

GRP GRATINGS ALPINAGRATE



General description

GRP Gratings are produced in special matrix molds. The grating consists of three main components: Resin Mix (2), Fiberglass (1), Pigments (mixing of pigment and resin). The percentage of resin and fiberglass - 70% to 30%. Fiberglass is located in TWO directions.

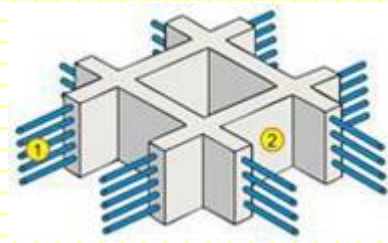


Figure 1 – Fiberglass

Figure 2 – Resin Mix

Manufacturing process

After the material hardens, the GRP gratings are pressed out of the mold. There are several types of resin mixes with Orthophthalic Polyester Resin, Isophthalic Polyester Resin, Vinyl ester resin.

Color

Standardly mixes all have default colors. But it is possible to produce products without adding color pigment. In this case we receive transparent products.

We can change the default color to another, such as corporate color – experts will select the color you want from the RAL palette. Performance term of special order is up to one month. More detailed information on request.

Dimensions

Every form/mold has its own dimensions: panel size, mesh size, height. The gratings have a square mesh pattern to obtain multidirectional strength. GRP Gratings panels can be produced in standard panel sizes or mold can be blocked along the length direction and width direction.

Surface Type

Default surface of GRP Gratings is concave. A range of surfaces are available: gritted surface (GRIT), gratings with covered gritted top (HLU), conductive surface (CONDUCTIVE).

Advantages of usage

GRP Gratings are highly weather, chemical, corrosion, UV and fire resistant. They do not conduct electricity and are strength to weight ratio. GRP Gratings are comfortable for walking and standing, as they are slip resistant. They maintain and store easily.

All these advantages contribute to cost effectiveness and variety of usage areas and range of applications.

Usage areas

Chemical & Petroleum
Offshore, Marine Power, Shipyard
Metallurgical
Decoration
Electronics
Water and Waste Water Treatment
Leisure

Printing & Dyeing
Pharmaceutical
Transportation
Refining
Food and beverage
Pulp & Paper

Range of applications

Offshore Platforms
Floorings
Wash Racks, Battery Racks
Trench Covers
Tower Packing Supports
Machinery Guards
Cable Trough Covers

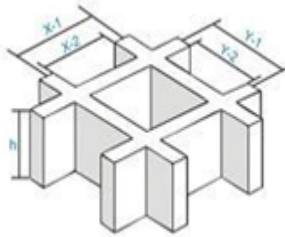
Stair Treads
Screens
Bridges, Walkway
Pit Covers
Root
Ramps

Benefits of color pigment usage

Not fade
Not require painting
Great visual effect
Improve working efficiency
The penetration of UV-radiation is prevented by using color pigments

Mesh Structures

Standard Panel Sizes



The gratings have a square mesh pattern to obtain multidirectional strength (load bar in both directions).

There are Mesh Size and Inside Mesh Size.

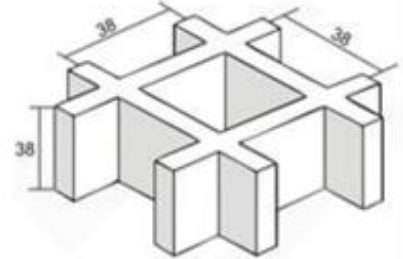
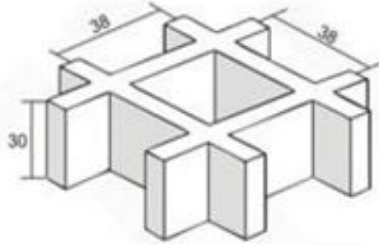
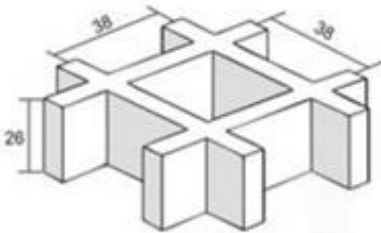
X-1, Y-1 - Mesh Size

X-2, Y-2 - Inside Mesh Size

h - Height (THICKNESS)

HEIGHT	Mesh Size	Standard Panel Size
mm	mm	mm
26	38 x 38	4038 x 1000
30	19 x 19	4047 x 1007
30	38 x 38	4046 x 1525
30	38 x 38	4038 x 1000
30	38 x 38	3660 x 1220
38	19 x 19	4047 x 1247
38	38 x 38	3660 x 1220
38	38 x 38	4038 x 1000
38	38 x 38	4046 x 1525
50	50 x 50	3665 x 1225

MESH STRUCTURES: THICKNESS (mm) x Mesh Size (mm x mm)



THICKNESS: 26mm
Mesh: 38mm x 38mm.

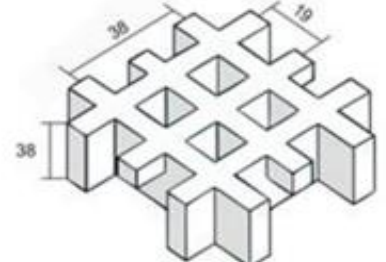
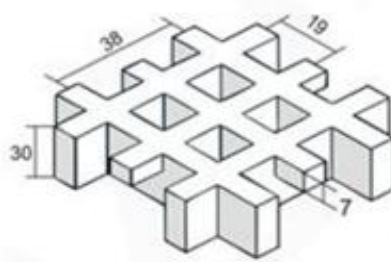
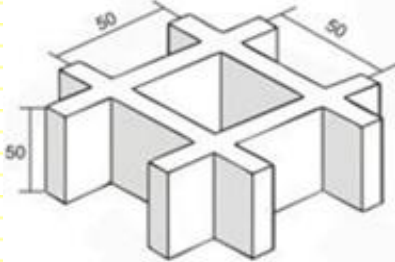
Side A: Inside Mesh Size 32x32mm,
Rib width 6mm
Side B: Inside Mesh Size 33x33mm,
Rib width 5mm

THICKNESS: 30 mm
Mesh: 38mm x 38mm.

Side A: Inside Mesh Size 32x32mm,
Rib width 7mm
Side B: Inside Mesh Size 33x33mm,
Rib width 5mm

THICKNESS: 38 mm
Mesh: 38mm x 38mm.

Side A: Inside Mesh Size 32x32mm,
Rib width 7mm
Side B: Inside Mesh Size 33x33mm,
Rib width 5mm



THICKNESS: 50 mm
Mesh: 50mm x 50mm.

Side A: Inside Mesh Size 43x43mm,
Rib width 8mm
Side B: Inside Mesh Size 45x45mm,
Rib width 6mm

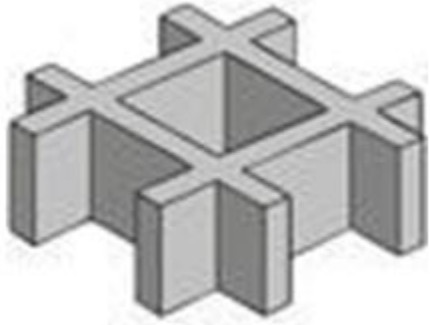
THICKNESS: 30 mm
Mesh: 19mm x 19mm.

