

HEAT EXCHANGERS Brazed Plate Heat Exchangers

Description

Model BPX brazed plate heat exchangers offer the highest level of thermal efficiency and durability in a compact, low cost unit. The corrugated plate design provides very high heat transfer coefficients, resulting in a more compact design. The unit's stainless steel plates are vacuum brazed together to form a durable, integral piece that can withstand high pressure and temperature.

The BPX heat exchangers offer a compact design compared to shell and tube exchangers

- 1/6 the size of shell and tube
- 1/5 the weight of shell and tube
- 1/8 the liquid required of shell and tube
- 1/3 to 1/5 of the surface area required

BPX units are ideal for a wide variety of hydronic applications such as:

- Radiant Floor Heating
- Domestic Water Heating
- Snow MELT Systems
- Swimming Pool Heating

Operating Data

Design Pressure: 435 PSI (30 bar)
Design Temperature: 450°F (232°C)
Plates: Stainless Steel
Brazing Material: Copper
Connections: From 1/2 inch to 4 inch
Capacity: Up to 800 GPM
Construction Codes : UL, CRN, ASME Code Stamp Option

Also available in double-wall design.

Designed for dependability – Small size. Big impact.



Mechanical Design:

Design pressures up to 435 PSIG. Maximum design temperature up to 450°F. Minimum design temperature to -310°F.

Construction Codes:

Available codes include UL, CRN, and ASME code stamp.

Materials:

Stainless steel 316L plates. Copper brazed material.



Connections:

From 1/2-inch to 4-inch. Standard connection options include NPT, SAE flanged and sweat. Custom connections available.

Capacity:

Up to 800 GPM and 350 sq.ft. of surface area.

Mounting:

Reduce mounting costs with optional threaded studs or integral mounting bracket.



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Quick Selection Tables

Domestic Water Heating							
Boiler Side: Water 180° F supply, 130° F return Domestic Water Side: Water 50° F supply, 140° F return							
Model	Heat Exchanged BTU/Hr	Boiler Side		Domestic Water Side		B&G Pump Selection [†]	Pipe Size ^{††}
		Flow GPM	Pressure Drop PSI	Flow GPM	Pressure Drop PSI		
BP400-10 (¾" MPT)	60,000	2.5	1.6	1.3	0.3	NBF-9U	¾"
BP400-20 (¾" MPT)	150,000	6.2	2.1	3.3	0.6	NBF-9U	¾"
BP400-30 (¾" MPT)	225,000	9.3	2.2	5.0	0.7	NBF-9U	1"
BP400-40 (¾" MPT)	350,000	14.4	3.4	7.8	1.0	NBF-12	1¼"
BP410-30 (1" MPT)	450,000	18.6	6.2	10.0	1.8	NBF-25	1½"
BP410-40 (1" MPT)	600,000	24.8	6.2	13.3	2.0	NBF-25	1½"
BP410-50 (1" MPT)	800,000	33.0	6.9	17.8	2.4	NBF-25	1½"
BP410-60 (1" MPT)	900,000	37.1	6.9	20.0	2.2	NBF-25	2"
BP410-80 (1" MPT)	1,100,000	45.4	6.8	24.4	2.2	NBF-36	2"
BP423-30 (2" MPT)	1,500,000	61.9	4.6	33.3	1.4	NBF-45	2"
BP423-40 (2" MPT)	2,000,000	82.5	4.6	44.4	1.4	PL-45B	2½"
BP423-50 (2" MPT)	2,500,000	103.1	4.8	55.5	1.5	PL-75B	2½"

Larger models are available upon request. † Assumptions: 200 ft. TEL of copper pipe with (6) 90 degree elbows. †† Pipe size shown is not the connection size of the heat exchanger.

