



**Characteristic**

Graepel-Indoor has an upward formation. The surface of Graepel-Indoor consists of small, embossed, nozzle-shaped holes (diameter of 4 mm) in staggered rows that provide a good slip resistance. This perforation has no drainage effect, but a certain displacement. If drainage is required, the Graepel-City perforation is recommended. The maximum embossed field is 458 mm.

**Application**

Graepel-Indoor is designed for use in the private and public sectors. The special surface with particularly small holes prevents small parts from dropping through, but provides a certain degree of ventilation. Therefore, this perforation with small holes is also suitable for areas between which pressure compensation must take place and where heat and air escape in small amounts. Graepel-Indoor can also be used in the industrial sector.

**Options**

- This perforation is program controllable. Each hole can be left out and thus an individual embossing can be created.
- The standard edge perforation may be omitted.

Dimensions		Graepel-Indoor
Material thickness	DD 11 raw	2.0   2.5 mm
	DD 11 hot-dip galvanized   DX 51 D pre-galvanized	2.0   2.5 mm
	Stainless steel	2.0 mm
	EN AW-5754	2.0   2.5   3.0 mm
Dimensions	Lengths (L) up to length divider	6,000 mm 45 mm
	Standard grating width <sup>1</sup> (B) DD 11   DX 51 D   Stainless steel   EN AW-5754 Width divider	182 to 356 mm in steps of 22.5 mm 22.5 mm
	Heights (H)	30   50   75 mm

<sup>1</sup>Other dimensions on request.

Anti-slip values		
Material	Evaluation of anti-slip	Displacement
DD 11 hot-dip galvanized	R 11	V 10
DX 51 D pre-galvanized	R 13	V 10
Stainless steel	R 13	V 10
EN AW-5754	R 12	V 10



Further details on the perforation on our website

Grating width [mm]	Weight per meter for Graepel-Indoor for material thickness D [in kg/m]														
	2.0					2.5					3.0				
	DD 11** *1 Stainless steel Height [mm]			EN AW-5754 Height [mm]			DD 11** *1 Height [mm]			EN AW-5754 Height [mm]			EN AW-5754 Height [mm]		
182	4.2	4.9	5.7	1.5	1.7	1.9	5.3	6.1	7.1	1.8	2.1	2.4	2.2	2.5	2.9
240	5.2	5.8	6.6	1.8	2.0	2.3	6.5	7.3	8.3	2.2	2.5	2.8	2.7	3.0	3.4
298	6.1	6.8	7.6	2.1	2.3	2.6	7.7	8.5	9.5	2.6	2.9	3.3	3.2	3.5	3.9
330	6.6	7.2	8.0	2.3	2.5	2.8	8.2	9.0	10.0	2.8	3.1	3.5	3.4	3.7	4.1
356	7.1	7.7	8.5	2.4	2.6	2.9	8.8	9.6	10.6	3.0	3.3	3.7	3.6	4.0	4.4

