

# Harsco Industrial IKG

a harsco company

## STEEL SAFE LOAD TABLE

U = Uniform load in pounds per square foot

D = Deflection in inches

C = Concentrated load at mid-span in pounds per foot of width

MATERIAL: Hot Rolled Carbon Steel per ASTM A36

Fs 20,000 psi

E 29,000,000 psi

Bearing bars spaced 2 3/8 inches on center

# of bearing bars per foot 5.0526

Types WL, WLF, HWL, HWLF, ECL & ECLF

| Maximum span for 1/4" deflection under a uniform load of 100 psf                  |    | SPAN IN INCHES |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|---|----|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   |    | 12             | 18    | 24    | 30    | 36    | 42    | 48    | 54    | 60    | 66    | 72    | 78    | 84    | 90    | 96    | 102   | 108   | 114   | 120   |       |
| SIZE 4A<br>1 X 1/4<br>S <sup>3</sup> /ft 0.2105<br>I <sup>4</sup> /ft 0.1053      | 52 | U              | 2807  | 1247  | 702   | 449   | 312   | 229   | 175   | 139   | 112   | 93    | 78    | 66    | 57    | 50    | 44    | 39    | 35    | 31    | 28    |
|   |    | D              | 0.021 | 0.047 | 0.083 | 0.129 | 0.186 | 0.253 | 0.330 | 0.420 | 0.516 | 0.627 | 0.745 | 0.868 | 1.008 | 1.166 | 1.328 | 1.500 | 1.692 | 1.860 | 2.063 |
|   |    | C              | 1403  | 936   | 702   | 561   | 468   | 401   | 351   | 312   | 281   | 255   | 234   | 216   | 200   | 187   | 175   | 165   | 156   | 148   | 140   |
|   |    | D              | 0.017 | 0.037 | 0.066 | 0.103 | 0.149 | 0.203 | 0.265 | 0.335 | 0.414 | 0.500 | 0.596 | 0.699 | 0.809 | 0.930 | 1.056 | 1.195 | 1.341 | 1.496 | 1.651 |
| SIZE 4B<br>1 X 5/16<br>S <sup>3</sup> /ft 0.2632<br>I <sup>4</sup> /ft 0.1316     | 54 | U              | 3509  | 1560  | 877   | 561   | 390   | 286   | 219   | 173   | 140   | 116   | 97    | 83    | 72    | 62    | 55    | 49    | 43    | 39    | 35    |
|   |    | D              | 0.021 | 0.047 | 0.083 | 0.129 | 0.186 | 0.253 | 0.331 | 0.418 | 0.516 | 0.626 | 0.741 | 0.874 | 1.019 | 1.157 | 1.328 | 1.508 | 1.663 | 1.873 | 2.064 |
|   |    | C              | 1755  | 1170  | 877   | 702   | 585   | 501   | 439   | 390   | 351   | 319   | 292   | 270   | 251   | 234   | 219   | 206   | 195   | 185   | 175   |
|   |    | D              | 0.017 | 0.037 | 0.066 | 0.104 | 0.149 | 0.203 | 0.265 | 0.335 | 0.414 | 0.501 | 0.595 | 0.699 | 0.812 | 0.931 | 1.058 | 1.193 | 1.341 | 1.496 | 1.651 |
| SIZE 4C<br>1 X 3/8<br>S <sup>3</sup> /ft 0.3158<br>I <sup>4</sup> /ft 0.1579      | 57 | U              | 4211  | 1871  | 1053  | 674   | 468   | 344   | 263   | 208   | 168   | 139   | 117   | 100   | 86    | 75    | 66    | 58    | 52    | 47    | 42    |
|   |    | D              | 0.021 | 0.047 | 0.083 | 0.129 | 0.186 | 0.254 | 0.331 | 0.419 | 0.516 | 0.625 | 0.745 | 0.877 | 1.015 | 1.166 | 1.328 | 1.488 | 1.676 | 1.881 | 2.064 |
|   |    | C              | 2105  | 1404  | 1053  | 842   | 702   | 602   | 526   | 468   | 421   | 383   | 351   | 324   | 301   | 281   | 263   | 248   | 234   | 222   | 211   |
|   |    | D              | 0.017 | 0.037 | 0.066 | 0.103 | 0.149 | 0.203 | 0.265 | 0.335 | 0.414 | 0.501 | 0.596 | 0.700 | 0.812 | 0.932 | 1.059 | 1.197 | 1.341 | 1.496 | 1.659 |
| SIZE 6A<br>1 1/4 X 1/4<br>S <sup>3</sup> /ft 0.3289<br>I <sup>4</sup> /ft 0.2056  | 61 | U              | 4385  | 1949  | 1096  | 702   | 487   | 358   | 274   | 217   | 175   | 145   | 122   | 104   | 89    | 78    | 69    | 61    | 54    | 49    | 44    |
