



LAURENS

radiatoren & retro sanitair

Spiraal - Ribbenbuis radiatoren



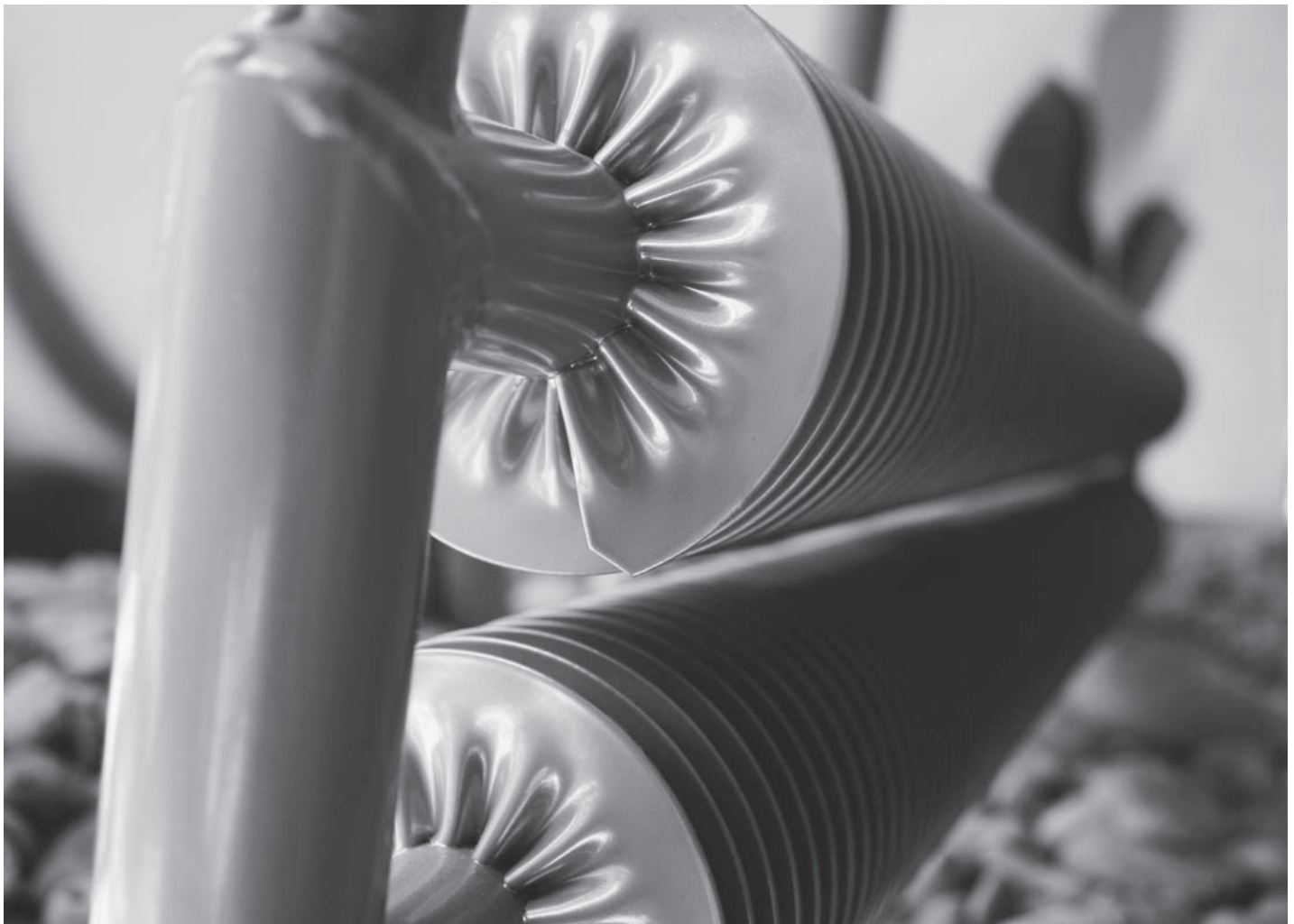
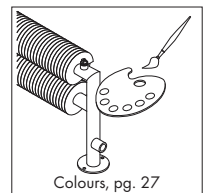
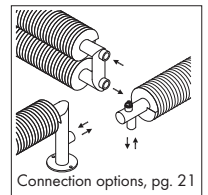
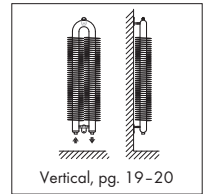
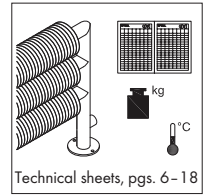
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Finned tube
radiators





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OVERVIEW OF THE TYPES OF SPIRAL RADIATORS

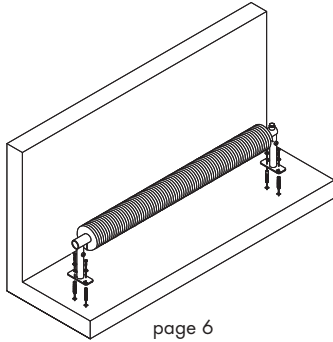


FLOOR-MOUNTED VERSION (F)

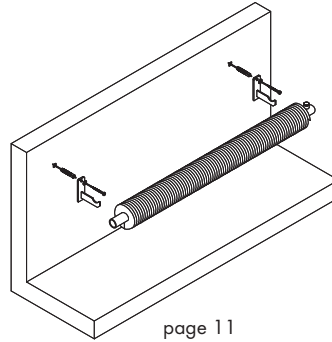
WALL-MOUNTED VERSION (W)

SELF-STANDING VERSION (S)

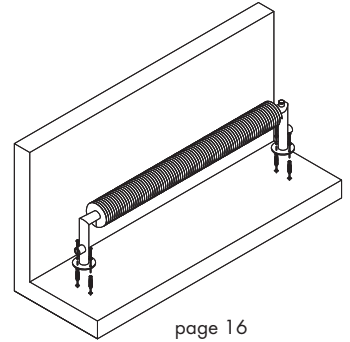
RA1



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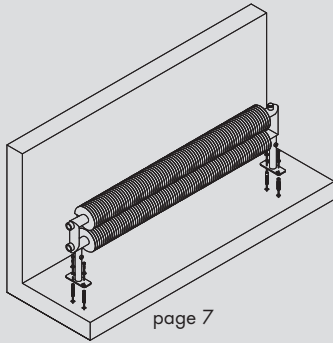


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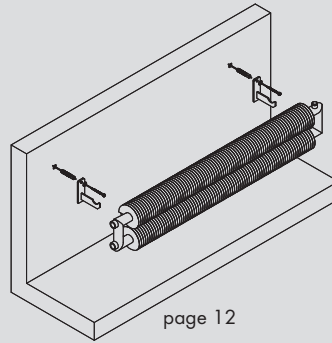


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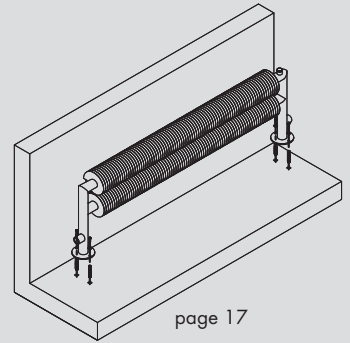
RAT2



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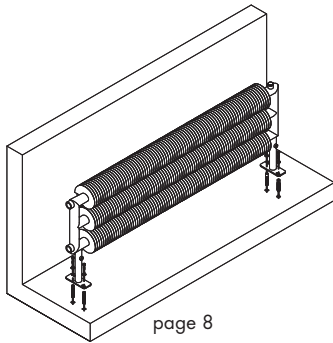


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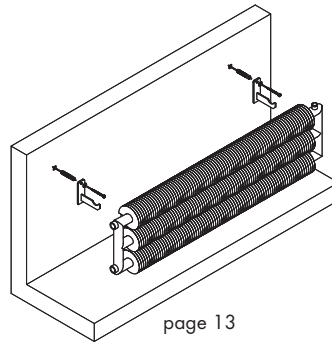


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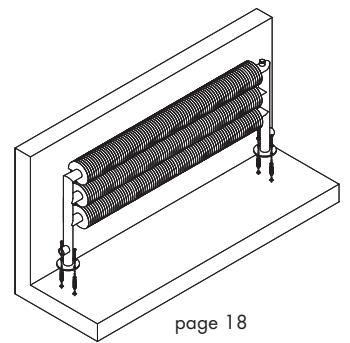
RAT3



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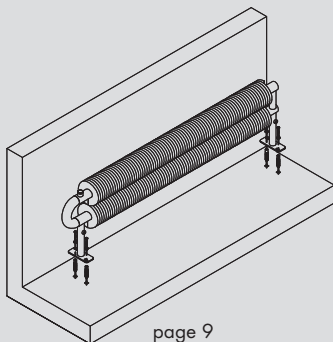


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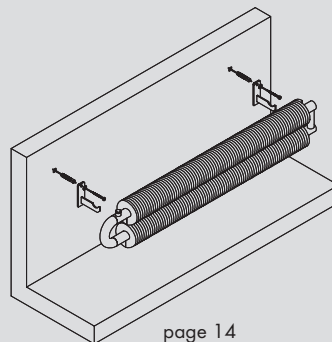


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RAO2



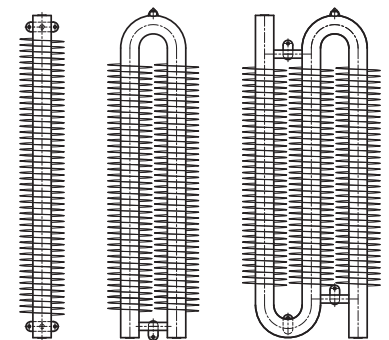
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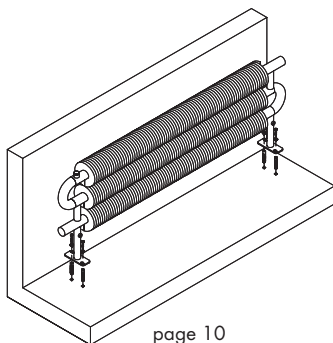
VERTICAL DESIGN (V)

Spiral radiators can also be installed vertically. On page 19 you will find possible variations.

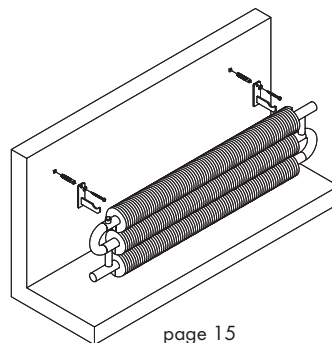


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RAO3



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TABLE OF HEATING OUTPUTS



Note: Temperature exponent n=1,3

| TYPE OF SPIRAL RADIATORS on the floor • on the wall • self-standing | | TEMPERATURE GRADIENT [°C] | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|--|-----------------|------------------------------|----------------------------|------|------|------|------|------|------|------|-------|
| | | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| RA1 | ∅32×2,0×∅92 mm | 90/70/20 | 203 | 501 | 799 | 1058 | 1318 | 1578 | 2095 | 2628 | 3161 |
| | | 75/65/20 | 160 | 395 | 630 | 835 | 1040 | 1245 | 1653 | 2073 | 2494 |
| | | 70/55/20 | 130 | 320 | 510 | 676 | 842 | 1008 | 1338 | 1679 | 2019 |
| | | 55/45/20 | 82 | 203 | 324 | 430 | 535 | 641 | 851 | 1067 | 1284 |
| | ∅57×2,5×∅137 mm | 90/70/20 | 266 | 559 | 911 | 1240 | 1568 | 1919 | 2612 | 3292 | 3906 |
| | | 75/65/20 | 210 | 441 | 719 | 978 | 1237 | 1514 | 2061 | 2597 | 3082 |
| | | 70/55/20 | 170 | 357 | 582 | 792 | 1001 | 1226 | 1668 | 2102 | 2495 |
| | | 55/45/20 | 108 | 227 | 370 | 503 | 637 | 779 | 1061 | 1337 | 1586 |
| | ∅76×2,5×∅156 mm | 90/70/20 | 294 | 587 | 939 | 1260 | 1636 | 2046 | 2721 | 3366 | 3991 |
| | | 75/65/20 | 232 | 463 | 741 | 994 | 1291 | 1614 | 2147 | 2656 | 3149 |
| | | 70/55/20 | 188 | 375 | 600 | 805 | 1045 | 1307 | 1738 | 2150 | 2549 |
| | | 55/45/20 | 119 | 238 | 381 | 512 | 665 | 831 | 1105 | 1367 | 1621 |
| RAT2 | ∅32×2,0×∅92 mm | 90/70/20 | 361 | 887 | 1420 | 1882 | 2345 | 2769 | 3725 | 4672 | 5618 |
| | | 75/65/20 | 285 | 700 | 1120 | 1485 | 1850 | 2185 | 2939 | 3686 | 4433 |
| | | 70/55/20 | 231 | 567 | 907 | 1202 | 1498 | 1769 | 2379 | 2984 | 3589 |
| | | 55/45/20 | 147 | 360 | 577 | 764 | 952 | 1125 | 1513 | 1897 | 2282 |
| | ∅57×2,5×∅137 mm | 90/70/20 | 385 | 965 | 1527 | 2178 | 2769 | 3377 | 4586 | 5775 | 6848 |
| | | 75/65/20 | 304 | 761 | 1205 | 1718 | 2185 | 2664 | 3618 | 4556 | 5403 |
| | | 70/55/20 | 246 | 616 | 976 | 1391 | 1769 | 2157 | 2929 | 3688 | 4374 |
| | | 55/45/20 | 156 | 392 | 620 | 884 | 1125 | 1371 | 1862 | 2345 | 2781 |
| | ∅76×2,5×∅156 mm | 90/70/20 | 403 | 1003 | 1589 | 2235 | 2840 | 3422 | 4626 | 5846 | 6960 |
| | | 75/65/20 | 318 | 791 | 1254 | 1763 | 2241 | 2700 | 3650 | 4612 | 5491 |
| | | 70/55/20 | 257 | 640 | 1015 | 1427 | 1814 | 2186 | 2955 | 3734 | 4445 |
| | | 55/45/20 | 164 | 407 | 645 | 908 | 1154 | 1390 | 1879 | 2374 | 2826 |
| RAT3 | ∅32×2,0×∅92 mm | 90/70/20 | 539 | 1331 | 2129 | 2820 | 3511 | 4151 | 5581 | 7001 | 8420 |
| | | 75/65/20 | 425 | 1050 | 1680 | 2225 | 2770 | 3275 | 4404 | 5523 | 6643 |
| | | 70/55/20 | 344 | 850 | 1360 | 1801 | 2242 | 2651 | 3565 | 4471 | 5378 |
| | | 55/45/20 | 219 | 540 | 865 | 1145 | 1426 | 1686 | 2267 | 2843 | 3419 |
| | ∅57×2,5×∅137 mm | 90/70/20 | 584 | 1483 | 2382 | 3318 | 4171 | 5133 | 6990 | 8841 | 10449 |
| | | 75/65/20 | 461 | 1170 | 1879 | 2618 | 3291 | 4050 | 5515 | 6975 | 8244 |
| | | 70/55/20 | 373 | 947 | 1521 | 2119 | 2664 | 3279 | 4465 | 5647 | 6674 |
| | | 55/45/20 | 237 | 602 | 967 | 1348 | 1694 | 2085 | 2839 | 3590 | 4244 |
| | ∅76×2,5×∅156 mm | 90/70/20 | 607 | 1503 | 2399 | 3351 | 4265 | 5185 | 7066 | 9023 | 10567 |
| | | 75/65/20 | 479 | 1186 | 1893 | 2644 | 3365 | 4091 | 5575 | 7119 | 8337 |
| | | 70/55/20 | 388 | 960 | 1532 | 2140 | 2724 | 3312 | 4513 | 5763 | 6749 |
| | | 55/45/20 | 247 | 610 | 974 | 1361 | 1732 | 2106 | 2870 | 3665 | 4291 |
| RAO2 | ∅32×2,0×∅92 mm | 90/70/20 | 361 | 887 | 1420 | 1882 | 2345 | 2769 | 3725 | 4672 | 5618 |
| | | 75/65/20 | 285 | 700 | 1120 | 1485 | 1850 | 2185 | 2939 | 3686 | 4433 |
| | | 70/55/20 | 231 | 567 | 907 | 1202 | 1498 | 1769 | 2379 | 2984 | 3589 |
| | | 55/45/20 | 147 | 360 | 577 | 764 | 952 | 1125 | 1513 | 1897 | 2282 |
| | ∅57×2,5×∅137 mm | 90/70/20 | 385 | 965 | 1527 | 2178 | 2769 | 3377 | 4586 | 5775 | 6848 |
| | | 75/65/20 | 304 | 761 | 1205 | 1718 | 2185 | 2664 | 3618 | 4556 | 5403 |
| | | 70/55/20 | 246 | 616 | 976 | 1391 | 1769 | 2157 | 2929 | 3688 | 4374 |
| | | 55/45/20 | 156 | 392 | 620 | 884 | 1125 | 1371 | 1862 | 2345 | 2781 |
| | ∅76×2,5×∅156 mm | 90/70/20 | 403 | 1003 | 1589 | 2235 | 2840 | 3422 | 4626 | 5846 | 6960 |
| | | 75/65/20 | 318 | 791 | 1254 | 1763 | 2241 | 2700 | 3650 | 4612 | 5491 |
| | | 70/55/20 | 257 | 640 | 1015 | 1427 | 1814 | 2186 | 2955 | 3734 | 4445 |
| | | 55/45/20 | 164 | 407 | 645 | 908 | 1154 | 1390 | 1879 | 2374 | 2826 |
| RAO3 | ∅32×2,0×∅92 mm | 90/70/20 | 539 | 1331 | 2129 | 2820 | 3511 | 4151 | 5581 | 7001 | 8420 |
| | | 75/65/20 | 425 | 1050 | 1680 | 2225 | 2770 | 3275 | 4404 | 5523 | 6643 |
| | | 70/55/20 | 344 | 850 | 1360 | 1801 | 2242 | 2651 | 3565 | 4471 | 5378 |
| | | 55/45/20 | 219 | 540 | 865 | 1145 | 1426 | 1686 | 2267 | 2843 | 3419 |
| | ∅57×2,5×∅137 mm | 90/70/20 | 584 | 1483 | 2382 | 3318 | 4171 | 5133 | 6990 | 8841 | 10449 |
| | | 75/65/20 | 461 | 1170 | 1879 | 2618 | 3291 | 4050 | 5515 | 6975 | 8244 |
| | | 70/55/20 | 373 | 947 | 1521 | 2119 | 2664 | 3279 | 4465 | 5647 | 6674 |
| | | 55/45/20 | 237 | 602 | 967 | 1348 | 1694 | 2085 | 2839 | 3590 | 4244 |
| | ∅76×2,5×∅156 mm | 90/70/20 | 607 | 1503 | 2399 | 3351 | 4265 | 5185 | 7066 | 9023 | 10567 |
| | | 75/65/20 | 479 | 1186 | 1893 | 2644 | 3365 | 4091 | 5575 | 7119 | 8337 |
| | | 70/55/20 | 388 | 960 | 1532 | 2140 | 2724 | 3312 | 4513 | 5763 | 6749 |
| | | 55/45/20 | 247 | 610 | 974 | 1361 | 1732 | 2106 | 2870 | 3665 | 4291 |

HEATING OUTPUT IN DESIGN STAINLESS STEEL -35 %
 HOT-DIP GALVANIZED -10 %
 VERTICAL -30 %



TECHNICAL INFORMATION

| | | |
|--|--|--|
| Material | Standard: | steel tubes with air valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm - 6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RA1-F | Dimensions [mm] | | | | | | | | | | | | |
|---|-----------------|-----|----|-----|----|-------|----|----|---|---|---|---|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 500-6000 | 192 | 32 | 92 | 10 | A-100 | 50 | 25 | - | - | - | - | ≥60 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 500-6000 | 237 | 57 | 137 | 18 | A-140 | 70 | 35 | - | - | - | - | ≥85 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 500-6000 | 256 | 76 | 156 | 20 | A-140 | 70 | 35 | - | - | - | - | ≥95 |

