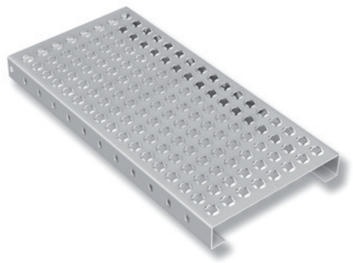
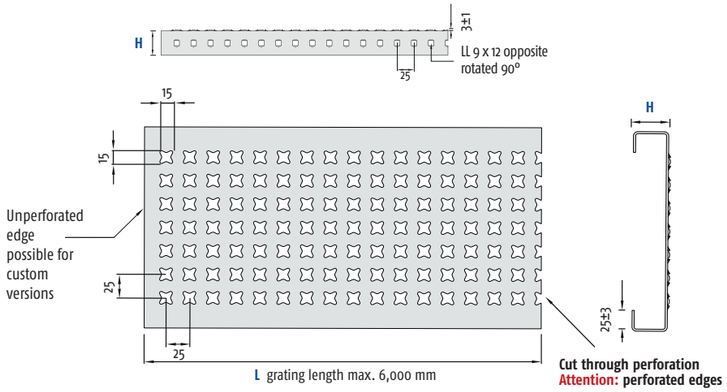





## Characteristic

Graepel-Quattro is a metal profile grating whose surface is characterized by large square openings (15 x 15 mm) with upwardly punched teeth in reticular arrangement. The perforation extends only slightly upwards. The open area is approx. 35 %. Graepel-Quattro offers displacement space, drainage and slip resistance. The maximum embossed field is 465 mm.

## Application

Graepel-Quattro is particularly suitable for use as catwalks and platforms for roofed or indoor areas in the industrial sector. Moreover, it is used as a covering capable of being walked on in vehicle construction. Graepel-Quattro is also applicable as catwalk on fairground rides and carnival attractions.

## Options

- This perforation is program controllable. Thus, individual embossments can be created.
- The standard edge perforation may be omitted.

| Dimensions | Graepel-Quattro |
|---|---|
| **Material thickness** | |
| DD 11 raw<br>DD 11 hot-dip galvanized \| DX 51 D pre-galvanized<br>Stainless steel<br>EN AW-5754 | 2.0 \| 2.5 \| 3.0 mm<br>2.0 \| 2.5 \| 3.0 mm<br>2.0 \| 2.5 \| 3.0 mm<br>2.0 \| 2.5 \| 3.0 mm |
| **Dimensions** | |
| **Lengths (L)** up to<br>Length divider | 6,000 mm<br>25 mm |
| **Standard grating widths[1] (B)**<br>DD 11 \| DX 51 D \| Stainless steel \| EN AW-5754<br>Width divider | 100 to 500 mm in steps of 25 mm<br>25 mm |
| **Heights (H)** | 40 \| 50 \| 75 mm |

[1] Other dimensions on request.

## Anti-slip values

| Material | Evaluation of anti-slip | Displacement |
|---|---|---|
| DD 11 hot-dip galvanized | R 12 | V 10 |
| Stainless steel | R 11 | V 10 |
| EN AW-5754 | R 13 | V 10 |

