

SANITARY REDUCERS & ADAPTERS

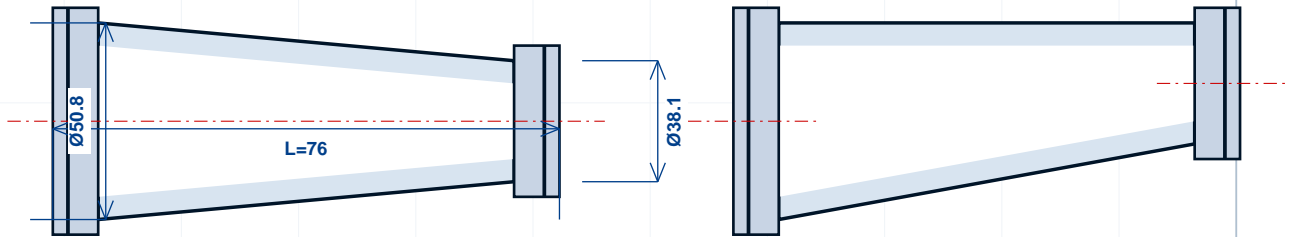
CONCENTRIC / ECCENTRIC / NPT ADAPTERS

Sanitary reducers for tube size transitions in process lines. Concentric reducers for vertical orientations and gradual flow restriction. Eccentric reducers for horizontal lines where complete drainage is required (flat-on-top configuration prevents pocketing). Also includes adapters between sanitary and threaded connections (NPT, BSP) for instrument and utility connections.

MATERIAL	SIZE RANGE	TYPES	SURFACE	CONNECTION	STANDARD
316L SS	DN15 – DN150	Conc. / Ecc.	Ra ≤ 0.8 μm	Tri-Clamp / Weld	3-A / BPE

TECHNICAL DRAWING

DWG: CE-RED-001



CONCENTRIC REDUCER
2" x 1½" (Vertical installation)

ECCENTRIC REDUCER
2" x 1½" (Horizontal — flat top)

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

IN THIS DATASHEET

- PAGE 1** Technical drawing with dimensions and component callouts
- PAGE 2** Full technical specifications, materials and pressure-temperature data
- PAGE 3** Standards compliance, certifications and documentation
- PAGE 4** Applications, installation, maintenance and RFQ form

SANITARY REDUCERS & ADAPTERS

CONCENTRIC / ECCENTRIC / NPT ADAPTERS

DESIGN SPECIFICATIONS

SECTION 1

Reducer Types	Concentric / Eccentric
Reduction	One nominal step
Adapter Types	NPT (M/F) / BSP / Weld
Body	One-piece formed
Eccentric Design	Flat-on-top for drainage
Internal Finish	Ra ≤ 0.8 μm
Connection	Mixed: Tri-Clamp / Weld / NPT
Wall Thickness	1.6 – 2.0 mm

OPERATING CONDITIONS

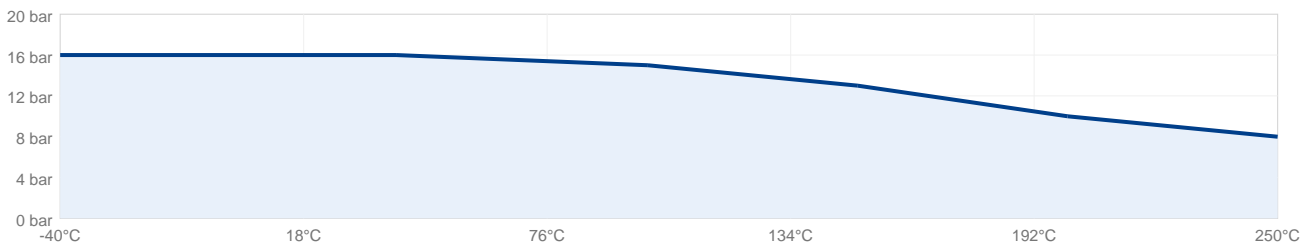
SECTION 2

PRESSURE RATING			TEMPERATURE RANGE		
Working Pressure	16	bar	Cryogenic	-196	°C min
Burst	>60	bar	Steam SIP	+135	°C
Vacuum	-0.95	bar	Continuous	-196 to +400	°C
Test	1.5xWP	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

SANITARY REDUCERS & ADAPTERS

CONCENTRIC / ECCENTRIC / NPT ADAPTERS

MATERIALS OF CONSTRUCTION

SECTION 5

PART	STANDARD	OPTIONAL	SPEC
Body	316L SS	304/904L	ASTM A403 WP316L
Adapter Body	316L SS	304 SS	ASTM A403
Internal Surface	Mill polish	EP	ASME BPE SF4
Thread (adapter)	NPT / BSP	Metric	ASME B1.20.1

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

SIZE	TYPE	OD LARGE (MM)	OD SMALL (MM)	L (MM)	STYLE
2" x 1"	Conc.	50.8	25.4	76	Standard
2" x 1½"	Conc.	50.8	38.1	51	Standard
3" x 1½"	Conc.	76.2	38.1	102	Standard
3" x 2"	Conc.	76.2	50.8	102	Standard
4" x 2"	Conc.	101.6	50.8	152	Standard
4" x 3"	Conc.	101.6	76.2	102	Standard
2" x 1½"	Ecc.	50.8	38.1	51	Flat-top
3" x 2"	Ecc.	76.2	50.8	102	Flat-top

STANDARDS & CERTIFICATIONS

SECTION 8

STANDARD	DESCRIPTION	STATUS
3-A 63-04	Sanitary fittings	Compliant
ISO 2037	Sanitary tubing	Compliant
ASME BPE-2022	Bioprocessing	Compliant (option)
ASTM A403	Wrought fittings	Compliant
ASME B1.20.1	NPT threads (adapter)	Compliant
DIN 32676	Tri-clamp dimensions	Compliant

SANITARY REDUCERS & ADAPTERS

CONCENTRIC / ECCENTRIC / NPT ADAPTERS

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