Note: $\varnothing 32 \times 2,0 \times \varnothing 92$ [mm] - diameter of tube × thickness × diameter of winding [mm]

HEATING OUTPUTS

| RA1-F | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|---|----------------------|----------------------------|------|------|------|------|------|------|------|------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 90/70/20 °C | 203 | 501 | 799 | 1058 | 1318 | 1578 | 2095 | 2628 | 3161 |
| | 75/65/20 °C | 160 | 395 | 630 | 835 | 1040 | 1245 | 1653 | 2073 | 2494 |
| | 70/55/20 °C | 130 | 320 | 510 | 676 | 842 | 1008 | 1338 | 1679 | 2019 |
| | 55/45/20 °C | 82 | 203 | 324 | 430 | 535 | 641 | 851 | 1067 | 1284 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 90/70/20 °C | 266 | 559 | 911 | 1240 | 1568 | 1919 | 2612 | 3292 | 3906 |
| | 75/65/20 °C | 210 | 441 | 719 | 978 | 1237 | 1514 | 2061 | 2597 | 3082 |
| | 70/55/20 °C | 170 | 357 | 582 | 792 | 1001 | 1226 | 1668 | 2102 | 2495 |
| | 55/45/20 °C | 108 | 227 | 370 | 503 | 637 | 779 | 1061 | 1337 | 1586 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 90/70/20 °C | 294 | 587 | 939 | 1260 | 1636 | 2046 | 2721 | 3366 | 3991 |
| | 75/65/20 °C | 232 | 463 | 741 | 994 | 1291 | 1614 | 2147 | 2656 | 3149 |
| | 70/55/20 °C | 188 | 375 | 600 | 805 | 1045 | 1307 | 1738 | 2150 | 2549 |
| | 55/45/20 °C | 119 | 238 | 381 | 512 | 665 | 831 | 1105 | 1367 | 1621 |

Note: Temperature exponent $n=1,3$
Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RA1-F | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|---|---------------|-----|------|------|------|------|------|------|------|------|
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | Weight [kg] | 2,3 | 5 | 7,8 | 10,5 | 13,2 | 15,9 | 18,6 | 21,3 | 24 |
| | Volume [l] | 0,3 | 0,7 | 1 | 1,3 | 1,6 | 1,9 | 2,5 | 3,1 | 3,7 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | Weight [kg] | 4,6 | 9,1 | 13,7 | 18,2 | 22,7 | 27,2 | 31,7 | 40,7 | 49,6 |
| | Volume [l] | 1,1 | 2,1 | 3,1 | 4,1 | 5,1 | 6,2 | 8,2 | 10,3 | 12,3 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | Weight [kg] | 5,4 | 10,7 | 16,1 | 21,5 | 26,9 | 32,3 | 37,7 | 46,7 | 56,9 |
| | Volume [l] | 2 | 3,9 | 5,8 | 7,7 | 9,7 | 11,6 | 15,4 | 19,3 | 23,1 |

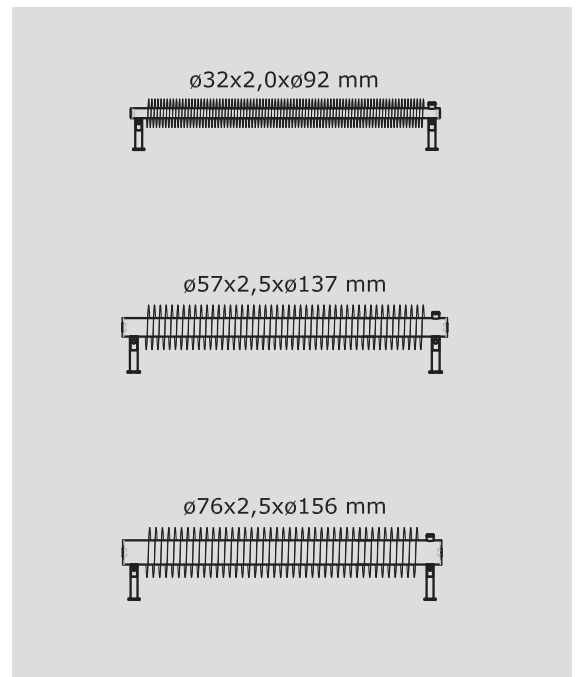
Note: Radiator weight without heating fluid

CODE EXAMPLE

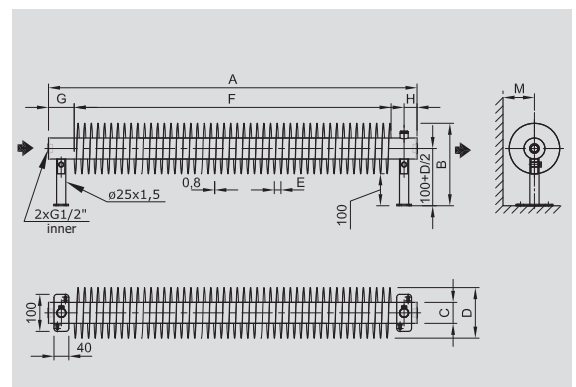
| | | | | | |
|-------------|-------------------------|----------------------------|-------------|--------------|-------------|
| ZRA-1 | 57 | 137 | 100 | F | 01 |
| SPIRAL type | \varnothing tube [mm] | \varnothing winding [mm] | length [cm] | on the floor | colour code |

Ordering, see the page 25

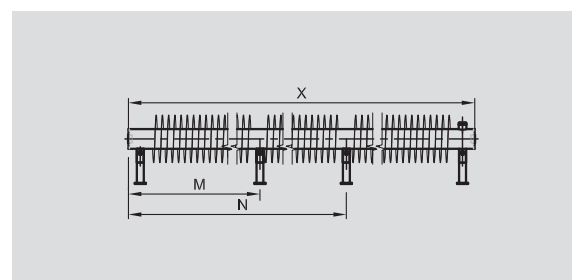
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RA1-F ($\varnothing 32$ mm)

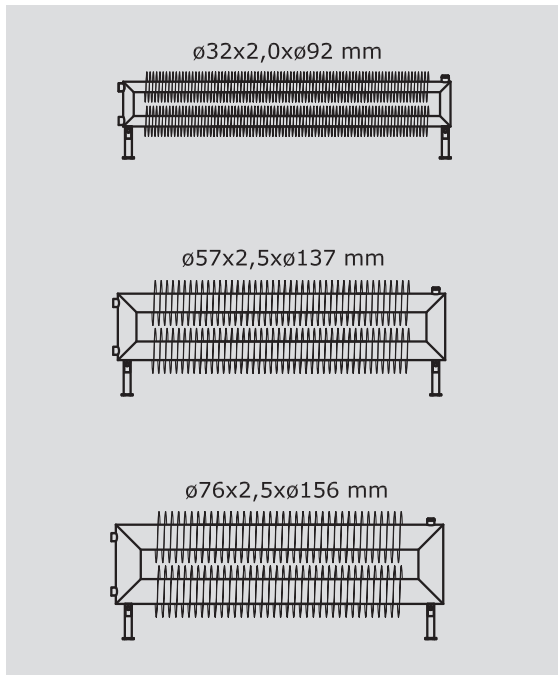
| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-2900 | 0 | 0 | 2 pcs |
| 2901-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

RA1-F ($\varnothing 57$ mm a $\varnothing 76$ mm)

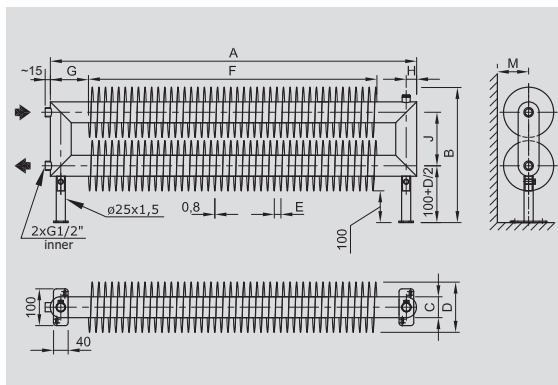
| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-3000 | 0 | 0 | 2 pcs |
| 3001-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |



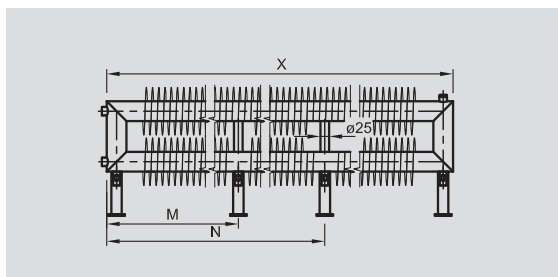
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RAT2-F (ø 32 mm)

| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-2900 | 0 | 0 | 2 pcs |
| 2901-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

RAT2-F (ø 57 mm a ø 76 mm)

| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-3000 | 0 | 0 | 2 pcs |
| 3001-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

TECHNICAL INFORMATION

| | | |
|--------------------------------|--|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" ø 32 × 2,0 × ø 92 mm, lead of spiral 10 mm ø 57 × 2,5 × ø 137 mm, lead of spiral 18 mm ø 76 × 2,5 × ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm-6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| | The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RAT2-F | Dimensions [mm] | | | | | | | | | | | | |
|-----------------------|-----------------|-----|----|-----|----|-------|-----|----|---|-----|---|---|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| ø 32 × 2,0 × ø 92 mm | 500-6000 | 297 | 32 | 92 | 10 | A-130 | 65 | 16 | - | 103 | - | - | ≥60 |
| ø 57 × 2,5 × ø 137 mm | 500-6000 | 383 | 57 | 137 | 18 | A-220 | 110 | 28 | - | 146 | - | - | ≥85 |
| ø 76 × 2,5 × ø 156 mm | 500-6000 | 422 | 76 | 156 | 20 | A-240 | 120 | 38 | - | 166 | - | - | ≥95 |

Note: ø 32×2,0×ø92 [mm] - diameter of tube × thickness × diameter of winding [mm]

HEATING OUTPUTS

| RAT2-F | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|-------------------|----------------------|----------------------------|------|------|------|------|------|------|------|------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| ø 32×2,0×ø 92 mm | 90/70/20 °C | 361 | 887 | 1420 | 1882 | 2345 | 2769 | 3725 | 4672 | 5618 |
| | 75/65/20 °C | 285 | 700 | 1120 | 1485 | 1850 | 2185 | 2939 | 3686 | 4433 |
| | 70/55/20 °C | 231 | 567 | 907 | 1202 | 1498 | 1769 | 2379 | 2984 | 3589 |
| | 55/45/20 °C | 147 | 360 | 577 | 764 | 952 | 1125 | 1513 | 1897 | 2282 |
| ø 57×2,5×ø 137 mm | 90/70/20 °C | 385 | 965 | 1527 | 2178 | 2769 | 3377 | 4586 | 5775 | 6848 |
| | 75/65/20 °C | 304 | 761 | 1205 | 1718 | 2185 | 2664 | 3618 | 4556 | 5403 |
| | 70/55/20 °C | 246 | 616 | 976 | 1391 | 1769 | 2157 | 2929 | 3688 | 4374 |
| | 55/45/20 °C | 156 | 392 | 620 | 884 | 1125 | 1371 | 1862 | 2345 | 2781 |
| ø 76×2,5×ø 156 mm | 90/70/20 °C | 403 | 1003 | 1589 | 2235 | 2840 | 3422 | 4626 | 5846 | 6960 |
| | 75/65/20 °C | 318 | 791 | 1254 | 1763 | 2241 | 2700 | 3650 | 4612 | 5491 |
| | 70/55/20 °C | 257 | 640 | 1015 | 1427 | 1814 | 2186 | 2955 | 3734 | 4445 |
| | 55/45/20 °C | 164 | 407 | 645 | 908 | 1154 | 1390 | 1879 | 2374 | 2826 |

Note: Temperature exponent n=1,3

Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RAT2-F | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|-------------------|---------------|------|------|------|------|------|------|------|-------|-------|
| ø 32×2,0×ø 92 mm | Weight [kg] | 4,9 | 10,5 | 15,9 | 21,3 | 26,9 | 32,5 | 43,7 | 54,9 | 66,1 |
| | Volume [l] | 0,7 | 1,4 | 2 | 2,6 | 3,2 | 3,8 | 5,1 | 6,3 | 7,5 |
| ø 57×2,5×ø 137 mm | Weight [kg] | 9,5 | 19,8 | 29,2 | 40,3 | 50,0 | 59,8 | 80,3 | 100,9 | 121,2 |
| | Volume [l] | 2,4 | 4,5 | 6,5 | 8,6 | 10,6 | 12,7 | 16,7 | 20,8 | 24,9 |
| ø 76×2,5×ø 156 mm | Weight [kg] | 11,5 | 22,9 | 34,3 | 45,6 | 56,9 | 68,2 | 90,8 | 113,4 | 136 |
| | Volume [l] | 4,6 | 8,4 | 12,3 | 16,1 | 20 | 23,8 | 31,5 | 39,2 | 46,9 |

Note: Radiator weight without heating fluid

CODE EXAMPLE

| ZRAT2 | 57 | 137 | 100 | F | 01 |
|-------------|-------------|----------------|-------------|--------------|-------------|
| SPIRAL type | ø tube [mm] | ø winding [mm] | length [cm] | on the floor | colour code |

Ordering, see the page 25



TECHNICAL INFORMATION

| | | |
|--|--|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm - 6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RAT3-F | Dimensions [mm] | | | | | | | | | | | | |
|---|-----------------|-----|----|-----|----|-------|-----|----|---|-----|---|---|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 500-6000 | 402 | 32 | 92 | 10 | A-130 | 65 | 16 | - | 105 | - | - | ≥60 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 500-6000 | 529 | 57 | 137 | 18 | A-220 | 110 | 28 | - | 146 | - | - | ≥85 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 500-6000 | 588 | 76 | 156 | 20 | A-240 | 120 | 38 | - | 166 | - | - | ≥95 |

Note: $\varnothing 32 \times 2,0 \times \varnothing 92$ [mm] - diameter of tube × thickness × diameter of winding [mm]

HEATING OUTPUTS

| RAT3-F | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|---|----------------------|----------------------------|------|------|------|------|------|------|------|-------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 90/70/20 °C | 539 | 1331 | 2129 | 2820 | 3511 | 4151 | 5581 | 7001 | 8420 |
| | 75/65/20 °C | 425 | 1050 | 1680 | 2225 | 2770 | 3275 | 4404 | 5523 | 6643 |
| | 70/55/20 °C | 344 | 850 | 1360 | 1801 | 2242 | 2651 | 3565 | 4471 | 5378 |
| | 55/45/20 °C | 219 | 540 | 865 | 1145 | 1426 | 1686 | 2267 | 2843 | 3419 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 90/70/20 °C | 584 | 1483 | 2382 | 3318 | 4171 | 5133 | 6990 | 8841 | 10449 |
| | 75/65/20 °C | 461 | 1170 | 1879 | 2618 | 3291 | 4050 | 5515 | 6975 | 8244 |
| | 70/55/20 °C | 373 | 947 | 1521 | 2119 | 2664 | 3279 | 4465 | 5647 | 6674 |
| | 55/45/20 °C | 237 | 602 | 967 | 1348 | 1694 | 2085 | 2839 | 3590 | 4244 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 90/70/20 °C | 607 | 1503 | 2399 | 3351 | 4265 | 5185 | 7066 | 9023 | 10567 |
| | 75/65/20 °C | 479 | 1186 | 1893 | 2644 | 3365 | 4091 | 5575 | 7119 | 8337 |
| | 70/55/20 °C | 388 | 960 | 1532 | 2140 | 2724 | 3312 | 4513 | 5763 | 6749 |
| | 55/45/20 °C | 247 | 610 | 974 | 1361 | 1732 | 2106 | 2870 | 3665 | 4291 |

Note: Temperature exponent $n=1,3$
Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RAT3-F | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|---|---------------|------|------|------|------|------|-------|-------|-------|-------|
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | Weight [kg] | 7,2 | 15,5 | 23,7 | 31,8 | 39,9 | 48 | 65,8 | 83,6 | 101,4 |
| | Volume [l] | 1,1 | 2,1 | 3 | 3,9 | 4,8 | 5,8 | 7,6 | 9,5 | 11,3 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | Weight [kg] | 14,9 | 28,9 | 44,9 | 66,8 | 75,8 | 90,8 | 120,9 | 150,9 | 180,9 |
| | Volume [l] | 3,7 | 6,8 | 9,9 | 13 | 16 | 19,1 | 25,2 | 31,3 | 37,5 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | Weight [kg] | 19,2 | 36,9 | 53,5 | 70,5 | 87,6 | 104,8 | 135,8 | 170,7 | 205,5 |
| | Volume [l] | 7,2 | 13,0 | 18,8 | 24,5 | 30,3 | 36 | 47,6 | 59,2 | 70,7 |

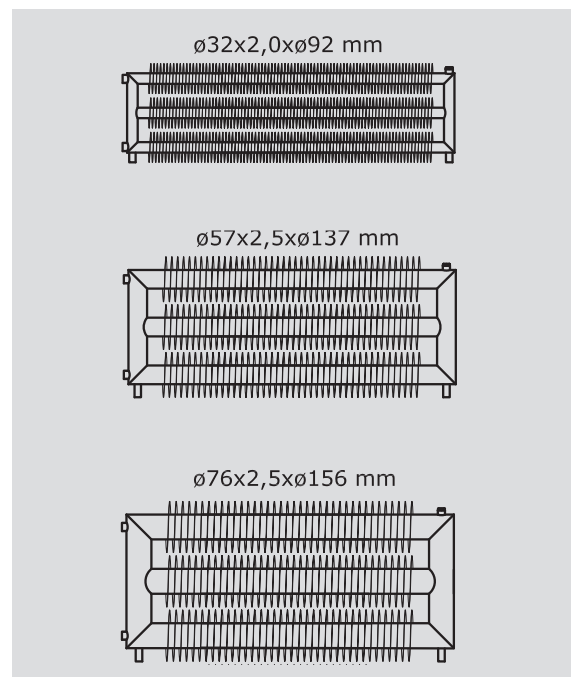
Note: Radiator weight without heating fluid

CODE EXAMPLE

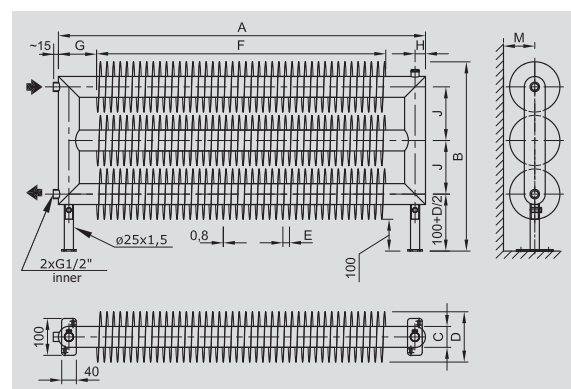
| ZRAT3 | 57 | 137 | 100 | F | 01 |
|-------------|-------------------------|----------------------------|-------------|--------------|-------------|
| SPIRAL type | \varnothing tube [mm] | \varnothing winding [mm] | length [cm] | on the floor | colour code |

Ordering, see the page 25

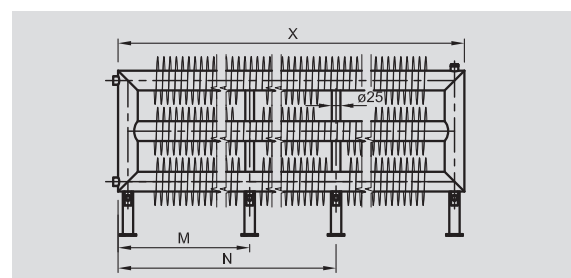
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RAT3-F ($\varnothing 32$ mm)

