

BS EN 3155-081:2014



BSI Standards Publication

Aerospace series — Electrical contacts used in elements of connection

Part 081: Contacts size 22 for EN 2997, electrical, female, type A, crimp, class T — Product standard

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National foreword

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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 081: Contacts size 22 for EN 2997, electrical, female, type A, crimp, class T - Product standard

Série aérospatiale - Contacts électriques utilisés dans les organes de connexion - Partie 081 : Contacts électriques taille 22 pour EN 2997, femelles, type A, à sertir, classe T - Norme de produit

Luft- und Raumfahrt - Elektrische Kontakte zur Verwendung in Verbindungselementen - Teil 081: Elektrische Buchsenkontakte, Größe 22 für EN 2997, Typ A, crimpbar, Klasse T - Produktnorm

This European Standard was approved by CEN on 14 June 2014.

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Foreword

This document (EN 3155-081:2014) 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of an identical text or by endorsement, at the latest by May 2015, and conflicting national standards shall be withdrawn at the latest by May 2015.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 081, type A, crimp, class T, 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 3155-080.

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 3155-080, *Aerospace series — Electrical contacts used in elements of connection — Part 080: Contacts size 22 for EN 2997, electrical, male, type A, crimp, class T — 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.

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

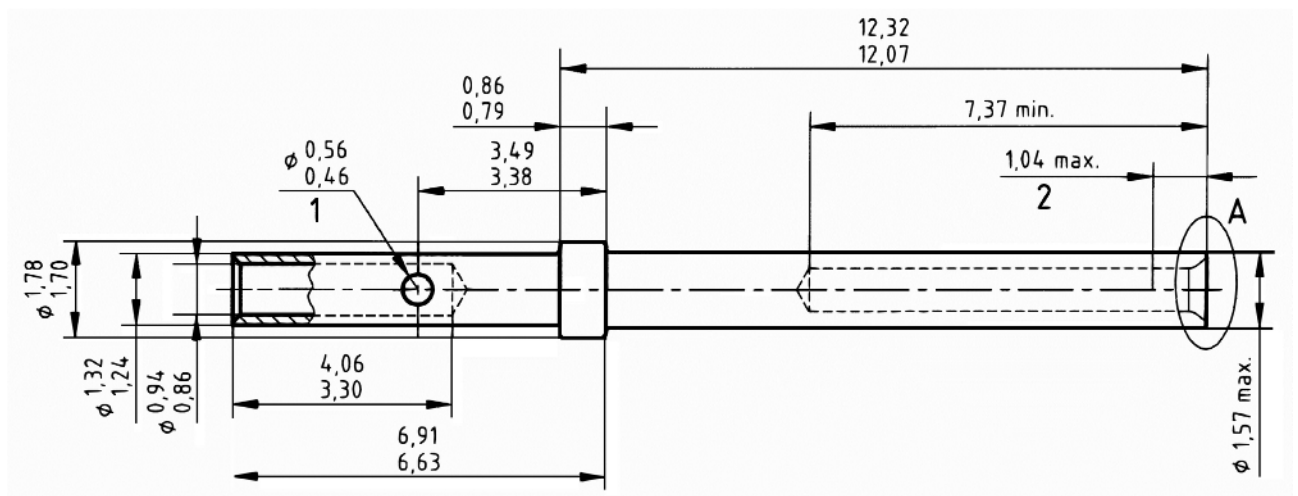
Type A contacts are for general application and class T corresponds to an operating temperature range from $-65\text{ }^{\circ}\text{C}$ to $260\text{ }^{\circ}\text{C}$.

4.2 Dimensions and mass

See Figure 1 and Figure 2.

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

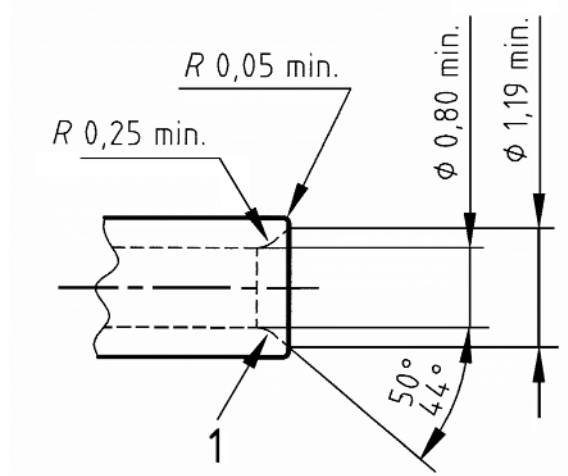
Mass: 0,20 g.



Key

- 1 One side only
- 2 Electrical engagement point

Figure 1



Key

- 1 One full rad. permissible

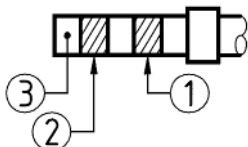
Figure 2 — Detail A

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	White



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 mm²	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		6
		—	—		—

^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

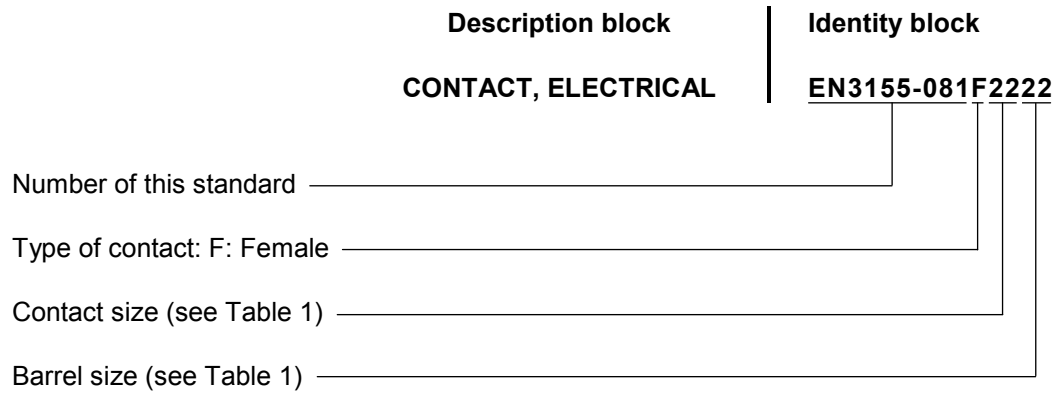
EN 2591-	Designation of the test	Not applicable	Applicable	
			According to EN 3155-001	Remarks
101	Visual examination		X	
102	Examination of dimensions and mass		X	
201	Contact resistance - low level		X	
202	Contact resistance at rated current		X	
204	Discontinuity of contacts in the microsecond range		X	
210	Electrical overload		X	
220	Contact/conductor joint ageing by current and temperature cycling	X		
301	Endurance at temperature		X	$T = (260 \pm 2) \text{ }^\circ\text{C}$ Duration: 1 000 h
305	Rapid change of temperature		X	$T_A = (260 \pm 2) \text{ }^\circ\text{C}$ $T_B = (-65 \pm 2) \text{ }^\circ\text{C}$
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 at 260 °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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