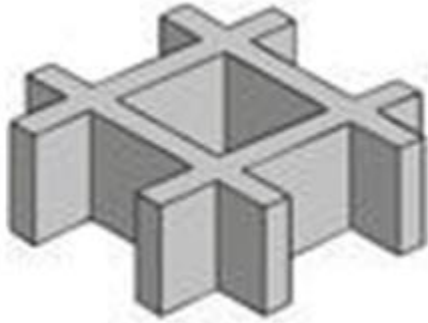
Side A: Inside Mesh Size 13x13mm, Rib
width 5-6mm
Side B: Inside Mesh Size 33x33mm, Rib
width 5mm

THICKNESS: 38 mm
Mesh: 19mm x 19mm.

Side A: Inside Mesh Size
13x13mm, Rib width 5-6mm
Side B: Inside Mesh Size
33x33mm, Rib width 5mm

Mini-mesh Grating (19x19) has a 12mm x 12mm open mesh area. The smaller opening prevents objects as small as 13mm from falling through and complies with the European 15mm ball falling test requirement. The smaller holes also offer smooth movement for small wheeled trolleys, wheelchairs etc.

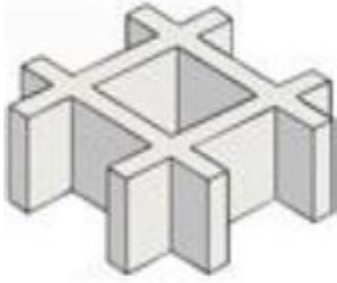
		GRP GRATINGS ECONOM STANDART Orthophthalic resin mix without fire retardant reinforced with continuous glass roving.	
		Resin Type	Fire retardant
Orthophthalic Polyester resin		Without fire retardant	30:70 %
Glass Type	Application		
E - glass	<p>For use in water/ wastewater or air-ageing applications, light industrial application and in the wave zone areas of offshore platforms where the environment is moderate.</p> <p>It still offers superior performance to traditional flooring products such as steel, aluminum and wood and is the most economical resin available.</p> <p>We recommend to use ECONOM STANDART products in corrosion medium, when fire resistance not required and low price needed. It is suitable for inside and outside applications (UV resistant).</p>		
Available MESH sizes	Default variant	Available surface	
38x38x26 38x38x30 38x38x38 19x19x30 19x19x38 50x50x50	Concave surface Grey - RAL 7040 Not electrical conductive	<ul style="list-style-type: none"> ❖ Gritted surface ❖ Conductive surface ❖ HLU surface – covered top ❖ HLU gritted surface – covered top with gritted finish ❖ HLU conductive surface– conductive covered top 	
Operating temperature		Tolerance	
minimum -60 °C maximum +110°C		Length, width: ± 1 mm Thickness: ± 2 mm Warping: < 10 mm / m Weight: ± 5% Color deviation: Close to specified RAL code.	

		GRP GRATINGS ECONOM NON FIRE Orthophthalic resin mix with fire retardant reinforced with continuous glass roving.	
		Resin Type	Fire retardant
Orthophthalic Polyester resin		With fire retardant	30:70 %
Glass Type	Application		
E - glass	<p>For use in water/ wastewater or air-ageing applications, light industrial application and in the wave zone areas of offshore platforms where the environment is moderate.</p> <p>It still offers superior performance to traditional flooring products such as steel, aluminum and wood and is the most economical resin available.</p> <p>We recommend to use ECONOM NON FIRE products in corrosion medium, when fire resistance required and low price needed. It is suitable for inside and outside applications (UV resistant).</p>		
Available MESH sizes	Default variant	Available surface	
38x38x26 38x38x30 38x38x38 19x19x30 19x19x38 50x50x50	Concave surface Grey - RAL 7040 Not electrical conductive	<ul style="list-style-type: none"> ❖ Gritted surface ❖ Conductive surface ❖ HLU surface - covered top ❖ HLU gritted surface - covered top with gritted finish ❖ HLU conductive surface- conductive covered top 	
Operating temperature		Tolerance	
minimum -60 °C maximum +110°C		Length, width: ± 1 mm Thickness: ± 2 mm Warping: < 10 mm / m Weight: ± 5% Color deviation: Close to specified RAL code.	



GRP GRATINGS ISO NON FIRE
Isophthalic resin mix with fire retardant reinforced
with continuous glass roving.

Resin Type	Fire retardant	Glass / resin mix ratio
Isophthalic Polyester resin	With fire retardant	30:70 %
Glass Type	Application	
E – glass	<p>Isophthalic Polyester resin with a non-flammable component, for applications in a hostile environment. Industrial grade corrosion resistance and fire retardant. For use in the environments of middle concentration inorganic acid, inorganic alkali, etc.</p> <p>It is suitable for inside and outside applications (UV resistant).</p>	
Available MESH sizes	Default variant	Available surface
38x38x26 38x38x30 38x38x38 19x19x30 19x19x38 50x50x50	Concave surface Green - RAL 6010 Not electrical conductive	<ul style="list-style-type: none"> ❖ Gritted surface ❖ Conductive surface ❖ HLU surface – covered top ❖ HLU gritted surface – covered top with gritted finish ❖ HLU conductive surface–conductive covered top
Operating temperature	Tolerance	
minimum -60 °C maximum +110°C	Length, width: ± 1 mm Thickness: ± 2 mm Warping: < 10 mm / m Weight: ± 5% Color deviation: Close to specified RAL code.	



GRP GRATINGS FOOD NON FIRE
Isophthalic resin mix with fire retardant reinforced
with continuous glass roving.

Resin Type	Fire retardant	Glass / resin mix ratio
Isophthalic Polyester resin	With fire retardant	30:70 %
Glass Type	Application	
E - glass	<p>Isophthalic Polyester resin with a non-flammable component, for a food-processing industry and animal industries. Industrial grade corrosion resistance and fire retardant. For use in the environments of middle concentration inorganic acid, inorganic alkali, etc.</p> <p>It is suitable for inside and outside applications (UV resistant).</p>	
Available MESH sizes	Default variant	Available surface
38x38x26 38x38x30 38x38x38 19x19x30 19x19x38 50x50x50	Concave surface Light Grey - RAL 7035 Not electrical conductive	<ul style="list-style-type: none"> ❖ Gritted surface ❖ Conductive surface ❖ HLU surface – covered top ❖ HLU gritted surface – covered top with gritted finish ❖ HLU conductive surface–conductive covered top
Operating temperature	Tolerance	
minimum -60 °C maximum +110°C	Length, width: ± 1 mm Thickness: ± 2 mm Warping: < 10 mm / m Weight: ± 5% Color deviation: Close to specified RAL code.	



GRP GRATINGS VINYL NON FIRE
Vinyl Ester resin mix with fire retardant reinforced
with continuous glass roving.

Resin Type

Vinyl Ester Resin

Fire retardant

With fire retardant

Glass / resin mix ratio

30:70 %

Glass Type

E - glass

Application

Vinyl Ester resin with a non-flammable component for application in a hostile environment. Superior corrosion resistance and fire retardant. Environments with serious corrosion issues.

It is suitable for inside and outside applications (UV resistant).

