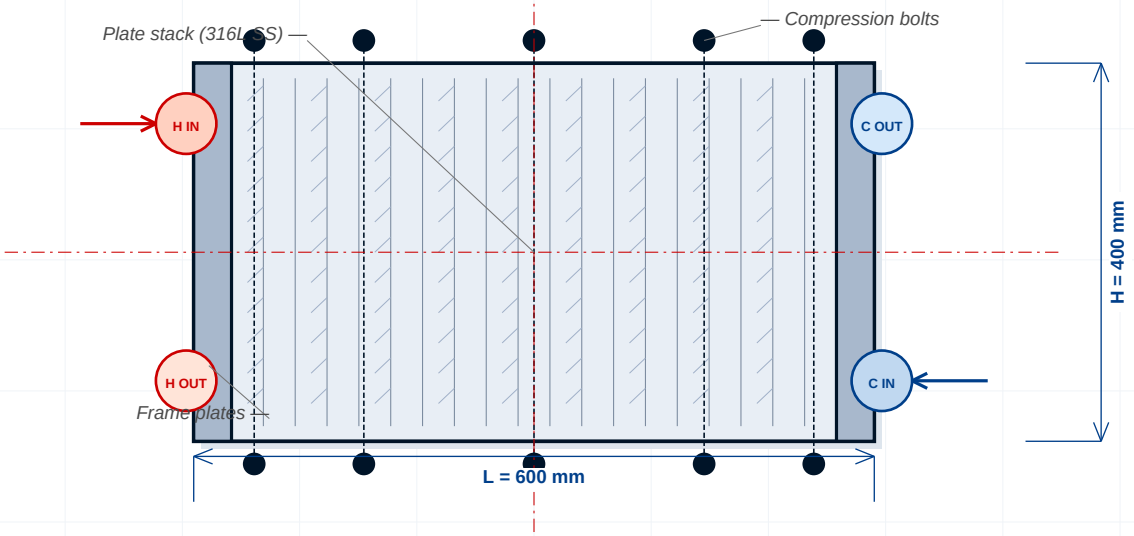
HEAT TRANSFER EQUIPMENT — PLATE / TUBULAR / SHELL-AND-TUBE HEAT EXCHANGERS

Sanitary heat exchangers for hygienic heating, cooling and pasteurization applications. Gasketed plate heat exchangers (GPHE) for moderate temperatures and easy maintenance; tubular and shell-and-tube designs for higher pressures and viscous fluids. All product-contact surfaces are 316L stainless steel with electropolished options. Suitable for milk pasteurization, juice processing, CIP heating, fermentation cooling and process media heating/cooling.

TYPE	MATERIAL	PRESSURE	TEMPERATURE	DUTY	STANDARD
Plate / Tubular / Shell&Tube	316L SS	PN10 / PN16	+150°C	10 – 1000 kW	3-A / ASME BPE

TECHNICAL DRAWING

DWG: CE-HX-001



SIDE VIEW — GASKETED PLATE HEAT EXCHANGER

Counter-flow configuration · Chevron-pattern plates · Removable for cleaning

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

IN THIS DATASHEET

HEAT TRANSFER EQUIPMENT — PLATE / TUBULAR / SHELL-AND-TUBE HEAT EXCHANGERS

DESIGN SPECIFICATIONS — SECTION 1

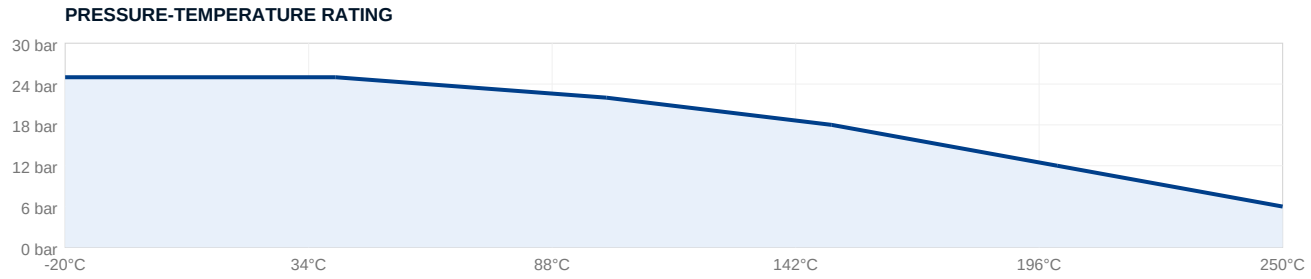
Types	Gasketed Plate / Tubular / Shell-and-Tube
Plate Pattern	Chevron (herringbone)
Plate Material	316L SS (904L/Ti option)
Gaskets	EPDM / NBR / Viton (gasketed type)
Frame	Carbon steel with SS cladding
Compression	Tie rods (gasketed)
Configuration	Counter-flow / Co-current
Documentation	TEMA / EN 13445

