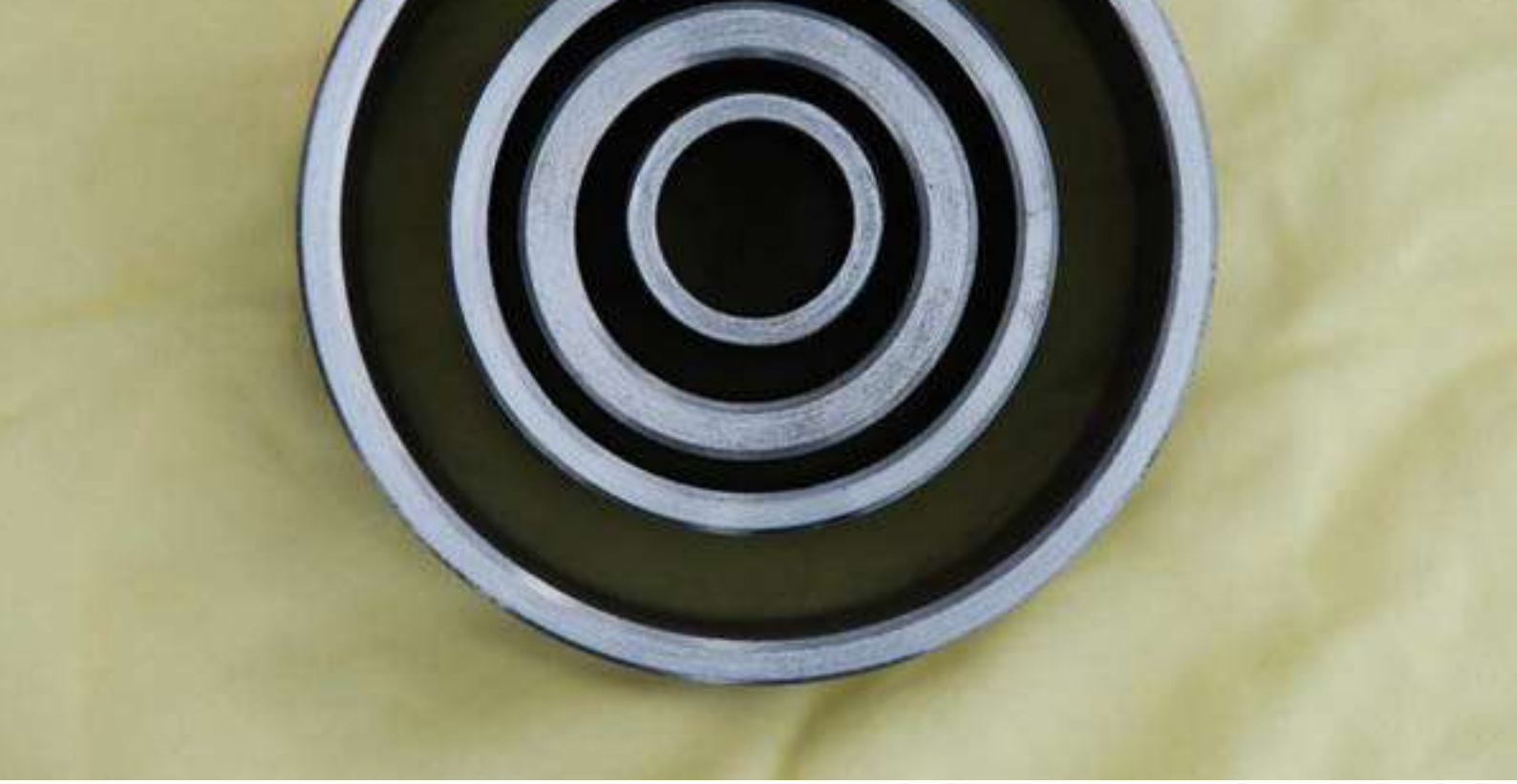


ASTM A210 / ASME SA210

Standard Specification for Seamless Medium-Carbon Steel Boiler and Superheater Tubes

Seamless medium carbon steel tubes, boiler tubes and boiler flue pipe, including in terms of security, the minimum wall thickness of the dome and the support tube, super heater tubes. ASTM A210 / ASME SA210 is available in A210 Grade A1, and A210 Grade C. Each length of pipe shall be subjected to the hydrostatic test. Also, each pipe shall be examined by a non-destructive examination method in accordance to the required practices.

