



Bio-Pharm Fittings Product Data/Specifications

Extract From ASME BPE-1997 Standard

TABLE SF-3 ACCEPTANCE CRITERIA FOR INTERIOR SURFACE FINISHES OF FITTINGS

Anomaly or Indication	Acceptance Criteria
Cluster of pits	None accepted.
Demarcation	If 5% of the total area when visually inspected and R_a is met.
Grit lines	If R_a is met.
Longitudinal welds	If polished smooth, blended, and R_a is met.
Nicks	None accepted.
Pits	If dia < 0.20 in., and bottom is shiny.
Scratches	If length < 0.25 in., depth < 0.003 in., and R_a is met.
Star burst	None accepted.
Surface cracks	None accepted.
Surface inclusions	If R_a is met and there is no liquid penetrant indication.
Surface residuals	None accepted.
Surface roughness (R_a)	See Table SF-4.
Water stains	If no deposits.
Weld dross	None accepted.
Weld porosity	None accepted.

TABLE SF-4 R_a READINGS FOR FITTINGS

Surface Description	Mechanically Polished			
	R_a Average [Note (1)]		R_a Max	
	μ -in.	μ m	μ -in.	μ m
SFF1	15	0.375	20	0.5
SFF2	20	0.5	25	0.625
SFF3	25	0.625	30	0.75
Surface Description	Mechanically Polished and Electropolished			
	R_a Average [Note (1)]		R_a Max	
	μ -in.	μ m	μ -in.	μ m
SFF4	10	0.25	15	0.375
SFF5	15	0.375	20	0.5
SFF6	20	0.5	25	0.625

GENERAL NOTE: All R_a readings are taken across the grain.

NOTE: (1) The average R_a is derived from readings taken at four cross sections approximately 90 deg apart. Other R_a readings are available if agreed upon between vendor and owner/user.

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Bio-Pharm Fittings

Table 2: Final Tolerances for Mechanically Polished Fittings

Size		OD		Wall Thickness		Squareness Face to Tangent, B		Off Angle, O		Off Plane, P	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
½	12.7	0.005	0.13	0.005	0.13	0.005	0.127	0.014	0.356	0.03	0.762
¾	19.0	0.005	0.13	0.005	0.13	0.005	0.127	0.018	0.457	0.03	0.762
1	25.4	0.005	0.13	0.005	0.13	0.008	0.203	0.025	0.635	0.03	0.762
1½	38.1	0.008	0.2	0.005	0.13	0.008	0.203	0.034	0.864	0.05	1.27
2	50.8	0.008	0.2	0.005	0.13	0.008	0.203	0.043	1.092	0.05	1.27
2½	63.5	0.01	0.25	0.005	0.13	0.010	0.254	0.054	1.37	0.05	1.27
3	76.2	0.01	0.25	0.005	0.13	0.016	0.406	0.068	1.73	0.05	1.27
4	101.6	0.015	0.38	0.008	0.2	0.016	0.406	0.086	2.18	0.06	1.52

Table 1: Tangent Lengths

Nominal OD Tube Size (in)		Tangent (T)	
in	mm	in	mm
½	12.7	1.5	38.1
¾	19.0	1.5	38.1
1	25.4	1.5	38.1
1½	38.1	1.5	38.1
2	50.8	1.75	44.5
2½	63.5	1.75	44.5
3	76.2	1.75	44.5
4	101.6	2	50.8

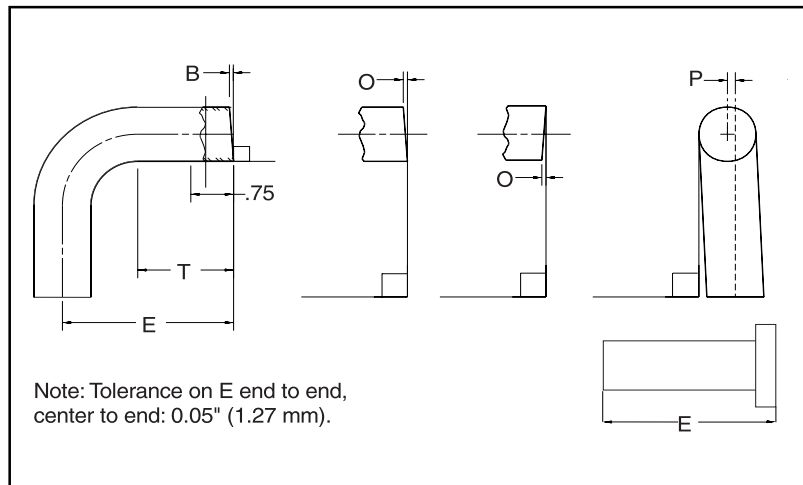


Table 3: Final Tolerances for Electropolished Fittings

Nominal OD Tube Size		Wall Thickness	
in	mm	in	mm
½	12.7	0.005	0.127
¾	19.0	0.005	0.127
1	25.4	0.005	0.127
1½	38.1	0.005	0.127
2	50.8	0.005	0.127
2½	63.5	0.005	0.127
3	76.2	0.005	0.127
4	101.6	0.008	0.203

Table 4: Nominal OD Tubing Sizes

Size		Tube OD		Tube Wall Thickness	
in	mm	in	mm	in	mm
½	12.7	0.5	12.7	0.065	1.65
¾	19.0	0.75	19.0	0.065	1.65
1	25.4	1	25.4	0.065	1.65
1½	38.1	1.5	38.1	0.065	1.65
2	50.8	2	50.8	0.065	1.65
2½	63.5	2.5	63.5	0.065	1.65
3	76.2	3	76.2	0.065	1.65
4	101.6	4	101.6	0.083	2.11



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