

Aerospace series — Electrical contacts used in elements of connection —

**Part 046: Contacts, electrical, male,
type A, double crimping, class S —
Product standard**

The European Standard EN 3155-046:2007 has the status of a
British Standard

ICS 49.060

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 3155-046:2007.

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

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organes de connexion - Partie 046 : Contacts électriques,
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Luft- und Raumfahrt - Elektrische Kontakte zur Verwendung
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This European Standard was approved by CEN on 13 January 2006.

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Foreword

This document (EN 3155-046:2007) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 AECMA, prior to its presentation to CEN.

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1 Scope

This standard specifies the required characteristics, tests and tooling, applicable to male electrical contacts 046, type A, double crimping, class S, used in elements of connection according to EN 3155-002.

It shall be used together with EN 3155-001.

The associated female contact is defined in EN 3155-047.

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*, *Aerospace series — Elements of electrical and optical connection — Test methods.*

EN 3155-001, *Aerospace series — Electrical contacts used in elements of connection — Part 001: Technical specification.* ¹⁾

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

EN 3155-047, *Aerospace series — Electrical contacts used in elements of connection — Part 047: Contacts, electrical, female, type A, double crimping, class S — Product standard.*

MIL-DTL-22520, *Crimping tools, wire termination, general specification for.* ²⁾

MIL-I-81969, *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.

* All parts quoted in this standard.

1) Published as AECMA Prestandard at the date of publication of this standard.

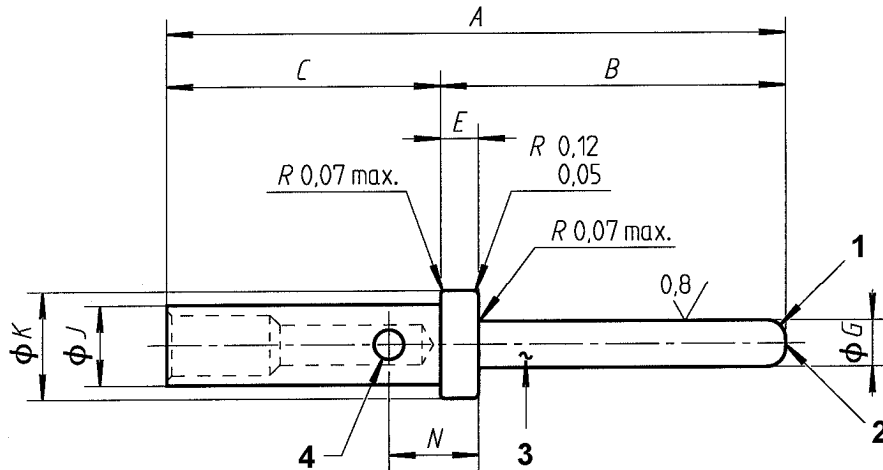
2) Published by: Department of Defense (DOD), The Pentagon, Washington D.C. 20301, USA.

4 Required characteristics

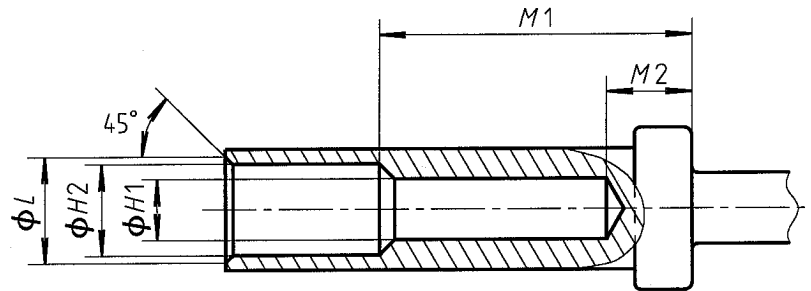
4.1 Dimensions and mass

See Figure 1 and Table 1.

Dimensions and tolerances are given in millimetres.



