Bell & Gossett
a xylem brand

SPECIFICATIONS
Plate & Frame
SP-C310

I Design

A. To reduce installation and maintenance cost, units should be designed as single pass units unless thermal and hydraulic conditions require multi-pass arrangement.
B. For single pass units all connections should be located on the fixed head, frame plate, allowing the movable head, pressure plate, to slide back and plates added, removed, or replaced from the plate pack without disturbing the connections or associated piping.
C. The design should allow for the removal of interior plates without the removal of the preceding plates.
D. The unit shall be designed and hydro-tested in accordance with People's Republic of China National Standard GB 16409 – 1996.

II Frame

A. The frame plate and pressure plate should be carbon steel in accordance with GB 16409.
B. The frame and pressure plate shall be of sufficient thickness to meet the GB 16409 design pressure. Stiffeners or support brackets are not allowed.
C. Carbon steel frame components shall be painted with gray epoxy paint.
D. Units with 3-inch or greater connections shall be unlined or alloy lined studded ports to mate with raised face or flat faced flanges. Rubber liners are not allowed.
E. Units with 2 or 2 1/2-inch connections shall have carbon steel female tapped or male tapped connections if an alloy material is required.
F. Units with 1-inch ports shall have carbon steel or 316 stainless steel female tapped or alloy material male tapped connections.
G. Units with connections greater than 50mm (2-inch) require that the thermal plates be supported by the carry bar, top bar. The guide bar, bottom bar, shall only help properly align the plates.
H. The pressure plate shall be supported by a roller assembly from the carry bar for units with 65mm (2 1⁄2-inch) or greater port sizes.
I. The carry and guide bar plate contact surfaces shall be corrosion resistant.
J. The design for units with 2-inch connections or smallerallow the plates be supported by the guide bar, bottom bar, and the carry bar, top bar, shall help properly align the plates. Carry and guide bars are to be steel with a zinc chromate coating.

III Tightening Bolts

A. Tightening bolts shall comply with GB 16409.
B. The tightening bolt assemblies shall include captive working nuts at the pressure plate, rear head, such that the unit can be opened and closed with one wrench from the front of the unit.

IV Plates

A. Plates shall be pressed in a one step stamping process.
B. Plates shall use an integral rolled edge hanging system to provide a rigid hanger device between the plate and carry bar and guide bar. Welded on hanging brackets or stiffeners are not acceptable.
C. The plate pack shall use a positive plate to plate alignment system to ensure proper plate to gasket seals throughout the plate pack. The positive alignment system shall either be a gasket lug which fits within a plate recess on the proceeding plate (tongue in groove) to align successive plates or an extended rolled edge hanger which nests successive plates through direct contact around the entire plate hanger. Plate designs, which only offer alignment through contact with the carry and guide bar, are unacceptable.
D. Plates shall be permanently marked to indicate plate material and thickness.

V Gaskets

A. All gaskets except the gasket on the first plate shall be identical.

B. The gaskets shall be a one-piece construction with a double gasket barrier at the port region. The area isolated by the double gasket shall be vented to the atmosphere, so that a gasket failure is detected by leakage to the exterior prior to any possible cross contamination.
C. Gasket attachment methods, which break during gasket removal or plate maintenance thus destroying the gasket, are not allowed.
D. Care should be taken in the selection of gasket materials to insure compatibility with the fluids and operating temperatures.

VI Thermal/Hydraulic Design, Certification and Testing

A. The manufacturer shall provide written guarantee to the accuracy of the heat exchanger thermal design.
B. The manufacturer shall be certified with the Air-Conditioning and Refrigeration Institute's Liquid to Liquid Heat Exchanger Certification program ARI Standard 400 for the Model being supplied.
C. Should the Heat Exchanger not perform to the specified conditions as defined in the ARI Standard 400, the manufacturer is responsible to replace or repair the exchanger to achieve the stated performance.
D. If the manufacturer is not certified with the Air-Conditioning and Refrigeration Institute's Liquid to Liquid Heat Exchanger certification program ARI Standard 400, a witnessed factory performance test must be completed per the testing specification of ARI 400.

I Design

A. To reduce installation and maintenance cost, units should be designed as single pass units unless thermal and hydraulic conditions require multi-pass arrangement.
B. For single pass units all connections should be located on the fixed head, frame plate, allowing the movable head, pressure plate, to slide back and plates added, removed, or replaced from the plate pack without disturbing the connections or associated piping.
C. The design should allow for the removal of interior plates without the removal of the plates.
D. The unit shall be provided with an aluminum or stainless steel OSHA splash shield.
E. The unit shall be designed, hydro-tested, and U-1 stamped in accordance with ASME Section VIII Division 1.

II Frame

A. The frame plate and pressure plate should be carbon steel SA 516 grade 70.
B. The frame and pressure plate shall be of sufficient thickness to meet the ASME design pressure. Stiffeners or support brackets are not allowed.
C. Carbon steel frame components shall be painted with gray epoxy paint.
D. Units with 3-inch or greater connections shall be unlined or alloy lined studded ports to mate with raised face or flat faced ANSI flanges. Rubber liners are not allowed.
E. Units with 2 or 2 1/2-inch connections shall have carbon steel female tapped NPT or male NPT connections if an alloy material is required.
F. Units with 1-inch ports shall have carbon steel or

316
stainless steel female tapped NPT or alloy material male NPT connections.

G. Units with connections greater than 50mm (2-inch) require that the thermal plates be supported by the carry bar, top bar. The guide bar, bottom bar, shall only help properly align the plates.

H. The pressure plate shall be supported by a roller assembly from the carry bar for units with 65mm (2 1⁄2-inch) or greater port sizes.

I. The carry and guide bar plate contact surfaces shall be corrosion resistant.

J. The design for units with 2-inch connections or smaller allow the plates be supported by the guide bar, bottom bar, and the carry bar, top bar, shall help properly align the plates. Carry and guide bars are to be steel with a zinc chromate coating.

III Tightening Bolts

A. Tightening bolts shall be zinc plated carbon steel SA193 B7.

B. The tightening bolt assemblies shall include captive working nuts at the pressure plate, rear head, such that the unit can be opened and closed with one wrench from the front of the unit.

IV Plates

A. Plates shall be pressed in a one step stamping process.

B. Plates shall use an integral rolled edge hanging system to provide a rigid hanger device between the plate and carry bar and guide bar. Welded on hanging brackets or stiffeners are not acceptable.

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C. Gasket attachment methods, which break during gasket removal or plate maintenance thus destroying the gasket, are not allowed.

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