Available MESH sizes

38x38x26
 38x38x30
 38x38x38
 19x19x30
 19x19x38
 50x50x50

Default variant

Concave surface
 Red - RAL 2002
 Not electrical
 conductive

Available surface

- ❖ Gritted surface
- ❖ Conductive surface
- ❖ HLU surface – covered top
- ❖ HLU gritted surface – covered top with gritted finish
- ❖ HLU conductive surface–conductive covered top

Operating temperature

minimum -60 °C
 maximum +110°C

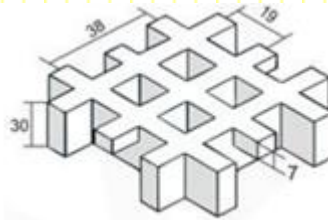
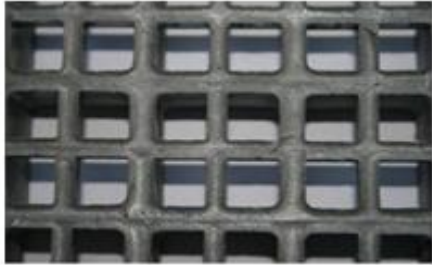
Tolerance

Length, width: ± 1 mm
 Thickness: ± 2 mm
 Warping: < 10 mm / m
 Weight: ± 5%
 Color deviation: Close to specified RAL code.

SURFACE TYPES

Concave Surface

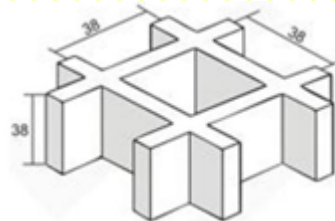
The Concave surface - original type of grating surface which has curves inwards during the thermosetting process.



Mesh size: 19x19 mm

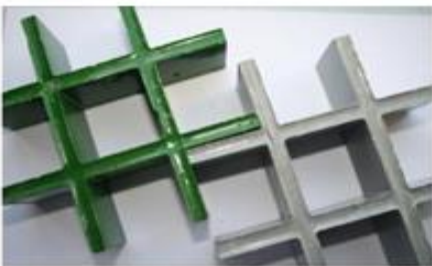
The concave edges received at by this process ensure good anti slip properties.

The Concave surface can be applied to any GRP grating mesh or panel size, for any resin system.



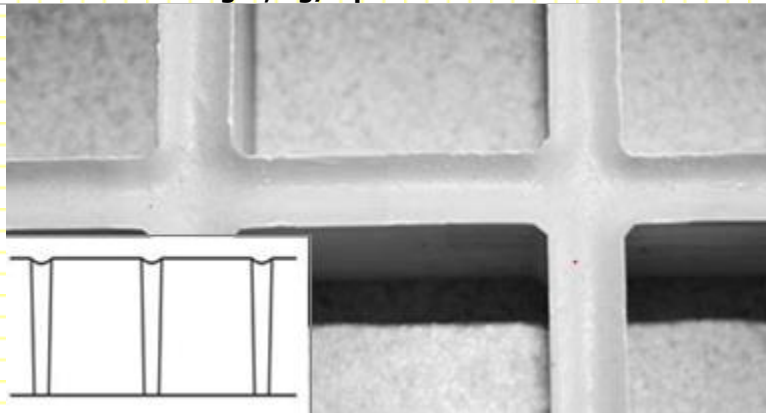
Mesh size: 38x38 mm

Concave Grating is more suited to low foot traffic areas and is particularly suitable for hygiene applications where a high standard of slip resistance is needed and ease of cleaning is a consideration.



Mesh size: 50x50 mm

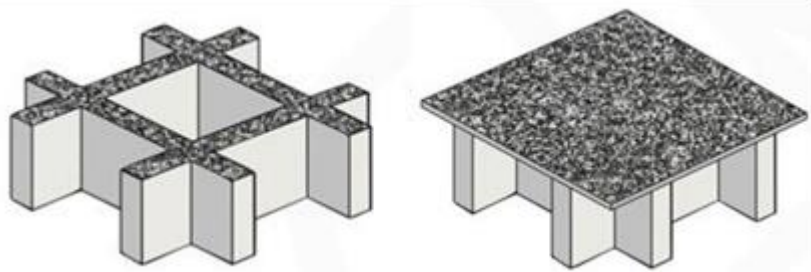
CONCAVE – Weight, kg/sqm



Base – MESH SIZE X HEIGHT mm	WEIGHT – kg/sqm
38x38x26	12,5
38x38x30	15
38x38x38	19
19x19x30	19
19x19x38	21,9
50x50x50	22

GRIT Surface

The GRIT surface is applied to the concave surface together with a resin.

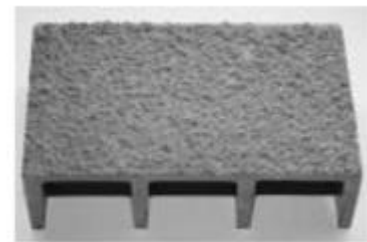


Grit Type	Standard grit size	Type of resin	Additional thickness	Additional weight
Silica sands containing > 98% SiO ₂ . Silica sand from European supplier is manufactured according to ISO 9000 and ISO 14000.	1.Small (default): Standard grit size: 0,6 – 1,2 mm	Gritted gratings in top are painted with vinylester mix	1 - 2 mm.	0,2 kg/m ²
	2.Medium: Standard grit size: 1,0 – 1,8 mm			
	3.Mixed: Standard grit size: 0,6 – 1,8 mm			

Examples of GRP Gratings with GRIT Surface



GRP Gratings + GRIT (open mesh)



GRP Gratings HLU +GRIT (covered)

Base Mesh Size x Height mm	SURFACE TYPE		
	GRIT Weight - kg/sqm +0,2 kg/sqm	HLU+3mm Weight - kg/sqm +6,9 kg/sqm	HLU+6mm Weight - kg/sqm +13,8 kg/sqm
38x38x26	12,7	19,4	26,3
38x38x30	15,2	21,9	28,8
38x38x38	19,2	25,9	32,8
19x19x30	19,2	25,9	32,8
19x19x38	22,1	28,8	35,7
50x50x50	22,2	28,9	35,8

1mm HLU Weight = 2,3 kg/sqm

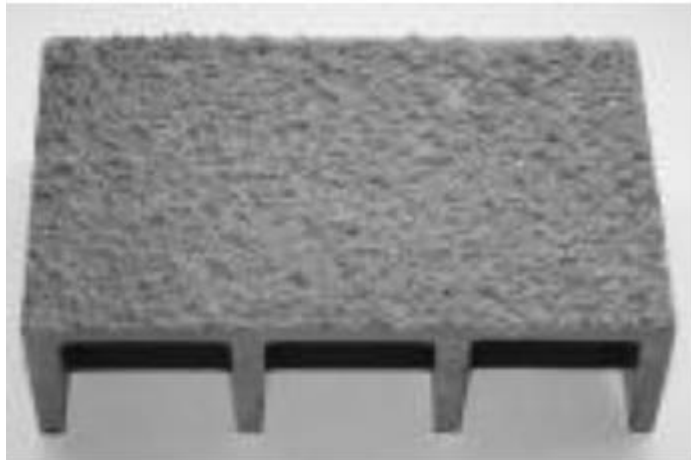
Example: Weight [GRP Gratings 38x38x26 HLU+5mm] = Weight [GRP Gratings 38x38x26 Concave] + [Height of HLU Plate] x [1mm HLU Weight] = 12,5 + 5 x 2,3 = 24,0 kg/sqm

HLU Surface

The HLU Surface (covered top) is typically 3mm or 6mm thick (other thick is available on request) and is bonded to the grating panel after manufacture. This creates a strong but lightweight covered panel. All panels are available with gritted finish (Please see TDS SURFACE GRIT).

Ideally suited to service trenches, access pits, gully covers, walkways and cable troughs etc. All types and sizes of grating are available with covered tops.

