



# GRATING PACIFIC

## 18 SPACE (1-1/8") RIVETED STEEL GRATING LOAD TABLE

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

| Bearing Bar Size (inches) | Approx. Weight psf * | Maximum Pedestrian Span** | Unsupported Span |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |       |       |       |  |
|---------------------------|----------------------|---------------------------|------------------|-------|-------|-------|-------|-------|-------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|--|
|                           |                      |                           | 2'-0             | 2'-6  | 3'-0  | 3'-6  | 4'-0  | 4'-6  | 5'-0  | 5'-6  | 6'-0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 6'-6  | 7'-0  | 8'-0  |       |  |
| 3/4 x 3/16                | 7.8                  | 4'-0"                     | U                | 613   | 392   | 272   | 200   | 153   | 121   | 98    | All loads and deflections are theoretical and based upon the gross sections of the bearing bars, using a fiber stress of 18,000 psi.<br><br>The values are not intended to be absolute since the actual load capacity will be affected by the slight variations in mill and manufacturing tolerances.<br><br>Grating for spans to the left of the heavy line have a deflection $\leq 1/4"$ for uniform loads of 100 psf.<br><br>U = uniform load in pounds/sq. ft.<br>C = concentrated load in pounds/ft. of grating width<br>D = deflection in inches |       |       |       |       |  |
|                           |                      |                           | D                | 0.099 | 0.155 | 0.223 | 0.304 | 0.397 | 0.503 | 0.621 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |       |       |       |  |
|                           |                      |                           | C                | 613   | 490   | 409   | 350   | 306   | 272   | 245   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |       |       |       |  |
|                           |                      |                           | D                | 0.079 | 0.124 | 0.179 | 0.243 | 0.318 | 0.402 | 0.497 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |       |       |       |  |
| 1 x 1/8                   | 7.6                  | 4'-5"                     | U                | 726   | 465   | 323   | 237   | 182   | 144   | 116   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |       |       |       |  |
|                           |                      |                           | D                | 0.074 | 0.116 | 0.168 | 0.228 | 0.298 | 0.377 | 0.466 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |       |       |       |  |
|                           |                      |                           | C                | 726   | 581   | 484   | 415   | 363   | 323   | 291   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |       |       |       |  |
|                           |                      |                           | D                | 0.060 | 0.093 | 0.134 | 0.182 | 0.238 | 0.302 | 0.372 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |       |       |       |  |
| 1 x 3/16                  | 9.4                  | 4'-11"                    | U                | 1,090 | 697   | 484   | 356   | 272   | 215   | 174   | 144                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |       |       |       |  |
|                           |                      |                           | 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |       |       |       |  |
| 1-1/4 x 1/8               | 8.7                  | 5'-3"                     | U                | 1,135 | 726   | 504   | 371   | 284   | 224   | 182   | 150                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 126   |       |       |       |  |
|                           |                      |                           | D                | 0.060 | 0.093 | 0.134 | 0.182 | 0.238 | 0.302 | 0.372 | 0.451                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.536 |       |       |       |  |
|                           |                      |                           | C                | 1,135 | 908   | 757   | 649   | 567   | 504   | 454   | 413                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 378   |       |       |       |  |
|                           |                      |                           | D                | 0.048 | 0.074 | 0.107 | 0.146 | 0.191 | 0.241 | 0.298 | 0.360                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.429 |       |       |       |  |
| 1-1/4 x 3/16              | 11.0                 | 5'-10"                    | U                | 1,702 | 1,090 | 757   | 556   | 426   | 336   | 272   | 225                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 189   | 161   |       |       |  |
|                           |                      |                           | D                | 0.060 | 0.093 | 0.134 | 0.182 | 0.238 | 0.302 | 0.372 | 0.451                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.536 | 0.629 |       |       |  |
|                           |                      |                           | C                | 1,702 | 1,362 | 1,135 | 973   | 851   | 757   | 681   | 619                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 567   | 524   |       |       |  |
|                           |                      |                           | D                | 0.048 | 0.074 | 0.107 | 0.146 | 0.191 | 0.241 | 0.298 | 0.360                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.429 | 0.504 |       |       |  |
| 1-1/2 x 1/8               | 9.9                  | 6'-0"                     | U                | 1,634 | 1,046 | 726   | 534   | 409   | 323   | 262   | 216                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 182   | 155   | 133   | 102   |  |
