



沧州博拓国际贸易有限公司

Cangzhou Botop International Co.,Ltd.

ASTM A252 Specification

- Welded and Seamless

<https://www.botopsteelpipe.com>

ASTM A252 Overview



ASTM A252 steel pipe is a common cylindrical **pipe pile** material covering both **welded and seamless types** for steel pipe piles where a steel cylinder is used as a permanent load-carrying member or as a shell to form a cast-in-place concrete pile.



Manufacturing Processes



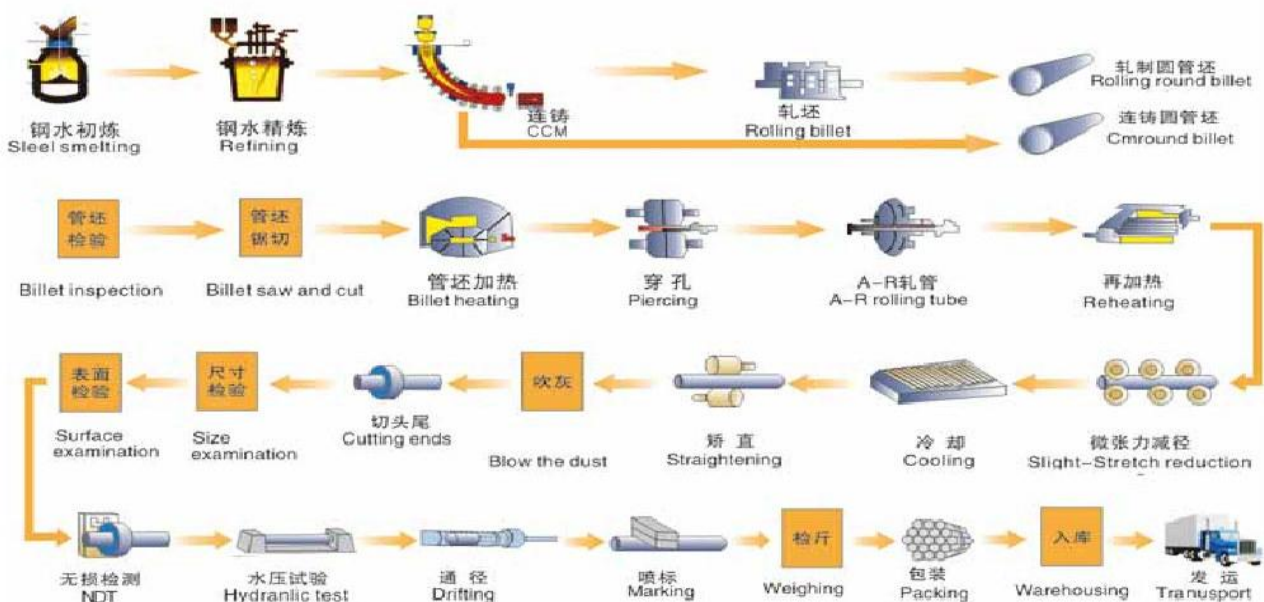
ASTM A252 Pipe Pile Pipes can be categorized into two main manufacturing processes: seamless and welded.

Seamless Processes

The manufacturing process of seamless steel pipe can be mainly categorized into **cold-drawn** and **hot-finished**.

For seamless pipe piles, hot-finished seamless steel pipe is more widely used due to its ability to produce large-size and high-strength pipes, which are more in line with the requirements for the use of pipe piles.

The following is the production **process of hot finished seamless** steel pipe.



