

TYPE11



EN 442



| HEIGHT | ΔT 50° C | | ΔT 60° C | | n | K _M |
|--------|----------|---------|----------|---------|--------|----------------|
| | Watt/m | Kcal/hm | Watt/m | Kcal/hm | | |
| 300 | 558 | 480 | 703 | 605 | 1.2631 | 3.990000 |
| 400 | 722 | 621 | 916 | 788 | 1.2960 | 4.542272 |
| 500 | 876 | 753 | 1108 | 953 | 1.2890 | 5.656291 |
| 550 | 953 | 819 | 1204 | 1035 | 1.2846 | 6.257146 |
| 600 | 1026 | 882 | 1296 | 1115 | 1.2802 | 6.858000 |
| 700 | 1151 | 990 | 1454 | 1250 | 1.2770 | 7.795927 |
| 800 | 1280 | 1101 | 1615 | 1389 | 1.2700 | 8.909580 |
| 900 | 1401 | 1205 | 1777 | 1529 | 1.3047 | 8.507900 |

TYPE21



EN 442



| HEIGHT | ΔT 50° C | | ΔT 60° C | | n | K _M |
|--------|----------|---------|----------|---------|--------|----------------|
| | Watt/m | Kcal/hm | Watt/m | Kcal/hm | | |
| 300 | 778 | 669 | 983 | 846 | 1.2833 | 5.138600 |
| 400 | 998 | 858 | 1267 | 1090 | 1.3210 | 5.674400 |
| 500 | 1193 | 1026 | 1517 | 1305 | 1.3130 | 7.018701 |
| 550 | 1294 | 1113 | 1642 | 1412 | 1.3072 | 7.783251 |
| 600 | 1389 | 1195 | 1761 | 1514 | 1.3013 | 8.547800 |
| 700 | 1542 | 1326 | 1953 | 1679 | 1.2950 | 9.725641 |
| 800 | 1699 | 1461 | 2147 | 1846 | 1.2860 | 11.093338 |
| 900 | 1837 | 1580 | 2339 | 2012 | 1.3267 | 10.233300 |

TYPE22

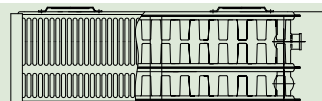


EN 442



| HEIGHT | ΔT 50° C | | ΔT 60° C | | n | K _M |
|--------|----------|---------|----------|---------|--------|----------------|
| | Watt/m | Kcal/hm | Watt/m | Kcal/hm | | |
| 300 | 1001 | 861 | 1266 | 1089 | 1.2865 | 6.527400 |
| 400 | 1273 | 1095 | 1618 | 1391 | 1.3190 | 7.303746 |
| 500 | 1528 | 1314 | 1941 | 1670 | 1.3170 | 8.836810 |
| 550 | 1656 | 1424 | 2106 | 1812 | 1.3204 | 9.457505 |
| 600 | 1788 | 1538 | 2276 | 1957 | 1.3237 | 10.078200 |
| 700 | 2006 | 1725 | 2550 | 2193 | 1.3130 | 11.797765 |
| 800 | 2233 | 1920 | 2835 | 2438 | 1.3120 | 13.171813 |
| 900 | 2451 | 2108 | 3127 | 2689 | 1.3363 | 13.152400 |

TYPE33



EN 442



| HEIGHT | ΔT 50° C | | ΔT 60° C | | n | K _M |
|--------|----------|---------|----------|---------|--------|----------------|
| | Watt/m | Kcal/hm | Watt/m | Kcal/hm | | |
| 300 | 1446 | 1244 | 1835 | 1578 | 1.3069 | 8.707000 |
| 400 | 1810 | 1557 | 2305 | 1982 | 1.3290 | 9.988665 |
| 500 | 2149 | 1848 | 2737 | 2354 | 1.3300 | 11.814196 |
| 550 | 2315 | 1991 | 2952 | 2539 | 1.3325 | 12.610748 |
| 600 | 2486 | 2138 | 3171 | 2727 | 1.3350 | 13.407300 |
| 700 | 2791 | 2400 | 3556 | 3058 | 1.3310 | 15.285341 |
| 800 | 3091 | 2658 | 3939 | 3387 | 1.3310 | 16.928926 |
| 900 | 3395 | 2920 | 4340 | 3732 | 1.3483 | 17.377100 |

* 550 mm height obtained through calculation.

| HEIGHT mm | Type 11 | | | | Type 21 | | | | Type 22 | | | | Type 33 | | | |
|--------------|----------------|--------|------|---------|----------------|------|---------|--------|----------------|---------|--------|------|----------------|---|---|-----|
| | K _M | n | φ | W/m | K _M | n | φ | W/m | K _M | n | φ | W/m | K _M | n | φ | W/m |
| 300 | 3.9900 | 1.2631 | 558 | 5.1386 | 1.2833 | 778 | 6.5274 | 1.2865 | 1001 | 8.7070 | 1.3069 | 1446 | | | | |
| 400 | 4.5423 | 1.2960 | 722 | 5.6744 | 1.3210 | 996 | 7.3037 | 1.3190 | 1273 | 9.9887 | 1.3290 | 1810 | | | | |
| 500 | 5.6563 | 1.2890 | 876 | 7.0187 | 1.3130 | 1193 | 8.8368 | 1.3170 | 1528 | 11.8142 | 1.3300 | 2149 | | | | |
| 550 | 6.2571 | 1.2846 | 951 | 7.7833 | 1.3072 | 1291 | 9.4575 | 1.3204 | 1658 | 12.6107 | 1.3325 | 2317 | | | | |
| 600 | 6.8580 | 1.2802 | 1026 | 8.5478 | 1.3013 | 1389 | 10.0782 | 1.3237 | 1788 | 13.4073 | 1.3350 | 2486 | | | | |
| 700 | 7.7959 | 1.2770 | 1151 | 9.7256 | 1.2950 | 1542 | 11.7978 | 1.3130 | 2006 | 15.2853 | 1.3310 | 2791 | | | | |
| 800 | 8.9096 | 1.2700 | 1280 | 11.0933 | 1.2860 | 1699 | 13.1718 | 1.3120 | 2233 | 16.9289 | 1.3310 | 3091 | | | | |
| 900 | 8.5079 | 1.3047 | 1401 | 10.2333 | 1.3267 | 1837 | 13.1524 | 1.3363 | 2451 | 17.3771 | 1.3483 | 3395 | | | | |

The φ values given in the table are for ΔT 50 °C and 1000 mm products.

To calculate heat capacities at various extreme temperatures in accordance with EN 442 standard:
Standard heat capacity of a model is calculated using the following formula:

$$\phi = K_M \cdot \Delta T^n$$

The K_M and n values shown in the table are used for calculating the capacity at various input/output water and ambient temperature.

Example:

Calculation of capacity of Type 22 600x1000 product at water temperature 80/50°C and ambient temperature 22°C:

t_g, Input water temperature = 80 °C

t_o, Output water temperature = 50 °C

t_a, Ambient temperature = 22 °C

t_m, Average temperature = (t_g + t_o) / 2 = (80 + 50) / 2 = 65 °C

ΔT, Extreme temperature = t_m - t_a = 65 - 22 = 43 °C

Using the formula; φ = 10,0782 · 43^{1.3237} = 1464 W/m