



DeltaGrate

High Strength Molded Fiberglass Grating

Table of Contents

Company Overview 2

DeltaGrate High Strength Molded Grating 3

Grating Selection 5

Resin Selection 6

Specialty Products 7

Installation Accessories 9

Chemical Resistance Guide 10

Load Tables 11

Field Fabrication & Install of DeltaGrate Grating 17

Market Applications 18

AIMS International, LLC is a world leader in offshore vortex induced vibration (VIV) suppression, engineered fiberglass structural systems, and platform dock fendering systems. Since 1982, AIMS has been the leader in supplying, engineering, and fabricating fiberglass grating and structural systems. AIMS supplies a full line of platforms, dock fenders, fiberglass signs, vortex breakers, VIV suppression products, blast panels, and mudmats. In addition, we are a leading supplier of fiberglass handrail and stair systems, as well as and other specialty fiberglass products.

AIMS prides itself on its ability to take the customer project from the initial design and engineering phase to the implementation and installation of the finished product.

In an effort to continually improve services, AIMS actively seeks expansion opportunities within the United States and in overseas markets. In 1993, we purchased Teledyne Monarch Rubber's platform fender product line, moved the product tooling to Houston, and began manufacturing and marketing a platform fender product line, i.e., energy cells, rubstrips, and barge bumpers. In 2017, AIMS began fabricating aluminum structures and handrails.

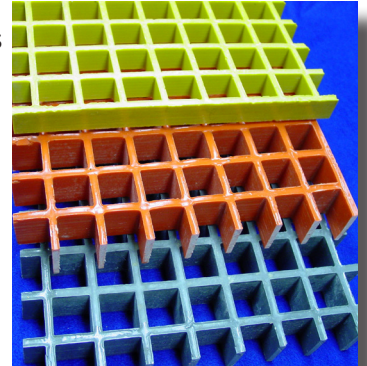
To market our products and services around the world, AIMS forms partnerships with local companies in various countries, including Malaysia, Australia, Korea, Singapore, India, United Arab Emirates, Nigeria, Brazil, and Mexico. Everywhere there is offshore oil and gas, you will find AIMS International.



Manufacturing

AIMS fiberglass products are guaranteed and manufactured in an ISO 9001:2008 Certified, world-class facility that meets a high standard of excellence. Our products incorporate only the highest quality resins and glass, in addition to other proprietary manufacturing techniques. For example, DeltaGrate High Strength (HS)

Molded Grating products are manufactured in a manner that allows for more glass content to be achieved, greatly enhancing the stiffness of the grating panel. Compare the stiffness of DeltaGrate to other manufacturers' molded gratings, and the difference is obvious.



AIMS gratings and other structural fiberglass products are offered in a variety of specially formulated resins, meeting our customers' specific service environments.

Engineering & In-House Capabilities

AIMS' engineering and drafting capabilities are unsurpassed in the structural fiberglass industry. We have developed a 3-dimensional, structural finite-element analysis computer design program—Allowable Stress Design (ASD)—incorporating the industry-accepted fiberglass formulas. Our Structural Engineers can perform 3-D structural analyses of any fiberglass structure, steel or aluminum structure, or even a concrete structure. This structural design program performs stress and deflection calculations, plots of deflections, forces, stresses, reactions, etc., as well as resizing over-stressed members. AIMS is committed to producing the most optimum structural design for all of its engineered systems.

Our in-house team of engineers and designers possess exceptional knowledge of fiberglass products and are capable of providing qualified solutions to our customers for their unique requirements.

DeltaGrate HS Molded Grating

DeltaGrate HS Molded Grating was developed for corrosive applications where light weight, impact resistant, corrosion resistant, and slip resistant grating is a must. This high strength grating is a combination of glass rovings strategically positioned within thermoset resins to form a one piece, high resin content product. In most applications, DeltaGrate proves to be a much better alternative to traditional steel grating products.

Molding Results in Higher Stiffness

AIMS' DeltaGrate HS Molded Fiberglass Grating is manufactured using a proprietary method, enabling a higher percentage of glass rovings to be introduced into the grating. By using a series of weighted compressions to compress the glass into the resin at multiple stages during a panel's manufacture we are able to increase the glass content upwards of 35%, on average. The corrosion resistance is provided by the resin, and the stiffness is provided by the glass rovings. Possessing a higher glass content results in a stiffer fiberglass grating. As a result, DeltaGrate HS Molded Grating is 15-20% stiffer than gratings produced by other "conventional" open molded gratings.

Quality Manufactured Product

DeltaGrate HS Molded Grating is manufactured to ISO 9001:2008 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. UV testing, chemical resistance testing, load-deflection testing, and impact tests are also routinely performed.



Glass Content – *We Can Vary the Percentage*

While DeltaGrate comes standard with a 35% (average) glass content by weight, we can also customize the glass content to meet a specific application. DeltaGrate can be manufactured with up to as much as a 43% glass content by weight (DeltaGrate 43) or as low as a 32% glass content (DeltaGrate 32), which are considered custom products. Please consult AIMS for delivery times.

Chemical Resistance

With approximately 65% resin content, DeltaGrate HS Molded Grating offers superior chemical resistance to a variety of acids and caustics. DeltaGrate 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 1" molded grating weighs 2.5 psf, compared to 7.5 psf for 1" steel grating. DeltaGrate 1-1/2" molded grating weighs 3.8 psf, compared to 11.5 psf for 1-1/2" steel grating. Weighing one-third the weight of steel grating, DeltaGrate HS Molded Grating is easier to install and provides 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 Fiber-glass Grating Manufacturers Council (U.S.A.).

