



SLOVENSKI STANDARD
SIST-TP CEN ISO/TR 20173:2010

01-april-2010

Nadomešča:

SIST-TP CEN ISO/TR 20173:2006

Varjenje - Razvrščanje ameriških materialov v skupine (ISO/TR 20173:2009)

Welding - Grouping systems for materials - American materials (ISO/TR 20173:2009)

Schweißen - Werkstoffgruppeneinteilung - Amerikanische Werkstoffe (ISO/TR 20173:2009)

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Soudage - Systèmes de groupement des matériaux - Matériaux américains (ISO/TR 20173:2009)

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Ta slovenski standard je istoveten z: CEN ISO/TR 20173:2009

ICS:

25.160.20 Potrošni material pri varjenju Welding consumables

SIST-TP CEN ISO/TR 20173:2010

en,fr,de

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TECHNICAL REPORT
RAPPORT TECHNIQUE
TECHNISCHER BERICHT

CEN ISO/TR 20173

October 2009

ICS 25.160.20

Supersedes CEN ISO/TR 20173:2005

English Version

**Welding - Grouping systems for materials - American materials
(ISO/TR 20173:2009)**

Soudage - Systèmes de groupement des matériaux -
Matériaux américains (ISO/TR 20173:2009)

Schweißen - Werkstoffgruppeneinteilung - Amerikanische
Werkstoffe (ISO/TR 20173:2009)

This Technical Report was approved by CEN on 15 September 2009. It has been drawn up by the Technical Committee CEN/TC 121.

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Contents

Page

Foreword.....3

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

SIST-TP CEN ISO/TR 20173:2010

<https://standards.iteh.ai/catalog/standards/sist/252a4edf-f429-4b1f-b2e8-d41443d6c618/sist-tp-cen-iso-tr-20173-2010>

Foreword

This document (CEN ISO/TR 20173:2009) has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" in collaboration with Technical Committee CEN/TC 121 "Welding" the secretariat of which is held by DIN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN ISO/TR 20173:2005.

Endorsement notice

The text of ISO/TR 20173:2009 has been approved by CEN as a CEN ISO/TR 20173:2009 without any modification.

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TECHNICAL REPORT

ISO/TR 20173

Second edition
2009-10-01

Welding — Grouping systems for materials — American materials

*Soudage — Systèmes de groupement des matériaux — Matériaux
américains*

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d41443d6c618/sist-tp-cen-iso-tr-20173-2010](https://standards.iteh.ai/catalog/standards/sist/252a4edf-f429-4b1f-b2e8-d41443d6c618/sist-tp-cen-iso-tr-20173-2010)



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Contents

Page

Foreword.....	iv
1 Scope	1
2 American grouping system for materials	1
Bibliography	58

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[SIST-TP CEN ISO/TR 20173:2010](https://standards.iteh.ai/catalog/standards/sist/252a4edf-f429-4b1f-b2e8-d41443d6c618/sist-tp-cen-iso-tr-20173-2010)

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ISO/TR 20173:2009(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TR 20173 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 10, *Unification of requirements in the field of metal welding*.

This second edition cancels and replaces the first edition (ISO/TR 20173:2005), which has been technically revised.

Requests for official interpretations of any aspect of this Technical Report should be directed to the Secretariat of ISO/TC 44/SC 10 via your national standards body. A complete listing of these bodies can be found at <http://www.iso.org>.

Welding — Grouping systems for materials — American materials

1 Scope

This Technical Report provides an American grouping system for materials for welding purposes, classified in accordance with the grouping system of ISO/TR 15608:2005^[1].

It may also apply for other purposes, such as heat treatment, forming, and non-destructive testing. Types of steels are listed in accordance with the grouping system of ISO/TR 15608:2005^[1], Table 1.

This Technical Report covers grouping systems for the following standardized materials:

- steel;
- aluminium and its alloys;
- nickel and its alloys;
- copper and its alloys;
- titanium and its alloys;
- zirconium and its alloys;
- cast irons.

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2 American grouping system for materials

See Tables 1 and 2.

