Metal Bar Steel Grating

For nearly a century, metal bar grating has been the predominant choice for open metal flooring. Features that make bar grating the preferred product include:

Available in steel, aluminum, or stainless steel High strength-to-weight ratio High percentage of open area Easily fabricated to any configuration **Essentially maintenance-free**













Stainless Steel Grating

Stainless steel grating is regarded as industrial grade bar grating, which is extremely strong, durable and corrosive resistant for all load bearing applications and is primarily used for pedestrian and light vehicle traffic.

- **Both in Smooth or serrated surface.**
- **304 or 316 or 316L grade for choice.**
- **Wide range of bearing bar sizes and pitches.**
- Project reference can be supplied for your bid.
- **ISO Certificated factory.**
- CAD or 3D drawing can be supplied for your design and construction.









Stainless Welded Steel Grating



Standard/Light Duty Grating



Description

Good corrosion resistance, high tensile strength, excellent for chemical processing, food industries, power plan temperature applications

Better corrosion and pitting resistance than type 304, good heat resistance, used in chemical, pulp and pape equipment, petroleum refining.

Metric Legend	
U = Safe Uniform Load (kPa)	
afe Concentrated Load (kN/meter of grating width)	
D = Deflection (mm)	

e	Load/Deflection	Multiply Carbon Steel Load Tables By:
	U	1.111
	C	1.111
	D	1.151
	U	0.917
	С	0.917
	D	0.949
	U	1.111
	C	1.111
	D	1.151
	U	0.917
	С	0.917
	D	0.949

	Tensile Strength	Yield
ants and waste water treatment. Used in high	75,000 psi (min.)	30,000 psi (min.)
per processing, marine environments, textile	75,000 psi (min.)	30,000 psi (min.)

Imperial Legend

U = Safe Uniform Load (lbs./ft²) C = Safe Concentrated Load (lbs./foot of grating width) D = Deflection (inches)

Based on Maximum Allowable Fiber Stress

20,000 P.S.I. (137.9 MPa)

16,500 P.S.I. (113.8 MPa)

20,000 P.S.I. (137.9 MPa)

16,500 P.S.I. (113.8 MPa)

Aluminum Grating

Aluminum grating is an ideal choice when corrosion-resistant, lightweight materials that do not affect its load capacity and mechanical strength is required. Made of ASTM B221, 6063 or 6061 alloy, aluminum grating has great versatile and durable and is mainly used for platform ceilings and outdoor curtain walls.



It is lighter than steel grating and has high load carrying capacity.



Aluminum gratings are made of aluminum alloy featured by cheap, economi-

cal and practical.



Smooth and serrated surfaces are available. Good anti-slip performance for safety protection.



A variety of specifications and styles are available to meet various application environments.











Swaged I bar aluminum grating (horizontal))

Dovetail pressure locked aluminum grating (horizontal)





Serrated surface

Dovetail pressure locked aluminum grating (vertical)



09 Steel Grating





Type 18-AR-7 for riveted aluminum grating with bearing bars 1-1/8" apart and rivets at 7" on center. Type 12-SR-7 for stainless steel riveted grating with bearing bars 3/4" apart and rivets at 7" on center.

Use this table when evaluating spans and loads for the following types of steel grating: 18-R-7 and 18-R-3.5

