

b series

HEAT EXCHANGERS



be>
SERIES



bce>

S E R I E S



We are pleased to introduce our new revolutionary line of **B Heat Exchangers.**



Thanks to our patented helically corrugated tube design, the B Series Heat Exchangers can deliver excellent thermal performance even with fouled heating media.

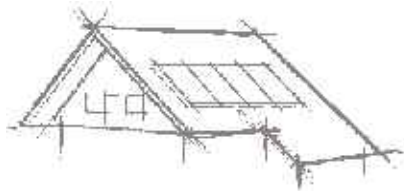
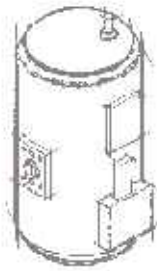


Performance you desire

Quality you deserve

Typical residential applications

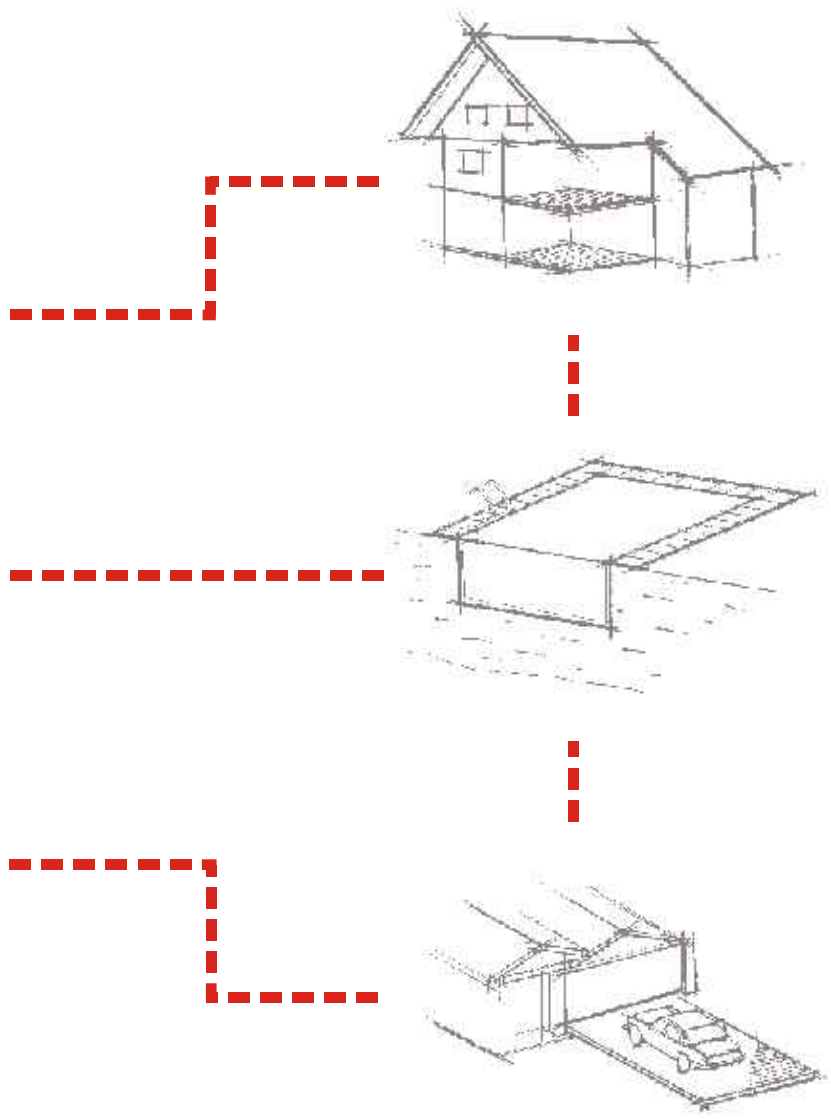
- In-floor heating
- swimming pools, spas, hot tubs
- driveway snowmelts



Typical industrial applications

- oil coolers
- transmission and engine coolers
- boiler sample coolers
- waste water heat recovery





Choosing the right B Series Heat Exchanger

Selection of the correct heat exchanger will guarantee you performance at the right price.

