

**STRONGWELL®**

# **DURAGRID® PHENOLIC**

## **FIRE INTEGRITY COMPOSITE GRATING**





# 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 emissions<sup>1</sup>. 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.

<sup>1</sup> 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, 2.6.1 and 2.6.2 (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.

<b>ASTM D635-77</b>	<b>UL-94</b>
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

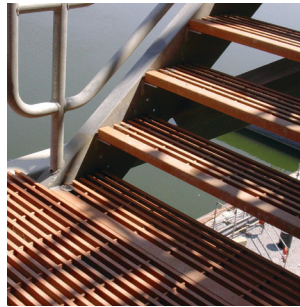
1m x 6m, 1m x 5m, 1m x 5.5m

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.

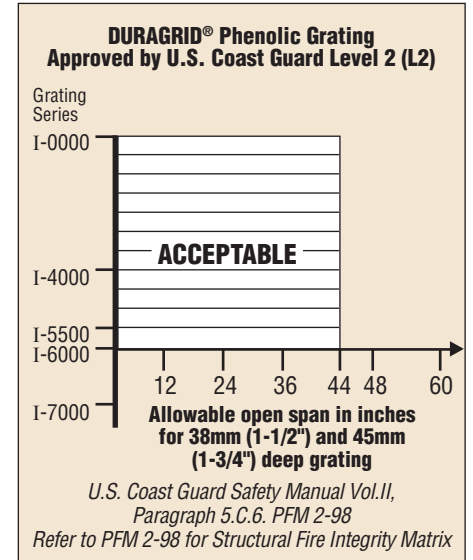
**Stair Treads and Landings** — Standard 279mm (11") deep with 51mm (2") deep closed nosing. Contact Strongwell for additional sizes.

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

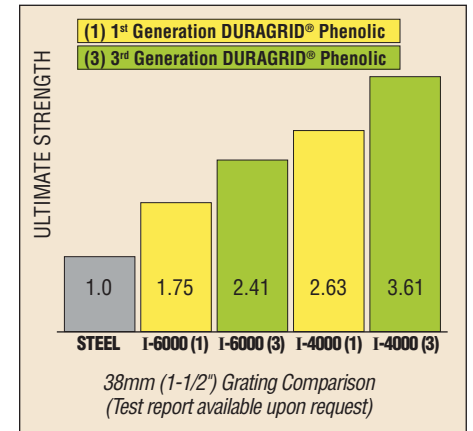
Series	% Open	Approx. Weight kg/m <sup>2</sup> (lbs/sq ft)	Uniform Load kN/m <sup>2</sup> * (lbs/sq ft)	Concentrated Load kN/m** (lbs/ft)
I-6000 38mm (1-1/2")	60%	16.8 (3.4)	15.6 (326)	10.9 (749)
I-5500 38mm (1-1/2")	55%	18.9 (3.9)	17.6 (367)	12.3 (842)
I-4800 38mm (1-1/2")	48%	21.5 (4.4)	20.2 (422)	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



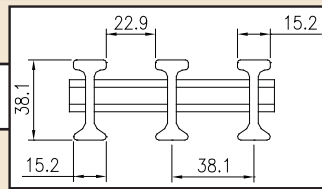
*DURAGRID® Phenolic has continued to improve since its introduction to the market over 15 years ago. Refinements in materials and pultrusion processing have produced the current third generation product with a nearly 40% increase in strength over the original.*



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

A = 6.590 x 10<sup>3</sup>MM<sup>2</sup>/METER OF WIDTH    S = 6.318 x 10<sup>4</sup>MM<sup>3</sup>/METER OF WIDTH    I = 1.204 x 10<sup>6</sup>MM<sup>4</sup>/METER OF WIDTH  
60% OPEN AREA    APPROX. WT. = 16.8 KG PER SQ. METER

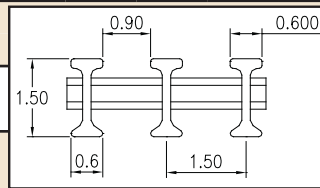
SPAN MM		LOAD														SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 <sup>10</sup> / SQm
		3	5	7.5	10	13	15	20	25	39	50	100	150	200	250			
<b>600</b>	Δu	0.12	0.19	0.29	0.38	0.50	0.58	0.77	0.96	1.50	1.92	3.84	5.76	7.68	9.60	276	10.60	<b>3.65</b>
	Δc	0.31	0.51	0.77	1.02	1.33	1.54	2.05	2.56	3.99	5.12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



