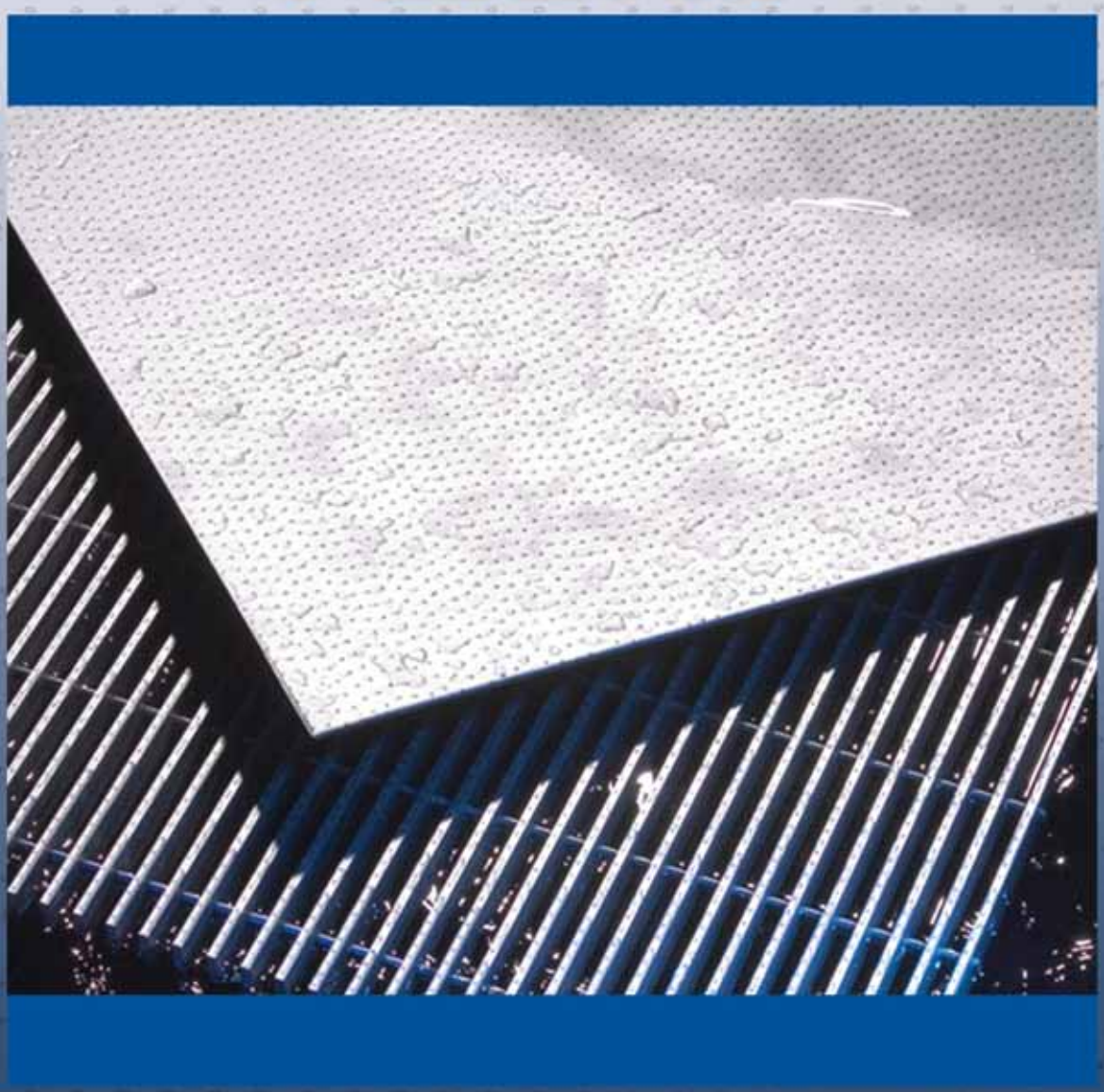
ALGRIP™



An Investment in **Safety**

Workplace safety is a must for employees and employers alike! Spiraling costs for work related injuries include lost productivity, medical expenses, increased workers compensation insurance premiums and disability payments.

Repeated studies indicate that slips and falls account for over 20 percent of all industrial injuries. Often these injuries involve claims for shoulder, neck and back injuries. These injuries are painful and lingering for employees, and expensive for employers.

Algrip™ Slip-Resistant Flooring Products are designed to meet the challenges of industry's most demanding environments. The products presented in the following pages are durable, technologically advanced and provide employees and employers with a superior level of protection. When you select Algrip, you are clearly making an *Investment in Safety.*

Slip Resistant Floor Plates

Algrip Slip Resistant Floor Plate is a solid stainless steel, carbon steel, or aluminum floor plate available in thickness from 14 gauge to 1-1/2". Algrip Floor Plate is intended to serve applications where a solid working surface is desired.

Slip Resistant Metal Bar Grating

Algrip Slip Resistant Metal Bar Grating is a "self-cleaning" open flooring designed to provide safety where open area is desired for the passage of light, air and fluids.

Applications

- Wet/slippery Environments
- Platforms
- Walkways
- Stair Treads
- Inclined Ramps
- Floor Boards
- Shipboard Use
- Printing Facilities
- Food Processors
- Utility Vault Covers
- Assembly Lines
- Ground Support Equipment
- Pharmaceutical Facilities
- Mass Transit
- Oil Platforms
- Petrochemical Facilities

Materials

Algrip Slip Resistant Flooring Products are manufactured through a patented CNC laser deposition process in which hundreds of rugged, custom alloy slip-resistant laser deposits are delivered to each square foot of a substrate.

This flexible manufacturing process allows for the manufacture of two popular industrial flooring products, floor plate and bar grating.

