35	140	205	275
D	64	155	234	304
E	91	131	197	240

7 Tests

7.1 Tests according to EN 2591-100

The tests cited in EN 2591-100 are applicable in the context of this standard as well as details necessary for implementing them for inspecting connector characteristics, are given in Table 2. Performance and test method parameters which are fibre and cable dependant, together with environmental testing not applicable to all product standards, are detailed in the appropriate product standards. Tests relating to electrical and multi-way connectors are not applicable to EN 3733 components and are therefore not included in Table 2.

Table 2 — Tests

EN 2591-	Designation of the test	Details
6101	Optical elements – Visual examination	No loosening of parts, cracks, excessive wear, or detached parts. Optical face undamaged and free from contamination when examined at a minimum magnification of × 100
101	Visual examination	Applicable to protective caps only
102	Examination of dimensions and mass	According to Clause 6 and product standards NOTE In the case of a Qualified Inspection System, the parts unrelated to a Product Batch, may be used
6301	Optical elements – Endurance at temperature	Method B – 150 °C Time 1 000 h
302	Climatic sequence	For performance and test method requirements refer to the applicable product standard for the component and cable under test
6303	Optical elements – Cold/low pressure and damp heat	Duration – five cycles Maximum temperature (– 65 ± 2) °C Measurement during test: at each transition point
304	Damp heat steady state	For performance and test method requirements refer to the applicable product standard for the component and cable under test.
6305	Optical elements – Rapid change of temperature	$T_A = (-65\ ^{0}_{-5})$ °C
		$T_B = (150\ ^{+5}_{0})$ °C
6306	Optical elements – Mould growth	Not applicable
6307	Optical elements – Salt mist	The connectors are suspended in the test chamber with non-metallic cords, to prevent accumulation of condensed solution The connectors are subjected to 50 mating/unmating cycles, rate not exceeding to the salt mist: mated for 452 h, then unmated for 48 h
308	Sand and dust	Connector mated and positioned such that rear of free plug faces into the wind direction Wind velocity in duct: (3,5 ± 0,5) m/s Number of cycles: one
309	Dry heat	For performance and test method requirements refer to the applicable product standard for the component and cable under test.
310	Cold	
311	Low air pressure	
312	Air leakage	Test performed on non-hermetic connectors Method B - Differential pressure: 100 kPa Maximum leakage: 16×10^{-6} m^3/h
313	Artificial rain	For performance and test method requirements refer to the applicable product standard for the component and cable under test
6314	Optical elements – Immersion at low air pressure	Three specimens shall be tested: one mated pair, one receptacle and one plug fitted with protective cover Pressure: 2 kPa

