Grip Strut® Safety Grating
Platforms, Walkways & Stair Treads
For The Safest Walking-Working Surfaces

Other Cooper B-Line Product Lines
Strut Systems (Bolted Framing)
Cable Tray Systems
Electrical Enclosures
Electronic Enclosures
Pipe Hanger & Support Systems
Spring Steel Fasteners
Cable Runway & Relay Racks (CommData)
Meter Mounting & Distribution Equipment
Anchors

Questions, Comments, Suggestions?
"B-VOCAIRO with Cooper B-Line"
Voice Of the Customer - Actively Listening
b Vocal@cooperindustries.com
618-654-2184 ext. 456

GSSGST-09

2009 Cooper B-Line, Inc. Printed in U.S.A. 7.51208
Open design is self-cleaning and virtually maintenance free. Finish and surface finishes after fabrication. These lightweight but strong panels are available for installations requiring hot-dipped galvanized steel for maximum corrosion resistance. Black unpainted aluminum and Types 304 and 316L stainless steel are available for resisting materials and finishes. Standard mill-galvanized finish Grip Strut Safety Grating also saves with its long-lasting, rust-resistant performance.

**Economical to install, use and maintain**

In addition to low material cost and nominal erection cost, Grip Strut Safety Grating also combines the long-lasting, rust-resisting materials and finishes. Standard mill-galvanized finish resists corrosion to provide lasting surfaces. High-strength aluminum and Types 304 and 316L stainless steel are available to provide maximum corrosion resistance. Black unpainted steel available for installations requiring hot-dipped galvanized finish after fabrication. These lightweight but strong panels permit substantial reduction in structural steel requirements. Open design is self-cleaning and virtually maintenance free.

**Safer, serrated surface**

Grips hold 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.

**Maintenance-free open design**

Permits quick drainage of fluids, chips, grease and mud. Any ice accumulation shears easily under normal foot pressure. Open design allows convenient access for cleaning. It is easily cleaned with brush, liquid or air spray to minimize overall maintenance.

**High load capacity, long life**

High strength-to-weight performance is achieved through depth and section of structural design. Bridged struts with integral side channels form a plank that can support loads with minimum transverse and longitudinal deflection. There are no rivets or pressure joints to break or loosen. This sturdy construction provides the advantages of heavy load-carrying capacity with minimal deflection; rugged durability with longer-lasting performance.

**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.

**Versatility in application**

A variety of standard widths and channel heights combine with numerous non-standard shapes and sizes to meet almost any requirement of strength, size, durability, weight, finish, appearance and application. Grip Strut Safety Grating combines safety and durability with ease of fabrication and versatility. One-piece construction—no rivets or fasteners to fail—minimizes need for plant fabrication. Special shapes and forming can be accomplished to suit unusual requirements.

**General Installation Recommendations**

**Recommended Clearances**

Steel: ¼” minimum is recommended at perimeter and ½” maximum at end joints. Maximum between panels is ¼”; ½” is generally used.

Concrete: Concrete form deflection calls for slightly greater perimeter clearance. 1/2” is recommended. (Maximum between panels is ¼”).

**Bearing Surfaces**

Recommended minimum bearing 1½”. Surfaces supporting Grip Strut Grating must be smooth and level to ensure that adjoining sections provide a safe, even walking surface.

**Permanent Installation**

Grip Strut Safety Grating is easily welded to supports for permanent installations. Channels are quickly welded together between supports to provide uniform deflection in adjacent panels. For welded-attachment, secure side channels to supports by fusion welding with ⅜” fillet welds, 1” long. Weld adjacent planks together with ⅜” fillet welds, 1” long, 24” on center staggered top and bottom.

Install Grip Strut Safety Grating according to details as shown on individual job drawings, or as follows:

1. Single width applications. Utilizing the anchoring device or weldings, attach Grip Strut Grating plank at every point of contact with supporting structure around perimeter of plank.
2. Multiple width applications. Utilizing the Grip Strut Safety Grating anchoring device or welded as recommended by A.I.S.I., attach grating plank around the perimeter at each point of contact with supporting structure. In field of platform, attach plank to supporting structure with a minimum of one attachment at each end of plank on alternate sides.

When span exceeds 8 feet, weld or bolt side channels of adjacent planks together at midpoint of span. (When spans exceed 6 feet, consider similar treatment.)

**Accessories**

Several attachment devices permit fastening to most existing surfaces; allow fast installation or disassembly. These devices can be bolted, clamped or welded. They can be fabricated to adapt to field conditions. Several attachment devices permit fastening to most existing surfaces; allow fast installation or disassembly.

**Applications**

A variety of Standard widths and channel heights combine with numerous non-standard shapes and sizes to meet almost any requirement of strength, size, durability, weight, finish, appearance and application. Grip Strut Safety Grating combines safety and durability with ease of fabrication and versatility. One-piece construction—no rivets or fasteners to fail—minimizes need for plant fabrication. Special shapes and forming can be accomplished to suit unusual requirements.

**Installation Recommendations**

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<th>Installation Recommendations</th>
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<td></td>
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<td>Exemplary load capacity, long</td>
<td></td>
</tr>
<tr>
<td>life</td>
<td></td>
</tr>
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<td>Fast Installation</td>
<td></td>
</tr>
<tr>
<td>Versatility in application</td>
<td></td>
</tr>
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</table>

**Comparative Performance Tables**

- 10-Diamond Planks - 24” Width
- 8-Diamond Planks - 18½” Width
- 6-Diamond Planks - 11½” Width
- 5-Diamond Planks - 11¾” Width
- 4-Diamond Planks - 9½” Width
- 3-Diamond Planks - 7” Width
- 2-Diamond Planks - 4½” Width

**Specifications**

- Grip Strut Safety Grating is easily welded to supports for permanent installations. Channels are quickly welded together between supports to provide uniform deflection in adjacent panels.
- For welded-attachment, secure side channels to supports by fusion welding with ½” fillet welds, 1” long. Weld adjacent planks together with ½” fillet welds, 1” long, 24” on center staggered top and bottom.
- Install Grip Strut Safety Grating according to details as shown on individual job drawings, or as follows:
  1. Single width applications. Utilizing the anchoring device or weldings, attach Grip Strut Grating plank at every point of contact with supporting structure around perimeter of plank.
  2. Multiple width applications. Utilizing the Grip Strut Safety Grating anchoring device or welded as recommended by A.I.S.I., attach grating plank around the perimeter at each point of contact with supporting structure. In field of platform, attach plank to supporting structure with a minimum of one attachment at each end of plank on alternate sides.

When span exceeds 8 feet, weld or bolt side channels of adjacent planks together at midpoint of span. (When spans exceed 6 feet, consider similar treatment.)

**Close-up of standard pattern**

**Standard serrated surface**

**Non-serrated surface also available**
How To Order

Grip Strut Safety Grating and Stair Treads are stocked in all major markets. For the finest in Safety Grating and Stair Treads, contact Cooper B-Line or look for your local Grip Strut distributor on the internet using www.cooperbline.com. You will get skilled consulting service on your specific requirements.

Catalog number code
The catalog number code given below will assist you in ordering the material according to the specifications required.

1. Steel:
   - First numeral is width. "S" denotes 5-diamond or 11/8" width.
   - Second and third numerals denote channel size. "20" denotes 2", "15" denotes 11/2", etc.
   - Last two numbers denote gauge. "12" denotes 12 gauge, "14" denotes 14 gauge.
   - Standard material is hot dipped galvanized (ASTM A525)
   - Example: S2014 = 5-Diamond, 11/8" wide, 2" channel, 14 gauge

2. Aluminum:
   - First numeral is width. "S" denotes 5-diamond or 11/8" width.
   - Second and third numerals denote channel size. "20" denotes 2", "15" denotes 11/2", etc.
   - Last two numbers denote gauge. "10" denotes .100" thick, "12" denotes .080" thick.
   - Material - A: Denotes aluminum.
   - Example: S2012-A = 5-Diamond, 11/8" wide, 2" channel, .080 thick, aluminum

3. Stainless Steel:
   - First numeral is width. "S" denotes 5-diamond or 11/8" width.
   - Second and third numerals denote channel size. "20" denotes 2", "15" denotes 11/2", etc.
   - Last two numbers denote gauge. "16" denotes 16 gauge.
   - Material - A: Type 304. SL = 316L
   - Example: S2016-S = 5-Diamond, 11/8" wide, 2" channel, 16 gauge, Type 304 stainless

4. Stair Treads:
   - Any of the above numbers preceded by "T-"
   - Example: T-42014 = 4-Diamond, 9 1/2" wide, 2" channel, 14 gauge, steel stair tread

5. Plain:
   - For ordering purposes, any catalog number followed by "P" signifies plain unpainted steel (HRP&D).
   - Example: S2012-B = 5-Diamond, 11/8" wide, 2" channel, 12 gauge, plain steel

6. Special Products:
   - Consult local Grip Strut Grating distributor for identification and order placement of special products not herein identified.

Standard Sizes:
- Length: (nominal 10'-0" and 12'-0")
- Tolerances:
  - Planks: Standard 10'-0" and 12'-0" lengths are 120" and 144" respectively, with a tolerance of -0" +1/4".
  - Special lengths are available.
  - Treads: Standard stair tread lengths are as shown in this catalog with tolerances of ± 1/8".

Raw Materials:
- Finishes:
  - A) Steel:
    - 1) Pre-galvanized - ASTM A525
    - 2) 14 gauge: hot rolled, commercial quality, oiled black steel and commercial quality, commercial coating, chemically treated galvanized steel
    - 3) 12 gauge: hot rolled, pickled and oiled, commercial quality black steel and commercial quality, commercial coating, chemically treated galvanized steel
  - B) Aluminum: Alloy 5052 H-32 mill finish
  - C) Stainless Steel: 2B finish - 316L (light, cold rolled) — 2D finish - 316L (light, cold rolled)

Fabrication service: On large jobs, Cooper B-Line estimates, quotes, details and fabricates to your requirements. Lump-sum quotations are made from submitted plans and specifications. After receipt of order, a bill of materials and necessary layout drawings are prepared. Grating is supplied with special cutting, banding and toe plates installed where needed. Stair treads are also available fabricated and non-serrated. This fabrication service is available through Grip Strut Grating distributors.

Proof Of Performance

Tested by an independent laboratory for slip resistance according to standards and methods established by Federal Specifications RR-G-1602A, Grip Strut Safety Grating proved its superiority by exceeding all requirements of this specification.

The standards where exacting - five shoe sole materials tested in three directions under five conditions: dry, greasy, muddy, soapy and icy. Grip Strut Safety Grating tested 10% to 18% more slip-resistant than similar materials, depending on shoe materials and surface conditions.

In survey after survey, accidents caused by falls are high on the list of disabling and lost-time injuries and death. In fact, statistics from many states rate this type of accident second as the cause for industry’s loss of manhours and lower productivity. As proved in the test described above, Grip Strut Safety Grating substantially reduces this kind of accident. In addition, the hazard of falling objects is minimized by the shape and size (1 1/8" x 11/16") of the surface openings.

Fewer accidents, with resultant lower insurance costs and reduced workman’s compensation losses, should be the logical reason for specifying Grip Strut Safety Grating for all walking-working surfaces and stair treads.

Values determined in accordance with standards for slip-resistance established by Federal Specification RR-G-1602A. The values indicated are an average of values obtained for five sole materials (leather, boot rubber, shoe rubber, Neolite and Hypalon) tested in three directions (longitudinally, transversely and diagonally) for the surface conditions noted. Values are in pounds of force necessary to move a 175 pound load one inch across the surface of grating.
Discover the many ways Grip Strut Safety Grating can work for you
Grip Strut Grating and Stair Treads are stocked in over 75 locations in the United States. For the finest in Safety Grating and Stair Treads, contact Cooper B-Line or look for your local Grip Strut grating distributor on the internet using www.cooperbline.com. You will get skilled consulting service on your specific requirements. See the following pages for the many diverse uses of Grip Strut products in industry.

1.5 Quality Assurance
A. Manufacturers: Firms regularly engaged in the manufacture of Safety Grating of the types required, whose products have been in satisfactory use in similar service for not less than 5 years.
B. OSHA Compliance: All grating installations must comply with OSHA Standards for walking working surfaces.
C. Federal Specification RR-G-1602D (or current revision) defines the criteria for items to be considered “Safety Grating”. Slip resistant performance data must be available to support compliance.
D. Manufacturer must have an ISO registered quality system in place, and Manual available upon request.