Stainless Steel - popular in food processing and clean room environments, Algrip Stainless Steel plate and grating products are manufactured with a substrate of ASTM alloy 304 or 316. Virtually maintenance-free, these products provide unsurpassed slip resistance in areas subject to the accumulation of moisture or debris. Additionally, the properties of the stainless steel substrate facilitate compliance with FDA and USDA regulations.

Carbon Steel - plate and grating products intended for pedestrian traffic are manufactured with ASTM A-1011 steel substrates. For structural applications, ASTM A-36 steel plate and bars are available. Carbon steel products can be provided with a mill finish, painted or hot dip galvanized after fabrication.

Aluminum - where weight and corrosion resistance are paramount concerns, aluminum plate or grating products are available. Plate products are available in alloys 3003 or 5052 per ASTM B-209. Grating products are manufactured from either alloy 6063-T6 or 6061-T6 per ASTM B-221. Aluminum products are typically provided mill finish.

Durability

While selection of the appropriate substrate is important, the true life cycle of safety flooring is traditionally determined by the durability of the slip-resistant properties of the walking surface. This is where your investment in Algrip begins to pay dividends.

Cross-section of Algrip laser deposition magnified 32 times.

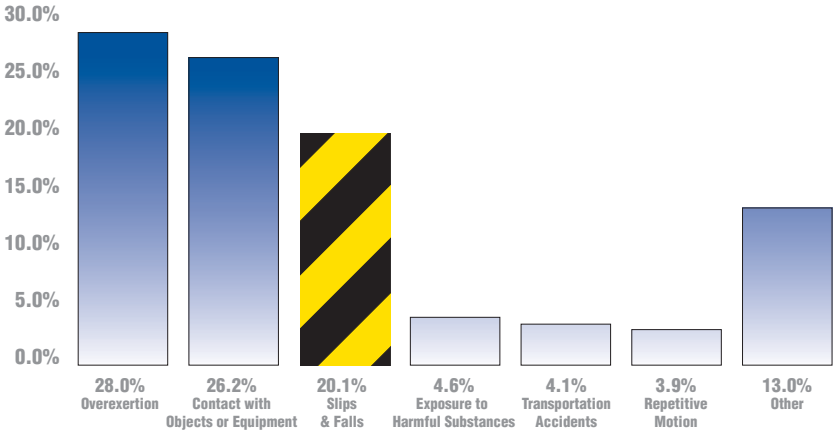
The traction providing laser depositions of Algrip Flooring Products have been tested for hardness and adherence by independent testing laboratories. The results of these tests assure that Algrip will provide unsurpassed service life.

Laboratory analysis has measured the hardness of Algrip traction providing custom alloy laser depositions at up to 60 on the Rockwell C Scale. Under repetitious pedestrian and vehicular traffic, these deposits will provide continuous, safe, effective service.

The cross-sectional photograph above illustrates the deep penetration of the symmetrical laser deposition into a steel substrate. Laboratory tested, the deposition penetrates the substrate and is enclosed by a strengthened heat affected zone. The resulting bond strength, combined with the proven deposition hardness provides unsurpassed durability regardless of wear or abrasion.

Safety

The United States Bureau of Labor Statistics reports that over 20% of all compensable industrial injuries result from slips and falls. Often these accidents occur when liquids, lubricants or foreign materials have accumulated on floors, stairs or work platforms.



For these challenging applications, the unique matrix application of Algrip laser deposits provides unparalleled slip resistance in all directions. Plate products are manufactured with more than 1,000 deposits per square foot. Shoe and tire materials completely encircle and "grab" the deposits. Worker safety and employer protections are significantly enhanced with each installation of Algrip.

Slip Resistance and Coefficient of Friction (COF)

Slip-resistance is commonly tested in a laboratory setting by measuring for static coefficient of friction (COF) in accordance with ASTM procedure C-1028. This testing procedure assigns a value to the traction surface while that surface is tested under wet and dry conditions. Because the greatest concern for slip resistance relates to worker/pedestrian safety, this procedure can be further refined to test each condition using samples of two popular shoe sole materials, rubber and neolite (composition). The results of these tests are expressed in numerical values with higher values indicating increased slip-resistance.

Federal Guidelines for COF

The Occupational Safety and Health Administration (OSHA) recommends that walking surfaces maintain a minimum COF of 0.50. The Americans with Disabilities Act (ADA) recommends that level walking surfaces maintain a 0.60 COF and that surfaces for inclined ramps maintain a more stringent 0.80 COF.

The following results demonstrate that Algrip Plate and Grating products exceed published Federal Guidelines in all conditions!

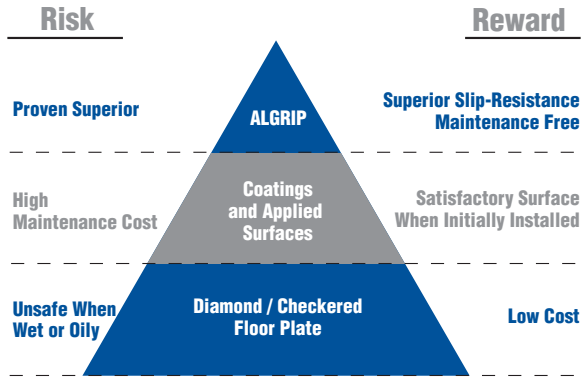
Static COF

OSHA Guidelines	All Surfaces	0.50 COF Recommended
ADA Guidelines	Level Surfaces	0.60 COF Recommended
	Inclined Ramps	0.80 COF Recommended
Algrip ™ Test Results (ASTM Procedure C-1028-89)	Dry Leather	0.88 COF
	Dry Rubber	0.94 COF
	Dry Neolite	0.97 COF
	Wet Leather	0.91 COF
	Wet Rubber	0.92 COF
	Wet Neolite	0.96 COF

Risk-Reward Analysis

When considering any investment, there are options. Safety flooring products are no exception. The risk-reward pyramid for safety flooring starts with common diamond/checker floor plate. This product is inexpensive, but provides little or no safety when wet or oily. The cost is low, but the risk is high.

