



SEC *Heat Exchangers*

TECHNICAL CATALOGUE

Section 4

Brazed Plate Models

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Brazed Plate Models



Brazed Plate Models

- exceptional value
- highly efficient
- full range of models
- OEM inquiries welcome

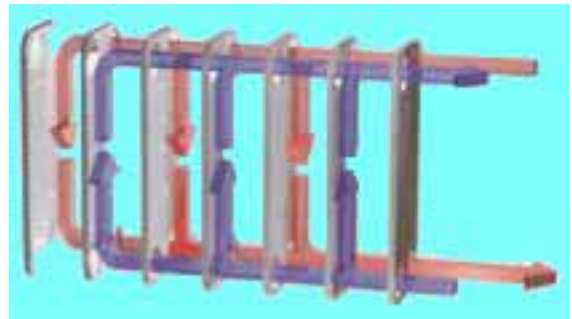
The highly efficient design and excellent value of SEC Brazed Plate Heat Exchangers makes them a wise choice for your heat transfer applications. Produced to the highest standards utilizing the latest production technology our products meet the demanding quality requirements of ASME, CRN, and ISO

9002. Our Brazed Plate Heat Exchangers are pressure rated for 450psi @ 460F.

Brazed Plate heat exchangers have a 1 year warrantee.

They are available in threaded or solder connections.

SEC Brazed Plate Heat Exchangers consist of specially formed stainless steel plates, vacuum brazed together to form a highly efficient heat transfer device. The corrugated pattern stamped into each plate produces turbulent flows. This results in high heat transfer coefficients. The plate size, number of plates, and connection sizes are varied to match the customer's heat transfer requirements precisely. Individual units have capacities up to 4,000,000 btu or 50 tons for refrigeration.



Our quality Brazed Plate Heat Exchangers find applications in many fields:

SNOW MELT - AQUACULTURE - RADIANT HEATING – DOMESTIC HOT WATER - OIL COOLERS – INDUSTRIAL PROCESSES - MARINE - HVAC POOL AND SPA HEATING - FUEL OIL PREHEATING - BOILER BLOW DOWN HEAT RECOVERY - REFRIGERATION (evaporators, sub-coolers, condensers) – METAL FINISHING - AUTOMOTIVE PARTS PROCESSING – BEVERAGE PRODUCTION - COGENERATION.

Availability

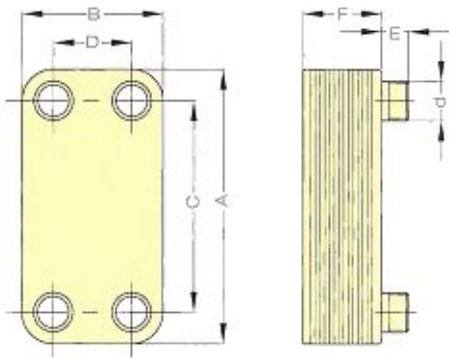
All models are kept in stock for immediate delivery.

For more information on the SEC Series Brazed Plate Models please visit:

<http://www.brazedplate.com/>

SEC Brazed Plate Engineering Data

Brazed Plate Models	Dimensions (inches)					Plate Area (Sq.ft)	Channel Volume (USGAL)	Maximum Flow (GPM)	Maximum # of Plates (NP)	Weight (empty) (Lbs)
	A	B	C	D	F					
M14a	7.6	3.1	6.1	1.6	.36+.09np	0.15	0.006	18	50	1.5+0.1np
M25	20.5	4.5	18.7	2.7	.35+.1np	0.75	0.020	75	100	5.0+.44np
M31b	12	4.8	9.1	2.8	.36+.09np	0.33	0.012	50	120	3.1+0.3np
M110c	18.2	10.0	14.9	6.7	.39+.09np	1.18	0.043	89	200	11.2+.9np



Technical Parameters Diagram
(for use with the above chart)



Standard Connection Types:
Solder (sweat) - Threaded (NPT) - Flanged

Material:

Plates and Connections: AISI 316

Brazing: Copper or Nickel

Design Parameters:

Maximum Working Pressure: 435 Psi

Maximum Working Temperature: copper brazed 437°F, nickel brazed: 752°F

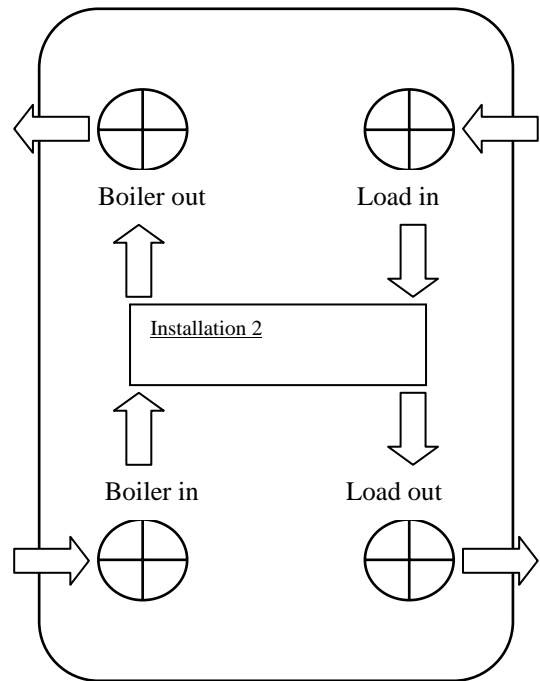
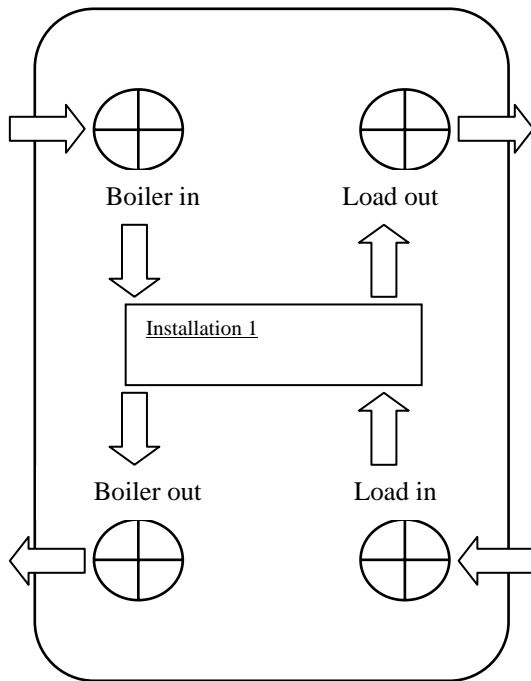
Minimum Working Temperature: copper brazed -319°F

*(economic versions)

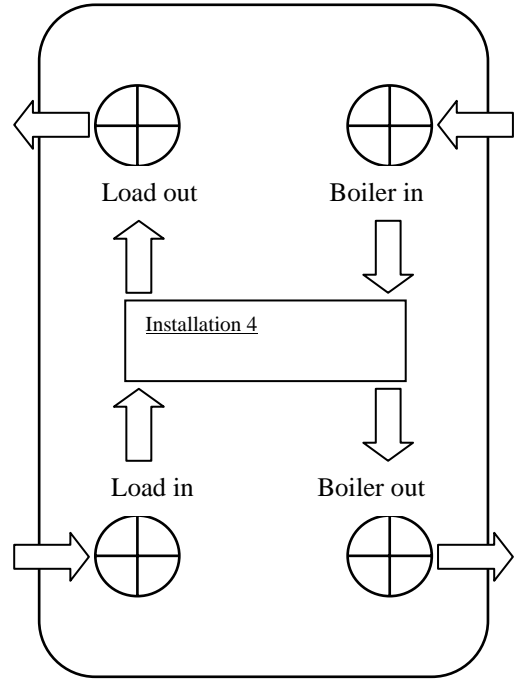
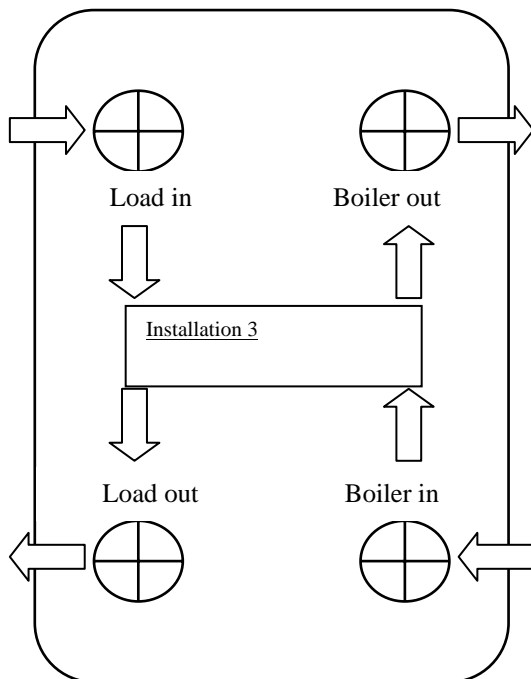
Standard Connections

