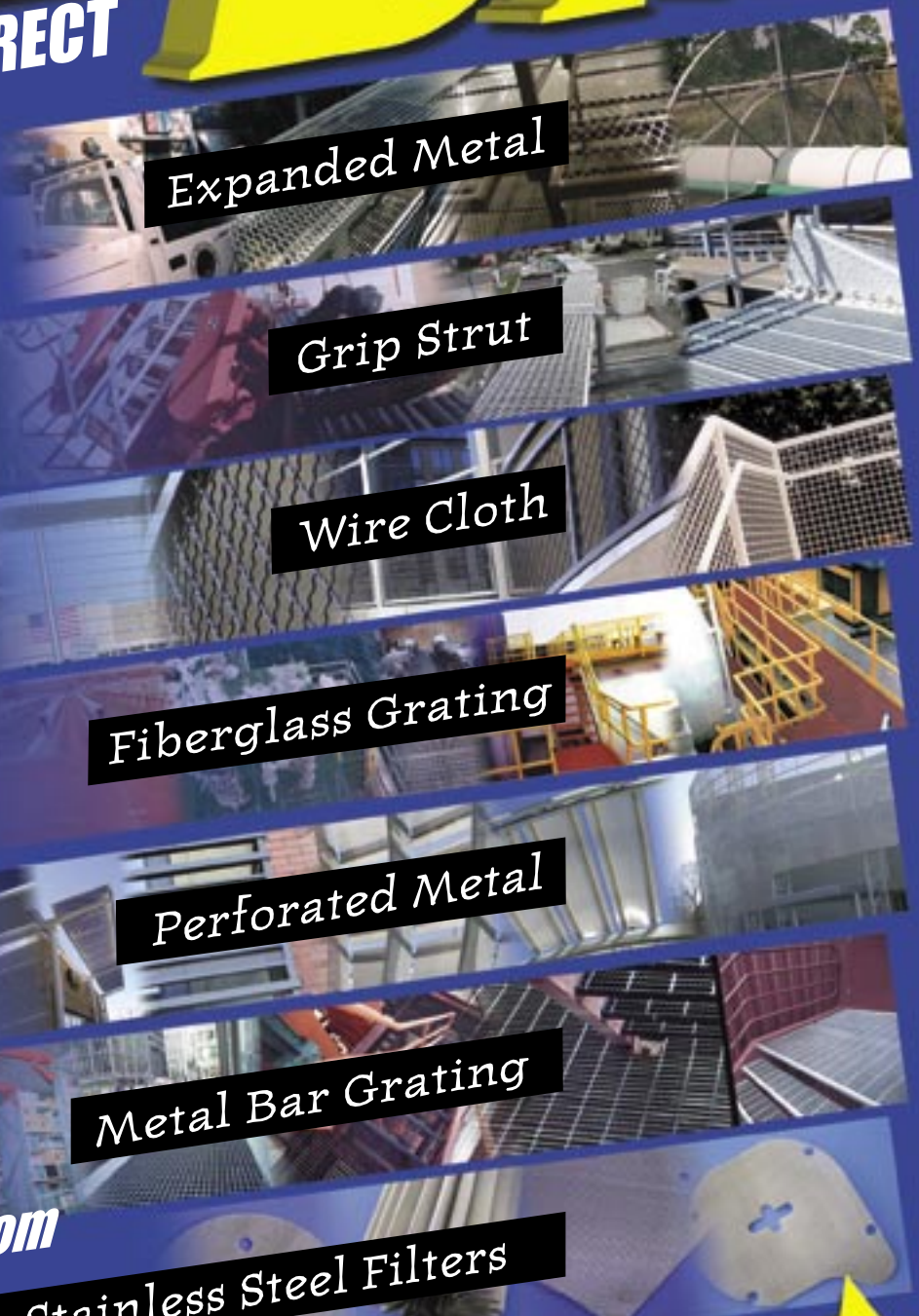
Your Source for: Grip Strut® Safety Grating
Fibergrate® Fiberglass Grating
R&B Wagner Railing Components

DIRECT METALS DM®

BUY DIRECT

Direct Metals Company LLC

Atlanta, GA
Chicago, IL



Atlanta
Phone • 770-528-9001
Fax • 770-528-9002

Chicago
Phone • 847-599-0233
Fax • 847-599-0244

www.directmetals.com

NEW ITEM

1-800-711-4939

QUALITY FIRST—
REPUTATION ABOVE ALL

VOL 9

Direct Metals Company, LLC

Volume 9

1200 Chastain Rd. #201
Kennesaw, GA 30144-5586
Local Phone (770) 528-9001
FAX (770) 528-9002

560-B Old Skokie Rd.
Park City, IL 60085
Local Phone (847) 599-0233
FAX (847) 599-0244

TABLE OF CONTENTS

Safety Gratings . . . . . Pages 1-11
Grip Strut - Regular 1-4
Grip Strut - Heavy Duty 5-7
Grip Strut - Walkway 7
Traction Tread-Sheets, Planks & Ladder Rungs 8
Grip Strut - Stair Treads 9
Grate-Lock 10
Safety-Grip 11

Perforated Metals . . . . . Pages 12-16
Types of Perforations 12
Available Tooling with Open Area % 13-14
Rounds 15
Formulas and Applications 16

Bar Grating . . . . . Pages 17-30
Glossary and Terminology 17
Aluminum 18-21
Carbon and Stainless 22-28
Stair Treads & Anchoring Devices 29-30

Fiberglass Grating . . . . . Pages 31-36
Characteristics 31
Molded Resin Systems, Colors and Details 32-33
Pultruded Resin Systems, Colors and Details 34-36
Anchoring Devices 36

Expanded Metals . . . . . Pages 37-39
Manufacturing Processes and Shearing 37
Available Inventory, U-Edging For Trimming Expanded Metal & Wire 38-39
Grating 39

Wire Products . . . . . Pages 40-47
Terminology 40
Typical Weaves and Crimp Styles 40
Specialty Stainless Filters Made to Order 41-42
Typical Square Mesh Patterns 43-45
Other Square Mesh Standards 46
Space Screen 47

R&B Wagner Handrail Components . . . . . Pages 48-49

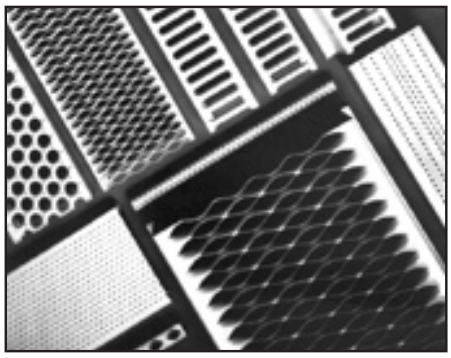
We'll Cut Anything in Our Inventory To Your Specifications.
Direct Metals Processing:

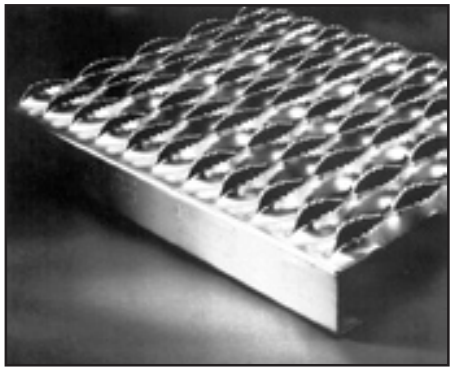
- **Sawing**
- **Welding**
- **Shearing**
- **Minor Fabrications including STAIR TREADS and GRATING AREAS with BANDING and CUTOUTS...**

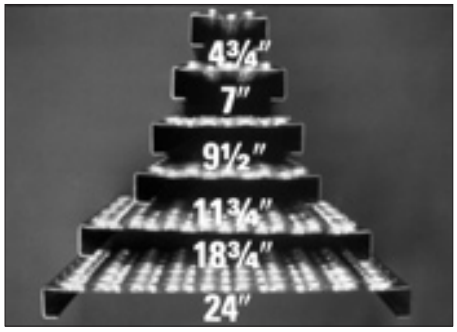
Ask Your Direct Metals Salesperson.

MasterCard VISA AMERICAN EXPRESS Cards

Direct Metals — Your Safety Grating Source featuring Grip Strut®







Every year industrial accidents–falls, tripping over debris, slipping on wet or greasy surfaces–cost millions of dollars in lost manhours and production. By reducing accidents, insurance costs can frequently be decreased. GRIP STRUT Safety Grating helps reduce accident rates by providing a safer walking-working surface than any other available grating product. It's serrated surface gives maximum slip protection and performance under practically all conditions and in every direction.

The serrated surface is designed in an open diamond pattern. This allows drainage of fluids, mud, chips and other accident-causing debris. With 4½-in. high side channels, GRIP STRUT Safety Grating Walkways meet OSHA requirements for toeboards on elevated structures.

Safer, serrated surface

Grips soles securely–in all directions–in practically every place. These non-slip GRIP STRUT Grating surfaces are ideal for inside or outside locations where mud, ice, snow, oil and detergents can create hazardous walking conditions. Openings are small enough to catch most falling tools and other dangerous objects.

Fast Installation

Light, easy-to-handle planks make installation simpler and quicker. They can be handled by one man. Most sections are rapidly bolted, clamped or welded into place, easily field-cut at virtually any angle, or fabricated to adapt to field conditions. Several attachment devices permit fastening to most existing surfaces; allow fast installation or disassembly.

Serrated Grip Strut Grating

Offers excellent slip resistance wherever maximum safety underfoot is essential. Material meets anti-slip values set forth in Federal Specification RR-G-1602A.

Non-serrated GRIP STRUT Grating

For all-purpose use where a high degree of slip resistance is required plus a smoother texture and design. Product subject to extended lead time.

Standard Grip Strut Grating Planks

Available in materials and sized to meet most load/span requirements. May be used as is or banded, cut, welded, or punched to suit requirements.

General Load Information

How to read load tables

To select size of GRIP STRUT Safety Grating, determine load, clear span and deflection requirements. Having this information, select from load table the appropriate plank to meet job requirements.

Example: Clear span of 4'-0" concentrated load requirement of 300 lb. at 0.25" max. deflection.

Allowable Uniform Load (U)

Values indicated in the rows adjacent to "U" are the lowest of the (1) maximum allowable uniform loads considering channel flexure and (2) maximum grating surface flexure.

Deflection Corresponding to "U"

Deflection values are indicated below the uniform loads and are the mid-span side channel deflections for the planks carrying the allowable uniform loads (Figure 3).

Allowable Concentrated Load (C)

Values indicated in the rows labeled "C" are the lowest of the (1) maximum allowable concentrated load considering channel flexure (Figure 2), with both channels effective, and (2) the maximum allowable strut load (Cs) for a 1-ft. long sample (Figure 1).

Deflection Corresponding to "C"

Deflection values indicated below "C" values in the tables are the mid-span, side channel deflections produced when the allowable concentrated load is placed at mid-span.

C_S - Concentrated Strut Load (lb./ft.)

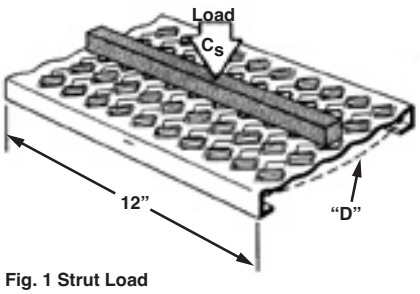


Fig. 1 Strut Load

C - Concentrated Load (lb.)

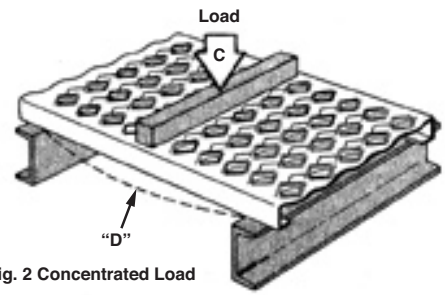


Fig. 2 Concentrated Load

U - Uniform Load (lb./Ft.²)

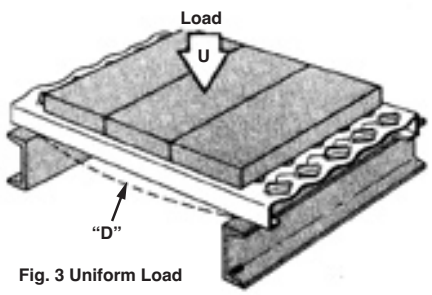
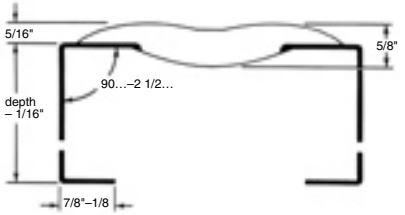
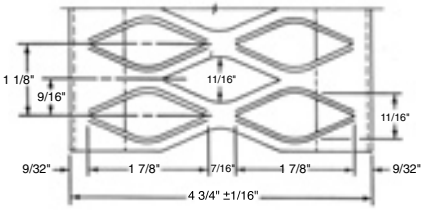
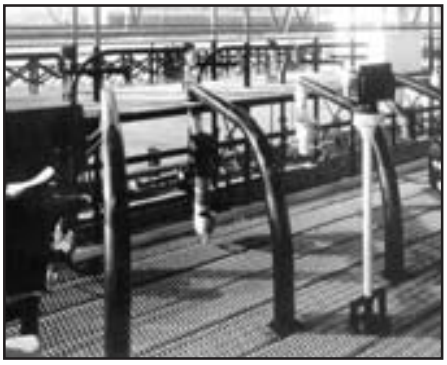


Fig. 3 Uniform Load

2-Diamond Plank – 4¾" Width: Also in Aluminum





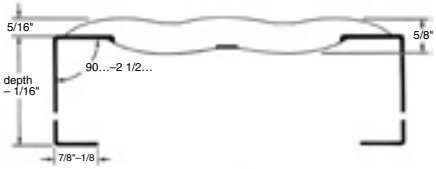


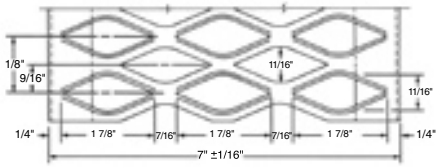
PRODUCT SELECTION/DESIGN TABLES

Allowable Loads and Deflections: U—uniform load (lb./ft^2) C—concentrated load (lb.) D—deflection (in.)
Spans to the left of heavy line produce a deflection of 1/4" or less under a uniform load of 100 lb./ft.^{2}

Material Gauge	Channel Depth in. (mm)	Weights lbs./lin ft. (kg/m)	Catalog Number		Span 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
				U	1324	849	591	435	334	265	215	179	151								
	1 1/2	2.3	21514	D	.06	.10	.14	.20	.26	.32	.40	.49	.58								
	(38.1)	(3.42)		C	524	420	351	301	265	236	213	195	179								
				D	.05	.08	.11	.16	.20	.26	.32	.39	.47								
				U	2198	1409	980	721	553	438	356	295	248								
STEEL	2	2.6	22014	D	.06	.09	.13	.17	.23	.29	.35	.43	.51	.60	.70	.81	.92	1.18	1.47		
14 ga.	(50.8)	(3.87)		C	870	697	582	499	438	390	352	321	295	273	255	239	225	201	183		
				D	.04	.07	.10	.14	.18	.23	.28	.34	.41	.48	.56	.65	.74	.94	1.18		
				U	2522	1616	1124	827	634	502	408	338	285	244	211	184	163	130	106	88	75
	2 1/2	2.8	22514	D	.04	.06	.08	.11	.14	.18	.23	.27	.33	.38	.45	.51	.59	.75	.94	1.14	1.38
	(63.5)	(4.17)		C	998	800	667	573	502	447	404	368	338	313	292	273	257	231	210	193	178
				D	.03	.04	.06	.09	.11	.15	.18	.22	.26	.31	.36	.41	.47	.60	.75	.92	1.10
				U	1751	1123	782	576	443	351	286	237	200	172	149	131	116				
	1 1/2	3.2	21512	D	.07	.11	.15	.21	.27	.35	.43	.52	.62	.74	.86	.99	1.14				
	(38.1)	(4.76)		C	693	556	464	399	350	313	283	258	238	221	206	194	183				
				D	.05	.08	.12	.17	.22	.28	.34	.42	.50	.59	.69	.79	.91				
				U	2792	1790	1245	917	703	557	453	375	317	271	235	205	181	145	119	99	85
STEEL	2	3.6	22012	D	.05	.08	.11	.16	.20	.26	.32	.39	.46	.55	.64	.73	.84	1.07	1.34	1.64	1.98
12 ga.	(50.8)	(5.36)		C	1105	886	739	635	557	496	448	409	376	348	325	305	287	258	235	216	201
				D	.04	.06	.09	.12	.16	.21	.26	.31	.37	.44	.51	.59	.67	.86	1.07	1.31	1.58
				U	4179	2676	1860	1368	1049	830	673	557	469	400	346	302	266	211	172	143	121
	2 1/2	4.0	22512	D	.04	.06	.09	.13	.17	.21	.26	.32	.38	.44	.51	.59	.67	.86	1.07	1.30	1.55
	(63.5)	(5.95)		C	1654	1324	1104	948	830	739	666	606	557	515	479	448	421	376	341	312	288
				D	.03	.05	.07	.10	.13	.17	.21	.25	.30	.35	.41	.47	.54	.69	.85	1.04	1.24

3-Diamond Plank – 7" Width: Also in Aluminum





PRODUCT SELECTION/DESIGN TABLES

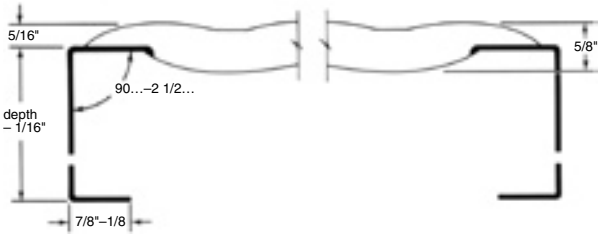
Allowable Loads and Deflections: U—uniform load (lb./ft^2) C—concentrated load (lb.) D—deflection (in.)
Spans to the left of heavy line produce a deflection of 1/4" or less under a uniform load of 100 lb./ft.^{2}

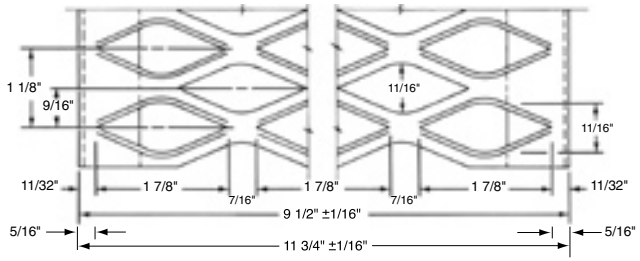
Material Gauge	Channel Depth in. (mm)	Weights lbs./lin ft. (kg/m)	Catalog Number		Span 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
				U	899	577	402	269	227	180	147	122	103								
	1 1/2	3.0	31514	D	.06	.10	.14	.20	.26	.33	.40	.49	.59								
	(38.1)	(4.46)		C	524	421	351	302	265	237	214	196	180								
				D	.05	.08	.11	.16	.21	.26	.32	.39	.47								
				U	1492	957	665	490	376	298	242	201	169	145	125	110	97	77	63		
STEEL	2	3.2	32014	D	.06	.09	.13	.17	.23	.29	.35	.43	.51	.61	.71	.81	.93	1.19	1.49		
14 ga.	(50.8)	(4.76)		C	871	697	582	500	439	391	353	322	296	275	256	240	226	203	185		
				D	.04	.07	.10	.14	.18	.23	.28	.34	.41	.48	.56	.65	.74	.95	1.19		
				U	1712	1097	763	562	431	342	277	230	194	166	144	126	111	89	73	61	52
	2 1/2	3.5	32514	D	.04	.06	.08	.11	.14	.18	.23	.27	.33	.39	.45	.52	.59	.76	.94	1.16	1.40
	(63.5)	(5.21)		C	999	800	668	574	503	448	405	369	340	315	293	275	259	233	212	195	181
				D	.03	.04	.06	.09	.11	.15	.18	.22	.26	.31	.36	.41	.47	.61	.76	.93	1.12
				U	1189	763	532	392	301	239	195	162	137	118	102	90	79				
	1 1/2	4.1	31512	D	.07	.11	.15	.21	.27	.35	.43	.52	.63	.74	.87	1.00	1.15				
	(38.1)	(6.10)		C	694	556	465	400	352	314	284	260	240	223	208	196	185				
				D	.05	.08	.12	.17	.22	.28	.34	.42	.50	.59	.69	.80	.92				
				U	1896	1216	846	623	478	379	308	256	216	185	160	140	124	99	82	68	58
	2	4.5	32012	D	.05	.08	.11	.16	.20	.26	.32	.39	.47	.55	.64	.74	.85	1.08	1.36	1.67	2.01
	(50.8)	(6.70)		C	1106	886	740	636	558	498	450	410	378	350	327	307	289	260	238	219	203
				D	.04	.06	.09	.12	.16	.21	.26	.31	.37	.44	.51	.59	.68	.87	1.09	1.33	1.61
				U	2836	1817	1263	929	712	564	457	379	319	272	235	206	181	144	118	98	83
STEEL	2 1/2	4.9	32512	D	.04	.06	.09	.13	.17	.21	.26	.32	.38	.44	.52	.59	.68	.86	1.07	1.31	1.57
12 ga.	(63.5)	(7.29)		C	1654	1325	1105	948	831	740	667	608	558	516	481	450	423	378	343	314	290
				D	.03	.05	.07	.10	.13	.17	.21	.25	.30	.35	.41	.47	.54	.69	.86	1.05	1.25
				U	3587	2298	1597	1174	900	712	578	478	403	344	297	259	228	181	148	123	104
	3	5.2	33012	D	.04	.06	.08	.11	.14	.18	.22	.27	.32	.38	.44	.51	.58	.74	.92	1.12	1.34
	(76.2)	(7.74)		C	1868	1675	1397	1199	1050	935	843	767	705	652	606	567	533	476	431	395	364
				D	.03	.04	.06	.09	.11	.14	.18	.22	.26	.30	.35	.41	.46	.59	.73	.89	1.07

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

4-Diamond Plank – 9½" Width: Also in Aluminum and Stainless Steel





PRODUCT SELECTION/DESIGN TABLES

Allowable Loads and Deflections: U—uniform load (lb./ft^2) C—concentrated load (lb.) D—deflection (in.)
Spans to the left of heavy line produce a deflection of 1/4" or less under a uniform load of 100 lb./ft.^{2}

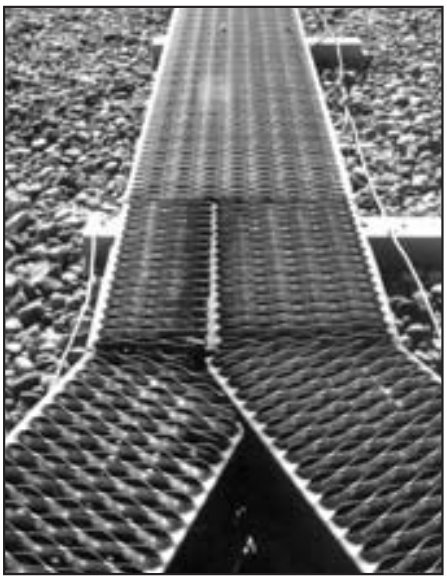
Material Gauge	Channel Depth in. (mm)	Weights lbs./lin ft. (kg/m)	Catalog Number		Span 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
				U	663	426	296	219	168	134	109	90	77								
	1 1/2	3.6	41514	D	.06	.10	.14	.20	.26	.33	.41	.50	.59								
	(38.1)	(5.36)		C	525	421	352	303	266	238	215	197	182								
				D	.05	.08	.11	.16	.21	.26	.33	.40	.47								
				U	1100	705	491	362	278	220	179	148	125	107	93	81	72	58	47		
STEEL	2	3.8	42014	D	.06	.09	.13	.17	.23	.29	.36	.43	.52	.61	.71	.82	.94	1.20	1.51		
14 ga.	(50.8)	(5.65)		C	730	698	583	501	440	392	354	323	298	276	258	242	228	205	187		
				D	.04	.07	.10	.14	.18	.23	.28	.35	.41	.49	.57	.66	.75	.96	1.20		
				U	1262	809	563	415	318	252	205	170	144	123	106	93	82	66	54	45	
	2 1/2	4.1	42514	D	.04	.06	.08	.11	.14	.18	.23	.28	.33	.39	.45	.52	.60	.76	.95	1.17	
	(63.5)	(6.10)		C	730	730	669	574	504	449	406	370	341	316	295	277	261	235	214	197	
				D	.02	.04	.06	.09	.12	.15	.18	.22	.26	.31	.36	.42	.48	.61	.76	.94	
				U	906	581	405	298	229	182	148	123	104	89	77	67	60				
	1 1/2	5.0	41512	D	.07	.11	.16	.21	.28	.36	.44	.54	.64	.76	.89	1.02	1.17				
	(38.1)	(7.44)		C	718	575	481	413	363	324	292	267	246	228	213	200	189				
				D	.06	.09	.13	.17	.23	.29	.35	.43	.52	.61	.71	.82	.94				
				U	1398	896	624	460	353	280	228	189	160	137	119	104	92	74	61	51	43
	2	5.4	42012	D	.05	.08	.11	.16	.20	.26	.32	.39	.47	.55	.65	.75	.85	1.10	1.38	1.69	2.03
STEEL	(50.8)	(8.04)		C	1107	887	741	637	559	499	451	412	380	353	329	309	292	264	241	222	206
12 ga.				D	.04	.06	.09	.12	.16	.21	.26	.31	.37	.44	.52	.60	.68	.88	1.10	1.35	1.63
				U	2090	1339	931	685	525	416	338	280	236	201	174	152	134	107	87	73	62
	2 1/2	5.7	42512	D	.04	.06	.09	.13	.17	.21	.26	.32	.38	.44	.52	.60	.68	.87	1.08	1.32	1.58
	(63.5)	(8.48)		C	1400	1325	1106	949	832	741	668	609	559	518	482	452	425	380	345	316	293
				D	.03	.05	.07	.10	.13	.17	.21	.25	.30	.36	.41	.48	.54	.69	.86	1.05	1.27
				U	2644	1694	1177	866	664	525	426	353	297	254	219	192	169	134	110	91	77
	3	6.1	43012	D	.04	.06	.08	.11	.14	.18	.22	.27	.32	.38	.44	.51	.58	.74	.92	1.12	1.35

5-Diamond Plank – 11¾" Width: Also in Aluminum and Stainless Steel

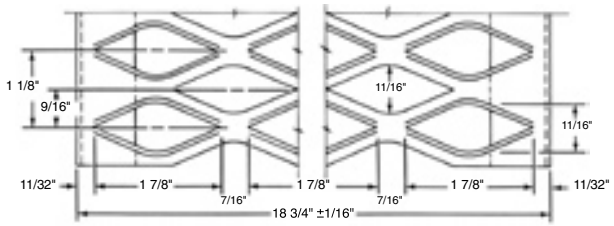
PRODUCT SELECTION/DESIGN TABLES

Allowable Loads and Deflections: U—uniform load (lb./ft^2) C—concentrated load (lb.) D—deflection (in.)
Spans to the left of heavy line produce a deflection of 1/4" or less under a uniform load of 100 lb./ft.^{2}

Material Gauge	Channel Depth in. (mm)	Weights lbs./lin ft. (kg/m)	Catalog Number		Span 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
				U	536	344	240	177	136	108	88	74	62								
	1 1/2	4.2	51514	D	.06	.10	.14	.20	.26	.33	.41	.50	.60								
	(38.1)	(6.25)		C	525	422	353	304	267	239	216	198	183								
				D	.05	.08	.12	.16	.21	.26	.33	.40	.48								
				U	890	571	397	293	225	178	145	120	102	87	76	66	59	47			
STEEL	2	4.4	52014	D	.06	.09	.13	.17	.23	.29	.36	.43	.52	.61	.71	.83	.95	1.21			
14 ga.	(50.8)	(6.55)		C	707	699	584	502	440	393	355	324	299	277	259	243	230	207			
				D	.04	.07	.10	.14	.18	.23	.29	.35	.42	.49	.57	.66	.76	.97			
				U	1021	655	456	336	258	204	166	138	116	100	86	76	67	54	44		
	2 1/2	4.7	52514	D	.04	.06	.08	.11	.14	.18	.23	.28	.33	.39	.45	.52	.60	.77	.96		
	(63.5)	(6.99)		C	707	707	669	575	505	450	407	371	342	317	296	278	262	236	216		
				D	.02	.04	.06	.09	.12	.15	.18	.22	.26	.31	.36	.42	.48	.62	.77		
				U	710	456	318	235	181	144	117	98	83	71	62	55	49				
	1 1/2	5.9	51512	D	.07	.11	.15	.21	.28	.35	.44	.53	.64	.76	.89	1.03	1.18				
	(38.1)	(8.78)		C	695	558	467	402	354	317	287	263	244	227	213	201	190				
				D	.05	.08	.12	.17	.22	.28	.35	.43	.51	.60	.71	.82	.95				
				U	1131	725	505	372	286	227	185	154	130	111	97	85	75	60	50	42	
	2	6.2	52012	D	.05	.08	.11	.16	.20	.26	.32	.39	.47	.56	.65	.75	.86	1.11	1.39	1.70	
	(50.8)	(9.23)		C	1107	888	742	638	561	501	453	414	382	355	332	312	295	266	243	224	
				D	.04	.06	.09	.12	.16	.21	.26	.31	.38	.44	.52	.60	.69	.89	1.11	1.36	
				U	1691	1083	753	554	425	337	273	226	151	141	123	109	87	71	59	59	50
STEEL	2 1/2	6.6	52512	D	.04	.06	.09	.13	.17	.21	.26	.32	.38	.45	.52	.60	.68	.87	1.09	1.33	1.60
12 ga.	(63.5)	(9.82)		C	1115	1115	1106	950	833	742	669	610	561	519	484	453	426	382	347	319	295
				D	.02	.04	.07	.10	.13	.17	.21	.25	.30	.36	.41	.48	.55	.70	.87	1.06	1.28
				U	2138	1370	952	701	537	425	345	286	241	206	178	155	137	109	89	74	63
	3	7.0	53012	D	.04	.06	.08	.11	.14	.18	.22	.27	.32	.38	.44	.51	.58	.74	.93	1.13	1.36
	(76.2)	(10.4)		C	1115	1115	1115	1115	1052	937	845	770	707	654	609	570	537	480	436	399	369
				D	.02	.03	.05	.08	.11	.15	.18	.22	.26	.31	.36	.41	.47	.60	.74	.90	10.9



8-Diamond Plank – 18¾" Width: Also in Aluminum

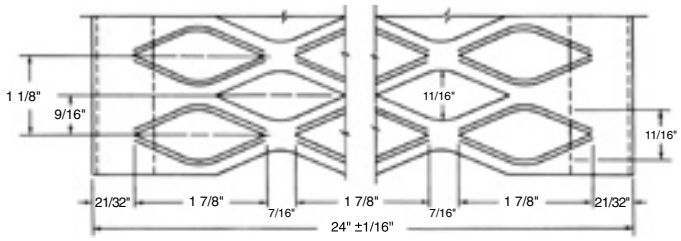


PRODUCT SELECTION/DESIGN TABLES

Allowable Loads and Deflections: U—uniform load (lb./ft^2) C—concentrated load (lb.) D—deflection (in.)
Spans to the left of heavy line produce a deflection of 1/4" or less under a uniform load of 100 lb./ft.^{2}

Material Gauge	Channel Depth in. (mm)	Weights lbs./lin ft. (kg/m)	Catalog Number		Span 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
				U	337	217	151	112	86	69	56	47									
	1 1/2	6.1	81514	D	0.33	0.27	0.26	0.29	0.33	0.38	0.45	0.55									
	(38.1)	(9.1)		C	263	211	178	153	135	121	110	101									
				D	0.16	0.15	0.15	0.16	0.17	0.19	0.22	0.25									
				U	540	358	250	184	142	113	92	76	65	55	48	42					
STEEL	2	6.3	82014	D	0.48	0.37	0.34	0.32	0.34	0.38	0.43	0.50	0.58	0.66	0.77	0.87					
14 ga.	(50.8)	(9.4)		C	437	349	292	251	220	198	179	164	152	141	132	124					
				D	0.24	0.21	0.20	0.19	0.20	0.21	0.23	0.26	0.29	0.32	0.36	0.40					
				U	540	411	286	211	162	129	105	87	74	63	55	48	43				
	2 1/2	6.6	82514	D	0.46	0.39	0.35	0.28	0.27	0.28	0.31	0.35	0.39	0.44	0.50	0.57	0.64				
	(63.5)	(9.8)		C	450	402	335	287	252	225	205	188	173	161	151	142	134				
				D	0.24	0.22	0.20	0.19	0.19	0.19	0.20	0.21	0.23	0.24	0.27	0.29	0.32				
				U	446	287	201	148	115	91	75	63	53	46	40						
	1 1/2	8.5	81512	D	0.27	0.22	0.22	0.26	0.32	0.39	0.47	0.56	0.67	0.80	0.92						
	(38.1)	(12.6)		C	359	280	235	203	179	161	146	135	125	117	110						
				D	0.12	0.12	0.12	0.14	0.16	0.19	0.22	0.26	0.30	0.35	0.40						
				U	710	456	318	235	181	144	117	98	83	71	62	54	48				
	2	8.9	82012	D	0.31	0.25	0.23	0.25	0.28	0.31	0.37	0.44	0.51	0.60	0.68	0.79	0.90				
STEEL	(50.8)	(13.2)		C	554	444	371	319	282	253	229	210	194	181	169	160	151				
12 ga.				D	0.17	0.15	0.14	0.15	0.16	0.17	0.19	0.22	0.25	0.28	0.32	0.36	0.40				
				U	810	680	473	348	267	212	172	143	120	103	89	78	69	55	45		
	2 1/2	9.2	82512	D	0.33	0.31	0.27	0.26	0.27	0.29	0.32	0.37	0.42	0.49	0.55	0.63	0.72	0.90	1.12		
	(63.5)	(13.7)		C	800	663	553	475	416	371	334	307	282	262	244	229	216	194	177		
				D	0.23	0.20	0.18	0.18	0.18	0.18	0.19	0.21	0.23	0.25	0.28	0.31	0.34	0.41	0.50		
				U	810	810	598	440	337	267	217	180	152	130	112	98	87	69	57	47	40
	3	9.6	83012	D	0.32	0.35	0.30	0.27	0.26	0.28	0.31	0.34	0.39	0.43	0.49	0.56	0.62	0.78	0.96	1.17	1.40
	(76.2)	(14.3)		C	800	800	699	600	526	468	422	385	353	327	307	288	271	243	221	203	189
				D	0.22	0.23	0.22	0.20	0.20	0.20	0.20	0.21	0.22	0.24	0.26	0.28	0.31	0.37	0.44	0.52	0.61

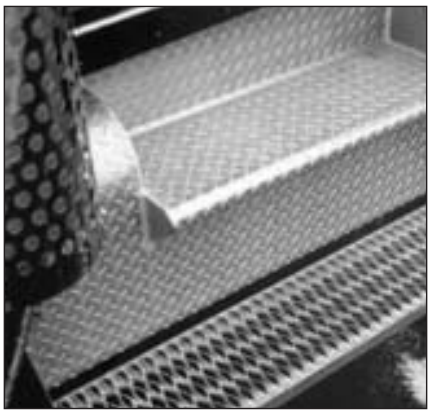
10-Diamond Plank – 24" Width



PRODUCT SELECTION/DESIGN TABLES

Allowable Loads and Deflections: U—uniform load (lb./ft^2) C—concentrated load (lb.) D—deflection (in.)
Spans to the left of heavy line produce a deflection of 1/4" or less under a uniform load of 100 lb./ft.^{2}

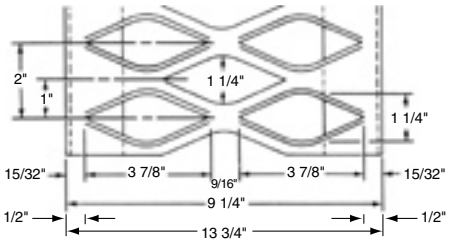
Material Gauge	Channel Depth in. (mm)	Weights lbs./lin ft. (kg/m)	Catalog Number		Span 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
				U	300	300	228	168	128	102	82	68	57	49	42						
	2	7.4	102014	D	0.46	0.48	0.42	0.38	0.38	0.41	0.44	0.49	0.55	0.62	0.70						
	(50.8)	(11.0)		C	400	400	343	294	257	229	206	187	172	158	147						
STEEL				D	0.34	0.35	0.32	0.30	0.29	0.29	0.30	0.31	0.33	0.35	0.37						
14 ga.				U	300	300	300	264	202	160	130	107	90	77	66	58	51	40			
	3	7.9	103014	D	0.42	0.43	0.46	0.44	0.39	0.36	0.35	0.36	0.39	0.44	0.45	0.49	0.54	0.65			
	(76.2)	(11.8)		C	400	400	400	400	400	360	324	295	270	249	232	216	203	180			
				D	0.33	0.33	0.34	0.35	0.37	0.35	0.33	0.33	0.32	0.32	0.33	0.34	0.35	0.38			
				U	475	416	289	212	162	128	104	86	72	62	53	46					
	2	10.4	102012	D	0.40	0.39	0.33	0.31	0.31	0.34	0.38	0.44	0.48	0.56	0.63	0.71					
	(50.8)	(15.5)		C	650	520	434	372	325	289	260	237	217	200	186	174					
STEEL				D	0.26	0.22	0.19	0.20	0.20	0.21	0.22	0.23	0.25	0.28	0.31	0.34					
12 ga.				U	475	475	475	392	300	237	192	159	133	114	98	85	75	59	48		
	3	11.1	103012	D	0.38	0.39	0.42	0.38	0.36	0.34	0.35	0.37	0.39	0.43	0.47	0.52	0.58	0.70	0.85		
	(76.2)	(16.5)		C	900	900	800	686	600	534	480	437	400	369	343	320	300	267	240		
				D	0.34	0.35	0.33	0.29	0.27	0.26	0.26	0.26	0.26	0.27	0.29	0.30	0.32	0.36	0.41		



Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

"H" Series 2-Diamond Plank – 9¼" Width: Also in 9 Ga. Steel and Aluminum



PLANK SELECTION & DESIGN LOADS/DEFLECTIONS

Material Gauge	Channel Depth in. (mm)	Weights lbs./ft.	Catalog Number	Clear Span 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
STEEL 11 ga.	2	6.6	H22011	U	2413	1544	1027	788	629	476	385	319	270	228	196	172	150	119	98	81	67
				D	0.05	0.08	0.11	0.15	0.19	0.24	0.30	0.35	0.41	0.47	0.54	0.62	0.69	0.85	1.04	1.24	1.45
				C	1860	1488	1240	1063	930	827	744	677	620	572	531	496	465	413	372	338	310
				D	0.04	0.06	0.09	0.12	0.15	0.19	0.24	0.28	0.33	0.38	0.44	0.49	0.55	0.68	0.81	0.98	1.16
	2 1/2	7.0	H22511	U	3657	2340	1625	1194	914	722	585	483	406	347	298	259	228	182	147	122	102
				D	0.05	0.07	0.10	0.14	0.18	0.23	0.27	0.32	0.36	0.42	0.49	0.55	0.62	0.79	0.96	1.15	1.35
				C	2820	2256	1880	1611	1410	1254	1128	1025	940	868	806	752	705	626	564	513	470
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
	3	7.5	H23011	U	3892	2490	1731	1272	974	767	623	515	431	368	319	276	242	193	154	130	109
				D	0.04	0.06	0.08	0.11	0.15	0.18	0.22	0.26	0.30	0.34	0.39	0.44	0.48	0.58	0.68	0.80	0.95
				C	3000	2400	2000	1715	1500	1333	1180	1091	1000	923	857	800	750	667	600	545	500
				D	0.03	0.05	0.07	0.09	0.12	0.15	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.47	0.55	0.64	0.76
	4	8.3	H24011	U	6382	4084	2837	2084	1598	1261	1022	844	707	606	522	455	400	315	256	211	176
				D	0.03	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.23	0.27	0.31	0.35	0.39	0.47	0.56	0.66	0.78
				C	4920	3936	3280	2812	2460	2187	1968	1789	1640	1514	1406	1312	1230	1094	935	895	820
				D	0.03	0.04	0.06	0.07	0.09	0.11	0.14	0.16	0.19	0.22	0.25	0.28	0.31	0.38	0.45	0.53	0.63
STEEL 10 ga.	2	7.4	H22010	U	2681	1716	1141	876	699	529	428	354	300	253	218	191	167	132	109	90	74
				D	0.05	0.08	0.11	0.15	0.19	0.24	0.30	0.35	0.41	0.47	0.54	0.62	0.69	0.85	1.04	1.24	1.45
				C	2067	1653	1378	1181	1033	919	827	752	689	636	590	551	517	459	413	376	344
				D	0.04	0.06	0.09	0.12	0.15	0.19	0.24	0.28	0.33	0.38	0.44	0.49	0.55	0.68	0.81	0.98	1.16
	2 1/2	7.9	H22510	U	4063	2600	1806	1327	1016	802	650	537	451	385	331	288	253	202	163	136	113
				D	0.05	0.07	0.10	0.14	0.18	0.23	0.27	0.32	0.36	0.42	0.49	0.55	0.62	0.79	0.96	1.15	1.35
				C	3133	2507	2089	1790	1567	1393	1253	1139	1044	964	895	836	783	696	627	570	522
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
	3	8.4	H23010	U	4324	2767	1923	1413	1082	852	692	572	479	409	354	307	269	214	171	144	121
				D	0.04	0.06	0.08	0.11	0.15	0.18	0.22	0.26	0.30	0.34	0.39	0.44	0.48	0.58	0.68	0.80	0.95
				C	3333	2667	2222	1905	1667	1481	1311	1212	1111	1026	952	889	833	741	667	606	556
				D	0.03	0.05	0.07	0.09	0.12	0.15	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.47	0.55	0.64	0.76
	4	10.3	H24010	U	7091	4538	3152	2316	1775	1401	1136	938	786	673	580	506	444	350	284	234	195
				D	0.03	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.23	0.27	0.31	0.35	0.39	0.47	0.56	0.66	0.78
				C	5467	4373	3644	3124	2733	2430	2187	1988	1822	1682	1562	1458	1367	1215	1039	994	911
				D	0.03	0.04	0.06	0.07	0.09	0.11	0.14	0.16	0.19	0.22	0.25	0.28	0.31	0.38	0.45	0.53	0.63

H-Series

Heavy Duty GRIP STRUT®

Gratings for greater loads, safer walking

- High strength-to-weight ratio—efficient structural design means large-load capacity with low dead weight.
- Slip-resisting surface—scores of tiny teeth grip shoes tightly (exceeds Federal Spec. RR-G-1602A slip resistance requirements)
- Open design—sheds slip-causing stones, dirt and debris
- Slip-resisting serrated or less harsh non-serrated wearing surfaces tailor long life to diverse service conditions
- Complete line of products, design data, support services
- Handrail brackets available for maximum safety and meeting OSHA requirements
- Splice plates speed assembly without welding

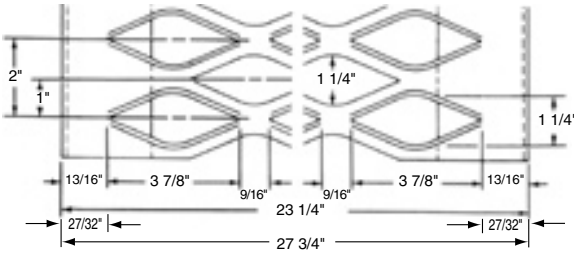
"H" Series 3-Diamond Plank – 13¾" Width: Also in 9 Ga. Steel and Aluminum

PLANK SELECTION & DESIGN LOADS/DEFLECTIONS

Material Gauge	Channel Depth in. (mm)	Weights lbs./ft.	Catalog Number	Clear Span 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
STEEL 11 ga.	2	8.5	H32011	U	1624	1039	721	530	405	320	259	214	182	153	132	115	102	80	66	54	45
				D	0.05	0.08	0.11	0.15	0.19	0.24	0.30	0.35	0.41	0.47	0.54	0.62	0.69	0.85	1.04	1.24	1.45
				C	1860	1488	1240	1063	930	827	744	677	620	572	531	496	465	413	372	338	310
				D	0.04	0.06	0.09	0.12	0.15	.19	0.24	0.28	0.33	0.38	0.44	0.49	0.55	0.68	0.81	0.98	1.16
	2 1/2	8.9	H32511	U	2460	1615	1093	804	615	485	393	325	274	233	201	175	153	122	99	83	68
				D	0.05	0.07	0.10	0.14	0.18	0.23	0.27	0.32	0.36	0.42	0.49	0.55	0.62	0.79	0.96	1.15	1.35
				C	2820	2256	1880	1611	1410	1254	1128	1025	940	868	806	752	705	626	564	513	470
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
	3	9.3	H33011	U	2618	1676	1164	855	655	516	419	347	290	248	214	186	163	130	104	87	73
				D	0.04	0.06	0.08	0.11	0.15	0.18	0.22	0.26	0.30	0.34	0.39	0.44	0.48	0.58	0.68	0.80	0.95
				C	3000	2400	2000	1715	1500	1333	1180	1091	1000	923	857	800	750	667	600	545	500
				D	0.03	0.05	0.07	0.09	0.12	0.15	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.47	0.55	0.64	0.76
	4	10.1	H34011	U	4293	2748	1909	1402	1075	849	689	568	476	408	351	306	268	212	172	141	118
				D	0.03	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.23	0.27	0.31	0.35	0.39	0.47	0.56	0.66	0.78
				C	4920	3936	3280	2812	2460	2187	1968	1789	1640	1514	1406	1312	1230	1094	935	895	820
				D	0.03	0.04	0.06	0.07	0.09	0.11	0.14	0.16	0.19	0.22	0.25	0.28	0.31	0.38	0.45	0.53	0.63
STEEL 10 ga.	2	9.5	H32010	U	1804	1154	801	589	450	356	288	238	202	170	147	128	113	89	73	60	50
				D	0.05	0.08	0.11	0.15	0.19	0.24	0.30	0.35	0.41	0.47	0.54	0.62	0.69	0.85	1.04	1.24	1.45
				C	2067	1653	1378	1181	1033	919	827	752	689	636	590	551	517	459	413	376	344
				D	0.04	0.06	0.09	0.12	0.15	0.19	0.24	0.28	0.33	0.38	0.44	0.49	0.55	0.68	0.81	0.98	1.16
	2 1/2	10.0	H32510	U	2733	1794	1214	893	683	539	437	361	304	259	223	194	170	136	110	92	76
				D	0.05	0.07	0.10	0.14	0.18	0.23	0.27	0.32	0.36	0.42	0.49	0.55	0.62	0.79	0.96	1.15	1.35
				C	3133	2507	2089	1790	1567	1393	1253	1139	1044	964	895	836	783	696	627	570	522
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
	3	10.5	H33010	U	2909	1862	1293	950	728	573	466	385	322	275	238	207	181	144	115	97	81
				D	0.04	0.06	0.08	0.11	0.15	0.18	0.22	0.26	0.30	0.34	0.39	0.44	0.48	0.58	0.68	0.80	0.95
				C	3333	2667	2222	1905	1667	1481	1311	1212	1111	1026	952	889	833	741	667	606	556
				D	0.03	0.05	0.07	0.09	0.12	0.15	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.47	0.56	0.64	0.76
	4	11.4	H34010	U	4770	3063	2121	1558	1194	943	765	631	529	453	390	340	298	236	191	157	131
				D	0.03	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.23	0.27	0.31	0.35	0.39	0.47	0.56	0.66	0.78
				C	5467	4373	3644	3124	2733	2430	2187	1988	1822	1682	1562	1458	1367	1215	1039	994	911
				D	0.03	0.04	0.06	0.07	0.09	0.11	0.14	0.16	0.19	0.22	0.25	0.28	0.31	0.38	0.45	0.53	0.63

Heavy Duty GRIP STRUT® Safety Grating products offer the advantages of Regular GRIP STRUT® Safety Grating, but are designed for applications of greater load and/or longer span. Basic design is the same, but diamond openings are larger and metal is thicker. Heavy-Duty Grating products are available in many of the same configurations, materials and finishes as Regular GRIP STRUT® Grating products and include: planks, walkways and stairtreads.

"H" Series 5-Diamond Plank – 23¼" Width: Also in 9 Ga. Steel



PLANK SELECTION & DESIGN LOADS/DEFLECTIONS

Material Gauge	Plank: Channel Depth in. (mm)	Plank: Weights lbs./ft.	Plank: Catalog Number	Clear Span: 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
STEEL 11 ga.	2	12.7	H52011	U	930	595	413	304	232	184	149	123	104	88	76	66	58	46	38	31	26
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
				C	1860	1488	1240	1063	930	827	744	677	620	572	531	496	465	413	372	338	310
				D	0.04	0.06	0.09	0.12	0.15	0.19	0.24	0.28	0.33	0.38	0.44	0.49	0.55	0.68	0.81	0.98	1.16
	2 1/2	13.1	H52511	U	1409	925	626	460	352	278	225	186	157	134	115	100	88	70	57	47	39
				D	0.03	0.05	0.07	0.09	0.12	0.15	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.47	0.55	0.64	0.76
				C	2820	2256	1880	1611	1410	1254	1128	1025	940	868	806	752	705	626	564	513	470
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
	3	13.6	H53011	U	1547	989	687	504	387	305	247	204	170	146	125	110	96	76	60	51	42
				D	0.04	0.06	0.08	0.11	0.15	0.18	0.22	0.26	0.30	0.34	0.39	0.44	0.48	0.58	0.68	0.80	0.95
				C	3000	2400	2000	1715	1500	1333	1180	1091	1000	923	857	800	750	667	600	545	500
				D	0.03	0.05	0.07	0.09	0.12	0.15	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.47	0.55	0.64	0.76
	4	14.4	H54011	U	2538	1624	1129	828	635	502	406	334	280	240	207	181	158	125	101	84	70
				D	0.03	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.23	0.27	0.31	0.35	0.39	0.47	0.56	0.66	0.78
				C	4920	3936	3280	2812	2460	2187	1968	1789	1640	1514	1406	1312	1230	1094	935	895	820
				D	0.03	0.04	0.06	0.07	0.09	0.11	0.14	0.16	0.19	0.22	0.25	0.28	0.31	0.38	0.45	0.53	0.63
STEEL 10 ga.	2	14.4	H52010	U	1034	661	459	337	258	204	165	136	116	97	84	73	65	51	42	34	29
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
				C	2067	1653	1378	1181	1033	919	827	752	689	636	590	551	517	459	413	376	344
				D	0.04	0.06	0.09	0.12	0.15	0.19	0.24	0.28	0.33	0.38	0.44	0.49	0.55	0.68	0.81	0.98	1.16
	2 1/2	14.9	H52510	U	1617	1034	718	528	404	319	259	214	180	153	132	115	101	81	65	54	45
				D	0.05	0.07	0.10	0.14	0.18	0.23	0.27	0.32	0.36	0.42	0.49	0.55	0.62	0.79	0.96	1.15	1.35
				C	3133	2507	2089	1790	1567	1393	1253	1139	1044	964	895	836	783	696	627	570	522
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
	3	15.4	H53010	U	1720	1101	765	562	430	339	276	228	190	163	141	122	107	85	68	57	48
				D	0.04	0.06	0.08	0.11	0.15	0.18	0.22	0.26	0.30	0.34	0.39	0.44	0.48	0.58	0.68	0.80	0.95
				C	3333	2667	2222	1905	1667	1481	1311	1212	1111	1026	952	889	833	741	667	606	556
				D	0.03	0.05	0.07	0.09	0.12	0.15	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.47	0.55	0.64	0.76
	4	16.4	H54010	U	2821	1805	1254	921	706	557	452	373	312	268	231	201	177	139	113	93	77
				D	0.03	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.23	0.27	0.31	0.35	0.39	0.47	0.56	0.66	0.78
				C	5467	4373	3644	3124	2733	2430	2187	1988	1822	1682	1562	1458	1367	1215	1039	994	911
				D	0.03	0.04	0.06	0.07	0.09	0.11	0.14	0.16	0.19	0.22	0.25	0.28	0.31	0.38	0.45	0.53	0.63

"H" Series 6-Diamond Plank – 27¾" Width: Also in 9 Ga. Steel

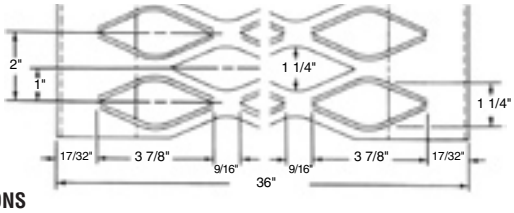
PLANK SELECTION & DESIGN LOADS/DEFLECTIONS

Material Gauge	Plank: Channel Depth in. (mm)	Plank: Weights lbs./ft.	Plank: Catalog Number	Clear Span: 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
STEEL 11 ga.	2	14.3	H62011	U	830	530	368	271	206	163	132	108	93	78	67	59	51	40	34	27	22
				D	0.05	0.08	0.11	0.15	0.19	0.24	0.30	0.35	0.41	0.47	0.54	0.62	0.69	0.85	1.04	1.24	1.45
				C	1860	1488	1240	1063	930	827	744	677	620	572	531	496	465	413	372	338	310
				D	0.04	0.06	0.09	0.12	0.15	0.19	0.24	0.28	0.33	0.38	0.44	0.49	0.55	0.68	0.81	0.98	1.16
	2 1/2	14.7	H62511	U	1258	805	559	410	313	247	201	166	139	119	102	88	78	61	49	42	35
				D	0.05	0.07	0.10	0.14	0.18	0.23	0.27	0.32	0.36	0.42	0.49	0.55	0.62	0.79	0.96	1.15	1.35
				C	2820	2256	1880	1611	1410	1254	1128	1025	940	868	806	752	705	626	564	513	470
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
	3	15.2	H63011	U	1338	855	594	436	335	264	214	176	147	126	108	95	83	66	52	44	36
				D	0.04	0.06	0.08	0.11	0.15	0.18	0.22	0.26	0.30	0.34	0.39	0.44	0.48	0.58	0.68	0.80	0.95
				C	3000	2400	2000	1715	1500	1333	1180	1091	1000	923	857	800	750	667	600	545	500
				D	0.03	0.05	0.07	0.09	0.12	0.15	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.47	0.55	0.64	0.76
	4	16.0	H64011	U	2234	1405	976	716	549	434	351	289	242	208	179	157	137	108	87	73	61
				D	0.03	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.23	0.27	0.31	0.35	0.39	0.47	0.56	0.66	0.78
				C	4920	3936	3280	2812	2460	2187	1968	1789	1640	1514	1406	1312	1230	1094	935	895	820
				D	0.03	0.04	0.06	0.07	0.09	0.11	0.14	0.16	0.19	0.22	0.25	0.28	0.31	0.38	0.45	0.53	0.63
STEEL 10 ga.	2	16.2	H62010	U	923	590	410	301	230	182	147	122	103	87	75	66	58	46	37	31	25
				D	0.05	0.08	0.11	0.15	0.19	0.24	0.30	0.35	0.41	0.47	0.54	0.62	0.69	0.85	1.04	1.24	1.45
				C	2067	1653	1378	1181	1033	919	827	752	689	636	590	551	517	459	413	376	344
				D	0.04	0.06	0.09	0.12	0.15	0.19	0.24	0.28	0.33	0.38	0.44	0.49	0.55	0.68	0.81	0.98	1.16
	2 1/2	16.7	H62510	U	1398	894	621	457	349	276	224	185	156	132	114	99	87	70	56	47	39
				D	0.05	0.07	0.10	0.14	0.18	0.23	0.27	0.32	0.36	0.42	0.49	0.55	0.62	0.79	0.96	1.15	1.35
				C	3133	2507	2089	1790	1567	1393	1253	1139	1044	964	895	836	783	696	627	570	522
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
	3	17.2	H63010	U	1488	952	662	486	372	293	239	197	164	141	122	106	93	74	59	49	42
				D	0.04	0.06	0.08	0.11	0.15	0.18	0.22	0.26	0.30	0.34	0.39	0.44	0.48	0.58	0.68	0.80	0.95
				C	3333	2667	2222	1905	1667	1481	1311	1212	1111	1026	952	889	833	741	667	606	556
				D	0.03	0.05	0.07	0.09	0.12	0.15	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.47	0.55	0.64	0.76
	4	18.2	H64010	U	2440	1561	1805	797	611	482	391	323	270	232	200	174	153	120	98	80	67
				D	0.03	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.23	0.27	0.31	0.35	0.39	0.47	0.56	0.66	0.78
				C	5467	4373	3644	3124	2733	2430	2187	1988	1822	1682	1562	1458	1367	1215	1039	994	911
				D	0.03	0.04	0.06	0.07	0.09	0.11	0.14	0.16	0.19	0.22	0.25	0.28	0.31	0.38	0.45	0.53	0.63

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

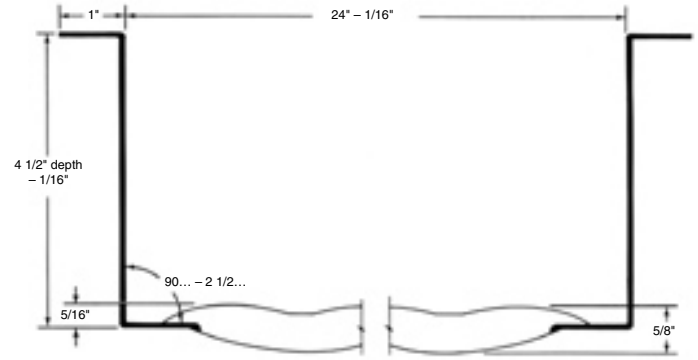
"H" Series 8-Diamond Plank – 36" Width: Also in 9 Ga. Steel

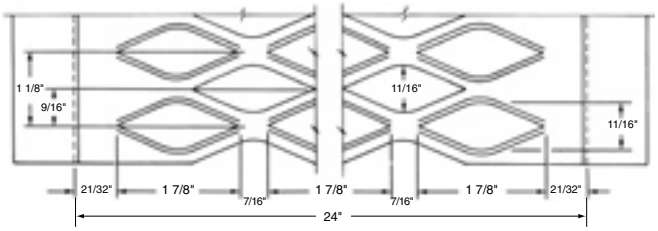


PLANK SELECTION & DESIGN LOADS/DEFLECTIONS

Material Gauge	Channel Depth in. (mm)	Weights lbs./ft.	Catalog Number		Clear Span 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
STEEL 11 ga.	2	18.0	H82011	U	620	397	275	203	155	122	99	82	69	59	50	44	39	31	25	21	17
				D	0.05	0.08	0.11	0.15	0.19	0.24	0.30	0.35	0.41	0.47	0.54	0.62	0.69	0.85	1.04	1.24	1.45
				C	1860	1488	1240	1063	930	827	744	677	620	572	531	496	465	413	372	338	310
				D	0.04	0.06	0.09	0.12	0.15	0.19	0.24	0.28	0.33	0.38	0.44	0.49	0.55	0.68	0.81	0.98	1.16
	2 1/2	18.4	H82511	U	940	601	418	307	235	185	150	124	104	89	77	67	59	47	38	32	26
				D	0.05	0.07	0.10	0.14	0.18	0.23	0.27	0.32	0.36	0.42	.049	.055	.062	.079	0.96	1.15	1.35
				C	2820	2256	1880	1611	1410	1254	1128	1025	940	868	806	752	705	626	564	513	470
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
	3	18.9	H83011	U	1000	640	445	327	250	197	160	132	111	95	82	71	62	50	40	33	28
				D	0.04	0.06	0.08	0.11	0.15	0.18	0.22	0.26	0.30	0.34	0.39	0.44	0.48	0.58	0.68	0.80	0.95
				C	3000	2400	2000	1715	1500	1333	1180	1091	1000	923	857	800	750	667	600	545	500
				D	0.03	0.05	0.07	0.09	0.12	0.15	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.47	0.55	0.64	0.76
	4	19.7	H84011	U	1640	1049	729	536	410	324	263	217	182	156	134	117	103	81	66	54	45
				D	0.03	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.23	0.27	0.31	0.35	0.39	0.47	0.56	0.66	0.78
				C	4920	3936	3280	2812	2460	2187	1968	1789	1640	1514	1406	1312	1230	1094	935	895	820
				D	0.03	0.04	0.06	0.07	0.09	0.11	0.14	0.16	0.19	0.22	0.25	0.28	0.31	0.38	0.45	0.53	0.63
STEEL 10 ga.	2	19.9	H82010	U	689	441	306	225	172	136	110	91	77	65	56	49	43	34	28	23	19
				D	0.05	0.08	0.11	0.15	0.19	0.24	0.30	0.35	0.41	0.47	0.54	0.62	0.69	0.85	1.04	1.24	1.45
				C	2067	1653	1378	1181	1033	919	827	752	689	636	590	551	517	459	413	376	344
				D	0.04	0.06	0.09	0.12	0.15	0.19	0.24	0.28	0.33	0.38	0.44	0.49	0.55	0.68	0.81	0.98	1.16
	2 1/2	20.4	H82510	U	1044	668	464	341	261	206	167	138	116	99	85	74	65	52	42	35	29
				D	0.05	0.07	0.10	0.14	0.18	0.23	0.27	0.32	0.36	0.42	0.49	0.55	0.62	0.79	0.96	1.15	1.35
				C	3133	2507	2089	1790	1567	1393	1253	1139	1044	964	895	836	783	696	627	570	522
				D	0.04	0.06	0.08	0.11	0.14	0.18	0.22	0.25	0.29	0.34	0.39	0.44	0.50	0.63	0.76	0.91	1.08
	3	20.9	H83010	U	1111	711	494	363	278	219	178	147	123	105	91	79	69	55	44	37	31
				D	0.04	0.06	0.08	0.11	0.15	0.18	0.22	0.26	0.30	0.34	0.39	0.44	0.48	0.58	0.68	0.80	0.95
				C	3333	2667	2222	1905	1667	1481	1311	1212	1111	1026	952	889	833	741	667	606	556
				D	0.03	0.05	0.07	0.09	0.12	0.15	0.17	0.21	0.24	0.28	0.31	0.35	0.39	0.47	0.55	0.64	0.76
	4	21.8	H84010		1822	1166	810	595	456	360	292	241	202	173	149	130	114	90	73	60	50
					0.03	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.23	0.27	0.31	0.35	0.39	0.47	0.56	0.66	0.78
					5467	4373	3644	3124	2733	2430	2187	1988	1822	1682	1562	1458	1367	1215	1039	994	911
					0.03	0.04	0.06	0.07	0.09	0.11	0.14	0.16	0.19	0.22	0.25	0.28	0.31	0.38	0.45	0.53	0.63

10-Diamond Walkway – 24" Width: Also available in "H" Series





PRODUCT SELECTION/DESIGN TABLES

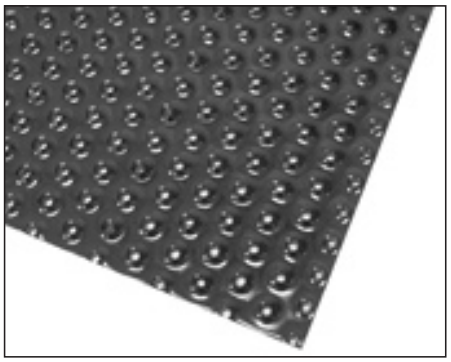
Allowable Loads and Deflections: U—uniform load (lb./ft^2) C—concentrated load (lb.) D—deflection (in.)
Spans to the left of heavy line produce a deflection of 1/4" or less under a uniform load of 100 lb./ft.^{2}

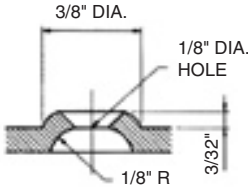
Material Gauge	Weights lbs/lin.ft. (kg/m)	Catalog Number		Clear Span 2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	9'0"	10'0"	11'0"	12'0"
STEEL 14 ga.	8.9 (13.2)	104514-U	U	300	300	300	300	300	263	213	176	148	126	109	95	83	66	53	43	
			D	0.41	0.41	0.42	0.45	0.48	0.47	0.42	0.40	0.40	0.41	0.43	0.45	0.47	0.55	0.64	0.75	
			C	400	400	400	400	400	400	400	400	400	400	380	355	333	296	266	242	
			D	0.32	0.33	0.33	0.33	0.34	0.35	0.36	0.38	0.39	0.41	0.42	0.41	0.41	0.42	0.44	0.47	
STEEL 12 ga.	12.5 (18.6)	104512-U	U	475	475	475	475	475	420	340	281	236	201	173	151	133	105	85	70	59
			D	.037	.037	.038	0.40	0.43	0.43	0.39	0.37	0.37	0.37	0.39	0.41	0.44	0.51	0.59	0.69	0.80
			C	900	900	900	900	900	900	850	773	709	654	607	567	531	472	425	387	354
			D	0.34	0.34	0.35	0.35	0.36	0.37	0.37	0.35	0.34	0.33	0.33	0.33	0.33	0.35	0.37	0.40	0.44

Traction™ Tread

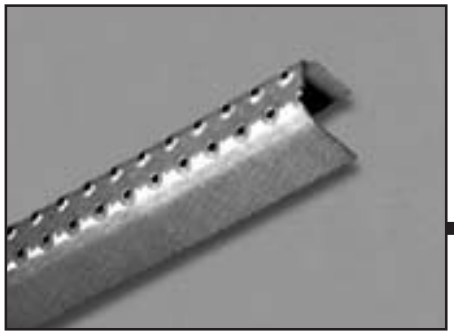
Traction Tread™ Flooring, Planks and Ladder Rungs feature a surface with hundreds of perforated buttons that provide slip-resistance in all directions, making it a practical choice for industrial applications. Traction Tread™ is also appropriate for commercial applications where pedestrian traffic is a consideration, perfectly suited for ADA-compliant requirements.

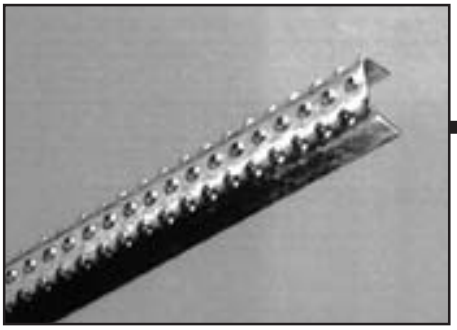
Traction Tread™ is easily adapted for a multitude of applications offering a safe walking-working surface for walkways, ramps, stair treads and equipment platforms. Traction Tread™ is ideal for the manufacture of special and fabricated products, and is often used as a reconditioning material over existing surfaces that do not provide slip-resistance.

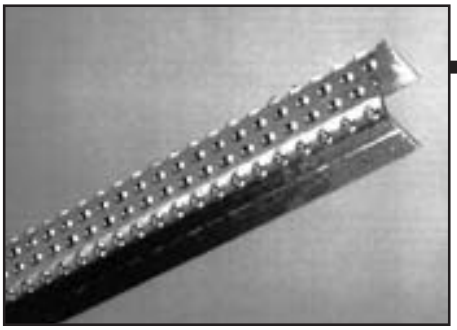




Dimple Detail







Traction Tread™ Ladder Rungs

2-Hole Ladder Rung

- Hot rolled, pickled and oiled carbon steel
  13- gauge (1.2 lb / lf)
- Aluminum alloy 5052-H32
  .125" (0.5 lb / lf)
- 1¼" Wide x 1½" Height x 48" or 60" Length

3-Hole Ladder Rung

- Hot rolled, pickled and oiled carbon steel
  13- gauge (1.3 lb / lf)
- Aluminum alloy 5052-H32
  .125" (0.5 lb / lf)
- 1⅝" Wide x 1⅛" Height x 48" or 60" Length

Also in 16GA Stainless

4-Hole Ladder Rung

- Hot rolled, pickled and oiled carbon steel
  13- gauge (1.5 lb / lf)
- Aluminum alloy 5052-H32
  .125" (0.7 lb / lf)
- 2¼" Wide x 1½" Height x 48" or 60" Length

Also in 16GA Stainless

Traction Tread™ Flooring

Traction Tread™ Flooring is readily available in stock sheets designed for secondary fabrication requirements.

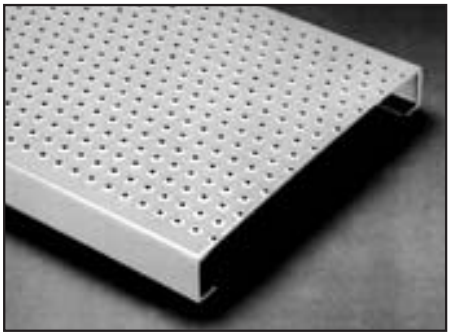
Material Options

- Hot rolled, pickled and oiled carbon steel
  11- gauge (5.0 lb / sq. ft.)
  13- gauge (3.8 lb / sq. ft.)
  16- gauge (2.5 lb / sq. ft.)
- Aluminum alloy 5052-H32
  .125 (1.6 lb / sq. ft.)

Sheet Size

- Standard 36" x 120"
- Cut to order

Traction Tread™ Plank

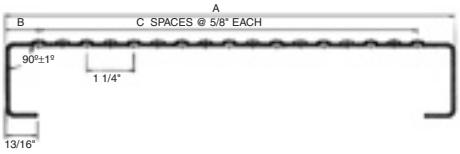


Material Options

- Hot rolled, pickled and oiled carbon steel: 11- gauge and 13- gauge
- Mill-galvanized steel: 11- gauge and 13- gauge
- Aluminum alloy 5052-H32 .125"

Plank Dimensions

- 7", 10" and 12" Widths (nominal)
- 120" or 144" Lengths (nominal)
- 1½ " (min) or 2" (standard) Channel Height



PRODUCT	A	B	C	ROWS OF BUTTONS
12" WIDE	11 7/8	15/16	16	17
10" WIDE	9 7/8	7/8	13	14
7" WIDE	6 7/8	15/16	8	9

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

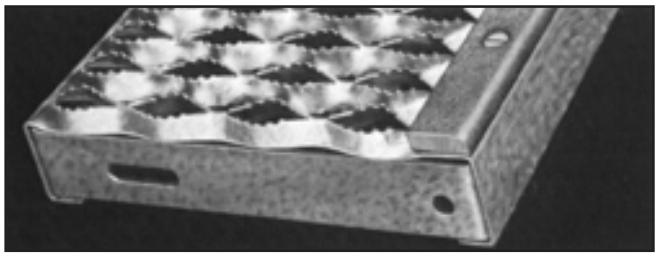
Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Grip Strut® Stair Treads and Ladder Rungs: Also available in Aluminum and Stainless Steel

Standard Sizes and Recommended Spans[1]

STEEL			STANDARD STAIR TREADS		STAIR TREADS WITH ABRASIVE NOSING	
Span in.	Gauge	Channel Depth—In.	Catalog Number	Size in.	Catalog Number	Size in.
Up to 30	14	1½	T-21514 T-31514 T-41514 T-51514	2-Dia.—4½ 3-Dia.—7 4-Dia.—9½ 5-Dia.—11¾	— T-31514-N T-41514-N —	— 3-Dia.—8⅛ 4-Dia.—10½
30 to 36	14	1½	T-21514 T-31514 T-41514 T-51514	2-Dia.—4½ 3-Dia.—7 4-Dia.—9½ 5-Dia.—11¾	— T-31514-N T-41514-N —	— 3-Dia.—8⅛ 4-Dia.—10½
36 to 42	14	1½	T-21514 T-31514 T-41514 T-51514	2-Dia.—4½ 3-Dia.—7 4-Dia.—9½ 5-Dia.—11¾	— T-31514-N T-41514-N —	— 3-Dia.—8⅛ 4-Dia.—10½
42 to 48	14	2	T-22014 T-32014 T-42014 T-52014	2-Dia.—4½ 3-Dia.—7 4-Dia.—9½ 5-Dia.—11¾	— T-32014-N T-42014-N —	— 3-Dia.—8⅛ 4-Dia.—10½

Standard

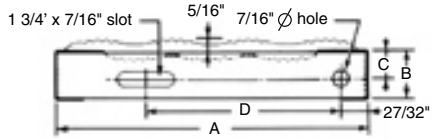


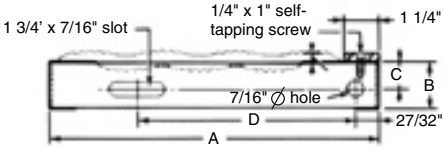
Abrasive Nosing

Steel, Aluminum and Stainless Steel[1]

Standard				With Abrasive Nosing			
A	B	C	D	A	B	C	D
4¾" (2-dia.)	1½" 2"	¾" 1"	2⅛" 2½"	—	—	—	—
7" (3-Dia.)	1½" 2"	¾" 1"	3⅜" 3⅜"	8⅛" (3-Dia.)	1½" 2"	¾" 1"	4½" 4½"
9½" (4-Dia.)	1½" 2"	¾" 1"	5⅛" 5⅛"	10½" (4-Dia.)	1½" 2"	¾" 1"	6⅛" 6⅛"
11¾" (5-Dia.)	1½" 2"	¾" 1"	8⅛" 8⅛"	—	—	—	—

(1) Stainless steel not available in 2- and 3-Diamond widths.

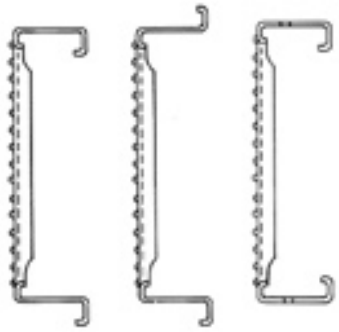


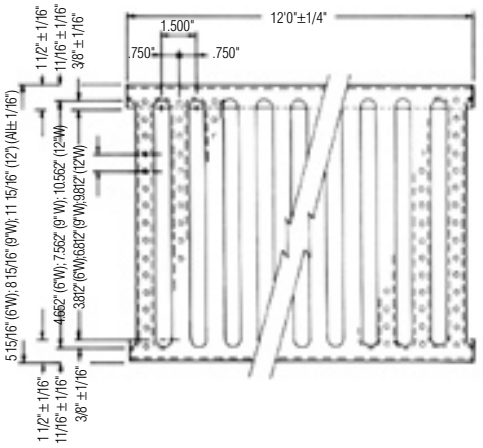


dimensions A, B, C and D have a tolerance of ±1/16"

Grate-Lock™ Grating
Strength, Safety, Selection and Savings
for Mezzanine Flooring, Signboard Walkways, Inspection Work Platforms, Trench Covers and Rack Decking

Grate-Lock Non-Slip Grating
System Components - Plank Sections





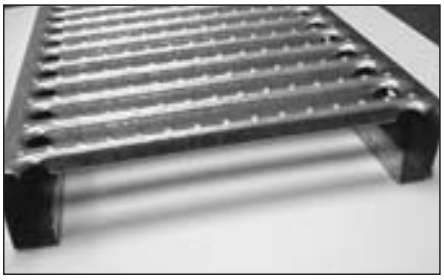
Widths	3", 4"*	6"	9"	12"
Heights	1½"**	2½"	3"	4"
Gauges	18	16	14	
Lengths	12', 20', 24'			

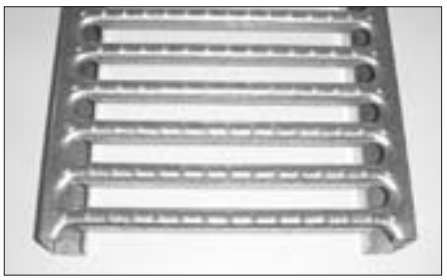
Other Lengths Available

*3" and 4" filler plank is solid. FM interlock.
**The 1½" product differs in rung detail and loading capabilities.