Domestic Water Heating - Double Wall							
Boiler Side: Water 180° F supply, 130° F return Domestic Water Side: Water 50° F supply, 140° F return							
Model	Heat Exchanged BTU/Hr	Boiler Side		Domestic Water Side		B&G Pump Selection [†]	Pipe Size ^{††}
		Flow GPM	Pressure Drop PSI	Flow GPM	Pressure Drop PSI		
BPDW410-20 (1" MPT)	60,000	2.5	0.2	1.3	0.1	NBF-9U	5/8"
BPDW410-34 (1" MPT)	150,000	6.2	0.4	3.3	0.1	NBF-9U	3/4"
BPDW415-24 (1" MPT)	225,000	9.3	3.8	5.0	0.9	NBF-9U	1"
BPDW415-34 (1" MPT)	350,000	14.4	4.5	7.8	1.1	NBF-12	1-1/4"
BPDW415-40 (1" MPT)	450,000	18.6	5.4	10.0	1.4	NBF-25	1-1/4"
BPDW415-60 (1" MPT)	600,000	24.8	4.6	13.3	1.2	NBF-25	1-1/2"
BPDW415-80 (1" MPT)	800,000	33.0	5.1	17.8	1.4	NBF-25	1-1/2"
BPDW415-100 (1" MPT)	900,000	37.1	4.8	20.0	1.8	NBF-25	2"
BPDW415-110 (1" MPT)	1,100,000	45.4	6.3	24.4	3.1	NBF-36	2"
(2) BPDW415-80 (1" MPT)	1,500,000 ^{†††}	61.9	4.5	33.3	1.3	NBF-45	2"
(2) BPDW415-100 (1" MPT)	2,000,000 ^{†††}	82.5	5.9	44.4	1.7	NBF-45B	2-1/2"

† Assumptions: 20 ft. of copper pipe with (6) 90 degree elbows.
†† Pipe size shown isn't the connection size of the heat exchanger.
††† Two units are required in parallel.

Snow Melt Applications							
Boiler Side: Water 180° F supply, 160° F return Snow Side: Water 40% P.G. 100° F supply, 130° F return							
Model	Heat Exchanged BTU/Hr	Boiler Side		Snow Melt Side		B&G Pump Selection [†]	Pipe Size ^{††}
		Flow	Pressure Drop	Flow	Pressure Drop		
		GPM	PSI	GPM	PSI		
BP400-10 (¾" MPT)	30,000	3.1	2.4	2.1	0.9	NRF-25	¾"
BP400-10 (¾" MPT)	45,000	4.6	5.1	3.2	2.1	NRF-35	¾"
BP400-14 (¾" MPT)	60,000	6.2	4.2	4.3	1.9	NRF-25	1"
BP400-20 (¾" MPT)	100,000	10.3	5.4	7.1	2.7	NRF-36	1"
BP400-40 (¾" MPT)	175,000	18.0	5.2	12.5	2.8	NRF-36	1½"
BP412-30 (1" MPT)	250,000	25.8	4.1	17.9	2.1	PL-36	1½"
BP412-30 (1" MPT)	300,000	30.9	5.8	21.4	2.9	PL-55	2"
BP412-50 (1" MPT)	450,000	46.4	6.2	32.1	3.3	613	2"
BP424-20 (2" MPT)	600,000	61.8	4.8	42.9	2.8	609	2"
BP424-30 (2" MPT)	900,000	92.7	4.8	64.3	3.0	614	2½"
BP424-40 (2" MPT)	1,200,000	123.6	5.1	85.7	3.2	625	3"
BP424-50 (2" MPT)	1,350,000	139.1	4.7	96.4	2.9	625	3"

Larger models are available upon request.
† Assumptions: Longest radiant loop is 250 ft. PEX.
†† Pipe size shown isn't the connection size of the heat exchanger.

Outdoor Wood Boiler					
Boiler Side: Water 180° F supply, 155° F return House Side: Water 140° F supply, 165° F return					
Model	Heat Exchanged BTU/Hr	Boiler Side		House Side	
		Flow	Pressure Drop	Flow	Pressure Drop
		GPM	PSI	GPM	PSI
BP400-20LP (¾" MPT)	30,500	2.52	0.4	2.5	0.3
BP400-30LP (¾" MPT)	50,000	4.12	0.5	4.1	0.4
BP400-40LP (¾" MPT)	70,000	5.77	0.6	5.7	0.6
BP410-20LP (1" MPT)	80,000	6.60	1.9	6.5	1.6
BP410-30LP (1" MPT)	130,000	10.72	2.2	10.6	1.92
BP410-40LP (1" MPT)	179,500	14.80	2.3	14.6	2.2
BP410-50LP (1" MPT)	229,500	18.92	2.5	18.7	2.4
BP410-60LP (1" MPT)	279,000	23.00	2.8	22.8	2.6
BP410-70LP (1" MPT)	329,000	27.13	3.0	26.8	2.9
BP410-80LP (1" MPT)	378,500	31.21	3.3	30.9	3.2
BP410-90LP (1" MPT)	428,500	35.33	3.7	34.9	3.6
BP410-100LP (1" MPT)	478,000	39.41	4.0	39.0	4.0

Larger models are available upon request.