Further details on the perforation on our website

## Weight per meter for Graepel-Quattro for material thickness D [in kg/m]

| Grating width | 2.0 | | | | | | 2.5 | | | | | | 3.0 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DD 11** Height [mm] | | | EN AW-5754 Height [mm] | | | DD 11** Height [mm] | | | EN AW-5754 Height [mm] | | | DD 11** Height [mm] | | | EN AW-5754 Height [mm] | | |
| [mm] | 40 | 50 | 75 | 40 | 50 | 75 | 40 | 50 | 75 | 40 | 50 | 75 | 40 | 50 | 75 | 40 | 50 | 75 |
| 100 | 2.9 | 3.2 | 4.0 | 1.0 | 1.1 | 1.4 | 3.5 | 3.9 | 4.9 | 1.2 | 1.4 | 1.7 | 4.2 | 4.6 | 5.8 | 1.5 | 1.6 | 2.0 |
| 150 | 3.5 | 3.8 | 4.6 | 1.2 | 1.3 | 1.6 | 4.2 | 4.6 | 5.6 | 1.5 | 1.6 | 2.0 | 5.0 | 5.5 | 6.6 | 1.8 | 1.9 | 2.3 |
| 200 | 4.0 | 4.3 | 5.1 | 1.4 | 1.5 | 1.8 | 4.9 | 5.3 | 6.3 | 1.7 | 1.9 | 2.2 | 5.8 | 6.3 | 7.5 | 2.0 | 2.2 | 2.6 |
| 250 | 4.6 | 4.9 | 5.7 | 1.6 | 1.7 | 2.0 | 5.6 | 6.0 | 7.0 | 2.0 | 2.1 | 2.5 | 6.7 | 7.1 | 8.3 | 2.3 | 2.5 | 2.9 |
| 300 | 5.1 | 5.4 | 6.2 | 1.8 | 1.9 | 2.2 | 6.3 | 6.7 | 7.7 | 2.2 | 2.4 | 2.7 | 7.5 | 8.0 | 9.2 | 2.6 | 2.8 | 3.2 |
| 350 | 5.7 | 6.0 | 6.8 | 2.0 | 2.1 | 2.4 | 7.0 | 7.4 | 8.4 | 2.5 | 2.6 | 2.9 | 8.3 | 8.8 | 10.0 | 2.9 | 3.1 | 3.5 |
| 400 | 6.2 | 6.6 | 7.3 | 2.2 | 2.3 | 2.6 | 7.7 | 8.1 | 9.1 | 2.7 | 2.8 | 3.2 | 9.2 | 9.7 | 10.8 | 3.2 | 3.4 | 3.8 |
| 450 | 6.8 | 7.1 | 7.9 | 2.4 | 2.5 | 2.8 | 8.4 | 8.8 | 9.8 | 3.0 | 3.1 | 3.4 | 10.0 | 10.5 | 11.7 | 3.5 | 3.7 | 4.1 |
| 500 | 7.4 | 7.7 | 8.5 | 2.6 | 2.7 | 3.0 | 9.1 | 9.5 | 10.5 | 3.2 | 3.3 | 3.7 | 10.9 | 11.3 | 12.5 | 3.8 | 4.0 | 4.4 |

**Legend**
* Available only up to a length of 3,000 mm
** Values also apply for DX 51 D
*** For gratings smaller than 200 mm, the lump load is added to the neighboring gratings corresponding to the portion of the load area.