|   |    | D              | 0.017 | 0.037 | 0.066 | 0.104 | 0.149 | 0.203 | 0.265 | 0.336 | 0.413 | 0.501 | 0.597 | 0.701 | 0.806 | 0.931 | 1.067 | 1.202 | 1.337 | 1.506 | 1.660 |
|   |    | C              | 2193  | 1462  | 1096  | 877   | 731   | 626   | 548   | 487   | 439   | 399   | 365   | 337   | 313   | 292   | 274   | 258   | 244   | 231   | 219   |
|   |    | D              | 0.013 | 0.030 | 0.053 | 0.083 | 0.119 | 0.162 | 0.212 | 0.268 | 0.331 | 0.401 | 0.476 | 0.559 | 0.648 | 0.744 | 0.847 | 0.957 | 1.074 | 1.196 | 1.322 |
| SIZE 6B<br>1 1/4 X 5/16<br>S <sup>3</sup> /ft 0.4112<br>I <sup>4</sup> /ft 0.2570 | 64 | U              | 5483  | 2437  | 1371  | 877   | 609   | 448   | 343   | 271   | 219   | 181   | 152   | 130   | 112   | 97    | 86    | 76    | 68    | 61    | 55    |
|   |    | D              | 0.017 | 0.037 | 0.066 | 0.103 | 0.149 | 0.203 | 0.265 | 0.336 | 0.413 | 0.500 | 0.595 | 0.701 | 0.812 | 0.927 | 1.063 | 1.198 | 1.347 | 1.500 | 1.660 |
|   |    | C              | 2741  | 1828  | 1371  | 1097  | 914   | 783   | 685   | 609   | 548   | 498   | 457   | 422   | 392   | 366   | 343   | 323   | 305   | 289   | 274   |
|   |    | D              | 0.013 | 0.030 | 0.053 | 0.083 | 0.119 | 0.162 | 0.212 | 0.268 | 0.331 | 0.400 | 0.477 | 0.560 | 0.650 | 0.746 | 0.848 | 0.958 | 1.074 | 1.197 | 1.324 |
| SIZE 6C<br>1 1/4 X 3/8<br>S <sup>3</sup> /ft 0.4934<br>I <sup>4</sup> /ft 0.3084  | 67 | U              | 6579  | 2924  | 1645  | 1053  | 731   | 537   | 411   | 325   | 263   | 217   | 183   | 156   | 134   | 117   | 103   | 91    | 81    | 73    | 66    |
|   |    | D              | 0.017 | 0.037 | 0.066 | 0.104 | 0.149 | 0.203 | 0.265 | 0.335 | 0.414 | 0.500 | 0.597 | 0.701 | 0.809 | 0.931 | 1.061 | 1.195 | 1.337 | 1.496 | 1.660 |
|   |    | C              | 3289  | 2193  | 1645  | 1316  | 1096  | 940   | 822   | 731   | 658   | 598   | 548   | 506   | 470   | 439   | 411   | 387   | 365   | 346   | 329   |
|   |    | D              | 0.013 | 0.030 | 0.053 | 0.083 | 0.119 | 0.162 | 0.212 | 0.268 | 0.331 | 0.401 | 0.477 | 0.559 | 0.649 | 0.746 | 0.847 | 0.957 | 1.071 | 1.194 | 1.324 |
| SIZE 8A<br>1 1/2 X 1/4<br>S <sup>3</sup> /ft 0.4737<br>I <sup>4</sup> /ft 0.3553  | 70 | U              | 6316  | 2807  | 1579  | 1011  | 702   | 516   | 395   | 312   | 253   | 209   | 175   | 149   | 129   | 112   | 99    | 87    | 78    | 70    | 63    |
|   |    | D              | 0.014 | 0.031 | 0.055 | 0.086 | 0.124 | 0.169 | 0.221 | 0.279 | 0.345 | 0.418 | 0.495 | 0.581 | 0.676 | 0.774 | 0.886 | 0.992 | 1.118 | 1.245 | 1.376 |
|   |    | C              | 3158  | 2105  | 1579  | 1263  | 1053  | 902   | 790   | 702   | 632   | 574   | 526   | 486   | 451   | 421   | 395   | 372   | 351   | 332   | 316   |
|   |    | D              | 0.011 | 0.025 | 0.044 | 0.069 | 0.099 | 0.135 | 0.177 | 0.224 | 0.276 | 0.334 | 0.397 | 0.466 | 0.541 | 0.621 | 0.707 | 0.798 | 0.894 | 0.995 | 1.104 |
| SIZE 8B<br>1 1/2 X 5/16<br>S <sup>3</sup> /ft 0.5921<br>I <sup>4</sup> /ft 0.4441 | 74 | U              | 7895  | 3509  | 1974  | 1263  | 877   | 644   | 493   | 390   | 316   | 261   | 219   | 187   | 161   | 140   | 123   | 109   | 97    | 87    | 79    |
|   |    | D              | 0.014 | 0.031 | 0.055 | 0.086 | 0.124 | 0.169 | 0.221 | 0.279 | 0.345 | 0.417 | 0.496 | 0.583 | 0.675 | 0.774 | 0.880 | 0.994 | 1.112 | 1.238 | 1.380 |
|   |    | C              | 3947  | 2632  | 1974  | 1579  | 1316  | 1128  | 987   | 877   | 789   | 718   | 658   | 607   | 564   | 526   | 493   | 464   | 439   | 416   | 395   |