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

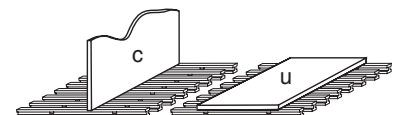
A = 3.114 IN<sup>2</sup>/FT OF WIDTH    S = 1.176 IN<sup>3</sup>/FT OF WIDTH    I = 0.882 IN<sup>4</sup>/FT OF WIDTH  
60% OPEN AREA    APPROX. WT. = 3.4 LBS/SQ FT

SPAN INCHES		LOAD														SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 <sup>6</sup> PSI	
		50	100	150	200	250	300	400	500	750	1000	2000	3000	4000	5000				6000
<b>24</b>	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	<b>5.31</b>
	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			
<b>30</b>	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	<b>5.60</b>				
	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
<b>36</b>	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	<b>5.86</b>					
	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		
<b>42</b>	Δu	0.032	0.064	0.095	0.127	0.159	0.191	0.254	0.318	0.477	1,823	1.160	<b>6.02</b>						
	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			
<b>48</b>	Δu	0.053	0.107	0.160	0.213	0.266	0.320	0.426	1,396	1.488	<b>6.13</b>								
	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			
<b>54</b>	Δu	0.084	0.169	0.253	0.338	0.422	0.506	1,103	1.862	<b>6.20</b>									
	Δc	0.030	0.060	0.090	0.120	0.150	0.180				0.240	0.300	0.450	2,482	1.490				
<b>60</b>	Δu	0.128	0.256	0.383	893	2.283	<b>6.24</b>												
	Δc	0.041	0.082	0.123				0.164	0.205	0.245	0.327	0.409	2,233	1.827					
<b>66</b>	Δu	0.186	0.372	738	2.749	<b>6.27</b>													
	Δc	0.054	0.108				0.163	0.217	0.271	0.325	0.433	2,030	2.200						
<b>72</b>	Δu	0.263	620	3.260	<b>6.29</b>														
	Δc	0.070				0.140	0.210	0.280	0.351	0.421	1,861	2.610							



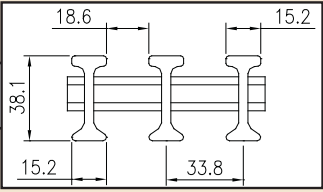
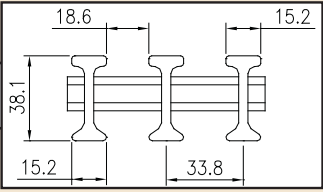
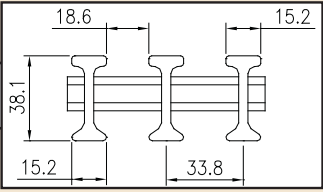
DEFLECTION AND MAXIMUM LOAD DATA WAS CALCULATED FROM LAB TESTS CONDUCTED BY STRONGWELL - CHATFIELD DIVISION.

- c IS CONCENTRATED LOAD (kN/m OF WIDTH) (LBS/FT OF WIDTH)
- Δ c IS DEFLECTION UNDER CONCENTRATED LOAD
- u IS UNIFORM LOAD (kN/m<sup>2</sup>) (LBS/FT<sup>2</sup>)
- Δ u IS DEFLECTION UNDER UNIFORM LOAD



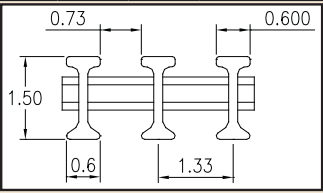
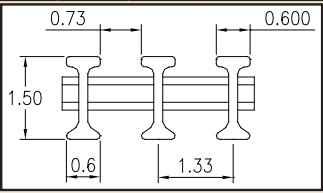
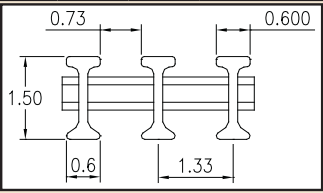
### I-5500 38mm Bearing Bars Spaced 34mm On Center

