BS EN 3155-079:2014

BSI Standards Publication

# Aerospace series — Electrical contacts used in elements of connection

## Part 079: Contacts size 22 for EN 2997, electrical, female, type A, crimp, class S — Product standard

**National foreword**

This British Standard is the UK implementation of EN 3155-079:2014.

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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# Aerospace series - Electrical contacts used in elements of connection - Part 079: Contacts size 22 for EN 2997, electrical, female, type A, crimp, class S - Product standard

Série aérospatiale - Contacts électriques utilisés dans les organes de connexion - Partie 079 : Contacts électriques taille 22 pour EN 2997, femelles, type A, à sertir, classe S - Norme de produit

Luft- und Raumfahrt - Elektrische Kontakte zur Verwendung in Verbindungselementen - Teil 079: Elektrische Buchsenkontakte Größe 22 für EN 2997, Typ A, crimpbar, Klasse S - Produktnorm

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# Foreword

This document (EN 3155-079:2014) 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of an identical text or by endorsement, at the latest by May 2015, and conflicting national standards shall be withdrawn at the latest by May 2015.

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# Introduction

The contacts defined in this standard are specified for EN 2997 high density.

## 1 Scope

This European Standard specifies the required characteristics and tests applicable to female electrical contacts 079, type A, crimp, class S, used in elements of connection according to EN 3155-002.

It shall be used together with EN 3155-001.

The associated male contacts are defined in EN 3155-078.

## 2 Normative references

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

EN 2083, *Aerospace series — Copper or copper alloy conductors for electrical cables — Product standard*

EN 2591 [1)], *Aerospace series — Elements of electrical and optical connection — Test methods*

EN 2997 (all parts), *Aerospace series — Connectors, electrical, circular, coupled by threaded ring, fire-resistant or non fire-resistant, operating temperatures – 65 °C to 175 °C continuous, 200 °C continuous, 260 °C peak*

EN 3155-001, *Aerospace series — Electrical contacts used in elements of connection — Part 001: Technical specification*

EN 3155-002, *Aerospace series — Electrical contacts used in elements of connection — Part 002: List and utilization of contacts*

EN 3155-078, *Aerospace series — Electrical contacts used in elements of connection — Part 078: Contacts size 22 for EN 2997, electrical, male, type A, crimp, class S — Product standard*

ISO 8843, *Aircraft — Crimp-removable contacts for electrical connectors — Identification system*

SAE-AS22520, *Crimping tools, wire termination, general specification for* [2)]

SAE-AS81969, *Installing and removal tools, connector electrical contact, general specification for* [2)]

## 3 Terms and definitions

For the purposes of this standard, the terms and definitions given in EN 3155-001 apply.

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1) All parts quoted in Table 6.

2) Published by: SAE National (US) Society of Automotive Engineers http://www.sae.org/

# 4 Required characteristics

## 4.1 Specific characteristics

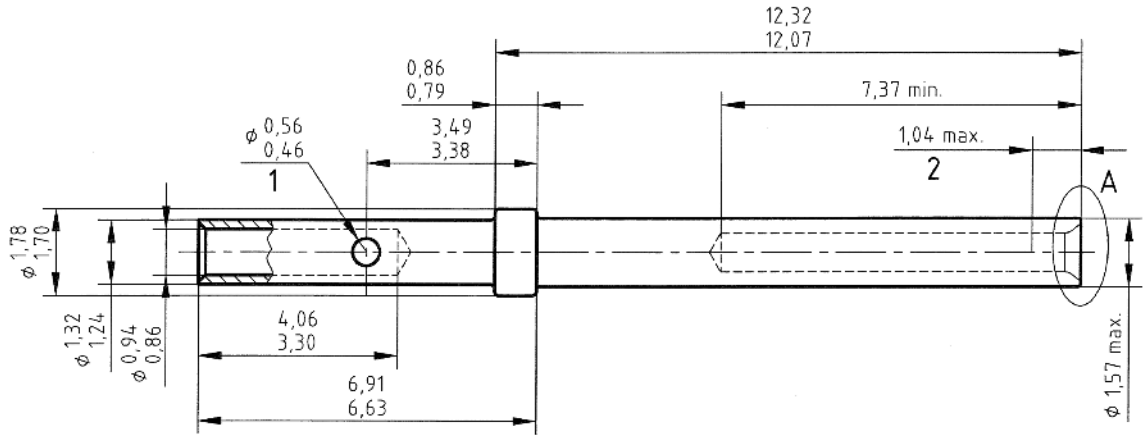
Type A contacts are for general application and class S corresponds to an operating temperature range from − 65 °C to 200 °C.