This specification covers seamless medium-carbon steel boiler and superheater tubes. The specification also covers minimum-wall-thickness, tubing sizes, boiler flues including safe ends, arch and stay tubes. The specification provides tensile and hardness properties but only applicable to certain size limitations. Material manufacturing shall be killed. Tubes shall be made by seamless process, marked as either hot-finished or cold-finished. Surface condition shall be specifically stated in the order. Chemical composition shall conform to the requirements. Elemental composition other than listed here shall not be permitted. Tension test, flattening test, flaring test, hardness test, hydrostatic or nondestructive electric test shall be made on specimens. Superheater tubes shall be formed without defects and shall withstand expansion, beading, forging, welding, and bending.

ASTM A210 also covers minimum-wall-thickness, tubing sizes, boiler flues including safe ends, arch and stay tubes. ASTM A210 provides tensile and hardness properties but only applicable to certain size limitations. Material manufacturing shall be killed. Tubes shall be made by seamless process, marked as either hot-finished or cold-finished. Surface condition shall be specifically stated in the order.

Chemical composition shall conform to the requirements. Elemental composition other than listed here shall not be permitted. Tension test, flattening test, flaring test, hardness test, hydrostatic or nondestructive electric test shall be made on specimens. Superheater tubes shall be formed without defects and shall withstand expansion, beading, forging, welding, and bending.

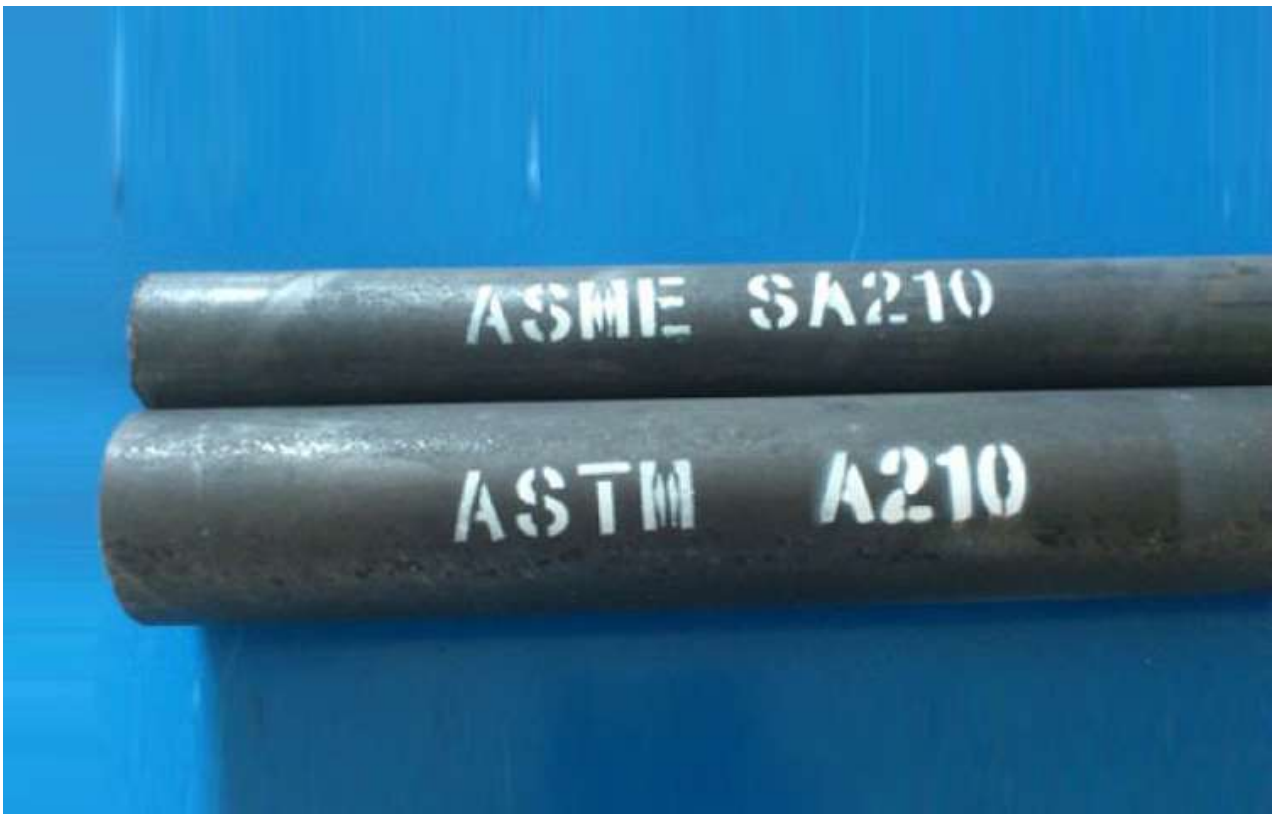
This abstract is a brief summary of the referenced standard. It is informational only and not an official part of the standard; the full text of the standard itself must be referred to for its use and application. ASTM does not give any warranty express or implied or make any representation that the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