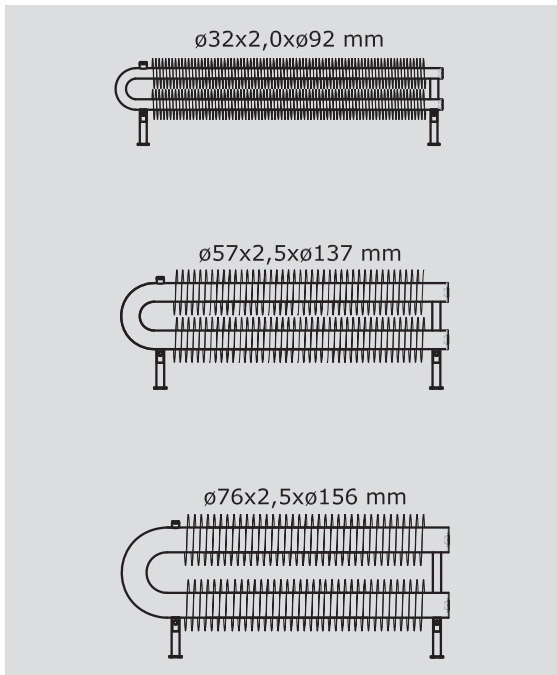
| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-2900 | 0 | 0 | 2 pcs |
| 2901-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

RAT3-F ($\varnothing 57$ mm a $\varnothing 76$ mm)

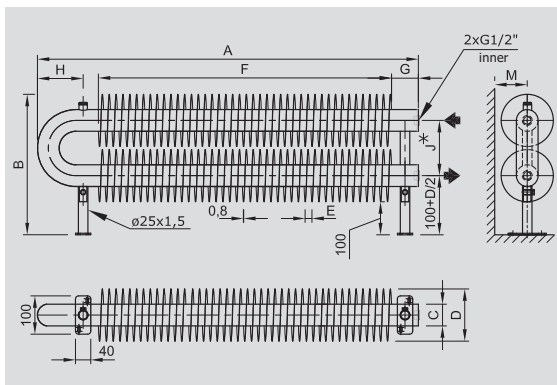
| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-3000 | 0 | 0 | 2 pcs |
| 3001-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |



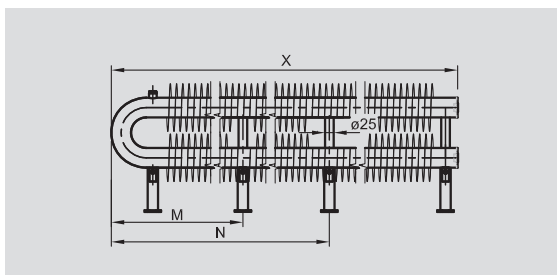
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RAO2-F (ø 32 mm)

| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-2900 | 0 | 0 | 2 pcs |
| 2901-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

RAO2-F (ø 57 mm a ø 76 mm)

| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-3000 | 0 | 0 | 2 pcs |
| 3001-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

TECHNICAL INFORMATION

| | | |
|--|--|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" ø 32 × 2,0 × ø 92 mm, lead of spiral 10 mm ø 57 × 2,5 × ø 137 mm, lead of spiral 18 mm ø 76 × 2,5 × ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm-6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RAO2-F | Dimensions [mm] | | | | | | | | | | | | |
|-----------------------|-----------------|-----|----|-----|----|-------|----|-----|---|------------|---|---|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| ø 32 × 2,0 × ø 92 mm | 500-6000 | 287 | 32 | 92 | 10 | A-160 | 50 | 85 | - | 95 | - | - | ≥60 |
| ø 57 × 2,5 × ø 137 mm | 500-6000 | 382 | 57 | 137 | 18 | A-230 | 70 | 120 | - | 145 (175*) | - | - | ≥85 |
| ø 76 × 2,5 × ø 156 mm | 500-6000 | 456 | 76 | 156 | 20 | A-260 | 70 | 165 | - | 200 (195*) | - | - | ≥95 |

Note: ø 32 × 2,0 × ø 92 [mm] - diameter of tube × thickness × diameter of winding [mm]
* Dimensions valid for stainless steel design

HEATING OUTPUTS

| RAO2-F | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|------------------|----------------------|----------------------------|------|------|------|------|------|------|------|------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| ø 32×2,0×ø 92 mm | 90/70/20 °C | 361 | 887 | 1420 | 1882 | 2345 | 2769 | 3725 | 4672 | 5618 |
| | 75/65/20 °C | 285 | 700 | 1120 | 1485 | 1850 | 2185 | 2939 | 3686 | 4433 |
| | 70/55/20 °C | 231 | 567 | 907 | 1202 | 1498 | 1769 | 2379 | 2984 | 3589 |
| | 55/45/20 °C | 147 | 360 | 577 | 764 | 952 | 1125 | 1513 | 1897 | 2282 |
| ø57×2,5×ø137 mm | 90/70/20 °C | 385 | 965 | 1527 | 2178 | 2769 | 3377 | 4586 | 5775 | 6848 |
| | 75/65/20 °C | 304 | 761 | 1205 | 1718 | 2185 | 2664 | 3618 | 4556 | 5403 |
| | 70/55/20 °C | 246 | 616 | 976 | 1391 | 1769 | 2157 | 2929 | 3688 | 4374 |
| | 55/45/20 °C | 156 | 392 | 620 | 884 | 1125 | 1371 | 1862 | 2345 | 2781 |
| ø76×2,5×ø156 mm | 90/70/20 °C | 403 | 1003 | 1589 | 2235 | 2840 | 3422 | 4626 | 5846 | 6960 |
| | 75/65/20 °C | 318 | 791 | 1254 | 1763 | 2241 | 2700 | 3650 | 4612 | 5491 |
| | 70/55/20 °C | 257 | 640 | 1015 | 1427 | 1814 | 2186 | 2955 | 3734 | 4445 |
| | 55/45/20 °C | 164 | 407 | 645 | 908 | 1154 | 1390 | 1879 | 2374 | 2826 |

Note: Temperature exponent n=1,3
Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RAO2-F | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|------------------|---------------|------|------|------|------|------|------|------|-------|-------|
| ø 32×2,0×ø 92 mm | Weight [kg] | 4,7 | 10,2 | 15,6 | 21,1 | 27,2 | 32,8 | 44,1 | 55,2 | 66,3 |
| | Volume [l] | 0,6 | 1,3 | 1,9 | 2,5 | 3,1 | 3,71 | 4,9 | 6,2 | 7,4 |
| ø57×2,5×ø137 mm | Weight [kg] | 9,2 | 19,5 | 29,7 | 40,0 | 49,7 | 59,5 | 80,0 | 100,5 | 120,9 |
| | Volume [l] | 2,1 | 4,1 | 6,2 | 8,2 | 10,3 | 12,3 | 16,4 | 20,5 | 24,6 |
| ø76×2,5×ø156 mm | Weight [kg] | 11,3 | 22,6 | 33,8 | 45 | 56,4 | 67,9 | 88,5 | 113,4 | 135 |
| | Volume [l] | 4 | 7,8 | 11,7 | 15,5 | 19,4 | 23,2 | 30,9 | 38,6 | 46,3 |

Note: Radiator weight without heating fluid

CODE EXAMPLE

| ZRAO2 | 57 | 137 | 100 | F | 01 |
|-------------|-------------|----------------|-------------|--------------|-------------|
| SPIRAL type | ø tube [mm] | ø winding [mm] | length [cm] | on the floor | colour code |

Ordering, see the page 25



TECHNICAL INFORMATION

| | | |
|--|--|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm–6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10–30 mm (12–30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RAO3-F | Dimensions [mm] | | | | | | | | | | | | |
|---|-----------------|-----|----|-----|----|-------|-----|-----|---|------------|---|---|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 500–6000 | 382 | 32 | 92 | 10 | A-220 | 110 | 85 | - | 95 | - | - | ≥60 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 500–6000 | 527 | 57 | 137 | 18 | A-300 | 150 | 120 | - | 145 (175*) | - | - | ≥85 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 500–6000 | 656 | 76 | 156 | 20 | A-380 | 190 | 165 | - | 200 (195*) | - | - | ≥95 |

Note: $\varnothing 32 \times 2,0 \times \varnothing 92$ [mm] - diameter of tube × thickness × diameter of winding [mm]
 * Dimensions valid for stainless steel design

HEATING OUTPUTS

| RAO3-F | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|---|----------------------|----------------------------|------|------|------|------|------|------|------|-------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 90/70/20 °C | 539 | 1331 | 2129 | 2820 | 3511 | 4151 | 5581 | 7001 | 8420 |
| | 75/65/20 °C | 425 | 1050 | 1680 | 2225 | 2770 | 3275 | 4404 | 5523 | 6643 |
| | 70/55/20 °C | 344 | 850 | 1360 | 1801 | 2242 | 2651 | 3565 | 4471 | 5378 |
| | 55/45/20 °C | 219 | 540 | 865 | 1145 | 1426 | 1686 | 2267 | 2843 | 3419 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 90/70/20 °C | 584 | 1483 | 2382 | 3318 | 4171 | 5133 | 6990 | 8841 | 10449 |
| | 75/65/20 °C | 461 | 1170 | 1879 | 2618 | 3291 | 4050 | 5515 | 6975 | 8244 |
| | 70/55/20 °C | 373 | 947 | 1521 | 2119 | 2664 | 3279 | 4465 | 5647 | 6674 |
| | 55/45/20 °C | 237 | 602 | 967 | 1348 | 1694 | 2085 | 2839 | 3590 | 4244 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 90/70/20 °C | 607 | 1503 | 2399 | 3351 | 4265 | 5185 | 7066 | 9023 | 10567 |
| | 75/65/20 °C | 479 | 1186 | 1893 | 2644 | 3365 | 4091 | 5575 | 7119 | 8337 |
| | 70/55/20 °C | 388 | 960 | 1532 | 2140 | 2724 | 3312 | 4513 | 5763 | 6749 |
| | 55/45/20 °C | 247 | 610 | 974 | 1361 | 1732 | 2106 | 2870 | 3665 | 4291 |

Note: Temperature exponent $n=1,3$
 Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RAO3-F | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|---|---------------|------|------|------|------|------|-------|-------|-------|-------|
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | Weight [kg] | 7 | 15,2 | 23,4 | 31,5 | 39,6 | 47,7 | 65,5 | 83,3 | 101,1 |
| | Volume [l] | 1,0 | 1,9 | 2,8 | 3,8 | 4,7 | 5,6 | 7,5 | 9,3 | 11,2 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | Weight [kg] | 14,0 | 28,0 | 44,0 | 60,0 | 75,0 | 90,0 | 120,0 | 150,0 | 180,0 |
| | Volume [l] | 3,4 | 6,4 | 9,5 | 12,6 | 15,6 | 18,7 | 24,8 | 31,0 | 37,1 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | Weight [kg] | 17,1 | 32,6 | 49,6 | 66,5 | 83,3 | 100,1 | 130,0 | 167 | 197,6 |
| | Volume [l] | 6,6 | 12,4 | 18,1 | 23,9 | 29,7 | 35,5 | 47,0 | 58,6 | 70,1 |

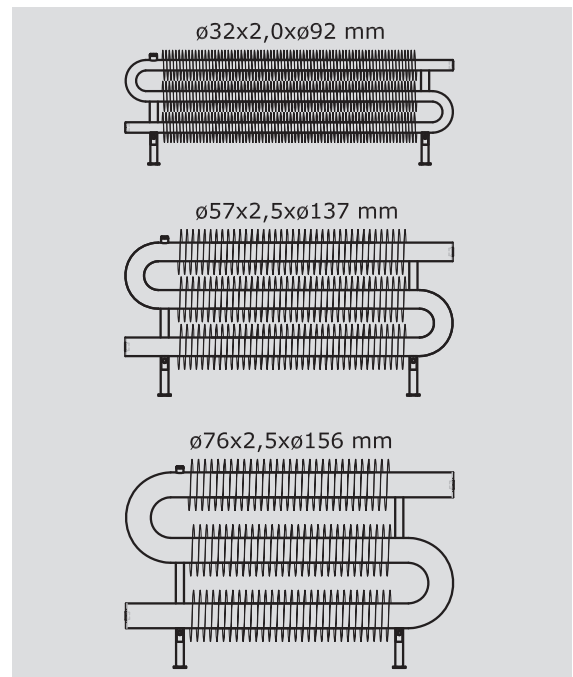
Note: Radiator weight without heating fluid

CODE EXAMPLE

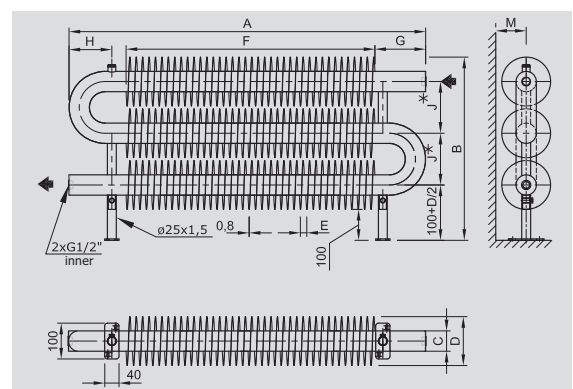
| | | | | | |
|-------------|-------------------------|----------------------------|-------------|--------------|-------------|
| ZRAO3 | 57 | 137 | 100 | F | 01 |
| SPIRAL type | \varnothing tube [mm] | \varnothing winding [mm] | length [cm] | on the floor | colour code |

Ordering, see the page 25

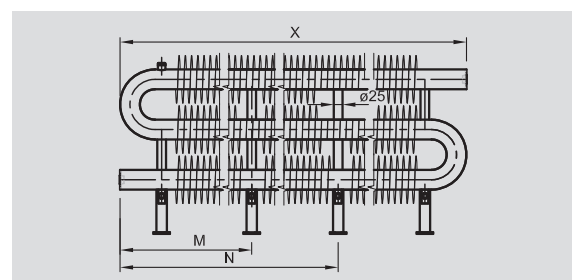
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RAO3-F (ø 32 mm)

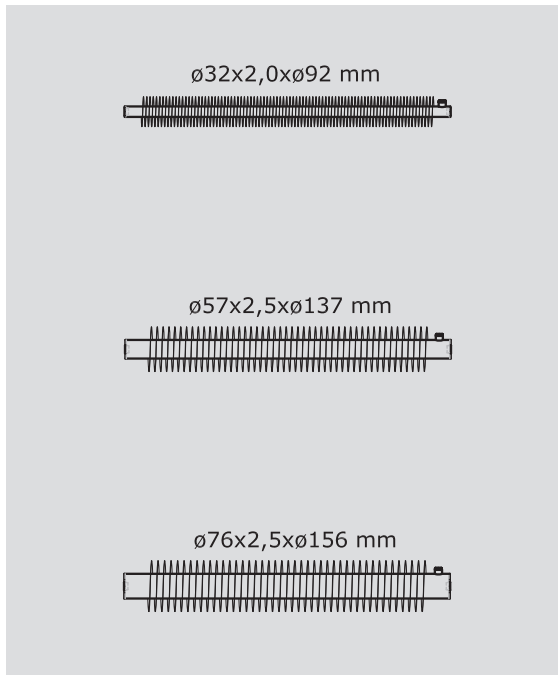
| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500–2900 | 0 | 0 | 2 pcs |
| 2901–4500 | X/2 | 0 | 3 pcs |
| 4501–6000 | 1/3 X | 2/3 X | 4 pcs |

RAO3-F (ø 57 mm a ø 76 mm)

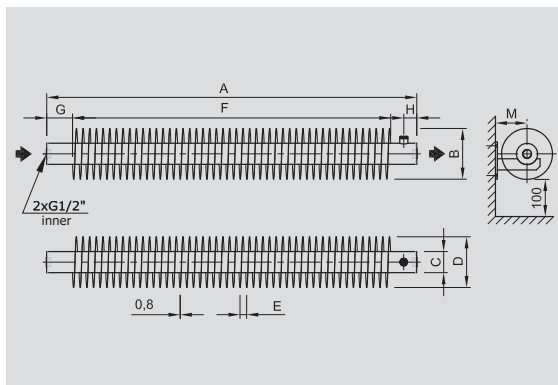
| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500–3000 | 0 | 0 | 2 pcs |
| 3001–4500 | X/2 | 0 | 3 pcs |
| 4501–6000 | 1/3 X | 2/3 X | 4 pcs |



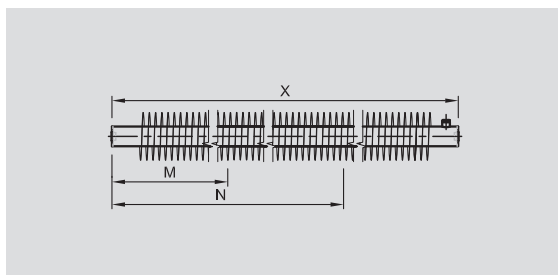
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RA1-W (ø 32 mm)

| length of spiral X [mm] | M | N | Number of consoles |
|-------------------------|-------|-------|--------------------|
| 500-2900 | 0 | 0 | 2 pcs |
| 2901-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

RA1-W (ø 57 mm a ø 76 mm)

| length of spiral X [mm] | M | N | Number of consoles |
|-------------------------|-------|-------|--------------------|
| 500-3000 | 0 | 0 | 2 pcs |
| 3001-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

TECHNICAL INFORMATION

| | | |
|--------------------------------|---|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" ø 32 × 2,0 × ø 92 mm, lead of spiral 10 mm ø 57 × 2,5 × ø 137 mm, lead of spiral 18 mm ø 76 × 2,5 × ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm-6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| | The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RA1-W | Dimensions [mm] | | | | | | | | | | | | |
|-----------------------|-----------------|---|----|-----|----|-------|----|----|---|---|---|---|----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| ø 32 × 2,0 × ø 92 mm | 500-6000 | D | 32 | 92 | 10 | A-100 | 50 | 25 | - | - | - | - | 60 |
| ø 57 × 2,5 × ø 137 mm | 500-6000 | D | 57 | 137 | 18 | A-140 | 70 | 35 | - | - | - | - | 85 |
| ø 76 × 2,5 × ø 156 mm | 500-6000 | D | 76 | 156 | 20 | A-140 | 70 | 35 | - | - | - | - | 95 |

Note: ø 32 × 2,0 × ø 92 [mm] - diameter of tube × thickness × diameter of winding [mm]

HEATING OUTPUTS

| RA1-W | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|-------------------|----------------------|----------------------------|------|------|------|------|------|------|------|------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| ø 32×2,0×ø 92 mm | 90/70/20 °C | 203 | 501 | 799 | 1058 | 1318 | 1578 | 2095 | 2628 | 3161 |
| | 75/65/20 °C | 160 | 395 | 630 | 835 | 1040 | 1245 | 1653 | 2073 | 2494 |
| | 70/55/20 °C | 130 | 320 | 510 | 676 | 842 | 1008 | 1338 | 1679 | 2019 |
| | 55/45/20 °C | 82 | 203 | 324 | 430 | 535 | 641 | 851 | 1067 | 1284 |
| ø 57×2,5×ø 137 mm | 90/70/20 °C | 266 | 559 | 911 | 1240 | 1568 | 1919 | 2612 | 3292 | 3906 |
| | 75/65/20 °C | 210 | 441 | 719 | 978 | 1237 | 1514 | 2061 | 2597 | 3082 |
| | 70/55/20 °C | 170 | 357 | 582 | 792 | 1001 | 1226 | 1668 | 2102 | 2495 |
| | 55/45/20 °C | 108 | 227 | 370 | 503 | 637 | 779 | 1061 | 1337 | 1586 |
| ø 76×2,5×ø 156 mm | 90/70/20 °C | 294 | 587 | 939 | 1260 | 1636 | 2046 | 2721 | 3366 | 3991 |
| | 75/65/20 °C | 232 | 463 | 741 | 994 | 1291 | 1614 | 2147 | 2656 | 3149 |
| | 70/55/20 °C | 188 | 375 | 600 | 805 | 1045 | 1307 | 1738 | 2150 | 2549 |
| | 55/45/20 °C | 119 | 238 | 381 | 512 | 665 | 831 | 1105 | 1367 | 1621 |

