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STANDARD

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JIS C 9304 : 1999

Spot welding electrodes

ICS 25.160.20

Descriptors : spot welding, welding electrodes, dimensions, shape, welding equipment,
welding

Reference number : JIS C 9304 : 1999 (E)

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently **JIS C 9304 : 1992** is replaced with **JIS C 9304 : 1999**.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

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Spot welding electrodes

Introduction This Japanese Industrial Standard has been prepared based on ISO 1089 : 1980 *Electrode taper fits for spot welding equipment—Dimensions*, ISO 5183-1 : 1988 *Resistance welding equipment—Electrode adaptors, male taper 1 : 10—Part 1 : Conical fixing, taper 1 : 10*, ISO 5183-2 : 1988 *Resistance spot welding—Electrode adaptors, male taper 1 : 10—Part 2 : Parallel shank fixing for end-thrust electrodes*, ISO 5184 : 1979 *Straight resistance spot welding electrodes*, ISO 5821 : 1979 *Resistance spot welding electrode caps*, ISO 5829 : 1984 *Resistance spot welding—Electrode adaptors, female taper 1 : 10* and ISO 5830 : 1984 *Resistance spot welding—Male electrode caps*, but specification items (definitions) and specification contents (shapes of electrode tips and dimensions of tapered parts) not specified in the corresponding International Standards are added.

Some parts of “designation of product” and “marking” in ISO’s are not adopted.

1 Scope This Standard specifies spot welding electrodes to be used in a spot welding equipment with an electrode force not exceeding 40 kN (hereafter referred to as “electrodes”).

Remarks : International Standards corresponding to this Standard are given below.

ISO 1089 : 1980 *Electrode taper fits for spot welding equipment—Dimensions*

ISO 5183-1 : 1988 *Resistance welding equipment—Electrode adaptors, male taper 1 : 10—Part 1 : Conical fixing, taper 1 : 10*

ISO 5183-2 : 1988 *Resistance spot welding—Electrode adaptors, male taper 1 : 10—Part 2 : Parallel shank fixing for end-thrust electrodes*

ISO 5184 : 1979 *Straight resistance spot welding electrodes*

ISO 5821 : 1979 *Resistance spot welding electrode caps*

ISO 5829 : 1984 *Resistance spot welding—Electrode adaptors, female taper 1 : 10*

ISO 5830 : 1984 *Resistance spot welding—Male electrode caps*

2 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. If the indication of the year of coming into effect (or the year of publication) is given to these referred standards, only the edition of indicated year constitutes the provision of this Standard but the revision and amendment made thereafter are not applied. The normative references without the indication of the year of coming into effect (or the year of publication) apply limiting only to the most recent edition (including amendments).

JIS C 9305 *General rule for resistance welding machines*

Remarks : ISO/FDIS 669 *Electric resistance welding—Resistance welding equipment—Mechanical and electrical requirements* is equivalent to the above standard.

JIS Z 3234 *Copper alloys for resistance welding electrode*

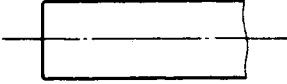
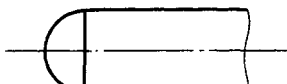
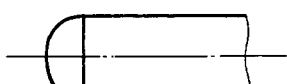
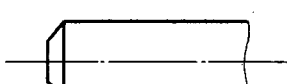
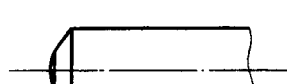
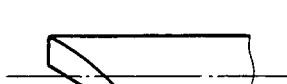
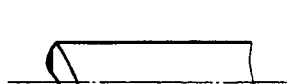
Remarks : **ISO 5182** *Welding—Materials for resistance welding electrodes and ancillary equipment* is equivalent to the above standard.