Fire Retardancy

All DeltaGrate gratings are designed to exhibit a minimum of 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 gratings are available in a variety of resins offering an array of flame spread ratings and smoke densities. The flame spread rating is a variable that can be customized—typically to as low as 10 and up to 25 for our standard systems.

Non-Skid & Safety

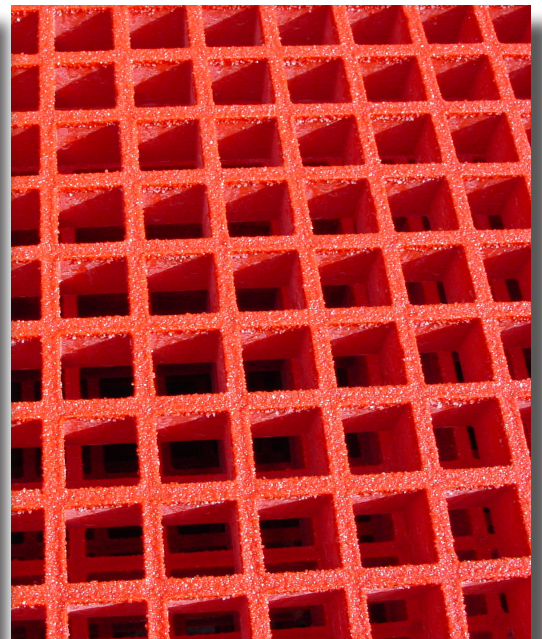
DeltaGrate is available in either a concave meniscus top or a gritted top. Each offers superior slip resistance, compared to traditional steel grated walking surfaces. Many of our customers specify our DeltaTread fiber-glass stair treads for their safe, non-skid characteristics, alone. There is nothing worse than steel treads on a wet day.

Low Maintenance

With resin and pigment blended throughout DeltaGrate, the grating will never require painting. Coupled with our corrosion resistant attachment systems, DeltaGrate products are virtually maintenance-free.

Additional Features

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



Grating Selection

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

For any application requiring pultruded fiberglass gratings, please refer to our DeltaSpan Pultruded Grating brochure for additional information.

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

DeltaGrate HS Molded Grating vs. DeltaSpan Pultruded Grating					
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 400mm 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', 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%

Resin Selection

AIMS International, LLC manufactures molded grating with a variety of resins, each with unique performance characteristics. Resin selection is paramount in determining the corrosion resistance of the finished product. Please consult the Chemical Resistance Guide for assistance in selecting the proper resin for your application, or call toll-free at 800-495-5997 for technical assistance.

AIMS' resin designations are comprised of two components—resin type and ASTM E-84 Flame Spread Rating.

Type VEFR-25 is a premium vinyl ester resin with a flame spread rating of 25 or less. Type VEFR-25 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 on an offshore platform subjected to caustic drilling muds. The standard color for the VEFR-25 is orange, and the standard color for the VEFR-10 is dark gray, but other colors can be provided.

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. It 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. AIMS' 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 AIMS' 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 our 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 Conductive gratings are primarily used in the hi-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 our conductive grating is 1×10^5 ohms to 5×10^5 ohms. For grounding requirements, please consult our engineering staff by calling toll free 800.495.5997.

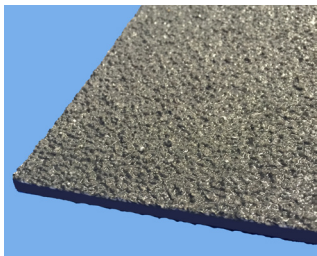
Specialty Products

DeltaPlate & DeltaGrate Covered Plate Grating

Many applications require a solid flooring for a variety of reasons, such as odor control in a wastewater plant, in an offshore drilling mud room, or possibly for safety reasons to prevent any small objects from falling through the floor to the level below. For these instances, AIMS has two solutions: DeltaPlate Structural Plate and 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: checkered-top finish, gritted-top finish, or 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 with the same corrosion resistance features.

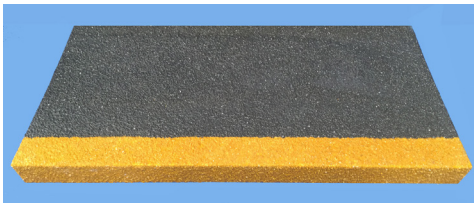
DeltaPlate can be bonded to DeltaGrate, creating a structural flooring 25-30% stronger than the standard DeltaGrate HS Molded Grating. **DeltaGrate Covered Plate Grating** offers all of the attributes as the



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 offers an alternative to replacing older stair treads—the DeltaGrate Stair Tread Cover. This product is custom manufactured to properly attach over existing stair treads to provide excellent non-skid characteristics. The cover is available in a variety of colors. Fluorescent covers are also available.