Note: Temperature exponent n=1,3

Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RA1-W | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|-------------------|---------------|-----|------|------|------|------|------|------|------|------|
| ø 32×2,0×ø 92 mm | Weight [kg] | 2,3 | 5 | 7,8 | 10,5 | 13,2 | 15,9 | 18,6 | 21,3 | 24 |
| | Volume [l] | 0,3 | 0,7 | 1 | 1,3 | 1,6 | 1,9 | 2,5 | 3,1 | 3,7 |
| ø 57×2,5×ø 137 mm | Weight [kg] | 4,6 | 9,1 | 13,7 | 18,2 | 22,7 | 27,2 | 31,7 | 40,7 | 49,6 |
| | Volume [l] | 1,1 | 2,1 | 3,1 | 4,1 | 5,1 | 6,2 | 8,2 | 10,3 | 12,3 |
| ø 76×2,5×ø 156 mm | Weight [kg] | 5,4 | 10,7 | 16,1 | 21,5 | 26,9 | 32,3 | 37,7 | 46,7 | 56,9 |
| | Volume [l] | 2 | 3,9 | 5,8 | 7,7 | 9,7 | 11,6 | 15,4 | 19,3 | 23,1 |

Note: Radiator weight without heating fluid

CODE EXAMPLE

| ZRA-1 | 57 | 137 | 100 | W | 01 |
|-------------|-------------|----------------|-------------|-------------|-------------|
| SPIRAL type | ø tube [mm] | ø winding [mm] | length [cm] | on the wall | colour code |

Ordering, see the page 25



TECHNICAL INFORMATION

| | | |
|--------------------------------|--|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm - 6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| | The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RAT2-W | Dimensions [mm] | | | | | | | | | | | | |
|---|-----------------|-----|----|-----|----|-------|-----|----|---|-----|---|---|----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 500-6000 | 197 | 32 | 92 | 10 | A-130 | 65 | 16 | - | 105 | - | - | 60 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 500-6000 | 283 | 57 | 137 | 18 | A-220 | 110 | 28 | - | 146 | - | - | 85 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 500-6000 | 322 | 76 | 156 | 20 | A-240 | 120 | 38 | - | 166 | - | - | 95 |

Note: $\varnothing 32 \times 2,0 \times \varnothing 92$ [mm] - diameter of tube \times thickness \times diameter of winding [mm]

HEATING OUTPUTS

| RAT2-W | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|---|----------------------|----------------------------|------|------|------|------|------|------|------|------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 90/70/20 °C | 361 | 887 | 1420 | 1882 | 2345 | 2769 | 3725 | 4672 | 5618 |
| | 75/65/20 °C | 285 | 700 | 1120 | 1485 | 1850 | 2185 | 2939 | 3686 | 4433 |
| | 70/55/20 °C | 231 | 567 | 907 | 1202 | 1498 | 1769 | 2379 | 2984 | 3589 |
| | 55/45/20 °C | 147 | 360 | 577 | 764 | 952 | 1125 | 1513 | 1897 | 2282 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 90/70/20 °C | 385 | 965 | 1527 | 2178 | 2769 | 3377 | 4586 | 5775 | 6848 |
| | 75/65/20 °C | 304 | 761 | 1205 | 1718 | 2185 | 2664 | 3618 | 4556 | 5403 |
| | 70/55/20 °C | 246 | 616 | 976 | 1391 | 1769 | 2157 | 2929 | 3688 | 4374 |
| | 55/45/20 °C | 156 | 392 | 620 | 884 | 1125 | 1371 | 1862 | 2345 | 2781 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 90/70/20 °C | 403 | 1003 | 1589 | 2235 | 2840 | 3422 | 4626 | 5846 | 6960 |
| | 75/65/20 °C | 318 | 791 | 1254 | 1763 | 2241 | 2700 | 3650 | 4612 | 5491 |
| | 70/55/20 °C | 257 | 640 | 1015 | 1427 | 1814 | 2186 | 2955 | 3734 | 4445 |
| | 55/45/20 °C | 164 | 407 | 645 | 908 | 1154 | 1390 | 1879 | 2374 | 2826 |

Note: Temperature exponent $n=1,3$
Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RAT2-W | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|---|---------------|------|------|------|------|------|------|------|-------|-------|
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | Weight [kg] | 4,9 | 10,5 | 15,9 | 21,3 | 26,9 | 32,5 | 43,7 | 54,9 | 66,1 |
| | Volume [l] | 0,7 | 1,4 | 2 | 2,6 | 3,2 | 3,8 | 5,1 | 6,3 | 7,5 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | Weight [kg] | 9,5 | 19,8 | 29,2 | 40,3 | 50,0 | 59,8 | 80,3 | 100,9 | 121,2 |
| | Volume [l] | 2,4 | 4,5 | 6,5 | 8,6 | 10,6 | 12,7 | 16,7 | 20,8 | 24,9 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | Weight [kg] | 11,5 | 22,9 | 34,3 | 45,6 | 56,9 | 68,2 | 90,8 | 113,4 | 136 |
| | Volume [l] | 4,6 | 8,4 | 12,3 | 16,1 | 20 | 23,8 | 31,5 | 39,2 | 46,9 |

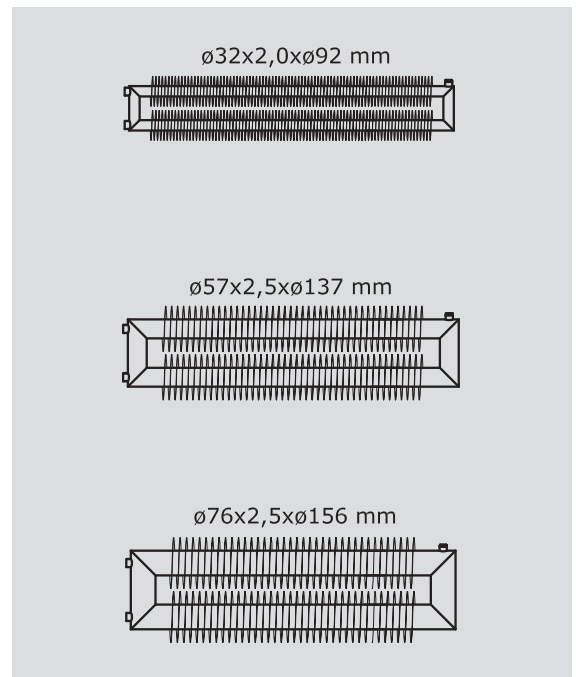
Note: Radiator weight without heating fluid

CODE EXAMPLE

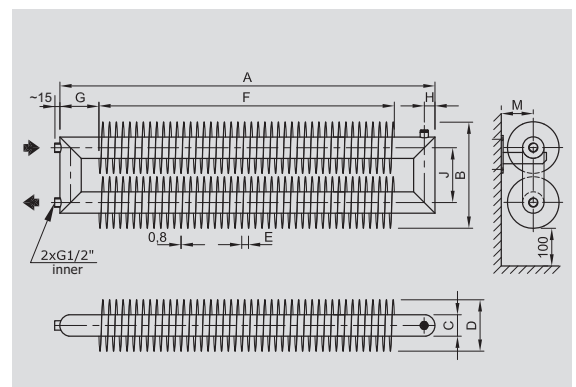
| | | | | | |
|-------------|-------------------------|----------------------------|-------------|-------------|-------------|
| ZRAT2 | 57 | 137 | 100 | W | 01 |
| SPIRAL type | \varnothing tube [mm] | \varnothing winding [mm] | length [cm] | on the wall | colour code |

Ordering, see the page 25

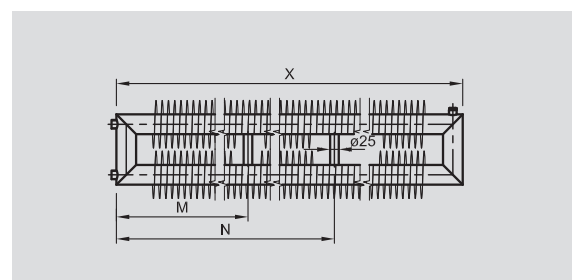
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RAT2-W ($\varnothing 32$ mm)

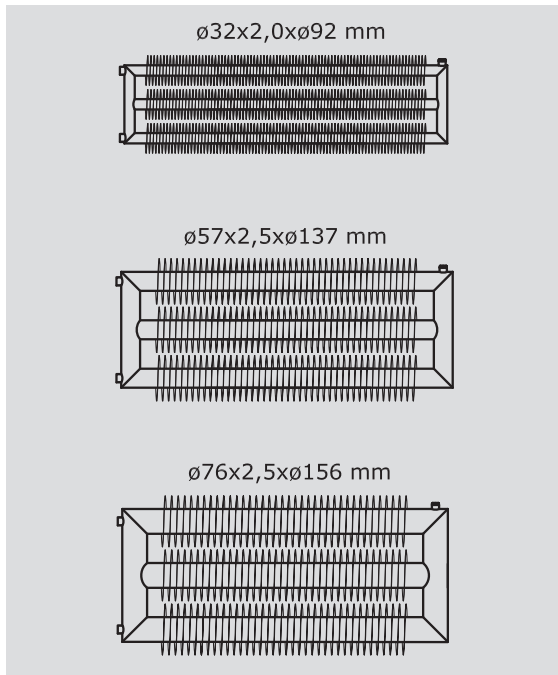
| length of spiral X [mm] | M | N | Number of consoles |
|-------------------------|-------|-------|--------------------|
| 500-2900 | 0 | 0 | 2 pcs |
| 2901-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

RAT2-W ($\varnothing 57$ mm a $\varnothing 76$ mm)

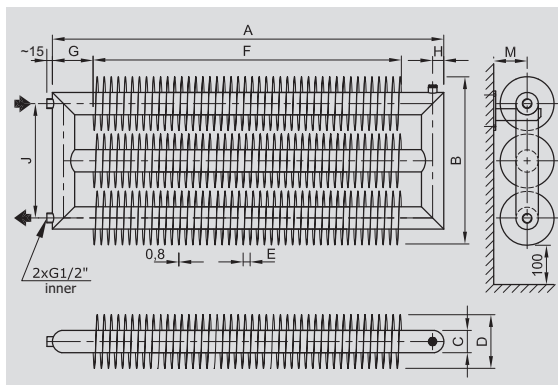
| length of spiral X [mm] | M | N | Number of consoles |
|-------------------------|-------|-------|--------------------|
| 500-3000 | 0 | 0 | 2 pcs |
| 3001-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |



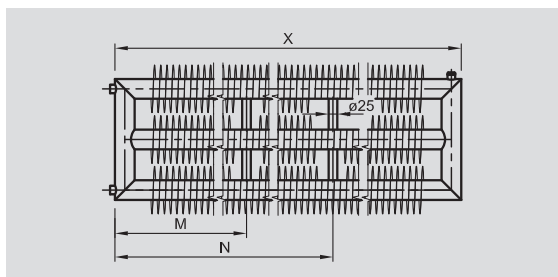
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RAT3-W (ø 32 mm)

| length of spiral X [mm] | M | N | Number of consoles |
|-------------------------|-------|-------|--------------------|
| 500-2900 | 0 | 0 | 2 pcs |
| 2901-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

RAT3-W (ø 57 mm a ø 76 mm)

| length of spiral X [mm] | M | N | Number of consoles |
|-------------------------|-------|-------|--------------------|
| 500-3000 | 0 | 0 | 2 pcs |
| 3001-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

TECHNICAL INFORMATION

| | | |
|--|--|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" ø 32 × 2,0 × ø 92 mm, lead of spiral 10 mm ø 57 × 2,5 × ø 137 mm, lead of spiral 18 mm ø 76 × 2,5 × ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm-6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RAT3-W | Dimensions [mm] | | | | | | | | | | | | |
|-----------------------|-----------------|-----|----|-----|----|-------|-----|----|---|-----|---|---|----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| ø 32 × 2,0 × ø 92 mm | 500-6000 | 302 | 32 | 92 | 10 | A-130 | 65 | 16 | - | 208 | - | - | 60 |
| ø 57 × 2,5 × ø 137 mm | 500-6000 | 429 | 57 | 137 | 18 | A-220 | 110 | 28 | - | 292 | - | - | 85 |
| ø 76 × 2,5 × ø 156 mm | 500-6000 | 488 | 76 | 156 | 20 | A-240 | 120 | 38 | - | 332 | - | - | 95 |

Note: ø 32 × 2,0 × ø 92 [mm] - diameter of tube × thickness × diameter of winding [mm]

HEATING OUTPUTS

| RAT3-W | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|-------------------|----------------------|----------------------------|------|------|------|------|------|------|------|-------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| ø 32×2,0×ø 92 mm | 90/70/20 °C | 539 | 1331 | 2129 | 2820 | 3511 | 4151 | 5581 | 7001 | 8420 |
| | 75/65/20 °C | 425 | 1050 | 1680 | 2225 | 2770 | 3275 | 4404 | 5523 | 6643 |
| | 70/55/20 °C | 344 | 850 | 1360 | 1801 | 2242 | 2651 | 3565 | 4471 | 5378 |
| | 55/45/20 °C | 219 | 540 | 865 | 1145 | 1426 | 1686 | 2267 | 2843 | 3419 |
| ø 57×2,5×ø 137 mm | 90/70/20 °C | 584 | 1483 | 2382 | 3318 | 4171 | 5133 | 6990 | 8841 | 10449 |
| | 75/65/20 °C | 461 | 1170 | 1879 | 2618 | 3291 | 4050 | 5515 | 6975 | 8244 |
| | 70/55/20 °C | 373 | 947 | 1521 | 2119 | 2664 | 3279 | 4465 | 5647 | 6674 |
| | 55/45/20 °C | 237 | 602 | 967 | 1348 | 1694 | 2085 | 2839 | 3590 | 4244 |
| ø 76×2,5×ø 156 mm | 90/70/20 °C | 607 | 1503 | 2399 | 3351 | 4265 | 5185 | 7066 | 9023 | 10567 |
| | 75/65/20 °C | 479 | 1186 | 1893 | 2644 | 3365 | 4091 | 5575 | 7119 | 8337 |
| | 70/55/20 °C | 388 | 960 | 1532 | 2140 | 2724 | 3312 | 4513 | 5763 | 6749 |
| | 55/45/20 °C | 247 | 610 | 974 | 1361 | 1732 | 2106 | 2870 | 3665 | 4291 |

Note: Temperature exponent n=1,3

Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RAT3-W | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|-------------------|---------------|------|------|------|------|------|-------|-------|-------|-------|
| ø 32×2,0×ø 92 mm | Weight [kg] | 7,2 | 15,5 | 23,7 | 31,8 | 39,9 | 48 | 65,8 | 83,6 | 101,4 |
| | Volume [l] | 1,1 | 2,1 | 3 | 3,9 | 4,8 | 5,8 | 7,6 | 9,5 | 11,3 |
| ø 57×2,5×ø 137 mm | Weight [kg] | 14,9 | 28,9 | 44,9 | 66,8 | 75,8 | 90,8 | 120,9 | 150,9 | 180,9 |
| | Volume [l] | 3,7 | 6,8 | 9,9 | 13 | 16 | 19,1 | 25,2 | 31,3 | 37,5 |
| ø 76×2,5×ø 156 mm | Weight [kg] | 19,2 | 36,9 | 53,5 | 70,5 | 87,6 | 104,8 | 135,8 | 170,7 | 205,5 |
| | Volume [l] | 7,2 | 13,0 | 18,8 | 24,5 | 30,3 | 36 | 47,6 | 59,2 | 70,7 |

Note: Radiator weight without heating fluid

CODE EXAMPLE

| ZRAT3 | 57 | 137 | 100 | W | 01 |
|-------------|-------------|----------------|-------------|-------------|-------------|
| SPIRAL type | ø tube [mm] | ø winding [mm] | length [cm] | on the wall | colour code |

Ordering, see the page 25



TECHNICAL INFORMATION

| | | |
|--|--|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm - 6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RAO2-W | Dimensions [mm] | | | | | | | | | | | | |
|---|-----------------|-----|----|-----|----|-------|----|-----|---|------------|---|---|----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 500-6000 | 187 | 32 | 92 | 10 | A-160 | 50 | 85 | - | 95 | - | - | 60 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 500-6000 | 282 | 57 | 137 | 18 | A-230 | 70 | 120 | - | 145 (175*) | - | - | 85 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 500-6000 | 356 | 76 | 156 | 20 | A-260 | 70 | 165 | - | 200 (195*) | - | - | 95 |

Note: $\varnothing 32 \times 2,0 \times \varnothing 92$ [mm] - diameter of tube \times thickness \times diameter of winding [mm]
 * Dimensions valid for stainless steel design

HEATING OUTPUTS

| RAO2-W | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|---|----------------------|----------------------------|------|------|------|------|------|------|------|------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 90/70/20 °C | 361 | 887 | 1420 | 1882 | 2345 | 2769 | 3725 | 4672 | 5618 |
| | 75/65/20 °C | 285 | 700 | 1120 | 1485 | 1850 | 2185 | 2939 | 3686 | 4433 |
| | 70/55/20 °C | 231 | 567 | 907 | 1202 | 1498 | 1769 | 2379 | 2984 | 3589 |
| | 55/45/20 °C | 147 | 360 | 577 | 764 | 952 | 1125 | 1513 | 1897 | 2282 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 90/70/20 °C | 385 | 965 | 1527 | 2178 | 2769 | 3377 | 4586 | 5775 | 6848 |
| | 75/65/20 °C | 304 | 761 | 1205 | 1718 | 2185 | 2664 | 3618 | 4556 | 5403 |
| | 70/55/20 °C | 246 | 616 | 976 | 1391 | 1769 | 2157 | 2929 | 3688 | 4374 |
| | 55/45/20 °C | 156 | 392 | 620 | 884 | 1125 | 1371 | 1862 | 2345 | 2781 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 90/70/20 °C | 403 | 1003 | 1589 | 2235 | 2840 | 3422 | 4626 | 5846 | 6960 |
| | 75/65/20 °C | 318 | 791 | 1254 | 1763 | 2241 | 2700 | 3650 | 4612 | 5491 |
| | 70/55/20 °C | 257 | 640 | 1015 | 1427 | 1814 | 2186 | 2955 | 3734 | 4445 |
| | 55/45/20 °C | 164 | 407 | 645 | 908 | 1154 | 1390 | 1879 | 2374 | 2826 |

Note: Temperature exponent $n=1,3$
 Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RAO2-W | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|---|---------------|------|------|------|------|------|------|------|-------|-------|
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | Weight [kg] | 4,7 | 10,2 | 15,6 | 21,1 | 27,2 | 32,8 | 44,1 | 55,2 | 66,3 |
| | Volume [l] | 0,63 | 1,25 | 1,86 | 2,5 | 3,1 | 3,71 | 4,9 | 6,2 | 7,4 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | Weight [kg] | 9,2 | 19,5 | 29,7 | 40,0 | 49,7 | 59,5 | 80,0 | 100,5 | 120,9 |
| | Volume [l] | 2,1 | 4,1 | 6,2 | 8,2 | 10,3 | 12,3 | 16,4 | 20,5 | 24,6 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | Weight [kg] | 11,3 | 22,6 | 33,8 | 45 | 56,4 | 67,9 | 88,5 | 113,4 | 135 |
| | Volume [l] | 4 | 7,8 | 11,7 | 15,5 | 19,4 | 23,2 | 30,9 | 38,6 | 46,3 |

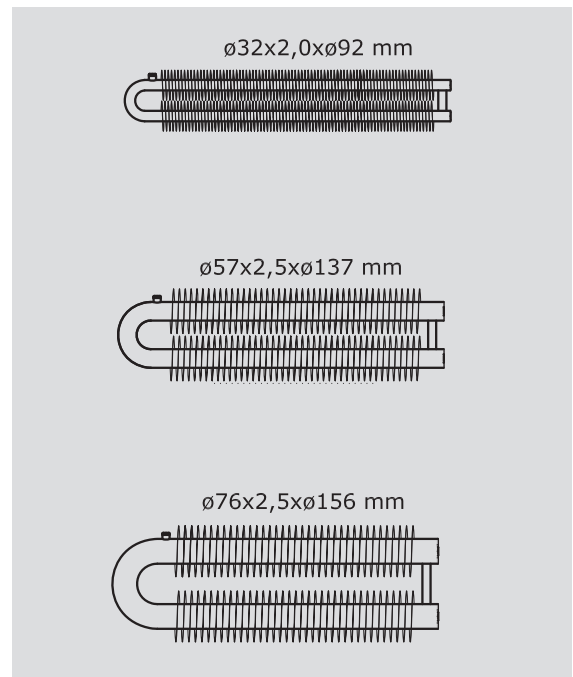
Note: Radiator weight without heating fluid

