



**Characteristic**

Graepel-Metric has upward and downward formations. Its perforation is a variant of Graepel-Universal: Hole diameters are the same (upward d = 7 mm and downward d = 14 mm), the length divider is 30 mm (40 mm with Graepel-Universal). The grating width can be realized in stages of 25 mm (30 mm with Graepel-Universal). This smaller hole spacing gives this perforation a different look, functionality, and properties. It looks light and transparent and with 32 % open area at the maximum embossed field of 475 mm, it also has a larger open area than Graepel-Universal. Graepel-Metric has high anti-skid values as well as a good drainage effect.

**Application**

The denomination follows the primary use in the industrial sector: Due to their width divider, gratings with Graepel-Metric perforation are especially suitable to cover surfaces that have at least one metric side length with standard gratings. Unlike other perforations, the Graepel-Metric perforation does not require special fitting gratings.

**Options**

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

Dimensions		Graepel-Metric
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   2.5 mm
Dimensions	Lengths (L) up to length divider	6,000 mm 30 mm
	Standard grating widths <sup>1</sup> (B)	150 to 475 mm in steps of 25 mm 25 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 10	V 10	
Stainless steel	R 13	V 10	
EN AW-5754	R 13	V 10	



Weight per meter for Graepel-Metric for material thickness D [in kg/m]												
Grating width [mm]	2.0			2.5			3.0					
	DD 11** / Stainless steel Height [mm]	DD 11** / Stainless steel Height [mm]	DD 11** / Stainless steel Height [mm]	EN AW-5754 Height [mm]	EN AW-5754 Height [mm]	EN AW-5754 Height [mm]	DD 11** Height [mm]	DD 11** Height [mm]	DD 11** Height [mm]	EN AW-5754 Height [mm]	EN AW-5754 Height [mm]	
40	40	50	75	40	50	75	40	50	75	40	50	75
100	3.0	3.3	4.1	3.6	4.0	5.0	1.3	1.4	1.8	4.3	4.7	6.0
125	3.3	3.6	4.4	4.0	4.4	5.4	1.4	1.6	1.9	4.7	5.2	6.4
150	3.6	3.9	4.7	4.4	4.8	5.8	1.6	1.7	2.0	5.2	5.7	6.9
175	3.9	4.2	5.0	4.8	5.2	6.2	1.7	1.8	2.2	5.7	6.2	7.3
200	4.2	4.6	5.3	5.2	5.6	6.6	1.8	2.0	2.3	6.2	6.6	7.8
225	4.5	4.9	5.7	5.6	6.0	7.0	2.0	2.1	2.5	6.7	7.1	8.3
250	4.9	5.2	6.0	6.0	6.4	7.4	2.1	2.3	2.6	7.1	7.6	8.8
275	5.2	5.5	6.3	6.4	6.8	7.8	2.3	2.4	2.7	7.6	8.1	9.3
300	5.5	5.8	6.6	6.8	7.2	8.2	2.4	2.5	2.9	8.1	8.6	9.7
325	5.8	6.2	7.0	7.2	7.6	8.6	2.5	2.7	3.0	8.6	9.0	10.2
350	6.2	6.5	7.3	7.6	8.0	9.0	2.7	2.8	3.2	9.0	9.5	10.7
375	6.5	6.8	7.6	8.0	8.4	9.4	2.8	3.0	3.3	9.5	10.0	11.2
400	6.8	7.1	7.9	8.4	8.8	9.8	3.0	3.1	3.4	10.0	10.5	11.6
425	7.1	7.4	8.2	8.8	9.2	10.2	3.1	3.2	3.6	10.5	11.0	12.1

H [mm]	D [mm]	Uniformly distributed load												Concentrated load											
		Replacement load Fq [in kN] for uniformly distributed load (numerical values apply for single grating)												Load Fq [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]											
40	2.0	6.307	4.205	3.154	2.523	2.102	1.711	1.310	1.035	0.838	0.693	0.582	3.942	2.426	1.752	1.371	1.126	0.956	0.823	0.649	0.526	0.434	0.365		
40	2.5	7.525	5.017	3.763	3.010	2.508	2.042	1.564	1.236	1.001	0.827	0.695	4.703	2.894	2.090	1.636	1.344	1.140	0.982	0.775	0.627	0.518	0.435		
40	3.0	8.615	5.743	4.307	3.336	2.872	2.399	1.791	1.415	1.146	0.947	0.796	5.384	3.313	2.393	1.874	1.538	1.305	1.125	0.888	0.719	0.594	0.499		
50	2.0	8.823	5.882	4.412	3.529	2.941	2.521	2.206	1.782	1.444	1.193	1.002	5.514	3.394	2.451	1.918	1.576	1.337	1.161	1.026	0.905	0.748	0.628		
50	2.5	10.599	7.066	5.300	4.240	3.533	3.028	2.650	2.142	1.735	1.434	1.205	6.625	4.007	2.944	2.304	1.893	1.606	1.395	1.232	1.088	0.899	0.755		
50	3.0	12.219	8.146	6.110	4.888	4.073	3.491	3.055	2.471	2.001	1.654	1.390	7.637	4.700	3.394	2.656	2.182	1.851	1.608	1.421	1.255	1.036	0.871		
75	2.0	16.501	11.000	8.250	6.600	5.500	4.714	4.125	3.667	3.300	3.000	2.735	10.313	6.346	4.583	3.587	2.947	2.500	2.171	1.919	1.719	1.557	1.422		
75	2.5	20.023	13.349	10.011	8.009	6.674	5.721	5.006	4.450	4.005	3.641	3.321	12.514	7.701	5.562	4.353	3.576	3.034	2.635	2.328	2.086	1.889	1.726		
75	3.0	23.319	15.546	11.659	9.328	7.773	6.663	5.830	5.182	4.664	4.240	3.869	14.574	8.969	6.477	5.069	4.164	3.533	3.068	2.712	2.429	2.200	2.010		

