Designation: A240/A240M − 11a

Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications[1]

This standard is issued under the fixed designation A240/A240M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This specification[2] covers chromium, chromium-nickel, and chromium-manganese-nickel stainless steel plate, sheet, and strip for pressure vessels and for general applications.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.3 This specification is expressed in both inch-pound and SI units. However, unless the order specifies the applicable "M" specification designation (SI units), the material shall be furnished in inch-pound units.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[3]

A370 Test Methods and Definitions for Mechanical Testing of Steel Products

A480/A480M Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip

A923 Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels

E112 Test Methods for Determining Average Grain Size

E527 Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)

2.2 *SAE Standard:*[4]

J 1086 Practice for Numbering Metals and Alloys (UNS)

3. General Requirements

3.1 The following requirements for orders for material furnished under this specification shall conform to the applicable requirements of the current edition of Specification A480/A480M.

3.1.1 Definitions;

3.1.2 General requirements for delivery;

3.1.3 Ordering information;

3.1.4 Process;

3.1.5 Special tests;

3.1.6 Heat treatment;

3.1.7 Dimensions and permissible variations;

3.1.8 Workmanship, finish and appearance;

3.1.9 Number of tests/test methods;

3.1.10 Specimen preparation;

3.1.11 Retreatment;

3.1.12 Inspection;

3.1.13 Rejection and rehearing;

3.1.14 Material test report;

3.1.15 Certification; and

3.1.16 Packaging, marking, and loading.

4. Chemical Composition

4.1 The steel shall conform to the requirements as to chemical composition specified in Table 1 and shall conform to applicable requirements specified in Specification A480/A480M.

5. Mechanical Properties

5.1 The material shall conform to the mechanical properties specified in Table 2.

[1] This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.17 on Flat-Rolled and Wrought Stainless Steel.

Current edition approved April 1, 2011. Published April 2011. Originally approved in 1940. Last previous edition approved in 2011 as A240/A240M – 11. DOI: 10.1520/A0240_A0240M-11A.

[2] For ASME Boiler and Pressure Vessel Code applications see related Specification SA-240 in Section II of that Code.

[3] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[4] Available from Society of Automotive Engineers (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, http://www.sae.org.

*A Summary of Changes section appears at the end of this standard.

TABLE 1 Chemical Composition Requirements, %^{A}

UNS Designation^{B}	Type^{C}	Carbon^{D}	Manganese	Phos-phorus	Sulfur	Silicon	Chromium	Nickel	Molybdenum	Nitrogen	Copper	Other Elements^{E,F}
Austenitic (Chromium-Nickel) (Chromium-Manganese-Nickel)												
S30435	. . .	0.08	2.00	0.045	0.030	1.00	16.0–18.0	7.0–9.0	. . .	. . .	1.50–3.00	. . .
N08020	. . .	0.07	2.00	0.045	0.035	1.00	19.0–21.0	32.0–38.0	2.00–3.00	. . .	3.00–4.00	Cb 8×C min, 1.00 max
N08367	. . .	0.030	2.00	0.040	0.030	1.00	20.0–22.0	23.5–25.5	6.0–7.0	0.18–0.25	0.75	. . .
N08700	. . .	0.04	2.00	0.040	0.030	1.00	19.0–23.0	24.0–26.0	4.3–5.0	. . .	0.50	Cb 8×C min 0.40 max
N08800	800^{G}	0.10	1.50	0.045	0.015	1.00	19.0–23.0	30.0–35.0	. . .	. . .	0.75	Fe^{H} 39.5 min Al 0.15–0.60 Ti 0.15–0.60
N08810	800H^{G}	0.05–0.10	1.50	0.045	0.015	1.00	19.0–23.0	30.0–35.0	. . .	. . .	0.75	Fe^{H} 39.5 min Al 0.15–0.60 Ti 0.15–0.60
N08811	. . .	0.06–0.10	1.50	0.040	0.015	1.00	19.0–23.0	30.0–35.0	. . .	. . .	0.75	Fe^{H} 39.5 min Ti^{I} 0.15–0.60 Al^{I} 0.15–0.60
N08904	904L^{G}	0.020	2.00	0.045	0.035	1.00	19.0–23.0	23.0–28.0	4.00–5.00	0.10	1.00–2.00	. . .
N08926	. . .	0.020	2.00	0.030	0.010	0.50	19.0–21.0	24.0–26.0	6.00–7.00	0.15–0.25	0.50–1.50	. . .
S20100	201	0.15	5.50–7.50	0.060	0.030	1.00	16.0–18.0	3.5–5.5	. . .	0.25	. . .	. . .
S20103	. . .	0.03	5.50–7.50	0.045	0.030	0.75	16.0–18.0	3.5–5.5	. . .	0.25	. . .	. . .
S20153	. . .	0.03	6.40–7.50	0.045	0.015	0.75	16.0–17.5	4.0–5.0	. . .	0.10–0.25	1.00	. . .
S20161	. . .	0.15	4.00–6.00	0.040	0.040	3.00–4.00	15.0–18.0	4.0–6.0	. . .	0.08–0.20	. . .	. . .
S20200	202	0.15	7.50–10.00	0.060	0.030	1.00	17.0–19.0	4.0–6.0	. . .	0.25	. . .	. . .
S20400	. . .	0.030	7.00–9.00	0.040	0.030	1.00	15.0–17.0	1.50–3.00	. . .	0.15–0.30	. . .	. . .
S20431	. . .	0.12	5.00–7.00	0.045	0.030	1.00	17.0–18.0	2.0–4.0	. . .	0.10–0.25	1.50–3.50	. . .
S20432	. . .	0.08	3.00–5.00	0.045	0.030	1.00	17.0–18.0	4.0–6.0	. . .	0.05–0.20	2.00–3.00	. . .
S20433	. . .	0.08	5.50–7.50	0.045	0.030	1.00	17.0–18.0	3.5–5.5	. . .	0.10–0.25	1.50–3.50	. . .
S20910	XM-19^{J}	0.06	4.00–6.00	0.040	0.030	0.75	20.5–23.5	11.5–13.5	1.50–3.00	0.20–0.40	. . .	Cb 0.10–0.30 V 0.10–0.30
S21400	XM-31^{J}	0.12	14.00–16.00	0.045	0.030	0.30–1.00	17.0–18.5	1.00	. . .	0.35 min	. . .	. . .
S21600	XM-17^{J}	0.08	7.50–9.00	0.045	0.030	0.75	17.5–22.0	5.0–7.0	2.00–3.00	0.25–0.50	. . .	. . .
S21603	XM-18^{J}	0.03	7.50–9.00	0.045	0.030	0.75	17.5–22.0	5.0–7.0	2.00–3.00	0.25–0.50	. . .	. . .
S21640	. . .	0.08	3.50–6.50	0.060	0.030	1.00	17.5–19.5	4.0–6.5	0.50–2.00	0.08–0.30	. . .	Cb 0.10–1.00
S21800	. . .	0.10	7.00–9.00	0.060	0.030	3.5–4.5	16.0–18.0	8.0–9.0	. . .	0.08–0.18	. . .	. . .
S21904	XM-11^{J}	0.04	8.00–10.00	0.060	0.030	0.75	19.0–21.5	5.5–7.5	. . .	0.15–0.40	. . .	. . .
S24000	XM-29^{J}	0.08	11.50–14.50	0.060	0.030	0.75	17.0–19.0	2.3–3.7	. . .	0.20–0.40	. . .	. . .
S30100	301	0.15	2.00	0.045	0.030	1.00	16.0–18.0	6.0–8.0	. . .	0.10	. . .	. . .
S30103	301L^{G}	0.03	2.00	0.045	0.030	1.00	16.0–18.0	6.0–8.0	. . .	0.20	. . .	. . .
S30153	301LN^{G}	0.03	2.00	0.045	0.030	1.00	16.0–18.0	6.0–8.0	. . .	0.07–0.20	. . .	. . .
S30200	302	0.15	2.00	0.045	0.030	0.75	17.0–19.0	8.0–10.0	. . .	0.10	. . .	. . .
S30400	304	0.07	2.00	0.045	0.030	0.75	17.5–19.5	8.0–10.5	. . .	0.10	. . .	. . .
S30403	304L	0.030	2.00	0.045	0.030	0.75	17.5–19.5	8.0–12.0	. . .	0.10	. . .	. . .
S30409	304H	0.04–0.10	2.00	0.045	0.030	0.75	18.0–20.0	8.0–10.5	. . .	. . .	. . .	. . .
S30415	. . .	0.04–0.06	0.80	0.045	0.030	1.00–2.00	18.0–19.0	9.0–10.0	. . .	0.12–0.18	. . .	Ce 0.03–0.08
S30451	304N	0.08	2.00	0.045	0.030	0.75	18.0–20.0	8.0–10.5	. . .	0.10–0.16	. . .	. . .
S30452	XM-21^{J}	0.08	2.00	0.045	0.030	0.75	18.0–20.0	8.0–10.5	. . .	0.16–0.30	. . .	. . .
S30453	304LN	0.030	2.00	0.045	0.030	0.75	18.0–20.0	8.0–12.0	. . .	0.10–0.16	. . .	. . .
S30500	305	0.12	2.00	0.045	0.030	0.75	17.0–19.0	10.5–13.0	. . .	. . .	. . .	. . .
S30530	. . .	0.08	2.00	0.045	0.030	0.50–2.50	17.0–20.5	8.5–11.5	0.75–1.50	. . .	0.75–3.50	. . .
S30600	. . .	0.018	2.00	0.020	0.020	3.7–4.3	17.0–18.5	14.0–15.5	0.20	. . .	0.50	. . .
S30601	. . .	0.015	0.50–0.80	0.030	0.013	5.0–5.6	17.0–18.0	17.0–18.0	0.20	0.05	0.35	. . .
S30615	. . .	0.16–0.24	2.00	0.030	0.030	3.2–4.0	17.0–19.5	13.5–16.0	. . .	. . .	. . .	Al 0.80–1.50
S30815	. . .	0.05–0.10	0.80	0.040	0.030	1.40–2.00	20.0–22.0	10.0–12.0	. . .	0.14–0.20	. . .	Ce 0.03–0.08
S30908	309S	0.08	2.00	0.045	0.030	0.75	22.0–24.0	12.0–15.0	. . .	. . .	. . .	. . .
S30909	309H^{G}	0.04–0.10	2.00	0.045	0.030	0.75	22.0–24.0	12.0–15.0	. . .	. . .	. . .	. . .

