

# **HIERROS** **J. OLMOS, S.A.**

## **PERFILES**

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## CUADRADOS Y REDONDOS (kg/m)

| mm. | ■     | ●     | mm. | ■      | ●      | mm. | ■      | ●      |
|-----|-------|-------|-----|--------|--------|-----|--------|--------|
| 3   | 0,07  | 0,06  | 42  | 13,85  | 10,88  | 150 | 176,63 | 138,72 |
| 3,5 | 0,10  | 0,08  | 45  | 15,30  | 11,94  | 155 | 188,60 | 148,10 |
| 4   | 0,13  | 0,10  | 46  | 16,61  | 13,05  | 160 | 201,00 | 157,80 |
| 4,5 | 0,16  | 0,13  | 48  | 18,09  | 14,21  | 165 | 213,70 | 167,90 |
|     |       |       |     |        |        | 170 | 226,90 | 178,20 |
| 5   | 0,20  | 0,15  | 50  | 19,63  | 15,41  | 175 | 240,40 | 188,80 |
| 5,5 | 0,24  | 0,19  | 52  | 21,23  | 16,67  | 180 | 254,30 | 199,80 |
| 6   | 0,29  | 0,22  | 54  | 22,89  | 17,98  | 185 | 268,70 | 211,00 |
| 7   | 0,39  | 0,30  | 55  | 23,75  | 18,65  | 190 | 283,40 | 222,60 |
| 8   | 0,50  | 0,40  | 56  | 24,62  | 19,34  | 195 | 298,40 | 234,40 |
| 9   | 0,64  | 0,50  | 58  | 26,41  | 20,74  |     |        |        |
|     |       |       |     |        |        | 200 | 314,00 | 246,60 |
| 10  | 0,79  | 0,62  | 60  | 28,26  | 22,20  | 205 | 329,90 | 259,10 |
| 11  | 0,95  | 0,75  | 62  | 30,17  | 23,70  | 210 | 346,20 | 271,90 |
| 12  | 1,13  | 0,89  | 64  | 32,15  | 25,25  | 215 | 362,90 | 285,00 |
| 13  | 1,33  | 1,04  | 65  | 33,16  | 26,05  | 220 | 380,00 | 298,40 |
| 14  | 1,54  | 1,21  | 66  | 34,20  | 26,86  | 225 | 397,40 | 312,10 |
| 15  | 1,77  | 1,39  | 68  | 36,30  | 28,51  | 230 | 415,30 | 326,10 |
| 16  | 2,01  | 1,58  |     |        |        | 235 | 433,50 | 340,50 |
| 17  | 2,27  | 1,78  | 70  | 38,47  | 30,21  | 240 | 452,20 | 355,10 |
| 18  | 2,54  | 2,00  | 72  | 40,69  | 31,96  | 245 | 471,20 | 370,10 |
| 19  | 2,83  | 2,23  | 74  | 42,99  | 33,76  |     |        |        |
|     |       |       | 75  | 44,16  | 34,68  | 250 | 490,60 | 385,30 |
| 20  | 3,14  | 2,47  | 76  | 45,34  | 35,61  | 255 | 510,40 | 400,90 |
| 21  | 3,46  | 2,72  | 78  | 47,76  | 37,51  | 260 | 530,70 | 416,80 |
| 22  | 3,80  | 2,98  |     |        |        | 265 | 551,30 | 433,00 |
| 23  | 4,15  | 3,26  | 80  | 50,24  | 39,46  | 270 | 572,30 | 449,50 |
| 24  | 4,52  | 3,55  | 85  | 56,72  | 44,45  | 275 | 593,70 | 466,30 |
| 25  | 4,91  | 3,85  | 90  | 63,59  | 49,95  | 280 | 615,40 | 483,40 |
| 26  | 5,31  | 4,17  | 95  | 70,85  | 55,64  | 285 | 637,60 | 500,80 |
| 27  | 5,72  | 4,80  |     |        |        | 290 | 660,20 | 518,60 |
| 28  | 6,15  | 4,83  | 100 | 78,50  | 61,95  | 295 | 683,10 | 536,50 |
| 29  | 6,60  | 5,19  | 105 | 86,55  | 67,97  | 300 | 706,50 | 554,90 |
|     |       |       | 110 | 94,99  | 74,60  | 350 | 961,60 | 755,30 |
| 30  | 7,06  | 5,55  | 115 | 103,82 | 81,54  | 400 | 1,256  | 986,50 |
| 32  | 8,04  | 6,31  | 120 | 113,04 | 88,78  | 425 | 1,410  | 1,112  |
| 34  | 9,08  | 7,13  | 125 | 122,66 | 96,33  | 450 | 1,590  | 1,248  |
| 36  | 10,17 | 8,00  | 130 | 132,66 | 104,20 | 475 | 1,771  | 1,390  |
| 38  | 11,34 | 8,90  | 135 | 143,07 | 112,36 | 500 | 1,963  | 1,541  |
|     |       |       | 140 | 153,86 | 112,36 | 525 | 2,162  | 1,960  |
| 40  | 12,60 | 9,87  | 145 | 165,05 | 129,63 | 550 | 2,371  | 1,865  |
| 41  | 13,20 | 10,36 |     |        |        | 600 | 2,826  | 2,220  |

Calidad: S275 JR.