CODE EXAMPLE

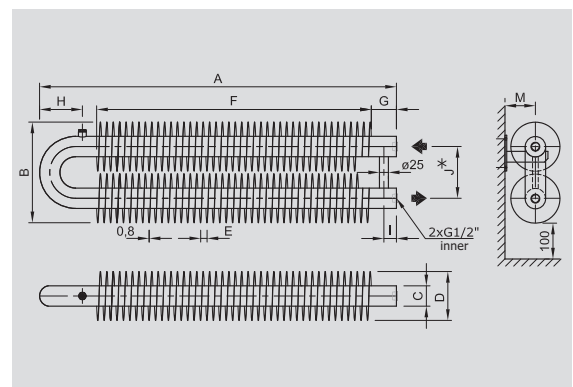
| | | | | | |
|-------------|-------------------------|----------------------------|-------------|-------------|-------------|
| ZRAO2 | 57 | 137 | 100 | W | 01 |
| SPIRAL type | \varnothing tube [mm] | \varnothing winding [mm] | length [cm] | on the wall | colour code |

Ordering, see the page 25

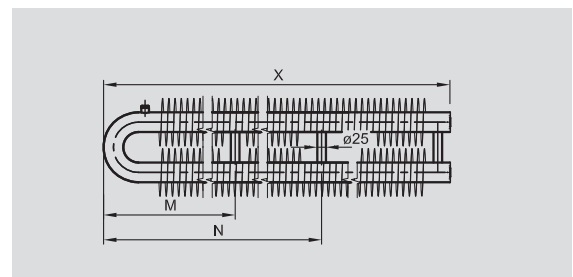
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RAO2-W ($\varnothing 32$ mm)

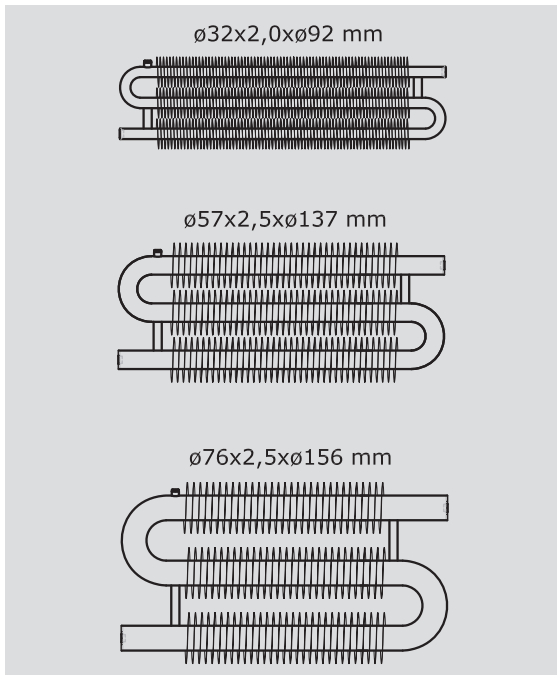
| length of spiral X [mm] | M | N | Number of consoles |
|-------------------------|-------|-------|--------------------|
| 500-2900 | 0 | 0 | 2 pcs |
| 2901-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

RAO2-W ($\varnothing 57$ mm a $\varnothing 76$ mm)

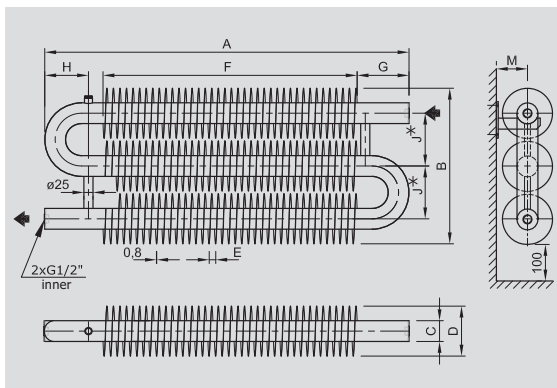
| length of spiral X [mm] | M | N | Number of consoles |
|-------------------------|-------|-------|--------------------|
| 500-3000 | 0 | 0 | 2 pcs |
| 3001-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |



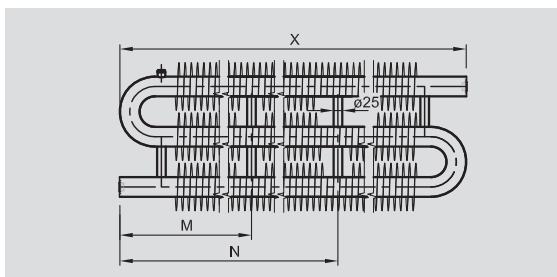
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RAO3-W (ø 32 mm)

| length of spiral X [mm] | M | N | Number of consoles |
|-------------------------|-------|-------|--------------------|
| 500-2900 | 0 | 0 | 2 pcs |
| 2901-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

RAO3-W (ø 57 mm a ø 76 mm)

| length of spiral X [mm] | M | N | Number of consoles |
|-------------------------|-------|-------|--------------------|
| 500-3000 | 0 | 0 | 2 pcs |
| 3001-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

TECHNICAL INFORMATION

| | | |
|--|--|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" ø 32 × 2,0 × ø 92 mm, lead of spiral 10 mm ø 57 × 2,5 × ø 137 mm, lead of spiral 18 mm ø 76 × 2,5 × ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm-6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RAO3-W | Dimensions [mm] | | | | | | | | | | | | |
|-----------------------|-----------------|-----|----|-----|----|-------|-----|-----|---|------------|---|---|----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| ø 32 × 2,0 × ø 92 mm | 500-6000 | 282 | 32 | 92 | 10 | A-220 | 110 | 85 | - | 95 | - | - | 60 |
| ø 57 × 2,5 × ø 137 mm | 500-6000 | 427 | 57 | 137 | 18 | A-300 | 150 | 120 | - | 145 (175*) | - | - | 85 |
| ø 76 × 2,5 × ø 156 mm | 500-6000 | 556 | 76 | 156 | 20 | A-380 | 190 | 165 | - | 200 (195*) | - | - | 95 |

Note: ø 32 × 2,0 × ø 92 [mm] - diameter of tube × thickness × diameter of winding [mm]

* Dimensions valid for stainless steel design

HEATING OUTPUTS

| RAO3-W | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|-------------------|----------------------|----------------------------|------|------|------|------|------|------|------|-------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| ø 32×2,0×ø 92 mm | 90/70/20 °C | 539 | 1331 | 2129 | 2820 | 3511 | 4151 | 5581 | 7001 | 8420 |
| | 75/65/20 °C | 425 | 1050 | 1680 | 2225 | 2770 | 3275 | 4404 | 5523 | 6643 |
| | 70/55/20 °C | 344 | 850 | 1360 | 1801 | 2242 | 2651 | 3565 | 4471 | 5378 |
| | 55/45/20 °C | 219 | 540 | 865 | 1145 | 1426 | 1686 | 2267 | 2843 | 3419 |
| ø 57×2,5×ø 137 mm | 90/70/20 °C | 584 | 1483 | 2382 | 3318 | 4171 | 5133 | 6990 | 8841 | 10449 |
| | 75/65/20 °C | 461 | 1170 | 1879 | 2618 | 3291 | 4050 | 5515 | 6975 | 8244 |
| | 70/55/20 °C | 373 | 947 | 1521 | 2119 | 2664 | 3279 | 4465 | 5647 | 6674 |
| | 55/45/20 °C | 237 | 602 | 967 | 1348 | 1694 | 2085 | 2839 | 3590 | 4244 |
| ø 76×2,5×ø 156 mm | 90/70/20 °C | 607 | 1503 | 2399 | 3351 | 4265 | 5185 | 7066 | 9023 | 10567 |
| | 75/65/20 °C | 479 | 1186 | 1893 | 2644 | 3365 | 4091 | 5575 | 7119 | 8337 |
| | 70/55/20 °C | 388 | 960 | 1532 | 2140 | 2724 | 3312 | 4513 | 5763 | 6749 |
| | 55/45/20 °C | 247 | 610 | 974 | 1361 | 1732 | 2106 | 2870 | 3665 | 4291 |

Note: Temperature exponent n=1,3

Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RAO3-W | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|-------------------|---------------|------|------|------|------|------|-------|-------|-------|-------|
| ø 32×2,0×ø 92 mm | Weight [kg] | 7 | 15,2 | 23,4 | 31,5 | 39,6 | 47,7 | 65,5 | 83,3 | 101,1 |
| | Volume [l] | 1,0 | 1,9 | 2,8 | 3,8 | 4,7 | 5,6 | 7,5 | 9,3 | 11,2 |
| ø 57×2,5×ø 137 mm | Weight [kg] | 14,0 | 28,0 | 44,0 | 60,0 | 75,0 | 90,0 | 120,0 | 150,0 | 180,0 |
| | Volume [l] | 3,4 | 6,4 | 9,5 | 12,6 | 15,6 | 18,7 | 24,8 | 31,0 | 37,1 |
| ø 76×2,5×ø 156 mm | Weight [kg] | 17,1 | 32,6 | 49,6 | 66,5 | 83,8 | 100,1 | 130,0 | 167 | 197,6 |
| | Volume [l] | 6,6 | 12,4 | 18,1 | 23,9 | 29,7 | 35,5 | 47,0 | 58,6 | 70,1 |

Note: Radiator weight without heating fluid

CODE EXAMPLE

| ZRAO3 | 57 | 137 | 100 | W | 01 |
|-------------|-------------|----------------|-------------|-------------|-------------|
| SPIRAL type | ø tube [mm] | ø winding [mm] | length [cm] | on the wall | colour code |

Ordering, see the page 25



TECHNICAL INFORMATION

| | | |
|--|--|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm - 6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RA1-S | Dimensions [mm] | | | | | | | | | | | | |
|---|-----------------|-----|----|-----|----|-------|-----|----|-----|---|-----|-----|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 500-6000 | 192 | 32 | 92 | 10 | A-130 | 65 | 16 | 146 | - | 76 | 56 | ≥60 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 500-6000 | 237 | 57 | 137 | 18 | A-220 | 110 | 28 | 169 | - | 130 | 110 | ≥85 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 500-6000 | 256 | 76 | 156 | 20 | A-240 | 120 | 38 | 178 | - | 130 | 110 | ≥95 |

Note: $\varnothing 32 \times 2,0 \times \varnothing 92$ [mm] - diameter of tube × thickness × diameter of winding [mm]

HEATING OUTPUTS

| RA1-S | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|---|----------------------|----------------------------|------|------|------|------|------|------|------|------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 90/70/20 °C | 203 | 501 | 799 | 1058 | 1318 | 1578 | 2095 | 2628 | 3161 |
| | 75/65/20 °C | 160 | 395 | 630 | 835 | 1040 | 1245 | 1653 | 2073 | 2494 |
| | 70/55/20 °C | 130 | 320 | 510 | 676 | 842 | 1008 | 1338 | 1679 | 2019 |
| | 55/45/20 °C | 82 | 203 | 324 | 430 | 535 | 641 | 851 | 1067 | 1284 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 90/70/20 °C | 266 | 559 | 911 | 1240 | 1568 | 1919 | 2612 | 3292 | 3906 |
| | 75/65/20 °C | 210 | 441 | 719 | 978 | 1237 | 1514 | 2061 | 2597 | 3082 |
| | 70/55/20 °C | 170 | 357 | 582 | 792 | 1001 | 1226 | 1668 | 2102 | 2495 |
| | 55/45/20 °C | 108 | 227 | 370 | 503 | 637 | 779 | 1061 | 1337 | 1586 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 90/70/20 °C | 294 | 587 | 939 | 1260 | 1636 | 2046 | 2721 | 3366 | 3991 |
| | 75/65/20 °C | 232 | 463 | 741 | 994 | 1291 | 1614 | 2147 | 2656 | 3149 |
| | 70/55/20 °C | 188 | 375 | 600 | 805 | 1045 | 1307 | 1738 | 2150 | 2549 |
| | 55/45/20 °C | 119 | 238 | 381 | 512 | 665 | 831 | 1105 | 1367 | 1621 |

Note: Temperature exponent $n=1,3$
Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RA1-S | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|---|---------------|-----|------|------|------|------|------|------|------|------|
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | Weight [kg] | 2,4 | 5,1 | 7,9 | 10,6 | 13,3 | 16 | 18,7 | 21,4 | 24,1 |
| | Volume [l] | 0,5 | 0,8 | 1,1 | 1,5 | 1,8 | 2,1 | 2,7 | 3,3 | 3,9 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | Weight [kg] | 4,8 | 9,3 | 13,9 | 18,4 | 22,9 | 27,4 | 31,9 | 40,9 | 49,8 |
| | Volume [l] | 1,7 | 2,7 | 3,7 | 4,7 | 5,8 | 6,8 | 8,8 | 10,9 | 12,9 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | Weight [kg] | 5,6 | 10,9 | 16,3 | 21,7 | 27,1 | 32,5 | 37,9 | 46,9 | 57,1 |
| | Volume [l] | 3,1 | 5,0 | 7 | 8,9 | 10,8 | 12,7 | 16,6 | 20,4 | 24,3 |

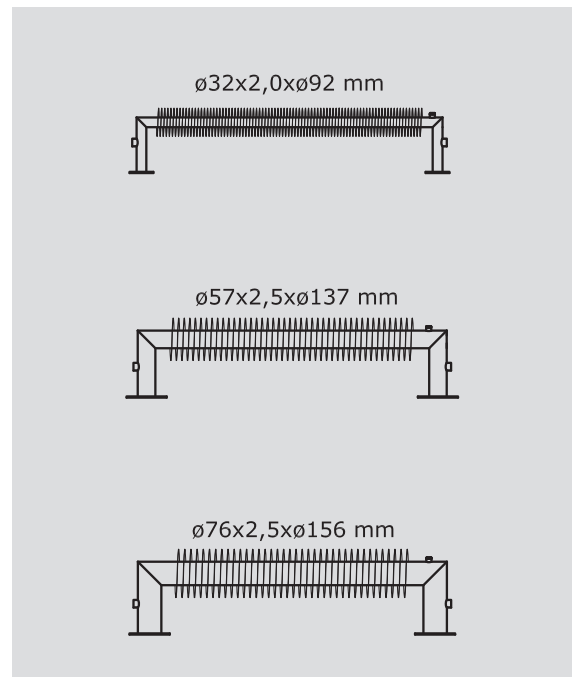
Note: Radiator weight without heating fluid

CODE EXAMPLE

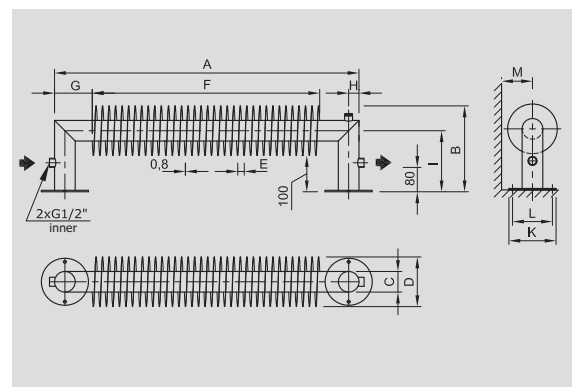
| | | | | | |
|-------------|-------------------------|----------------------------|-------------|---------------|-------------|
| ZRA-1 | 57 | 137 | 100 | S | 01 |
| SPIRAL type | \varnothing tube [mm] | \varnothing winding [mm] | length [cm] | self-standing | colour code |

Ordering, see the page 25

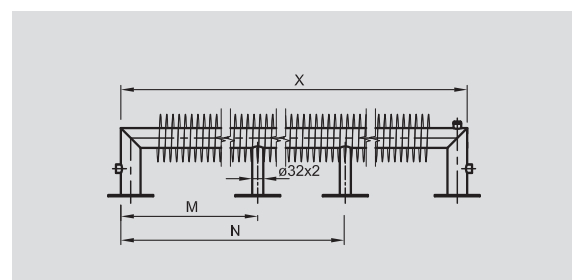
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RA1-S ($\varnothing 32$ mm)

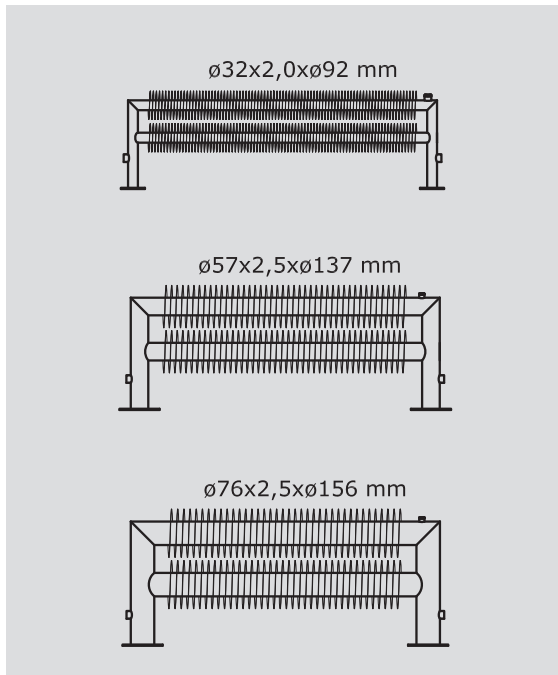
| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-2900 | 0 | 0 | 2 pcs |
| 2901-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

RA1-S ($\varnothing 57$ mm a $\varnothing 76$ mm)

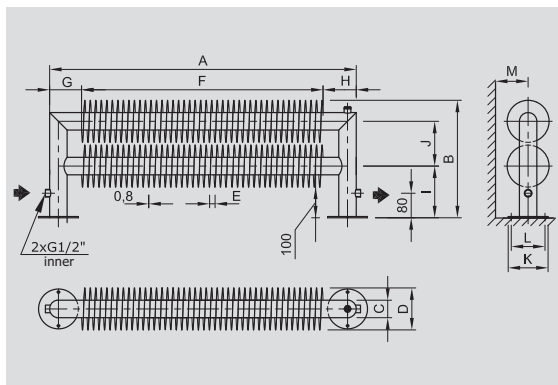
| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-3000 | 0 | 0 | 2 pcs |
| 3001-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |



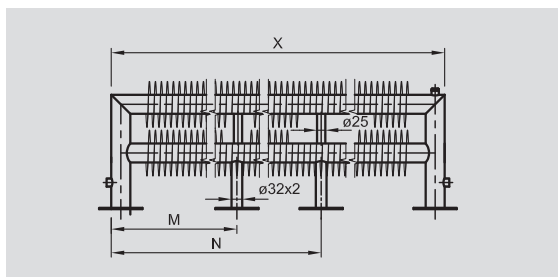
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RAT2-S (ø 32 mm)

| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-2900 | 0 | 0 | 2 pcs |
| 2901-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

RAT2-S (ø 57 mm a ø 76 mm)

| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500-3000 | 0 | 0 | 2 pcs |
| 3001-4500 | X/2 | 0 | 3 pcs |
| 4501-6000 | 1/3 X | 2/3 X | 4 pcs |

TECHNICAL INFORMATION

| | | |
|--|--|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" ø 32 × 2,0 × ø 92 mm, lead of spiral 10 mm ø 57 × 2,5 × ø 137 mm, lead of spiral 18 mm ø 76 × 2,5 × ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm-6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RAT2 - S | Dimensions [mm] | | | | | | | | | | | | |
|-----------------------|-----------------|-----|----|-----|----|-------|-----|----|-----|-----|-----|-----|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| ø 32 × 2,0 × ø 92 mm | 500-6000 | 297 | 32 | 92 | 10 | A-130 | 65 | 16 | 146 | 105 | 76 | 56 | ≥60 |
| ø 57 × 2,5 × ø 137 mm | 500-6000 | 383 | 57 | 137 | 18 | A-220 | 110 | 28 | 169 | 146 | 130 | 110 | ≥85 |
| ø 76 × 2,5 × ø 156 mm | 500-6000 | 422 | 76 | 156 | 20 | A-240 | 120 | 38 | 178 | 166 | 130 | 110 | ≥95 |

