

ASTM A270 SANITARY TUBING

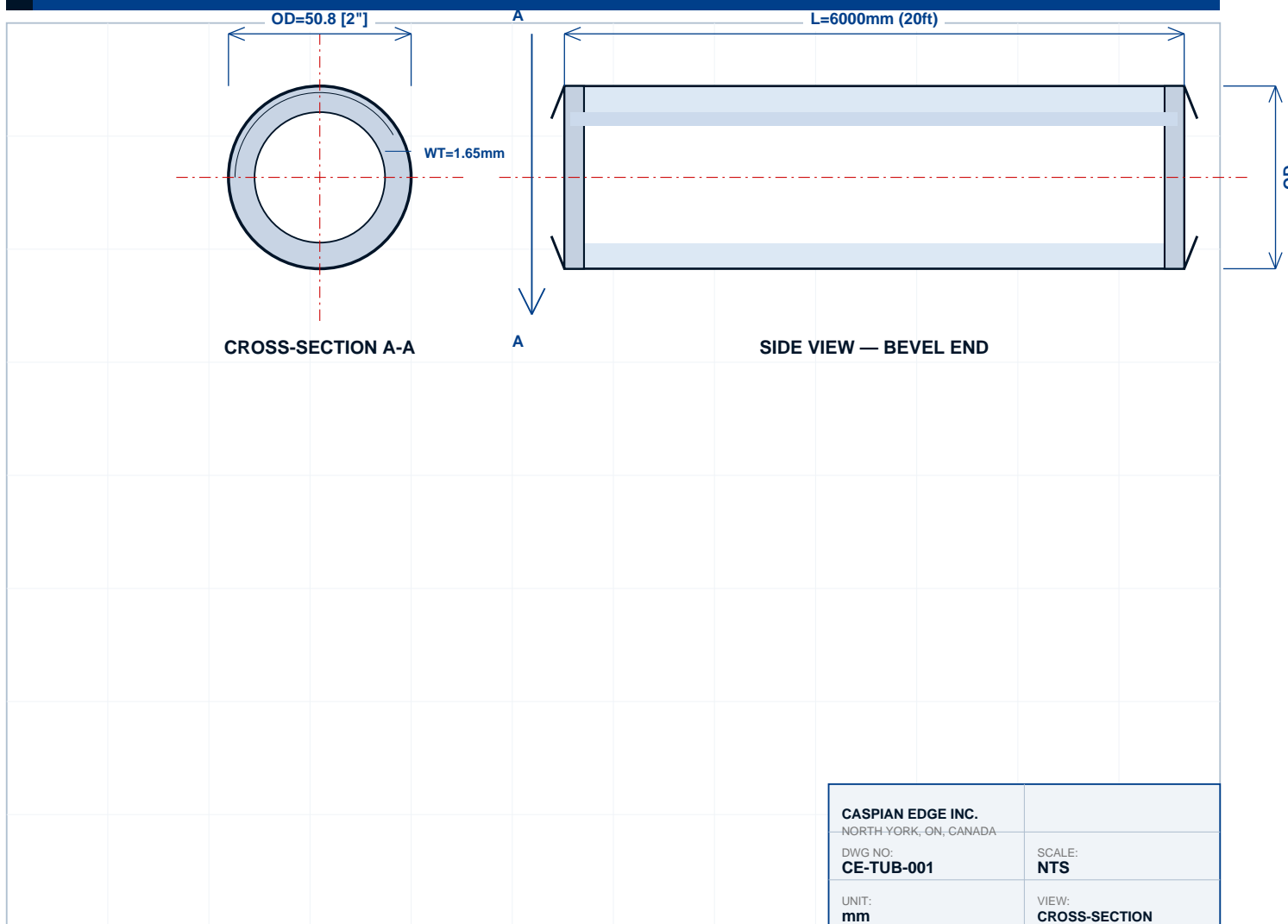
316L WELDED — MILL-POLISHED ID

ASTM A270 welded sanitary tubing in 316L stainless steel for hygienic process applications. Manufactured from cold-rolled strip with longitudinal weld and bright annealed. Mill-polished internal surface ($R_a \leq 0.8 \mu\text{m}$) standard with electropolished options available. All tubes supplied with full material traceability (3.1 MTR) and dimensional certification. Standard length 6 meters (20 ft) with bevel ends ready for orbital welding.

MATERIAL	STANDARD	SURFACE ID	LENGTH	TOLERANCE	CERT
316L SS	ASTM A270	$R_a \leq 0.8 \mu\text{m}$	6 m (20 ft)	$\pm 0.13 \text{ mm}$	3.1 MTR avail.

