

Welded Bar Grating Load Table - 1-9/16" Spacing

Safe Uniformly Distributed Load Table | 1-9/16" Spacing [40mm Pitch] | Cross Bar 4" c-c [100mm]

Unit: psf [kN/m²] | Material: Carbon Steel Q235/A36 | Ref: ANSI/NAAMM MBG 531

Bar Size Depth × Thk	11.8" Span [300mm]	1' 11.6" Span [600mm]	2' 11.4" Span [900mm]	3' 11.2" Span [1200mm]	4' 11.1" Span [1500mm]	5' 10.9" Span [1800mm]	6' 10.7" Span [2100mm]	7' 10.5" Span [2400mm]	8' 10.3" Span [2700mm]	9' 10.1" Span [3000mm]
1" × 1/8" [25×3mm]	2272 [108.8 kN/m ²]	568 [27.2 kN/m ²]	215 [10.3 kN/m ²]	90 [4.3 kN/m ²]	46 [2.2 kN/m ²]	27 [1.3 kN/m ²]	17 [0.8 kN/m ²]	10 [0.5 kN/m ²]	8 [0.4 kN/m ²]	6 [0.3 kN/m ²]
1" × 5/32" [25×4mm]	3030 [145.1 kN/m ²]	758 [36.3 kN/m ²]	286 [13.7 kN/m ²]	121 [5.8 kN/m ²]	63 [3.0 kN/m ²]	36 [1.7 kN/m ²]	23 [1.1 kN/m ²]	15 [0.7 kN/m ²]	10 [0.5 kN/m ²]	8 [0.4 kN/m ²]
1" × 3/16" [25×5mm]	3786 [181.3 kN/m ²]	946 [45.3 kN/m ²]	357 [17.1 kN/m ²]	150 [7.2 kN/m ²]	77 [3.7 kN/m ²]	44 [2.1 kN/m ²]	27 [1.3 kN/m ²]	19 [0.9 kN/m ²]	13 [0.6 kN/m ²]	10 [0.5 kN/m ²]
1-3/16" × 1/8" [30×3mm]	3273 [156.7 kN/m ²]	819 [39.2 kN/m ²]	363 [17.4 kN/m ²]	157 [7.5 kN/m ²]	79 [3.8 kN/m ²]	46 [2.2 kN/m ²]	29 [1.4 kN/m ²]	19 [0.9 kN/m ²]	15 [0.7 kN/m ²]	10 [0.5 kN/m ²]
1-3/16" × 5/32" [30×4mm]	4363 [208.9 kN/m ²]	1090 [52.2 kN/m ²]	485 [23.2 kN/m ²]	209 [10.0 kN/m ²]	107 [5.1 kN/m ²]	63 [3.0 kN/m ²]	40 [1.9 kN/m ²]	27 [1.3 kN/m ²]	19 [0.9 kN/m ²]	13 [0.6 kN/m ²]
1-3/16" × 3/16" [30×5mm]	5453 [261.1 kN/m ²]	1364 [65.3 kN/m ²]	606 [29.0 kN/m ²]	261 [12.5 kN/m ²]	134 [6.4 kN/m ²]	77 [3.7 kN/m ²]	48 [2.3 kN/m ²]	33 [1.6 kN/m ²]	23 [1.1 kN/m ²]	17 [0.8 kN/m ²]
1-3/8" × 1/8" [35×3mm]	4453 [213.2 kN/m ²]	1113 [53.3 kN/m ²]	495 [23.7 kN/m ²]	249 [11.9 kN/m ²]	127 [6.1 kN/m ²]	73 [3.5 kN/m ²]	46 [2.2 kN/m ²]	31 [1.5 kN/m ²]	21 [1.0 kN/m ²]	17 [0.8 kN/m ²]
1-3/8" × 5/32" [35×4mm]	5938 [284.3 kN/m ²]	1485 [71.1 kN/m ²]	660 [31.6 kN/m ²]	332 [15.9 kN/m ²]	169 [8.1 kN/m ²]	98 [4.7 kN/m ²]	63 [3.0 kN/m ²]	42 [2.0 kN/m ²]	29 [1.4 kN/m ²]	21 [1.0 kN/m ²]
1-3/8" × 3/16" [35×5mm]	7423 [355.4 kN/m ²]	1857 [88.9 kN/m ²]	825 [39.5 kN/m ²]	414 [19.8 kN/m ²]	213 [10.2 kN/m ²]	123 [5.9 kN/m ²]	77 [3.7 kN/m ²]	52 [2.5 kN/m ²]	36 [1.7 kN/m ²]	27 [1.3 kN/m ²]
1-9/16" × 1/8" [40×3mm]	5816 [278.5 kN/m ²]	1454 [69.6 kN/m ²]	645 [30.9 kN/m ²]	363 [17.4 kN/m ²]	190 [9.1 kN/m ²]	111 [5.3 kN/m ²]	69 [3.3 kN/m ²]	46 [2.2 kN/m ²]	33 [1.6 kN/m ²]	23 [1.1 kN/m ²]
1-9/16" × 5/32" [40×4mm]	7757 [371.4 kN/m ²]	1938 [92.8 kN/m ²]	863 [41.3 kN/m ²]	485 [23.2 kN/m ²]	253 [12.1 kN/m ²]	146 [7.0 kN/m ²]	92 [4.4 kN/m ²]	63 [3.0 kN/m ²]	44 [2.1 kN/m ²]	31 [1.5 kN/m ²]
1-9/16" × 3/16" [40×5mm]	9695 [464.2 kN/m ²]	2423 [116.0 kN/m ²]	1078 [51.6 kN/m ²]	606 [29.0 kN/m ²]	317 [15.2 kN/m ²]	184 [8.8 kN/m ²]	115 [5.5 kN/m ²]	77 [3.7 kN/m ²]	54 [2.6 kN/m ²]	40 [1.9 kN/m ²]
1-3/4" × 1/8" [45×3mm]	7362 [352.5 kN/m ²]	1840 [88.1 kN/m ²]	819 [39.2 kN/m ²]	459 [22.0 kN/m ²]	272 [13.0 kN/m ²]	157 [7.5 kN/m ²]	98 [4.7 kN/m ²]	67 [3.2 kN/m ²]	46 [2.2 kN/m ²]	33 [1.6 kN/m ²]
1-3/4" × 5/32" [45×4mm]	9816 [470.0 kN/m ²]	2454 [117.5 kN/m ²]	1090 [52.2 kN/m ²]	614 [29.4 kN/m ²]	361 [17.3 kN/m ²]	209 [10.0 kN/m ²]	132 [6.3 kN/m ²]	88 [4.2 kN/m ²]	63 [3.0 kN/m ²]	46 [2.2 kN/m ²]
1-3/4" × 3/16" [45×5mm]	12270 [587.5 kN/m ²]	3068 [146.9 kN/m ²]	1364 [65.3 kN/m ²]	766 [36.7 kN/m ²]	451 [21.6 kN/m ²]	261 [12.5 kN/m ²]	165 [7.9 kN/m ²]	111 [5.3 kN/m ²]	77 [3.7 kN/m ²]	56 [2.7 kN/m ²]
2" × 1/8" [50×3mm]	9089 [435.2 kN/m ²]	2272 [108.8 kN/m ²]	1011 [48.4 kN/m ²]	568 [27.2 kN/m ²]	363 [17.4 kN/m ²]	215 [10.3 kN/m ²]	136 [6.5 kN/m ²]	90 [4.3 kN/m ²]	63 [3.0 kN/m ²]	46 [2.2 kN/m ²]
2" × 5/32" [50×4mm]	12117 [580.2 kN/m ²]	3030 [145.1 kN/m ²]	1347 [64.5 kN/m ²]	758 [36.3 kN/m ²]	485 [23.2 kN/m ²]	286 [13.7 kN/m ²]	180 [8.6 kN/m ²]	121 [5.8 kN/m ²]	86 [4.1 kN/m ²]	63 [3.0 kN/m ²]
2" × 3/16" [50×5mm]	15148 [725.3 kN/m ²]	3786 [181.3 kN/m ²]	1683 [80.6 kN/m ²]	946 [45.3 kN/m ²]	606 [29.0 kN/m ²]	357 [17.1 kN/m ²]	226 [10.8 kN/m ²]	150 [7.2 kN/m ²]	107 [5.1 kN/m ²]	77 [3.7 kN/m ²]