|   |    | D              | 0.011 | 0.025 | 0.044 | 0.069 | 0.099 | 0.135 | 0.177 | 0.223 | 0.276 | 0.334 | 0.397 | 0.466 | 0.541 | 0.620 | 0.706 | 0.797 | 0.895 | 0.997 | 1.104 |
| SIZE 8C<br>1 1/2 X 3/8<br>S <sup>3</sup> /ft 0.7105<br>I <sup>4</sup> /ft 0.5329  | 77 | U              | 9473  | 4210  | 2368  | 1516  | 1053  | 773   | 592   | 468   | 379   | 313   | 263   | 224   | 193   | 168   | 148   | 131   | 117   | 105   | 95    |
|   |    | D              | 0.014 | 0.031 | 0.055 | 0.086 | 0.124 | 0.169 | 0.221 | 0.279 | 0.345 | 0.417 | 0.496 | 0.582 | 0.675 | 0.774 | 0.883 | 0.996 | 1.118 | 1.245 | 1.383 |
|   |    | C              | 4737  | 3158  | 2368  | 1895  | 1579  | 1353  | 1184  | 1053  | 947   | 861   | 789   | 729   | 677   | 632   | 592   | 557   | 526   | 499   | 474   |
|   |    | D              | 0.011 | 0.025 | 0.044 | 0.069 | 0.099 | 0.135 | 0.177 | 0.224 | 0.276 | 0.334 | 0.397 | 0.466 | 0.541 | 0.621 | 0.706 | 0.797 | 0.893 | 0.997 | 1.104 |
| SIZE 9A<br>1 3/4 X 1/4<br>S <sup>3</sup> /ft 0.6447<br>I <sup>4</sup> /ft 0.5641  | 78 | U              | 8596  | 3820  | 2149  | 1375  | 955   | 702   | 537   | 424   | 344   | 284   | 239   | 203   | 175   | 153   | 134   | 119   | 106   | 95    | 86    |
|   |    | D              | 0.012 | 0.027 | 0.047 | 0.074 | 0.106 | 0.145 | 0.189 | 0.239 | 0.296 | 0.357 | 0.426 | 0.498 | 0.578 | 0.666 | 0.755 | 0.854 | 0.957 | 1.064 | 1.183 |
|   |    | C              | 4298  | 2865  | 2149  | 1719  | 1433  | 1228  | 1075  | 955   | 860   | 781   | 716   | 661   | 614   | 573   | 537   | 506   | 478   | 452   | 430   |
|   |    | D              | 0.010 | 0.021 | 0.038 | 0.059 | 0.085 | 0.116 | 0.151 | 0.192 | 0.237 | 0.286 | 0.340 | 0.400 | 0.464 | 0.532 | 0.605 | 0.684 | 0.767 | 0.853 | 0.946 |
| SIZE 9B<br>1 3/4 X 5/16<br>S <sup>3</sup> /ft 0.8059<br>I <sup>4</sup> /ft 0.7052 | 83 | U              | 10745 | 4776  | 2686  | 1719  | 1194  | 877   | 672   | 531   | 430   | 355   | 298   | 254   | 219   | 191   | 168   | 149   | 133   | 119   | 107   |
|   |    | D              | 0.012 | 0.027 | 0.047 | 0.074 | 0.106 | 0.145 | 0.189 | 0.240 | 0.296 | 0.357 | 0.425 | 0.499 | 0.579 | 0.665 | 0.757 | 0.856 | 0.960 | 1.066 | 1.177 |
|   |    | C              | 5373  | 3582  | 2686  | 2149  | 1791  | 1535  | 1343  | 1194  | 1075  | 977   | 895   | 827   | 768   | 716   | 672   | 632   | 597   | 566   | 537   |
|   |    | D              | 0.010 | 0.021 | 0.038 | 0.059 | 0.085 | 0.116 | 0.151 | 0.192 | 0.237 | 0.286 | 0.340 | 0.400 | 0.464 | 0.532 | 0.606 | 0.683 | 0.766 | 0.854 | 0.945 |
| SIZE 9C<br>1 3/4 X 3/8<br>S <sup>3</sup> /ft 0.9671<br>I <sup>4</sup> /ft 0.8462  | 87 | U              | 12895 | 5731  | 3224  | 2063  | 1433  | 1053  | 806   | 637   | 516   | 426   | 358   | 305   | 263   | 229   | 201   | 178   | 159   | 143   | 129   |
|   |    | D              | 0.012 | 0.027 | 0.047 | 0.074 | 0.106 | 0.145 | 0.189 | 0.240 | 0.296 | 0.357 | 0.425 | 0.499 | 0.579 | 0.664 | 0.755 | 0.852 | 0.957 | 1.068 | 1.183 |
|   |    | C              | 6447  | 4298  | 3224  | 2579  | 2149  | 1842  | 1612  | 1433  | 1289  | 1172  | 1075  | 992   | 921   | 860   | 806   | 759   | 716   | 679   | 645   |
|   |    | D              | 0.010 | 0.021 | 0.038 | 0.059 | 0.085 | 0.116 | 0.151 | 0.192 | 0.236 | 0.286 | 0.341 | 0.400 | 0.463 | 0.532 | 0.605 | 0.684 | 0.766 | 0.854 | 0.946 |

