

TUBING GUIDELINE (BASED ON ISO 9626:2016(E))

MILLIMETERS

GAUGE	STANDARD	OUTSIDE DIAMETER		INSIDE DIAMETER							
				NORMAL WALL		THIN WALL		EXTRA THIN WALL		ULTRA THIN WALL	
				Min	Max	Min	Max	Min	Max	Min	Max
G	Millimeters	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
10	3.40	3.300	3.500	2.500*	2.818	2.819	3.000				
11	3.00	2.950	3.150	2.200*	2.463	2.464	2.750				
12	2.70	2.650	2.850	1.950*	2.234	2.235	2.450				
13	2.40	2.300	2.500	1.700*	1.955	1.956	2.160				
14	2.10	1.950	2.150	1.500	1.599	1.600	1.726	1.727			
15	1.80	1.750	1.900	1.300	1.459	1.460	1.559	1.560			
16	1.60	1.600	1.690	1.100	1.282	1.283	1.389	1.390			
17	1.40	1.400	1.510	0.950	1.155	1.156	1.243	1.244		1.276	
18	1.20	1.200	1.300	0.790	0.909	0.910	0.040	1.041			
19	1.10	1.030	1.100	0.648	0.749	0.750	0.849	0.850		0.891	
20	0.90	0.860	0.920	0.560	0.634	0.635	0.686	0.687		0.713	
21	0.80	0.800	0.830	0.490	0.546	0.547	0.609	0.610		0.645	
22	0.70	0.698	0.730	0.390	0.439	0.440	0.521	0.522			
23	0.60	0.600	0.673	0.317	0.369	0.370	0.459	0.460			
24	0.55	0.550	0.580	0.280	0.342	0.343					
25	0.50	0.500	0.530	0.232	0.291	0.292					
26	0.45	0.440	0.470	0.232	0.291	0.292					
27	0.40	0.400	0.420	0.184	0.240	0.241					
28	0.36	0.349	0.370	0.133	0.189	0.190					
29	0.33	0.324	0.351	0.133	0.189	0.190		0.240		0.265	
30	0.30	0.298	0.320	0.133	0.164	0.165		0.190		0.240	
31	0.25	0.254	0.267	0.114	0.124	0.125		0.146		0.176	
32	0.23	0.229	0.241	0.089	0.104	0.105		0.125		0.146	
33	0.20	0.203	0.216	0.089		0.105		0.125			
34	0.18	0.178	0.191	0.064		0.091		0.105			

* If the wall thickness > 0.350 mm: pre-material outsourced

In Production Specific products specs developed in collaboration with customers
Numbers in blue are Fuji Seiko internal guidance, not specified by ISO 9626:2016(E)

INTERNAL STANDARDS (WHEN NOT SPECIFIED BY CUSTOMER)

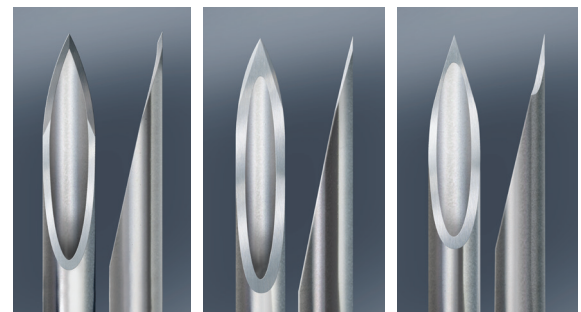
LENGTH OF STRAIGHT LENGTHS	2.2m long max +/- 5mm Tighter control possible with an additional charge
ULTIMATE TENSILE STRENGTH	Default "Full Hard": Min 965 Mpa
END CUT	Standard: simple rough cut - Optional square end cut with an additional charge
CLEANING	Solvent cleaned both ID and OD
ADDITIONAL TESTING	All tubes are pressure tested to insure product is pinhole free
VISUAL INSPECTION	100% visual inspection on straight tubes to remove parts with surface defects
SURFACE ROUGHNESS	ID: Ra 0.4-2.5 µm Typical OD: Ra < 0.6 µm Typical

GENERAL TOLERANCE GUIDELINES (UNIT µm)

GAUGES	OD +/-	ID +/-	MIN WALL
10 - 19	20	20	100
20 - 23	10	15	70
24 - 29	10	15	60
30 - 32	8	10	50

CANNULA

Fuji Seiko produces more than 3.5 million cannula each day. All cannula come from our high-quality, precision tubing with all deburring, cleaning and passivation done on-site by our technicians. In addition, our grinding equipment is highly flexible and can meet the precision grinds you require.