Grating Materials

a. Type: Grate-Lock Grating
b. Metal: (carbon steel)(hot dipped, mill-galvanized steel)
c. Finish: (mill-galvanized before fabrication, ASTM A525)
d. Metal gauge: (14-ga. steel) (16-ga. steel) (18-ga. steel)
e. Section width: (12")(9")(6")(3",4"-supplied by FM flange only)
f. Channel height: (1½")(2½")(3")(4")
g. Standard lengths: 12', 20', 24' (other lengths to order)
h. Flange options: (FM)(MM)(FF)
i. Surface condition: (MG-traction grip)(MS-smooth)





Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Safety Grip® Channel

PRODUCT DESCRIPTION

Safety-Grip® is a one-piece metal plank-type grating manufactured by a cold forming process in the shape of a channel. The web of the channel is the walking surface and has large debossed holes, surrounded by smaller embossed traction buttons.

MATERIAL SPECIFICATIONS

Grating shall be "Safety Grip® Channel," manufactured from (see'Selections' right) and complete with a (1½", 2", 3") side channel depth.

FEATURES & BENEFITS

1. Embossed traction buttons provide superior slip resistance in all directions and in all weather conditions.
2. Large debossed holes provide maximum drainage of debris or allow up to 50% free air opening depending on channel width.
3. Self-cleaning due to resilience of walking surface.
4. One-piece metal construction.
5. Light-weight design provides high strength to weight ratio.
6. Long life span requiring little maintenance.
7. Simple and economical installation as planks are self-framing.
8. Adaptable to cost effective custom fabrication.
9. Can be easily formed in standard channel or custom shapes.

SELECTIONS

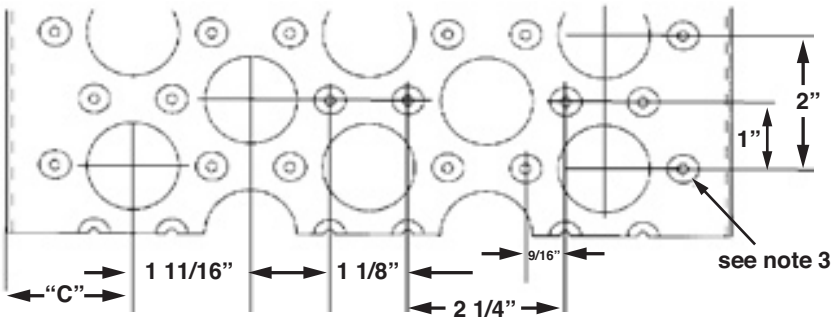
- ASTM-A-526, G-90 (Z-275) Pregalvanized 13 or 11 gauge steel.
- ASTM-A-569, HRP&O 13 or 11 gauge steel.
- 5052H32 Aluminum .125" thick (up to 18" width).
- Type 316L 2B Stainless Steel 14 gauge (up to 12" width).
- Type 304 2B Stainless Steel 16 gauge (up to 12" width).

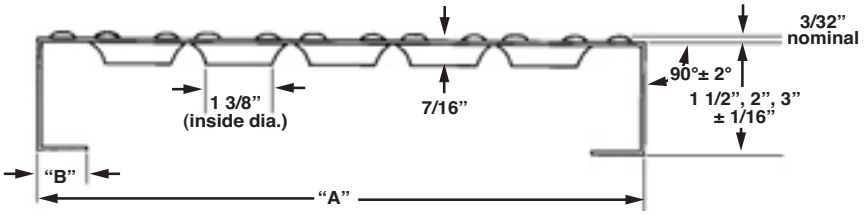
Channel Width	Return Flange	Hole to Channel Edge
"A"	"B"	"C"
**5"	7/8"	1 21/32"
7"	1"	1 13/16"
10"	7/8"	1 5/8"
**12"	1"	1 25/32"
**18"	1"	1 13/32"
24"	1 1/8"	1 7/8"
**30"	1 1/8"	2 11/32"

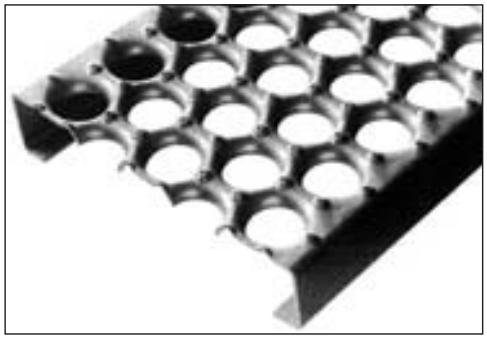
Note: 1. Tolerance on A, B, & C dimensions is ± 1/8".

2. Hole pattern shown on diagram is even. Widths indicated with ** have a staggered hole pattern.

3. Outside traction buttons on all widths except 18" & 24" width.

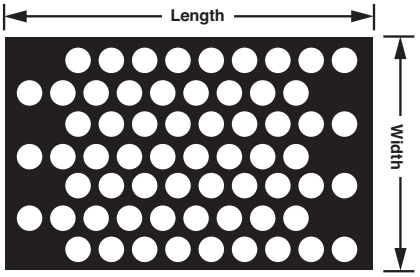






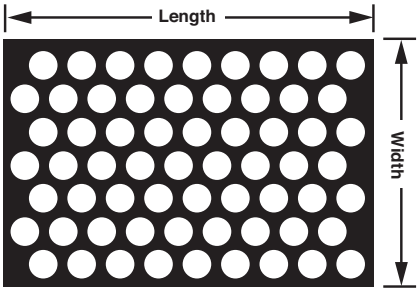
Types of Perforations Available

EXAMPLE OF "UNFINISHED END PATTERN"

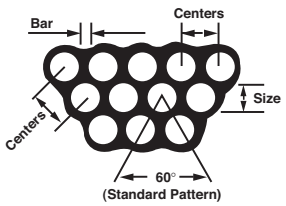


STANDARD

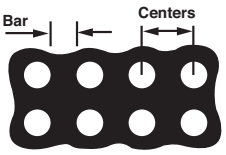
EXAMPLE OF "FINISHED END PATTERN"



NON-STANDARD

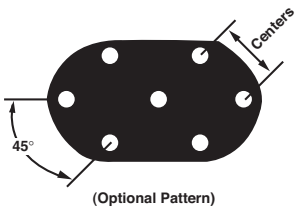


ROUND PERFORATIONS STAGGERED



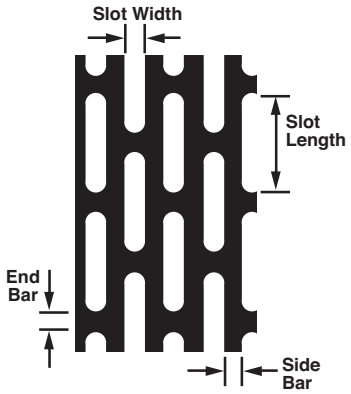
(Optional Pattern)

ROUND PERFORATIONS STRAIGHT LINE PATTERN

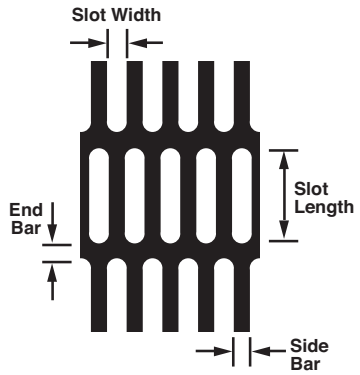


(Optional Pattern)

ROUND PERFORATIONS 45 DEGREE PATTERN

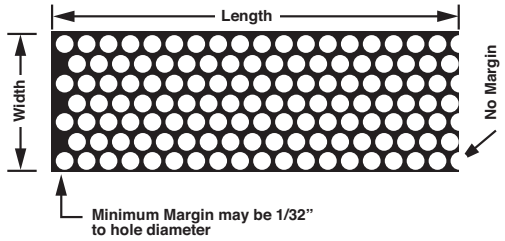


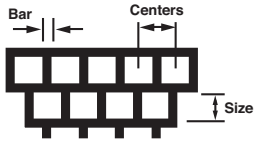
SLOTS SIDE STAGGER



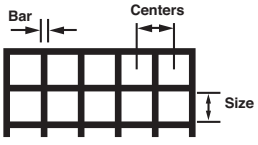
SLOTS END STAGGER

PERFORATED STOCK SIZE SHEET OR PLATE WITH MINIMUM MARGINS



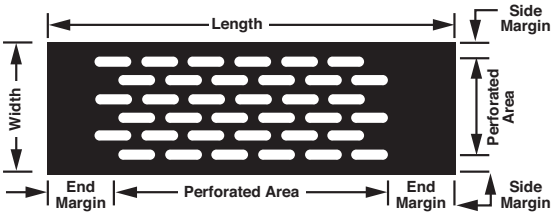


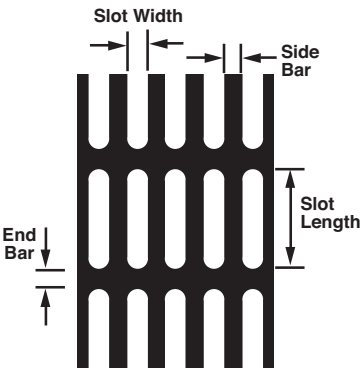
SQUARE PERFORATIONS STAGGERED



SQUARE PERFORATIONS STRAIGHT LINES

SHEET OR PLATE RESHEARED AFTER PERFORATING WITH MARGINS AS SPECIFIED





SLOTS STRAIGHT LINES

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Available Tool List

Perforations (inches)	Type Centers	Holes PSI	Open Area
.020	Straight	825	30%
.020	Staggered	625	23%
.023	Straight	576	24%
.023	Staggered	400	18%
.027	Straight	400	23%
.027	Staggered	320	18%
.033	Staggered	225	19%
.033	Straight	330	29 %
.040	Straight	225	30%
.040	Staggered	186	23%
.041	Staggered	—	32%
.043	Staggered	—	35%
.045	Straight	225	37%
.045	Staggered	169	28%
.050	Straight	144	33%
.050	Staggered	115	26%
.055	Straight	144	33%
.055	Staggered	135	30%
.058	Straight	144	38%
.058	Staggered	115	35%

Perforations (inches)	Centers	Type Centers	Open Area
1/16	3/32	Staggered	40%
1/16	1/10	Straight	30%
1/16	7/64	Staggered	30%
1/16	1/8	Staggered	23%
1/15	1/8	Staggered	28%
1/14	1/8	Staggered	30%
.077	7/64	Staggered	45%
5/64	1 /8	Staggered	36%
.079	7/64	Straight	45%
1/12	1/8	Staggered	37%
1/12	5/32	Staggered	26%
3/32	9/64	Staggered	40%
3/32	5/32	Staggered	33%
3/32	11 /64	Staggered	26%
3/32	3/16	Staggered	23%
3/32	3/16	SL	20%
3/32	17/64 (45°)	Staggered	11%
3/32	1/4	Staggered	13%

Perforations (inches)	Centers	Type Centers	Open Area
1/10	5/32	Staggered	36%
1/10	9/64	SL	45%
7/64	3/16	Staggered	29%
7/64	7/32	Staggered	23%
7/64	5/32	Staggered	45%
7¼/64	7/32	Staggered	25%
7½/64	3/16	Staggered	33%
7½/64	7/32	Staggered	27%
.117	5/32	Staggered	50%
1/8	3/16	Staggered	40%
1/8	3/16	SL	28%
1/8	7/32	Staggered	29%
1/8	1/4	Staggered	23%
1/8	1/4	SL	20%
1/8	5/16	SL	11%
9/64	3/16	Staggered	51%
9/64	7/32	Staggered	38%
9/64	1/4	Staggered	28%w
9½/64	1/4	Staggered	30%
9½/64	7/32	Staggered	30%
5/32	3/16	Staggered	62%
5/32	7/32	Staggered	46%
5/32	1/4	Staggered	36%
5/32	9/32	Staggered	28%
5/32	17/64	SL	26%
5/32	3/8	Staggered	15%
11/64	1/4	Staggered	43%
11/64	3/8	Staggered	19%
11/64	9/32	Staggered	33%
11½/64	9/32	Staggered	35 %
3/16	7/32	Staggered	66%
3/16	1/4	Staggered	51%
3/16	9/32	Staggered	41%
3/16	5/16	Staggered	33%
3/16	1/4	SL	55%
3/16	9/16	SL	12%
13/64	9/32	Staggered	47%
7/32	5/16	Staggered	45%
7/32	11/32	Staggered	36%

Available Tool List

Perforations (inches)	Centers	Type Centers	Open Area
7/32	9/16	Staggered	15%
7/32	7/16	SL	23%
14½/64	11/32	Staggered	39%
15/64	5/64	Staggered	52%
15/64	11/32	Staggered	42%
15/64	3/8	Staggered	35%
15½/64	3/8	Staggered	37%
1/4	5/16	Staggered	58%
1/4	11/32	Staggered	48%
1/4	3/8	Staggered	40%
1/4	1/2	Staggered	22%
1/4	1/2	SL	20%
1/4	1	SL	5%
16½/64	7/16	Staggered	30%
16½/64	3/8	Staggered	45%
17/64	3/8	Staggered	46%
9/32	3/8	Staggered	50%
9/32	13/32	Staggered	44%
19/64	7/16	Staggered	42%
19½/64	7/16	Staggered	45%
5/16	3/8	Staggered	62%
5/16	7/16	Staggered	47%
20¼/64	7/16	Staggered	49%
20½/64	1/2	Staggered	45%
21/64	7/16	Staggered	50%
21/64	1/2	Staggered	45%
21½/64	1/2	Staggered	47%
11/32	15/32	Staggered	48%
11/32	1/2	Staggered	43%
22½/64	1/2	Staggered	45%
23/64	15/32	Staggered	50%
23/64	17/32	Staggered	41%
23/64	3/4	Staggered	21%
23½/64	9/16	Staggered	36%
3/8	1/2	Staggered	51%
3/8	17/32	Staggered	45%
3/8	9/16	Staggered	40%
3/8	5/8	Staggered	33%
3/8	11/16	Staggered	27%
24½/64	9/16	Staggered	42%

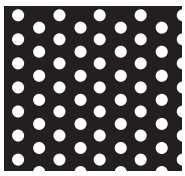
Perforations (inches)	Centers	Type Centers	Open Area
25/64	9/64	Staggered	45%
13/32	9/16	Staggered	47%
13/32	5/8	Staggered	42%
27/64	13/16	Staggered	25%
27/64	5/8	Staggered	27%
27½/64	5/8	Staggered	30%
7/16	9/16	Staggered	54%
7/16	5/8	Staggered	45%
7/16	3/4	Staggered	30%
28½/64	5/8	Staggered	47%
29/64	11/16	Staggered	47%
15/32	5/8	Staggered	47%
15/32	3/4	Staggered	38%
31/64	11/16	Staggered	42%
1/2	11/16	Staggered	47%
1/2	3/4	Staggered	40%
1/2	7/8	Staggered	30%
1/2	1"	SL	20%
17/32	3/4	Staggered	45%
17/32	3/16	Staggered	40%
33/64	3/4	Staggered	42%
35/64	3/4	Staggered	45%
9/16	3/4	Staggered	51%
37/64	3/4	Staggered	55%
19/32	13/16	Staggered	48%
5/8	13/16	Staggered	53%
5/8	7/8	Staggered	47%
41/64	7/8	Staggered	50%
21/32	7/8	Staggered	50%
11/16	15/16	Staggered	50%
3/4	1"	Staggered	51%
3/4	15/16	Staggered	55%
3/4	1 1/8	Staggered	40%
25/32	1"	Staggered	53%
13/16	1 1/16	Staggered	50%
7/8	1 1/8	Staggered	54%
1	1 1/4	Staggered	58%
1	1 3/8	Staggered	48%

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

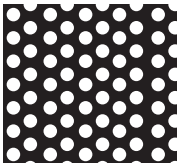
Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Rounds

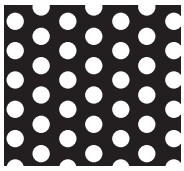
A FEW OF OUR AVAILABLE PERFORATIONS



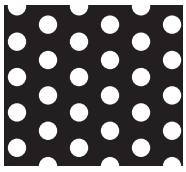
1/16" @ 1/8"
STAGGERED
Open area . . . 22.5%



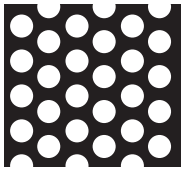
.078 @ 1/8"
STAGGERED
Open area . . . 36%



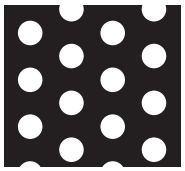
3/32" @ 5/32"
STAGGERED
Open area . . . 32%



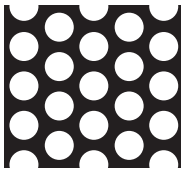
3/32" @ 3/16"
STAGGERED
Open area . . . 23%



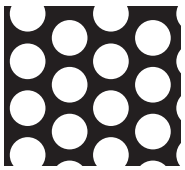
1/8" @ 3/16"
STAGGERED
Open area . . . 40%



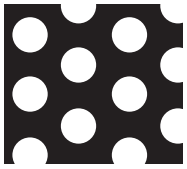
1/8" @ 1/4"
STAGGERED
Open area . . . 23%



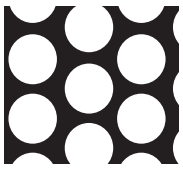
5/32" @ 7/32"
STAGGERED
Open area . . . 46%



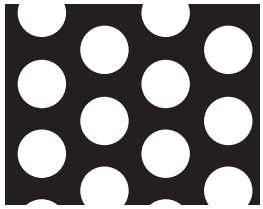
3/16" @ 1/4"
STAGGERED
Open area . . . 51%



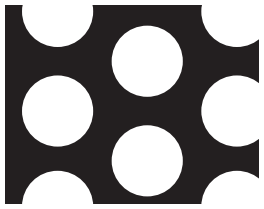
3/16" @ 5/16"
STAGGERED
Open area . . . 33%



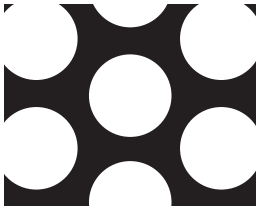
1/4" @ 5/16"
STAGGERED
Open area . . . 58%



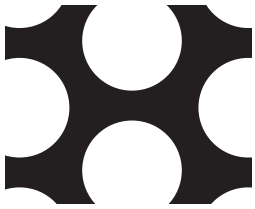
1/4" @ 3/8"
STAGGERED
Open area . . . 40%



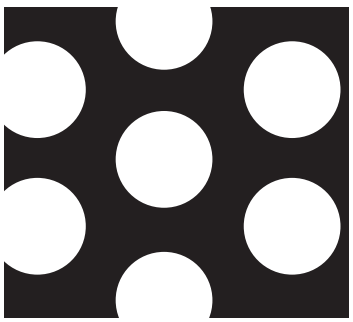
3/8" @ 9/16"
STAGGERED
Open area . . . 40%



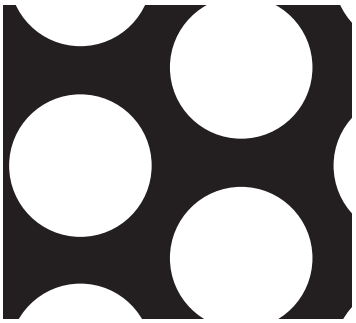
3/8" @ 1/2"
STAGGERED
Open area . . . 51%



1/2" @ 11/16"
STAGGERED
Open area . . . 47%



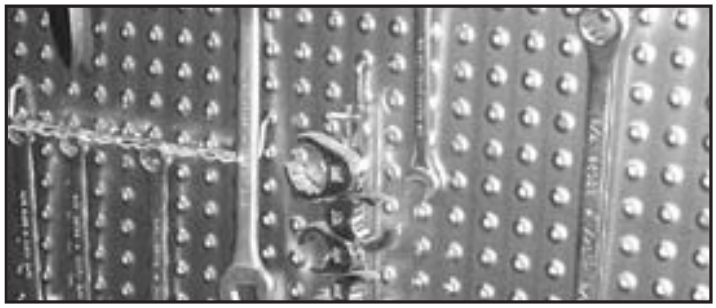
1/2" @ 3/4"
STAGGERED
Open area . . . 40%



3/4" @ 1"
STAGGERED
Open area . . . 51%

1" @ 1 1/4"
STAGGERED
Open area . . . 58%

MANY ADDITIONAL PERFORATIONS AVAILABLE . . . ASK YOUR DIRECT METALS SALESPERSON



20GA Steel Peg Board

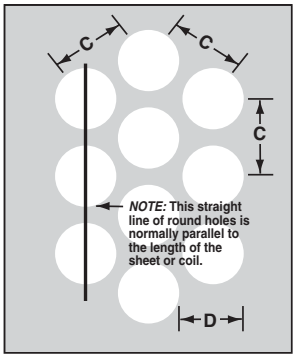
Painted Aluminum Perforated as Parking Garage Screens by Direct Metals

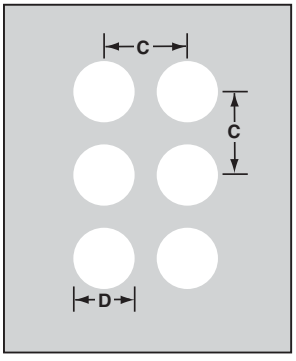
Handrail Panel from Perforated Stainless Sheet by Direct Metals

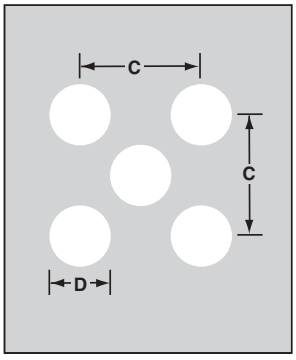
Formulas for Determining Percentage of Open Areas

In each formula "D" = hole diameter and "C" = center spacing

60° Staggered Centers Pattern (Standard)	Straight Line Pattern	45° Staggered Centers Pattern
$\frac{Dia^2}{Center^2}$	$\frac{Dia^2}{Center^2}$	$\frac{Dia^2}{Center^2}$
x	x	x
90.5	78.54	157.08
=	=	=
Percentage of Open Area	Percentage of Open Area	Percentage of Open Area







Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Glossary

ANCHOR—A device by which grating is attached to its supports.

BAND—A flat bar welded to the end of a grating panel, or along the line of a cutout, and extending neither above nor below the bearing bars.

Load-Carrying Band: A band used in a cutout to transfer the load from unsupported bearing bars in the cutout to the supported bearing bars.

Trim Band: A band which carries no load, but is used chiefly to improve appearance.

BEARING BARS—Load-carrying bars made from steel strip or slit sheet or from rolled or extruded aluminum and extending in the direction of the grating span.

BEARING BAR CENTERS—The distance center to center of the bearing bars.

CARRIERS—Flats or angles which are welded to the grating panel and nosing of a stair tread and are bolted to a stair stringer to support the tread.

CLEAR OPENING—The distance between faces of bearing bars in a rectangular grating, or between a bent connecting bar and a bearing bar in a riveted grating.

CROSS BARS—The connecting bars, made from steel strip, slit sheet, or rolled bars, or from rolled or extruded aluminum, which extend across the bearing bars, usually perpendicular to them. They may be bent into a corrugated or sinuous pattern and, where they intersect the bearing bars, are welded, forged or mechanically locked to them.

CROSS BAR CENTERS—The distance center to center of the cross bars.

CURVED CUT—A cutout following a curved pattern.

CUTOUT—An area of grating removed to clear an obstruction or to permit pipes, ducts, columns, etc. to pass through the grating.

ELECTRO-FORGED—A process combining hydraulic pressure and heat fusion to forge bearing bars and cross bars into a panel grid.

FINISH—The coating, usually paint or galvanizing, which is applied to the grating.

FLUSH TOP GRATING—A type of pressure-locked grating In which the cross bars and bearing bars are in the same plane relative to the top surface of the grating.

GRATING—An open grid assembly of metal bars, in which the bearing bars, running in one direction, are spaced by rigid attachment to cross bars running perpendicular to them or by bent connecting bars extending between them.

HINGED PANELS—Grating panels which are hinged to their supports or to other grating parts.

I-BAR—An extruded aluminum bearing bar having a cross sectional shape resembling the letter "I".

LENGTH—The dimension of a grating panel measured parallel to the bearing bars. Also referred to as span.

LOAD-CARRYING BAND—see Band.

NOSING—A special L-section member serving as the front or leading edge of a stair tread, or of grating at the head of a stair.

PRESSURE-LOCKED GRATING—Grating in which the cross bars are mechanically locked to the bearing bars at their intersections by deforming or swaging the metal.

RADIALLY CUT GRATING—Rectangular grating which is cut into panels shaped as annular segments, for use in circular or annular areas.

RETICULINE BAR—A sinuously bent connecting bar extending between two adjacent bearing bars, alternately contacting and being riveted to each.

RIVET CENTERS—The distance center to center of rivets along one bearing bar.

RIVETED GRATING—Grating composed of straight bearing bars and bent connecting bars, which are joined, at their contact points, by riveting.

SERRATED GRATING—Grating which has the top surfaces of the bearing bars or cross bars, or both, notched.

SPAN OF GRATING—The distance between points of grating support, or the direction of this dimension. Also referred to as length.

STRAIGHT CUT—That portion of the cut edge or cutout of a grating which follows a straight line.

SWAGING—A method of altering the cross-sectional shape of a metal bar by pressure applied through dies.

TOEPLATE—A flat bar attached against the outer edge of a grating or rear edge of a tread, and projecting above the top surface of grating or tread to form a lip or curb.

TREAD—A panel of grating having carriers and nosing attached by welding, and designed specifically to serve as a stair tread.

WELDED GRATING—Grating in which the bearing bars and cross bars are joined at their intersections by a weld.

WIDTH—The overall dimension of a grating panel, measured perpendicular to the bearing bars, and in the same direction as the cross bars.

Terminology

This catalog uses a form of the NAAMM alpha-numeric designation for bar spacing and manufacturing identification. The first number signifies center-to-center bearing bar spacing in 1/16ths of an inch*. A letter designates method of manufacture. The last number details center-to-center cross bar spacing in whole inches (usually 4" or 2"), or rivet spacing (usually 3½", 5" or 7").

Methods of manufacture and their letter designations used in this catalog include:

SG — Swaged Rectangular Bar
SGF— Swaged Flush Top
SGI — Swaged I-Bar
W — Welded Steel
R — Riveted (Steel)
AR — Riveted (Aluminum)

For example:

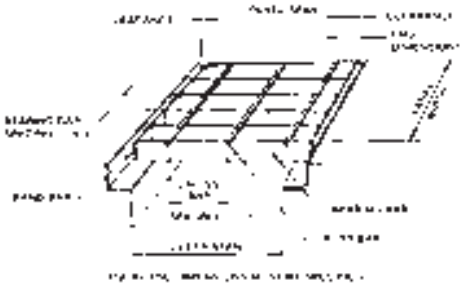
19-W-4 – Bearing Bars 19⁄16" (or, 13⁄16") c.c.
–Welded Steel Construction
–Cross Bars 4" c.c.

15-SGI-2 –Bearing Bars 15⁄16" c.c.
–Swaged I-Bar
–Cross Bars 2" c.c.

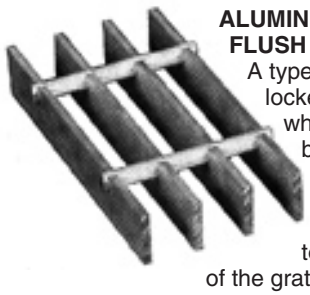
Other Bearing Bar Spacings commonly used throughout the industry are designated thus:

38-W-4 (or 2)	Bearing Bars 38⁄16" c.c. (2 3⁄8" c.c.)
30-W-4 (or 2)	Bearing Bars 30⁄16" c.c. (1 7⁄8" c.c.)
22-W-4 (or 2)	Bearing Bars 22⁄16" c.c. (1 3⁄8" c.c.)
11-SG-4 (or 2)	Bearing Bars 11⁄16" c.c.
7-SG-4 (or 2)	Bearing Bars 7⁄16" c.c.
18-R-7 (or 3½)	Bearing Bars 18⁄16" face-to-face (1⅛")*
37-R-5	Bearing Bars 37⁄16" face-to-face (2 5⁄16")*
12-R-7 (or 3½)	Bearing Bars 12⁄16" face-to-face (¾")*

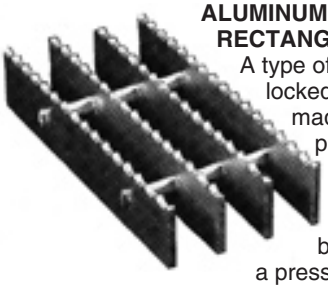
*Note: Riveted grating marking indicates space between bearing bars.



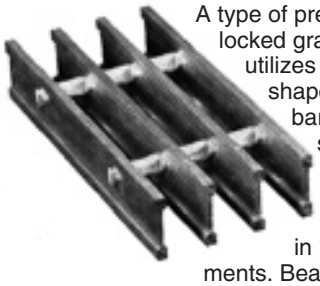
Aluminum Products



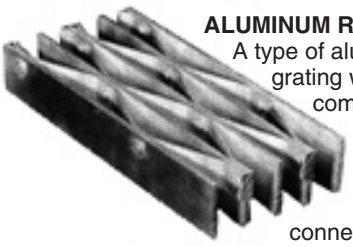
ALUMINUM FLUSH TOP
A type of pressure locked grating in which the cross bars are in the same plane relative to the top surface of the grating. Bearing bar sizes range from 1" x ⅛" through 2½" x 3⁄16" in ¼" increments. Bearing bar spacing of 13⁄16", 15⁄16",11⁄16" and 7⁄16" c.c. and cross bar spacing of 4" or 2" are available. Where skid resistance is desired, a serrated surface can be provided.



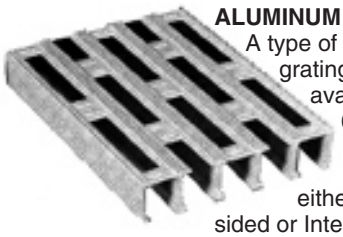
ALUMINUM RECTANGULAR BAR
A type of pressure locked grating made by permanently attaching cross bars to bearing bars through a pressure applied swaging process. Bearing bar sizes range from 1" x ⅛" through 2½" x 3⁄16" in ¼" increments. Bearing bar spacing of 13⁄16", 15⁄16",11⁄16" and 7⁄16" c.c., with cross bar spacing of 4" or 2" are available. Where skid resistance is desired, a serrated surface can be provided.



ALUMINUM I-BAR
A type of pressure locked grating which utilizes an "I" shaped bearing bar ranging in size from 1" x ¼" through 2½" x ¼" in ¼" increments. Bearing bar spacing of 13⁄16" and 15⁄16" c.c. and cross bar spacings of 4" or 2" are available. The I-Bar design takes advantage of the aluminum extrusion process by placing the metal where it is most effective—at the outermost fiber—while reducing the thickness of the neutral axis web. This design consideration allows the same load carrying capacity at less weight per square foot than rectangular bar therefore resulting in a cost savings.



ALUMINUM RIVETED
A type of aluminum grating which combines straight bearing bars and bent connecting bars riveted together at their contact points. Riveted grating, although being the oldest style of industrial footwalk, is still the choice of many engineers due to its reliability and durability. All popular sizes and spacings of riveted grating are sold by Direct Metals with an emphasis on quality and service.

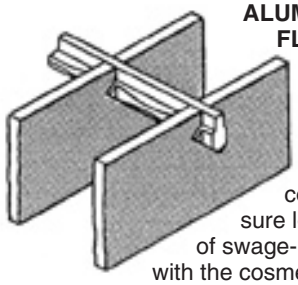


ALUMINUM PLANK
A type of extruded grating which is available In 6" wide sections, and either plain sided or Interlocking. Plank can be provided in sections up to 26'0" in length, or fabricated per plans and specs. Plank grating is available unpunched as an economical and structurally superior substitute for aluminum checkerplate, or with a variety of punch/patterns.

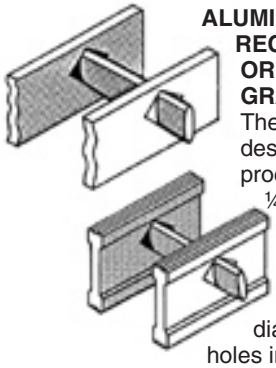
Fabricated Aluminum Grating by Direct Metals

Pressure Locked Grating

PRESSURE LOCKING
The most common method of manufacturing aluminum bar grating is through a process known as pressure locking. Pressure locked grating as defined by the NAAMM Metal Bar Grating Manual is "Grating in which the cross bars are mechanically locked to the bearing bars at their intersections by deforming or swaging the metal." Direct Metals has taken advantage of the most modern technology available to provide a permanently attached pressure locked joint which will give long lasting life under normal service conditions.



ALUMINUM FLUSH TOP GRATING
ALUMINUM FLUSH TOP grating from Direct Metals combines the sure lock reliability of swage-locked grating with the cosmetic appeal and added walking surface of traditional pressure locked grating. Best of all, by taking advantage of the swage-lock manufacturing process, ALUMINUM FLUSH TOP grating offers a cost savings over traditional pressure locked grating while at the same time allowing banding to be an option rather than a requirement. Field cutting is also possible.

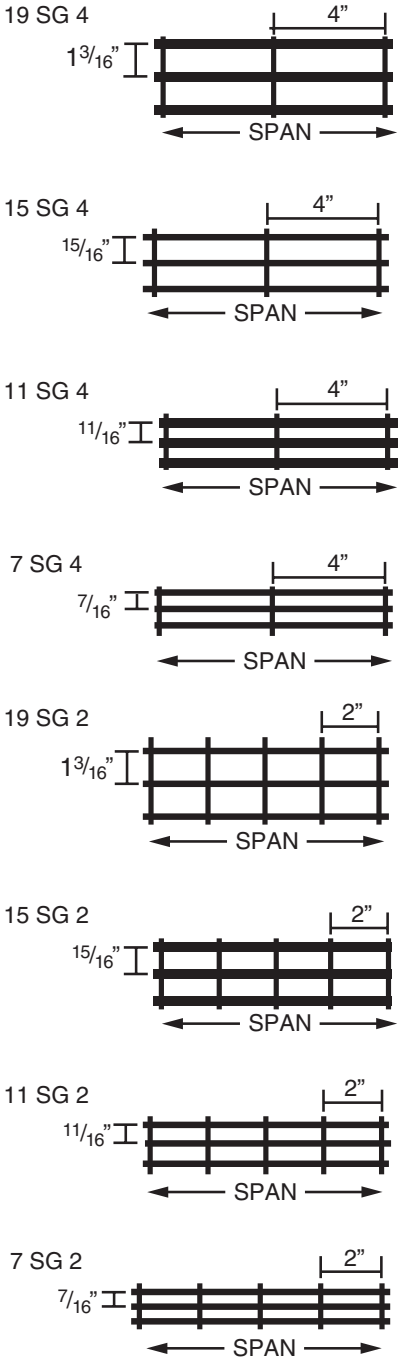


ALUMINUM RECTANGULAR OR I-BAR GRATING
These two grating designs utilize a process by which ¼" or 5⁄16" square cross bars are assembled through punched, diamond shaped holes in the bearing bars, and then secured by swaging to prevent turning, twisting, or loosening. Available with either rectangular or I-shaped Bearing Bar sections, this manufacturing process offers (1) the economy of cutting individual pieces from panels, (2) enables field alteration of grating panels, and (3) allows banding as an option rather than as a requirement.

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002
Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Aluminum Rectangular Bar SG Series

GRATING TYPES AVAILABLE IN THE RECTANGULAR BAR SG SERIES



Load Table 19-SG-4/19-SG-2

Bar Size Inches	Wt.* Lbs. Sq. Ft.	Sect. Prop. Ft. of Width*		Clear Span 2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"
1 X ⅛	1.85	Sx=.228	U	458	293	203	149	114							
			D	.144	.225	.324	.441	.576							
		1x=.114	C	458	366	305	261	229							
			D	.115	.180	.259	.352	.461							
1 X 3/16	2.65	Sx=.344	U	686	439	305	224	172	136						
			D	.144	.225	.324	.441	.576	.728						
		1x=.171	C	686	549	458	392	343	305						
			D	.115	.180	.259	.352	.461	.583						
1¼ X ⅛	2.25	Sx=.358	U	715	458	318	233	179	141	114					
			D	.115	.180	.259	.351	.460	.581	.717					
		1x=.223	C	715	572	477	408	358	318	286					
			D	.092	.144	.207	.282	.369	.466	.575					
1¼ X 3/16	3.25	Sx=.536	U	1074	687	477	350	268	212	172					
			D	.115	.180	.259	.351	.460	.581	.717					
		1x=.335	C	1074	859	716	614	537	477	429					
			D	.092	.144	.207	.282	.369	.466	.575					
1½ X ⅛	2.65	Sx=.515	U	1030	659	458	336	257	203	165	136				
			D	.096	.150	.216	.294	.383	.485	.599	.724				
		1x=.387	C	1030	824	686	588	515	458	412	374				
			D	.077	.120	.173	.235	.307	.389	.480	.579				
1½ X 3/16	3.86	Sx=.773	U	1547	990	687	505	387	306	247	204	172			
			D	.096	.150	.216	.294	.383	.485	.599	.724	.861			
		1x=.579	C	1547	1237	1031	884	773	687	619	562	516			
			D	.077	.120	.173	.235	.307	.389	.480	.579	.690			
1¾ X 3/16	4.48	Sx=1.052	U	2105	1347	936	687	526	416	337	278	234	199		
			D	.082	.128	.185	.252	.329	.417	.515	.622	.741	.868		
		1x=.902	C	2105	1684	1404	1203	1053	936	842	766	702	648		
			D	.066	.103	.148	.202	.264	.334	.412	.498	.593	.696		
2 X 3/16	5.08	Sx=1.375	U	2750	1760	1222	898	688	543	440	364	306	260	224	
			D	.072	.112	.162	.220	.288	.364	.450	.545	.649	.759	.880	
		1x=1.375	C	2750	2200	1833	1571	1375	1222	1100	1000	917	846	786	
			D	.058	.090	.130	.176	.230	.292	.360	.436	.518	.608	.706	
2¼ X 3/16	5.69	Sx=1.740	U	3480	2227	1547	1136	870	687	557	460	387	330	284	218
			D	.064	.100	.144	.196	.256	.324	.400	.484	.577	.677	.784	1.027
		1x=1.958	C	3480	2784	2320	1989	1740	1547	1392	1266	1160	1071	994	870
			D	.051	.080	.115	.157	.205	.259	.320	.387	.461	.541	.627	.819
2½ X 3/16	6.29	Sx=2.148	U	4297	2750	1910	1403	1074	849	687	568	477	407	351	268
			D	.058	.090	.130	.176	.230	.292	.360	.436	.518	.609	.706	.920
		1x=2.685	C	4297	3437	2864	2455	2148	1910	1719	1562	1432	1322	1228	1074
			D	.046	.072	.104	.141	.184	.233	.288	.348	.415	.487	.565	.737

U – Safe uniform load in pounds/sq. ft.
C – Safe concentrated load in pounds/ft. grating width
D – Deflection in inches

Loads and deflections given in this table are theoretical, and are based on a unit stress of 12,000 psi.

