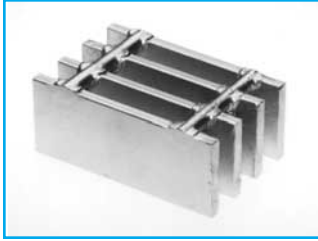


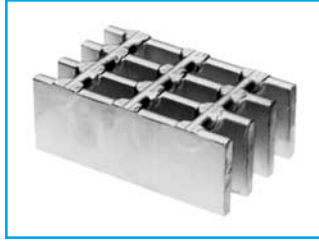
Heavy-Duty Steel Grating

HEAVY-DUTY WELDED

1-3/16" Center to Center of Bearing Bars



19-H-4
Cross Rods 4" C/C



19-H-2
Cross Rods 2" C/C

U = safe uniform load, psf
 C = safe concentrated load, pfw
 D = deflection, inches
 E = modulus of elasticity, 29,000,000 psi
 F = fiber stress, 20,000 psi

Material: ASTM A-36

Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.

General: Loads and deflections are theoretical and based on static loading.

Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval. For deflections of uniform and concentrated loads, consult AMICO-Klemp's engineering departments.

LOAD & DEFLECTION TABLE

| Bar Size | Symbol | Approx. Weight psf | Sec. Mod Per Ft. Of Width | SPAN (Length of Bearing Bar) | | | | | | | | | | | |
|----------------|----------|--------------------|---------------------------|------------------------------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | | 2'-0" | 2'-6" | 3'-0" | 3'-6" | 4'-0" | 4'-6" | 5'-0" | 5'-6" | 6'-0" | 7'-0" | 8'-0" | |
| 1" x 1/4" | 19-4-44 | 9.4 | 0.421 | U | 1,404 | 898 | 624 | 458 | 351 | 277 | 225 | 186 | 156 | 115 | 88 |
| | 19-2-44 | 10.0 | | C | 1,404 | 1,123 | 936 | 802 | 702 | 624 | 561 | 510 | 468 | 401 | 351 |
| 1" x 5/16" | 19-4-45 | 12.5 | 0.526 | U | 1,754 | 1,123 | 780 | 573 | 439 | 347 | 281 | 232 | 195 | 143 | 110 |
| | 19-2-45 | 14.0 | | C | 1,754 | 1,404 | 1,170 | 1,003 | 877 | 780 | 702 | 638 | 585 | 501 | 439 |
| 1" x 3/8" | 19-4-46 | 14.7 | 0.632 | U | 2,105 | 1,347 | 936 | 687 | 526 | 416 | 337 | 278 | 234 | 172 | 132 |
| | 19-2-46 | 16.2 | | C | 2,105 | 1,684 | 1,404 | 1,203 | 1,053 | 936 | 842 | 766 | 702 | 602 | 526 |
| 1-1/4" x 1/4" | 19-4-54 | 11.6 | 0.658 | U | 2,193 | 1,404 | 975 | 716 | 548 | 433 | 351 | 290 | 244 | 179 | 137 |
| | 19-2-54 | 12.2 | | C | 2,193 | 1,754 | 1,462 | 1,253 | 1,096 | 975 | 877 | 797 | 731 | 627 | 548 |
| 1-1/4" x 5/16" | 19-4-55 | 15.2 | 0.822 | U | 2,741 | 1,754 | 1,218 | 895 | 685 | 541 | 439 | 362 | 305 | 224 | 171 |
| | 19-2-55 | 16.8 | | C | 2,741 | 2,193 | 1,827 | 1,566 | 1,371 | 1,218 | 1,096 | 997 | 914 | 783 | 685 |
| 1-1/4" x 3/8" | 19-4-56 | 18.0 | 0.987 | U | 3,289 | 2,105 | 1,462 | 1,074 | 822 | 650 | 526 | 435 | 365 | 269 | 206 |
