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# HIGH LOAD CAPACITY GRATING

DEFI's High Load Capacity (HLC) grating makes use of the traditional benefits of molded grating products; high strength, corrosion resistance, fire retardancy, nonconductivity and low maintenance, and has been engineered to carry the higher loads that traditional grating products can not. Molded HLC grating is available in a 4' x 6' panels with 1-1/2" and 2" thicknesses and comes in GPFR, IFR, and VFR resin systems.



## Standard Resin Systems

DEFI's HLC molded grating is available in three standard resin systems each providing differing levels of corrosion protection. All three resin systems meet Class 1 Flame Spread Rating per ASTM E-84 test standards.

**GPFR:** General Purpose Orthophthalic Resin System offers good corrosion resistance at an economical price.






**IFR:** Premium grade Isophthalic Polyester Resin System that provides excellent corrosion protection.

**VFR:** Vinyl Ester Resin System provides the highest level of corrosion protection.

## Applications

- Flooring
- Platforms
- Storage Areas
- Long Span Walkways
- Assembly Lines
- Trench Covers with Vehicular Traffic
- Ramps

## Allowable Spans for Vehicular Loads

	Wheel Load (lb) (1/2 Axle Load +30% impact)	Load Distribution		Allowable Span <sup>2,3</sup>	
		Parallel To Axle <sup>1</sup>	Perpendicular To Axle <sup>1</sup>	1-1/2" Deep HLC Molded Grating	2" Deep HLC Molded Grating
 <b>AASHTO Standard Truck<sup>4</sup></b> 32,000 lb Axle Load - Dual Wheels (*formerly AASHTO H-20)	20,800	20" + 4"	8"	1'-2"	1'-5"
 <b>Automobile Traffic</b> 5,000 lb Vehicle - 1,500 lb Load 55% Drive Axle Load	2,220	8" + 4"	8"	2'-2"	2'-8"
 <b>5 Ton Capacity Forklift</b> 14,400 lb Vehicle - 24,400 lb Total Load 85% Drive Axle Load	13,480	11" + 4"	11"	1'-1"	1'-5"
 <b>3 Ton Capacity Forklift</b> 9,800 lb Vehicle - 15,800 lb Total Load 85% Drive Axle Load	8,730	7" + 4"	7"	1'-0"	1'-4"
 <b>1 Ton Capacity Forklift</b> 4,200 lb Vehicle - 6,200 lb Total Load 85% Drive Axle Load	3,425	4" + 4"	4"	1'-7"	2'-1"

## Features

- High Strength
- Corrosion Resistance
- Non-Conductivity
- Fire Retardant
- Low Maintenance
- Slip Resistance

### Allowable Spans for Vehicular Loads NOTES :

1. Load is carried by the grating load bars immediate under wheel + four additional load bars adjacent to wheel.
2. Allowable Span is based on a 0.25" maximum deflection and a Factor of Safety of 3.0. Other criteria may be required by certain construction codes. Check code requirements to determine design criteria.
3. ALLOWABLE SPAN IS STRONGLY DEPENDENT ON WHEEL WIDTH AND VEHICLE WEIGHT/LOAD CAPACITY. If your application varies from the values given on this table, contact Grating Pacific for application assistance.
4. Load based on the AASHTO Standard Truck Load as defined in AASHTO LRFD Bridge Design Specifications, 2nd Ed. This does not imply that the allowable span meets the deflection requirements of this specification.

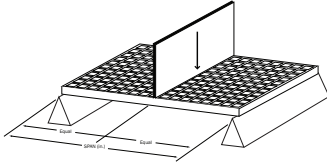


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# MOLDED LOAD & DEFLECTION DATA



- This table was developed in accordance with the test method developed by the Fiberglass Grating Manufacturers Council (FGMC) of the American Composites Manufacturers Association (ACMA) for the Fiberglass Grating Standard.
- The designer should not exceed MAXIMUM RECOMMENDED load at any time. MAXIMUM LOAD represents a 5:1 factor of safety on ULTIMATE CAPACITY. ULTIMATE CAPACITY represents MAX LOAD observed at initial fracture.
- Walking loads for maintenance traffic are typically a live load of 50 PSF. Deflections for worker comfort are typically limited to 3/8" or SPAN divided by 120 under full live load. For a firmer feel under full live load or a line load 250 lbs/ft of width, limit deflections to 1/4" or SPAN divided by 200.
- The loads represented are for STATIC LOAD CONDITIONS at ambient temperature. Deflections for impact loads or dynamic loads will MULTIPLY the deflections shown by 2. Long term loads will result in added deflection due to creep in the material and will require higher factors of safety to ensure acceptable performance.
- Deflections are limited to 1/2" as recommended by the Fiberglass Grating Manufacturers Council of the American Composites Manufacturers Association.