## 4.2 Dimensions and mass

See Figure 1 and Figure 2.

Dimensions and tolerances are given in millimetres and apply after surface treatment.

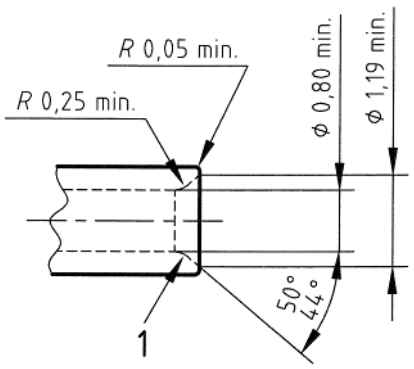
Mass: 0,20 g.




**Key**

1 One side only
2 Electrical engagement point

**Figure 1**




**Key**

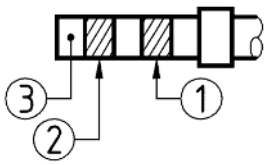
1 One full rad. permissible

**Figure 2 — Detail A**

## 4.3 Marking by colour code

See Table 1.

**Table 1 — Marking**

| Size | | Two bands according to ISO 8843  | | |
|---|---|---|---|---|
| **Contact** | **Barrel** | ① **Band 1** | ② **Band 2** | ③ **Dot** |
| 22 | 22 | Green | Green | — |

## 4.4 Material, surface treatment

— Body material: copper alloy.

— Surface treatment: gold on appropriate undercoat, thickness of protection not specified, selective protection permitted.

## 4.5 Permissible cables

See Table 2.

**Table 2 — Permissible cables**

| **Size** | | **Size of conductors** | | | **Rated test current** A |
|---|---|---|---|---|---|
| **Contact** | **Barrel** | **ASD code** | **Section** $mm^2$ | **AWG** [a] | |
| 22 | 22 | 004 | 0,40 | 22 | 5 |
| | | 002 | 0,25 | 24 | 3 |
| | | 001 | 0,15 | 26 | 2 |

[a] AWG = Closest American Wire Gage.

## 4.6 Tooling

### 4.6.1 Crimping tools

Conform to SAE-AS22520, see Table 3.

The qualification selector numbers used for crimping copper or copper alloy conductors in cables EN 2083 are indicated in Table 3.

It is the responsibility of the user if the parameters in Table 3 are changed for service use.

**Table 3 — Crimping tools**

| Contact | | Cable size | | Tool M22520/2-01 | |
|---|---|---|---|---|---|
| **Contact size** | **Barrel size** | **ASD code** | **AWG** [a] | **Positioner** | **Selector number** |
| 22 | 22 | 001 | 26 | M22520/2-23 | 3 |
| | | 002 | 24 | | 3 |
| | | 004 | 22 | | 5 |
| | | — | — | | — |

[a] AWG = Closest American Wire Gage.

#### 4.6.2 Insertion/Extraction tools

Conform to SAE-AS81969.

See Table 4.

**Table 4 — Insertion/Extraction tools**

| Size | | Insertion tools | Extraction tools |
|---|---|---|---|
| **Contact** | **Barrel** | | |
| 22 | 22 | M81969/1-01 or M81969/14-01 | M81969/1-01 or M81969/14-01 |

### 4.7 Cable stripping

See Table 5.