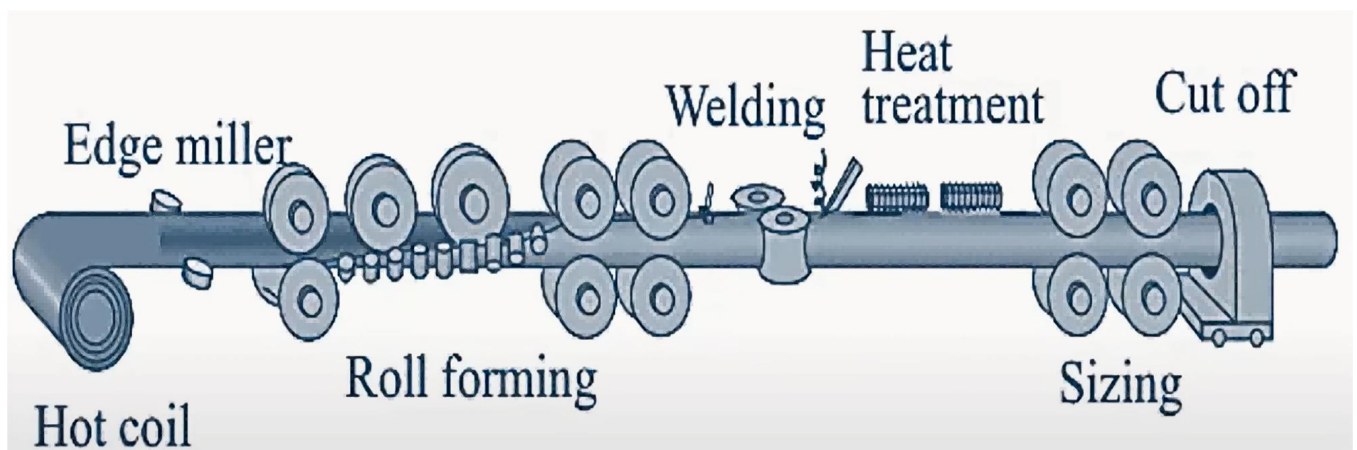
Manufacturing Processes



Welded Processes

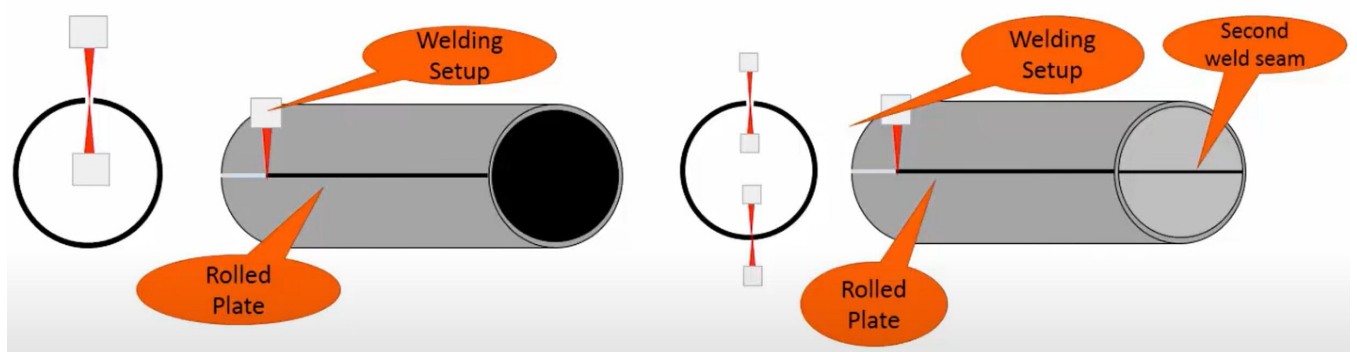
In the welding process, it can be further subdivided into **ERW**, **EFW**, and **SAW**.

The following is the **ERW production process**:



SAW can be categorized into LSAW (SAWL) and SSAW (HSAW) depending on the direction of the weld.

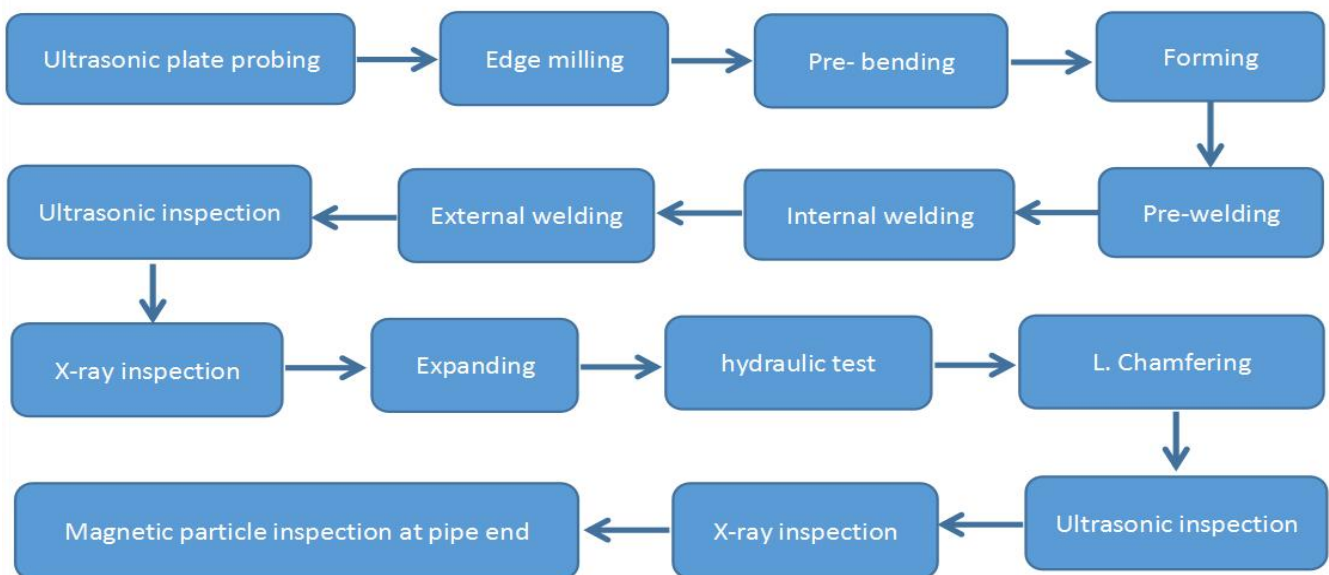
Because SAW are usually welded using a double-sided submerged arc welding technique, they are also often referred to as **DSA**.