Application

For high, middle, low pressure boiler and pressure purpose

Grade

ASTM A210 Grade A1, ASTM A210 Grade C



Scope

1.1 This specification2 covers minimum-wall-thickness, seamless medium-carbon steel, boiler tubes and boiler flues, including safe ends (see Note 1), arch and stay tubes, and superheater tubes.

NOTE 1: This type is not suitable for safe ending by forge welding.

1.2 The tubing sizes and thicknesses usually furnished to this specification are 1/2 in. to 5 in. [12.7 to 127 mm] in outside diameter and 0.035 to 0.500 in. [0.9 to 12.7 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] in inside diameter or 0.015 in. [0.4 mm] in thickness.

1.4 This specification covers grades A-1 and C of Seamless Medium-Carbon Boiler and Superheater Tubes with different chemical and tensile requirements. (Table 1, Table 3, and Section 11.)

1.5 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.

Chemical composition:

Steel Grade	C	Si	Mn	S	P
A 210A1 / SA-210A1	≤0.27	≥0.10	≤0.93	0.02	0.025
A 210C / SA-210C	≤0.35	≥0.10	0.29-1.06	0.02	0.025

Mechanical Properties:

Grade	Tensile strength (Mpa)	Yield point(Mpa) not less than	Elongation(%) not less than	Impact(J) not less than	Hardness not less than
A210 A1/ SA-210A1	≥415	255		"	79HRB
A210C/ SA-210C	≥485	275		"	89HRB

Available Sizes:

O.D.: from 3/4 to 20 inch

W.T.: 0.102 to 4inch (2.6 to 100 mm)

