

# Tank Recovery Reference Guide

for use by heating contractor



## Boiler and Circulation Sizing with Vitocell DHW Storage Tanks

### IMPORTANT

Friction loss for the system piping and boiler heat exchanger is not included.

The user of this information must confirm the data with the latest version of Technical Data Manual provided for each product.

This reference guide has been designed to assist with the sizing of boiler and circulator for each DHW storage tank listed below.

The data listed below is extrapolated from the Technical Data Manual for each product and are based on a tank temperature rise of 40°F to 140°F.

### Vitocell 100-V (CVA and CVAA Series)

| Capacity 42 and 53 USG (160 and 200 L) |                        |                                      |                          |
|--|------------------------|--------------------------------------|--------------------------|
| Boiler supply temperature              | Boiler output required | Circulator requirement for tank coil | DHW continuous flow rate |
| 158°F                                  | 58,000 Btu             | 8.8 GPM at 2.4 ft.                   | 51 GPH                   |
| 176°F                                  | 77,000 Btu             | 6.8 GPM at 2.0 ft.                   | 92 GPH                   |
| 194°F                                  | 94,000 Btu             | 4.5 GPM at 1.0 ft.                   | 112 GPH                  |
| 194°F                                  | 120,000 Btu            | 13.2 GPM at 5.3 ft.                  | 146 GPH                  |

| Capacity 79 USG (300 L)   |                        |                                      |                          |
|---------------------------|------------------------|--------------------------------------|--------------------------|
| Boiler supply temperature | Boiler output required | Circulator requirement for tank coil | DHW continuous flow rate |
| 158°F                     | 77,000 Btu             | 9.6 GPM at 4.5 ft.                   | 92 GPH                   |
| 176°F                     | 102,000 Btu            | 6.5 GPM at 3.0 ft.                   | 122 GPH                  |
| 176°F                     | 120,000 Btu            | 14 GPM at 7.0 ft.                    | 146 GPH                  |
| 176°F                     | 146,000 Btu            | 7.9 GPM at 3.6 ft.                   | 172 GPH                  |

| Capacity 119 USG (450 L)  |                        |                                      |                          |
|---------------------------|------------------------|--------------------------------------|--------------------------|
| Boiler supply temperature | Boiler output required | Circulator requirement for tank coil | DHW continuous flow rate |
| 158°F                     | 85,000 Btu             | 5.8 GPM at 2.5 ft.                   | 102 GPH                  |
| 176°F                     | 128,000 Btu            | 7.6 GPM at 4.0 ft.                   | 152 GPH                  |
| 176°F                     | 146,000 Btu            | 12 GPM at 5.0 ft.                    | 172 GPH                  |
| 194°F                     | 196,000 Btu            | 17.6 GPM at 11.8 ft.                 | 233 GPH                  |

**Vitocell 300-H (EHA Series)**

| <b>Capacity 42 USG (160 L)</b> |                        |                                      |                          |
|--------------------------------|------------------------|--------------------------------------|--------------------------|
| Boiler supply temperature      | Boiler output required | Circulator requirement for tank coil | DHW continuous flow rate |
| 176°F                          | 72,000 Btu             | 5.0 GPM at 0.3 ft.                   | 90 GPH                   |
| 176°F                          | 80,000 Btu             | 5.9 GPM at 0.4 ft.                   | 105 GPH                  |
| 176 °F                         | 100,000 Btu            | 11 GPM at 1.0 ft.                    | 120 GPH                  |
| 194°F                          | 120,000 Btu            | 10.5 GPM at 0.8 ft.                  | 144 GPH                  |

| <b>Capacity 53 USG (200 L)</b> |                        |                                      |                          |
|--------------------------------|------------------------|--------------------------------------|--------------------------|
| Boiler supply temperature      | Boiler output required | Circulator requirement for tank coil | DHW continuous flow rate |
| 158°F                          | 51,000 Btu             | 13.2 GPM at 3.2 ft.                  | 60 GPH                   |
| 176°F                          | 85,000 Btu             | 17 GPM at 5.0 ft.                    | 102 GPH                  |
| 194°F                          | 100,000 Btu            | 6.6 GPM at 1.0 ft.                   | 120 GPH                  |
| 194°F                          | 120,000 Btu            | 16 GPM at 7.7 ft.                    | 144 GPH                  |

