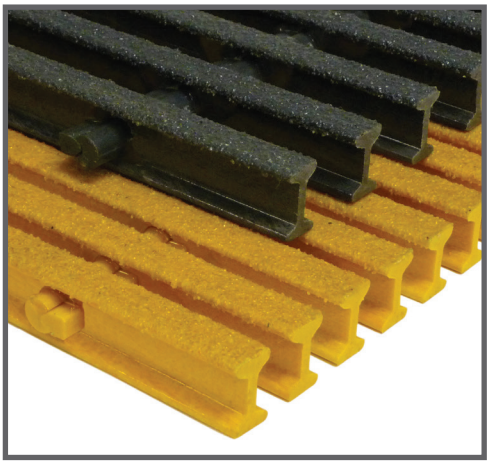
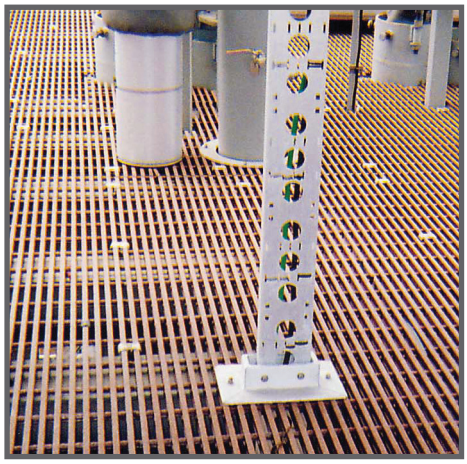
Safe-T-Span® Industrial Grating Details



I4010 & I6010 Grating

Copper Mining Facility



Offshore Oil & Gas Platform

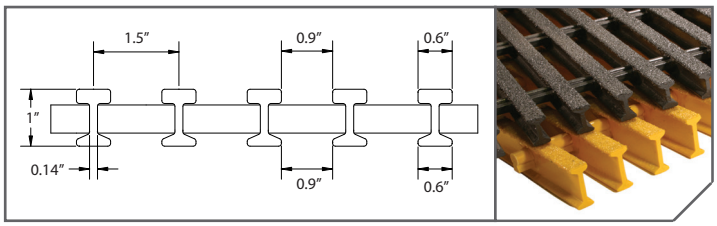
Safe-T-Span industrial grating is available in 1", 1-1/4", and 1-1/2" depths in an I-bar configuration with 40%, 50% and 60% open areas. 2" depth T-bar configuration with 33% or 50% open area is also available for applications which require wider spans or lower deflections. *For details and load charts for 1-1/4" depth products, please visit our website at www.fibergrate.com > Products > Pultruded Grating > Custom Pultruded Gratings.*

Grating Details

Refer to chart on page 4 for Grating Selection.

1" Deep I6010

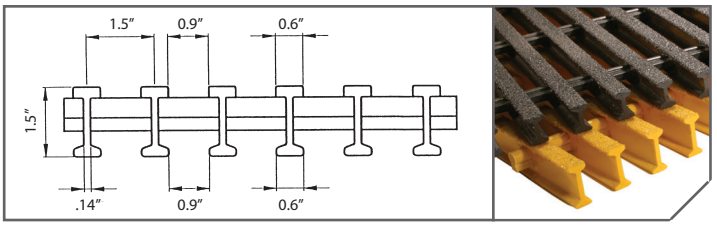
# of Bars/ Ft of Width	Load Bar Depth	Open Area	Load Bar Centers	Approximate Weight
8	1"	60%	1-1/2"	2.7 psf



Section Properties per Ft of Width: A = 2.64 IN^2 I = 0.33 IN^4 S = 0.63 IN^3
Average EI = 1,700,000 lb - in^2 (SPAN ≥ 24")

1-1/2" Deep I6015

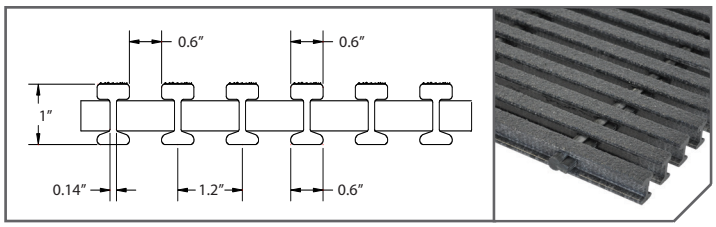
# of Bars/ Ft of Width	Load Bar Depth	Open Area	Load Bar Centers	Approximate Weight
8	1-1/2"	60%	1-1/2"	3.2 psf



