

# ***DeltaGrate® HS High Strength Molded Grating***



***Delta Composites, L.L.C.***

*A Leading Supplier Of  
Structural Fiberglass*

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# DeltaGrate™ HS Molded Grating (High Strength)

Delta Composites DeltaGrate™ HS Molded Fiberglass Grating (High Strength) was developed for corrosive applications where light weight, impact resistant, corrosion resistant and slip resistant grating is a must. DeltaGrate™ HS Molded Grating is a combination of glass rovings strategically positioned within thermoset resins to form a one-piece, high resin content product. DeltaGrate™ HS Molded Fiberglass Grating is a better alternative to traditional steel grating products.

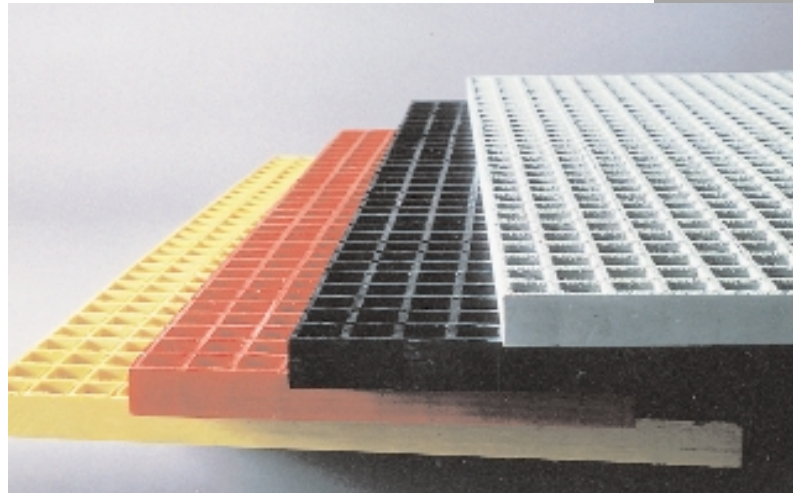
## *Quality Manufactured Product*

DeltaGrate™ HS Molded Grating is manufactured to ISO 9002 standards. Every panel of grating is subjected to a number of quality assurance inspections ensuring void free panels, full wet-out of the glass rovings, consistent resin-to-glass ratios, and consistent non-skid features. Complete traceability of resin batches and the glass utilized in every panel is maintained and can be provided as needed. U-V testing, chemical resistance tests, and load capacity and impact tests are also routinely performed.



## *Higher Stiffness*

DeltaGrate™ HS Molded Grating is manufactured using a proprietary method enabling a higher percentage of glass rovings to be introduced into the grating. Conventional open-top molded gratings are constructed with approximately 25-30% glass content by weight, whereas DeltaGrate™ HS contains 38% glass content. The corrosion resistance of fiberglass grating is provided by the resin, and the stiffness is provided by the glass. Possessing a higher glass content results in a stiffer fiberglass grating. As a result, DeltaGrate™ HS is 15-20% stiffer than the gratings produced by other manufacturers of open-top molded fiberglass gratings without compromising any of the other inherent qualities of molded fiberglass grating. In an independent study conducted by the University of Mississippi on several prominent manufacturers of open top molded gratings, DeltaGrate™ HS placed **FIRST** in overall stiffness.



## *WE CAN VARY GLASS CONTENT PERCENTAGE!!*

While DeltaGrate™ HS comes standard with a 38% (average) glass content by weight, Delta Composites can customize the glass content to suit the specific application. DeltaGrate™ can be manufactured with a 43% average glass content (DeltaGrate™ 43), or it can also be manufactured with a 32% glass content (DeltaGrate™ 32). THESE WILL BE CUSTOM ORDERS, so please consult Delta Composites for delivery times.

## *Chemical Resistance*

With approximately 62% resin content, DeltaGrate™ HS Molded Grating offers superb chemical resistance to a variety of acids and caustics. DeltaGrate™ HS is offered in an array of corrosion resistant resins designed for any environment, from light or moderately corrosive environments to extremely corrosive applications.

## *Lightweight*

DeltaGrate™ HS 1" molded grating weighs 2.5 psf compared to 7.5 psf for 1" steel grating. DeltaGrate™ HS 1 1/2" molded grating weighs 3.75 psf compared to 11.5 psf for 1 1/2" steel grating. DeltaGrate™ HS weighs 1/3 the weight of steel gratings resulting in easier installations and lower installation costs.

## *Impact Resistance*

DeltaGrate™ HS Molded Gratings provide excellent impact resistance and are tested in accordance with ASTM 695-79 (1985) as established by the Fiberglass Grating Manufacturers Council (U.S.A.).

### *Fire Retardancy*

All DeltaGrate™ HS Molded Gratings are designed to exhibit a minimum of a Class 1 flame spread rating when tested in accordance with ASTM E-84 flame spread rating Tunnel Test (comparable to UL 723, ANSI/NFPA No. 255 and UBC No. 8-1). DeltaGrate™ HS gratings are available in a variety of resins offering an array of flame spread ratings and smoke densities, from as low as 4 in flame spread rating and 1 in smoke density with our molded phenolic grating product.

### *Non-Skid & Safety*

DeltaGrate™ HS is available in either a concave meniscus top or a gritted top. Each offers superior slip resistance to traditional steel grated walking surfaces. Many of our customers specify our DeltaTread™ fiberglass stair treads for their safe, non-skid characteristics alone.

### *Low Maintenance/Maintenance Free*

With resin and pigment blended throughout DeltaGrate™ HS Molded Grating, the grating will never require painting. Coupled with our corrosion resistant attachment systems, Delta Composites provides maintenance-free walkway systems. You install it and forget about it!

### *Other Positive Features*

DeltaGrate™ HS Molded Gratings are also:

- Electrically and thermally non-conductive
- Easy to cut and/or install
- Ultra-violet resistant
- Provided in a number of grating thicknesses and panel sizes
- Offers bi-directional strength characteristics

### Industries Using Fiberglass Grating

- |                             |                                    |
|-----------------------------|------------------------------------|
| • Offshore & Marine         | • Textile                          |
| • Petro-chemical & Refining | • Electrical & Power Generation    |
| • Communications            | • Computer and Hi-tech             |
| • Water/Wastewater          | • Recreational Water Parks & Pools |
| • Transportation & Transit  | • Zoos and Aquariums               |
| • Aerospace                 | • Military                         |
| • Automotive                | • Medical                          |
| • Pulp & Paper              | • Shipping                         |
| • Mining                    | • Many others                      |
| • Metal Plating             |                                    |
| • Food & Beverage           |                                    |



# Grating Selection

Delta Composites offers both molded and pultruded gratings. The following table provides assistance in selecting the best grating for the application.