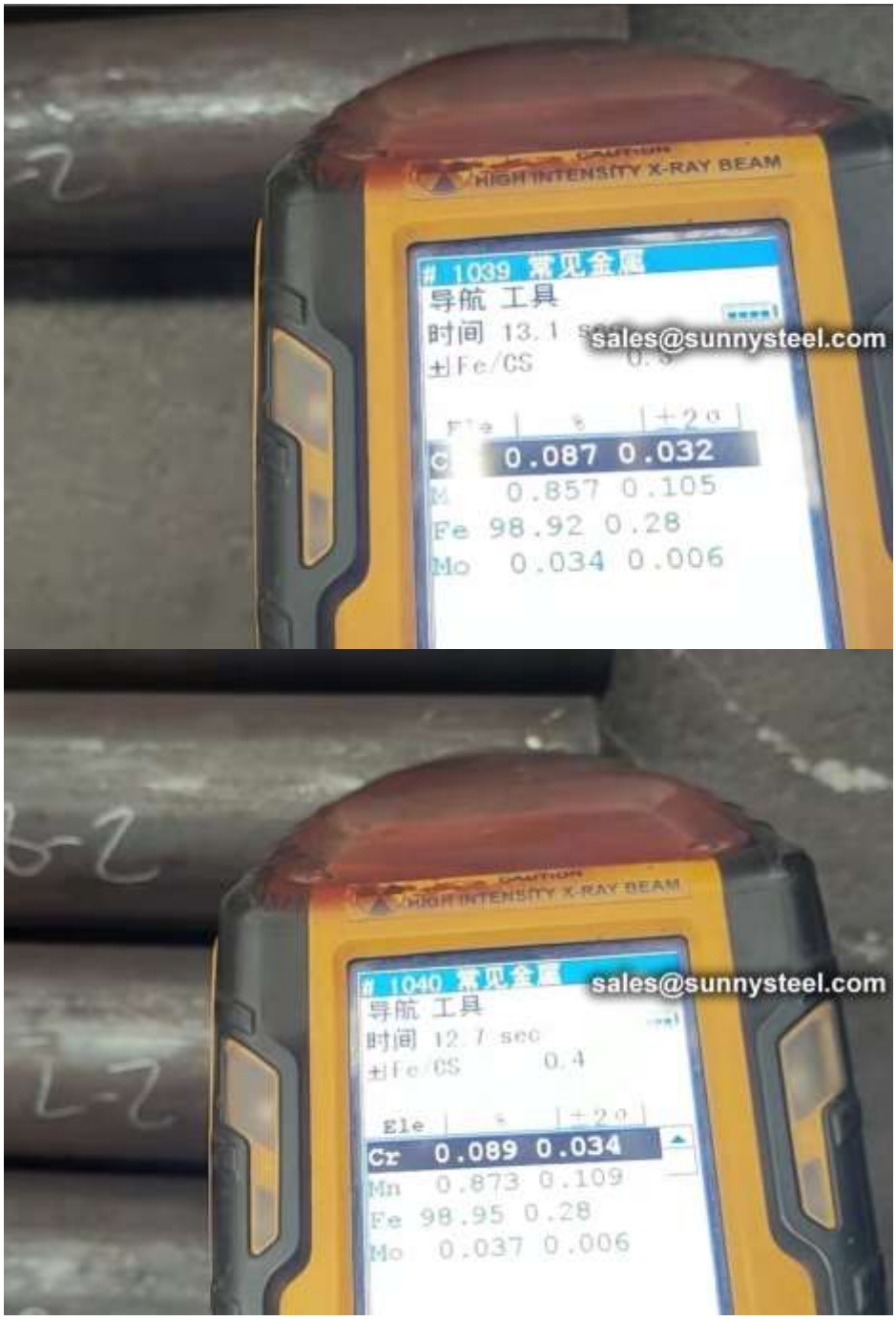
Length: max 16000mm

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.