Table 1 — American grouping system for ferrous material

ASTM/ASME		Type or grade	UNS No.	ASME/AWS		ISO/TR 15608:2005 ^[1] group	Nominal composition
Specification	No.			P or M No.	Group No.		
AS	15	5-490	—	1	—	1.1	C
AS	15	7-430	—	1	—	1.1	C
AS	15	7-460	—	1	—	1.1	C
AS	15	7-490	—	1	—	1.1	C
A/SA	36	—	K02600	1	1	11.1	C-Mn-Si
A/SA	36	—	K02600	1	1	11.1	C-Mn-Si
A/SA	53	Type E, Gr. A	K02504	1	1	11.1	C

ISO/TR 20173:2009(E)

Table 1 (continued)

ASTM/ASME		Type or grade	UNS No.	ASME/AWS		ISO/TR 15608:2005 ^[1] group	Nominal composition
Specification	No.			P or M No.	Group No.		
A/SA	53	Type E, Gr. B	K03005	1	1	11.1	C-Mn
A/SA	53	Type F	—	1	1	11.1	C
A/SA	53	Type S, Gr. A	K02504	1	1	11.1	C
A/SA	53	Type S, Gr. B	K03005	1	1	11.1	C-Mn
A/SA	105	—	K03504	1	2	11.1	C
A/SA	106	A	K02501	1	1	1.1	C-Si
A/SA	106	B	K03006	1	1	11.1	C-Mn-Si
A/SA	106	C	K03501	1	2	11.1	C-Mn-Si
A	108	1015 CW	G10150	1	1	1.1	C
A	108	1018 CW	G10180	1	1	1.1	C
A	108	1020 CW	G10200	1	1	1.1	C
A	108	8620 CW	G86200	3	3	4.1	0.5Ni-0.5Cr-Mo
A	131	A	—	1	1	1.1	C
A	131	AH32	—	1	2	1.2	C-Mn-Si
A	131	AH36	—	1	2	1.2	C-Mn-Si
A	131	B	—	1	1	1.1	C-Mn-Si
A	131	CS	—	1	1	1.1	C-Mn-Si
A	131	D	—	1	1	1.1	C-Mn-Si
A	131	DH32	—	1	2	1.2	C-Mn-Si
A	131	DH36	—	1	2	1.2	C-Mn-Si
A	131	DS	—	1	1	1.1	C-Mn-Si
A	131	E	—	1	2	1.1	C-Mn-Si
A	131	EH32	—	1	2	1.2	C-Mn-Si
A	131	EH36	—	1	2	1.2	C-Mn-Si
A/SA	134	SA283, Gr. A	—	1	1	1.1	C
A/SA	134	SA283, Gr. B	—	1	1	1.1	C
A/SA	134	SA283, Gr. C	K02401	1	1	1.1	C
A/SA	134	SA283, Gr. D	K02702	1	1	1.1	C
A/SA	134	SA285, Gr. A	K01700	1	1	1.1	C
A/SA	134	SA285, Gr. B	K02200	1	1	1.1	C
A/SA	134	SA285, Gr. C	K02801	1	1	11.1	C
A/SA	135	A	—	1	1	1.1	C
A/SA	135	B	—	1	1	11.1	C
A	139	A	—	1	1	1.1	C
A	139	B	K03003	1	1	1.1	C

Table 1 (continued)