## ACERO SEMIRREDONDO Y MEDIA CAÑA LAMINADO EN CALIENTE (Pesos)

### MEDIOS REDONDOS



| mm.     | Kg/m. |
|---------|-------|
| 40 x 20 | 4,93  |
| 50 x 25 | 7,70  |
| 60 x 30 | 11,10 |
| 70 x 35 | 15,30 |

### MEDIAS CAÑAS



| mm.     | Kg/m. |
|---------|-------|
| 20 x 5  | 0,56  |
| 25 x 6  | 0,85  |
| 30 x 6  | 1,10  |
| 35 x 7  | 1,36  |
| 40 x 8  | 1,76  |
| 40 x 10 | 2,24  |
| 45 x 10 | 2,50  |
| 50 x 10 | 2,72  |
| 50 x 12 | 3,30  |
| 60 x 10 | 3,21  |
| 60 x 12 | 3,91  |
| 60 x 14 | 4,95  |

Calidad: S275 JR.

## PLETINAS Y LLANTAS DE ACERO (Hierros planos) (kg/m)

| Espesor<br>en<br>mm. | Anchos en mm. |       |       |       |       |       |       |       |       |
|----------------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|
|                      | 10            | 12    | 14    | 15    | 16    | 18    | 20    | 22    | 24    |
| 1                    | 0,079         | 0,094 | 0,110 | 0,118 | 0,126 | 0,141 | 0,157 | 0,173 | 0,188 |
| 2                    | 0,157         | 0,188 | 0,220 | 0,236 | 0,251 | 0,283 | 0,314 | 0,354 | 0,377 |
| 3                    | 0,236         | 0,283 | 0,330 | 0,353 | 0,377 | 0,424 | 0,471 | 0,518 | 0,565 |
| 4                    | 0,314         | 0,377 | 0,440 | 0,471 | 0,502 | 0,565 | 0,628 | 0,691 | 0,754 |
| 5                    | 0,393         | 0,471 | 0,550 | 0,589 | 0,628 | 0,707 | 0,785 | 0,864 | 0,942 |
| 6                    | 0,471         | 0,565 | 0,659 | 0,707 | 0,754 | 0,848 | 0,942 | 1,036 | 1,130 |
| 7                    | 0,550         | 0,659 | 0,769 | 0,824 | 0,879 | 0,989 | 1,099 | 1,209 | 1,319 |
| 8                    | 0,628         | 0,754 | 0,879 | 0,942 | 1,005 | 1,130 | 1,256 | 1,382 | 1,507 |
| 9                    | 0,707         | 0,848 | 0,989 | 1,060 | 1,130 | 1,272 | 1,413 | 1,554 | 1,606 |
| 10                   | 0,785         | 0,942 | 1,099 | 1,178 | 1,256 | 1,413 | 1,570 | 1,727 | 1,884 |
| 11                   | 0,864         | 1,036 | 1,209 | 1,295 | 1,382 | 1,554 | 1,727 | 1,900 | 2,072 |
| 12                   | 0,942         | 1,130 | 1,319 | 1,413 | 1,507 | 1,696 | 1,884 | 2,072 | 2,261 |
| 13                   | 1,021         | 1,225 | 1,429 | 1,531 | 1,633 | 1,837 | 2,041 | 2,245 | 2,440 |
| 14                   | 1,099         | 1,319 | 1,539 | 1,649 | 1,758 | 1,978 | 2,198 | 2,418 | 2,638 |
| 15                   | 1,178         | 1,413 | 1,649 | 1,766 | 1,884 | 2,120 | 2,355 | 2,591 | 2,826 |
| 16                   | 1,256         | 1,507 | 1,758 | 1,884 | 2,010 | 2,261 | 2,512 | 2,763 | 3,014 |