1.6 Delivery, Storage and Handling
A. Deliver Safety Grating and components carefully to avoid damage, denting and scoring of finishes. Do not install damaged material.
B. Store materials in original packaging and in clean, dry space; protect from weather and construction traffic. Materials to be elevated off of ground by blocks or skids or pallets.

Part 2 Products
2.1 Acceptable Manufacturers
Safety Gratings: Subject to compliance with these specifications, Safety Gratings shall be installed as manufactured by Cooper B-Line Grip Strut Safety Grating (or engineer approved equal).

2.2 Materials and Finish
A. Hot Rolled, Pickled & Oiled Steel: Commercial steel per ASTM A 1011, minimum yield of 33 ksi.
B. Mil Galvanized Steel: Commercial steel per ASTM A 653 and ASTM A 924 with G-90 coating designation, minimum yield of 33 ksi.
C. Hot-Dip Galvanized After Fabrication: Commercial steel per ASTM A 1011, minimum yield of 33 ksi, hot-dip galvanized after fabrication per ASTM A 123.
D. Aluminum: Alloy 5052, Temper H32 aluminum per ASTM B 209
E. Stainless Steel: Type 304 (Type 316) stainless steel, 2B or 2D finish, per ASTM A 240.

2.3 Gratings and Components

Part 3 Execution
3.1 Installation
A. Inspect areas to receive Grating for obstacles. Notify the Engineer of conditions that would adversely affect the installation or subsequent utilization of the areas. Do not proceed with installation until unsatisfactory conditions are corrected.
B. Install Grating according to manufacturer’s recommendations and as shown on the construction drawings.
C. Position Grating sections flat and square with ends bearing minimum 1 1/2” on supporting structure.
D. Keep sections at least 1/4” away from vertical steel sections and 1/2” from concrete walls.
E. Allow clearance at joints between sections of maximum 3/8” at side channels and maximum 1/4” at ends.
F. Band random cut ends and diagonal or circular cut exposed edges with a minimum 1/8” thick bar welded at contact points.
G. Join abutting walkway sections with manufacturer supplied splice plates; bolted or welded as specified.

END OF SECTION
Section 05 53 00, Metal Gratings (05120)
Safety Grating, Slip Resistant Walkways, Platforms and Treads

Part 1 - General

1.1 Section Includes
A. Safety Grating walkways, planks, stair-treads with reticulated and formed metal cross struts.
B. Regular and Heavy Duty Safety Grating products constructed from single-sheet with integrally-formed channels at the edges.
C. Slip resistant walkways, planks and stair-treads with stamped surface textures/patterns.

1.2 Related Documents & Sections
Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this section. Other related sections include:
A. 05 51 00, Metal Stairs
05 51 19, Metal Grating Stairs
05 51 13, Metal Ladders
05 51 36, Catwalks
B. 05 55 00, Metals Stair Treads and Nosings

1.3 Submittals
A. Submit drawings of Safety Grating products, accessories and attachments.
B. Submit manufacturer’s product data on Safety Grating products including, but not limited to; types, materials, finishes, gauge thickness, surface patterns. For each grating cross-section, submit dimensional information, span, load capacity and deflection requirements.
C. Shop Drawings:
   1. Show fabrication and installation details, including plans.
   2. Coordination of drawings: Floor plans and sections, drawn to scale. Include scaled layout and relationships between grating and adjacent structural elements.

1.4 References
B. ASTM A 240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
C. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
D. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot-Dip Process
E. ASTM A 1011 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability
F. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
G. OSHA-Occupational Safety and Health Administration- Standards for walking-working surfaces. Part Number 1910, Subpart D.
H. RR-G-1602D- Federal Specification For Safety Grating (other than bar type & excluding naval vessels)

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) MasterFormat, Three-Part SectionFormat, and PageFormat, contained in the CSI Manual of Practice. Six-digit section numbers are from the MasterFormat, 2004 Edition.
The section must be carefully reviewed and edited by the Engineer to meet the requirements of the project and local building code. Coordinate with other specification sections and the drawings.
Specifier Notes: This section covers Cooper B-Line slip resistant, Grip Strut® Safety Grating, grating planks, walkways, treads, ladder rungs and specialty items designed for industrial and commercial walking/working surfaces are included.
**Stair Tread Information**

**Safe Loading — Stair Treads**

Load data below takes eccentric loads into consideration. Although load values include allowances for normal impact conditions and usual pedestrian traffic, be sure to make provisions in the structural design for special uses and loads involving unusual impact forces or vibratory forces. Load-carrying capacity of stair treads increases as side channel height and gauge or material increase.

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### Safe Loading — Stair Treads

For Product Selection and Design Tables, see pages 14 through 25.

**Note**

The data in these tables represents the performances of both side channels ignoring grating surface performance. These values are not to be used for product selection but should be used when comparisons are being made with other products whose published information does not include grating surface performance.

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**Comparative Performance Tables**

**10-Diamond Plank & Walkway 24” Width**

<table>
<thead>
<tr>
<th>Span Depth</th>
<th>Material Depth</th>
<th>Material</th>
<th>Gauge</th>
<th>Channel Depth</th>
<th>Channel Weight</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>2'-0&quot;</td>
<td>2&quot; (50.8)</td>
<td>Steel</td>
<td>14 ga.</td>
<td>2 3/4&quot;</td>
<td>1300</td>
<td>12&quot;</td>
</tr>
<tr>
<td>2'-6&quot;</td>
<td>2&quot; (50.8)</td>
<td>Steel</td>
<td>12 ga.</td>
<td>2 3/4&quot;</td>
<td>1000</td>
<td>12&quot;</td>
</tr>
<tr>
<td>3'-0&quot;</td>
<td>2&quot; (50.8)</td>
<td>Steel</td>
<td>12 ga.</td>
<td>2 3/4&quot;</td>
<td>750</td>
<td>12&quot;</td>
</tr>
<tr>
<td>3'-6&quot;</td>
<td>2&quot; (50.8)</td>
<td>Steel</td>
<td>14 ga.</td>
<td>2 3/4&quot;</td>
<td>1000</td>
<td>12&quot;</td>
</tr>
<tr>
<td>4'-0&quot;</td>
<td>2&quot; (50.8)</td>
<td>Steel</td>
<td>14 ga.</td>
<td>2 3/4&quot;</td>
<td>1300</td>
<td>12&quot;</td>
</tr>
</tbody>
</table>

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### Load/Deflection Conversion Formulas

In the elastic range, deflection is proportional to the applied load for both uniform and concentrated loads. This relationship can be used to determine the deflection that any load which is less than the allowable load will produce, as shown in Example A. Also, if desired, the load which will produce a specific deflection can also be determined if the load is known.

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### Example A

What deflection will a 300 lb. concentrated load produce on a plank (catalog number 103012) spanning 5'-0"?

**Example B**

If a plank (catalog number 103012) is spanning 6'-0", what concentrated load will produce a 1/4" deflection?
# Comparative Performance Tables

## 8-Diamond Plank — 18\(\frac{3}{8}\)\(\text{in.}\) Width

**Note**

The data in these tables represents the performances of both side channels ignoring grating surface pressure. These values are not to be used for product selection but should be used when comparisons are being made with other products whose published information does not include grating surface pressure. For Product selection and Design Tables, see pages 14 through 25.

### U=Uniform Load (lb./ft.\(^2\))   C= Concentrated Load (lb.)   D=Deflection (in.)

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Depth (in.)</th>
<th>Channel Width (in.)</th>
<th>Channel Height (in.)</th>
<th>Channel Number</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 ga.</td>
<td>0.080(\text{in.})</td>
<td>2(\text{in.})</td>
<td>1(\text{in.})</td>
<td>8 1/8(\text{in.})</td>
<td>--</td>
</tr>
<tr>
<td>Stainless Steel</td>
<td>42(\text{in.}) to 48(\text{in.})</td>
<td>14 ga.</td>
<td>2(\text{in.}) T-31514 3-Diamond - 7(\text{in.}) T-31514-N 3-Diamond - 8 1/8(\text{in.})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 304</td>
<td>36(\text{in.}) to 42(\text{in.})</td>
<td>14 ga.</td>
<td>1 1/2(\text{in.}) T-31514 3-Diamond - 7(\text{in.}) T-31514-N 3-Diamond - 8 1/8(\text{in.})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 409</td>
<td>Up to 36(\text{in.})</td>
<td>14 ga.</td>
<td>1 1/2(\text{in.}) T-31514 3-Diamond - 7(\text{in.}) T-31514-N 3-Diamond - 8 1/8(\text{in.})</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Steel, Aluminum and Stainless Steel (1)

(1) Specifications are based on approximate minimum loads of 100 lbs. concentrated 16-in. squares. Specific performance criteria may vary by municipality/building code body and should be locally checked prior to finalizing specifications.

### Aluminum

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Depth (in.)</th>
<th>Channel Width (in.)</th>
<th>Channel Height (in.)</th>
<th>Channel Number</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 ga.</td>
<td>0.080(\text{in.})</td>
<td>2(\text{in.}) T-52016-SL 5-Diamond - 11 3/4(\text{in.}) -- -- -- --</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 ga.</td>
<td>1(\text{in.}) T-42012-A 4-Diamond - 9 1/2(\text{in.}) T-42012-A-N 4-Diamond - 10 1/2(\text{in.})</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Stair Tread Information

- **Span**: 2'-0\(\text{in.}\) to 2'-6\(\text{in.}\) 3'-0\(\text{in.}\) to 3'-6\(\text{in.}\) 4'-0\(\text{in.}\) to 4'-6\(\text{in.}\) 5'-0\(\text{in.}\) to 5'-6\(\text{in.}\) 6'-0\(\text{in.}\) to 6'-6\(\text{in.}\) 7'-0\(\text{in.}\) to 7'-6\(\text{in.}\) 8'-0\(\text{in.}\) to 9'-0\(\text{in.}\) 10'-0\(\text{in.}\) 11'-0\(\text{in.}\) 12'-0\(\text{in.}\)
- **Material**: Steel, Aluminum, and Stainless Steel
- **Load Types**: Uniform Load (lb./ft.\(^2\)), Concentrated Load (lb.)
- **Deflection (in.)**: 1/4\(\text{in.}\) x 7/16\(\text{in.}\) Slot
- **Hardware Options**: U = Uniform Load (lb./ft.\(^2\)), C = Concentrated Load (lb.), D = Deflection (in.)