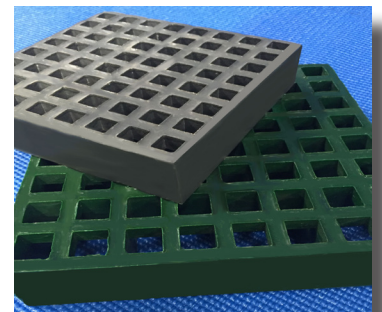
Fluorescent Grating

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

DeltaGrate Mini-Mesh Grating

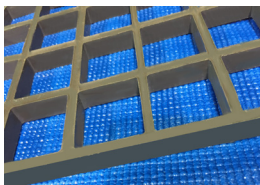
DeltaGrate Mini-Mesh Grating provides a middle-of-the-road solution to those applications where solid flooring is not permissible due to airflow requirements, but where the openings must be smaller than our conventional DeltaGrate products. The DeltaGrate Mini-Mesh Flooring System has one-fourth the 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 and drum dollies, and also comply with ADA requirements for wheelchair floorings. DeltaGrate Mini-Mesh panels are light in weight and easily removable, corrosion resistant, and provide an unobstructed airflow. Furthermore, these 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

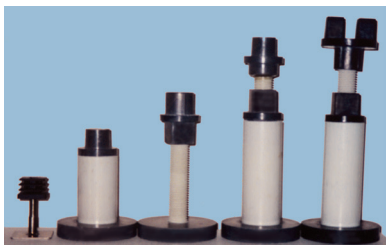
DeltaLite Grating panels are intended for a variety of light duty structural applications where the physical strength properties of our standard DeltaGrate HS Molded Gratings are not needed. DeltaLite is often used as material for creating a screen, fencing, barrier, caging, divider, or shelving. Because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



DeltaLite is 1/2" thick and has a mesh of 2" x 2" square center-to-center. The width of the topside 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 DeltaLite panels. DeltaLite grating is offered in 4' x 12' panels. It is also available in a 1" x 4" rectangular mesh and is provided in 3' x 10' and 4' x 8' panels.

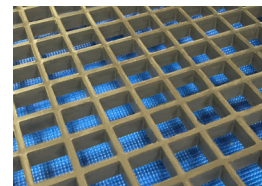
Grating Legs

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 flooring to provide access to meters, gauges, valves, or other items that routinely require 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".



DeltaScreen

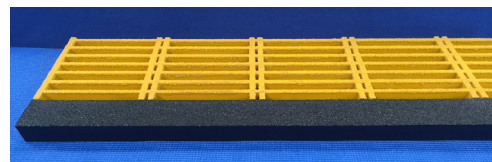
DeltaScreen is intended for use as a screen, primarily for air intakes in military, commercial, and industrial applications. It is often used for wall fan screens and as a barrier to prevent contact with electrical equipment and pumps.



DeltaScreen is a 1/2" thick x 1-1/2" square mesh fiberglass material and is offered in all of the resins provided by AIMS, including phenolic for those low smoke, low toxicity applications. This 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

AIMS' molded fiberglass stair treads are offered in two varieties—DeltaTread and 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., eight 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.

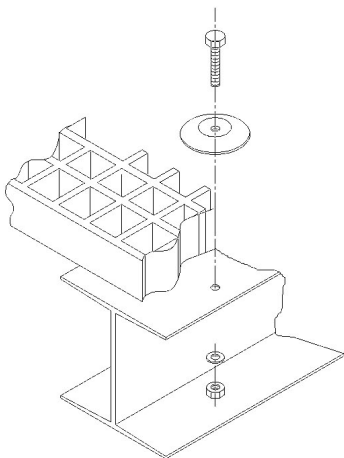
The OSHA required non-skid nosing built in to the leading edge of the tread for the first 1-1/4" is always gritted. The DeltaGrate FabTread is a regular 1-1/2" thick x 1-1/2" square mesh grating with a fabricated structural nosing.

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

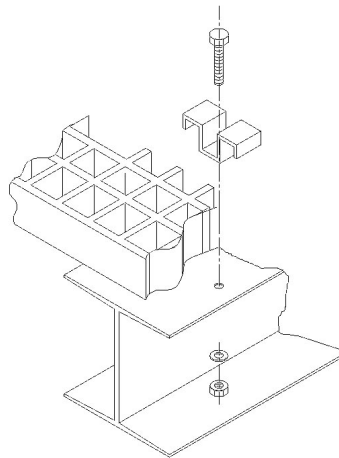
Installation Accessories

INSTALLATION - Whenever possible, provide for a minimum of 1-1/2" of bearing support at all grating support points. Hold-down clips should be used at the rate of one clip for every 6 ft² of grating minimum, or at least four clips for any square or rectangular piece, or at least three for a triangular piece.