Table 2 *(continued)*

<table>
<tr><th>EN 2591-</th><th>Designation of the test</th><th>Details</th></tr>
<tr><td>6315</td><td>Optical elements – Fluid resistance</td><td>See Tables 3 and 4 for fluids, number of cycles, temperature and time of immersion, and temperature of third phase</td></tr>
<tr><td>6316</td><td>Optical elements – Ozone resistance</td><td>For performance and test method requirements refer to the applicable product standard for the component and cable under test</td></tr>
<tr><td>6317</td><td>Optical elements – Flammability</td><td>Mated pairs. No dripping of material such as to ignite flammable tissue
Burning and afterglow to extinguish within 60 s</td></tr>
<tr><td>320</td><td>Simulated solar radiation at ground level</td><td rowspan="2">For performance and test method requirements refer to the applicable product standard for the component and cable under test</td></tr>
<tr><td>6321</td><td>Optical elements – Damp heat, cyclic test</td></tr>
<tr><td>322</td><td>Hermeticity</td><td rowspan="2">Hermetic only</td></tr>
<tr><td>6323</td><td>Optical elements – Thermal shock (Hermetically sealed devices)</td></tr>
<tr><td>6401</td><td>Optical elements – Acceleration steady state</td><td>Connectors mated with cable fitted and secured
(250 ± 5) mm from the connector
Severity: 20 g in each direction of each of three axes</td></tr>
<tr><td>6402</td><td>Optical elements – Shock</td><td rowspan="3">For performance and test method requirements refer to the applicable product standard for the component and cable under test.</td></tr>
<tr><td>6403</td><td>Optical elements – Vibrations</td></tr>
<tr><td>See 7.2</td><td>High level vibrations – e. g. Gunfire</td></tr>
<tr><td>6404</td><td>Optical elements – Transverse load</td><td>Torque: 6,67 Nm. Applied to the hexagon nut which forms part of the integral cable clamping mechanism</td></tr>
<tr><td>6405</td><td>Optical elements – Axial load</td><td>For performance and test method requirements refer to the applicable product standard for the component and cable under test</td></tr>
<tr><td>6406</td><td>Optical elements – Mechanical endurance</td><td>Number of operations: 500
The rate shall not exceed five cycles per minute</td></tr>
<tr><td>407</td><td>Durability of contact retention system and seals</td><td>For performance and test method requirements refer to the applicable product standard for the component and cable under test</td></tr>
<tr><td>408</td><td>Mating and unmating forces</td><td>Mating/Unmating of connector pairs: Method A and Method B
1. Apply to the coupling ring specified. Check connector is fully mated
2. Measure uncoupling torque
3. Re-mate the connector and apply overtightening torque specified
<table>
<tr><th></th><th>Coupling torque</th><th>Uncoupling torque</th><th>Overtightening torque</th></tr>
<tr><td>min.</td><td>–</td><td>0,076 Nm</td><td>–</td></tr>
<tr><td>max.</td><td>0,35 Nm</td><td>0,5 Nm</td><td>1,70 Nm</td></tr>
</table></td></tr>
</table>

Table 2 *(continued)*

EN 2591-	Designation of the test	Details
427	Robustness of protective cover attachment	Force applied: 22 N
513	Magnetic permeability	For performance and test method requirements refer to the applicable product standard for the component and cable under test.
601	Optical elements – Insertion loss	
602	Optical elements – Variation of attenuation and optical discontinuity	
603	Optical elements – Change of power distribution	
604	Optical elements – Cleaning capability of optical face	Contaminants: a) De-mineralised water b) 70 % Iso-octane/30 % Toluene c) Lubricating oil OX-26 d) Natural silica (50:50 by volume, grains 2,5 μm to 50 μm and 50 μm to 150 μm) e) Water/Silica (50:50 by volume) f) Oil/Silica (50:50 by volume).
605	Optical elements – Return loss	For performance and test method requirements refer to the applicable product standard for the component and cable under test.
606	Optical elements – Crosstalk	Not applicable
607	Optical elements – Immunity to ambient light coupling	For performance and test method requirements refer to the applicable product standard for the component and cable under test.
608[a]	Optical elements – Nuclear radiation	
609	Optical elements – Effectiveness of cable attachment – Cable cyclic flexing	
610	Optical elements – Effectiveness of cable attachment – Cable pulling	
611	Optical elements – Effectiveness of cable attachment – Cable torsion	
612	Optical elements – Effectiveness of cable attachment – Cable axial compression	
613	Optical elements – Impact test	Severity level: medium – Use of fixture is optional

Table 2 *(continued)*

EN 2591-	Designation of the test	Details
614	Optical elements – Connector radial compression	Load: 500 N Duration: 15 s
615	Optical elements – Connection integrity at temperature	For performance and test method requirements refer to the applicable product standard for the component and cable under test.
617	Optical elements – Temperature cycling	
[a] In preparation at the date of publication of this standard.		

Table 3 — List of the test fluids – Class A

Fluid category	References	Immersion		Stoving temperature	Number of cycles
		time min	temperature °C	°C	
Fuel liquid B	ISO 1817	5 $^{+2}_{0}$	40	85	1
Hydraulic fluid (mineral based)	QPL-5606-31 NATO F515	15 $^{+5}_{0}$	80 85	100	1
Hydraulic oil Synthetic simulator Liquid 103	ISO 1817	15 $^{+5}_{0}$	70	100	1
Solvent propan-2-ol and 1,1,1-trichlorethane	Solvent propan-2-ol and 1,1, 1-trichloroethane is no longer available. Consult user for alternative fluid.	5 $^{+2}_{0}$	50	25	1
Synthetic lubricant	MIL-PRF-23699F NATO 0155 MIL-PRF-7808L	15 $^{+5}_{0}$	150	125	1
Cleaning products	MIL-C-25769 Diluted 25 % Propanol +	15 $^{+5}_{0}$	25	25	5
	75 % White spirit Azeotrope R113AzM (R113 + Methanol)	5 $^{+2}_{0}$			
De-icing fluid	SAE-AMS 1424 NATO 5742	15 $^{+5}_{0}$	50	100	5