The second level of the pyramid relates to floors that have been treated with coatings or applied surfaces. These hybrids provide a fair level of safety when initially installed but often create a maintenance burden. When subjected to wear, applied coatings can quickly deteriorate. Applied surfaces can crack or de-laminate when subjected to service loads. To maintain safe working conditions with these products, there is often a continuous and costly maintenance cycle.

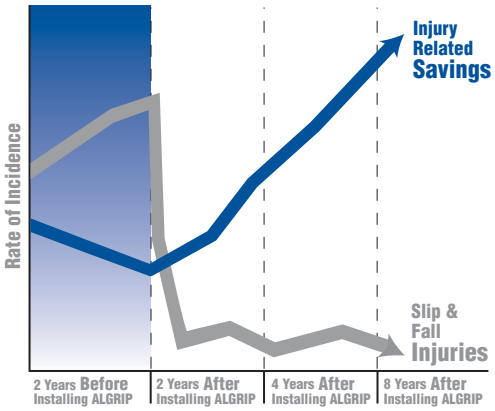


When you invest in Algrip, you have selected a superior safety floor surface that is virtually maintenance free. Once installed, employees and employers are provided the highest level of protection from slips and falls. Supervisors can focus their attention on smooth plant operations rather than recurring maintenance. With Algrip, you are at the Top of the Pyramid!

Return On Investment

Positive returns are rarely guaranteed on any investment. However, the long-term benefits provided by Algrip Slip-Resistant Flooring products are undeniable.

Beyond maintenance, the greatest return on your Algrip investment stems from a reduction in work-related slip and fall injuries. When workers are provided with this additional protection, there is often a significant reduction in slip and fall injuries. This drop in incidence directly enhances worker productivity, increases injury related savings and effectively increases bottom line performance!



ALGRIP™ *Slip-Resistant* Floor Plate

Algrip plate products have efficiently served industry for over 40 years. When work areas are subject to the accumulation of moisture, fluids or lubricants, Algrip is your number one choice! The slip-resistant properties of Algrip Floor Plate provide continuing worker safety in the automotive, petrochemical and food processing industries, just to name a few.

Durable carbon steel, lightweight aluminum and corrosion resistant stainless steel plates offer engineers and maintenance personnel the appropriate alternative for nearly any work environment. The plate can be easily fabricated to exact custom sizes with contours and trim for each application.

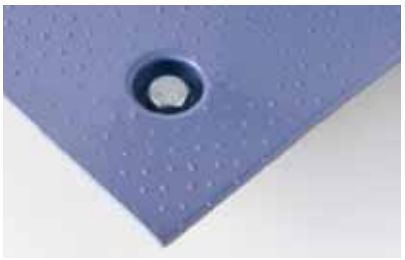
Beyond industrial applications, Algrip Slip-Resistant Floor Plate has experienced increased popularity in commercial applications. To meet the slip-resistance requirements of the Americans with Disabilities Act (ADA), Algrip is commonly specified for inclined ramps and utility vault covers.

Popular applications for Algrip include:

- Work Platforms
- Ramps
- Catwalks
- Utility Vault Covers
- Loading Platforms
- Sidewalk Culvert Covers
- Steps and Stairs
- Assembly Line Floors
- Inspection Stations
- Trench Covers
- Dock Boards

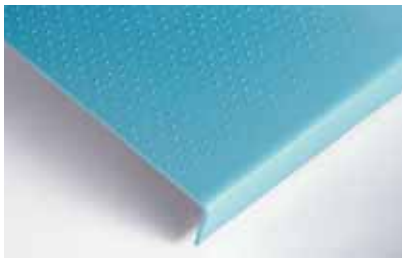
Fabrication

One of the great advantages of Algrip Slip-Resistant Floor Plate is that it can be easily fabricated into finished components using common metal working tools. The superior bond strength of the Algrip slip-resistant surface allows the plate to be fabricated by:

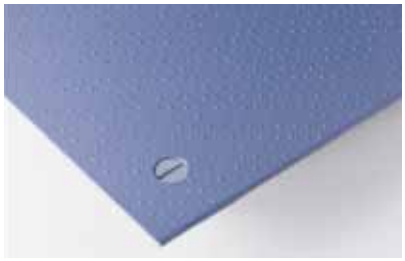


Punching & Drilling
Algrip is easily punched or drilled to accommodate fastening devices or bolted installations where the plate is required to be removable.

Welding
Both the top traction surface and the bottom bearing surfaces can be easily welded without damaging the slip-resistant walking surface.



Forming
The excellent adhesion of the skid resistant deposits allow for clean forming of the plate without cracking or delaminating the traction surface.



Countersinking
Common metalworking tools can be used to countersink the Algrip substrate. Countersunk fastening eliminates potential tripping hazards created by protruding fastening devices.

Shearing
Algrip can be fabricated to size by economical mechanical shearing without cracking or damaging the safety providing traction surface.

Flame Cutting
Intricate or radial cuts are easily accomplished using oxygen-acetylene or plasma gas cutting tools.

Finishing & Maintenance

The durable base substrate of carbon steel Algrip and the inert properties of the slip-resistant custom alloy laser deposits readily accept traditional metal finishes without compromising the superior traction properties of the plate. Algrip products can easily be finished with paints or powder coating. Hot dip galvanizing can be accomplished without sandblasting or other expensive surface preparation. Aluminum and Stainless Steel products typically require no finishing after fabrication.

