

ADIT TURNTech

BPE STD Fitting — specification sheet

The standards, dimensions, tolerances, materials and surface finishes every fitting we machine is built and inspected against. Dimensional data follows ASME BPE hygienic tubing tables. Where a customer drawing overrides a standard, the drawing governs. Read alongside our BPE STD Fittings product catalogue.

01 — STANDARDS

ASME BPE	Bioprocessing equipment — dimensions, tolerances, surface finish, material joining
ASTM A270 S2	Sanitary welded and seamless stainless steel tubing
ASTM A182 / A479	Forged fittings and bar stock for pressure and hygienic service
ASME B16.5 / B16.9	Flanges and butt-weld fitting geometry where specified
DIN 11851 / DIN 32676	Metric dairy unions and clamp connections
SMS 1145	Swedish standard hygienic unions
ISO 2852 / ISO 1127	Clamp couplings and metric tube dimensions
3-A Sanitary Standards	Crevice-free hygienic design principles
EN 10204 3.1	Material test certificate issued with every heat

02 — ASME BPE HYGIENIC TUBE DIMENSIONS

Nominal tube sizes, wall thickness and Tri-Clamp flange geometry. All values in millimetres.

SIZE	TUBE OD	WALL	OD TOL.	CLAMP FLANGE OD	BORE
1/2"	12.70	1.65	±0.20	25.0	9.4
3/4"	19.05	1.65	±0.20	25.0	15.7
1"	25.40	1.65	±0.20	50.5	22.1
1 1/2"	38.10	1.65	±0.25	50.5	34.8
2"	50.80	1.65	±0.25	64.0	47.5
2 1/2"	63.50	1.65	±0.30	77.5	60.2
3"	76.20	1.65	±0.30	91.0	72.9
4"	101.60	2.11	±0.30	119.0	97.4
6"	152.40	2.77	±0.38	166.7	146.9

03 — MACHINING TOLERANCES

Turned diameters	±10 µm
Tube OD (per ASME BPE DT-2)	±0.20 to ±0.38 mm by size
Wall thickness	±10 % of nominal
Ferrule flange OD	±0.25 mm
Gasket groove depth / width	±0.05 mm

Face-to-face length, fittings	±0.8 mm
Concentricity, bore to flange	0.10 mm TIR
Face squareness to bore axis	0.10 mm over flange OD
Internal surface waviness	Wa ≤ 1.0 µm on polished bores
Thread class	BSP / BSPT to IS 554, NPT to ASME B1.20.1

04 – MATERIALS OF CONSTRUCTION

SS 316L (UNS S31603)

Specification	ASTM A270 S2 / A269 tube, ASTM A182 F316L forgings, ASTM A479 bar
Composition	C ≤ 0.035 %, Cr 16–18 %, Ni 10–14 %, Mo 2–3 %
Notes	Default for all product-contact parts. Delta ferrite and sulphur controlled per ASME BPE MJ for orbital welding.

SS 304L (UNS S30403)

Specification	ASTM A270 tube, ASTM A182 F304L forgings, ASTM A479 bar
Composition	C ≤ 0.035 %, Cr 18–20 %, Ni 8–12 %
Notes	Used for non-product-contact and utility lines on request.

Elastomers (customer supplied or sourced)

Specification	USP Class VI / FDA 21 CFR 177
Composition	EPDM, silicone, PTFE, PTFE-envelope
Notes	Gaskets and seals are supplied loose against your specification.

05 – SURFACE FINISH DESIGNATIONS (ASME BPE SF SERIES)

CODE	MAX Ra	METHOD
SF1	≤ 0.51 µm (20 µin)	Mechanically polished
SF2	≤ 0.64 µm (25 µin)	Mechanically polished
SF3	≤ 0.76 µm (30 µin)	Mechanically polished
SF4	≤ 0.51 µm (20 µin)	Mechanically polished + electropolished
SF5	≤ 0.64 µm (25 µin)	Mechanically polished + electropolished
SF6	≤ 0.76 µm (30 µin)	Mechanically polished + electropolished

06 – INSPECTION AND DOCUMENTATION

- ISO 9001:2015 certified quality system (certificate DD4F0051, Ranalysis Certification Pvt. Ltd.)
- EN 10204 3.1 material test certificate, heat traceable
- Dimensional inspection report against ASME BPE tables
- Surface roughness (Ra) report on polished bores
- Passivation / electropolishing certificate
- Positive material identification (PMI) on request

- Hydro or pneumatic pressure test report on request
- Boroscope inspection images for orbital-welded assemblies

07 – ORDERING TERMS

Pricing	Price on request
Quotation basis	Quoted per drawing, size, material grade, surface finish and quantity — ex-works Bhosari, Pune. GST extra.
Minimum order	25 pieces per size; single pieces accepted for prototypes
Lead time	7-15 working days from drawing approval
Payment	50 % advance, balance against dispatch, or as agreed

08 – CONTACT

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