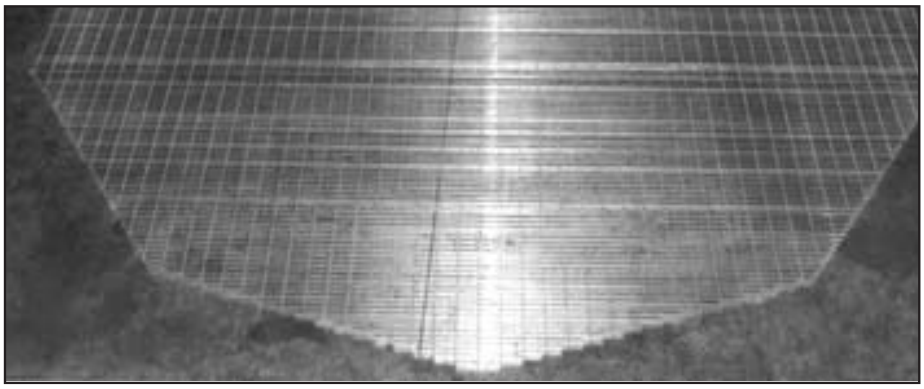
*Based on 11 bars/ft. of grating width. Bearing bars 1 3/16" c.c. Add .4 lbs./sq. ft. for 19-SG-2.

NOTE: Grating for spans to the left of the heavy line have a deflection less than ¼" for uniform loads of 100 lbs./sq.ft. This is the maximum deflection to afford pedestrian comfort and can be exceeded for other types of load at the descretion of the engineer. When serrated grating is specified, the depth of grating required for a specified load will be ¼" greater than that shown in these tables. 1" serrated grating not available.

19-SG-4/19-SG-2 Panel Width Chart (in.) **Dimensions Are Out-to-Out of Bearing Bars****

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
3/16" Bar	1 3/8	2 3/16	3 3/4	4 15/16	6 1/8	7 5/16	8 1/2	9 11/16	10 7/8	12 1/16	13 1/4	14 7/16	15 5/8	16 13/16	18
No. of Bars	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
3/16" Bar	19 3/16	20 3/8	21 9/16	22 3/4	**23 15/16**	25 1/8	26 5/16	27 1/2	28 11/16	29 7/8	31 1/16	32 1/4	33 7/16	34 5/8	**35 15/16**

**Add ¼" for extended cross bars. Deduct 1/16" for ⅛" bearing bars. Standard panel widths indicated with white numbers.



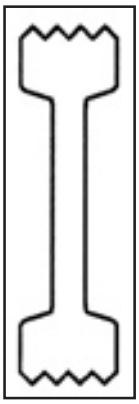
Fabricated Aluminum Grating by Direct Metals

Aluminum I-Bar SGI Series

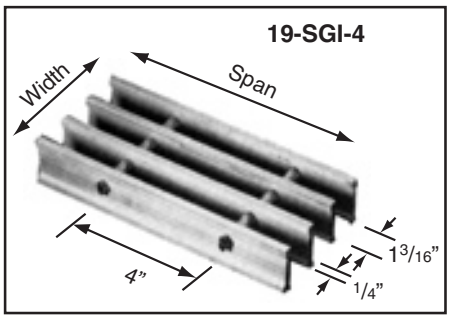
The I-Bar Series uses an extruded "I" shape as the main load bearing member. Square cross bars are assembled through punched diamond shaped holes in the web section of the I-Bar, and then permanently locked in place by swaging. Bearing bar sizes range from 1" x ¼" through 2½" x ¼" in ¼" increments. Bearing bar spacings of 13⁄16" and 15⁄16" c.c. and cross bar spacings of 4" or 2" are available.

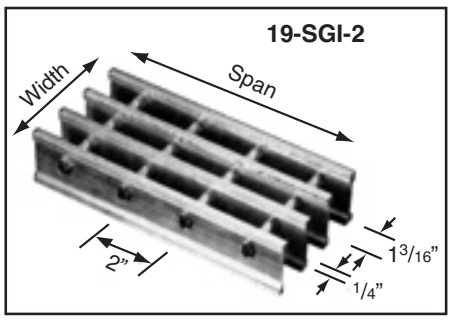
HOW TO SPECIFY:

1. Grating: Aluminum I-Bar SGI Series by Direct Metals or approved equal.
2. Bearing Bars: I-Bar section with ¼" flanges on a maximum of 13⁄16" centers. (Note:15⁄16" centers may be specified at the discretion of the architect/engineer.)
3. Cross Bars: Locked at right angles to bearing bars at a maximum of 4" on center. (Note: 2" cross bar centers may be specified at the discretion of the architect/engineer.)
4. Surface: Flanges to have a striated surface.
5. Loading: Grating to carry a pedestrian loading equal to a uniform load of 100# per square foot over the required clear span with deflection not to exceed ¼". (Note: Alternate loading requirements may be specified at the discretion of the architect/engineer.)
6. Finish: Mill finished.
7. Fabrication and Tolerances: In accordance with the NAAMM Metal Bar Grating Manual.



Where economy is a major consideration, the I-Bar SGI Series offers a popular and reasonably priced alternative to rectangular bar grating. Extruded I-Bar sections have the same load carrying capacity with less weight per square foot than rectangular bars. The striated top and bottom flanges provide a "built-in" skid resistance feature without the added cost of serrating.





Load Table 19-SGI-4/19-SGI-2

Bar Size Inches	Wt.* Lbs. Sq. Ft.	Sect. Prop. Ft. of Width*		Clear Span 2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"
1	2.13	Sx=.385	U	770	492	342	251	193	152						
			D	.135	.211	.304	.414	.541	.685						
		1x=.204	C	770	616	513	440	385	342						
			D	.108	.169	.243	.331	.433	.548						
1¼	2.51	Sx=.586	U	1173	750	521	383	293	231	187	155				
			D	.109	.171	.247	.336	.439	.556	.687	.831				
		1x=.383	C	1173	938	782	670	586	521	469	426				
			D	.087	.137	.197	.269	.351	.445	.549	.665				
1½	2.91	Sx=.833	U	1668	1067	741	544	417	329	266	220	185			
			D	.092	.144	.207	.282	.368	.466	.576	.697	.829			
		1x=.651	C	1668	1334	1112	953	834	741	667	606	556			
			D	.073	.115	.165	.225	.295	.373	.460	.557	.663			
1¾	3.29	Sx=1.119	U	2240	1433	995	731	560	442	358	296	249	212		
			D	.079	.124	.179	.243	.317	.402	.497	.601	.715	.839		
		1x=1.014	C	2240	1792	1493	1280	1120	995	896	814	747	689		
			D	.063	.099	.143	.194	.254	.321	.397	.480	.572	.671		
2	3.71	Sx=1.459	U	2919	1868	1298	953	730	577	467	386	324	276	238	
			D	.069	.109	.157	.213	.279	.353	.436	.528	.628	.737	.855	
		1x=1.504	C	2919	2335	1946	1668	1460	1298	1168	1062	973	898	862	
			D	.055	.087	.125	.171	.223	.282	.349	.422	.502	.590	.707	
2¼	4.06	Sx=1.821	U	3643	2332	1619	1190	911	720	583	482	405	345	297	228
			D	.062	.097	.140	.190	.249	.315	.389	.471	.560	.657	.763	.996
		1x=2.105	C	3643	2914	2428	2082	1822	1619	1457	1325	1214	1121	1041	911
			D	.049	.077	.112	.152	.199	.252	.311	.376	.448	.526	.610	.797
2½	4.49	Sx=2.251	U	4503	2882	2002	1470	1126	890	721	595	500	426	368	281
			D	.056	.087	.126	.172	.224	.284	.351	.425	.505	.593	.688	.899
		1x=2.884	C	4503	3603	3002	2573	2252	2002	1801	1638	1501	1386	1287	1126
			D	.044	.070	.101	.137	.179	.227	.281	.340	.404	.474	.550	.719

U – Safe uniform load in pounds/sq. ft.
C – Safe concentrated load in pounds/ft. grating width
D – Deflection in inches

Loads and deflections given in this table are theoretical, and are based on a unit stress of 12,000 psi.

*Based on 11 bars/ft. of grating width. Bearing bars 1 3⁄16" c.c. Add .4 lbs./sq. ft. for 19-SGI-2.

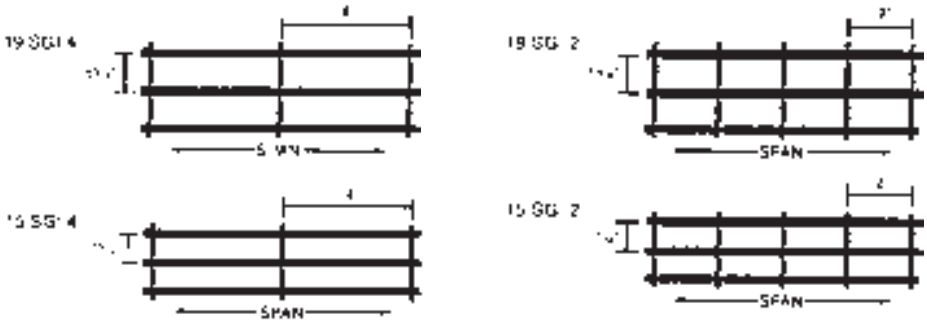
NOTE: Grating for spans to the left of the heavy line have a deflection less than ¼" for uniform loads of 100 lbs./sq.ft. This is the maximum deflection to afford pedestrian comfort and can be exceeded for other types of load at the descretion of the engineer.

19-SGI-4/19-SGI-2 Panel Width Chart (in.) **Dimensions Are Out-to-Out of Bearing Bars****

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
¼" Flange	1 1⁄16	2 5⁄8	3 13⁄16	5	6 3⁄16	7 3⁄8	8 9⁄16	9 3⁄4	10 15⁄16	12 1⁄8	13 5⁄16	14 1⁄2	15 11⁄16	16 7⁄8	18 1⁄16
No. of Bars	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
¼" Flange	19 1⁄4	20 7⁄16	21 5⁄8	22 13⁄16	**24**	25 3⁄16	26 3⁄8	27 9⁄16	28 3⁄4	29 15⁄16	31 1⁄8	32 5⁄16	33 1⁄2	34 11⁄16	**35 7⁄8**

**Bar thickness is 1/4" at top and bottom. Add 1/4" for extended cross bars. Standard panel widths indicated with white numbers.

GRATING TYPES AVAILABLE IN THE I-BAR SGI SERIES



Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

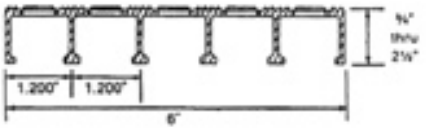
Aluminum Plank Section Availability

Aluminum Plank is structurally sound and cosmetically attractive. Plank grating is non-sparking, non-magnetic, non-skid, and relatively maintenance free. It is durable, corrosion resistant, possesses a high strength-to-weight ratio. The surface can be provided unpunched, or with a variety of punch/patterns for the passage of air, light, heat or moisture. The interconnecting webs offer a flush top walking surface.

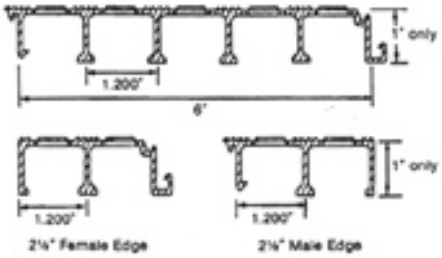
Aluminum plank grating has found application in sewage and waste water treatment plants, as well as in the marine refrigerator (reefer), freezer and cargo-hold flooring market.Aluminum plank grating is available in five cross-sectional designs: Heavy Duty (plain sides), Heavy Duty (interlocking sides), Light Series (plain sides), Reefer (plain sides) and Reefer (interlocking sides).

The Heavy Duty sections are used primarily in the water and waste treatment markets and the marine market, while the Light Series and Reefer sections are exclusively in the marine refrigerated stores application. Interlocking Heavy Duty and Reefer sections and edge sections are available in 1" deep grating only.

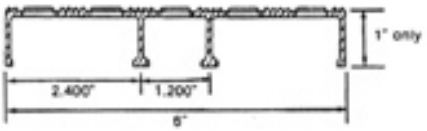
HEAVY DUTY (Plain Sides)



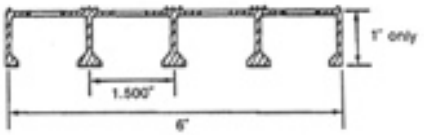
HEAVY DUTY (Interlocking Sides)



LIGHT SERIES (Plain Sides)

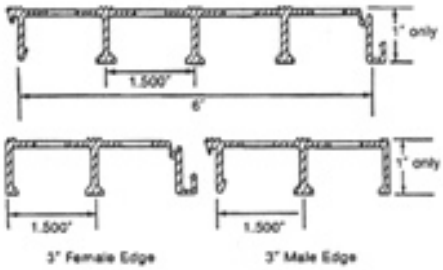


REEFER (Plain Sides)



REEFER PUNCH/PATTERN AVAILABILITY

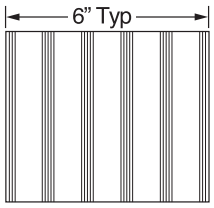
REEFER (Interlocking Sides)



Plank Punch/Pattern Availability

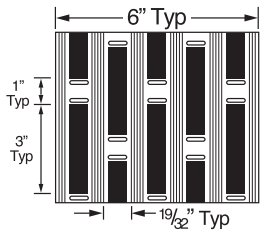
Aluminum plank grating is available unpunched or with a variety of punch/patterns as shown below. Rectangular or square punched holes are most commonly used for water and waste treatment plants and in marine applications, while the round holes find application primarily in the marine market. The surface of plank grating can be specified as plain or with one of two styles of upsets (OGI or WACO) designed to promote a slip resistant walkway, especially in the presence of moisture, oil or other spilled substances.

UNPUNCHED

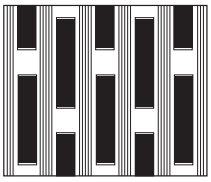


RECTANGULAR PUNCHED

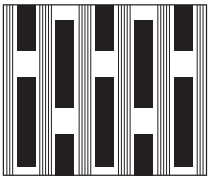
Upset Pattern (OGI)



Upset Pattern (WACO)

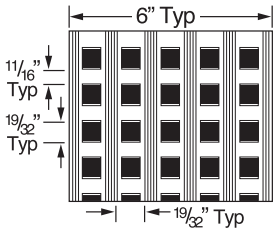


Plain Pattern

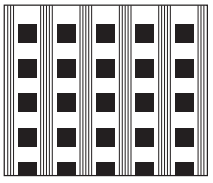


SQUARE PUNCHED

Upset Pattern (OGI)

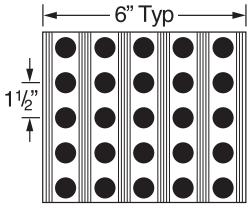


Plain Pattern

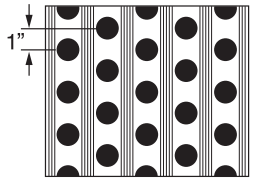


ROUND PUNCHED

13/16" Dia. In-Line Pattern



1" Dia. Staggered Pattern



Light Duty Steel Design Criteria

The tables of safe loads which follow have been computed using the following design parameters:

U = Uniform Load - lbs/ft2.

C = Concentrated Load - lbs/ft of grating width.

S = Section Modulus - in3/ft of grating width.

I = Moment of Inertia - in4/ft of grating width.

L = Simple Clear Span - feet.

D = Deflection - inches.

E = Modulus of Elasticity (30,000,000 psi).

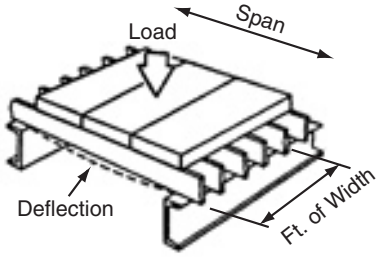
F = Allowable Bending Stress (18,000 psi)

M = Bending Moment.

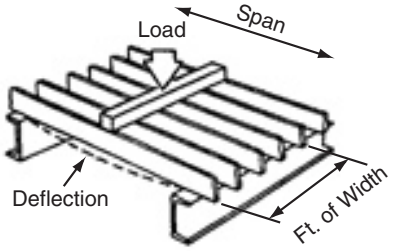
		Uniform Load		Concentrated Load
Step 1. Determine M:	M =	$\frac{FS}{12}$	M =	$\frac{FS}{12}$
Step 2. Determine U or C:	U =	$\frac{8M}{L^2}$	C =	$\frac{4M}{L}$
Step 3. Check D*	D =	$\frac{5UL\ (L \times 12)^3}{384\ EI}$	D =	$\frac{C\ (L \times 12)^3}{48\ EI}$

*Deflection should be limited to 1/4" under 100# uniform load to afford pedestian comfort.

Uniform Load



Concentrated Load

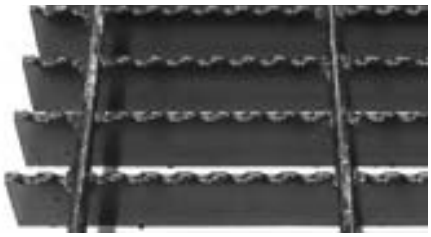


Light Duty Welded Steel W Series

HOW TO SPECIFY:

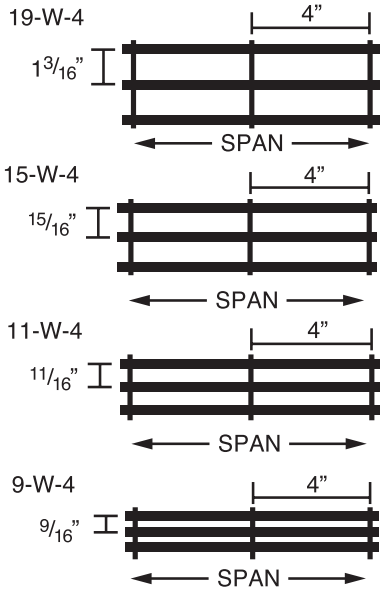
1. Grating: Light Duty Welded Steel W Series.
2. Bearing Bars: Rectangular Bar on 1 3⁄16" centers maximum. (Note: Other spacings may be specified at the discretion of the architect/ engineer.)
3. Cross Bars: Electroforge welded at right angles to bearing bars at 4" centers maximum . (Note: 2" cross bar centers may be specified at the discretion of the architect/engineer.)
4. Surface: Plain. (Note: A serrated surface may be specified for maximum skid resistance.)
5. Loading: Grating to carry a pedestrian loading equal to 100# per square foot over the required clear span with deflection not to exceed 1⁄4". (Note: Alternate loading requirements may be specified at the discretion of the architect/engineer.)
6. Finish: (Galvanized or manufacturer's standard black paint at the discretion of the architect/engineer.)
7. Fabrication and Tolerances: In accordance with the NAAMM Metal Bar Grating Manual.

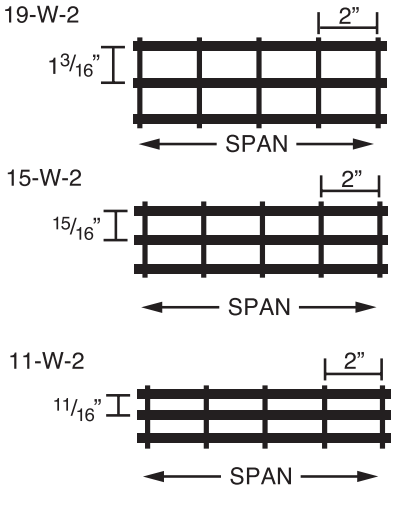
For those areas requiring the corrosion resistance of stainless steel, Direct Metal stocks 1" x 3⁄8", 1¼" x 3⁄16" and 1½" x 3⁄16" 19-W-4 Type 304 stainless steel electroforge welded grating. Since the welding process discolors the stainless surface, this grating is best suited for industrial applications only, and should not be specified where cosmetic appearance is important.



Serrated Surface

GRATING TYPES - LIGHT DUTY WELDED STEEL W SERIES





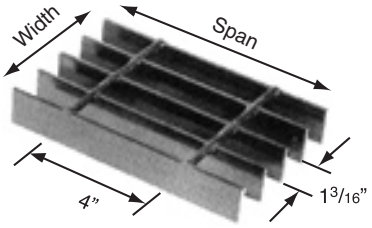
NOTE: 2" cross bar spacing not available in 9-W spacing.

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

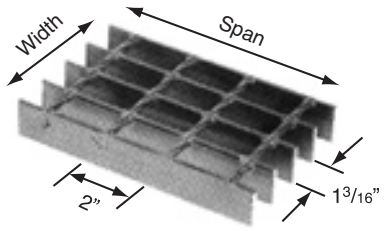
Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Light Duty Welded Steel 19-W-4/19-W-2

19-W-4



19-W-2



Load Table 19-W-4/19-W-2

Bar Size Inches	Wt.* Lbs. Sq. Ft.	Sect. Prop. Ft. of Width*		Clear Span 2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"
¾ X 3/16	5.67	Sx=.194	U	581	372	258	190	145	115						
			D	.096	.150	.216	.294	.382	.485						
		1x=.073	C	581	465	387	332	290	258						
			D	.077	.120	.173	.235	.307	.388						
1 X 1/8	5.15	Sx=.228	U	686	439	305	224	172	136	110	91	76			
			D	.072	.112	.162	.220	.289	.365	.451	.545	.646			
		1x=.114	C	686	549	458	392	343	305	274	250	229			
			D	.058	.090	.130	.176	.230	.292	.360	.436	.519			
1 X 3/16	7.35	Sx=.344	U	1030	659	458	336	257	203	165	136	114			
			D	.072	.112	.162	.220	.289	.365	.451	.545	.646			
		1x=.171	C	1030	824	686	588	515	458	412	374	343			
			D	.058	.090	.130	.176	.230	.292	.360	.436	.519			
1¼ X 1/8	6.20	Sx=.358	U	1072	686	477	350	268	212	172	142	119	102	88	
			D	.058	.090	.130	.176	.230	.292	.360	.435	.516	.607	.704	
		1x=.223	C	1072	858	715	613	536	477	429	390	358	330	306	
			D	.046	.072	.104	.141	.184	.233	.288	.348	.415	.486	.562	
1¼ X 3/16	9.03	Sx=.536	U	1610	1031	716	526	403	318	258	213	179	152	131	
			D	.058	.090	.130	.176	.230	.292	.360	.435	.516	.607	.704	
		1x=.335	C	1610	1288	1074	920	805	716	644	586	537	496	406	
			D	.046	.072	.104	.141	.184	.233	.288	.348	.415	.486	.562	
1½ X 1/8	7.35	Sx=.515	U	1544	988	686	504	386	305	247	204	172	146	126	96
			D	.048	.075	.108	.147	.192	.243	.300	.363	.432	.506	.587	.765
		1x=.387	C	1544	1236	1030	882	772	686	618	562	515	475	441	386
			D	.038	.060	.086	.118	.154	.194	.240	.291	.346	.405	.470	.614
1½ X 3/16	10.94	Sx=773	U	2320	1485	1031	758	580	458	371	307	258	220	189	145
			D	.048	.075	.108	.147	.192	.243	.300	.363	.432	.506	.587	.765
		1x=.579	C	2320	1856	1547	1326	1160	1031	928	844	773	714	663	580
			D	.038	.060	.086	.118	.154	.194	.240	.291	.346	.405	.470	.614
1¾ X 3/16	12.62	Sx=1.052	U	3158	2021	1404	1031	790	624	505	418	351	299	258	197
			D	.041	.064	.093	.126	.165	.208	.257	.312	.370	.435	.505	.657
		1x=.902	C	3158	2526	2105	1805	1579	1404	1263	1148	1053	972	902	790
			D	.033	.051	.074	.101	.132	.167	.206	.249	.296	.348	.403	.527
2 X 3/16	14.30	Sx=1.375	U	4125	2640	1833	1347	1031	815	660	545	458	390	337	258
			D	.036	.056	.081	.110	.144	.182	.225	.272	.324	.380	.441	.576
		1x=1.375	C	4125	3300	2750	2357	2062	1833	1650	1500	1375	1269	1178	1031
			D	.029	.045	.065	.088	.115	.146	.180	.218	.259	.304	.353	.461
2¼ X 3/16	15.87	Sx=1.740	U	5221	3341	2340	1704	1305	1031	835	690	580	494	426	326
			D	.032	.050	.072	.098	.128	.162	.200	.242	.288	.338	.392	.512
		1x=1.958	C	5221	4176	3480	2983	2610	2320	2088	1898	1740	1606	1492	1305
			D	.026	.040	.058	.078	.102	.130	.160	.194	.230	.270	.314	.410
2½ X 3/16	17.55	Sx=2.148	U	6445	4125	2864	2104	1611	1273	1031	852	716	610	526	403
			D	.029	.045	.065	.088	.115	.146	.180	.218	.259	.304	.353	.461
		1x=2.685	C	6445	5156	4297	3683	3222	2864	2578	2344	2148	1983	1841	1611
			D	.023	.036	.052	.070	.092	.117	.144	.174	.207	.243	.282	.369

U – Safe uniform load in pounds/sq. ft.
C – Safe concentrated load in pounds/ft. grating width
D – Deflection in inches

Loads and deflections given in this table are theoretical, and are based on a unit stress of18,000 psi.

*Based on 11 bars/ft. of grating width. Bearing bars 1 3/16" c.c. Add .8 lbs./sq. ft. for 19-W-2.

NOTE: Grating for spans to the left of the heavy line have a deflection less than ¼" for uniform loads of 100 lbs./sq.ft. This is the maximum deflection to afford pedestrian comfort and can be exceeded for other types of load at the descretion of the engineer. When serrated grating is specified, the depth of grating required for a specified load will be ¼" greater than that shown in these tables.

19-W-4/19-W-2 Panel Width Chart (in.) **Dimensions Are Out-to-Out of Bearing Bars****

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
3/16" Bar	1⅜	2⅜	3¾	4 15/16	6⅛	7 3/16	8½	9 11/16	10⅞	12 3/16	13¼	14 7/16	15⅝	16 13/16	18
No. of Bars	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
3/16" Bar	19 3/16	20⅜	21 3/16	22¾	**23 15/16**	25⅛	26 5/16	27½	28 11/16	29⅞	31 1/16	32¼	33 7/16	34⅝	**35 13/16**

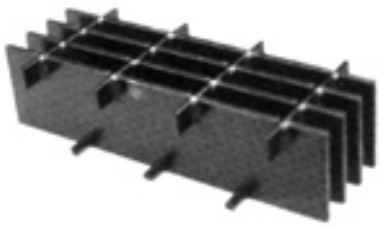
**Deduct 1/16" for ⅛" bearing bars. Standard panel widths indicated with white numbers.

Heavy Duty Welded Steel W Series

Heavy duty welded grating ranges in size from 1¼" X ¼" bearing bars through 6" X ½" (7" bearing bars available by inquiry). Standard bearing bar spacings are 15/16", 13/16",1 3/8", 1 7/8" and 2 3/8" center-to-center. See pages 25 and 27 for standard cross bar design. Rectangular cross bars are also available. Standard cross bar spacings are 4" or 2" center-to-center.

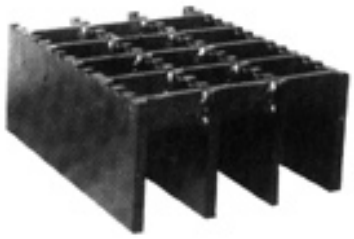
HOW TO SPECIFY:

1. Grating: Heavy Duty Welded Steel W Series by Direct Metals or approved equal.
2. Bearing Bars: To be (size) rectangular bar spaced (as specified) inches center-to-center. (Note: Bearing bar size selection and spacing must be coordinated with the load and span conditions.)
3. Cross Bars: To be (size) spaced 4" center-to-center and welded at right angles to bearing bars with one fillet at each bearing bar/cross bar inter section. (Note: 2" cross bar spac ing may be specified for maximum lateral stability.)
4. Surface: Plain. (Note: A serrated surface may be specified for maximum skid resistance.)
5. Loading: (Shall be specified by the architect/engineer in terms of uniform load/sq.ft., concentrated load/ft. of grating width, or by AASHTO wheel load designation. Loading, bearing bar size, bearing bar spacing and span conditions must be coordinated.)
6. Finish: (Galvanized or manufacturer's standard black paint at the discretion of the architect/engineer.)
7. Fabrication and Tolerances: In accordance with the NAAMM Heavy Duty Metal Bar Grating Manual.



For traffic areas running perpendicular to the span direction, supplementary bottom cross bars may be specified to provide added lateral stability and impact resistance.

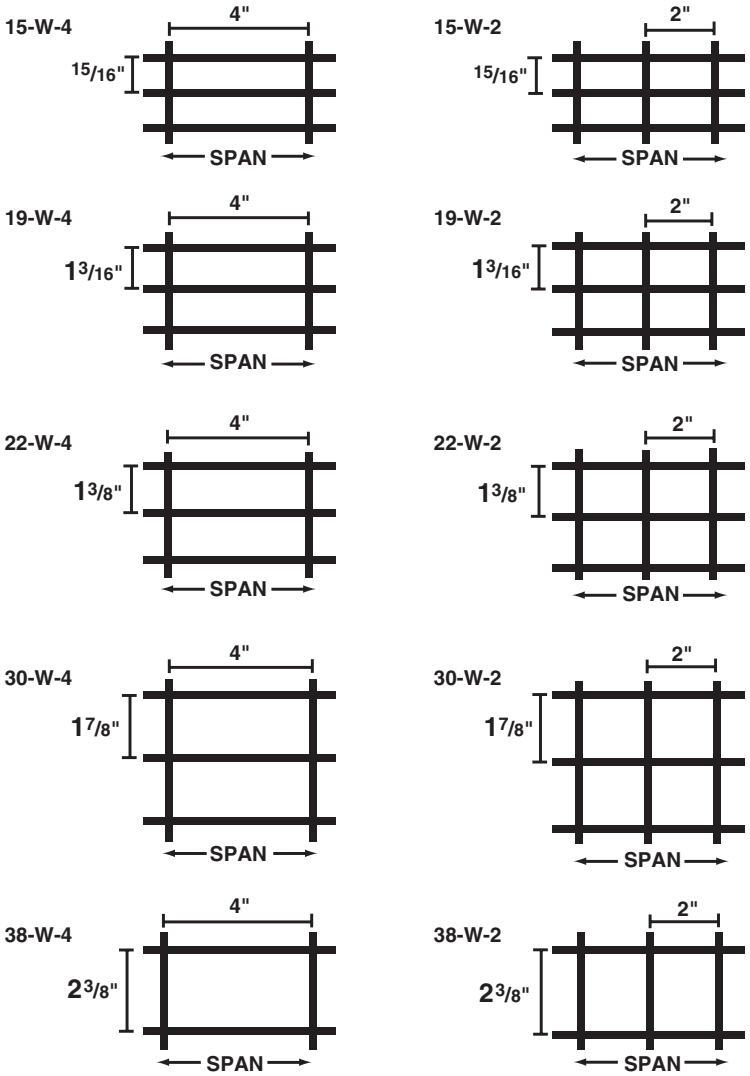
Plain Surface



Serrated Surface

SLIP-NOT Grip Grate Safety Surface Available

Grating Types
Heavy Duty Welded Steel W Series



Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Heavy Duty Welded Steel 19-W-4/19-W-2

Panel Width Chart in Inches **Dimensions Are Out-to-Out of Bearing Bars**

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
¼" Bar	1 7/16	2 5/8	3 13/16	5	6 3/16	7 3/8	8 9/16	9 3/4	10 15/16	12 1/8	13 5/16	14 1/2	15 11/16	16 7/8	18 1/16
5/16" Bar	1 1/2	2 11/16	3 7/8	5 1/16	6 1/4	7 7/16	8 5/8	9 13/16	11	12 3/16	13 3/8	14 9/16	15 3/4	16 15/16	18 1/8
3/8" Bar	1 3/16	2 3/4	3 15/16	5 1/8	6 5/16	7 1/2	8 11/16	9 7/8	11 1/16	12 1/4	13 7/16	14 5/8	15 13/16	17	18 3/16

No. of Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
¼" Bar	19 1/4	20 7/16	21 5/8	22 13/16	24	25 3/16	26 3/8	27 9/16	28 3/4	29 15/16	31 1/8	32 5/16	33 1/2	34 11/16	35 7/8
5/16" Bar	19 5/16	20 1/2	21 11/16	22 7/8	24 1/16	25 1/4	26 7/16	27 5/8	28 13/16	30	31 3/16	32 3/8	33 9/16	34 3/4	35 15/16
3/8" Bar	19 3/8	20 9/16	21 3/4	22 15/16	24 1/8	25 5/16	26 1/2	27 11/16	28 7/8	30 1/16	31 1/4	32 7/16	33 5/8	34 13/16	36

Bar Size	Wt. Lbs. Sq. Ft.	Sec.** Mod. Ft. Width	Mom. of** Inertia Ft. Width	Cross Bar Size	Maximum Safe Clear Span - Partially Distributed Load				
					1 Ton	3 Ton	5 Ton	H-15	H-20
1¼ X¼	12.08	.672	.420	.305 dia.	0'-10"	0'-8"	0'-9"	1'-0"	1'-1"
1¼ X 3/8	17.55	1.009	.630	.305 dia.	1'-2"	1'-10"	1'-0"	1'-2"	1'5"
1½ X ¼	14.35	.969	.726	.305 dia.	1'-2"	0'-10"	0'-11"	1'-2"	1'-4"
1½ X 5/16	17.55	1.211	.908	.305 dia.	1'-5"	1'-0"	1'-1"	1'-4"	1'-6"
1½ X 3/8	20.86	1.452	1.089	.305 dia.	1'-8"	1'-1"	1'-0"	1'-6"	1'-8"
1¾ X ¼	16.52	1.318	1.153	.356 dia.	1'-6"	1'-0"	1'-2"	1'-5"	1'-7"
1¾ X 3/8	24.16	1.977	1.730	.356 dia.	2'-2"	1'-5"	1'-6"	1'-10"	2'-0"
2 X ¼	17.56	1.722	1.722	.356 dia.	1'-11"	1'-3"	1'-4"	1'-8"	1'-10"
2 X 5/16	23.13	2.152	2.152	.356 dia.	2'-4"	1'-6"	1'-7"	1'-11"	2'-1"
2 X 3/8	27.47	2.583	2.583	.356 dia.	2'-10"	1'-9"	1'-10"	2'-2"	2'-4"
2¼ X ¼	20.86	2.179	2.451	.356 dia.	2'-5"	1'-7"	1'-7"	1'-11"	2'-1"
2¼ X 3/8	30.78	3.268	3.677	.356 dia.	3'-6"	2'-2"	2'-3"	2'-7"	2'-9"
2½ X ¼	23.13	2.690	3.362	.356 dia.	2'-11"	1'-10"	1'-11"	2'-3"	2'-5"
2½ X 5/16	28.61	3.362	4.203	.356 dia.	3'-7"	2'-3"	2'-3"	2'-8"	2'-10"
2½ X 3/8	34.08	4.035	5.044	.356 dia.	4'-3" *	2'-8"	2'-8"	3'-1"	3'-2"
3 X ¼	28.89	3.874	5.810	.356 dia.	4'-2"	2'-7"	2'-7"	3'-0"	3'-1"
3 X 5/16	35.50	4.843	7.263	.356 dia.	5'-2"	3'-2"	3'-1"	3'-7"	3'-8"
3 X 3/8	42.11	5.811	8.716	.356 dia.	5'-7" *	3'-9"	3'-7"	4'-2"	4'-3"
3½ X ¼	33.33	5.272	9.226	.356 dia.	5'-7"	3'-5"	3'-4"	3'-10"	3'-11"
3½ X 3/8	48.62	7.909	13.840	.356 dia.	7'-1" *	5'-0"	4'-9"	5'-6"	5'-6"
4 X ¼	37.67	6.886	13.772	.356 dia.	7'-1 *	4'-4"	4'-3"	4'-10"	4'-11"
4 X 5/16	46.45	8.608	17.215	.356 dia.	7'-11" *	5'-5"	5'-2"	5'-11"	5'-11"
4 X 3/8	55.23	10.330	20.660	.356 dia.	8'-0"	6'-3"	6'-1"	7'-0"	6'-8"
4½ X ¼	42.11	8.716	19.610	.500 dia.	8'-0"	5'-5"	5'-3"	6'-0"	6'-0"
4½ X 3/8	61.84	13.074	29.416	.500 dia.	8'-0"	7'-10 *	7'-7"	8'-0"	7'-11" *
5 X ¼	46.45	10.761	26.901	.500 dia.	8'-0"	6'-8"	6'-4"	7'-3"	7'-3"
5 X 5/16	57.40	13.451	33.626	.500 dia.	8'-0"	8'-0"	7'-10"	8'-0"	8'-0"
5 X 3/8	68.46	16.141	40.352	.500 dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
5½ X ¼	50.89	13.020	35.804	.500 dia.	8'-0"	8'-0"	7'-7"	8'-0"	8'-0"
5½ X 3/8	74.69	19.530	53.707	.500 dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
6 X ¼	55.23	15.495	46.485	.500 dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
6 X 5/16	68.46	19.369	58.106	.500 dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
6 X 3/8	81.57	23.343	69.727	.500 dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"

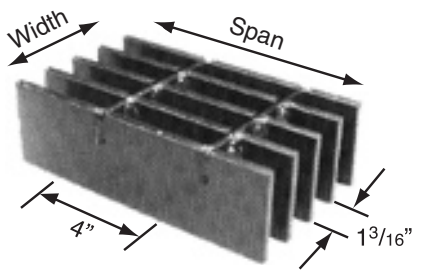
*Span limited to 1/400 of span = Deflection.