Heat Exchanger Type	Solder (sweat)		Threaded (NPT)		Flanges	
	d* (in)	E (in)	d (in)	E (in)	d (in)	E (in)
M14a	3/4"	3/4"	3/4" NPT (male)	7/8"	Flanged Connections Are available for the M-110c (custom order)	
M25	1 - 3/8"	13/16"	1 1/4" NPT	.80"		
M31b	1"	1 - 3/8"	1" NPT (male)	1 - 1/8"		
M110c	2"	1 1/4"	1 1/2", 2", 2 1/2" NPT	1 - 1/4"		

Recommended Flow Directions for Brazen Plate Heat Exchangers



Choose the Installation Which Best Suits Your Piping Layout



Domestic Hot Water Performance Chart for SEC Brazed Plate Heat Exchangers

Water Flow GPM	Water Inlet Temp	Water Outlet Temp	Boiler Flow GPM	Boiler Inlet Temp	Boiler Outlet Temp	Btu/hr	Model M14	PSI Hot Side	PSI Cold Side	Model M31	PSI Hot Side	PSI Cold Side	Model M110	PSI Hot Side	PSI Cold Side
0.40	40F	140F	2.03	180F	160F	20,000	M14-6	1.91	0.09						
0.60	40F	140F	3.05	180F	160F	30,000	M14-6	4.17	0.20						
0.80	40F	140F	4.07	180F	160F	40,000	M14-10	2.73	0.13						
1.00	40F	140F	5.08	180F	160F	50,000	M14-10	4.21	0.20						
1.20	40F	140F	6.10	180F	160F	60,000	M14-20	1.63	0.07						
1.40	40F	140F	7.11	180F	160F	70,000	M14-20	2.19	0.10	M31-20	1.73	0.09			
1.60	40F	140F	8.13	180F	160F	80,000	M14-20	2.84	0.13	M31-20	2.23	0.11			
1.80	40F	140F	9.15	180F	160F	90,000	M14-20	3.56	0.17	M31-20	2.79	0.14			
2.00	40F	140F	10.17	180F	160F	100,000	M14-20	4.37	0.21	M31-20	3.41	0.17			
2.50	40F	140F	12.70	180F	160F	125,000	M14-30	3.26	0.15	M31-20	5.20	0.27			
2.80	40F	140F	14.23	180F	160F	140,000	M14-30	4.06	0.19	M31-30	3.02	0.15			
3.00	40F	140F	15.25	180F	160F	150,000	M14-30	4.65	0.22	M31-30	3.45	0.18	M110-20	1.53	0.09
3.50	40F	140F	17.79	180F	160F	175,000	M14-40	3.89	0.18	M31-30	4.62	0.23	M110-20	2.05	0.10
4.00	40F	140F	20.33	180F	160F	200,000	M14-40	5.04	0.23	M31-30	5.96	0.30	M110-20	2.65	0.13
6.01	40F	140F	30.50	180F	160F	300,000				M31-50	5.08	0.26	M110-20	5.72	0.29
8.00	40F	140F	40.67	180F	160F	400,000				M31-70	4.92	0.24	M110-30	4.63	0.24
10.01	40F	140F	50.84	180F	160F	500,000				M31-90	5.03	0.25	M110-40	4.16	0.21
12.01	40F	140F	61.00	180F	160F	600,000				M31-120	4.73	0.23	M110-50	3.93	0.20
14.01	40F	140F	71.17	180F	160F	750,000				M31-130	5.76	0.27	M110-50	5.27	0.27
18.02	40F	140F	91.50	180F	160F	900,000							M110-70	4.74	0.24
20.02	40F	140F	101.67	180F	160F	1.0m							M110-80	4.65	0.23
25.03	40F	140F	127.10	180F	160F	1.25m							M110-100	5.04	0.25
30.03	40F	140F	152.51	180F	160F	1.5m							M110-120	5.52	0.27
38.05	40F	140F	193.18	180F	160F	1.9m							M110-170	5.80	0.27