TECHNICAL DRAWING

DWG: CE-TUB-001



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

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DESIGN SPECIFICATIONS

SECTION 1

Standard	ASTM A270 (sanitary)
Material Grade	TP316L (UNS S31603)
Manufacturing	Cold-rolled, welded
Heat Treatment	Bright annealed
Surface Finish ID	Mill polish, Ra ≤ 0.8 μm
Surface Finish OD	Bead-blasted
End Preparation	Bevel for orbital welding
Length	6 m (20 ft) standard

OPERATING CONDITIONS

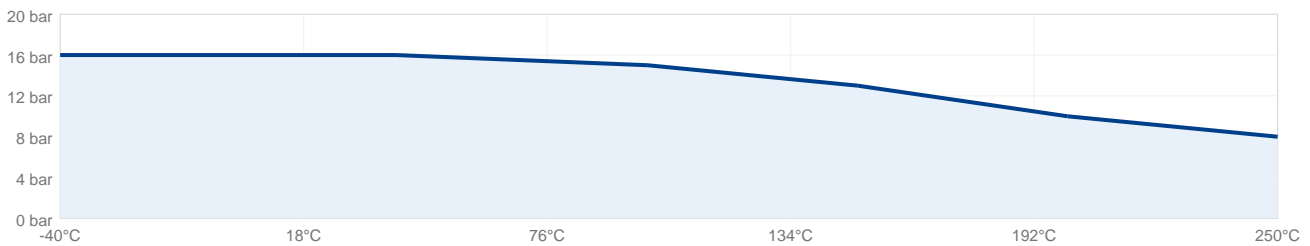
SECTION 2

PRESSURE RATING		TEMPERATURE RANGE	
Design Pressure	16 bar	Continuous Service	-196 to +400 °C
Burst	>100 bar	Cryogenic	-196 °C min
Hydrotest	1.5xWP bar	Steam SIP	+135 °C typ
Vacuum	Full bar	Process	-29 to +180 °C typ

PRESSURE-TEMPERATURE RATING CHART

SECTION 3

PRESSURE-TEMPERATURE RATING



SURFACE FINISH OPTIONS

SECTION 4

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

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MATERIALS OF CONSTRUCTION

SECTION 5

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

SECTION 7

NOM.	OD (MM)	WT (MM)	ID (MM)	WT (KG/M)	LENGTH (M)
½"	12.70	1.65	9.40	0.456	6.00
¾"	19.05	1.65	15.75	0.717	6.00
1"	25.40	1.65	22.10	0.977	6.00
1½"	38.10	1.65	34.80	1.498	6.00
2"	50.80	1.65	47.50	2.019	6.00
2½"	63.50	2.11	59.28	3.221	6.00
3"	76.20	2.11	71.98	3.882	6.00
4"	101.60	2.11	97.38	5.205	6.00

STANDARDS & CERTIFICATIONS

SECTION 8

STANDARD	DESCRIPTION	STATUS
ASTM A270	Sanitary tubing	Compliant
ASTM A270 S2	Pharmaceutical grade	Available
ASME BPE-2022	Bioprocessing tubing	Compliant (S2)
3-A 63-04	Sanitary tubing	Compliant
EN 10357	Sanitary stainless tubing	Compliant
ASTM A480	Flat rolled SS sheet/strip	Source material

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TYPICAL APPLICATIONS

SECTION 9

DAIRY

- Pasteurization circuits
- Cheese processing
- Yogurt production
- Milk separators
- Cream lines
- 3-A compliant systems

FOOD & BEVERAGE

- Filling line shut-off
- Product transfer lines
- CIP/SIP circuits
- Storage tank outlets
- Sampling stations
- Mixing & blending

BREWING & WINE

- Wort transfer
- Fermentation tanks
- Bottling lines
- Brewhouse CIP
- Filtration
- Carbonation systems

INSTALLATION GUIDELINES

SECTION 10

Caspian Edge sanitary tubing is supplied in standard 6-meter (20 ft) lengths with bevel ends ready for orbital welding or tri-clamp connection. Follow these guidelines: **1. Storage:** Store tubing horizontally on padded supports. Keep end caps in place until installation to prevent contamination of internal surfaces. **2. Cutting:** Use orbital or band saw with cutting fluid. Avoid abrasive cutting which contaminates internal surface. After cutting, deburr inside and outside edges. **3. Welding:** Orbital welding recommended for hygienic joints. Use 100% argon purge inside and outside. Weld discoloration must be within ASME BPE limits. **4. Surface Inspection:** Verify internal surface finish meets specification using profilometer at random points. Document Ra readings for QA records. **5. Passivation:** After fabrication, passivate per ASTM A967 (typically nitric acid solution). Rinse with DI water and verify no chloride residue.

MAINTENANCE SCHEDULE

SECTION 11

INTERVAL	ACTION	NOTES
Daily	Visual inspection	Check for leaks at joints
Weekly	CIP cycle verification	Verify cleaning effectiveness
Monthly	Joint torque check	Re-tighten tri-clamps if loose
Quarterly	Surface inspection	Spot-check Ra at sampling points
Annually	Passivation review	Re-passivate if surface degradation
As needed	Riboflavin test	Verify drainability per ASME BPE

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