

# TOP LINE

PROCESS EQUIPMENT COMPANY

A Full Line of  
Stainless Steel Flow Control Equipment for the Food,  
Beverage, and Dairy Processing Industries



PUMPS · VALVES · FITTINGS · TUBING  
CUSTOM FABRICATIONS

[www.toplineonline.com](http://www.toplineonline.com)



Top Line Process Equipment Company is a leading supplier of sanitary stainless steel process equipment. For over 50 years we've provided our customers with exceptional customer service and quality products. We market through a world-wide network of distributors and large OEM's. Top Line's involvement with its distributors includes not only providing competitively priced products but to support an ongoing line of communication between ourselves and the ultimate end user of the product. We provide full factory and technical support to our customers along with both customer and project leads.

Our modern, well equipped manufacturing facilities are staffed by our skilled and dedicated craftsmen. Consistently meeting important tolerances and finish specifications is of primary concern to us. Before any products leave our plant, they are subjected to rigid quality assurance checks. Top Line should always be considered your first choice for both standard and custom fabricated stainless steel products.

We are committed to meeting the fastest delivery, new product development and application engineering to meet all our customer's needs with our extensive inventory and expert sales team.

**Stainless Steel**

In metallurgy, stainless steel encompasses the broad classification of iron-base alloys (50% minimum iron) containing at least 10% chromium that are known for their excellent corrosion and heat resistance. Other elements are also added to form alloys for special purposes, in addition to the corrosion resistance imparted by chromium content. Some of these elements are: nickel for increased corrosion resistance, ductility and workability; molybdenum for increased corrosion resistance, and particularly resistance to pitting, increased creep strength and high temperature strength; columbium and titanium for stabilization; sulfur and selenium for improved machinability. There are many different grades of stainless steel with various surface finishes available to suit specific process applications. The most commonly used grades of stainless steel in hygienic piping systems are provided in the table below.

**Austenitic Stainless Steel Chemistry**

Grade	C	Mn	P	S	Si	Cr	Ni	Mo
304	0.08	2.00	0.045	0.030	1.00	18.0-20.0	8.0-10.0	
316L	0.03	2.00	0.045	0.030	1.00	16.0-18.0	10.0-14.0	2.0-3.0

Please reference our high purity catalog at [topln.co/BPE](http://topln.co/BPE) for 316L BPE chemistry per the American Society of Mechanical Engineers.



## Surface Finish

Surface finish improvement (polishing) is a mechanical process that reduces or eliminates material surface imperfections and allows increased clean-ability of components used within a hygienic piping system. The internal (ID) and external (OD) surfaces of product contact components can be improved using several methods including but not limited to mechanical polishing, cold working, and machining.

$R_a$  ( $\mu\text{in.}$ ) is a numerical expression of measured surface roughness or texture, typically, of a polished or machined metal surface. Measurements are taken with a profilometer or other means.  $R_a$  ( $\mu\text{in.}$ ) values can also be converted to  $R_a$  ( $\mu\text{m}$ ).

Mill finish is an unpolished material surface that can pertain to tubing, fittings, and other system components. Top Line mill finish tubing is bright annealed and will have a silvery satin appearance. Top Line mill finish fittings are tumbled and will have a medium gray appearance.

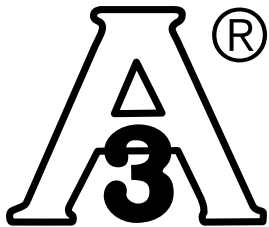
## Finish Designations for Stainless Steel Tubing and Fittings

Finish Number	Part Number	Finish Conditions – <b>Inside Diameter</b>	Finish Conditions – <b>Outside Diameter</b>
1	-1	Mill finish – Unpolished	Mill finish – Unpolished
3	-3	Mechanical Polish	Mill finish – Unpolished
5	-5	Mill finish – Unpolished	Mechanical Polish
7	-7	Mechanical Polish	Mechanical Polish

Please reference our High Purity Catalog at [topln.co/BPE](http://topln.co/BPE) for surface finishes designated by the American Society of Mechanical Engineers.

## Industry Standards

**3-A Sanitary Standards Inc.** is an independent, not-for-profit corporation dedicated to advancing hygienic equipment design for the food, beverage, and pharmaceutical industries. They represent the interests of food processors, regulatory sanitarians, and equipment fabricators with a common commitment to promoting food safety and the public health. Many of our products are 3-A certified.



