

STRONGWELL®

DURAGRID® PHENOLIC

FIRE INTEGRITY COMPOSITE GRATING



Strongwell Partner in Norway



Fire Integrity Phenolic Grating



DURAGRID® Phenolic Grating has been used to reduce weight and maintenance on offshore oil production platforms for more than a decade.



DURAGRID® Phenolic Grating's unique construction allows for many penetrations to be cut without adding additional supports.



Above: DURAGRID® Phenolic Grating's 3-piece cross-rod system has been time tested for durability.

Left: DURAGRID® Phenolic Grating is very lightweight. The initial installation or removal of panels for area access can be performed quickly.

DURAGRID® Phenolic Grating continues to set the world offshore standard for Fire Integrity composite grating. Strongwell's use of the highest quality raw materials, state-of-the-art manufacturing processes and superior engineering have produced a product of unmatched quality and performance. The third generation of DURAGRID® Phenolic exhibits improved mechanical properties, fire integrity, and impact resistance for greater durability. Strongwell's pultrusion facilities are ISO-9001:2008 certified to further ensure that DURAGRID® Phenolic is manufactured following the highest quality standards. DURAGRID® Phenolic has been exclusively produced in the USA since 1994.

Features

DURAGRID® Phenolic Grating is a dramatic innovation for markets where fire safety is a major concern; offering superior corrosion resistance, resistance to high temperatures, low smoke and low toxic fume emissions¹. The nonflammable nature of phenolics enable this grating to withstand higher temperatures than traditional FRP products for extended periods of time without major structural damage. Combined with very low thermal conductivity, DURAGRID® Phenolic Grating offers the best strength-to-weight ratio for projects that require maximum weight optimization with fire protection not available from alternative materials.

DURAGRID® Phenolic Grating is the first composite grating to receive U.S. Coast Guard approval. It is accepted for use in locations and applications as allowed in both the U.S.C.G. Policy File Memorandum 2-98 and ABS Appendix 3 (ABS Guide for Building and Classing Facilities on Offshore Installation 2000) for fire retardant grating meeting Structural Fire Integrity Level 2 (L2).

In addition, DURAGRID® Phenolic Grating has these features:

- **Strength of Steel** — Compared to new standard steel grating, DURAGRID® Phenolic I-6000 38mm (1-1/2") can carry 2.41 times the load of equivalent steel grating. Unlike metal gratings, DURAGRID® Phenolic has memory, returning to its original shape if design loads are exceeded.
- **Ease of Fabrication** — DURAGRID® Phenolic Grating requires no hot-work or heavy equipment to install or make field modifications. The unique three piece cross-bar construction enables DURAGRID® to be cut like a solid sheet with simple hand tools — no need for banding as with metal grating.
- **Lightweight, Easy to Install** — DURAGRID® Phenolic is approximately one-third the weight of steel bar grating. It is also much lighter than molded FRP grating, yet nearly four times the strength.
- **Dependable Anti-Skid Surface For Safety and Comfort** — DURAGRID® Phenolic Grating has a bonded grit epoxy anti-skid surface for superior slip and impact resistance. Grit options include fine, medium, #3 quartz and coarse grit. The wide grating bearing bar is less fatiguing than conventional metal grates, less damaging than serrated steel grating and not dangerously sharp like some molded gratings.
- **High Impact and Fire Resistance** - DURAGRID®'s special mat reinforcement protects the primary load bearing roving fibers from impact delamination and provides cross-sectional strength. An outer layer of resin rich phenolic provides optimal fire protection and a standard UV coating. Designed with improved fire properties and durability, third generation DURAGRID® Phenolic Grating offers the highest return on investment.

¹ Toxicity levels comply with IMO

Typical Applications

- Offshore production platforms
- Mobile offshore drilling units (MODU's)
- Docks/jetties/load-out areas
- Shipboard applications
- Tunnels/mass transit
- Aircraft
- Mining
- Extreme Cold (Arctic) Areas
- Industrial/processing plants
- Refineries

Technical Data

Fire Safety

Compared to typical polyester, vinyl ester and epoxy FRP products, DURAGRID® Phenolic Grating is a major improvement in reduced smoke density, reduced smoke toxicity and structural fire integrity when exposed to fire. DURAGRID® Phenolic Grating complies with Annex 1, Part 2, 2.4.1 and 2.4.2 (smoke and toxicity testing) FTP Code (International Code for Application of Fire Test Procedures) issued by the International Maritime Organization. Further information on smoke and toxicity tests is available from Strongwell upon request.