Radiant (Floor) Heating Performance Chart for SEC Brazed Plate Heat Exchangers

Btu/hr	USGPM Boiler Flow	Inlet Temp Boiler	Outlet Temp Boiler	USGPM Water Flow	Inlet Temp Water	Outlet Temp Water	Model M14	PSI Hot Side	PSI Cold Side	Model M31	PSI Hot Side	PSI Cold Side	Model M110	PSI Hot Side	PSI Cold Side
24,000	2.40	180F	160F	2.40	100F	120F	M14-6	2.71	2.86						
32,000	3.20	180F	160F	3.20	100F	120F	M14-6	4.73	4.99						
48,000	4.95	180F	160F	4.85	100F	120F	M14-10	3.89	4.10						
64,000	6.60	180F	160F	6.46	100F	120F	M14-20	1.84	1.94						
80,000	8.20	180F	160F	8.01	100F	120F	M14-20	2.84	2.99						
96,000	9.80	180F	160F	9.70	100F	120F	M14-20	4.04	4.25	M31-20	3.15	3.37			
112,000	11.54	180F	160F	11.31	100F	120F	M14-20	5.44	5.73	M31-20	4.22	4.52			
128,000	13.19	180F	160F	12.93	100F	120F	M14-30	3.42	3.59	M31-20	5.44	5.83			
144,000	14.80	180F	160F	14.50	100F	120F	M14-30	4.29	4.51	M31-30	3.19	3.41			
160,000	16.50	180F	160F	16.10	100F	120F	M14-30	5.26	5.54	M31-30	3.90	4.17			
200,000	20.60	180F	160F	20.20	100F	120F	M14-40	5.04	5.29	M31-40	3.51	3.75			
240,000	24.73	180F	160F	24.23	100F	120F	M14-50	5.13	5.36	M31-40	4.94	3.51	M110-20	3.74	4.01
280,000	28.80	180F	160F	28.20	100F	120F		5.41	5.65	M31-50	4.46	4.76	M110-20	5.02	5.37
320,000	32.90	180F	160F	32.21	100F	120F				M31-60	4.17	4.45	M110-30	3.03	3.24
400,000	41.22	180F	160F	40.40	100F	120F				M31-70	4.92	5.24	M110-30	4.63	4.95
400,000	41.22	180F	160F	40.40	100F	120F				M31-70	4.92	5.24	M110-30	4.63	4.95
440,000	45.34	180F	160F	44.40	100F	120F				M31-80	4.74	5.04	M110-30	5.55	5.93
480,000	49.46	180F	160F	48.41	100F	120F				M31-80	5.60	5.96	M110-40	3.85	4.12
560,000	57.70	180F	160F	56.55	100F	120F				M31-100	5.34	5.66	M110-40	5.16	5.52
640,000	65.90	180F	160F	64.63	100F	120F				M31-120	5.35	5.65	M110-50	4.45	4.75
720,000	74.20	180F	160F	72.70	100F	120F				M31-150	5.14	5.40	M110-50	5.57	5.94
800,000	82.43	180F	160F	80.78	100F	120F							M110-60	4.93	5.26
960,000	98.92	180F	160F	96.94	100F	120F							M110-70	5.37	5.72
1,120,000	115.40	180F	160F	113.10	100F	120F							M110-90	4.79	5.09
1,280,000	131.90	180F	160F	129.30	100F	120F							M110-100	5.27	5.59
1,600,000	164.90	180F	160F	161.60	100F	120F							M110-130	5.63	5.94
1,926,000	198.50	180F	160F	194.50	100F	120F							M110-180	5.64	5.90

