

Steel & O'Brien Manufacturing

BPE Fittings Specifications



CRN Certified

Member of:



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BPE Fittings Specifications

Steel & O'Brien Manufacturing offers a full line of ASME BPE compliant fittings for the Pharmaceutical and Biotech Industries. Ranging in sizes from 1/2" - 6" with weld and clamp end connections in 316L material.

ASME BPE compliance includes polishing, marking, material, dimensions and tolerances.

SURFACE FINISH REQUIREMENTS					
SURFACE FINISH CODE	BPE Designation	Inside Surface			Outside Surface
		Ra Max.		Polish Method	Polish Method
		μ-in.	μm		
PU	SF0			Unpolished	Unpolished
PC	SF1	20	0.51	Mechanical Polish	Unpolished
PL	SF1	20	0.51	Mechanical Polish	Mechanical Polish (32Ra)
PD	SF4	15	0.38	Mechanical Polish & Electropolish	Unpolished
PM	SF4	15	0.38	Mechanical Polish & Electropolish	Mechanical Polish (32Ra)

All Ra readings must not exceed the maximum value on this table for the desired surface finish.

Marking Requirements

Each fitting is marked according to the latest ASME BPE specifications:

- 1) Heat number or code that is traceable to a material test report
- 2) Material type
- 3) Manufacturer's name or logo
- 4) BPE product contact surface designation
- 5) "BPE" designation

Steel & O'Brien also marks BPE fittings with "country of origin"

Material Requirements

Chemical Composition - 316L (%)

(C) Carbon, max	(Mn) Manganese, max	(N) Nitrogen, max	*(S) Sulfur	(Ni) Nickel	(Cr) Chromium	(Mo) Molybdenum
.030	2.00	.10	.005 - .017	10.0 - 14.0	16.0 - 18.0	2.0 - 3.0

* - Controlled Sulfur content is only applicable to weld ends

Each fitting is cleaned according to company procedures.

Each fitting is capped and bagged according to the latest ASME BPE standard.

Each fitting is supplied with a material test report and can be downloaded online at www.steelobrien.com.

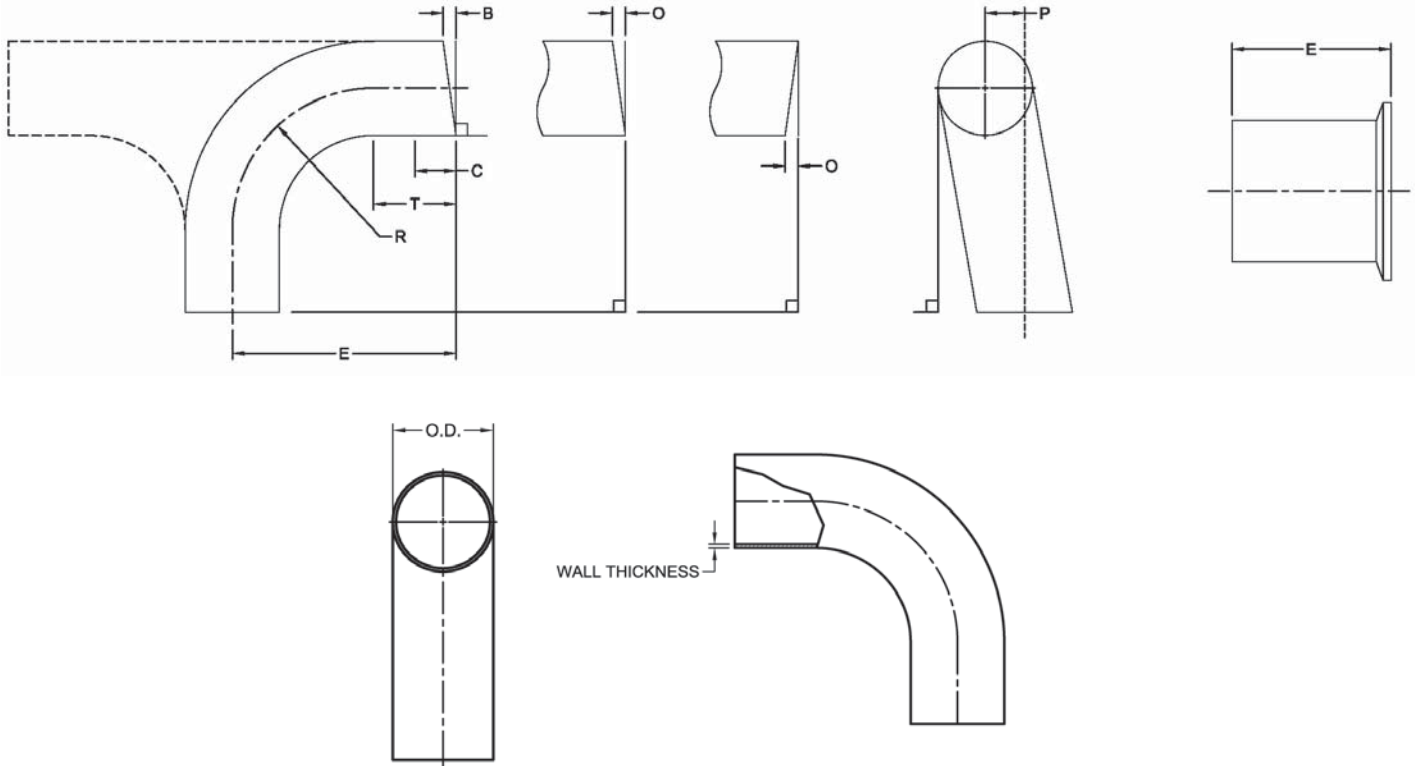
3-D models of BPE fittings are available online at www.steelobrien.com.