ASTM D635	UL-94
Flammability Rate cm/min. <1	VO

USCG Approvals

164.040/17/0 — DURAGRID Phenolic 38mm (1-1/2")

164.040/16/0 — DURAGRID Phenolic 45mm (1-3/4")

Standard Panel Sizes

1m x 6m, 1m x 5m, 1m x 5.5m

3ft x 20ft, 4ft x 20ft

Accessories

Panel Hold Downs — Strongwell offers numerous grating hold down fasteners.

- **Saddle Clips:** SS316 may be welded, bolted or screwed into place. Recommended for use on stair treads.
- **G-Clips:** Specially designed for offshore installations, a SS316 clip eliminates field drilling for attaching grating. G-Clips are not recommended for use on stair treads.
- **Hilti System Fastener:** A shot stud system. Fastener top and threaded stud are available from Strongwell.
- **Splash zone** hold down applications. Please contact Strongwell.



Panel Connectors — Saddle clips with a SS bar that connects panels.

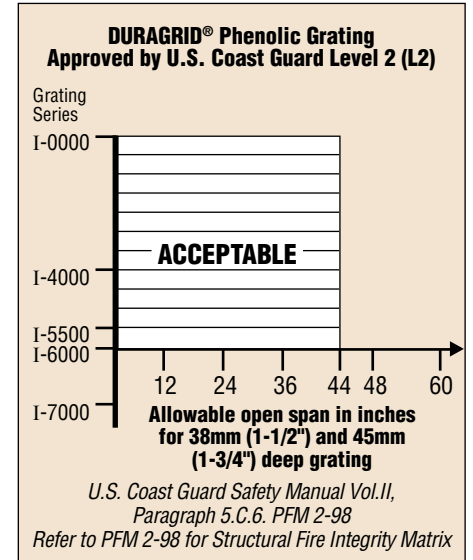
Stair Treads and Landings — Standard 279mm (11") deep with 51mm (2") deep closed nosing. Contact Strongwell for additional sizes.

Load Deflection Tables [Based on a clear span of 1120mm (44")]

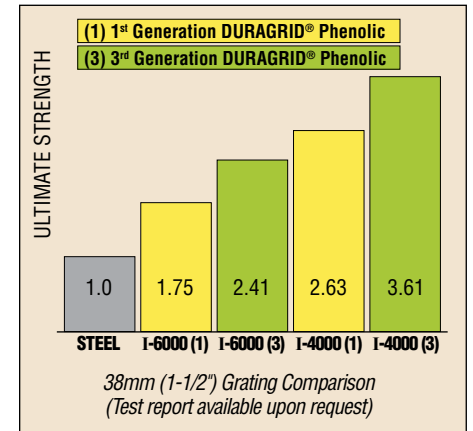
Series	% Open	Approx. Weight kg/m ² (lbs/sq ft)	Uniform Load kN/m ² * (lbs/sq ft)	Concentrated Load kN/m** (lbs/ft)
I-6000 38mm (1-1/2")	60%	16.8 (3.4)	15.6 (326)	10.9 (749)
I-5500 38mm (1-1/2")	55%	18.9 (3.9)	17.6 (367)	12.3 (842)
I-4800 38mm (1-1/2")	48%	21.5 (4.4)	20.2 (422)	14.1 (967)
I-4000 38mm (1-1/2")	40%	25.4 (5.2)	23.5 (490)	16.4 (1123)
I-6000 45mm (1-3/4")	60%	19.0 (3.9)	25.5 (532)	17.8 (1221)
I-5500 45mm (1-3/4")	55%	21.4 (4.4)	28.7 (599)	20.1 (1374)
I-4800 45mm (1-3/4")	48%	24.4 (5.0)	32.9 (688)	23.0 (1578)
I-4000 45mm (1-3/4")	40%	28.8 (5.9)	38.3 (799)	26.7 (1832)

* Uniform load to produce a deflection of 6.4mm (0.25") at midspan. ** Concentrated load to produce a deflection of 6.4mm (0.25") at midspan.

Acceptable Chart



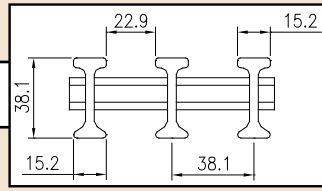
DURAGRID® Phenolic has continued to improve since its introduction to the market over 15 years ago. Refinements in materials and pultrusion processing have produced the current third generation product with a nearly 40% increase in strength over the original.