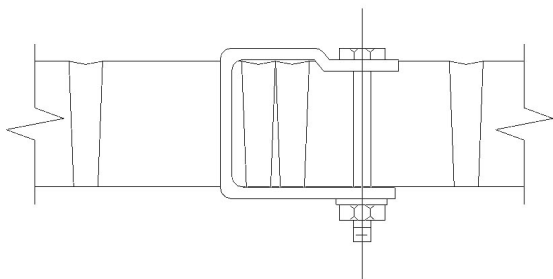
Type W



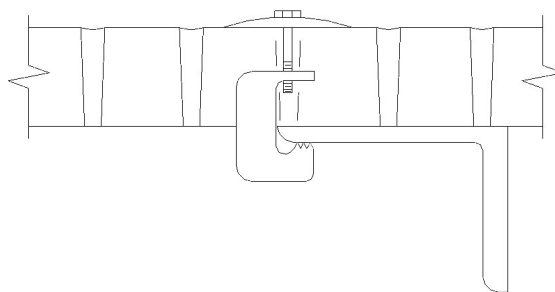
Type M



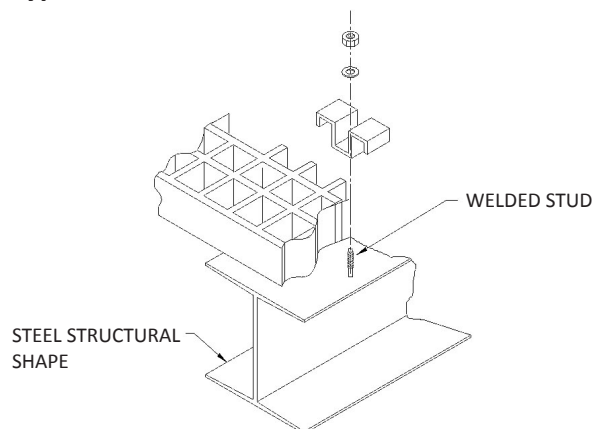
Type C



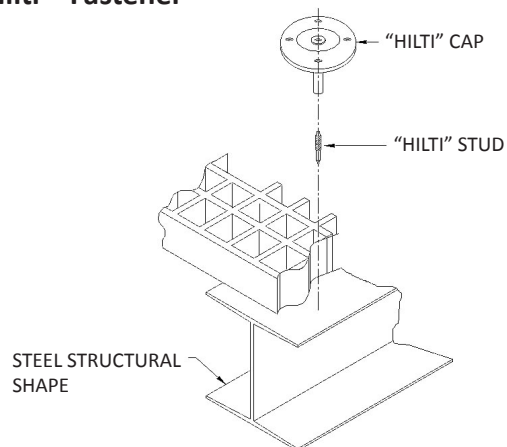
Type GW



Type S



Hilti™ Fastener



Chemical Resistance Guide

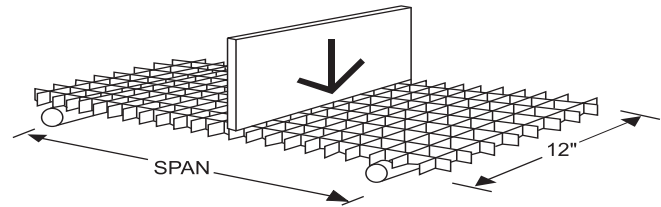
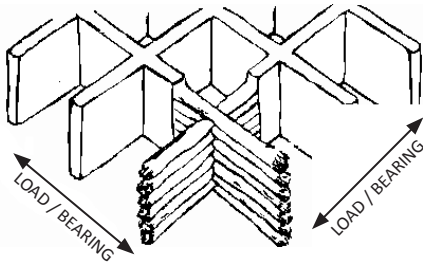
CHEMICAL ENVIRONMENT	TYPE VEFR-20		TYPE IFR-25	
	% Concentration	Max. Oper. Temp. F/C	% Concentration	Max. Oper. Temp. F/C
Acetic Acid	50	180/82	50	125/52
Aluminum Hydroxide	100	180/82	100	160/71
Ammonium Chloride	All	210/99	All	170/77
Ammonium Hydroxide	28	100/38	28	N/R
Ammonium Bicarbonate	50	160/70	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
Calcium 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
Nitrate 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. AIMS International, 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 AIMS International, LLC.

Load-Deflection Tables

DeltaGrate HS Molded Grating



CONCENTRATED LINE LOAD - 12" WIDE

Deflection in Inches

1" Thick x 1-1/2" Square Mesh x 12" Wide

1" x (1-1/2") mesh	Average EI= 300,000 Lb-in ² where $A = 1.92 \text{ in}^2$ $I = .16 \text{ in}^4$ $S = .32 \text{ in}^3$
---------------------------	--

SPAN Inches	POUNDS PER FOOT OF WIDTH						Break Point
	50	100	200	300	400	500	
18	0.029	0.054	0.009	0.135	0.174	0.213	5302
24	0.062	0.098	0.169	0.236	0.308	0.376	3841
36	0.132	0.290					2047
42	0.240	0.440					1553
48	0.262	0.547					1357

1-1/2" Thick x 1-1/2" Square Mesh x 12" Wide

1-1/2" x (1-1/2") mesh	Average EI= 900,000 Lb-in ² where $A = 2.75 \text{ in}^2$ $I = .52 \text{ in}^4$ $S = .69 \text{ in}^3$
-------------------------------	--

SPAN Inches	POUNDS PER FOOT OF WIDTH						Break Point
	50	100	200	300	400	500	
18	0.014	0.024	0.040	0.056	0.070	0.085	7832
24	0.032	0.049	0.077	0.104	0.132	0.159	5865
36	0.048	0.089	0.169	0.254	0.339	0.421	4037
42	0.105	0.181	0.316	0.451			3352
48	0.107	0.350	0.397				2914
60	0.185	0.350					2369

2" Thick x 1-1/2" Square Mesh x 12" Wide

2" x (2") mesh	Average EI= 2,500,000 Lb-in ² where $A = 3.15 \text{ in}^2$ $I = 1.05 \text{ in}^4$ $S = 1.05 \text{ in}^3$
-----------------------	--

SPAN Inches	POUNDS PER FOOT OF WIDTH						Break Point
	50	100	200	300	400	500	
36	0.021	0.039	0.083	0.122	0.201	0.408	8878
42	0.037	0.068	0.136	0.206	0.353	0.359	7607
48	0.053	0.101	0.208	0.313	0.513	1.071	6659
54	0.075	0.141	0.283	0.421	0.713		5917
60	0.089	0.173	0.346	0.523	0.886		5325