**Based on 10.33 bars/ft of grating width. Bearing bars 1 3/16" c.c.

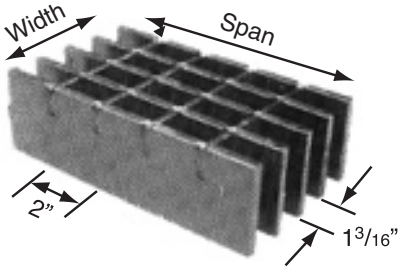
When serrated grating is specified the depth of grating required for a specified load will be ¼" greater than that shown in these tables.

Heavy Duty Welded Steel 19-W-4/19-W-2

19-W-4



19-W-2



	Maximum Safe Concentrated Load - Clear Span												
Bar Size	**1'-0"**	**1'-6"**	**2'-0"**	**2'-6"**	**3'-0"**	**3'-6"**	**4'-0"**	**4'-6"**	**5'-0"**	**5'-6"**	**6'-0"**	**7'-0"**	**8'-0"**
1¼ X ¼	4480	2986	2240	1792	1493	1280	1120	995	896	814	746	640	560
1¼ X ⅜	6726	4484	3363	2690	2242	1921	1681	1494	1345	1223	1121	960	840
1½ X ¼	6460	4306	3230	2584	2153	1845	1615	1435	1292	1174	1076	922	807
1½ X 5⁄16	8073	5382	4036	3229	2691	2306	2018	1794	1614	1467	1345	1153	1009
1½ X ⅜	9680	6453	4840	3872	3226	2765	2420	2151	1936	1760	1613	1382	1210
1¾ X ¼	8786	5857	4393	3514	2928	2510	2196	1952	1757	1597	1464	1255	1098
1¾ X ⅜	13180	8786	6590	5272	4393	3765	3295	2928	2636	2396	2196	1882	1647
2 X ¼	11480	7653	5740	4592	3826	3280	2870	2551	2296	2087	1913	1640	1435
2 X 5⁄16	14346	9564	7173	5738	4782	4099	3586	3188	2869	2608	2391	2049	1793
2 X ⅜	17220	11480	8610	6888	5740	4920	4305	3826	3444	3130	2870	2460	2152
2¼ X ¼	14526	9684	7263	5810	4842	4150	3631	3228	2905	2641	2421	2075	1815
2¼ X ⅜	21786	14524	10893	8714	7262	6224	5446	4841	4357	3961	3631	3112	2723
2½ X ¼	17933	11955	8966	7173	5977	5123	4483	3985	3586	3260	2988	2561	2241
2½ X 5⁄16	22413	14942	11206	8965	7471	6403	5603	4980	4482	4075	3735	3201	2801
2½ X ⅜	26900	17933	13450	10760	8966	7685	6725	5977	5380	4890	4483	3842	3362
3 X ¼	25826	17217	12913	10330	8608	7379	6456	5739	5165	4695	4304	3689	3228
3 X 5⁄16	32286	21524	16143	12914	10762	9224	8071	7174	6457	5870	5381	4612	4035
3 X ⅜	38740	25826	19370	15496	12913	11068	9685	8608	7748	7043	6456	5534	4842
3½ X ¼	35146	23431	17573	14058	11715	10041	8786	7810	7029	6390	5857	5020	4393
3½ X ⅜	52726	35151	26363	21090	17575	15064	13181	11717	10545	9586	8787	7532	6590
4 X ¼	45906	30604	22953	18362	15302	13116	11476	10201	9181	8346	7651	6558	5738
4 X 5⁄16	57386	38257	28693	22954	19128	16396	14346	12752	11477	10433	9564	8198	7173
4 X ⅜	68866	45911	34433	27546	22955	19676	17216	15303	13773	12521	11477	9838	8608
4½ X ¼		38737	29053	23242	19368	16601	14526	12912	11621	10564	9684	8300	7263
4½ X ⅜		58106	43580	34864	29053	24902	21790	19368	17432	15847	14526	12451	10895
5 X ¼		47826	35870	28696	23913	20497	17935	15942	14348	13043	11956	10248	8967
5 X 5⁄16		59782	44836	35869	29891	25620	22418	19927	17934	16304	14945	12810	11209
5 X ⅜		71737	53803	43042	35868	30744	26901	23912	21521	19564	17934	15372	13450
5½ X ¼			43400	34720	28933	24800	21700	19288	17360	15781	14466	12400	10850
5½ X ⅜			65100	52080	43400	37200	32550	28933	26040	23672	21700	18600	16275
6 X ¼				41320	34433	29514	25825	22955	20660	18781	17216	14757	12912
6 X 5⁄16				51650	43042	36893	32281	28694	25825	23477	21521	18446	16140
6 X ⅜				61981	51651	44272	38738	34434	30990	28173	25825	22136	19369

OTHER HEAVY DUTY ITEMS AVAILABLE:

15-W-4 22-W-4 30-W-4 38-W-4 15-W-2 30-W-2 38-W-2

For traffic areas running perpendicular to the span direction, supplementary bottom cross bars may be specified to provide added lateral stability and impact resistance.

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Heavy Duty Welded Steel 22-W-4/22-W-2

Panel Width Chart in Inches **Dimensions Are Out-to-Out of Bearing Bars**

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
¼" Bar	1⅝	3	4⅜	5¾	7⅛	8½	9⅞	11¼	12⅝	14	15⅜	16¾	18⅛	19½	20⅞
5/16" Bar	1 11/16	3 1/16	4 7/16	5 13/16	7 3/16	8 9/16	9 15/16	11 5/16	12 11/16	14 1/16	15 7/16	16 13/16	18 3/16	19 9/16	20 15/16
⅜" Bar	1¾	3⅛	4½	5⅞	7¼	8⅝	10	11⅜	12¾	14⅛	15½	16⅞	18¼	19⅝	21

No. of Bars	17	18	19	20	21	22	23	24	25	26	27
¼" Bar	22¼	23⅝	25	26⅜	27¾	29⅛	30½	31⅞	33¼	34⅝	36
5/16" Bar	22 5/16	23 11/16	25 1/16	26 7/16	27 13/16	29 3/16	30 9/16	31 15/16	33 3/16	34 11/16	36 1/16
⅜" Bar	22⅜	23¾	25⅛	26½	27⅞	29¼	30⅝	32	33⅜	34¾	36⅛

Bar Size	Wt. Lbs. Sq. Ft.	Sec.** Mod. Ft. Width	Mom. of** Inertia Ft. Width	Cross Bar Size	Maximum Safe Clear Span - Partially Distributed Load				
					1 Ton	3 Ton	5 Ton	H-15	H-20
1¼ X ¼	10.66	.586	.366	.305 Dia.	0'-9"	0'-7"	0'-9"	0'-11"	1'-1"
1¼ X ⅜	15.43	.879	.549	.305 Dia.	1'-1"	0'-10"	0'-11"	1'-2"	1'4"
1½ X ¼	12.64	.843	.632	.305 Dia.	1'-1"	0'-9"	0'-11"	1'-1"	1'-3"
1½ X 5/16	15.43	1.054	.791	.305 Dia.	1'-3"	0'-11"	1'-0"	1'-3"	1'-5"
1½ X ⅜	18.31	1.265	.949	.305 Dia.	1'-6"	1'-0"	1'-2"	1'-5"	1'-7"
1¾ X ¼	14.53	1.148	1.005	.356 Dia.	1'-5"	1'-2"	1'-1"	1'-5"	1'-6"
1¾ X ⅜	21.20	1.723	1.507	.356 Dia.	2'-0"	1'-4"	1'-5"	1'-8"	1'-10"
2 X ¼	16.42	1.500	1.500	.356 Dia.	1'-9"	1'-2"	1'-3"	1'-6"	1'-8"
2 X 5/16	20.29	1.875	1.875	.356 Dia.	2'-2"	1'-5"	1'-6"	1'-6"	1'-11"
2 X ⅜	24.07	2.250	2.250	.356 Dia.	2'-10"	1'-8"	1'-8"	2'-0"	2'-2"
2¼ X ¼	18.31	1.898	2.135	.356 Dia.	2'-2"	1'-5"	1'-6"	1'-9"	1'-11"
2¼ X ⅜	26.95	2.848	3.204	.356 Dia.	3'-3"	2'-0"	2'-0"	2'-5"	2'-6"
2½ X ¼	20.29	2.344	2.929	.356 Dia.	2'-8"	1'-8"	1'-9"	2'-1"	2'-3"
2½ X 5/16	25.06	2.930	3.662	.356 Dia.	3'-4"	2'-1"	2'-1"	2'-5"	2'-7"
2½ X ⅜	29.83	3.515	4.394	.356 Dia.	4'-0"	2'-5"	2'-5"	2'-10"	2'-11"
3 X ¼	25.50	3.375	5.062	.356 Dia.	3'-10"	2'-4"	2'-4"	2'-9"	2'-10"
3 X 5/16	31.26	4.218	6.327	.356 Dia.	4'-9"	2'-10"	2'-10"	3'-3"	3'-4"
3 X ⅜	37.02	5.063	7.594	.356 Dia.	5'-5 *"	3'-3"	3'-3"	3'-9"	3'-10"
3 X ½	49.02	6.750	10.125	.356 Dia.	6'-3" *	4'-5"	4'-3"	4'-9" *	4'-9 *"
3½ X ¼	29.37	4.594	8.038	.356 Dia.	5'-2"	3'-1"	3'-0"	3'-6"	3'-7"
3½ X ⅜	42.69	6.890	12.058	.356 Dia.	6'-9 *	4'-6"	4'-4"	4'-11"	5'-0"
3½ X ½	56.67	9.187	16.077	.356 Dia.	6'-10" *	5'-11"	5'-7"	6'-0 *"	5'-11 *"
4 X ¼	33.15	5.999	11.999	.500 Dia.	6'-8"	4'-0"	3'-10"	4'-5"	4'-5"
4 X 5/16	40.80	7.500	15.000	.500 Dia.	7'-7 *"	4'-11"	4'-8"	5'-4"	5'-4"
4 X ⅜	48.45	9.000	18.000	.500 Dia.	8'-0"	5'-10 *	5'-6"	6'-3"	6'-3"
4 X ½	64.32	12.000	24.000	.500 Dia.	8'-0"	7'-2 *"	7'-3"	7'-4 *"	7'-2 *"
4½ X ¼	37.02	7.593	17.085	.500 Dia.	8'-0"	5'-0"	4'-9"	5'-5"	5'-5"
4½ X ⅜	54.21	11.390	25.629	.500 Dia.	8'-0"	7'-4"	6'-10"	7'-7 *"	7'-5 *"
4½ X ½	71.97	15.187	34.171	.500 Dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
5 X ¼	40.80	9.374	23.437	.500 Dia.	8'-0"	6'-1"	5'-9"	6'-6"	6'-6"
5 x 5/16	50.36	11.718	29.296	.500 Dia.	8'-0"	7'-6"	7'-1"	8'-0"	7'-11"
5 X ⅜	59.97	14.063	35.156	.500 Dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
5 X ½	79.62	18.750	46.874	.500 Dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
5½ X ¼	44.67	11.343	31.194	.500 Dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
5½ X ⅜	65.66	17.015	46.792	.500 Dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
5½ X ½	87.27	22.687	62.389	.500 Dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
6 X ¼	48.45	13.500	40.500	.500 Dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
6 X 5/16	59.97	16.875	50.625	.500 Dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
6 X ⅜	71.40	20.250	60.750	.500 Dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
6 X ½	94.92	27.000	81.000	.500 Dia.	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"

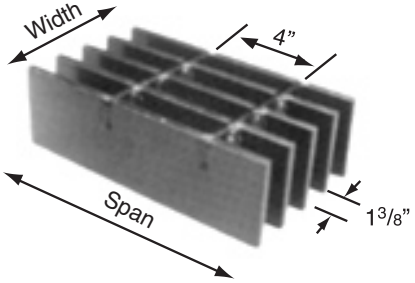
*Span limited to 1/400 of span = Deflection.

** Based on 10.33 bars/ft of grating width. Bearing bars 1 3/16" c.c.

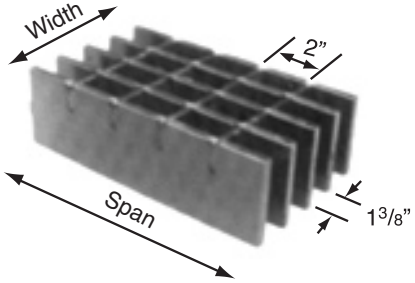
When serrated grating is specified the depth of grating required for a specified load will be ¼" greater than that shown in these tables.

Heavy Duty Welded Steel 22-W-4/22-W-2

22-W-4



22-W-2



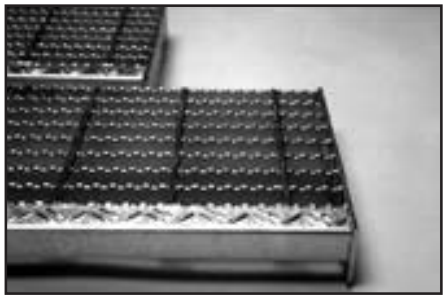
	Maximum Safe Concentrated Load - Clear Span												
Bar Size	**1'-0"**	**1'-6"**	**2'-0"**	**2'-6"**	**3'-0"**	**3'-6"**	**4'-0"**	**4'-6"**	**5'-0"**	**5'-6"**	**6'-0"**	**7'-0"**	**8'-0"**
1¼ X ¼	3906	2604	1953	1562	1302	1116	976	868	781	710	651	558	488
1¼ X ⅜	5860	3906	2930	2344	1953	1674	1465	1302	1172	1065	976	837	732
1½ X ¼	5620	3746	2810	2248	1873	1605	1405	1248	1124	1021	936	802	702
1½ X 5/16	7026	4684	3513	2810	2342	2007	1756	1561	1405	1277	1171	1003	878
1½ X ⅜	8433	5622	4216	3373	2811	2409	2108	1874	1686	1533	1405	1204	1054
1¾ X ¼	7653	5102	3826	3061	2551	2186	1913	1700	1530	1391	1275	1093	956
1¾ X ⅜	11486	7657	5743	4594	3828	3281	2871	2552	2297	2088	1914	1640	1435
2 X ¼	9993	6662	4996	3997	3331	2855	2498	2220	1998	1816	1665	1427	1249
2 X 5/16	12500	8333	6250	5000	4166	3571	3125	2777	2500	2272	2083	1785	1562
2 X ⅜	15000	10000	7500	6000	5000	4285	3750	3333	3000	2727	2500	2142	1875
2¼ X ¼	12653	8435	6326	5061	4217	3615	3163	2811	2530	2300	2108	1807	1581
2¼ X ⅜	18986	12657	9493	7594	6328	5424	4746	4219	3797	3452	3164	2712	2373
2½ X ¼	15626	10417	7813	6250	5208	4464	3906	3472	3125	2841	2604	2232	1953
2½ X 5/16	19533	13022	9766	7813	6511	5580	4883	4340	3906	3551	3255	2790	2441
2½ X ⅜	23433	15622	11716	9373	7811	6695	5858	5207	4686	4260	3905	3347	2929
3 X ¼	22500	15000	11250	9000	7500	6428	5625	5000	4500	4090	3750	3214	2812
3 X 5/16	28120	18746	14060	11248	9373	8034	7030	6248	5624	5112	4686	4017	3515
3 X ⅜	33753	22502	16876	13501	11251	9643	8438	7500	6750	6136	5625	4821	4219
3 X ½	45000	30000	27500	18000	15000	12857	11250	10000	9000	8181	7500	6428	5625
3½ X ¼	30626	20417	15313	12250	10208	8750	7656	6805	6125	5568	5104	4375	3828
3½ X ⅜	45933	30622	22966	18373	15311	13123	11483	10207	9186	8351	7655	6561	5741
3½ X ½	61246	40831	30623	24498	20415	17499	15311	13610	12249	11135	10207	8749	7655
4 X ¼	39993	26662	19996	15997	13331	11426	9998	8887	7998	7271	6665	5713	4999
4 X 5/16	50000	33333	25000	20000	16666	14285	12500	11111	10000	9090	8333	7142	6250
4 X ⅜	60000	40000	30000	24000	20000	17142	15000	13333	12000	10909	10000	8571	7500
4 X ½	80000	53333	40000	32000	26666	22857	20000	17777	16000	14545	13333	11428	10000
4½ X ¼	50620	33746	25310	20248	16873	14462	12655	11248	10124	9203	8436	7231	6327
4½ X ⅜	75933	50622	37966	30373	25311	21695	18983	16874	15186	13806	12655	10847	9491
4½ X ½	101246	67497	50623	40498	33748	28927	25311	22499	20249	18408	16874	14463	12655
5 X ¼		41662	31246	24997	20831	17855	15623	13887	12498	11362	10415	8927	7811
5 X 5/16		52080	39060	31248	26040	22320	19530	17360	15624	14203	13020	11160	9765
5 X ⅜		62502	46876	37501	31251	26786	23438	20834	18750	17046	15625	13393	11718
5 X ½		83333	62500	50000	41666	35714	31250	27777	25000	22727	20833	17857	15625
5½X ¼		50413	37810	30248	25206	21605	18905	16804	15124	13749	12603	10802	9452
5½X ⅜		75627	56716	45373	37811	32409	28358	25207	22686	20624	18905	16204	14179
5½X ½		100831	75623	60498	50415	43213	37811	33610	30249	27499	25207	21606	18905
6X ¼			45000	36000	30000	25714	22500	20000	18000	16363	15000	12857	11250
6X 5/16			56250	45000	37500	32142	28125	25000	22500	20454	18750	16071	14062
6X ⅜			67500	54000	45000	38571	33750	30000	27000	24545	22500	19285	16875
6X ½			90000	72000	60000	51428	45000	40000	36000	32727	30000	25714	22500

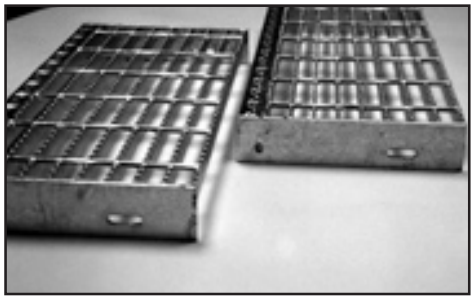
When serrated grating is specified the depth of grating required for a specified load will be ¼" greater than that shown in these tables.

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

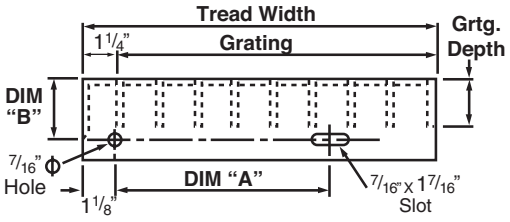
Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Stair Treads



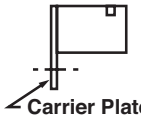


Stair Tread Details



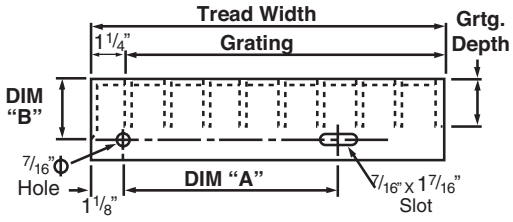
Checker Plate Nosing - Steel
Grooved Nosing - Aluminum

TREAD WITH CARRIER PLATE

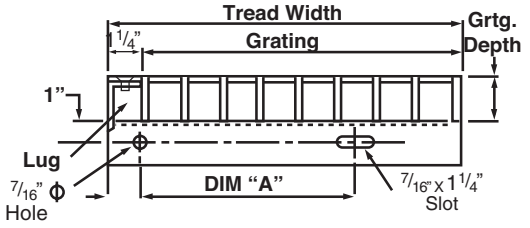


Steel - $2\frac{1}{2}$" x $\frac{3}{16}$", or 3" x $\frac{3}{16}$" depending upon DIM.B

Aluminum - - 3x $\frac{3}{16}$"

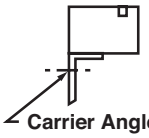


Cast Abrasive Nosing - Steel & Aluminum

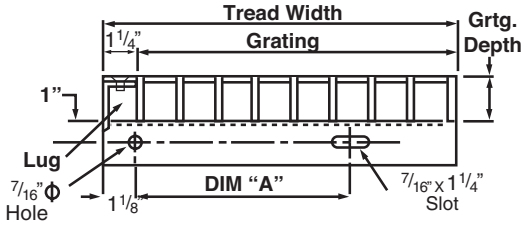


Cast Abrasive Nosing - Aluminum

TREAD WITH CARRIER ANGLE



2 x $1\frac{1}{2}$" x $\frac{1}{4}$" Alum.
(used for close mesh alum. grtg.)



Cast Abrasive Nosing - Aluminum

STANDARD TREAD WIDTHS AND END PLATE DIMENSIONS

NOTE: Refer to drawings above for A and B dimensions.

Number of Bearing Bars	Width (Includes Nosing*)				End Plate Dimensions		
						Dim. B	
	W, SG, SGF Series	SGI Series	R, AR Series	Plank Series	Dim. A	1" 1¼"	1½" 1¾"
5	6 3/16	6¼	6 1/16	6⅜	2½"	1¾"	2¼"
6	7⅜	7 1/16	8	7¼	4½"	1¾"	2¼"
7	8 3/16	8⅝	9 5/16	8¾	4½"	1¾"	2¼"
8	9¾	9 13/16	10⅜	9 15/16	7"	1¾"	2¼
9	10 15/16	11	11 5/16	11⅛	7"	1¾"	2¼"
10	12⅛	12 3/16	13¼	12⅜	7"	1¾"	2¼"

NOTE: DIM, B = 2¼" for ALL aluminum treads.

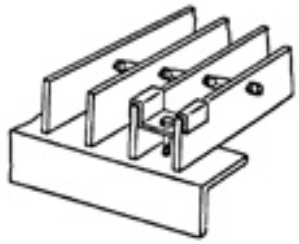
*Table of widths based on $\frac{3}{16}$" thick bearing bars and standad bar spacing $1\frac{3}{16}$" cc ($1\frac{1}{8}$" face-to-face for riveted grating.)

SUGGESTED BEARING BAR SIZES*

Aluminum Treads					Steel Treads		
SGF, SG, AR Series	Max. Tread Length*		SGI Series Plank Series	Maximum Tread Length*	W, R Series	Max. Tread Length*	
	Plain	Serrated				Plain	Serrated
1" × 3/16"	2'-4"	2'-2"	1" I-Bar/Plank	2'-6"	¾" × 3/16"	2'-4"	1'-11"
1¼" × 3/16"	2'-10"	2'-7"	1¼"I-Bar/Plank	3'-0"	1" × 3/16"	3'-5"	2'-10"
1½" × 3/16"	3'-6"	3'-2"	1½" I-Bar/Plank	3'-6"	1¼" × 3/16"	4'-8"	4'-2"
1¾" × 3/16"	4'-3"	3'-10"	1¾" I-Bar/Plank	4'-5"	1½" × 3/16"	5'-6"	5'-3"

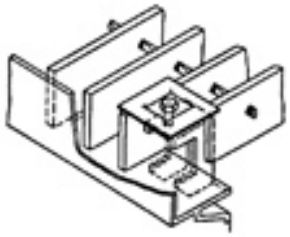
*Maximum tread length based on 400-lb. concentrated load on nosing and 4 bearing bars at center of tread length.
NOTE: Since a serrated connecting bar does not reduce te strength of the grating, R and AR Series treads may always be selected from the "Plain" column.

Anchoring Devices



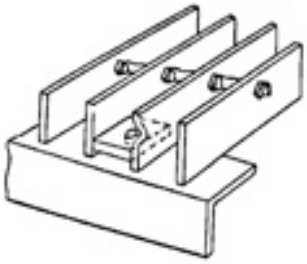
SADDLE CLIP

A special bent-clip type fastener for removable bar grating panels available In aluminum stainless steel and galvanized steel. Clips only are supplied by the grating manufacturer. Other fastening accessories to be provided by others. (Note: Cross bars may need to be snipped in the field to facilitate placement of saddle clips.)



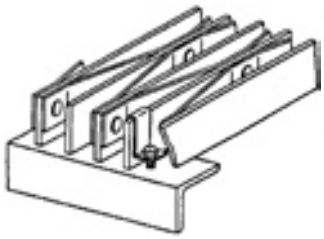
GRATING CLAMP

A special friction fastener available in aluminum, stainless steel, and galvanized steel used in conjunction with bar grating and embedded grating frames. (Note: Cross bars may need to be snipped in the field to facilitate placement of grating clamps.)



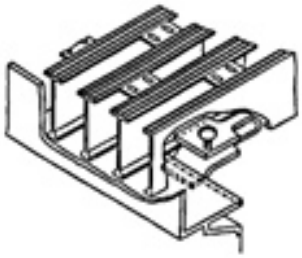
ANCHOR BLOCK

Anchor blocks of ¼" or 3⁄16" thick aluminum or steel may be shop welded by the grating manufacturer and used to fasten permanent or removable grating panels. Anchor blocks are recessed thus offering a trip-free surface.



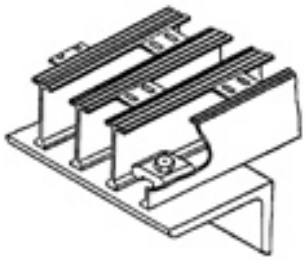
Z CLIP

The most versatile clip anchor available is the Z Clip. These clips are especially helpful in holding down riveted grating. Z Clips are manufactured from stainless steel and are available in 1" (1" and 1¼" grating) 1½" (1½" and 1¾" grating) and 2" (2", 2¼" and 2½" grating) with a pre-punched hole to accept a ¼" bolt or TEK screw (by others).



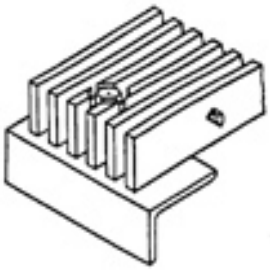
PLANK CLIP

A special friction fastener used in conjunction with plank grating and embedded grating frames. When plank is banded clips are installed by the manufacturer.



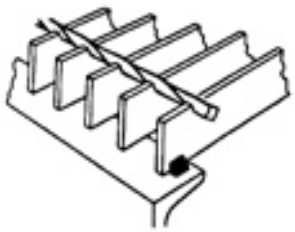
PLANK LUG

A plank lug inserted and tack welded between flanges can serve as an anchor block for plank grating. TEK screw fastener by others.



COUNTERSUNK LAND

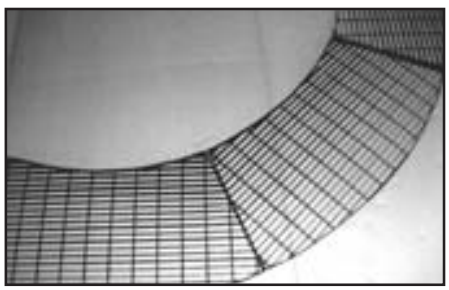
For close-mesh aluminum grating (7⁄16" bearing bar centers) a countersunk land may be drilled by the grating manufacturer for use with a 1⁄4" diameter TEK screw (by others).

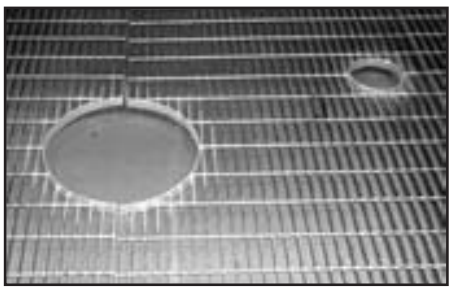


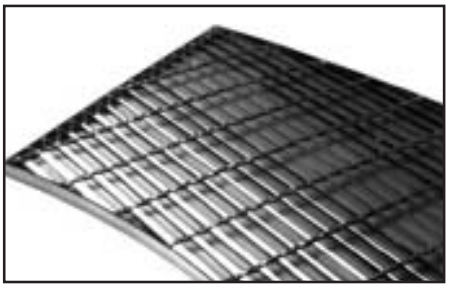
TACK WELD

A positive method for anchoring all permanently installed grating. Welding is done in the field by other than Direct Metals.

A Few Examples of Direct Metals Fabrications







Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Combining unmatched corrosion resistance with strength, long life and safety, Fibergrate Composite Structures Incorporated sets the standard for fiberglass reinforced plastic (FRP) molded grating. For more than three decades, Fibergrate's products have been proven to deliver years of reliable service, even in the most demanding corrosive conditions – conditions which can cause conventional steel grating to deteriorate rapidly.

Fibergrate molded grating combines fiberglass rovings with thermosetting resin to form a strong, one-piece molded panel. A 65% resin to glass weight ratio provides corrosion resistance characteristics that are unparalleled by other flooring products.

The Standard of Quality

Combining advanced resin systems, a unique pattern of fiber reinforcement, proven manufacturing techniques and stringent quality control procedures, Fibergrate sets the standard for fiberglass grating.

Fibergrate molded grating offers a number of features that set it apart from any other flooring product. Its ability to resist impact is unmatched, yet it weighs about one-third that of steel grating and is easy to fabricate, so it is less expensive to install. While steel grating requires costly and time-consuming cutting and welding, along with special lifting equipment, Fibergrate's grating involves fewer man-hours and only simple hand tools for installation. In fact, the savings on labor and equipment often make the total installed cost of Fibergrate's molded grating about the same as that of steel; and considering its long, maintenance free life, Fibergrate's molded grating offers a significantly lower overall life cycle cost.

For enhanced worker safety, Fibergrate's molded grating is slip resistant and non-conductive, with a flame spread rating unsurpassed by any competitive product. Concern for an ergonomic work environment in facility planning leads more and more companies to rely on the inherent resiliency of Fibergrate molded grating to increase worker productivity by greatly reducing back and leg fatigue.

As part of the company's continuous quality control effort, Fibergrate Quality Assurance experts routinely subject Fibergrate molded grating to extreme tests for chemical resistance, stability under ultraviolet exposure, impact resistance, load carrying capacity and strength.

$$\text{VALUE} = \frac{\text{PRICE}}{\text{SERVICE LIFE}}$$

When comparing the price of Fibergrate molded grating to metal grating, or other conventional grating, there are several factors to consider.

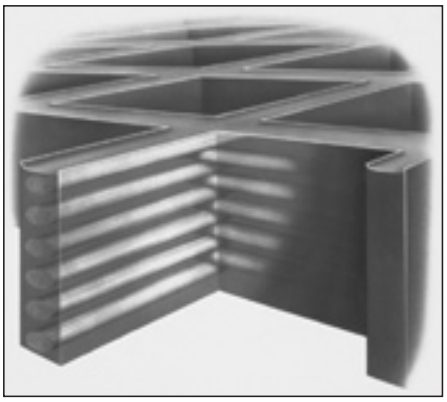
One of the most important factors is the safety cost. Slip and fall accidents are the second leading cause of industrial accidents and one of the leading causes of death. The anti-slip surfaces of Fibergrate products can dramatically reduce accidental slips and falls. With the cost of each lost workday accident approaching $32,000, Fibergrate could be the least expensive grating available.

The initial, or first cost is usually figured on a square-foot basis. Fibergrate molded grating typically costs more than metal grating. Too often the grating with the lowest price is selected, particularly in new construction projects, because it seems to be the most economical. Unfortunately, the cheapest grating often ends up costing more than Fibergrate due to high maintenance and replacements costs. Replacing corroded, unsafe grating is one of Fibergrate's biggest markets. In most cases, if Fibergrate had been installed initially, very few grating-related problems would have occurred.

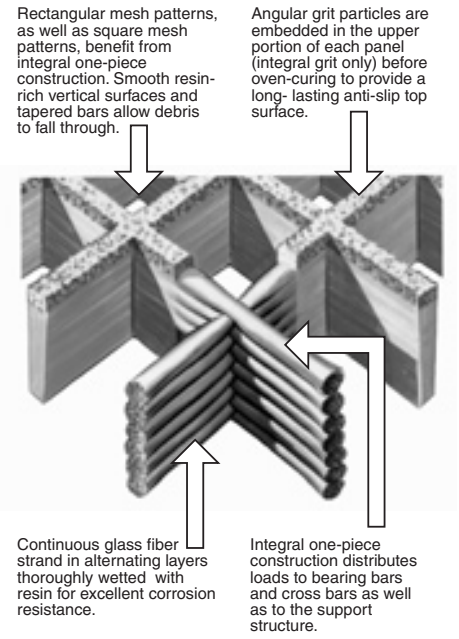
Another important factor is installed cost. Fibergrate grating is often less expensive than metal grating when installation costs are figured into the total price. Metal grating requires costly and time-consuming cutting and welding, and must be "end-banded." Fibergrate can be easily fabricated with hand tools. Its molded construction requires no end-banding which saves time and money. Fibergrate square mesh bearing bars run in both directions, which can maximize utilization and eliminate field errors in installation. Also, Fibergrate weighs less than metal grating, making it easier to handle and less expensive to transport.

The most important factor though, is total or life cycle cost. In highly corrosive applications, metal grating will often deteriorate in a few years or less. In the same installation, Fibergrate will last many times longer than metal grating. Combined with the reduction in accidents, this factor often makes Fibergrate the lowest cost grating available. These are the reasons so many companies have switched from conventional grating to Fibergrate molded products.

Meniscus Top



Integral Grit-Top



RESIN SYSTEMS

Vi-Corr®
(Fibergrate only) A superior vinyl ester resin available only from Fibergrate, Vi-Corr was developed for reliable performance in the toughest environments. It offers outstanding resistance to a wide range of highly corrosive situations, ranging from caustic to acidic. In fact, no other resin system can match Vi-Corr's performance in highly acidic environments. **Color:** orange or dark gray. **Flame Spread:** ASTM rating of 15 or less. Vi-Corr is also available in a UL Classified resin formulation.

VE-25
(Chemgrate only) A premium vinyl ester resin system formulated to resist the highly corrosive properties of acids and caustics found in the harshest chemical environment. It is an economical alternative to the more expensive exotic materials often specified for highly corrosive conditions. **Color:** orange or dark gray. **Flame spread:** ASTM rating of 15 or less. This superior resin system will maintain its structural integrity at elevated temperatures of up to 180ºF.

CP-84
(Chemgrate only) A premium grade polyester resin, CP-84 offers excellent corrosion resistance in highly acidic conditions. This non-fire retardant resin is a chemical grade thermoset that has USDA acceptance for use in food processing plants. **Color:** green. **Flame Spread:** non-fire retardant.

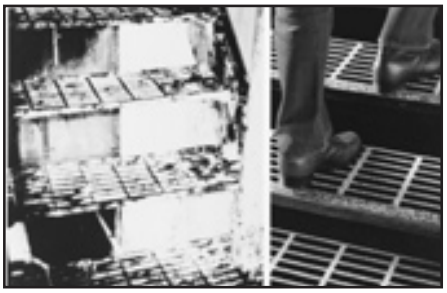
CORVEX®
(Fibergrate only) An economy polyester grating, Corvex outperforms a number of competitive fiberglass and metal products and meets the requirements for corrosion resistance found in light industrial and water/wastewater application. **Color:** yellow, dark gray or dark green. **Flame Spread:** ASTM rating of 25 or less.

XFR
(Fibergrate only) This highly corrosion resistant vinyl ester resin is recommended for use where the fire potential is high. **Color:** dark gray. **Flame Spread:** ASTM rating of 10 or less, a level exceeded by no other resin system.

Super ViCorr®


(Fibergrate only) A superior grade vinyl ester resin system designed for extreme temperatures (180º to 400º F) and extremely corrosive environments such as solvents and acidic oxidizers, including aqueous chlorine and chlorine dioxide solutions forming sodium hypochlorite. This custom resin system is used mainly as packing hold-downs (bed limiters) and as packing supports in environmental or process scrubber and stripping applications. **Color:** natural - tan to beige. **Flame Spread:** non-fire retardant, unless specified.

ELS
(Fibergrate only) The added benefit of greater worker visibility and lower toxicity in emergencies, make ELS products ideal for tunnel, offshore, ship and other confined area application. **Color:** light gray. **Flame Spread:** ASTM rating of 15, a smoke density index of 70 and Fuel Contribution of 0.



IFR
(Fibergrate only) This isophthalic polyester resin formulation is designed for industrial and chemical processing applications where corrosion resistance is important. **Color:** green or dark gray. **Flame Spread:** ASTM rating of 20 or less. IFR is also available in a UL Classified resin formulation.

