

TRI-CLAMP WELD FITTINGS

FERRULES · CAPS · BLANKS · REDUCERS

Tri-clamp weld-end ferrules and accessories for hygienic process pipe systems. Available in standard, short and long weld configurations. All ferrules conform to DIN 32676 / ISO 2852 for dimensional interchangeability with valves and fittings. Mill-polished or electropolished surfaces with full material traceability. Supplied with bevel ends ready for orbital welding to sanitary tubing.

MATERIAL	STANDARD	SURFACE	TYPES	WELD	CERT
316L SS	DIN 32676 / ISO 2852	Ra ≤ 0.8 μm	Ferrule/Cap/Blank	Bevel-ready	3.1 MTR avail.

TECHNICAL DRAWING

DWG: CE-TCF-001

TRI-CLAMP FITTING TYPES — WELD END
Three standard weld lengths · DIN 32676 / ISO 2852

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

IN THIS DATASHEET

- PAGE 1** Technical drawing with dimensions and component callouts
- PAGE 2** Full technical specifications, materials and pressure-temperature data
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- PAGE 4** Applications, installation, maintenance and RFQ form

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DESIGN SPECIFICATIONS

SECTION 1

Ferrule Types	Standard / Short / Long weld
Material	316L SS (304 option)
Connection	DIN 32676 Tri-Clamp
Weld End	Bevel for orbital welding
Internal Finish	Ra ≤ 0.8 μm (EP option)
External Finish	Bead-blasted
Wall Thickness	1.65 mm (matches tubing)
Documentation	MTR / 3.1 cert by RFQ

OPERATING CONDITIONS

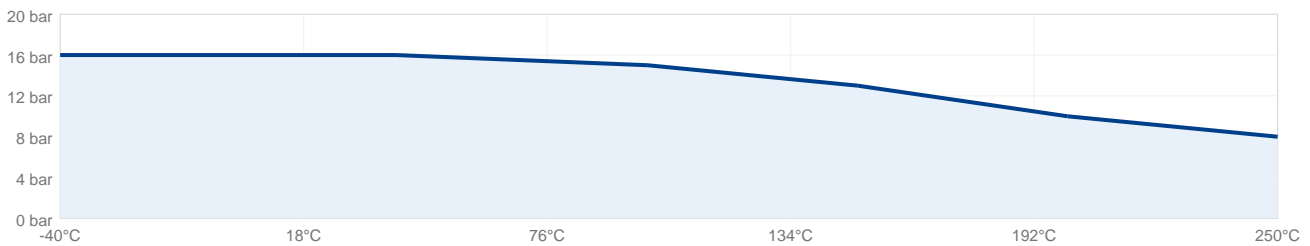
SECTION 2

PRESSURE RATING		TEMPERATURE RANGE	
Working Pressure	16 bar	Continuous	-196 to +400 °C
Test	24 bar	Cryogenic	-196 °C min
Burst	>60 bar	Steam SIP	+135 °C
Vacuum	-0.95 bar	Process	-29 to +180 °C typ

PRESSURE-TEMPERATURE RATING CHART

SECTION 3

PRESSURE-TEMPERATURE RATING



SURFACE FINISH OPTIONS

SECTION 4

DESIGNATION	RA (MM)	RA (MIN)	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
Cap	316L SS	—	ASTM A479
Blank	316L SS	—	ASTM A479
Internal Surface	Mill polish	EP	ASME BPE SF4
External Surface	Bead-blast	EP	—

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 OD	STD L	SHORT L	LONG L
½"	15	12.7	50.5	14	7	28
¾"	19	19.05	50.5	14	7	28
1"	25	25.4	50.5	14	7	28
1½"	38	38.1	64.0	14	7	28
2"	50	50.8	77.5	14	7	28
2½"	63	63.5	91.0	14	7	28
3"	76	76.2	91.0	14	7	28
4"	100	101.6	119.0	14	7	28

STANDARDS & CERTIFICATIONS

SECTION 8

STANDARD	DESCRIPTION	STATUS
DIN 32676	Tri-clamp connections	Compliant
ISO 2852	SS clamp couplings	Compliant
3-A 63-04	Sanitary fittings	Compliant
ASME BPE-2022	Bioprocessing	Compliant (option)
ASTM A270	Sanitary tubing source	Compliant
EC 1935/2004	Food contact	Compliant

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TYPICAL APPLICATIONS

SECTION 9

FOOD & BEVERAGE

- Filling line shut-off
- Product transfer lines
- CIP/SIP circuits
- Storage tank outlets
- Sampling stations
- Mixing & blending

DAIRY

- Pasteurization circuits
- Cheese processing
- Yogurt production
- Milk separators
- Cream lines
- 3-A compliant systems

PHARMA & BIOTECH

- WFI distribution
- Purified water systems
- API manufacturing
- Bioreactor connections
- Sterile filling
- 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 →](#)
caspiannedge.com/rfq