DeltaGrate™ HS Molded Grating vs. DeltaSpan Pultruded Grating		
Characteristic/Application	Square Mesh Molded Grating	Pultruded Grating
Chemical Resistance	Excellent	Good
Bi-directional Strength	Excellent	Not Recommended
Unidirectional Strength	Very Good	Excellent
Impact Resistance	Excellent	Average
Weight Savings versus Metal	Excellent	Excellent
Open Area (air flow, light penetration)	Excellent (70% to 80%)	Good (40% to 60%)
Panel Sizes Available	Excellent	Excellent
Pipe Penetrations	Excellent	Average
Safety	Excellent	Excellent

For any applications requiring our pultruded fiberglass gratings, please see the DeltaSpan Pultruded Fiberglass Grating brochure for additional information.

DeltaGrate™ HS Molded Grating Sizes and Specifications					
Grating Thickness	Mesh Description	Bars/ft	Panel Sizes Available	Weight (psf)	% Open Area
1/2"	1 1/2" x 1 1/2" Square (DeltaScreen™)	8	4' x 8' 4' x 12'	0.8	87%
1/2"	1/2" x 1" x 4" Rectangular (DeltaLite™)	12	3' x 10' 4' x 8'	1.2	68%
1/2"	2" x 2" Square (DeltaLite™)	6	4' x 12'	1.08	71%
1"	1" x 4" Rectangular	12	3' x 10'	2.6	68%
1"	1 1/2" x 1 1/2" Square	8	3' x 10', 4' x 8' 4' x 12'	2.5	68%
1-1/4"	.79" Square (Mini-Mesh™)	16	3.3' x 9.8' (1m x 3m)	3.86	42%
1-1/4" (30mm)	1 1/2" x 1 1/2" Square 40mm x 40mm	8	4m x 1m 3m x 1m 2m x 1m	3.2	68%
1 1/2"	1 1/2" x 1 1/2" Square	8	3' x 10' x 4' x 8' 4' x 12', 5' x 10'	3.8	68%
1 1/2"	1" x 6" Rectangular (DeltaTread™)	12	22 1/4" x 10'	4.85	56%*
2"	2" x 2" Square	6	4' x 12'	4.5	71%

\*including the solid nosing

# Resin Selection

Delta Composite **Structures** manufactures molded grating in a variety of resins, each with its own unique performance characteristics. The resin selection is paramount in determining the corrosion resistance of the finished product. Please consult the Delta Chemical Resistance Guide for assistance in selecting the proper resin for your application, or call Delta's toll-free telephone number, 866-361-2100 for technical assistance.

Delta's resin designations are comprised of two components: the resin type and its ASTM E-84 flame spread rating.

**Type VEFR-20** is a premium vinyl ester resin with a flame spread rating of 20 or less. Type VEFR-20 resin provides the most chemical resistant molded product offered in the industry. Designed to withstand the harshest chemical environments over a broad range of acids and caustics, it is primarily used in petrochemical, waste water, mining, and plating applications where the grating is subject to frequent and direct contact with harsh chemicals. **Type VEFR-10** is manufactured with the same high-quality vinyl ester resin but with an enhanced flame spread rating of 10 or less for those applications requiring more flame resistance, such as an offshore platform. The standard color for the VEFR-20 is orange, and the standard color for the VEFR-10 is dark gray.

**Type IFR-25** is a premium isophthalic polyester resin with a flame spread rating of 25 or less. Type IFR-25 provides an intermediate level of chemical resistance and is the correct resin choice for grating subjected to splash and spill contact with harsh chemicals, and is a very good general purpose resin at a reduced cost compared to the premium vinyl ester resin. **Type IFR-10** is the same high quality isophthalic polyester resin but with an enhanced flame spread rating of 10. The standard color for the IFR-25 is green and the IFR-10 grating is dark gray.

**Type FG-30** is DeltaGrate™ HS Molded Grating manufactured using a premium food grade polyester resin containing no harmful ingredients and is certified by the resin manufacturer. Each panel is post cured and detergent washed prior to shipping. This grating possesses a flame spread rating of 30 and the standard color is light gray.

**Type CFR-25** is an orthophthalic polyester resin with a flame spread rating of 25 or less providing moderate chemical resistance. Delta's Type CFR-25 grating is perfect for use in water/wastewater applications, light industrial applications, and in the wavezone areas of offshore platforms where the environment is moderate. Although Type CFR-25 is the least chemical resistant resin, it still offers superior performance to traditional flooring products such as steel, aluminum and wood, and is the most economical resin available. The standard colors for the CFR-25 gratings are yellow and dark gray. Type CFR-10, an orthophthalic polyester resin with a flame spread rating of 10 is available upon request.

**Type MP-4** is Delta's molded phenolic grating where fire resistance, low smoke, and low toxic fumes are critical. Tested in accordance with ASTM E-84-97a, Type MP-4 resin has a flame spread rating of 4 and smoke density rating of only 1. Our Type MP-4 molded phenolic grating is typically used in confined spaces, subways, offshore and other applications where fire resistance and low smoke generation is absolutely necessary. The standard color in which the Type MP-4 is available is chocolate brown, however phenolic painting of the grating can be performed to obtain a light gray finish.

**Conductive Top Grating:** All of Delta's DeltaGrate™ HS Molded Grating products can be provided with a specially formulated carbon black surface, eliminating hazardous static electricity when properly grounded. Available with all of the above resins, DeltaGrate™ HS Conductive Gratings are primarily used in the high-tech electronic industries, munitions and arsenal manufacturing plants and other sparking sensitive environments where sophisticated equipment may be damaged due to static electricity. The surface electric resistance of DeltaGrate™ HS Conductive Grating is  $1 \times 10^5$  ohms to  $5 \times 10^5$  ohms. For grounding requirements, please consult our engineering staff by calling our toll free number, 866-361-2100.

# ISO 9002 Certification for All Fiberglass Grating

## *Products*

All of Delta Composites' molded and pultruded fiberglass gratings are manufactured to ISO 9002 standards. This certification was achieved in November of 1999 and coincides with Delta Composites' mission to offer the highest quality products and services.

ISO 9002 refers to a series of documents that provide international guidelines on quality management and quality system elements. ISO 9002 is a quality assurance model that is used by companies that produce, inspect, test, install, and service items.



## *What are the benefits of purchasing products from an ISO 9002 Quality Manufacturer?*

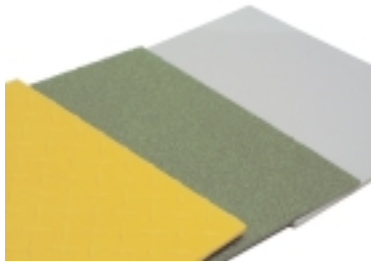
- Fewer production mistakes as the result of better systematic inspection and testing.
- Fewer production mistakes as the result of increased employee participation, involvement, awareness and systematic employee training.
- Better products resulting from better design control.
- Improved productivity resulting from planning and teamwork.
- Reduction in costs associated with failures and/or production errors.
- Systematic resolution of specification non-conformance and the incorporation of preventive measures and corrective action.
- Improved communications, both internally and externally, resulting in improved quality, efficiency, on-time delivery, and customer/supplier relations.
- Worldwide recognition of compliance by an unbiased and respected organization.