A = 7.414 x 10<sup>6</sup>MM<sup>2</sup>/METER OF WIDTH S = 7.107 x 10<sup>4</sup>MM<sup>3</sup>/METER OF WIDTH I = 1.354 x 10<sup>9</sup>MM<sup>4</sup>/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 <sup>10</sup> /W/ SQm	
	3	5	7.5	10	13	15	20	25	39	50	100	150	200	250				
<b>600</b>	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	<b>3.65</b>
	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			
<b>800</b>	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	<b>3.90</b>			
	Δc	0.61	1.01	1.51	2.02	2.63	3.03	4.04	5.05	7.88	10.10	70	14.12					
<b>1000</b>	Δu	0.70	1.17	1.75	2.34	3.04	3.51	4.68	5.85	9.13	11.70	112	26.12	<b>4.11</b>				
	Δc	1.12	1.87	2.81	3.74	4.87	5.62	7.49	9.36	56	21.11							
<b>1200</b>	Δu	1.42	2.36	3.54	4.73	6.14	7.09	9.45	11.81	78	36.77	<b>4.22</b>						
	Δc	1.89	3.15	4.73	6.30	8.19	9.45	12.60	46	29.13								
<b>1400</b>	Δu	2.59	4.32	6.47	8.63	11.22	12.95		58	49.65	<b>4.28</b>							
	Δc	2.96	4.93	7.40	9.86	12.82	39		38.94									
<b>1600</b>	Δu	4.38	7.29	10.94		44	64.17	<b>4.32</b>										
	Δc	4.38	7.29	10.94		35	51.00											
<b>1800</b>	Δu	6.99	11.66		35	81.51	<b>4.33</b>											
	Δc	6.22	10.36		32	65.44												

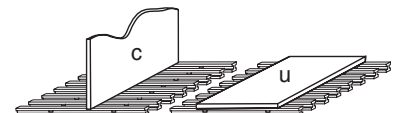
### I-5500 1-1/2" Bearing Bars Spaced 1-1/3" On Center

A = 3.505 IN<sup>2</sup>/FT OF WIDTH S = 1.323 IN<sup>3</sup>/FT OF WIDTH I = 0.992 IN<sup>4</sup>/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 <sup>6</sup> PSI		
	50	100	150	200	250	300	400	500	750	1000	2000	3000	4000	5000				6000	
<b>24</b>	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	<b>5.31</b>
	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	
<b>30</b>	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	<b>5.60</b>			
	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	
<b>36</b>	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	<b>5.86</b>					
	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			
<b>42</b>	Δu	0.028	0.057	0.085	0.113	0.141	0.170	0.226	0.283	0.424	2,051	1.160	<b>6.02</b>						
	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				
<b>48</b>	Δu	0.047	0.095	0.142	0.189	0.237	0.284	0.379	0.474	1,571	1.488	<b>6.13</b>							
	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					
<b>54</b>	Δu	0.075	0.150	0.225	0.300	0.375	0.450	1,241	1.861	<b>6.20</b>									
	Δc	0.027	0.053	0.080	0.107	0.133	0.160	0.213	0.267		0.400	2,792	1.489						
<b>60</b>	Δu	0.114	0.227	0.341	0.454		1,005	2.282	<b>6.24</b>										
	Δc	0.036	0.073	0.109	0.145		0.182	0.218		0.291	0.363	2,512	1.826						
<b>66</b>	Δu	0.166	0.331	0.497		830	2.748	<b>6.27</b>											
	Δc	0.048	0.096	0.144		0.193	0.241		0.289	0.385	0.481	2,284	2.199						
<b>72</b>	Δu	0.234	0.467		698	3.260	<b>6.29</b>												
	Δc	0.062	0.125		0.187	0.249		0.312	0.374	0.498	2,094	2.609							

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

- c IS CONCENTRATED LOAD (kN/m OF WIDTH) (LBS/FT OF WIDTH)
- Δ c IS DEFLECTION UNDER CONCENTRATED LOAD
- u IS UNIFORM LOAD (kN/m<sup>2</sup>) (LBS/FT<sup>2</sup>)
- Δ u IS DEFLECTION UNDER UNIFORM LOAD

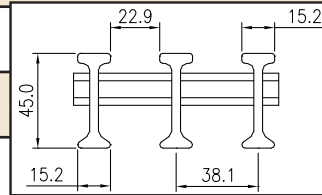




## I-6000 45mm Bearing Bars Spaced 38mm On Center

A = 7.990 x 10<sup>3</sup>MM<sup>2</sup>/METER OF WIDTH    S = 8.449 x 10<sup>4</sup>MM<sup>3</sup>/METER OF WIDTH    I = 2.020 x 10<sup>6</sup>MM<sup>4</sup>/METER OF WIDTH  
60% OPEN AREA    APPROX. WT. = 19.0 KG PER SQ. METER