Maintenance concerns are limited to proper cleaning of dirt and debris from the flooring. With a combination of Algrip and proper housekeeping procedures you will continually place your employees on safe footing!

Sample Specification

Floor plate shall be Algrip Slip-Resistant Floor Plate by Ross Technology Corporation, P.O. Box 646, Leola, PA 17540, (800) 345-8170. Slip resistant surface shall be applied by CNC laser deposition process incorporating no less than 1,000 deposits per square foot. Deposits are to penetrate the metal substrate to produce a permanent bond. Static coefficient of friction shall be tested to exceed 0.80 COF for both wet and dry conditions.

Alloy of base material shall be **A-1011 Carbon Steel** (or A-36 Carbon Steel, 3000 Series Aluminum, or 300 Series Stainless Steel). Material shall be **1/4" thick** (specify from 14 gauge to 1-1/2" thick). Material shall be finished by **Hot Dip Galvanizing** (bare steel, painted or galvanized for carbon steel products, mill finish for aluminum or stainless steel products).

ALGRIP™ *Slip-Resistant Floor Plate* Load Table

A-36 Carbon Steel Floor Plate

	Span													
Thickness (Inches)	1?–0	1?–6	2?–0	2?–6	3?–0	3?–6	4?–0	4?–6	5?–0	5?–6	6?–0	6?–6	7?–0	Maximum span (in) @ 100 psf & 1/4" deflection
1/8	333	148	83	53	37									19
	0.13	0.30	0.53	0.83	1.19									
3/16	750	333	188	120	83	61	47							26
	0.09	0.20	0.35	0.55	0.79	1.08	1.41							
1/4	1,333	593	333	213	148	109	83	66	53					32
	0.07	0.15	0.26	0.41	0.60	0.81	1.06	1.34	1.66					
5/16	2.083	926	521	333	231	170	130	103	83	69				38
	0.05	0.12	0.21	0.33	0.48	0.65	0.85	1.07	1.32	1.60				
3/8	3,000	1,333	750	480	333	254	188	148	120	99	83			43
	0.04	0.10	0.18	0.28	0.40	0.54	0.71	0.89	1.10	1.34	1.59			
1/2	5,333	2,370	1,333	853	593	435	333	263	213	176	148	126		54
	0.03	0.07	0.13	0.21	0.30	0.41	0.53	0.67	0.83	1.00	1.19	1.40		
5/8	8.333	3,704	2,083	1,333	926	680	521	412	333	275	231	197	170	64
	0.03	0.06	0.11	0.17	0.24	0.32	0.42	0.54	0.66	0.80	0.95	1.12	1.30	
3/4	12,000	5,333	3,0001,9	20	1,333	980	750	593	480	397	333	284	245	73
	0.02	0.05	0.09	0.14	0.20	0.27	0.35	0.45	0.55	0.67	0.79	0.93	1.08	

Values shown are for simple spans
Elastic modulus = 29,000,000 psi
Yield strength = 36,000 psi
Safety factor = 2.25

304 *Stainless Steel Floor Plate*

1/8	278	123	69	44	31									19
	0.11	0.26	0.46	0.71	1.03									
3/16	625	278	156	100	69	50	39							26
	0.08	0.17	0.30	0.48	0.69	0.93	1.22							
1/4	1,111	494	278	178	123	91	69	55	44					32
	0.06	0.13	0.23	0.36	0.51	0.70	0.91	1.16	1.43					
5/16	1,736	722	434	278	193	142	109	86	69	57	48			43
	0.05	0.10	0.18	0.29	0.41	0.56	0.73	0.93	1.14	1.38	1.65			
3/8	2,500	1,111	625	400	278	204	156	123	100	83	69	59	51	53
	0.04	0.09	0.15	0.24	0.34	0.47	0.61	0.77	0.95	1.15	1.37	1.61	1.87	

Values shown are for simple spans
Elastic modulus = 28,000,000 psi
Yield strength = 30,000 psi
Safety factor = 2.25

3003 *Aluminum Floor Plate*

1/8	167	74	42	27										15
	0.16	0.36	0.64	1.00										
3/16	375	167	94	60	42	31								21
	0.11	0.24	0.43	0.67	0.96	1.31								
1/4	667	296	167	107	74	54	42	33						26
	0.08	0.18	0.32	0.50	0.72	0.98	1.28	1.62						
5/16	1,500	667	375	240	167	122	94	74	60					35
	0.05	0.12	0.21	0.33	0.48	0.65	0.85	1.08	1.33					
3/8	2,667	1,185	667	427	296	218	167	132	107	88	74			43
	0.04	0.09	0.16	0.25	0.36	0.49	0.64	0.81	1.00	1.21	1.44			

Values shown are for simple spans
Elastic modulus = 12,000,000 psi
Yield strength = 18,000 psi
Safety factor = 2.25

Allowable Loads (pounds per square foot)
Deflection @ Allowable Load (in.)

ALGRIP™ *Slip-Resistant Metal* **Bar Grating**

Metal bar gratings are widely accepted as the preferred option for open metal floors. To enhance the performance of these products, metal bar gratings can now be specified with the added safety of the Algrip Slip-Resistant surface.

Prior to assembly of the grating, the custom alloy laser deposits are applied to the walking surface of the grating bearing bars. This process produces a bar grating with superior, long-term slip-resistance when compared to plain or serrated surface options. As with plate products, gratings are available in carbon steel, aluminum and stainless steel.

