

## HFSM / ALLOY TUBING TOLERANCES

### WALL TOLERANCES | HOT ROLLED CARBON AND ALLOY TUBING

WALL THICKNESS	MAXIMUM OVER & UNDER NOMINAL WALL			
	2 IN. TO 11 IN. O.D.		OVER 11 IN. O.D.	
	PLUS	MINUS	PLUS	MINUS
Walls over 25% of the nominal outside diameter	10.0%	10.0%	12.5%	12.5%
Walls 10% to 25% of the nominal O.D., inclusive	7.5%	7.5%	12.5%	12.5%
Walls over 25% of the nominal outside diameter	7.5%	7.5%	12.5%	12.5%

### HOT ROLLED SEAMLESS CARBON & ALLOY TUBING

OUTSIDE DIAMETER TOLERANCES (IN.)		
Specified size O.D. (in.)	As rolled or annealed plus & minus	Oil quenched & tempered plus & minus
2.000" to 2.499"	0.017"	0.027"
2.500" to 2.999"	0.019"	0.029"
3.000" to 3.499"	0.021"	0.032"
3.500" to 3.999"	0.023"	0.035"
4.000" to 4.499"	0.025"	0.038"
4.500" to 4.999"	0.027"	0.041"
5.000" to 5.499"	0.029"	0.044"
5.500" to 5.999"	0.031"	0.047"
6.000" to 6.499"	0.033"	0.050"
6.500" to 6.999"	0.035"	0.053"
7.000" to 7.499"	0.037"	0.056"
7.500" to 7.999"	0.040"	0.060"

OUTSIDE DIAMETER TOLERANCES (IN.)		
Specified size O.D. (in.)	As rolled or annealed plus & minus	Oil quenched & tempered plus & minus
8.000" to 8.499"	0.043"	0.064"
8.500" to 8.999"	0.045"	0.068"
9.000" to 9.499"	0.048"	0.072"
9.500" to 9.999"	0.050"	0.076"
10.000" to 10.499"	0.053"	0.080"
10.500" to 11.000"	0.055"	0.084"
11.001" to 11.499"	1% O.D.	Consult
11.500" to 11.999"	1% O.D.	Mill
12.000" to 13.999"	1% O.D.	Consult
14.000" to 15.999"	1% O.D.	Mill
16.000" to 17.999"	1% O.D.	Consult
18.000" to 24.000"	1% O.D.	Mill

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## STRAIGHTNESS TOLERANCES | HOT ROLLED SEAMLESS CARBON & ALLOY TUBING

OUTSIDE DIAMETER SIZE RANGE (IN.)	WALL % OF OUTSIDE DIAMETER	MAXIMUM DEVIATION FROM STRAIGHT		
		Total inches in any 3 ft.	Total in entire length: in. per ft. of length	
			Length 3 to 22 ft.	Length under 3 to over 22 ft.
Up to 5.000"	3% O.D. & over	0.030"	0.007"	0.010"
5.001 / 8.000"	4% O.D. & over	0.045"	0.010"	0.015"
8.001 / 10.750"	4% O.D. & over	0.060"	0.015"	0.020"

FOR MACHINED PARTS SIZE OD (IN.)	COLD DRAWN TUBING		HOT ROLLED TUBING	
	Machining allowances on diameter (in.)		Machining allowances on diameter (in.)	
	O.D.	I.D.	O.D.	I.D.
Up to 1.500"	0.020"	0.020"	...	...
1.500 to 2.500" excl.	0.025"	0.025"	0.045"	0.045"
2.500 to 3.500" excl.	0.035"	0.035"	0.060"	0.060"
3.500 to 4.500" excl.	0.045"	0.045"	0.075"	0.075"
4.500 to 5.500" excl.	0.055"	0.055"	0.085"	0.085"
5.500 to 6.500" excl.	0.070"	0.070"	0.115"	0.115"
6.500 to 8.000" excl.	0.080"	0.080"	0.125"	0.125"
8.000 to 10.750" excl.	0.100"	0.100"	...	...
10.750 to 12.000" excl.	0.125"	0.125"	...	...

LENGTH (IN.)	CAMBER ALLOWANCE (IN.)					
	5 in. OD and smaller		Over 5 in. O.D. to 8 in. O.D. inclusive		Over 8 in. O.D.	
	O.D.	I.D.	O.D.	I.D.	O.D.	I.D.
6"	0.005"	0.005"	0.008"	0.008"	0.010"	0.010"
12"	0.010"	0.010"	0.015"	0.015"	0.020"	0.020"
18"	0.015"	0.015"	0.023"	0.023"	0.030"	0.030"
24"	0.020"	0.020"	0.030"	0.030"	0.040"	0.040"
30"	0.025"	0.025"	0.038"	0.038"	0.050"	0.050"
36"	0.030"	0.030"	0.045"	0.045"	0.060"	0.060"
42"	0.035"	0.035"	0.053"	0.053"	0.070"	0.070"
48"	0.040"	0.040"	0.060"	0.060"	0.080"	0.080"

For all your Mechanical Tubing and Chrome Bar needs