### Standard Sizes and Recommended Spans

<table>
<thead>
<tr>
<th>Steel</th>
<th>Standard Stair Treads</th>
<th>Stair Treads with Abrasive Rosing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Span (in.)</td>
<td>Gauge</td>
</tr>
<tr>
<td>Up to 30(\text{in.})</td>
<td>14</td>
<td>1(\text{1/2}) in.</td>
</tr>
<tr>
<td>30(\text{in.}) to 36(\text{in.})</td>
<td>14</td>
<td>1(\text{1/2}) in.</td>
</tr>
<tr>
<td>36(\text{in.}) to 42(\text{in.})</td>
<td>14</td>
<td>1(\text{1/2}) in.</td>
</tr>
<tr>
<td>42(\text{in.}) to 48(\text{in.})</td>
<td>14</td>
<td>2(\text{in.})</td>
</tr>
</tbody>
</table>

### Steel, Aluminum and Stainless Steel (1)

- **Standard**: A, B, C, D, A, B, C, D
- **Abrasive Rosing**: A, B, C, D, A, B, C, D

### Hardware Options

- **4\(\text{in.}\) x 4\(\text{in.}\) Tapped Screw**: 2\(\text{in.}\), 3\(\text{in.}\), 4\(\text{in.}\)
- **4\(\text{in.}\) x 4\(\text{in.}\) Self Tapping Screw**: 2\(\text{in.}\), 3\(\text{in.}\), 4\(\text{in.}\)
- **5\(\text{in.}\) x 5\(\text{in.}\) Tapped Screw**: 2\(\text{in.}\), 3\(\text{in.}\)
- **5\(\text{in.}\) x 5\(\text{in.}\) Self Tapping Screw**: 2\(\text{in.}\), 3\(\text{in.}\)
- **6\(\text{in.}\) x 6\(\text{in.}\) Tapped Screw**: 2\(\text{in.}\), 3\(\text{in.}\)
- **6\(\text{in.}\) x 6\(\text{in.}\) Self Tapping Screw**: 2\(\text{in.}\), 3\(\text{in.}\)

*Available on special order.*
### Special & Fabricated Products

#### Grip Strut® Safe Loading Tables

**10-Diamond Walkway — 24” Width**

**Engineering Data**

For Both Channels

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Channel Depth-in.</th>
<th>Sx in.²</th>
<th>lx in.²</th>
<th>E I lb. in.²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steel</strong> 14 ga.</td>
<td>4 1/2”</td>
<td>.806</td>
<td>1.43</td>
<td>41.47 x 10⁶</td>
</tr>
<tr>
<td><strong>Steel</strong> 12 ga.</td>
<td>4 1/2”</td>
<td>1.280</td>
<td>2.42</td>
<td>10.03 x 10⁶</td>
</tr>
</tbody>
</table>

**Strut Loading**

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Type Loading**</th>
<th>Load</th>
<th>Deflection in.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steel</strong> 14 ga.</td>
<td>U</td>
<td>300</td>
<td>.49</td>
</tr>
<tr>
<td><strong>Steel</strong> 14 ga.</td>
<td>Cs</td>
<td>300</td>
<td>.40</td>
</tr>
<tr>
<td><strong>Steel</strong> 12 ga.</td>
<td>U</td>
<td>475</td>
<td>.45</td>
</tr>
<tr>
<td><strong>Steel</strong> 12 ga.</td>
<td>Cs</td>
<td>475</td>
<td>.36</td>
</tr>
</tbody>
</table>

**Product Selection/Design Tables**

Allowable Loads and Deflections:  
- **U** = Uniform Load (lb./ft.²)  
- **C** = Concentrated Load (lb./ft.)  
- **D** = Deflection (in.)

**Spans to the left of heavy red line produce a deflection of 1/4” or less under a uniform load of 100 lb./ft.²**

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Weight lb./lin. ft. (kg/m)</th>
<th>Catalog Number</th>
<th>Allowable Uniform Load lb./ft.²</th>
<th>Allowable Concentrated Load (lb./ft.)</th>
<th>Deflection in.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steel</strong> 14 ga.</td>
<td>8.9</td>
<td>104514-U</td>
<td>300</td>
<td>40</td>
<td>.49</td>
</tr>
<tr>
<td><strong>Steel</strong> 12 ga.</td>
<td>12.5</td>
<td>104512-U</td>
<td>475</td>
<td>475</td>
<td>.36</td>
</tr>
</tbody>
</table>

**Material**

- **Steel**: 14 ga. (13.2)  
- **Steel**: 12 ga. (18.6)

---

### Diagram

- 10-Diamond Walkway — 24” Width
- 1” Spacing
- Allowable Uniform Load (lb./ft.²)
- Allowable Concentrated Load (lb./ft.)
- Deflection (in.)
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 red line produce a deflection of 1/4" or less under a uniform load of 100 lb./ft².

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Channel Depth- in.</th>
<th>Weight lb./lin. ft.</th>
<th>Catalog Number</th>
<th>Span 2'-0&quot;</th>
<th>2'-6&quot;</th>
<th>3'-0&quot;</th>
<th>3'-6&quot;</th>
<th>4'-0&quot;</th>
<th>4'-6&quot;</th>
<th>5'-0&quot;</th>
<th>5'-6&quot;</th>
<th>6'-0&quot;</th>
<th>6'-6&quot;</th>
<th>7'-0&quot;</th>
<th>7'-6&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel 2&quot; (50.8)</td>
<td>7.4  (11.6)</td>
<td>300 300 320 338 338 338 338 338 338 338 338 338 338 338 338</td>
<td>102014</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
</tr>
<tr>
<td>14 ga.</td>
<td>7.9  (11.8)</td>
<td>400 400 400 400 400 400 400 400 400 400 400 400 400 400 400</td>
<td>103014</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
</tr>
<tr>
<td>Steel 3&quot; (76.2)</td>
<td>19.4  (31.5)</td>
<td>650 650 650 650 650 650 650 650 650 650 650 650 650 650 650</td>
<td>102012</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
</tr>
</tbody>
</table>

Engineering Data

For Both Channels

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Channel Depth- in.</th>
<th>S x in.²</th>
<th>I x in.⁴</th>
<th>E x lb. in.²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel 2&quot;</td>
<td>300</td>
<td>.300</td>
<td>.232</td>
<td>6.73 x 10⁶</td>
</tr>
<tr>
<td>14 ga.</td>
<td>400</td>
<td>.300</td>
<td>.232</td>
<td>6.73 x 10⁶</td>
</tr>
<tr>
<td>Steel 3&quot;</td>
<td>367</td>
<td>.346</td>
<td>10.03 x 10⁶</td>
<td></td>
</tr>
<tr>
<td>12 ga.</td>
<td>715</td>
<td>.959</td>
<td>27.81 x 10⁶</td>
<td></td>
</tr>
</tbody>
</table>

Strut Loading

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Type Loading**</th>
<th>Load</th>
<th>Deflection in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel U</td>
<td>300</td>
<td>.49</td>
<td></td>
</tr>
<tr>
<td>14 ga. Cs</td>
<td>300</td>
<td>.40</td>
<td></td>
</tr>
<tr>
<td>Steel U</td>
<td>475</td>
<td>.45</td>
<td></td>
</tr>
<tr>
<td>12 ga. Cs</td>
<td>475</td>
<td>.36</td>
<td></td>
</tr>
</tbody>
</table>

** U = Allowable Uniform Load (lb./ft.)
Cs = Allowable Concentrated Load per ft. of length at mid-width (lb./ft.)
### Accessories

#### Plank Accessories / Installation

Utilizing the methods below, Grip Strut Safety Grating is easily installed.

#### Anchor and Clamp Assembly

Clamp prevents grating from shifting on supports. Holds pieces together with or without clearance between panels. All bolts are below top surface of grating. No holes are drilled in supporting members.

Assembly consists of anchor plate, 2 J-bolts, nuts and washers all electro zinc plated. Standard finish is hot-dipped galvanized before fabrication.

---

### Product Selection/Design Tables

#### Strut Loading

**Material Type**

- Steel
- Aluminum

**Gauge**

- 11/2" (38.1 mm)
- 2" (50.8 mm)
- 2 1/2" (63.5 mm)
- 3" (76.2 mm)

**Catalog Number**

- ACA-15
- ACA-20
- ACA-25
- ACA-30

---

### Engineering Data

**For Both Channels**

#### Material

- Steel
- Aluminum

**Gauge**

- 14 ga.
- 12 ga.

**Type**

- U = Uniform Load (lb./ft.)
- Cs = Concentrated Load per ft. of length at mid-width (lb.)

**Deflection**

- in.

---

### 8-Diamond Plank -- 18 3/4" Width cont.

#### Anchoring Device Clip

Diamond Anchor cat. no. 12262 is shaped to fit in diamond opening. Punchoned to receive 5/16” carriage head bolt with square shank. Does not include bolts, nuts or washers. Standard finish is hot-dipped galvanized before fabrication.

- Channel Depth: Catalog Number
  - 1 1/2": ACA-15
  - 2": ACA-20
  - 2 1/2": ACA-25
  - 3": ACA-30

#### Anchored Loading

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Deflection in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel U</td>
<td>1/4</td>
</tr>
<tr>
<td>Cs</td>
<td>1/4</td>
</tr>
<tr>
<td>Steel U</td>
<td>1/4</td>
</tr>
<tr>
<td>Cs</td>
<td>1/4</td>
</tr>
<tr>
<td>Aluminum U</td>
<td>1/4</td>
</tr>
<tr>
<td>Cs</td>
<td>1/4</td>
</tr>
</tbody>
</table>

**Available on special order.**
### Grip Strut® Safe Loading Tables

**8-Diamond Plank — 18\(\frac{3}{4}\)" Width**

<table>
<thead>
<tr>
<th>Material/ Gauge</th>
<th>Channel Depth in. (mm)</th>
<th>Weight th. lb./lin. ft. (kg/m)</th>
<th>Catalog Number</th>
<th>Spans to the left of heavy red line produce a deflection of 1/4&quot; or less under a uniform load of 100 lb./ft.²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>U</td>
<td>C</td>
</tr>
<tr>
<td>Steel 2 ga.</td>
<td>2&quot; (50.8)</td>
<td>6.1</td>
<td>81514</td>
<td>33 217 151 112 86 69 56 47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D</td>
<td>263 211 170 153 135 121 110 101</td>
</tr>
<tr>
<td>Steel 14 ga.</td>
<td>2 1/2&quot; (63.5)</td>
<td>6.6</td>
<td>82514</td>
<td>540 358 250 184 142 113 92 76 65 55 46 42</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D</td>
<td>437 349 292 231 220 199 179 154 132 141 132 124</td>
</tr>
<tr>
<td>Steel 12 ga.</td>
<td>2 1/2&quot; (63.5)</td>
<td>8.5</td>
<td>83012</td>
<td>540 411 286 211 162 129 105 87 74 63 56 48 40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D</td>
<td>435 402 335 287 256 228 205 188 173 161 151 142 134</td>
</tr>
<tr>
<td>Steel 12 ga.</td>
<td>2 1/2&quot; (63.5)</td>
<td>9.2</td>
<td>82010</td>
<td>540 358 250 184 142 113 92 76 65 55 46 42</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D</td>
<td>437 349 292 231 220 199 179 154 132 141 132 124</td>
</tr>
<tr>
<td>Steel 12 ga.</td>
<td>2 1/2&quot; (63.5)</td>
<td>9.9</td>
<td>82012</td>
<td>540 411 286 211 162 129 105 87 74 63 56 48 40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D</td>
<td>435 402 335 287 256 228 205 188 173 161 151 142 134</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>U</td>
<td>33 217 151 112 86 69 56 47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D</td>
<td>263 211 170 153 135 121 110 101</td>
</tr>
</tbody>
</table>

### Product Selection/Design Tables

Allowable Loads and Deflections:
- **U**: Uniform Load (lb./ft.)
- **C**: Concentrated Load (lb.)
- **D**: Deflection (in.)

<table>
<thead>
<tr>
<th>Channel Width</th>
<th>Material Depth</th>
<th>Allowable Loads</th>
<th>Deflections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>U</strong></td>
<td><strong>C</strong></td>
</tr>
<tr>
<td>2' 0&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>2' 6&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>3' 0&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>3' 6&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>4' 0&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>4' 6&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>5' 0&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>5' 6&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>6' 0&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>6' 6&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>7' 0&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>7' 6&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
<tr>
<td>8' 0&quot;</td>
<td></td>
<td>100 lb./ft.²</td>
<td></td>
</tr>
</tbody>
</table>

**Splice Plate Package — 7 inch**

Package (cat. no. SP-10DU-7) includes:
- Two (2) 8-hole 12 gauge 4 1/2" x 30" C-channel splice plates, and sixteen (16) each 1/2" x 1 1/4" hex head cap screws (galv. S.A.E. Grade 5, lightly oiled), washers and hex nuts. Kit joins continuous sections together in a run only over supports.

Recommended Bolt Torque - 55 ft.lbs. minimum

**Splice Plate Kit — 30 inch**

Package (cat. no. SP-130DU-30) includes:
- Two (2) 8-hole 12 gauge 4 1/2" x 30" C-channel splice plates, and sixteen (16) each 7/16" x 1 1/4" bolts, washers and hex nuts. Kit joins continuous sections together in a run over clear spans to act as one continuous unit. Any combination or 12'-0" and 10'-0" planks can be joined with splice plate package.

Note: Contact factory for information on pre-punched holes in grating.

Recommended Bolt Torque - 55 ft.lbs. minimum
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 tables the appropriate plank to meet job requirements.

Example: Clear span of 4'-0", concentrated load requirement of 300 lbs. at a 0.25" maximum deflection. Select from the tables following:

For 8-diamond, 18\(^{\frac{3}{4}}\)" wide, 12 gauge steel which carries a load of 416 lbs. at a 0.18" deflection. This is one size to do the job. Other sizes will carry more load if necessary. For more economical selection, choose the greatest width that will support the load consistent with job requirements and choose deeper channels rather than heavier steel gauges.

