

**Characteristic**

Graepel-Open has upward and downward formations. Its surface is dominated by large, debossed holes (d = approx. 36.5 mm) that are surrounded by small embossed holes (d = 5.5 mm). The perforation extends only slightly upwards. The open area for standard grating widths is approximately 50 %. Graepel-Open offers an extremely wide displacement space and excellent drainage; a certain slip resistance is also provided. The maximum embossed field is 810 mm.

**Application**

Graepel-Open perforation has been designed for catwalks on containers and cars. The large open area ensures a good discharge of precipitation. Slip resistance ensures underfoot safety for the people on service and inspection platforms. Graepel-Open can be used as an alternative to open mesh flooring and provides additional slip resistance.

**Options**

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

Dimensions		Graepel-Open
Material thickness	DD 11 raw	2.0   2.5   3.0 mm
	DD 11 hot-dip galvanized   DX 51 D pre-galvanized	2.0   2.5   3.0 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 49.2 mm
	Standard grating widths <sup>1</sup> (B) DD 11   DX 51 D   Stainless steel   EN AW-5754 Width divider	120 to 850 mm in steps of 43 mm 43 mm
	Heights (H)	40   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



Further details on the perforation on our website

Grating width [mm]	Weight per meter for Graepel-Open for material thickness D [in kg/m]																	
	2.0			2.5			3.0			2.0			2.5			3.0		
	DD 11** / Stainless steel Height [mm]	EN AW-5754 Height [mm]	Height [mm]	DD 11** Height [mm]	EN AW-5754 Height [mm]	Height [mm]	DD 11** Height [mm]	EN AW-5754 Height [mm]	Height [mm]	DD 11** Height [mm]	EN AW-5754 Height [mm]	Height [mm]	DD 11** Height [mm]	EN AW-5754 Height [mm]	Height [mm]	DD 11** Height [mm]	EN AW-5754 Height [mm]	Height [mm]
120	3.2	3.6	4.3	1.1	1.3	1.5	4.0	4.4	5.3	1.4	1.5	1.9	4.7	5.1	6.3	1.6	1.8	2.2
250	4.7	5.0	5.8	1.6	1.8	2.0	5.8	6.1	7.1	2.0	2.2	2.5	6.8	7.3	8.5	2.4	2.6	3.0
300	5.2	5.6	6.3	1.8	2.0	2.2	6.5	6.9	7.9	2.3	2.4	2.5	6.8	7.3	8.5	2.7	2.9	3.3
350	5.8	6.1	6.9	2.0	2.2	2.4	7.2	7.6	8.6	2.5	2.7	3.0	8.6	9.0	10.2	3.0	3.2	3.6
400	6.4	6.7	7.5	2.2	2.4	2.6	7.9	8.3	9.3	2.8	2.9	3.3	9.4	9.9	11.1	3.3	3.5	3.9
500	7.6	7.9	8.7	2.7	2.8	3.0	9.4	9.8	10.8	3.3	3.4	3.8	11.2	11.6	12.8	3.9	4.1	4.5
600	8.5	8.8	9.6	3.0	3.1	3.4	10.6	11.0	11.9	3.7	3.8	4.2	12.6	13.1	14.2	4.4	4.6	5.0
700	9.7	10.0	10.8	3.4	3.5	3.8	12.0	12.4	13.4	4.2	4.4	4.7	14.3	14.8	16.0	5.0	5.2	5.6
850	11.4	11.7	12.5	4.0	4.1	4.4	14.2	14.6	15.6	5.0	5.1	5.5	16.9	17.4	18.6	5.9	6.1	6.5

