

# B·line



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

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

Performance you desire

Quality you deserve

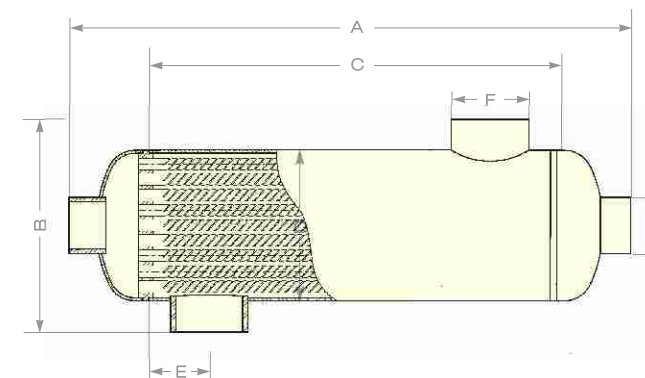
## Engineering Data



Table 4 Heat Exchangers Nominal Performance

| Heat Exchanger Type | Nominal Capacity |           | Hot Water  |            |                   |                    | Cold Water |            |                   |                    | Heat Transfer Surface |                 |
|---------------------|------------------|-----------|------------|------------|-------------------|--------------------|------------|------------|-------------------|--------------------|-----------------------|-----------------|
|                     | kW               | Btu/hr    | Flow l/min | Flow USGPM | Pressure drop kPa | Pressure drop psig | Flow l/min | Flow USGPM | Pressure drop kPa | Pressure drop psig | m <sup>2</sup>        | ft <sup>2</sup> |
| <b>B 45</b>         | 13               | 45,000    | 23         | 6.08       | 6.2               | 0.90               | 150        | 39.63      | 7.4               | 1.07               | 0.150                 | 1.62            |
| <b>B 70</b>         | 20               | 70,000    | 25         | 6.60       | 7.5               | 1.09               | 170        | 44.91      | 9.2               | 1.33               | 0.246                 | 2.64            |
| <b>B 130</b>        | 38               | 130,000   | 27         | 7.13       | 8.1               | 1.17               | 200        | 52.83      | 11.4              | 1.65               | 0.339                 | 3.64            |
| <b>B 180</b>        | 53               | 180,000   | 30         | 7.93       | 2.7               | 0.40               | 210        | 55.48      | 7.5               | 1.10               | 0.440                 | 4.70            |
| <b>B 250</b>        | 73               | 250,000   | 35         | 9.25       | 4.2               | 0.60               | 270        | 71.33      | 12.0              | 1.70               | 0.630                 | 6.80            |
| <b>B 300</b>        | 88               | 300,000   | 40         | 10.57      | 6.4               | 0.90               | 300        | 79.25      | 17.0              | 2.50               | 0.840                 | 9.00            |
| <b>B 500</b>        | 146              | 500,000   | 55         | 14.53      | 9.2               | 1.30               | 360        | 95.10      | 22.0              | 3.20               | 1.560                 | 16.80           |
| <b>B 1000</b>       | 293              | 1,000,000 | 95         | 25.10      | 16.2              | 2.35               | 705        | 185.24     | 29.1              | 4.22               | 1.970                 | 21.21           |

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



Standard Materials: 316 L Stainless Steel  
 Optional Materials: Titanium  
 Maximum allowable Working Pressure: 1.72 MPa (250 psig)  
 Maximum Allowable Working Temperature: 208°C (406°F)