Table 4 — List of test fluids – Class B

Fluid number	Fluid category	Reference
1	Fuel liquid B	ISO 1817
2	Hydraulic fluid (mineral based)	H 515
3	Oil (ester based)	R Eng. DTD 2497
4	Solvent propan-2-ol and 1,1, 1-trichloroethane is no longer available Consult user for alternative fluid	–
5	De-icing and antifreeze “Killfrost” AL34	DTD 900/4907

7.2 Special test – high level vibrations e. g. gunfire

Where applicable, high level vibration shall be performed in accordance with MIL-STD-810F Method 519.3, procedure 1, test spectra Figure 519-3.1 with modifications (if any) as contained in the product standard. See Table 5 below for test requirements and the appropriate product standards for applicability, modifications or additions to the basic test spectra.

8 Quality assurance

8.1 General

Quality assurance shall conform to EN 9133.

8.2 Qualification

8.2.1 General

Qualification of a model (see EN 3733-002) is obtained:

a) either when the specimens of this model, as defined in 8.3, have satisfied the applicable tests in groups 0 to 6;

or

b) by extension of qualification: qualification of a model very similar to a model already qualified, may be obtained by performing a small number of additional tests or by analogy by structural similarity.

8.2.2 Sampling and definition of specimens

If more than one fibre/cable arrangement is being tested, there shall be equal quantities for each group.

Table 5 - Sampling

Test group No.	Number of complete specimens (receptacle, plug and pro-caps) as applicable
0	All specimen pairs
1	Three complete specimens
2	Three complete specimens
3	Three complete specimens
4	One complete specimen for each test fluid
5	Three complete specimens
6	Three complete specimens

8.2.3 Preparations of specimens

All specimens shall be terminated, using typically 4 m length of cable, i. e. each half of a connector shall have a 2 m length of cable attached.

8.2.4 Programme of qualification tests

The qualification approval tests are defined in Table 2 and shall be carried out in the sequence specified in Table 6.

Table 6 — Programme for qualification approval tests

Designation of the test	2591-	Test requirement
Group 0		
Examination of dimensions and mass	102	Conformance to Clause 6 and product standard
Optical elements – Insertion loss	601	After termination
Optical elements – Visual examination	6101	
Group 1		
Optical elements – Visual examination	6101	
Optical elements – Rapid change of temperature	6305	i) Variation of insertion loss. See Note 1. ii) Insertion loss as EN 2591-601 iii) Visual examination as EN 2591-6101
Mating and unmating forces	408	Overtightening not required
Optical elements – Immersion at low air pressure	6314	i) Insertion loss as EN 2591-601 ii) Visual examination as EN 2591-6101
Optical elements – Salt mist	6307	i) Coupling and uncoupling torque as EN 2591-408, Method A ii) Insertion loss as EN 2591-601
Optical elements – Visual examination	6101	
Optical elements – Flammability	6317	Destructure material test. Can be performed as a stand alone test.

Table 6 (continued)