|  |     |   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|--|-----|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| SIZE 10A<br>2 X 1/4<br>S^3/ft 0.8421<br>l^4/ft 0.8421      | 87  | U | 11228 | 4990  | 2807  | 1796  | 1248  | 917   | 702   | 554   | 449   | 371   | 312   | 266   | 229   | 200   | 175   | 155   | 139   | 124   | 112   |
|  |     | D | 0.010 | 0.023 | 0.041 | 0.065 | 0.093 | 0.127 | 0.166 | 0.209 | 0.259 | 0.313 | 0.373 | 0.438 | 0.507 | 0.583 | 0.660 | 0.746 | 0.840 | 0.931 | 1.032 |
|  |     | C | 5614  | 3743  | 2807  | 2246  | 1871  | 1604  | 1404  | 1248  | 1123  | 1021  | 936   | 864   | 802   | 749   | 702   | 660   | 624   | 591   | 561   |
|  |     | D | 0.008 | 0.019 | 0.033 | 0.052 | 0.075 | 0.101 | 0.133 | 0.168 | 0.207 | 0.250 | 0.298 | 0.350 | 0.406 | 0.466 | 0.530 | 0.598 | 0.671 | 0.747 | 0.827 |
| SIZE 10B<br>2 X 5/16<br>S^3/ft 1.0526<br>l^4/ft 1.0526     | 92  | U | 14035 | 6238  | 3509  | 2246  | 1559  | 1146  | 877   | 693   | 561   | 464   | 390   | 332   | 286   | 250   | 219   | 194   | 173   | 156   | 140   |
|  |     | D | 0.010 | 0.023 | 0.041 | 0.065 | 0.093 | 0.127 | 0.166 | 0.210 | 0.258 | 0.313 | 0.373 | 0.437 | 0.506 | 0.583 | 0.661 | 0.746 | 0.837 | 0.937 | 1.032 |
|  |     | C | 7017  | 4678  | 3509  | 2807  | 2339  | 2005  | 1754  | 1559  | 1403  | 1276  | 1170  | 1080  | 1002  | 936   | 877   | 826   | 780   | 739   | 702   |
|  |     | D | 0.008 | 0.019 | 0.033 | 0.052 | 0.075 | 0.101 | 0.132 | 0.168 | 0.207 | 0.250 | 0.298 | 0.350 | 0.405 | 0.466 | 0.530 | 0.598 | 0.671 | 0.747 | 0.828 |
| SIZE 10C<br>2 X 3/8<br>S^3/ft 1.2632<br>l^4/ft 1.2632      | 96  | U | 16843 | 7486  | 4211  | 2695  | 1871  | 1375  | 1053  | 832   | 674   | 557   | 468   | 399   | 344   | 299   | 263   | 233   | 208   | 187   | 168   |
|  |     | D | 0.010 | 0.023 | 0.041 | 0.065 | 0.093 | 0.127 | 0.166 | 0.210 | 0.259 | 0.313 | 0.373 | 0.438 | 0.507 | 0.581 | 0.662 | 0.747 | 0.838 | 0.936 | 1.032 |
|  |     | C | 8421  | 5614  | 4211  | 3369  | 2807  | 2406  | 2105  | 1871  | 1684  | 1531  | 1404  | 1296  | 1203  | 1123  | 1053  | 991   | 936   | 886   | 842   |
|  |     | D | 0.008 | 0.019 | 0.033 | 0.052 | 0.075 | 0.101 | 0.132 | 0.168 | 0.207 | 0.250 | 0.298 | 0.350 | 0.406 | 0.466 | 0.530 | 0.598 | 0.671 | 0.747 | 0.828 |
| SIZE 11A<br>2 1/4 X 1/4<br>S^3/ft 1.0658<br>l^4/ft 1.1990  | 95  | U | 14211 | 6316  | 3553  | 2274  | 1579  | 1160  | 888   | 702   | 568   | 470   | 395   | 336   | 290   | 253   | 222   | 197   | 175   | 157   | 142   |
|  |     | D | 0.009 | 0.021 | 0.037 | 0.058 | 0.083 | 0.113 | 0.147 | 0.186 | 0.230 | 0.278 | 0.331 | 0.388 | 0.451 | 0.518 | 0.588 | 0.665 | 0.743 | 0.828 | 0.919 |
|  |     | C | 7105  | 4737  | 3553  | 2842  | 2368  | 2030  | 1776  | 1579  | 1421  | 1292  | 1184  | 1093  | 1015  | 947   | 888   | 836   | 789   | 748   | 711   |
|  |     | D | 0.007 | 0.017 | 0.029 | 0.046 | 0.066 | 0.090 | 0.118 | 0.149 | 0.184 | 0.223 | 0.265 | 0.311 | 0.361 | 0.414 | 0.471 | 0.532 | 0.596 | 0.664 | 0.736 |
| SIZE 11B<br>2 1/4 X 5/16<br>S^3/ft 1.3322<br>l^4/ft 1.4988 | 100 | U | 17763 | 7895  | 4441  | 2842  | 1974  | 1450  | 1110  | 877   | 711   | 587   | 493   | 420   | 363   | 316   | 278   | 246   | 219   | 197   | 178   |
|  |     | D | 0.009 | 0.021 | 0.037 | 0.058 | 0.083 | 0.113 | 0.147 | 0.186 | 0.230 | 0.278 | 0.331 | 0.388 | 0.451 | 0.518 | 0.589 | 0.665 | 0.744 | 0.831 | 0.921 |