Section Properties per Ft of Width: A = 3.2 IN^2 I = 0.94 IN^4 S = 1.2 IN^3
Average EI = 4,600,000 lb - in^2 (SPAN ≥ 24")

1" Deep I5010

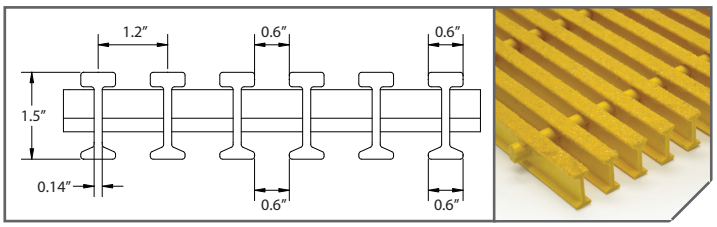
# of Bars/ Ft of Width	Load Bar Depth	Open Area	Load Bar Centers	Approximate Weight
10	1"	50%	1.2"	3.3 psf



Section Properties per Ft of Width: A = 3.3 IN^2 I = 0.41 IN^4 S = 0.79 IN^3
Average EI = 2,100,000 lb - in^2 (SPAN ≥ 24")

1-1/2" Deep I5015

# of Bars/ Ft of Width	Load Bar Depth	Open Area	Load Bar Centers	Approximate Weight
10	1-1/2"	50%	1.2"	3.8 psf

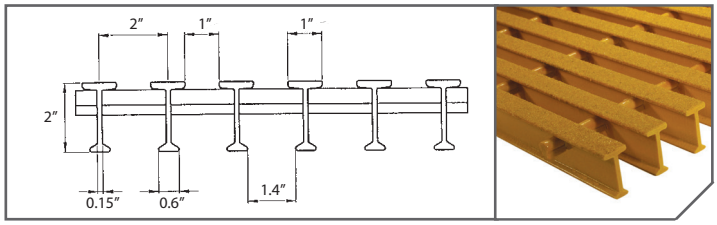


Section Properties per Ft of Width: A = 4 IN^2 I = 1.17 IN^4 S = 1.65 IN^3
Average EI = 5,700,000 lb - in^2 (SPAN ≥ 24")

Safe-T-Span® Industrial Grating Details

2" Deep T5020

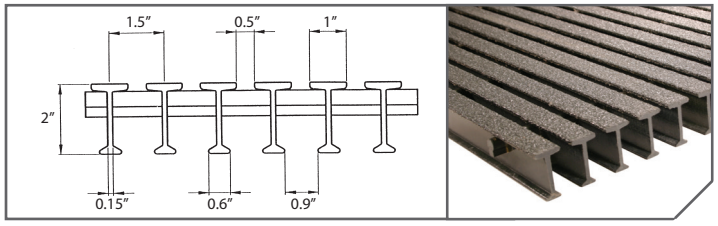
# of Bars/ Ft of Width	Load Bar Depth	Open Area	Load Bar Centers	Approximate Weight
6	2"	50%	2"	3.4 psf



Section Properties per Ft of Width: A=3.2 IN² I=1.68 IN⁴ St=1.96 IN³ Sb=1.47 IN³
Average EI = 7,600,000 lb - in² (SPAN ≥ 24")

2" Deep T3320 (ADA Compliant)

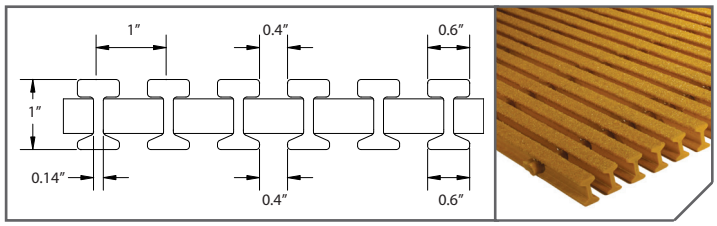
# of Bars/ Ft of Width	Load Bar Depth	Open Area	Load Bar Centers	Approximate Weight
8	2"	33%	1-1/2"	3.7 psf



Section Properties per Ft of Width: A=4.28 IN² I=2.24 IN⁴ St=2.61 IN³ Sb=1.96 IN³
Average EI = 9,200,000 lb - in² (SPAN ≥ 24")