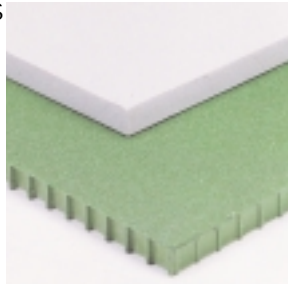
# Specialty Products

## *DeltaPlate™ & DeltaGrate™ Covered Plate Grating*

Many applications require a solid flooring for a variety of reasons, such as odor control in a wastewater plant or in an offshore drilling mud room, or possibly for safety reasons to prevent any small objects from falling through the flooring to the level below. For these instances, Delta Composites has two solutions: our DeltaPlate™ Structural Plate and our DeltaGrate™ Covered Plate Grating.



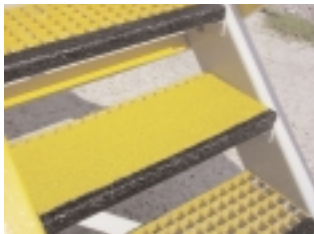
DeltaPlate™ Structural Plates are offered in thicknesses ranging from 1/8" to 3/4", and three choices of plate surfaces are available: our checkered-top finish, our gritted-top finish, or our smooth-top finish. Thicker plates can be custom ordered. DeltaPlate™ is offered in all of the same resin systems as our DeltaGrate™ HS Molded Grating products and provide the same corrosion resistance features of our DeltaGrate™ HS products.



DeltaPlate™ can be bonded to our DeltaGrate™ HS Molded Grating, creating a structural flooring 25-30% stronger than the standard DeltaGrate™ HS grating. DeltaGrate™ Covered Plate Grating offers all of the attributes as the DeltaPlate™, but with much higher load capacity. The standard thickness of the DeltaPlate™ utilized in the covered plate grating is 1/8", however, customized thicker plates can be incorporated.

## *DeltaGrate™ Stair Tread Covers*

Delta Composites offers an alternative to replacing older stair treads - the DeltaGrate™ Stair Tread Cover. This product is custom manufactured to properly attach over the existing stair treads, and provide excellent non-skid characteristics and can be provided in a variety of colors. Fluorescent covers are also available.



## *Grating Legs*

Our DeltaGrate™ Grating Legs are used to elevate DeltaGrate™ HS Molded Grating without the need for extensive structural framing support. Recommended for applications where the elevated flooring is not subjected to wind or other environmental lateral loads, our DeltaGrate™ Grating Legs are a cost effective way to raise the flooring to provide access to meters, gauges, valves, or other items routinely requiring access, and installation is easy. Available in single head and double head fittings, and fixed or adjustable height legs, DeltaGrate™ Grating Legs can raise your flooring from 2" to 60".

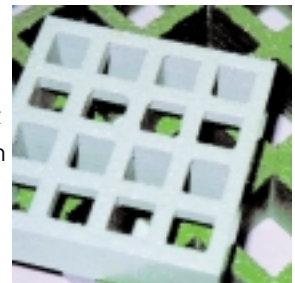


## *Fluorescent Grating*

DeltaGrate™ HS Fluorescent Grating is available. Excellent for use as stair treads in a nighttime safety application, or even as a decorative fencing. DeltaGrate™ HS Fluorescent Grating possesses the same strength characteristics as our standard gratings, and is offered in orthophthalic, isophthalic and vinyl ester resins. A proprietary pigment allows the grating to absorb sunlight energy during the day, and release the light energy during the night. Special stair tread covers or treads with fluorescent nosings are also available .

## *DeltaGrate™ Mini-Mesh Grating*

DeltaGrate™ Mini-Mesh Grating provides a "middle of the road" solution to those applications where solid flooring is not permissible due to airflow requirements, but where the openings must be smaller than our conventional DeltaGrate™ products. The DeltaGrate™ Mini-Mesh flooring system has one-fourth the opening of our standard 1 1/2" square mesh gratings. The smaller openings prevent objects as small as 1/2" from falling through, and because of the closer spacing of the bearing bars, DeltaGrate™ Mini-Mesh panels provide an easier flooring for pushing carts, drum dollies and they comply with ADA requirements for wheelchair floorings. DeltaGrate™ Mini-Mesh Grating





panels are light in weight and easily removable, corrosion resistant and provide for unobstructed airflow. Further, DeltaGrate™ Mini-Mesh panels meet the 15mm ball test for floorings, a European safety requirement commonly used in some sectors of the offshore industry.

Available in 1m x 3m panels, Mini-Mesh panels are provided in three surface styles -smooth, concave, and gritted.

### ***DeltaLite™ Grating***

DeltaLite™ Grating panels are intended for a variety of light duty structural applications where physical strength properties of our standard DeltaGrate™ HS gratings are not needed. For use as a screen, fencing material, a barrier, a caging material, a divider material, or shelving material. Because it is a light duty variation of our standard fiberglass gratings, it possesses the same attributes such as lightweight, corrosion resistance, thermal & electrical non-conductivity, and non-skid. DeltaLite™ Grating non-skid can be supplied in either a meniscus top or with a gritted top, and a custom conductive top can be provided. DeltaLite™ Grating can be installed over existing floorings to create a safer and more corrosion resistant floor.

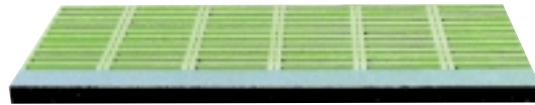
Physically, DeltaLite™ is *1/2" in thickness*, and has a *mesh of 2" x 2" square center-to-center*. The width of the topline of the bearing bar is *5/16"*, and it is *3/16"* on the bottom side. The same resin systems available in our DeltaGrate™ HS Molded Gratings are available for the DeltaLite™ panels. DeltaLite™ grating is offered in 4' x 12' panels. DeltaLite™ is also available in a 1" x 4" rectangular mesh, and is provided in 3' x 10' and 4' x 8' panels.

### ***DeltaScreen™***

DeltaScreen™ is intended for use as a screen primarily for air intakes in military, commercial and industrial applications. It is often used for wall fan screens, and as a barrier to prevent contact with electrical equipment and pumps. DeltaScreen™ is a 1/2" thick x 1 1/2" square mesh fiberglass material, and is offered in all of the resins provided by Delta Composites, including phenolic for those low smoke, low toxicity applications. The screen product is constructed with 1/8" wide bearing bars resulting in an 87% open area screen. DeltaScreen™ is provided in 4' x 8' panels.