Bearing Bar Size	Approx. Weight psf *	Maximum Pedestrian Span**		Unsupported Span													
(inches)				2'-0	2'-6	<mark>3'-0</mark>	3'-6	4'-0	4'-6	5'-0	5'-6	6'-0	6'-6	7'-0	8'-0		
			U	613	392	272	200	153	121	98	All loads and deflections are theoretical and						
3/4 x 3/16 7.8		D	0.099	0.155	0.223	0.304	0.397	0.503	0.621	fiber str	upon the gross sections of the bearing bars, using a fiber stress of 18,000 psi.						
	1.0	4'-0"	С	613	490	409	350	306	272	245		The values are not intended to be absolute since the actual load capacity will be affected by the slight					
			D	0.079	0.124	0.179	0.243	0.318	0.402	0.497	variatio	ns in mill and	d manufactu	ring toleran	ces.		
1 x 1/8 7.6			U	726	465	323	237	182	144	116	Grating deflection	Grating for spans to the left of the heavy line have deflection $\leq 1/4$ " for uniform loads of 100 psf.					
	4'-5"	D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	U = unif	orm load in	pounds/sq. f	t.	50			
			C	726	581	484	415	363	323	291	C = concentrated load in width D = deflection in inches	•	s/ii. of grau	ng			
			D	0.060	0.093	0.134	0.182	0.238	0.302	0.372		1	1100				
			U	1,090	697	484	356	272	215	174	144						
1 x 3/16	9.4	4'-11"	D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563						
			C	1,090	872	726	623	545	484	436	396						
			D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451		f				
			U	1,135	726	504	371	284	224	182	150	126					
1-1/4 x 1/8	8.7	5'-3"	D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536					
				1,135	908	757	649	567	504	454	413	378					
				0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	101				
		5'-10"	D	1,702 0.060	1,090	757	556 0.182	426 0.238	336 0.302	272 0.372	225 0.451	189 0.536	161				
1-1/4 x 3/16	11.0		C	1,702	0.093 1,362	0.134 1,135	973	851	757	681	619	567	0.629 524				
				0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504				
			U	1,634	1,046	726	534	409	323	262	216	182	155	133	1		
		6'-0''	D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447	0.524	0.608	0.7		
1-1/2 x 1/8	9.9		C	1,634	1,307	1,090	934	817	726	654	594	545	503	467	4		
			D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358	0.420	0.487	0.6		
			U	2,451	1,569	1,090	800	613	484	392	324	272	232	200	1		
			D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447	0.524	0.608	0.7		
1-1/2 x 3/16	12.5	6'-8''	c	2,451	1,961	1,634	1,401	1,226	1,090	981	891	817	754	700	6		
			D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358	0.420	0.487	0.6		
			U	3,337	2,135	1,483	1,090	834	659	534	441	371	316	272	2		
			D	0.043	0.067	0.096	0.130	0.170	0.215	0.266	0.322	0.383	0.450	0.521	0.6		
1-3/4 x 3/16	14.2	14.2 7'-6"	С	3,337	2,669	2,224	1,907	1,668	1,483	1,335	1,213	1,112	1,027	953	8		
			D	0.034	0.053	0.077	0.104	0.136	0.172	0.213	0.257	0.306	0.360	0.417	0.5		
			U	4,358	2,789	1,937	1,423	1,090	861	697	576	484	413	356	2		
0 - 2/10	10.0	01 011	D	0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335	0.393	0.456	0.5		
2 x 3/16	16.8	8'-3"	C	4,358	3,486	2,905	2,490	2,179	1,937	1,743	1,585	1,453	1,341	1,245	1,0		
			D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268	0.315	0.365	0.4		
$2 \frac{1}{4} \times \frac{2}{16} = 1$			U	5,515	3,530	2,451	1,801	1,379	1,090	883	729	613	522	450	3		
	18.3	9'-0"	D	0.033	0.052	0.074	0.101	0.132	0.168	0.207	0.250	0.298	0.350	0.406	0.5		
2-1/4 x 3/16	10.3		С	5,515	4,412	3,677	3,152	2,758	2,451	2,206	2,006	1,839	1,697	1,576	1,3		
			D	0.026	0.041	0.060	0.081	0.106	0.134	0.166	0.200	0.238	0.280	0.324	0.4		
			U	6,809	4,358	3,026	2,223	1,702	1,345	1,090	900	757	645	556	4		
2-1/2 x 3/16	19.9	9'-9''	D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268	0.315	0.365	0.4		
	1010		C	6,809	5,447	4,540	3,891	3,405	3,026	2,724	2,476	2,270	2,095	1,946	1,7		
			D	0.024	0.037	0.054	0.073	0.095	0.121	0.149	0.180	0.215	0.252	0.292	0.3		

* Weight per square foot based upon rivets spaced at 7" on center. Add .40 psf for 3-1/2" rivet centers. ** Maximum pedestrian load is defined as a 100# uniform load with deflection < 1/4 inch. The 1/4" maximum deflection criteria is considered consistent with pedestrian comfort, but may be exceeded for other loading conditions at the discretion of the specifying authority.

Steel Grating 10

18 Space (1-1/8") Steel Load Table

Welded Installation

All grating must be firmly fastened in place and welding panels to the supporting structure provides a superior, permanent installation. The diagram to the right indicates the recommended minimum weld size and spacing for pedestrian applications.

Vehicular applications typically require additional welding, size and spacing as determined by the specifying authority.





Weld Lugs

Plates punched with holes and shop welded between the bearing bars facilitate bolting to the supporting structure. Bolts, screws, or other connecting hardware shall be supplied by others.

Fasteners

When the grating is designed to be removable or when welding is not practical, consider the mechanical fasteners below. The minimum fastener spacing for pedestrian applications is equal to the minimum weld pattern illustrated above.



Saddle Clips

Bent clips bridging two bearing bars, available in galvanized steel, stainless steel, or aluminum. Standard bolt holes are 5/16" and bolts, screws, or other connecting hardware shall be supplied by others.