**Table 5 — Cable stripping**

| Size | | Stripped length of cable mm ± 0,5 |
|---|---|---|
| **Contact** | **Barrel** | |
| 22 | 22 | 4,5 |

### 4.8 Tests

Tests according to EN 2591-100, see Table 6.

**Table 6 — Test reference**

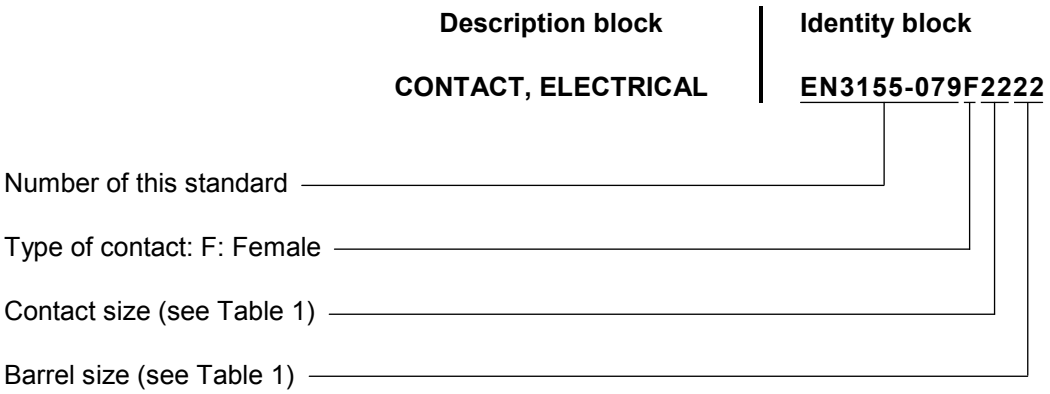
| EN 2591- | Designation of the test | Not applicable | Applicable | |
|---|---|---|---|---|
| | | | According to EN 3155-001 | Remarks |
| 101 | Visual examination | | X | |
| 102 | Examination of dimensions and mass | | X | |
| 201 | Contact resistance - low level | | X | |
| 202 | Contact resistance at rated current | | X | |
| 204 | Discontinuity of contacts in the microsecond range | | X | |
| 210 | Electrical overload | | X | |
| 220 | Contact/conductor joint ageing by current and temperature cycling | X | | |
| 301 | Endurance at temperature | | X | $T = (200 \pm 2)$ °C<br>Duration: 1 000 h |
| 305 | Rapid change of temperature | | X | $T_A = (200 \pm 2)$ °C<br>$T_B = (-65 \pm 2)$ °C |
| 307 | Salt mist | | X | |
| 315 | Fluid resistance | X | | |
| 316 | Ozone resistance | X | | |
| 319 | Gastightness of solderless wrapped connections | X | | |
| 402 | Shock | | X | |
| 403 | Sinusoidal and random vibration | | X | Temperature: 200 °C |
| 406 | Mechanical endurance | | X | |
| 415 | Test probe damage (female contacts) | | X | |
| 416 | Contact bending strength | X | | |
| 417 | Tensile strength (crimped connection) | | X | |
| 418 | Gauge insertion/extraction forces (female contacts) | | X | |
| 424 | Stripping force, solderless wrapped connections | X | | |
| 425 | Unwrapping capability, solderless wrapped connections | X | | |
| 501 | Soft solderability | X | | |
| 502 | Restricted entry | | X | |
| 503 | Contact deformation after crimping | | X | |
| 507 | Plating porosity | | X | |
| 508 | Measurement of thickness of coating on contacts | | X | The measured thickness shall be recorded. |
| 509 | Adhesion of coating on contacts | | X | |
| 513 | Magnetic permeability | | X | |
| 514 | Solderability of contacts with self-contained solder and flux | X | | |

### 4.9 Gauges

See EN 3155-001.

## 5 Designation

EXAMPLE




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

## 6 Marking

See EN 3155-001.

## 7 Technical specification

See EN 3155-001.

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