Lancet point

Semi-lancet point

Back point

TUBING GUIDELINE (BASED ON ISO 9626:2016(E))

INCHES

GAUGE	STANDARD	OUTSIDE DIAMETER		INSIDE DIAMETER							
				NORMAL WALL		THIN WALL		EXTRA THIN WALL		ULTRA THIN WALL	
				Min	Max	Min	Max	Min	Max	Min	Max
G	Inches	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
10	0.1339	0.1299	0.1378	0.0984*	0.1109	0.1110	0.1181				
11	0.1181	0.1161	0.1240	0.0866*	0.0970	0.0970	0.1083				
12	0.1063	0.1043	0.1122	0.0768*	0.0880	0.0880	0.0965				
13	0.0945	0.0906	0.0984	0.0669*	0.0770	0.0770	0.0850				
14	0.0827	0.0768	0.0846	0.0591	0.0630	0.0630	0.0680	0.0680			
15	0.0709	0.0698	0.0748	0.0512	0.0574	0.0575	0.0614	0.0614			
16	0.0630	0.0630	0.0665	0.0433	0.0505	0.0505	0.0547	0.0547			
17	0.0551	0.0551	0.0594	0.0374	0.0455	0.0455	0.0489	0.0490			0.0502
18	0.0472	0.0472	0.0512	0.0311	0.0358	0.0358	0.0409	0.0410			
19	0.0433	0.0406	0.0433	0.0255	0.0295	0.0295	0.0334	0.0335			0.0351
20	0.0354	0.0339	0.0362	0.0220	0.0250	0.0250	0.0270	0.0270			0.0281
21	0.0315	0.0315	0.0327	0.0193	0.0215	0.0215	0.0240	0.0240			0.0254
22	0.0276	0.0275	0.0287	0.0154	0.0173	0.0173	0.0205	0.0206			
23	0.0236	0.0236	0.0265	0.0125	0.0145	0.0146	0.0181	0.0181			
24	0.0217	0.0217	0.0228	0.0110	0.0135	0.0135					
25	0.0197	0.0197	0.0209	0.0091	0.0115	0.0115					
26	0.0177	0.0173	0.0185	0.0091	0.0115	0.0115					
27	0.0157	0.0157	0.0165	0.0072	0.0094	0.0095					
28	0.0142	0.0137	0.0146	0.0052	0.0074	0.0075					
29	0.0130	0.0128	0.0138	0.0052	0.0074	0.0075		0.0094			0.0104
30	0.0118	0.0117	0.0126	0.0052	0.0065	0.0065		0.0075			0.0094
31	0.0098	0.0100	0.0105	0.0045	0.0049	0.0049		0.0057			0.0069
32	0.0091	0.0090	0.0095	0.0035	0.0041	0.0041		0.0049			0.0057
33	0.0079	0.0080	0.0085	0.0035		0.0041		0.0049			
34	0.0071	0.0070	0.0075	0.0025		0.0036		0.0041			

* If the wall thickness > 0.0138 in: pre-material outsourced

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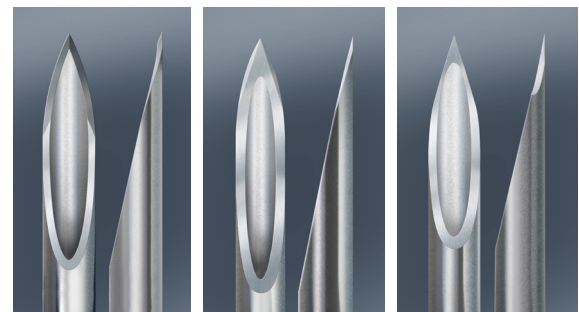
LENGTH OF STRAIGHT LENGTHS	86" long max +/- 0.2" Tighter control possible with an additional charge
ULTIMATE TENSILE STRENGTH	Default "Full Hard": Min 140Ksi
END CUT	Standard: simple rough cut - Optional square end cut with an additional charge
CLEANING	Solvent cleaned both ID and OD
ADDITIONAL TESTING	All tubes are pressure tested to insure product is pinhole free
VISUAL INSPECTION	100% visual inspection on straight tubes to remove parts with surface defects
SURFACE ROUGHNESS	ID: Ra 16-100 μinch Typical OD: Ra < 24 μinch Typical

GENERAL TOLERANCE GUIDELINES (UNIT 10⁻³ of inch)

GAUGES	OD +/-	ID +/-	MIN WALL
10 – 19	0.8	0.8	3.9
20 – 23	0.4	0.6	2.8
24 – 29	0.4	0.6	2.4
30 – 32	0.3	0.4	2.0

CANNULA

Fuji Seiko produces more than 3.5 million cannula each day. All cannula come from our high-quality, precision tubing with all deburring, cleaning and passivation done on-site by our technicians. In addition, our grinding equipment is highly flexible and can meet the precision grinds you require.



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