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																																																																																																																																																																												
DD11, DX 51 D	40	2.0	7.538	5.025	3.769	3.015	2.513	1.930	1.478	1.168	0.946	0.782	0.657	4.711	2.899	2.094	1.639	1.346	1.142	0.928	0.733	0.593	0.490	0.411	40	2.5	9.021	6.014	4.510	3.608	3.007	2.310	1.769	1.398	1.132	0.936	0.786	5.638	3.469	2.506	1.961	1.611	1.367	1.111	0.877	0.710	0.586	0.492	40	3.0	10.359	6.906	5.179	4.144	3.453	2.654	2.032	1.605	1.300	1.075	0.903	6.474	3.984	2.877	2.252	1.850	1.570	1.276	1.007	0.815	0.673	0.566	50	2.0	10.360	6.907	5.180	4.144	3.453	2.960	2.516	1.988	1.610	1.331	1.118	6.475	3.985	2.878	2.252	1.850	1.570	1.276	1.007	0.815	0.673	0.566	50	2.5	12.477	8.318	6.238	4.991	4.159	3.565	3.031	2.395	1.940	1.603	1.347	7.798	4.799	3.466	2.712	2.228	1.890	1.642	1.451	1.216	1.005	0.844	50	3.0	14.421	9.614	7.210	5.768	4.807	4.120	3.504	2.769	2.243	1.853	1.557	9.013	5.546	4.006	3.135	2.575	2.185	1.897	1.677	1.406	1.161	0.975	75	2.0	18.776	12.518	9.388	7.511	6.259	5.365	4.694	4.173	3.755	3.414	2.990	11.735	7.222	5.216	4.082	3.353	2.845	2.471	2.183	1.957	1.771	1.619	75	2.5	22.823	15.215	11.412	9.129	7.408	6.521	5.706	5.072	4.565	4.150	3.636	14.264	8.778	6.340	4.962	4.076	3.458	3.003	2.654	2.377	2.153	1.968	75	3.0	26.627	17.751	13.313	10.651	8.876	7.608	6.657	5.917	5.325	4.841	4.243	16.642	10.241	7.396	5.788	4.755	4.034	3.508	3.096	2.774	2.512	2.295	
	EN AW-5754	40	2.0	5.689	3.227	1.815	1.161	0.807	0.593	0.454	0.359	0.290	0.240	0.202	3.556	2.086	1.156	0.735	0.509	0.373	0.285	0.225	0.182	0.150	0.126	40	2.5	6.801	3.858	2.170	1.389	0.965	0.709	0.543	0.429	0.347	0.287	0.241	4.250	2.494	1.383	0.879	0.608	0.446	0.341	0.269	0.218	0.180	0.151	40	3.0	7.801	4.427	2.490	1.594	1.107	0.813	0.623	0.492	0.398	0.329	0.277	4.876	2.862	1.587	1.008	0.698	0.511	0.391	0.309	0.250	0.206	0.173	50	2.0	7.847	5.231	3.100	1.984	1.378	1.012	0.775	0.612	0.496	0.410	0.344	4.904	3.018	1.975	1.255	0.879	0.637	0.487	0.384	0.311	0.257	0.216	50	2.5	9.442	6.295	3.731	2.388	1.658	1.218	0.933	0.737	0.597	0.493	0.415	5.901	3.632	2.377	1.511	1.045	0.766	0.586	0.462	0.374	0.309	0.260	50	3.0	10.903	7.269	4.310	2.759	1.916	1.407	1.078	0.851	0.690	0.570	0.479	6.815	4.194	2.746	1.746	1.208	0.885	0.677	0.534	0.432	0.347	0.300	75	2.0	14.311	9.541	7.156	5.336	3.706	2.722	2.084	1.647	1.334	1.102	0.926	8.945	5.504	3.975	3.111	2.336	1.712	1.309	1.003	0.836	0.691	0.580	75	2.5	17.386	11.590	8.693	6.484	4.503	3.308	2.533	2.001	1.621	1.340	1.126	10.866	6.687	4.829	3.779	2.839	2.081	1.591	1.256	1.016	0.839	0.705	75	3.0	20.271	13.514	10.135	7.562	5.251	3.858	2.954	2.334	1.891	1.562	1.313	12.669	7.796	5.631	4.407	3.311	2.427	1.855	1.464	1.185	0.979	0.822
		Stainless steel	40	2.0	8.256	5.504	4.128	3.302	2.627	1.930	1.478	1.168	0.946	0.782	0.657	5.160	3.175	2.293	1.795	1.474	1.214	0.928	0.733	0.593	0.490	0.411	50	2.0	11.346	7.564	5.637	4.539	3.782	3.242	2.516	1.988	1.610	1.331	1.118	7.092	4.364	3.152	2.467	2.026	1.719	1.493	1.247	1.010	0.834	0.700	75	2.0	20.565	13.710	10.282	8.226	6.855	5.876	5.141	4.570	4.113	3.559	2.990	12.853	7.909	5.712	4.471	3.672	3.116	2.706	2.391	2.142	1.940	1.773																																																																																																																																															

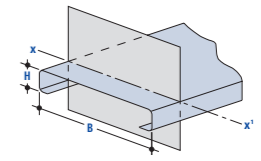
Grating width B [mm]	Lump load			Maximum possible lump load F [in kN] (numerical values apply for DD 11)		
	Load area 200 x 200 mm			Material thickness [mm]		
	2.0	2.5	3.0	2.0	2.5	3.0
120**	5.37	6.37	8.60			
150**	1.67	1.98	2.67			
300	1.36	1.61	2.18			
350	1.18	1.40	1.88			
400	1.05	1.25	1.69			
500	0.90	1.07	1.44			
600	0.81	0.96	1.29			
700	0.75	0.89	1.20			
850	0.69	0.81	1.10			

**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 stainless steel, the values in the table must be multiplied by a factor of 1.04 or for EN AW-5754 by a factor of 0.75.

**Moments of inertia and section modulus**  
Grating cross-sections (axis X-X')



Bend height H [mm]	Material thickness D [mm]	Moment of inertia I <sub>x</sub> [mm <sup>4</sup> ]	Minimum section modulus W <sub>y</sub> [mm <sup>3</sup> ]
40	2.0	73302.97	3353.93
	2.5	87741.20	4013.61
	3.0	100783.43	4609.12
50	2.0	124798.32	4609.50
	2.5	150341.90	5551.43
	3.0	173815.29	6416.36
75	2.0	333747.58	8354.35
	2.5	405778.33	10154.90
	3.0	473521.84	11847.21

**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/m<sup>2</sup>]  
 F<sub>q</sub> = Replacement load from table with reference to the support width [kN]  
 B = Grating width [mm]  
 L = Support length [mm]