| 17                   | 1,335         | 1,601 | 1,868 | 2,002 | 2,135 | 2,402 | 2,669 | 2,936 | 3,203 |
| 18                   | 1,413         | 1,696 | 1,978 | 2,120 | 2,261 | 2,543 | 2,826 | 3,109 | 3,391 |
| 19                   | 1,492         | 1,790 | 2,088 | 2,237 | 2,386 | 2,685 | 2,983 | 3,281 | 3,680 |
| 20                   | 1,570         | 1,884 | 2,198 | 2,355 | 2,512 | 2,826 | 3,140 | 3,454 | 3,768 |
| 21                   | 1,649         | 1,978 | 2,308 | 2,473 | 2,638 | 2,967 | 3,297 | 3,627 | 3,956 |
| 22                   | 1,727         | 2,072 | 2,418 | 2,591 | 2,673 | 3,109 | 3,454 | 3,799 | 4,145 |
| 23                   | 1,806         | 2,167 | 2,528 | 2,708 | 2,889 | 3,250 | 3,611 | 3,972 | 4,333 |
| 24                   | 1,884         | 2,261 | 2,638 | 2,826 | 3,014 | 3,391 | 3,768 | 4,145 | 4,522 |
| 25                   | 1,963         | 2,355 | 2,748 | 2,944 | 3,140 | 3,533 | 3,925 | 4,318 | 4,710 |
| 26                   | 2,041         | 2,449 | 2,857 | 3,062 | 3,266 | 3,674 | 4,082 | 4,490 | 4,898 |
| 27                   | 2,120         | 2,543 | 2,967 | 3,179 | 3,391 | 3,815 | 4,239 | 4,663 | 5,087 |
| 28                   | 2,198         | 2,638 | 3,077 | 3,297 | 3,517 | 3,956 | 4,396 | 4,836 | 5,275 |
| 29                   | 2,277         | 2,732 | 3,187 | 3,415 | 3,642 | 4,098 | 4,553 | 5,008 | 5,464 |
| 30                   | 2,355         | 2,826 | 3,297 | 3,533 | 3,768 | 4,239 | 4,710 | 5,181 | 5,652 |
| 31                   | 2,434         | 2,920 | 3,407 | 3,650 | 3,894 | 4,380 | 4,867 | 5,354 | 5,840 |
| 32                   | 2,512         | 3,014 | 3,517 | 3,768 | 4,019 | 4,522 | 5,024 | 5,526 | 6,029 |
| 33                   | 2,591         | 3,109 | 3,627 | 3,886 | 4,145 | 4,623 | 5,181 | 5,669 | 6,217 |
| 34                   | 2,669         | 3,203 | 3,737 | 4,004 | 4,270 | 4,804 | 5,338 | 5,872 | 6,406 |
| 35                   | 2,748         | 3,297 | 3,847 | 4,121 | 4,396 | 4,946 | 5,495 | 6,045 | 6,594 |
| 36                   | 2,826         | 3,391 | 3,956 | 4,239 | 4,522 | 5,087 | 5,652 | 6,217 | 6,782 |
| 37                   | 2,905         | 3,485 | 4,066 | 4,357 | 4,647 | 5,228 | 5,809 | 6,390 | 6,971 |
| 38                   | 2,983         | 3,580 | 4,176 | 4,475 | 4,773 | 5,369 | 5,966 | 6,563 | 7,159 |
| 39                   | 3,062         | 3,674 | 4,286 | 4,592 | 4,898 | 5,511 | 6,123 | 6,735 | 7,348 |
| 40                   | 3,140         | 3,768 | 4,396 | 4,710 | 5,024 | 5,652 | 6,280 | 6,908 | 7,536 |