1" Deep I4010 (ADA Compliant)

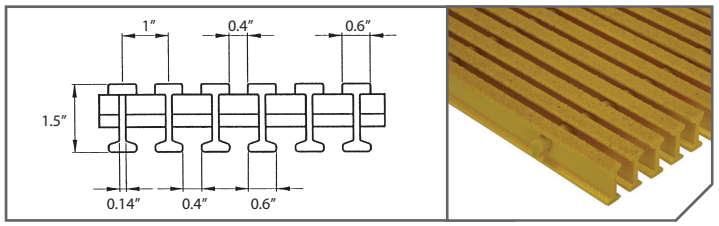
# of Bars/ Ft of Width	Load Bar Depth	Open Area	Load Bar Centers	Approximate Weight
12	1"	40%	1"	3.8 psf



Section Properties per Ft of Width: A = 3.96 IN² I = 0.5 IN⁴ S = 0.95 IN³
Average EI = 2,500,000 lb - in² (SPAN ≥ 24")

1-1/2" Deep I4015 (ADA Compliant)

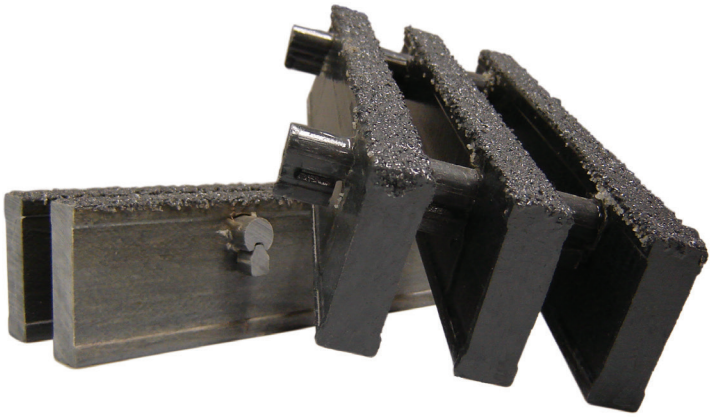
# of Bars/ Ft of Width	Load Bar Depth	Open Area	Load Bar Centers	Approximate Weight
12	1-1/2"	40%	1"	4.6 psf



Section Properties per Ft of Width: A = 4.8 IN² I = 1.41 IN⁴ S = 1.8 IN³
Average EI = 7,000,000 lb - in² (SPAN ≥ 24")

Safe-T-Span® High Load Capacity Grating

High Load Capacity (HI) pultruded grating is yet another product in the arsenal of engineered fiberglass reinforced plastic (FRP) solutions by Fibergrate. While capitalizing on some of the traditional benefits of pultruded grating products - high strength, corrosion resistance, slip resistance, fire retardancy, non conductivity and low maintenance - this pultruded FRP product has been engineered to carry the forklift and tractor trailer loads that traditional pultruded FRP grating products are unable to support.

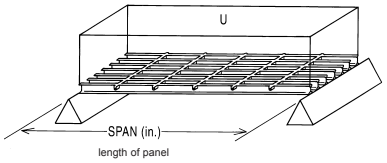


- 37%, 47%, and 58% open surface area
- Available in 1", 1-1/2", 2", 2-1/2", and 3" depths
- Rated for up to H20 loads in all five depths
- Flame spread rating of 25 or less (when tested in accordance with ASTM E-84) and a Class 1 Fire Rating
- HI37 Grating is ADA Compliant

- Standard panels consist of:
  - Fire retardant vinyl ester resin system
  - Dark gray in color
  - Aluminum oxide grit top surface

Each HI grating is specially engineered to meet specific requirements. Contact the Fibergrate engineering team to determine which grating offers the best solution for your high load needs. (Applications with traffic perpendicular to trench or with turning wheel loads, contact Fibergrate engineering for design assistance.)

Industrial Series Uniform Load Chart



IMPORTANT: Load information is different for Phenolic resin gratings. Please contact Fibergrate for Phenolic load information.