Examples of GRP Gratings with HLU Surface



GRP Gratings HLU + GRIT (covered)

Base Mesh Size x Height mm	HLU+3mm Weight - kg/sqm +6,9 kg/sqm	HLU+6mm Weight - kg/sqm +13,8 kg/sqm
38x38x26	19,4	26,3
38x38x30	21,9	28,8
38x38x38	25,9	32,8
19x19x30	25,9	32,8
19x19x38	28,8	35,7
50x50x50	28,9	35,8

1mm HLU Weight = 2,3 kg/sqm

Example: Weight [GRP Gratings 38x38x26 HLU+5mm] = Weight [GRP Gratings 38x38x26 Concave] + + [Height of HLU Plate] x [1mm HLU Weight] = 12,5 + 5 x 2,3 = 24,0 kg/sqm

Conductive gritted surface

GRP Gratings (GRP Plates) with Conductive Surface is formulated with a carbon black surface, eliminating hazardous static electricity when properly grounded.

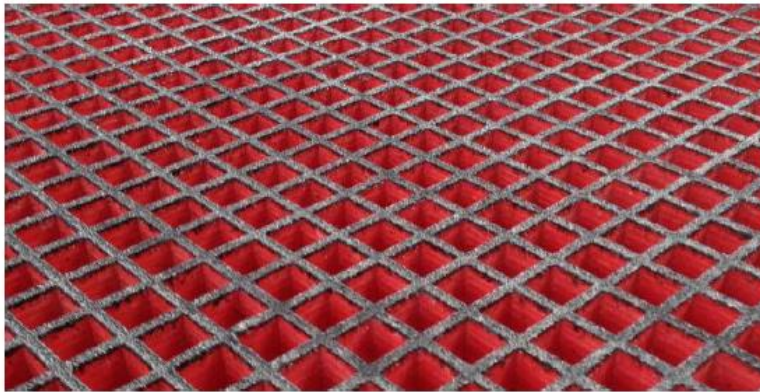
Available in all resin finishes, ALPINAGRATE Gratings are primarily used in the high-tech electronic industries, munitions and arsenal manufacturing plants and other spark sensitive environments where sophisticated equipment may be damaged due to static electricity.

Conductive gritted GRP Gratings have been developed to drain off the build-up of dangerous static electricity in applications where static electricity present safety concerns.

The conductive gritted surface can be applied to any GRP molded grating, incl. HLU, mesh or panel size, to an resin system.

Top layer	Color top layer	Electric strength
Vinyl Ester mix with 20% Graphite	Black	< 60 * 103 Ω /m

Examples of GRP Gratings with Conductive Surface



Base Mesh Size x Height mm	GRIT Weight - kg/sqm +0,2 kg/sqm	SURFACE TYPE	
		HLU+3mm Weight - kg/sqm +6,9 kg/sqm	HLU+6mm Weight - kg/sqm +13,8 kg/sqm
38x38x26	12,7	19,4	26,3
38x38x30	15,2	21,9	28,8
38x38x38	19,2	25,9	32,8
19x19x30	19,2	25,9	32,8
19x19x38	22,1	28,8	35,7
50x50x50	22,2	28,9	35,8

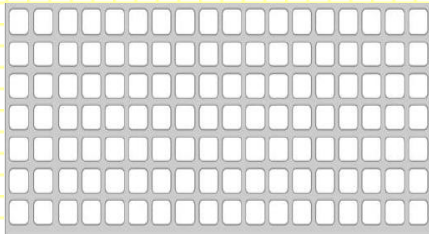
Cutting & Installation

Gratings can be cut or molded to our client is specifications. The cut edges are sanded and sealed with resin to ensure corrosion resistance.

1. Tolerance per full panel: +/- 3mm in length and width direction, +/- 1,5mm in thickness direction
Warp tolerance: Length: 4,5mm per meter, Width: 2,5mm

2. Tolerance for cutting: Length: +/- 5mm, Width: +/- 5mm, Circle: +/- 2mm

Ways of obtaining the necessary dimensions:

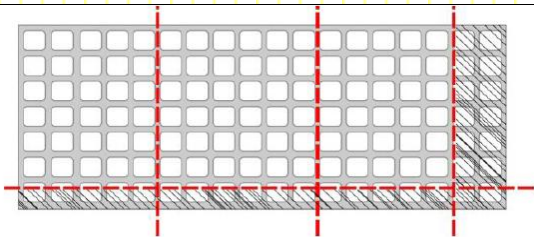
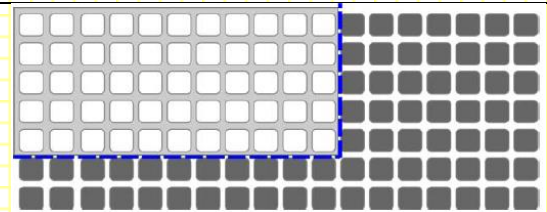


Standard panel sizes

Blocking Molds

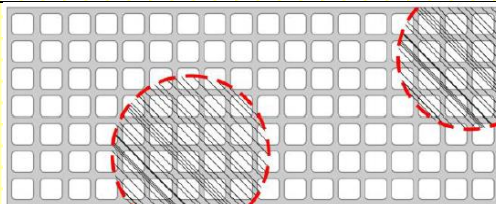
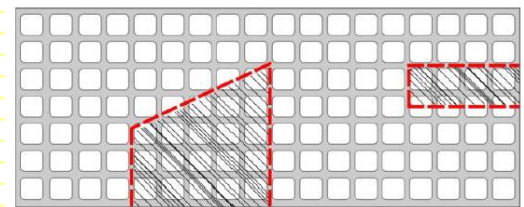
Mold can be blocked along the length direction and width direction.

This option is beneficial only if Extra Cost for Blocking is less than Extra Cost for Standard cutting.



Standard Cutting

Extra Cutting Cutouts from grating

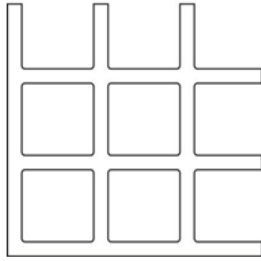


Extra Cutting D
Cutting of circle or another shapes

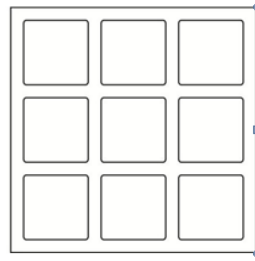
Bi-directional cross-grating structure allows various options for cutting without additional support, treatment. The strengthening of edges is not necessary. When cutting panels for panels with CLOSED MESH should be guided by Closed mesh table.

Closed Mesh Table

GRP Gratings could be cut to any dimensions you required with open edges.