ASTM/ASME		Type or grade	UNS No.	ASME/AWS		ISO/TR 15608:2005 ^[1] group	Nominal composition
Specification	No.			P or M No.	Group No.		
A	139	C	K03004	1	1	11.1	C
A	139	D	K03010	1	1	11.1	C
A	139	E	K03012	1	1	11.1	C
A	167	Type 302B	S30215	8	1	8.1	18Cr-8Ni-2Si
A	167	Type 308	S30800	8	2	8.2	20Cr-10Ni
A	167	Type 309	S30900	8	2	8.2	23Cr-12Ni
A	167	Type 309S	S30908	8	2	8.2	23Cr-12Ni
A	167	Type 310	S31000	8	2	8.2	25Cr-20Ni
A	167	Type 310S	S31008	8	2	8.2	25Cr-20Ni
A/SA	178	A	K01200	1	1	1.1	C
A/SA	178	C	K03503	1	1	11.1	C
A/SA	178	D	—	1	2	11.1	C-Mn-Si
A/SA	179	—	K01200	1	1	1.1	C
A/SA	181	Cl. 60	K03502	1	1	11.1	C-Si
A/SA	181	Cl. 70	K03502	1	2	11.1	C-Si
A	182	F60	S32205	10H	1	10.1	22Cr-5Ni-3Mo-N
A	182	F6a, Cl. 3	S41000	6	3	7.2	13Cr
A	182	F6a, Cl. 4	S41000	6	3	7.2	13Cr
A	182	S34565	S34565	8	4	8.2	24Cr-17Ni-6Mn-4.5Mo-N
A/SA	182	F1	K12822	3	2	1.1	C-0.5Mo
A/SA	182	F10	S33100	8	2	8.1	20Ni-8Cr
A/SA	182	F11, Cl. 1	K11597	4	1	5.1	1.25Cr-0.5Mo-Si
A/SA	182	F11, Cl. 2	K11572	4	1	5.1	1.25Cr-0.5Mo-Si
A/SA	182	F11, Cl. 3	K11572	4	1	5.1	1.25Cr-0.5Mo-Si
A/SA	182	F12, Cl. 1	K11562	4	1	5.1	1Cr-0.5Mo
A/SA	182	F12, Cl. 2	K11564	4	1	5.1	1Cr-0.5Mo
A/SA	182	F2	K12122	3	2	4.2	0.5Cr-0.5Mo
A/SA	182	F21	K31545	5°	1	5.2	3Cr-1Mo
A/SA	182	F22, Cl. 1	K21590	5°	1	5.2	2.25Cr-1Mo
A/SA	182	F22, Cl. 3	K21590	5°	1	5.2	2.25Cr-1Mo
A/SA	182	F22V	K31835	5C	1	6.2	2.25Cr-1Mo-V
A/SA	182	F304	S30400	8	1	8.1	18Cr-8Ni
A/SA	182	F304H	S30409	8	1	8.1	18Cr-8Ni
A/SA	182	F304L	S30403	8	1	8.1	18Cr-8Ni
A/SA	182	F304LN	S30453	8	1	8.1	18Cr-8Ni-N

Table 1 (continued)

ASTM/ASME		Type or grade	UNS No.	ASME/AWS		ISO/TR 15608:2005 ^[1] group	Nominal composition
Specification	No.			P or M No.	Group No.		
A/SA	182	F304N	S30451	8	1	8.1	18Cr-8Ni-N
A/SA	182	F310	S31000	8	2	8.2	25Cr-20Ni
A/SA	182	F310MoLN	S31050	8	2	8.2	25Cr-22Ni-2Mo-N
A/SA	182	F316	S31600	8	1	8.1	16Cr-12Ni-2Mo
A/SA	182	F316H	S31609	8	1	8.1	16Cr-12Ni-2Mo
A/SA	182	F316L	S31603	8	1	8.1	16Cr-12Ni-2Mo
A/SA	182	F316LN	S31653	8	1	8.1	16Cr-12Ni-2Mo-N
A/SA	182	F316N	S31651	8	1	8.1	16Cr-12Ni-2Mo-N
A/SA	182	F317	S31700	8	1	8.1	18Cr-13Ni-3Mo
A/SA	182	F317L	S31703	8	1	8.1	18Cr-13Ni-3Mo
A/SA	182	F321	S32100	8	1	8.1	18Cr-10Ni-Ti
A/SA	182	F321H	S32109	8	1	8.1	18Cr-10Ni-Ti
A/SA	182	F347	S34700	8	1	8.1	18Cr-10Ni-Cb
A/SA	182	F347H	S34709	8	1	8.1	18Cr-10Ni-Cb
A/SA	182	F348	S34800	8	1	8.1	18Cr-10Ni-Cb
A/SA	182	F348H	S34809	8	1	8.1	18Cr-10Ni-Cb
A/SA	182	F3V	K31830	5C	1	6.2	3Cr-1Mo-V-Ti-B
A/SA	182	F3VCb	—	5C	1	6.2	3Cr-1Mo-0.25V-Cb-Ca
A/SA	182	F429	S42900	6	2	7.2	15Cr
A/SA	182	F430	S43000	7	2	7.1	17Cr
A/SA	182	F44	S31254	8	4	8.2	20Cr-18Ni-6Mo
A/SA	182	F45	S30815	8	2	8.2	21Cr-11Ni-N
A/SA	182	F46	S30600	8	1	8.1	18Cr-15Ni-4Si
A/SA	182	F5	K41545	5B	1	5.3	5Cr-0.5Mo
A/SA	182	F50	S31200	10H	1	10.2	25Cr-6Ni-Mo-N
A/SA	182	F51	S31803	10H	1	10.1	22Cr-5Ni-3Mo-N
A/SA	182	F53	S32750	10H	1	10.2	25Cr-7Ni-4Mo-N
A/SA	182	F54	S39274	10H	1	10.2	25Cr-7Ni-3Mo-2W-Cu-N
A/SA	182	F55	S32760	10H	1	10.1	25Cr-8Ni-3Mo-W-Cu-N
A/SA	182	F5a	K42544	5B	1	5.3	5Cr-0.5Mo
A/SA	182	F6a, Cl. 1	S41000	6	1	7.2	13Cr
A/SA	182	F6a, Cl. 2	S41000	6	3	7.2	13Cr
A/SA	182	F6b	S41026	6	3	7.2	13Cr-0.5Mo
A/SA	182	F6NM	S41500	6	4	7.2	13Cr-4.5Ni-Mo