I-6000 38mm Bearing Bars Spaced 38mm On Center

A = 6.590 x 10³MM²/METER OF WIDTH S = 6.318 x 10⁴MM³/METER OF WIDTH I = 1.204 x 10⁶MM⁴/METER OF WIDTH
60% OPEN AREA APPROX. WT. = 16.8 KG PER SQ. METER

SPAN MM		LOAD														SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 ¹⁰ /W/ SQm
		3	5	7.5	10	13	15	20	25	39	50	100	150	200	250			
600	Δu	0.12	0.19	0.29	0.38	0.50	0.58	0.77	0.96	1.50	1.92	3.84	5.76	7.68	9.60	276	10.60	3.65
	Δc	0.31	0.51	0.77	1.02	1.33	1.54	2.05	2.56	3.99	5.12	10.24	15.36	83	8.50			
800	Δu	0.34	0.57	0.85	1.14	1.48	1.70	2.27	2.84	4.43	5.68	11.36	155	17.61	3.90			
	Δc	0.68	1.14	1.70	2.27	2.95	3.41	4.54	5.68	8.86	11.36	62	14.08					
1000	Δu	0.79	1.32	1.97	2.63	3.42	3.95	5.26	6.58	10.26	13.16	99	26.05	4.11				
	Δc	1.26	2.11	3.16	4.21	5.47	6.32	8.42	10.53	50	21.05							
1200	Δu	1.59	2.66	3.99	5.31	6.91	7.97	10.63	13.29	69	36.67	4.22						
	Δc	2.13	3.54	5.31	7.09	9.21	10.63	14.17	41	29.05								
1400	Δu	2.91	4.85	7.28	9.71	12.62	14.56	51	49.51	4.28								
	Δc	3.33	5.55	8.32	11.09	14.42	35	38.83										
1600	Δu	4.92	8.20	12.30	39	63.98	4.32											
	Δc	4.92	8.20	12.30	31	50.86												
1800	Δu	7.87	13.11	31	81.28	4.33												
	Δc	6.99	11.65	28	65.26													

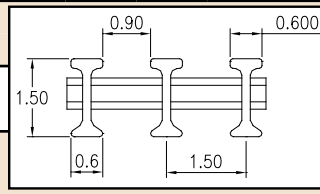


NOTE: The red bracket () indicates at what point the load weight has ≤ 6.35mm deflection.

I-6000 1-1/2" Bearing Bars Spaced 1-1/2" On Center

A = 3.114 IN²/FT OF WIDTH S = 1.176 IN³/FT OF WIDTH I = 0.882 IN⁴/FT OF WIDTH
60% OPEN AREA APPROX. WT. = 3.4 LBS/SQ FT

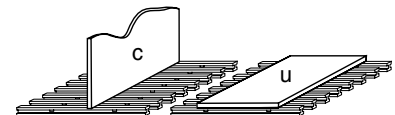
SPAN INCHES		LOAD														SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 ⁶ PSI	
		50	100	150	200	250	300	400	500	750	1000	2000	3000	4000	5000				6000
24	Δu	0.004	0.008	0.012	0.015	0.019	0.023	0.031	0.038	0.058	0.077	0.154	0.231	0.308	0.385	0.461	5,583	0.429	5.31
	Δc	0.003	0.006	0.009	0.012	0.015	0.018	0.025	0.031	0.046	0.062	0.123	0.185	0.246	0.308	0.369	5,583	0.343	
30	Δu	0.009	0.018	0.027	0.036	0.045	0.053	0.071	0.089	0.134	0.178	0.356	3,573	0.636	5.60				
	Δc	0.006	0.011	0.017	0.023	0.028	0.034	0.046	0.057	0.085	0.114	0.228	0.342	0.456		4,467	0.509		
36	Δu	0.018	0.035	0.053	0.071	0.088	0.106	0.141	0.176	0.265	0.353	2,482	0.876	5.86					
	Δc	0.009	0.019	0.028	0.038	0.047	0.056	0.075	0.094	0.141	0.188	0.376	3,722		0.700				
42	Δu	0.032	0.064	0.095	0.127	0.159	0.191	0.254	0.318	0.477	1,823	1.160	6.02						
	Δc	0.015	0.029	0.044	0.058	0.073	0.087	0.116	0.145	0.218	0.291	3,191		0.928					
48	Δu	0.053	0.107	0.160	0.213	0.266	0.320	0.426	1,396	1.488	6.13								
	Δc	0.021	0.043	0.064	0.085	0.107	0.128	0.171	0.213	0.320		0.426	2,792	1.190					
54	Δu	0.084	0.169	0.253	0.338	0.422	0.506	1,103	1.862	6.20									
	Δc	0.030	0.060	0.090	0.120	0.150	0.180	0.240	0.300		0.450	2,482	1.490						
60	Δu	0.128	0.256	0.383	893	2.283	6.24												
	Δc	0.041	0.082	0.123	0.164	0.205		0.245	0.327	0.409	2,233	1.827							
66	Δu	0.186	0.372	738	2.749	6.27													
	Δc	0.054	0.108	0.163	0.217		0.271	0.325	0.433	2,030	2.200								
72	Δu	0.263	620	3.260	6.29														
	Δc	0.070	0.140	0.210		0.280	0.351	0.421	1,861	2.610									