FS-25
(Chemgrate only) FS-25 is a polyester resin system designed for applications where there is moderate exposure to corrosive elements. This resin system is USDA accepted. **Color:** light gray, yellow and green. **Flame Spread:** ASTM rating of 25 or less.

FGI
(Fibergrate only) This isophthalic polyester resin system meets the unique requirements of the food and beverage industry. **Color:** light gray or dark green. **Flame Spread:** ASTM rating of 20 or less.

Fibergrate® Molded Grating Selection

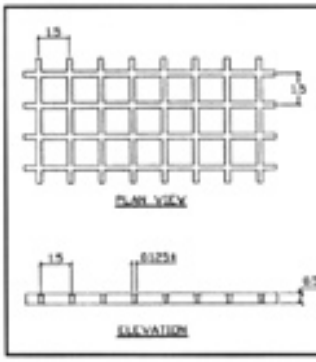
Depth	Mesh	Panel Sizes	Lbs/Sq.Ft.
5/8"	1" x 4" rectangular	12' x 4'	2.1 lbs.
1/2"	1 1/2" x 1 1/2" square (non-load carrying product)	4' x 8'	0.8 lbs.
1/2"	2" x 2" square (non-load carrying product)	4' x 12'	1.0 lbs.
3/4"	1" x 4" rectangular	10' x 3', 8' x 4'	2.5 lbs.
3/4"	1 1/2 x 1 1/2 square	3' x 10', 4' x 8', 4' x 12'	2.0 lbs.
1"	1" x 4" rectangular standard	12' x 4', 12' x 3'-0 1/4"	2.7 lbs.
1"	1" x 4" rectangular	10' x 3', 8' x 4'	2.5 lbs.
1"	1" x 4" rectangular heavy duty	12' x 4'	3.4 lbs.
1"*	1 1/2" x 1 1/2" square	3' x 10', 4' x 8', 4' x 12'	2.5 lbs.
1"	2" x 2" square	4' x 12'	1.7 lbs.
1 1/4"	1 1/2" x 1 1/2" square	3' x 10', 4' x 8', 4' x 12' 5' x 10'	3.2 lbs.
1 1/2"*	1 1/2" x 1 1/2" square	3' x 10', 4' x 8', 4' x 12'	3.2 lbs.
1 1/2"	1 1/2" x 6" rectangular	12' x 4'	3.4 lbs.
2"	2" x 2" square	4' x 12'	4.1 lbs.
2"	2" x 2" square	4' x 12'	4.0 lbs.

**Available in UL Classified Vi-Corr and IFR resin formulations.*

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002
Park City, IL
(847) 599-0233 • FAX (847) 599-0244

Molded Grating Details

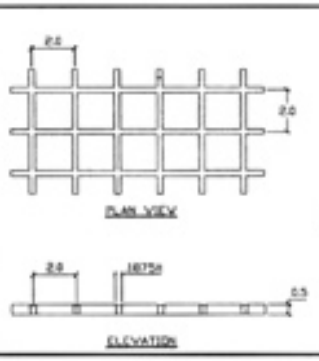
AirMesh™ 1/2" x 1-1/2" Square Mesh



#of Bars/Ft of Width: 8

Load Bar Width	Open Area
1/8"	87%
Load Bar Centers	**Approx. Weight**
1-1/2"	0.8 lbs./ft²

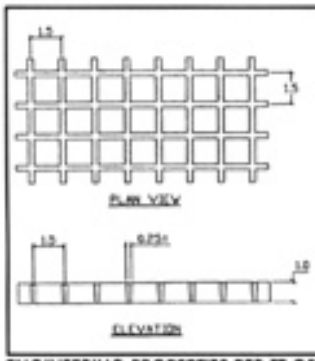
Multigrid® 1/2" x 2" Square Mesh



#of Bars/Ft of Width: 6

Load Bar Width	Open Area
3/16"	82%
Load Bar Centers	**Approx. Weight**
2"	0.96 lbs./ft²

1" x 1-1/2" Square Mesh

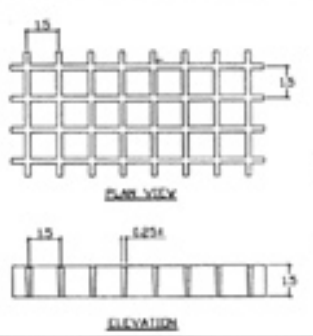


#of Bars/Ft of Width: 8

Load Bar Width	Open Area
1/4"	70%
Load Bar Centers	**Approx. Weight**
1-1/2"	2.5 lbs./ft²

ENGINEERING PROPERTIES PER FT OF WIDTH
A = 1.71 IN² I = 0.14 IN⁴ S= 0.29 IN³ AVERAGE EI = 300,000 LB-IN²

1-1/2" x 1-1/2" Square Mesh

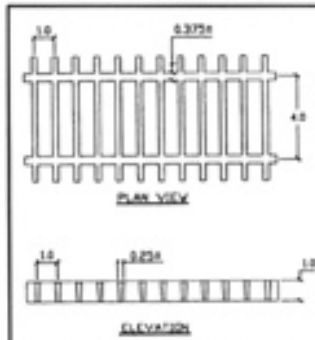


#of Bars/Ft of Width: 8

Load Bar Width	Open Area
1/4"	70%
Load Bar Centers	**Approx. Weight**
1-1/2"	3.75 lbs./ft²

ENGINEERING PROPERTIES PER FT OF WIDTH
A = 2.85 IN² I = 0.51 IN⁴ S= 0.65 IN³ AVERAGE EI = 900,000 LB-IN²

1" x 1" x 4" Rectangular Mesh

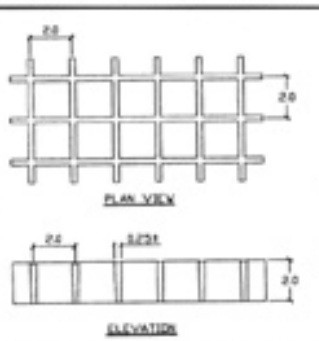


Load Bars Run Width Direction/# of Bars/Ft of Width: 12

Load Bar Width	Open Area
1"	69%
Load Bar Centers	**Approx. Weight**
1"	2.5 lbs./ft²

ENGINEERING PROPERTIES PER FT OF WIDTH
A = 2.57 IN² I = 0.22 IN⁴ S= 0.43 IN³ AVERAGE EI = 513,000 LB-IN²

2" x 2" Square Mesh

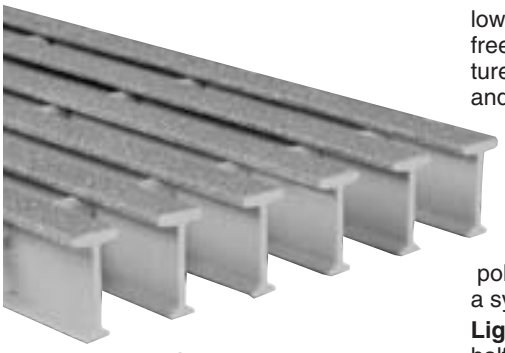


#of Bars/Ft of Width: 6

Load Bar Width	Open Area
1/4"	72%
Load Bar Centers	**Approx. Weight**
2"	4.0 lbs./ft²

ENGINEERING PROPERTIES PER FT OF WIDTH
A = 2.88 IN² I = 0.96 IN⁴ S= 0.94 IN³ AVERAGE EI = 1,950,000 LB-IN²

SAFE-T-SPAN®



Combining corrosion resistance, long life and a maintenance-free design, Safe-T-Span® pultruded grating is superior to conventional metals. This advanced grating is also lightweight and easy to fabricate, making it less expensive to install. In fact, the savings on labor and equipment often make the total installed cost of Safe-T-Span grating comparable to that of steel. Combining it's low cost of installation with maintenance-free long-life, Safe-T-Span is manufactured with a recessed tie bar configuration and an inherent resiliency which reduces back and leg strain and contributes to ergonomics and worker productivity.

Features and Benefits

Corrosion Resistance - based on the use of premium grade, isophthalic polyester or vinyl ester resin systems and a synthetic surfacing veil.

Lightweight yet durable - less than one-half the weight of steel grating allowing easy removal for access below floor level and installation with no heavy equipment and less manpower required.

Added Safety - durable grit surface, permanently bonded and baked to the grating surface, for a safe, slip-resistant walkway.

Fire Retardant - flame spread rating of 15 or less, according to ASTM E-84; meets the self-extinguishing requirements of ASTM D-635.

Maintenance Free - corrosion resistant and requires no scraping, sandblasting or painting; install it and forget it.

UV Protection - UV inhibitors included in the resin formulation, along with a surfacing veil and grit top surface for optimum protection from the effects of weathering.

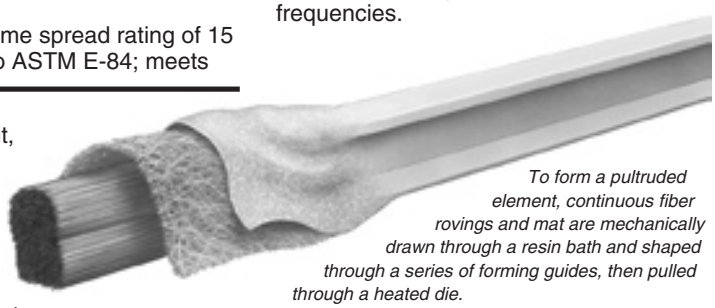
Easily Fabricated - no need for lifting equipment or expensive tools; can be easily carried by two workers and cut using standard circular or saber saws fitted with carbide blades.

Electrically and Thermally Non-Conductive - providing additional worker safety

Electronically Transparent - does not affect electromagnetic or radio wave frequencies.

All of Fibergrate's pultruded gratings are manufactured with a high percentage of glass within the laminate, providing durability, extremely high unidirectional strength and stiffness. Due to its exceptional stiffness, Safe-T-Span can be used with confidence in applications where wide support spans are required. For most applications where it is used to replace corroding steel grating, Safe-T-Span rarely requires additional support.

Designed specifically for pedestrian walkways, Safe-T-Span pedestrian floor grating is ideal for any application where a corrosion-resistant, durable, lightweight surface material is required. Safe-T-Span pedestrian grating is available in 1" and 1½" depths and in several configurations and panel sizes. 1" deep Safe-T-Span pedestrian grating is designed for access areas and walkways where pedestrian traffic is the heaviest load. 1½" Safe-T-Span pedestrian grating is approximately three times stiffer than the 1" deep version and is used for applications where wider spans (up to 72") or lower deflection criteria are required.



To form a pultruded element, continuous fiber rovings and mat are mechanically drawn through a resin bath and shaped through a series of forming guides, then pulled through a heated die.

Selection of Safe-T-Span® Pultruded Industrial Grating - 6" Tie Bar Spacing Standard

Series	Panel Depth	Load Bar Spacing	Sizes Width	Sizes Length	Load Bars/ft.	Wt/Sq.Ft.	Open Area
I-6010	1"	1-1/2"	3', 4'	10', 20'	8	2.4 lbs.	60%
I-6015	1-1/2"	1-1/2"	3', 4'	10', 20'	8	2.8 lbs.	60%
T-5020	2"	2"	3', 4'	10', 20'	6	3.1 lbs.	50%
I-4010	1"	1"	3', 4'	10', 20'	12	3.4 lbs.	40%
I-4015	1-1/2"	1"	3', 4'	10', 20'	12	4.1 lbs.	40%
T-3320	2"	1-1/2"	3', 4'	10', 20'	8	4.0 lbs.	33%

Selection of Safe-T-Span® Pultruded Pedestrian Grating - 12" Tie Bar Spacing Standard

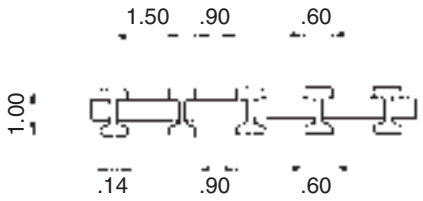
Series	Panel Depth	Load Bar Spacing	Sizes Width	Sizes Length	Load Bars/ft.	Wt/Sq.Ft.	Open Area
T-3810	1"	2.4"	3', 4'	10', 20'	5	1.9 lbs.	38%
T-2510	1"	2.0"	3', 4'	10', 20'	6	2.3 lbs.	25%
T-1210	1"	1.7"	3', 4'	10', 20'	7	2.7 lbs.	12%
T-3815	1-1/2"	2.4"	3', 4'	10', 20'	5	2.7 lbs.	38%
T-2515	1-1/2"	2.0"	3', 4'	10', 20'	6	3.2 lbs.	25%
T-1215	1-1/2"	1.7"	3', 4'	10', 20'	7	3.6 lbs.	12%

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

PULTRUDED GRATING DETAILS

1" Deep I-6010 Safe-T-Span Pultruded Grating

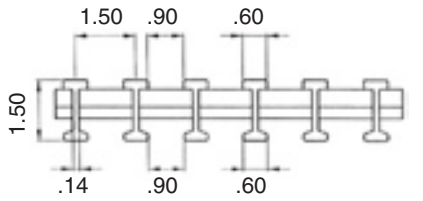


# of Bars/Ft. of Width – 8

Load Bar Depth 1" Open Area 60%
Load Bar Centers 1-1/2" Approx. Wt. 2.62 lbs./ft²

Engineering Properties per Ft. of Width
A = 2.64 (IN²) I = 0.33 (IN⁴) S = 0.63 (IN³)
Average EI = 1,700,000 LB-IN² (Span≥24")

1-1/2" Deep I-6015 Safe-T-Span Pultruded Grating

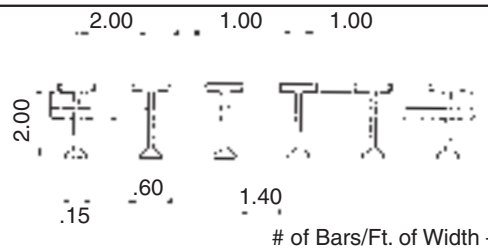


# of Bars/Ft. of Width – 8

Load Bar Depth 1-1/2" Open Area 60%
Load Bar Centers 1-1/2" Approx. Wt. 2.83 lbs./ft²

Engineering Properties per Ft. of Width
A = 3.20 (IN²) I = 0.94 (IN⁴) S = 1.20 (IN³)
Average EI = 4,600,000 LB-IN² (Span≥24")

2" Deep T-5020 Safe-T-Span Pultruded Grating

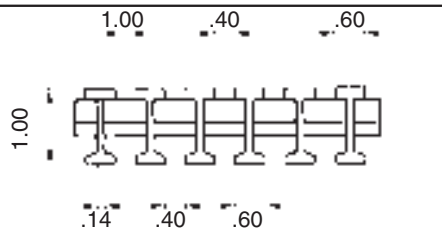


# of Bars/Ft. of Width – 6

Load Bar Depth 2" Open Area 50%
Load Bar Centers 2" Approx. Wt. 3.1 lbs./ft²

Engineering Properties per Ft. of Width
A = 3.20 (IN²) I = 1.68 (IN⁴) S = 1.96 (IN³)
Sb = 1.47 (IN³) Average EI = 7,6000,000 LB-IN² (Span≥24")

1" Deep I-4010 Safe-T-Span Pultruded Grating

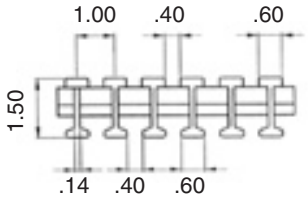


# of Bars/Ft. of Width – 12

Load Bar Depth 1" Open Area 40%
Load Bar Centers 1" Approx. Wt. 3.41 lbs./ft²

Engineering Properties per Ft. of Width
A = 3.96 (IN²) I = 0.05 (IN⁴) S = 0.95 (IN³)
Average EI = 2,500,000 LB-IN² (Span≥24")

1-1/2" Deep I-4015 Safe-T-Span Pultruded Grating

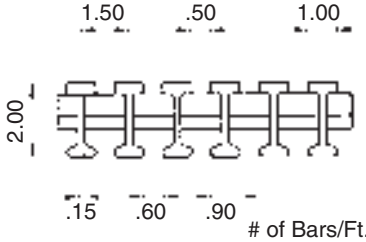


# of Bars/Ft. of Width – 12

Load Bar Depth 1-1/2" Open Area 40%
Load Bar Centers 1" Approx. Wt. 4.13 lbs./ft²

Engineering Properties per Ft. of Width
A = 4.80 (IN²) I = 1.41 (IN⁴) S = 1.80 (IN³)
Average EI = 7,000,000 LB-IN² (Span≥24")

2" Deep T-3320 Safe-T-Span Pultruded Grating



# of Bars/Ft. of Width – 8

Load Bar Depth 2" Open Area 33%
Load Bar Centers 1-1/2" Approx. Wt. 4.00 lbs./ft²

Engineering Properties per Ft. of Width
A = 4.28 (IN²) I = 2.24 (IN⁴) S = 2.61 (IN³)
Average EI = 9,200,000 LB-IN² (Span≥24")

SAFE-T-SPAN® GRATING RESIN SYSTEMS

Safe-T-Span pultruded grating is available in two resin formulations for an accurate match of product characteristics with the application. Both resin systems provide corrosion resistance that is superior to that offered by metal grating.

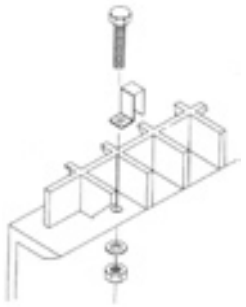
• ISOFR this isophthalic polyester resin formulation provides a low flame spread rating of 15 or less and is designed for applications where there is moderate exposure to corrosive elements.

• VEFR - with a flame spread of 15 or less, this vinyl ester resin system provides dependable resistance to both acidic and alkaline environments.

RESIN	SERIES	STANDARD COLOR
ISOFR	T3810, T2510, T3815, T2515	DARK GRAY
VEFR	T3810, T2510, T3815, T2515	DARK GRAY
ISOFR and VEFR	T1210, T1215	LIGHT GRAY
ISOFR	I6010, I6015, 14010, I4015, T3320, T5020	YELLOW
VEFR	I6010, I6015, 14010, I4015, T3320, T5020	DARK GRAY

Clip Assemblies for Molded Grating

Fibergrate offers specially-designed attachments and clips, both to fasten panels together and to secure them to support structures. All types are made of Type 316 Stainless Steel and are available in 1", 1-½" and 2" sizes. Install clips a maximum of every 48" and use at least four clips per piece of grating (at least eight clips per 4' x 12' panel)

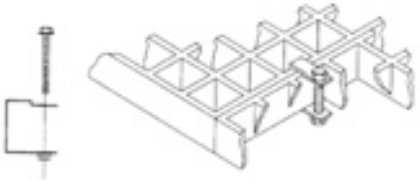


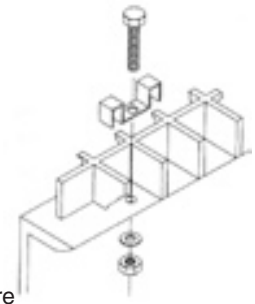
Type J Hold Down Clips:

Secure grating panels to support frames.

Type F End Panel Clips:

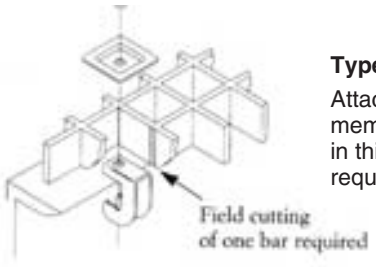
Provide a simplified method for joining factory edges of adjacent abutting panels. (Not for use with Chemgrate resins.).





Type M Hold Down Clips:

Secure panels to a support in the same manner as type J Clips, but designed to use two adjacent grating bars for a more secure fit. Similar in design to metal grating saddle clips.

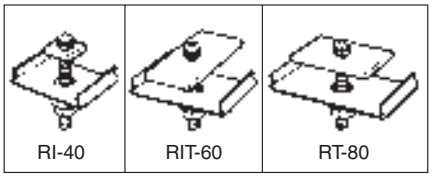


Type G Hold Down Clips:

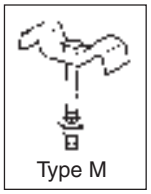
Attach grating to any structural member flange, 3/4" or smaller in thickness, with no drilling required.

Clip Assemblies for Safe-T-Span Pultruded Grating

Fibergrate's patented Type R Hold Down Clip Assembly of Type 316 stainless steel offers effective and easy installation of pultruded grating.



- RI-40 for I-4010 and I-4015 grating
- RIT-60 for I-6010, I-6015, and T-3320 grating
- RT-80 for 5020 grating
- RT-12 for T-1210 and T-1215 grating
- RT-25 for T-2510 and T-2515 grating



Fibergrate also offers Type M Hold Down Clip Assemblies for many pultruded grating types such as:

- MI-40 for I-4010 and I-4015 grating
- MT-5020 for T-5020 grating
- MT-3810 for T-3810 grating
- MI-60 for I-6010 and I-6015 grating
- MT-3320 for T-3320 grating
- MT-3815 for T-3815 grating

Sealing Kits

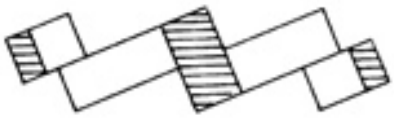
To maintain corrosion resistance and structural integrity, Fibergrate offers standard resin sealing kits for protecting the exposed ends of cut panels and other components.

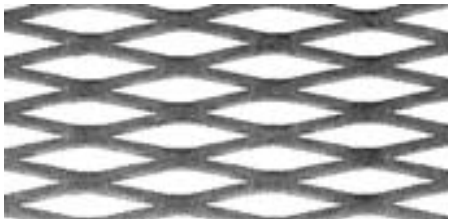
Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

REGULAR EXPANDED METAL

Regular Expanded Metal is a finished product as it comes from the press after having been die cut and expanded. Illustration shows that the strands and bonds form a sharp angle to the original plane of the solid sheet.





¼" #20 Regular

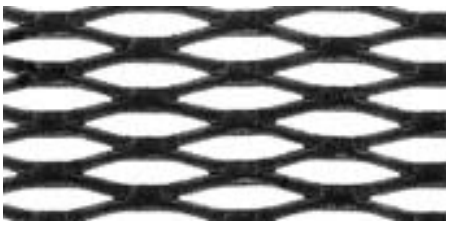
½" #16 Regular

¾ " #13 Regular

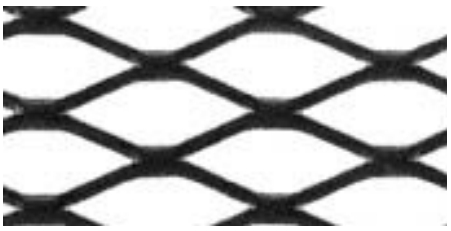
1½" #9 Regular

FLATTENED EXPANDED METAL

Flattened Expanded Metal is regular expanded metal which has been cold rolled leaving a flat smooth surface.



¼" #20 Flattened



½" #16 Flattened

¾" #13 Flattened

1½" #9 Flattened

Patterns Shown Actual Size

SHEARING

SIDE SHEARING

The process of cutting a piece of expanded metal parallel to the long dimension of the diamond.

Random Side Shearing—Side shearing is a cut made parallel to the LWD dimension of the sheet which usually leaves open diamonds. Standard tolerance SWD is plus or minus 1/16" when both sides are sheared.

Bond Side Shearing—This cut is made along the length of the sheet on the center line of the bond over the specified width. In most cases it is not practical to attempt to Bond Side Shear either regular or flattened expanded metal, because of camber.

END SHEARING

The process of cutting a piece of expanded metal parallel to the short way of the diamond.

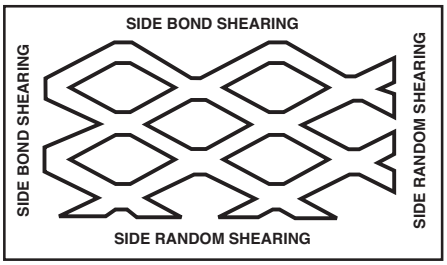
End Random Shearing—The process of shearing a piece of expanded metal to a specified length (LWD). This cut normally leaves open diamonds at both ends but accomplishes close tolerance (plus or minus 1/16") when both ends are sheared.

End Bond Shearing—The process of shearing a piece of expanded metal to a specified length (LWD). A plus or minus 1/16" tolerance applies when both ends are sheared. One end is cut on the Bond parallel to the SWD, the other end usually has open diamonds.

NOTE: When End Bond Shearing is requested for both ends, the sheet is sheared at the center line of the bond over the specified length. A tolerance minus 0 plus ½ diamond applies. It is possible to End Bond Shear, but extraordinary care must be exercised to maintain the squareness of the sheet.

SQUARENESS

When all four sides of a sheet of expanded metal are sheared, the maximum tolerance will be plus or minus 1/16" per foot of width.



REGULAR EXPANDED METAL

CARBON STEEL - ASTM A569/569M

Style	Weight in lbs. per c.s.f.		Standard Sizes in Feet		Size of Openings in Inches		Center to Center of Bond in Inches		Size of Strands in Inches		Percent Open Area	Overall Thickness in Inches
	Plain	Galv.	Width	Length	Width	Length	Width	Length	Width	Thickness		
3/16"-#24	50	A	B	B	.166	.437	.200	.50	.050	.024	63	.086
3/16"-#22	62	A	B	B	.166	.437	.200	.50	.050	.030	60	.088
3/16"-#20	75	A	B	B	.166	.437	.200	.50	.050	.036	57	.090
1/4"-#20	86	129	4	8	.172	.719	.255	1.00	.073	.036	45	.125
1/4"-#18	114	171	4	8	.172	.719	.255	1.00	.073	.048	43	.125
1/2"-#20	43	59	4	8	.438	.938	.500	1.20	.072	.036	80	.124
1/2"-#18	70	85	4-6	8-10	.438	.938	.500	1.20	.088	.048	77	.155
1/2"-#16	86	97	4-6	8-10	.375	.938	.500	1.20	.086	.060	71	.157
1/2"-#13	147	173	4-6	8-10	.313	.938	.500	1.20	.096	.092	58	.182
3/4"-#16	54	65	4-6	8-10	.813	1.750	.923	2.00	.099	.060	85	.186
3/4"-#13	80	92	4-6	8-10	.750	1.688	.923	2.00	.096	.092	78	.195
3/4"-#10	120	136	4-6	8-10	.750	1.625	.923	2.00	.144	.092	77	.282
3/4"-# 9	180	195	4-6	8-10-12	.688	1.563	.923	2.00	.148	.134	66	.300
1"#16	44	51	4	8	1.000	2.063	1.090	2.40	.096	.060	86	.182
1 1/2"-#18	20	25	4	8	1.313	2.625	1.330	3.00	.067	.048	93	.140
1 1/2"-#16	40	48	4	8-10-12	1.250	2.625	1.330	3.00	.107	.060	89	.211
1 1/2"-#13	60	68	4-6	8-10-12	1.188	2.500	1.330	3.00	.104	.092	86	.215
1 1/2"-#10	79	89	4-6	8-10	1.188	2.500	1.330	3.00	.137	.092	85	.289
1 1/2"-# 9	120	131	4-6	8-10-12	1.125	2.375	1.330	3.00	.142	.134	75	.295
1 1/2"-# 6	250	273	4-6	8-10-12	1.000	2.313	1.330	3.00	.201	.198	63	.425
2"#10	68	75	B	B	1.625	3.438	1.850	4.00	.164	.092	86	.312
2"# 9	90	102	B	B	1.563	3.375	1.850	4.00	.149	.134	86	.325

Above conforms to ASTM F 1267 Type I, Class 1 & 2

STAINLESS STEEL - TYPE 304

1/2"-#18	73		4	8	.438	.938	.500	1.20	.087	.050	77	.164
1/2"-#16	91		4	8	.438	.938	.500	1.20	.087	.062	70	.164
1/2"-#13	187		4	8	.313	.875	.500	1.20	.120	.093	58	.225
3/4"-#18	48		4	8	.813	1.750	.923	2.00	.106	.050	89	.200
3/4"-#16	60		4	8	.813	1.750	.923	2.00	.106	.062	85	.200
3/4"-#13	91		4	8	.750	1.688	.923	2.00	.108	.093	78	.200
3/4"-# 9	205		4	8	.688	1.563	.923	2.00	.161	.140	67	.300
1 1/2"-#16	45		4	8	1.250	2.750	1.333	3.00	.115	.062	89	.220
1 1/2"-#13	68		4	8	1.250	2.625	1.333	3.00	.116	.093	86	.220
1 1/2"-# 9	137		4	8	1.125	2.500	1.333	3.00	.155	.140	75	.280

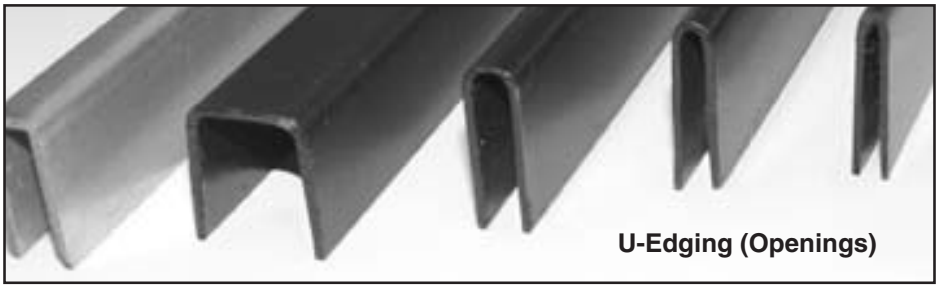
Above conforms to ASTM F 1267 Type I, Class 3

ALUMINUM - ALLOY 3003H14

3/16"-032	23		B	B	.166	.437	.200	.50	.050	.032	52	.068
1/2"-051	27		4	8	.375	.938	.500	1.20	.094	.051	70	.158
1/2"-081	44		4	8	.375	.938	.500	1.20	.096	.081	60	.186
3/4"-051	17		4	8	.813	1.750	.923	2.00	.109	.051	90	.200
3/4"-081	41		4	8	.750	1.688	.923	2.00	.166	.081	74	.300
3/4"-125	65		4	8	.688	1.688	.923	2.00	.170	.125	66	.305
1 1/2"-081	22		4	8	1.188	2.500	1.333	3.00	.128	.081	87	.240
1 1/2"-125	43		4	8	1.188	2.500	1.333	3.00	.163	.125	78	.300

Above conforms to military specification MIL-M-1799C (MR) Class 1

A. Not Available **B. Special Order Only**



1/4" Alum 9/16" CS 1/4" CS 1/8" CS 1/16" CS

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

FLATTENED EXPANDED METAL AND GRATING

CARBON STEEL - ASTM A569/569M

Style	Weight in lbs. per c.s.f.		Standard Sizes in Feet		Size of Openings in Inches		Center to Center of Bond in Inches		Size of Strands in Inches		Percent Open Area	Overall Thickness in Inches
	Plain	Galv.	Width	Length	Width	Length	Width	Length	Width	Thickness		
3/16"-#24	48	A	B	B	.085	.459	.200	.52	.057	.019	41	.019
3/16"-#22	60	A	B	B	.085	.459	.200	.52	.057	.024	40	.024
3/16"-#20	72	A	B	B	.085	.459	.200	.52	.057	.029	39	.029
1/4"-#20	83	124	4	8	.094	.688	.255	1.03	.086	.030	47	.030
1/4"-#18	111	165	4	8	.094	.688	.255	1.03	.086	.040	40	.040
1/2"-#20	40	51	4	8	.375	1.000	.500	1.26	.070	.029	72	.029
1/2"-#18	66	88	3-4-6	8-10	.281	1.000	.500	1.26	.109	.039	69	.039
1/2"-#16	82	100	3-4-6	8-10	.250	1.000	.500	1.26	.103	.050	60	.050
1/2"-#13	140	162	3-4-6	8-10	.250	1.000	.500	1.26	.122	.070	57	.070
3/4"-#16	51	61	3-4-6	8-10	.750	1.750	.923	2.10	.115	.048	75	.048
3/4"-#14	63	75	3-4-6	8-10	.688	1.813	.923	2.12	.119	.061	70	.061
3/4"-#13	75	86	3-4-6	8-10	.688	1.782	.923	2.10	.119	.070	73	.070
3/4"-# 9	171	186	3-4-6	8-10-12	.563	1.688	.923	2.12	.164	.120	63	.120
1"-#16	41	50	4	8	.875	2.250	1.090	2.56	.115	.048	77	.048
1 1/2"-#16	38	44	4	8	1.063	2.750	1.330	3.20	.123	.048	82	.048
1 1/2"-#14	46	56	3-4-6	8	1.063	2.750	1.330	3.20	.138	.060	82	.060
1 1/2"-#13	57	68	3-4-6	8	1.063	2.750	1.330	3.20	.138	.070	80	.070
1 1/2"-# 9	111	128	3-4-6	8-10-12	1.000	2.563	1.330	3.20	.175	.110	77	.110

Above conforms to ASTM F 1267 Type II, Class 1 & 2

STAINLESS STEEL - TYPE 304

1/2"-#18	69		4	8	.313	1.000	.500	1.26	.093	.040	68	.040
1/2"-#16	86		4	8	.313	1.000	.500	1.26	.093	.050	60	.050
1/2"-#13	178		4	8	.250	1.000	.500	1.26	.132	.080	56	.080
3/4"-#18	46		4	8	.750	1.813	.923	2.10	.118	.040	77	.040
3/4"-#16	57		4	8	.750	1.813	.923	2.10	.118	.050	75	.050
3/4"-#13	87		4	8	.625	1.750	.923	2.10	.120	.070	74	.070
3/4"-# 9	195		4	8	.563	1.688	.923	2.10	.160	.119	64	.119
1 1/2"-#16	43		4	8	1.063	2.750	1.333	3.15	.124	.050	83	.050
1 1/2"-#13	65		4	8	1.000	2.625	1.333	3.15	.124	.079	79	.079
1 1/2"-# 9	131		4	8	.938	2.625	1.333	3.15	.165	.119	76	.119

Above conforms to ASTM F 1267 Type II, Class 3

ALUMINUM - ALLOY 3003H14

1/2"-.051	25		4	8	.313	1.000	.500	1.27	.091	.040	57	.040
1/2"-.081	41		4	8	.313	1.000	.500	1.27	.103	.060	57	.060
3/4"-.051	16		4	8	.750	1.813	.923	2.12	.114	.040	73	.040
3/4"-.081	38		4	8	.688	1.750	.923	2.12	.172	.070	63	.070
3/4"-.125	61		4	8	.625	1.750	.923	2.12	.180	.095	55	.095
1 1/2"-.081	20		4	8	1.063	2.750	1.333	3.15	.144	.055	75	.055
1 1/2"-.125	40		4	8	1.000	2.750	1.333	3.15	.190	.080	65	.080

Above conforms to military specifications MIL-M-1799C (MR) Class 2

CARBON STEEL - REGULAR - ASTM A 569/569M GRATING

Style	Weight in lbs. per c.s.f.		Standard Sizes in Feet		Size of Openings in Inches		Center to Center of Bond in Inches		Size of Strands in Inches		Percent Open Area	No. of Diamonds Per Ft. SWD	Overall Thickness in Inches
	Plain	Galv.	Width	Length	Width	Length	Width	Length	Width	Thickness			
2 lb.	200	218	4-6	8	1.000	3.600	1.333	5.330	.235	.135	77	9	.460
3 lb.	300	320	4-6	8-10	0.938	3.438	1.333	5.330	.261	.183	73	9	.500
3.14 lb.	314	334	4-6	8-10	1.625	4.875	2.000	6.000	.308	.250	74	6	.562
4 lb.	400	430	4-5-6	8-10	0.938	3.438	1.333	5.330	.297	.215	65	9	.625
4.27 lb.	427	457	4-6	8-10	1.000	2.875	1.412	4.000	.297	.250	58	8.5	.625
5 lb.	500	550	4-5-6	8-10	0.813	3.375	1.333	5.330	.327	.250	52	9	.625
6.25 lb.	625	685	4-6	8	0.813	3.375	1.412	5.330	.347	.312	55	8.5	.750
7 lb.	700	750	4-8	8	0.813	3.375	1.412	5.330	.338	.312	60	8.5	.750

ALUMINUM - REGULAR - ALLOY 5052 H32 GRATING

2 lb.	200		4-6	8	1.000	3.600	1.333	5.330	.261	.235	77	9	.460

CARBON STEEL - LONG LENGTH SWD (CATWALK) - ASTM A 569/569M

2 lb.	200	218	10	2'0,2'6,3'0	1.000	3.600	1.333	5.330	.235	.135	77	9	.460
3 lb.	300	320	10	2'0,2'6,3'0	0.938	3.438	1.333	5.330	.261	.183	73	9	.500
3.14 lb.	314	334	10	2'0,2'6,3'0	1.625	4.875	2.000	6.000	.308	.250	74	8.5	.562
4 lb.	400	430	10	2'0,2'6,3'0	0.938	3.438	1.330	5.330	.297	.215	65	9	.625
4.27 lb.	427	457	10	2'0,2'6,3'0	1.000	2.875	1.412	4.000	.297	.250	58	9	.625
5 lb.	500	550	10	2'0,2'6,3'0	0.813	3.375	1.333	5.330	.327	.250	52	9	.625

ALUMINUM - LONG LENGTH SWD (CATWALK) - ALLOY 5052 H32

2 lb.	200		8	2'0,2'6,3'0	1.000	3.600	1.333	5.330	.235	.250	77	9	.460

Above conforms with military specifications MIL-G-18015A (Ships) and the Deflection Requirements of Federal Specification RR-G-661B
All dimensions are approximate, subject to mill tolerances and may change without notice.

TERMINOLOGY

Calendering—A rolling operation which flattens the knuckles of wire cloth giving it a smoother surface.

Crimp—Undulations in warp and fill wires which hold each other in place.

Fill Wire—aka SHUTE WIRE, wire running across the width of the cloth.