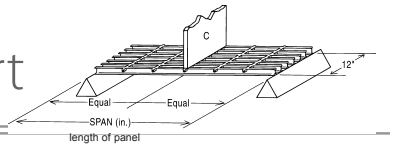
INDUSTRIAL SERIES SAFE-T-SPAN UNIFORM LOAD TABLE - DEFLECTIONS IN INCHES

CLEAR SPAN (in)	STYLE	LOAD (psf) 50	100	200	300	500	1000	2000	MAXIMUM RECOMMENDED LOAD (psf)	ULTIMATE CAPACITY (psf)
12	I6010	<.01	<.01	<.01	<.01	0.01	0.02	0.04	7140	14280
	I6015	<.01	<.01	<.01	<.01	<.01	0.01	0.02	15240	30480
	I5010	<.01	<.01	<.01	<.01	<.01	0.01	0.03	8920	17840
	I5015	<.01	<.01	<.01	<.01	<.01	<.01	0.01	19050	38100
	T5020	<.01	<.01	<.01	<.01	<.01	<.01	0.01	15120	30240
	I4010	<.01	<.01	<.01	<.01	<.01	0.01	0.02	10700	21400
	I4015	<.01	<.01	<.01	<.01	<.01	<.01	0.01	22860	45720
	T3320	<.01	<.01	<.01	<.01	<.01	<.01	0.01	20160	40320
18	I6010	<.01	0.01	0.02	0.02	0.04	0.08	0.16	4520	9040
	I6015	<.01	<.01	<.01	0.01	0.02	0.03	0.06	9820	19650
	I5010	<.01	<.01	0.01	0.01	0.03	0.06	0.12	5640	11290
	I5015	<.01	<.01	<.01	<.01	0.01	0.02	0.04	12280	24560
	T5020	<.01	<.01	<.01	<.01	0.01	0.02	0.05	10080	20160
	I4010	<.01	<.01	0.01	0.02	0.03	0.05	0.11	6770	13540
	I4015	<.01	<.01	<.01	<.01	0.01	0.02	0.04	14740	29490
	T3320	<.01	<.01	<.01	<.01	0.01	0.02	0.04	13440	26880
24	I6010	0.01	0.02	0.05	0.07	0.12	0.24	—	2840	5680
	I6015	<.01	0.01	0.02	0.03	0.04	0.09	0.17	4880	9760
	I5010	<.01	0.01	0.04	0.05	0.09	0.19	—	3550	7100
	I5015	<.01	<.01	0.01	0.02	0.03	0.07	0.13	6100	12200
	T5020	<.01	<.01	<.01	0.02	0.03	0.05	0.11	5940	11880
	I4010	0.01	0.02	0.03	0.05	0.08	0.16	0.31	4260	8520
	I4015	<.01	<.01	0.01	0.02	0.03	0.06	0.11	7310	14620
	T3320	<.01	<.01	<.01	0.01	0.02	0.04	0.08	7920	15840
30	I6010	0.03	0.05	0.11	0.16	0.27	—	—	1840	3680
	I6015	0.01	0.02	0.04	0.06	0.10	0.20	0.41	3600	7200
	I5010	0.02	0.04	0.08	0.12	0.21	0.44	—	2300	4600
	I5015	<.01	0.01	0.03	0.04	0.08	0.16	0.32	4500	9000
	T5020	<.01	0.01	0.02	0.03	0.06	0.13	0.25	4160	8320
	I4010	0.02	0.04	0.07	0.11	0.18	0.36	—	2760	5520
	I4015	<.01	0.01	0.03	0.04	0.07	0.14	0.27	5400	10800
	T3320	<.01	0.01	0.02	0.03	0.05	0.09	0.19	5540	11080
36	I6010	0.05	0.10	0.21	0.31	—	—	—	1310	2620
	I6015	0.02	0.04	0.08	0.11	0.19	0.38	—	2500	5000
	I5010	0.04	0.08	0.16	0.24	—	—	—	1640	3280
	I5015	0.01	0.03	0.06	0.08	0.15	0.30	—	3120	6240
	T5020	0.01	0.02	0.05	0.07	0.12	0.23	0.47	2880	5760
	I4010	0.03	0.07	0.14	0.21	0.35	—	—	1960	3930
	I4015	0.01	0.03	0.05	0.08	0.13	0.25	0.50	3750	7500
	T3320	0.01	0.02	0.04	0.05	0.09	0.18	0.35	3840	7680
42	I6010	0.09	0.19	0.37	—	—	—	—	950	1900
	I6015	0.04	0.07	0.14	0.21	0.35	—	—	1840	3680
	I5010	0.07	0.15	0.29	0.44		—	—	1190	2380
	I5015	0.03	0.05	0.11	0.16	0.28	—	—	2300	4600
	T5020	0.02	0.05	0.09	0.14	0.23	0.45	—	2120	4240
	I4010	0.06	0.12	0.25	0.37	—	—	—	1430	2860
	I4015	0.02	0.05	0.09	0.14	0.23	0.47	—	2760	5520
	T3320	0.02	0.03	0.07	0.10	0.17	0.34	—	2820	5650
48	I6010	0.14	0.29	—	—	—	—	—	720	1440
	I6015	0.06	0.11	0.23	0.34	—	—	—	1410	2820
	I5010	0.11	0.23	0.45	—	—	—	—	900	1800
	I5015	0.04	0.08	0.18	0.27	0.45	—	—	1760	3520
	T5020	0.04	0.07	0.14	0.21	0.36	—	—	1620	3240
	I4010	0.10	0.19	0.38	—	—	—	—	1080	2160
	I4015	0.04	0.08	0.15	0.23	0.38	—	—	2110	4220
	T3320	0.03	0.05	0.11	0.16	0.27	—	—	2160	4320
54	I6010	0.25	—	—	—	—	—	—	570	1140
	I6015	0.10	0.19	0.39	—	—	—	—	1110	2220
	I5010	0.20	0.40	—	—	—	—	—	710	1420
	I5015	0.08	0.15	0.31	0.46	—	—	—	1380	2770
	T5020	0.06	0.12	0.24	0.36	—	—	—	1280	2560
	I4010	0.17	0.34	—	—	—	—	—	850	1700
	I4015	0.06	0.13	0.26	0.39	—	—	—	1670	3340
	T3320	0.04	0.09	0.18	0.27	0.45	—	—	1680	3360
60	I6010	0.42	—	—	—	—	—	—	460	920
	I6015	0.15	0.31	—	—	—	—	—	900	1800
	I5010	0.33	—	—	—	—	—	—	570	1150
	I5015	0.12	0.24	0.49	—	—	—	—	1120	2250
	T5020	0.09	0.18	0.36	—	—	—	—	1040	2080
	I4010	0.28	—	—	—	—	—	—	690	1380
	I4015	0.10	0.21	0.41	—	—	—	—	1350	2700
	T3320	0.07	0.14	0.27	0.41	—	—	—	1360	2720
72	I6015	0.34	—	—	—	—	—	—	630	1260
	I5015	0.27	—	—	—	—	—	—	780	1570
	T5020	0.18	0.35	—	—	—	—	—	720	1440
	I4015	0.23	0.45	—	—	—	—	—	940	1880
	T3320	0.13	0.26	—	—	—	—	—	950	1900

