SANITARY TRI-CLAMP FITTINGS

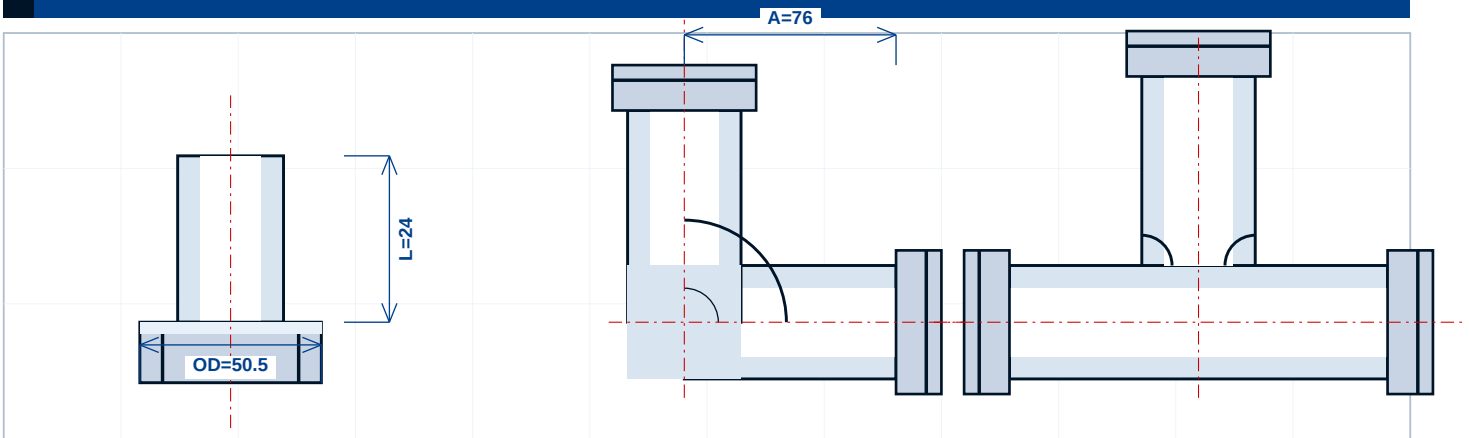
FERRULES · ELBOWS · TEES · ADAPTERS

Complete range of sanitary tri-clamp fittings for hygienic process line construction. All fittings manufactured to 3-A Sanitary, ISO 2037 or ASME BPE standards with full material traceability. Smooth internal surfaces with Ra ≤ 0.8 µm finish prevent product hold-up and support effective CIP cleaning. Available in 304 or 316L stainless steel with electropolished options.

MATERIAL	SIZE RANGE	STANDARD	SURFACE	CONNECTION	DOCUMENTATION
316L SS	DN12 – DN100	3-A / ISO 2037 / BPE	Ra ≤ 0.8 µm	Tri-Clamp / Weld	3.1 MTR avail.

TECHNICAL DRAWING

DWG: CE-FIT-001



WELD FERRULE
Tri-Clamp End

90° ELBOW
Long Radius

EQUAL TEE
3-port Sanitary

CASPIAN EDGE INC. NORTH YORK, ON, CANADA	
DWG NO: CE-FIT-001	SCALE: NTS
UNIT: mm	VIEW: FITTING TYPES

IN THIS DATASHEET

Caspian Edge Inc. | North York, Ontario, Canada **caspianedge.com · info@caspianedge.com · 647-675-7504**

SANITARY TRI-CLAMP FITTINGS — FERRULES · ELBOWS · TEES · ADAPTERS

DESIGN SPECIFICATIONS — SECTION 1

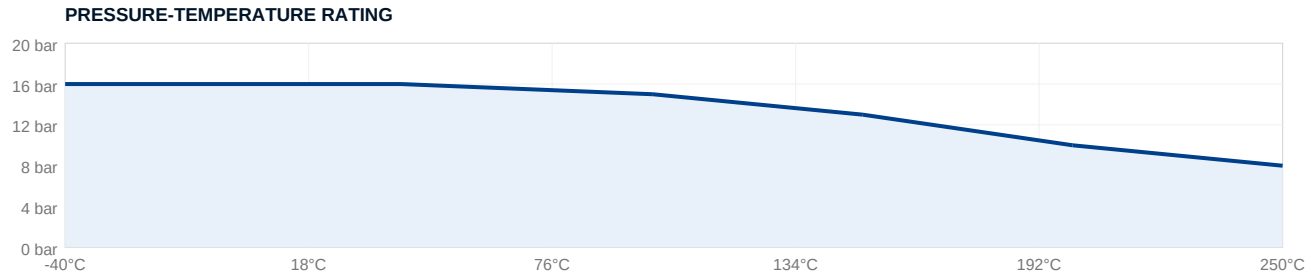
Fitting Types	Ferrules, Elbows, Tees, Adapters
Body Style	Single-piece formed
Internal Finish	Mill-polished or EP
External Finish	Mill / Bead-blast
Connection	Tri-Clamp DIN 32676 / Weld
Wall Thickness	1.6 mm (≤2"), 2.0 mm (>2")
Bevel Ends	For orbital welding
Documentation	MTR / 3.1 cert by RFQ