### ***DeltaTreads™***

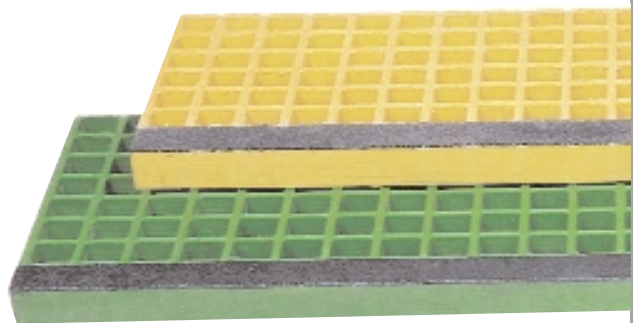
Delta Composites' molded fiberglass stair treads are offered in two varieties: the DeltaTread™ and the DeltaGrate FabTread. DeltaTread™ stair treads are cut from DeltaTread™ panels measuring 22 1/4" x 10'-0". The mesh of the DeltaTread™ is 1" x 6" with double bearing bars at the 6" intervals so that any stair tread with a length that is a multiple of 6" is always banded. The DeltaTread™ panel design results in an efficient utilization ratio, i.e., 8 banded stair treads 2'-6" long can be cut from the DeltaTread™ panel with zero drop. The DeltaTread™ panel comes with either a meniscus top non-skid or a gritted top non-skid.



The OSHA required non-skid nosing, built in to the leading edge of the tread for the first 1 1/4", is always gritted, and is the same color as the rest of the panel.

The DeltaGrate FabTread is a regular 1 1/2" thick x 1 1/2" square mesh grating with a fabricated structural nosing.

All of Delta Composites stair treads, the DeltaTread™ or the DeltaGrate FabTread, are available in all resins. And don't forget about our fluorescent resins which are a big nighttime safety bonus!



### ***Design***

Delta Composites engineering and drafting capabilities are unsurpassed in the structural fiberglass industry. Delta Composites has developed a 3-dimensional, structural finite-element analysis design program which incorporates the industry-accepted fiberglass allowable stress design formulas. Delta Composites' structural engineers can perform 3-D structural analysis of any fiberglass structure. Delta Composites is the only structural fiberglass engineering consultant/fabricator to have such an engineering tool. This fiberglass structural design program performs stress and deflection calculations, plots of deflections, forces, stresses, reactions, as well as resizing over-stressed fiberglass members. Delta Composites is committed to producing the most optimum structural design for all of its engineered systems.

### ***Customer Service***

Our in-house customer service and engineering personnel are product knowledgeable, customer friendly, and are there to assist you with quotations, technical support, project status reports, and any other questions you may have.

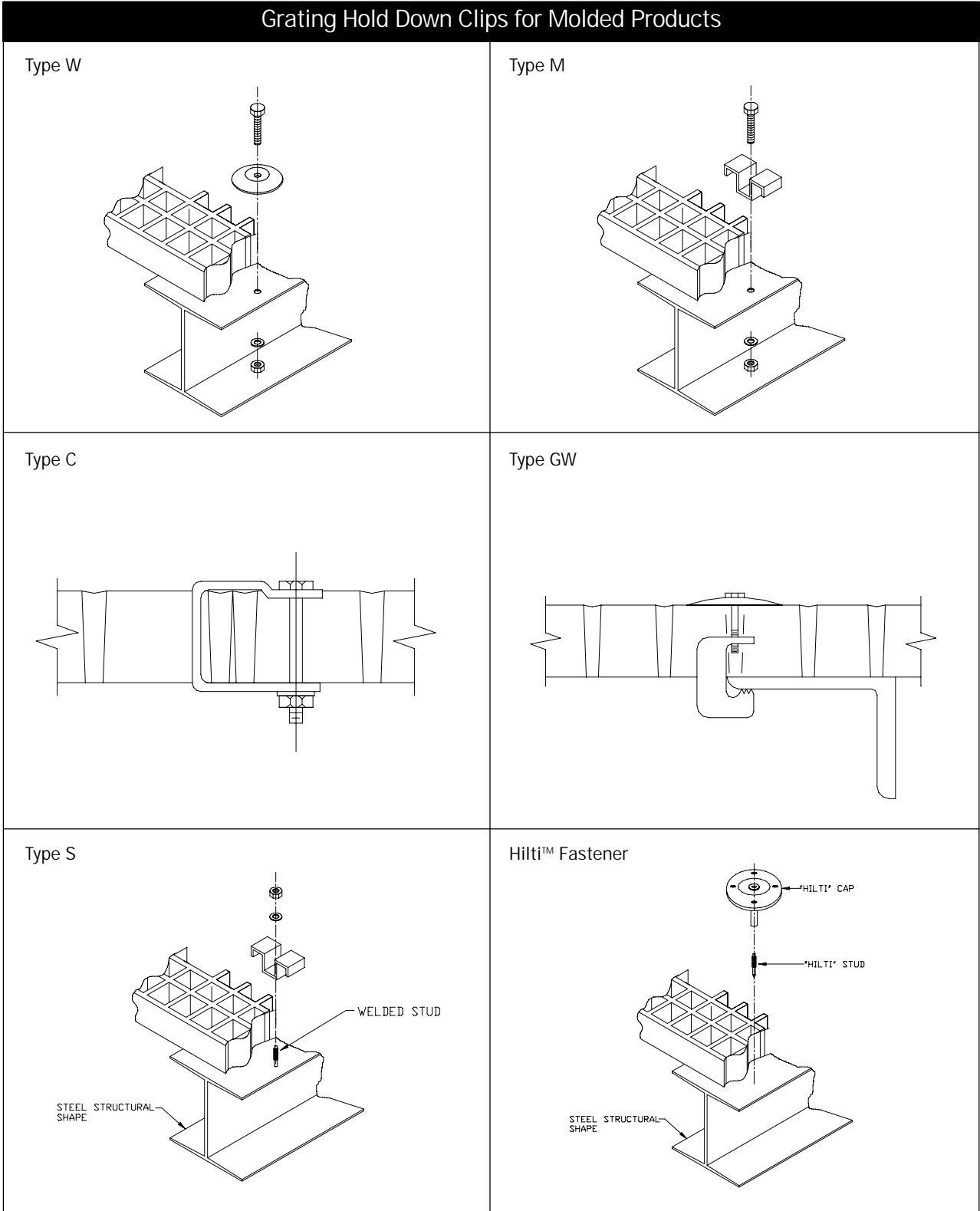


*Delta's structural engineers can perform 3-D structural analysis of any fiberglass structure, steel structure or concrete structure.*



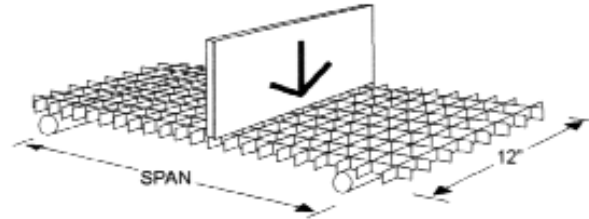
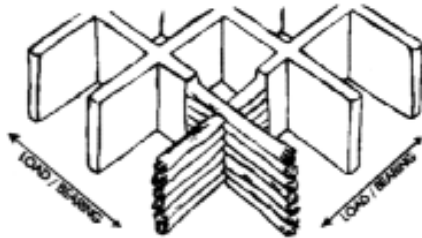
# Installation Accessories

*INSTALLATION* – whenever possible, provide for a minimum of 1-1/2" of bearing support at all grating support points. Holddown clips should be used at the rate of one clip for every 6 ft<sup>2</sup> of grating minimum, or at least 4 clips for any square or rectangular piece, or at least 3 for a triangular piece.