"G" Clips drilling or welding.

Minimum Weld Pattern

One weld in middle of panel at each intermediate support



Welds at ends of bearing bar approximately 6 inches from each side of panel

Mechanical fasteners that are installed on the top surface of the grating and create a friction connection with the flange supporting the panel. "G" Clips are easily installed without



Countersunk Lands

The narrow spacing of close mesh gratings allows for countersinking or milling of the bearing bars to support bolt shoulders. Flat head screws or self-drilling fasteners shall be supplied by others.



"J" Clips

Bent clip capturing one bearing bar, frequently used with 11/16" on center bearing bars. Cap screws or other fastening hardware shall be supplied by others.



Riveted grating is one of the steel grating products available with high load capacity, flexibility, alkali and acid resistance and anti-slip surface. It is made of carbon steel, stainless steel or aluminum steel. Riveted grating can be widely used as stair treads, walkway, floor, cover and bridge decking.



Specifications:

Material: carbon steel, stainless steel or aluminum steel.

Surface type: smooth surface or serrated surface.

	Table 1: Specification Sheet of RG18 Riveted Grating								
Item	Bearing Bar	Cross Bar	Bearing Bar Spacing	Cross Bar Spacing					
RG18-01	<u>]" × 1/8"</u>	3/4" × 1/8"	<mark>]-1/8"</mark>	3", 7"					
RG18-02	1" × 3/16"	3/4" × 1/8"	1 -1/8"	3", 7"					
RG18-03]-1/4" × 1/8"	3/4" × 1/8"	1-1/8"	3", 7"					
RG18-04	1-1/4" × 3/16"	3/4" × 1/8"	1-1/8"	3", 7"					
RG18-05	1-1/ <u>2</u> " × 1/ <u>8</u> "	1" × 1/8"	1 -1/8"	3", 7"					
RG18-06	1-1/2" × 3/16"	1" × 1/8"	1-1/8 "	3", 7"					
RG18-07	1-3/4" × 3/16"]" × 1/8"	1-1/8"	3", 7"					
RG18-08	2" × 3/16"	1" × 1/8"	1-1/8"	3", 7"					
RC18-09	2-1/4" × 3/16"	1" × 1/8"	1-1/8"	3", 7"					
RG18-10	2-1/2" × 3/16"]" × 1/8"	1-1/8"	3", 7"					

Surface treatment: galvanized, painted or mill finished.

Applications of riveted grating:

Floor. Walkway. Floor.



Press-Locked Steel Grating

Press-locked steel grating also can be called pressure locked grating, it is made of low carbon steel or stainless steel. With the performance of high bearing capacity, non-slip, anti-corrosion and easy to install and remove, pressure locked grating is widely used for ceilings, platforms, floors, fence and all kinds of cover in the factories, civil and commercial buildings.

Two press-locked steel grating with different mesh sizes which people often use: 33 mm × 33 mm, 33 mm × 11 mm.



Classification of serrations:

- Materials: low carbon steel and stainless steel. • Surface treatment: galvanized, painted or powder coated. • Surface type: smooth surface and serrated surface Serrated surface type:
 - PR/S1: Trapezoidal teeth on the bearing bar.

 - In this three types. it is most popular.





PR/S2: Trapezoidal tooth both on the bearing bar and cross bar with the highest non-slip performance.

PR/S3: The non-slip tooth is applied to the connect components. It has the lowest non-slip performance.



Types of press-locked steel grating by insertion angles and insertion modes.





Applications of press-locked steel grating



Steel Grating 15





16 | Steel Grating

FRP Gratings

Cowan is one of the leading manufacturers of FRP Molded Gratings and is known in the industry for giving corrosion resistance, durable and high strength FRP Molded Gratings. Cowan FRP Gratings are manufactured by interlacing unsaturated polyester or phenolic resin matrix with fiberglass roving as reinforcing material. Gratings produced by this technique yield a product having excellent corrosion resistance.



FRP Molded Gratings are manufactured by thermally curing reinforcing glass-fibers and polyester resin in a single mold and are
cast integrally by heating and compressing. It is composed of a certain number of symmetrical lattices with
loading properties in
both lengths and with directions.

* Height (mm) – 25, 30, 38, 50
* Mesh (mm) – 25x 100, 38 x 38, 50 x 50
* Bar thickness (mm) – 6.35, 7-5, 8-5
* Open Rate (%) – 68, 69, 71
* Sheet Sizes (mm) – 1000 x 3000, 1000 x 4000, 1220 x 3660 & 1220 x 4000

Applications



Production Process:



Raw material



Pull yam



Die





Rolling surface Side filling

Repair

Steel Grating 19





mould



Die



Polish





Binding