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**Plymouth Tube Xtra-Clean**

Extremely high quality Xtra-Clean cold drawn seamless stainless steel tubing is essential for critical high purity applications. Plymouth Tube's Xtra-Clean BA, bright annealed, and Xtra-Clean EP, electropolished, high purity tubing offer exceptional internal cleanliness and smooth surface texture.

Plymouth Tube Company is widely recognized as the world leader and preferred tube manufacturer of Ultra High Purity (UHP) tubing to the USA Semiconductor Industry. Plymouth Tube's UHP is used by some of the most respected companies in the industry - including Intel, Texas Instruments, IBM, Motorola, AMD, National, Hitachi, Digital, Micron, AT&T, Hughes, Air Products, BOC Gas, Liquid Air and many others.

**NOMINAL DIMENSIONS - STANDARD TREATMENT AND STANDARDS**

Outside Diameter		Wall	
mm	inch	mm	inch
6.35	0.25	0.89	0.035
		1.00	0.039
9.53	0.38	0.89	0.035
		1.00	0.039
12.70	0.50	1.00	0.039
		1.24	0.049
19.05	0.75	1.65	0.065
25.40	1.00	1.65	0.065

ITEM	BA	XTRA-CLEAN BA	XTRA-CLEAN EP
Moisture, Oxygen and Hydrocarbon Analysis	Not Applicable	Less than 1 ppm	Less than 1 ppm
Particle Count	Not Applicable	Less than Ten 0.3 µm Particles/Ft. <sup>3</sup>	Less than One 0.1 µm Particles/0.1 Ft. <sup>3</sup>
Internal Surface * : R <sub>a</sub> Typical, µ inch	4 - 8	4 - 8	3 - 6
R <sub>y</sub> Typical, µm	3 - 4	3 - 4	0.5 - 1

\* For Outside Diameter 6.35 to 25.40 mm (0.25 to 1.00 inch).

**CHEMICAL COMPOSITION (Wt. %)**

TYPE	USA Standard ASTM A269 TP316L		Japanese Standard JIS G3459 SUS316L		Control Value VOD 316L		Control Value VOD + VAR 316L		Control Value VIM + VAR 316L	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
<b>C</b>		0.035		0.030		0.020		0.020		0.020
<b>Mn</b>		2.00		2.00		0.40		0.35		0.03
<b>P</b>		0.04		0.04		0.04		0.04		0.04
<b>S</b>		0.03		0.03	0.005	0.012		0.002		0.001
<b>Si</b>		0.75		1.00		0.60		0.30		0.10
<b>Cr</b>	16.00	18.00	16.00	18.00	16.50	18.00	17.20	17.90	17.20	17.90
<b>Ni</b>	10.00	15.00	12.00	16.00	12.80	13.90	12.90	13.50	13.40	14.00
<b>Mo</b>	2.00	3.00	2.00	3.00	2.00	2.25	2.00	2.25	2.00	2.25
<b>H</b>		---		---		10 ppm		2 ppm		2 ppm
<b>O</b>		---		---		100 ppm		15 ppm		10 ppm
<b>N</b>		---		---		200 ppm		100 ppm		100 ppm
<b>Al</b>		---		---		0.005		0.005		0.003

- Standard Lengths: 4 or 6.1 m (13.1 or 20 feet). Other dimensions and lengths are available. Contact Plymouth Tube with your specific requirements.
- Other chemical compositions and customer specified double melts are also available.
- Documentation: Specifications, certifications and supporting documents for all material processes and systems are on file for review if required.

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NO ORDER IS TOO LARGE OR TOO SMALL