NOTE: The red area () indicates at what point the load weight has ≤ .25" deflection.

DEFLECTION AND MAXIMUM LOAD DATA WAS CALCULATED FROM LAB TESTS CONDUCTED BY STRONGWELL - CHATFIELD LOCATION.

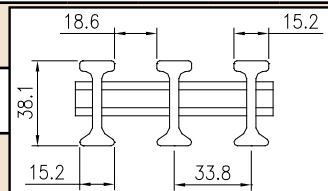
- c IS CONCENTRATED LOAD (kN/m OF WIDTH) (LBS/FT OF WIDTH)
- Δ c IS DEFLECTION UNDER CONCENTRATED LOAD
- u IS UNIFORM LOAD (kN/m²) (LBS/FT²)
- Δ u IS DEFLECTION UNDER UNIFORM LOAD



I-5500 38mm Bearing Bars Spaced 34mm On Center

A = 7.414 x 10⁶MM²/METER OF WIDTH S = 7.107 x 10⁴MM³/METER OF WIDTH I = 1.354 x 10⁹MM⁴/METER OF WIDTH
55% OPEN AREA APPROX. WT. = 18.9 KG PER SQ. METER

SPAN MM	LOAD														SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 ¹⁰ /W/ SQm	
	3	5	7.5	10	13	15	20	25	39	50	100	150	200	250				
600	Δu	0.10	0.17	0.26	0.34	0.44	0.51	0.68	0.85	1.33	1.71	3.41	5.12	6.83	8.54	311	10.63	3.65
	Δc	0.27	0.46	0.68	0.91	1.18	1.37	1.82	2.28	3.55	4.55	9.11	13.66			94	8.52	
800	Δu	0.30	0.50	0.76	1.01	1.31	1.51	2.02	2.52	3.94	5.05	10.10				175	17.66	3.90
	Δc	0.61	1.01	1.51	2.02	2.63	3.03	4.04	5.05	7.88	10.10					70	14.12	
1000	Δu	0.70	1.17	1.75	2.34	3.04	3.51	4.68	5.85	9.13	11.70					112	26.12	4.11
	Δc	1.12	1.87	2.81	3.74	4.87	5.62	7.49	9.36							56	21.11	
1200	Δu	1.42	2.36	3.54	4.73	6.14	7.09	9.45	11.81							78	36.77	4.22
	Δc	1.89	3.15	4.73	6.30	8.19	9.45	12.60								46	29.13	
1400	Δu	2.59	4.32	6.47	8.63	11.22	12.95									58	49.65	4.28
	Δc	2.96	4.93	7.40	9.86	12.82										39	38.94	
1600	Δu	4.38	7.29	10.94												44	64.17	4.32
	Δc	4.38	7.29	10.94												35	51.00	
1800	Δu	6.99	11.66													35	81.51	4.33
	Δc	6.22	10.36													32	65.44	

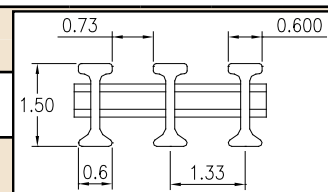


NOTE: The red bracket () indicates at what point the load weight has ≤ 6.35mm deflection.