Calidad: S275 JR.

## PLETINAS Y LLANTAS

| Espesor<br>en<br>mm. | Anchos en mm. |       |       |        |        |        |        |        |        |
|----------------------|---------------|-------|-------|--------|--------|--------|--------|--------|--------|
|                      | 25            | 26    | 28    | 30     | 32     | 34     | 35     | 36     | 38     |
| 1                    | 0,196         | 0,204 | 0,220 | 0,235  | 0,251  | 0,267  | 0,275  | 0,283  | 0,298  |
| 2                    | 0,393         | 0,408 | 0,440 | 0,471  | 0,502  | 0,534  | 0,550  | 0,565  | 0,597  |
| 3                    | 0,589         | 0,612 | 0,659 | 0,705  | 0,754  | 0,801  | 0,824  | 0,848  | 0,895  |
| 4                    | 0,785         | 0,816 | 0,879 | 0,942  | 1,005  | 1,068  | 1,099  | 1,130  | 1,193  |
| 5                    | 0,981         | 1,020 | 1,099 | 1,177  | 1,256  | 1,334  | 1,374  | 1,413  | 1,492  |
| 6                    | 1,178         | 1,225 | 1,319 | 1,413  | 1,507  | 1,601  | 1,649  | 1,696  | 1,790  |
| 7                    | 1,374         | 1,429 | 1,539 | 1,648  | 1,758  | 1,868  | 1,923  | 1,978  | 2,088  |
| 8                    | 1,570         | 1,633 | 1,758 | 1,884  | 1,010  | 2,135  | 2,198  | 2,261  | 2,386  |
| 9                    | 1,766         | 1,837 | 1,978 | 2,119  | 2,261  | 2,402  | 2,473  | 2,543  | 2,665  |
| 10                   | 1,963         | 2,041 | 2,198 | 2,355  | 2,512  | 2,669  | 2,748  | 2,826  | 2,983  |
| 11                   | 2,159         | 2,245 | 2,418 | 2,590  | 2,763  | 2,936  | 3,022  | 3,109  | 3,281  |
| 12                   | 2,355         | 2,449 | 2,638 | 2,826  | 3,014  | 3,203  | 3,297  | 3,391  | 3,580  |
| 13                   | 2,551         | 2,653 | 2,857 | 3,061  | 3,266  | 3,470  | 3,572  | 3,674  | 3,878  |
| 14                   | 2,748         | 2,857 | 3,077 | 3,297  | 3,517  | 3,737  | 3,847  | 3,956  | 4,176  |
| 15                   | 2,944         | 3,061 | 3,297 | 3,532  | 3,768  | 4,003  | 4,121  | 4,239  | 4,474  |
| 16                   | 3,140         | 3,266 | 3,517 | 3,768  | 4,019  | 4,270  | 4,396  | 4,522  | 4,773  |
| 17                   | 3,336         | 3,470 | 3,737 | 4,003  | 4,270  | 4,537  | 4,671  | 4,804  | 5,100  |
| 18                   | 3,533         | 3,674 | 3,956 | 4,239  | 4,522  | 4,804  | 4,946  | 5,087  | 5,369  |
| 19                   | 3,729         | 3,878 | 4,176 | 4,474  | 4,733  | 5,071  | 5,220  | 5,369  | 5,668  |
| 20                   | 3,925         | 4,082 | 4,396 | 4,710  | 5,024  | 5,338  | 5,495  | 5,652  | 5,966  |
| 21                   | 4,121         | 4,286 | 4,616 | 4,946  | 5,275  | 5,605  | 5,770  | 5,935  | 6,264  |