TABLE 1 *Continued*

UNS Designation[B]	Type[C]	Carbon[D]	Manganese	Phosphorus	Sulfur	Silicon	Chromium	Nickel	Molybdenum	Nitrogen	Copper	Other Elements[E,F]
S34800	348	0.08	2.00	0.045	0.030	0.75	17.0–19.0	9.0–13.0	. . .	. . .	. . .	(Cb + Ta) 10×C min, 1.00 max Ta 0.10 Co 0.20
S34809	348H	0.04–0.10	2.00	0.045	0.030	0.75	17.0–19.0	9.0–13.0	. . .	. . .	. . .	(Cb + Ta) 8×C min, 1.00 max Ta 0.10 Co 0.20
S35045	. . .	0.06–0.10	1.50	0.045	0.015	1.00	25.0–29.0	32.0–37.0	. . .	. . .	0.75	Al 0.15–0.60 Ti 0.15–0.60
S35115	. . .	0.030	1.00	0.045	0.015	0.50–1.50	23.0–25.0	19.0–22.0	1.50–2.50	0.20–0.30	. . .	. . .
S35125	. . .	0.10	1.00–1.50	0.045	0.015	0.50	20.0–23.0	31.0–35.0	2.00–3.00	. . .	. . .	Cb 0.25–0.60
S35135	. . .	0.08	1.00	0.045	0.015	0.60–1.00	20.0–25.0	30.0–38.0	4.0–4.8	. . .	0.75	Ti 0.40–1.00
S35140	. . .	0.10	1.00–3.00	0.045	0.030	0.75	20.0–22.0	25.0–27.0	1.00–2.00	0.08–0.20	. . .	Cb 0.25–0.75
S35315	. . .	0.04–0.08	2.00	0.040	0.030	1.20–2.00	24.0–26.0	34.0–36.0	. . .	0.12–0.18	. . .	Ce 0.03–0.10
S38100	XM-15[J]	0.08	2.00	0.030	0.030	1.50–2.50	17.0–19.0	17.5–18.5	. . .	. . .	. . .	. . .
S38815	. . .	0.030	2.00	0.040	0.020	5.50–6.50	13.0–15.0	13.0–17.0	0.75–1.50	. . .	0.75–1.50	Al 0.30
Duplex (Austenitic-Ferritic)												
S31200	. . .	0.030	2.00	0.045	0.030	1.00	24.0–26.0	5.5–6.5	1.20–2.00	0.14–0.20	. . .	. . .
S31260	. . .	0.03	1.00	0.030	0.030	0.75	24.0–26.0	5.5–7.5	2.5–3.5	0.10–0.30	0.20–0.80	W 0.10–0.50
S31803	. . .	0.030	2.00	0.030	0.020	1.00	21.0–23.0	4.5–6.5	2.5–3.5	0.08–0.20	. . .	. . .
S32001	. . .	0.030	4.00–6.00	0.040	0.030	1.00	19.5–21.5	1.00–3.00	0.60	0.05–0.17	1.00	. . .
S32003	. . .	0.030	2.00	0.030	0.020	1.00	19.5–22.5	3.0–4.0	1.50–2.00	0.14–0.20	. . .	. . .
S32101	. . .	0.040	4.00–6.00	0.040	0.030	1.00	21.0–22.0	1.35–1.70	0.10–0.80	0.20–0.25	0.10–0.80	. . .
S32202	. . .	0.030	2.00	0.040	0.010	1.00	21.5–24.0	1.00–2.80	0.45	0.18–0.26	. . .	. . .
S32205	2205[G]	0.030	2.00	0.030	0.020	1.00	22.0–23.0	4.5–6.5	3.0–3.5	0.14–0.20	. . .	. . .
S32304	2304[G]	0.030	2.50	0.040	0.030	1.00	21.5–24.5	3.0–5.5	0.05–0.60	0.05–0.20	0.05–0.60	
S82441	. . .	0.030	2.5–4.0	0.035	0.005	0.70	23.0–25.0	3.0–4.5	1.00–2.00	0.20–0.30	0.10–0.80	. . .
S32506	. . .	0.030	1.00	0.040	0.015	0.90	24.0–26.0	5.5–7.2	3.0–3.5	0.08–0.20	. . .	W 0.05–0.30
S32520	. . .	0.030	1.50	0.035	0.020	0.80	24.0–26.0	5.5–8.0	3.0–4.0	0.20–0.35	0.50–2.00	. . .
S32550	255[G]	0.04	1.50	0.040	0.030	1.00	24.0–27.0	4.5–6.5	2.9–3.9	0.10–0.25	1.50–2.50	. . .
S32750	2507[G]	0.030	1.20	0.035	0.020	0.80	24.0–26.0	6.0–8.0	3.0–5.0	0.24–0.32	0.50	. . .
S32760[K]	. . .	0.030	1.00	0.030	0.010	1.00	24.0–26.0	6.0–8.0	3.0–4.0	0.20–0.30	0.50–1.00	W 0.50–1.00
S32808	. . .	0.030	1.10	0.030	0.010	0.50	27.0–27.9	7.0–8.2	0.80–1.2	0.30–0.40	. . .	W 2.10–2.50
S32900	329	0.08	1.00	0.040	0.030	0.75	23.0–28.0	2.0–5.00	1.00–2.00	. . .	. . .	. . .
S32906	. . .	0.030	0.80–1.50	0.030	0.030	0.80	28.0–30.0	5.8–7.5	1.50–2.60	0.30–0.40	0.80	. . .
S32950	. . .	0.030	2.00	0.035	0.010	0.60	26.0–29.0	3.5–5.2	1.00–2.50	0.15–0.35	. . .	. . .
S39274	. . .	0.030	1.00	0.030	0.020	0.80	24.0–26.0	6.0–8.0	2.5–3.5	0.24–0.32	0.20–0.80	W 1.50–2.50
S81921	. . .	0.030	2.00–4.00	0.040	0.030	1.00	19.0–22.0	2.0–4.0	1.00–2.00	0.14–0.20	. . .	. . .
S82011	. . .	0.030	2.00–3.00	0.040	0.020	1.00	20.5–23.5	1.0–2.0	0.10–1.00	0.15–0.27	0.50	. . .
Ferritic or Martensitic (Chromium)												
S32803	. . .	0.015	0.50	0.020	0.0035	0.55	28.0–29.0	3.0–4.0	1.80–2.50	0.020 (C+N) 0.030	. . .	Cb 12×(C+N) min, 0.15–0.50
S40500	405	0.08	1.00	0.040	0.030	1.00	11.5–14.5	0.60	. . .	. . .	. . .	Al 0.10–0.30
S40900[L]	409[L]											
S40910	. . .	0.030	1.00	0.040	0.020	1.00	10.5–11.7	0.50	. . .	0.030	. . .	Ti 6×(C+N) min, 0.50 max; Cb 0.17
S40920	. . .	0.030	1.00	0.040	0.020	1.00	10.5–11.7	0.50	. . .	0.030	. . .	Ti 8×(C+N) min, Ti 0.15–0.50; Cb 0.10

TABLE 1 *Continued*

UNS Designation[B]	Type[C]	Carbon[D]	Manganese	Phosphorus	Sulfur	Silicon	Chromium	Nickel	Molybdenum	Nitrogen	Copper	Other Elements[E,F]
S44700	...	0.010	0.30	0.025	0.020	0.20	28.0–30.0	0.15	3.5–4.2	0.020	0.15	(C+N) 0.025
S44735	...	0.030	1.00	0.040	0.030	1.00	28.0–30.0	1.00	3.6–4.2	0.045	...	(Ti+Cb) 0.20–1.00, (Ti+Cb) 6× (C+N) min
S44800	...	0.010	0.30	0.025	0.020	0.20	28.0–30.0	2.00–2.50	3.5–4.2	0.020	0.15	(C+N) 0.025
S46800	...	0.030	1.00	0.040	0.030	1.00	18.0–20.0	0.50	...	0.030	...	Ti 0.07–0.30 Cb 0.10–0.60 (Ti+Cb) [0.20+4 (C+N)] min, 0.80 max
S44535	...	0.030	0.30–0.80	0.050	0.020	0.50	20.0–24.0	...	...	...	0.50	La 0.04–0.20 Ti 0.03–0.20 Al 0.50

[A] Maximum, unless range or minimum is indicated.
[B] Designation established in accordance with Practice E527 and SAE J 1086.
[C] Unless otherwise indicated, a grade designation originally assigned by the American Iron and Steel Institute (AISI).
[D] Carbon analysis shall be reported to nearest 0.01 % except for the low-carbon types, which shall be reported to nearest 0.001 %.
[E] The terms Columbium (Cb) and Niobium (Nb) both relate to the same element.
[F] When two minimums or two maximums are listed for a single type, as in the case of both a value from a formula and an absolute value, the higher minimum or lower maximum shall apply.
[G] Common name, not a trademark, widely used, not associated with any one producer.
[H] Iron shall be determined arithmetically by difference of 100 minus the sum of the other specified elements.
[I] (Al + Ti) 0.85–1.20.
[J] Naming system developed and applied by ASTM.
[K] Cr + 3.3 Mo + 16 N = 40 min.
[L] S40900 (Type 409) has been replaced by S40910, S40920, and S40930. Unless otherwise specified in the ordering information, an order specifying S40900 or Type 409 shall be satisfied by any one of S40910, S40920, or S40930 at the option of the seller. Material meeting the requirements of S40910, S40920, or S40930, may at the option of the manufacturer be certified as S40900.
[M] Plate version of CA-6NM.
[N] Product (check or verification) analysis tolerance over the maximum limit for C and N in XM-27 shall be 0.002 %.

TABLE 2 *Continued*

UNS Designation	Type[A]	Tensile Strength, min		Yield Strength,[B] min		Elongation in 2 in. or 50 mm, min, %	Hardness, max[C]		Cold Bend[D,E]
		ksi	MPa	ksi	MPa		Brinell HBW	Rockwell B	
S30453	304LN	75	515	30	205	40	217	95	not required
S30500	305	70	485	25	170	40	183	88	not required
S30530	. . .	75	515	30	205	40	201	92	not required
S30600	. . .	78	540	35	240	40	. . .	. . .	. . .
S30601	. . .	78	540	37	255	30	. . .	. . .	not required
S30615	. . .	90	620	40	275	35	217	95	not required
S30815	. . .	87	600	45	310	40	217	95	. . .
S30908	309S	75	515	30	205	40	217	95	not required
S30909	309H[F]	75	515	30	205	40	217	95	not required
S30940	309Cb[F]	75	515	30	205	40	217	95	not required
S30941	309HCb[F]	75	515	30	205	40	217	95	not required
S31008	310S	75	515	30	205	40	217	95	not required
S31009	310H[F]	75	515	30	205	40	217	95	not required
S31040	310Cb[F]	75	515	30	205	40	217	95	not required
S31041	310HCb[F]	75	515	30	205	40	217	95	not required
S31050	310 MoLN[F]								
	t ≤ 0.25 in.	84	580	39	270	25	217	95	not required
	t > 0.25 in.	78	540	37	255	25	217	95	not required
S31060	. . .	87	600	41	280	40	217	95	not required
S31254									
Sheet and Strip		100	690	45	310	35	223	96	not required
Plate		95	655	45	310	35	223	96	not required
S31266	. . .	109	750	61	420	35	. . .	. . .	not required
S31277	. . .	112	770	52	360	40	. . .	. . .	not required
S31600	316	75	515	30	205	40	217	95	not required
S31603	316L	70	485	25	170	40	217	95	not required
S31609	316H	75	515	30	205	40	217	95	not required
S31635	316Ti[F]	75	515	30	205	40	217	95	not required
S31640	316Cb[F]	75	515	30	205	30	217	95	not required
S31651	316N	80	550	35	240	35	217	95	not required
S31653	316LN	75	515	30	205	40	217	95	not required
S31700	317	75	515	30	205	35	217	95	not required
S31703	317L	75	515	30	205	40	217	95	not required
S31725	317LM[F]	75	515	30	205	40	217	95	not required
S31726	317LMN[F]	80	550	35	240	40	223	96	not required
S31727	. . .	80	550	36	245	35	217	96	not required
S31753	317LN	80	550	35	240	40	217	95	not required
S32050	. . .	98	675	48	330	40	250	. . .	not required
S32053	. . .	93	640	43	295	40	217	96	not required
S32100	321	75	515	30	205	40	217	95	not required
S32109	321H	75	515	30	205	40	217	95	not required
S32615[L]	. . .	80	550	32	220	25	. . .	. . .	not required
S32654	. . .	109	750	62	430	40	250	. . .	not required
S33228	. . .	73	500	27	185	30	217	95	not required
S33400	334[F]	70	485	25	170	30	. . .	92	not required
S33425	. . .	75	515	30	205	40	. . .	. . .	not required
S34565	. . .	115	795	60	415	35	241	100	not required
S34700	347	75	515	30	205	40	201	92	not required
S34709	347H	75	515	30	205	40	201	92	not required
S34751	347LN	75	515	30	205	40	201	92	not required
S34800	348	75	515	30	205	40	201	92	not required
S34809	348H	75	515	30	205	40	201	92	not required
S35045	. . .	70	485	25	170	35	. . .	. . .	not required
S35115	. . .	85	585	40	275	40	241	100	not required