Inspection Requirements

Each BPE fitting is inspected for surface finish, markings, MTRs and dimensions. Tolerances on BPE dimensions are shown below

Tolerance Requirements

(As specified in ASME BPE Part DT-3-1, 2016)



Nominal Size	O.D.		Wall Thickness (Mechanical Polish)		Wall Thickness (Electropolish)		Squareness Face to Tangent, B (max.)		Off Angle O (max.)		Equivalent Angle (O) (max.)	Off Plane, P (max.)		Centerline Radius (CLR), R	
	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.		in.	mm.	in.	mm.
1/4	±0.005	±0.13	+0.003/-0.004	+0.08/-0.10	+0.003/-0.006	+0.08/-0.15	0.005	0.13	0.009	0.23	2.1	0.030	0.76	0.563	14.30
3/8	±0.005	±0.13	+0.003/-0.004	+0.08/-0.10	+0.003/-0.006	+0.08/-0.15	0.005	0.13	0.012	0.30	1.8	0.030	0.76	1.125	28.58
1/2	±0.005	±0.13	+0.005/-0.008	+0.13/-0.20	+0.005/-0.010	+0.13/-0.25	0.005	0.13	0.014	0.36	1.6	0.030	0.76	1.125	28.58
3/4	±0.005	±0.13	+0.005/-0.008	+0.13/-0.20	+0.005/-0.010	+0.13/-0.25	0.005	0.13	0.018	0.46	1.4	0.030	0.76	1.125	28.58
1	±0.005	±0.13	+0.005/-0.008	+0.13/-0.20	+0.005/-0.010	+0.13/-0.25	0.008	0.20	0.025	0.64	1.4	0.030	0.76	1.500	38.10
1-1/2	±0.008	±0.20	+0.005/-0.008	+0.13/-0.20	+0.005/-0.010	+0.13/-0.25	0.008	0.20	0.034	0.86	1.3	0.050	1.27	2.250	57.15
2	±0.008	±0.20	+0.005/-0.008	+0.13/-0.20	+0.005/-0.010	+0.13/-0.25	0.008	0.20	0.043	1.09	1.2	0.050	1.27	3.000	76.20
2-1/2	±0.010	±0.25	+0.005/-0.008	+0.13/-0.20	+0.005/-0.010	+0.13/-0.25	0.010	0.25	0.054	1.37	1.2	0.050	1.27	3.750	95.25
3	±0.010	±0.25	+0.005/-0.008	+0.13/-0.20	+0.005/-0.010	+0.13/-0.25	0.016	0.41	0.068	1.73	1.3	0.050	1.27	4.500	114.30
4	±0.015	±0.38	+0.008/-0.010	+0.38/-0.38	+0.008/-0.012	+0.20/-0.30	0.016	0.41	0.086	2.18	1.2	0.060	1.52	6.000	152.40
6	±0.030	±0.76	+0.015/-0.015	+0.38/-0.20	+0.015/-0.017	+0.38/-0.43	0.030	0.76	0.135	3.43	1.3	0.060	1.52	9.000	228.60

General Notes:

- 1) Tolerance for "E" end-to-end and center-to-end = .050 in (1.27mm)
- 2) Tolerance for centerline radius (CLR) = ±10% of the nominal O.D. Dimension