| | | | Uniformly distributed load — Replacement load Fq [in kN] for uniformly distributed load (numerical values apply for single grating) | | | | | | | | | | | | Concentrated load — Load Fq [in kN] for concentrated load (numerical values apply for single grating) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | H [mm] | D [mm] | Support length L [mm] | | | | | | | | | | | | Support length L [mm] | | | | | | | | | | |
| | | | 500 | 750 | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 2750 | 3000 | | 500 | 750 | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 2750 | 3000 |
| DD11, DX 51 D | 40 | 2.0 | 7.511 | 5.007 | 3.755 | 3.004 | 2.504 | 1.926 | 1.474 | 1.165 | 0.944 | 0.780 | 0.655 | | 4.694 | 2.889 | 2.086 | 1.633 | 1.341 | 1.138 | 0.926 | 0.731 | 0.592 | 0.489 | 0.410 |
| | 40 | 2.5 | 8.987 | 5.992 | 4.494 | 3.595 | 2.996 | 2.305 | 1.765 | 1.394 | 1.129 | 0.933 | 0.784 | | 5.617 | 3.457 | 2.497 | 1.954 | 1.605 | 1.362 | 1.108 | 0.875 | 0.708 | 0.585 | 0.491 |
| | 40 | 3.0 | 10.320 | 6.880 | 5.160 | 4.128 | 3.440 | 2.647 | 2.027 | 1.601 | 1.297 | 1.072 | 0.901 | | 6.450 | 3.969 | 2.867 | 2.244 | 1.843 | 1.564 | 1.273 | 1.005 | 0.813 | 0.672 | 0.564 |
| | 50 | 2.0 | 10.326 | 6.884 | 5.163 | 4.130 | 3.442 | 2.950 | 2.510 | 1.984 | 1.607 | 1.328 | 1.116 | | 6.454 | 3.971 | 2.868 | 2.245 | 1.844 | 1.565 | 1.359 | 1.201 | 1.007 | 0.832 | 0.699 |
| | 50 | 2.5 | 12.435 | 8.290 | 6.218 | 4.974 | 4.145 | 3.553 | 3.024 | 2.389 | 1.935 | 1.600 | 1.344 | | 7.772 | 4.783 | 3.454 | 2.703 | 2.221 | 1.884 | 1.636 | 1.446 | 1.213 | 1.002 | 0.842 |
| | 50 | 3.0 | 14.372 | 9.581 | 7.186 | 5.749 | 4.791 | 4.106 | 3.496 | 2.762 | 2.238 | 1.849 | 1.554 | | 8.982 | 5.528 | 3.992 | 3.124 | 2.566 | 2.178 | 1.891 | 1.671 | 1.403 | 1.159 | 0.973 |
| | 75 | 2.0 | 18.726 | 12.484 | 9.363 | 7.490 | 6.242 | 5.350 | 4.681 | 4.161 | 3.745 | 3.405 | 2.985 | | 11.704 | 7.202 | 5.202 | 4.071 | 3.344 | 2.837 | 2.464 | 2.177 | 1.951 | 1.767 | 1.614 |
| | 75 | 2.5 | 22.761 | 15.174 | 11.380 | 9.104 | 7.587 | 6.503 | 5.690 | 5.058 | 4.552 | 4.138 | 3.629 | | 14.226 | 8.754 | 6.322 | 4.948 | 4.064 | 3.449 | 2.995 | 2.647 | 2.371 | 2.147 | 1.962 |
| | 75 | 3.0 | 26.553 | 17.702 | 13.277 | 10.621 | 8.851 | 7.587 | 6.638 | 5.901 | 5.311 | 4.828 | 4.235 | | 16.596 | 10.213 | 7.376 | 5.772 | 4.742 | 4.023 | 3.494 | 3.088 | 2.766 | 2.505 | 2.289 |
| EN AW-5754 | 40 | 2.0 | 5.668 | 3.219 | 1.811 | 1.159 | 0.805 | 0.591 | 0.453 | 0.358 | 0.290 | 0.239 | 0.201 | | 3.542 | 2.081 | 1.154 | 0.733 | 0.507 | 0.372 | 0.284 | 0.224 | 0.182 | 0.150 | 0.126 |
| | 40 | 2.5 | 6.775 | 3.849 | 2.165 | 1.385 | 0.962 | 0.707 | 0.541 | 0.428 | 0.346 | 0.286 | 0.241 | | 4.234 | 2.488 | 1.379 | 0.877 | 0.607 | 0.445 | 0.340 | 0.268 | 0.217 | 0.179 | 0.151 |
| | 40 | 3.0 | 7.771 | 4.416 | 2.484 | 1.590 | 1.104 | 0.811 | 0.621 | 0.491 | 0.397 | 0.328 | 0.276 | | 4.857 | 2.854 | 1.582 | 1.006 | 0.696 | 0.510 | 0.390 | 0.308 | 0.249 | 0.206 | 0.173 |