Table 1 (continued)

ASTM/ASME		Type or grade	UNS No.	ASME/AWS		ISO/TR 15608:2005 ^[1] group	Nominal composition
Specification	No.			P or M No.	Group No.		
A/SA	182	F9	K90941	5B	1	5.4	9Cr-1Mo
A/SA	182	F91	K90901	5B	2	6.4	9Cr-1Mo-V
A/SA	182	FR	K22035	9A	1	9.1	2Ni-1Cu
A/SA	182	FXM-11	S21904	8	3	8.3	21Cr-6Ni-9Mn
A/SA	182	FXM-19	S20910	8	3	8.3	22Cr-13Ni-5Mn
A/SA	182	FXM-27Cb	S44627	10I	1	7.1	27Cr-1Mo
A/SA	192	—	K01201	1	1	1.1	C-Si
A/SA	202	A	K11742	4	1	4.2	0.5Cr-1.25Mn-Si
A/SA	202	B	K12542	4	1	4.2	0.5Cr-1.25Mn-Si
A/SA	203	A	K21703	9A	1	9.1	2.5Ni
A/SA	203	B	K22103	9A	1	9.1	2.5Ni
A/SA	203	D	K31718	9B	1	9.2	3.5Ni
A/SA	203	E	K32018	9B	1	9.2	3.5Ni
A/SA	203	F	—	9B	1	9.2	3.5Ni
A/SA	204	A	K11820	3	1	1.1	C-0.5Mo
A/SA	204	B	K12020	3	2	1.1	C-0.5Mo
A/SA	204	C	K12320	3	2	1.2	C-0.5Mo
A/SA	209	T1	K11522	3	1	1.1	C-0.5Mo
A/SA	209	T1a	K12023	3	1	1.1	C-0.5Mo
A/SA	209	T1b	K11422	3	1	1.1	C-0.5Mo
A/SA	210	A-1	K02707	1	1	11.1	C-Si
A/SA	210	C	K03501	1	2	11.1	C-Mn-Si
A	211	A570-30	K02502	1	1	1.1	C
A	211	A570-33	K02502	1	1	1.1	C
A	211	A570-40	K02502	1	1	1.1	C
A/SA	213	—	S31277	45	—	8.2	27Ni-22Cr-7Mo-Mn-Cu
A/SA	213	S30600	S30600	8	1	8.1	17Cr-14Ni-4Si
A/SA	213	S30601	S30601	8	1	8.1	17.5Cr-17.5Ni-5.3Si
A/SA	213	S30815	S30815	8	2	8.2	21Cr-11Ni-N
A/SA	213	S31277	S31277	45	—	8.2	27Ni-22Cr-7Mo-Mn-Cu
A/SA	213	S31725	S31725	8	4	8.1	19Cr-15Ni-4Mo
A/SA	213	S31726	S31726	8	4	8.1	19Cr-15.5Ni-4Mo
A/SA	213	S32615	S32615	8	1	8.1	18Cr-20Ni-5.5Si
A/SA	213	T11	K11597	4	1	5.1	1.25Cr-0.5Mo-Si