Bar Size Depth × Thk	11.8" Span [300mm]	1' 11.6" Span [600mm]	2' 11.4" Span [900mm]	3' 11.2" Span [1200mm]	4' 11.1" Span [1500mm]	5' 10.9" Span [1800mm]	6' 10.7" Span [2100mm]	7' 10.5" Span [2400mm]	8' 10.3" Span [2700mm]	9' 10.1" Span [3000mm]
2-3/16" × 1/8" [55×3mm]	10998 [526.6 kN/m ²]	2748 [131.6 kN/m ²]	1222 [58.5 kN/m ²]	687 [32.9 kN/m ²]	441 [21.1 kN/m ²]	286 [13.7 kN/m ²]	180 [8.6 kN/m ²]	121 [5.8 kN/m ²]	86 [4.1 kN/m ²]	63 [3.0 kN/m ²]
2-3/16" × 5/32" [55×4mm]	14663 [702.1 kN/m ²]	3665 [175.5 kN/m ²]	1629 [78.0 kN/m ²]	917 [43.9 kN/m ²]	587 [28.1 kN/m ²]	382 [18.3 kN/m ²]	240 [11.5 kN/m ²]	161 [7.7 kN/m ²]	113 [5.4 kN/m ²]	81 [3.9 kN/m ²]
2-3/16" × 3/16" [55×5mm]	18329 [877.6 kN/m ²]	4582 [219.4 kN/m ²]	2036 [97.5 kN/m ²]	1147 [54.9 kN/m ²]	733 [35.1 kN/m ²]	476 [22.8 kN/m ²]	301 [14.4 kN/m ²]	200 [9.6 kN/m ²]	142 [6.8 kN/m ²]	102 [4.9 kN/m ²]
2-3/8" × 1/8" [60×3mm]	13089 [626.7 kN/m ²]	3273 [156.7 kN/m ²]	1454 [69.6 kN/m ²]	819 [39.2 kN/m ²]	524 [25.1 kN/m ²]	363 [17.4 kN/m ²]	234 [11.2 kN/m ²]	157 [7.5 kN/m ²]	111 [5.3 kN/m ²]	79 [3.8 kN/m ²]
2-3/8" × 5/32" [60×4mm]	17452 [835.6 kN/m ²]	4363 [208.9 kN/m ²]	1938 [92.8 kN/m ²]	1090 [52.2 kN/m ²]	698 [33.4 kN/m ²]	485 [23.2 kN/m ²]	311 [14.9 kN/m ²]	209 [10.0 kN/m ²]	146 [7.0 kN/m ²]	107 [5.1 kN/m ²]
2-3/8" × 3/16" [60×5mm]	21812 [1044.4 kN/m ²]	5453 [261.1 kN/m ²]	2423 [116.0 kN/m ²]	1364 [65.3 kN/m ²]	873 [41.8 kN/m ²]	606 [29.0 kN/m ²]	391 [18.7 kN/m ²]	261 [12.5 kN/m ²]	184 [8.8 kN/m ²]	134 [6.4 kN/m ²]
2-9/16" × 1/8" [65×3mm]	15361 [735.5 kN/m ²]	3841 [183.9 kN/m ²]	1706 [81.7 kN/m ²]	961 [46.0 kN/m ²]	614 [29.4 kN/m ²]	426 [20.4 kN/m ²]	297 [14.2 kN/m ²]	198 [9.5 kN/m ²]	140 [6.7 kN/m ²]	102 [4.9 kN/m ²]
2-9/16" × 5/32" [65×4mm]	20480 [980.6 kN/m ²]	5121 [245.2 kN/m ²]	2276 [109.0 kN/m ²]	1280 [61.3 kN/m ²]	819 [39.2 kN/m ²]	568 [27.2 kN/m ²]	397 [19.0 kN/m ²]	265 [12.7 kN/m ²]	186 [8.9 kN/m ²]	136 [6.5 kN/m ²]
2-9/16" × 3/16" [65×5mm]	25601 [1225.8 kN/m ²]	6399 [306.4 kN/m ²]	2845 [136.2 kN/m ²]	1600 [76.6 kN/m ²]	1023 [49.0 kN/m ²]	710 [34.0 kN/m ²]	495 [23.7 kN/m ²]	332 [15.9 kN/m ²]	234 [11.2 kN/m ²]	169 [8.1 kN/m ²]