H [mm]	D [mm]	Uniformly distributed load												Concentrated load											
		Replacement load Fq [in kN] for uniformly distributed load (numerical values apply for single grating)												Load Fq [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]											
40	2.0	4.727	2.844	1.600	1.024	0.711	0.522	0.400	0.316	0.256	0.212	0.178	2.954	1.818	1.019	0.648	0.448	0.329	0.251	0.198	0.160	0.133	0.111		
40	2.5	5.631	3.390	1.907	1.221	0.848	0.623	0.477	0.377	0.305	0.252	0.212	3.520	2.166	1.215	0.772	0.524	0.392	0.299	0.236	0.191	0.158	0.133		
40	3.0	6.437	3.878	2.181	1.396	0.969	0.712	0.545	0.431	0.349	0.288	0.242	4.023	2.476	1.390	0.833	0.611	0.448	0.342	0.270	0.219	0.181	0.152		
50	2.0	6.645	4.430	2.766	1.770	1.230	0.903	0.692	0.546	0.443	0.366	0.307	4.153	2.556	1.762	1.120	0.775	0.568	0.434	0.343	0.278	0.229	0.193		
50	2.5	7.974	5.316	3.322	2.126	1.476	1.085	0.830	0.656	0.531	0.439	0.369	4.984	3.067	2.116	1.345	0.931	0.685	0.522	0.412	0.333	0.275	0.231		
50	3.0	9.181	6.121	3.827	2.449	1.701	1.250	0.957	0.756	0.612	0.506	0.425	5.738	3.531	2.438	1.550	1.072	0.786	0.601	0.474	0.384	0.317	0.266		
75	2.0	12.530	8.354	6.265	4.866	3.379	2.483	1.901	1.502	1.217	1.005	0.845	7.832	4.832	3.481	2.724	1.930	1.562	1.194	0.942	0.763	0.630	0.529		
75	2.5	15.195	10.130	7.597	5.904	4.100	3.012	2.306	1.822	1.476	1.220	1.025	9.497	5.844	4.221	3.303	2.589	1.895	1.448	1.143	0.925	0.764	0.642		
75	3.0	17.683	11.789	8.841	6.874	4.773	3.507	2.685	2.122	1.718	1.420	1.193	11.052	6.801	4.912	3.844	3.005	2.186	1.631	1.311	1.077	0.890	0.747		

H [mm]	D [mm]	Uniformly distributed load												Concentrated load											
		Replacement load Fq [in kN] for uniformly distributed load (numerical values apply for single grating)												Load Fq [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]											
40	2.0	6.908	4.605	3.454	2.763	2.303	1.711	1.310	1.035	0.838	0.693	0.582	4.318	2.657	1.919	1.502	1.234	1.047	0.823	0.649	0.526	0.434	0.365		
40	2.5	8.242	5.495	4.121	3.297	2.747	2.042	1.564	1.236	1.001	0.827	0.695	5.151	3.170	2.289	1.792	1.472	1.249	0.982	0.775	0.627	0.518	0.435		
40	3.0	9.663	6.442	4.832	3.865	3.221	2.761	2.356	1.782	1.444	1.193	1.002	6.040	3.717	2.684	2.101	1.726	1.464	1.272	1.118	0.905	0.748	0.628		
50	2.0	11.609	7.739	5.804	4.644	3.870	3.317	2.711	2.142	1.735	1.434	1.205	7.256	4.465	3.225	2.524	2.073	1.759	1.527	1.344	1.008	0.899	0.755		
50	2.5	18.072	12.048	9.036	7.229	6.024	5.163	4.518	4.016	3.614	3.255	2.735	11.295	6.951	5.020	3.929	3.227	2.738	2.378	2.101	1.883	1.705	1.558		
50	3.0	21.930	14.620	10.965	8.772	7.310	6.266	5.482	4.873	4.386	3.952	3.321	13.706	8.435	6.092	4.767	3.916	3.323	2.885	2.550	2.284	2.069	1.890		

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
100***	3.35	4.60	6.18
125***	2.27	3.12	4.19
150***	1.67	2.29	3.07
175	1.29	1.77	2.38
200	1.04	1.42	1.91
225	0.87	1.19	1.60
250	0.76	1.04	1.40
275	0.68	0.93	1.25
300	0.62	0.85	1.14
325	0.57	0.79	1.05
350	0.53	0.73	0.99
375	0.50	0.69	0.93
400	0.48	0.66	0.88
425	0.46	0.63	0.84

**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>x</sub> [mm <sup>3</sup> ]
40	2.0	64980.14	2806.40
	2.5	77566.06	3348.28
	3.0	88842.76	3833.05
50	2.0	111885.57	3925.79
	2.5	134483.11	4716.13
75	2.0	155118.63	5436.76
	2.5	305289.86	7317.76
	3.0	370622.81	8908.96
	3.0	431830.36	10375.55

Available at short notice from stock		L = 3,000 mm		
Material	H [mm]	D [mm]	B [mm]	
DD11 raw	40	2.5	200	60 2700 5438 601
	40	2.5	250	60 2700 5439 601
	40	2.5	300	60 2700 5982 601

Available up to L = 6,000 mm  
Please consider the notes concerning the perforated edges.

**Order information**  
The gratings are available up to a length of **6,000 mm**.

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