Table 5 Dimensions

| Type          | A            | B            | C            | D            | E            | F       | G       |
|---------------|--------------|--------------|--------------|--------------|--------------|---------|---------|
| mm (in)       |              |              |              |              |              |         |         |
| <b>B 45</b>   | 302 (11.89)  | 122.0 (4.80) | 150 (5.91)   | 80.0 (3.15)  | 37.7 (1.48)  | 1" NPT  | ¾" NPT  |
| <b>B 70</b>   | 402 (15.83)  |              | 250 (9.84)   |              | 39.5 (1.55)  |         |         |
| <b>B 130</b>  | 440 (17.31)  | 143.6 (5.65) | 304 (11.96)  | 101.6 (4.00) | 41.5 (1.63)  | 1½" NPT | 1" NPT  |
| <b>B 180</b>  | 386 (15.19)  |              | 276 (10.87)  |              |              |         |         |
| <b>B 250</b>  | 512 (20.15)  |              | 406 (15.98)  |              |              |         |         |
| <b>B 300</b>  | 646 (25.43)  | 534 (21.02)  | 1000 (39.37) | 139.7 (5.50) | 58.0 (2.28)  | 1½" NPT | 1½" NPT |
| <b>B 500</b>  | 1106 (43.54) | 1000 (39.37) |              |              |              | 2" NPT  | 2" NPT  |
| <b>B 1000</b> | 969 (38.15)  | 223.0 (8.78) | 794 (31.26)  | 139.7 (5.50) | 100.0 (3.94) | 2" NPT  | 2" NPT  |

Our heat exchangers are designed, tested and manufactured to ASME Code sec. VIII, Div. 1. SECESPOL heat exchangers are certified by many international and national technical inspection authorities and are ISO-9002 registered and have obtained CRN in the Canadian provinces.



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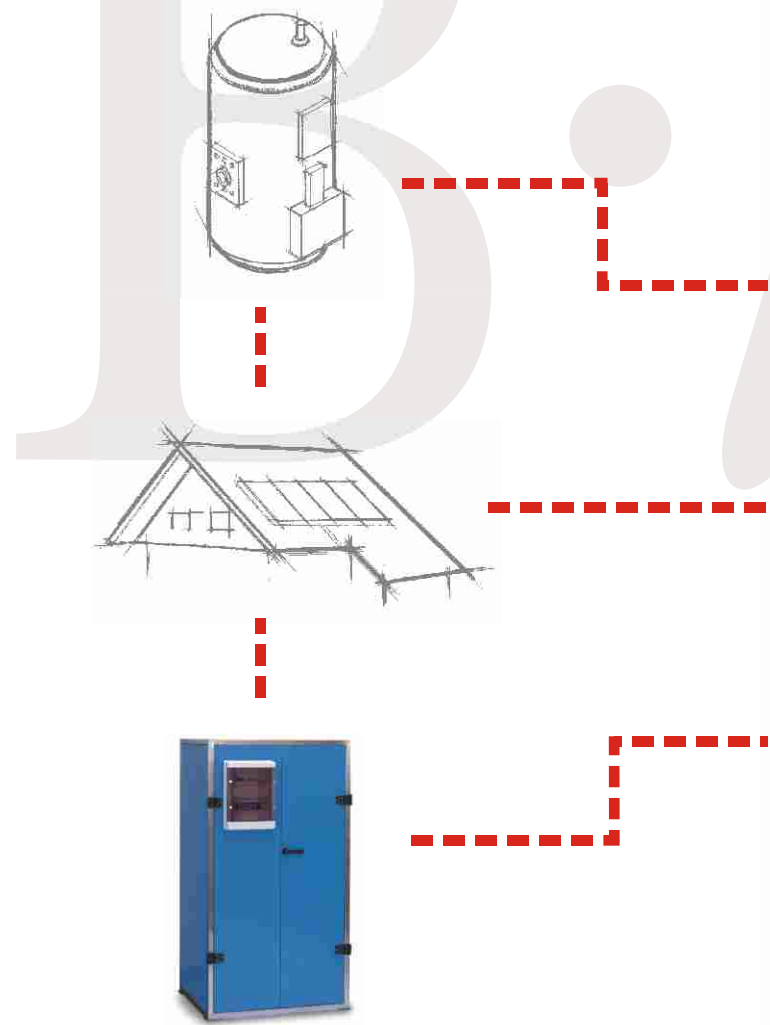