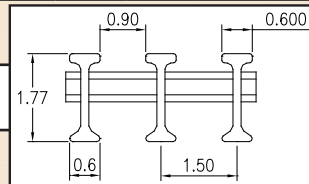
SPAN MM	LOAD														SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 <sup>10</sup> /N/ SQm	
	3	5	7.5	10	13	15	20	25	39	50	100	150	200	250				
<b>600</b>	Δu	0.07	0.12	0.18	0.24	0.32	0.37	0.49	0.61	0.96	1.22	2.45	3.67	4.90	6.12	333	8.16	<b>3.41</b>
	Δc	0.20	0.33	0.49	0.65	0.85	0.98	1.31	1.63	2.55	3.27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



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

A = 3.776 IN<sup>2</sup>/FT OF WIDTH    S = 1.572 IN<sup>3</sup>/FT OF WIDTH    I = 1.479 IN<sup>4</sup>/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 <sup>6</sup> PSI		
	50	100	150	200	250	300	400	500	750	1000	2000	3000	4000	5000				6000	
<b>24</b>	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	<b>4.95</b>
	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	6,745	0.265	
<b>30</b>	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	<b>5.30</b>
	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	0.387	
<b>36</b>	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	<b>5.55</b>
	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	
<b>42</b>	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	<b>5.85</b>
	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	
<b>48</b>	Δu	0.033	0.065	0.098	0.131	0.164	0.196	0.262	0.327	0.491							1,685	1.103	<b>5.95</b>
	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	
<b>54</b>	Δu	0.052	0.104	0.155	0.207	0.259	0.311	0.414									1,330	1.378	<b>6.02</b>
	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	
<b>60</b>	Δu	0.078	0.157	0.235	0.314	0.392	0.471										1,080	1.694	<b>6.06</b>
	Δc	0.025	0.050	0.075	0.100	0.126	0.151	0.201	0.251	0.377							2,700	1.355	
<b>66</b>	Δu	0.114	0.229	0.343	0.458												890	2.037	<b>6.08</b>
	Δc	0.033	0.067	0.100	0.133	0.166	0.200	0.266	0.333	0.499							2,450	1.632	
<b>72</b>	Δu	0.162	0.324	0.486													750	2.428	<b>6.09</b>
	Δc	0.043	0.086	0.129	0.173	0.216	0.259	0.345	0.432								2,250	1.942	



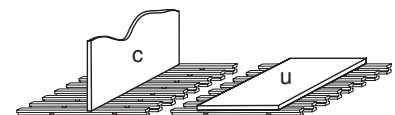
DEFLECTION AND MAXIMUM LOAD DATA WAS CALCULATED FROM LAB TESTS CONDUCTED BY STRONGWELL - CHATFIELD DIVISION.

c IS CONCENTRATED LOAD (kN/m OF WIDTH) (LBS/FT OF WIDTH)

Δ c IS DEFLECTION UNDER CONCENTRATED LOAD

u IS UNIFORM LOAD (kN/m<sup>2</sup>) (LBS/FT<sup>2</sup>)

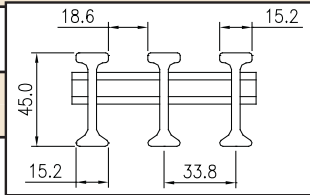
Δ u IS DEFLECTION UNDER UNIFORM LOAD



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

A = 8.989 x 10<sup>3</sup>MM<sup>2</sup>/METER OF WIDTH    S = 9.505 x 10<sup>4</sup>MM<sup>3</sup>/METER OF WIDTH    I = 2.272 x 10<sup>10</sup>MM<sup>4</sup>/METER OF WIDTH  
55% OPEN AREA    APPROX. WT. = 21.4 KG PER SQ. METER

