

**Characteristics**

Graepel-Eco has a C-shaped, canted contour. For this surface, rows in longitudinal direction alternate with embossed and debossed holes (d = 8 mm). The open area for standard grating widths is approximately 6 %. Graepel-Eco offers an excellent anti-skid effect and displacement as well as some drainage effect. The maximum embossed field is 460 mm.

The 50 mm width divider by means of which metric surfaces can be fully covered with standard gratings makes this variant so economic. As a result, there is no need for fitting gratings which would otherwise have to be additionally manufactured.

**Application**

Thanks to the straight rows of holes, lengthways-installed Graepel-Eco makes it easy to safely guide wheels of wheelchairs, walking aids, suitcases, containers, bicycles and prams and can therefore be easily travelled on. This makes Graepel-Eco an excellent surface for escape and emergency routes, wheelchair ramps and handicap access lifting devices. On request, gratings of the Graepel-Eco variant can also be delivered with a perforated stepping edge on one side.

**Options**

- The standard edge perforation may be omitted.

Dimensions		Graepel-Eco
Material thickness	DD 11 raw	1.5   2.0   2.5   3.0 mm
	DD 11 hot-dip galvanized   DX 51 D pre-galvanized	1.5   2.0   2.5   3.0 mm
	Stainless steel	2.0   2.5   3.0 mm
Dimensions	Lengths (L) up to length divider	12,000 mm**** 30 mm
	Standard grating widths (B) DD 11   DX 51 D   Stainless steel   EN AW-5754 Width divider	100 to 300 mm in steps of 50 mm 50 mm
	Heights (H)	40   50   75 mm

\* Other dimensions on request.

Anti-slip values		
Material	Evaluation of anti-slip	Displacement
DD 11 hot-dip galvanized	R 11	V 10



Further details on the perforation on our website

Grating width [mm]	Weight per meter for Graepel-Eco for material thickness D [in kg/m]																	
	2.0						2.5						3.0					
	DD 11**/ Stainless steel Height [mm]			EN AW-5754 Height [mm]			DD 11**/ Stainless steel Height [mm]			EN AW-5754 Height [mm]			DD 11**/ Stainless steel Height [mm]			EN AW-5754 Height [mm]		
150	4.0	4.3	5.1	1.4	1.5	1.7	4.9	5.3	6.3	1.7	1.8	2.2	5.7	6.2	7.4	2.0	2.1	2.6
200	4.7	5.0	5.8	1.6	1.7	2.0	5.8	6.2	7.2	2.0	2.1	2.5	6.9	7.4	8.6	2.4	2.5	2.9
250	5.5	5.8	6.6	1.9	2.0	2.3	6.8	7.2	8.2	2.3	2.5	2.8	8.0	8.5	9.7	2.8	2.9	3.3
300	6.3	6.6	7.4	2.2	2.3	2.5	7.7	8.1	9.1	2.7	2.8	3.1	9.2	9.7	10.9	3.2	3.3	3.7

**Conversion of the replacement load F<sub>q</sub> from the table into a distributed load Q**

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

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

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. \*\*\*\* Hot-dip galvanized gratings = Lmax. 6,000 mm ■ = Color coding for load values of stock items