TABLE 2 *Continued*

UNS Designation	Type[A]	Tensile Strength, min		Yield Strength,[B] min		Elongation in 2 in. or 50 mm, min, %	Hardness, max[C]		Cold Bend[D]
		ksi	MPa	ksi	MPa		Brinell, HBW	Rockwell B	
S32803	. . .	87	600	72	500	16	241	100	not required
S40500	405	60	415	25	170	20	179	88	180
S40900[N]	409[N]								
S40910	. . .	55	380	25	170	20	179	88	180
S40920	. . .	55	380	25	170	20	179	88	180
S40930	. . .	55	380	25	170	20	179	88	180
S40945	. . .	55	380	30	205	22	. . .	88	180
S40975	. . .	60	415	40	275	20	197	80	180
S40977	. . .	65	450	41	280	18	180	92	not required
S41000	410	65	450	30	205	20	217	88	180
S41003	. . .	66	455	40	275	18	223	96	not required
S41008	410S	60	415	30	205	22[O]	183	20[J]	180
S41045	. . .	55	380	30	205	22	. . .	89	180
S41050	. . .	60	415	30	205	22	183	80	180
S41500	. . .	115	795	90	620	15	302	89	not required
S42035	. . .	80	550	55	380	16	180	32[J]	not required
S42900	429[F]	65	450	30	205	22[O]	183	88	180
S43000	430	65	450	30	205	22[O]	183	89	180
S43035	439	60	415	30	205	22	183	89	180
S43400	434	65	450	35	240	22	. . .	89	180
S43600	436	65	450	35	240	22	. . .	89	180
S43932	. . .	60	415	30	205	22	183	89	180
S43940	. . .	62	430	36	250	18	180	89	not required
S44330	. . .	56	390	30	205	22	187	88	not required
S44400	. . .	60	415	40	275	20	217	90	180
S44500	. . .	62	427	30	205	22	. . .	96	180
S44536	. . .	60	410	35	245	20	192	83	180
S44626	XM-33[K]	68	470	45	310	20	217	90	180
S44627	XM-27[K]	65	450	40	275	22	187	96	180
S44635	. . .	90	620	75	515	20	269	90	180
S44660	. . .	85	585	65	450	18	241	28[J]	180
S44700	. . .	80	550	60	415	20	223	100	180
S44735	. . .	80	550	60	415	18	255	20[J]	180
S44800	. . .	80	550	60	415	20	223	25[J]	180
S46800	. . .	60	415	30	205	22	. . .	20[J]	180
S44535	. . .	58	400	36	250	25[E]	. . .	90	180
								50–90[P]	not required

[A] Unless otherwise indicated, a grade designation originally assigned by the American Iron and Steel Institute (AISI).

[B] Yield strength shall be determined by the offset method at 0.2 % in accordance with Test Methods and Definitions A370. Unless otherwise specified (see Specification A480/A480M, paragraph 4.1.11, Ordering Information), an alternative method of determining yield strength may be based on total extension under load of 0.5 %.

[C] Either Brinell or Rockwell B Hardness is permissible.

[D] Bend tests are not required for chromium steels (ferritic or martensitic) thicker than 1 in. [25 mm] or for any austenitic or duplex (austenitic-ferritic) stainless steels regardless of thickness.

[E] Elongation for thickness, less than 0.015 in. [0.38 mm] shall be 20 % minimum, in 1 in. [25.4 mm].

[F] Common name, not a trademark, widely used, not associated with any one producer.

[G] Yield strength requirements shall not apply to material under 0.020 in [0.50 mm] in thickness.

[H] Not applicable for thicknesses under 0.010 in. [0.25 mm].

[I] Type 201 is generally produced with a chemical composition balanced for rich side (Type 201-1) or lean side (Type 201-2) austenite stability depending on the properties required for specific applications.

[J] Rockwell C scale.

[K] Naming system developed and applied by ASTM.

[L] For S32615, the grain size as determined in accordance with the Test Methods E112, Comparison Method, Plate II, shall be No. 3 or finer.

[M] Prior to Specification A240 – 89b, the tensile value for S32950 was 90 ksi.

[N] S40900 (Type 409) has been replaced by S40910, S40920, and S40930. Unless otherwise specified in the ordering information, an order specifying S40900 or Type 409 shall be satisfied by any one of S40910, S40920, or S40930 at the option of the seller. Material meeting the requirements of S40910, S40920, or S40930, may at the option of the manufacturer be certified as S40900.

[O] Material 0.050 in [1.27 mm] and under in thickness shall have a minimum elongation of 20 %.

[P] Hardness is required to be provided for information only, but is not required to meet a particular requirement.

Committee A01 has identified the location of selected changes to this standard since the last issue (A240/A240M – 10) that may impact the use of this standard. (Approved July 1, 2010.)

(*1*) S30435 added to Table 1 and Table 2.

Committee A01 has identified the location of selected changes to this standard since the last issue (A240/A240M – 09c) that may impact the use of this standard. (Approved April 1, 2010.)

(*1*) S21904 added to Table 1 and Table 2.
(*2*) Footnote reference for XM-17 corrected in Table 2.
(*3*) Added S44330 to Table 1 and Table 2.

Committee A01 has identified the location of selected changes to this standard since the last issue (A240/A240M – 09b) that may impact the use of this standard. (Approved November 1, 2009.)

(*1*) S44536 added to Table 1 and Table 2.

JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS G 4305 : 2005

(JSSA/JSA)

Cold-rolled stainless steel plate, sheet and strip

ICS 77.140.20 ; 77.140.50
Reference number : JIS G 4305 : 2005 (E)

19 S

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Stainless Steel Association (JSSA)/ Japanese Standards Association (JSA), with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently JIS G 4305 : 1999 is replaced with this Standard.

This revision has been made based on ISO 9445 : 2002 *Continuously cold-rolled stainless steel narrow strip, wide strip, plate/sheet and cut lengths—Tolerances on dimensions and form* for the purpose of making it easier to compare this Standard with International Standard; to prepare Japanese Industrial Standard conforming with International Standard; and to propose a draft of an International Standard which is based on Japanese Industrial Standard.

Being in conformance with this Standard may come under the use of the following patent rights with regard to the symbols of grade as the following.

Date of Establishment: 1959-12-01
Date of Revision: 2005-12-20
Date of Public Notice in Official Gazette: 2005-12-20
Investigated by: Japanese Industrial Standards Committee
Standards Board
Technical Committee on Iron and steel

JIS G 4305 : 2005, First English edition published in 2006-03

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

Symbol of grade	Title of invention	Patent number	Registration date of establishment of patent right
SUS315J1 SUS315J2	AUSTENITIC STAINLESS STEEL HAVING SUPERIOR HOT WORKABILITY AND HIGH CORROSION RESISTANCE AND MANUFACTURE THEREOF	No.1818155	January 27th, 1994
	AUSTENITIC STAINLESS STEEL EXCELLENT IN HOT WORKABILITY AND CORROSION RESISTANCE IN HOT WATER	No.2602411	January 29th, 1997
	HEAT-RESISTANT AUSTENITIC STAINLESS STEEL	No.2530231	June 14th, 1996
	AUSTENITIC STAINLESS STEEL EXCELLENT IN CORROSION RESISTANCE IN WARM WATER	No.2668116	July 4th ,1997
	AUSTENITIC STAINLESS STEEL EXCELLENT IN CORROSION RESISTANCE IN WARM WATER	No.2756545	March 13 rd, 1998
	AUSTENITIC STAINLESS STEEL EXCELLENT IN STRESS CORROSION CRACKING RESISTANCE AND PITTING CORROSION RESISTANCE	No.3011723	December 10th, 1999
SUS445J1 SUS445J2	FERRITIC STAINLESS STEEL FOR HEAT EXCHANGER	No.2642056	May 2nd, 1997
	FERRITIC STAINLESS STEEL EXCELLENT IN CORROSION RESISTANCE IN WELD ZONE	No.2739531	January 23 rd, 1998
	Fe-Cr ALLOY EXCELLENT IN RIDGING RESISTANCE	No.2737819	January 16th, 1998
	FERRITIC STAINLESS STEEL EXCELLENT IN TOUGNESS AND CORROSION RESISTANCE	No.2135002	February 20th, 1998
	PRODUCTION OF POLISHED FERRITIC STAINLESS STEEL SHEET EXCELLENT IN OXIDATION RESISTANCE	No.3112195	September 22nd, 2000
	FERRITIC STAINLESS STEEL SHEET EXCELLENT IN RUST RESISTANCE AND WORKABILITY	No.3224694	August 24th, 2001
	FERRITIC STAINLESS STEEL BRIGHT ANNEALING MATERIAL EXCELLENT IN WORKABILITY AND RUST RESISTANCE	No.3268927	January 18th, 2002
	FERRITIC STAINLESS STEEL FOR EXTERIOR MATERIAL EXCELLENT IN CORROSION RESISTANCE	No.3297696	April 19th, 2002
	FERRITIC STAINLESS STEEL FOR BUILDING MATERIAL	No.3411084	March 20th, 2003
SUS312L	AUSTENITIC STAINLESS STEEL FOR BUILDING MATERIAL	No.3358678	October 11th, 2002

Besides, this description does not affect to any extent the validity range and the like of the above patent right.

The holders of these patent rights give guarantee to the Japanese Industrial Standards Committee with respect to their willingness to permit anyone to exercise the relevant patent rights under the nondiscriminatory and reasonable conditions.

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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Cold-rolled stainless steel plate, sheet and strip

Introduction This Japanese Industrial Standard specifies the cold-rolled stainless steel plates and sheets and the rolled stainless steel strip. The part of this Standard concerning dimensional tolerances is based on the second edition of ISO 9445 *Continuously cold-rolled stainless steel narrow strip, wide strip, plate/sheet and cut lengths—Tolerances on dimensions and form* which has been published in 2002, with some modifications made in the provisions of thickness and width tolerances.

The portions given sidelines or dotted underlines are the matters in which the contents of the original International Standard have been modified. A list of modifications with the explanations is given in Annex 2 (informative).

1 Scope This Standard specifies the cold-rolled stainless steel plates and sheets (hereafter referred to as "plates") and the cold-rolled stainless steel strip (hereafter referred to as "strip").

Remarks : The International Standard corresponding to this Standard is as follows.

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and JIS are IDT (identical), MOD (modified), and NEQ (not equivalent) according to ISO/IEC Guide 21.

ISO 9445 : 2002 *Continuously cold-rolled stainless steel narrow strip, wide strip, plate/sheet and cut lengths—Tolerances on dimensions and form* (MOD)

2 Normative references The standards given in the attached table 1 contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions (including amendment) of the standards listed shall be applied.

3 Grade and symbols Plates and strip shall be classified into 61 grades, and their symbols and classification shall be as given in table 1.

Table 1 Symbols of grade and classification

Symbol of grade	Classification	Symbol of grade	Classification	Symbol of grade	Classification
SUS 301	Austenitic series	SUS316LN	Austenitic series	SUS 405	Ferritic series
SUS 301L		SUS 316Ti		SUS 410L	
SUS 301J1		SUS 316J1		SUS 429	
SUS302B		SUS 316J1L		SUS 430	
SUS 304		SUS 317		SUS 430LX	
SUS 304Cu		SUS 317L		SUS 430J1L	
SUS 304L		SUS 317LN		SUS 434	
SUS 304N1		SUS 317J1		SUS 436L	
SUS 304N2		SUS 317J2		SUS 436J1L	
SUS 304LN		SUS 836L		SUS 444	
SUS 304J1		SUS 890L		SUS 445J1	
SUS 304J2		SUS 321		SUS 445J2	
SUS 305		SUS 347		SUS 447J1	
SUS 309S		SUS XM7		SUS XM27	
SUS 310S		SUS XM15J1		SUS 403	Martensitic series
SUS 312L				SUS 410	
SUS 315J1		SUS 329J1	Austenite-ferritic series	SUS 410S	
SUS 315J2		SUS 329J3L		SUS 420J1	
SUS 316		SUS 329J4L		SUS 420J2	
SUS 316L				SUS 440A	
SUS 316N				SUS 630	Precipitation hardening series
				SUS 631	

Remarks 1 In the case where it is required to indicate by a symbol that the product is a plate, –CP shall be suffixed to the symbol of grade.

Example : SUS304–CP

2 In the case where it is required to indicate by a symbol that the product is a strip, –CS shall be suffixed to the symbol of grade.

Example : SUS304–CS

4 Chemical composition

4.1 Cast analysis value The plates and strip shall be subjected to the test of 11.1, and the cast analysis value shall be as given in tables 2 to 6.

4.2 Product analysis value When the product analysis value of plates and strip are required by the purchaser, the product analysis test of 11.1 shall be carried out and the values of permissible variation shall be as given in table 5 of JIS G 0321. However, the values of the elements not specified in this table shall be as agreed upon between the purchaser and the supplier.