1" Thick x 1" x 4" Rectangular Mesh x 12" Wide

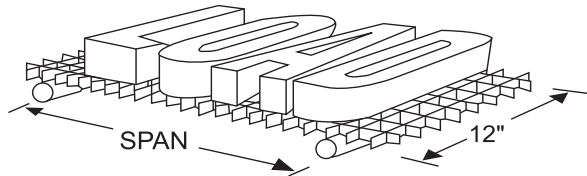
1" x (1"x4") mesh	Average EI= 500,000 Lb-in ² where $A = 2.72 \text{ in}^2$ $I = .23 \text{ in}^4$ $S = .45 \text{ in}^3$
--------------------------	--

SPAN Inches	POUNDS PER FOOT OF WIDTH						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	7095
24	0.030	0.057	0.106	0.151	0.193	0.238	4805
30	0.061	0.110	0.198	0.286	0.374	0.461	3850

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 six bars, 12" wide and all sides open.

Load-Deflection Tables

DeltaGrate HS Molded Grating



UNIFORM LINE LOAD - 12" WIDE STRIP

Deflection in Inches

1" Thick x 1-1/2" Square Mesh x 12" Wide

SPAN Inches	POUNDS PER SQUARE FOOT						
	60	80	100	120	140	200	240
24	0.066	0.087	0.107	0.128	0.146	0.201	0.237
30	0.162	0.214	0.265	0.314	0.362	0.518	0.621
36	0.330	0.436	0.538	0.646			

1-1/2" Thick x 1-1/2" Square Mesh x 12" Wide

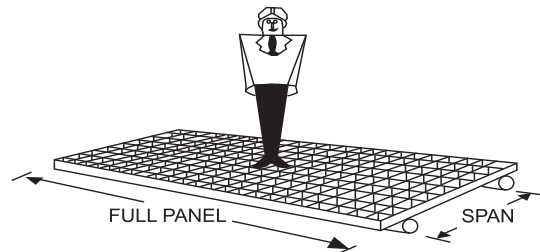
SPAN Inches	POUNDS PER SQUARE FOOT						
	60	80	100	120	140	200	240
24	0.022	0.029	0.035	0.041	0.047	0.064	0.074
36	0.100	0.133	0.164	0.197	0.225	0.309	0.365
42	0.182	0.242	0.299	0.354	0.407	0.572	
48	0.311	0.412	0.509	0.607			

2" Thick x 1-1/2" Square Mesh x 12" Wide

SPAN Inches	POUNDS PER SQUARE FOOT						
	60	80	100	120	140	200	240
36	0.043	0.056	0.069	0.082	0.094	0.132	0.158
42	0.078	0.104	0.128	0.154	0.177	0.248	0.294
48	0.133	0.176	0.219	0.260	0.301	0.421	0.499
54	0.209	0.279	0.347	0.412	0.476	0.667	
60	0.323	0.428	0.530	0.635	0.735		

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	0.051	0.067	0.083	0.097	0.112	0.151	0.176
30	0.116	0.154	0.191	0.228	0.259	0.350	0.407
34	0.171	0.227	0.284	0.343	0.394	0.569	



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			

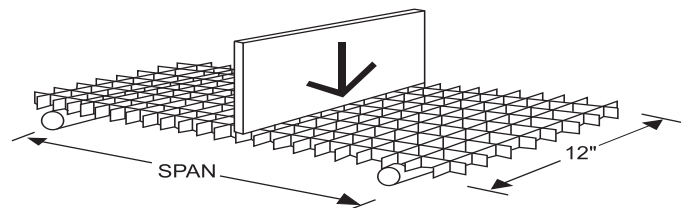
The load data provided here is for general information only, as actual environment and operational conditions are beyond our control. For these reasons, AIMS International, LLC cannot guarantee that actual performance will correspond to the load tables provided here.

Load-Deflection Tables

DeltaGrate FabTread

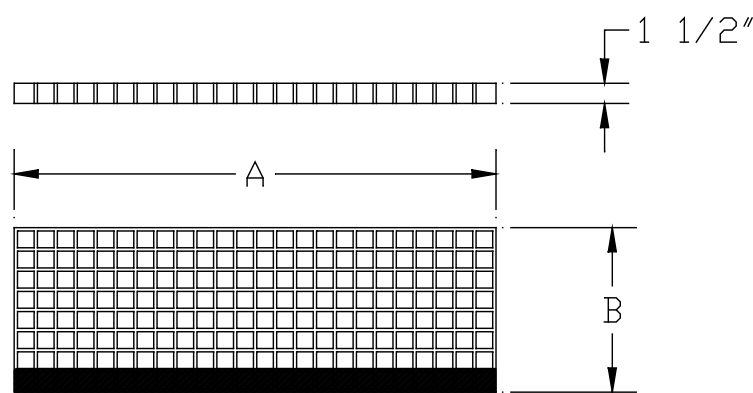
Delta Fabricated Tread 1-1/2" Thick x (1-1/2" x 1-1/2")
Square Mesh with Embedded FRP Angle Nosing

Deflection Table of Stair Treads



CONCENTRATED LINE LOAD
250 POUNDS PER FOOT OF WIDTH
Deflection in Inches

TREAD DEPTH	SPAN (inches)				
	24"	30"	36"	42"	48"
9" width	0.072	0.100	0.150	0.238	0.355
10-1/2" width	0.055	0.089	0.135	0.220	0.319
12" width	0.040	0.071	0.117	0.186	0.277



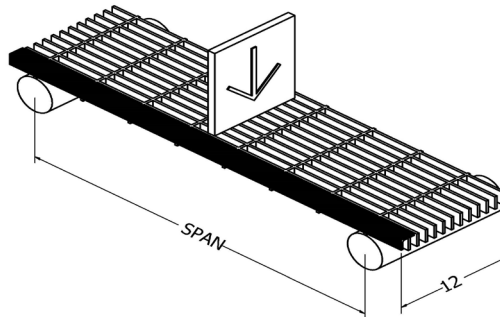
Dimensions "A" and "B" to be determined by customer.
Nosing filled with grit, black, yellow, or gray color.

