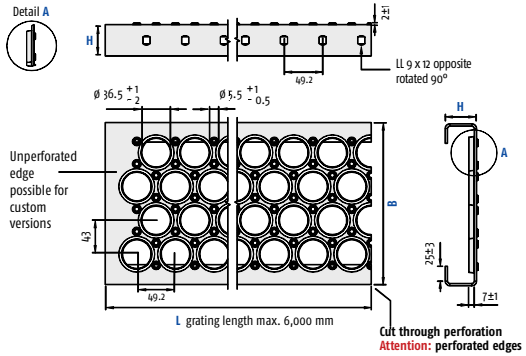
Graepel-Open NEW



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 DD 11 hot-dip galvanized | DX 51 D pre-galvanized Stainless steel EN AW-5754	2.0 | 2.5 | 3.0 mm 2.0 | 2.5 | 3.0 mm 2.0 mm 2.0 | 2.5 | 3.0 mm
Dimensions	**Lengths (L)** up to Length divider **Standard grating widths[1] (B)** DD 11 | DX 51 D | Stainless steel | EN AW-5754 Width divider **Heights (H)**	6,000 mm 49.2 mm 120 to 850 mm in steps of 43 mm 43 mm 40 | 50 | 75 mm

[1] 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

Weight per meter for Graepel-Open for material thickness D [in kg/m]

Grating width [mm]	2.0 DDD 11**/ Stainless steel Height [mm]			2.0 EN AW-5754 Height [mm]			2.5 DD 11** Height [mm]			2.5 EN AW-5754 Height [mm]			3.0 DD11** Height [mm]			3.0 EN AW-5754 Height [mm]		
	40	50	75	40	50	75	40	50	75	40	50	75	40	50	75	40	50	75
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

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.

Graepel-Open

	H [mm]	D [mm]	Uniformly distributed load – Replacement load Fq [in kN] for uniformly distributed load (numerical values apply for single grating) – Support length L [mm] 500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	Concentrated load – Load Fq [in kN] for concentrated load (numerical values apply for single grating) – Support length L [mm] 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	1.636	1.205	1.010	0.834	0.700
	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

Lump load

Grating width B [mm]	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
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

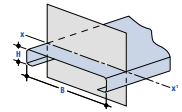
Note concerning lump load

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-X1)



Bend height H [mm]	Material thickness D [mm]	Moment of inertia I_x [mm⁴]	Minimum section modulus W_x [mm³]
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 Fq 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]
Fq = Replacement load from table with reference to the support width [kN]
B = Grating width [mm]
L = Support length [mm]