Swimming Pool Heating						
Boiler Side: Water 180° F supply, 130° F return Pool Side: Water 70° F supply, 107° F return						
Model [‡]	Pool Size Gallons [‡]	Heat Exchanged BTU/Hr	Boiler Side		Pool Side	
			Flow	Pressure Drop	Flow ²	Pressure Drop
			GPM	PSI	GPM	PSI
BP400-10 (¾" MPT)	2,000	33,300	1.37	0.5	1.8	0.6
BP400-10 (¾" MPT)	6,000	99,900	4.10	4.1	5.4	5.0
BP400-20 (¾" MPT)	8,000	133,200	5.50	1.7	7.3	2.5
BP400-30 (¾" MPT)	15,000	250,234	10.00	2.7	14.0	4.5
BP412-20 (1" MPT)	20,000	333,645	13.00	2.5	18.0	3.4
BP412-20 (1" MPT)	30,000	500,467	20.70	5.6	27.2	7.7
BP412-30 (1" MPT)	40,000	667,290	27.00	3.9	36.0	6.9
BP424-20 (2" MPT)	60,000	1,000,936	40.00	2.3	54.0	3.6
BP424-30 (2" MPT)	80,000	1,334,581	53.00	1.9	72.0	3.1
BP424-40 (2" MPT)	100,000	1,668,226	67.00	2.8	90.0	4.7
BP424-50 (2" MPT)	120,000	2,001,871	82.50	2.5	108.0	4.2
BP424-50 (2" MPT)	150,000	2,502,000	103.20	2.7	135.6	4.7

Larger models are available upon request.
1) Provides approx. 2° F per hour heating with 180° F boiler to achieve 80° F pool temperature.
2) Pool water flow rate usually requires flow by pass from main pool circulation.
3) Chlorinated pool water can be corrosive to SS316L and Copper. Proper control of chlorine levels is required or alternate materials of construction should be considered.

Radiant Floor Heating							
Boiler Side: Water 180° F supply, 160° F return Radiant Floor Side: Water 100° F supply, 120° F return							
Model	Heat Exchanged BTU/Hr	Boiler Side		Radiant Floor Side		B&G Pump Selection [†]	Pipe Size ^{††}
		Flow	Pressure Drop	Flow	Pressure Drop		
		GPM	PSI	GPM	PSI		
BP400-10 (¾" MPT)	30,000	3.1	2.4	3.0	1.6	NRF-25	¾"
BP400-10 (¾" MPT)	50,000	5.2	6.1	5.0	4.2	NRF-36	1"
BP400-20 (¾" MPT)	100,000	10.3	5.2	10.1	4.4	NRF-36	1½"
BP400-30 (¾" MPT)	150,000	15.5	5.3	15.2	4.9	NRF-36	1½"
BP400-40 (¾" MPT)	200,000	20.6	5.8	20.2	5.5	NRF-36	1½"
BP411-20 (1" MPT)	250,000	25.8	3.3	25.2	3.0	PL-36	2"
BP411-20 (1" MPT)	350,000	36.1	6.3	35.3	5.6	PL-55	2"
BP411-30 (1" MPT)	450,000	46.4	6.1	45.4	5.8	607	2"
BP424-20 (2" MPT)	600,000	61.8	4.8	60.6	4.2	609	2½"
BP424-30 (2" MPT)	900,000	92.7	4.8	90.9	4.5	611	3"
BP424-40 (2" MPT)	1,200,000	123.6	5.1	121.2	5.0	625	3"
BP424-50 (2" MPT)	1,350,000	139.1	4.7	136.3	4.6	619	3"

Larger models are available upon request.
† Assumptions: Longest radiant loop is 200 ft. PEX.
†† Pipe size shown isn't the connection size of the heat exchanger.