Table 2 Chemical composition of austenitic series

Unit : %

Symbol of grade	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	N	Others
SUS 301	0.15 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	6.00 to 8.00	16.00 to 18.00	—	—	—	—
SUS 301L	0.030 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	6.00 to 8.00	16.00 to 18.00	—	—	0.20 max.	—
SUS 301J1	0.08 to 0.12	1.00 max.	2.00 max.	0.045 max.	0.030 max.	7.00 to 9.00	16.00 to 18.00	—	—	—	—
SUS 302B	0.15 max.	2.00 to 3.00	2.00 max.	0.045 max.	0.030 max.	8.00 to 10.00	17.00 to 19.00	—	—	—	—
SUS 304	0.08 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	8.00 to 10.50	18.00 to 20.00	—	—	—	—
SUS 304Cu	0.08 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	8.00 to 10.50	18.00 to 20.00	—	0.70 to 1.30	—	—
SUS 304L	0.030 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	9.00 to 13.00	18.00 to 20.00	—	—	—	—
SUS 304N1	0.08 max.	1.00 max.	2.50 max.	0.045 max.	0.030 max.	7.00 to 10.50	18.00 to 20.00	—	—	0.10 to 0.25	—
SUS 304N2	0.08 max.	1.00 max.	2.50 max.	0.045 max.	0.030 max.	7.50 to 10.50	18.00 to 20.00	—	—	0.15 to 0.30	Nb 0.15 max.
SUS 304LN	0.030 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	8.50 to 11.50	17.00 to 19.00	—	—	0.12 to 0.22	—
SUS 304J1	0.08 max.	1.70 max.	3.00 max.	0.045 max.	0.030 max.	6.00 to 9.00	15.00 to 18.00	—	1.00 to 3.00	—	—
SUS 304J2	0.08 max.	1.70 max.	3.00 to 5.00	0.045 max.	0.030 max.	6.00 to 9.00	15.00 to 18.00	—	1.00 to 3.00	—	—
SUS 305	0.12 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	10.50 to 13.00	17.00 to 19.00	—	—	—	—
SUS 309S	0.08 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	12.00 to 15.00	22.00 to 24.00	—	—	—	—
SUS 310S	0.08 max.	1.50 max.	2.00 max.	0.045 max.	0.030 max.	19.00 to 22.00	24.00 to 26.00	—	—	—	—
SUS 312L	0.020 max.	0.80 max.	1.00 max.	0.030 max.	0.015 max.	17.50 to 19.50	19.00 to 21.00	6.00 to 7.00	0.50 to 1.00	0.16 to 0.25	—
SUS 315J1	0.08 max.	0.50 to 2.50	2.00 max.	0.045 max.	0.030 max.	8.50 to 11.50	17.00 to 20.50	0.50 to 1.50	0.50 to 3.50	—	—
SUS 315J2	0.08 max.	2.50 to 4.00	2.00 max.	0.045 max.	0.030 max.	11.00 to 14.00	17.00 to 20.50	0.50 to 1.50	0.50 to 3.50	—	—
SUS 316	0.08 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	10.00 to 14.00	16.00 to 18.00	2.00 to 3.00	—	—	—
SUS 316L	0.030 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	12.00 to 15.00	16.00 to 18.00	2.00 to 3.00	—	—	—
SUS 316N	0.08 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	10.00 to 14.00	16.00 to 18.00	2.00 to 3.00	—	0.10 to 0.22	—
SUS 316LN	0.030 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	10.50 to 14.50	16.50 to 18.50	2.00 to 3.00	—	0.12 to 0.22	—
SUS 316Ti	0.08 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	10.00 to 14.00	16.00 to 18.00	2.00 to 3.00	—	—	Ti5 × C % min.
SUS 316J1	0.08 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	10.00 to 14.00	17.00 to 19.00	1.20 to 2.75	1.00 to 2.50	—	—
SUS 316J1L	0.030 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	12.00 to 16.00	17.00 to 19.00	1.20 to 2.75	1.00 to 2.50	—	—
SUS 317	0.08 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	11.00 to 15.00	18.00 to 20.00	3.00 to 4.00	—	—	—
SUS 317L	0.030 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	11.00 to 15.00	18.00 to 20.00	3.00 to 4.00	—	—	—
SUS 317LN	0.030 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	11.00 to 15.00	18.00 to 20.00	3.00 to 4.00	—	0.10 to 0.22	—
SUS 317J1	0.040 max.	1.00 max.	2.50 max.	0.045 max.	0.030 max.	15.00 to 17.00	16.00 to 19.00	4.00 to 6.00	—	—	—
SUS 317J2	0.06 max.	1.50 max.	2.00 max.	0.045 max.	0.030 max.	12.00 to 16.00	23.00 to 26.00	0.50 to 1.20	—	0.25 to 0.40	—
SUS 836L	0.030 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	24.00 to 26.00	19.00 to 24.00	5.00 to 7.00	—	0.25 max.	—
SUS 890L	0.020 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	23.00 to 28.00	19.00 to 23.00	4.00 to 5.00	1.00 to 2.00	—	—
SUS 321	0.08 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	9.00 to 13.00	17.00 to 19.00	—	—	—	Ti 5 × C % min.
SUS 347	0.08 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	9.00 to 13.00	17.00 to 19.00	—	—	—	Nb 10 × C % min.
SUS XM7	0.08 max.	1.00 max.	2.00 max.	0.045 max.	0.030 max.	8.50 to 10.50	17.00 to 19.00	—	3.00 to 4.00	—	—
SUS XM15J1	0.08 max.	3.00 to 5.00	2.00 max.	0.045 max.	0.030 max.	11.50 to 15.00	15.00 to 20.00	—	—	—	—

Remarks : One or plural alloying elements other than those given in table 2 ; Cu, Mo, Nb, Ti or N may be added to SUS XM15J1, if required.

Table 3 Chemical composition of austenite-ferritic series

Unit : %

Symbol of grade	C	Si	Mn	P	S	Ni	Cr	Mo	N
SUS 329J1	0.08 max.	1.00 max.	1.50 max.	0.040 max.	0.030 max.	3.00 to 6.00	23.00 to 28.00	1.00 to 3.00	—
SUS 329J3L	0.030 max.	1.00 max.	2.00 max.	0.040 max.	0.030 max.	4.50 to 6.50	21.00 to 24.00	2.50 to 3.50	0.08 to 0.20
SUS 329J4L	0.030 max.	1.00 max.	1.50 max.	0.040 max.	0.030 max.	5.50 to 7.50	24.00 to 26.00	2.50 to 3.50	0.08 to 0.30

Remarks : One or plural alloying elements other than those given in table 3 ; Cu, W or N may be added, if required.

Table 4 Chemical composition of ferritic series

Unit : %

Symbol of grade	C	Si	Mn	P	S	Cr	Mo	N	Others
SUS 405	0.08 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	11.50 to 14.50	—	—	Al 0.10 to 0.30
SUS 410L	0.030 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	11.00 to 13.50	—	—	—
SUS 429	0.12 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	14.00 to 16.00	—	—	—
SUS 430	0.12 max.	0.75 max.	1.00 max.	0.040 max.	0.030 max.	16.00 to 18.00	—	—	—
SUS 430LX	0.030 max.	0.75 max.	1.00 max.	0.040 max.	0.030 max.	16.00 to 19.00	—	—	Ti or Nb 0.10 to 1.00
SUS 430J1L	0.025 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	16.00 to 20.00	—	0.025 max.	Ti, Nb, Zr or their combination 8 ×(C %+N %) to 0.80, Cu 0.30 to 0.80
SUS 434	0.12 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	16.00 to 18.00	0.75 to 1.25	—	—
SUS 436L	0.025 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	16.00 to 19.00	0.75 to 1.50	0.025 max.	Ti, Nb, Zr or their combination 8×(C %+ N %) to 0.80
SUS 436J1L	0.025 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	17.00 to 20.00	0.40 to 0.80	0.025 max.	Ti, Nb, Zr or their combination 8×(C %+N %) to 0.80
SUS 444	0.025 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	17.00 to 20.00	1.75 to 2.50	0.025 max.	Ti, Nb, Zr or their combination 8×(C %+N %) to 0.80
SUS 445J1	0.025 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	21.00 to 24.00	0.70 to 1.50	0.025 max.	—
SUS 445J2	0.025 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	21.00 to 24.00	1.50 to 2.50	0.025 max.	—
SUS 447J1	0.010 max.	0.40 max.	0.40 max.	0.030 max.	0.020 max.	28.50 to 32.00	1.50 to 2.50	0.015 max.	—
SUS XM27	0.010 max.	0.40 max.	0.40 max.	0.030 max.	0.020 max.	25.00 to 27.50	0.75 to 1.50	0.015 max.	—

Remarks
1 The grades other than SUS 447J1 and SUS XM27 may contain 0.60 % max. of Ni.
2 SUS 447J1 and SUS XM27 may contain 0.50 % max. of Ni, 0.20 % max. of Cu and 0.50 % max. of (Ni + Cu).
In addition, one or plural alloying elements other than those given in table 4 ; V, Ti or Nb may be added.
3 One or plural alloy elements other than those given in table 4 ; Cu, V, Ti or Nb may be added to SUS 445J1 and SUS 445J2, if required.
4 SUS 430J1L may contain V other than those given in table 4, if required.

Table 5 Chemical composition of martensitic series

Unit : %

Symbol of grade	C	Si	Mn	P	S	Cr
SUS 403	0.15 max.	0.50 max.	1.00 max.	0.040 max.	0.030 max.	11.50 to 13.00
SUS 410	0.15 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	11.50 to 13.50
SUS 410S	0.08 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	11.50 to 13.50
SUS 420J1	0.16 to 0.25	1.00 max.	1.00 max.	0.040 max.	0.030 max.	12.00 to 14.00
SUS 420J2	0.26 to 0.40	1.00 max.	1.00 max.	0.040 max.	0.030 max.	12.00 to 14.00
SUS 440A	0.60 to 0.75	1.00 max.	1.00 max.	0.040 max.	0.030 max.	16.00 to 18.00

Remarks 1 0.60 % max. of Ni may be contained.

2 0.75 % max. of Mo may be added to SUS 440A.

Table 6 Chemical composition of precipitation hardening series

Unit : %

Symbol of grade	C	Si	Mn	P	S	Ni	Cr	Cu	Others
SUS 630	0.07 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	3.00 to 5.00	15.00 to 17.50	3.00 to 5.00	Nb 0.15 to 0.45
SUS 631	0.09 max.	1.00 max.	1.00 max.	0.040 max.	0.030 max.	6.50 to 7.75	16.00 to 18.00	—	Al 0.75 to 1.50

5 **Mechanical properties** The plates and strip shall be subjected to the test of 11.2, and their mechanical properties shall be as follows. The tensile test may be omitted for plates and strip under 0.3 mm thickness.

5.1 Mechanical properties of austenitic series

a) The mechanical properties of austenitic series shall be as given in table 7. In this case, the test specimen shall correspond to Class A of JIS G 0404. The proof stress shall apply only when particularly designated by the purchaser.