OPERATING CONDITIONS — SECTION 2

PRESSURE RATING		
Working Pressure	16	**bar**
Burst Pressure	>60	**bar**
Vacuum Rating	-0.95	**bar**
Hydrostatic Test	1.5×WP	**bar**

TEMPERATURE RANGE		
Continuous	-196 to +400	**°C**
Steam SIP	+135	**°C**
Cryogenic	-196	**°C min**
Process	-29 to +180	**°C typ.**

PRESSURE-TEMPERATURE RATING CHART — SECTION 3



SURFACE FINISH OPTIONS — SECTION 4

DESIGNATION	RA (µM)	RA (µIN)	METHOD	APPLICATION
Standard	≤ 0.8	≤ 32	Mechanical polish	Food, dairy, beverage
Premium	≤ 0.5	≤ 20	Mech. polish + buff	Pharmaceutical
EP (BPE SF4)	≤ 0.38	≤ 15	Electropolish	Biotech, high-purity
Mirror	≤ 0.25	≤ 10	EP + final buff	Critical bioprocess

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MATERIALS OF CONSTRUCTION
SECTION 5

PART	STANDARD	OPTIONAL	SPEC
Ferrule	316L SS	304 SS	ASTM A270 / A479
Elbow	316L SS	904L SS	ASTM A403 WP316L
Tee	316L SS	304 SS	ASTM A403 WP316L
Reducer	316L SS	—	ASTM A403
Adapter	316L SS	—	ASTM A403
Surface Treatment	EP available	Mill	ASME BPE SF4

316L CHEMICAL COMPOSITION
SECTION 6

ELEMENT	SYMBOL	MIN %	MAX %	FUNCTION
Chromium	Cr	16.0	18.0	Corrosion resistance
Nickel	Ni	10.0	14.0	Ductility, toughness
Molybdenum	Mo	2.0	3.0	Pitting resistance
Carbon	C	—	0.03	Low carbon (L grade)
Manganese	Mn	—	2.0	Deoxidizer
Silicon	Si	—	0.75	Deoxidizer
Phosphorus	P	—	0.045	Impurity (limit)
Sulfur	S	—	0.030	Impurity (limit)

SIZE CHART & DIMENSIONS
SECTION 7

NOM.	DN	OD (MM)	CLAMP (MM)	WT (MM)	TYPE
½"	12	12.7	50.5	1.65	Standard
¾"	19	19.05	50.5	1.65	Standard
1"	25	25.4	50.5	1.65	Standard
1½"	38	38.1	64.0	1.65	Standard
2"	50	50.8	77.5	1.65	Standard
2½"	63	63.5	91.0	2.0	Heavy
3"	76	76.2	91.0	2.0	Heavy
4"	100	101.6	119.0	2.0	Heavy

STANDARDS & CERTIFICATIONS
SECTION 8

STANDARD	DESCRIPTION	STATUS
3-A 63-04	Sanitary fittings	Compliant
ISO 2037	Sanitary tubing	Compliant
ASME BPE-2022	Bioprocessing fittings	Compliant (option)
DIN 32676	Tri-clamp dimensions	Compliant
ASTM A270	Sanitary tubing	Compliant
EC 1935/2004	Food contact	Compliant

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TYPICAL APPLICATIONS SECTION 9

FOOD & BEVERAGE	DAIRY	PHARMA & BIOTECH
• Filling line shut-off	• Pasteurization circuits	• WFI distribution
• Product transfer lines	• Cheese processing	• Purified water systems
• CIP/SIP circuits	• Yogurt production	• API manufacturing
• Storage tank outlets	• Milk separators	• Bioreactor connections
• Sampling stations	• Cream lines	• Sterile filling
• Mixing & blending	• 3-A compliant systems	• Process skids

INSTALLATION GUIDELINES SECTION 10

Caspian Edge sanitary tubing is supplied in standard 6-meter (20 ft) lengths with bevel ends ready for orbital welding or tri-clamp connection. Follow these guidelines: **1. Storage:** Store tubing horizontally on padded supports. Keep end caps in place until installation to prevent contamination of internal surfaces. **2. Cutting:** Use orbital or band saw with cutting fluid. Avoid abrasive cutting which contaminates internal surface. After cutting, deburr inside and outside edges. **3. Welding:** Orbital welding recommended for hygienic joints. Use 100% argon purge inside and outside. Weld discoloration must be within ASME BPE limits. **4. Surface Inspection:** Verify internal surface finish meets specification using profilometer at random points. Document Ra readings for QA records. **5. Passivation:** After fabrication, passivate per ASTM A967 (typically nitric acid solution). Rinse with DI water and verify no chloride residue.

MAINTENANCE SCHEDULE SECTION 11

INTERVAL	ACTION	NOTES
Daily	Visual inspection	Check for leaks at joints
Weekly	CIP cycle verification	Verify cleaning effectiveness
Monthly	Joint torque check	Re-tighten tri-clamps if loose
Quarterly	Surface inspection	Spot-check Ra at sampling points
Annually	Passivation review	Re-passivate if surface degradation
As needed	Riboflavin test	Verify drainability per ASME BPE

REQUEST A TECHNICAL QUOTATION

Send your specifications and we will respond with detailed pricing, lead time and documentation.

INCLUDE IN YOUR RFQ:

Quantity · Size (DN) · Material grade · Seal material · Surface finish · Required certifications · Delivery date

SUBMIT RFQ →

caspianedge.com/rfq

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