# B·line Heat Exchangers



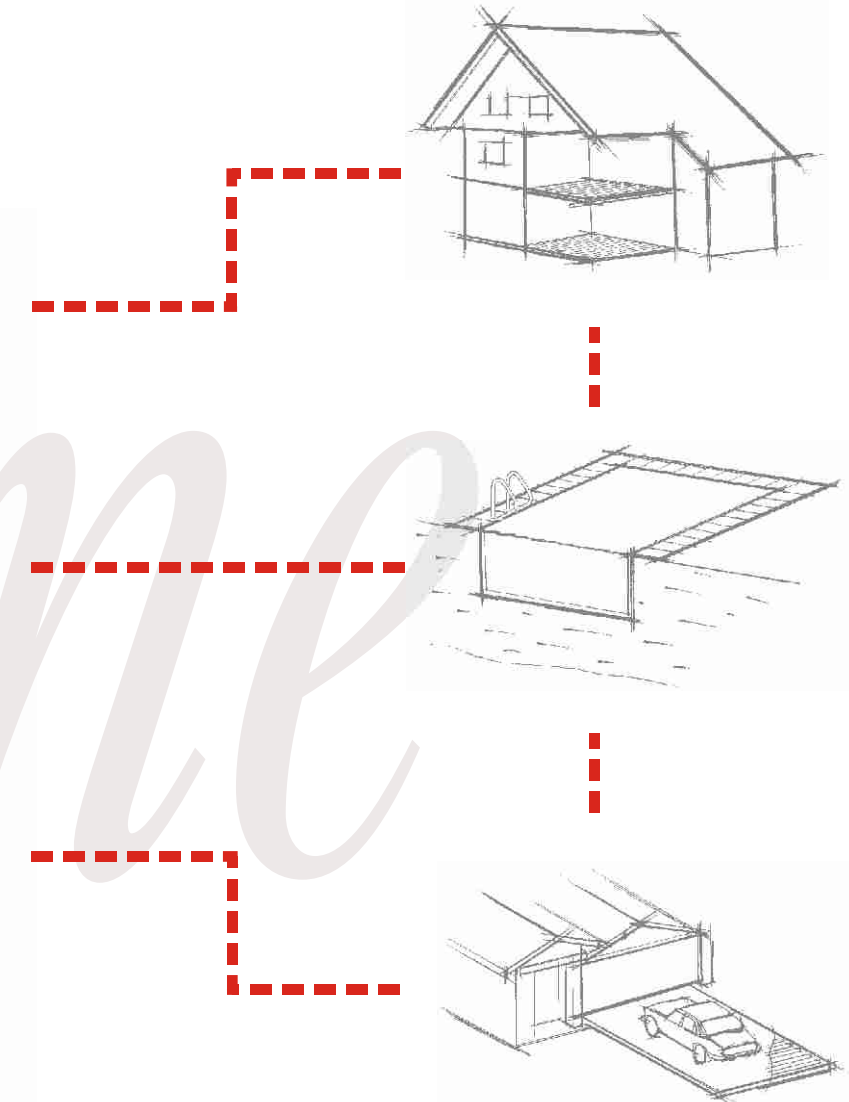
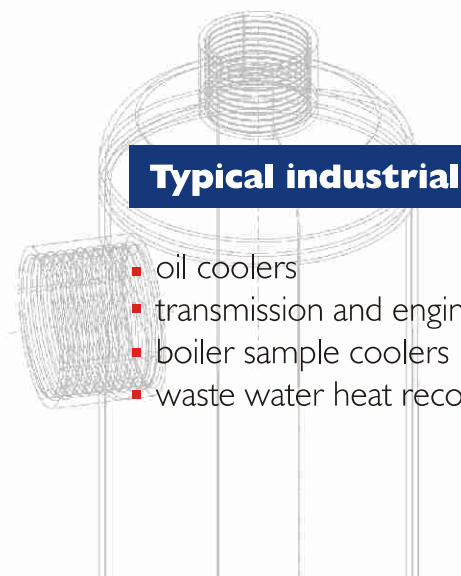
### Typical residential applications

- 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



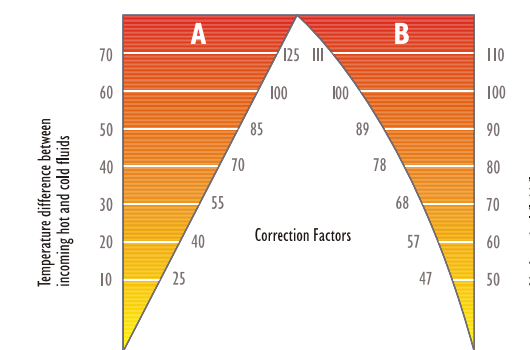
#### Your Benefits

- 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 <sup>2</sup> |
|------------------------|-------------------|
| 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              |