Table 7 Mechanical properties of austenitic series

Symbol of grade	Proof stress N/mm²	Tensile strength N/mm²	Elongation %	Hardness (1)		
				HBW	HRBS or HRBW	HV
SUS 301	205 min.	520 min.	40 min.	207 max.	95 max.	218 max.
SUS 301L	215 min.	550 min.	45 min.	207 max.	95 max.	218 max.
SUS 301J1	205 min.	570 min.	45 min.	187 max.	90 max.	200 max.
SUS 302B	205 min.	520 min.	40 min.	207 max.	95 max.	218 max.
SUS 304	205 min.	520 min.	40 min.	187 max.	90 max.	200 max.
SUS 304Cu	205 min.	520 min.	40 min.	187 max.	90 max.	200 max.
SUS 304L	175 min.	480 min.	40 min.	187 max.	90 max.	200 max.
SUS 304N1	275 min.	550 min.	35 min.	217 max.	95 max.	220 max.
SUS 304N2	345 min.	690 min.	35 min.	248 max.	100 max.	260 max.
SUS 304LN	245 min.	550 min.	40 min.	217 max.	95 max.	220 max.
SUS 304J1	155 min.	450 min.	40 min.	187 max.	90 max.	200 max.
SUS 304J2	155 min.	450 min.	40 min.	187 max.	90 max.	200 max.
SUS 305	175 min.	480 min.	40 min.	187 max.	90 max.	200 max.
SUS 309S	205 min.	520 min.	40 min.	187 max.	90 max.	200 max.
SUS 310S	205 min.	520 min.	40 min.	187 max.	90 max.	200 max.
SUS 312L	300 min.	650 min.	35 min.	223 max.	96 max.	230 max.
SUS 315J1	205 min.	520 min.	40 min.	187 max.	90 max.	200 max.
SUS 315J2	205 min.	520 min.	40 min.	187 max.	90 max.	200 max.
SUS 316	205 min.	520 min.	40 min.	187 max.	90 max.	200 max.
SUS 316L	175 min.	480 min.	40 min.	187 max.	90 max.	200 max.
SUS 316N	275 min.	550 min.	35 min.	217 max.	95 max.	220 max.
SUS 316LN	245 min.	550 min.	40 min.	217 max.	95 max.	220 max.
SUS 316Ti	205 min.	520 min.	40 min.	187 max.	90 max.	200 max.
SUS 316J1	205 min.	520 min.	40 min.	187 max.	90 max.	200 max.
SUS 316J1L	175 min.	480 min.	40 min.	187 max.	90 max.	200 max.
SUS 317	205 min.	520 min.	40 min.	187 max.	90 max.	200 max.
SUS 317L	175 min.	480 min.	40 min.	187 max.	90 max.	200 max.
SUS 317LN	245 min.	550 min.	40 min.	217 max.	95 max.	220 max.
SUS 317J1	175 min.	480 min.	40 min.	187 max.	90 max.	200 max.
SUS 317J2	345 min.	690 min.	40 min.	250 max.	100 max.	260 max.
SUS 836L	275 min.	640 min.	40 min.	217 max.	96 max.	230 max.
SUS 890L	215 min.	490 min.	35 min.	187 max.	90 max.	200 max.
SUS 321	205 min.	520 min.	40 min.	187 max.	90 max.	200 max.
SUS 347	205 min.	520 min.	40 min.	207 max.	90 max.	200 max.
SUS XM7	155 min.	450 min.	40 min.	187 max.	90 max.	200 max.
SUS XM15J1	205 min.	520 min.	40 min.	207 max.	95 max.	218 max.

Note (1) Either one of hardnesses shall be applied.

Remarks 1 Report for measured value of HRB shall indicate HRBS or HRBW.

2 1 N/mm² = 1 MPa

b) The proof stress, tensile strength and elongation of the plates and strip of SUS 301 and SUS 301L which have been temper rolled for hardening shall be as given in table 8. In this case, the test specimen shall correspond to Class A of JIS G 0404. The proof stress shall apply only when particularly designated by the purchaser.

Table 8 Mechanical properties of SUS 301 and SUS 301L temper rolled conditions

Symbol of grade	Symbol of tempering	Proof stress N/mm²	Tensile strength N/mm²	Elongation %		
				Thickness under 0.4 mm	Thickness 0.4 mm or over to and excl. 0.8 mm	Thickness 0.8 mm or over
SUS 301	1/4H	510 min.	860 min.	25 min.	25 min.	25 min.
	1/2H	755 min.	1 030 min.	9 min.	10 min.	10 min.
	3/4H	930 min.	1 210 min.	3 min.	5 min.	7 min.
	H	960 min.	1 270 min.	3 min.	4 min.	5 min.
SUS 301L	1/4H	345 min.	690 min.	40 min.		
	1/2H	410 min.	760 min.	35 min.		
	3/4H	480 min.	820 min.	25 min.		
	H	685 min.	930 min.	20 min.		

5.2 Mechanical properties of austenite-ferritic series The mechanical properties of austenite-ferritic series shall be as given in table 9. In this case, test specimen shall correspond to Class A of JIS G 0404. The proof stress shall apply only when particularly designated by the purchaser.

Table 9 Mechanical properties of austenite-ferritic series

Symbol of grade	Proof stress N/mm²	Tensile strength N/mm²	Elongation %	Hardness (1)		
				HBW	HRC	HV
SUS 329J1	390 min.	590 min.	18 min.	277 max.	29 max.	292 max.
SUS 329J3L	450 min.	620 min.	18 min.	302 max.	32 max.	320 max.
SUS 329J4L	450 min.	620 min.	18 min.	302 max.	32 max.	320 max.

Note (1) Either one of hardnesses shall be applied.
Remarks : 1 N/mm² = 1 MPa

5.3 Mechanical properties of ferritic series The mechanical properties of ferritic series shall be as given in table 10. In this case, test specimen shall correspond to Class A of JIS G 0404. The proof stress shall apply only when particularly designated by the purchaser. As regards the bendability, cracks shall not be generated on the outside of the bent portion.

Table 10 Mechanical properties of ferritic series

Symbol of grade	Proof stress N/mm²	Tensile strength N/mm²	Elongation %	Hardness (1)			Bendability	
				HBW	HRBS or HRBW	HV	Bending angle	Inside radius
SUS 405	175 min.	410 min.	20 min.	183 max.	88 max.	200 max.	180°	0.5 times the thickness for under 8 mm in thickness 1.0 times the thickness for 8 mm min. in thickness
SUS 410L	195 min.	360 min.	22 min.	183 max.	88 max.	200 max.	180°	1.0 times the thickness
SUS 429	205 min.	450 min.	22 min.	183 max.	88 max.	200 max.	180°	1.0 times the thickness
SUS 430	205 min.	420 min.	22 min.	183 max.	88 max.	200 max.	180°	1.0 times the thickness
SUS 430LX	175 min.	360 min.	22 min.	183 max.	88 max.	200 max.	180°	1.0 times the thickness
SUS 430J1L	205 min.	390 min.	22 min.	192 max.	90 max.	200 max.	180°	1.0 times the thickness
SUS 434	205 min.	450 min.	22 min.	183 max.	88 max.	200 max.	180°	1.0 times the thickness
SUS 436L	245 min.	410 min.	20 min.	217 max.	96 max.	230 max.	180°	1.0 times the thickness
SUS 436J1L	245 min.	410 min.	20 min.	192 max.	90 max.	200 max.	180°	1.0 times the thickness
SUS 444	245 min.	410 min.	20 min.	217 max.	96 max.	230 max.	180°	1.0 times the thickness
SUS 445J1	245 min.	410 min.	20 min.	217 max.	96 max.	230 max.	180°	1.0 times the thickness
SUS 445J2	245 min.	410 min.	20 min.	217 max.	96 max.	230 max.	180°	1.0 times the thickness
SUS 447J1	295 min.	450 min.	22 min.	207 max.	95 max.	220 max.	180°	1.0 times the thickness
SUS XM27	245 min.	410 min.	22 min.	192 max.	90 max.	200 max.	180°	1.0 times the thickness

Note (1) Either one of hardnesses shall be applied.

Remarks 1 Report for measured value of HRB shall indicate HRBS or HRBW.
2 1 N/mm² = 1 MPa

5.4 **Mechanical properties of martensitic series** The mechanical properties of the martensitic series shall be as follows:

a) The mechanical properties of plates and strip after annealing shall be as given in table 11. The proof stress shall apply only when particularly designated by the purchaser. As regards the bendability, cracks shall not be generated on the outside of the bent portion.

b) The hardness of the plates and strip after quenched and tempered shall be as given in table 12.

Table 11 Mechanical properties of martensitic series in annealed conditions

Symbol of grade	Proof stress N/mm²	Tensile strength N/mm²	Elongation %	Hardness (1)			Bendability	
				HBW	HRBS or HRBW	HV	Bending angle	Inside radius
SUS 403	205 min.	440 min.	20 min.	201 max.	93 max.	210 max.	180°	1.0 times the thickness
SUS 410	205 min.	440 min.	20 min.	201 max.	93 max.	210 max.	180°	1.0 times the thickness
SUS 410S	205 min.	410 min.	20 min.	183 max.	88 max.	200 max.	180°	1.0 times the thickness
SUS 420J1	225 min.	520 min.	18 min.	223 max.	97 max.	234 max.	—	—
SUS 420J2	225 min.	540 min.	18 min.	235 max.	99 max.	247 max.	—	—
SUS 440A	245 min.	590 min.	15 min.	255 max.	HRC 25 max.	269 max.	—	—

Note (1) Either one of hardnesses shall be applied.

Remarks 1 Report for measured value of HRB shall indicate HRBS or HRBW.
2 1 N/mm² = 1 MPa

Table 12 Hardness of martensitic series in quenched and tempered condition

Symbol of grade	HRC
SUS 420J2	40 min.
SUS 440A	

5.5 Mechanical properties of precipitation hardening series The mechanical properties of precipitation hardening series shall be as given in table 13. In this case, test specimen shall correspond to Class A of **JIS G 0404**. The proof stress shall apply only when particularly designated by the purchaser.

Table 13 Mechanical properties of precipitation hardening series

Symbol of grade	Heat treatment symbol	Proof stress N/mm²	Tensile strength N/mm²	Elongation %		Hardness [1]			
						HBW	HRC	HRBS or HRBW	HV
SUS 630	S	—	—	—		363 max.	38 max.	—	—
	H900	1 175 min.	1 310 min.	5.0 mm max. in thickness	5 min.	375 min.	40 min.	—	—
				Over 5.0 mm up to and incl. 15.0 mm in thickness	8 min.				
	H1025	1 000 min.	1 070 min.	5.0 mm max. in thickness	5 min.	331 min.	35 min.	—	—
				Over 5.0 mm up to and incl. 15.0 mm in thickness	8 min.				
	H1075	860 min.	1 000 min.	5.0 mm max. in thickness	5 min.	302 min.	31 min.	—	—
				Over 5.0 mm up to and incl. 15.0 mm in thickness	9 min.				
	H1150	725 min.	930 min.	5.0 mm max. in thickness	8 min.	277 min.	28 min.	—	—
				Over 5.0 mm up to and incl. 15.0 mm in thickness	10 min.				
SUS 631	S	380 max.	1 030 max.	20 min.		192 max.	—	92 max.	200 max.
	RH950	1 030 min	1 230 min.	3.0 mm max. in thickness	—	—	40 min.	—	392 min.
				Over 3.0 mm in thickness	4 min.				
	TH1050	960 min.	1 140 min.	3.0 mm max. in thickness	3 min.	—	35 min.	—	345 min.
				Over 3.0 mm in thickness	5 min.				

Note [1] Either one of hardnesses shall be applied.

Remarks 1 The mechanical properties of heat treated SUS 630 processed by heat treatments other than those given in Annex table 5 may be as agreed upon between the purchaser and the supplier.

2 Report for measured value of HRB shall indicate HRBS or HRBW.

3 1 N/mm² = 1 MPa

6 Corrosion resistance When the corrosion resistance by an intergranular corrosion test is particularly designated by the purchaser, the test method shall be decided out of the test methods of 11.3.3 by agreement between the purchaser and the supplier. When the test is carried out, the corrosion resistance shall be as agreed upon between the purchaser and the supplier.

7 Surface finish The surface finish of the plates and strip shall be as given in table 14.

Table 14 Surface finish

Symbol of surface finish	Summary
No.2D	Those finished, after cold rolling, by heat treatment, pickling or other equivalent treatment. In addition, those lightly cold-rolled by matting roll at the last stage are also included.
No.2B	Those finished, after cold rolling, by heat treatment, pickling or other equivalent treatment and cold-rolled to give an appropriate luster at final stage.
No.3	Those finished by polishing with F 100 to F 120 abrasives specified in JIS R 6001.
No.4	Those finished by polishing with F 150 to F 180 abrasives specified in JIS R 6001.
#240	Those finished by polishing with up to No. 240 abrasives specified in JIS R 6001.
#320	Those finished by polishing with up to No. 320 abrasives specified in JIS R 6001.
#400	Those finished by polishing with up to No. 400 abrasives specified in JIS R 6001.
BA	Those bright heat treated after cold rolling.
HL	Those finished by polishing so as to give continuous polishing streaks by using abrasive of suitable grain size.

Remarks : Surface finishes other than those given in table 14 shall be as agreed between the purchaser and the supplier.

