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Resistance welding equipment — Water-cooled secondary connection cables

Matériel de soudage par résistance — Câbles secondaires refroidis par eau

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 6, *Resistance welding and allied mechanical joining,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 121, *Welding and allied processes,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition cancels and replaces ISO 8205-1:2002, ISO 8205-2:2002 and ISO 8205-3:2012.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Official interpretations of ISO/TC 44 documents, where they exist, are available from this page: https://committee.iso.org/sites/tc44/home/interpretation.html.

Resistance welding equipment — Water-cooled secondary connection cables

1 Scope

This document gives specifications for single- and double-conductor secondary connection cables used for resistance welding and allied processes. These specifications include requirements for electrical, mechanical and cooling characteristics of the cables and their test procedures.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
double-conductor connection cable
cable comprising two conductors providing an electrical link between the secondary terminals of a welding transformer and the welding set (manual or robotized guns) and designed so as to have as low an electrical reactance as possible

3.2
single-conductor connection cable
cable comprising one conductor providing an electrical link between the secondary terminals of a welding transformer and the welding set (manual or robotized guns)

4 Classification

4.1 Form of the end lugs

Double-conductor water-cooled connection cables are classified into two types, A-1 and A-2, in accordance with the form of the end lugs (see 5.1.3).

Single-conductor water-cooled connection cables are classified into three types, C-1, C-2 and D, in accordance with the form of the end lugs (see 5.2.3).

4.2 Resistance and reactance

Double-conductor, water cooled connection cables are classified into two types, A-1 and A-2, with power factor $\cos\varphi \geq 0{,}95$ as shown in Figure 1.

5 Dimensions

5.1 Double conductor connection cables

5.1.1 Cross-sectional area

The effective cross-sectional area of copper per conductor shall be one of the following:

— 100 mm^2

— 150 mm^2

— 160 mm^2

— 200 mm^2

— 250 mm^2

— 315 mm^2

5.1.2 Length

The length, *L*, of the cable shall be one of the following (non-preferred values are given in parentheses). The length shall have a tolerance $^{+1}_{0}$ %:

— 1 000 mm

— 1 200 mm

— 1 250 mm – (1 500 mm)

— 1 600 mm – (1 800 mm)

— 2 000 mm – (2 240 mm)

— 2 400 mm

— 2 500 mm – (2 800 mm)

— 3 000 mm

— 3 150 mm

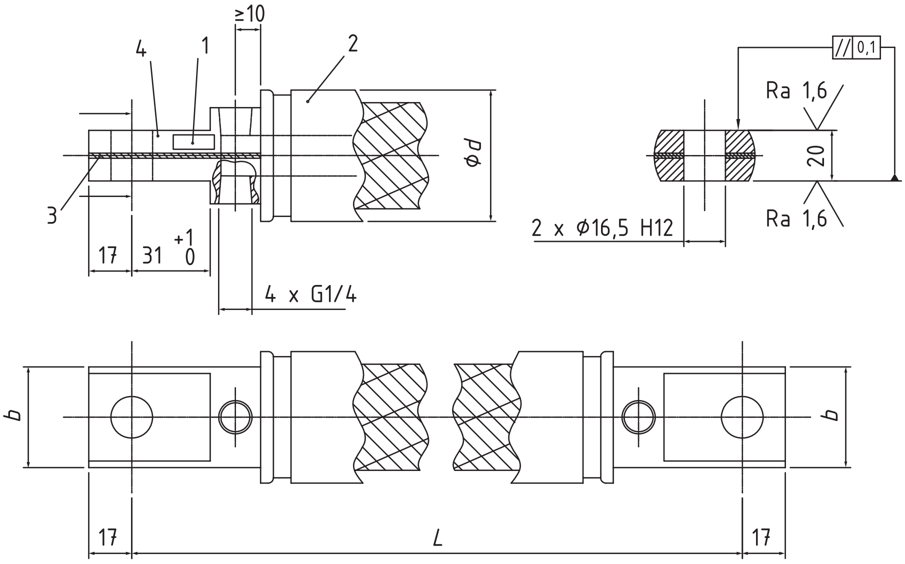
— 3 500 mm – (3 550 mm)

— 4 000 mm

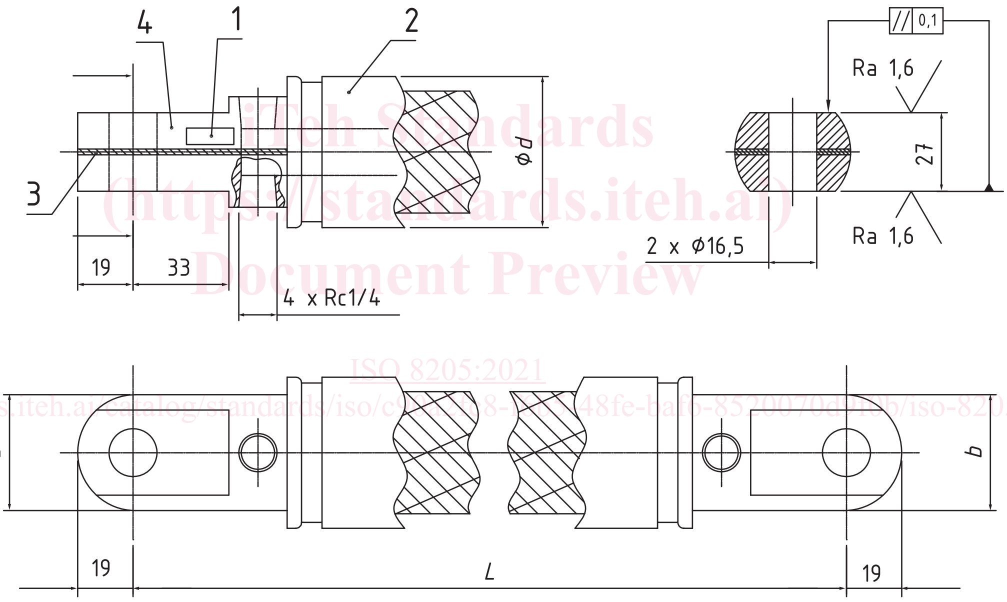
5.1.3 End lugs

The end lugs shall have the dimensions given in Figure 1 and Table 1.

Dimensions in millimetres



a) Type A-1



b) Type A-2

Key

1 marking

2 insulating covering

3 insulation

4 polarity mark on both ends

NOTE Surface roughness values in micrometres.

Figure 1 — End lug

Table 1 — Dimensions (double conductor connection cables)

Cross-sectional area	b mm		d_{max} mm	
mm^2	Type A-1	Type A-2	Type A-1	Type A-2
100	—	35 to 41	—	46
150	35 to 38	35 to 41	56	52
160	35 to 38	—	56	—
200	42 to 45	35 to 41	63	54
250	45 to 48	—	63	—
315	45 to 48	—	63	—

5.2 Single conductor connection cables

5.2.1 Cross-sectional area

The effective cross-sectional area of copper per conductor shall be one of the following:

— 150 mm^2

— 160 mm^2

— 180 mm^2

— 200 mm^2

— 250 mm^2

— 315 mm^2

5.2.2 Length

The length, L, of the cable shall be one of the following (non-preferred values are given in parentheses). The length shall have a tolerance $^{+1}_{0}$ %:

— 500 mm

— 630 mm

— 800 mm

— 1 000 mm

— 1 250 mm – (1 500 mm)

— 1 600 mm – (1 800 mm)

— 2 000 mm – (2 240 mm)

— 2 500 mm – (2 800 mm)

— 3 150 mm – (3 550 mm)

— 4 000 mm