Grip Strut Safety Grating will generally carry the same concentrated load, tabulated in lbs. at midspan, for a given span, material gauge and channel height, regardless of width. (See "How load tables were prepared" described below.) The uniform load tables are tabulated in lbs./ft., which accounts for the difference in load capacity shown for various widths.

Deflection is in inches.

How Load Tables Were Prepared
The values shown in the following tables are based on actual test data, with the following assumptions and simplifications:

1. Maximum allowable load is based on yield strength of 33,000 psi for steel, and 23,000 psi for aluminum, 35,000 psi for Type 304 stainless steel. The values shown in the following tables are based on actual test data, with the following assumptions and simplifications:

- Deflection values indicated below "C" values in the tables are the maximum allowable strut load (Cs) for a 1 foot long sample of grating.
- Deflection values indicated below the uniform loads and are the (1) maximum allowable uniform loads considering channel flexure and (2) maximum grating surface deflection.
- Deflection Corresponding to "U"
  - Deflection values are indicated below the uniform loads and are the (1) maximum allowable uniform loads considering channel flexure and (2) maximum grating surface deflection.

- Allowable Uniform Load (U)
  - Uniform Loads are tabulated in lbs./ft. and lbs./in., which accounts for the difference in load capacity shown for various widths.

- Span data based on yield strength of 33,000 psi for steel, and 23,000 psi for aluminum, 35,000 psi for Type 304 stainless steel.

- The values shown in the following tables are based on actual test data, with the following assumptions and simplifications:

- Deflection values indicated below "C" values in the tables are the maximum allowable strut load (Cs) for a 1 foot long sample of grating.
- Deflection values indicated below the uniform loads and are the (1) maximum allowable uniform loads considering channel flexure and (2) maximum grating surface deflection.

- Allowable Uniform Load (U)
  - Uniform Loads are tabulated in lbs./ft. and lbs./in., which accounts for the difference in load capacity shown for various widths.

- Span data based on yield strength of 33,000 psi for steel, and 23,000 psi for aluminum, 35,000 psi for Type 304 stainless steel.

- The values shown in the following tables are based on actual test data, with the following assumptions and simplifications:

- Deflection values indicated below "C" values in the tables are the maximum allowable strut load (Cs) for a 1 foot long sample of grating.
- Deflection values indicated below the uniform loads and are the (1) maximum allowable uniform loads considering channel flexure and (2) maximum grating surface deflection.

- Allowable Uniform Load (U)
  - Uniform Loads are tabulated in lbs./ft. and lbs./in., which accounts for the difference in load capacity shown for various widths.

- Span data based on yield strength of 33,000 psi for steel, and 23,000 psi for aluminum, 35,000 psi for Type 304 stainless steel.
## GripStrut® Safe Loading Tables

### 5-Diamond Plank — 11 3/4" Width (available in stainless steel)

![Image](546x747 to 567x770)

**Product Selection/Design Tables**

<table>
<thead>
<tr>
<th>Material</th>
<th>Gauge</th>
<th>Channel Depth (in.)</th>
<th>Material Depth (lb./lin.)</th>
<th>Catalog Number</th>
<th>Span</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steel</strong></td>
<td>16 ga.</td>
<td>0.38</td>
<td>110</td>
<td>123012</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>15 ga.</td>
<td>0.36</td>
<td>110</td>
<td>123014</td>
<td>2'-6&quot;</td>
</tr>
<tr>
<td></td>
<td>14 ga.</td>
<td>0.34</td>
<td>110</td>
<td>123016</td>
<td>3'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>13 ga.</td>
<td>0.32</td>
<td>110</td>
<td>123018</td>
<td>3'-6&quot;</td>
</tr>
<tr>
<td></td>
<td>12 ga.</td>
<td>0.30</td>
<td>110</td>
<td>123020</td>
<td>4'-0&quot;</td>
</tr>
<tr>
<td><strong>Steel</strong></td>
<td>10 ga.</td>
<td>0.28</td>
<td>110</td>
<td>123022</td>
<td>4'-6&quot;</td>
</tr>
<tr>
<td></td>
<td>9 ga.</td>
<td>0.26</td>
<td>110</td>
<td>123024</td>
<td>5'-0&quot;</td>
</tr>
<tr>
<td></td>
<td>8 ga.</td>
<td>0.24</td>
<td>110</td>
<td>123026</td>
<td>5'-6&quot;</td>
</tr>
</tbody>
</table>

**Allowable Loads and Deflections:**
- **U** = Uniform Load (lb./ft.²)
- **C** = Concentrated Load (lb.)
- **D** = Deflection (in.)

**Spans to the left of heavy red line produce a deflection of 1/4” or less under a uniform load of 100 lb./ft².**

### Load/Deflection Conversion Formulas

In the elastic range, deflection is proportional to the applied load for both uniform and concentrated loads. This relationship can be used to determine the deflection that any load which is less than the allowable load will produce, as shown in Example A. Also, if desired, the load which will produce a specific deflection can also be determined if the load is in the elastic range as illustrated in Example B.

### 8- and 10-Diamond Allowable Load and Deflection Tables

As width increases, grating strut flexure becomes much more important. 8- and 10-Diamond products are wide enough to require a change in the assumptions used to prepare the 2- through 5-Diamond Product Selection/Design Tables. No longer will it be assumed that both side channels are equally effective in supporting a concentrated load. In fact, to provide a high level of safety, one side channel will be required to carry 100% of a concentrated load.

Also strut deflection for 8- and 10-Diamond products may be significant. The most critical case occurs when a concentrated load is located at mid-span and mid-width. To determine how much deflection this will produce, as shown in Example A. Also, if desired, the load which will produce a specific deflection can also be determined if the load is in the elastic range as illustrated in Example B.

### Allowable Uniform Load (U)

Values are given in the rows labeled “U” and are the lowest of the (1) maximum allowable uniform load considering channel flexure, and (2) maximum grating surface flexure.

**Deflection Corresponding to “U”**

Deflection values appear in the rows labeled “D,” below the “U” values, and are maximum deflections the allowable uniform loads would produce. Maximum deflections will occur at mid-span and mid-width and will be the sum of side channel and grating surface deflections (Figure 1c and 2c).

### Allowable Concentrated Load (C)

Values tabulated in the rows labeled “C” are the lowest of the (1) maximum allowable concentrated load considering side channel flexure (with one side channel supporting the entire load — Figure 2b, and (2) the maximum allowable strut flexure (Figure 2a).

**Deflection Corresponding to “C”**

Deflection values are indicated below “C” values in the table and are deflections the allowable concentrated load will produce at mid-span and at mid-width. The deflection is the sum of side channel and grating surface deflections.
### Product Selection/Design Tables

#### Gauge in. ft. Catalog

<table>
<thead>
<tr>
<th>Material</th>
<th>Channel Depth-in.</th>
<th>Steel</th>
<th>2&quot;</th>
<th>2 1/2&quot;</th>
<th>3&quot;</th>
<th>3 1/2&quot;</th>
<th>4&quot;</th>
<th>5&quot;</th>
<th>6&quot;</th>
<th>7&quot;</th>
<th>8&quot;</th>
<th>9&quot;</th>
<th>10&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8&quot;</td>
<td>.0625 (1.58)</td>
<td>5052 (50.8) (2.58)</td>
<td>U</td>
<td>700</td>
<td>559</td>
<td>495</td>
<td>441</td>
<td>397</td>
<td>353</td>
<td>311</td>
<td>271</td>
<td>237</td>
<td>205</td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>.0625 (1.58)</td>
<td>5052 (50.8) (2.03)</td>
<td>U</td>
<td>400</td>
<td>321</td>
<td>277</td>
<td>238</td>
<td>203</td>
<td>174</td>
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<td>131</td>
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#### Grip Strut® Safe Loading Tables

<table>
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<th>Material</th>
<th>Channel Depth-in.</th>
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<th>2&quot;</th>
<th>2 1/2&quot;</th>
<th>3&quot;</th>
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<th>4&quot;</th>
<th>5&quot;</th>
<th>6&quot;</th>
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<tr>
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<td>.0625 (1.58)</td>
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<td>700</td>
<td>559</td>
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#### Engineering Data

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## 4-Diamond Plank — 9 1/2" Width (available in stainless steel)

### Material Selection/Design Tables

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<thead>
<tr>
<th>Material Type</th>
<th>Depth (gauge in.)</th>
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<tbody>
<tr>
<td>Alum. U 5052 (50.8)</td>
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<td>1/8&quot;</td>
<td>0.08</td>
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<td>5/32&quot;</td>
<td>0.12</td>
<td>180</td>
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### Engineering Data For Both Channels

#### Material Type | Depth (gauge in.) | Deflection (in.) | Span |
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<tr>
<td>Steel 14 ga.</td>
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<td>2&quot;</td>
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### Allowable Loads and Deflections

- **U** = Allowable Uniform Load (lb./ft.²)
- **C** = Concentrated Load (lb.)
- **D** = Deflection (in.)

<table>
<thead>
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</table>

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<th>Span</th>
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<tr>
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<td></td>
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<td>0.08</td>
<td>180</td>
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<td></td>
<td>5/32&quot;</td>
<td>0.12</td>
<td>180</td>
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### Engineering Data For Both Channels

#### Material Type | Depth (gauge in.) | Deflection (in.) | Span |
<table>
<thead>
<tr>
<th></th>
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<th></th>
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<tbody>
<tr>
<td>Steel 14 ga.</td>
<td>11/2&quot;</td>
<td>0.25</td>
<td>270</td>
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### Strut Loading

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<td>12 ga.</td>
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<td>6063</td>
<td>Cs</td>
<td>1157</td>
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** U = Allowable Uniform Load (lb./ft.)
Cs = Allowable Concentrated Load per ft. of length at mid-width (lb./ft.)
For Both Channels

Allowable Loads and Deflections:
- U = Uniform Load (lb./ft.)
- C = Concentrated Load (lb.)
- D = Deflection (in.)

Spans to the left of the red heavy line produce a deflection of 1/4" or less under a uniform load of 100 lb./f.t.².

### Material Depth lb./lin.

<table>
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<th>Depth</th>
<th>Catalog Number</th>
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<tr>
<td>Steel</td>
<td>12 ga. (50.8)</td>
<td>(6.70)</td>
<td>C 1106 886 761 649 548 451 369 300 237 169 123 95 73</td>
</tr>
<tr>
<td></td>
<td>2&quot;</td>
<td>4.5</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td>2 1/2&quot;</td>
<td>.254</td>
<td>2.51 x 10⁶</td>
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<tr>
<td></td>
<td>3&quot;</td>
<td>.343</td>
<td>9.29 x 10⁶</td>
</tr>
<tr>
<td></td>
<td>3 1/4&quot;</td>
<td>.465</td>
<td>20.94 x 10⁶</td>
</tr>
<tr>
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<td>4</td>
<td>.625</td>
<td>9.29 x 10⁶</td>
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### Grip Strut® Safe Loading Tables

#### Grip Strut® Safe Loading Tables

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<th>Material Type</th>
<th>Deflection</th>
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<td>Alum.</td>
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<td></td>
<td>.100&quot; .100</td>
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<td>.080&quot; .100</td>
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<td>.100&quot; 2 1/2</td>
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<td>3 1/4&quot;</td>
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### Engineering Data

For Both Channels

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<th>-channel Depth (in.)</th>
<th>Width (in.)</th>
<th>Load (lb.)</th>
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<td>2.25 x 10⁶</td>
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**Material Depth**

| Gauge in. ft. | Catalog No. | Steel 2" | 5052 (50.8) (2.38) C | 811 | 541 | 444 | 396 | 341 | 296 | 254 | 219 | 192 | 166 |
|--------------|-------------|----------|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 14 ga. 2"    |             | 900      | 810 660 504 408 345 277 227 194 165 141 121 106 93 |     |     |     |     |     |     |     |     |     |     |     |
| 14 ga. 2½"   |             | 1200     | 1138 939 764 638 540 450 390 338 300 264 238 213 190 |     |     |     |     |     |     |     |     |     |     |     |
| 14 ga. 3"    |             | 1500     | 1438 1278 1093 918 784 675 574 490 420 365 325 295 266 |     |     |     |     |     |     |     |     |     |     |     |
| 14 ga. 3½"   |             | 1800     | 1740 1573 1407 1241 1085 938 805 704 615 540 475 420 |     |     |     |     |     |     |     |     |     |     |     |
| 14 ga. 4"    |             | 2100     | 2040 1873 1713 1563 1421 1285 1158 1040 934 840 760 685 |     |     |     |     |     |     |     |     |     |     |     |
| 14 ga. 4½"   |             | 2400     | 2340 2183 2033 1893 1763 1641 1525 1418 1320 1234 1153 |     |     |     |     |     |     |     |     |     |     |     |