H [mm]	D [mm]	Uniformly distributed load												Concentrated load											
		Replacement load F <sub>q</sub> [in kN] for uniformly distributed load (numerical values apply for single grating)												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]											
DD 11, DX 51 D	30	2.0	5.676	3.784	2.838	2.009	1.395	1.025	0.785	0.620	0.502	0.415	0.349	3.548	2.183	1.577	1.234	0.879	0.645	0.493	0.389	0.315	0.260	0.218	
	30	2.5	6.732	4.488	3.366	2.382	1.654	1.215	0.931	0.735	0.596	0.492	0.414	4.208	2.589	1.870	1.464	1.043	0.765	0.584	0.461	0.373	0.308	0.259	
	50	2.0	11.407	7.605	5.703	4.563	3.802	3.259	2.614	2.065	1.673	1.382	1.162	7.129	4.387	3.169	2.480	2.037	1.853	1.501	1.296	1.049	0.866	0.728	
	50	2.5	13.751	9.168	6.876	5.501	4.584	3.929	3.151	2.490	2.017	1.667	1.400	8.595	5.289	3.820	2.989	2.456	2.084	1.809	1.562	1.264	1.044	0.877	
	75	2.0	20.283	13.522	10.141	8.113	6.761	5.795	5.071	4.507	4.057	3.671	3.084	12.677	7.801	5.634	4.409	3.622	3.073	2.669	2.358	2.113	1.913	1.749	
	75	2.5	24.671	16.447	12.336	9.868	8.224	7.049	6.168	5.482	4.934	4.465	3.752	15.419	9.489	6.853	5.363	4.406	3.975	3.246	2.869	2.570	2.327	2.127	
EN AW-5754	30	2.0	4.005	1.780	1.001	0.641	0.445	0.327	0.250	0.198	0.160	0.132	0.111	2.697	1.151	0.638	0.406	0.281	0.206	0.157	0.124	0.100	0.083	0.070	
	30	2.5	4.751	2.111	1.188	0.760	0.528	0.388	0.297	0.235	0.190	0.157	0.132	3.199	1.365	0.757	0.481	0.333	0.244	0.186	0.147	0.119	0.098	0.083	
	30	3.0	5.181	2.303	1.295	0.829	0.576	0.423	0.324	0.256	0.207	0.171	0.144	3.489	1.489	0.825	0.525	0.363	0.266	0.203	0.161	0.130	0.107	0.090	
	50	2.0	8.963	5.930	3.336	2.135	1.482	1.089	0.834	0.659	0.534	0.441	0.371	5.602	3.447	2.125	1.351	0.935	0.685	0.524	0.413	0.335	0.276	0.232	
	50	2.5	10.805	7.149	4.021	2.574	1.787	1.313	1.005	0.794	0.643	0.532	0.447	6.753	4.156	2.562	1.629	1.127	0.826	0.631	0.498	0.403	0.333	0.280	
	50	3.0	12.064	7.986	4.492	2.875	1.997	1.467	1.123	0.887	0.719	0.594	0.499	7.540	4.640	2.862	1.819	1.259	0.923	0.705	0.557	0.451	0.372	0.313	
Stainless steel	75	2.0	15.936	10.624	7.968	5.668	3.936	2.892	2.214	1.749	1.417	1.171	0.984	9.960	6.129	4.427	3.464	2.481	1.819	1.391	1.098	0.888	0.734	0.616	
	75	2.5	19.384	12.923	9.692	6.895	4.788	3.518	2.693	2.128	1.724	1.425	1.197	12.115	7.456	5.385	4.214	3.019	2.213	1.692	1.335	1.081	0.893	0.750	
	75	3.0	21.968	14.645	10.984	7.817	5.428	3.988	3.053	2.413	1.954	1.615	1.357	13.730	8.449	6.102	4.776	3.422	2.508	1.918	1.514	1.225	1.012	0.850	

Grating width B [mm]	Lump load		
	Maximum possible lump load F [in kN] (numerical values apply for DD 11)		
	Load area 200 x 200 mm		
	Material thickness [mm]		
	2.0	2.5	3.0
182***	1.42	2.22	3.19
240	0.94	1.46	2.11
298	0.73	1.14	1.64
330	0.66	1.03	1.49
356	0.62	0.97	1.39

**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.

**Conversion of the replacement load F<sub>q</sub> 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]  
 F<sub>q</sub> - Replacement load from table with reference to the support width [kN]  
 B - Grating width [mm]  
 L - Support length [mm]

**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> [mm⁴]	Minimum section modulus W <sub>x</sub> [mm³]
30	2.0	38918.66	2525.54
	2.5	46161.04	2995.52
	3.0	50344.74	3264.69
50	2.0	129645.30	5075.43
	2.5	156300.69	6118.51
	3.0	174605.86	6831.59
75	2.0	344236.50	9024.56
	2.5	418745.73	10977.18
	3.0	474710.43	12440.09