| | 19-2-56 | 19.5 | | C | 3,289 | 2,632 | 2,193 | 1,880 | 1,645 | 1,462 | 1,316 | 1,196 | 1,096 | 940 | 822 |
| 1-1/2" x 1/4" | 19-4-64 | 13.8 | 0.947 | U | 3,158 | 2,021 | 1,404 | 1,031 | 789 | 624 | 505 | 418 | 351 | 258 | 197 |
| | 19-2-64 | 14.3 | | C | 3,158 | 2,526 | 2,105 | 1,805 | 1,579 | 1,404 | 1,263 | 1,148 | 1,053 | 902 | 789 |
| 1-1/2" x 5/16" | 19-4-65 | 18.0 | 1.184 | U | 3,947 | 2,526 | 1,754 | 1,289 | 987 | 780 | 632 | 522 | 439 | 322 | 247 |
| | 19-2-65 | 19.5 | | C | 3,947 | 3,158 | 2,632 | 2,256 | 1,974 | 1,754 | 1,579 | 1,435 | 1,316 | 1,128 | 987 |
| 1-1/2" x 3/8" | 19-4-66 | 21.3 | 1.421 | U | 4,737 | 3,032 | 2,105 | 1,547 | 1,184 | 936 | 758 | 626 | 526 | 387 | 296 |
| | 19-2-66 | 22.8 | | C | 4,737 | 3,789 | 3,158 | 2,707 | 2,368 | 2,105 | 1,895 | 1,722 | 1,579 | 1,353 | 1,184 |
| 1-3/4" x 1/4" | 19-4-74 | 16.0 | 1.289 | U | 4,298 | 2,751 | 1,910 | 1,404 | 1,075 | 849 | 688 | 568 | 478 | 351 | 269 |
| | 19-2-74 | 16.6 | | C | 4,298 | 3,439 | 2,865 | 2,456 | 2,149 | 1,910 | 1,719 | 1,563 | 1,433 | 1,228 | 1,075 |
| 1-3/4" x 5/16" | 19-4-75 | 20.7 | 1.612 | U | 5,373 | 3,439 | 2,388 | 1,754 | 1,343 | 1,061 | 860 | 710 | 597 | 439 | 336 |
| | 19-2-75 | 22.3 | | C | 5,373 | 4,298 | 3,582 | 3,070 | 2,686 | 2,388 | 2,149 | 1,954 | 1,791 | 1,535 | 1,343 |
| 1-3/4" x 3/8" | 19-4-76 | 24.6 | 1.934 | U | 6,447 | 4,126 | 2,865 | 2,105 | 1,612 | 1,274 | 1,032 | 853 | 716 | 526 | 403 |
| | 19-2-76 | 26.1 | | C | 6,447 | 5,158 | 4,298 | 3,684 | 3,224 | 2,865 | 2,579 | 2,344 | 2,149 | 1,842 | 1,612 |
| 2" x 1/4" | 19-4-84 | 18.2 | 1.684 | U | 5,614 | 3,593 | 2,495 | 1,833 | 1,404 | 1,109 | 898 | 742 | 624 | 458 | 351 |
| | 19-2-84 | 18.8 | | C | 5,614 | 4,491 | 3,743 | 3,208 | 2,807 | 2,495 | 2,246 | 2,041 | 1,871 | 1,604 | 1,404 |
| 2" x 5/16" | 19-4-85 | 23.5 | 2.105 | U | 7,018 | 4,491 | 3,119 | 2,291 | 1,754 | 1,386 | 1,123 | 928 | 780 | 573 | 439 |
| | 19-2-85 | 25.0 | | C | 7,018 | 5,614 | 4,678 | 4,010 | 3,509 | 3,119 | 2,807 | 2,552 | 2,339 | 2,005 | 1,754 |
| 2" x 3/8" | 19-4-86 | 27.9 | 2.526 | U | 8,421 | 5,389 | 3,743 | 2,750 | 2,105 | 1,663 | 1,347 | 1,114 | 936 | 687 | 526 |
| | 19-2-86 | 29.4 | | C | 8,421 | 6,737 | 5,614 | 4,812 | 4,211 | 3,743 | 3,368 | 3,062 | 2,807 | 2,406 | 2,105 |