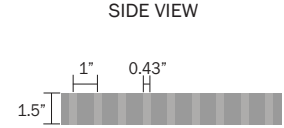
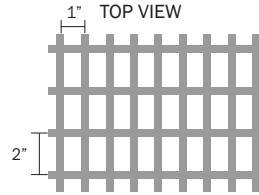


**1 1/2 x 1 x 2 HLG 1-1/2" Thick 1 x 2 Rectangular Grid**

Span (inches)	CONCENTRATED LOAD in Lbs/ft of width							MAX LOAD
	200	500	1000	2000	3000	4000	5000	
18"	<0.01	0.02	0.04	0.07	0.11	0.15	0.19	28,047
24"	0.02	0.04	0.09	0.17	0.26	0.34	0.44	20,430
36"	0.06	0.14	0.28					13,620
42"	0.09	0.22	0.44					11,619

Load bar thickness: 0.43"/0.37"

Open area: 48%



Span (inches)	UNIFORM LOAD in Lbs/ft <sup>2</sup>						MAX LOAD
	200	400	500	600	700	800	
18"	<0.01	0.01	0.02	0.02	0.02	0.03	36,000
24"	0.02	0.04	0.05	0.06	0.08	0.09	20,390
36"	0.10	0.21	0.26	0.31	0.37	0.42	8,814
42"	0.19	0.39	0.48				6,550

Weight: 6.21 lbs/sq. ft.

Load Direction: length

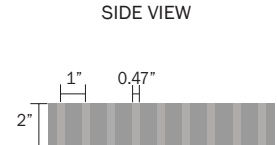
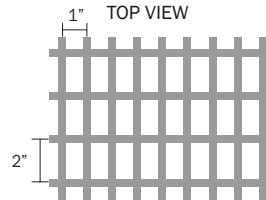


**2 x 1 x 2 HLG 2" Thick 1 x 2 Rectangular Grid**

Span (inches)	CONCENTRATED LOAD in Lbs/ft of width							MAX LOAD
	200	500	1000	2000	3000	4000	5000	
18"	<0.01	0.01	0.03	0.05	0.07	0.10	0.13	32,651
24"	0.02	0.03	0.06	0.11	0.17	0.22	0.27	27,245
36"	0.04	0.09	0.17	0.34	0.51			18,130
42"	0.05	0.13	0.26					15,525

Load bar thickness: 0.47"/0.37"

Open area: 40%

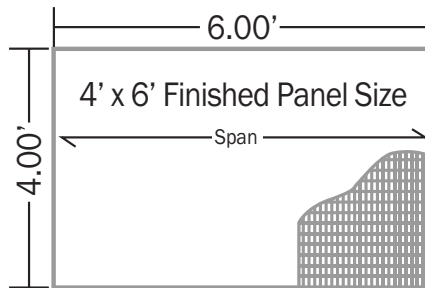


Span (inches)	UNIFORM LOAD in Lbs/ft <sup>2</sup>						MAX LOAD
	200	400	500	600	700	800	
18"	<0.01	0.01	0.01	0.01	0.01	0.01	43,494
24"	0.01	0.02	0.03	0.04	0.04	0.05	27,195
36"	0.06	0.12	0.15	0.18	0.21	0.24	8,795
42"	0.11	0.22	0.28	0.33	0.39	0.44	8,795

Weight: 8.40 lbs/sq. ft.

Load Direction: length

## Engineering Properties per Ft of Width



$$A = 7.45 \text{ in}^2$$

$$I = 1.39 \text{ in}^4$$

$$S = 1.80 \text{ in}^3$$

$$\text{Average EI} = 2,400,000 \text{ lb} \cdot \text{in}^2$$

NOTE: Load carrying bars are oriented to run in the 6' dimension of the panel. Panels furnished with closed bars all sides.



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