# Load Tables


## DeltaGrate™ HS Molded Grating (High Strength)

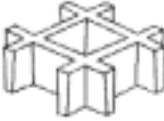



### CONCENTRATED LINE LOAD - 12" WIDE

*Deflection in Inches*

 1" x (1-1/2") mesh	Average EI= 300,000 Lb-in <sup>2</sup> where A=1.92 in <sup>2</sup> I =.16 in <sup>4</sup> S=.32 in <sup>3</sup>
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 1-1/2" x (1-1/2") mesh	Average EI= 900,000 Lb-in <sup>2</sup> where A=2.75 in <sup>2</sup> I=.52 in <sup>4</sup> S=.69 in <sup>3</sup>
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 2" x (2") mesh	Average EI= 2,500,000 Lb-in <sup>2</sup> where A=3.15 in <sup>2</sup> I=1.05 in <sup>4</sup> S=1.05 in <sup>3</sup>
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 1" x (1" x 4") mesh	Average EI= 500,000 Lb-in <sup>2</sup> where A=2.72 in <sup>2</sup> I=.23 in <sup>4</sup> S=.45 in <sup>3</sup>
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SPAN Inches	POUNDS PER FOOT						Break Point
	50	100	200	300	400	500	
18	0.025	0.047	0.082	0.117	0.151	0.185	3896
24	0.054	0.085	0.147	0.205	0.268	0.327	3889
36	0.115	0.252					1573
42	0.209	0.383					1434
48	0.228	0.476					933

SPAN Inches	POUNDS PER FOOT						Break Point
	50	100	200	300	400	500	
18	0.012	0.021	0.035	0.049	0.061	0.074	8703
24	0.028	0.043	0.067	0.090	0.115	0.138	5786
36	0.042	0.077	0.147	0.221	0.295	0.366	4219
42	0.091	0.157	0.275	0.392			3391
48	0.093	0.175	0.345				2534
60	0.161	0.304					1380

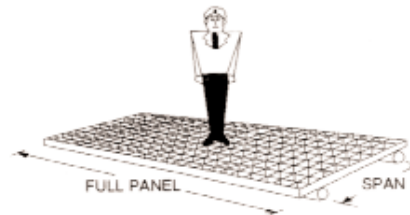
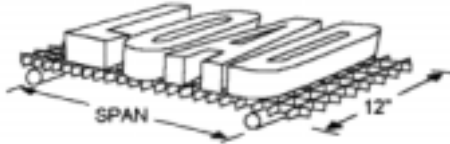
SPAN Inches	POUNDS PER FOOT						Break Point
	50	100	200	300	500	1000	
36	0.018	0.034	0.072	0.106	0.175	0.355	7496
42	0.032	0.059	0.117	0.179	0.307	0.612	5143
48	0.046	0.088	0.181	0.272	0.446	0.934	4300
54	0.065	0.123	0.246	0.366	0.620		3323
60	0.077	0.150	0.301	0.455	0.770		2346

SPAN Inches	POUNDS PER FOOT						Break Point
	50	100	200	300	400	500	
12	0.014	0.021	0.034	0.045	0.054	0.064	9289
18	0.016	0.031	0.056	0.078	0.099	0.119	7854
24	0.030	0.057	0.106	0.151	0.193	0.238	5705
30	0.061	0.110	0.198	0.286	0.374	0.461	3586

Concentrated Line Load Testing was performed according to the testing method designed by the Fiberglass Grating Manufacturers Council (FGMC, Branch of the Society of Plastics, USA), according to the 3 Point Load Test. Testing panels of 1-1/2" and 1" have eight bars, 12" wide and all sides open. Testing panels of 2" have 6 bars, 12" wide and all sides open.

# Load Tables

## DeltaGrate™ HS Molded Grating (High Strength)



### UNIFORM LIVE LOAD - 12" WIDE

*Deflection in Inches*

1-1/2" Thick x 1-1/2" Square Mesh x 12" wide							
SPAN Inches	POUNDS PER SQUARE FOOT						
	60	80	100	120	140	200	240
24	0.057	0.076	0.093	0.111	0.127	0.175	0.206
30	0.141	0.186	0.230	0.273	0.315	0.450	0.540
36	0.287	0.379	0.468	0.562			

1-1/2" Thick x 1-1/2" Square Mesh x 12" wide							
SPAN Inches	POUNDS PER SQUARE FOOT						
	60	80	100	120	140	200	240
24	0.019	0.025	0.030	0.036	0.041	0.056	0.064
36	0.087	0.116	0.143	0.171	0.196	0.269	0.317
42	0.158	0.210	0.260	0.308	0.354	0.497	
48	0.270	0.358	0.443	0.528			

2" Thick x 2" Square Mesh x 12" wide							
SPAN Inches	POUNDS PER SQUARE FOOT						
	60	80	100	120	140	200	240
36	0.037	0.049	0.060	0.071	0.082	0.115	0.137
42	0.068	0.090	0.111	0.134	0.154	0.216	0.256
48	0.116	0.153	0.190	0.226	0.262	0.366	0.434
54	0.182	0.243	0.302	0.358	0.414	0.580	
60	0.281	0.372	0.461	0.552	0.639		

1" Thick x 1" x 4" Rectangular Mesh x 12" wide							
SPAN Inches	POUNDS PER SQUARE FOOT						
	60	80	100	120	140	200	240
24	0.044	0.058	0.072	0.084	0.097	0.131	0.153
30	0.101	0.134	0.166	0.198	0.225	0.304	0.354
34	0.149	0.197	0.247	0.298	0.343	0.495	

### CONCENTRATED FULL PANEL LOAD - 4' x 12'

*Deflection in Inches*

1" Thick x 1-1/2" Square Mesh x 4' x 12'							
SPAN Inches	POUNDS						
	100	250	500	750	1000	1500	2000
18	0.010	0.027	0.061	0.085	0.105	0.164	0.206
24	0.029	0.065	0.125	0.182	0.241	0.359	0.477
36	0.070	0.175	0.347	0.518			
48	0.116	0.297	0.593				

1-1/2" Thick x 1-1/2" Square Mesh x 4' x 12'							
SPAN Inches	POUNDS						
	100	250	500	750	1000	1500	2000
18	0.008	0.016	0.028	0.035	0.045	0.066	0.087
24	0.014	0.035	0.059	0.075	0.095	0.139	0.168
36	0.024	0.059	0.114	0.163	0.213	0.313	0.416
48	0.036	0.094	0.185	0.274	0.362	0.538	