OPERATING CONDITIONS — SECTION 2

PRESSURE RATING		
GPHE Working	10	**bar**
Tubular Working	16	**bar**
Shell&Tube	25	**bar**
Test	1.5×WP	**bar**

TEMPERATURE RANGE		
GPHE EPDM	-10 to +130	**°C**
GPHE Viton	-20 to +180	**°C**
Tubular	+200	**°C max**
Shell&Tube	+300	**°C max**

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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HEAT TRANSFER EQUIPMENT PLATE / TUBULAR / SHELL-AND-TUBE HEAT EXCHANGERS

MATERIALS OF CONSTRUCTION — SECTION 5

COMPONENT	MATERIAL	FUNCTION	SPEC
Plates (GPHE)	316L SS	Heat transfer	EN 10088-2
Plates (option)	904L / Titanium	Corrosive media	—
Gaskets	EPDM	Sealing	FDA 21 CFR 177
Gaskets (option)	Viton/NBR	Sealing	FDA
Frame	Carbon Steel + SS clad	Structural	EN 10025
Tie Rods	SS Class 8.8	Compression	ISO 898
Nozzles	316L SS	Flow ports	ASTM A479

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

MODEL	HEAT DUTY	PLATE AREA	PLATES QTY	CONNECTION	FLOW RATE
M3	10 – 50 kW	0.3 m²	5-20	DN25	5 m³/h
M6	50 – 200 kW	0.7 m²	10-60	DN50	15 m³/h
M10	200 – 500 kW	1.8 m²	20-100	DN80	40 m³/h
M15	500 – 1000 kW	3.5 m²	50-200	DN100	80 m³/h
M20	1000 – 2000 kW	6.5 m²	100-300	DN150	150 m³/h
Custom	By RFQ	By RFQ	By RFQ	By RFQ	By RFQ

STANDARDS & CERTIFICATIONS — SECTION 8

STANDARD	DESCRIPTION	STATUS
3-A 11-09	Heat exchangers	Compliant
ASME BPE-2022	Bioprocessing HX	Compliant
EHEDG	Hygienic equipment	Compliant
ASME Section VIII	Pressure vessel code	Compliant
TEMA	Tubular Exchanger Mfrs	Available (tubular)
EN 13445	EU pressure vessel code	Available
PED 2014/68/EU	Pressure Equipment Directive	Available
API 660	S&T HX general (industrial)	Available

TYPICAL APPLICATIONS SECTION 9

DAIRY	PASTEURIZATION	PHARMA & BIOTECH
• Pasteurization circuits	• HTST milk pasteurization	• WFI distribution
• Cheese processing	• UHT processing	• Purified water systems
• Yogurt production	• Juice pasteurization	• API manufacturing
• Milk separators	• Brewery wort cooling	• Bioreactor connections
• Cream lines	• Yogurt cooling	• Sterile filling
• 3-A compliant systems	• Process cooling	• Process skids

INSTALLATION GUIDELINES SECTION 10

Plate heat exchangers require specific installation procedures: **1. Site Preparation:** Allow service space on all sides — minimum 1m for plate access. Position with frame on level concrete pad. **2. Lifting:** Use lifting lugs on movable end frame only. Never lift by tie rods or nozzles. Verify crane capacity for frame + plate pack weight. **3. Piping Connections:** Connect according to nameplate flow direction. Tri-clamp connections require correct gasket size. Support piping independently — do not allow pipe weight to stress nozzle connections. **4. Plate Pack Compression:** Verify compression dimension (A-measure) on nameplate. Re-torque tie rods evenly in cross pattern to specified dimension. Over-compression damages gaskets, under-compression causes leaks. **5. Commissioning:** 1) Hydrotest hot side and cold side independently 2) Verify no cross-leakage 3) Performance test with rated flow/temperature 4) Document A-measure, flow, pressure, temperatures.

MAINTENANCE SCHEDULE SECTION 11

INTERVAL	ACTION	NOTES
Daily	Operating parameter log	Flow, ΔP, temperatures
Weekly	Visual leak check	External inspection
Monthly	CIP effectiveness test	Conductivity, TOC
Quarterly	Re-torque tie rods	Verify A-measure
Annually	Open inspection	Plate pack disassembly
2-3 years	Gasket replacement	Hot/critical service
5 years	Plate replacement	High-fouling applications

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 →
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