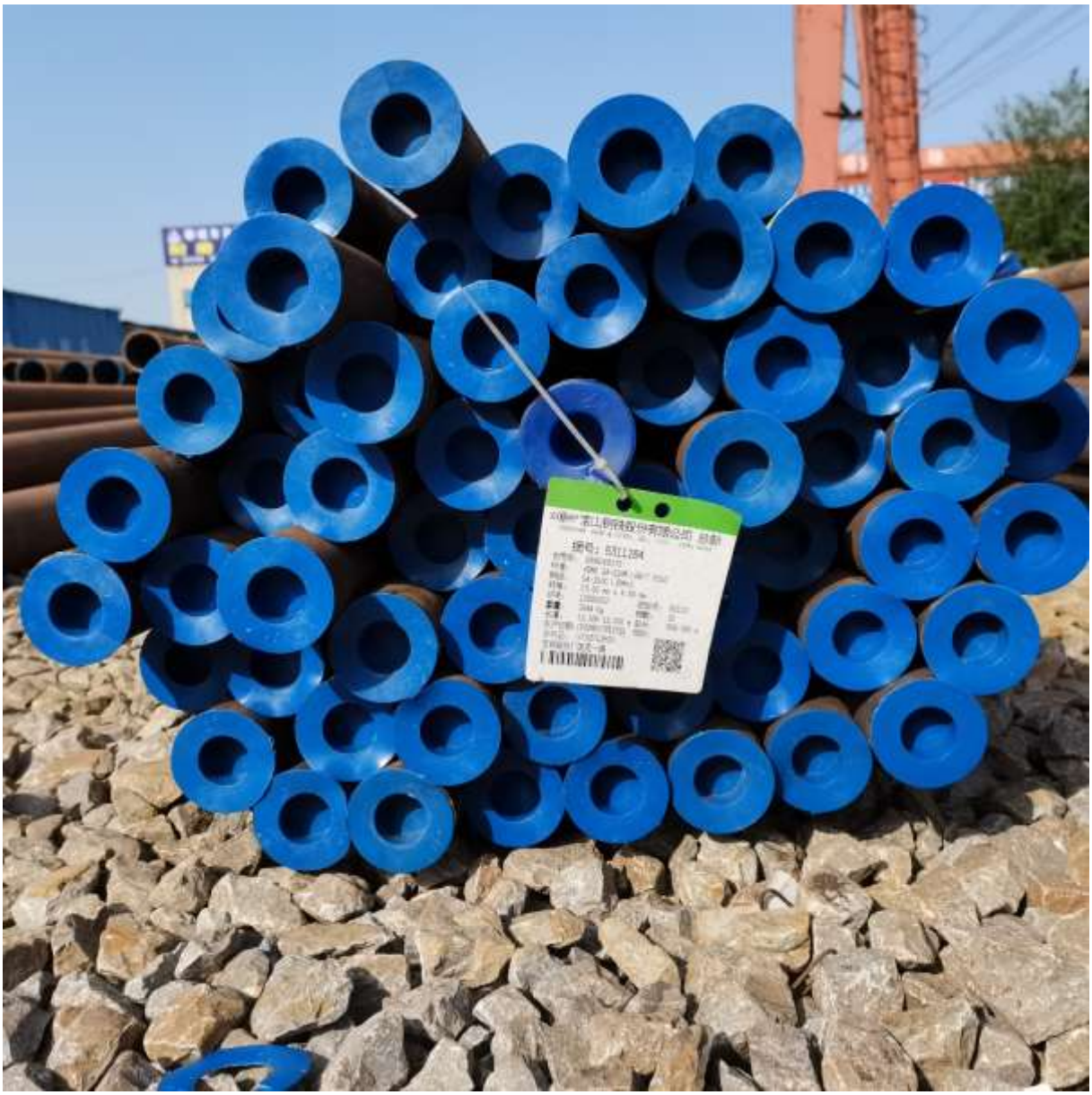
Inspection and Test:

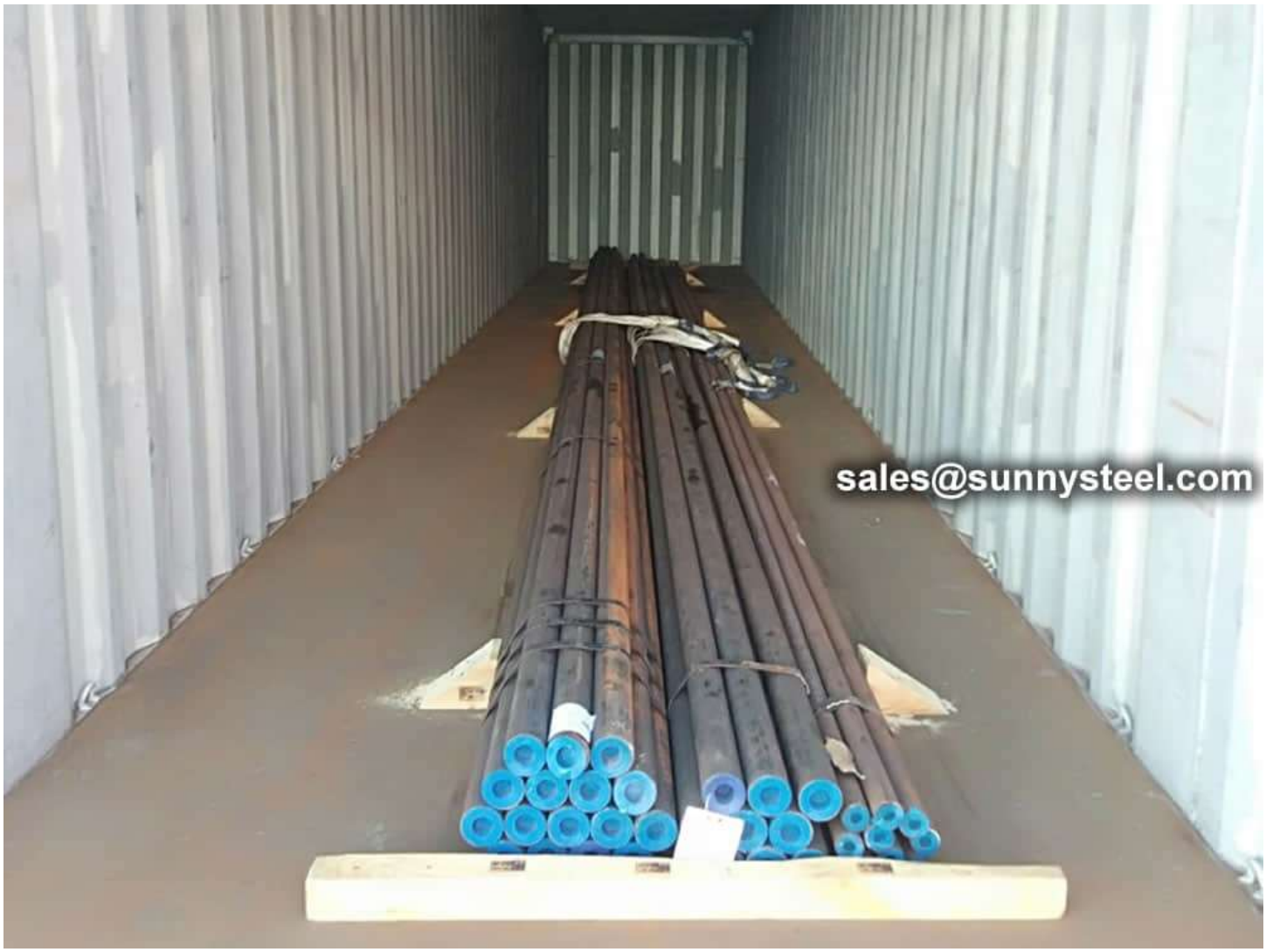
Chemical Composition Inspection
Mechanical Properties Test (Tensile Strength, Yield Strength, Elongation, Flaring, Flattening, Bending, Hardness, Impact Test)
Surface and Dimension Test
No-destructive Test
Hydrostatic Test

Surface treatment:

Oil-dip, Varnish, passivation, phosphating, Shot Blasting.

Both ends of each crate will indicate the order no., heat no., dimensions, weight and bundles or as requested.





Get in Touch

If you are interested in our products or cooperating with us, even having a comment or a suggestion please contact us now, for more detailed information.

Tel.: +8621 3378 0199 | E-mail:sales@sunnysteel.com

---------- www.sunnysteel.com ----------