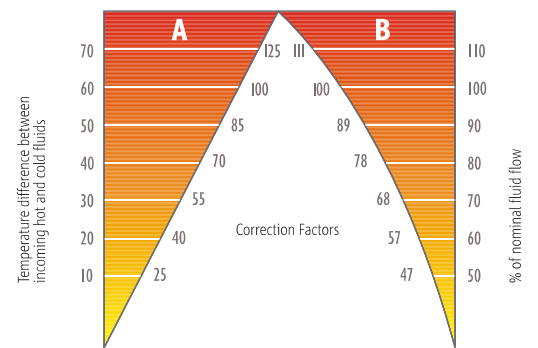
Your Benefits

- Designed to perform at high fluid velocities with low pressure drops
- Made entirely of high quality, specially treated AISI 316L stainless steel to ensure superior corrosion resistance and longer product life
- Induced self-cleansing feature - one less thing to worry about

Table 1 Fluid Correction Factors

Fluid	Fx10 ²
Water	1.00
Ethylene Glycol 30%	0.92
Ethylene Glycol 50%	0.85
Propylene Glycol 30%	0.94
Propylene Glycol 50%	0.89
Oil SAE10	0.50
Hydraulic Oil ISO VG22	0.45

Chart1 Temperature (°C) and Flow Rate Correction Factors



Step 1

Record incoming temperatures and fluid flows

Example: (based on performance of **B 180**)
 Temp. of incoming boiler water = 60°C (140°F)
 Temp. of incoming pool water = 10°C (50°F)
 Flow of boiler water = 26.5 l/min (7 USGPM)
 Flow of pool water = 189 l/min (50 USGPM)

Step 2

Calculate

Calculate temp. difference between incoming fluids: 60°C - 10°C = 50°C
 From Table 2 Calculate percentage of nominal hot water flow: 26.5/30 x 100%=88.3%
 From Table 2 Calculate percentage of nominal cold water flow: 189/210 x 100%=90%
 From Table 2 Obtain nominal capacity of heat exchanger (c.g. B-180=53kW)

Step 3

Read correction factors

Read correction values from chart 1
 A=85 for temperature difference 50°C
 B_{hot}=87 for 88.3% of hot flow
 B_{cold}=89 for 90% cold flow
 From fluid correction table (Table 1) for water
 both hot and cold fluids are F_{hot}=F_{cold}= 1.00 x 10⁻²

Step 4

Solution

$$\text{Corrected Thermal Output} = \text{Nominal Capacity} \times A \times F_{\text{hot}} \times F_{\text{cold}} \times \sqrt{B_{\text{hot}} \times B_{\text{cold}}}$$

$$\text{Corrected Thermal Output} = 53 \times 85 \times 0,01 \times 0,01 \times \sqrt{87 \times 89} = 39,6 \text{ kW (135,115 BTU/h)}$$