Load-Deflection Tables

DeltaTread

DeltaTread 1-1/2" Thick x (1" x 6") Rectangular Mesh with Molded Nosing

Deflection Table of Stair Treads



CONCENTRATED LINE LOAD

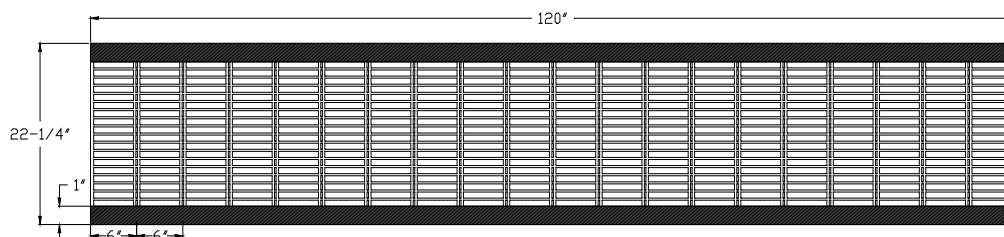
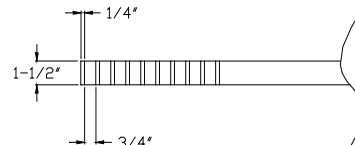
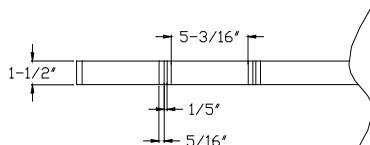
Deflection in Inches

SPAN Inches	9" Width					
	POUNDS PER FOOT OF WIDTH					
	50	100	200	300	400	500
18	0.010	0.020	0.039	0.057	0.076	0.097
24	0.017	0.037	0.071	0.108	0.146	0.183
36	0.031	0.062	0.125	0.191	0.257	0.322
42	0.051	0.100	0.197	0.303	0.411	0.515
48	0.073	0.150	0.294	0.448	0.602	

SPAN Inches	10" Width					
	POUNDS PER FOOT OF WIDTH					
	50	100	200	300	400	500
18	0.010	0.018	0.036	0.053	0.070	0.085
24	0.016	0.032	0.065	0.098	0.132	0.165
36	0.028	0.056	0.113	0.170	0.227	0.284
42	0.042	0.085	0.171	0.261	0.357	0.451
48	0.065	0.128	0.256	0.386	0.512	0.650

SPAN Inches	11" Width					
	POUNDS PER FOOT OF WIDTH					
	50	100	200	300	400	500
18	0.007	0.015	0.031	0.046	0.063	0.076
24	0.014	0.030	0.061	0.091	0.120	0.151
36	0.020	0.062	0.102	0.154	0.207	0.259
42	0.037	0.073	0.154	0.234	0.323	0.399
48	0.059	0.118	0.232	0.350	0.478	0.598

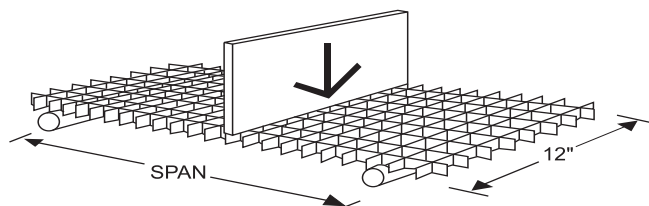
SPAN Inches	12" Width					
	POUNDS PER FOOT OF WIDTH					
	50	100	200	300	400	500
18	0.009	0.016	0.032	0.048	0.063	0.080
24	0.014	0.027	0.057	0.086	0.116	0.146
36	0.025	0.049	0.098	0.148	0.197	0.247
42	0.039	0.077	0.158	0.236	0.317	0.396
48	0.055	0.112	0.227	0.347	0.469	0.587



Load-Deflection Tables

DeltaGrate Mini-Mesh Grating

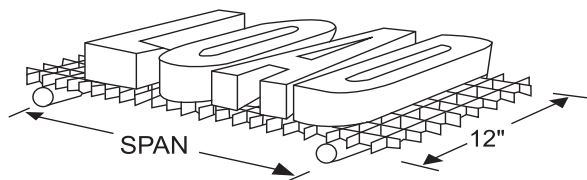
2" Thick x (2" x 2") Square Mesh x (1" x 1" Mini-Mesh)