2" Thick x 2" Square Mesh x 4' x 12'							
SPAN Inches	POUNDS						
	200	400	600	1000	1500	2000	2500
18	0.010	0.013	0.018	0.028	0.040	0.053	0.067
24	0.015	0.034	0.044	0.060	0.080	0.100	0.123
36	0.026	0.048	0.070	0.114	0.165	0.217	0.266
48	0.037	0.073	0.108	0.179	0.268	0.365	0.443

1" Thick x 1" x 4" Rectangular Mesh x 3' x 10'							
SPAN Inches	POUNDS						
	100	250	500	750	1000	1500	2000
18	0.011	0.027	0.057	0.087	0.107	0.165	0.213
24	0.028	0.060	0.139	0.182	0.237	0.363	0.484
36	0.064	0.156	0.308	0.465			

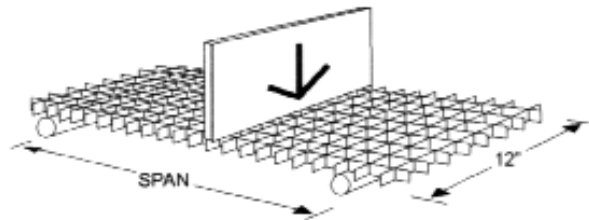
The load data provided here is for general information only; as actual environment and operational conditions are beyond our control. For these reasons, Delta Composites, LLC cannot guarantee that actual performance will correspond to the load tables provided here.

# Load Tables

## DeltaGrate™ FabTread

Stair Tread 1-1/2" thickness x 1-1/2" mesh with nosing

Deflection Table of Stair Treads

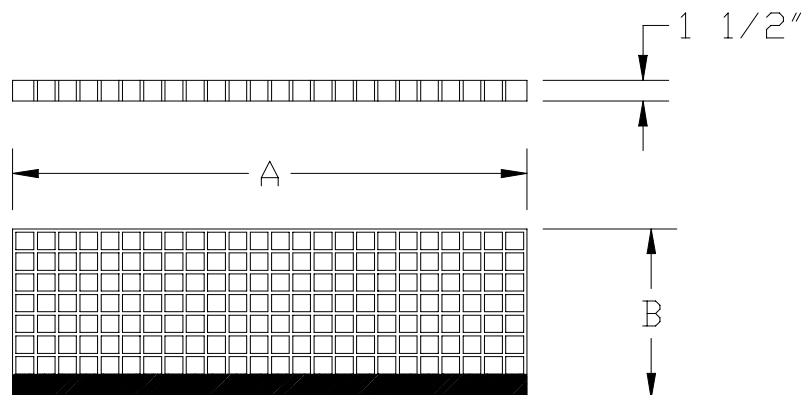


Concentrated Line Load: 250lbs

Deflection in Inches

Tread Depth	Span (inches)				
	24"	30"	36"	42"	48"
9" Width	0.0720	0.1004	0.1949	0.2839	0.4673
10-1/2" Width	0.0547	0.0890	0.1807	0.2643	0.3641
12" Width	0.0401	0.0713	0.1693	0.2319	0.3819

Stairtreads Typical  
1-1/2" Thk. Fabricated Stairtread



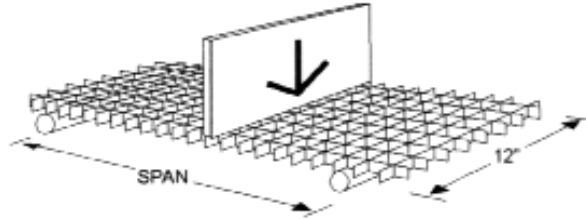
Dimensions "A" and "B" to be determined by customer.  
Panels are green color with grit.  
Nosing filled with grits, black color.

# Load Tables

**DeltaTread™**

Stair Tread 1-1/2" thickness x 1-1/2" mesh with nosing

Deflection Table of Stair Treads



Concentrated Line Load

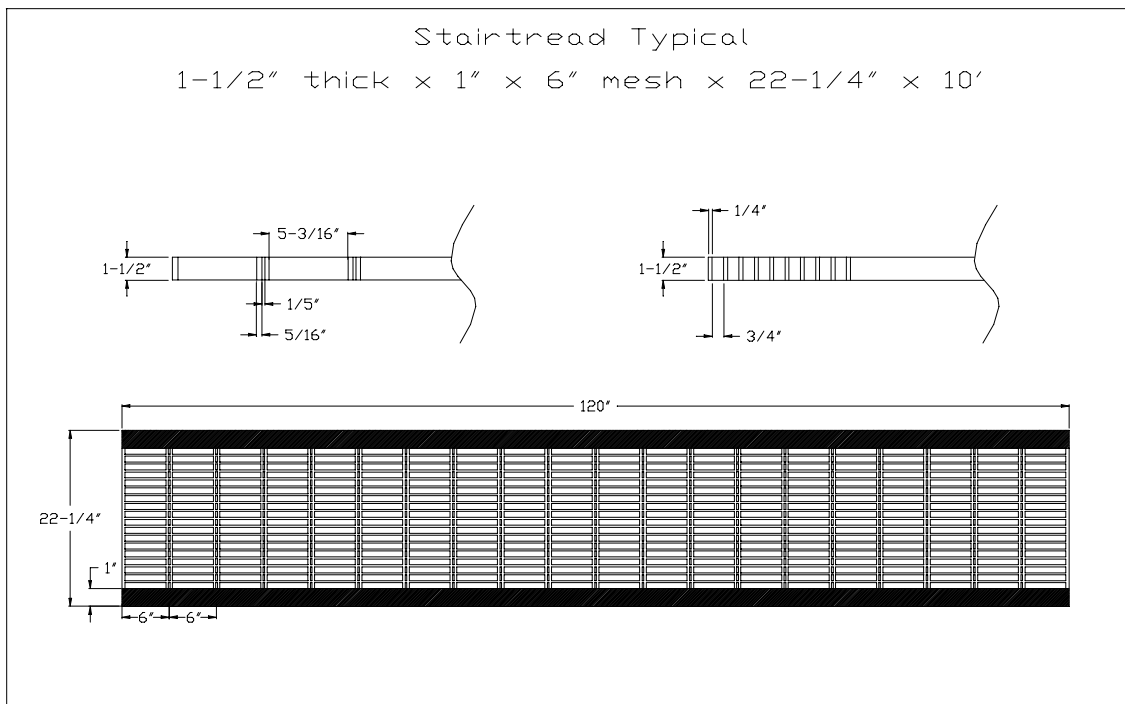
Deflection in Inches

9" Width						
SPAN Inches	POUNDS PER FOOT					
	50	100	200	300	400	500
18	0.0095	0.0196	0.0385	0.0574	0.0764	0.0965
24	0.0170	0.0365	0.0713	0.1084	0.1457	0.1832
36	0.0305	0.0616	0.1251	0.1911	0.257	0.3216
42	0.0505	0.1003	0.1974	0.3030	0.4114	0.5153
48	0.0733	0.1499	0.2935	0.4477	0.6021	

