

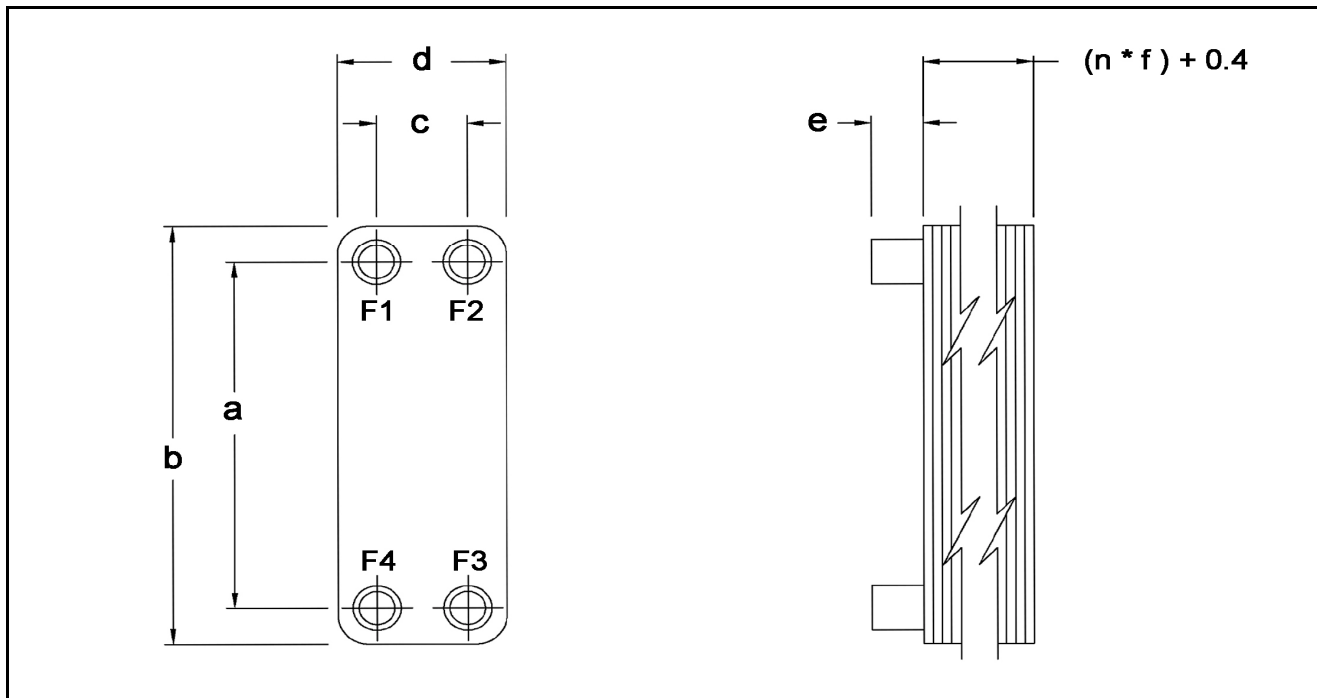
Specifications

Type BPR Exchangers

Plates:	AISI 316 stainless steel	Design Pressure:	435 psi
Connections:	AISI 316 stainless steel	Design Temperature:	450 deg F max.
	Soldering on Refrigerant side		-310 deg min.
	male NPT's on water side		
Braze:	Copper		

Unit Size	Capacity	Part Number	Square Feet	Connections	
				F2 / F3 male NPT's	F4 / F1 SW
BPR 410 -10	0.5	5-693-04-010-005	2.2	1" / 1"	1/2" / 1/2"
BPR 410 -14	1.0	5-693-04-014-001	3.3	1" / 1"	1/2" / 7/8"
BPR 410 -34	2.5	5-693-04-034-001	8.9	1" / 1"	1/2" / 7/8"
BPR 410 -54	5.0	5-693-04-054-001	14.5	1" / 1"	1/2" / 7/8"
BPR 415 -28	5.0	5-686-05-028-001	14.5	1" / 1"	7/8" / 7/8"
BPR 415 -42	7.5	5-686-05-042-001	22.3	1" / 1"	7/8" / 7/8"
BPR 415 -56	10.0	5-686-05-056-001	30.1	1" / 1"	7/8" / 7/8"
BPR 415 -86	15.0	5-686-05-086-001	48.0	1" / 1"	7/8" / 7/8"
BPR 422 -50	17.0	5-693-06-050-002	51.3	2" / 2"	1 3/8" / 1 5/8"
BPR 422 -62	20.0	5-686-06-062-001	64.1	2" / 2"	1 5/8" / 1 5/8"
BPR 422 -70	23.0	5-693-06-070-002	72.7	2" / 2"	1 3/8" / 2 1/8"

Capacity is based on cooling 2.4 GPM of water per ton of refrigeration from 60 degees F to 50 deg F using R-22 direct expansion (quality = .25) with a 40 deg F saturation temperature. The pressure drop on the water side is less than 10 psi.



Model Type	a	b	c	d	e	f	Con- nection	Volume (Gal / channel)	Surface Area per plate ft. ²	Weight (lbs.)	Max. # of plates
BP400	6.77	8.2	1.65	3.1	0.95	0.081	¾" MNPT	0.0076	0.126 ft	0.13 x n + 1.5	50
BP410	9.84	12.2	1.97	4.4	0.95	0.097	1" MNPT	0.0159	0.281 ft	0.29 x n + 2.6	150
BP411	9.84	12.2	1.97	4.4	0.95	0.097	1" MNPT	0.0159	0.280 ft	0.29 x n + 2.6	150
BP412	9.84	12.2	1.97	4.4	0.95	0.097	1" MNPT	0.0159	0.281 ft	0.29 x n + 2.6	150
BP415	18.35	20.7	1.97	4.4	0.95	0.097	1" MNPT	0.0273	0.566 ft	0.51 x n + 4.2	150
BP422	20.43	24.3	3.62	7.5	1.9	0.112	2" MNPT	0.0704	1.062 ft	0.97 x n + 15.4	150

n = number of plates

Typical Connection Locations (Side-1: F1 & F4, Side-2: F2 & F3)

Sensible Application (liquids or gases - no phase change)

- 1) For all models the F2 - F3 side has one extra channel, ie. BP 410-10 has 4 channels on the F1 - F4 side and 5 on the F2 - F3 side.
- 2) Liquid applications should be plumbed in a counter-current flow arrangement, unit mounting orientation is not critical.

Phase Change Applications

- 1) Units should be mounted in the vertical direction, similar to the figure above and plumbed with the vapor connection up and the liquid connection down on the phase change side see below.

Refrigeration:

Condensers	
Refrig. In:	F1
Refrig. Out:	F4
Liquid In:	F3
Liquid Out:	F2

Evaporators	
Refrig. In:	F4
Refrig. Out:	F1
Liquid In:	F2
Liquid Out:	F3

Steam to Liquid:

Condensers	
Steam In:	F1
Condensate Out:	F4
Liquid In:	F3
Liquid Out:	F2

Standard Materials

Cover Plate: ASTM 316L stainless steel
 Channel Plates: ASTM 316L stainless steel
 Connections: ASTM 316L stainless steel
 Brazing Material: Copper

Design Specifications Copper Braze

Design Pressure: 435 psig
 Design Temperature: 450 deg F max.
 -310 deg F min.