CONCENTRATED LINE LOAD

Deflection in Inches

2" x (2" x 2") Square Mesh x (1" x 1") Mini-Mesh									
SPAN Inches	2" x 2" Mini-Mesh								Break Point
	Concentrated Load - lbs/ft per Foot of Width								
	50	100	200	300	400	500	1000	2000	Lbs
24	0.007	0.013	0.027	0.040	0.054	0.067	0.134	0.268	11624
36	0.022	0.045	0.089	0.134	0.178	0.223	0.446	0.892	7752
48	0.046	0.091	0.182	0.273	0.364	0.455	0.910	1.821	6573
54	0.064	0.129	0.257	0.386	0.514	0.643	1.286	2.572	4574
60	0.088	0.175	0.351	0.526	0.701	0.877	1.753	3.507	5138



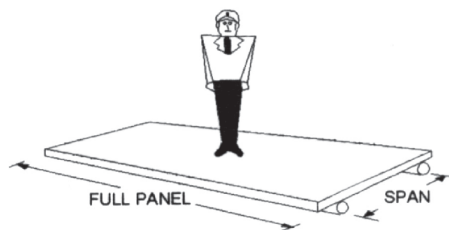
CONCENTRATED LINE LOAD

Deflection in Inches

2" x (2" x 2") Square Mesh x (1" x 1") Mini-Mesh									
SPAN Inches	2" x 2" Mini-Mesh								Ult. Load
	Uniform Load - lbs/ft² per Foot of Width								
	50	100	200	300	400	500	1000	1500	PSF
24	0.009	0.018	0.036	0.054	0.071	0.089	0.179	0.268	9299
36	0.042	0.084	0.167	0.251	0.335	0.419	0.837	1.256	4134
48	0.112	0.223	0.446	0.670	0.893	1.116	2.232	3.348	2629
54	0.181	0.362	0.723	1.085	1.447	1.808	3.616	5.425	1626
60	0.279	0.558	1.116	1.674	2.232	2.790	5.581	8.371	1644

Load-Deflection Tables

DeltaPlate



CONCENTRATED LOAD - FULL PANEL

Deflection in Inches

1/4" Thick Plate

SPAN Inches	POUNDS				
	100	250	500	750	1000
12	0.040	0.100	0.200	0.299	0.399
18	0.074	0.184	0.368		
24	0.105	0.261			
34	0.354				

3/8" Thick Plate

SPAN Inches	POUNDS				
	100	250	500	750	1000
12	0.019	0.046	0.093	0.139	0.186
18	0.031	0.077	0.154	0.231	0.308
24	0.074	0.186	0.372		
34	0.182	0.456			

1/2" Thick Plate

SPAN Inches	POUNDS				
	100	250	500	750	1000
12	0.010	0.025	0.050	0.074	0.099
18	0.015	0.037	0.074	0.111	0.148
24	0.038	0.095	0.190	0.285	0.380
34	0.120	0.299			

3/4" Thick Plate

SPAN Inches	POUNDS				
	100	250	500	750	1000
12	0.003	0.006	0.013	0.019	0.026
18	0.009	0.021	0.043	0.064	0.086
24	0.015	0.037	0.073	0.110	0.147
34	0.026	0.064	0.128	0.193	0.257

UNIFORM LOAD - FULL PANEL

Deflection in Inches

1/4" Thick Plate

SPAN Inches	POUNDS PER SQUARE FOOT				
	25	50	75	100	150
12	0.008	0.015	0.023	0.030	0.046
18	0.044	0.089	0.133	0.178	0.267
24	0.166	0.332	0.498		
34	0.710				

3/8" Thick Plate

SPAN Inches	POUNDS PER SQUARE FOOT				
	25	50	75	100	150
12	0.005	0.010	0.015	0.020	0.031
18	0.025	0.050	0.075	0.100	0.150
24	0.075	0.150	0.225	0.300	0.450
34	0.258	0.516			

1/2" Thick Plate

SPAN Inches	POUNDS PER SQUARE FOOT				
	25	50	75	100	150
12	0.004	0.008	0.012	0.016	0.023
18	0.019	0.038	0.057	0.075	0.113
24	0.042	0.084	0.126	0.168	0.252
34	0.149	0.299	0.448		

3/4" Thick Plate

SPAN Inches	POUNDS PER SQUARE FOOT				
	25	50	75	100	150
12	0.001	0.002	0.004	0.005	0.007
18	0.006	0.012	0.018	0.024	0.036
24	0.019	0.038	0.057	0.076	0.115
34	0.063	0.125	0.188	0.251	0.376

Field Fabrication and Installation of DeltaGrate Grating

Safety Precautions

When cutting DeltaGrate HS Molded Grating, 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-lit and ventilated areas. Always read the MSDS (Material Safety Data Sheet) before cutting and sealing DeltaGrate. 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 DeltaGrate Grating will produce dust. This dust is non-carcinogenic, but may cause some skin irritation.

Cutting DeltaGrate

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, standard bimetal blade, or hacksaw with a blade of a similar tooth pattern as the bimetal blade.