#### Steel 12 ga.

| Gauge in. ft. | Catalog No. | Steel 2" | 5052 (50.8) (2.38) C | 811 | 541 | 444 | 396 | 341 | 296 | 254 | 219 | 192 | 166 |
|--------------|-------------|----------|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 12 ga. 2½"   |             | 900      | 810 660 504 408 345 277 227 194 165 141 121 106 93 |     |     |     |     |     |     |     |     |     |     |     |
| 12 ga. 3"    |             | 1200     | 1138 939 764 638 540 450 390 338 300 264 238 213 190 |     |     |     |     |     |     |     |     |     |     |     |
| 12 ga. 3½"   |             | 1500     | 1438 1278 1093 918 784 675 574 490 420 365 325 295 266 |     |     |     |     |     |     |     |     |     |     |     |
| 12 ga. 4"    |             | 1800     | 1740 1573 1407 1241 1085 938 805 704 615 540 475 420 |     |     |     |     |     |     |     |     |     |     |     |
| 12 ga. 4½"   |             | 2100     | 2040 1873 1713 1563 1421 1285 1158 1040 934 840 760 685 |     |     |     |     |     |     |     |     |     |     |     |
| 12 ga. 5"    |             | 2400     | 2340 2183 2033 1893 1763 1641 1525 1418 1320 1234 1153 |     |     |     |     |     |     |     |     |     |     |     |

### Engineering Data

**Material**

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<th>2½&quot; (63.5) (2.20) C</th>
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<th>352</th>
<th>314</th>
<th>294</th>
<th>275</th>
<th>255</th>
<th>239</th>
<th>223</th>
<th>206</th>
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<tbody>
<tr>
<td>2½&quot; (63.5) (2.50) C</td>
<td>1129</td>
<td>989</td>
<td>854</td>
<td>739</td>
<td>638</td>
<td>560</td>
<td>504</td>
<td>450</td>
<td>400</td>
<td>355</td>
<td>320</td>
<td>293</td>
<td>275</td>
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<td>2½&quot; (63.5) (2.75) C</td>
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<td>1393</td>
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<td>1159</td>
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<td>828</td>
<td>774</td>
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### Strut Loading

**Material**

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<th>2½&quot; (63.5) (2.20) C</th>
<th>694</th>
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<td>560</td>
<td>504</td>
<td>450</td>
<td>400</td>
<td>355</td>
<td>320</td>
<td>293</td>
<td>275</td>
</tr>
<tr>
<td>2½&quot; (63.5) (2.75) C</td>
<td>1513</td>
<td>1393</td>
<td>1273</td>
<td>1159</td>
<td>1055</td>
<td>968</td>
<td>892</td>
<td>828</td>
<td>774</td>
<td>729</td>
<td>684</td>
<td>643</td>
<td>604</td>
</tr>
</tbody>
</table>

* Available on special order.
### 4-Diamond Plank — 9 1/2" Width (available in stainless steel)

<table>
<thead>
<tr>
<th>Material Depth</th>
<th>lb./lin.</th>
<th>Catalog</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 x 495</td>
<td>7/8&quot; ± 1/8&quot;</td>
<td>4-Diamond Plank __ Width (available in stainless steel)</td>
</tr>
<tr>
<td>3/16&quot;</td>
<td>11/32&quot; ± 1/64&quot;</td>
<td>2-Diamond Plank __ Width (available in stainless steel)</td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>5/32&quot; ± 1/32&quot;</td>
<td>2-Diamond Plank __ Width (available in stainless steel)</td>
</tr>
<tr>
<td>3/32&quot;</td>
<td>7/64&quot; ± 1/128&quot;</td>
<td>2-Diamond Plank __ Width (available in stainless steel)</td>
</tr>
</tbody>
</table>

### Allowable Loads and Deflections:

- **U**: Uniform Load (lb./ft.²)
- **C**: Concentrated Load (lb.)
- **D**: Deflection (in.)

Spans to the left of heavy red line produce a deflection of 1/4" or less under a uniform load of 100 lb./ft.²

#### Material Depth

<table>
<thead>
<tr>
<th>Material Depth</th>
<th>lb./lin.</th>
<th>Catalog</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 ga.</td>
<td>.04</td>
<td>.06</td>
</tr>
<tr>
<td>12 ga.</td>
<td>.07</td>
<td>.10</td>
</tr>
<tr>
<td>14 ga.</td>
<td>.05</td>
<td>.08</td>
</tr>
<tr>
<td>16 ga.</td>
<td>.03</td>
<td>.05</td>
</tr>
</tbody>
</table>

### Engineering Data

#### For Both Channels

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Depth (in.)</th>
<th>Steel Weight Span (lb.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/32&quot;</td>
<td>1/8&quot;</td>
<td>10684 60.00 371 200 222 186 160 137 119 104 95 84 76 68 62 56 52 48 44 41 38 36 34 32 30 28 26 24 22 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0</td>
</tr>
<tr>
<td>3/32&quot;</td>
<td>5/32&quot;</td>
<td>1400 125.00 353 277 250 225 200 175 150 125 100 85 70 56 42 30 20 15 10 8 7 6 5 4 3 2 1 0</td>
</tr>
<tr>
<td>1/16&quot;</td>
<td></td>
<td>1107 147.00 351 268 244 217 186 157 130 104 80 64 50 38 29 20 15 10 8 7 6 5 4 3 2 0</td>
</tr>
<tr>
<td>3/32&quot;</td>
<td>7/32&quot;</td>
<td>906 150.00 353 277 250 225 200 175 150 125 100 85 70 56 42 30 20 15 10 8 7 6 5 4 3 2 1 0</td>
</tr>
<tr>
<td>5/32&quot;</td>
<td>9/32&quot;</td>
<td>718 157.00 357 277 250 225 200 175 150 125 100 85 70 56 42 30 20 15 10 8 7 6 5 4 3 2 0</td>
</tr>
<tr>
<td>7/32&quot;</td>
<td>11/32&quot;</td>
<td>515 176.00 360 280 252 225 200 175 150 125 100 85 70 56 42 30 20 15 10 8 7 6 5 4 3 2 1 0</td>
</tr>
<tr>
<td>9/32&quot;</td>
<td>13/32&quot;</td>
<td>370 191.00 360 280 252 225 200 175 150 125 100 85 70 56 42 30 20 15 10 8 7 6 5 4 3 2 1 0</td>
</tr>
<tr>
<td>11/32&quot;</td>
<td>15/32&quot;</td>
<td>246 209.00 360 280 252 225 200 175 150 125 100 85 70 56 42 30 20 15 10 8 7 6 5 4 3 2 1 0</td>
</tr>
<tr>
<td>13/32&quot;</td>
<td>17/32&quot;</td>
<td>183 227.00 360 280 252 225 200 175 150 125 100 85 70 56 42 30 20 15 10 8 7 6 5 4 3 2 1 0</td>
</tr>
<tr>
<td>15/32&quot;</td>
<td>19/32&quot;</td>
<td>125 246.00 360 280 252 225 200 175 150 125 100 85 70 56 42 30 20 15 10 8 7 6 5 4 3 2 1 0</td>
</tr>
<tr>
<td>17/32&quot;</td>
<td>21/32&quot;</td>
<td>69 266.00 360 280 252 225 200 175 150 125 100 85 70 56 42 30 20 15 10 8 7 6 5 4 3 2 1 0</td>
</tr>
<tr>
<td>19/32&quot;</td>
<td>23/32&quot;</td>
<td>18 283.00 360 280 252 225 200 175 150 125 100 85 70 56 42 30 20 15 10 8 7 6 5 4 3 2 1 0</td>
</tr>
<tr>
<td>21/32&quot;</td>
<td>25/32&quot;</td>
<td>2 300.00 360 280 252 225 200 175 150 125 100 85 70 56 42 30 20 15 10 8 7 6 5 4 3 2 1 0</td>
</tr>
</tbody>
</table>

### Strut Loading

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Type Loading**</th>
<th>Load</th>
<th>Deflection in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>U</td>
<td>6268</td>
<td>10</td>
</tr>
<tr>
<td>14 ga.</td>
<td>Cs</td>
<td>1240</td>
<td>10</td>
</tr>
<tr>
<td>Steel</td>
<td>U</td>
<td>8619</td>
<td>10</td>
</tr>
<tr>
<td>12 ga.</td>
<td>Cs</td>
<td>1705</td>
<td>10</td>
</tr>
<tr>
<td>Aluminum</td>
<td>U</td>
<td>4677</td>
<td>12</td>
</tr>
<tr>
<td>5/32&quot;</td>
<td>Cs</td>
<td>9205</td>
<td>10</td>
</tr>
<tr>
<td>Aluminum</td>
<td>U</td>
<td>5817</td>
<td>12</td>
</tr>
<tr>
<td>3/32&quot;</td>
<td>Cs</td>
<td>1137</td>
<td>10</td>
</tr>
</tbody>
</table>

---

** U = Allowable Uniform Load (lb./ft.²) **

Cs = Allowable Concentrated Load per ft. of length at mid-width (lb./ft.)²

---

** Available on special order.
### Product Selection/Design Tables

#### Allowable Loads and Deflections

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Deflection</th>
<th>Load in.</th>
<th>Cs * Allowable Concentrated Load per ft. of length at mid-width (lb./ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel 16 ga.</td>
<td>.100&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
</tr>
<tr>
<td>Steel 12 ga.</td>
<td>.100&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
</tr>
<tr>
<td>Stainless 316L</td>
<td>.100&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
</tr>
</tbody>
</table>

### Engineering Data for Both Channels

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Channel Depth (in.)</th>
<th>Sn (lb.)</th>
<th>Im (ft.)</th>
<th>lbs/in. (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel 14 ga.</td>
<td>.100&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
<td>14.07 x 10^6</td>
</tr>
<tr>
<td>Steel 12 ga.</td>
<td>.100&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
<td>14.07 x 10^6</td>
</tr>
<tr>
<td>Stainless 316L</td>
<td>.100&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
<td>14.07 x 10^6</td>
</tr>
</tbody>
</table>

### Strut Loading

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Type Loading*</th>
<th>Steel Loading **</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel 14 ga.</td>
<td>U</td>
<td>1344</td>
</tr>
<tr>
<td>Steel 12 ga.</td>
<td>U</td>
<td>913</td>
</tr>
<tr>
<td>Stainless 316L</td>
<td>.005&quot;</td>
<td>569</td>
</tr>
<tr>
<td>Stainless 316L</td>
<td>.006&quot;</td>
<td>569</td>
</tr>
</tbody>
</table>

** U = Allowable Uniform Load (lb./ft.);
* Cs = Allowable Concentrated Load per ft. of length at mid-width (lb./ft.)

---

### 2-Diamond Plank — 4 3/4” Width

#### Grip Strut® Safe Loading Tables

<table>
<thead>
<tr>
<th>Channel Depth (in.)</th>
<th>Material Gauge</th>
<th>Sn (lb.)</th>
<th>Im (ft.)</th>
<th>lbs/in. (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel 14 ga.</td>
<td>.080&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
<td>14.07 x 10^6</td>
</tr>
<tr>
<td>Steel 12 ga.</td>
<td>.080&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
<td>14.07 x 10^6</td>
</tr>
<tr>
<td>Stainless 316L</td>
<td>.080&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
<td>14.07 x 10^6</td>
</tr>
</tbody>
</table>

---

### 4-Diamond Plank — 9 1/2” Width

#### Grip Strut® Safe Loading Tables

<table>
<thead>
<tr>
<th>Channel Depth (in.)</th>
<th>Material Gauge</th>
<th>Sn (lb.)</th>
<th>Im (ft.)</th>
<th>lbs/in. (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel 14 ga.</td>
<td>.080&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
<td>14.07 x 10^6</td>
</tr>
<tr>
<td>Steel 12 ga.</td>
<td>.080&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
<td>14.07 x 10^6</td>
</tr>
<tr>
<td>Stainless 316L</td>
<td>.080&quot;</td>
<td>.107</td>
<td>14.07 x 10^6</td>
<td>14.07 x 10^6</td>
</tr>
</tbody>
</table>

---

### Strut Loading

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Type Loading*</th>
<th>Steel Loading **</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel 14 ga.</td>
<td>U</td>
<td>1344</td>
</tr>
<tr>
<td>Steel 12 ga.</td>
<td>U</td>
<td>913</td>
</tr>
<tr>
<td>Stainless 316L</td>
<td>.005&quot;</td>
<td>569</td>
</tr>
<tr>
<td>Stainless 316L</td>
<td>.006&quot;</td>
<td>569</td>
</tr>
</tbody>
</table>

** U = Allowable Uniform Load (lb./ft.);
* Cs = Allowable Concentrated Load per ft. of length at mid-width (lb./ft.)
### Load/Deflection Conversion Formulas

In the elastic range, deflection is proportional to the applied load for both uniform and concentrated loads. This relationship can be used to determine the deflection that any load which is less than the allowable load will produce, as shown in Example A. Also, if desired, the load which will produce a specific deflection can also be determined if the load is in the elastic range as illustrated in Example B.

