



ASTM A192/ ASME SA192

Standard Specification for Seamless Carbon Steel Boiler Tubes for High-Pressure Service¹

ASTM A192 standard is issued under the fixed designation A 192/A 192M; 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.



Abstract

This guide covers standard specifications for minimum-wall-thickness, seamless carbon steel boiler and superheater tubes for high-pressure service. The steel shall conform to the required chemical composition for carbon, manganese, phosphorus, sulfur, and silicon. The tubes shall have a hardness number not exceeding a specific value. The following mechanical tests shall be conducted, namely: flattening test; flaring test; hardness test; and hydrostatic test.

This abstract is a brief summary of the referenced standard. It is informational only and not an official part of the standard; the full text of the standard itself must be referred to for its use and application. ASTM does not give any warranty express or implied or make any representation that the contents of this abstract are accurate, complete or up to date.

Scope

1.1 This specification² covers minimum-wall-thickness, seamless carbon steel boiler and superheater tubes for high-pressure service.

1.2 The tubing sizes and thicknesses usually furnished to this specification are 1/2 in. to 7 in. [12.7 to 177.8 mm] outside diameter and 0.085 to 1.000 in. [2.2 to 25.4 mm], inclusive, in minimum wall thickness. Tubing having other dimensions may be furnished, provided such tubes comply with all other requirements of this specification.

1.3 Mechanical property requirements do not apply to tubing smaller than 1/8 in. [3.2 mm] inside diameter or 0.015 in. [0.4 mm] thickness.

1.4 The values stated in either inch-pound units or SI units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with the specification. The inch-pound units shall apply unless the "M" designation of this specification is specified in the order.

1.5 This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization

Technical Barriers to Trade (TBT) Committee.

Chemical Compositions (%) of ASTM A192

Mfg. Process	Chemical composition(%)				
	C	Si	Mn	P	S
S	0.06~0.18	0.25Max	0.27~0.63	0.035Max	0.035Max

Mechanical Properties of ASTM A192

Elongation %	Tensile Test MPa or N/mm2	
A	Min Yield point	Tensile Strength
35	180	325

ASTM A192 Steel pipe for Boiler Hardness Requirement:

Brinell Hardness Number	Rockwell Hardness Number
(Tubes 0.200 in. [5.1 mm] and over in wall thickness)	(Tubes less than 0.200 in. [5.1 mm] in wall thickness)
137 HB	77 HRB

*T.S.: tensile strength; *Y.S.: yield strength; *El.: elongation.

*The Brinell Hardness number applies to ASTM A192 tubes 0.200" [5.1 mm] and over in wall thickness.

*The Rockwell Hardness number applies to ASTM A192 tubes less than 0.200" [5.1 mm] in wall thickness.

*Mechanical properties don't apply to tubing smaller than 1/8" [3.2 mm] inside diameter or 0.015" [0.4 mm] thickness.

Carbon Steel ASTM A192 / ASME SA192 Tubes Equivalent Grades

ASTM A 192 boiler tube equivalent EN 10216-2, DIN 17175, BS 3059 Part II, NF A 49-213, NBR 5594 ASTM (American Society for Testing Materials standard) A192 and ASME (American Society of Mechanical Engineers standards) SA192. Equivalent Materials 1010, St35.8, 360. FASTWELL has standard specifications for minimum-wall-thickness, seamless carbon steel boiler and super heater

tubes for high-pressure service.

Grade		ASTM A192 / ASME SA192
UNS No		K01201
Old British	BS	CFS 320
German	No	17175
	Number	1.0305
Belgian		837
Japanese JIS		D3563 / G3461
French		A49-213
Italian		5462

Ordering Information

Orders for ASTM A192 Seamless carbon steel tubes should include the following, as required, to describe the desired material adequately:

- Quantity (feet, meters, or number of lengths),
- Name of material (seamless tubes),
- Manufacture (hot-finished or cold-finished),
- Size (outside diameter and minimum wall thickness),
- Length (specific or random),
- Optional requirements,
- Test report required (see section on Certification of Specification A 450/A 450M),
- Specification designation,
- Special requirements.