NOTES:

1. The designer should not exceed the MAX RECOMMENDED LOAD at any given span. MAX RECOMMENDED LOAD represents a 2:1 factor of safety on ULTIMATE CAPACITY.
2. ULTIMATE CAPACITY represents a complete and total failure of the grating. Values are provided to illustrate the reserve strength of the grating at a given span and are NOT to be used for design. Functionality of grating is limited to MAX RECOMMENDED LOAD.
3. Walking loads, typically 50-65 PSF maximum are recommended for pedestrian traffic. Deflections for worker comfort are typically limited to the lesser of 3/8" or CLEAR SPAN divided by 125; for a firmer feel, limit deflection to the lesser of 1/4" or CLEAR SPAN divided by 200.
4. The allowable loads in this table are for STATIC LOAD CONDITIONS at ambient temperatures only. Allowable loads for impact or dynamic conditions should be a maximum of ONE-HALF the values shown. Long term loads will result in added deflection due to creep in the material and will also require higher safety factors to ensure acceptable performance. For applications at elevated temperatures, consult factory. The designer is further referenced to the ASCE Structural Plastics Design Manual.
5. All gratings were tested in accordance with the ANSI Standard: FRP Composites Grating Manual for Pultruded and Molded Grating and Stair Treads.

Industrial Series Concentrated Line Load Chart



IMPORTANT: Load information is different for Phenolic resin gratings. Please contact Fibergrate for Phenolic load information.