| | 50 | 2.0 | 7.820 | 5.214 | 3.093 | 1.980 | 1.375 | 1.010 | 0.773 | 0.611 | 0.495 | 0.409 | 0.344 | | 4.888 | 3.008 | 1.971 | 1.253 | 0.867 | 0.635 | 0.486 | 0.383 | 0.310 | 0.256 | 0.215 |
| | 50 | 2.5 | 9.410 | 6.273 | 3.723 | 2.383 | 1.655 | 1.216 | 0.931 | 0.735 | 0.596 | 0.492 | 0.414 | | 5.881 | 3.619 | 2.372 | 1.508 | 1.043 | 0.765 | 0.585 | 0.461 | 0.373 | 0.308 | 0.259 |
| | 50 | 3.0 | 10.865 | 7.244 | 4.300 | 2.752 | 1.911 | 1.404 | 1.075 | 0.849 | 0.688 | 0.569 | 0.478 | | 6.791 | 4.179 | 2.740 | 1.741 | 1.205 | 0.883 | 0.675 | 0.533 | 0.431 | 0.356 | 0.299 |
| | 75 | 2.0 | 14.272 | 9.514 | 7.136 | 5.326 | 3.699 | 2.717 | 2.080 | 1.644 | 1.332 | 1.100 | 0.925 | | 8.920 | 5.489 | 3.964 | 3.103 | 2.332 | 1.709 | 1.307 | 1.031 | 0.835 | 0.690 | 0.579 |
| | 75 | 2.5 | 17.337 | 11.558 | 8.669 | 6.472 | 4.494 | 3.302 | 2.528 | 1.997 | 1.618 | 1.337 | 1.124 | | 10.836 | 6.668 | 4.816 | 3.769 | 2.833 | 2.077 | 1.588 | 1.253 | 1.014 | 0.838 | 0.704 |
| | 75 | 3.0 | 20.213 | 13.476 | 10.107 | 7.547 | 5.241 | 3.851 | 2.948 | 2.329 | 1.887 | 1.559 | 1.310 | | 12.633 | 7.774 | 5.615 | 4.394 | 3.304 | 2.422 | 1.852 | 1.462 | 1.183 | 0.977 | 0.821 |
| Stainless steel | 40 | 2.0 | 8.226 | 4.805 | 4.113 | 3.290 | 2.621 | 1.926 | 1.474 | 1.165 | 0.944 | 0.780 | 0.655 | | 5.141 | 3.164 | 2.285 | 1.788 | 1.469 | 1.211 | 0.926 | 0.731 | 0.592 | 0.489 | 0.410 |
| | 40 | 2.5 | 9.843 | 5.738 | 4.922 | 3.937 | 3.137 | 2.305 | 1.765 | 1.394 | 1.129 | 0.933 | 0.784 | | 6.152 | 3.786 | 2.734 | 2.140 | 1.758 | 1.450 | 1.108 | 0.875 | 0.708 | 0.585 | 0.491 |
| | 40 | 3.0 | 11.303 | 6.574 | 5.652 | 4.521 | 3.603 | 2.647 | 2.027 | 1.601 | 1.297 | 1.072 | 0.901 | | 7.065 | 4.347 | 3.140 | 2.457 | 2.018 | 1.665 | 1.273 | 1.005 | 0.813 | 0.672 | 0.564 |
| | 50 | 2.0 | 11.309 | 7.539 | 5.655 | 4.524 | 3.770 | 3.231 | 2.510 | 1.984 | 1.607 | 1.328 | 1.116 | | 7.068 | 4.350 | 3.141 | 2.459 | 2.019 | 1.714 | 1.488 | 1.245 | 1.007 | 0.832 | 0.699 |
| | 50 | 2.5 | 13.619 | 9.080 | 6.810 | 5.448 | 4.540 | 3.891 | 3.024 | 2.389 | 1.935 | 1.600 | 1.344 | | 8.512 | 5.238 | 3.783 | 2.961 | 2.432 | 2.064 | 1.792 | 1.499 | 1.213 | 1.002 | 0.842 |
| | 50 | 3.0 | 15.741 | 10.494 | 7.870 | 6.296 | 5.247 | 4.497 | 3.496 | 2.762 | 2.238 | 1.849 | 1.554 | | 9.838 | 6.054 | 4.372 | 3.422 | 2.811 | 2.385 | 2.071 | 1.733 | 1.403 | 1.159 | 0.973 |
| | 75 | 2.0 | 20.509 | 13.673 | 10.255 | 8.204 | 6.836 | 5.860 | 5.127 | 4.558 | 4.102 | 3.552 | 2.985 | | 12.818 | 7.888 | 5.697 | 4.459 | 3.662 | 3.107 | 2.699 | 2.385 | 2.136 | 1.935 | 1.768 |
| | 75 | 2.5 | 24.929 | 16.619 | 12.464 | 9.971 | 8.310 | 7.122 | 6.232 | 5.540 | 4.986 | 4.319 | 3.629 | | 15.580 | 9.588 | 6.925 | 5.419 | 4.452 | 3.777 | 3.280 | 2.899 | 2.597 | 2.352 | 2.149 |
| | 75 | 3.0 | 29.082 | 19.388 | 14.541 | 11.633 | 9.694 | 8.309 | 7.270 | 6.463 | 5.816 | 5.040 | 4.235 | | 18.176 | 11.185 | 8.078 | 6.322 | 5.193 | 4.406 | 3.827 | 3.382 | 3.029 | 2.744 | 2.507 |

