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Aluminium terminal ends for crimping to aircraft aluminium electrical cables

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[ISO 1965:1973](#)

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Descriptors : aircraft, aircraft equipment, electrical cables, electric lugs, electric terminals, aluminium, dimensions, characteristics.

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 1965 was drawn up by Technical Committee ISO/TC 20, *Aircraft and space vehicles*.

It was approved in May 1970 by the Member Bodies of the following countries :

Australia	Greece	South Africa, Rep. of
Belgium	India	Spain
Brazil	Israel	Switzerland
Canada	Italy	Turkey
Czechoslovakia	Japan	United Kingdom
Egypt, Arab Rep. of	Netherlands	U.S.S.R.
France	New Zealand	
Germany	Romania	

The Member Body of the following country expressed disapproval of the document on technical grounds :

U.S.A.

Aluminium terminal ends for crimping to aircraft aluminium electrical cables

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the characteristics of aluminium terminal ends suitable for crimping to aircraft electrical cables with aluminium conductors in locations in which the stabilized conductor temperature does not exceed 105 °C.

2 TERMINOLOGY

The terminology used in this International Standard is in conformity with ISO 1966, *Crimped joints for aircraft electrical cables*.

3 MATERIALS

The terminal ends shall be made from aluminium or aluminium alloy.

4 DIMENSIONS

The dimensions of the terminal ends shall satisfy the following criteria :

4.1 The dimensions of the terminal ends shall be those given in the Table.

4.2 The palm width of the terminal ends shall be between two and a quarter times and three times the nominal ends stud diameter.

4.3 The minimum area of any cross-section of the palm at right angles to the axis of the cable shall be sufficient to pass continuously the full rated current of the cable which the terminal ends accept.

4.4 The maximum of any section of the crimped barrel at right angles to the axis of the cable shall not exceed the palm width.

5 FINISH

5.1 The palm surface of the terminal ends shall be flat and parallel within 0,1 mm (0.004 in) total indicator reading before plating.

5.2 Stud holes shall be free from burrs and rough edges.

5.3 Terminal ends shall be plated with tin to the satisfaction of the approving authority.

6 INHIBITORS

The terminal ends shall be filled by the manufacturer with an inhibiting compound and subsequently sealed for transit and storage for the purpose of preventing ingress of moisture and possible reoxidation after crimping.

7 INSPECTION

The terminal ends shall be inspected for compliance with the approved drawings, and shall be free from harmful defects.

8 MARKINGS

8.1 Terminal ends shall be durably and legibly marked with the letters "AL", the cable size number (e.g. AL/2), and the manufacturer's identification.

8.2 The identification marking shall not be applied to the electrical contact area of the palm, i.e. within the subscribed diameter of the palm, of terminal ends nor to any part of the crimping barrel subject to deformation upon crimping.

9 PERFORMANCE

When crimped, the terminal ends shall satisfy the performance requirements of ISO 1966.

10 INSTALLATION

10.1 The contact surface area on which the aluminium terminal ends are mounted should be not less than that of the palm of the terminal end. For optimum performance the design of the connection should be such that the contact pressure is between 5,5 and 8,3 MN/m² (800 and 1 200 lbf/in²).

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ISO 1965-1973 (E)

10.2 Studs or bolts should be made of ferrous or non-ferrous alloys of suitable strength and temperature expansion coefficient. Recommended minimum values are :

- tensile strength : 510 MN/m² (74 000 lbf/in²)
- coefficient of linear expansion : $16 \times 10^{-6} / ^\circ\text{C}$.

10.3 Load-bearing washers of cadmium-plated steel should be used.

10.4 Stiffnuts are recommended for locking purposes. If plain nuts are used a locking washer should be located between the load-bearing washer and the nut.