|  |     | C | 8881  | 5921  | 4441  | 3553  | 2960  | 2538  | 2220  | 1974  | 1776  | 1615  | 1480  | 1366  | 1269  | 1184  | 1110  | 1045  | 987   | 935   | 888   |
|  |     | D | 0.007 | 0.017 | 0.029 | 0.046 | 0.066 | 0.090 | 0.118 | 0.149 | 0.184 | 0.223 | 0.265 | 0.311 | 0.361 | 0.414 | 0.471 | 0.532 | 0.596 | 0.664 | 0.736 |
| SIZE 11C<br>2 1/4 X 3/8<br>S^3/ft 1.5987<br>l^4/ft 1.7985  | 105 | U | 21316 | 9474  | 5329  | 3411  | 2368  | 1740  | 1332  | 1053  | 853   | 705   | 592   | 505   | 435   | 379   | 333   | 295   | 263   | 236   | 213   |
|  |     | D | 0.009 | 0.021 | 0.037 | 0.058 | 0.083 | 0.113 | 0.147 | 0.186 | 0.230 | 0.278 | 0.331 | 0.389 | 0.451 | 0.517 | 0.588 | 0.664 | 0.744 | 0.829 | 0.919 |
|  |     | C | 10658 | 7105  | 5329  | 4263  | 3553  | 3045  | 2665  | 2368  | 2132  | 1938  | 1776  | 1640  | 1523  | 1421  | 1332  | 1254  | 1184  | 1122  | 1066  |
|  |     | D | 0.007 | 0.017 | 0.029 | 0.046 | 0.066 | 0.090 | 0.118 | 0.149 | 0.184 | 0.223 | 0.265 | 0.311 | 0.361 | 0.414 | 0.471 | 0.532 | 0.596 | 0.664 | 0.736 |
| SIZE 12A<br>2 1/2 X 1/4<br>S^3/ft 1.3158<br>l^4/ft 1.6447  | 102 | U | 17544 | 7797  | 4386  | 2807  | 1949  | 1432  | 1097  | 866   | 702   | 580   | 487   | 415   | 358   | 312   | 274   | 243   | 217   | 194   | 175   |
|  |     | D | 0.008 | 0.019 | 0.033 | 0.052 | 0.075 | 0.101 | 0.133 | 0.168 | 0.207 | 0.250 | 0.298 | 0.350 | 0.406 | 0.466 | 0.529 | 0.598 | 0.672 | 0.745 | 0.826 |
|  |     | C | 8772  | 5848  | 4386  | 3509  | 2924  | 2506  | 2193  | 1949  | 1754  | 1595  | 1462  | 1350  | 1253  | 1170  | 1097  | 1032  | 975   | 923   | 877   |
|  |     | D | 0.007 | 0.015 | 0.027 | 0.041 | 0.060 | 0.081 | 0.106 | 0.134 | 0.166 | 0.200 | 0.238 | 0.280 | 0.324 | 0.373 | 0.424 | 0.478 | 0.537 | 0.597 | 0.662 |
| SIZE 12B<br>2 1/2 X 5/16<br>S^3/ft 1.6447<br>l^4/ft 2.0559 | 108 | U | 21929 | 9746  | 5482  | 3509  | 2437  | 1790  | 1371  | 1083  | 877   | 725   | 609   | 519   | 448   | 390   | 343   | 304   | 271   | 243   | 219   |
|  |     | D | 0.008 | 0.019 | 0.033 | 0.052 | 0.075 | 0.101 | 0.133 | 0.168 | 0.207 | 0.250 | 0.298 | 0.350 | 0.406 | 0.466 | 0.530 | 0.599 | 0.671 | 0.747 | 0.827 |
|  |     | C | 10965 | 7310  | 5482  | 4386  | 3655  | 3133  | 2741  | 2437  | 2193  | 1994  | 1827  | 1687  | 1566  | 1462  | 1371  | 1290  | 1218  | 1154  | 1096  |
|  |     | D | 0.007 | 0.015 | 0.027 | 0.041 | 0.060 | 0.081 | 0.106 | 0.134 | 0.166 | 0.200 | 0.238 | 0.280 | 0.324 | 0.372 | 0.424 | 0.478 | 0.536 | 0.597 | 0.662 |
| SIZE 12C<br>2 1/2 X 3/8<br>S^3/ft 1.9737<br>l^4/ft 2.4671  | 113 | U | 26316 | 11696 | 6579  | 4211  | 2924  | 2148  | 1645  | 1300  | 1053  | 870   | 731   | 623   | 537   | 468   | 411   | 364   | 325   | 292   | 263   |
|  |     | D | 0.008 | 0.019 | 0.033 | 0.052 | 0.075 | 0.101 | 0.132 | 0.168 | 0.207 | 0.250 | 0.298 | 0.350 | 0.406 | 0.466 | 0.529 | 0.598 | 0.671 | 0.748 | 0.827 |
|  |     | C | 13158 | 8772  | 6579  | 5263  | 4386  | 3759  | 3290  | 2924  | 2632  | 2392  | 2193  | 2024  | 1880  | 1754  | 1645  | 1548  | 1462  | 1385  | 1316  |
|  |     | D | 0.007 | 0.015 | 0.027 | 0.041 | 0.060 | 0.081 | 0.106 | 0.134 | 0.166 | 0.200 | 0.238 | 0.280 | 0.325 | 0.372 | 0.424 | 0.478 | 0.536 | 0.598 | 0.662 |