I-5500 1-1/2" Bearing Bars Spaced 1-1/3" On Center

A = 3.505 IN²/FT OF WIDTH S = 1.323 IN³/FT OF WIDTH I = 0.992 IN⁴/FT OF WIDTH
55% OPEN AREA APPROX. WT. = 3.9 LBS/SQ FT

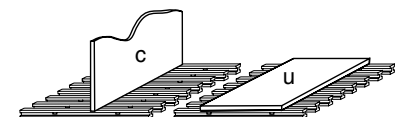
SPAN INCHES	LOAD														SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 ⁶ PSI		
	50	100	150	200	250	300	400	500	750	1000	2000	3000	4000	5000				6000	
24	Δu	0.003	0.007	0.010	0.014	0.017	0.021	0.027	0.034	0.051	0.068	0.137	0.205	0.273	0.342	0.410	6,281	0.429	5.31
	Δc	0.003	0.005	0.008	0.011	0.014	0.016	0.022	0.027	0.041	0.055	0.109	0.164	0.219	0.273	0.328	6,281	0.343	
30	Δu	0.008	0.016	0.024	0.032	0.040	0.047	0.063	0.079	0.119	0.158	0.316	0.475				4,020	0.636	5.60
	Δc	0.005	0.010	0.015	0.020	0.025	0.030	0.041	0.051	0.076	0.101	0.203	0.304	0.405	0.506		5,025	0.509	
36	Δu	0.016	0.031	0.047	0.063	0.078	0.094	0.125	0.157	0.235	0.314						2,792	0.875	5.86
	Δc	0.008	0.017	0.025	0.033	0.042	0.050	0.067	0.084	0.125	0.167	0.334	0.502				4,187	0.700	
42	Δu	0.028	0.057	0.085	0.113	0.141	0.170	0.226	0.283	0.424							2,051	1.160	6.02
	Δc	0.013	0.026	0.039	0.052	0.065	0.078	0.103	0.129	0.194	0.258	0.517					3,590	0.928	
48	Δu	0.047	0.095	0.142	0.189	0.237	0.284	0.379	0.474								1,571	1.488	6.13
	Δc	0.019	0.038	0.057	0.076	0.095	0.114	0.152	0.189	0.284	0.379						3,141	1.190	
54	Δu	0.075	0.150	0.225	0.300	0.375	0.450										1,241	1.861	6.20
	Δc	0.027	0.053	0.080	0.107	0.133	0.160	0.213	0.267	0.400							2,792	1.489	
60	Δu	0.114	0.227	0.341	0.454												1,005	2.282	6.24
	Δc	0.036	0.073	0.109	0.145	0.182	0.218	0.291	0.363								2,512	1.826	
66	Δu	0.166	0.331	0.497													830	2.748	6.27
	Δc	0.048	0.096	0.144	0.193	0.241	0.289	0.385	0.481								2,284	2.199	
72	Δu	0.234	0.467														698	3.260	6.29
	Δc	0.062	0.125	0.187	0.249	0.312	0.374	0.498									2,094	2.609	



NOTE: The red area () indicates at what point the load weight has ≤ .25" deflection.

DEFLECTION AND MAXIMUM LOAD DATA WAS CALCULATED FROM LAB TESTS CONDUCTED BY STRONGWELL - CHATFIELD LOCATION.

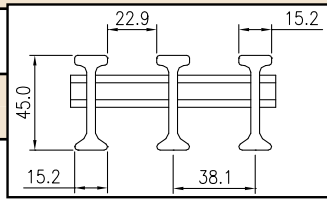
- c IS CONCENTRATED LOAD (kN/m OF WIDTH) (LBS/FT OF WIDTH)
- Δ c IS DEFLECTION UNDER CONCENTRATED LOAD
- u IS UNIFORM LOAD (kN/m²) (LBS/FT²)
- Δ u IS DEFLECTION UNDER UNIFORM LOAD



I-6000 45mm Bearing Bars Spaced 38mm On Center

A = 7.990 x 10³MM²/METER OF WIDTH S = 8.449 x 10⁴MM³/METER OF WIDTH I = 2.020 x 10⁶MM⁴/METER OF WIDTH
60% OPEN AREA APPROX. WT. = 19.0 KG PER SQ. METER