Designation of the test	2591-	Test requirement
Group 2		
Optical elements – Visual examination	6101	
Optical elements – Cold/low pressure and damp heat	6303	i) Variation of insertion loss. See Note 1. ii) Insertion loss as EN 2591-601 iii) Visual examination as EN 2591-6101
Optical elements – Rapid change of temperature	6305	i) Variation of insertion loss. See Note 1. ii) Insertion loss maximum as EN 2591-601 iii) Visual examination as EN 2591-6101
Mating and unmating forces	408	Overtightening not required.
Optical elements – Mechanical endurance	6406	i) Insertion loss as EN 2591-601 ii) Coupling and uncoupling torque as EN 2591-408, Method A. Overtightening not required iii) Visual examination as EN 2591-6101
Optical elements – Acceleration steady state	6401	i) Variation or insertion loss. See Note 1. ii) Coupling and uncoupling torque as EN 2591-408, Method A. Overtightening not required iii) Visual examination as EN 2591-6101
Optical elements – Vibration – Random	6403	i) Optical discontinuity as EN 2591-602 ii) Insertion loss as EN 2591-601 iii) Coupling and uncoupling torque as EN 2591-408, Method A iv) Visual examination as EN 2591-6101.
High level Vibration – e. g. Gunfire	See 7.2	See product standard for applicability and test levels. i) Optical discontinuity as EN 2591-602 ii) Insertion loss as EN 2591-601 iii) Coupling and uncoupling torque as EN 2591-408, Method A. Overtightening not required iv) Visual examination as EN 2591-6101
Optical elements – Shock	6402	i) Optical discontinuity as EN 2591-602 ii) Insertion loss as EN 2591-601 iii) Coupling and uncoupling torque as EN 2591-408, Method A. Overtightening not required iv) Visual examination as EN 2591-6101

Table 6 (continued)

Designation of the test	2591-	Test requirement
Group 2		
Optical elements – Damp heat, cyclic test	6321	i) Variation of insertion loss. See Note 1. ii) Coupling and uncoupling torque as EN 2591-408, Method A. Overtightening not required
Optical elements – Visual examination	6101	
Sand and Dust	308	Coupling and uncoupling torque as EN 2591-408, Method A
Mating and unmating forces	408	Method A
Group 3		
Optical elements – Visual examination	6101	
Air leakage	312	Maximum leakage as EN 2591-312, Table 2
Optical elements – Endurance at temperature	6301	i) Variation of insertion loss. See Note 1. ii) Insertion loss as EN 2591-601
Mating and unmating forces	408	Method A
Optical elements – Visual examination	6101	
Group 4		
Optical elements – Visual examination	6101	
Optical elements – Fluid resistance	6315	i) Insertion loss as EN 2591-601 ii) Coupling and uncoupling torque as EN 2591-408, Method A
Optical elements – Visual examination	6101	
Group 5		
Optical elements – Visual examination	6101	
Optical elements – Cleaning capability of optical face	604	Insertion loss as EN 2591-601
Optical elements – Transverse load	6404	i) Variation of insertion loss. See Note 1. ii) Insertion loss as EN 2591-601 iii) Coupling and uncoupling torque as EN 2591-408, Method A iv) Visual examination as EN 2591-6101
Optical elements – Axial load	6405	i) Variation of insertion loss. See Note 1. ii) Insertion loss as EN 2591-601 iii) Coupling and uncoupling torque as EN 2591-408, Method A. Overtightening not required iv) Visual examination as EN 2591-6101

Table 6 (continued)

Designation of the test	2591-	Test requirement
Group 5		
Optical elements – Effectiveness of cable attachment		
– Cable Cyclic Flexing	609	i) Insertion loss as EN 2591-601
		ii) Visual examination as EN 2591-6101
– Cable Pulling	610	i) Insertion loss as EN 2591-601
		ii) Visual examination as EN 2591-6101
– Cable Torsion	611	i) Variation of insertion loss. See Note 1.
		ii) Insertion loss as EN 2591-601
		iii) Visual examination as EN 2591-6101
Optical elements – Impact test	613	See Note 2.
		i) Insertion loss as EN 2591-601
		ii) Coupling and uncoupling torque as EN 2591-408, Method A
		iii) Visual examination as EN 2591-6101
Optical elements – Connector radial compression	614	i) Variation of insertion loss. See Note 1.
		ii) Coupling and uncoupling torque as EN 2591-408, Method A
		iii) Visual examination as EN 2591-6101
Group 6		
Visual examination	101	
Examination of dimensions and mass	102	Conformance with the product standard
Salt mist	307	Visual examination as EN 2591-101
Robustness of protective cover attachment	427	
Visual examination	101	

NOTE 1 For variation of insertion loss performance criteria see the relevant product standard.
NOTE 2 See the applicable plug connector product standard for related impact test requirements.