#### 8- and 10-Diamond Allowable Load and Deflection Tables

As width increases, grating strut flexure becomes much more important. 8- and 10-Diamond products are wide enough to require a change in the assumptions used to prepare the 2- through 5-Diamond Product Selection/Design Tables. No longer will it be assumed that both side channels are equally effective in supporting a concentrated load. In fact, to provide a high level of safety, one side channel will be required to carry 100% of a concentrated load.

Also strut deflection for 8- and 10-Diamond products may be significant. The most critical case occurs when a concentrated load is applied at mid-span and mid-width. To determine how significant the strut deflection perform under this loading, 3 foot long samples of each material and thickness were tested. For these tests the side channels were continuously supported and loads were applied using a 1 foot long and 1 inch wide bar placed parallel to the side channels at mid-width and at the longitudinal center. Results of these tests, included in the 8- and 10-Diamond Product Design Tables, proved the performance of these materials when a concentrated load is applied at mid-span and mid-width. If a concentrated load is to be applied at mid-width at the end of a plank, consult the “strut loading” table.

Values are given in the rows labeled “U” and 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 appear in the rows labeled “D,” below the “U” values, and are maximum deflections the allowable uniform loads would produce. Maximum deflections will occur at mid-span and mid-width and will be the sum of side channel and grating surface deflections (Figure 1c and 2c).

#### Allowable Uniform Load (U)

Values tabulated in the rows labeled “C” are the lowest of the (1) maximum allowable concentrated load considering side channel flexure (with one side channel supporting the entire load — Figure 2b, and (2) the maximum allowable strut flexure (Figure 2c).

#### Deflection Corresponding to “C”

Deflection values are indicated below “C” values in the table and are deflections the allowable concentrated load will produce at mid-span and at the mid-width. The deflection is the sum of side channel and grating surface deflections.

---

### Example A

What deflection will a 300 lb. concentrated load produce on a plank (catalog number 103012) spanning 5'-0"? See page 26 for item 103012 at a span = 5’-0” C = 480 lb. D = D @ 300 lb. = 0.26”/480 lb. x 300 lb. = 0.18”

### Example B

If a plank (catalog number 103012) is spanning 6’-0”, what concentrated load will produce a ¼” deflection? See page 26 for item 103012 at a span = 6’-0” C = 400 lb. D = 0.26" C = 400 lb./0.26” x 0.26” = 385 lb.

---

#### Load - U

**Load - Cs**

**Figure 2a Strut Load**

**Figure 2b Concentrated Load**

**Figure 2c Uniform Load**

**D = Deflection (in.)**
Grip Strut® Safe Loading Tables

5-Diamond Plank — 111/4" Width cont.

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 tables the appropriate plank to meet job requirements.

Example: Clear span of 4'-0", concentrated load requirement of 300 lbs. at a 0.25" maximum deflection. Select from the tables following:

For B-diamond, 18¼" wide, 21/2″ channel, 12 gauge steel which carries a load of 416 lbs. at a 0.18" deflection. This is one size to do the job. Other sizes will carry more load if necessary. For more economical selection, choose the greatest width that will support the load consistent with job requirements and choose deeper channels rather than heavier steel gauges.

Grip Strut Safety Grating will generally carry the same concentrated load, tabulated in lbs. at midspan, for a given span, material gauge and channel height, regardless of width. (See "How load tables were prepared" described below.) The uniform load tables are tabulated in lbs./sq.ft., which accounts for the difference in load capacity shown for various widths. Deflection is in inches.

How Load Tables Were Prepared
The values shown in the following tables are based on actual allowable load tests conducted in accordance with the provisions of the AIST Specification for the Design of Cold-Formed Steel Structural Members, 1968 Edition. To ensure the safety of the tabulated loads, two aspects of Grip Strut Grating must be considered.

The considered deflection is transverse bending in the grating surface, which is referred to as "strut flexure". This occurs when the grating is loaded with either a uniform load or a mid-width concentrated load, and the "struts" (grating surface) deflect relative to the sides. To determine the allowable strut loads, samples of each grating material and thickness were tested for each plank width. (See Figure 1a below and 2a on the following page.) The result from these tests was used to prepare "strut loading" tables, which give allowable loads and deflections concerning strut flexure only. These allowable strut loads, along with the results of additional tests performed on 8- and 10-Diamond grating, have been incorporated in the Product Selection/Design Tables on pages 14 through 25.

The second aspect of Grip Strut grating strength is channel flexure. This occurs when the channels at mid-span of the plank deflect relative to supports. To point out the differences in the channel samples, loads were sampled with concentrated and uniform loads at different spans (see Figures 1b/2b and 1c/2c). To approximate the most severe condition, there were no attachments between the channels and the supports. In cases where spans are shorter, channels deeper and planks wider, strut flexure becomes more critical.

B- 3-, 4- and 5-Diamond Allowable Load and Deflection Tables
Since 2- through 5-Diamond planks are relatively narrow (less than 1 foot wide), it can be assumed that both side channels effectively support the concentrated load and that the grating surface deflection is negligible. Based upon this assumption, the values in the following Design Tables for 2- through 5-Diamond have been determined.

Allowable Uniform Load (U)
Values indicated in the rows labeled "U" are the lowest of (1) the maximum allowable uniform loads considering channel flexure and (2) the 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 load (see Figures 1b and 2b). The maximum allowable uniform load for each grating material and thickness combination, can be calculated using both the data in the Strut Deflection Tables and the Load/Deflection Conversion formula on top of following page.

Load data based on yield strength of 33,000 psi for steel, 12,000 psi for aluminum, 35,000 psi for Type 304 stainless steel.

* Available on special order.

Engineering Data For Both Channels

<table>
<thead>
<tr>
<th>Material</th>
<th>Channel Depth in.</th>
<th>Sn S in.</th>
<th>I s in.</th>
<th>E in. lbs. **</th>
<th>Load Deflection in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>1/16&quot;</td>
<td>579</td>
<td>417</td>
<td>6.05 x 10^6</td>
<td></td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>357</td>
<td>250</td>
<td>195</td>
<td>6.05 x 10^6</td>
<td></td>
</tr>
<tr>
<td>3/32&quot;</td>
<td>220</td>
<td>144</td>
<td>106</td>
<td>6.05 x 10^6</td>
<td></td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>144</td>
<td>94</td>
<td>66</td>
<td>6.05 x 10^6</td>
<td></td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>94</td>
<td>59</td>
<td>39</td>
<td>6.05 x 10^6</td>
<td></td>
</tr>
<tr>
<td>Aluminum</td>
<td>1/16&quot;</td>
<td>441</td>
<td>309</td>
<td>5.3 x 10^6</td>
<td></td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>285</td>
<td>204</td>
<td>140</td>
<td>5.3 x 10^6</td>
<td></td>
</tr>
<tr>
<td>3/32&quot;</td>
<td>140</td>
<td>94</td>
<td>66</td>
<td>5.3 x 10^6</td>
<td></td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>94</td>
<td>59</td>
<td>39</td>
<td>5.3 x 10^6</td>
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</tr>
<tr>
<td>1/8&quot;</td>
<td>59</td>
<td>39</td>
<td>24</td>
<td>5.3 x 10^6</td>
<td></td>
</tr>
</tbody>
</table>

Stainless Steel 304L 16 ga.

Stainless 304L 16 ga.

Load data based on yield strength of 32,000 psi for stainless, 30,000 psi for Type 304 stainless steel.

Load - U
Load - C
Load - Cs

Allowable Loads and Deflections:
U - Uniform Load (lb./ft.²) C - Concentrated Load (lb.) D - Deflection (in.)

Spans to the left of heavy red line produce a deflection of 1/4" or less under a uniform load of 100 lb./ft².

Choose the greatest width that will support the load consistent with job requirements and choose deeper channels rather than heavier steel gauges.
### Grip Strut® Safe Loading Tables

#### 8-Diamond Plank — 183/4” Width

Allowable Loads and Deflections:  
- U = Uniform Load (lb./ft.²)
- C = Concentrated Load (lb.)
- D = Deflection (in.)

Spans to the left of heavy red line produce a deflection of 1/4” or less under a uniform load of 100 lb./ft.²

<table>
<thead>
<tr>
<th>Material Depth</th>
<th>Channel Weight</th>
<th>Spans to the left of heavy red line produce a deflection of 1/4” or less under a uniform load of 100 lb./ft.²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1/2” (38.1)</td>
<td>6.1 (0.11)</td>
<td>112 86 69 56 47</td>
</tr>
<tr>
<td>2” (50.8)</td>
<td>6.3 (0.1)</td>
<td>113 76 55 46 42</td>
</tr>
<tr>
<td>2 1/2” (63.5)</td>
<td>6.6 (0.14)</td>
<td>129 95 74 63 56 48</td>
</tr>
<tr>
<td>1 1/2” (38.1)</td>
<td>5/8” (9.5)</td>
<td>0.63 0.53 0.46</td>
</tr>
<tr>
<td>2” (50.8)</td>
<td>9/16” (14.3)</td>
<td>0.26 0.20 0.18</td>
</tr>
<tr>
<td>2 1/2” (63.5)</td>
<td>11/16” (17.4)</td>
<td>0.38 0.30 0.25</td>
</tr>
<tr>
<td>1 1/2” (38.1)</td>
<td>7/16” (11.1)</td>
<td>0.43 0.35 0.29</td>
</tr>
<tr>
<td>2” (50.8)</td>
<td>11/32” (4.5)</td>
<td>0.56 0.47 0.37</td>
</tr>
<tr>
<td>2 1/2” (63.5)</td>
<td>17/32” (1.4)</td>
<td>0.61 0.51 0.42</td>
</tr>
</tbody>
</table>

#### Splice Plate Package — 7 inch

Package (cat. no. 3P-10DU-7) includes:
- Two (2) 8-hole 12 gauge 4 1/2" x 30" C-channel splice plates, and sixteen (16) each 7/16" x 1 1/4" hex head cap screws (galv. S.A.E. Grade 5, lightly oiled), washers and hex nuts. Kit joins continuous sections together in a run only over supports.

Note: Contact factory for information on pre-punched holes in grating.

Recommended Bolt Torque - 55 ft./lbs. minimum

#### Splice Plate Package — 30 inch

Package (cat. no. 3P-10DU-30) includes:
- Two (2) 8-hole 12 gauge 4 1/2" x 30" C-channel splice plates, and sixteen (16) each 7/16" x 1 1/4" bolts, washers and hex nuts. Kit joins continuous sections together in a run over clear spans to act as one continuous unit.

Any combination of 12'-0" and 10'-0" planks can be joined with splice plate package.

Note: Contact factory for information on pre-punched holes in grating.

