

ASTM A312 INDUSTRIAL PIPE

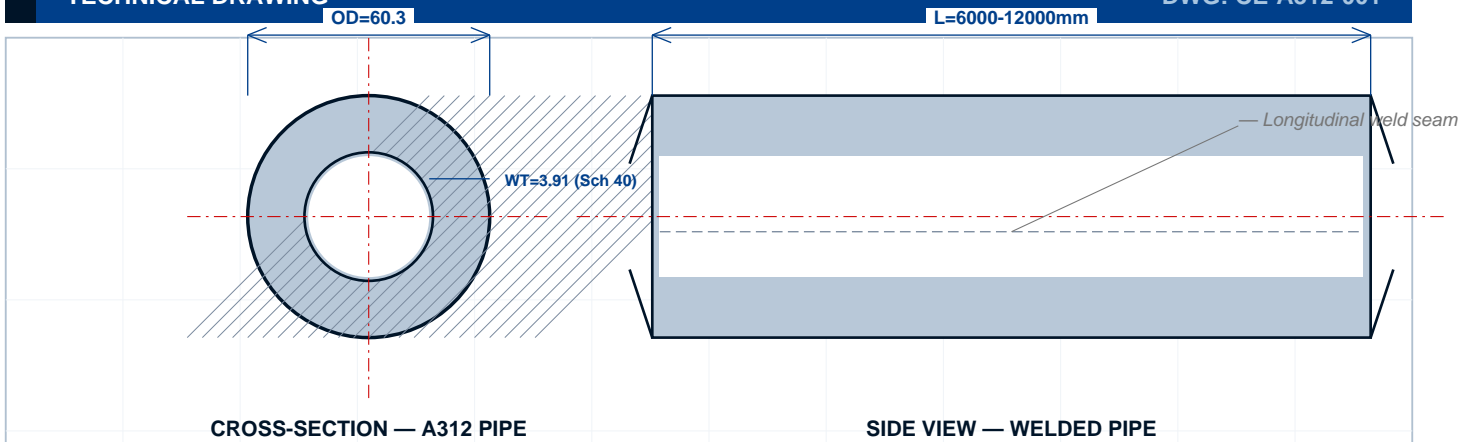
304 / 316L WELDED & SEAMLESS

ASTM A312 austenitic stainless steel pipe in 304/304L and 316/316L grades for industrial process service. Available welded (longitudinal seam) or seamless construction in Schedule 5, 10, 40 and 80 wall thicknesses. Suitable for chemical processing, food/beverage utility piping, oil & gas, marine and general industrial applications. Standard 6-meter or 12-meter lengths with beveled ends ready for welding.

MATERIAL	STANDARD	CONSTRUCTION	SCHEDULE	LENGTH	NDE
304L / 316L	ASTM A312	Welded / Seamless	5S / 10S / 40S / 80S	6 m / 12 m	100% RT (option)

TECHNICAL DRAWING

DWG: CE-A312-001



<b>CASPIAN EDGE INC.</b>	
NORTH YORK, ON, CANADA	
DWG NO: <b>CE-A312-001</b>	SCALE: <b>NTS</b>
UNIT: <b>mm</b>	VIEW: <b>CROSS-SECTION</b>

IN THIS DATASHEET

- PAGE 1** Technical drawing with dimensions and component callouts
- PAGE 2** Full technical specifications, materials and pressure-temperature data
- PAGE 3** Standards compliance, certifications and documentation
- PAGE 4** Applications, installation, maintenance and RFQ form

## ASTM A312 INDUSTRIAL PIPE

304 / 316L WELDED &amp; SEAMLESS

## DESIGN SPECIFICATIONS

## SECTION 1

<b>Standard</b>	ASTM A312 / ASME B36.19M
<b>Grades</b>	TP304/304L, TP316/316L
<b>Manufacture</b>	Welded (EFW) or Seamless
<b>Wall Schedule</b>	5S / 10S / 40S / 80S
<b>Heat Treatment</b>	Solution annealed
<b>Surface</b>	Pickled / Mill finish
<b>NDE Options</b>	100% RT, UT, Hydrotest <span style="float: right;">Length</span>
<b>Documentation</b>	MTR per EN 10204 3.1
<b>Marking</b>	Per spec on each length