10" Width						
SPAN Inches	POUNDS PER FOOT					
	50	100	200	300	400	500
18	0.0102	0.0179	0.0355	0.0525	0.0696	0.0852
24	0.0157	0.0322	0.0648	0.0980	0.1321	0.1645
36	0.0284	0.0564	0.1134	0.1703	0.2273	0.2844
42	0.0417	0.0853	0.1705	0.2614	0.3565	0.4507
48	0.0654	0.1279	0.2563	0.3856	0.5120	0.6503

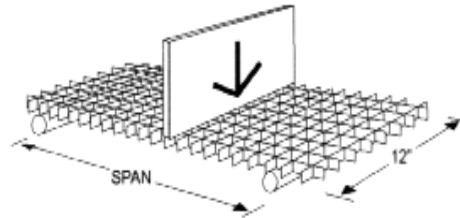
11" Width						
SPAN Inches	POUNDS PER FOOT					
	50	100	200	300	400	500
18	0.0072	0.0150	0.0307	0.0461	0.0633	0.0763
24	0.0142	0.0296	0.0613	0.0910	0.1197	0.1505
36	0.0201	0.0617	0.1023	0.1538	0.2067	0.2587
42	0.0368	0.0732	0.1535	0.2340	0.3229	0.3991
48	0.0588	0.1180	0.2323	0.3500	0.4776	0.5982

12" Width						
SPAN Inches	POUNDS PER FOOT					
	50	100	200	300	400	500
18	0.0087	0.0163	0.0319	0.0476	0.0632	0.0798
24	0.0135	0.0271	0.0566	0.0862	0.1159	0.1459
36	0.0254	0.0492	0.0982	0.1481	0.1972	0.2465
42	0.0385	0.0767	0.1584	0.2364	0.3168	0.3960
48	0.0551	0.1116	0.2273	0.3474	0.4688	0.5869



# Load Tables

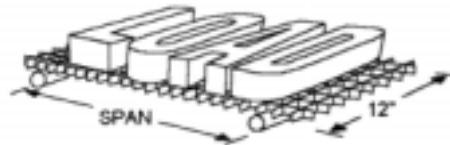
## DeltaGrate™ Mini-Mesh Grating



Concentrated Line Load:

Deflection in Inches

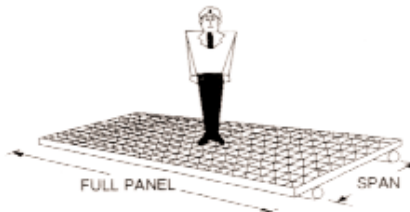
SPAN Inches	12" Width POUNDS PER FOOT								
	100	200	300	400	500	750	1000	1500	2000
18	0.017	0.034	0.050	0.067	0.085	0.126	0.167	0.252	0.336
24	0.043	0.086	0.129	0.172	0.215	0.322	0.431	0.648	0.864
36	0.119	0.246	0.379	0.508	0.629	0.944			
42	0.201	0.405	0.608	0.811					
48	0.306	0.616	0.924						



Uniform Live Load:

Deflection in Inches

SPAN Inches	12" Width POUNDS PER FOOT										
	60	80	100	120	140	160	180	200	220	240	260
18	0.009	0.012	0.015	0.018	0.021	0.023	0.026	0.029	0.031	0.034	0.36
24	0.032	0.043	0.053	0.063	0.072	0.081	0.091	0.099	0.108	0.119	0.123
36	0.135	0.179	0.220	0.261	0.301	0.343	0.381	0.420	0.462	0.504	0.566
42	0.254	0.336	0.419	0.498	0.580	0.663	0.746	0.829	0.912	0.995	
48	0.424	0.560	0.700	0.840	0.980						



Concentrated Full Panel Load:

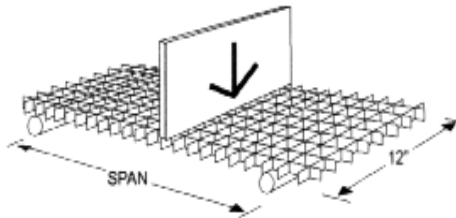
Deflection in Inches

SPAN Inches	1m x 3m POUNDS						
	100	250	500	750	1000	1500	2000
18	0.017	0.017	0.033	0.049	0.064	0.095	0.123
24	0.014	0.036	0.071	0.101	0.134	0.193	0.253
36	0.036	0.098	0.190	0.279	0.367	0.548	0.730



# Load Tables

**DeltaPlate™**



Concentrated Line Load:

Deflection in Inches

SPAN		1/4" Thk. Plate									
Inches		POUNDS PER FOOT									
		100	200	250	300	400	500	750	1000	1500	2000
12		0.1511	0.2980	0.3711	0.4453	0.5937	0.7422				
18		0.4935	0.9869	1.2336							
24		1.1502									
30		1.8984									

Concentrated Line Load:

Deflection in Inches

SPAN		3/8" Thk. Plate									
Inches		POUNDS PER FOOT									
		100	200	250	300	400	500	750	1000	1500	2000
12		0.0453	0.0815	0.1037	0.1305	0.1659	0.2131	0.3191	0.4254	0.6381	0.8508
18		0.1444	0.2958	0.3702	0.4482	0.5975	0.7469				
24		0.3485	0.6964	0.8705							
30		0.6329	1.2625								

Concentrated Line Load:

Deflection in Inches

SPAN		1/2" Thk. Plate									
Inches		POUNDS PER FOOT									
		100	200	250	300	400	500	750	1000	1500	2000
12		0.190	0.0364	0.0441	0.0537	0.0703	0.0906	0.1366	0.1784	0.2820	0.3763
18		0.0551	0.1196	0.1451	0.1729	0.2353	0.2938	0.4553	0.6047	0.9071	
24		0.1226	0.2524	0.3201	0.3871	0.5228	0.6540	0.9810			
30		0.2536	0.5215	0.6524	0.7811						
36		0.4674	0.9305								

Concentrated Line Load:

Deflection in Inches

SPAN		5/8" Thk. Plate									
Inches		POUNDS PER FOOT									
		100	200	250	300	400	500	750	1000	1500	2000
12		0.0099	0.0194	0.0273	0.0294	0.0397	0.0504	0.0780	0.1009	0.1554	0.1986
18		0.0338	0.0676	0.0832	0.0995	0.1342	0.1673	0.2500	0.3395	0.5158	0.6877
24		0.0684	0.1390	0.1748	0.2098	0.2865	0.3619	0.5568	0.7431		
30		0.1443	0.2954	0.3739	0.4527	0.6107	0.7648				
36		0.2683	0.5397	0.6795	0.8199						
42		0.4209	0.8519								

Concentrated Line Load:

Deflection in Inches

SPAN		3/4" Thk. Plate									
Inches		POUNDS PER FOOT									
		100	200	250	300	400	500	750	1000	1500	2000
12		0.0060	0.0124	0.0148	0.0176	0.0238	0.0309	0.0444	0.0592	0.0865	0.1191
18		0.0172	0.0364	0.0488	0.0586	0.0747	0.0919	0.1415	0.1856	0.2820	0.3856
24		0.0397	0.0797	0.1007	0.1212	0.1619	0.2043	0.3148	0.4255	0.6481	0.8642
30		0.0800	0.1550	0.1948	0.2329	0.3161	0.3980	0.6071	0.8102	1.2153	
36		0.1372	0.2834	0.3545	0.4261	0.5781	0.7230				
42		0.2437	0.4949	0.6200	0.7459	0.9945					

# Chemical Resistance Guide

CHEMICAL ENVIRONMENT	TYPE 'VEFR-20'		TYPE 'IFR-25'	
	% CONCENTRATION	MAX. OPER. TEMP F/C	% CONCENTRATION	MAX. OPER. TEMP. F/C
Acetic Acid	50	180/82	50	125/52
Aluminum Hydroxide	100	180/82	100	160/71
Ammonium Chloride	All	210/99	All	170/77
Ammonium Hydroxide	28	100/38	28	N/R
Ammonium Bicarbonate	50	160/70	15	125/52
Ammonium Sulfate	All	210/99	All	170/77
Benzene	N/R	N/R	N/R	N/R
Benzoic Acid	SAT	210/99	SAT	150/66
Borax	SAT	210/99	SAT	170/77
Calcaum Carbonate	All	180/82	All	170/77
Calcium Nitrate	All	210/99	All	180/82
Carbon Tetrachloride	100	150/65	N/R	N/R
Chlorine, Dry Gas	-	210/99	-	140/60
Chlorine Water SAT	200/93	SAT	80/27	
Chromic Acid	10	150/65	5	70/21
Citric Acid	All	210/99	All	170/77
Copper Chloride	All	210/99	All	170/77
Copper Cyanide	All	210/99	All	170/77
Copper Nitrate	All	210/99	All	170/77
Ethanol	50	100/38	50	75/24
Ethylene Glycol 100	200/93	100	90/32	
Ferric Chloride	All	210/99	All	170/77
Ferrous Chloride	All	210/99	All	170/77
Formaldehyde	All	150/65	50	75/24
Gasoline	100	180/82	100	80/27
Glucose	100	210/99	100	170/77
Glycerine	100	210/99	100	150/66
Hydrobromic Acid	50	150/65	50	120/49
Hydrochloric Acid	37	150/65	37	75/24
Hydrogen Peroxide	30	150/65	5	100/38
Lactic Acid	All	210/99	All	170/77
Lithium Chloride	SAT	210/99	SAT	150/66
Magnesium Chloride	All	210/99	All	170/77
Magnesium Nitrate	All	210/99	All	140/60
Magnesium Sulfate	All	210/99	All	170/77
Mercuric Chloride	100	210/99	100	150/66
Mercurous Chloride	All	210/99	All	140/60
Nickel Chloride ALL	210/99	All	170/77	
Nickel Sulfate	All	210/99	All	170/77
Nitric Acid	20	120/49	20	70/21
Oxalic Acid	All	210/99	All	75/24
Perchloric Acid 30	100/38	N/R	N/R	
Phosphoric Acid	100	210/99	100	120/49
Potassium Chloride	All	210/99	All	170/77
Potassium Dichromate	All	210/99	All	170/77
Potassium Nitrate	All	210/99	All	170/77
Potassium Sulfate	All	210/99	All	170/77
Propylene Glycol	All	210/99	All	170/77
Sodium Acetate	All	210/99	All	160/71
Sodium Bisulfate	All	210/99	All	170/77
Sodium Bromide	All	210/99	All	170/77
Sodium Cyanide	All	210/99	All	170/77
Sodium Hydroxide	25	180/82	N/R	N/R
Sodium Nitrate ALL	210/99	All	170/77	
Sodium Sulfate ALL	210/99	All	170/77	
Stannic Chloride	All	210/99	All	160/71
Sulfuric Acid	75	100/38	25	75/24
Tartaric Acid	All	210/99	All	170/77
Vinegar	100	210/99	100	170/77
Water, Distilled 100	180/82	100	170/77	
Zinc Nitrate	All	210/99	All	170/77
Zinc Sulfate	All	210/99	All	170/77

ALL...ALL Concentrations SAT...Saturated Solution N/R...Not Recommended -...No Information Available

The corrosion resistance data listed above is for general information only. Resin manufacturers have provided test data which indicates that the specific resin can withstand the corrosion conditions listed above. Delta Composites, LLC believes the data to be true and accurate but no guarantee is expressed or implied as to specific performance. Testing for specific environments is recommended. Our responsibility for claims arising from breach of warranty, negligence or otherwise is limited to the purchase price of the material sold by Delta Composites, LLC.

# Field Fabrication and Installation of DeltaGrate™ Grating

**SAFETY PRECAUTIONS** -- When cutting DeltaGrate™ HS, always wear safety glasses or goggles to protect your eyes and always wear a dust mask to reduce dust inhalation. Always wear gloves, and it is recommended that a shop coat with neck and tapered sleeves be worn to prevent skin irritation. Work in well-lighted and ventilated area. Always read the MSDS (Material Safety Data Sheet) before cutting and sealing DeltaGrate™ HS Grating. Always provide firm support of the grating panels to prevent shifting, and the use of sawhorses and other supports will help to prevent common back injuries. Cutting of DeltaGrate™ Grating will produce dust -- this dust is non-carcinogenic but may cause some skin irritation.

**CUTTING GRIDWALK** -- Depending on the amount (linear feet) of grating to be cut, and the type of cutting required, i.e., straight cuts or circular cuts, a variety of field and shop tools can be used such as an abrasive coated metal blade, or a standard bimetal blade or a hacksaw with a blade with a similar tooth pattern as the bimetal blade.

For making straight cuts, the following equipment is recommended:

- Panel saw\*
- Circular saw\*
- Table saw\*
- Radial arm saw\*
- Reciprocating saw (6" lg. abrasive coated or a bimetal blade, 12-14 teeth, min.)
- Hand-held hack saw (for small quantities or emergencies)

\*The blade should be an abrasive continuous rim cut-off blade normally used on masonry or ceramic products (silica gritted or diamond coated blades).

For making small radius circular cuts, a reciprocating saw with the same blade specifications above is recommended. For making larger radius circular cuts, a circular saw can be used using the blade specifications stated above.

Remember that the saw blades will "eat-up" about 1/8" of grating with each cut, so be sure to allow for this when measuring and laying out your marks on the grating panel.

Always use sandpaper or a sanding wheel to smooth out all cut edges before sealing and ALL CUT EDGES MUST BE SEALED. For this, use Delta Composites Zynolite, a premium grade exterior polyurethane enamel specially formulated to effectively seal cut surfaces of fiberglass products to protect the glass fibers from environmental attack. The material is supplied in 11 oz. spray cans and is to be used in accordance with the instructions on each can. The material dries in 30 minutes, and is non-toxic when dry. Delta Composites Zynolite is flammable and care must be taken to use the material and dispose of the material in accordance with the written instructions on each can.