| SIZE 14A<br>3 X 1/4<br>S^3/ft 1.8947<br>l^4/ft 2.8421      | 117 | U | 25263 | 11228 | 6316  | 4042  | 2807  | 2062  | 1579  | 1248  | 1011  | 835   | 702   | 598   | 516   | 449   | 395   | 350   | 312   | 280   | 253   |
|  |     | D | 0.007 | 0.016 | 0.028 | 0.043 | 0.062 | 0.085 | 0.110 | 0.140 | 0.173 | 0.209 | 0.248 | 0.291 | 0.338 | 0.388 | 0.442 | 0.499 | 0.559 | 0.623 | 0.691 |
|  |     | C | 12631 | 8421  | 6316  | 5053  | 4210  | 3609  | 3158  | 2807  | 2526  | 2297  | 2105  | 1943  | 1804  | 1684  | 1579  | 1486  | 1403  | 1330  | 1263  |
|  |     | D | 0.006 | 0.012 | 0.022 | 0.035 | 0.050 | 0.068 | 0.088 | 0.112 | 0.138 | 0.167 | 0.199 | 0.233 | 0.270 | 0.310 | 0.353 | 0.399 | 0.447 | 0.498 | 0.552 |
| SIZE 14B<br>3 X 5/16<br>S^3/ft 2.3684<br>l^4/ft 3.5526     | 124 | U | 31579 | 14035 | 7895  | 5053  | 3509  | 2578  | 1974  | 1559  | 1263  | 1044  | 877   | 747   | 644   | 561   | 493   | 437   | 390   | 350   | 316   |
|  |     | D | 0.007 | 0.016 | 0.028 | 0.043 | 0.062 | 0.085 | 0.110 | 0.140 | 0.172 | 0.209 | 0.248 | 0.291 | 0.338 | 0.388 | 0.441 | 0.498 | 0.559 | 0.623 | 0.690 |
|  |     | C | 15789 | 10526 | 7895  | 6316  | 5263  | 4511  | 3947  | 3509  | 3158  | 2871  | 2632  | 2429  | 2256  | 2105  | 1974  | 1858  | 1754  | 1662  | 1579  |
|  |     | D | 0.006 | 0.012 | 0.022 | 0.035 | 0.050 | 0.068 | 0.088 | 0.112 | 0.138 | 0.167 | 0.199 | 0.233 | 0.270 | 0.310 | 0.353 | 0.399 | 0.447 | 0.498 | 0.552 |
| SIZE 14C<br>3 X 3/8<br>S^3/ft 2.8421<br>l^4/ft 4.2631      | 130 | U | 37895 | 16842 | 9474  | 6063  | 4211  | 3093  | 2368  | 1871  | 1516  | 1253  | 1053  | 897   | 773   | 674   | 592   | 524   | 468   | 420   | 379   |
|  |     | D | 0.007 | 0.016 | 0.028 | 0.043 | 0.062 | 0.085 | 0.110 | 0.140 | 0.172 | 0.209 | 0.248 | 0.291 | 0.338 | 0.388 | 0.441 | 0.498 | 0.559 | 0.623 | 0.690 |
|  |     | C | 18947 | 12632 | 9474  | 7579  | 6316  | 5414  | 4737  | 4211  | 3789  | 3445  | 3158  | 2915  | 2707  | 2526  | 2368  | 2229  | 2105  | 1994  | 1895  |
|  |     | D | 0.006 | 0.012 | 0.022 | 0.035 | 0.050 | 0.068 | 0.088 | 0.112 | 0.138 | 0.167 | 0.199 | 0.233 | 0.270 | 0.310 | 0.353 | 0.399 | 0.447 | 0.498 | 0.552 |
| SIZE 16A<br>3 1/2 X 1/4<br>S^3/ft 2.5789<br>l^4/ft 4.5131  | 132 | U | 34385 | 15282 | 8596  | 5502  | 3821  | 2807  | 2149  | 1698  | 1375  | 1137  | 955   | 814   | 702   | 611   | 537   | 476   | 425   | 381   | 344   |
|  |     | D | 0.006 | 0.013 | 0.024 | 0.037 | 0.053 | 0.072 | 0.095 | 0.120 | 0.148 | 0.179 | 0.213 | 0.250 | 0.290 | 0.332 | 0.378 | 0.427 | 0.479 | 0.534 | 0.591 |
|  |     | C | 17193 | 11462 | 8596  | 6877  | 5731  | 4912  | 4298  | 3821  | 3439  | 3126  | 2865  | 2645  | 2456  | 2292  | 2149  | 2023  | 1910  | 1810  | 1719  |
|  |     | D | 0.005 | 0.011 | 0.019 | 0.030 | 0.043 | 0.058 | 0.076 | 0.096 | 0.118 | 0.143 | 0.170 | 0.200 | 0.232 | 0.266 | 0.303 | 0.342 | 0.383 | 0.427 | 0.473 |
| SIZE 16B<br>3 1/2 X 5/16<br>S^3/ft 3.2237<br>l^4/ft 5.6414 | 139 | U | 42983 | 19103 | 10746 | 6877  | 4776  | 3509  | 2686  | 2123  | 1719  | 1421  | 1194  | 1017  | 877   | 764   | 672   | 595   | 531   | 476   | 430   |
|  |     | D | 0.006 | 0.013 | 0.024 | 0.037 | 0.053 | 0.072 | 0.095 | 0.120 | 0.148 | 0.179 | 0.213 | 0.250 | 0.290 | 0.333 | 0.379 | 0.427 | 0.479 | 0.533 | 0.591 |
|  |     | C | 21491 | 14328 | 10746 | 8597  | 7164  | 6140  | 5373  | 4776  | 4298  | 390   |       |       |       |       |       |       |       |       |       |