Snow Melt Performance Chart for SEC Brazed Plate Heat Exchangers

Btu/hr	USGPM Boiler Flow	Inlet Temp Boiler	Outlet Temp Boiler	USGPM Water Flow	Inlet Temp Water	Outlet Temp Water	Model M14	PSI Hot Side	PSI Cold Side	Model M31	PSI Hot Side	PSI Cold Side	Model M110	PSI Hot Side	PSI Cold Side
20,000	1.37	180F	150F	1.52	100F	130F	M14-6	0.88	0.92						
30,000	2.06	180F	150F	2.28	100F	130F	M14-6	1.91	2.01						
40,000	2.75	180F	150F	3.03	100F	130F	M14-6	3.34	3.50						
50,000	3.44	180F	150F	3.79	100F	130F	M14-6	5.13	5.38						
60,000	4.12	180F	150F	4.55	100F	130F	M14-10	2.74	2.78						
70,000	4.81	180F	150F	5.31	100F	130F	M14-10	3.70	3.87						
80,000	5.50	180F	150F	6.07	100F	130F	M14-10	4.78	5.01						
90,000	6.19	180F	150F	6.83	100F	130F	M14-20	1.63	1.71	M31-10	4.80	5.10			
100,000	6.87	180F	150F	7.59	100F	130F	M14-20	2.00	2.10	M31-20	1.58	1.68			
125,000	8.59	180F	150F	9.48	100F	130F	M14-20	3.08	3.23	M31-20	2.42	2.57			
150,000	10.31	180F	150F	11.38	100F	130F	M14-20	4.39	4.59	M31-20	3.42	3.63			
175,000	12.03	180F	150F	13.27	100F	130F	M14-30	2.87	2.99	M31-20	4.59	4.87			
200,000	13.74	180F	150F	15.17	100F	130F	M14-30	3.71	3.88	M31-30	2.77	2.94			
225,000	15.46	180F	150F	17.07	100F	130F	M14-30	4.66	4.87	M31-30	3.47	3.67	M110-20	1.54	1.63
250,000	17.18	180F	150F	18.96	100F	130F	M14-30	5.72	5.98	M31-30	4.23	4.49	M110-20	1.88	1.99
275,000	18.90	180F	150F	20.86	100F	130F	M14-40	4.27	4.45	M31-30	5.08	5.38	M110-20	2.25	2.39
300,000	20.62	180F	150F	22.76	100F	130F	M14-40	5.06	5.27	M31-40	3.53	3.74	M110-20	2.66	2.82
350,000	24.05	180F	150F	26.55	100F	130F	M14-50	4.87	5.07	M31-40	4.73	5.01	M110-20	3.56	3.78
400,000	27.49	180F	150F	30.34	100F	130F		4.93	45.12	M31-50	4.08	4.32	M110-20	4.59	4.87
450,000	30.93	180F	150F	34.13	100F	130F					5.11	5.41	M110-30	2.69	2.87
500,000	34.36	180F	150F	37.93	100F	130F				M31-60	4.53	4.49	M110-30	3.29	3.48
600,000	41.23	180F	150F	45.51	100F	130F				M31-70	4.94	5.22	M110-30	4.65	4.93
700,000	48.11	180F	150F	53.10	100F	130F				M31-80	5.33	5.62	M110-40	3.67	3.88
800,000	54.98	180F	150F	60.68	100F	130F				M31-100	4.88	5.14	M110-40	4.73	5.01
900,000	61.85	180F	150F	68.27	100F	130F				M31-120	4.74	4.98	M110-50	3.95	4.18
1,000,000	68.72	180F	150F	75.85	100F	130F				M31-130	5.26	5.51	M110-50	4.83	5.11

SEC Heat Exchanger Quote Form



**To find out which type of our heat exchangers
will best suit your requirements
please complete this form and send it to us**

Name: _____ Company: _____
Address: _____ City: _____
State: _____ Country: _____ Zip Code: _____
Phone: _____ Fax: _____ Email: _____
Project Reference: _____ Quantity: _____

Material of Construction: _____

Type Of Heat Exchanger: _____ Delivery Required by: _____ In Weeks

SIDE 1

SIDE 2

FLUID TYPE: _____	_____
FLOW RATE: _____	_____
INLET TEMPERATURE: _____ C° or F°	_____ C° or F°
OUTLET TEMPERATURE: _____ C° or F°	_____ C° or F°
ALLOWABLE PRESSURE DROP: _____	_____
DESIGN PRESSURE: _____	_____
Optional Data If Known: _____	_____
HEAT TRANSFERRED (CAPACITY): _____	_____
DENSITY @ TEMPERATURE: _____	_____
THERMAL CONDUCTIVITY: _____	_____
SPECIFIC HEAT: _____	_____
VISCOSITY: _____	_____
PHASE CHANGE: _____	_____

Print and Fax This Form to 1.902.659.2800



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