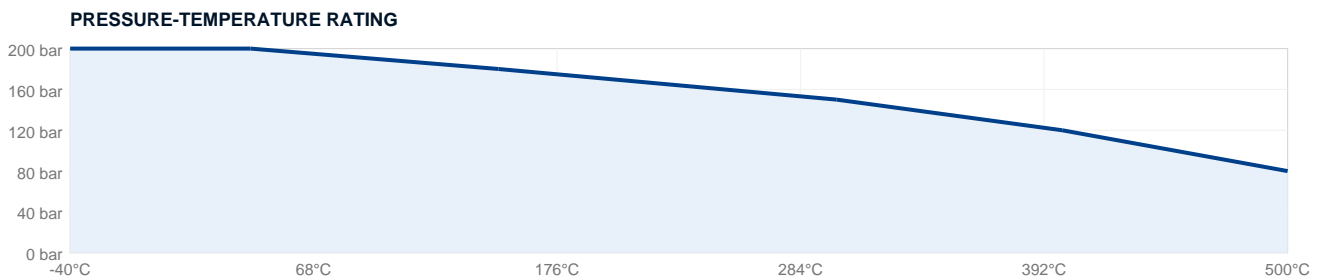
## OPERATING CONDITIONS

## SECTION 2

PRESSURE RATING		TEMPERATURE RANGE	
Sch 10S @ 38°C	30 <span style="float: right;">bar typ</span>	<b>Continuous Service</b>	-196 to +800 °C
Sch 40S @ 38°C	100 <span style="float: right;">bar typ</span>	<b>Cryogenic</b>	-196 °C min
Sch 80S @ 38°C	165 <span style="float: right;">bar typ</span>	<b>Creep Limit</b>	+525 °C (TP316L)
<b>Hydrotest</b>	1.5xWP <span style="float: right;">bar</span>	<b>Process</b>	-29 to +400 °C typ.

## PRESSURE-TEMPERATURE RATING CHART

## SECTION 3



## SURFACE FINISH OPTIONS

## SECTION 4

DESIGNATION	RA (MM)	RA (MIN)	METHOD	APPLICATION
<b>Standard</b>	≤ 0.8	≤ 32	Mechanical polish	Food, dairy, beverage
<b>Premium</b>	≤ 0.5	≤ 20	Mech. polish + buff	Pharmaceutical
<b>EP (BPE SF4)</b>	≤ 0.38	≤ 15	Electropolish	Biotech, high-purity
<b>Mirror</b>	≤ 0.25	≤ 10	EP + final buff	Critical bioprocess

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## MATERIALS OF CONSTRUCTION

## SECTION 5

ELEMENT	SYMBOL	304L %	316L %	FUNCTION
Chromium	Cr	18.0–20.0	16.0–18.0	Corrosion
Nickel	Ni	8.0–12.0	10.0–14.0	Ductility
Molybdenum	Mo	—	2.0–3.0	Pitting (316L)
Carbon	C	≤ 0.03	≤ 0.03	L grade
Manganese	Mn	≤ 2.0	≤ 2.0	Deoxidizer
Silicon	Si	≤ 0.75	≤ 0.75	Deoxidizer
Phosphorus	P	≤ 0.045	≤ 0.045	Impurity
Sulfur	S	≤ 0.030	≤ 0.030	Impurity

## 316L CHEMICAL COMPOSITION

## SECTION 6

ELEMENT	SYMBOL	MIN %	MAX %	FUNCTION
Chromium	Cr	16.0	18.0	Corrosion resistance
Nickel	Ni	10.0	14.0	Ductility, toughness
Molybdenum	Mo	2.0	3.0	Pitting resistance
Carbon	C	—	0.03	Low carbon (L grade)
Manganese	Mn	—	2.0	Deoxidizer
Silicon	Si	—	0.75	Deoxidizer
Phosphorus	P	—	0.045	Impurity (limit)
Sulfur	S	—	0.030	Impurity (limit)