SPAN MM	LOAD														SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 ¹⁰ /N/ SQm	
	3	5	7.5	10	13	15	20	25	39	50	100	150	200	250				
600	Δu	0.07	0.12	0.18	0.24	0.32	0.37	0.49	0.61	0.96	1.22	2.45	3.67	4.90	6.12	333	8.16	3.41
	Δc	0.20	0.33	0.49	0.65	0.85	0.98	1.31	1.63	2.55	3.27	6.53	9.80	13.07	100			
800	Δu	0.21	0.36	0.54	0.71	0.93	1.07	1.43	1.78	2.78	3.57	7.14	10.70	14.27	188	13.42	3.70	
	Δc	0.43	0.71	1.07	1.43	1.86	2.14	2.85	3.57	5.57	7.14	14.27	75	10.70				
1000	Δu	0.49	0.82	1.23	1.64	2.13	2.45	3.27	4.09	6.38	8.18	120	19.63	3.94				
	Δc	0.79	1.31	1.96	2.62	3.40	3.93	5.24	6.54	10.21	13.09				60	15.71		
1200	Δu	0.98	1.63	2.45	3.26	4.24	4.89	6.52	8.15	12.71	83	27.06	4.10					
	Δc	1.30	2.17	3.26	4.35	5.65	6.52	8.69	10.87	50				21.73				
1400	Δu	1.79	2.98	4.46	5.95	7.74	8.93	11.91	61	36.31	4.16							
	Δc	2.04	3.40	5.10	6.80	8.84	10.20	13.61				43	29.25					
1600	Δu	3.03	5.05	7.58	10.11	13.14	47	47.50	4.18									
	Δc	3.03	5.05	7.58	10.11	13.14				38	38.40							
1800	Δu	4.83	8.06	12.08	37	59.61	4.20											
	Δc	4.30	7.16	10.74				33	47.26									
2000	Δu	7.37	12.28	30	73.67	4.20												
	Δc	5.89	9.82				30	58.93										

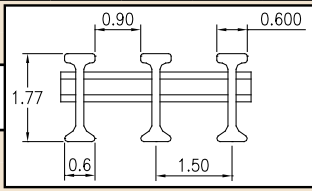


NOTE: The red bracket (**[]**) indicates at what point the load weight has ≤ 6.35mm deflection.

I-6000 1-3/4" Bearing Bars Spaced 1-1/2" On Center

A = 3.776 IN²/FT OF WIDTH S = 1.572 IN³/FT OF WIDTH I = 1.479 IN⁴/FT OF WIDTH
60% OPEN AREA APPROX. WT. = 3.9 LBS/SQ FT

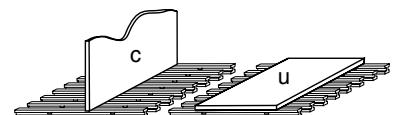
SPAN INCHES	LOAD														SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 ⁶ PSI		
	50	100	150	200	250	300	400	500	750	1000	2000	3000	4000	5000				6000	
24	Δu	0.002	0.005	0.007	0.010	0.012	0.015	0.020	0.025	0.037	0.049	0.098	0.147	0.197	0.246	0.295	6,745	0.332	4.95
	Δc	0.002	0.004	0.006	0.008	0.010	0.012	0.016	0.020	0.029	0.039	0.079	0.118	0.157	0.197	0.236			
30	Δu	0.006	0.011	0.017	0.022	0.028	0.034	0.045	0.056	0.084	0.112	0.224	0.336	0.448	4,315	0.484	5.30		
	Δc	0.004	0.007	0.011	0.014	0.018	0.022	0.029	0.036	0.054	0.072	0.143	0.215	0.287				0.359	5,395
36	Δu	0.011	0.022	0.033	0.044	0.055	0.067	0.089	0.111	0.166	0.222	0.444	3,000	0.666	5.55				
	Δc	0.006	0.012	0.018	0.024	0.030	0.036	0.047	0.059	0.089	0.118	0.237				0.355	0.474	4,495	0.532
42	Δu	0.020	0.039	0.059	0.078	0.098	0.117	0.156	0.195	0.293	0.390	2,200	0.858	5.85					
	Δc	0.009	0.018	0.027	0.036	0.045	0.054	0.071	0.089	0.134	0.178				0.357	3,855	0.688		
48	Δu	0.033	0.065	0.098	0.131	0.164	0.196	0.262	0.327	0.491	1,685	1.103	5.95						
	Δc	0.013	0.026	0.039	0.052	0.065	0.079	0.105	0.131	0.196				0.262	3,370	0.882			
54	Δu	0.052	0.104	0.155	0.207	0.259	0.311	0.414	1,330	1.378	6.02								
	Δc	0.018	0.037	0.055	0.074	0.092	0.111	0.147				0.184	0.276	0.368	3,000	1.105			
60	Δu	0.078	0.157	0.235	0.314	0.392	0.471	1,080	1.694	6.06									
	Δc	0.025	0.050	0.075	0.100	0.126	0.151				0.201	0.251	0.377	2,700	1.355				
66	Δu	0.114	0.229	0.343	0.458	890	2.037	6.08											
	Δc	0.033	0.067	0.100	0.133				0.166	0.200	0.266	0.333	0.499	2,450	1.632				
72	Δu	0.162	0.324	0.486	750	2.428	6.09												
	Δc	0.043	0.086	0.129				0.173	0.216	0.259	0.345	0.432	2,250	1.942					



NOTE: The red area (**[]**) indicates at what point the load weight has ≤ .25" deflection.