|   |     |   |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|---|-----|---|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| S <sup>3</sup> /ft 3.8684<br>I <sup>4</sup> /ft 6.7697                              |     | C | 25789  | 17193 | 12895 | 10316 | 8596  | 7368  | 6447  | 5731  | 5158  | 4689  | 4298  | 3968  | 3684  | 3439  | 3224  | 3034  | 2865  | 2715  | 2579  |
|   |     | D | 0.005  | 0.011 | 0.019 | 0.030 | 0.043 | 0.058 | 0.076 | 0.096 | 0.118 | 0.143 | 0.170 | 0.200 | 0.232 | 0.266 | 0.303 | 0.342 | 0.383 | 0.427 | 0.473 |
| SIZE 18A<br>4 X 1/4<br>S <sup>3</sup> /ft 3.3684<br>I <sup>4</sup> /ft 6.7368       | 146 | U | 44912  | 19961 | 11228 | 7186  | 4990  | 3666  | 2807  | 2218  | 1796  | 1485  | 1248  | 1063  | 917   | 798   | 702   | 622   | 554   | 498   | 449   |
|   |     | D | 0.005  | 0.012 | 0.021 | 0.032 | 0.047 | 0.063 | 0.083 | 0.105 | 0.129 | 0.157 | 0.186 | 0.219 | 0.254 | 0.291 | 0.331 | 0.374 | 0.419 | 0.467 | 0.517 |
|   |     | C | 22456  | 14971 | 11228 | 8982  | 7485  | 6416  | 5614  | 4990  | 4491  | 4083  | 3743  | 3455  | 3208  | 2994  | 2807  | 2642  | 2495  | 2364  | 2246  |
|   |     | D | 0.004  | 0.009 | 0.017 | 0.026 | 0.037 | 0.051 | 0.066 | 0.084 | 0.103 | 0.125 | 0.149 | 0.175 | 0.203 | 0.233 | 0.265 | 0.299 | 0.335 | 0.374 | 0.414 |
| SIZE 18B<br>4 X 5/16<br>S <sup>3</sup> /ft 4.2105<br>I <sup>4</sup> /ft 8.4210      | 154 | U | 56140  | 24951 | 14035 | 8982  | 6238  | 4583  | 3509  | 2772  | 2246  | 1856  | 1559  | 1329  | 1146  | 998   | 877   | 777   | 693   | 622   | 561   |
|   |     | D | 0.005  | 0.012 | 0.021 | 0.032 | 0.047 | 0.063 | 0.083 | 0.105 | 0.129 | 0.157 | 0.186 | 0.219 | 0.254 | 0.291 | 0.331 | 0.374 | 0.419 | 0.467 | 0.517 |
|   |     | C | 28070  | 18713 | 14035 | 11228 | 9357  | 8020  | 7018  | 6238  | 5614  | 5104  | 4678  | 4318  | 4010  | 3743  | 3509  | 3302  | 3119  | 2955  | 2807  |
|   |     | D | 0.004  | 0.009 | 0.017 | 0.026 | 0.037 | 0.051 | 0.066 | 0.084 | 0.103 | 0.125 | 0.149 | 0.175 | 0.203 | 0.233 | 0.265 | 0.299 | 0.335 | 0.374 | 0.414 |
| SIZE 18C<br>4 X 3/8<br>S <sup>3</sup> /ft 5.0526<br>I <sup>4</sup> /ft 10.1052      | 161 | U | 67368  | 29941 | 16842 | 10779 | 7485  | 5499  | 4211  | 3327  | 2695  | 2227  | 1871  | 1595  | 1375  | 1198  | 1053  | 932   | 832   | 746   | 674   |
|   |     | D | 0.005  | 0.012 | 0.021 | 0.032 | 0.047 | 0.063 | 0.083 | 0.105 | 0.129 | 0.157 | 0.186 | 0.219 | 0.254 | 0.291 | 0.331 | 0.374 | 0.419 | 0.467 | 0.518 |
|   |     | C | 33684  | 22456 | 16842 | 13474 | 11228 | 9624  | 8421  | 7485  | 6737  | 6124  | 5614  | 5182  | 4812  | 4491  | 4211  | 3963  | 3743  | 3546  | 3368  |
|   |     | D | 0.004  | 0.009 | 0.017 | 0.026 | 0.037 | 0.051 | 0.066 | 0.084 | 0.104 | 0.125 | 0.149 | 0.175 | 0.203 | 0.233 | 0.265 | 0.299 | 0.335 | 0.374 | 0.414 |
| SIZE 20A<br>4 1/2 X 1/4<br>S <sup>3</sup> /ft 4.2631<br>I <sup>4</sup> /ft 9.5920   | 159 | U | 56841  | 25263 | 14210 | 9095  | 6316  | 4640  | 3553  | 2807  | 2274  | 1879  | 1579  | 1345  | 1160  | 1011  | 888   | 787   | 702   | 630   | 568   |
|   |     | D | 0.005  | 0.010 | 0.018 | 0.029 | 0.041 | 0.056 | 0.074 | 0.093 | 0.115 | 0.139 | 0.166 | 0.194 | 0.225 | 0.259 | 0.294 | 0.332 | 0.373 | 0.415 | 0.459 |
|   |     | C | 28421  | 18947 | 14210 | 11368 | 9474  | 8120  | 7105  | 6316  | 5684  | 5167  | 4737  | 4372  | 4060  | 3789  | 3553  | 3344  | 3158  | 2992  | 2842  |
|   |     | D | 0.004  | 0.008 | 0.015 | 0.023 | 0.033 | 0.045 | 0.059 | 0.075 | 0.092 | 0.111 | 0.132 | 0.155 | 0.180 | 0.207 | 0.235 | 0.266 | 0.298 | 0.332 | 0.368 |
