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Welding, brazing, soldering and cutting — Nomenclature of processes and reference numbers

# FDIS stage

<u>ISO 4063</u> https://standards.iteh.ai/catalog/standards/sist/c6c72140-a2ee-425a-90b0-6778832cea66/iso-4063

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# ISO/FDIS 4063:2022(E) 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 <a href="http://www.iso.org/directives">www.iso.org/directives</a>).

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This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 7, *Representation and terms*, 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 fifth edition cancels and replaces the fourth edition (ISO 4063:2009), which has been technically revised.

The main <del>change compared to the previous edition is <u>changes are</u> as follows:</del>

— — incorporation of processes and reference numbers for welding and thermal joining of plastics.

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

Field Code Changed



Field Code Changed

# Welding, brazing, soldering and cutting — Nomenclature of processes and reference numbers

# 1 Scope

This document establishes a nomenclature for:

- —welding:
- brazing, soldering and weld brazing;
- thermal cutting;

with each process identified by a reference number.

It covers the main processes (one digit), groups (two digits) and sub-groups (three digits). The reference number for any process has a maximum of three digits. This system is intended as an aid in computerization, and the drafting of, for example, drawings, working papers and welding procedure specifications, etc and enables the uniform international designation of the processes.

This document does not cover all process variants. The process numbers can be supplemented with additional information for variants not listed.

# 2 Normative references

eh STANDARD PREVIEW There are no normative references in this document.

### 3 Terms and definitions

No terms and definitions are listed in this document.

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

— ISO Online browsing platform: available at <a href="https://www.iso.org/obp">https://www.iso.org/obp</a>

-----IEC Electropedia: available at https://www.electropedia.org/

# 4 Designation

# 4.1 General

Where a full designation is required for a joining process, it shall have the following structure: the number of this document (i.e. "ISO 4063"), separated by a hyphendash from the reference number of the process, as shown in these examples.

EXAMPLE 1 Process "Cold pressure welding" with reference number 48 is designated as:

ISO 4063 - 48

EXAMPLE 2 Process "Radio frequency welding" with reference number 62 is designated as:

ISO 4063 - 62

EXAMPLE 3 Process "Heated wedge welding with hot gas" with reference number 662-A is designated as:

ISO 4063 - 662-A

# 4.2 Hybrid joining processes

When multiple processes are used simultaneously in one process area, the processes shall be described using the designations for each process separated by the symbol "+". © ISO 2022 - All rights reserved 1

EXAMPLE Process "Gas laser welding" (reference number 522) together with process "Plasma arc welding" (reference number 15) is designated as:

ISO 4063 – 522+<u>+</u>15

# 5 List of processes and reference numbers

## 5.1 General

The first designation listed is the preferred one and any subsequent designationdesignations are synonyms. Terms used in the United States of America (USA) are shown for information where there are differences.

<u>Annex A Annex A</u> provides supplementary options for process variants.

<u>Annex B</u> provides an overview for replaced and obsolete processes.

Annex CAnnex C provides a list of commonly used acronyms and abbreviations for the welding processes in the USAUnited States of America included in this document.

# 5.2 Welding

1	Arc welding	
11	Metal arc welding without gas protection	
11 1	Manual metal arc welding Shielded metal arc welding, USA	
11 2	Gravity welding Gravity arc welding with covered electrode standards.iteh.ai) Gravity feed welding, USA	
11 4	Self-shielded tubular cored arc welding	
12	Submerged arc welding/standards, itch ai/catalog/standards/sist/c6c72140-a	
12 1	Submerged arc welding with solid wire electrode 6778832cea66/iso-4063	
12 2	Submerged arc welding with strip electrode	
12 4	Submerged arc welding with metal powder addition	
12 5	Submerged arc welding with tubular cored electrode	
12 6	Submerged arc welding with cored strip electrode	
13	Gas-shielded metal arc welding	
	Metal inert gas (MIG) welding/Metal active gas (MAG) welding	
	Gas metal arc welding (GMAW), USA	
13 1	MIG welding with solid wire electrode GMAW using inert gas and solid wire electrode, USA	
13 2	MIG welding with flux cored electrode Gas shielded flux cored arc welding, USA	
13 3	MIG welding with metal cored electrode GMAW using inert gas and metal cored wire, USA	

r	ISO/FDIS 4063:2022(E)	
13	MAG welding with solid wire electrode	
5	GMAW using active gas with solid wire electrode, USA	
13	MAG welding with flux cored electrode	
6	GMAW using active gas and flux cored electrode, USA	
13	MAG welding with metal cored electrode	
0	GMAW using active gas and metal cored electrode, USA	
14	Gas-shielded arc welding with non-consumable tungsten electrode	
	Gas tungsten arc welding (GTAW) USA	
14	TIG welding with solid filler material	
1	GTAW using inert gas and solid filler material. USA	
14	Autogenous TIG welding	
2	Autogenous gas tungsten arc welding using inert gas, USA	
14	TIG welding with tubular cored filler material	
3	GTAW using inert gas and tubular cored filler material, USA	
14	TIG welding using reducing gas and solid filler material	
5	GTAW using inert gas plus reducing gas additions and solid filler material, USA	
14	TIG welding using reducing gas and tubular cored filler material DDDDD	
6	GTAW using inert gas plus reducing gas additions and tubular cored filler material, USA	
14	Gas-shielded arc welding with non-consumable tungsten electrode using active gas	
/	TAG welding (Stallual US-Iteli-al)	
45	GTAW Using active gas, USA	
15	Plasma arc weiding <u>ISO 4063</u>	
15 1	Plasma MIG weiding https://standards.iteh.ai/catalog/standards/sist/c6c72140-a	
15 2	Powder plasma arc welding 0778832CEa00/180-4003	
15	Plasma welding with transferred arc	
3		
15 4	Plasma arc welding with non-transferred arc	
15 5	Plasma arc welding with partially transferred arc	
18	Other arc welding processes	
18	Magnetically impelled arc welding	
5		
2	Resistance welding	
21	Resistance spot welding	
21 1	Indirect spot welding	
21 2	Direct spot welding	
22	Resistance seam welding	
-		