Notes: °C=(°F - 32)x 5/9, 1 USGPM = 3.78 l/min

Table 2 Nominal Values

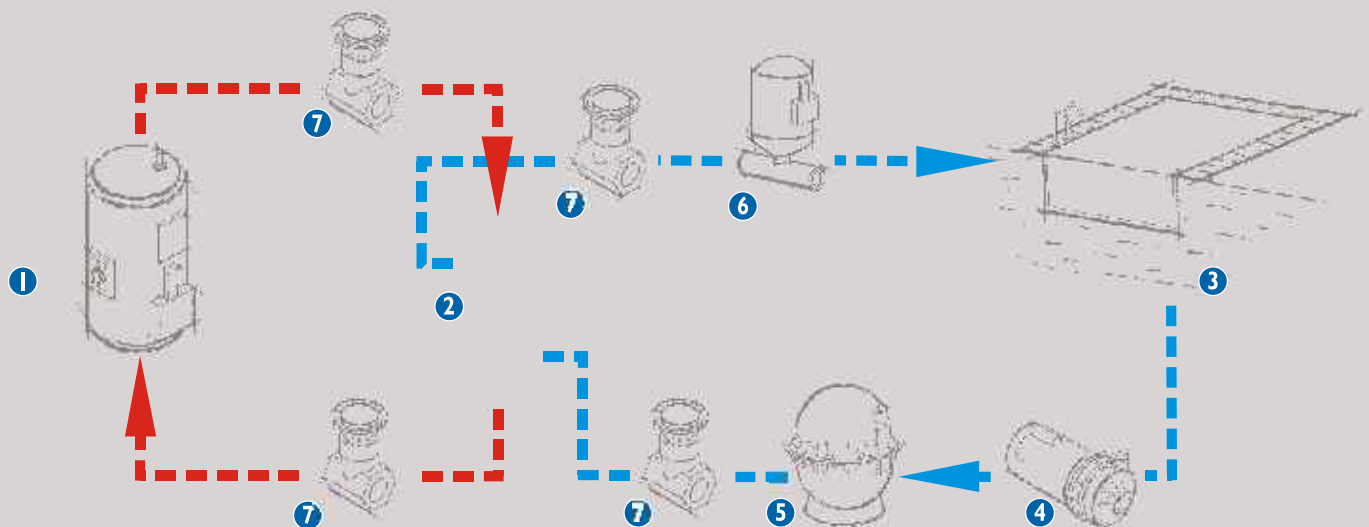
Nominal values are based on 60°C (140°F) temperature between incoming heating and heated water

Model	Nominal Capacity	Hot Water Flow		Cold Water Flow	
	kW	l/min	(USGPM)	l/min	(USGPM)
B 45	13	23	(6.08)	150	(39.63)
B 70	20	25	(6.60)	170	(44.91)
B 130	38	27	(7.13)	200	(52.83)
B 180	53	30	(7.93)	210	(55.48)
B 250	73	35	(9.25)	270	(71.33)
B 300	88	40	(10.57)	300	(79.25)
B 400	117	46	(12.42)	342	(90.10)
B 500	146	55	(14.53)	360	(95.10)
B 1000	293	95	(25.10)	705	(185.24)

Table 3 Quick Sizing Reference

Model	Pool Capacity	
	m ³	USGAL
B 45	12	3.000
B 70	24	6.000
B 130	40	11.000
B 180	60	16.000
B 250	80	22.000
B 300	100	27.000
B 400	130	34.000
B 500	170	44.000
B 1000	330	88.000