Filter Cloth—Cloth used for flattening or straining (primarily plain and twilled dutch wire cloth and certain specifications of square mesh and off-count standard wire cloth).

Hardware Cloth—Plain weave square mesh cloth of relatively light wire galvanized after weaving (usually between 2 to 8 openings per lineal inch).

Market Grade—Applies to wire cloth specifications most commonly used for general work. Market grade cloth is made of one size wire for each size closed mesh.

Mesh—Number of openings per lineal inch, measured from center of wire to center of wire.

Micron—1/1000 millimeter, 0.00003937 inch. The unit of measure for particle retention of filter media.

Oil Tempered Wire—High carbon steel wire that is heat resistant to produce good strength and abrasion resistance.

Opening—Dimension between parallel adjacent wires.

Rectangular Mesh—Wire cloth with different warp and fill wire mesh counts which results in rectangular openings. The most common have a higher warp mesh than filter mesh. Advantages are increased open area and reduced cost.

Selvage—The finished edges of wire cloth running the length of the roll which are produced by the weaving operation.

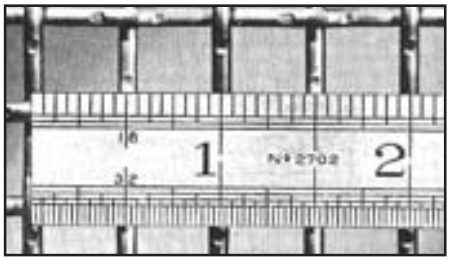
Space Cloth—Wire cloth specified by the opening size rather than by the mesh count.

Square Mesh—Mesh with equal spacing of warp and shute to give square openings.

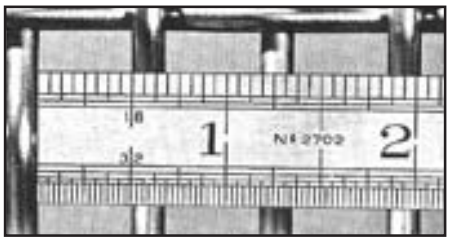
Warp Wire—Foundation wires running parallel to the length of the cloth.

Weaves—Pattern in which wires are interwoven.

Wire Diameter or Gauge—Diameter of wire used in weaving cloth.



2 Mesh Wire Cloth
(count from center to center of wires)



½ inch Opening Wire Cloth
(clear space between wires)

PLAIN WEAVE
Wires are crimped in a zig-zag fashion with wires intersecting at every available crimp or pocket.

INTERCRIMP
Wires are crimped in a zig-zag fashion with intersections at every 3rd, 5th, or 7th, etc., crimp or pocket.

LOCK CRIMP
Distinct crimp or pocket at wire intersection with straight connecting sections of wire.

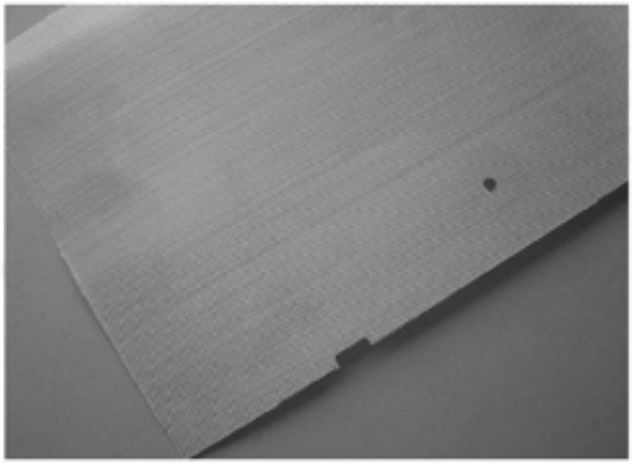
FLAT TOP
Top surface of wires all lie in same plane. Irregular crimped surface on underside.

Approx. Diameter Inches	Gauge & Wire No.	Washburn & Moen Wire Gauge	Approx. Diameter Decimal
7/16			.438
3/8			.375
5/16	0		.313
1/4	3		.250
7/32	4		.225
13/64	5		.207
3/16	6		.192
11/64	7		.177
5/32	8		.162
	9		.148
9/64	10		.135
1/8	11		.120
7/64	12		.105
3/32	13		.092
5/64	14		.080
	15		.072
1/16	16		.063
	17		.054
3/64	18		.047
	19		.041
	20		.035

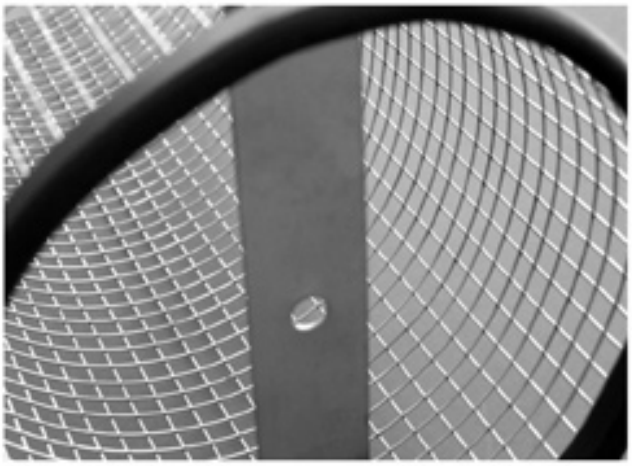
Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

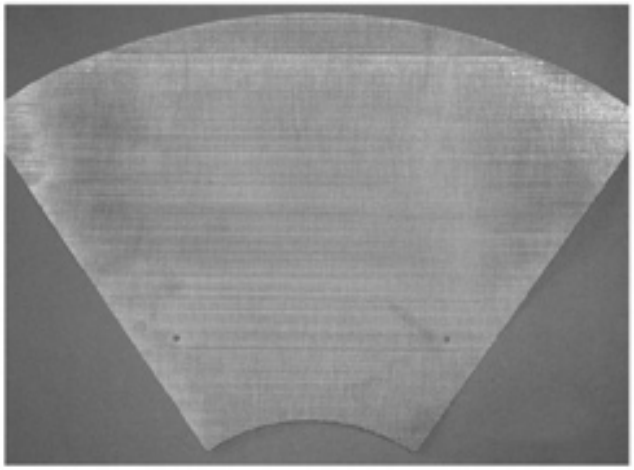
DIRECT METALS . . . SPECIALISTS IN STAINLESS STEEL FILTERS IN MANY CONFIGURATIONS



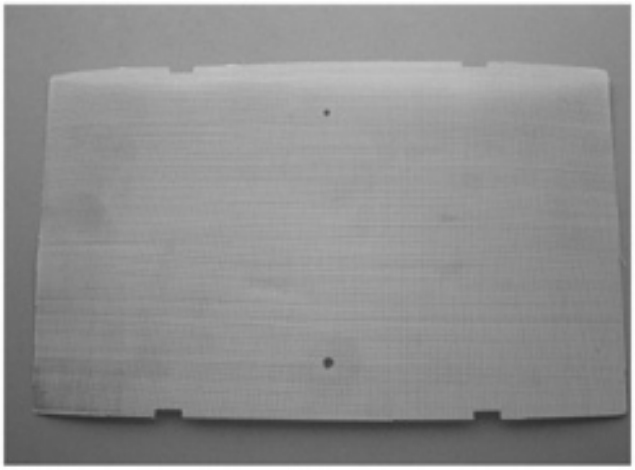
30 Mesh 012 Dia



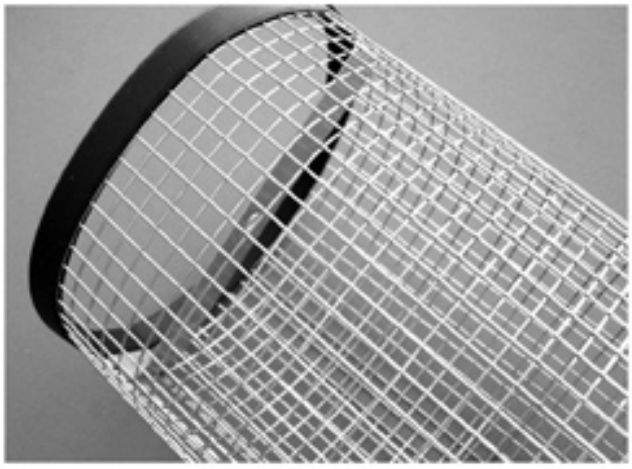
4 Mesh 025 Welded



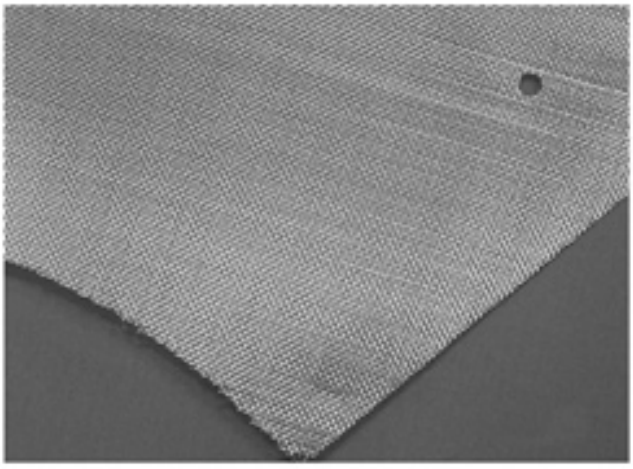
30 Mesh 012 Dia



30 Mesh 012 Dia

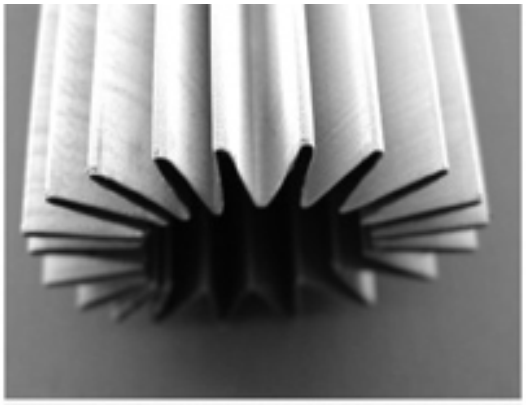


4 mesh 025 Welded

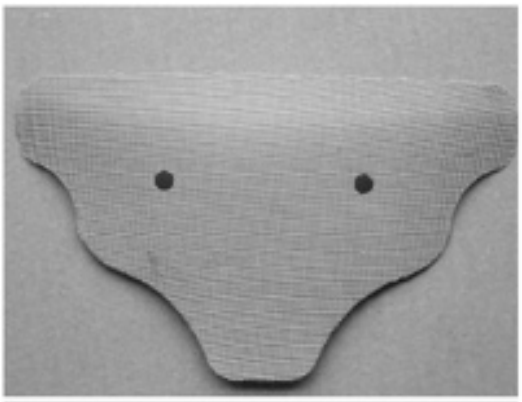


30 Mesh 012 Dia

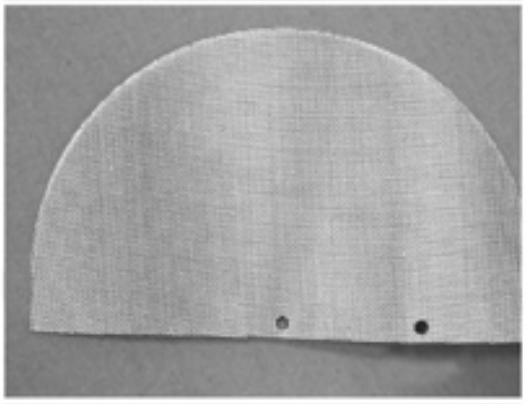
DIRECT METALS . . . SPECIALISTS IN STAINLESS STEEL FILTERS IN MANY CONFIGURATIONS



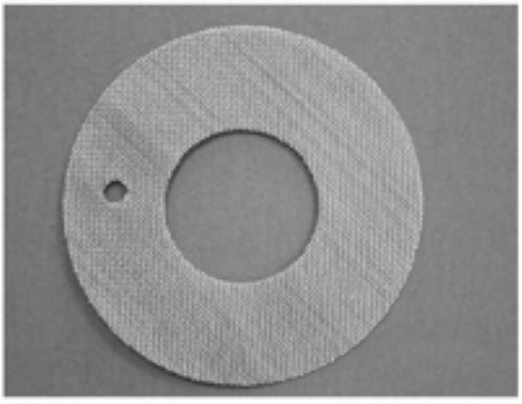
80 x 700 Mesh
Pleated



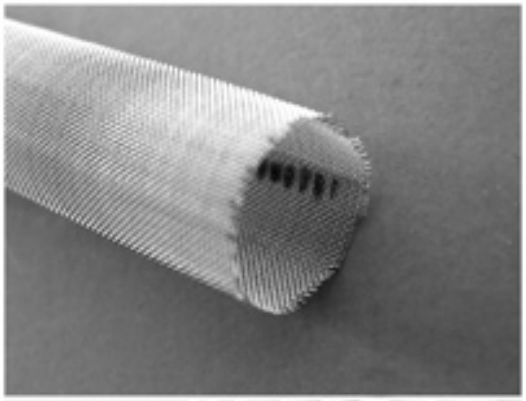
100 Mesh 0045
Dia



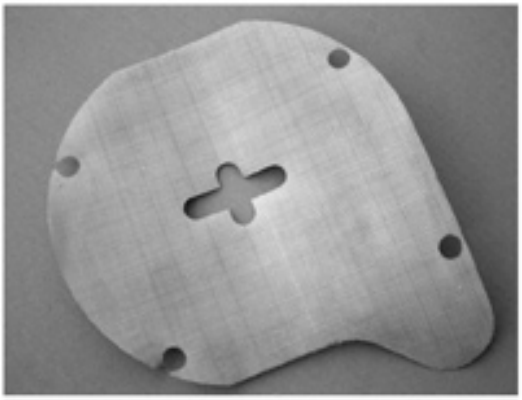
100 Mesh 0045
Dia



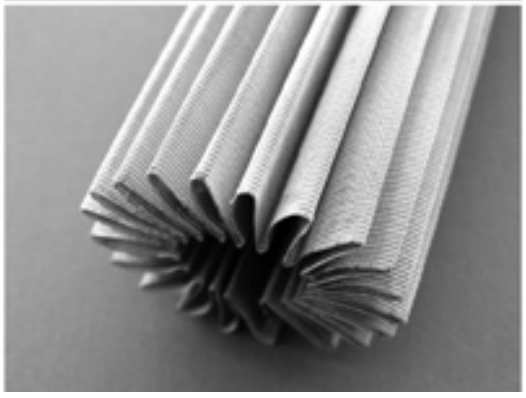
60 Mesh 0075
Dia



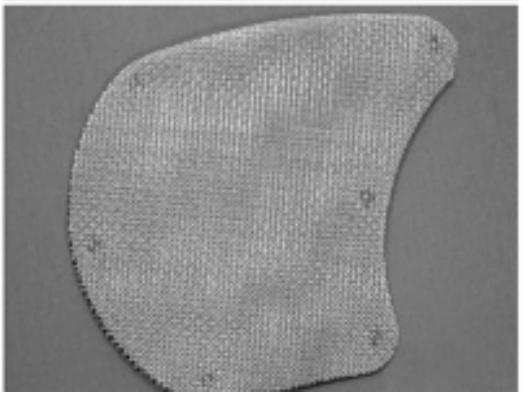
100 Mesh 0045
Dia



100 Mesh 0045
Dia



50 x 250 Mesh
Pleated

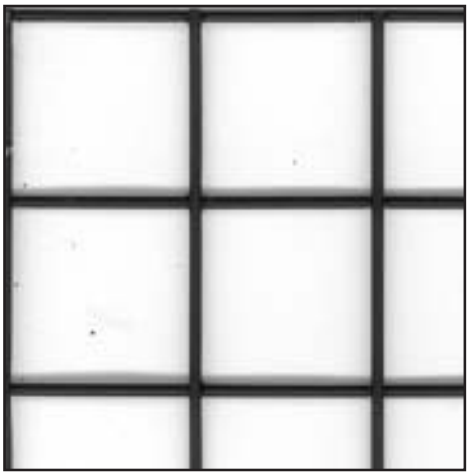


40 x 20 Mesh
Layered

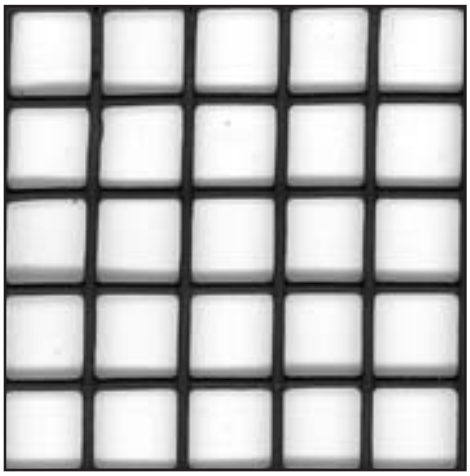
Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

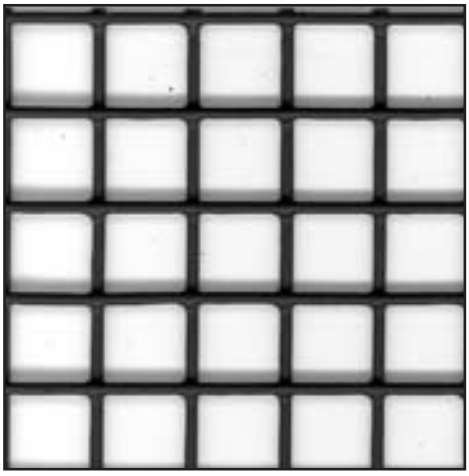
TYPICAL SQUARE MESH WIRE CLOTH SPECIFICATIONS



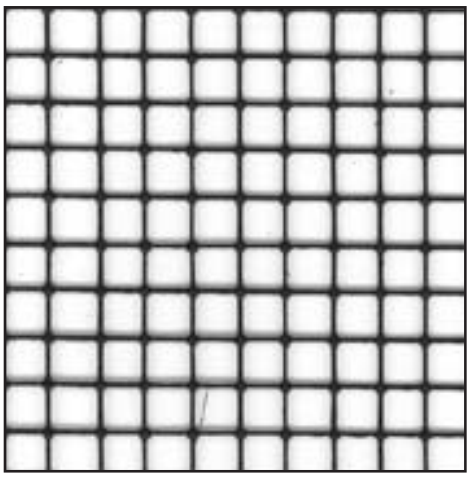
1 Mesh .063" Galvanized Welded



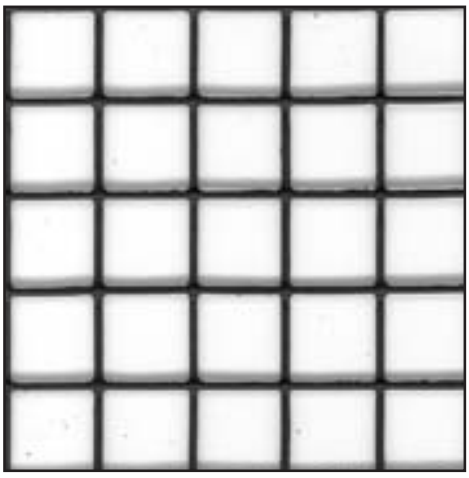
2 Mesh .041" Galvanized Welded



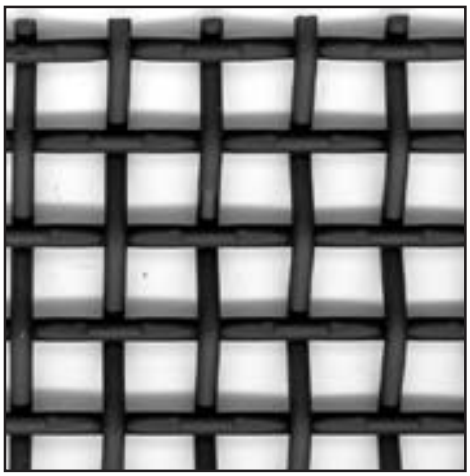
2 Mesh .063" Galvanized Welded



4 Mesh .025" Galvanized Welded

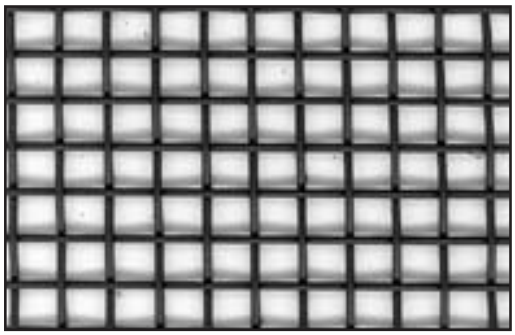


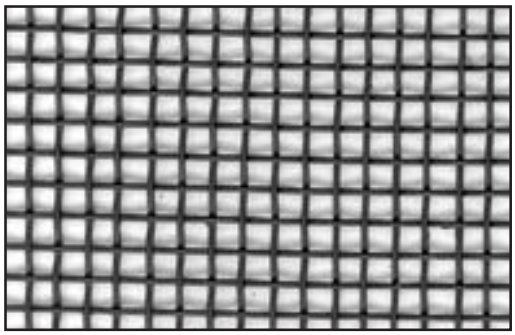
2 Mesh .041" PVC Welded

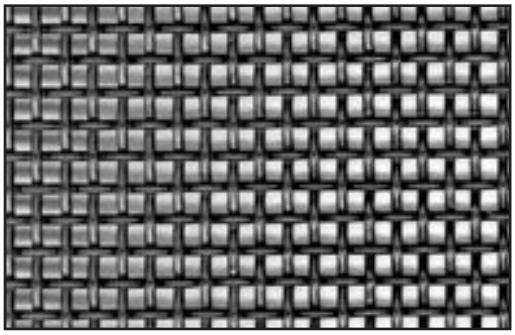


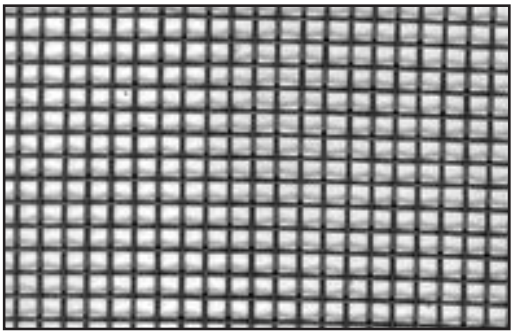
2 Mesh .120" SS Woven

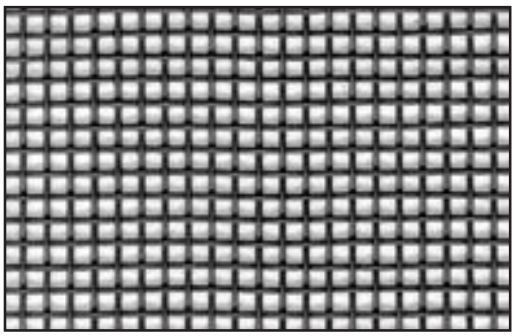
TYPICAL SQUARE MESH WIRE CLOTH SPECIFICATIONS

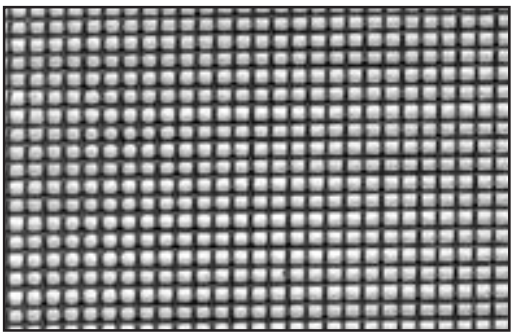

4 Mesh .047" SS Woven

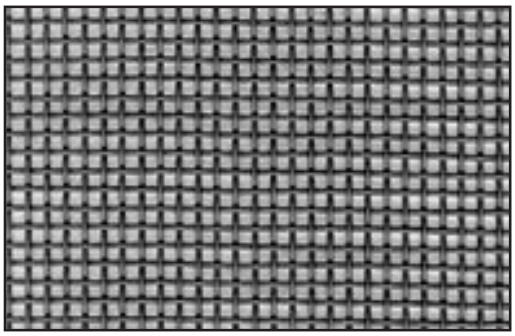

6 Mesh .035" SS Woven

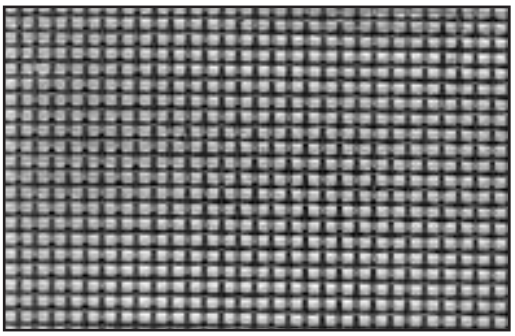

6 Mesh .063" SS Woven


8 Mesh .028" SS Woven


8 Mesh .035" SS Woven


10 Mesh .025" SS Woven

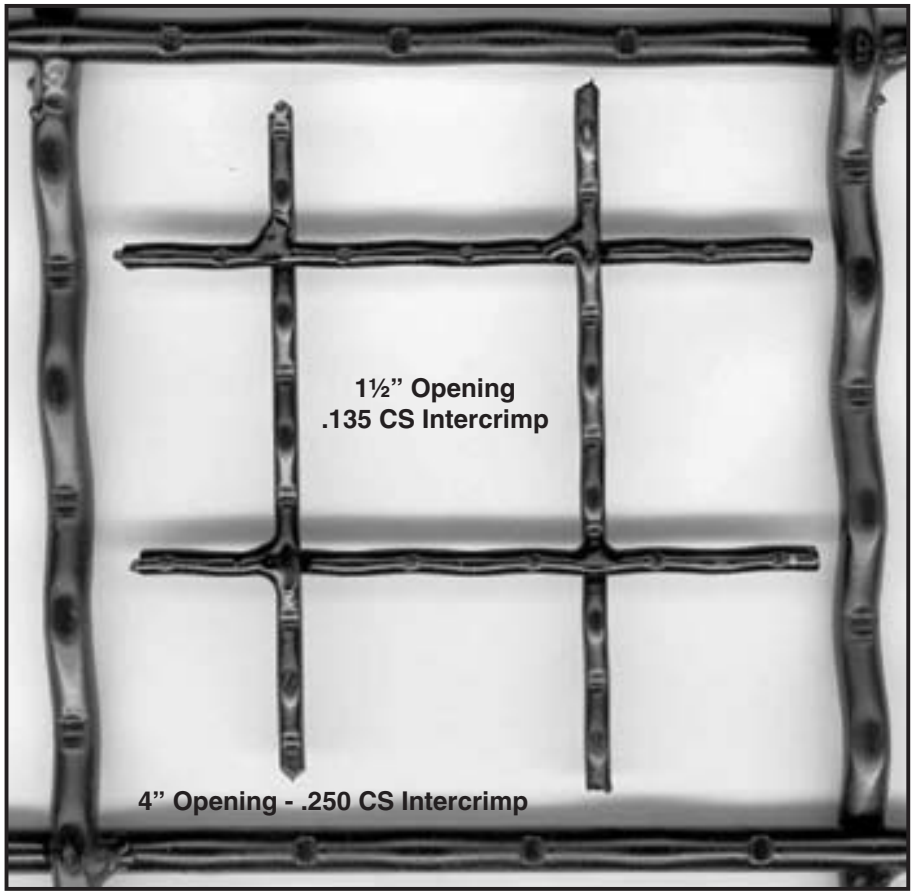

10 Mesh .035" SS Woven

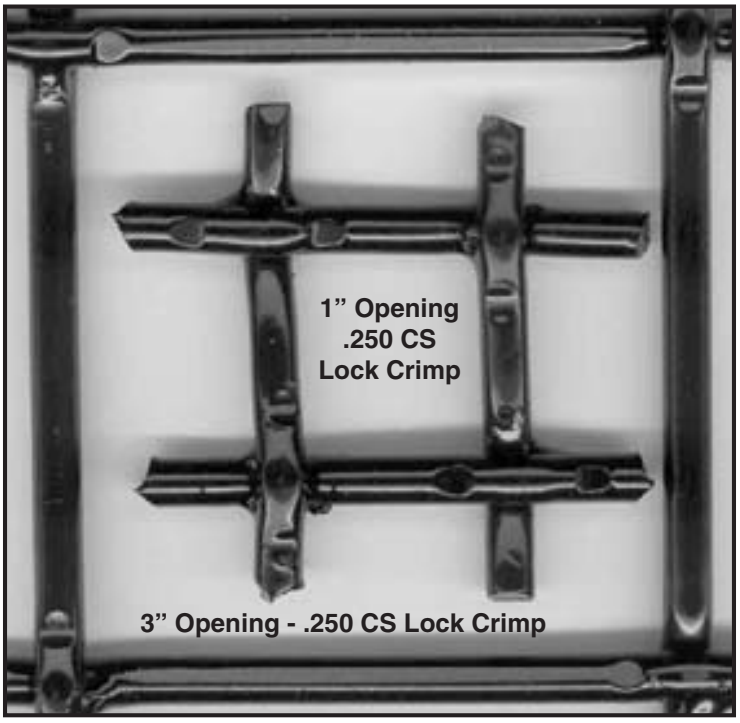

12 Mesh .028" SS Woven

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

TYPICAL SQUARE MESH WIRE CLOTH SPECIFICATIONS





SQUARE MESH WIRE CLOTH STANDARDS

SPECIFICATIONS

Diam. of Wire	Width of Opening	Percentage of Open Area	Weights Plain Steel*
1" MESH CENTER TO CENTER			
.250"	750"	56.3%	412.4
.225"	.775"	60.1%	332.1
.207"	.793"	62.9%	280.1
.192"	.808"	65.3%	240.3
.177"	.823"	67.7%	203.7
.162"	.838"	70.2%	170.2
.148"	.852"	72.6%	141.7
.135"	.865"	74.8%	117.7
.120"	.880"	77.4%	92.8
.105"	.895"	80.1%	71.0
.092"	.908"	82.4%	54.4
.080"	.920"	84.6%	41.1
.072"	.928"	86.1%	33.3
.063"	.937"	87.8%	25.5
3/4" MESH CENTER TO CENTER			
.250"	.500"	44.4%	562.3
.225"	.525"	49.0%	451.0
.207"	.543"	52.4%	379.4
.192"	.558"	55.3%	324.8
.177"	.573"	58.3%	274.7
.162"	.588"	61.4%	229.2
.148"	.602"	64.4%	190.5
.135"	.615"	67.2%	158.1
.120"	.630"	70.5%	124.4
.105"	.645"	73.9%	95.0
.092"	.658"	76.9%	72.8
.080"	.670"	79.8%	54.9
.072"	.678"	81.7%	44.5
.063"	.687"	83.9%	34.0
.054"	.696"	86.1%	24.9
5/8" MESH CENTER TO CENTER			
.250"	.375"	36.0%	689.4
.225"	.400"	41.0%	551.0
.207"	.418"	44.7%	462.4
.192"	.433"	48.0%	395.0
.177"	.448"	51.4%	333.5
.162"	.463"	54.9%	277.7
.148"	.477"	58.3%	230.5
.135"	.490"	61.5%	191.0
.120"	.505"	65.3%	150.2
.105"	.520"	69.2%	114.5
.092"	.533"	72.7%	87.9
.080"	.545"	76.0%	66.1
.072"	.553"	78.3%	53.5
.063"	.562"	80.9%	40.9
.054"	.571"	83.5%	30.0
.047"	.578"	85.5%	22.7
2 MESH CENTER TO CENTER			
.192"	.308"	37.9%	505.5
.177"	.323"	41.7%	425.4
.162"	.338"	45.7%	353.3
.148"	.352"	49.6%	292.4
.135"	.365"	53.3%	241.7
.120"	.380"	57.8%	189.6
.105"	.395"	62.4%	144.2
.092"	.408"	66.6%	110.2
.080"	.420"	70.6%	83.0
.072"	.428"	73.3%	67.1
.063"	.437"	76.4%	51.2
.047"	.453"	82.1%	28.4
2 1/2 MESH CENTER TO CENTER			
.177"	.223"	31.1%	548.2
.162"	.238"	35.4%	453.1
.148"	.252"	39.7%	373.7
.135"	.265"	43.9%	307.8
.120"	.280"	49.0%	240.6
.105"	.295"	54.4%	182.4
.092"	.308"	59.3%	139.0
.080"	.320"	64.0%	104.4
.072"	.328"	67.2%	84.3
.063"	.337"	71.0%	64.3
.054"	.346"	74.8%	47.1
.047"	.353"	77.9%	35.6
.041"	.359"	80.6%	27.0
.035"	.365"	83.3%	19.7

Diam. of Wire	Width of Opening	Percentage of Open Area	Weights Plain Steel*
3 MESH CENTER TO CENTER			
.148"	.185"	30.8%	460.2
.135"	.198"	35.3%	377.6
.120"	.213"	40.8%	293.9
.105"	.228"	46.8%	222.0
.092"	.241"	52.3%	168.7
.080"	.253"	57.6%	126.4
.072"	.261"	61.3%	101.9
.063"	.270"	65.6%	77.6
.054"	.279"	70.1%	56.7
.047"	.286"	73.6%	42.8
.041"	.292"	76.7%	32.5
.035"	.298"	79.9%	23.7
.032"	.301"	81.5%	19.7
3 1/2 MESH CENTER TO CENTER			
.135"	.151"	27.9%	429.0
.120"	.166"	33.8%	349.9
.105"	.181"	40.1%	263.2
.092"	.194"	46.1%	199.3
.080"	.206"	52.0%	148.9
.072"	.214"	56.1%	119.8
.063"	.223"	60.9%	91.1
.054"	.232"	65.9%	66.5
.047"	.239"	70.0%	50.2
.041"	.245"	73.5%	38.1
.035"	.251"	77.2%	27.6
.032"	.254"	79.0%	23.1
4 MESH CENTER TO CENTER			
.135"	.115"	21.2%	503.8
.120"	.130"	27.0%	388.6
.105"	.145"	33.6%	306.2
.092"	.158"	39.9%	231.0
.080"	.170"	46.2%	172.1
.072"	.178"	50.7%	138.2
.063"	.187"	56.0%	104.8
.054"	.196"	61.5%	76.4
.047"	.203"	65.9%	57.6
.041"	.209"	69.9%	43.6
.035"	.215"	74.0%	31.7
.032"	.218"	76.0%	26.4
.028"	.222"	78.9%	20.2
.025"	.225"	81.0%	16.1
5 MESH CENTER TO CENTER			
.105"	.095"	22.6%	378.7
.092"	.108"	29.2%	283.4
.080"	.120"	36.0%	220.6
.072"	.128"	41.0%	176.4
.063"	.137"	46.9%	133.2
.054"	.146"	53.3%	96.7
.047"	.153"	58.5%	72.6
.041"	.159"	63.2%	54.9
.035"	.165"	68.1%	39.8
.032"	.168"	70.6%	33.2
.028"	.172"	74.0%	25.3
.025"	.175"	76.6%	20.2
.023"	.177"	78.3%	17.0
6 MESH CENTER TO CENTER			
.080"	.087"	27.2%	259.1
.072"	.095"	32.5%	216.9
.063"	.104"	38.9%	163.0
.054"	.113"	46.0%	117.7
.047"	.120"	51.8%	88.2
.041"	.126"	57.2%	66.5
.035"	.132"	62.7%	48.1
.032"	.135"	65.6%	40.0
.028"	.139"	69.6%	30.5
.025"	.142"	72.6%	24.3
.023"	.144"	74.7%	20.5
.020"	.147"	77.8%	15.5
8 MESH CENTER TO CENTER			
.063"	.062"	24.6%	216.3
.054"	.071"	32.3%	162.7
.047"	.078"	38.9%	120.9
.041"	.084"	45.2%	90.6
.035"	.090"	51.8%	65.1
.032"	.093"	55.4%	54.1
.028"	.097"	60.2%	41.1
.025"	.100"	64.0%	32.6
.023"	.102"	66.6%	27.5
.020"	.105"	70.6%	20.7
.018"	.107"	73.2%	16.8
.017"	.108"	74.6%	14.9

Diam. of Wire	Width of Opening	Percentage of Open Area	Weights Plain Steel*
10 MESH CENTER TO CENTER			
.063"	.037"	13.7%	285.4
.054"	.046"	21.2%	201.5
.047"	.053"	28.1%	148.4
.041"	.059"	34.8%	116.3
.035"	.065"	42.3%	83.1
.032"	.068"	46.2%	68.8
.028"	.072"	51.8%	52.1
.025"	.075"	56.3%	41.2
.023"	.077"	59.3%	34.7
.020"	.080"	64.0%	26.1
.018"	.082"	67.2%	21.1
.017"	.083"	68.9%	18.8
.016"	.084"	70.6%	16.6
.015"	.085"	72.3%	14.6
12 MESH CENTER TO CENTER			
.047"	.036"	18.7%	185.1
.041"	.042"	25.4%	136.7
.035"	.048"	33.2%	102.1
.032"	.051"	37.5%	84.3
.028"	.055"	43.6%	63.5
.025"	.058"	48.4%	50.1
.023"	.060"	51.8%	42.2
.020"	.063"	57.2%	31.6
.018"	.065"	60.8%	25.5
.017"	.066"	62.7%	22.7
.016"	.067"	64.5%	20.0
.015"	.068"	66.6%	17.6
.014"	.069"	68.6%	15.3
14 MESH CENTER TO CENTER			
.041"	.030"	17.6%	165.0
.035"	.036"	25.4%	116.1
.032"	.039"	29.8%	100.5
.028"	.043"	36.2%	75.5
.025"	.046"	41.5%	59.3
.023"	.048"	45.2%	49.8
.020"	.051"	51.0%	37.2
.018"	.053"	55.1%	29.9
.017"	.054"	57.2%	26.6
.016"	.055"	59.3%	23.5
.015"	.056"	61.5%	20.6
.014"	.057"	63.7%	17.9
.0135"	.0575"	64.8%	16.6
.013"	.058"	65.9%	15.4
.012"	.059"	68.2%	13.1
.011"	.060"	70.6%	11.0
.010"	.061"	72.9%	9.0
16 MESH CENTER TO CENTER			
.035"	.028"	19.4%	136.6
.032"	.031"	23.8%	111.9
.028"	.035"	30.5%	83.6
.025"	.038"	36.0%	68.9
.023"	.040"	39.9%	57.7
.020"	.043"	46.2%	43.0
.018"	.045"	50.7%	34.5
.017"	.046"	53.0%	30.7
.016"	.047"	55.4%	27.1
.015"	.048"	57.8%	23.7
.014"	.049"	60.2%	20.6
.0135"	.050"	61.5%	19.1
.013"	.050"	62.7%	17.7
.012"	.051"	65.3%	15.0
.011"	.052"	67.9%	12.6
.010"	.053"	70.6%	10.4
.0095"	.053"	71.9%	9.4
18 MESH CENTER TO CENTER			
.032"	.024"	18.0%	129.4
.028"	.028"	24.7%	96.1
.025"	.031"	30.3%	75.0
.023"	.033"	34.4%	66.0
.020"	.036"	41.1%	49.0
.018"	.038"	45.8%	39.2
.017"	.039"	48.3%	34.8
.016"	.040"	50.8%	30.7
.015"	.041"	53.4%	26.8
.014"	.042"	56.1%	23.3
.0135"	.042"	57.4%	21.6
.013"	.043"	58.8%	20.0
.012"	.044"	61.6%	17.0
.011"	.045"	64.4%	14.2
.010"	.046"	67.4%	11.7
.0095"	.046"	68.9%	10.5
.009"	.047"	70.4%	9.5