| 2-1/4" x 1/4" | 19-4-94 | 20.4 | 2.132 | U | 7,105 | 4,547 | 3,158 | 2,320 | 1,776 | 1,404 | 1,137 | 940 | 789 | 580 | 444 |
| | 19-2-94 | 21.1 | | C | 7,105 | 5,684 | 4,737 | 4,060 | 3,553 | 3,158 | 2,842 | 2,584 | 2,368 | 2,030 | 1,776 |
| 2-1/4" x 5/16" | 19-4-95 | 26.2 | 2.664 | U | 8,882 | 5,684 | 3,947 | 2,900 | 2,220 | 1,754 | 1,421 | 1,174 | 987 | 725 | 555 |
| | 19-2-95 | 27.8 | | C | 8,882 | 7,105 | 5,921 | 5,075 | 4,441 | 3,947 | 3,553 | 3,230 | 2,961 | 2,538 | 2,220 |
| 2-1/4" x 3/8" | 19-4-96 | 31.1 | 3.197 | U | 10,658 | 6,821 | 4,737 | 3,480 | 2,664 | 2,105 | 1,705 | 1,409 | 1,184 | 870 | 666 |
| | 19-2-96 | 32.6 | | C | 10,658 | 8,526 | 7,105 | 6,090 | 5,329 | 4,737 | 4,263 | 3,876 | 3,553 | 3,045 | 2,664 |
| 2-1/2" x 1/4" | 19-4-104 | 22.6 | 2.632 | U | 8,772 | 5,614 | 3,899 | 2,864 | 2,193 | 1,733 | 1,404 | 1,160 | 975 | 716 | 548 |
| | 19-2-104 | 23.3 | | C | 8,772 | 7,018 | 5,848 | 5,013 | 4,386 | 3,899 | 3,509 | 3,190 | 2,924 | 2,506 | 2,193 |
| 2-1/2" x 5/16" | 19-4-105 | 29.0 | 3.289 | U | 10,965 | 7,018 | 4,873 | 3,580 | 2,741 | 2,166 | 1,754 | 1,450 | 1,218 | 895 | 685 |
| | 19-2-105 | 30.5 | | C | 10,965 | 8,772 | 7,310 | 6,266 | 5,482 | 4,873 | 4,386 | 3,987 | 3,655 | 3,133 | 2,741 |
| 2-1/2" x 3/8" | 19-4-106 | 34.4 | 3.947 | U | 13,158 | 8,421 | 5,848 | 4,296 | 3,289 | 2,599 | 2,105 | 1,740 | 1,462 | 1,074 | 822 |
| | 19-2-106 | 35.9 | | C | 13,158 | 10,526 | 8,772 | 7,519 | 6,579 | 5,848 | 5,263 | 4,785 | 4,386 | 3,759 | 3,289 |
| 2-3/4" x 1/4" | 19-4-114 | 25.7 | 3.184 | U | 10,614 | 6,793 | 4,717 | 3,466 | 2,654 | 2,097 | 1,698 | 1,404 | 1,179 | 866 | 663 |
| | 19-2-114 | 27.2 | | C | 10,614 | 8,491 | 7,076 | 6,065 | 5,307 | 4,717 | 4,246 | 3,860 | 3,538 | 3,033 | 2,654 |
| 2-3/4" x 5/16" | 19-4-115 | 32.3 | 3.980 | U | 13,268 | 8,491 | 5,897 | 4,332 | 3,317 | 2,621 | 2,123 | 1,754 | 1,474 | 1,083 | 829 |
| | 19-2-115 | 34.3 | | C | 13,268 | 10,614 | 8,845 | 7,581 | 6,634 | 5,897 | 5,307 | 4,825 | 4,423 | 3,791 | 3,317 |
| 2-3/4" x 3/8" | 19-4-116 | 38.3 | 4.776 | U | 15,921 | 10,189 | 7,076 | 5,199 | 3,980 | 3,145 | 2,547 | 2,105 | 1,769 | 1,300 | 995 |
| | 19-2-116 | 40.3 | | C | 15,921 | 12,737 | 10,614 | 9,098 | 7,961 | 7,076 | 6,368 | 5,789 | 5,307 | 4,549 | 3,980 |

