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Designation: B575 – 10

StandardSpecification for Low-Carbon Nickel-Chromium-Molybdenum, Low-Carbon Nickel-Chromium-Molybdenum-Copper, Low-Carbon Nickel-Chromium-Molybdenum-Tantalum, Low-Carbon Nickel-Chromium-Molybdenum-Tungsten, and Low-Carbon Nickel-Molybdenum-Chromium Alloy Plate, Sheet, and Strip[1]

This standard is issued under the fixed designation B575; 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 plate, sheet, and strip of low-carbon nickel-chromium-molybdenum alloys (UNS N10276, N06022, N06455, N06035, UNS N06058, UNS N06059)*, low-carbon nickel-chromium-molybdenum-copper alloy (UNS N06200), low-carbon nickel-molybdenum-chromium (UNS N10362), low-carbon nickel-chromium-molybdenum-tantalum alloy (UNS N06210), and low-carbon nickel-chromium-molybdenum-tungsten alloy (UNS N06686) as shown in Table 1, for use in general corrosive service.

1.2 The following products are covered under this specification:

1.2.1 *Sheet and Strip*—Hot or cold rolled, solution annealed, and descaled unless solution anneal is performed in an atmosphere yielding a bright finish.

1.2.2 *Plate*—Hot or cold rolled, solution annealed, and descaled.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

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 become familiar with all hazards including those identified in the appropriate Material Safety Data Sheet (MSDS) for this product/material as provided by the manufacturer, 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]

B906 Specification for General Requirements for Flat-Rolled Nickel and Nickel Alloys Plate, Sheet, and Strip

E112 Test Methods for Determining Average Grain Size

E140 Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, and Scleroscope Hardness

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

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *cold-rolled plate, n*—material 3⁄16 to 3⁄8 in. (4.76 to 9.52 mm), inclusive, in thickness.

3.1.2 *hot-rolled plate, n*—material 3⁄16 in. (4.76 mm) and over in thickness.

3.1.3 *plate, n*—material 3⁄16 in. (4.76 mm) and over in thickness.

3.1.4 *sheet and strip, n*—material under 3⁄16 in. (4.76 mm) in thickness.

4. General Requirements

4.1 Material furnished to this specification shall conform to the applicable requirements of Specification B906 unless otherwise provided herein.

[1] This specification is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.07 on Refined Nickel and Cobalt and Their Alloys.

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[2] For ASME Boiler and Pressure Vessel Code applications, see related Specification SB-575 in Section II of that Code.

* New designation established in accordance with Practice E527 and SAE J1086, Practice for Numbering Metals and Alloys (UNS).

[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.

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

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TABLE 1 Chemical Requirements

Element	Composition Limits, %									
	Alloy N06035	Alloy N10276	Alloy N06022	Alloy N06455	Alloy N06059	Alloy N06058	Alloy N06200	Alloy N06210	Alloy N10362	Alloy N06686
Molybdenum	7.60–9.00	15.0–17.0	12.5–14.5	14.0–17.0	15.0–16.5	19.0 - 21.0	15.0–17.0	18.0–20.0	21.5–23.0	15.0-17.0
Chromium	32.25–34.25	14.5–16.5	20.0–22.5	14.0–18.0	22.0–24.0	20.0- 23.0	22.0–24.0	18.0–20.0	13.8–15.6	19.0-23.0
Iron	2.00 max	4.0–7.0	2.0–6.0	3.0 max	1.5, max	1.5, max	3.0 max	1.0 max	1.25 max	5.0 max
Tungsten	0.60 max	3.0–4.5	2.5–3.5	...	...	0.3 max	...	...	...	3.0-4.4
Cobalt, max	1.00	2.5	2.5	2.0	0.3	0.3	2.0 max	1.0	...	...
Carbon, max	0.050	0.010	0.015	0.015	0.010	0.010	0.010	0.015	0.010	0.010
Silicon, max	0.60	0.08	0.08	0.08	0.10	0.10	0.08	0.08	0.08	0.08
Manganese, max	0.50	1.0	0.50	1.0	0.5	0.5	0.50	0.5	0.60	0.75
Vanadium, max	0.20	0.35	0.35	...	...	...	...	0.35	...	...
Phosphorus, max	0.030	0.04	0.02	0.04	0.015	0.015	0.025	0.02	0.025	0.04
Sulfur, max	0.015	0.03	0.02	0.03	0.010	0.010	0.010	0.02	0.010	0.02
Titanium	...	...	...	0.7 max	...	...	...	...	...	0.02-0.25
Nickel	remainder[A]	remainder[A]	remainder[A]	remainder[A]	Bal	Bal	remainder[A]	remainder[A]	remainder[A]	remainder[A]
Aluminum	0.40 max	...	...	...	0.1–0.4	0.40 max	0.50 max	...	0.50 max	...
Copper	0.30 max	...	...	...	0.50 max	0.50 max	1.3–1.9	...	...	...
Tantalum	...	...	...	...	...	...	...	1.5–2.2	...	...

[A] Shall be determined arithmetically by difference.

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