3 Definitions For the purposes of this Standard, the principal definitions stated in **JIS C 9305** apply.

4 Classification The electrodes are classified into straight type electrodes and cap type electrodes.

5 Type Types of electrode tips are as shown in Table 1.

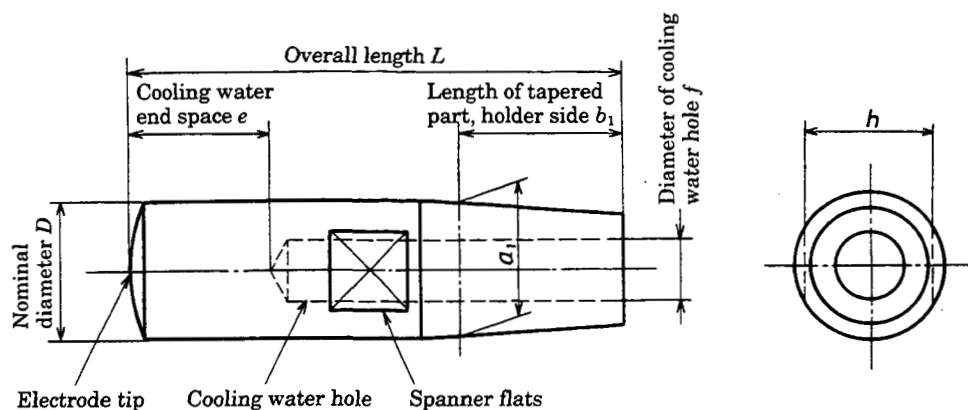
Table 1 Types of electrode tips

Type	Nomenclature	Shape	ISO type
Type F	Flat type		Type C
Type R	Radius type		Type A
Type D	Dome type		Type F
Type DR	Dome radius type		
Type CF	Truncated type		
Type CR	Truncated radius type		Type B
Type EF	Eccentric type		
Type ER	Eccentric radius type		Type D
Type P	Pointed type		
Type PD	Pointed dome type		Type E
Type PR	Pointed dome radius type		Type G

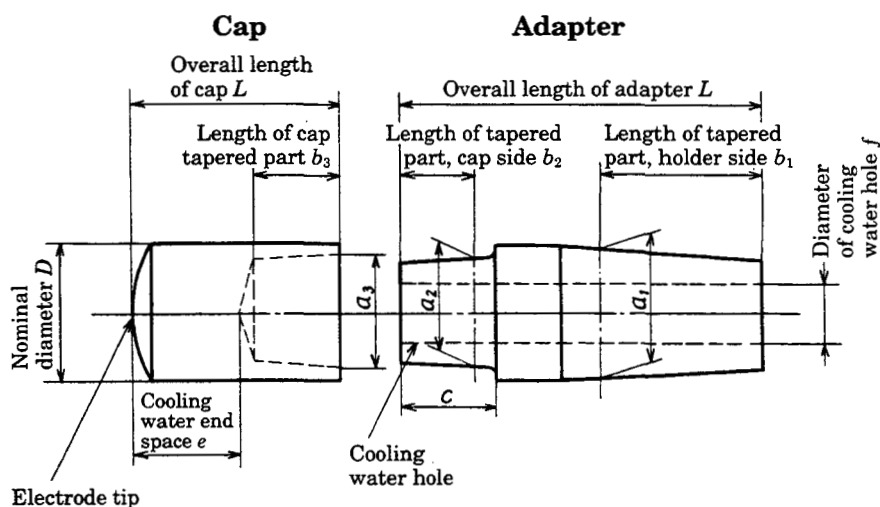
Remarks : When **ISO** type is used, **ISO** is suffixed to the type.

Example : **F-ISO**

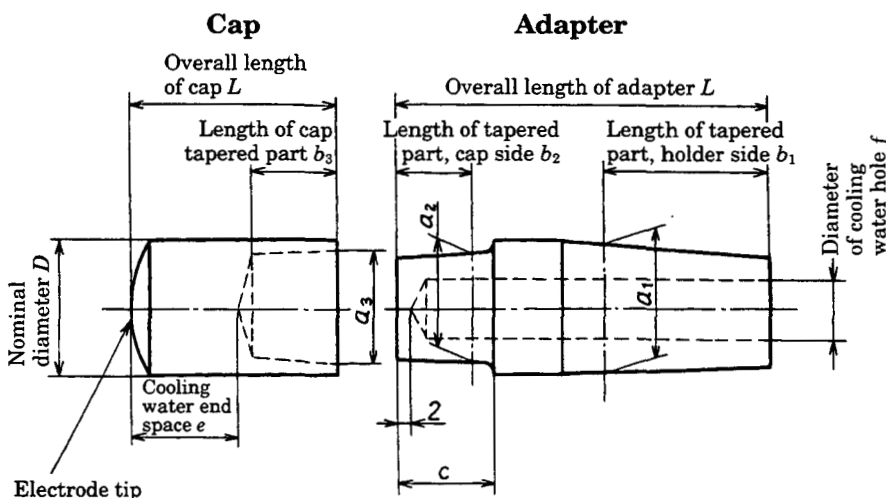
6 Names of parts The names of various parts of each class are as shown in Fig. 1.



a) Straight type electrode



b) Female cap type electrode (tapered-through hole type)



c) Female cap type electrode (tapered-closed type)

Fig. 1 Names of various parts