Note: ø 32 × 2,0 × ø 92 [mm] - diameter of tube × thickness × diameter of winding [mm]

HEATING OUTPUTS

| RAT2-S | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|-------------------|----------------------|----------------------------|------|------|------|------|------|------|------|------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| ø 32×2,0×ø 92 mm | 90/70/20 °C | 361 | 887 | 1420 | 1882 | 2345 | 2769 | 3725 | 4672 | 5618 |
| | 75/65/20 °C | 285 | 700 | 1120 | 1485 | 1850 | 2185 | 2939 | 3686 | 4433 |
| | 70/55/20 °C | 231 | 567 | 907 | 1202 | 1498 | 1769 | 2379 | 2984 | 3589 |
| | 55/45/20 °C | 147 | 360 | 577 | 764 | 952 | 1125 | 1513 | 1897 | 2282 |
| ø 57×2,5×ø 137 mm | 90/70/20 °C | 385 | 965 | 1527 | 2178 | 2769 | 3377 | 4586 | 5775 | 6848 |
| | 75/65/20 °C | 304 | 761 | 1205 | 1718 | 2185 | 2664 | 3618 | 4556 | 5403 |
| | 70/55/20 °C | 246 | 616 | 976 | 1391 | 1769 | 2157 | 2929 | 3688 | 4374 |
| | 55/45/20 °C | 156 | 392 | 620 | 884 | 1125 | 1371 | 1862 | 2345 | 2781 |
| ø 76×2,5×ø 156 mm | 90/70/20 °C | 403 | 1003 | 1589 | 2235 | 2840 | 3422 | 4626 | 5846 | 6960 |
| | 75/65/20 °C | 318 | 791 | 1254 | 1763 | 2241 | 2700 | 3650 | 4612 | 5491 |
| | 70/55/20 °C | 257 | 640 | 1015 | 1427 | 1814 | 2186 | 2955 | 3734 | 4445 |
| | 55/45/20 °C | 164 | 407 | 645 | 908 | 1154 | 1390 | 1879 | 2374 | 2826 |

Note: Temperature exponent n=1,3

Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RAT2-S | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|-------------------|---------------|------|------|------|------|------|------|------|-------|-------|
| ø 32×2,0×ø 92 mm | Weight [kg] | 5 | 10,6 | 16 | 21,4 | 27,0 | 32,6 | 43,8 | 55 | 66,2 |
| | Volume [l] | 0,9 | 1,5 | 2,1 | 2,8 | 3,4 | 4 | 5,2 | 6,5 | 7,7 |
| ø 57×2,5×ø 137 mm | Weight [kg] | 9,7 | 20,0 | 30,1 | 40,5 | 50,2 | 60,0 | 80,5 | 101,1 | 121,4 |
| | Volume [l] | 3 | 5,1 | 7,1 | 9,1 | 11,2 | 13,2 | 17,3 | 21,4 | 25,5 |
| ø 76×2,5×ø 156 mm | Weight [kg] | 11,7 | 23,1 | 34,5 | 45,8 | 57,1 | 68,4 | 91,0 | 113,6 | 136,2 |
| | Volume [l] | 5,9 | 9,8 | 13,6 | 17,5 | 21,3 | 25,2 | 32,9 | 40,6 | 48,3 |

Note: Radiator weight without heating fluid

CODE EXAMPLE

| ZRAT2 | 57 | 137 | 100 | S | 01 |
|-------------|-------------|----------------|-------------|---------------|-------------|
| SPIRAL type | ø tube [mm] | ø winding [mm] | length [cm] | self-standing | colour code |

Ordering, see the page 25



TECHNICAL INFORMATION

| | | |
|--|--|---|
| Material | Standard: | steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm |
| | Stainless steel, Hot-dip galvanized: | per order, see page 21 |
| Connection threads | inner G1/2" | |
| Lengths | 500 mm–6 000 mm (with step of 100 mm) | |
| Operating conditions | Hot water system: | forced circulation |
| | Max. operating temperature: | 120 °C |
| | Operating overpressure: | 1,0 MPa |
| | Test overpressure: | 1,3 MPa |
| The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C. | | |
| Colour | snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge) | |
| Atypical design options | Connection threads G3/4", G3/8", G1" | |
| | Lead of spiral from 10–30 mm (12–30 mm) with step 2 mm | |
| | Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation. | |

TABLE OF DIMENSIONS

| RAT3-S | Dimensions [mm] | | | | | | | | | | | | |
|---|-----------------|-----|----|-----|----|-------|-----|----|-----|-----|-----|-----|-----|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 500–6000 | 396 | 32 | 92 | 10 | A-130 | 65 | 16 | 146 | 105 | 76 | 56 | ≥60 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 500–6000 | 529 | 57 | 137 | 18 | A-220 | 110 | 28 | 169 | 146 | 130 | 110 | ≥85 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 500–6000 | 588 | 76 | 156 | 20 | A-240 | 120 | 38 | 178 | 166 | 130 | 110 | ≥95 |

Note: $\varnothing 32 \times 2,0 \times \varnothing 92$ [mm] - diameter of tube × thickness × diameter of winding [mm]

HEATING OUTPUTS

| RAT3-S | TEMPERATURE GRADIENT | LENGTH [mm] / OUTPUT Q [W] | | | | | | | | |
|---|----------------------|----------------------------|------|------|------|------|------|------|------|-------|
| | | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | 90/70/20 °C | 539 | 1331 | 2129 | 2820 | 3511 | 4151 | 5581 | 7001 | 8420 |
| | 75/65/20 °C | 425 | 1050 | 1680 | 2225 | 2770 | 3275 | 4404 | 5523 | 6643 |
| | 70/55/20 °C | 344 | 850 | 1360 | 1801 | 2242 | 2651 | 3565 | 4471 | 5378 |
| | 55/45/20 °C | 219 | 540 | 865 | 1145 | 1426 | 1686 | 2267 | 2843 | 3419 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | 90/70/20 °C | 584 | 1483 | 2382 | 3318 | 4171 | 5133 | 6990 | 8841 | 10449 |
| | 75/65/20 °C | 461 | 1170 | 1879 | 2618 | 3291 | 4050 | 5515 | 6975 | 8244 |
| | 70/55/20 °C | 373 | 947 | 1521 | 2119 | 2664 | 3279 | 4465 | 5647 | 6674 |
| | 55/45/20 °C | 237 | 602 | 967 | 1348 | 1694 | 2085 | 2839 | 3590 | 4244 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | 90/70/20 °C | 607 | 1503 | 2399 | 3351 | 4265 | 5185 | 7066 | 9023 | 10567 |
| | 75/65/20 °C | 479 | 1186 | 1893 | 2644 | 3365 | 4091 | 5575 | 7119 | 8337 |
| | 70/55/20 °C | 388 | 960 | 1532 | 2140 | 2724 | 3312 | 4513 | 5763 | 6749 |
| | 55/45/20 °C | 247 | 610 | 974 | 1361 | 1732 | 2106 | 2870 | 3665 | 4291 |

Note: Temperature exponent $n=1,3$
Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

VOLUME OF WATER AND WEIGHT

| RAT3-S | Length X [mm] | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
|---|---------------|------|------|------|------|------|-------|-------|-------|-------|
| $\varnothing 32 \times 2,0 \times \varnothing 92$ mm | Weight [kg] | 7,3 | 15,6 | 23,8 | 31,9 | 40,0 | 48,1 | 65,9 | 83,7 | 101,5 |
| | Volume [l] | 1,3 | 2,2 | 3,2 | 4,0 | 5,0 | 5,9 | 7,8 | 9,6 | 11,5 |
| $\varnothing 57 \times 2,5 \times \varnothing 137$ mm | Weight [kg] | 15,0 | 29,0 | 45,0 | 67,0 | 76,0 | 91,0 | 121,0 | 151,0 | 181,0 |
| | Volume [l] | 4,3 | 7,4 | 10,5 | 13,5 | 16,6 | 19,7 | 25,8 | 31,9 | 38,0 |
| $\varnothing 76 \times 2,5 \times \varnothing 156$ mm | Weight [kg] | 19,4 | 36,8 | 53,7 | 70,7 | 87,8 | 105,0 | 136,0 | 170,9 | 205,7 |
| | Volume [l] | 8,3 | 14,0 | 19,8 | 25,6 | 31,4 | 37,2 | 48,7 | 60,3 | 71,8 |

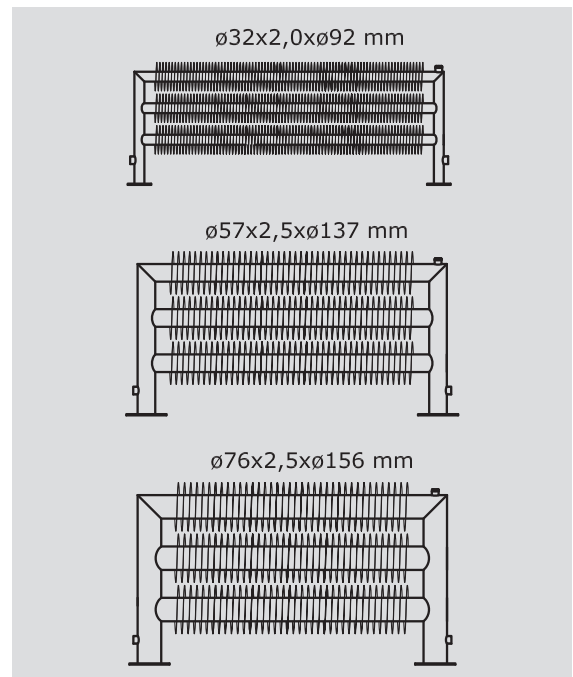
Note: Radiator weight without heating fluid

CODE EXAMPLE

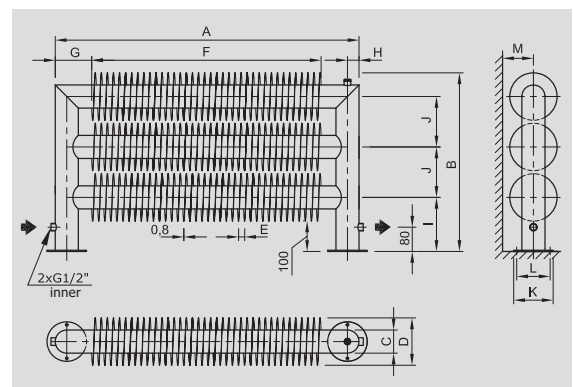
| ZRAT3 | 57 | 137 | 100 | S | 01 |
|-------------|-------------------------|----------------------------|-------------|---------------|-------------|
| SPIRAL type | \varnothing tube [mm] | \varnothing winding [mm] | length [cm] | self-standing | colour code |

Ordering, see the page 25

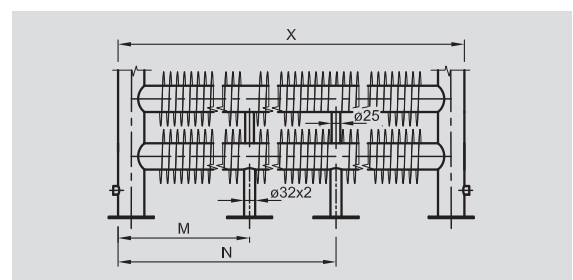
BASIC TYPES



SKETCH



SUPPORTING ELEMENTS



RAT3-S ($\varnothing 32$ mm)

| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500–2900 | 0 | 0 | 2 pcs |
| 2901–4500 | X/2 | 0 | 3 pcs |
| 4501–6000 | 1/3 X | 2/3 X | 4 pcs |

RAT3-S ($\varnothing 57$ mm a $\varnothing 76$ mm)

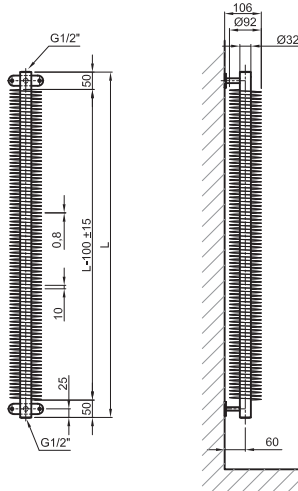
| length of spiral X [mm] | M | N | Number of legs |
|-------------------------|-------|-------|----------------|
| 500–3000 | 0 | 0 | 2 pcs |
| 3001–4500 | X/2 | 0 | 3 pcs |
| 4501–6000 | 1/3 X | 2/3 X | 4 pcs |



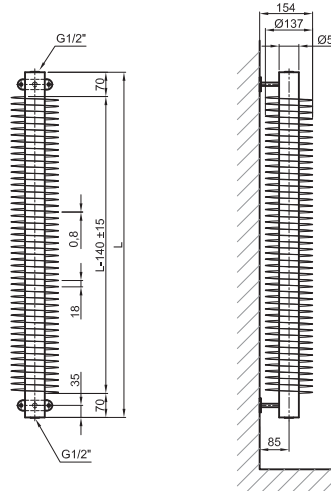
Spiral radiators can be ordered for installation on a wall in a vertical position, types RA, RAT, RAO

- length L = 500-2 500 mm
- heating output of the painted version = heating output of the horizontal Spiral -30 %
- heating output of the stainless steel version = heating output of the horizontal Spiral -55 %

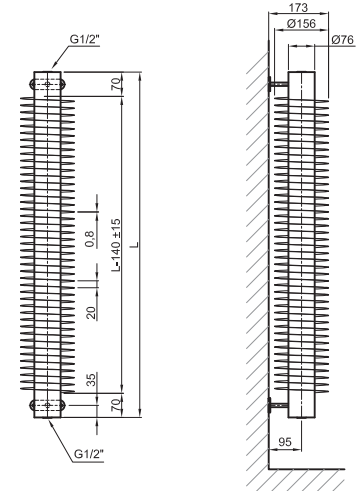
RA1



RA1 32×2×92 VERTICAL

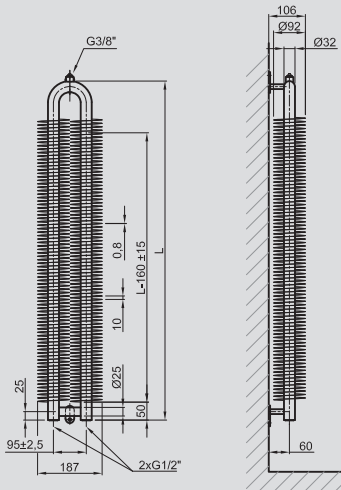


RA1 57×2,5×137 VERTICAL

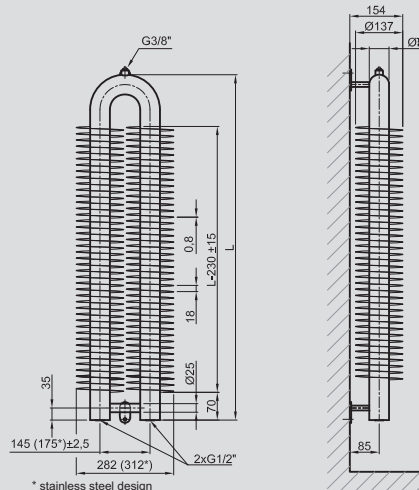


RA1 76×2,5×156 VERTICAL

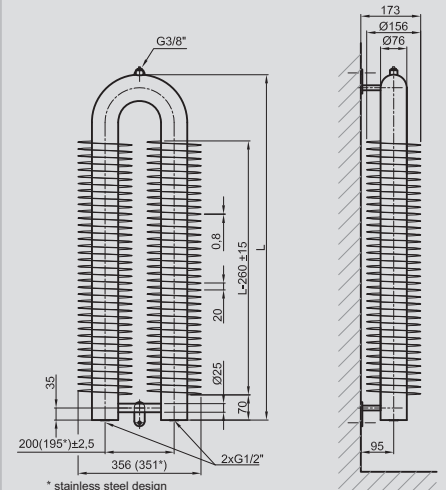
RA02



RA02 32×2×92 VERTICAL

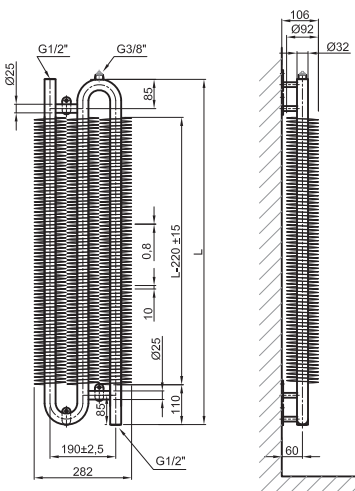


RA02 57×2,5×137 VERTICAL

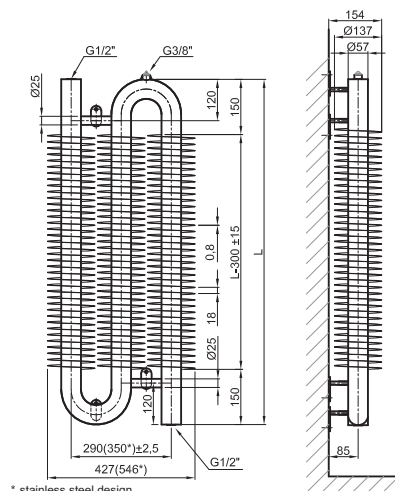


RA02 76×2,5×156 VERTICAL

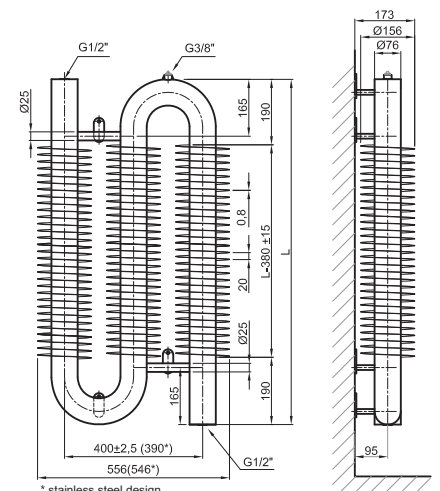
RA03 RIGHT



RA03 32×2×92 VERTICAL RIGHT



RA03 57×2,5×137 VERTICAL RIGHT



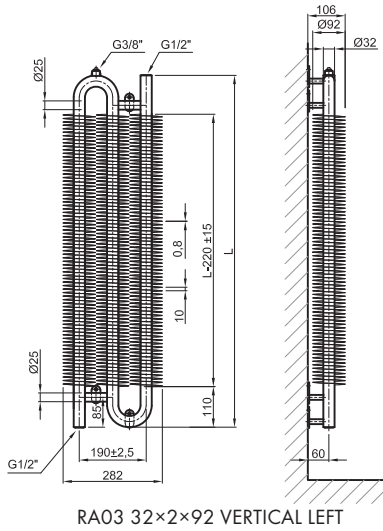
RA03 76×2,5×156 VERTICAL RIGHT



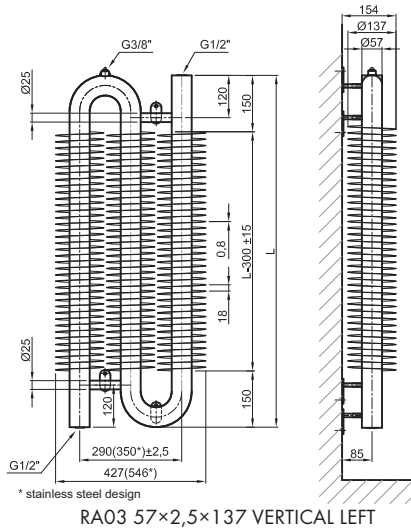
Spiral radiators can be ordered for installation on a wall in a vertical position, types RA, RAT, RAO

- length L = 500 - 2 500 mm
- heating output of the painted version = heating output of the horizontal Spiral -30 %
- heating output of the stainless steel version = heating output of the horizontal Spiral -55 %