| SIZE 20B<br>4 1/2 X 5/16<br>S <sup>3</sup> /ft 5.3289<br>I <sup>4</sup> /ft 11.9901 | 168 | U | 71052  | 31579 | 17763 | 11368 | 7895  | 5800  | 4441  | 3509  | 2842  | 2349  | 1974  | 1682  | 1450  | 1263  | 1110  | 983   | 877   | 787   | 711   |
|   |     | D | 0.005  | 0.010 | 0.018 | 0.029 | 0.041 | 0.056 | 0.074 | 0.093 | 0.115 | 0.139 | 0.166 | 0.194 | 0.225 | 0.259 | 0.294 | 0.332 | 0.372 | 0.415 | 0.460 |
|   |     | C | 35526  | 23684 | 17763 | 14210 | 11842 | 10150 | 8882  | 7895  | 7105  | 6459  | 5921  | 5466  | 5075  | 4737  | 4441  | 4180  | 3947  | 3740  | 3553  |
|   |     | D | 0.004  | 0.008 | 0.015 | 0.023 | 0.033 | 0.045 | 0.059 | 0.075 | 0.092 | 0.111 | 0.132 | 0.155 | 0.180 | 0.207 | 0.235 | 0.266 | 0.298 | 0.332 | 0.368 |
| SIZE 20C<br>4 1/2 X 3/8<br>S <sup>3</sup> /ft 6.3947<br>I <sup>4</sup> /ft 14.3881  | 176 | U | 85263  | 37895 | 21316 | 13642 | 9474  | 6960  | 5329  | 4211  | 3411  | 2819  | 2368  | 2018  | 1740  | 1516  | 1332  | 1180  | 1053  | 945   | 853   |
|   |     | D | 0.005  | 0.010 | 0.018 | 0.029 | 0.041 | 0.056 | 0.074 | 0.093 | 0.115 | 0.139 | 0.166 | 0.194 | 0.225 | 0.259 | 0.294 | 0.332 | 0.373 | 0.415 | 0.460 |
|   |     | C | 42631  | 28421 | 21316 | 17053 | 14210 | 12180 | 10658 | 9474  | 8526  | 7751  | 7105  | 6559  | 6090  | 5684  | 5329  | 5015  | 4737  | 4488  | 4263  |
|   |     | D | 0.004  | 0.008 | 0.015 | 0.023 | 0.033 | 0.045 | 0.059 | 0.075 | 0.092 | 0.111 | 0.132 | 0.155 | 0.180 | 0.207 | 0.235 | 0.266 | 0.298 | 0.332 | 0.368 |
| SIZE 22A<br>5 X 1/4<br>S <sup>3</sup> /ft 5.2631<br>I <sup>4</sup> /ft 13.1578      | 172 | U | 70175  | 31189 | 17544 | 11228 | 7797  | 5729  | 4386  | 3465  | 2807  | 2320  | 1949  | 1661  | 1432  | 1248  | 1096  | 971   | 866   | 778   | 702   |
|   |     | D | 0.004  | 0.009 | 0.017 | 0.026 | 0.037 | 0.051 | 0.066 | 0.084 | 0.103 | 0.125 | 0.149 | 0.175 | 0.203 | 0.233 | 0.265 | 0.299 | 0.335 | 0.374 | 0.414 |
|   |     | C | 35087  | 23392 | 17544 | 14035 | 11696 | 10025 | 8772  | 7797  | 7017  | 6380  | 5848  | 5398  | 5012  | 4678  | 4386  | 4128  | 3899  | 3693  | 3509  |
|   |     | D | 0.003  | 0.007 | 0.013 | 0.021 | 0.030 | 0.041 | 0.053 | 0.067 | 0.083 | 0.100 | 0.119 | 0.140 | 0.162 | 0.186 | 0.212 | 0.239 | 0.268 | 0.299 | 0.331 |
| SIZE 22B<br>5 X 5/16<br>S <sup>3</sup> /ft 6.5789<br>I <sup>4</sup> /ft 16.4473     | 182 | U | 87719  | 38986 | 21930 | 14035 | 9747  | 7161  | 5482  | 4332  | 3509  | 2900  | 2437  | 2076  | 1790  | 1559  | 1371  | 1214  | 1083  | 972   | 877   |
|   |     | D | 0.004  | 0.009 | 0.017 | 0.026 | 0.037 | 0.051 | 0.066 | 0.084 | 0.104 | 0.125 | 0.149 | 0.175 | 0.203 | 0.233 | 0.265 | 0.299 | 0.335 | 0.374 | 0.414 |
|   |     | C | 43859  | 29240 | 21930 | 17544 | 14620 | 12531 | 10965 | 9747  | 8772  | 7974  | 7310  | 6748  | 6266  | 5848  | 5482  | 5160  | 4873  | 4617  | 4386  |
|   |     | D | 0.003  | 0.007 | 0.013 | 0.021 | 0.030 | 0.041 | 0.053 | 0.067 | 0.083 | 0.100 | 0.119 | 0.140 | 0.162 | 0.186 | 0.212 | 0.239 | 0.268 | 0.299 | 0.331 |
| SIZE 22C<br>5 X 3/8<br>S <sup>3</sup> /ft 7.8947<br>I <sup>4</sup> /ft 19.7367      | 191 | U | 105263 | 46783 | 26316 | 16842 | 11696 | 8593  | 6579  | 5198  | 4211  | 3480  | 2924  | 2491  | 2148  | 1871  | 1645  | 1457  | 1300  | 1166  | 1053  |
|   |     | D | 0.004  | 0.009 | 0.017 | 0.026 | 0.037 | 0.051 | 0.066 | 0.084 | 0.104 | 0.125 | 0.149 | 0.175 | 0.203 | 0.233 | 0.265 | 0.299 | 0.335 | 0.373 | 0.414 |
|   |     | C | 52631  | 35088 | 26316 | 21053 | 17544 | 15038 | 13158 | 11696 | 10526 | 9569  | 8772  | 8097  | 7519  | 7018  | 6579  | 6192  | 5848  | 5540  | 5263  |
|   |     | D | 0.003  | 0.007 | 0.013 | 0.021 | 0.030 | 0.041 | 0.053 | 0.067 | 0.083 | 0.100 | 0.119 | 0.140 | 0.162 | 0.186 | 0.212 | 0.239 | 0.268 | 0.299 | 0.331 |