Open Edges / Mesh



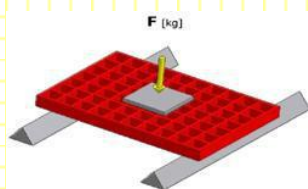
Closed Edges / Mesh

Height 26 mm	Mesh 38 x 38	4038	45, 83, 122, 160, 198, 236, 275, 313, 351, 390, 428, 466, 504, 543, 580,619, 658,696, 734, 772,810,849,888, 926, 964, 1003, 1040, 1079, 1118, 1156, 1194, 1233, 1270, 1309, 1348, 1386, 1424, 1462, 1501, 1539, 1578, 1616, 1654, 1692, 1731, 1769, 1807, 1846, 1884, 1922, 1961, 1998, 2037, 2075, 2113, 2152, 2191, 2229, 2267, 2306, 2344, 2382, 2421, 2459, 2497, 2536, 2574, 2612, 2651, 2689, 2727, 2766, 2804, 2842, 2881, 2920, 2958, 2996, 3034, 3073, 3111, 3149, 3188, 3226, 3265, 3304, 3342, 3380, 3418, 3457, 3496, 3534, 3572, 3610, 3649, 3687, 3725, 3764, 3802, 3841, 3879, 3917, 3956, 3994, 4032.
		1000	45, 84, 121, 159, 197, 236, 274, 312, 349, 388, 426, 464, 502, 541, 578, 617, 655, 693, 731, 769, 807, 846, 884, 922, 960, 999.
Height 30 mm	Mesh 38 x 38	4038	46, 84, 123, 161, 199, 238, 276, 314, 353, 391, 429, 468, 506, 544, 583, 621, 659, 698, 736, 774, 813, 851, 889, 928, 966, 1004, 1043, 1081, 1119, 1158, 1196, 1234, 1272, 1311, 1349, 1387, 1426, 1464, 1502, 1541, 1579, 1617, 1656, 1694, 1732, 1771, 1809, 1847, 1886, 1924, 1962, 2001, 2039, 2077, 2116, 2154, 2192, 2231, 2269, 2307, 2346, 2384, 2422, 2461, 2499, 2537, 2576, 2614, 2653, 2691, 2729, 2768, 2806, 2844, 2883, 2921, 2959, 2998, 3036, 3074, 3113, 3151, 3189, 3228, 3226, 3304, 3343, 3381, 3419, 3458, 3496, 3534, 3573, 3611, 3649, 3688, 3726, 3765, 3803, 3841, 3880, 3918, 3956, 3994, 4032
		1000	46, 83, 122, 159, 198, 236, 274, 312, 350, 388, 426, 464, 503, 540, 579, 617, 655, 693, 732, 770, 809, 847, 884, 922, 960, 999
	Mesh 38 x 38	4046	46, 84, 122, 159, 198, 236, 274, 312, 350, 388, 426, 464, 502, 540, 578, 616, 654, 692, 730, 769, 807, 845, 883, 921, 959, 997, 1035, 1073, 1111, 1149, 1187, 1226, 1264, 1302, 1340, 1378, 1416, 1454, 1492, 1530, 1568, 1606, 1644, 1683, 1721, 1758, 1797, 1834, 1911, 1949, 1987, 2025, 2063, 2101, 2139, 2177, 2215, 2253, 2291, 2329, 2367, 2405, 2444, 2482, 2520, 2558, 2596, 2634, 2672, 2710, 2748, 2786, 2824, 2862, 2900, 2938, 2976, 3015, 3053, 3091, 3129, 3167, 3205, 3243, 3281, 3319, 3357, 3395, 3433, 3471, 3509, 3547, 3585, 3623, 3661, 3700, 3737, 3775, 3814, 3852, 3890, 3928, 3966, 4004, 4043
		1525	46, 84, 122, 160, 198, 236, 274, 312, 350, 388, 426, 464, 502, 540, 578, 616, 654, 692, 730, 768, 806, 844, 882, 920, 958, 996, 1034, 1072, 1110, 1147, 1185, 1224, 1262, 1300, 1338, 1376, 1414, 1456, 1490, 1528
Mesh 38 x 38	3660	46, 84, 122, 159, 198, 236, 274, 312, 350, 388, 426, 464, 502, 540, 578, 616, 654, 692, 730, 769, 807, 845, 883, 921, 959, 997, 1035, 1073, 1111, 1149, 1187, 1226, 1264, 1302, 1340, 1378, 1416, 1454, 1492, 1530, 1568, 1606, 1644, 1683, 1721, 1758, 1797, 1834, 1911, 1949, 1987, 2025, 2063, 2101, 2139, 2177, 2215, 2253, 2291, 2329, 2367, 2405, 2444, 2482, 2520, 2558, 2596, 2634, 2672, 2710, 2748, 2786, 2824, 2862, 2900, 2938, 2976, 3015, 3053, 3091, 3129, 3167, 3205, 3243, 3281, 3319, 3357, 3395, 3433, 3471, 3509, 3547, 3585, 3623, 3661	
	1220	46, 84, 122, 160, 198, 236, 274, 312, 350, 388, 426, 464, 502, 540, 578, 616, 654, 692, 730, 768, 806, 844, 882, 920, 958, 996, 1034, 1072, 1110, 1147, 1185, 1224	
Height 38 mm	Mesh 38 x 38	4038	46, 84, 123, 161, 199, 238, 276, 315, 353, 391, 429, 468, 506, 545, 583, 621, 660, 699, 737, 775, 814, 852, 890, 929, 967, 1006, 1044, 1082, 1121, 1159, 1198, 1236, 1274, 1313, 1351, 1389, 1427, 1466, 1504, 1542, 1581, 1619, 1658, 1696, 1734, 1773, 1811, 1849, 1888, 1926, 1965, 2003, 2041, 2080, 2118, 2157, 2195, 2233, 2272, 2310, 2349, 2387, 2425, 2464, 2502, 2540, 2579, 2617, 2655, 2694, 2732, 2770, 2809, 2847, 2885, 2923, 2962, 3000, 3039, 3077, 3115, 3153, 3192, 3230, 3269, 3307, 3345, 3384, 3422, 3460, 3499, 3537, 3576, 3614, 3652, 3690, 3729, 3767, 3805, 3843, 3882, 3921, 3959, 3998, 4036
		1000	46, 84, 122, 160, 198, 236, 274, 312, 351, 389, 427, 465, 503, 541, 579, 618, 656, 694, 732, 770, 808, 846, 884, 923, 961, 1000
	Mesh 38 x 38	4046	46, 84, 122, 160, 198, 236, 274, 312, 350, 388, 426, 464, 503, 541, 578, 616, 654, 692, 731, 769, 807, 845, 883, 921, 959, 997, 1035, 1073, 1111, 1149, 1187, 1225, 1263, 1301, 1340, 1378, 1416, 1454, 1492, 1530, 1568, 1606, 1644, 1682, 1720, 1753, 1796, 1834, 1872, 1910, 1948, 1986, 2024, 2062, 2100, 2138, 2176, 2214, 2252, 2291, 2328, 2367, 2405, 2443, 2481, 2519, 2557, 2595, 2633, 2671, 2710, 2742, 2785, 2823, 2862, 2900, 2938, 2976, 3014, 3051, 3089, 3128, 3166, 3204, 3242, 3280, 3318, 3356, 3394, 3432, 3470, 3509, 3547, 3584, 3623, 3660, 3699, 3737, 3775, 3814, 3851, 3889, 3928, 3966, 4003, 4042
		1525	46, 84, 122, 159, 198, 236, 273, 311, 349, 387, 425, 463, 501, 539, 577, 615, 653, 691, 729, 767, 805, 843, 881, 914, 957, 995, 1032, 1070, 1108, 1146, 1184, 1222, 1260, 1298, 1336, 1374, 1412, 1450, 1488, 1526
Mesh 38 x	3660	46, 84, 122, 160, 198, 236, 274, 312, 350, 388, 426, 464, 503, 541, 578, 616, 654, 692, 731, 769, 807, 845, 883, 921, 959, 997, 1035, 1073, 1111, 1149, 1187, 1225, 1263, 1301, 1340, 1378, 1416, 1454, 1492, 1530, 1568, 1606, 1644, 1682, 1720, 1753, 1796, 1834, 1872, 1910, 1948, 1986, 2024, 2062, 2100, 2138, 2176, 2214, 2252, 2291, 2328, 2367, 2405, 2443, 2481, 2519, 2557, 2595, 2633, 2671, 2710, 2742, 2785, 2823, 2862, 2900, 2938, 2976, 3014, 3051, 3089, 3128, 3166, 3204, 3242, 3280, 3318, 3356, 3394, 3432, 3470, 3509, 3547, 3584, 3623, 3660	