Chart 1 Temperature (°C) and Flow Rate Correction Factors



## Choosing the right Secespol Heat Exchanger

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

### 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 (e.g. B-180=53kW)

### Step 3

Read correction factors

Read correction values from chart 1  
 A=85 for temperature difference 50°C  
 B<sub>hot</sub>=87 for 88.3% of hot flow  
 B<sub>cold</sub>=89 for 90% cold flow  
 From fluid correction table (Table 1) for water both hot and cold fluids are F<sub>hot</sub>=F<sub>cold</sub>= 1.00 x 10<sup>-2</sup>

### Step 4

Solution

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

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

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

Table 2 Nominal Values

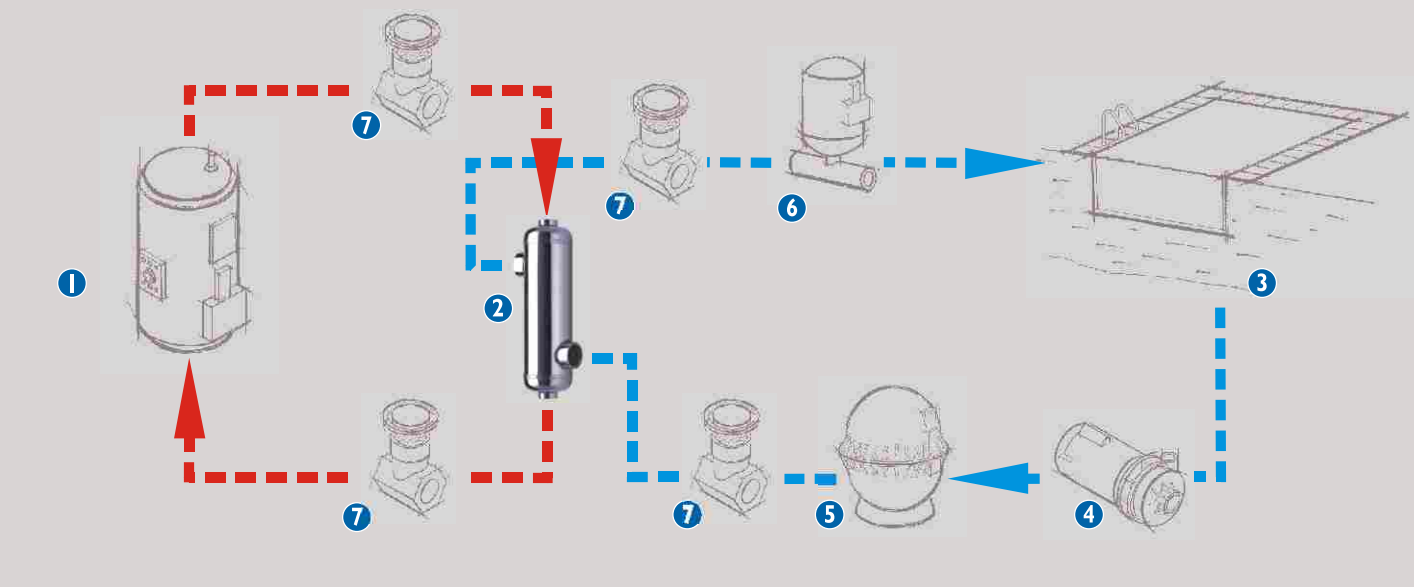
Nominal values are based on 60°C (140°F) temperature between incoming heating and heated water

| 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 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 <sup>3</sup> | 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 500  | 170            | 44.000 |
| B 1000 | 330            | 88.000 |

Figure 2 Typical swimming pool installation



1 Boiler 2 Heat exchanger 3 Swimming Pool 4 Pump 5 Filter 6 Chlorine Feeder 7 Gate Valve