| 22                   | 4,318         | 4,490 | 4,836 | 5,181  | 5,526  | 5,872  | 6,045  | 6,217  | 6,563  |
| 23                   | 4,518         | 4,694 | 5,055 | 5,417  | 5,778  | 6,139  | 6,319  | 6,500  | 6,861  |
| 24                   | 4,710         | 4,898 | 5,275 | 5,652  | 6,029  | 6,406  | 6,594  | 6,782  | 7,159  |
| 25                   | 4,905         | 5,103 | 5,495 | 5,888  | 6,280  | 6,673  | 6,869  | 7,065  | 7,458  |
| 26                   | 5,103         | 5,307 | 5,715 | 6,123  | 6,531  | 6,939  | 7,144  | 7,348  | 7,756  |
| 27                   | 5,299         | 5,511 | 5,935 | 6,395  | 6,782  | 7,206  | 7,418  | 7,630  | 8,054  |
| 28                   | 5,495         | 5,715 | 6,154 | 6,594  | 7,034  | 7,473  | 7,693  | 7,913  | 8,352  |
| 29                   | 5,691         | 5,919 | 6,374 | 6,830  | 7,285  | 7,740  | 7,968  | 8,195  | 8,651  |
| 30                   | 5,888         | 6,123 | 6,594 | 7,065  | 7,536  | 8,007  | 8,243  | 8,478  | 8,949  |
| 31                   | 6,084         | 6,327 | 6,814 | 7,301  | 7,787  | 8,274  | 8,517  | 8,761  | 9,247  |
| 32                   | 6,280         | 6,531 | 7,034 | 7,536  | 8,038  | 8,541  | 8,792  | 9,043  | 9,546  |
| 33                   | 6,476         | 6,735 | 7,253 | 7,772  | 8,290  | 8,808  | 9,067  | 9,326  | 9,844  |
| 34                   | 6,673         | 6,939 | 7,473 | 8,007  | 8,541  | 9,075  | 9,342  | 9,608  | 10,140 |
| 35                   | 6,869         | 7,144 | 7,693 | 8,243  | 8,792  | 9,342  | 9,616  | 9,891  | 10,440 |
| 36                   | 7,065         | 7,348 | 7,913 | 8,478  | 9,043  | 9,608  | 9,891  | 10,170 | 10,740 |
| 37                   | 7,261         | 7,552 | 8,133 | 8,714  | 9,294  | 9,875  | 10,170 | 10,460 | 11,040 |
| 38                   | 7,458         | 7,756 | 8,352 | 8,949  | 9,546  | 10,140 | 10,440 | 10,740 | 11,340 |
| 39                   | 7,654         | 7,950 | 8,572 | 9,185  | 9,797  | 10,410 | 10,720 | 11,020 | 11,630 |
| 40                   | 7,850         | 8,164 | 8,792 | 9,420  | 10,050 | 10,680 | 10,990 | 11,300 | 11,930 |
| 41                   | 8,046         | 8,368 | 9,012 | 9,656  | 10,300 | 10,940 | 11,270 | 11,590 | 12,230 |
| 42                   | 8,243         | 8,572 | 9,232 | 9,891  | 10,550 | 11,210 | 11,540 | 11,870 | 12,530 |
| 43                   | 8,439         | 8,776 | 9,451 | 10,130 | 10,800 | 11,480 | 11,810 | 12,150 | 12,830 |
| 44                   | 8,635         | 8,980 | 9,671 | 10,360 | 11,050 | 11,740 | 12,085 | 12,430 | 13,130 |
| 45                   | 8,831         | 9,185 | 9,891 | 10,600 | 11,300 | 12,010 | 12,360 | 12,720 | 13,420 |

Calidad: S275 JR.