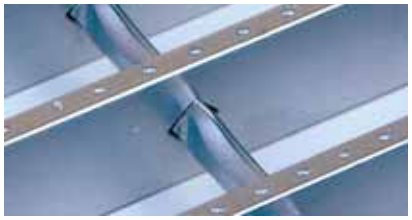
Gratings are available in bar sizes and spacings to meet the varying needs of industrial and commercial applications. Industrial applications are routinely served with Standard Mesh Grating. These products have bearing bars spaced at 1-3/16" on center and cross bars spaced at 4" on center (type 19-4).

ADA compliant gratings must have bearing bars spaced no further than 1/2" apart. To meet this criteria, gratings with 3/16" thick bearing bars spaced at 11/16" on center should be specified (types 11-4 or 11-2). To provide additional safety in areas where high-heeled shoe traffic is anticipated, type 7-4 or 7-2 spacings should be considered. These close-mesh products are manufactured with 3/16" thick bearing bars spaced at 7/16" on center and yield a 1/4" clear opening between the bearing bars.

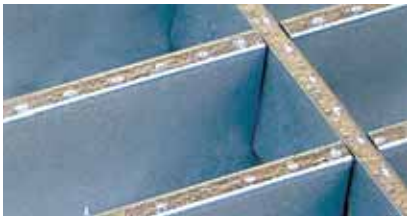
Methods of **Assembly**

Algrip Slip Resistant Metal Bar Gratings are available in three distinct types of grating identified by their method of assembly. All of these gratings provide superior slip resistance when subjected to the most demanding applications.

Type "W"
Welded Steel Grating
Manufactured by welding the cross bar/bearing bar intersection, typically by automated forge welding machines. Provides a secure welded connection that is ideal for most industrial applications. Available in carbon steel or stainless steel.



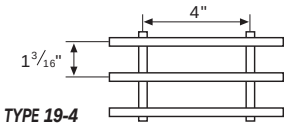
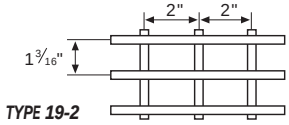
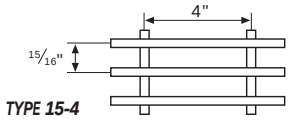
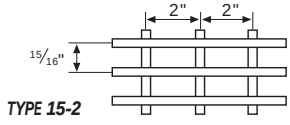
Type "PS"
Swaged Pressure Locked Grating
Cross bars are inserted into pre-punched holes in the bearing bars and hydraulically swaged to lock the bars in place. Swaging is the preferred method of assembly for the manufacture of close mesh carbon steel, stainless steel and aluminum gratings.

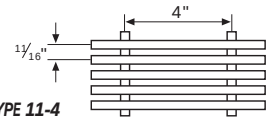
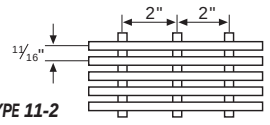
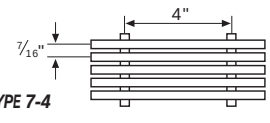
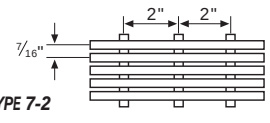


Type "PD"
Dovetail Pressure Locked Grating
Assembled by inserting pre-punched bearing and cross bars into an "egg-crate" configuration and deforming the cross bars under intense hydraulic pressure. Allows for the manufacture of gratings with custom spacings.

Table of **Spacings Available**

The following table illustrates bearing bar and cross bar spacings common to grating products. Bearing bar spacings range from 1-3/16" on center to 7/16" on center. Cross bars are typically spaced at 4 inches on center, and 2 inch centers are available for traffic areas where small-wheeled carts or dolleys are anticipated.

Standard mesh grating		*Bearing Bars at 1-3/16" O.C.* *Cross Bars at 4" O.C.*
Other spacings available		*Bearing Bars at 1-3/16" O.C.* *Cross Bars at 2" O.C.*
		*Bearing Bars at 15/16" O.C.* *Cross Bars at 4" O.C.*
		*Bearing Bars at 15/16" O.C.* *Cross Bars at 2" O.C.*

ADA conforming spacings		*Bearing Bars at 11/16" O.C.* *Cross Bars at 4" O.C.*
		*Bearing Bars at 11/16" O.C.* *Cross Bars at 2" O.C.*
		*Bearing Bars at 7/16" O.C.* *Cross Bars at 4" O.C.*
		*Bearing Bars at 7/16" O.C.* *Cross Bars at 2" O.C.*

How To **Specify**

Proper specification of Algrip Slip Resistant Gratings requires identification of the following components:

Method of Assembly – select type "W", "PS" or "PD"
Material – specify the desired material – A-1011 Carbon Steel, type 304 or 316 Stainless Steel, type 6063 or 6061 aluminum.
Bar Spacing – select the desired spacing from the "Table of Spacings Available" above.
Bearing Bar Size – select the appropriate bearing bar size for the desired span and load from the tables found on pages 9 and 10.
Finish – specify desired finish. Common finishes are as follows:

- **Carbon Steel** – bare, prime painted or hot dip galvanized after fabrication.
- **Stainless Steel** – mill finish or abrasive blast matte finish
- **Aluminum** – mill finish after fabrication or anodized.

Sample **Specification**

Algrip Slip Resistant Metal Bar Grating by Ross Technology Corporation, P.O. Box 646, Leola, PA 17540, (800) 345-8170.

Grating shall be type **"W" Welded Steel Grating** manufactured with **A-1011 Carbon Steel**. Bar spacing shall be type **19-4** (bearing bars spaced at **1-3/16"** on center and cross bars spaced at **4"** on center). Bearing bar size shall be **1-1/2" x 3/16"** and the grating shall be **Hot Dip Galvanized** after fabrication. For proper trim and finish, all cut-outs and open ends of grating shall be banded per ANSI/NAAMM standards.