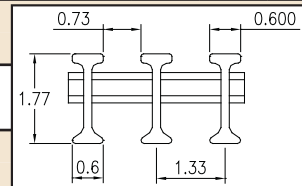
SPAN MM	LOAD														SAFE LOAD, 2:1 SAFETY FACTOR	DEFLECTION	E X 10 <sup>10</sup> /N/ SQm	
	3	5	7.5	10	13	15	20	25	39	50	100	150	200	250				
<b>600</b>	Δu	0.07	0.11	0.16	0.22	0.28	0.33	0.44	0.54	0.85	1.09	2.18	3.27	4.36	5.45	376	8.18	<b>3.41</b>
	Δc	0.17	0.29	0.44	0.58	0.76	0.87	1.16	1.45	2.27	2.90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



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

A = 4.249 IN<sup>2</sup>/FT OF WIDTH    S = 1.769 IN<sup>3</sup>/FT OF WIDTH    I = 1.665 IN<sup>4</sup>/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 <sup>6</sup> PSI	
	50	100	150	200	250	300	400	500	750	1000	2000	3000	4000	5000	6000	7000				
<b>24</b>	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	<b>4.95</b>
	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	
<b>30</b>	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	<b>5.30</b>			
	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	
<b>36</b>	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	<b>5.55</b>					
	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			
<b>42</b>	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	<b>5.85</b>						
	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				
<b>48</b>	Δu	0.029	0.058	0.087	0.116	0.145	0.174	0.233	0.291	0.436	1,896	1.102	<b>5.95</b>							
	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					
<b>54</b>	Δu	0.046	0.092	0.138	0.184	0.230	0.276	0.368	0.460	1,496	1.378	<b>6.02</b>								
	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						
<b>60</b>	Δu	0.070	0.139	0.209	0.279	0.349	0.418	1,215	1.694	<b>6.06</b>										
	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						
<b>66</b>	Δu	0.102	0.203	0.305	0.407	1,001	2.037	<b>6.08</b>												
	Δc	0.030	0.059	0.089	0.118	0.148	0.178		0.237	0.296	0.444	2,756	1.631							
<b>72</b>	Δu	0.144	0.288	0.431	844	2.427	<b>6.09</b>													
	Δc	0.038	0.077	0.115	0.153	0.192		0.230	0.307	0.384	2,531	1.942								



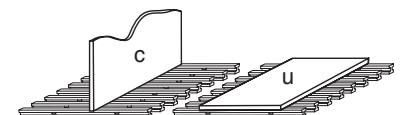
DEFLECTION AND MAXIMUM LOAD DATA WAS CALCULATED FROM LAB TESTS CONDUCTED BY STRONGWELL - CHATFIELD DIVISION.

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

Δ c IS DEFLECTION UNDER CONCENTRATED LOAD

u IS UNIFORM LOAD (KN/M<sup>2</sup>) (LBS/FT<sup>2</sup>)

Δ u IS DEFLECTION UNDER UNIFORM LOAD



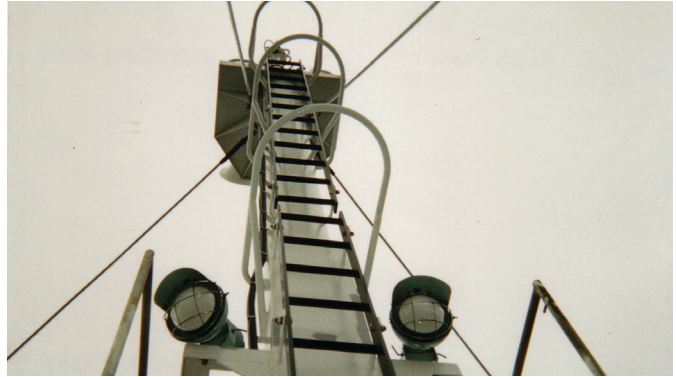
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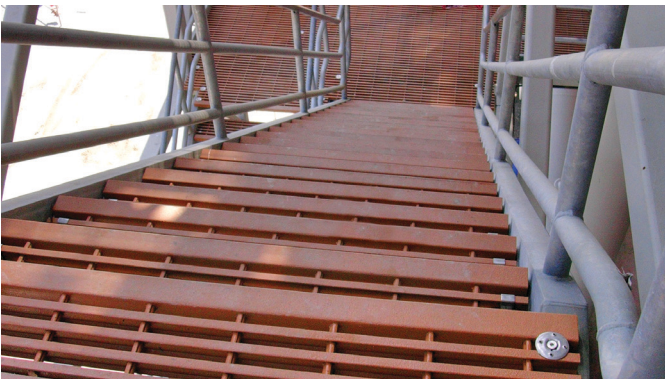
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