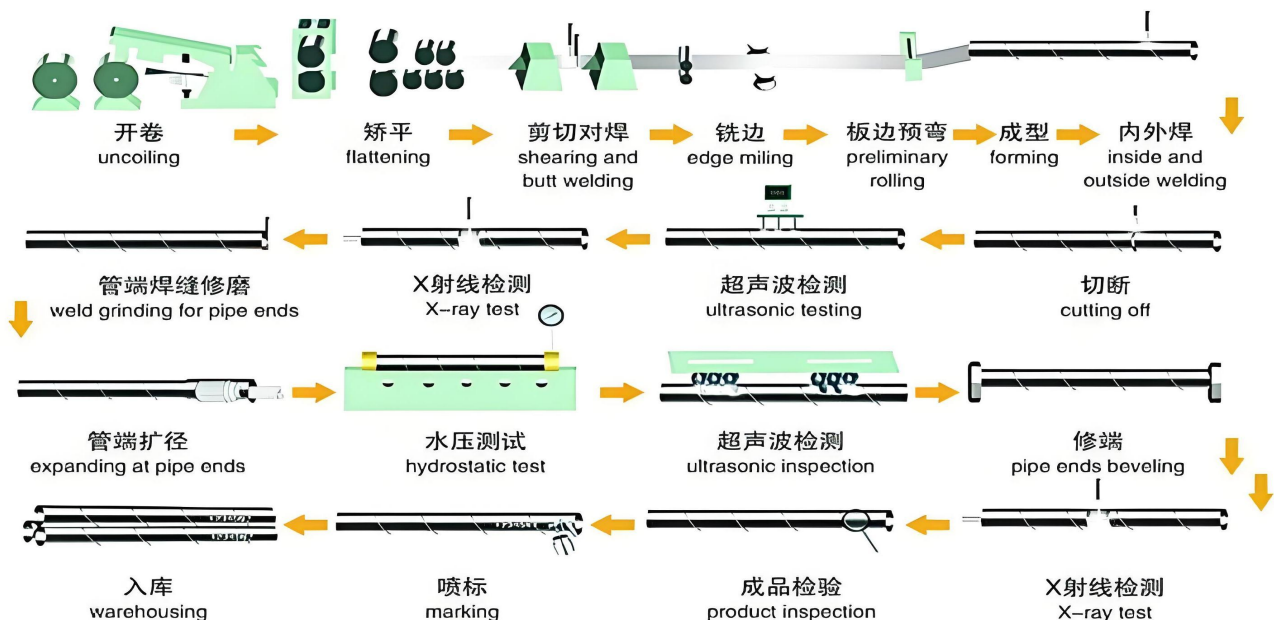
Manufacturing Processes



Below is the **production process of LSAW**:



Below is the **production process of SSAW**:



Differences and size ranges of several



Botop Steel can offer the following size ranges of steel tubes:

Abbreviations	Name	Outer Diameter	Wall Thickness
SSAW (HSAW,SAWH)	Spiral Submerged Arc Welding	200-3500 mm	5-25 mm
LSAW (SAWL)	Longitudinal Submerged Arc Welding	350-1500 mm	8-80 mm
ERW	Electric Resistance Welded	20-660 mm	2-20 mm
SMLS	Seamless	13.1-660 mm	2-100 mm

SMLS: thick-walled tubes can be produced and are able to withstand extremely high pressure values due to the absence of weak points in the welds. However, seamless steel pipes are limited in diameter and can only be produced up to a maximum diameter of 660 mm.

ERW: Fast and inexpensive, but unable to produce thick-walled pipes or withstand high pressures.

LSAW: can produce large diameter, thick walled steel pipe, suitable for applications with high strength requirements. However, the production speed is slower and the price can be higher.

SSAW: suitable for the production of very large-diameter steel pipes, relatively inexpensive, but the wall thickness is limited to a maximum of 25mm.

ASTM A252 Chemical Composition



The steel shall contain no more than 0.050 % phosphorous.

Limiting the phosphorus content in steel is to ensure that the steel has good mechanical properties, especially when used for structural applications such as building piling.

This limitation helps to prevent the steel from becoming too brittle at low temperatures, thus ensuring its safety and reliability in use.