| <b>Capacity 92 USG (350 L)</b> |                        |                                      |                          |
|--------------------------------|------------------------|--------------------------------------|--------------------------|
| Boiler supply temperature      | Boiler output required | Circulator requirement for tank coil | DHW continuous flow rate |
| 158°F                          | 72,000 Btu             | 16 GPM at 5.0 ft.                    | 88 GPH                   |
| 176°F                          | 95,000 Btu             | 8.8 GPM at 1.5 ft.                   | 114 GPH                  |
| 176°F                          | 128,000 Btu            | 19 GPM at 7.0 ft.                    | 146 GPH                  |
| 194°F                          | 160,000 Btu            | 11.5 GPM at 2.5 ft.                  | 193 GPH                  |

| <b>Capacity 119 USG (450 L)</b> |                        |                                      |                          |
|---------------------------------|------------------------|--------------------------------------|--------------------------|
| Boiler supply temperature       | Boiler output required | Circulator requirement for tank coil | DHW continuous flow rate |
| 158°F                           | 90,000 Btu             | 8.0 GPM at 1.8 ft.                   | 108 GPH                  |
| 176°F                           | 140,000 Btu            | 8.5 GPM at 2.0 ft.                   | 168 GPH                  |
| 176°F                           | 170,000 Btu            | 17 GPM at 5.0 ft.                    | 203 GPH                  |
| 194°F                           | 196,000 Btu            | 8.8 GPM at 2.0 ft.                   | 234 GPH                  |

## Vitocell 300-W (EVIA)

| <b>Capacity 42 USG (160 L)</b> |                        |                                      |                          |
|--------------------------------|------------------------|--------------------------------------|--------------------------|
| Boiler supply temperature      | Boiler output required | Circulator requirement for tank coil | DHW continuous flow rate |
| 158°F                          | 76,000 Btu             | 11 GPM at 2.3 ft.                    | 91 GPH                   |
| 176°F                          | 111,000 Btu            | 6.8 GPM at 1 ft.                     | 132 GPH                  |
| 176°F                          | 120,000 Btu            | 9.5 GPM at 1.8 ft.                   | 144 GPH                  |
| 176°F                          | 145,000 Btu            | 18.5 GPM at 5.3 ft.                  | 175 GPH                  |

## Vitocell 300-V (EVI Series)

| <b>Capacity 53 USG (200 L)</b> |                        |                                      |                          |
|--------------------------------|------------------------|--------------------------------------|--------------------------|
| Boiler supply temperature      | Boiler output required | Circulator requirement for tank coil | DHW continuous flow rate |
| 158°F                          | 77,000 Btu             | 12.3 GPM at 2.3 ft.                  | 93 GPH                   |
| 176°F                          | 111,000 Btu            | 6.8 GPM at 1.0 ft.                   | 132 GPH                  |
| 176°F                          | 136,000 Btu            | 13.6 GPM at 3.5 ft.                  | 162 GPH                  |
| 194°F                          | 153,000 Btu            | 6.9 GPM at 1.3 ft.                   | 183 GPH                  |

| <b>Capacity 79 USG (300 L)</b> |                        |                                      |                          |
|--------------------------------|------------------------|--------------------------------------|--------------------------|
| Boiler supply temperature      | Boiler output required | Circulator requirement for tank coil | DHW continuous flow rate |
| 158°F                          | 80,000 Btu             | 12 GPM at 3.0 ft.                    | 97 GPH                   |
| 176°F                          | 111,000 Btu            | 9.2 GPM at 2.0 ft.                   | 132 GPH                  |
| 176°F                          | 140,000 Btu            | 15 GPM at 4.6 ft.                    | 170 GPH                  |
| 194°F                          | 170,000 Btu            | 7.0 GPM at 2.4 ft.                   | 204 GPH                  |

| <b>Capacity 119 USG (450 L)</b> |                        |                                      |                          |
|---------------------------------|------------------------|--------------------------------------|--------------------------|
| Boiler supply temperature       | Boiler output required | Circulator requirement for tank coil | DHW continuous flow rate |
| 158°F                           | 95,000 Btu             | 12.3 GPM at 2.6 ft.                  | 114 GPH                  |
| 176°F                           | 136,000 Btu            | 9.7 GPM at 2.2 ft.                   | 162 GPH                  |
| 176°F                           | 153,000 Btu            | 13.2 GPM at 3.4 ft.                  | 182 GPH                  |
| 194°F                           | 195,000 Btu            | 11.5 GPM at 2.5 ft.                  | 234 GPH                  |

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