8 Shapes, dimensions, mass and tolerances

8.1 Standard dimensions

8.1.1 Standard dimensions of plates The standard dimensions of plates shall be as given in table 15.

Table 15 Standard dimensions of plates

Unit : mm

Thickness			Width × length
0.30	1.2	7.0	
0.40	1.5	8.0	914 × 1 829
0.50	2.0	9.0	1 000 × 2 000
0.60	2.5	10.0	1 219 × 2 438
0.70	3.0	12.0	1 219 × 3 048
0.80	4.0	15.0	1 500 × 3 000
0.90	5.0	20.0	1 524 × 3 048
1.0	6.0		

Remarks : Dimensions other than those given in table 15 shall be as agreed upon between the purchaser and the supplier.

8.1.2 Standard thickness of strip The standard thickness of strip shall be as given in table 16.

Table 16 Standard thickness of strip

Unit : mm

0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.0
1.2	1.5	2.0	2.5	3.0	4.0	5.0	6.0

Remarks : Dimensions other than those given in table 16 shall be as agreed upon between the purchaser and the supplier.

8.2 Calculation of mass of plates When calculation of mass of plates is required by the purchaser, mass of plates are calculated based on designated dimension and shall be in accordance with table 17.

Table 17 Calculation of mass

Order of calculation		Formulae	Rounding of results
Basic mass	kg/mm·m^2	It shall be as given in attached table 3.	—
Unit mass	kg/m^2	Basic mass (kg/mm·m^2) × Thickness (mm)	Round off to 4 significant figures
Area	m^2	Width (m) × Length (m)	Round off to 4 significant figures
Mass of one plate	kg	Unit mass (kg/m^2) × Area (m^2)	Round off to 3 significant figures. Mass over 1 000 kg shall be round off to integer of kg.
Total mass	kg	Mass of one plate (kg) × number of plates of the same kind and the same dimension.	Round off to integer of kg.

Remarks : The method to round off values shall be in accordance with JIS Z 8401.

8.3 Tolerances on thickness

8.3.1 Tolerances on thickness of plates and strip Tolerances on the thickness of plates shall be as given in table 18 and those of strip shall be as given in table 19. The purchaser may designate the tolerance on thickness (symbol ET) given in table 20, or the tolerance on thickness (symbol ST) given in table 21.

The measuring point of thickness of plates shall be an arbitrary point 15 mm or over inside from the edge of the plate.

The measuring point of thickness of strip shall be an arbitrary point 25 mm or over inside from the edge for mill edged strip with width 50 mm or over, and a centre of the strip width for strip with width less than 50 mm. It shall be an arbitrary point 15 mm or over inside from the edge for cut edge strip with width 30 mm or over, and a centre of the strip width for cut edge strip with width less than 30 mm.

This does not apply to the irregular portions at the beginning and the end of the strip.

Table 18 Tolerances on thickness of plates

Unit : mm

Thickness	Width	
	Under 1 250	1 250 or over to and excl. 1 600
0.16 or over to and excl. 0.25	± 0.03	—
0.25 or over to and excl. 0.30	± 0.04	—
0.30 or over to and excl. 0.60	± 0.05	± 0.08
0.60 or over to and excl. 0.80	± 0.07	± 0.09
0.80 or over to and excl. 1.00	± 0.09	± 0.10
1.00 or over to and excl. 1.25	± 0.10	± 0.12
1.25 or over to and excl. 1.60	± 0.12	± 0.15
1.60 or over to and excl. 2.00	± 0.15	± 0.17
2.00 or over to and excl. 2.50	± 0.17	± 0.20
2.50 or over to and excl. 3.15	± 0.22	± 0.25
3.15 or over to and excl. 4.00	± 0.25	± 0.30
4.00 or over to and excl. 5.00	± 0.35	± 0.40
5.00 or over to and excl. 6.00	± 0.40	± 0.45
6.00 or over to and excl. 8.00	± 0.50	± 0.50
8.00 or over to and excl. 10.0	± 0.60	± 0.60
10.0 or over to and excl. 16.0	± 0.70	± 0.70
16.0 or over to and excl. 25.0	± 0.80	± 0.80

Table 19 Tolerances on thickness of strip

Unit : mm

Thickness	Width	
	Under 1 250	1 250 or over to and excl. 1 600
0.16 or over to and excl. 0.25	± 0.03	—
0.25 or over to and excl. 0.30	± 0.04	—
0.30 or over to and excl. 0.60	± 0.05	± 0.08
0.60 or over to and excl. 0.80	± 0.07	± 0.09
0.80 or over to and excl. 1.00	± 0.09	± 0.10
1.00 or over to and excl. 1.25	± 0.10	± 0.12
1.25 or over to and excl. 1.60	± 0.12	± 0.15
1.60 or over to and excl. 2.00	± 0.15	± 0.17
2.00 or over to and excl. 2.50	± 0.17	± 0.20
2.50 or over to and excl. 3.15	± 0.22	± 0.25
3.15 or over to and excl. 4.00	± 0.25	± 0.30
4.00 or over to and excl. 5.00	± 0.35	± 0.40
5.00 or over to and excl. 6.00	± 0.40	± 0.45
6.00 or over to and excl. 8.00	± 0.50	± 0.50

Table 20 Tolerances on thickness of plates and strip (symbol ET)

Unit : mm

Thickness	Width						
	Under 100	160 or over to and excl. 250	250 or over to and excl. 400	400 or over to and excl. 630	630 or over to and excl. 1 000	1 000 or over to and excl. 1 250	1 250 or over to and excl. 1 550
Under 0.10	± 0.010	± 0.020	—	—	—	—	—
0.10 or over to and excl. 0.16	± 0.015	± 0.020	—	—	—	—	—
0.16 or over to and excl. 0.25	± 0.020	± 0.025	± 0.030	± 0.030	—	—	—
0.25 or over to and excl. 0.40	± 0.025	± 0.030	± 0.035	± 0.035	± 0.038	± 0.038	—
0.40 or over to and excl. 0.60	± 0.035	± 0.040	± 0.040	± 0.040	± 0.040	± 0.040	± 0.05
0.60 or over to and excl. 0.80	± 0.040	± 0.045	± 0.045	± 0.045	± 0.05	± 0.05	± 0.06
0.80 or over to and excl. 1.00	± 0.040	± 0.05	± 0.05	± 0.05	± 0.05	± 0.06	± 0.07
1.00 or over to and excl. 1.25	± 0.05	± 0.05	± 0.05	± 0.06	± 0.06	± 0.07	± 0.08
1.25 or over to and excl. 1.60	± 0.05	± 0.06	± 0.06	± 0.06	± 0.07	± 0.08	± 0.10
1.60 or over to and excl. 2.00	± 0.06	± 0.07	± 0.08	± 0.08	± 0.09	± 0.10	± 0.12
2.00 or over to and excl. 2.50	± 0.07	± 0.08	± 0.08	± 0.09	± 0.10	± 0.11	± 0.13
2.50 or over to and excl. 3.15	± 0.08	± 0.09	± 0.09	± 0.10	± 0.11	± 0.12	± 0.14
3.15 or over to and excl. 4.00	± 0.09	± 0.10	± 0.10	± 0.11	± 0.12	± 0.13	± 0.16

Table 21 Tolerances on thickness of plates and slip (symbol ST)

Unit : mm

Thickness	Width		
	630 or over to and excl. 1 000	1 000 or over to and excl. 1 250	1 250 or over to and excl. 1 550
Under 0.25	± 0.030	—	—
0.25 or over to and excl. 0.40	± 0.030	± 0.035	—
0.40 or over to and excl. 0.60	± 0.035	± 0.035	—
0.60 or over to and excl. 0.80	± 0.040	± 0.040	—
0.80 or over to and excl. 1.00	± 0.040	± 0.050	± 0.050
1.00 or over to and excl. 1.25	± 0.050	± 0.055	± 0.060
1.25 or over to and excl. 1.60	± 0.055	± 0.060	± 0.060
1.60 or over to and excl. 2.00	± 0.065	± 0.070	± 0.080

8.4 Tolerances on width The tolerances on width shall be as given table 22 for plates and shall be as given in table 23 for strip. The purchaser may designate the tolerances on width (symbol EW) of the table 24.

Table 22 Tolerances on width of plates

Unit : mm

Thickness	Length		
	3 500 or under	Over 3 500 up to and incl. 6 000	Over 6 000
Under 10.0	+ 5 0	+ 15 0	+ 20 0
10.0 or over to and excl. 25.0	+ 10 0	+ 20 0	+ 20 0

Table 23 Tolerances on width of strip

Unit : mm

Edge	Width				
	Under 400	400 or over to and excl. 630	630 or over to and excl. 1 000	1 000 or over to and excl. 1 524	1 524 or over
Mill edge	+ 10 0	+ 20 0	+ 25 0	+ 30 0	+ 30 0
Cut edge	+ 5 0	+ 5 0	+ 5 0	+ 5 0	+ 10 0

Table 24 Tolerances on width of plates and strip (symbol EW)

Unit : mm

Thickness	Width				
	Under 160	160 or over to and excl. 250	250 or over to and excl. 400	400 or over to and excl. 630	630 or over to and excl. 1 000
Under 0.60	± 0.15	± 0.15	± 0.30	± 0.30	± 0.50
0.60 or over to and excl. 1.00	± 0.15	± 0.15	± 0.30	± 0.30	± 0.50
1.00 or over to and excl. 1.60	± 0.20	± 0.25	± 0.35	± 0.35	± 0.60
1.60 or over to and excl. 2.50	± 0.30	± 0.35	± 0.45	± 0.45	± 0.70
2.50 or over to and excl. 4.00	± 0.40	± 0.45	± 0.50	± 0.50	± 0.80

8.5 Tolerances on length of plates The tolerances on length of plates shall be as given in table 25.

Table 25 Tolerances on length of plates

Unit : mm

Thickness	Length		
	3 500 or under	3 500 or over up to and incl. 6 000	Over 6 000
Under 10.0	+ 10 0	+ 15 0	+ 30 0
10.0 or over to and excl. 25.0	+ 15 0	+ 20 0	+ 35 0

8.6 Flatness of plates The flatness of plates shall be as given in table 26.

The purchaser may designate the flatness (symbol EF). The maximum values for flatness of the tempering symbol 1/4 H or 1/2 H shall be as given in table 27, and the maximum values for flatness of 3/4 H and H shall be as agreed upon between the purchaser and the supplier.

For the flatness of a plate, with the product lying under its own mass on a flat surface, measure the maximum distance between the lower surface of the product and the flat horizontal surface over a length of 3 500 mm.

Table 26 Maximum values for flatness of plates

Unit : mm

Width	Length	Maximum value of flatness	Maximum value of flatness (symbol EF)
1 000 or under	2 000 or under	15	3
	Over 2 000	20	6
Over 1 000	2 000 or under	20	6
	Over 2 000	20	6

Remarks : Table 26 applies to any 3 500 mm, and in the case of under 3 500 mm in length, it applies to the overall length.

Table 27 Maximum values for flatness of plates SUS 301 and SUS 301L

Unit : mm

Width	Thickness	Maximum values for flatness	
		1/4 H	1/2 H
600 or over to and excl. 1 000	Under 0.40	13	19
	0.40 or over to and excl. 0.80	16	22
	0.80 or over	19	22
1 000 or over to and excl. 1 219	Under 0.40	16	26
	0.40 or over to and excl. 0.80	19	29
	0.80 or over	26	29

Remarks : Table 27 applies to any 3 500 mm, and in the case of plates of under 3 500 mm in length, it applies to the overall length.

8.7 Edge camber of strip The maximum value of edge camber of a strip shall be as given in table 28. However, this does not apply to the irregular portions at the beginning and the end of the strip. The edge camber of a strip of 1/4 H, 1/2 H, 3/4 H and H in temper roll symbol of SUS 301 and SUS 301L shall be as agreed upon between the purchaser and the supplier.