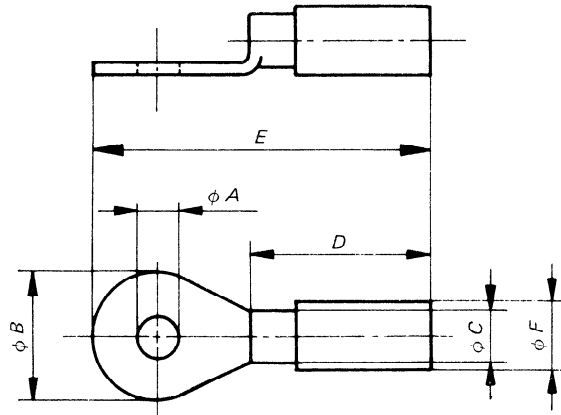


TABLE - Dimensions of aluminium terminal ends

Cable size	A				B		C		D max.				E max.				F max.	
	max.		min.		max.		max.		Without insulation support		With insulation support		Without insulation support		With insulation support		Insulation support	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
8	5,5	0.217	5,3	0.209	17,1	0.675	6,8	0.269	16,0	0.630	23,9	0.942	36,4	1.435	44,4	1.747	8,9	0.350
	6,7	0.264	6,5	0.256	19,3	0.760							41,5	1.635	49,5	1.947		
	8,6	0.339	8,4	0.331	20,3	0.800							41,5	1.635	49,5	1.947		
	10,8	0.425	10,5	0.413	25,7	1.010							44,7	1.760	52,6	2.072		
6	5,5	0.217	5,3	0.209	14,5	0.572	8,9	0.349	18,4	0.723	26,3	1.035	38,2	1.543	47,2	1.860	11,4	0.450
	6,7	0.264	6,5	0.256	19,3	0.760							44,3	1.743	52,2	2.055		
	8,6	0.339	8,4	0.331	19,3	0.760							44,3	1.743	52,2	2.055		
	10,8	0.425	10,5	0.413	25,7	1.010							47,4	1.868	55,4	2.180		
4	6,7	0.264	6,5	0.256	19,3	0.760	10,9	0.428	20,8	0.817	28,7	1.129	47,5	1.872	55,5	2.184	14,0	0.550
	8,6	0.339	8,4	0.331	22,2	0.875							47,5	1.872	55,5	2.184		
	10,8	0.425	10,5	0.413	25,7	1.010							50,7	1.997	58,6	2.309		
2	6,7	0.264	6,5	0.256	22,2	0.875	13,7	0.539	25,5	1.005	33,5	1.317	53,0	2.085	62,2	2.450	17,6	0.695
	8,6	0.339	8,4	0.331	22,2	0.875							53,0	2.085	62,2	2.450		
	10,8	0.425	10,5	0.413	25,7	1.010							59,7	2.350	67,6	2.662		
0	8,6	0.339	8,4	0.331	22,2	0.875	17,2	0.677	30,3	1.192	43,0	1.692	58,2	2.292	70,9	2.792	21,8	0.860
	10,8	0.425	10,5	0.413	25,7	1.010							64,9	2.557	77,6	3.057		
00	8,6	0.339	8,4	0.331	25,0	0.985	19,6	0.772	31,9	1.255	44,6	1.755	60,2	2.370	72,9	2.870	25,1	0.990
	10,8	0.425	10,5	0.413	25,7	1.010							66,9	2.635	79,6	3.135		
	13,5	0.531	13,0	0.512	32,0	1.260							73,2	2.880	85,9	3.380		
000	8,6	0.339	8,4	0.331	25,7	1.010	21,7	0.856	35,1	1.380	47,8	1.880	70,5	2.775	83,2	3.275	26,9	1.060
	10,8	0.425	10,5	0.413	27,0	1.062							70,5	2.775	83,2	3.275		
	13,5	0.531	13,0	0.512	32,0	1.260							77,0	3.030	89,7	3.530		
0000	8,6	0.339	8,4	0.331	25,7	1.010	24,3	0.957	40,0	1.535	51,7	2.035	72,2	2.841	84,8	3.340	28,6	1.125
	10,8	0.425	10,5	0.413	30,6	1.203							72,2	2.841	84,8	3.340		
	13,5	0.531	13,0	0.512	32,0	1.260							80,9	3.186	93,6	3.685		
	17,5	0.689	17,0	0.669	38,4	1.510							84,1	3.311	96,8	3.810		