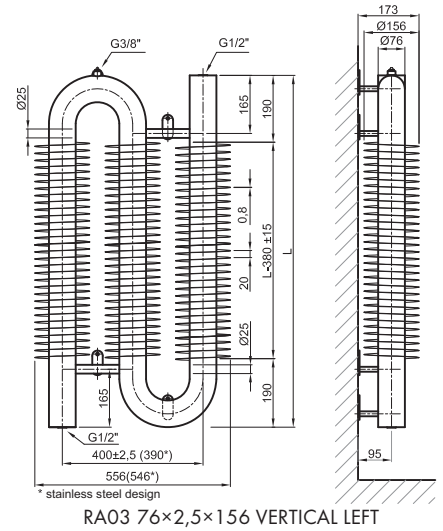
RAO3 LEFT



RAO3 32×2×92 VERTICAL LEFT

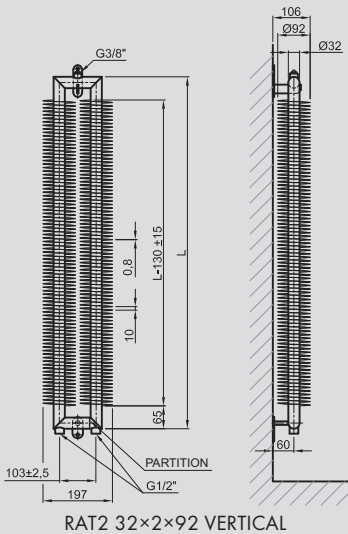


RAO3 57×2,5×137 VERTICAL LEFT

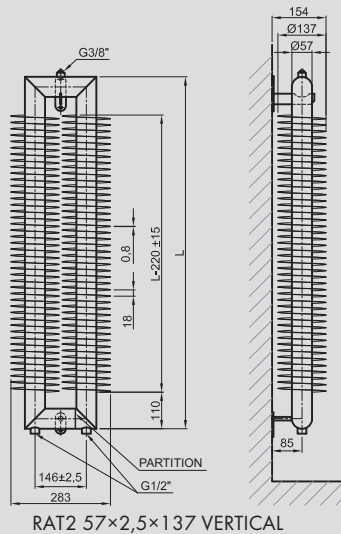


RAO3 76×2,5×156 VERTICAL LEFT

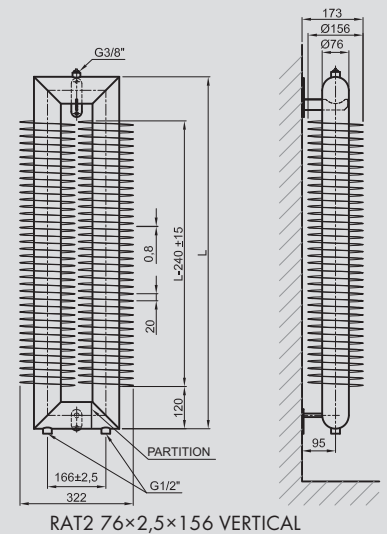
RAT2



RAT2 32×2×92 VERTICAL

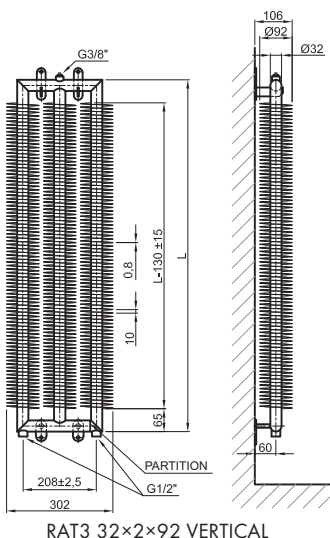


RAT2 57×2,5×137 VERTICAL

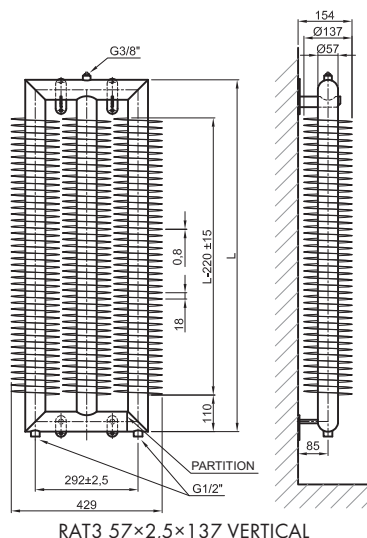


RAT2 76×2,5×156 VERTICAL

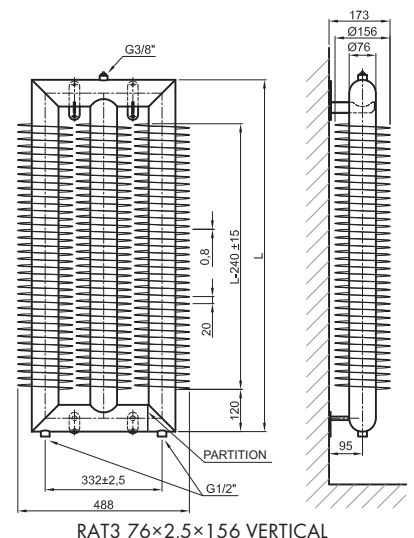
RAT3



RAT3 32×2×92 VERTICAL



RAT3 57×2,5×137 VERTICAL



RAT3 76×2,5×156 VERTICAL

SPIRAL | SMOOTH TUBES

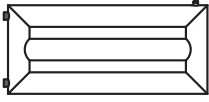


Other variation of SPIRAL radiators is a version without winding – smooth tubes. They are delivered in versions for floor, on wall and self-standing, the same as standard models. For the heating output of radiators made of smooth tubes consider the 20–25 % of the standard ribbed radiator.

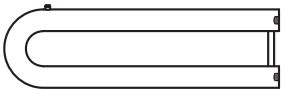
EXAMPLES:

WALL-MOUNTED VERSION

HRAT3

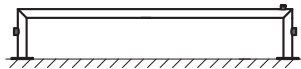


HRAO2



SELF-STANDING VERSION

HRA1

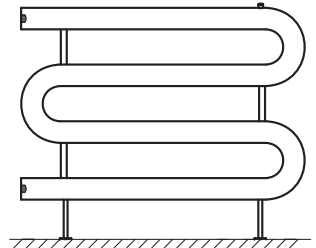


FLOOR-MOUNTED VERSION

HRAT2



HRAO4



CODE EXAMPLE

| | | | | | |
|-------------|-------------|----------------|-------------|--------------|--------|
| HRAT2 | 57 | - | 100 | F | 01 |
| SPIRAL type | ∅ tube [mm] | ∅ winding [mm] | length [cm] | on the floor | colour |

Atypical solutions are delivered only based on drawings; for specification of technical parameters and heating outputs please contact sales department of ISAN Radiatory s.r.o.
Ordering, see the page 25



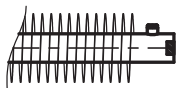
CONNECTION OPTIONS FOR SPIRAL RADIATORS



STANDARD WAYS OF CONNECTING SPIRAL RADIATORS

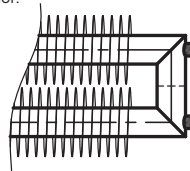
Standard connection S1, S2, S3 with no additional charge on top of the price of the radiator.

S1



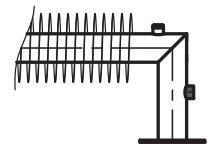
Standard connection for RA1 and RAO radiators.

S2



Standard connection for RAT radiators.

S3

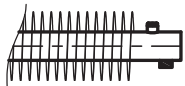


Standard connection for RA1 and RAT self-standing radiators.

ATYPICAL WAYS OF CONNECTING SPIRAL RADIATORS - (ADDITIONAL CHARGE FOR CHANGE IN CONNECTION)

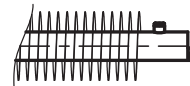
Atypical ways of connection can be combined with changes in the connection threads (G 3/8", G 1/2", G 3/4", G 1") after consultation with the sales department.

A1



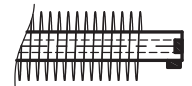
Atypical connection for RA1, RAT and RAO radiators.

A2



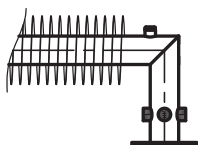
Atypical connection for RA1 and RAO radiators with a diameter of 57 and 76 mm.

A3



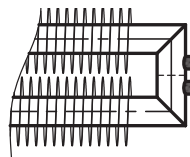
Atypical connection for RA1 radiators with a diameter of 57 and 76 mm.

A4



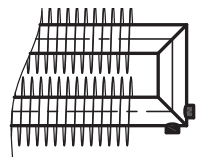
Atypical connection for self-standing RA1 and RAT radiators. Any movement of the connection must always be only by an angle of 90°.

A5



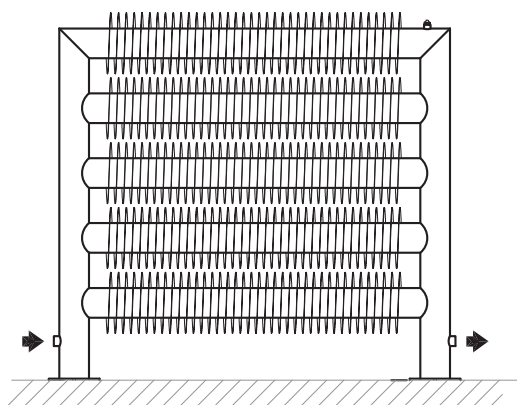
Atypical connection for RAT radiators. Min. pitch of the connection 50 mm.

A6

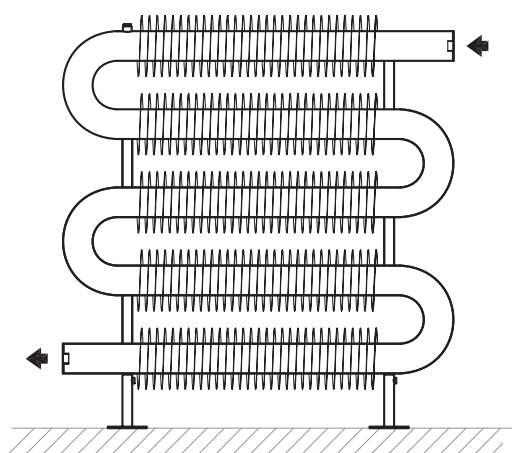


Atypical connection for RAT radiators.

Should you be interested in special connections please contact the sales department of ISAN Radiatory s.r.o. for a specification of the technical parameters. Should it not be stated otherwise, the atypical connections are valid for all of the manufactured diameters 32, 57 and 76 mm.



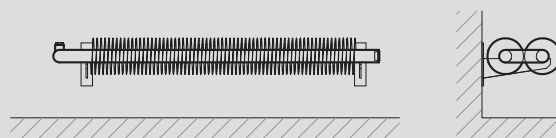
RAT5 76/156 SELF-STANDING



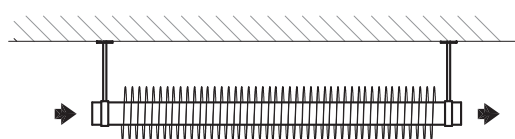
RAO5 57/137 ON THE FLOOR



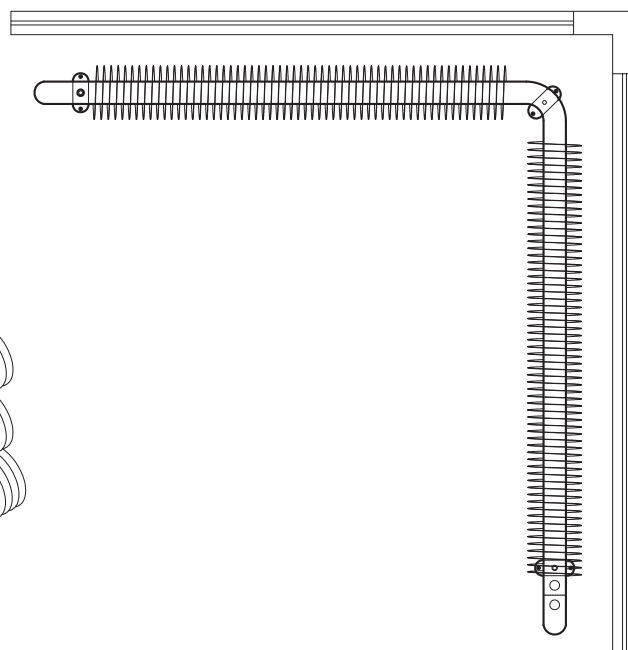
RAT2 76/156 TO THE FLOOR HORIZONTALLY



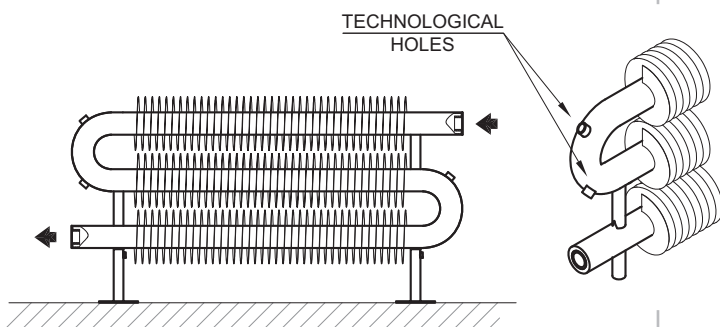
RAO2 32/92 TO THE WALL HORIZONTALLY



RA1 57/137 UNDER CEILING



RAO2 57/137 TO THE FLOOR - BROKEN LINE SHAPE



RAO3 57/137 ON THE FLOOR - GALVANIZED



MODERN INTERIOR DESIGN ELEMENTS

Stainless steel radiators are designed for modern interiors, for premises with requirements for environmental resistance and durability. They are an important part of the room, a massive metal body with gently blasted finish and visible welds.

WET ENVIRONMENT

Stainless steel coils are suitable for rooms with higher humidity and in the environment where the radiator comes into contact with the water and steam. The material is waterproof and in the long-term period retains the functional characteristics and appearance.

Not suitable for aggressive environments with an increased share of chlorine, salt water, etc.

RESISTANCE

Excellent mechanical properties of stainless steel are a prerequisite for the resistance against abrasion, scratches and mechanical damage. Used stainless steel material also serves as a protection against corrosion. If the conditions for the operation of the body are complied with the life is almost unlimited.

MATERIAL

The radiator body is made of stainless steel CSN 17240 (DIN 1.4301, AISI 304). The body surface is finely sanded.

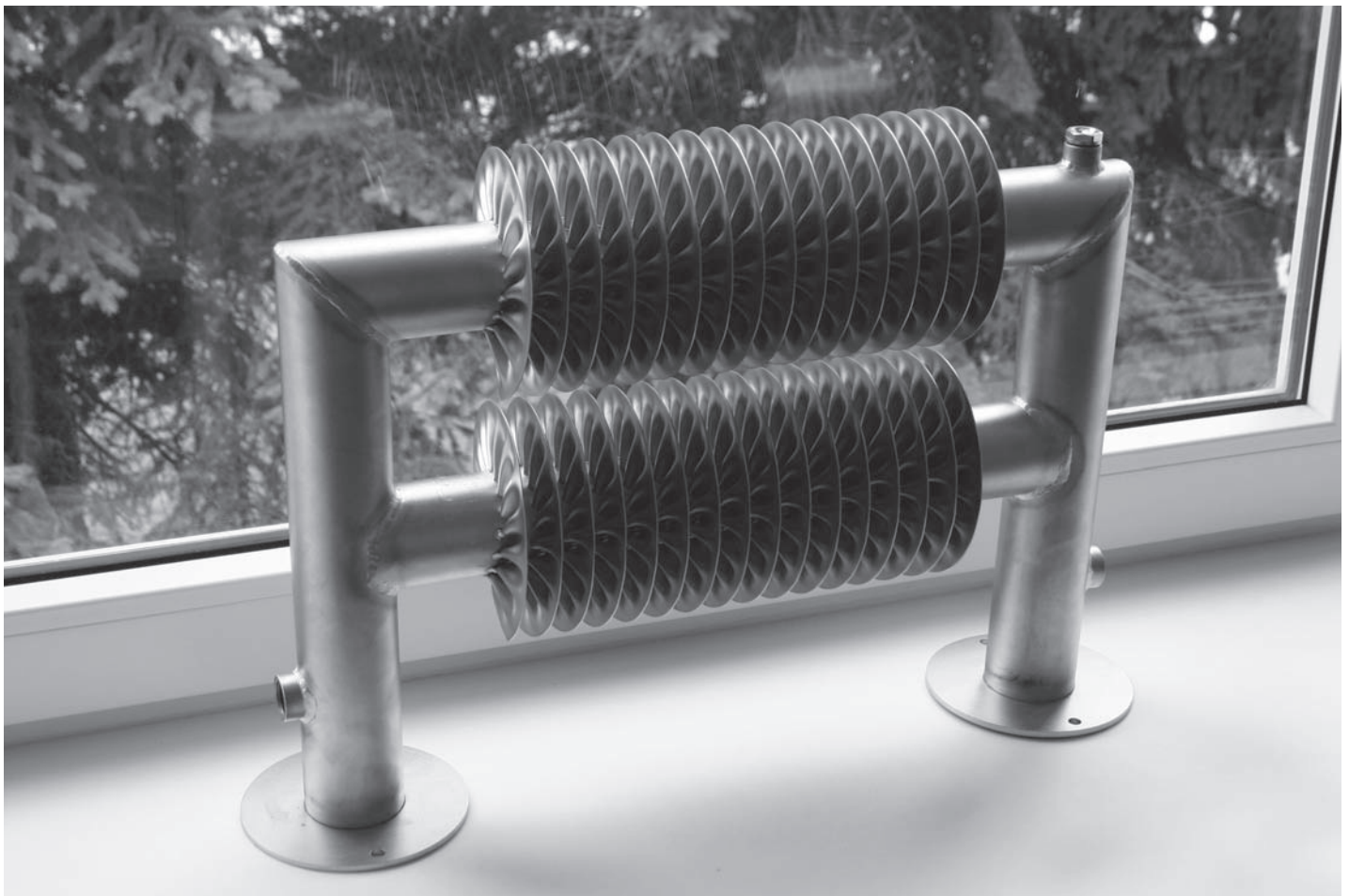
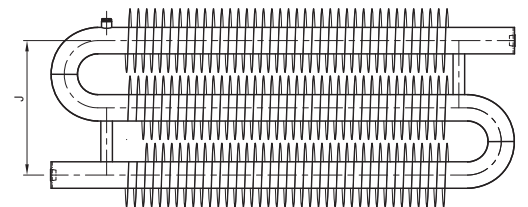
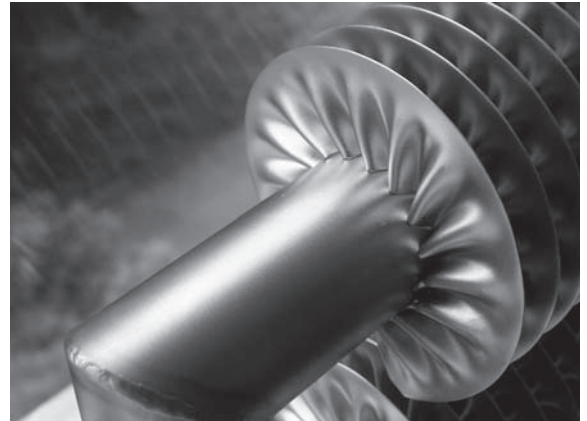
HEATING OUTPUT

Consider the heating output of the Spiral stainless steel radiators 35% lower than with standard painted steel bodies.

DESIGN

Types of radiators RAO2, RAO3 in the stainless steel design have a different pitch of "J" finned tubes compared to the standard design, see the table:

| Distance J [mm] of types RAO2, RAO3 | | |
|-------------------------------------|---------------|-----------------|
| Type of Spiral | PAINTED STEEL | STAINLESS STEEL |
| RAO2 Ø57 mm | 145 mm | 175 mm |
| RAO2 Ø76 mm | 200 mm | 195 mm |
| RAO3 Ø57 mm | 290 mm | 350 mm |
| RAO3 Ø76 mm | 400 mm | 390 mm |





THE RADIATOR IN THE AGGRAVATED ENVIRONMENT

The hot-dip galvanizing finish is suitable for environments with the difficult environmental conditions. By immersing in the zinc bath with the temperature of 450–470°C, the high quality zinc coating is applied to the steel body. This can long withstand the adverse effects of the surroundings and is resistant to mechanical wear.