Diam. of Wire	Width of Opening	Percentage of Open Area	Weights Plain Steel*
20 MESH CENTER TO CENTER			
.028"	.022"	19.4%	109.3
.025"	.025"	25.0%	85.0
.023"	.027"	29.2%	70.8
.020"	.030"	36.0%	55.2
.018"	.032"	41.0%	44.1
.017"	.033"	43.6%	39.1
.016"	.034"	46.2%	34.4
.015"	.035"	49.0%	30.1
.014"	.036"	51.8%	26.1
.0135"	.037"	53.3%	24.2
.013"	.037"	54.8%	22.4
.012"	.038"	57.8%	19.0
.011"	.039"	60.8%	15.9
.010"	.040"	64.0%	13.1
.0095"	.041"	65.6%	11.8
.009"	.041"	67.2%	10.5
24 MESH CENTER TO CENTER			
.023"	.019"	20.1%	88.2
.020"	.022"	27.1%	64.8
.018"	.024"	32.4%	51.5
.017"	.025"	35.1%	48.0
.016"	.026"	38.0%	42.1
.015"	.027"	41.1%	36.7
.014"	.028"	44.2%	31.8
.0135"	.028"	45.8%	29.4
.013"	.029"	47.4%	27.2
.012"	.030"	50.8%	23.0
.011"	.031"	54.3%	19.2
.010"	.032"	57.9%	15.8
.0095"	.032"	59.7%	14.2
.009"	.033"	61.6%	12.7
.0085"	.033"	63.5%	11.3
.008"	.034"	65.4%	10.0
.0075"	.034"	67.4%	8.8
30 MESH CENTER TO CENTER			
.016"	.017"	26.9%	51.8
.015"	.018"	30.1%	47.4
.014"	.019"	33.5%	40.8
.0135"	.020"	35.3%	37.8
.013"	.020"	37.1%	34.8
.012"	.021"	40.8%	29.4
.011"	.022"	44.8%	24.5
.010"	.023"	48.9%	20.0
.0095"	.024"	51.0%	18.0
.009"	.024"	53.1%	16.1
.0085"	.025"	55.4%	14.3
.008"	.025"	57.6%	12.6
.0075"	.026"	59.9%	11.1
.0065"	.0268"	64.8%	8.4
35 MESH CENTER TO CENTER			
.015"	.014"	22.7%	54.1
.014"	.015"	26.1%	46.5
.0135"	.015"	27.9%	45.2
.013"	.016"	29.8%	41.6
.012"	.017"	33.8%	35.0
.011"	.018"	37.9%	29.0
.010"	.019"	42.4%	23.7
.0095"	.019"	44.7%	21.3
.009"	.020"	47.1%	19.0
.0085"	.020"	49.5%	16.9
.008"	.021"	52.0%	14.9
.0075"	.021"	54.5%	13.0
.007"	.022"	57.2%	11.3

Diam. of Wire	Width of Opening	Percentage of Open Area	Weights Plain Steel*
40 MESH CENTER TO CENTER			
.0135"	.012"	21.2%	53.0
.013"	.012"	23.0%	48.8
.012"	.013"	27.0%	40.9
.011"	.014"	31.4%	33.8
.010"	.015"	36.0%	27.6
.0095"	.016"	38.4%	24.7
.009"	.016"	41.0%	22.0
.0085"	.017"	43.6%	19.5
.008"	.017"	46.2%	17.2
.0075"	.018"	49.0%	15.0
.007"	.018"	51.8%	13.0
.0065"	.0185"	54.8%	11.3
45 MESH CENTER TO CENTER			
.012"	.010"	21.1%	44.8
.011"	.011"	25.4%	36.9
.010"	.012"	30.1%	31.6
.0095"	.013"	32.7%	28.3
.009"	.013"	35.3%	25.2
.0085"	.014"	38.0%	22.3
.008"	.014"	40.8%	19.6
.0075"	.015"	43.8%	17.0
50 MESH CENTER TO CENTER			
.012"	.008"	16.0%	51.1
.011"	.009"	20.3%	42.0
.010"	.010"	25.0%	34.0
.0095"	.011"	27.6%	32.0
.009"	.011"	30.3%	28.4
.0085"	.012"	33.1%	25.1
.008"	.012"	36.0%	22.1
.0075"	.013"	39.1%	19.2
.0055"	.0145"	52.6%	10.1
60 MESH CENTER TO CENTER			
.011"	.006"	11.7%	52.9
.010"	.007"	16.2%	42.6
.0095"	.007"	18.7%	37.9
.009"	.008"	21.3%	33.5
.0085"	.008"	24.2%	29.6
.008"	.009"	27.2%	27.3
.0075"	.009"	30.5%	23.7
.007"	.010"	33.9%	20.4
.0065"	.010"	37.5%	17.4
.006"	.011"	41.2%	14.7
.0045"	.0122"	53.3%	8.1
70 MESH CENTER TO CENTER			
.009"	.005"	13.8%	40.7
.0085"	.006"	16.5%	35.8
.008"	.006"	19.4%	31.3
.0075"	.007"	22.7%	27.1
.007"	.007"	26.1%	23.3
.0065"	.008"	29.8%	20.8
.006"	.008"	33.8%	17.5
.0037"	.0106"	54.9%	6.0
80 MESH CENTER TO CENTER			
.0075"	.005"	16.0%	31.9
.007"	.006"	19.4%	27.4
.0065"	.006"	23.0%	23.2
.006"	.007"	27.0%	20.4
.0055"	.007"	31.4%	16.9
.005"	.008"	36.0%	13.8
.0037"	.0088"	49.6%	6.9

Diam. of Wire	Width of Opening	Percentage of Open Area	Weights Plain Steel*
90 MESH CENTER TO CENTER			
.006"	.005"	21.1%	22.4
.0055"	.006"	25.4%	18.4
.005"	.006"	30.1%	15.8
.0035"	.0076"	47.8%	7.3
100 MESH CENTER TO CENTER			
.005"	.005"	25.0%	17.0
.0045"	.006"	30.3%	14.2
.004"	.006"	36.0%	11.0
.0035"	.007"	42.3%	8.3
.003"	.007"	49.0%	6.0
.0022"	.0078"	60.8%	—
120 MESH CENTER TO CENTER			
.0035"	.005"	33.2%	10.2
.0040"	.0043"	26.6%	14.8
.0026"	.0056"	46.0%	—
145 MESH CENTER TO CENTER			
.0022"	.0048"	46.4%	—
150 MESH CENTER TO CENTER			
.0026"	.0041"	37.8%	7.2
165 MESH CENTER TO CENTER			
.0019"	.0041"	47.1%	—
180 MESH CENTER TO CENTER			
.0018"	.0038"	46.0%	—
200 MESH CENTER TO CENTER			
.0023"	.0027"	29.2%	7.3
.0021"	.0029"	33.6%	6.3
.0016"	.0035"	46.2%	—
230 MESH CENTER TO CENTER			
.0014"	.0028"	46.0%	—
250 MESH CENTER TO CENTER			
.0016"	.0024"	36.0%	4.3
270 MESH CENTER TO CENTER			
.0014"	.0022"	38.0%	—
325 MESH CENTER TO CENTER			
.0014"	.0017"	30.5%	4.3
.0011"	.0020"	42.0%	—
400 MESH CENTER TO CENTER			
.0011"	.0014"	31.4%	3.4
.0010"	.0015"	36.0%	3.3
500 MESH CENTER TO CENTER			
.00085"	.0010"	25.0%	—
635 MESH CENTER TO CENTER			
.00085"	.00065"	17.0%	—

WEIGHT CONVERSION TABLE

*WEIGHTS: Standard weight in pounds per 100 Sq. Ft.

To find the Weight of Wire Cloth in the metals below	Multiply the Weight of Plain Steel by
Aluminum (50-56)	0.3417
Brass (70-30)	1.0873
Brass (80-20)	1.1052
Bronze, Commercial (90-10)	1.1225
Bronze, Phosphor (Grade A)	1.1309
Chromax	1.0148
Copper, Pure	1.1335
Everdur	1.0892
Inconel	1.0892
Iron, Pure	1.0022
Molybdenum	1.2995
Monel	1.1220
Nichrome	1.0445
Nichrome V	1.0654
Nickel, Pure	1.1284
Platinum	2.7325
Silver, Fine	1.3378
Stainless Steel (18-8)	1.0098
Tantalum	2.1147
Titanium	0.5724

Two unique applications for wire, woven, or welded

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

SPACE SCREEN STANDARD SPECIFICATIONS

Clear Opening or Space Inch	Diameter of Rod or Wire Inch	Steel Weight Pounds Per Sq. Ft.	Open Area
4	1	13.06	64.0%
4	¾	7.68	70.9%
4	11/16	6.53	72.8%
4	⅝	5.46	74.8%
4	9/16	4.47	76.9%
4	½	3.58	79.0%
4	7/16	2.77	81.3%
4	⅜	2.07	83.6%
4	5/16	1.45	86.0%
4	.283	1.20	87.2%
4	.263	1.04	88.0%
4	.250	.94	88.6%
3¾	1	13.77	62.3%
3¾	¾	8.11	69.4%
3¾	11/16	6.90	71.4%
3¾	⅝	5.77	73.5%
3¾	9/16	4.74	75.7%
3¾	½	3.79	77.9%
3¾	7/16	2.94	80.2%
3¾	⅜	2.19	82.6%
3¾	5/16	1.54	85.2%
3¾	.283	1.27	86.5%
3¾	.263	1.11	87.3%
3¾	.250	1.00	87.9%
3½	1	14.57	60.5%
3½	¾	8.60	67.8%
3½	11/16	7.32	69.9%
3½	⅝	6.13	72.0%
3½	9/16	5.03	74.3%
3½	½	4.03	76.6%
3½	7/16	3.13	79.0%
3½	⅜	2.33	81.6%
3½	5/16	1.65	84.3%
3½	.283	1.36	85.6%
3½	.263	1.18	86.5%
3½	.250	1.07	87.1%
3½	.225	.87	88.3%
3½	.207	.74	89.1%
3¼	1	15.47	58.5%
3¼	¾	9.16	66.0%
3¼	11/16	7.80	68.1%
3¼	⅝	6.54	70.3%
3¼	9/16	5.37	72.6%
3¼	½	4.31	75.0%
3¼	7/16	3.35	77.6%
3¼	⅜	2.50	80.4%
3¼	5/16	1.76	83.2%
3¼	.283	1.46	84.6%
3¼	.263	1.26	85.6%
3¼	.250	1.15	86.2%
3¼	.225	.93	87.5%
3¼	.207	.79	88.4%
3¼	.192	.69	89.2%
3	1	16.50	56.3%
3	3/4	9.79	64.0%
3	11/16	8.35	66.2%
3	5/8	7.00	68.5%
3	9/16	5.76	70.9%
3	1/2	4.62	73.5%
3	7/16	3.59	76.2%
3	3/8	2.68	79.0%
3	5/16	1.90	82.0%
3	.283	1.57	83.5%
3	.263	1.36	84.5%
3	.250	1.23	85.2%
3	.225	1.01	86.5%
3	.207	.86	87.5%
3	.192	.74	88.3%
3	.177	.63	89.2%
3	.162	.53	90.0%
2¾	1	17.67	53.7%
2¾	¾	10.52	61.7%
2¾	11/16	8.98	64.0%
2¾	⅝	7.54	66.4%
2¾	9/16	6.20	68.9%
2¾	½	4.98	71.6%
2¾	7/16	3.88	74.4%
2¾	⅜	2.90	77.4%
2¾	5/16	2.05	80.6%
2¾	.283	1.70	82.2%
2¾	.263	1.48	83.3%
2¾	.250	1.34	84.0%
2¾	.225	1.09	85.4%
2¾	.207	.93	86.5%
2¾	.192	.80	87.4%
2¾	.177	.69	88.3%
2¾	.162	.58	89.2%
2¾	.148	.48	90.0%
2½	1	19.02	51.0%
2½	¾	11.37	59.2%
2½	11/16	9.71	61.5%
2½	⅝	8.16	64.0%
2½	9/16	6.72	66.6%
2½	½	5.41	69.4%
2½	7/16	4.22	72.4%
2½	⅜	3.16	75.6%
2½	5/16	2.24	79.0%
2½	.283	1.85	80.7%
2½	.263	1.61	81.9%
2½	.250	1.46	82.6%
2½	.225	1.19	84.2%
2½	.207	1.02	85.3%
2½	.192	.88	86.2%
2½	.177	.75	87.2%
2½	.162	.63	88.2%
2½	.148	.53	89.1%
2¼	1	20.61	47.9%
2¼	¾	12.37	56.2%
2¼	11/16	10.58	58.7%
2¼	⅝	8.90	61.2%
2¼	9/16	7.34	64.0%
2¼	½	5.91	66.9%
2¼	7/16	4.62	70.1%
2¼	⅜	3.46	73.4%
2¼	5/16	2.46	77.1%
2¼	.283	2.04	78.9%
2¼	.263	1.77	80.2%
2¼	.250	1.61	81.0%
2¼	.225	1.31	82.6%
2¼	.207	1.12	83.9%
2¼	.192	.97	84.9%
2¼	.177	.83	85.9%
2¼	.162	.70	87.0%
2¼	.148	.59	88.0%
2¼	.135	.49	89.0%
2	1	22.49	44.4%
2	¾	13.57	52.9%
2	11/16	11.62	55.4%
2	⅝	9.79	58.0%
2	9/16	8.09	60.9%
2	½	6.53	64.0%
2	7/16	5.11	67.3%
2	⅜	3.84	70.9%
2	5/16	2.73	74.8%
2	.283	2.26	76.7%
2	.263	1.97	78.1%
2	.250	1.79	79.0%
2	.225	1.46	80.8%
2	.207	1.25	82.1%
2	.192	1.08	83.2%
2	.177	.92	84.4%
2	.162	.78	85.6%
2	.148	.65	86.7%
2	.135	.55	87.8%
2	.120	.44	89.0%
1¾	1	24.76	40.5%
1¾	¾	15.03	49.0%
1¾	11/16	12.90	51.6%
1¾	⅝	10.88	54.3%
1¾	9/16	9.01	57.3%
1¾	½	7.29	60.5%
1¾	7/16	5.71	64.0%
1¾	⅜	4.30	67.8%
1¾	5/16	3.07	71.9%
1¾	.283	2.55	74.1%
1¾	.263	2.22	75.6%
1¾	.250	2.02	76.6%
1¾	.225	1.65	78.5%
1¾	.207	1.41	80.0%
1¾	.192	1.22	81.2%
1¾	.177	1.04	82.5%
1¾	.162	.88	83.8%
1¾	.148	.74	85.0%
1¾	.135	.62	86.2%
1¾	.120	.49	87.6%
1½	1	27.57	36.0%
1½	¾	16.86	44.4%
1½	11/16	14.50	47.0%
1½	⅝	12.27	49.8%
1½	9/16	10.18	52.8%
1½	½	8.25	56.3%
1½	7/16	6.48	59.9%
1½	⅜	4.90	64.0%
1½	5/16	3.50	68.5%
1½	.283	2.91	70.8%
1½	.263	2.54	72.4%
1½	.250	2.31	73.4%
1½	.225	1.89	75.6%
1½	.207	1.62	77.2%
1½	.192	1.40	78.6%
1½	.177	1.20	80.0%
1½	.162	1.02	81.5%
1½	.148	.85	82.8%
1½	.135	.72	84.2%
1½	.120	.57	85.7%
1⅜	¾	17.97	41.9%
1⅜	11/16	15.47	44.4%
1⅜	⅝	13.10	47.3%
1⅜	9/16	10.88	50.4%
1⅜	½	8.83	53.8%
1⅜	7/16	6.95	57.6%
1⅜	⅜	5.26	61.7%
1⅜	5/16	3.77	66.4%
1⅜	.283	3.14	68.8%
1⅜	.263	2.74	70.5%
1⅜	.250	2.49	71.6%
1⅜	.225	2.04	73.9%
1⅜	.207	1.75	75.6%
1⅜	.192	1.52	77.0%
1⅜	.177	1.30	78.5%
1⅜	.162	1.10	80.0%
1⅜	.148	.92	81.5%
1⅜	.135	.78	82.9%
1⅜	.120	.62	84.6%
1¼	¾	19.22	39.1%
1¼	11/16	16.57	41.6%
1¼	⅝	14.06	44.4%
1¼	9/16	11.70	47.5%
1¼	½	9.51	51.0%
1¼	7/16	7.50	54.8%
1¼	⅜	5.69	59.2%
1¼	5/16	4.08	64.0%
1¼	.283	3.40	66.5%
1¼	.263	2.97	68.3%
1¼	.250	2.70	69.4%
1¼	.225	2.22	71.8%
1¼	.207	1.90	73.6%
1¼	.192	1.65	75.1%
1¼	.177	1.42	76.7%
1¼	.162	1.20	78.4%
1¼	.148	1.01	79.9%
1¼	.135	.85	81.5%
1¼	.120	.68	83.2%
1¼	.105	.52	85.1%
1⅛	¾	20.68	36.0%
1⅛	11/16	17.86	38.5%
1⅛	⅝	15.17	41.3%
1⅛	9/16	12.65	44.4%
1⅛	½	10.30	47.9%
1⅛	7/16	8.14	51.8%
1⅛	⅜	6.19	56.3%
1⅛	5/16	4.45	61.2%
1⅛	.283	3.71	63.8%
1⅛	.263	3.25	65.7%
1⅛	.250	2.96	66.9%
1⅛	.225	2.43	69.4%
1⅛	.207	2.08	71.3%
1⅛	.192	1.81	73.0%
1⅛	.177	1.55	74.7%
1⅛	.162	1.32	76.4%
1⅛	.148	1.11	78.1%
1⅛	.135	.93	79.7%
1⅛	.120	.74	81.7%
1⅛	.105	.58	83.7%
1⅛	.092	.45	85.5%
1	¾	22.38	32.6%
1	11/16	19.37	35.1%
1	⅝	16.49	37.9%
1	9/16	13.78	41.0%
1	½	11.25	44.4%
1	7/16	8.91	48.4%
1	⅜	6.79	52.9%
1	5/16	4.90	58.0%
1	.283	4.09	60.8%
1	.263	3.58	62.7%
1	.250	3.26	64.0%
1	.225	2.69	66.6%
1	.207	2.31	68.6%
1	.192	2.01	70.4%
1	.177	1.72	72.2%
1	.162	1.46	74.0%
1	.148	1.23	75.9%
1	.135	1.04	77.6%
1	.120	.83	79.7%
1	.105	.64	81.9%
1	.092	.50	83.9%
1	.080	.38	85.7%
⅞	⅝	18.06	34.0%
⅞	9/16	15.13	37.0%
⅞	½	12.38	40.5%
⅞	7/16	9.84	44.4%
⅞	⅜	7.52	49.0%
⅞	5/16	5.44	54.3%
⅞	.283	4.55	57.1%
⅞	.263	3.99	59.1%
⅞	.250	3.64	60.5%
⅞	.225	3.01	63.3%
⅞	.207	2.58	65.3%
⅞	.192	2.25	67.2%
⅞	.177	1.93	69.2%
⅞	.162	1.64	71.2%
⅞	.148	1.38	73.5%
⅞	.135	1.17	75.1%
⅞	.120	.93	77.3%
⅞	.105	.72	79.7%
⅞	.092	.56	81.9%
⅞	.080	.43	83.9%
¾	⅝	19.98	29.7%
¾	9/16	16.79	32.6%
¾	½	13.79	36.0%
¾	7/16	11.00	39.9%
¾	⅜	8.44	44.4%
¾	5/16	6.13	49.8%
¾	.283	5.15	52.7%
¾	.263	4.52	54.8%
¾	.250	4.12	56.3%
¾	.225	3.41	59.2%
¾	.207	2.93	61.4%
¾	.192	2.56	63.4%
¾	.177	2.20	65.5%
¾	.162	1.87	67.6%
¾	.148	1.58	69.8%
¾	.135	1.33	71.8%
¾	.120	1.07	74.3%
¾	.105	.83	76.9%
¾	.092	.65	79.3%
¾	.080	.50	81.7%
⅝	9/16	18.87	27.7%
⅝	½	15.57	30.9%
⅝	7/16	12.47	34.6%
⅝	⅜	9.61	39.1%
⅝	5/16	7.03	44.4%
⅝	.283	5.91	47.4%
⅝	.263	5.20	49.5%
⅝	.250	4.76	51.0%
⅝	.225	3.94	54.0%
⅝	.207	3.40	56.4%
⅝	.192	2.97	58.5%
⅝	.177	2.58	60.7%
⅝	.162	2.18	63.1%
⅝	.148	1.85	65.4%
⅝	.135	1.56	67.6%
⅝	.120	1.25	70.3%
⅝	.105	.98	73.4%
⅝	.092	.76	76.0%
⅝	.080	.58	78.6%
⅝	.072	.48	80.4%
⅝	.063	.37	82.5%
½	½	16.96	25.0%
½	7/16	14.42	28.4%
½	⅜	11.19	32.7%
½	5/16	8.24	37.9%
½	.283	6.96	40.8%
½	.263	6.14	42.9%
½	.250	5.62	44.4%
½	.225	4.68	47.5%
½	.207	4.04	49.8%
½	.192	3.54	52.2%
½	.177	3.06	54.5%
½	.162	2.61	57.1%
½	.148	2.22	59.5%
½	.135	1.88	62.0%
½	.120	1.51	65.0%
½	.105	1.18	68.3%
½	.092	.93	71.3%
½	.080	.71	74.3%
½	.072	.58	76.4%
½	.063	.45	78.9%
7/16	7/16	15.40	25.0%
7/16	⅜	12.20	29.0%
7/16	5/16	9.03	34.0%
7/16	.283	7.64	36.9%
7/16	.263	6.75	39.0%
7/16	.250	6.19	40.5%
7/16	.225	5.16	43.6%
7/16	.207	4.47	46.0%
7/16	.192	3.92	48.3%
7/16	.177	3.40	50.7%
7/16	.162	2.90	53.2%
7/16	.148	2.47	55.8%
7/16	.135	2.09	58.4%
7/16	.120	1.69	61.5%
7/16	.105	1.33	65.0%
7/16	.092	1.04	68.3%
7/16	.080	.80	71.5%
7/16	.072	.66	73.7%
7/16	.063	.51	76.4%
⅜	⅜	13.20	25.0%
⅜	5/16	9.99	29.7%
⅜	.283	8.48	32.5%
⅜	.263	7.51	34.5%
⅜	.250	6.89	36.0%
⅜	.225	5.77	39.0%
⅜	.207	5.00	41.5%
⅜	.192	4.39	43.8%
⅜	.177	3.82	46.1%
⅜	.162	3.27	48.7%
⅜	.148	2.79	51.4%
⅜	.135	2.37	54.1%
⅜	.120	1.92	57.4%
⅜	.105	1.51	61.0%
⅜	.092	1.18	64.5%
⅜	.080	.91	67.9%
⅜	.072	.75	70.4%
⅜	.063	.59	73.3%
⅜	.054	.44	76.4%
5/16	.263	8.46	29.5%
5/16	.250	7.78	30.9%
5/16	.225	6.53	33.8%
5/16	.207	5.68	36.2%
5/16	.192	5.00	38.4%
5/16	.177	4.36	40.8%
5/16	.162	3.74	43.4%
5/16	.148	3.20	46.0%
5/16	.135	2.72	48.8%
5/16	.120	2.21	52.2%
5/16	.105	1.74	56.0%
5/16	.092	1.37	59.6%
5/16	.080	1.07	63.4%
5/16	.072	.88	66.1%
5/16	.063	.69	69.3%
5/16	.054	.51	72.7%
¼	.250	8.95	25.0%
¼	.225	7.55	27.7%
¼	.207	6.59	29.9%
¼	.192	5.82	32.0%
¼	.177	5.08	34.3%
¼	.162	4.38	36.8%
¼	.148	3.76	39.4%
¼	.135	3.21	42.2%
¼	.120	2.62	45.6%
¼	.105	2.07	49.6%
¼	.092	1.64	53.4%
¼	.080	1.28	57.4%
¼	.072	1.06	60.3%
¼	.063	.83	63.8%
¼	.054	.62	67.6%
¼	.047	.48	70.9%
3/16	.192	6.97	24.4%
3/16	.177	6.12	26.5%
3/16	.162	5.30	28.8%
3/16	.148	4.57	31.3%
3/16	.135	3.92	33.8%
3/16	.120	3.22	37.2%
3/16	.105	2.56	41.1%
3/16	.092	2.04	45.1%
3/16	.080	1.60	49.1%
3/16	.072	1.33	52.2%
3/16	.063	1.05	56.0%
3/16	.054	.79	60.3%
3/16	.047	.62	63.9%
3/16	.041	.48	67.3%
⅛	.135	4.98	23.1%
⅛	.120	4.19	26.0%
⅛	.105	3.37	29.5%
⅛	.092	2.71	33.2%
⅛	.080	2.15	37.2%
⅛	.072	1.79	40.3%
⅛	.063	1.43	44.2%
⅛	.054	1.09	48.8%
⅛	.047	.85	52.8%
⅛	.041	.67	56.7%
⅛	.035	.50	61.0%
⅛	.032	.43	63.4%

A small sampling of our many stock items - Ask your Direct Metals Salesperson for more complete literature.

COPED, DRIVE-ON PIPE WELDING CONNECTORS

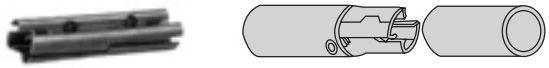
A B C D & E H

A For Level Railing
B For Level Railing
C For Level Railing
D & E For Bevel Railing
H For Level Railing, Extra Heavy Pipe

Sizes: 1 1/4", 1 1/2" and 2"

Material: Aluminum, Steel Stainless Steel

SPLICE LOCK CONNECTORS



Unique field connector for final railing assembly. For use with both round pipe and O.D. tubing and square tube. Internal expansion easily performed by set screw. Clean, smooth railing connection is made without welding or threading.

Available for Most Pipe and Tubing Sizes

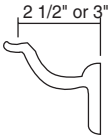
Insert Coupling

Material: Steel, Aluminum, Stainless Steel Splice Locks Either 3 3/4" or 6" Long

ALUMINUM and STAINLESS STEEL EXTRUDED HANDRAIL BRACKETS

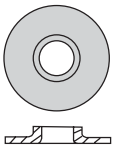
Square Base

Round Base

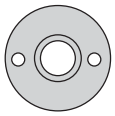


Round Top

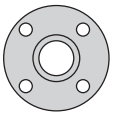
FLAT BASE and EXTRA HEAVY FLANGES



Plain



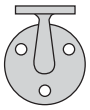
2, 3, or 4 Hole



2, 3, or 4 Hole w/Set Screw or threaded

Material: Steel, Aluminum, Stainless Steel, Brass, Bronze
Sizes: Most Pipe and O.D. Tube Sizes, 3/4" thru 4 1/2"

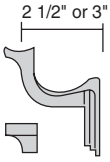
CAST HANDRAIL WALL BRACKETS



Cast Handrail Bracket

Flat or Round Tops

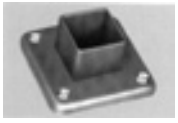
Light Weight Cast Handrail Bracket

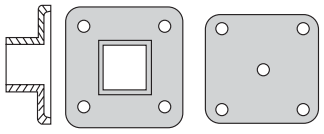


Flat or Round Tops

Material: Malleable, Aluminum, Stainless Steel, Brass, Bronze

SQUARE TUBE SOCKET FLANGES





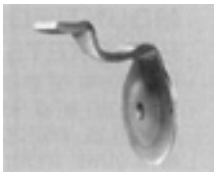
Square: 1", 1 1/4" and 1 1/2"

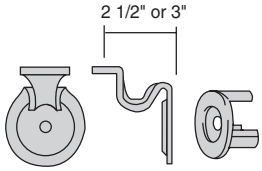
A Plain Flange w/4 Corner Holes w/Set Screw w/Set Screw and 4 Holes

B Anchor Plate

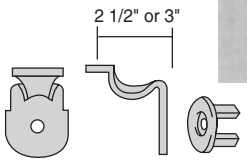
Material: Steel, Aluminum, Stainless Steel

HANDRAIL & GRAB RAIL WALL BRACKETS and FILLERS





2-Piece Bracket with Filler



Formed Brackets

Bracket with Filler

Material: Steel, Stainless Steel, Brass, Bronze

Can Be Furnished with 1 1/2" Clear to Wall per ADA Code on Request.

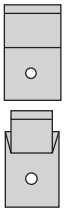
1/4" FORMED HANDRAIL BRACKETS

Bracket With Concealing Cover

Filler

Round Top

Flat Top



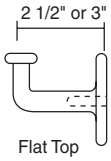
Square Style

Available With: 1, 2, or 3 Mounting Holes

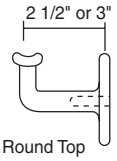
Material: Steel, Stainless Steel, Aluminum, Brass, Bronze

Sized to Meet ADA Specifications

BAR STYLE HANDRAIL BRACKET



Flat Top



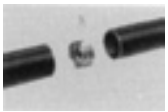
Round Top

Material: Malleable, Aluminum, Brass, Bronze

WEDGE-LOCK WELDING CONNECTORS

Material: Steel, Aluminum, Stainless Steel

Wedge



Sizes:
Pipe: 3/4", 1", 1 1/4", 1 1/2", and 2"
O.D. Tube: 1", 1 1/4", 1 1/2" and 2"

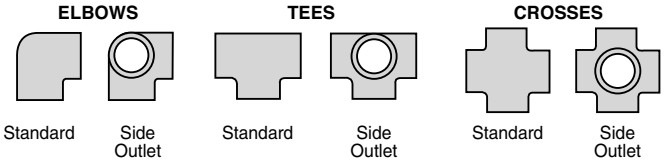
Unique welding connector accurately holds flush weld fittings and railing together with 1/8" gap for welded assemblies. Drive in wedge expands connector to hold all flush weld tees, elbows and caps while assembling railing. Use with pipe and O.D. tubing sizes.

Kennesaw, GA
(770) 528-9001 • FAX (770) 528-9002

Park City, IL
(847) 599-0233 • FAX (847) 599-0244

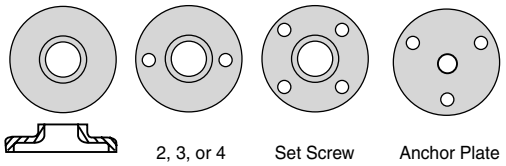
PIPE RAILING FITTINGS

Elbows, Tees and Crosses are formed with a short radius and are also held in place for welding with a WEDGE-LOCK connector.



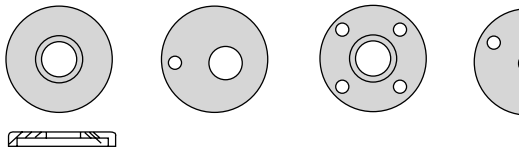
Sizes: Pipe Railing - 1 1/4" and 1 1/2"
Material: Steel, Aluminum, Stainless , Bronze

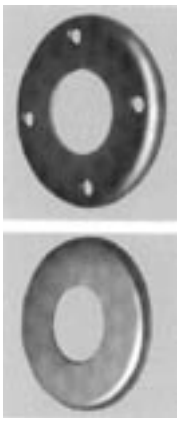
HEAVY BASE FLANGES



Material: Steel, Aluminum, Stainless Steel, Brass, Bronze
Sizes: Most Pipe and O.D. Tube Sizes, 3/4" thru 3 1/2"

HEAVY FLUSH BASE FLANGES

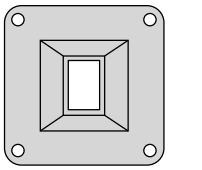


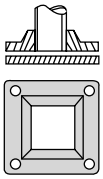


Material: Steel, Aluminum, Stainless Steel, Brass, Bronze
Pipe Sizes: 3/4", 1", 1 1/4", 1 1/2" and 2"

Also Available with Beveled Center Holes for Ramp Railings

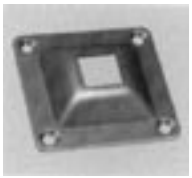
SQUARE TUBE FLANGES and COVER PLATES





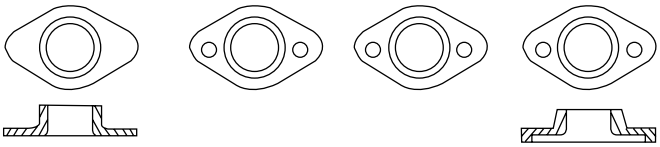
base size 3 3/4" x 3 3/4" — for tube size 3/4", 1", 1 1/4" and 1 1/2" square

5" x 5" — 2" square; 1" x 1/2" 1" x 2", 1 1/2 x 2" and 2 1/2" x 3" rect.



Material: Steel, Aluminum, Stainless, Brass, Bronze

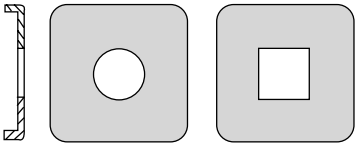
TAPERED FLAT BASE FLANGES
TAPERED HEAVY BASE FLANGES



Sizes: 3/4", 1", 1 1/4" and 2" Diameter pipe. 1", 1 1/4", 1 1/2, " and 2" O.D.Tube
Material: Steel, Aluminum, Stainless Steel, Brass

Also Available with Heavy Bases

SQUARE FLUSH BASE TUBING FLANGES



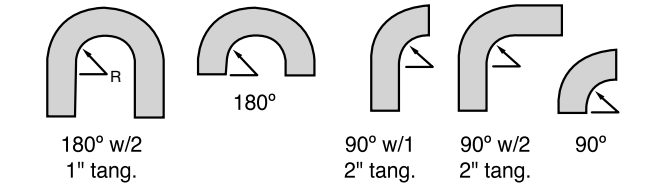
Sizes: Sq. Hole: 3/4", 1", 1 1/4", 1 1/2" and 2"
Rect Hole: 1" x 1 1/2", 1" x 2" and 1 1/2" x 2
Pipe & O.D. Tubing: 3/4", 1", 1 1/4", 1 1/2" & 2

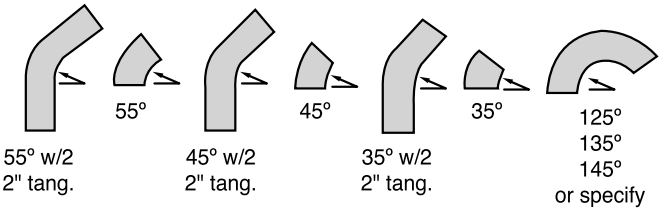
Material: Steel, Aluminum, Stainless Steel, Brass, Bronze

Optional Mounting Holes and Set Screws

STANDARD FLUSH WELD PIPE ELBOWS

Standard radii and configurations of elbows are available for various railing requirements. Elbows are easily held in place by a wedge-lock welding connector then welded and ground for a flush, smooth connection.





Elbows are available with tangents of any length on one or both ends (standard is 2" long)

All fittings available with an inside radius (R) of 1", 1 5/8", 2", 3", 4", 5", 6", 7", 8" and 10"

3/4" Elbows may be furnished with tangents

Can be used with wedge-lock connectors for best alignments

Use with connectors at both ends of elbow

Sizes: Most fittings are available for the following:
Pipe Sizes: 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", and 3"
O.D. Tubing: 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3" and 5"

Material: Steel, Aluminum, Stainless Steel, Brass, Bronze
Finishes: Mill finish or other finishes as required.

BUY DIRECT

DIRECT METALS DM

Meet our dedicated staff

Toll Free Number 1-800-711-4939


Rudy Abbott


Haynes Carswell


Rich Mata


Peggy Stevens


Woody Harden


Carolyn Tabanelli


Chris Pappadakis


John Hoover


Robert Sinsun


Tom Hoover


Ben Hafeli


Scott Hinton


Andrew Winters


Matt Flannery


Gail Moore


Kalvin Johnson


Joel Baker

Atlanta

Phone • 770-528-9001
Fax • 770-528-9002

Chicago

Phone • 847-599-0233
Fax • 847-599-0244

Direct Metals Co., LLC
1200 Chastain Rd. #201
Kennesaw, GA 30144

PRESORTED STANDARD
U.S. POSTAGE PAID
DIRECT METALS COMPANY