Recommended Bolt Torque - 55 ft./lbs. minimum
Accessories

Plank Accessories / Installation
Utilizing the methods below, Grip Strut Safety Grating is easily installed.

Anchor and Clamp Assembly
Clamp prevents grating from shifting on supports. Holds pieces together with or without clearance between panels. All bolts are below top surface of grating. No holes are drilled in supporting members.

Assembly consists of anchor plate, 2 J-bolts, nuts and washers all electro zinc plated. Standard finish is hot-dipped galvanized before fabrication.

Anchoring Device Clip
Diamond Anchor cat. no. 12262 is shaped to fit in diamond opening. Punched to receive ⅜" carriage head bolt with square Shank. Does not include bolts, nuts or washers. Standard finish is hot-dipped galvanized before fabrication. Also available in 304 stainless steel.

Channel Depth Catalog Number
11/2" ACA-15
2" ACA-20
21/2" ACA-25
3" ACA-30

Engineering Data
For Both Channels

Strut Loading

<table>
<thead>
<tr>
<th>Material</th>
<th>Type Loading</th>
<th>Load</th>
<th>Deflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>U</td>
<td>540</td>
<td>.43</td>
</tr>
<tr>
<td>14 ga.</td>
<td>Cs</td>
<td>422</td>
<td>.35</td>
</tr>
<tr>
<td>Steel</td>
<td>U</td>
<td>810</td>
<td>.30</td>
</tr>
<tr>
<td>12 ga.</td>
<td>Cs</td>
<td>633</td>
<td>.24</td>
</tr>
<tr>
<td>Aluminum</td>
<td>U</td>
<td>608</td>
<td>.46</td>
</tr>
<tr>
<td>100%</td>
<td>Cs</td>
<td>241</td>
<td>.39</td>
</tr>
<tr>
<td>Aluminum</td>
<td>U</td>
<td>457</td>
<td>.51</td>
</tr>
<tr>
<td>100%</td>
<td>Cs</td>
<td>357</td>
<td>.41</td>
</tr>
</tbody>
</table>

** U = Allowable Uniform Load (lb./ft.)
Cs = Allowable Concentrated Load per ft. of length at mid-width (lb.).

Allowable Loads and Deflections: U=Uniform Load (lb./ft.2)    C= Concentrated Load (lb.)    D=Deflection (in.)

Spans to the left of heavy red line produce a deflection of ¼” or less under a uniform load of 100 lb./ft2.

<table>
<thead>
<tr>
<th>Channel Depth (in.)</th>
<th>Material</th>
<th>Width</th>
<th>Depth- Sx Ix E I</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/2&quot;</td>
<td>Steel</td>
<td>14 ga.</td>
<td>100</td>
</tr>
<tr>
<td>2&quot;</td>
<td>Steel</td>
<td>12 ga.</td>
<td>130</td>
</tr>
<tr>
<td>21/2&quot;</td>
<td>Steel</td>
<td>100%</td>
<td>100</td>
</tr>
<tr>
<td>3&quot;</td>
<td>Steel</td>
<td>80%</td>
<td>100</td>
</tr>
<tr>
<td>11/2&quot;</td>
<td>Aluminum</td>
<td>0.080&quot;</td>
<td>100</td>
</tr>
<tr>
<td>2&quot;</td>
<td>Aluminum</td>
<td>0.080&quot;</td>
<td>100</td>
</tr>
<tr>
<td>21/2&quot;</td>
<td>Aluminum</td>
<td>0.100&quot;</td>
<td>100</td>
</tr>
<tr>
<td>3&quot;</td>
<td>Aluminum</td>
<td>0.100&quot;</td>
<td>100</td>
</tr>
</tbody>
</table>

* Available on special order.

8-Diamond Plank __ 183/4" Width cont.
### Product Selection/Design Tables

<table>
<thead>
<tr>
<th>Material</th>
<th>Channel Depth (in.)</th>
<th>Weight (lb./lin. ft.)</th>
<th>Catalog Number</th>
<th>Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td></td>
<td></td>
<td></td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td>14 ga.</td>
<td>2&quot; (50.8)</td>
<td>7.4</td>
<td>102014</td>
<td>U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>Steel</td>
<td>14 ga.</td>
<td>3&quot; (76.2)</td>
<td>103014</td>
<td>U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>Steel</td>
<td>12 ga.</td>
<td>2&quot; (50.8)</td>
<td>102015</td>
<td>U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2&quot;</td>
</tr>
<tr>
<td>Steel</td>
<td>12 ga.</td>
<td>3&quot; (76.2)</td>
<td>103015</td>
<td>U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C</td>
</tr>
</tbody>
</table>

### Engineering Data

For Both Channels

<table>
<thead>
<tr>
<th>Material</th>
<th>Channel Depth (in.)</th>
<th>Sz in.²</th>
<th>Ix in.⁴</th>
<th>E I lb. in.²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>2&quot;</td>
<td>.300</td>
<td>.232</td>
<td>6.73 x 10⁶</td>
</tr>
<tr>
<td>14 ga.</td>
<td>3&quot;</td>
<td>.494</td>
<td>.713</td>
<td>25.6 x 10⁹</td>
</tr>
<tr>
<td>Steel</td>
<td>2&quot;</td>
<td>.387</td>
<td>.346</td>
<td>10.03 x 10⁹</td>
</tr>
<tr>
<td>12 ga.</td>
<td>3&quot;</td>
<td>.715</td>
<td>.959</td>
<td>27.81 x 10⁹</td>
</tr>
</tbody>
</table>

### Strut Loading

<table>
<thead>
<tr>
<th>Material</th>
<th>Type Loading**</th>
<th>Load</th>
<th>Deflection in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>U</td>
<td>300</td>
<td>.69</td>
</tr>
<tr>
<td>14 ga.</td>
<td>Cs</td>
<td>300</td>
<td>.40</td>
</tr>
<tr>
<td>Steel</td>
<td>U</td>
<td>475</td>
<td>.45</td>
</tr>
<tr>
<td>12 ga.</td>
<td>Cs</td>
<td>475</td>
<td>.36</td>
</tr>
</tbody>
</table>

** U = Allowable Uniform Load (lb./ft.)

Cs = Allowable Concentrated Load per ft. of length at mid-width (lb./ft.)
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 red line produce a deflection of 1/4” or less under a uniform load of 100 lb./ft.².

<table>
<thead>
<tr>
<th>Material</th>
<th>Weight (lb./linear ft.)</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>14 ga.</td>
<td>104514-U</td>
</tr>
<tr>
<td></td>
<td>12 ga.</td>
<td>104513-U</td>
</tr>
</tbody>
</table>

**Engineering Data** For Both Channels

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Channel Depth in.</th>
<th>Sx in.²</th>
<th>Ix in.⁴</th>
<th>E I lb. a in.²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel 14 ga.</td>
<td>4 1/2”</td>
<td>.806</td>
<td>1.43</td>
<td>41.47 x 10⁵</td>
</tr>
<tr>
<td>Steel 12 ga.</td>
<td>4 1/2”</td>
<td>1.290</td>
<td>2.42</td>
<td>10.05 x 10⁵</td>
</tr>
</tbody>
</table>

**Strut Loading**

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Type Loading</th>
<th>Load</th>
<th>Deflection in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel 14 ga.</td>
<td>U</td>
<td>300</td>
<td>.49</td>
</tr>
<tr>
<td></td>
<td>Cs</td>
<td>300</td>
<td>.40</td>
</tr>
<tr>
<td>Steel 12 ga.</td>
<td>U</td>
<td>475</td>
<td>.45</td>
</tr>
<tr>
<td></td>
<td>Cs</td>
<td>475</td>
<td>.36</td>
</tr>
</tbody>
</table>

**U** = Allowable Uniform Load (lb./ft.)  
**Cs** = Allowable Concentrated Load per ft. of length at mid-width (lb./ft.)
### Comparative Performance Tables

#### 8-Diamond Plank — 18³/₄" Width

**Note:** The data in these tables represents the performances of both side channels ignoring grating surface performance. These values are not to be used for product selection but should be used when comparisons are being made with other products whose published information does not include grating surface performance. For Product selection and Design Tables, see pages 14 through 25.

<table>
<thead>
<tr>
<th>Material Gauge</th>
<th>Depth in. (mm)</th>
<th>2.5&quot;</th>
<th>2.5&quot;</th>
<th>3.0&quot;</th>
<th>3.0&quot;</th>
<th>3.5&quot;</th>
<th>3.5&quot;</th>
<th>4.0&quot;</th>
<th>4.0&quot;</th>
<th>4.5&quot;</th>
<th>4.5&quot;</th>
<th>5.0&quot;</th>
<th>5.0&quot;</th>
<th>5.5&quot;</th>
<th>5.5&quot;</th>
<th>6.0&quot;</th>
<th>6.0&quot;</th>
</tr>
</thead>
</table>

**Span:**

- Steel: 1.25 ft. to 3.0 ft. 7 1/2" to 12 1/2"
- Aluminum: 1.25 ft. to 3.0 ft. 7 1/2" to 12 1/2"

**Steel:**

- Type 304
- Up to 36" - 2" T-41514 - 4-Diamond
- Up to 42" - 2" T-41514 - 4-Diamond
- Up to 48" - 2" T-41514 - 4-Diamond

**Aluminum:**

- Type 5052
- Up to 36" - 2" T-41514 - 4-Diamond
- Up to 48" - 2" T-41514 - 4-Diamond

**Stainless Steel:**

- Type 316L
- Up to 36" - 2" T-41514 - 4-Diamond
- Up to 48" - 2" T-41514 - 4-Diamond

### Stair Tread Information

#### Standard Sizes and Recommended Spans

<table>
<thead>
<tr>
<th>Steel</th>
<th>Standard Stair Treads</th>
<th>Stair Treads with Abrasive Rosing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Span in.</td>
<td>Gauge</td>
<td>Channel Depth in.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 30&quot;</td>
<td>14</td>
<td>1 1/2&quot;</td>
</tr>
<tr>
<td>30&quot; to 36&quot;</td>
<td>14</td>
<td>1 1/2&quot;</td>
</tr>
<tr>
<td>36&quot; to 42&quot;</td>
<td>14 ga.</td>
<td>1 1/2&quot;</td>
</tr>
<tr>
<td>42&quot; to 48&quot;</td>
<td>14 ga.</td>
<td>2&quot;</td>
</tr>
</tbody>
</table>

#### Steel, Aluminum and Stainless Steel

<table>
<thead>
<tr>
<th>Steel, Aluminum and Stainless Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
</tr>
<tr>
<td>With Abrasive Rosing</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>4&quot; (2-Diamond)</td>
</tr>
<tr>
<td>3/4&quot; (3-Diamond)</td>
</tr>
<tr>
<td>1/2&quot; (3-Diamond)</td>
</tr>
<tr>
<td>3/8&quot; (4-Diamond)</td>
</tr>
<tr>
<td>1/4&quot; (5-Diamond)</td>
</tr>
</tbody>
</table>

| (1) | Stainless Steel not available in 2-Diamond or 3-Diamond widths. |
**Load/Deflection Conversion Formulas**

In the elastic range, deflection is proportional to the applied load for both uniform and concentrated loads. This relationship can be used to determine the deflection that any load which is less than the allowable load will produce, as shown in Example A. Also, if desired, the load which will produce a specific deflection can also be determined if the load is used to determine the deflection that any load concentrated produces. This relationship can be expressed as:

\[
\text{Deflection} = \frac{\text{Load} \times \text{Span}}{k} \]

where:
- **Load** is the applied load,
- **Span** is the span of the load,
- **k** is the load factor, and
- **Deflection** is the deflection at the point of load application.

### Example A

What deflection will a 300 lb. concentrated load produce on a plank (catalog number 103012) spanning 5'-0"?

See page 24 for item 103012 at a span = 5'-0" C = 480 lb. D = 0.26" D @ 300 lb. = 0.26"/480 lb. x 300 lb. = 0.16".

### Example B

If a plank (catalog number 103012) is spanning 6'-0", what concentrated load will produce a 1/4" deflection?

See page 24 for item 103012 at a span = 6'-0" C = 400 lb. D = 0.26" C @ 1/4" = 400 lb./0.26" x 0.25" = 325 lb.
Specifications

Product Guide Specification

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) MasterFormat, Three-Part SectionFormat, and PageFormat, contained in the CSI Manual of Practice. Six-digit section numbers are from the MasterFormat, 2004 Edition.