## PLETINAS Y LLANTAS

| Espesor<br>en<br>mm. | Anchos en mm. |        |        |        |        |        |        |        |        |
|----------------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                      | 40            | 42     | 44     | 45     | 46     | 48     | 50     | 52     | 54     |
| 1                    | 0,314         | 0,330  | 0,345  | 0,353  | 0,361  | 0,377  | 0,392  | 0,408  | 0,424  |
| 2                    | 0,628         | 0,659  | 0,691  | 0,707  | 0,722  | 0,754  | 0,785  | 0,816  | 0,848  |
| 3                    | 0,942         | 0,989  | 1,036  | 1,060  | 1,083  | 1,130  | 1,177  | 1,225  | 1,272  |
| 4                    | 1,256         | 1,319  | 1,382  | 1,413  | 1,444  | 1,507  | 1,570  | 1,633  | 1,696  |
| 5                    | 1,570         | 1,649  | 1,727  | 1,766  | 1,805  | 1,884  | 1,962  | 2,041  | 2,119  |
| 6                    | 1,884         | 1,978  | 2,072  | 2,120  | 2,167  | 2,261  | 2,355  | 2,449  | 2,543  |
| 7                    | 2,198         | 2,308  | 2,418  | 2,473  | 2,528  | 2,638  | 2,747  | 2,857  | 2,967  |
| 8                    | 2,512         | 2,638  | 2,763  | 2,826  | 2,889  | 3,014  | 3,140  | 3,266  | 3,391  |
| 9                    | 2,826         | 2,967  | 3,109  | 3,179  | 3,250  | 3,391  | 3,532  | 3,674  | 3,815  |
| 10                   | 3,140         | 3,297  | 3,454  | 3,533  | 3,610  | 3,768  | 3,925  | 4,082  | 4,239  |
| 11                   | 3,454         | 3,627  | 3,799  | 3,886  | 3,972  | 4,145  | 4,317  | 4,490  | 4,663  |
| 12                   | 3,768         | 3,956  | 4,145  | 4,239  | 4,333  | 4,522  | 4,710  | 4,898  | 5,087  |
| 13                   | 4,082         | 4,286  | 4,490  | 4,592  | 4,694  | 4,898  | 5,102  | 5,307  | 5,511  |
| 14                   | 4,396         | 4,616  | 4,836  | 4,946  | 5,055  | 5,275  | 5,495  | 5,715  | 5,935  |
| 15                   | 4,710         | 4,945  | 5,181  | 5,299  | 5,416  | 5,652  | 5,887  | 6,123  | 6,358  |
| 16                   | 5,024         | 5,275  | 5,526  | 5,652  | 5,778  | 6,029  | 6,280  | 6,531  | 6,782  |
| 17                   | 5,338         | 5,605  | 5,872  | 6,005  | 6,139  | 6,406  | 6,672  | 6,939  | 7,206  |
| 18                   | 5,652         | 5,935  | 6,217  | 6,359  | 6,500  | 6,782  | 7,065  | 7,348  | 7,630  |
| 19                   | 5,966         | 6,264  | 6,563  | 6,712  | 6,861  | 7,159  | 7,457  | 7,756  | 8,054  |
| 20                   | 6,280         | 6,594  | 6,908  | 7,065  | 7,222  | 7,536  | 7,850  | 8,164  | 8,478  |
| 21                   | 6,594         | 6,924  | 7,253  | 7,418  | 7,583  | 7,913  | 8,243  | 8,572  | 8,902  |
| 22                   | 6,908         | 7,253  | 7,599  | 7,772  | 7,944  | 8,290  | 8,635  | 8,980  | 9,326  |
| 23                   | 7,222         | 7,583  | 7,944  | 8,125  | 8,305  | 8,666  | 9,028  | 9,389  | 9,750  |
| 24                   | 7,536         | 7,913  | 8,290  | 8,478  | 8,666  | 9,043  | 9,420  | 9,797  | 10,174 |
| 25                   | 7,850         | 8,243  | 8,635  | 8,831  | 9,028  | 9,420  | 9,813  | 10,210 | 10,598 |
| 26                   | 8,164         | 8,572  | 8,980  | 9,185  | 9,389  | 9,797  | 10,210 | 10,613 | 11,021 |
| 27                   | 8,478         | 8,902  | 9,326  | 9,538  | 9,750  | 10,170 | 10,600 | 11,021 | 11,445 |
| 28                   | 8,792         | 9,232  | 9,671  | 9,891  | 10,110 | 10,550 | 10,990 | 11,430 | 11,869 |
| 29                   | 9,106         | 9,561  | 10,020 | 10,240 | 10,470 | 10,930 | 11,380 | 11,840 | 12,293 |
| 30                   | 9,420         | 9,891  | 10,360 | 10,600 | 10,830 | 11,300 | 11,780 | 12,250 | 12,717 |
| 31                   | 9,734         | 10,220 | 10,710 | 10,950 | 11,190 | 11,680 | 12,170 | 12,654 | 13,141 |
| 32                   | 10,050        | 10,550 | 11,050 | 11,300 | 11,560 | 12,060 | 12,560 | 13,062 | 13,565 |
| 33                   | 10,360        | 10,880 | 11,400 | 11,660 | 11,920 | 12,430 | 12,950 | 13,471 | 13,989 |
| 34                   | 10,680        | 11,210 | 11,740 | 12,010 | 12,280 | 12,810 | 13,350 | 13,880 | 14,413 |
| 35                   | 10,990        | 11,540 | 12,090 | 12,360 | 12,640 | 13,190 | 13,740 | 14,287 | 14,840 |
| 36                   | 11,300        | 11,870 | 12,430 | 12,720 | 13,000 | 13,570 | 14,130 | 14,695 | 15,260 |
| 37                   | 11,620        | 12,200 | 12,780 | 13,070 | 13,360 | 13,940 | 14,520 | 15,103 | 15,684 |
| 38                   | 11,930        | 12,530 | 13,130 | 13,420 | 13,720 | 14,320 | 14,920 | 15,512 | 16,110 |
| 39                   | 12,250        | 12,860 | 13,470 | 13,780 | 14,080 | 14,700 | 15,310 | 15,920 | 16,532 |
| 40                   | 12,560        | 13,190 | 13,820 | 14,130 | 14,440 | 15,070 | 15,700 | 16,330 | 16,956 |
| 41                   | 12,870        | 13,520 | 14,160 | 14,480 | 14,810 | 15,450 | 16,090 | 16,740 | 17,380 |
| 42                   | 13,190        | 13,850 | 14,510 | 14,840 | 15,170 | 15,830 | 16,490 | 17,144 | 17,804 |
| 43                   | 13,500        | 14,180 | 14,860 | 15,190 | 15,530 | 16,200 | 16,880 | 17,553 | 18,230 |
| 44                   | 13,820        | 14,510 | 15,200 | 15,540 | 15,890 | 16,580 | 17,270 | 17,961 | 18,652 |
| 45                   | 14,130        | 14,840 | 15,540 | 15,900 | 16,250 | 16,960 | 17,660 | 18,369 | 19,076 |