INDUSTRIAL SERIES SAFE-T-SPAN CONCENTRATED LINE LOAD TABLE - DEFLECTIONS IN INCHES

CLEAR SPAN (in)	STYLE	LOAD (LBS/FT of Width) 50	100	200	300	500	1000	2000	MAXIMUM RECOM. LOAD (lbs/ft)	ULTIMATE CAPACITY (lbs/ft)
12	I6010	<.01	<.01	<.01	<.01	0.01	0.03	0.06	3570	7140
	I6015	<.01	<.01	<.01	<.01	<.01	0.01	0.02	7620	15240
	I5010	<.01	<.01	<.01	<.01	0.01	0.02	0.05	4460	8920
	I5015	<.01	<.01	<.01	<.01	<.01	0.01	0.02	9520	19050
	T5020	<.01	<.01	<.01	<.01	<.01	0.01	0.02	7560	15120
	I4010	<.01	<.01	<.01	<.01	0.01	0.02	0.04	5350	10700
	I4015	<.01	<.01	<.01	<.01	<.01	0.01	0.02	11430	22860
	T3320	<.01	<.01	<.01	<.01	<.01	<.01	0.01	10080	20160
18	I6010	<.01	0.01	0.02	0.03	0.04	0.09	0.17	3390	6780
	I6015	<.01	<.01	<.01	0.01	0.02	0.03	0.06	7370	14740
	I5010	<.01	0.01	0.02	0.02	0.03	0.07	0.14	4230	8470
	I5015	<.01	<.01	<.01	0.01	0.02	0.02	0.05	9210	18420
	T5020	<.01	<.01	<.01	<.01	0.01	0.03	0.05	7560	15120
	I4010	<.01	<.01	0.01	0.02	0.03	0.06	0.12	5080	10160
	I4015	<.01	<.01	<.01	<.01	0.01	0.02	0.04	11060	22120
	T3320	<.01	<.01	<.01	<.01	0.01	0.02	0.04	10080	20160
24	I6010	0.01	0.02	0.04	0.06	0.09	0.19	0.38	2840	5680
	I6015	<.01	<.01	0.01	0.02	0.03	0.07	0.14	4880	9760
	I5010	0.01	0.02	0.03	0.05	0.07	0.15	0.30	3550	7100
	I5015	<.01	<.01	0.01	0.02	0.02	0.06	0.11	6100	12200
	T5020	<.01	<.01	<.01	0.01	0.02	0.04	0.08	5940	11880
	I4010	<.01	0.01	0.03	0.04	0.06	0.13	0.25	4260	8520
	I4015	<.01	<.01	<.01	0.01	0.02	0.05	0.10	7310	14620
	T3320	<.01	<.01	<.01	0.01	0.02	0.03	0.06	7920	15840
30	I6010	0.02	0.03	0.07	0.10	0.17	0.35	—	2300	4600
	I6015	<.01	0.01	0.03	0.04	0.06	0.13	0.26	4500	9000
	I5010	0.02	0.02	0.06	0.08	0.14	0.28	—	2870	5750
	I5015	<.01	0.01	0.02	0.03	0.05	0.10	0.21	5620	11250
	T5020	<.01	<.01	0.01	0.02	0.04	0.08	0.16	5200	10400
	I4010	0.01	0.02	0.05	0.07	0.12	0.23	0.47	3450	6900
	I4015	<.01	0.01	0.02	0.03	0.05	0.11	0.22	6750	13500
	T3320	<.01	<.01	0.01	0.02	0.03	0.06	0.12	6930	13860
36	I6010	0.03	0.06	0.11	0.17	0.28	—	—	1970	3940
	I6015	0.01	0.02	0.04	0.06	0.10	0.20	0.40	3750	7500
	I5010	0.02	0.05	0.09	0.14	0.22	0.44	—	2460	4920
	I5015	0.01	0.02	0.03	0.05	0.08	0.16	0.32	4680	9370
	T5020	<.01	0.01	0.02	0.04	0.06	0.12	0.25	4320	8640
	I4010	0.02	0.04	0.07	0.11	0.18	0.37	—	2950	5900
	I4015	<.01	0.01	0.03	0.04	0.07	0.13	0.26	5630	11260
	T3320	<.01	0.01	0.02	0.03	0.05	0.09	0.19	5760	11520
42	I6010	0.04	0.08	0.17	0.25	0.42	—	—	1670	3340
	I6015	0.02	0.03	0.06	0.10	0.16	0.32	—	3220	6440
	I5010	0.03	0.06	0.14	0.20	0.34	—	—	2080	4170
	I5015	0.02	0.02	0.05	0.08	0.13	0.26		4020	8050
	T5020	0.01	0.02	0.04	0.06	0.10	0.21	0.41	3710	7420
	I4010	0.03	0.06	0.11	0.17	0.28	—	—	2500	5000
	I4015	0.01	0.02	0.04	0.06	0.11	0.21	0.42	4820	9640
	T3320	0.01	0.02	0.03	0.05	0.08	0.16	0.31	4950	9900
48	I6010	0.06	0.11	0.23	0.34	—	—	—	1440	2880