Table 28 Maximum value of edge camber of strip

Unit : mm

Width	Maximum value of lateral warp
40 or over to and excl. 80	8 per 2 000 in length at optional part
80 or over to and excl. 630	4 per 2 000 in length at optional part
630 or over	2 per 2 000 in length at optional part

Remarks 1 Application of the edge caber of a strip shall be as given in figure. 1

2 The edge camber of a strip of under 40 mm width shall be as agreed upon between the purchaser and the supplier.

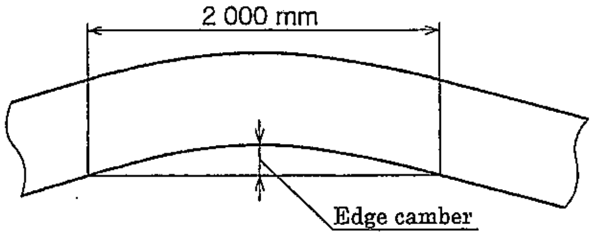

Figure 1 Application of lateral edge camber

9 **Appearance** The appearance shall be as follows:

a) Plates and strip shall not have any defects detrimental to practical use. However, because generally, strip does not have chances to be removed of the defects, it may include some irregular portions.

b) When the strip is wound, it shall be wound tightly and its appearance shall be as round as possible.

c) Gradual displacement of the edge of the wound strip to one side shall not exceed 70 mm in the case of mill edges and 35 mm in the case of cut edges. However, this does not apply to the irregular portions at the beginning and the end of the strip.

10 **Manufacturing process** Plates and strip are heat-treated after cold rolling, and after processed by pickling or an equivalent treatment thereto, adequate leveling, grinding or temper rolling may be carried out, if necessary.

In the case where a bright heat treatment has been processed, pickling or the like may be omitted. Regarding the heat treatment of precipitation hardening series, the purchaser may designate the grade of heat treatment and whether the heat treatment for checking the material quality is carried out on the product itself or on the test pieces.

The grades of heat treatments for precipitation hardening series are given in attached table 2.

11 Test

11.1 Analytical test

11.1.1 General matters of analytical test and method of sampling specimen It shall be as given in clause 8 of JIS G 0404. The method of sampling specimens for the product analysis, if one is required by the purchaser, shall be in accordance with clause 4 of JIS G 0321.

11.1.2 Analytical method For the cast analysis, it shall be in accordance with JIS G 0320. Product analysis shall be in accordance with JIS G 0321.

11.2 Mechanical test

11.2.1 General General items of mechanical tests shall be in accordance with JIS G 0404.

11.2.2 Sampling of test specimen One test specimen shall be sampled from each lot of the same cast and the same heat treatment conditions.

11.2.3 Number of test pieces One test piece shall be taken from each test specimen.

11.2.4 Test piece The tensile test piece, hardness test piece, and bend test piece shall be as follows:

a) A tensile test piece shall be selected among No.4 test piece, No 10 test piece and No. 13B test piece specified in JIS Z 2201. No. 14A test piece and No.14B test piece or No. 5 test piece may be used.

b) For the hardness test piece, a portion of the tensile test piece or bend test piece may be used.

c) As a bend test piece, No. 3 test piece or No. 5 test piece specified in JIS Z 2204 shall be used.

11.2.5 Test methods The methods for tensile test, hardness test, and bend test shall be as follows:

a) The tensile test method shall be in accordance with JIS Z 2241. A test temperature of 23 ℃ ± 5 ℃ shall be a standard, and for measuring tensile strength other than those for martensitic series, tension speed shall be regulated to maintain the strain increasing rate of the parallel part of the test piece ranging between 40 % to 80 % per min.

b) The hardness test method shall conform to any one of the following standards.

   A test temperature of 23 ℃ ± 5 ℃ shall be taken as a standard.

   1) JIS Z 2243

   2) JIS Z 2244

   3) JIS Z 2245

c) The bend test method shall be in accordance with JIS Z 2248. A test temperature of 23 ℃ ± 5 ℃ shall be taken as a standard.

11.3 Corrosion test The corrosion tests shall be as follows:

11.3.1 Sampling of test specimen One test specimen shall be sampled from each lot of plates or strip in the same cast and the same heat treatment conditions.

11.3.2 Number of test pieces One test piece shall be taken from each test specimen.

11.3.3 Test methods The corrosion test method shall conform to any one of the following standards.

a) JIS G 0571

b) JIS G 0572

c) JIS G 0573

d) JIS G 0575

12 Inspection

Inspection of plates and a strip shall be as follows:

a) The general items for inspection shall be in accordance with JIS G 0404.

b) The chemical composition shall conform to the requirements specified in clause 4.

c) The mechanical properties shall conform to the requirements specified in clause 5. A part or all of the tensile test, hardness test, and bend test may be omitted as agreed upon between the purchaser and the supplier.

d) The corrosion resistance shall conform to the requirements specified in clause 6.

e) The surface finish shall conform to the requirements specified in clause 7.

f) The shape and dimensions shall conform to the requirements specified in clause 8.

g) The appearance shall conform to the requirements specified in clause 9.

13 Marking

The plates and strip which have passed the inspection shall be marked with the following items on either each plate or each bundle for the plate and on each package for the strip. A part thereof may be omitted as agreed upon between the purchaser and the supplier.

a) Symbol of grade

b) Dimensions

c) Tolerance symbols (for the plates and strip with tolerance symbols ET, ST, EW and EF, those symbols shall be indicated.)

d) Symbol of surface finish

e) Symbol of heat treatment (exclusively in the cases of quenched and tempered SUS 420J2 and SUS 440A particularly designated by the purchaser among the precipitation hardening and martensitic series.)

f) Symbol of tempering (in the cases of SUS 301 and SUS 301L)

g) Manufacturer's name and its abbreviation

h) Cast number and inspection number

14 **Report** The manufacturer shall submit the report of the plates and strip stating the results of the specified or designated tests and, as required, dimensions, quantity, delivery conditions, etc. in case the purchaser requires it. Electric transmission or any electric media of the report may also be acceptable. The kind of inspection document shall be 2.3 or 3.1.B in table 1 of JIS G 0415.

In the case where alloying elements have been added accordance with Remarks of table 2 to 5, the contents of the added elements shall be appended in the test result table.

Attached Table 1 Normative references

JIS G 0320 *Standard test methods for heat analysis of steel products*

JIS G 0321 *Product analysis and its tolerance for wrought steel*

JIS G 0404 *Steel and steel products—General technical delivery requirements*

JIS G 0415 *Steel and steel products—Inspection documents*

JIS G 0571 *Method of oxalic acid etching test for stainless steels*

JIS G 0572 *Method of ferric sulfate-sulfuric acid test for stainless steels*

JIS G 0573 *Method of 65 per cent nitric acid test for stainless steels*

JIS G 0575 *Method of copper sulfate-sulfuric acid test for stainless steels*

JIS R 6001 *Bonded abrasive grain sizes*

JIS Z 2201 *Test pieces for tensile test for metallic materials*

JIS Z 2204 *Bend test pieces for metallic materials*

JIS Z 2241 *Method of tensile test for metallic materials*

JIS Z 2243 *Brinell hardness test—Test method*

JIS Z 2244 *Vickers hardness test—Test method*

JIS Z 2245 *Rockwell hardness test—Test method*

JIS Z 2248 *Method of bend test for metallic materials*

JIS Z 8401 *Guide to the rounding of numbers*

Attached Table 2 Heat treatment symbols for precipitation hardening series

Symbol of grade	Grade	Symbol
SUS 630	Solution treatment	S
	Precipitation hardening treatment	H900, H1025, H1075, H1150
SUS 631	Solution treatment	S
	Precipitation hardening treatment	TH1050, RH950

Attached Table 3 Basic mass of stainless steel plates and strip

Unit : kg/mm·m²

Symbol of grades	Basic mass	Classification	Symbol of grades	Basic mass	Classification
SUS 301	7.93	Austenitic series	SUS 321	7.93	Austenitic series
SUS 301L	7.93		SUS 347	7.98	
SUS 301J1	7.93		SUS XM7	7.93	
SUS 302B	7.93		SUS XM15J1	7.75	
SUS 304	7.93		SUS 329J1	7.80	Austenite-ferritic series
SUS 304Cu	7.93		SUS 329J3L	7.80	
SUS 304L	7.93		SUS 329J4L	7.80	
SUS 304N1	7.93		SUS 405	7.75	Ferritic series
SUS 304N2	7.93		SUS 410L	7.75	
SUS 304LN	7.93		SUS 429	7.70	
SUS 304J1	7.93		SUS 430	7.70	
SUS 304J2	7.93		SUS 430LX	7.70	
SUS 305	7.93		SUS 430J1L	7.70	
SUS 309S	7.98		SUS 434	7.70	
SUS 310S	7.98		SUS 436L	7.70	
SUS 312L	8.03		SUS 436J1L	7.70	
SUS 315J1	7.98		SUS 444	7.75	
SUS 315J2	7.98		SUS 445J1	7.69	
SUS 316	7.98		SUS 445J2	7.73	
SUS 316L	7.98		SUS 447J1	7.64	
SUS 316N	7.98		SUS XM27	7.67	
SUS 316LN	7.98		SUS 403	7.75	Martenstic series
SUS 316Ti	7.98		SUS 410	7.75	
SUS 316J1	7.98		SUS 410S	7.75	
SUS 316J1L	7.98		SUS 420J1	7.75	
SUS 317	7.98		SUS 420J2	7.75	
SUS 317L	7.98		SUS 440A	7.70	
SUS 317LN	7.97		SUS 630	(2)	Precipitation hardening series
SUS 317J1	8.00		SUS 631	7.93	
SUS 317J2	7.98				
SUS 836L	8.06				
SUS 890L	8.05				

Note (2) It shall be as agreed between the purchaser and the supplier.

Annex 1 (informative)
Heat treatment of stainless steel

Introduction This Annex supplements items related to the text and is not a part of the provisions.

1 Temperatures of the heat treatment Temperatures of the heat treatment are shown in Annex 1 tables 1 to 5.

Annex 1 Table 1 **Heat treatment of austenitic series**

Unit : ℃

Symbol of grade	Solution treatment	Symbol of grade	Solution treatment
SUS 301	1 010 to 1 150 rapid cooling	SUS 316	1 010 to 1 150 rapid cooling
SUS 301L	1 010 to 1 150 rapid cooling	SUS 316L	1 010 to 1 150 rapid cooling
SUS 301J1	1 010 to 1 150 rapid cooling	SUS 316N	1 010 to 1 150 rapid cooling
SUS 302B	1 010 to 1 150 rapid cooling	SUS 316LN	1 010 to 1 150 rapid cooling
SUS 304	1 010 to 1 150 rapid cooling	SUS 316Ti	920 to 1 150 rapid cooling
SUS 304Cu	1 010 to 1 150 rapid cooling	SUS 316J1	1 010 to 1 150 rapid cooling
SUS 304L	1 010 to 1 150 rapid cooling	SUS 316J1L	1 010 to 1 150 rapid cooling
SUS 304N1	1 010 to 1 150 rapid cooling	SUS 317	1 010 to 1 150 rapid cooling
SUS 304N2	1 010 to 1 150 rapid cooling	SUS 317L	1 010 to 1 150 rapid cooling
SUS 304LN	1 010 to 1 150 rapid cooling	SUS 317LN	1 010 to 1 150 rapid cooling
SUS 304J1	1 010 to 1 150 rapid cooling	SUS 317J1	1 030 to 1 180 rapid cooling
SUS 304J2	1 010 to 1 150 rapid cooling	SUS 317J2	1 030 to 1 180 rapid cooling
SUS 305	1 010 to 1 150 rapid cooling	SUS 836L	1 030 to 1 180 rapid cooling
SUS 309S	1 030 to 1 150 rapid cooling	SUS 890L	1 030 to 1 180 rapid cooling
SUS 310S	1 030 to 1 180 rapid cooling	SUS 321	920 to 1 150 rapid cooling
SUS 312L	1 030 to 1 180 rapid cooling	SUS 347	980 to 1 150 rapid cooling
SUS 315J1	1 010 to 1 150 rapid cooling	SUS XM7	1 010 to 1 150 rapid cooling
SUS 315J2	1 010 to 1 150 rapid cooling	SUS XM15J1	1 010 to 1 150 rapid cooling

Remarks 1 The purchaser may designate the stabilizing heat treatment to SUS 316Ti, SUS 321 and SUS 347. The heat treatment temperature in this case shall be 850 ℃ to 930 ℃.

2 Includes solution treatment carried out on the rolling with rapid cooling as particularly designated. In this case, the symbol shall be LS.