Calidad: S275 JR.



## PLETINAS Y LLANTAS

| Espesor<br>en<br>mm. | Anchos en mm. |        |        |        |        |        |        |        |        |
|----------------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                      | 55            | 56     | 58     | 60     | 62     | 64     | 65     | 70     | 75     |
| 1                    | 0,432         | 0,440  | 0,455  | 0,471  | 0,487  | 0,502  | 0,510  | 0,549  | 0,589  |
| 2                    | 0,864         | 0,879  | 0,911  | 0,942  | 0,973  | 1,005  | 1,021  | 1,099  | 1,177  |
| 3                    | 1,295         | 1,319  | 1,336  | 1,413  | 1,460  | 1,507  | 1,531  | 1,648  | 1,766  |
| 4                    | 1,727         | 1,758  | 1,821  | 1,884  | 1,947  | 2,010  | 2,041  | 2,198  | 2,355  |
| 5                    | 2,159         | 2,198  | 2,276  | 2,355  | 2,433  | 2,512  | 2,551  | 2,747  | 2,944  |
| 6                    | 2,591         | 2,638  | 2,732  | 2,826  | 2,920  | 3,014  | 3,062  | 3,297  | 3,532  |
| 7                    | 3,022         | 3,077  | 3,187  | 3,297  | 3,407  | 3,517  | 3,572  | 3,846  | 4,121  |
| 8                    | 3,454         | 3,517  | 3,642  | 3,768  | 3,894  | 4,019  | 4,082  | 4,396  | 4,710  |
| 9                    | 3,886         | 3,956  | 4,098  | 4,203  | 4,380  | 4,522  | 4,592  | 4,945  | 5,299  |
| 10                   | 4,318         | 4,396  | 4,553  | 4,710  | 4,867  | 5,024  | 5,103  | 5,495  | 5,887  |
| 11                   | 4,749         | 4,836  | 5,008  | 5,181  | 5,354  | 5,526  | 5,613  | 6,044  | 6,476  |
| 12                   | 5,181         | 5,275  | 5,464  | 5,652  | 5,840  | 6,029  | 6,123  | 6,594  | 7,065  |
| 13                   | 5,613         | 5,715  | 5,919  | 6,123  | 6,327  | 6,531  | 6,633  | 7,143  | 7,654  |
| 14                   | 6,045         | 6,154  | 6,374  | 6,594  | 6,814  | 7,034  | 7,144  | 7,693  | 8,242  |
| 15                   | 6,476         | 6,594  | 6,829  | 7,065  | 7,300  | 7,536  | 7,654  | 8,242  | 8,831  |
| 16                   | 6,908         | 7,034  | 7,285  | 7,536  | 7,787  | 8,038  | 8,164  | 8,792  | 9,420  |
| 17                   | 7,340         | 7,473  | 7,740  | 8,007  | 8,274  | 8,541  | 8,674  | 9,341  | 10,010 |
| 18                   | 7,772         | 7,913  | 8,195  | 8,478  | 8,761  | 9,043  | 9,185  | 9,891  | 10,600 |
| 19                   | 8,203         | 8,352  | 8,651  | 8,949  | 9,247  | 9,546  | 9,695  | 10,440 | 11,190 |
| 20                   | 8,635         | 8,792  | 9,106  | 9,420  | 9,734  | 10,050 | 10,210 | 10,990 | 11,780 |
| 21                   | 9,067         | 9,232  | 9,561  | 9,891  | 10,221 | 10,550 | 10,720 | 11,540 | 12,360 |
| 22                   | 9,499         | 9,671  | 10,017 | 10,360 | 10,707 | 11,053 | 11,230 | 12,090 | 12,950 |
| 23                   | 9,930         | 10,111 | 10,472 | 10,830 | 11,194 | 11,560 | 11,740 | 12,640 | 13,540 |
| 24                   | 10,360        | 10,550 | 10,927 | 11,300 | 11,681 | 12,058 | 12,250 | 13,190 | 14,130 |
| 25                   | 10,790        | 10,990 | 11,383 | 11,780 | 12,168 | 12,560 | 12,760 | 13,740 | 14,720 |
| 26                   | 11,230        | 11,430 | 11,838 | 12,250 | 12,654 | 13,062 | 13,270 | 14,290 | 15,310 |
| 27                   | 11,660        | 11,870 | 12,293 | 12,720 | 13,141 | 13,565 | 13,780 | 14,840 | 15,900 |
| 28                   | 12,090        | 12,310 | 12,748 | 13,190 | 13,628 | 14,067 | 14,200 | 15,390 | 16,490 |
| 29                   | 12,520        | 12,750 | 13,204 | 13,660 | 14,114 | 14,570 | 14,800 | 15,940 | 17,070 |
| 30                   | 12,950        | 13,188 | 13,659 | 14,130 | 14,601 | 15,072 | 15,310 | 16,490 | 17,660 |
| 31                   | 13,380        | 13,630 | 14,114 | 14,600 | 15,088 | 15,574 | 15,820 | 17,040 | 18,250 |
| 32                   | 13,820        | 14,067 | 14,570 | 15,070 | 15,574 | 16,077 | 16,330 | 17,580 | 18,840 |
| 33                   | 14,250        | 14,501 | 15,025 | 15,540 | 16,061 | 16,579 | 16,840 | 18,130 | 19,430 |
| 34                   | 14,680        | 14,950 | 15,480 | 16,010 | 16,548 | 17,082 | 17,350 | 18,680 | 20,020 |
| 35                   | 15,110        | 15,386 | 15,936 | 16,490 | 17,035 | 17,584 | 17,800 | 19,230 | 20,610 |
| 36                   | 15,540        | 15,826 | 16,391 | 16,960 | 17,521 | 18,086 | 18,370 | 19,780 | 21,200 |
| 37                   | 15,980        | 16,265 | 16,846 | 17,430 | 18,008 | 18,589 | 18,880 | 20,330 | 21,780 |
| 38                   | 16,410        | 16,705 | 17,301 | 17,900 | 18,495 | 19,091 | 19,390 | 20,880 | 22,370 |
| 39                   | 16,840        | 17,144 | 17,757 | 18,370 | 18,981 | 19,594 | 19,900 | 21,430 | 22,960 |
| 40                   | 17,270        | 17,584 | 18,212 | 18,840 | 19,468 | 20,096 | 20,410 | 21,980 | 23,550 |
| 41                   | 17,700        | 18,024 | 18,667 | 19,310 | 19,955 | 20,598 | 20,900 | 22,530 | 24,140 |
| 42                   | 18,130        | 18,463 | 19,123 | 19,780 | 20,441 | 21,101 | 21,430 | 23,080 | 24,730 |
| 43                   | 18,570        | 18,903 | 19,578 | 20,250 | 20,928 | 21,603 | 21,940 | 23,630 | 25,320 |
| 44                   | 19,000        | 19,342 | 20,033 | 20,720 | 21,415 | 22,106 | 22,450 | 24,180 | 25,910 |
| 45                   | 19,430        | 19,782 | 20,489 | 21,200 | 21,902 | 22,606 | 22,960 | 24,730 | 26,490 |