	I6015	0.02	0.05	0.09	0.14	0.23	0.46	—	2810	5620
	I5010	0.05	0.09	0.18	0.27	0.46	—	—	1800	3600
	I5015	0.02	0.04	0.07	0.11	0.18	0.37	—	3510	7020
	T5020	0.01	0.03	0.06	0.09	0.15	0.29	—	3250	6500
	I4010	0.04	0.08	0.15	0.23	0.38		—	2160	4320
	I4015	0.02	0.03	0.06	0.09	0.15	0.30	—	4220	8440
	T3320	0.01	0.02	0.04	0.07	0.11	0.22	0.44	4330	8660
54	I6010	0.09	0.18	0.36	—	—	—	—	1280	2560
	I6015	0.03	0.07	0.14	0.21	0.35	—	—	2500	5000
	I5010	0.07	0.14	0.29	0.43	—	—	—	1600	3200
	I5015	0.02	0.06	0.11	0.17	0.28	—	—	3120	6250
	T5020	0.02	0.04	0.08	0.13	0.21	0.42	—	2890	5780
	I4010	0.06	0.12	0.24	0.36	—	—	—	1920	3840
	I4015	0.03	0.05	0.09	0.14	0.23	0.46	—	3750	7500
	T3320	0.02	0.03	0.06	0.10	0.16	0.32	—	3780	7560
60	I6010	0.13	0.27	—	—	—	—	—	1150	2300
	I6015	0.05	0.10	0.20	0.30	0.49	—	—	2250	4500
	I5010	0.10	0.22	0.43	—	—	—	—	1430	2870
	I5015	0.04	0.08	0.16	0.24	0.39	—	—	2810	5620
	T5020	0.03	0.06	0.12	0.17	0.29	—	—	2600	5200
	I4010	0.09	0.18	0.36	—	—	—	—	1730	3460
	I4015	0.04	0.07	0.13	0.20	0.33	—	—	3380	6760
	T3320	0.02	0.04	0.09	0.13	0.22	0.44	—	3400	6800
72	I6010	0.26	—	—	—	—	—	—	960	1920
	I6015	0.09	0.18	0.36	—	—	—	—	1880	3760
	I5010	0.21	0.41	—	—	—	—	—	1200	2400
	I5015	0.07	0.14	0.29	0.43	—	—	—	2350	4700
	T5020	0.05	0.09	0.19	0.28	0.47	—	—	2170	4340
	I4010	0.17	0.34	—	—	—	—	—	1440	2880
	I4015	0.06	0.12	0.24	0.36	—	—	—	2810	5620
	T3320	0.04	0.07	0.14	0.21	0.35	—	—	2830	5660

NOTES:

1. The designer should not exceed the MAX RECOMMENDED LOAD at any given span. MAX RECOMMENDED LOAD represents a 2:1 factor of safety on ULTIMATE CAPACITY.
2. ULTIMATE CAPACITY represents a complete and total failure of the grating. Values are provided to illustrate the reserve strength of the grating at a given span and are NOT to be used for design. Functionality of grating is limited to MAX RECOMMENDED LOAD.
3. Walking loads, typically 50-65 PSF maximum are recommended for pedestrian traffic. Deflections for worker comfort are typically limited to the lesser of 3/8" or CLEAR SPAN divided by 125; for a firmer feel, limit deflection to the lesser of 1/4" or CLEAR SPAN divided by 200.
4. The allowable loads in this table are for STATIC LOAD CONDITIONS at ambient temperatures only. Allowable loads for impact or dynamic conditions should be a maximum of ONE-HALF the values shown. Long term loads will result in added deflection due to creep in the material and will also require higher safety factors to ensure acceptable performance. For applications at elevated temperatures, consult factory. The designer is further referenced to the ASCE Structural Plastics Design Manual.
5. All gratings were tested in accordance with the ANSI Standard: FRP Composites Grating Manual for Pultruded and Molded Grating and Stair Treads.