



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
	EN AW-5754	2.0 2.5 3.0 mm
Dimensions	Lengths (L) up to Length divider	6,000 mm 30 mm
	Standard grating widths ¹ (B) DD 11 DX 51 D Stainless steel EN AW-5754 Width divider	150 to 475 mm in steps of 25 mm 25 mm
	Heights (H)	40 50 75 mm

¹Other 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]			EN AW-5754 Height [mm]			DD 11** Height [mm]			EN AW-5754 Height [mm]					
	40	50	75	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	1.5	1.7	2.1			
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	1.7	1.8	2.2			
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	1.8	2.0	2.4			
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	2.0	2.2	2.6			
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	2.2	2.3	2.7			
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	2.3	2.5	2.9			
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	2.5	2.7	3.1			
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	2.7	2.8	3.2			
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	2.8	3.0	3.4			
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	3.0	3.2	3.6			
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	3.2	3.3	3.8			
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	3.3	3.5	3.9			
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	3.5	3.7	4.1			
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	3.7	3.8	4.3			

H [mm]	D [mm]	Uniformly distributed load												Concentrated load											
		Replacement load F _q [in kN] for uniformly distributed load (numerical values apply for single grating)												Load F _q [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		
DD11, DX 51 D	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	1.873	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	
EN AW-5754	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	
Stainless steel	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 _x [mm ⁴]	Minimum section modulus W _x [mm ³]
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
	3.0	155118.63	5436.76
75	2.0	305289.86	7341.76
	2.5	370622.81	8908.96
	3.0	431830.36	10375.55

Conversion of the replacement load F_q 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_q = Replacement load from table with reference to the support width [kN]
 B = Grating width [mm]
 L = Support length [mm]

Available at short notice from stock				L = 3,000 mm
Material	H [mm]	D [mm]	B [mm]	Order number
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 galvanized gratings are hot-dip galvanized after sawing to ensure optimum corrosion protection.