8.3 Maintenance of qualification

8.3.1 Tests

The following tests shall be carried out every 36 months (or manufacturing interval, if longer) on specimens taken at random.

The manufacturer shall submit, to the mandated body, a table of tests shall be carried out in accordance with Table 7, plus a record of the results obtained.

8.3.2 Sampling and identification of parts

All models shall be divided between the two groups of Table 7.

Table 7 — Qualification maintenance

Designation of the test	2591-
Group 1	
Optical elements – Visual examination	6101
Examination of dimensions and mass	102
Optical elements – Insertion loss	601
Mating and unmating forces	408
Optical elements – Mechanical endurance	6406
Damp heat, cyclic test	321
Optical elements – Effectiveness of cable attachment	
– Cable pulling	610
– Cable torsion	611
Group 2	
Optical elements – Visual examination	6101
Examination of dimensions and mass	102
Optical elements – Endurance at temperature	6301
Mating and unmating forces	408
Optical elements – Visual examination	6101

8.4 Acceptance test conditions

This inspection shall be done systematically on all production prior to delivery in accordance with test EN 2591-6101 – Visual examination.

8.5 Quality control

Inspections which are intended to maintain the required quality level are in their entirety, the responsibility of the manufacturer, ranging from materials up to the delivery of the product.

The Quality Department of the manufacturer shall be able to demonstrate, at any time, that the product complies with the manufacturing documentation and with the product standard.

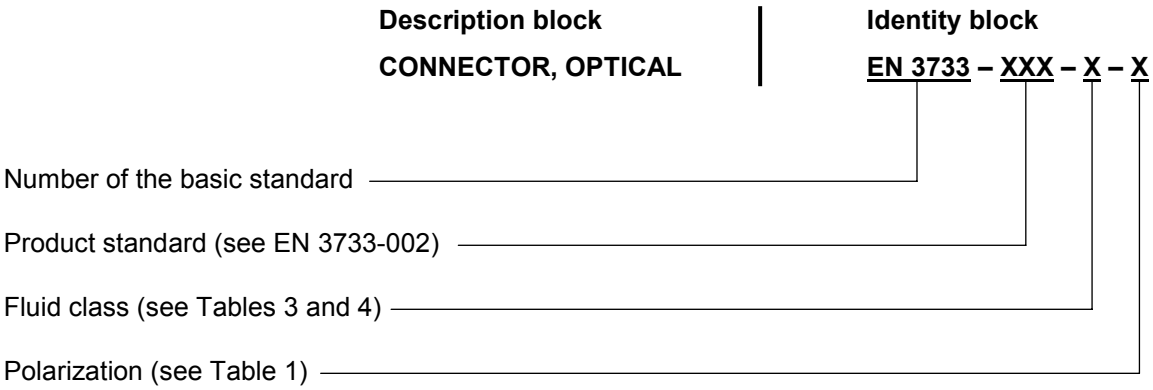
There shall be a monitoring system in place for the various inspection phases. This shall be evidenced by documents being kept available by the manufacturer for a period of five years and, if required, submitted to the national supervising inspectorate on request.

9 Designation and marking

9.1 General principle of designation

9.1.1 Connectors (receptacle or plug)

EXAMPLE:

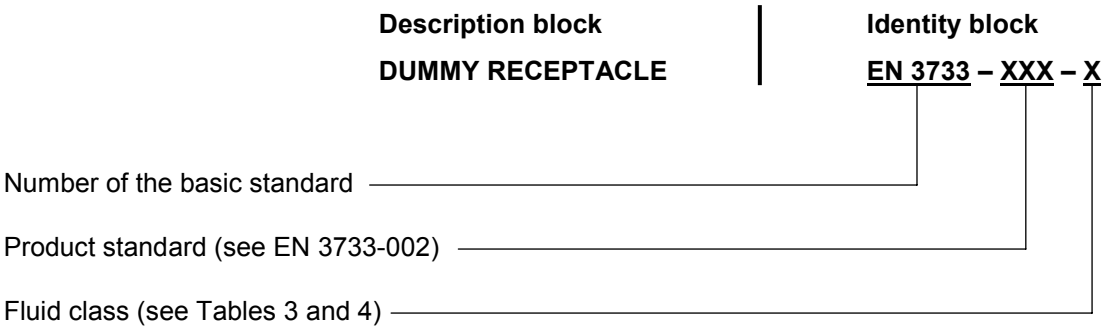


NOTE 1 Part number spacing as shown is for better readability only.