The 3-A Symbol is a registered mark used to identify equipment that meets 3-A Sanitary Standards for sanitary design and fabrication. All equipment displaying the 3-A Symbol must pass a comprehensive, independent Third Party Verification (TPV) inspection to assure it meets the sanitary design criteria in a 3-A Sanitary Standard. Use of the 3-A Symbol is subject to specific conditions established by 3-A SSI.

## Website URL Shortening

This catalog includes website URLs on every page to give you immediate access to the most up-to-date and detailed information available specific to the product you are reviewing. The website addresses (URLs) in this catalog have been shortened for your convenience and will direct you to information about the products you are viewing on the catalog page. For example, the C-Series pumps page includes [topln.co/curves](http://topln.co/curves), which you can type into your web browser to immediately view the pump curves for the C-Series pumps. Please call 1-800-458-6095 if you have any questions.

## Sanitary Tube

Tube OD	Tube ID	Wall Thickness	Weight Dry	Volume	Weight w/Water	Flow at a Mean Velocity Gallons Per Minute		
						5ft/sec	7ft/sec	10ft/sec
Inches	Inches	Inches	lbs/100 ft	gal/100 ft	lbs/100 ft			
1/2	0.370	0.065	30.6	0.560	35.3	1.70	2.30	3.40
3/4	0.620	0.065	48.2	1.570	61.3	4.70	6.60	9.40
1	0.870	0.065	65.8	3.090	91.5	9.30	13.00	19.00
1-1/2	1.370	0.065	100.9	7.660	164.8	23.00	32.00	46.00
2	1.870	0.065	136.1	14.270	255.1	43.00	60.00	86.00
2-1/2	2.370	0.065	171.2	22.920	362.4	69.00	96.00	138.00
3	2.870	0.065	206.4	33.600	486.7	101.00	141.00	202.00
4	3.834	0.083	351.8	59.970	851.9	180.00	252.00	360.00
6	5.782	0.109	694.7	136.390	1832.2	409.00	573.00	818.00
8	7.782	0.109	930.6	247.070	2991.1	741.00	1038.00	1482.00

## Water Data and Formulas

Pounds/square inch at bottom of water column = height of column in feet x 0.434

1 gallon water = 231 cubic inches = 8.33 pounds

1 pound water = 27.7 cubic inches

1 cubic foot water = 7.5 gallons = 62.5 pounds

1 cubic foot salt water = 7.5 gallons = 64.3 pounds

## Pressure Measurement

Column of water 12" high and 1" in Diameter = 0.341 lbs

1 pound/square inch = 144 pounds/ft<sup>2</sup> = 0.068 Atmosphere = 2.042" Mercury at 62°F =  
27.7" water at 62°F = 2.31' water at 62°F.

1 Atmosphere = 30" Mercury at 62°F = 14.7 lbs/square inch = 2116.3 lbs/square foot =  
33.95' of Water at 62°F

1' Water at 62°F = 62.355 lbs/square foot = 0.433 lbs/square inch

1" Mercury at 62°F = 1.132' Water = 13.58" Water = 0.491 lbs/square inch

## Other useful links

[topln.co/glossary](http://topln.co/glossary)

[topln.co/conversion tables](http://topln.co/conversion tables)



Always Giving You  
Top of the Line Service  
and Quality

Contact your Top Line Representative for Assistance

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814-362-4626

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**Top Line** specializes in stainless steel materials – type 304 and 316L. Our modern, well equipped manufacturing facilities are staffed by skilled and dedicated craftsmen. Consistently meeting important tolerances and finish specifications is of primary concern to us. Before any products leave our plant they are subjected to rigid quality assurance checks.

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## Limited Warranty

Top Line Process Equipment Company products are warranted to be free of defects in material or workmanship for a period of one year from date of shipment. Warranty covers those Top Line products used in an approved installation and maintained in strict accordance with recognized standard industry practice. If, after properly authorized return, Top Line determines that products are defective, Top Line may at its option, repair or replace such defective products.

Top Line shall not be liable for consequential, indirect or incidental damages. The above warranty is in lieu of all other warranties, expressed or implied.

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