DEFLECTION AND MAXIMUM LOAD DATA WAS CALCULATED FROM LAB TESTS CONDUCTED BY STRONGWELL - CHATFIELD LOCATION.

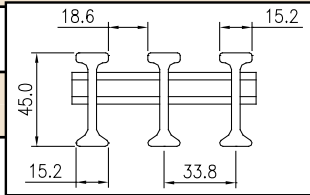
- c IS CONCENTRATED LOAD (kN/m OF WIDTH) (LBS/FT OF WIDTH)
- Δ c IS DEFLECTION UNDER CONCENTRATED LOAD
- u IS UNIFORM LOAD (kN/m²) (LBS/FT²)
- Δ u IS DEFLECTION UNDER UNIFORM LOAD



I-5500 45mm Bearing Bars Spaced 34mm On Center

A = 8.989 x 10³MM²/METER OF WIDTH S = 9.505 x 10⁴MM³/METER OF WIDTH I = 2.272 x 10¹⁰MM⁴/METER OF WIDTH
55% OPEN AREA APPROX. WT. = 21.4 KG PER SQ. METER

SPAN MM	LOAD														SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 ¹⁰ /N/ SQm	
	3	5	7.5	10	13	15	20	25	39	50	100	150	200	250				
600	Δu	0.07	0.11	0.16	0.22	0.28	0.33	0.44	0.54	0.85	1.09	2.18	3.27	4.36	5.45	376	8.18	3.41
	Δc	0.17	0.29	0.44	0.58	0.76	0.87	1.16	1.45	2.27	2.90	5.81	8.71	11.62	113	6.55		
800	Δu	0.19	0.32	0.48	0.63	0.82	0.95	1.27	1.59	2.47	3.17	6.34	9.52	12.69	212	13.45	3.70	
	Δc	0.38	0.63	0.95	1.27	1.65	1.90	2.54	3.17	4.95	6.34	12.69	85	10.73				
1000	Δu	0.44	0.73	1.09	1.45	1.89	2.18	2.91	3.64	5.67	7.27	135	19.69	3.94				
	Δc	0.70	1.16	1.75	2.33	3.03	3.49	4.65	5.82	9.08	11.64	68	15.75					
1200	Δu	0.87	1.45	2.17	2.90	3.77	4.35	5.80	7.25	11.30	94	27.13	4.10					
	Δc	1.16	1.93	2.90	3.86	5.02	5.80	7.73	9.66	56	21.79							
1400	Δu	1.59	2.65	3.97	5.29	6.88	7.94	10.58	69	36.41	4.16							
	Δc	1.81	3.02	4.54	6.05	7.86	9.07	12.10	48	29.33								
1600	Δu	2.70	4.49	6.74	8.99	11.68	53	47.63	4.18									
	Δc	2.70	4.49	6.74	8.99	11.68	43	38.51										
1800	Δu	4.30	7.16	10.74	42	59.77	4.20											
	Δc	3.82	6.37	9.55	37	47.39												
2000	Δu	6.55	10.92	34	73.87	4.20												
	Δc	5.24	8.73	34	59.09													

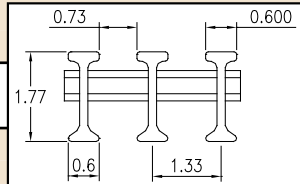


NOTE: The red bracket () indicates at what point the load weight has ≤ 6.35mm deflection.