		1220	46, 84, 122, 159, 198, 236, 273, 311, 349, 387, 425, 463, 501, 539, 577, 615, 653, 691, 729, 767, 805, 843, 881, 919, 957, 995, 1032, 1070, 1108, 1146, 1184, 1222
Minimesh	Mesh 19x19 30mm	4047	46, 86, 126, 166, 206, 246, 286, 326, 366, 406, 446, 486, 526, 566, 606, 646, 686, 726, 766, 806, 846, 886, 926, 966, 1006, 1046, 1085, 1125, 1165, 1205, 1245, 1285, 1325, 1365, 1405, 1445, 1485, 1525, 1565, 1605, 1645, 1685, 1725, 1765, 1805, 1845, 1885, 1924, 1964, 2004, 2044, 2084, 2124, 2164, 2204, 2244, 2284, 2324, 2364, 2404, 2444, 2484, 2524, 2564, 2604, 2644, 2684, 2724, 2764, 2803, 2843, 2883, 2923, 2963, 3003, 3043, 3083, 3122, 3162, 3202, 3242, 3282, 3322, 3362, 3402, 3442, 3482, 3522, 3562, 3602, 3642, 3682, 3722, 3762, 3802, 3842, 3882, 3922, 3961, 4002, 4042
		1007	47, 87, 127, 167, 207, 247, 287, 327, 367, 407, 446, 486, 526, 567, 607, 647, 686, 726, 766, 806, 846, 886, 925, 965, 1005
	Mesh 19x19 38 mm	4047	47, 87, 127, 167, 207, 247, 287, 327, 367, 407, 447, 487, 527, 567, 607, 647, 687, 727, 767, 807, 847, 887, 927, 967, 1007, 1047, 1087, 1127, 1167, 1207, 1247, 1287, 1327, 1367, 1407, 1447, 1487, 1527, 1567, 1607, 1647, 1687, 1727, 1767, 1807, 1847, 1887, 1927, 1967, 2007, 2047, 2087, 2127, 2167, 2207, 2247, 2287, 2327, 2367, 2407, 2447, 2487, 2527, 2567, 2607, 2647, 2687, 2727, 2767, 2807, 2847, 2887, 2927, 2967, 3007, 3047, 3087, 3127, 3167, 3207, 3247, 3287, 3327, 3367, 3407, 3447, 3487, 3527, 3667, 3607, 3647, 3687, 3727, 3767, 3807, 3847, 3887, 3926, 3967, 4006, 4046
		1247	47, 87, 127, 167, 207, 247, 287, 327, 367, 407, 447, 487, 527, 567, 608, 648, 688, 728, 768, 808, 848, 888, 928, 968, 1008, 1048, 1088, 1128, 1168, 1208, 1248

Deflection Tables for ALPINAGRATE Molded Gratings 38x38x26

SPAN [mm]	Concentrated load (kg)		Uniform Load (kg/m ²)			Line Load [kg/305 mm]
	1% deflection	1% deflection	Max. recommended		Ultimate capacity	1% deflection
			ECO FR ISO FR FOOD FR	VINYL FR		
300	1136	7347	7956	15545	34800	506
400	738	3214	4478	8746	19744	288
500	529	1693	2868	5598	12721	186
600	402	1002	1992	3888	8882	130
700	319	644	1464	2857	6556	96
800	261	438	1121	2187	5039	74
900	219	313	886	1728	3996	59
1000	187	231	718	1400	3247	48
1100	162	176	594	1157	2691	40
1200	141	137	499	972	2267	33
1300	116	109	425	829	1936	26
1400	96	88	367	714	1673	-
1500	81	72	319	622	1461	-

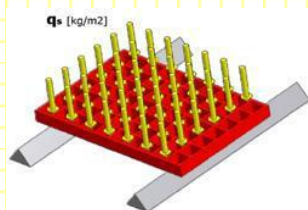


Concentrated load

There are data of the concentrated load data causing a deflection of 1% at a certain span. The load is applied at the centre of a full panel, which is supported on two sides. Gratings supported on 3 or 4 sides will have less deflection.

This table is only valid for the uncut panels.

In case other deflections are specified, just multiply the specified percentage deflection with the 1% load data.



Uniform load

There are data of uniform load data for two sides supported grating at a certain span:

the given data is for a deflection of 1 %

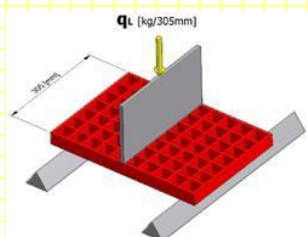
the max. recommended load

ultimate capacity.

This data is also valid for panels which are cut.

In case other deflections are specified, just multiply the specified percentage deflection with the 1% load data to determine the max. load.

To calculate the deflections at max. recommended and ultimate capacity the same calculation method can be used. Deflection is proportional with load.



Line Load

The data in this table gives a 1% deflection for a wide strip of 305 mm width.

The load is applied at the centre of this strip.

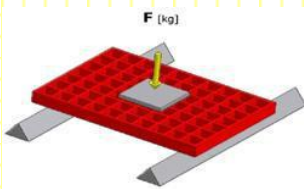
This data will be used to determine the deflection on cutted panels for concentrated loads, supported on two sides.

For gratings with a larger width, the load can easily be calculated by multiplying the width with the given load, divided by 305 mm.

Using special clips to connect the unsupported gratings together, will reduce deflection.

Deflection Tables for ALPINAGRATE Molded Gratings 19x19x30, 38x38x30

SPAN [mm]	Concentrated load (kg)		Uniform Load (kg/m ²)			Line Load [kg/305 mm]
	1% deflection	1% deflection	Max. recommended		Ultimate capacity	1% deflection
			ECO FR ISO FR FOOD FR	VINYL FR		
300	1400	14844	13379	26141	58519	865
400	998	6664	7989	15602	35223	518
500	767	3581	5356	10455	23759	348
600	619	2155	3863	7539	17223	251
700	517	1403	2931	5717	13121	191
800	441	968	2307	4499	10366	150
900	384	697	1868	3642	8421	122
950	361	600	1695	3306	7655	111
1000	339	520	1546	3015	6992	101
1100	303	399	1304	2541	5910	85
1200	274	313	1115	2174	5069	73
1300	249	250	966	1883	4401	63
1400	229	204	846	1649	3862	55

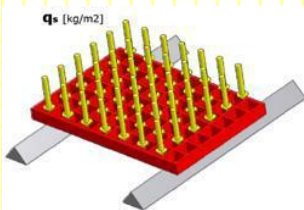


Concentrated load

There are data of the concentrated load data causing a deflection of 1% at a certain span. The load is applied at the centre of a full panel, which is supported on two sides. Gratings supported on 3 or 4 sides will have less deflection.

This table is only valid for the uncut panels.

In case other deflections are specified, just multiply the specified percentage deflection with the 1% load data.



Uniform load

There are data of uniform load data for two sides supported grating at a certain span:

the given data is for a deflection of 1 %

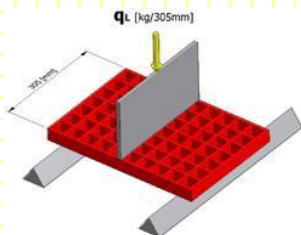
the max. recommended load

ultimate capacity.