## SIZE CHART &amp; DIMENSIONS

## SECTION 7

NPS	OD (MM)	SCH 10S WT	SCH 40S WT	SCH 80S WT	LENGTH
½"	21.3	2.11	2.77	3.73	6m/12m
1"	33.4	2.77	3.38	4.55	6m/12m
1½"	48.3	2.77	3.68	5.08	6m/12m
2"	60.3	2.77	3.91	5.54	6m/12m
3"	88.9	3.05	5.49	7.62	6m/12m
4"	114.3	3.05	6.02	8.56	6m/12m
6"	168.3	3.40	7.11	10.97	6m/12m
8"	219.1	3.76	8.18	12.70	6m/12m

## STANDARDS &amp; CERTIFICATIONS

## SECTION 8

STANDARD	DESCRIPTION	STATUS
ASTM A312	SS pipe specification	Compliant
ASME B36.19M	SS pipe dimensions	Compliant
ASTM A480	SS sheet/strip source	Compliant
ASTM A999	General reqs SS pipe	Compliant
EN 10216-5	Seamless SS tube (EU equiv)	Available
EN 10204 3.1	Material certification	Standard

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## TYPICAL APPLICATIONS

## SECTION 9

INDUSTRIAL	CHEMICAL PROCESS	OIL & GAS / MARINE
<ul style="list-style-type: none"> <li>• Process plant piping</li> <li>• Utility lines (steam, water)</li> <li>• Plant air</li> <li>• Heat exchangers</li> <li>• Cooling towers</li> <li>• Industrial water systems</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical reactors</li> <li>• Acid handling</li> <li>• Solvent transfer</li> <li>• Heat exchangers</li> <li>• Distillation columns</li> <li>• Catalyst lines</li> </ul>	<ul style="list-style-type: none"> <li>• Refinery service</li> <li>• Offshore platforms</li> <li>• Marine ballast</li> <li>• Desalination plants</li> <li>• Sea water cooling</li> <li>• Pipeline service</li> </ul>

## INSTALLATION GUIDELINES

## SECTION 10

**Pipe Preparation:** Cut to length using cold-cutting methods. Bevel ends per ASME B16.25 (typically 37.5° bevel) for welding. Deburr and clean cut ends. **Welding:** SMAW, GTAW or GMAW per AWS qualified procedures. Use matching filler (308L for 304L, 316L for 316L). Inert gas purge required inside pipe to prevent oxidation of root pass. **Pickling & Passivation:** After welding, pickle weld zones to remove heat tint and scale. Passivate per ASTM A967 to restore corrosion resistance. **NDE:** 100% radiography (RT) recommended for critical service. Hydrotest at 1.5x design pressure for 1 hour minimum. **Insulation:** If thermal insulation applied, use chloride-free insulation only (e.g., calcium silicate, mineral wool with low Cl content) to prevent stress corrosion cracking.

## MAINTENANCE SCHEDULE

## SECTION 11

INTERVAL	ACTION	NOTES
Routine	Visual inspection	Check for corrosion, leaks
Quarterly	UT thickness check	High-erosion zones
Annually	Internal inspection	Where access possible
5 years	Hydrotest	Major systems per code
As needed	Weld NDE	RT or UT if damage suspected
Per inspection	Repair/replacement	Per code requirements

## REQUEST A TECHNICAL QUOTATION

Send your specifications and we will respond with detailed pricing, lead time and documentation.

## INCLUDE IN YOUR RFQ:

Quantity · Size (DN) · Material grade · Seal material · Surface finish · Required certifications · Delivery date

[SUBMIT RFQ →](#)
[caspiannedge.com/rfq](https://caspiannedge.com/rfq)