Notes:

1. Bearing bar spacing: 1-9/16" center-to-center [40mm pitch].
2. Cross bar (twisted square bar) spacing: 4" c-c [100mm pitch]; 2" [50mm] spacing available on request, same load capacity.
3. Load values: psf (pounds per square foot), with kN/m² in brackets.
4. All loads are safe uniformly distributed loads (UDL) including self-weight.
5. Reference standard: ANSI/NAAMM MBG 531.
6. Safety factor: 1.5× yield strength (Fy = 34 ksi, Q235 / A36 carbon steel).
7. Deflection limit: L/200 for pedestrian areas, L/360 for sensitive floors.
8. Simply supported span conditions.
9. Serrated (anti-slip) grating has the same load capacity as plain grating of the same size.
10. Custom sizes available — contact our engineering department.

Load Classification: ■ Light Duty ≤50 psf | ■ Medium Duty 50–150 psf | ■ Heavy Duty 150–300 psf | ■ Over 300 psf — engineer review | | PED Safe Zone

■ Heavy Black Vertical Line: Left of the line = Pedestrian Safe Zone — UDL capacity ≥ 100 psf with deflection ≤ L/240, meeting pedestrian walkway safety standards. Right of the line = reduced capacity, for light traffic or equipment placement only; heavy-duty applications require structural engineering review.

Disclaimer:

1. All data in this load table is theoretically calculated under standard laboratory conditions, for product selection reference only, and does not constitute any express or implied warranty or commitment.
2. Actual load capacity is affected by many factors including installation method, support conditions, weld quality, material deviation, corrosion and wear, impact loading, vibration, temperature variation, and manufacturing tolerances, and may differ significantly from the values shown.
3. We shall not be liable for any direct, indirect, incidental, special or consequential damages arising from the use of this data, including but not limited to personal injury, property damage, project delay or lost profits.
4. It is the user's responsibility to conduct verification tests under actual working conditions prior to application, and to ensure that product use complies with local regulations, industry standards and safety codes.
5. For critical projects, heavy-duty applications or special service environments, design review and on-site confirmation by a qualified structural engineer are mandatory.
6. We reserve the right to modify product specifications, dimensions, materials and technical parameters at any time without prior notice.

For custom configurations, special spans or heavy-duty requirements, contact our technical department.