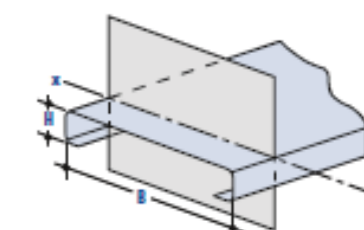
H [mm]	D [mm]	Uniformly distributed load										Replacement load F <sub>q</sub> [in kN] for uniformly distributed load (numerical values apply for single grating)										Concentrated load										Load F <sub>q</sub> [in kN] for concentrated load (numerical values apply for single grating)																																																																																																																		
		Support length L [mm]										Support length L [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	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000																																																																																																					
DD 11, DX 51 D	40	2.0	8.491	5.660	4.245	3.396	2.830	2.084	1.595	1.260	1.021	0.844	0.709	5.307	3.266	2.358	1.846	1.516	1.286	1.002	0.791	0.640	0.529	0.444	40	2.5	10.177	6.784	5.088	4.071	3.392	2.498	1.912	1.511	1.224	1.011	0.850	6.360	3.914	2.827	2.212	1.817	1.542	1.201	0.948	0.767	0.634	0.532	40	3.0	11.706	7.804	5.853	4.682	3.902	2.873	2.200	1.738	1.408	1.164	0.978	7.316	4.502	3.252	2.545	2.090	1.774	1.382	1.091	0.883	0.729	0.612	50	2.0	11.551	7.701	5.775	4.620	3.850	3.300	2.700	2.134	1.728	1.428	1.200	7.219	4.443	3.209	2.511	2.063	1.750	1.520	1.339	1.084	0.895	0.752	50	2.5	13.931	9.287	6.965	5.572	4.644	3.980	3.257	2.574	2.085	1.723	1.448	8.707	5.358	3.870	3.028	2.488	2.111	1.833	1.615	1.307	1.080	0.907	50	3.0	16.124	10.749	8.062	6.450	5.375	4.607	3.771	2.979	2.413	1.994	1.676	10.078	6.202	4.479	3.505	2.879	2.443	2.122	1.869	1.513	1.250	1.050		
	EN AW-5754	40	2.0	6.434	3.494	1.965	1.258	0.874	0.642	0.491	0.388	0.314	0.260	0.218	4.021	2.259	1.252	0.796	0.551	0.404	0.309	0.244	0.197	0.163	0.137	40	2.5	7.705	4.185	2.354	1.507	1.046	0.769	0.588	0.465	0.377	0.311	0.262	4.816	2.705	1.500	0.953	0.660	0.483	0.370	0.292	0.236	0.195	0.164	40	3.0	8.854	4.810	2.705	1.731	1.202	0.883	0.676	0.534	0.433	0.358	0.301	5.534	3.109	1.724	1.096	0.758	0.556	0.425	0.335	0.271	0.224	0.188	50	2.0	8.779	5.852	3.336	2.135	1.483	1.089	0.834	0.659	0.534	0.441	0.371	5.487	3.376	2.125	1.351	0.935	0.685	0.524	0.413	0.335	0.276	0.232	50	2.5	10.579	7.053	4.021	2.573	1.787	1.313	1.005	0.794	0.644	0.532	0.447	6.612	4.069	2.562	1.628	1.127	0.826	0.631	0.498	0.403	0.333	0.280	50	3.0	12.236	8.157	4.651	2.977	2.067	1.519	1.163	0.919	0.743	0.615	0.517	7.647	4.706	2.963	1.884	1.303	0.955	0.730	0.576	0.467	0.385	0.324	
		Stainless steel	40	2.0	9.299	6.199	4.650	3.720	2.836	2.084	1.595	1.260	1.021	0.844	0.709	5.812	3.577	2.583	2.022	1.661	1.311	1.002	0.791	0.640	0.529	0.444	40	2.5	11.146	7.431	5.573	4.458	3.400	2.498	1.912	1.511	1.224	1.011	0.850	6.966	4.287	3.096	2.423	1.990	1.571	1.201	0.948	0.767	0.634	0.532	40	3.0	12.821	8.547	6.410	5.128	3.911	2.873	2.200	1.738	1.408	1.164	0.978	8.013	4.931	3.561	2.787	2.289	1.807	1.382	1.091	0.883	0.729	0.612	50	2.0	12.651	8.434	6.326	5.060	4.217	3.527	2.700	2.134	1.728	1.428	1.200	7.907	4.866	3.514	2.750	2.259	1.917	1.665	1.339	1.084	0.895	0.752	50	2.5	15.257	10.172	7.629	6.103	5.086	4.254	3.257	2.574	2.085	1.723	1.448	9.536	5.868	4.238	3.317	2.725	2.312	2.008	1.615	1.307	1.080	0.907	50	3.0	17.660	11.773	8.830	7.064	5.887	4.925	3.771	2.979	2.413	1.994	1.676	11.037	6.792	4.906	3.839	3.154	2.676	2.324	1.869	1.513	1.250	1.050

Lump load	Maximum possible lump load F [in kN] (numerical values apply for DD 11)		
	Load area 200 x 200 mm		
	Material thickness [mm]		
Grating width B [mm]	2.0	2.5	3.0
100***	3.24	4.76	6.73
150***	1.61	2.37	3.35
200	1.00	1.47	2.08
250	0.73	1.08	1.52
300	0.60	0.88	1.24

**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-X')



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 <sub>x</sub> [mm <sup>4</sup> ]	Minimum section modulus W <sub>x</sub> [mm <sup>3</sup> ]
40	2.0	79131.71	3777.77
	2.5	94855.39	4528.02
	3.0	109117.91	5208.37
50	2.0	133952.05	5139.48
	2.5	161569.45	6198.33
	3.0	187034.38	7174.33
75	2.0	354345.73	9140.53
	2.5	431204.48	11121.78
	3.0	503650.99	12988.73

Material	Available at short notice from stock			L = 3,000 mm	L = 6,000 mm
	H [mm]	D [mm]	B [mm]	Order number	Order number
DD 11 raw	40	2.5	150	60 2000 0189 001	60 2000 0189 601
	40	2.5	200	60 2000 0190 001	60 2000 0190 601
	40	2.5	250	60 2000 0183 001	60 2000 0183 601
	40	2.5	300	60 2000 0024 001	60 2000 0024 601
	75	2.5	300	60 2000 0124 001	60 2000 0124 601
DD 11 hot-dip galvanized	40	2.5	150	60 2000 0189 002	60 2000 0189 602
	40	2.5	200	60 2000 0190 002	60 2000 0190 602
	40	2.5	250	60 2000 0183 002	60 2000 0183 602
	40	2.5	300	60 2000 0024 002	60 2000 0024 602
	75	2.5	300	60 2000 0124 002	60 2000 0124 602

**Order information**  
 Graepel-Eco (except for DD 11 hot-dip galvanized) is available up to a length of 12,000 mm. Please note that grating lengths over 6,000 mm are difficult to handle and cost intensive due to their high weight.

Upon request, the gratings are cut to length. Please specify the required length when ordering. Please take account of the length divider of 30 mm.

Hot-dip galvanized gratings are hot-dip galvanized after sawing to ensure optimum corrosion protection.