Bar Grating **Stair Treads**

Algrip Slip Resistant Metal Bar Gratitings are popular for the fabrication of Stair Treads which complement the adjacent flooring. Algrip Grating Stair Treads are fabricated with close-matrix Algrip Nosings to provide maximum safety at the leading edge of the tread.

ALGRIP™ Steel Bar Grating

19-4 / 19-2 Load Table

Bearing Bar Size		Unsupported 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"	9'-0"	Weight Per sq. ft. (LBS.) 19-4	19-2	15-4	15-2	11-4	11-2	7-4	7-2
3/4 x 1/8	U	355	227	158	116	89	70								4.0	4.8	4.9	5.7	6.4	7.2	9.7	10.7
	D	.099	.155	.223	.304	.397	.503															
	C	355	284	237	203	178	158															
	D	.079	.124	.179	.243	.318	.402															
3/4 x 3/16	U	533	341	237	174	133	105								5.6	6.4	6.9	7.7	9.2	10.0	14.5	16.0
	D	.099	.155	.223	.304	.397	.503															
	C	533	426	355	305	266	237															
	D	.079	.124	.179	.243	.318	.402															
1 x 1/8	U	632	404	281	206	156	125	101	84	70					5.1	5.9	6.2	7.1	8.2	9.0	12.9	14.2
	D	.074	.116	.168	.228	.298	.377	.466	.563	.670												
	C	632	505	421	361	316	281	253	230	211												
	D	.060	.093	.134	.182	.238	.302	.372	.451	.536												
1 x 3/16	U	947	606	421	309	237	187	152	125	105					7.4	8.4	9.2	10.2	12.1	13.1	19.4	21.3
	D	.074	.116	.168	.228	.298	.377	.466	.563	.670												
	C	947	758	632	541	474	421	379	344	316												
	D	.060	.093	.134	.182	.238	.302	.372	.451	.536												
1-1/4 x 1/8	U	987	632	439	322	247	195	158	130	110	93	81			6.4	7.4	7.8	8.8	10.3	11.3	15.8	17.1
	D	.060	.093	.134	.182	.238	.302	.372	.451	.536	.629	.730										
	C	987	789	658	564	493	439	395	359	329	304	282										
	D	.048	.074	.107	.146	.191	.241	.298	.360	.429	.504	.584										
1-1/4 x 3/16	U	1480	947	658	483	370	292	237	196	164	140	121			9.0	10.0	11.2	12.2	14.9	15.9	23.8	25.7
	D	.060	.093	.134	.182	.238	.302	.372	.451	.536	.629	.730										
	C	1480	1184	987	846	740	658	592	538	493	455	423										
	D	.048	.074	.107	.146	.191	.241	.298	.360	.429	.504	.584										
1-1/2 x 1/8	U	1421	909	632	464	355	281	227	188	158	135	116	89	70	7.4	8.4	9.2	10.2	12.1	13.1	18.8	20.0
	D	.050	.078	.112	.152	.199	.251	.310	.376	.447	.524	.608	.794	1.006								
	C	1421	1137	947	812	711	632	568	517	474	437	406	355	316								
	D	.040	.062	.089	.122	.159	.201	.248	.300	.358	.420	.487	.636	.804								
1-1/2 x 3/16	U	2132	1364	947	696	533	421	341	282	237	202	174	133	105	11.1	12.5	13.7	15.1	18.1	19.6	28.1	30.1
	D	.050	.078	.112	.152	.199	.251	.310	.376	.447	.524	.608	.794	1.006								
	C	2132	1705	1421	1218	1066	947	853	775	711	656	609	533	474								
	D	.040	.062	.089	.122	.159	.201	.248	.300	.358	.420	.487	.636	.804								
1-3/4 x 3/16	U	2901	1857	1289	947	725	573	464	384	322	275	237	181	143	12.7	14.1	15.7	17.1	20.9	22.3	32.5	34.4
	D	.043	.067	.096	.130	.170	.215	.266	.322	.383	.450	.521	.681	.862								
	C	2901	2321	1934	1658	1451	1289	1161	1055	967	893	829	725	645								
	D	.034	.053	.077	.104	.136	.172	.213	.257	.306	.360	.417	.545	.689								
2 x 3/16	U	3789	2425	1684	1237	947	749	606	501	421	359	309	237	187	14.3	15.7	17.8	19.2	23.7	25.1	36.9	38.8
	D	.037	.058	.084	.114	.149	.189	.233	.282	.335	.393	.456	.596	.754								
	C	3789	3032	2526	2165	1895	1684	1516	1378	1263	1166	1083	947	842								
	D	.030	.047	.067	.091	.119	.151	.186	.225	.268	.315	.365	.477	.603								
2-1/4 x 3/16	U	4796	3069	2132	1566	1199	947	767	634	533	454	392	300	237	15.9	17.4	19.8	21.2	26.5	27.9	41.3	43.2
	D	.033	.052	.074	.101	.132	.168	.207	.250	.298	.350	.406	.530	.670								
	C	4796	3837	3197	2741	2398	2132	1918	1744	1599	1476	1370	1199	1066								
	D	.026	.041	.060	.081	.106	.134	.166	.200	.238	.280	.324	.424	.536								
2-1/2 x 3/16	U	5921	3789	2632	1933	1480	1170	947	783	658	561	483	370	292	17.5	19.0	21.8	23.3	29.2	30.7	45.6	47.5
	D	.030	.047	.067	.091	.119	.151	.186	.225	.268	.315	.365	.477	.603								
	C	5921	4737	3947	3383	2961	2632	2368	2153	1974	1822	1692	1480	1316								
	D	.024	.037	.054	.073	.095	.121	.149	.180	.215	.252	.292	.381	.483								

Loads and deflections are theoretical values based on 18,000 PSI unit stress. For pedestrian comfort deflections in excess of 1/4" are not recommended.