Figure 2 Typical swimming pool installation

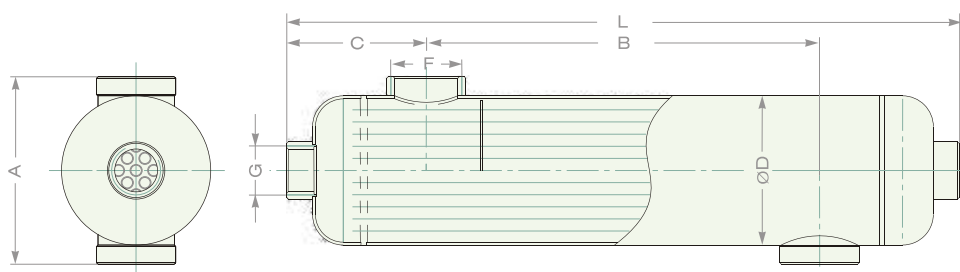


Engineering Data

Table 4 Heat Exchanger Nominal Performance

Heat Exchanger Type	Nominal Capacity		Hot Water				Cold Water			
	kW	Btu/hr	Flow		Pressure drop		Flow		Pressure drop	
			l/min	USGPM	kPa	psig	l/min	USGPM	kPa	psig
B 45	13	45.000	23	6.08	6.2	0.90	150	39.63	7.4	1.07
B 70	20	70.000	25	6.60	7.5	1.09	170	44.91	9.2	1.33
B 130	38	130.000	27	7.13	8.1	1.17	200	52.83	11.4	1.65
B 180	53	180.000	30	7.93	2.7	0.40	210	55.48	7.5	1.10
B 250	73	250.000	35	9.25	4.2	0.60	270	71.33	12.0	1.70
B 300	88	300.000	40	10.57	6.4	0.90	300	79.25	17.0	2.50
B 400	117	400.000	46	12.42	7.8	1.13	342	90.10	20.0	2.90
B 500	146	500.000	55	14.53	9.2	1.30	360	95.10	22.0	3.20
B 1000	293	1.000.000	95	25.10	16.2	2.35	705	185.24	29.1	4.22

Nominal values are based on 60°C (140°F) temperature difference between incoming heating and heated water



Standard Materials:

316 L Stainless Steel,
Titanium

Maximum Allowable Working Pressure:

SS 316 L 1.03 MPa (150 psig)
Titanium 1.03MPa (150 psig)

Maximum Allowable Working Temperature:

SS 316 L 208°C (406°F)
Titanium 190°C (375°F)

Table 5 Advanced B Series Stainless Steel - 316L

Type	L	A	B	C	D	F	G	Heat Transfer Area
	mm (in)							m ² (sq.ft.)
B 45	267 (10.51)		111.5 (4.39)	77.5 (3.05)	80 (3.15)	1"	3/4"	0.183 (1.97)
B 70	345 (13.58)	106 (4.17)	175 (6.89)	85 (3.35)				0.259 (2.79)
B 130	395 (15.55)		225 (8.86)	95 (3.74)	101.6 (4.0)	1-1/2"	1"	0.307 (3.30)
B 180	383 (15.08)	128 (5.04)	193 (7.60)					0.465 (4.91)
B 250	513 (20.20)		323 (12.72)	101.6 (4.0)	1-1/2"	1"	0.677 (7.29)	
B 300	632 (24.88)	442 (17.40)	0.871 (9.38)					
B 400	747 (29.41)		557 (21.93)	100.5 (3.96)	139.7 (5.5)	2"	2"	1.058 (11.39)
B 500	1085 (42.72)		884 (34.80)					1.609 (17.32)
B 1000	917 (36.10)	167 (6.57)	676.5 (26.63)	120 (4.72)	139.7 (5.5)	2"	2"	2.200 (23.68)

Table 6 Advanced B Series Titanium

Type	L	A	B	C	D	F	G	Heat Transfer Area
	mm (in)							m ² (sq.ft.)
B 45	267 (10.51)		101.5 (3.97)	83 (3.27)	88.9 (3.5)	1"	3/4"	0.171 (1.84)
B 70	345 (13.58)	115 (4.53)	164 (6.46)	90.5 (3.56)				0.247 (2.66)
B 130	395 (15.55)		214 (8.43)	93.5 (3.68)	114.3 (4.5)	1-1/2"	1"	0.295 (3.18)
B 180	383 (15.08)	141 (5.55)	196 (7.72)					0.465 (4.91)
B 250	513 (20.20)		326 (12.83)	114.3 (4.5)	1-1/2"	1"	0.677 (7.29)	
B 300	632 (24.88)	445 (17.52)	0.871 (9.38)					
B 400	747 (29.41)		560 (22.05)	99 (3.90)	139.7 (5.5)	2"	2"	1.058 (11.39)
B 500	1085 (42.72)		887 (34.92)					1.609 (17.32)
B 1000	912 (35.91)	167 (6.57)	676.5 (26.63)	117 (4.6)	139.7 (5.5)	2"	2"	2.160 (23.25)

Our stringent quality processes and management systems fulfill and are certified to the requirements of **ISO9001**.

AIC heat exchangers are designed, tested, and manufactured according to ASME Code Section VIII, Div.1 and will bear the U or UM stamp accordingly. Our products are certified by many national and international technical inspection authorities: Canadian CRN, CSA, UL, HLW, H, PED(97/23/EC). We can also work closely with our clients to design products to meet their exact criteria.



www.myaic.com



Authorized Representative _____