| Lump load | Maximum possible lump load F [in kN] (numerical values apply for DD 11) | | |
|---|---|---|---|
| Grating width B [mm] | Load area 200 x 200 mm<br>Material thickness [mm] | | |
| | 2.0 | 2.5 | 3.0 |
| 100*** | 1.54 | 2.41 | 3.47 |
| 150*** | 0.77 | 1.20 | 1.73 |
| 200 | 0.48 | 0.75 | 1.07 |
| 250 | 0.35 | 0.54 | 0.78 |
| 300 | 0.28 | 0.44 | 0.64 |
| 350 | 0.25 | 0.38 | 0.55 |
| 400 | 0.22 | 0.34 | 0.50 |
| 450 | 0.20 | 0.32 | 0.45 |
| 500 | 0.19 | 0.29 | 0.42 |

### Conversion of the replacement load Fq from the table into a distributed load Q

$$Q = \frac{10^6 \times F_q}{B \times L}$$

with:
Q = Distributed load for a grating [kN/m²]
Fq = Replacement load from table with reference to the support width [kN]
B = Grating width [mm]
L = Support length [mm]

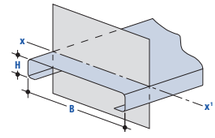
### Note concerning lump load

The values are calculated for gratings which are supported over their whole length. For a given span width, the values stated in this lump load table must not exceed those given in the concentrated load table.

For **EN AW-5754**, the values in the table must be multiplied by a factor of **0,74**.

## Moments of inertia and section modulus

Grating cross-sections (axis X-X1)




**Note:** Only the unperforated area of the two sides is taken into account for the static cross section values for the longitudinal direction of the grating *(shaded area)*.

| Bend height H [mm] | Material thickness D [mm] | Moment of inertia $I_x$ [mm⁴] | Minimum section modulus $W_x$ [mm³] |
|---|---|---|---|
| 40 | 2.0 | 73128.63 | 3341.79 |
| | 2.5 | 87528.25 | 3998.88 |
| | 3.0 | 100533.78 | 4591.95 |
| 50 | 2.0 | 124525.93 | 4594.34 |
| | 2.5 | 150007.61 | 5532.91 |
| | 3.0 | 173421.48 | 6394.65 |
| 75 | 2.0 | 388947.21 | 10176.56 |
| | 2.5 | 473878.60 | 12398.00 |
| | 3.0 | 554173.06 | 14497.85 |