Heavy-Duty Steel Grating

19-H-4 & 19-H-2 (continued)

LOAD TABLE

| Bar Size | Symbol | Approx. Weight per sq ft | Sec. Mod Per Ft. Of Width | SPAN (Length of Bearing Bar) | SPAN (Length of Bearing Bar) | | | | | | | | | | | |
|----------------|----------|--------------------------|---------------------------|------------------------------|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| | | | | | 2'-0" | 2'-6" | 3'-0" | 3'-6" | 4'-0" | 4'-6" | 5'-0" | 5'-6" | 6'-0" | 7'-0" | 8'-0" | |
| 3" x 1/4" | 19-4-124 | 27.9 | 3.789 | U | 12,632 | 8,084 | 5,614 | 4,125 | 3,158 | 2,495 | 2,021 | 1,670 | 1,404 | 1,031 | 789 | |
| | 19-2-124 | 29.4 | | C | 12,632 | 10,105 | 8,421 | 7,218 | 6,316 | 5,614 | 5,053 | 4,593 | 4,211 | 3,609 | 3,158 | |
| 3" x 5/16" | 19-4-125 | 35.0 | 4.737 | U | 15,789 | 10,105 | 7,018 | 5,156 | 3,947 | 3,119 | 2,526 | 2,088 | 1,754 | 1,289 | 987 | |
| | 19-2-125 | 37.1 | | C | 15,789 | 12,632 | 10,526 | 9,023 | 7,895 | 7,018 | 6,316 | 5,742 | 5,263 | 4,511 | 3,947 | |
| 3" x 3/8" | 19-4-126 | 41.6 | 5.684 | U | 18,947 | 12,126 | 8,421 | 6,187 | 4,737 | 3,743 | 3,032 | 2,505 | 2,105 | 1,547 | 1,184 | |
| | 19-2-126 | 43.6 | | C | 18,947 | 15,158 | 12,632 | 10,827 | 9,474 | 8,421 | 7,579 | 6,890 | 6,316 | 5,414 | 4,737 | |
| 3-1/4" x 1/4" | 19-4-134 | 30.1 | 4.447 | U | 14,825 | 9,488 | 6,589 | 4,841 | 3,706 | 2,928 | 2,372 | 1,960 | 1,647 | 1,210 | 927 | |
| | 19-2-134 | 31.6 | | C | 14,825 | 11,860 | 9,883 | 8,471 | 7,412 | 6,589 | 5,930 | 5,391 | 4,942 | 4,236 | 3,706 | |
| 3-1/4" x 5/16" | 19-4-135 | 37.8 | 5.559 | U | 18,531 | 11,860 | 8,236 | 6,051 | 4,633 | 3,660 | 2,965 | 2,450 | 2,059 | 1,513 | 1,158 | |
| | 19-2-135 | 39.8 | | C | 18,531 | 14,825 | 12,354 | 10,589 | 9,265 | 8,236 | 7,412 | 6,738 | 6,177 | 5,294 | 4,633 | |
| 3-1/4" x 3/8" | 19-4-136 | 44.9 | 6.671 | U | 22,237 | 14,232 | 9,883 | 7,261 | 5,559 | 4,392 | 3,558 | 2,940 | 2,471 | 1,815 | 1,390 | |
| | 19-2-136 | 46.9 | | C | 22,237 | 17,789 | 14,825 | 12,707 | 11,118 | 9,883 | 8,895 | 8,086 | 7,412 | 6,353 | 5,559 | |
| 3-1/2" x 1/4" | 19-4-144 | 32.4 | 5.158 | U | 17,193 | 11,004 | 7,641 | 5,614 | 4,298 | 3,396 | 2,751 | 2,273 | 1,910 | 1,404 | 1,075 | |
| | 19-2-144 | 33.9 | | C | 17,193 | 13,754 | 11,462 | 9,825 | 8,596 | 7,641 | 6,877 | 6,252 | 5,731 | 4,912 | 4,298 | |
| 3-1/2" x 5/16" | 19-4-145 | 40.5 | 6.447 | U | 21,491 | 13,754 | 9,552 | 7,018 | 5,373 | 4,245 | 3,439 | 2,842 | 2,388 | 1,754 | 1,343 | |
| | 19-2-145 | 42.6 | | C | 21,491 | 17,193 | 14,327 | 12,281 | 10,746 | 9,552 | 8,596 | 7,815 | 7,164 | 6,140 | 5,373 | |
| 3-1/2" x 3/8" | 19-4-146 | 48.2 | 7.737 | U | 25,789 | 16,505 | 11,462 | 8,421 | 6,447 | 5,094 | 4,126 | 3,410 | 2,865 | 2,105 | 1,612 | |
| | 19-2-146 | 50.2 | | C | 25,789 | 20,632 | 17,193 | 14,737 | 12,895 | 11,462 | 10,316 | 9,378 | 8,596 | 7,368 | 6,447 | |
| 4" x 1/4" | 19-4-164 | 36.8 | 6.737 | U | 22,456 | 14,372 | 9,981 | 7,333 | 5,614 | 4,436 | 3,593 | 2,969 | 2,495 | 1,833 | 1,404 | |
