

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 539

DIMENSIONS AND CONDUCTOR RESISTANCE
OF HEAT-RESISTING (260 °C) ELECTRICAL CABLES
WITH COPPER CONDUCTORS, FOR AIRCRAFT

1st EDITION

January 1967

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BRIEF HISTORY

The ISO Recommendation R 539, *Dimensions and Conductor Resistance of Heat-resisting (260 °C) Electrical Cables with Copper Conductors, for Aircraft*, was drawn up by Technical Committee ISO/TC 20, *Aircraft*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question by the Technical Committee began in 1960 and led, in 1963, to the adoption of a Draft ISO Recommendation.

In October 1964, this Draft ISO Recommendation (No. 770) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Australia	Israel	Switzerland
Belgium	Italy	United Kingdom
Canada	Japan	Yugoslavia
Chile	Netherlands	
France	Republic of	
Germany	South Africa	
Greece	Spain	

Two Member Bodies opposed the approval of the Draft:

Czechoslovakia
U.S.S.R.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in January 1967, to accept it as an ISO RECOMMENDATION.

**DIMENSIONS AND CONDUCTOR RESISTANCE
OF HEAT-RESISTING (260 °C) ELECTRICAL CABLES
WITH COPPER CONDUCTORS, FOR AIRCRAFT**

The dimensions and conductor resistance of heat-resisting electrical cables with copper conductors, for aircraft, suitable for use where, in continuous service, no combination of ambient temperature and conductor current produces a stabilized conductor temperature in excess of 260 °C, should be as follows:

Nominal conductor area		Size No.	Minimum number of wires	Maximum resistance of finished cable at 20 °C		Maximum diameter of stranded conductor		Maximum diameter of finished cable	
mm ²	in ²			per 1 km ohms	per 1000 yd ohms	mm	in	mm	in
0.38	0.000 589	22	12	54.3	49.7	0.86	0.034	2.3	0.090
0.60	0.000 93	20	19	33.9	31	1.1	0.043	2.5	0.100
0.95	0.001 47	18	19	21.0	19.2	1.32	0.052	2.9	0.115
1.22	0.001 89	16	19	16.0	14.7	1.6	0.063	3.3	0.130
1.94	0.003 01	14	19	9.8	8.97	1.95	0.077	3.8	0.150
3.08	0.004 77	12	19	6.2	5.64	2.5	0.100	4.3	0.170
5.29	0.008 2	10	37	3.8	3.48	3.3	0.13	5.1	0.200
8.55	0.013 3	8	120	2.30	2.10	4.5	0.176	6.5	0.255
13.6	0.021 1	6	133	1.43	1.31	5.6	0.221	7.9	0.310
21.6	0.033 5	4	133	0.90	0.822	7.3	0.287	9.4	0.370
33.9	0.052 6	2	203	0.59	0.54	8.8	0.346	11.3	0.445
41.5	0.064 3	1	248	0.48	0.44	10.0	0.394	12.6	0.495
52.8	0.081 8	0	323	0.38	0.342	11.3	0.445	14.0	0.550
68	0.105	00	416	0.30	0.275	12.5	0.492	15.5	0.610
85	0.132	000	513	0.24	0.22	14.4	0.567	17.3	0.680
107	0.166	0000	666	0.19	0.171	15.9	0.626	19.1	0.750