Annex 1 Table 2 **Heat treatment of austenite-ferritic series**

Unit : ℃

Symbol of grade	Solution treatment
SUS 329J1	950 to 1 100 rapid cooling
SUS 329J3L	950 to 1 100 rapid cooling
SUS 329J4L	950 to 1 100 rapid cooling

Annex 1 Table 3 Heat treatment of ferritic series

Unit : ℃

Symbol of grade	Annealing	Symbol of grade	Annealing
SUS 405	780 to 830 rapid cooling or slow cooling	SUS 436L	800 to 1 050 rapid cooling
SUS 410L	700 to 820 rapid cooling or slow cooling	SUS 436J1L	800 to 1 050 rapid cooling
SUS 429	780 to 850 rapid cooling or slow cooling	SUS 444	800 to 1 050 rapid cooling
SUS 430	780 to 850 rapid cooling or slow cooling	SUS 445J1	850 to 1 050 rapid cooling
SUS 430LX	780 to 950 rapid cooling or slow cooling	SUS 445J2	850 to 1 050 rapid cooling
SUS 430J1L	800 to 1 050 rapid cooling	SUS 447J1	900 to 1 050 rapid cooling
SUS 434	780 to 850 rapid cooling or slow cooling	SUS XM27	900 to 1 050 rapid cooling

Annex 1 Table 4 Heat treatment of martensitic series

Unit : ℃

Symbol of grade	Heat treatment		
	Annealing	Quenching	Tempering
SUS 403	Approx. 750 rapid cooling or 800 to 900 slow cooling	—	—
SUS 410	Approx. 750 rapid cooling or 800 to 900 slow cooling	—	—
SUS 410S	Approx. 750 rapid cooling or 800 to 900 slow cooling	—	—
SUS 420J1	Approx. 750 air cooling or 800 to 900 slow cooling	—	—
SUS 420J2	Approx. 750 air cooling or 800 to 900 slow cooling	980 to 1 040 rapid cooling	150 to 400 air cooling
SUS 440A	Approx. 750 air cooling or 800 to 900 slow cooling	1 010 to 1 070 rapid cooling	150 to 400 air cooling

Remarks 1 For SUS 420J2 and SUS 440A, as particularly designated by the purchaser, quenching and tempering may be processed. In this case, the symbol shall be Q.

2 The annealing may be replaced by quenching and tempering which is capable of obtaining the specified mechanical properties.

Annex 1 Table 5 Heat treatment of precipitation hardening series

Symbol of grade	Heat treatment		
	Classification	Symbol	Conditions
SUS 630	Solution treatment	S	1 020 to 1 060 rapid cooling
	Precipitation hardening heat treatment	H900	After S treatment, 470 to 490 air cooling
		H1025	After S treatment, 540 to 560 air cooling
		H1075	After S treatment, 570 to 590 air cooling
		H1150	After S treatment, 610 to 630 air cooling
SUS 631	Solution treatment	S	1 000 to 1 100 rapid cooling
	Precipitation hardening heat treatment	TH1050	After treatment S, hold at 760 ℃ ± 15 ℃ for 90 min, cool to 15 ℃ or lower within 1 h, hold for 30 min, and after holding at 565 ℃ ± 10 ℃ for 90 min, air cool.
		RH950	After treatment S, hold at 955 ℃ ± 10 ℃ for 10 min, air cool to room temperature, hold at −73 ℃ ± 6 ℃ for 8 h within 24 h, and after holding at 510 ℃ ± 10 ℃ for 60 min, air cool.

Remarks : For SUS 630, heat treatments other than those given in Annex 1 table 5 may be as agreed upon between the purchaser and the supplier.

Annex 2 (informative)

Comparison table between JIS and corresponding International Standard

JIS G 4305 : 2005 *Cold-rolled stainless steel plate, sheet and strip*					ISO 9445 : 2002 *Continuously cold-rolled stainless steel narrow strip, wide strip, plate/sheet and cut lengths—Tolerances on dimensions and form*		
(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and the International Standard by clause Location of deviation : text, Annex Indication method : dotted underlines or continuous sidelines		(V) Justification for the technical deviation and future measures
Clause	Content		Clause	Content	Classification by clause	Detail of technical deviation	
1 Scope	Grades, chemical composition and mechanical properties of plates and strip are specified.	ISO 9445	1	Tolerances on dimensions and form of plates and strip less than 600 mm in width and from 600 mm to 2 100 mm in width are specified.	MOD/addition	In JIS, grade and chemical composition are specified in addition to form and dimensions.	In JIS, provisions of quality and others were added, because they are necessary for the product specification. Proposal will be submitted at the ISO revision.
2 Normative references	Listed in attached table 1.		2 3	— Definitions of terms cited from ISO 6929:1987 *Steel products —Definitions and classification* Terms and definitions ISO 6929 is referred to.	MOD/addition MOD/deletion MOD/deletion	Standards for test methods were added.	Standards required for JIS are listed.
3 Grade and symbols	Plates and strip are classified into 61 grades and their symbols and classifications are specified (table 1).			—	MOD/addition		In JIS, provisions of quality and others were added, because they are necessary for the product specification.
4 Chemical composition	Cast analysis values (table 2 to table 6) and product analysis values are specified.			—			

(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and the International Standard by clause Location of deviation : text, Annex Indication method : dotted underlines or continuous sidelines		(V) Justification for the technical deviation and future measures
Clause	Content		Clause	Content	Classification by clause	Detail of technical deviation	
5 Mechanical properties	Mechanical properties (table 7 to table 13) are specified.			—			In JIS, provisions of quality and others were added, because they are necessary for the product specification.
6 Corrosion resistance	Corrosion resistance by an intergranular corrosion test is specified.			—			
7 Surface finish	Surface finish is specified (table 14).			—			
8 Shapes, dimensions, mass and tolerances	8.1 Standard dimensions Standard dimensions of plates (table 15) and standard thickness of strip (table 16) are specified		6	For wide strip and the products, preferred thicknesses are specified.	MOD/addition	In JIS, thickness 0.90 mm is added to 15 types of thicknesses specified in ISO.	
	8.2 Calculation of mass of plates Mass of plates and its calculation method is specified (table 17).			—	MOD/addition		In JIS, this clause was added as the provision, because it is necessary for the product specification.

(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and the International Standard by clause Location of deviation : text, Annex Indication method : dotted underlines or continuous sidelines		(V) Justification for the technical deviation and future measures
Clause	Content		Clause	Content	Classification by clause	Detail of technical deviation	
8 Shapes, dimensions, mass and tolerances	8.3 Tolerances on thickness The measuring position of the thickness of plates and strip is specified. Tolerances of plates and strip are specified in table 18 and table 19, respectively. The purchaser may designate the tolerances given in table 20 (symbol ET) or table 21 (symbol ST).		7 17	Tolerances on thickness 7.1 Tolerances on thickness for narrow strip and products Tolerances are specified in table 1 in three grades: Normal, Fine and Precision. 7.2 Tolerances on thickness for wide strip and products Tolerances are specified in two grades (Normal and Special) for each measuring method (table 2: method A, table 3: method B). Measurement of thickness 17.1 Measurement of narrow strip and products The measuring position is specified. 17.2 Measurement of wide strip and steel plates Measuring methods A and B are specified, which differ in measuring positions.	MOD/alteration	In some provisions, measuring positions differ. Tolerances of JIS in table 21 are identical with those of ISO of Special grade in table 3, where the measuring position is the same.	Amendment proposal will be submitted at the next ISO five-year revision.

(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and the International Standard by clause Location of deviation : text, Annex Indication method : dotted underlines or continuous sidelines		(V) Justification for the technical deviation and future measures
Clause	Content		Clause	Content	Classification by clause	Detail of technical deviation	
8 Shapes, dimensions, mass and tolerances	8.4 Tolerances on width Tolerances on width of plates and strip are specified in table 22 and table 23, respectively. The purchaser may designate the tolerances on width (symbol EW) of table 24.		8 18	Tolerances on width 8.1 Tolerances on width for narrow strip and products Tolerances are specified in table 4 in three grades: Normal, Fine and Precision. 8.2 Tolerances on width for wide strip and products Tolerances are specified in table 5 (strip with mill edges) and table 6 (strip with cut edges, in two grades: Normal and Special). Measurement of width	MOD/alteration MOD/deletion	Classification of plate thickness and width is different. Tolerances of JIS in table 24 are identical with those of ISO of Special grade in table 4, where the measuring position is the same.	Amendment proposal will be submitted at the next ISO five-year revision.
	8.5 Tolerances on length of plates Tolerances are specified (table 25).		10 16	Tolerances on length 10.1 Plates from narrow strip: specified in table 7. 10.2 Plates from wide strip: specified in table 8. Measurement of length	MOD/alteration MOD/deletion	Classification of plate thickness and length is different.	Amendment proposal will be submitted at the next ISO five-year revision.
	8.6 Flatness of plates Flatness is specified (table 26). The purchaser may designate the flatness (symbol EF). Measuring method of flatness is specified.		13 22 14	Tolerances on flatness 13.1 Plates from narrow strip 13.2 Plates from wide strip Measurement of flatness Identical with JIS. Edge waviness tolerances of strip	MOD/alteration IDT MOD/deletion	Classification of plate thickness and length is different.	Amendment proposal will be submitted at the next ISO five-year revision.

(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and the International Standard by clause Location of deviation : text, Annex Indication method : dotted underlines or continuous sidelines		(V) Justification for the technical deviation and future measures
Clause	Content		Clause	Content	Classification by clause	Detail of technical deviation	
8 Shapes, dimensions, mass and tolerances	8.7 Edge camber of strip The maximum value of the edge camber relative to a standard length of 2 000 mm is specified (table 28). Application of lateral warp of strip is illustrated (figure 1).		11 20 12 21	Tolerances on edge camber 11.1 Edge camber tolerances of narrow strip and plates Specified in table 9. 11.2 Edge camber tolerances of wide strip and products Specified in table 10. Measurement of edge camber Identical with JIS. Tolerances on squareness Measurement of squareness Measurement of squareness is illustrated (figure 2).	MOD/alteration IDT MOD/deletion	Classification of sizes to be applied for tolerances is different.	Amendment proposal will be submitted at the next ISO five-year revision.
9 Appearance	· Plates and strip shall not have any defects detrimental to practical use. · The form and the limits of the gradual displacement of the wound-type strips are specified.		12 9	Form of coils · The form and the limits of the gradual displacement for wound-type strips are specified. Inner diameters of the coil Inner diameters of the coil are specified to be decided by mutual agreement between the purchaser and the supplier. Preferred winding diameters are specified.	MOD/addition MOD/deletion	This was deleted because it is not required in JIS.	In JIS, items and contents of provisions necessary for the product specification were added. Amendment proposal will be submitted at the next ISO five-year revision.

(I) Requirements in JIS		(II) International Standard number	(III) Requirements in International Standard		(IV) Classification and details of technical deviation between JIS and the International Standard by clause Location of deviation : text, Annex Indication method : dotted underlines or continuous sidelines		(V) Justification for the technical deviation and future measures
Clause	Content		Clause	Content	Classification by clause	Detail of technical deviation	
10 Manufacturing process	Treatment methods of plates and strip after cold rolling is specified.			—	MOD/addition		In JIS, items and contents of provisions necessary for the product specification were added.
11 Test	Methods of analytical, mechanical and corrosion test are specified.			—	MOD/addition		
12 Inspection	Criteria for inspection of plates and strip are specified.			—	MOD/addition		
13 Marking	Marking of eight items such as the symbol of grade is specified.			—	MOD/addition		
14 Report	In case requested by the purchaser, the supplier shall submit the report in accordance with JIS G 0415.			—	MOD/addition		
Annex 1 (informative)	Heat treatment of stainless steel		—	—	MOD/addition	—	—

Designated degree of correspondence between JIS and International Standard: MOD

Remarks 1 Symbols in sub-columns of classification by clause in the above table indicate as follows:
- IDT : Identical in technical contents.
- MOD/deletion : Deletes the specification items(s) or content(s) in International Standard.
- MOD/addition : Adds the specification item(s) or content(s) which are not included in International Standard.
- MOD/alteration : Alters the specification content(s) which are included in International Standard.

2 Symbol in column of designated degree of correspondence between JIS and International Standard in the above table indicates as follows:
- MOD : Modifies International Standard.

Errata for JIS (English edition) are printed in *Standardization Journal*, published monthly by the Japanese Standards Association, and also provided to subscribers of JIS (English edition) in *Monthly Information*.

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