This data is also valid for panels which are cut.

In case other deflections are specified, just multiply the specified percentage deflection with the 1% load data to determine the max. load.

To calculate the deflections at max. recommended and ultimate capacity the same calculation method can be used. Deflection is proportional with load.



Line Load

The data in this table gives a 1% deflection for a wide strip of 305 mm width.

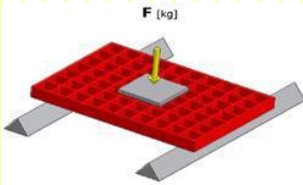
The load is applied at the centre of this strip.

This data will be used to determine the deflection on cutted panels for concentrated loads, supported on two sides.

For gratings with a larger width, the load can easily be calculated by multiplying the width with the given load, divided by 305 mm.

Using special clips to connect the unsupported gratings together, will reduce deflection.

Deflection Tables for ALPINAGRATE Molded Gratings 19x19x38, 38x38x38						
SPAN [mm]	Concentrated load (kg)	Uniform Load (kg/m ²)				Line Load [kg/305 mm]
	1% deflection	1% deflection	Max. recommended		Ultimate capacity	1% deflection
			ECO ECO FR ISO FR FOOD FR	VINYL FR		
300	2190	26809	14278	38807	61369	1288
400	1533	10599	8031	21830	37082	758
500	1162	5163	5139	13971	25088	502
600	927	2867	3569	9703	18231	359
700	765	1744	2622	7129	13918	270
800	648	1135	2007	5458	11016	211
900	560	776	1586	4312	8963	170
1000	492	552	1285	3493	7453	140
1100	437	406	1062	2887	6307	117
1200	389	305	892	2426	5416	100
1300	325	217	760	2067	4708	86
1400	275	182	655	1782	4135	75
1500	236	146	571	1553	3664	66

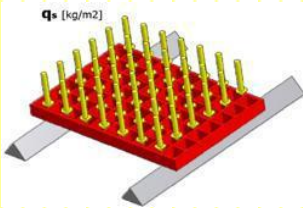


Concentrated load

There are data of the concentrated load data causing a deflection of 1% at a certain span. The load is applied at the centre of a full panel, which is supported on two sides. Gratings supported on 3 or 4 sides will have less deflection.

This table is only valid for the uncut panels.

In case other deflections are specified, just multiply the specified percentage deflection with the 1% load data.



Uniform load

There are data of uniform load data for two sides supported grating at a certain span:

the given data is for a deflection of 1 %

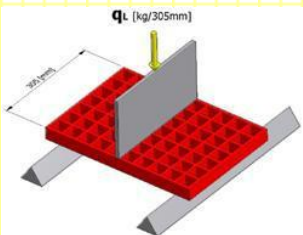
the max. recommended load

ultimate capacity.

This data is also valid for panels which are cut.

In case other deflections are specified, just multiply the specified percentage deflection with the 1% load data to determine the max. load.

To calculate the deflections at max. recommended and ultimate capacity the same calculation method can be used. Deflection is proportional with load.



Line Load

The data in this table gives a 1% deflection for a wide strip of 305 mm width.

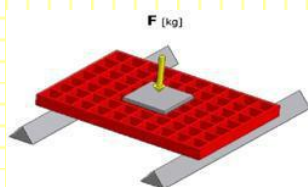
The load is applied at the centre of this strip.

This data will be used to determine the deflection on cutted panels for concentrated loads, supported on two sides.

For gratings with a larger width, the load can easily be calculated by multiplying the width with the given load, divided by 305 mm.

Using special clips to connect the unsupported gratings together, will reduce deflection.

Deflection Tables for gratings 50x50x50						
SPAN [mm]	Concentrated load (kg)	Uniform Load (kg/m ²)			Line Load [kg/305 mm]	1% deflection
		1% deflection	Max. recommended	Ultimate capacity		
			ECO FR ISO FR FOOD FR	VINYL FR		
300	2734	46840	31583	31583	54419	2618
400	2077	18922	17766	17766	37886	1593
500	1677	9371	11371	11371	26722	1084
600	1409	5278	7897	7897	20091	791
700	1216	3247	5802	5802	15786	606
800	1070	2132	4442	4442	12810	481
900	956	1472	3510	3510	10654	393
1000	864	1056	2843	2843	9035	328
1100	789	782	2350	2350	7784	278
1200	720	590	1974	1974	6793	239
1300	616	423	1682	1682	5994	208
1400	533	357	1451	1541	5337	183
1500	466	287	1264	1264	4791	163

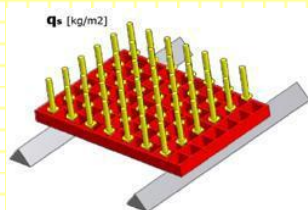


Concentrated load

There are data of the concentrated load data causing a deflection of 1% at a certain span. The load is applied at the centre of a full panel, which is supported on two sides. Gratings supported on 3 or 4 sides will have less deflection.

This table is only valid for the uncut panels.

In case other deflections are specified, just multiply the specified percentage deflection with the 1% load data.



Uniform load

There are data of uniform load data for two sides supported grating at a certain span:

the given data is for a deflection of 1%

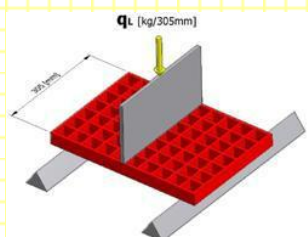
the max. recommended load

ultimate capacity.

This data is also valid for panels which are cut.

In case other deflections are specified, just multiply the specified percentage deflection with the 1% load data to determine the max. load.

To calculate the deflections at max. recommended and ultimate capacity the same calculation method can be used. Deflection is proportional with load.



Line Load

The data in this table gives a 1% deflection for a wide strip of 305 mm width.

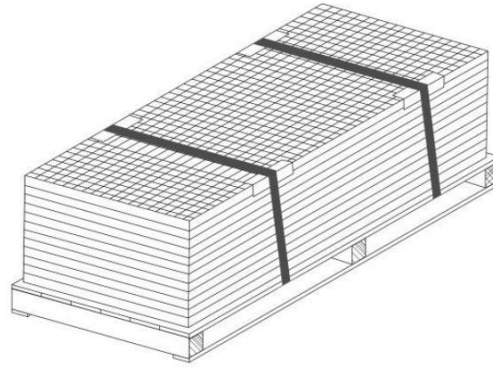
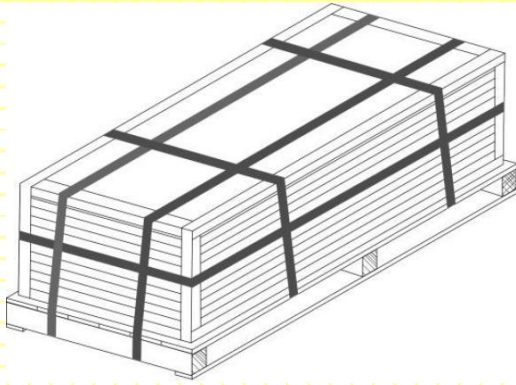
The load is applied at the centre of this strip.

This data will be used to determine the deflection on cutted panels for concentrated loads, supported on two sides.

For gratings with a larger width, the load can easily be calculated by multiplying the width with the given load, divided by 305 mm.

Using special clips to connect the unsupported gratings together, will reduce deflection.