U = Safe Uniform Load, Lbs. per sq. ft.
C = Safe Concentrated Mid-Span Load, lbs. per ft. of grating width
D = Deflection in Inches

Conversion Table

The loads shown above are for type 19-4 and 19-2 gratings. To determine the load carrying capacity for alternative bar spacings, multiply the loads given by the following conversion factors (DEFLECTION REMAINS CONSTANT): ***FOR TYPES 15-4 AND 15-2: 1.26 FOR TYPES 11-4 AND 11-2: 1.72 FOR TYPES 7-4 AND 7-2: 2.71***

Selection Guide: 19-4 and 19-2 Steel Grating

For deflection of not more than 1/4" when subjected to the severest of the following: (1) the uniform loads below; (2) under concentrated mid-span loads of 300 lbs. up to 6'-0" span; or (3) 400 lbs. for spans 6'-0" and over.

Safe Uniform Load lbs./sq. ft.	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"	9'-0"
50	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16
75	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16
100	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16
125	1 x 1/8	1 x 1/8	1 x 1/8	1 x 1/8	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 1/8	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	–
150	1 x 1/8	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/2 x 3/16	–
200	1 x 1/8	1 x 1/8	1 x 1/8	1-1/4 x 1/8	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	–	–
300	1 x 1/8	1 x 3/16	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16	–	–

ALGRIP™ Aluminum Bar Grating

19-4 / 19-2 Load Table

Bearing Bar Size		Unsupported 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"	Weight Per sq. ft. (LBS.) 19-4	19-2	15-4	15-2	11-4	11-2	7-4	7-2
1 x 1/8	U	421	269	187	137	105	83								1.8	2.2	2.2	2.6	2.9	3.3	4.4	4.7
	D	.144	.225	.324	.441	.576	.729															
	C	421	337	281	241	211	187															
	D	.115	.180	.259	.353	.461	.583															
1 x 3/16	U	632	404	281	206	158	125								2.6	2.9	3.2	3.5	4.2	4.5	6.4	6.7
	D	.144	.225	.324	.441	.576	.729															
	C	632	505	421	361	316	281															
	D	.115	.180	.259	.353	.461	.583															
1-1/4 x 1/8	U	658	421	292	215	164	130	105	87	73					2.2	2.5	2.7	3.0	3.6	3.9	5.4	5.7
	D	.115	.180	.259	.353	.461	.583	.720	.871	1.037												
	C	658	526	439	376	329	292	263	239	219												
	D	.092	.144	.207	.282	.369	.467	.576	.697	.829												
1-1/4 x 3/16	U	987	632	439	322	247	195	158	130	110	93	81			3.1	3.5	3.9	4.2	5.2	5.5	7.9	8.3
	D	.115	.180	.259	.353	.461	.583	.720	.871	1.037	1.217	1.411										
	C	987	789	658	564	493	439	395	359	329	304	282										
	D	.092	.144	.207	.282	.369	.467	.576	.697	.829	.973	1.129										
1-1/2 x 1/8	U	947	606	421	309	237	187	152	125	105	90	77	67	59	2.6	2.9	3.2	3.5	4.2	4.5	6.4	6.7
	D	.096	.150	.216	.294	.384	.486	.600	.726	.864	1.014	1.176	1.350	1.536								
	C	947	758	632	541	474	421	379	344	316	291	271	253	237								
	D	.077	.120	.173	.235	.307	.389	.480	.581	.691	.811	.941	1.080	1.229								
1-1/2 x 3/16	U	1421	909	632	464	355	281	227	188	158	135	116	101	89	3.7	4.0	4.6	4.9	6.1	6.5	9.4	9.8
	D	.096	.150	.216	.294	.384	.486	.600	.726	.864	1.014	1.176	1.350	1.536								
	C	1421	1137	947	812	711	632	568	517	474	437	406	379	355								
	D	.077	.120	.173	.235	.307	.389	.480	.581	.691	.811	.941	1.080	1.229								
1-3/4 x 3/16	U	1934	1238	860	632	484	382	309	256	215	183	158	138	121	4.2	4.6	5.3	5.6	7.1	7.4	10.9	11.3
	D	.082	.129	.185	.252	.329	.417	.514	.622	.741	.869	1.008	1.157	1.317								
	C	1934	1547	1289	1105	967	860	774	703	645	595	553	516	484								
	D	.066	.103	.148	.202	.263	.333	.411	.498	.592	.695	.806	.926	1.053								
2 x 3/16	U	2526	1617	1123	825	632	499	404	334	281	239	206	180	158	4.8	5.1	6.0	6.3	8.0	8.4	12.4	12.8
	D	.072	.113	.162	.221	.288	.365	.450	.545	.648	.761	.882	1.013	1.152								
	C	2526	2021	1684	1444	1263	1123	1011	919	842	777	722	674	632								
	D	.058	.090	.130	.176	.230	.292	.360	.436	.518	.608	.706	.810	.922								
2-1/4 x 3/16	U	3197	2046	1421	1044	799	632	512	423	355	303	261	227	200	5.4	5.7	6.7	7.0	9.0	9.3	14.0	14.3
	D	.064	.100	.144	.196	.256	.324	.400	.484	.576	.676	.784	.900	1.024								
	C	3197	2558	2132	1827	1599	1421	1279	1163	1066	984	914	853	799								
	D	.051	.080	.115	.157	.205	.259	.320	.387	.461	.541	.627	.720	.819								
2-1/2 x 3/16	U	3947	2526	1754	1289	987	780	632	522	439	374	322	281	247	5.9	6.3	7.4	7.7	10.0	10.3	15.5	15.8
	D	.058	.090	.130	.176	.230	.292	.360	.436	.518	.608	.706	.810	.922								
	C	3947	3158	2632	2256	1974	1754	1579	1435	1316	1215	1128	1053	987								
	D	.046	.072	.104	.141	.184	.233	.288	.348	.415	.487	.564	.648	.737								

Loads and deflections are theoretical values based on 12,000 PSI unit stress. For pedestrian comfort deflections in excess of 1/4" are not recommended.