I-5500 1-3/4" Bearing Bars Spaced 1-1/3" On Center

A = 4.249 IN²/FT OF WIDTH S = 1.769 IN³/FT OF WIDTH I = 1.665 IN⁴/FT OF WIDTH
55% OPEN AREA APPROX. WT. = 4.4 LBS/SQ FT

SPAN INCHES	LOAD																SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 ⁶ PSI	
	50	100	150	200	250	300	400	500	750	1000	2000	3000	4000	5000	6000	7000				
24	Δu	0.002	0.004	0.007	0.009	0.011	0.013	0.017	0.022	0.033	0.044	0.087	0.131	0.175	0.218	0.262	0.306	7,588	0.332	4.95
	Δc	0.002	0.003	0.005	0.007	0.009	0.010	0.014	0.017	0.026	0.035	0.070	0.105	0.140	0.175	0.210	0.245	7,588	0.265	
30	Δu	0.005	0.010	0.015	0.020	0.025	0.030	0.040	0.050	0.075	0.100	0.199	0.299	0.399	4,854	0.484	5.30			
	Δc	0.003	0.006	0.010	0.013	0.016	0.019	0.026	0.032	0.048	0.064	0.128	0.191	0.255	0.319	0.383		6,069	0.387	
36	Δu	0.010	0.020	0.030	0.039	0.049	0.059	0.079	0.099	0.148	0.197	0.395	3,375	0.666	5.55					
	Δc	0.005	0.011	0.016	0.021	0.026	0.032	0.042	0.053	0.079	0.105	0.210	0.316	0.421		5,057	0.532			
42	Δu	0.017	0.035	0.052	0.069	0.087	0.104	0.139	0.173	0.260	0.347	2,475	0.858	5.85						
	Δc	0.008	0.016	0.024	0.032	0.040	0.048	0.063	0.079	0.119	0.159	0.317	0.476		4,337	0.687				
48	Δu	0.029	0.058	0.087	0.116	0.145	0.174	0.233	0.291	0.436	1,896	1.102	5.95							
	Δc	0.012	0.023	0.035	0.047	0.058	0.070	0.093	0.116	0.174	0.233	0.465		3,791	0.882					
54	Δu	0.046	0.092	0.138	0.184	0.230	0.276	0.368	0.460	1,496	1.378	6.02								
	Δc	0.016	0.033	0.049	0.065	0.082	0.098	0.131	0.164	0.246	0.327		3,375	1.105						
60	Δu	0.070	0.139	0.209	0.279	0.349	0.418	1,215	1.694	6.06										
	Δc	0.022	0.045	0.067	0.089	0.112	0.134	0.178	0.223		0.335	0.446	3,038	1.355						
66	Δu	0.102	0.203	0.305	0.407	1,001	2.037	6.08												
	Δc	0.030	0.059	0.089	0.118	0.148	0.178		0.237	0.296	0.444	2,756	1.631							
72	Δu	0.144	0.288	0.431	844	2.427	6.09													
	Δc	0.038	0.077	0.115	0.153	0.192		0.230	0.307	0.384	2,531	1.942								



NOTE: The red area () indicates at what point the load weight has ≤ .25" deflection.

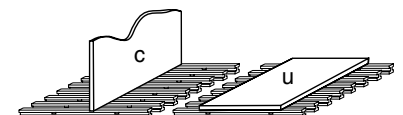
DEFLECTION AND MAXIMUM LOAD DATA WAS CALCULATED FROM LAB TESTS CONDUCTED BY STRONGWELL - CHATFIELD LOCATION.

c IS CONCENTRATED LOAD (KN/M OF WIDTH) (LBS/FT OF WIDTH)

Δ c IS DEFLECTION UNDER CONCENTRATED LOAD

u IS UNIFORM LOAD (KN/M²) (LBS/FT²)

Δ u IS DEFLECTION UNDER UNIFORM LOAD



Other Fiberglass Solutions From Strongwell

Strongwell offers a broad range of fiberglass building materials. To learn more, visit www.strongwell.com to view and print full-color brochures for these problem-solving products.

SAFRAIL™ Handrail Systems



SAFRAIL™ Ladder & Cage Systems



Stair Treads & Landing Covers



Fiberglass Penetration Covers



Building Panels for Harsh Environments



Also Available:

BALLISTIC PANELS

ACCESS PLATFORMS

WIND WALLS

FRP PIPE SLEEVES



STRONGWELL

ISO-9001:2008 Quality Certified Manufacturing Plants



BRISTOL LOCATION

400 Commonwealth Ave., P. O. Box 580, Bristol, VA 24203-0580 USA
(276) 645-8000 Fax (276) 645-8132

CHATFIELD LOCATION

1610 Highway 52 South, Chatfield, MN 55923-9799 USA
(507) 867-3479 Fax (507) 867-4031