| | 19-2-164 | 38.3 | | C | 22,456 | 17,965 | 14,971 | 12,832 | 11,228 | 9,981 | 8,982 | 8,166 | 7,485 | 6,416 | 5,614 | |
| 4" x 5/16" | 19-4-165 | 46.0 | 8.421 | U | 28,070 | 17,965 | 12,476 | 9,166 | 7,018 | 5,545 | 4,491 | 3,712 | 3,119 | 2,291 | 1,754 | |
| | 19-2-165 | 48.1 | | C | 28,070 | 22,456 | 18,713 | 16,040 | 14,035 | 12,476 | 11,228 | 10,207 | 9,357 | 8,020 | 7,018 | |
| 4" x 3/8" | 19-4-166 | 54.7 | 10.105 | U | 33,684 | 21,558 | 14,971 | 10,999 | 8,421 | 6,654 | 5,389 | 4,454 | 3,743 | 2,750 | 2,105 | |
| | 19-2-166 | 56.8 | | C | 33,684 | 26,947 | 22,456 | 19,248 | 16,842 | 14,971 | 13,474 | 12,249 | 11,228 | 9,624 | 8,421 | |
| 4-1/2" x 1/4" | 19-4-184 | 41.2 | 8.526 | U | 28,421 | 18,189 | 12,632 | 9,280 | 7,105 | 5,614 | 4,547 | 3,758 | 3,158 | 2,320 | 1,776 | |
| | 19-2-184 | 42.7 | | C | 28,421 | 22,737 | 18,947 | 16,241 | 14,211 | 12,632 | 11,368 | 10,335 | 9,474 | 8,120 | 7,105 | |
| 4-1/2" x 5/16" | 19-4-185 | 51.5 | 10.658 | U | 35,526 | 22,737 | 15,789 | 11,600 | 8,882 | 7,018 | 5,684 | 4,698 | 3,947 | 2,900 | 2,220 | |
| | 19-2-185 | 53.6 | | C | 35,526 | 28,421 | 23,684 | 20,301 | 17,763 | 15,789 | 14,211 | 12,919 | 11,842 | 10,150 | 8,882 | |
| 4-1/2" x 3/8" | 19-4-186 | 61.3 | 12.789 | U | 42,632 | 27,284 | 18,947 | 13,921 | 10,658 | 8,421 | 6,821 | 5,637 | 4,737 | 3,480 | 2,664 | |
| | 19-2-186 | 63.4 | | C | 42,632 | 34,105 | 28,421 | 24,361 | 21,316 | 18,947 | 17,053 | 15,502 | 14,211 | 12,180 | 10,658 | |
| 5" x 1/4" | 19-4-204 | 45.6 | 10.526 | U | 35,088 | 22,456 | 15,595 | 11,457 | 8,772 | 6,931 | 5,614 | 4,640 | 3,899 | 2,864 | 2,193 | |
| | 19-2-204 | 47.1 | | C | 35,088 | 28,070 | 23,392 | 20,050 | 17,544 | 15,595 | 14,035 | 12,759 | 11,696 | 10,025 | 8,772 | |
| 5" x 5/16" | 19-4-205 | 57.0 | 13.158 | U | 43,860 | 28,070 | 19,493 | 14,322 | 10,965 | 8,664 | 7,018 | 5,800 | 4,873 | 3,580 | 2,741 | |
| | 19-2-205 | 59.1 | | C | 43,860 | 35,088 | 29,240 | 25,063 | 21,930 | 19,493 | 17,544 | 15,949 | 14,620 | 12,531 | 10,965 | |
| 5" x 3/8" | 19-4-206 | 67.9 | 15.789 | U | 52,632 | 33,684 | 23,392 | 17,186 | 13,158 | 10,396 | 8,421 | 6,960 | 5,848 | 4,296 | 3,289 | |
| | 19-2-206 | 70.0 | | C | 52,632 | 42,105 | 35,088 | 30,075 | 26,316 | 23,392 | 21,053 | 19,139 | 17,544 | 15,038 | 13,158 | |
| 6" x 1/4" | 19-4-244 | 54.4 | 15.158 | U | 50,526 | 32,337 | 22,456 | 16,498 | 12,632 | 9,981 | 8,084 | 6,681 | 5,614 | 4,125 | 3,158 | |
| | 19-2-244 | 55.9 | | C | 50,526 | 40,421 | 33,684 | 28,872 | 25,263 | 22,456 | 20,211 | 18,373 | 16,842 | 14,436 | 12,632 | |
| 6" x 5/16" | 19-4-245 | 68.0 | 18.947 | U | 63,158 | 40,421 | 28,070 | 20,623 | 15,789 | 12,476 | 10,105 | 8,351 | 7,018 | 5,156 | 3,947 | |
| | 19-2-245 | 70.1 | | C | 63,158 | 50,526 | 42,105 | 36,090 | 31,579 | 28,070 | 25,263 | 22,967 | 21,053 | 18,045 | 15,789 | |
| 6" x 3/8" | 19-4-246 | 81.1 | 22.737 | U | 75,789 | 48,505 | 33,684 | 24,748 | 18,947 | 14,971 | 12,126 | 10,022 | 8,421 | 6,187 | 4,737 | |
| | 19-2-246 | 83.1 | | C | 75,789 | 60,632 | 50,526 | 43,308 | 37,895 | 33,684 | 30,316 | 27,560 | 25,263 | 21,654 | 18,947 | |