The galvanized surface is characterized by the following properties:

- long life
- non-porous uniform surface
- high quality and uniform coating, even on the inside and hard to reach areas

This all while meeting the criteria of the environmental standards

MOIST AND AGGRESSIVE ENVIRONMENTS

Galvanizing resists aggravated environmental conditions when used in areas where it is exposed to water, steam, frost, ammonia and other aggressive substances

- aggressive environment (farm buildings, piggeries, ...)
- open spaces (halls, stadiums ...)
- exposed premises (boiler rooms, manufacturing plants)

RESISTANCE

Galvanized finish is resistant to mechanical damage. It is suitable for manufacturing plants, commercial buildings and wherever it is within the operation and handling possible that the body will be subjected to abrasion or impacts.

HEATING OUTPUT

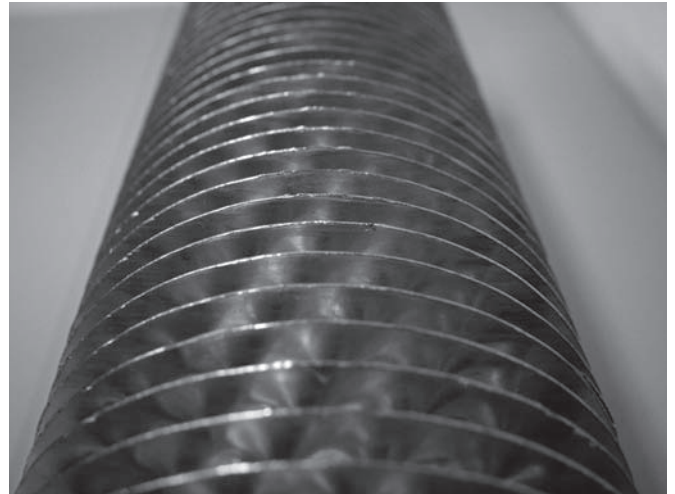
Consider the heating output of Spiral galvanized radiators being 10% lower than standard painted steel bodies.

CONS – APPEARANCE AND DESIGN ADJUSTMENT

The technology of applying the zinc coating by dipping in hot metal bath entails several disadvantages. The surface is not completely smooth; it may contain surface roughness (meal). There may be burrs caused by sagging zinc along the perimeter. Structurally, it is necessary to provide the radiator with additional couplings (securing inlet, outlet and venting openings). The zinc layer is also inside the radiator.

The production itself is always preceded by drawing to be confirmed by the customer.

The final radiator is shipped roughly deburred whereas additional lugs are blinded and connecting threads are stretched.



CONNECTING THREADS

Spiral Radiators with the galvanized coating are supplied with these connecting threads:

G 3/4" for Spiral \varnothing 32×92

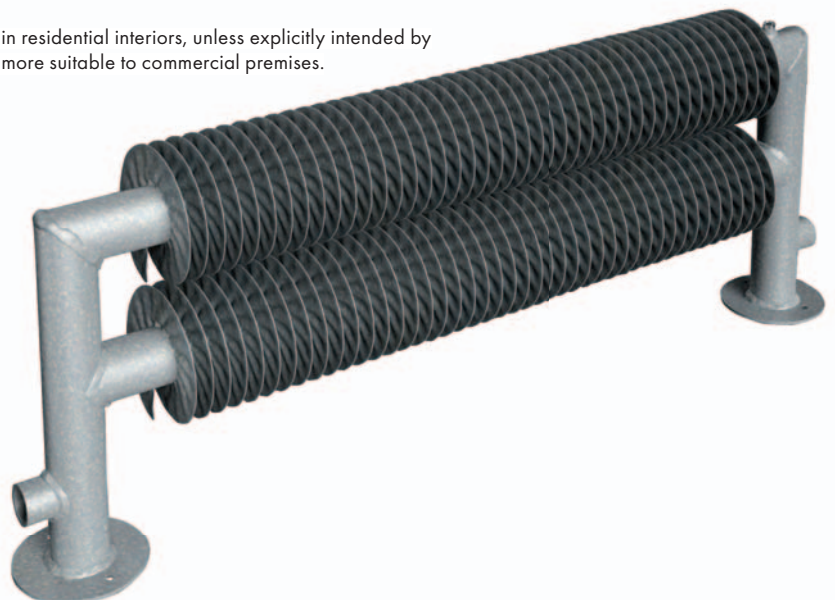
G1" for Spiral \varnothing 57×137 and \varnothing 76×156

Including galvanized reductions for thread G1/2"



DESIGN

Spiral radiator with the hot-dip zinc is not primarily intended for use in residential interiors, unless explicitly intended by the architect, who accepts the surface roughness of the product. It is more suitable to commercial premises.



ORDERING FORM



| | | | | | | | | | | | | | | | |
|-----------------------|----------|----------|----------|----------|------------------------------|----------|----------|---------------------------------|----------|----------|----------------------|----------|-----------------|--------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Z | R | A | T | 2 | 3 | 2 | 0 | 9 | 2 | 1 | 0 | 0 | W | 0 | 1 |
| TYPE OF SPIRAL | | | | | Diameter of tube [mm] | | | Diameter of winding [mm] | | | Length L [cm] | | Mounting | Colour code | |

SPIRAL WITH WINDING RAT2 Ø32x2,0xØ92 mm, LENGTH 1000 mm, WALL-MOUNTED VERSION, SNOW-WHITE COLOUR RAL 9016.

LEGEND

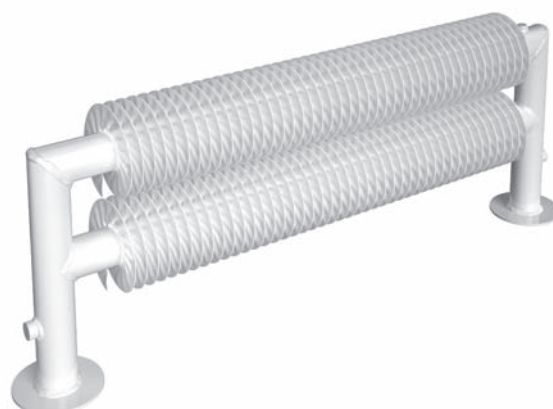
| Position 1, 2, 3, 4, 5 | TYPE OF SPIRAL RADIATOR | |
|------------------------|-------------------------------|---|
| ZRA-1 [HRA-1] | SPIRAL TYPE WITH WINDING RA1 | [HRA1 - SPIRAL TYPE - SMOOTH TUBES RA1] |
| ZRAT2 [HRAT2] | SPIRAL TYPE WITH WINDING RAT2 | [HRAT2 - SPIRAL TYPE - SMOOTH TUBES RAT2] |
| ZRAT3 [HRAT3] | SPIRAL TYPE WITH WINDING RAT3 | [HRAT3 - SPIRAL TYPE - SMOOTH TUBES RAT3] |
| ZRAO2 [HRAO2] | SPIRAL TYPE WITH WINDING RAO2 | [HRAO2 - SPIRAL TYPE - SMOOTH TUBES RAO2] |
| ZRAO3 [HRAO3] | SPIRAL TYPE WITH WINDING RAO3 | [HRAO3 - SPIRAL TYPE - SMOOTH TUBES RAO3] |

| Position 6, 7, 8, 9, 10 | DIAMETER OF TUBE AND WINDING | |
|-------------------------|--|------------------------------------|
| 32 092 [32 ---] | DIAMETER OF TUBE 32 mm WITH DIAMETER OF WINDING 92 mm | [SMOOTH TUBES WITH DIAMETER 32 mm] |
| 57 137 [57 ---] | DIAMETER OF TUBE 57 mm WITH DIAMETER OF WINDING 137 mm | [SMOOTH TUBES WITH DIAMETER 57 mm] |
| 76 156 [76 ---] | DIAMETER OF TUBE 76 mm WITH DIAMETER OF WINDING 156 mm | [SMOOTH TUBES WITH DIAMETER 76 mm] |

| Position 11, 12, 13 | LENGTH OF RADIATOR L [cm] |
|---------------------|--------------------------------|
| 050 | LENGTH OF RADIATOR L = 500 mm |
| 100 | LENGTH OF RADIATOR L = 1000 mm |
| 150 | LENGTH OF RADIATOR L = 1500 mm |
| 200 | LENGTH OF RADIATOR L = 2000 mm |
| 250 | LENGTH OF RADIATOR L = 2500 mm |
| 300 | LENGTH OF RADIATOR L = 3000 mm |
| 400 | LENGTH OF RADIATOR L = 4000 mm |
| 500 | LENGTH OF RADIATOR L = 5000 mm |
| 600 | LENGTH OF RADIATOR L = 6000 mm |
| 265 | INTER-LENGTH L = 2650 mm |

| Position 14 | MOUNTING |
|-------------|---|
| W | WALL-MOUNTED |
| F | FLOOR-MOUNTED |
| S | SELF-STANDING VERSION (CANNOT BE DONE FOR TYPE RAO) |
| V | VERTICAL DESIGN |

| Position 15, 16 | COLOUR CODE |
|---|--------------------|
| 01 | COLOUR RAL 9016 |
| 02 | COLOUR RAL 9010 |
| 81 | STAINLESS STEEL |
| 90 | HOT-DIP GALVANIZED |
| OTHER COLOURS CAN BE SELECTED BASED ON THE ORIENTATION COLOUR CARD, PAGE 27 | |





Radiators from the Spiral range are by default manufactured from finned tubes with a diameter of 32 mm and wall thickness of 2,0 mm or diameter of 57 mm and 76 mm with wall thicknesses of 2,5 mm. These radiators are intended for operation in all hot water systems which use heating (treated) water with a forced circulation only. After consultation with the manufacturer it is possible to use several types of radiators in gravitational systems or steam distribution systems. The maximum operating temperature of these radiators is 120° C and the operational overpressure is 1 MPa. The connection is supplied with a G1/2" internal thread as standard. Radiators from the Spiral range are manufactured in basic types: wall-mounted, floor-mounted or self-standing.

SURFACE TREATMENT

Surface treatment is carried out with a maximal regard to the environment. It renders the product hygienically safe and provides long-term corrosion and mechanical resistance. Baked-on powder epoxy-polyester paint is used for the surface treatment. Selection of color shades Ref. "Orientation colour card" with an additional charge based on the type of paint. Spiral radiators are also supplied in a stainless steel and hot-dip galvanized design.

PACKAGING AND MOUNTING

Radiators from finned tubes are packed together with polystyrene filling into cardboard and then they are sealed with a shrink foil. The legs or consoles and air-outlet valves are included in the packing. Mounting set includes stated number of consoles / legs with mounting kit (screws, wall plugs, etc.).

ADVANTAGES

A wide range of uses in residential and public buildings and for industrial purposes. Low prices and longer lifespan compared with classic radiators. Three possible types of mounting (wall, floor and self-standing versions), a wide range of colours and modifications based on the requirements of the customer.

WARRANTEE PERIOD

The warrantee is related to failures and faults which come to light during the warrantee period due to manufacturing faults or defects in the materials used. The warrantee period for finned tube radiators is 5 years from the date of transferring the product to the purchaser. Radiators with a clear varnish finish come with a 4-year warranty.

WARRANTY CONDITIONS

Customer loses any claim for warranty service in case that the heating body was:

- installed in a building, facility or room with high humidity, such as public WC, car washing room, stable, cowshed, indoor swimming pool and the like;
- stored outdoor or under a temperature lower than -5 °C;
- damaged by inside corrosion due to unsuitable chemical composition of the heating medium, having caused a leaking;
- deformed due to inappropriate transport or exceeding of working pressure maximum;
- damaged mechanically or due to inappropriate handling by customer or carrier;
- damaged willingly or when defaults appeared due to a natural disaster or other impact;
- used and kept in operation in spite of the claimed default, whereas the usage of so faulty product has inflicted the state thereof in so far that the claimed default cannot be assessed accordingly;
- unprofessionally installed or when a modification has followed without prior seller's consent;
- used for other than the intended purpose, such as for drying of wet textiles directly on the convector body, which has lead to damage of the surface treatment;
- damaged by using of unsuitable cleaners, not recommended for the given radiator surface;
- purchased against a reduced price due to a default, the customer was noticed of.

Any warranty claim shall be refused, if the Warranty Certificate is not filled in, shows unauthorized changes or is not available. The warranty does not apply to ordinary wear and tear. If no default caused by the manufacturer is found out, the warranty conditions are taken as unfulfilled and costs connected with experts' travel shall be borne by customer. Products being the objects of claim and sent to manufacturer by postal service shall be possibly delivered in original packing or dully packed, to eliminate any further damage due to transportation. Damages caused by such transportation of a claimed product shall not be taken in consideration.

ORIENTATION COLOUR CARD



colour series **RAL 9016**
 shade snow-white
 finish -
 extra charge -
 order code 01

colour series **S09**
 shade snow-white
 finish texture
 extra charge 30 %
 order code 68

colour series **RAL 9001**
 shade ivory
 finish -
 extra charge 30 %
 order code 04

colour series **S31**
 shade champagne
 finish metallic
 extra charge 30 %
 order code 25

colour series **RAL 9018**
 shade papyrus
 finish -
 extra charge 30 %
 order code 14

colour series **S08**
 shade ivory
 finish texture
 extra charge 30 %
 order code 67

colour series **S26**
 shade lime
 finish -
 extra charge 30 %
 order code 09

colour series **S27**
 shade khaki
 finish texture
 extra charge 30 %
 order code 21

colour series **S36**
 shade antique gold
 finish metallic
 extra charge 30 %
 order code 48

colour series **S32**
 shade pink coral
 finish texture
 extra charge 30 %
 order code 26

colour series **RAL 3002**
 shade fiery red
 finish -
 extra charge 30 %
 order code 08

colour series **S34**
 shade ruby
 finish -
 extra charge 30 %
 order code 28

colour series **S13**
 shade sandstone
 finish texture
 extra charge 30 %
 order code 72

colour series **S28**
 shade gold olive
 finish texture
 extra charge 30 %
 order code 22

colour series **RAL 6021**
 shade linden green
 finish -
 extra charge 30 %
 order code 06

colour series **S29**
 shade aquamarine
 finish metallic
 extra charge 30 %
 order code 23

colour series **RAL 5014**
 shade pigeon blue
 finish -
 extra charge 30 %
 order code 07

colour series **S30**
 shade sapphire
 finish texture
 extra charge 30 %
 order code 24

colour series **S33**
 shade lava ash
 finish texture
 extra charge 30 %
 order code 27

colour series **S03**
 shade copper
 finish metallic
 extra charge 30 %
 order code 62

colour series **S19**
 shade brass
 finish metallic
 extra charge 30 %
 order code 83

colour series **S38**
 shade dark grey
 finish texture
 extra charge 30 %
 order code 50

colour series **S05**
 shade silver
 finish metallic
 extra charge 30 %
 order code 64

colour series **S37**
 shade light grey
 finish texture
 extra charge 30 %
 order code 49

colour series **S02**
 shade anthracite
 finish metallic
 extra charge 30 %
 order code 61

colour series **S35**
 shade cinnamon
 finish texture
 extra charge 30 %
 order code 29

colour series **S10**
 shade slate
 finish texture
 extra charge 30 %
 order code 69

colour series **S40**
 shade black velvet
 finish mat
 extra charge 30 %
 order code 51

RAL surcharge

Other RAL colours (1-10 pc) - 40 % surcharge
 Other RAL colours (over 10 pc) - individual calculation

Special design

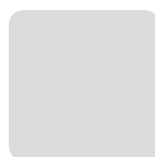


finish **galvanized**
 order code 90



finish **stainless steel**
 order code 81

Special treatment



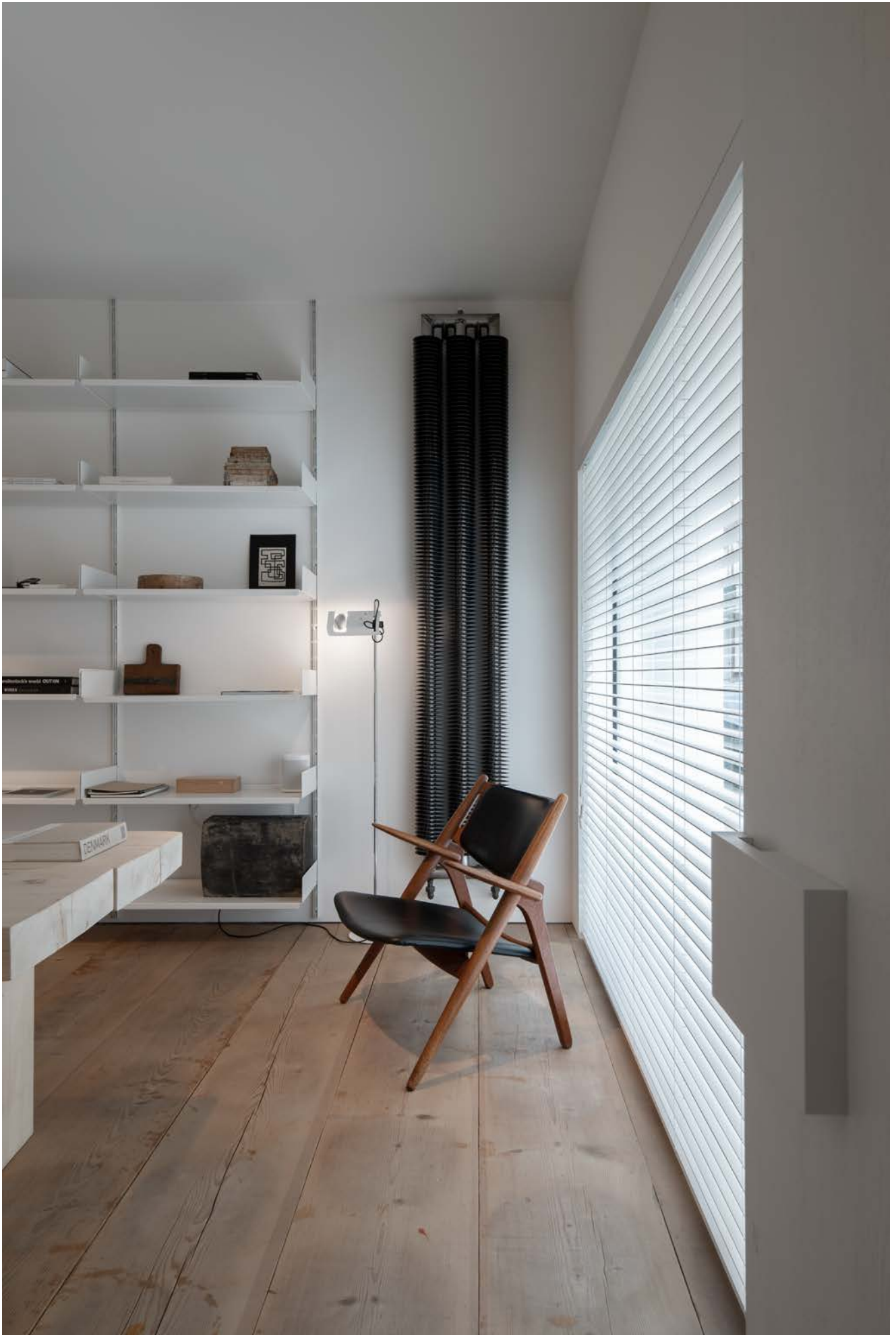
colour series **S41**
 shade RAL 9016
 finish antibacterial*
 extra charge 30 %
 order code 88



colour series **S20**
 shade transparent paint
 finish transparent paint
 extra charge 30 %
 order code 84

* A silver-ion antibacterial finish provides protection against a wide range of bacteria and fungi.

The printed version of the colour chart is for reference only and does not correspond to the actual surface treatment shades.





LAURENS

radiatoren & retro sanitair

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