The section must be carefully reviewed and edited by the Engineer to meet the requirements of the project and local building code. Coordinate with other specification sections and the drawings.

Specifier Notes: This section covers Cooper B-Line slip resistant, Grip Strut® Safety Grating, grating planks, walkways, treads, ladder rungs and specialty items designed for industrial and commercial walking/working surfaces included.

SECTION 05 53 00, Metal Gratings (05120)
Safety Grating, Slip Resistant Walkways, Platforms and Treads

Part 1- General

1.1 Section Includes
A. Safety Grating walkways, planks, stair-treads with reticulated and formed metal cross struts.
B. Regular and Heavy Duty Safety Grating products constructed from single-sheet with integrally-formed channels at the edges.
C. Slip resistant walkways, planks and stair-treads with stamped surface textures/patterns.

1.2 Related Documents & Sections
Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this section. Other related sections include:
A. 05 51 00, Metal Stairs
05 51 19, Metal Grating Stairs
05 51 13, Metal Ladders
05 51 36, Catwalks
B. 05 55 00, Metals Stair Treads and Nosings

1.3 Submittals
A. Submit drawings of Safety Grating products, accessories and attachments.
B. Submit manufacturer’s product data on Safety Grating products including, but not limited to; types, materials, finishes, gauge thickness, surface patterns. For each grating cross-section, submit dimensional information, span, load capacity and deflection requirements.
C. Shop Drawings:
   1. Show fabrication and installation details, including plans.
   2. Coordination of drawings: Floor plans and sections, drawn to scale. Include scaled layout and relationships between grating and adjacent structural elements.

1.4 References
B. ASTM A 240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
C. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
D. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot-Dip Process
E. ASTM A 1011 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability
F. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
G. OSHA-Occupational Safety and Health Administration- Standards for walking-working surfaces. Part Number 1910, Subpart D.
H. RR-G-1602D- Federal Specification For Safety Grating (other than bar type & excluding naval vessels)
Discover the many ways Grip Strut Safety Grating can work for you

Grip Strut Grating and Stair Treads are stocked in over 75 locations in the United States. For the finest in Safety Grating and Stair Treads, contact Cooper B-Line or look for your local Grip Strut grating distributor on the internet using www.cooperbline.com. You will get skilled consulting service on your specific requirements. See the following pages for the many diverse uses of Grip Strut products in industry.

1.5 Quality Assurance
A. Manufacturers: Firms regularly engaged in the manufacture of Safety Grating of the types required, whose products have been in satisfactory use in similar service for not less than 5 years.
B. OSHA Compliance: All grating installations must comply with OSHA Standards for walking working surfaces.
C. Federal Specification RR-G-1602D (or current revision) defines the criteria for items to be considered “Safety Grating”. Slip resistant performance data must be available to support compliance.
D. Manufacturer must have an ISO registered quality system in place, and Manual available upon request.

1.6 Delivery, Storage and Handling
A. Deliver Safety Grating and components carefully to avoid damage, denting and scoring of finishes. Do not install damaged material.
B. Store materials in original packaging and in clean, dry space; protect from weather and construction traffic. Materials to be elevated off of ground by blocks or skids or pallets.

Part 2 Products
2.1 Acceptable Manufacturers
Safety Gratings: Subject to compliance with these specifications, Safety Gratings shall be installed as manufactured by Cooper B-Line Grip Strut Safety Grating (or engineer approved equal).

2.2 Materials and Finish
A. Hot Rolled, Pickled & Oiled Steel: Commercial steel per ASTM A 1011, minimum yield of 33 ksi.
B. Mill Galvanized Steel: Commercial steel per ASTM A 653 and ASTM A 924 with G-90 coating designation, minimum yield of 33 ksi.
C. Hot-Dip Galvanized After Fabrication: Commercial steel per ASTM A 1011, minimum yield of 33 ksi, hot-dip galvanized after fabrication per ASTM A 123.
D. Aluminum: Alloy 5052, Temper H32 aluminum per ASTM B 209
E. Stainless Steel: Type 304 (Type 316) stainless steel, 2B or 2D finish, per ASTM A 240.

2.3 Gratings and Components

Part 3 Execution
3.1 Installation
A. Inspect areas to receive Grating for obstacles. Notify the Engineer of conditions that would adversely affect the installation or subsequent utilization of the areas. Do not proceed with installation until unsatisfactory conditions are corrected.
B. Install Grating according to manufacturer’s recommendations and as shown on the construction drawings.
C. Position Grating sections flat and square with ends bearing minimum 1 1/2” on supporting structure.
D. Keep sections at least 1/4” away from vertical steel sections and 1/2” from concrete walls.
E. Allow clearance at joints between sections of maximum 1/8” at side channels and maximum 1/8” at ends.
F. Band random cut ends and diagonal or circular cut exposed edges with a minimum 1/8” thick bar welded at contact points.
G. Join abutting walkway sections with manufacturer supplied splice plates; bolted or welded as specified.

END OF SECTION
Federal Specification

12 Gauge (2.6mm) .080  (2.0mm)
14 Gauge (1.9mm)

Fabrication service:

Raw Materials:

Tolerances:

Standard Sizes:

6. Special Products:

Catalog number code
The catalog number code given below will assist you in ordering the material according to the specifications required.

1. Steel:
First numeral is width. "5" denotes 5-diamond or 11/16" width.
Second and third numerals denote channel size. "20" denotes 2", "15" denotes 1 1/2", etc.
Last two numbers denote gauge. "12" denotes 12 gauge, "14" denotes 14 gauge.

Example: S2014 - 5-Diamond, 11/16" wide, 2" channel, 14 gauge

2. Aluminum:
First numeral is width. "5" denotes 5-diamond or 11/16" width.
Second and third numerals denote channel size. "20" denotes 2", "15" denotes 1 1/2", etc.
Last two numbers denote gauge. "10" denotes .100" thick, "12" denotes .080" thick.

Material - A: Denotes aluminum.
Example: S2012-A = 5-Diamond, 11/16" wide, 2" channel, .080 thick, aluminum

Material - S = Type 304, SL = 316L

3. Stainless Steel:
First numeral is width. "5" denotes 5-diamond or 11/16" width.
Second and third numerals denote channel size. "20" denotes 2", "15" denotes 1 1/2", etc.
Last two numbers denote gauge. "16" denotes 16 gauge.

Material - S = Type 304, SL = 316L
Example: S2016-S = 5-Diamond, 11/16" wide, 2" channel, 16 gauge, Type 304 stainless

4. Stair Treads:
Any of the above numbers preceded by "T-"
Example: T-42014 = 4-Diamond, 9 1/4" wide, 2" channel, 14 gauge, plain steel stair tread

5. Plain:
For ordering purposes, any catalog number followed by "B" signifies plain unpainted steel (HR/P&O).
Example: S2012-B = 5-Diamond, 11/16" wide, 2" channel, 12 gauge, plain steel

6. Special Products:
Consult local Grip Strut Grating distributor for identification and order placement of special products not herein identified.

Standard Sizes:
Length: (nominal 10'-0" and 12'-0")

Tolerances:
Planks: Standard 10'-0" and 12'-0" lengths are 120" and 144" respectively, with a tolerance of -0" +1/4".
Special lengths are available.

Treads: Standard stair tread lengths are as shown in this catalog with tolerances of ±1/8".

Raw Materials:
Finishes:
A) Steel:
  1) Pre-galvanized - ASTM A525
  2) 14 gauge: hot rolled, commercial quality, oiled black steel and commercial quality, commercial coating, chemically treated galvanized steel
  3) 12 gauge: hot rolled, pickled and oiled, commercial quality black steel and commercial quality, commercial coating, chemically treated galvanized steel

B) Aluminum: Alloy 5052 H-32 mill finish

C) Stainless Steel: 2B finish - 316L (light, cold rolled) — 2D finish - 304 (cold rolled)

Fabrication service:
On large jobs, Cooper B-Line estimates, quotes, details and fabricates to your requirements. Lump-sum drawings are prepared. Grating is supplied with special cutting, banding and toe plates installed where needed. Stair treads are also available fabricated and non-serrated. This fabrication service is available through Grip Strut Grating distributors.

Tested by an independent laboratory for slip resistance according to standards and methods established by Federal Specifications RR-G-1602A, Grip Strut® Safety Grating proved its superiority by exceeding all requirements of this specification.

The standards where exacting - five shoe sole materials tested in three directions under five conditions: dry, greasy, muddy, soapy and icy. Grip Strut Safety Grating tested 10% to 180% more slip-resistant than similar materials, depending on shoe materials and surface conditions.

In survey after survey, accidents caused by falls are high on the list of disabling and lost-time injuries and death. In fact, statistics from many states rate this type of accident second as the cause for industry’s loss of manhours and lower productivity. As proved in the test described above, Grip Strut Safety Grating substantially reduces this kind of accident. In addition, the hazard of falling objects is minimized by the shape and size (1/8" x 1/16") of the surface openings.

Fewer accidents, with resultant lower insurance costs and reduced worker’s compensation losses, should be the logical reason for specifying Grip Strut Safety Grating for all walking-working surfaces and stair treads.

Values determined in accordance with standards for slip-resistance established by Federal Specification RR-G-1602A. The values indicated are an average of values obtained for five sole materials (leather, boot rubber, shoe rubber, Neolite and Hypalon) tested in three directions (longitudinally, transversely and diagonally) for the surface conditions noted. Values are in pounds of force necessary to move a 175 pound load one inch across the surface of grating.

How To Order

Grip Strut Safety Grating and Stair Treads are stocked in all major markets. For the finest in Safety Grating and Stair Treads, contact Cooper B-Line or look for your local Grip Strut distributor on the internet using www.cooperbline.com. You will get skilled consulting service on your specific requirements.

Proof Of Performance

C) Stainless Steel: 2B finish - 316L (light, cold rolled) — 2D finish - 304 (cold rolled)
B) Aluminum: Alloy 5052 H-32 mill finish
A) Steel:

**Safer, serrated surface**
Grips 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 create hazardous walking conditions. Openings are small enough to catch most falling tools and other dangerous objects.

**Maintenance-free open design**
Permits quick drainage of fluids, chips, grease and mud. Any ice accumulation shears easily under normal foot pressure. Open design allows convenient access for cleaning. It is easily cleaned with brush, liquid or air spray to minimize overall maintenance.

**High load capacity, long life**
High strength-to-weight performance is achieved through depth and section of structural design. Bridged struts with integral side channels form a plank that can support loads with minimum transverse and longitudinal deflection. There are no rivets or pressure joints to break or loosen. This sturdy construction provides the advantages of heavy load-carrying capacity with minimal deflection; rugged durability with longer-lasting performance.

**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.

**Versatile in application**
A variety of Standard widths and channel heights combine with numerous Non-Standard shapes and sizes to meet almost any requirement of strength, size, durability, weight, finish, appearance and application. Grip Strut Safety Grating combines safety and durability with ease of fabrication and versatility. One-piece construction—no welds or rivets to fail—minimizes need for plant fabrication. Special shapes and forming can be accomplished to suit unusual requirements.

**Economical to install, use**
In addition to low material cost and nominal erection cost, Grip Strut Safety Grating also saves with its long-lasting, rust-resisting materials and finishes. Standard mill-galvanized finish resists corrosion to provide lasting surfaces. High-strength aluminum and Types 304 and 316L stainless steel are available to provide maximum corrosion resistance. Black unpainted steel available for installations requiring hot-dipped galvanized finish after fabrication. These lightweight but brawny panels permit substantial reduction in structural steel requirements. Open design is self-cleaning and virtually maintenance free.
Other Cooper B-Line Product Lines

- Strut Systems (Bolted Framing)
- Cable Tray Systems
- Electrical Enclosures
- Electronic Enclosures
- Pipe Hanger & Support Systems
- Spring Steel Fasteners
- Cable Runway & Relay Racks (CommData)
- Meter Mounting & Distribution Equipment
- Anchors

Questions, Comments, Suggestions?
(“B-VOCAL” with Cooper B-Line)
Voice Of the Customer...Actively Listening
bvocal@cooperindustries.com
618-654-2184 ext. 456

SYSTEMS THAT MAKE SENSE

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