|                           |                      |                           | D                | 0.050 | 0.078 | 0.112 | 0.152 | 0.199 | 0.251 | 0.310 | 0.376                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.447 | 0.524 | 0.608 | 0.794 |  |
|                           |                      |                           | C                | 1,634 | 1,307 | 1,090 | 934   | 817   | 726   | 654   | 594                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 545   | 503   | 467   | 409   |  |
|                           |                      |                           | D                | 0.040 | 0.062 | 0.089 | 0.122 | 0.159 | 0.201 | 0.248 | 0.300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.358 | 0.420 | 0.487 | 0.636 |  |
| 1-1/2 x 3/16              | 12.5                 | 6'-8"                     | U                | 2,451 | 1,569 | 1,090 | 800   | 613   | 484   | 392   | 324                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 272   | 232   | 200   | 153   |  |
|                           |                      |                           | D                | 0.050 | 0.078 | 0.112 | 0.152 | 0.199 | 0.251 | 0.310 | 0.376                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.447 | 0.524 | 0.608 | 0.794 |  |
|                           |                      |                           | C                | 2,451 | 1,961 | 1,634 | 1,401 | 1,226 | 1,090 | 981   | 891                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 817   | 754   | 700   | 613   |  |
|                           |                      |                           | D                | 0.040 | 0.062 | 0.089 | 0.122 | 0.159 | 0.201 | 0.248 | 0.300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.358 | 0.420 | 0.487 | 0.636 |  |
| 1-3/4 x 3/16              | 14.2                 | 7'-6"                     | U                | 3,337 | 2,135 | 1,483 | 1,090 | 834   | 659   | 534   | 441                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 371   | 316   | 272   | 209   |  |
|                           |                      |                           | D                | 0.043 | 0.067 | 0.096 | 0.130 | 0.170 | 0.215 | 0.266 | 0.322                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.383 | 0.450 | 0.521 | 0.681 |  |
|                           |                      |                           | C                | 3,337 | 2,669 | 2,224 | 1,907 | 1,668 | 1,483 | 1,335 | 1,213                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1,112 | 1,027 | 953   | 834   |  |
|                           |                      |                           | D                | 0.034 | 0.053 | 0.077 | 0.104 | 0.136 | 0.172 | 0.213 | 0.257                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.306 | 0.360 | 0.417 | 0.545 |  |
| 2 x 3/16                  | 16.8                 | 8'-3"                     | U                | 4,358 | 2,789 | 1,937 | 1,423 | 1,090 | 861   | 697   | 576                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 484   | 413   | 356   | 272   |  |
|                           |                      |                           | D                | 0.037 | 0.058 | 0.084 | 0.114 | 0.149 | 0.189 | 0.233 | 0.282                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.335 | 0.393 | 0.456 | 0.596 |  |
|                           |                      |                           | C                | 4,358 | 3,486 | 2,905 | 2,490 | 2,179 | 1,937 | 1,743 | 1,585                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1,453 | 1,341 | 1,245 | 1,090 |  |
|                           |                      |                           | D                | 0.030 | 0.047 | 0.067 | 0.091 | 0.119 | 0.151 | 0.186 | 0.225                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.268 | 0.315 | 0.365 | 0.477 |  |
| 2-1/4 x 3/16              | 18.3                 | 9'-0"                     | U                | 5,515 | 3,530 | 2,451 | 1,801 | 1,379 | 1,090 | 883   | 729                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 613   | 522   | 450   | 345   |  |
|                           |                      |                           | D                | 0.033 | 0.052 | 0.074 | 0.101 | 0.132 | 0.168 | 0.207 | 0.250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.298 | 0.350 | 0.406 | 0.530 |  |
|                           |                      |                           | C                | 5,515 | 4,412 | 3,677 | 3,152 | 2,758 | 2,451 | 2,206 | 2,006                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1,839 | 1,697 | 1,576 | 1,379 |  |
|                           |                      |                           | D                | 0.026 | 0.041 | 0.060 | 0.081 | 0.106 | 0.134 | 0.166 | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.238 | 0.280 | 0.324 | 0.424 |  |
| 2-1/2 x 3/16              | 19.9                 | 9'-9"                     | U                | 6,809 | 4,358 | 3,026 | 2,223 | 1,702 | 1,345 | 1,090 | 900                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 757   | 645   | 556   | 426   |  |
|                           |                      |                           | D                | 0.030 | 0.047 | 0.067 | 0.091 | 0.119 | 0.151 | 0.186 | 0.225                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.268 | 0.315 | 0.365 | 0.477 |  |
|                           |                      |                           | C                | 6,809 | 5,447 | 4,540 | 3,891 | 3,405 | 3,026 | 2,724 | 2,476                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2,270 | 2,095 | 1,946 | 1,702 |  |
|                           |                      |                           | D                | 0.024 | 0.037 | 0.054 | 0.073 | 0.095 | 0.121 | 0.149 | 0.180                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.215 | 0.252 | 0.292 | 0.381 |  |

\* 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  $\leq 1/4$  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.