For making straight cuts, the following equipment is recommended:

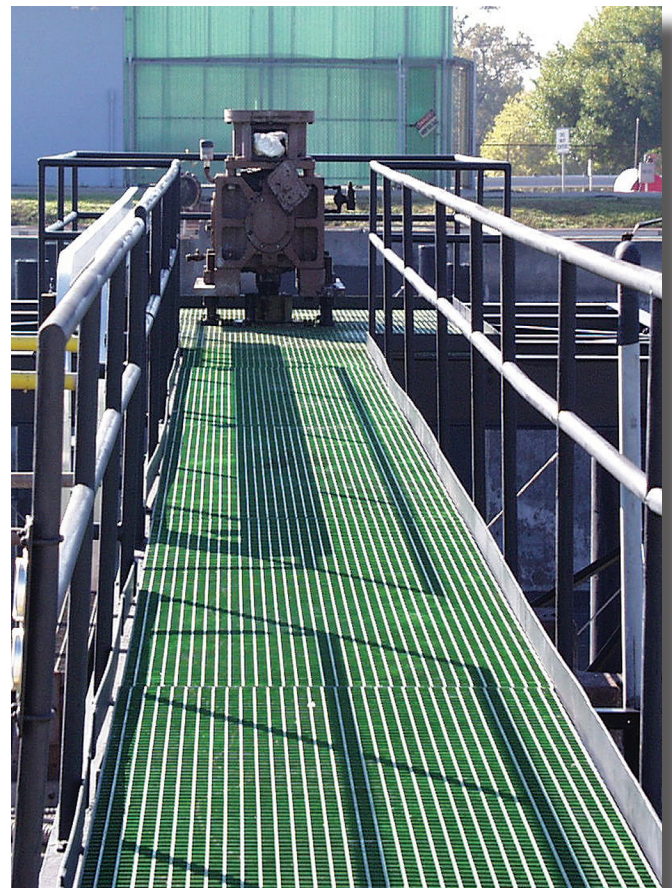
- Panel saw*
- Circular saw*
- Table saw*
- Radial arm saw*
- Reciprocating saw (6" long abrasive coated or a bimetal blade, 12-14 teeth, min.)
- Hand-held hack saw (for small quantities or emergencies)

**The blade should be an abrasive continuous rim cut-off 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 listed above is recommended. For making larger radius circular cuts, a circular saw can be used, also with these same blade specifications.

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—ALL CUT EDGES MUST BE SEALED. Therefore, we recommend using a premium grade exterior polyurethane enamel to effectively seal cut surfaces of fiberglass products and protect the glass fibers from environmental attack.



Market Applications

AIMS' products and services have been successfully used in various applications in many different industries. Wherever there is value placed on safety, eliminating maintenance expenditures, ease of installation, and long service life, AIMS should be consulted. The following are industries and locations where our products are found:

OFFSHORE DRILLING & PRODUCTION FACILITIES

wellhead access platforms around wells & vessels, stair towers, grating systems, electrical cable trays, mudmats

PETROCHEMICAL PLANTS & REFINERIES

walkways & platforms around vessels and equipment, stair towers, trench grating

INDUSTRIAL & MUNICIPAL WASTEWATER FACILITIES

walkways & catwalks in and around clarifiers, settling basins, and platforms used as storage areas

PULP & PAPER MILLS

walkways & catwalks in and around their waste water plants, including bleaching and washing areas

METAL PLATING & MINING FACILITIES

platforms in processing areas, catwalks, stair towers, and storage areas

COMMERCIAL WAREHOUSES

grating systems for additional storage areas and mezzanines

BEVERAGE & FOOD PROCESSING PLANTS

grating systems & platforms in and around wash-down areas, access platforms, and storage areas

HI-TECH COMPUTER INDUSTRY FACILITIES

grating systems in clean rooms and etching areas

WATER PARK & RECREATIONAL FACILITIES

trench grating in and around pools, structural systems for flowing streams

COOLING TOWER INDUSTRY

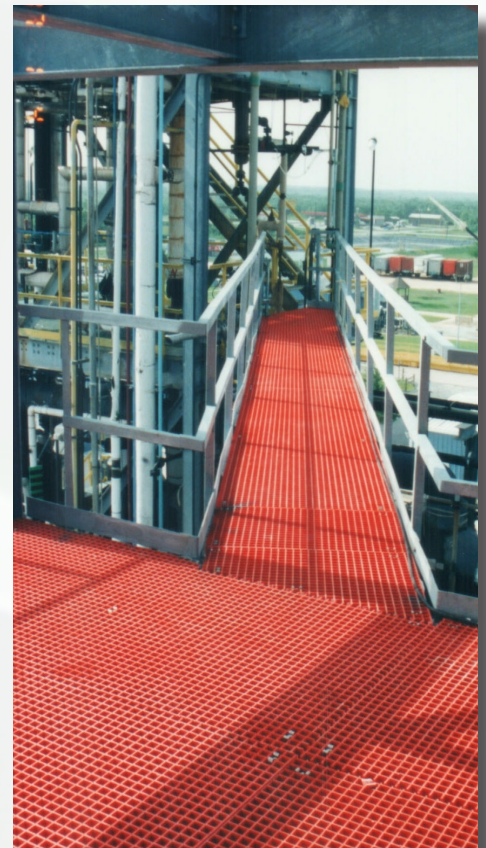
access walkways & towers, de-misters

FEDERAL & STATE PARKS

bridges & erosion control

Valuable features of AIMS' products for these and other industries include:

- Excellent corrosion resistance and elimination of maintenance
- Lightweight and ease of installation
- High strength-to-weight ratio
- Excellent non-skid characteristics, safety, and ergonomics
- Fire resistance
- Electrical and thermal non-conductivity
- Durability and long service life
- Great return on investment



AIMS International, LLC

... dedicated to customer service and support

AIMS International, LLC

1617 Peach Leaf St.

Houston, TX 77039

Phone 281.590.3240 ▪ Toll Free 800.495.5997

Fax 281.590.3773 ▪ sales@aims-intl.com

www.aims-intl.com