NOTE 2 If necessary, the code I9005 may be placed between the description block and the identity block.

9.1.2 Dummy receptacles

EXAMPLE:

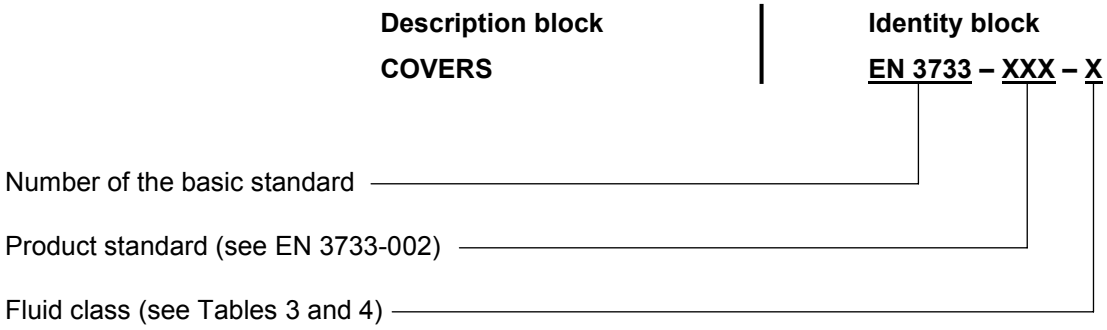


NOTE 1 Part number spacing as shown is for better readability only.

NOTE 2 If necessary, the code I9005 may be placed between the description block and the identity block.

9.1.3 Covers

EXAMPLE:

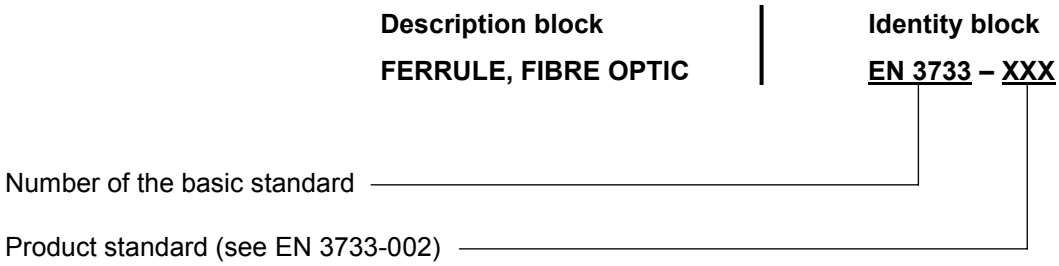


NOTE 1 Part number spacing as shown is for better readability only.

NOTE 2 If necessary, the code I9005 may be placed between the description block and the identity block.

9.1.4 Ferrules (Optical contacts)

EXAMPLE:

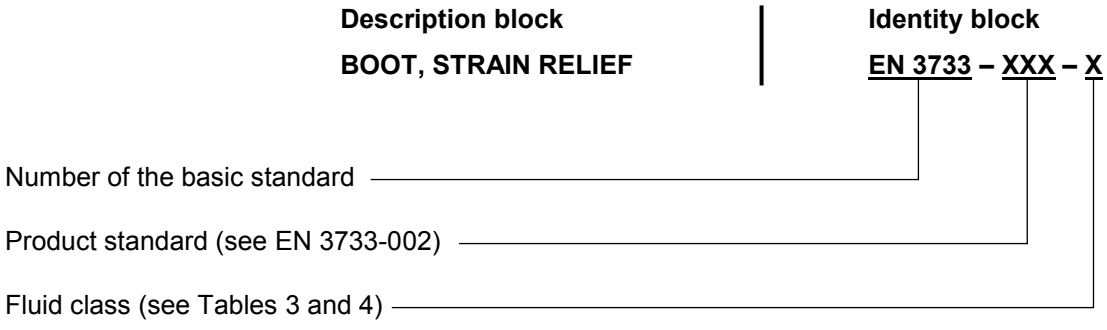


NOTE 1 Part number spacing as shown is for better readability only.