For other element contents, there are no requirements.

This is because the main focus of pipe pile tubes is to ensure that the tubes have adequate structural strength and toughness, which are critical properties for use in supporting structures.

Mechanical Performance of ASTM A252



Table 1 Tensile Requirements

List	Classification	Grade 1	Grade 2	Grade 3
Tensile strength, min	psi	50,000	60,000	66,000
	MPa	345	415	455
Yield strength, min	psi	30,000	35,000	45,000
	MPa	205	240	310
Elongation	Basic minimum elongation for nominal wall thicknesses 5/16 in. [7.9 mm] or more : Elongation in 8 in. [203.2 mm], min, %	18	14	—
	Basic minimum elongation for nominal wall thicknesses 5/16 in. [7.9 mm] or more : Elongation in 2 in. [50.8 mm], min, %	30	25	20
	For nominal wall thicknesses less than 5/16 in. [7.9 mm], the deduction from the basic minimum elongation in 2 in. [50.8 mm] for each 1/32 in. [0.8 mm] decrease in nominal wall thickness below 5/16 in. [7.9 mm], in percentage points	1.50 ^A	1.25 ^A	1.00 ^A

^A Table 2 gives the computed minimum values:

Table 2 Calculated Minimum Elongation Values^B

Nominal Wall Thickness		Elongation in 2 in. [50.8 mm], min, %		
in	mm	Grade 1	Grade 2	Grade 3
5/16 or 0.312	7.9	30.00	25.00	20.00
9/32 or 0.281	7.1	28.50	23.75	19.00
1/4 or 0.250	6.4	27.00	22.50	18.00
7/32 or 0.219	5.6	25.50	21.25	17.00
3/16 or 0.188	4.8	24.00	20.00	16.00
11/64 or 0.172	4.4	23.25	19.50	15.50
5/32 or 0.156	4.0	22.50	18.75	15.00
9/64 or 0.141	3.6	21.75	18.25	14.50
1/8 or 0.125	3.2	21.00	17.50	14.00
7/64 or 0.109	2.8	20.25	16.75	13.50

^B The above table gives the calculated minimum elongation values for various nominal wall thicknesses. Where the specified nominal wall thickness is intermediate to those shown above, the minimum elongation values shall be determined as follows:

Grade 1: $E = 48t + 15.00$ [$E = 1.90t + 15.00$]

Grade 2: $E = 40t + 12.50$ [$E = 1.56t + 12.50$]

Grade 3: $E = 32t + 10.00$ [$E = 1.25t + 10.00$]

where: E = elongation in 2 in. and 50.8 mm %,

t = specified nominal wall thickness, in. [mm].

Dimensional Tolerances



List	Sort	Scope
Weight	Theoretical Weight	95 %-125 %
Outside Diameter	Specified Outside Diameter	±1 %
Wall Thickness	specified nominal wallthickness	min 87.5%
Lengths	Single random lengths	16 to 25 ft [4.88 to 7.62 m]
	Double random lengths	over 25 ft [7.62 m] with a minimum average of 35 ft [10.67 m]
	Uniform lengths	length as specified with a permissible variation of ±1 in.

Pipe Weight Chart

ASTM A252 Pipe Weight Chart

For pipe pile sizes not listed in the pipe weight chart, the weight per unit length shall be calculated as follows:

$$W = 10.69(D - t)t \quad [\quad W = 0.0246615(D - t)t \quad]$$

W = weight per unit length, lb/ft [kg/m].

D = specified outside diameter, in. [mm],

t = specified nominal wall thickness, in. [mm].

Surface Coating of Steel Pipes



Our company offers a wide range of coatings including **Paint, varnish, galvanized, zinc-rich epoxy, 3LPE, coal tar epoxy, etc.** to meet the needs of various projects and ensure long-term durability.



Ordering Information



When purchasing A252 Pipe Pile Tubing, the following information should be provided to facilitate the supplier's ability to accurately meet your specific needs and minimize subsequent modifications and potential delays.

- 1 Quantity (feet or number of lengths),
- 2 Name of material (steel pipe piles),
- 3 Methods of manufacture (seamless or welded),
- 4 Grade (1, 2, or 3),
- 5 Size (outside diameter and nominal wall thickness),
- 6 Lengths (single random, double random, or uniform),
- 7 End finish,
- 8 ASTM specification designation and year of issue.

About Us



Since its establishment in 2014, Botop Steel has become a leading supplier of carbon steel pipe in Northern China, known for excellent service, high-quality products, and comprehensive solutions.

The company offers a variety of carbon steel pipes and related products, including seamless, ERW, LSAW, and SSAW steel pipe, as well as a complete lineup of pipe fittings and flanges. Its specialty products also include high-grade alloys and austenitic stainless steels, tailored to meet the demands of various pipeline projects.



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