22 1	Lap seam welding	
22 2	Mash seam welding	
22 3	Prep-lap seam welding	
22 4	Wire seam welding	
22 5	Foil butt-seam welding	
22 6	Seam welding with strip	
23	Projection welding	
23 1	Indirect projection welding	
23 2	Direct projection welding	
24	Flash welding	
24 1	Flash welding with preheating <b>STANDARD PREV</b>	
24 2	Flash welding without preheating	
25	Resistance butt welding Upset welding, USA	
26	Resistance stud welding ISO 4063	
27	HF resistance welding //standards.iteh.ai/catalog/standards/sist/c6c72140-a	
	High-frequency resistance welding6778832cea66/iso-4063	
	High-frequency upset welding, USA	
29	Other resistance welding processes	
3	Gas welding	
21	Oxyluel gas welding	
21	Oxynee gas welding	
1	oxyacetytene werdning	
31 2	Oxypropane welding	
31 3	Oxyhydrogen welding	
4	Welding with pressure	
41	Ultrasonic welding	
41 1	Ultrasonic hot welding	
41 2	Ultrasonic spot welding	

1       Ultrasonic seam welding         2       Viction vociding         22       Viction welding*welding         23       Direct drive friction welding*welding         24       Inertia friction welding*welding         25       Priction stud welding         26       Inertia friction welding*welding         27       Priction stud welding         28       Priction stud welding         29       Radial friction welding * (generally referred to as */vibration welding* when the base materials are plastics)         20       Orbital friction welding         21       Radial friction welding         22       Striction stir spot welding         23       Refill friction stir spot welding         24       Strict friction stir spot welding         25       Strict friction stir spot welding         26       Neiger friction stir spot welding         27       Strict friction stir spot welding         28       Strict friction stir spot welding         39       Strict friction stir spot welding         41       Impact welding*[referred to as shock welding in ISO/TR 25901-3:2016.2:2.1.6.10)         42       Playesion welding         43       Magnetic pulse welding         44       Magnetic pulse weldin	·	ISO/FDIS 4063:2022(E)	
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48     Cold pressure extrusion welding       49     Hot pressure welding		Cold welding, USA	
49     Hot pressure welding	48 1	Cold pressure extrusion welding	
	49	Hot pressure welding	

 \* Reference number 424 is generally referred to as "vibration welding" when the base materials are plastics.

 \* Impact welding is referred to as shock welding in ISO/TR 25901-3:2016.

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49 1	Hot nozzle welding	
49 2	Nail head welding	
49 3	Coextrusion welding	
5	Beam welding	
51	Electron beam welding	
51 1	Electron beam welding in vacuum	
51 2	Electron beam welding in atmosphere	
51 3	Electron beam welding with addition of shielding gases	
52	Laser welding Laser beam welding, USA	
52 1	Solid state laser welding	
52 2	Gas laser welding iTeh STANDARD PREV	
52 3	Diode laser welding Semi-conductor laser welding, USA	
6	Plastics-specific welding processes	
61	Resistive implant welding	
61 1	Electrofusion welding s://standards.iteh.ai/catalog/standards/sist/c6c72140-a	
62	Radio frequency welding     0778852000000000000000000000000000000000	
63	Solvent welding	
63 1	Solvent cement welding	
64	Hot gas welding	
64 1	Hot gas speed welding	
64 2	Hot gas round nozzle welding	
64 3	Hot gas manual welding without welding rod	
64 4	Hot gas machine welding without welding rod	
64 5	Hot gas machine welding with welding rod	
64 6	Hot gas convection welding	
64 5 64 6	Hot gas machine welding with welding rod Hot gas convection welding	

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64 7	Extrusion welding	
65	Heat sealing	
65 1	Impulse welding	
65 2	Hot bar welding	
66	Heated tool welding	
66 1	Hot plate welding	
66 2	Heated wedge welding	
66 3	Socket fusion welding	
66 4	Saddle fusion welding	
67	Flash-free welding	
67 1	Flow fusion welding	
69	Other plastics-specific welding processes	
69 1	Microwave welding (standards.iteh.ai)	
69 2	Staking	
7	Other welding processes ISO 4063	
71	Aluminothermic welding	
	Thermite welding, USA67/8832cea66/iso-4063	
72	Electroslag welding	
72 1	Electroslag welding with strip electrode	
72 2	Electroslag welding with wire electrode	
73	Electrogas welding	
74	Induction welding	
74	Induction butt welding	
1	Induction upset welding, USA	
74 2	Induction seam welding	
74 3	High frequency induction welding	
75	Light radiation welding	
75 3	Infrared welding	
78	Arc stud welding	