Packing



TYPE: 1. Cut to size panels, stair treads

TYPE: 2. Standard panels

For GRP Gratings packing we use wooden pallets, steel bands, carton corner profile and carton boards of paper.

Packing Table for Standard Panels

Panel size		Height	Mesh size	Total surface	Weight		Pallet marking	Pallet size					full pallet weight	Panel quantity per 1 pallet
					sqm	panel		height	width	lenth	full pallet height			
mm	mm	mm	mm	sqm	kg	kg		mm	mm	mm		mm	kg	pcs
4038	1000	26	38x38	4,038	12,5	50,48	1	15	4080	1040	25	795	1539,4	30
4046	1525	30	38x38	6,170	15	92,55	2	15	4080	1560	25	615	1876	20
4038	1000	30	38x38	4,038	15	60,57	1	15	4080	1040	25	825	1660,39	27
3660	1220	30	38x38	4,465	15	66,98	3	15	3700	1250	25	675	1498,56	22
4047	1007	30	19x19	4,075	19	77,43	1	15	4080	1040	25	825	2115,61	27
4038	1000	38	38x38	4,038	19	76,72	1	15	4080	1040	25	851	1712,84	22
4046	1525	38	38x38	6,170	19	117,23	2	15	4080	1560	25	623	1900,68	16
4047	1247	38	19x19	5,047	21,9	110,53	4	15	4080	1280	25	661	1904,01	17
3660	1220	38	38x38	4,465	19	84,84	3	15	3700	1250	25	851	1891,48	22
3665	1225	50	50x50	4,490	22	98,78	3	15	3700	1250	25	815	1605,48	16
4038	1000	30	38x38	4,038	15	60,57	1	15	4080	1040	25	825	1660,39	27
4038	1000	38	38x38	4,038	19	76,72	1	15	4080	1040	25	851	1712,84	22

ALPINAGRATE GRP Gratings, GRP Plates, GRP stairtreads, and other products are shipped both by container, groupage or common carrier and dedicated truck.

As standard: side loading, stacking - max two full pallets (acc. table↑). If required please ask Customer Service Manager with request for logistics and transportation info for your order.

Chemical Resistance Table



Chemical type	Vinyl Ester		Isophthalic		Orthophthalic	
	Concentration %	Temperature F/°C	Concentration %	Temperature F/°C	Concentration %	Temperature F/°C
Acetic Acid	50	180/82	50	125/52	5	77/25
Aluminum Hydroxide	100	180/82	100	160/71	ALL	
Ammonium Chloride	ALL	210/99	ALL	170/77	ALL	
Ammonium Bicarbonate	50	160/70	15	125/52	ALL	-
Ammonium Hydroxide	28	100/38	28	N/R	ALL	N/R
Ammonium Sulfate	ALL	210/99	ALL	170/77	ALL	-
Benzene	100	92/40	ALL	N/R	ALL	N/R
Benzoic Acid	SAT	210/99	SAT	150/66	ALL	77/25
Borax	SAT	210/99	SAT	170/77	SAT	113/45
Calcium Carbide	ALL	180/82	ALL	170/77	ALL	-
Calcium Nitrate	ALL	210/99	ALL	180/82	ALL	-
Carbon Tetrachloride	100	92/40	100	N/R	100	N/R
Chlorine, Dry Gas	-	210/99	-	140/60	-	N/R
Chlorine Water	SAT	200/93	SAT	80/27	SAT	N/R
Chromic Acid	10	150/65	5	70/21	5	N/R
Citric Acid	ALL	210/99	ALL	170/77	ALL	77/25
Calcium Chloride	ALL	210/99	ALL	170/77	ALL	104/40
Copper Cyanide	ALL	210/99	ALL	170/77	ALL	77/25
Copper Nitrate	ALL	210/99	ALL	170/77	ALL	-
Ethanol	10	155/82	50	75/24	10	77/25
Ethylene Glycol	100	200/93	100	90/32	100	104/40
Ferric Chloride	ALL	210/99	ALL	170/77	ALL	104/40
Ferrous Chloride	ALL	210/99	ALL	170/77	ALL	86/30
Formaldehyde	37	140/60	50	75/24	25	86/30
Gasoline	100	180/82	100	75/24	100	95/35
Glucose	100	210/99	100	170/77	ALL	
Glycerin	100	210/99	100	150/66	100	
Hydrobromic Acid	50	150/65	50	120/49	18	
Hydrochloric Acid	37	150/65	37	75/24	10	86/30
Hydrofluoric Acid	10	149/65	-	-		
Hydrogen Peroxide	30	150/65	5	100/38	5	NR
Lactic Acid	ALL	210/99	ALL	170/77	ALL	77/25
Lithium Chloride	SAT	210/99	SAT	150/66	ALL	
Magnesium Chloride	ALL	210/99	ALL	170/77	ALL	104/40
Magnesium Nitrate	ALL	210/99	ALL	140/60	ALL	86/30
Magnesium Sulfate	ALL	210/99	ALL	170/77	ALL	104/40
Mercuric Chloride	100	210/99	100	150/66	100	104/40
Mercurous Chloride	ALL	210/99	ALL	140/60	ALL	104/40
Methacrylic Acid	99	95/35	-	-		
Methanol	10	183/84	N/R	N/R	N/R	N/R
Nickel Chloride	ALL	210/99	ALL	170/77	ALL	104/40
Nickel Sulfate	ALL	210/99	ALL	170/77	ALL	104/40
Nitric Acid	20	130/54	20	70/21	20	N/R

Chemical type	Vinyl Ester		Isophthalic		Orthophthalic	
	Concentration %	Temperature F/°C	Concentration %	Temperature F/°C	Concentration %	Temperature F/°C
Oxalic Acid	ALL	210/99	ALL	75/24	ALL	N/R
Perchloric Acid	30	100/38	10	N/R	10	N/R
Phosphoric Acid	100	210/99	100	120/49	80	N/R
Potassium Chloride	ALL	210/99	ALL	170/77	ALL	104/40
Potassium Dichromate	ALL	210/99	ALL	170/77	ALL	77/25
Potassium Nitrate	ALL	210/99	ALL	170/77	ALL	104/40
Potassium Sulfate	ALL	210/99	ALL	170/77	ALL	104/40
Propylene Glycol	ALL	210/99	ALL	170/77	ALL	104/40
Sea Water	ALL	210/99	ALL	158/70	ALL	113/45
Sodium Acetate	ALL	210/99	ALL	160/71	ALL	104/40
Sodium Bisulfate	ALL	210/99	ALL	170/77	ALL	
Sodium Bromide	ALL	210/99	ALL	170/77	5	-
Sodium Cyanide	ALL	210/99	ALL	170/77	5	N/R
Sodium Hydroxide	25	180/82	N/R	N/R	N/R	N/R
Sodium Nitrate	ALL	210/99	ALL	170/77	ALL	104/40
Sodium Sulfate	ALL	210/99	ALL	170/77	ALL	104/40
Stannic Chloride	ALL	210/99	ALL	160/71	ALL	104/40
Sulfuric Acid	SO	183/80	25	75/24	10	-
Tartaric Acid	ALL	210/99	ALL	170/77	ALL	-
Vinegar	100	210/99	100	170/77	ALL	-
Vfeter, Distilled	100	180/82	100	170/77	ALL	86/30
Zine Nitrate	ALL	210/99	ALL	170/77	ALL	104/40
Zine Sulfate	ALL	210/99	ALL	170/77	ALL	104/40

Key

- ALL - any concentration
- SAT - saturated solutions
- NR - not recommended