H-19 PANEL WIDTH (inches)

Note: H-Heavy Duty cross rods may extend 1/8" each side. Panel widths do not include these extensions.

| No. of Bars | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|-------------|--------|--------|--------|---------|---------|---------|--------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|---------|---------|
| 1/4" Bar | 17/16 | 25/8 | 313/16 | 5 | 63/16 | 73/8 | 89/16 | 93/4 | 1015/16 | 121/8 | 135/16 | 141/2 | 1511/16 | 167/8 | 181/16 | 191/4 | 207/16 | 215/8 | 2213/16 |
| 5/16" Bar | 11/2 | 211/16 | 37/8 | 51/16 | 61/4 | 77/16 | 85/8 | 913/16 | 11 | 123/16 | 133/8 | 149/16 | 153/4 | 1615/16 | 181/8 | 193/16 | 201/2 | 2111/16 | 227/8 |
| 3/8" Bar | 19/16 | 23/4 | 315/16 | 51/8 | 65/16 | 71/2 | 811/16 | 97/8 | 111/16 | 121/4 | 137/16 | 145/8 | 1513/16 | 17 | 183/16 | 193/8 | 209/16 | 213/4 | 2215/16 |
| No. of Bars | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | | | | | | | | |
| 1/4" Bar | 24 | 253/16 | 263/8 | 279/16 | 283/4 | 2915/16 | 311/8 | 325/16 | 331/2 | 3411/16 | 357/8 | | | | | | | | |
| 5/16" Bar | 241/16 | 251/4 | 267/16 | 275/8 | 2813/16 | 30 | 313/16 | 323/8 | 333/16 | 343/4 | 3515/16 | | | | | | | | |
| 3/8" Bar | 241/8 | 255/16 | 261/2 | 2711/16 | 287/8 | 301/16 | 311/4 | 327/16 | 335/8 | 3413/16 | 36 | | | | | | | | |