Detail of barrel



Key

- 1 Approximately spherical
- 2 Flat $\varnothing S$
- 3 Manufacturer identification
- 4 $\varnothing P$ (one side only)

Figure 1

Table 1

Size		A	B	C	E	G	H ₁	H ₂	J
Contact	Barrel	max.							
20	22	13,49	7,62	6,02	0,84	1,04	0,89	1,34	1,78
			7,49	5,87	0,74	0,99	0,84	1,29	1,73

Size		K	L	M ₁	M ₂	N	P	S	Mass
Contact	Barrel							max.	g
20	22	2,39	1,56	4,60	1,00	1,98	0,81	0,38	0,15
		2,31	1,45	4,30	0,70	1,81	0,66		

4.2 Material, protective plating

- Body material : copper alloy
- Protective plating : selective protection not permitted; minimum gold thickness: 1,27 µm nickel undercoat

4.3 Permissible cables

See Table 2.

Table 2

Size		Size of conductors				Rated test current A
Contact	Barrel	AECMA Code	Section mm ²	AWG ^a	∅ insulation max.	
20	22	004	0,4	22	1,25	5

^a AWG = American Wire Gage.

4.4 Cable stripping

See Table 3.

Table 3

Size		Stripped length of cable mm ± 0,3
Contact	Barrel	
20	22	2,9

4.5 Tooling

Conform to MIL-DTL-22520 and MIL-I-81969, see Table 4.

Table 4

Size		Cable size		Crimping tool			Insertion tool	Extraction tools	
Contact	Barrel	AECMA code	AWG ^a	Tool	Positioner	Selector number		Wired contact	Unwired contact
20	22	004	22	M22520/1-01	M22520/1-04	3	M81969/14-10	M81969/14-10	M81969/30-11

^a AWG = American Wire Gage.

4.6 Tests

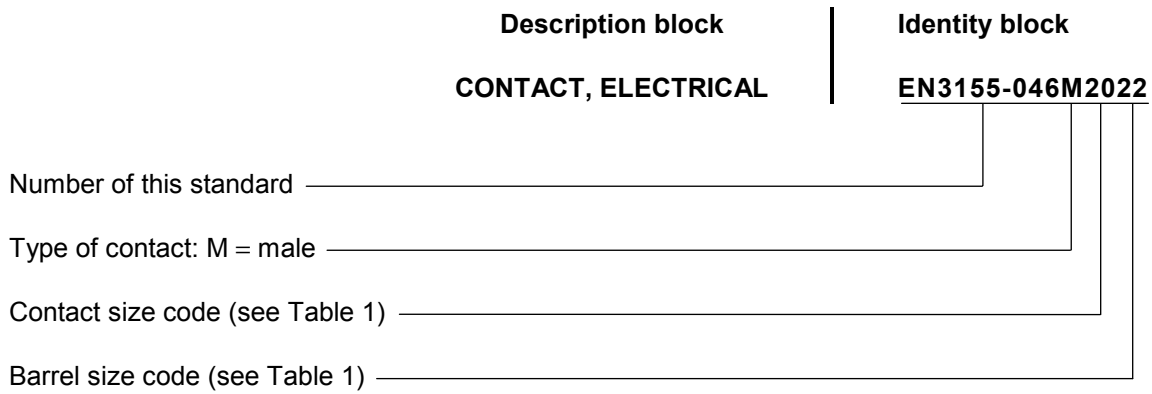
See Table 5.

Table 5

EN 2591-	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	
206	Measurement of insulation resistance	X		
207	Voltage proof test	X		
210	Electrical overload		X	
211	Capacitance	X		
212	Surface transfer impedance	X		
213	Shielding effectiveness from 100 MHz to 1 GHz	X		
301	Endurance at temperature		X	$T = (200 \pm 2) ^\circ\text{C}$ Duration: 1 000 h
305	Rapid change of temperature		X	$T_A = (200 \pm 2) ^\circ\text{C}$ $T_B = (-65 \pm 2) ^\circ\text{C}$
306	Mould growth	X		
307	Salt mist		X	
315	Fluid resistance	X		
402	Shock		X	
403	Sinusoidal and random vibration		X	
406	Mechanical endurance		X	
415	Test probe damage (female contact)	X		
416	Contact bending strength		X	
417	Tensile strength (crimped connection)		X	Crimping on sheath, inoperative
418	Gauge insertion/extraction forces (female contacts)	X		
502	Restricted entry	X		
503	Contact deformation after crimping		X	
508	Measurement of thickness of coating on contacts		X	
509	Adhesion of coating on contacts		X	
513	Magnetic permeability		X	≤ 2

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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