U = Safe Uniform Load, Lbs. per sq. ft.
C = Safe Concentrated Mid-Span Load, lbs. per ft. of grating width
D = Deflection in Inches

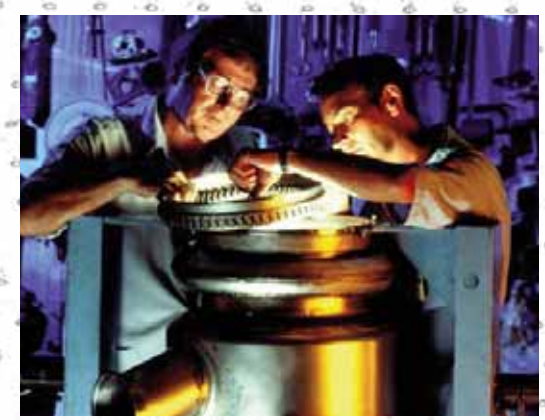
Conversion Table

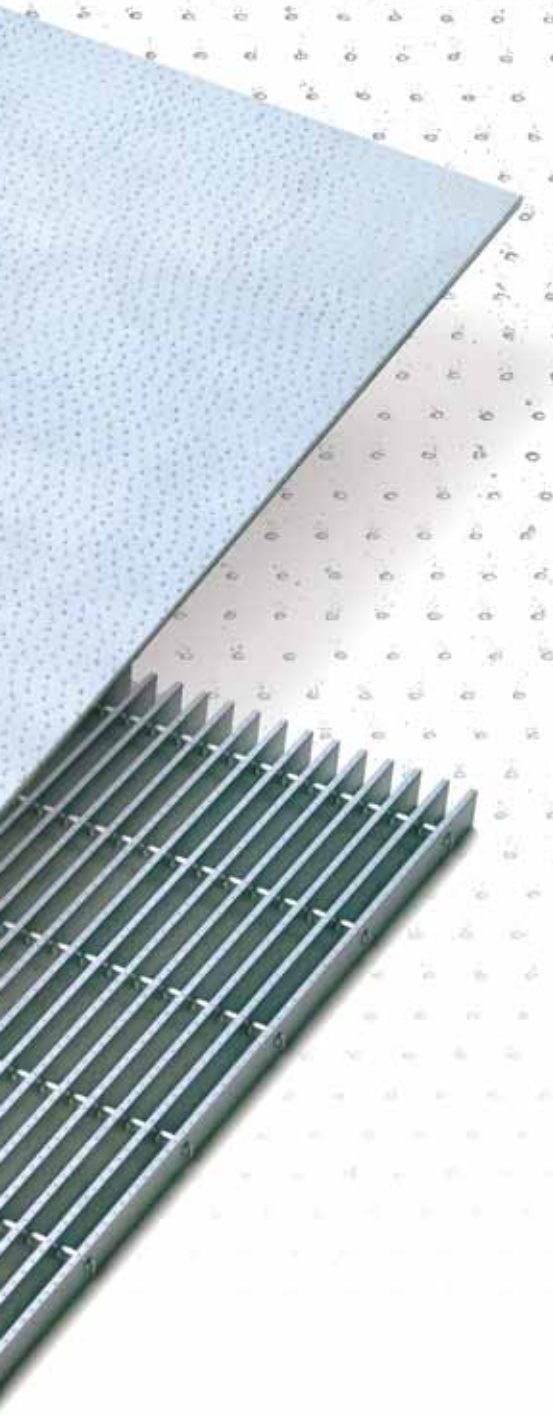
The loads shown above are for type 19-4 and 19-2 gratings. To determine the load carrying capacity for alternative bar spacings, multiply the loads given by the following conversion factors (DEFLECTION REMAINS CONSTANT): ***FOR TYPES 15-4 AND 15-2: 1.26*** ***FOR TYPES 11-4 AND 11-2: 1.72*** ***FOR TYPES 7-4 AND 7-2: 2.71***

Selection Guide: 19-4 and 19-2 Aluminum Grating

For deflection of not more than 1/4" when subjected to the severest of the following: (1) the uniform loads below; (2) under concentrated mid-span loads of 300 lbs. up to 6'-0" span; or (3) 400 lbs. for spans 6'-0" and over.

Safe Uniform Load lbs./sq. ft.	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"
50	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16
75	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1-1/4 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16
100	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16
125	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16	–
150	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16	–
200	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16	–	–
300	1 x 1/8	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16	–	–	–





Ross Technology Corporation

P.O. BOX 646, LEOLA, PA 17540
Toll Free 1.800.345.8170
Phone 717.646.5600 • Fax 717.656.2041

www.algrip.com

Distributed By

GRATING PACIFIC
Service. Quality. Reliability.

www.gratingpacific.com

Los Alamitos, CA	**Tracy, CA**	**Woodburn, OR**	**Seattle, WA**	**Phoenix, AZ**
Tel (800) 321-4314	Tel (800) 491-7999	Tel (800) 942-4041	Tel (800) 243-3939	Tel (888) 936-9201
Fax (562) 598-2740	Fax (209) 832-6311	Fax (503) 980-2068	Fax (206) 575-6455	Fax (623) 936-9550