Note:

- ◆ Mill test certificates will be issued according to EN10204.3
- ◆ The tubes Shall be Seamless, and the testing shall be as per A 450 / A450M.

Boiler tube SA192

Mark





Measurement





Packing

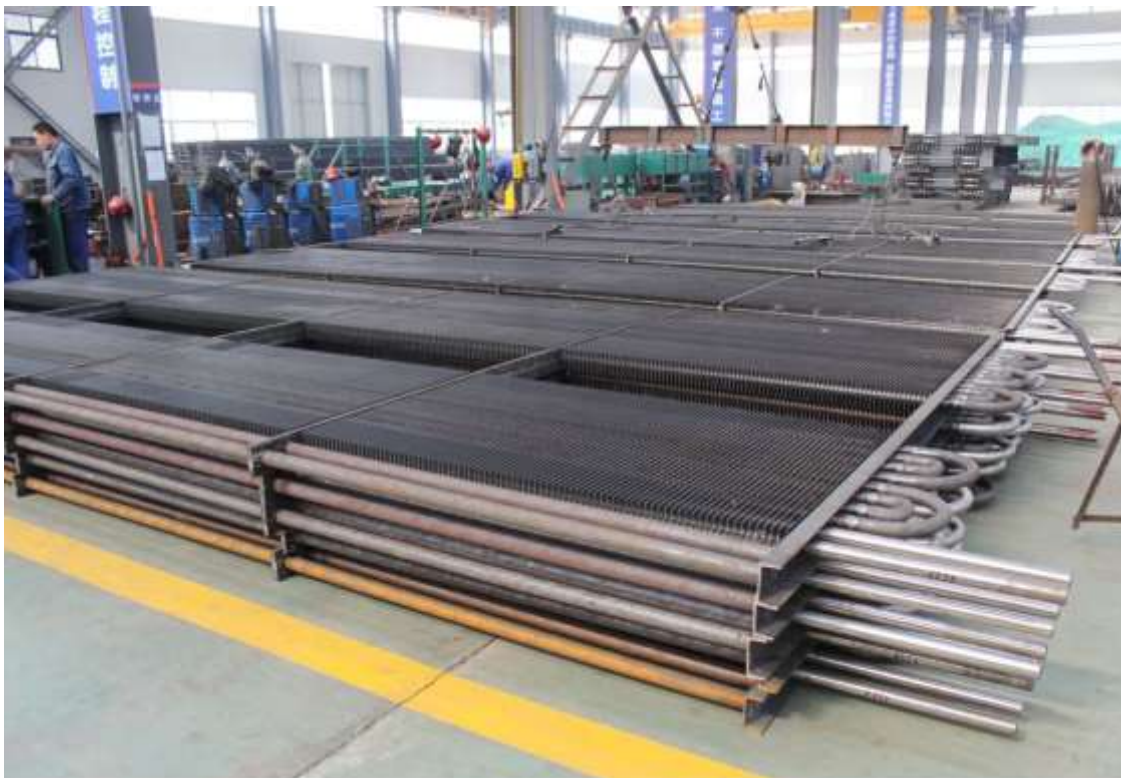


ASTM A192/ ASME SA192 Finned Tube For Heat Exchanger

ASTM A192 Finned Tube is a heat exchange element. In order to improve the heat exchange efficiency, fins are usually added to the surface of the ASTM A192 seamless heat exchange tube to increase the outer surface area (or inner surface area) of the heat exchange tube, so as to achieve the purpose of improving the heat exchange efficiency.