NOTE 2 If necessary, the code I9005 may be placed between the description block and the identity block.

9.1.5 Strain relief boots

EXAMPLE:

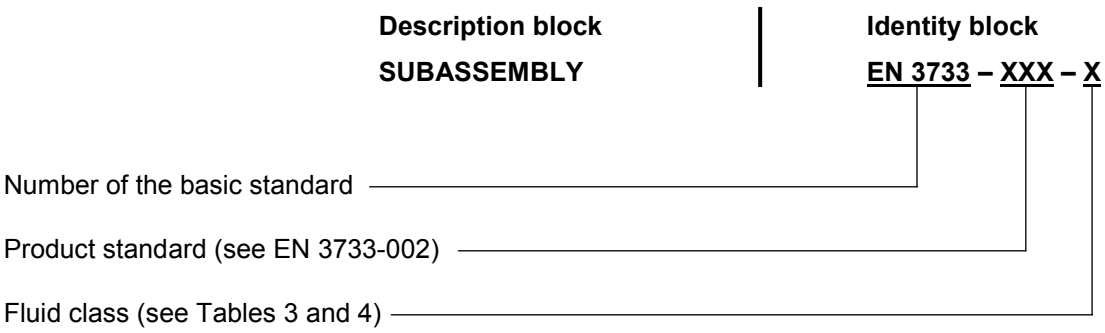


NOTE 1 Part number spacing as shown is for better readability only.

NOTE 2 If necessary, the code I9005 may be placed between the description block and the identity block.

9.1.6 Subassemblies

EXAMPLE:

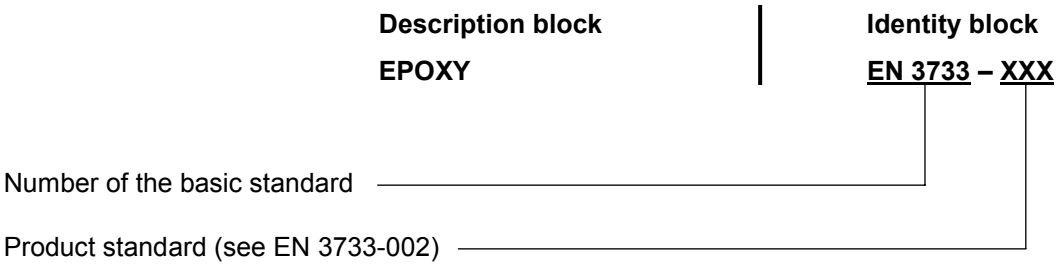


NOTE 1 Part number spacing as shown is for better readability only.

NOTE 2 If necessary, the code I9005 may be placed between the description block and the identity block.

9.1.7 Epoxy

EXAMPLE:



NOTE 1 Part number spacing as shown is for better readability only.

NOTE 2 If necessary, the code I9005 may be placed between the description block and the identity block.

9.2 Marking

Marking shall be applied to the connectors, protective covers, and dummy receptacles.

This marking shall include:

a) the identification as defined in 9.1 as appropriate;

b) the date of manufacture (year/week);

c) the manufacturer's name or Trade Mark.

10 Delivery conditions

Connectors shall be delivered with optical ferrules and cable restraints or as sub-assemblies as defined in the relevant product standard (see EN 3733-002). Optical termination equipment is supplied separately.

External threads shall be protected with plastic caps.

11 Packaging

Connectors with their ferrules shall be packed in transparent inert plastic bags. The designation required by the product standard shall be affixed on the packaging of the connectors.

12 Storage

Storage shall be in a place free from ultra violet rays.

Every five years, a re-inspection shall be carried out in accordance with EN 2591-101. The connector shall be re-packed in accordance with Clause 11 and the date of inspection shall be marked on the packaging.

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