A192 SMLS H Bolier Square Heat Exchanger Fin Tube



ASTM A192/ASME SA192 U Bend (U Bent) Seamless Tubes

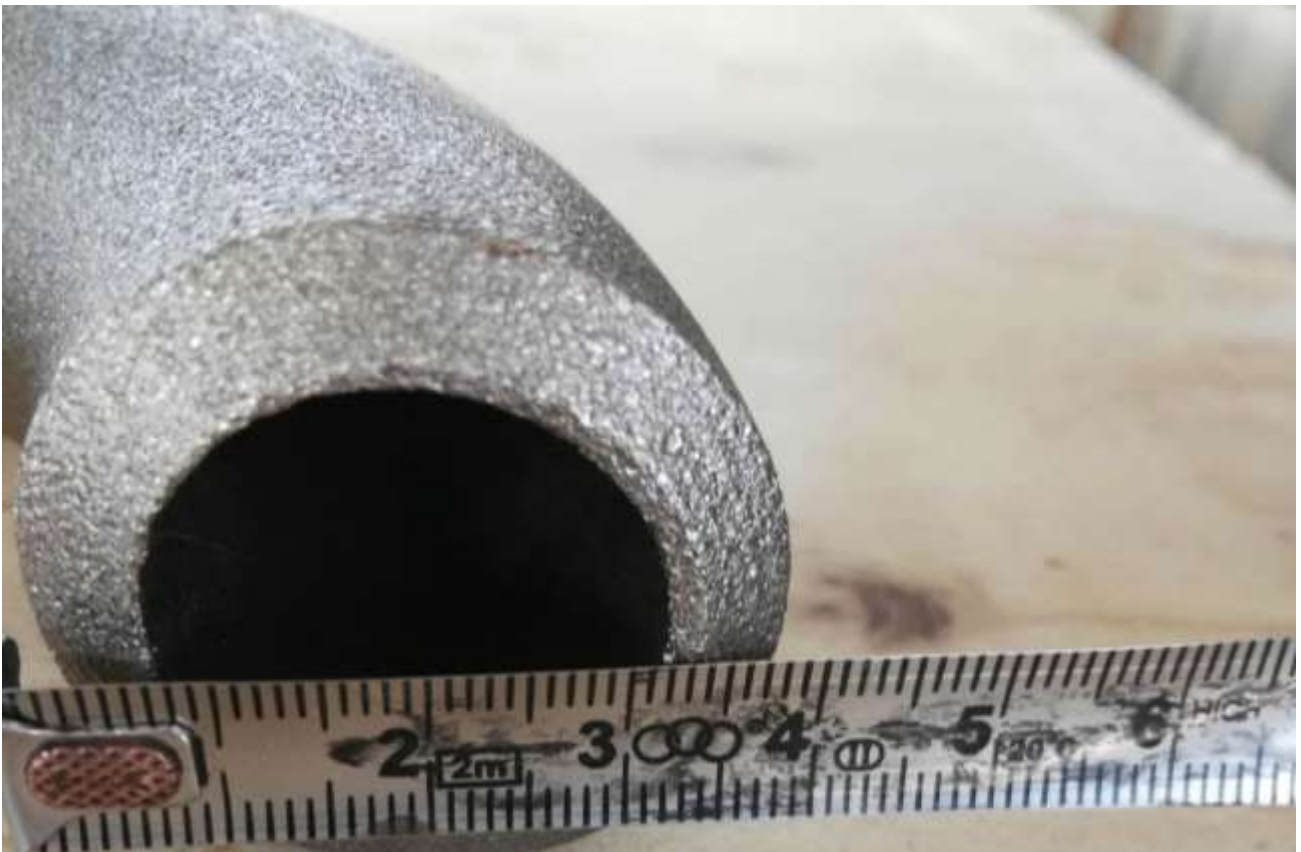
ASTM A192/ASME SA192 U Bend (U Bent) High-Pressure Seamless Tubes Mainly used in Heat Exchanger and Boiler.



Buttweld elbows SA192



Fittings all



Fittings out diameter



Fittings wall thickness



Item2 elbow marking



Item2 elbows all



Item 3 bend marking



item3 Centre lined radius_111mm detail



item3 centre lined radius-111mm full



item4 centre lined radius_144mm detail



item4 centre lined radius_144mm full

Marking:

- Pipes are supplied with marking according to standard and customer request.
- Marking is paint on the ends of pipes.
- The same data, as well as additional information per customer's request, is indicated on the bundle's tags.



Delivery:

Pipes are supplied in hexagonal bundles or round bundles tied with steel strip.

- Weight of bundle – up to 5000 kg upon request of customer.
- Each bundle is furnished with three tags.

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