## PLETINAS Y LLANTAS

| Espesor<br>en<br>mm. | Anchos en mm. |        |        |        |        |        |        |        |        |
|----------------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                      | 80            | 85     | 90     | 95     | 100    | 110    | 120    | 130    | 140    |
| 1                    | 0,628         | 0,667  | 0,707  | 0,746  | 0,785  | 0,864  | 0,942  | 1,021  | 1,099  |
| 2                    | 1,256         | 1,335  | 1,413  | 1,492  | 1,570  | 1,727  | 1,884  | 2,041  | 2,198  |
| 3                    | 1,884         | 2,002  | 2,120  | 2,237  | 2,355  | 2,591  | 2,826  | 3,062  | 3,297  |
| 4                    | 2,512         | 2,669  | 2,826  | 2,983  | 3,140  | 3,454  | 3,768  | 4,082  | 4,396  |
| 5                    | 3,140         | 3,336  | 3,532  | 3,729  | 3,925  | 4,317  | 4,710  | 5,103  | 5,495  |
| 6                    | 3,768         | 4,003  | 4,230  | 4,474  | 4,710  | 5,181  | 5,652  | 6,123  | 6,594  |
| 7                    | 4,396         | 4,671  | 4,946  | 5,220  | 5,495  | 6,044  | 6,594  | 7,144  | 7,693  |
| 8                    | 5,024         | 5,338  | 5,652  | 5,966  | 6,280  | 6,908  | 7,536  | 8,164  | 8,792  |
| 9                    | 5,652         | 6,005  | 6,358  | 6,712  | 7,065  | 7,771  | 8,478  | 9,185  | 9,891  |
| 10                   | 6,280         | 6,672  | 7,065  | 7,457  | 7,850  | 8,635  | 9,420  | 10,210 | 10,990 |
| 11                   | 6,908         | 7,340  | 7,771  | 8,203  | 8,635  | 9,498  | 10,360 | 11,230 | 12,090 |
| 12                   | 7,536         | 8,007  | 8,478  | 8,949  | 9,420  | 10,360 | 11,300 | 12,250 | 13,190 |
| 13                   | 8,164         | 8,674  | 9,184  | 9,695  | 10,200 | 11,230 | 12,250 | 13,270 | 14,290 |
| 14                   | 8,792         | 9,341  | 9,891  | 10,440 | 10,990 | 12,090 | 13,190 | 14,290 | 15,390 |
| 15                   | 9,420         | 10,010 | 10,600 | 11,190 | 11,770 | 12,950 | 14,130 | 15,310 | 16,490 |
| 16                   | 10,050        | 10,680 | 11,300 | 11,930 | 12,560 | 13,820 | 15,070 | 16,330 | 17,580 |
| 17                   | 10,680        | 11,340 | 12,010 | 12,680 | 13,350 | 14,680 | 16,010 | 17,350 | 18,680 |
| 18                   | 11,300        | 12,010 | 12,720 | 13,420 | 14,130 | 15,540 | 16,960 | 18,370 | 19,780 |
| 19                   | 11,930        | 12,680 | 13,420 | 14,170 | 14,920 | 16,410 | 17,900 | 19,390 | 20,880 |
| 20                   | 12,560        | 13,350 | 14,130 | 14,920 | 15,700 | 17,270 | 18,840 | 20,410 | 21,980 |
| 21                   | 13,190        | 14,010 | 14,840 | 15,660 | 16,490 | 18,130 | 19,780 | 21,430 | 23,060 |
| 22                   | 13,820        | 14,680 | 15,540 | 16,410 | 17,270 | 19,000 | 20,720 | 22,450 | 24,180 |
| 23                   | 14,440        | 15,350 | 16,250 | 17,150 | 18,060 | 19,860 | 21,670 | 23,470 | 25,280 |
| 24                   | 15,070        | 16,010 | 16,960 | 17,900 | 18,840 | 20,720 | 22,610 | 24,490 | 26,380 |
| 25                   | 15,700        | 16,680 | 17,660 | 18,640 | 19,630 | 21,590 | 23,550 | 25,510 | 27,480 |
| 26                   | 16,330        | 17,350 | 18,370 | 19,390 | 20,410 | 22,450 | 24,490 | 26,530 | 28,570 |
| 27                   | 16,960        | 18,020 | 19,080 | 20,140 | 21,200 | 23,310 | 25,430 | 27,550 | 29,670 |
| 28                   | 17,580        | 18,680 | 19,780 | 20,880 | 21,980 | 24,180 | 26,380 | 28,570 | 30,770 |
| 29                   | 18,210        | 19,350 | 20,490 | 21,630 | 22,770 | 25,040 | 27,320 | 29,600 | 31,870 |
| 30                   | 18,840        | 20,020 | 21,200 | 22,370 | 23,550 | 25,910 | 28,260 | 30,620 | 32,970 |
| 31                   | 19,470        | 20,680 | 21,900 | 23,120 | 24,340 | 26,770 | 29,200 | 31,640 | 34,070 |
| 32                   | 20,100        | 21,350 | 22,610 | 23,850 | 25,120 | 27,630 | 30,140 | 32,660 | 35,170 |
| 33                   | 20,720        | 22,020 | 23,310 | 24,610 | 25,910 | 28,500 | 31,090 | 33,680 | 36,270 |
| 34                   | 21,350        | 22,690 | 24,020 | 25,360 | 26,690 | 29,360 | 32,030 | 34,700 | 37,370 |
| 35                   | 21,980        | 23,350 | 24,730 | 26,100 | 27,480 | 30,220 | 32,970 | 35,720 | 38,470 |
| 36                   | 22,610        | 24,020 | 25,430 | 26,850 | 28,260 | 31,090 | 33,910 | 36,740 | 39,560 |
| 37                   | 23,240        | 24,690 | 26,140 | 27,590 | 29,050 | 31,950 | 34,850 | 37,760 | 40,660 |
| 38                   | 23,860        | 25,360 | 26,850 | 28,340 | 29,830 | 32,810 | 35,800 | 38,780 | 41,760 |
| 39                   | 24,490        | 26,020 | 27,550 | 29,080 | 30,620 | 33,680 | 36,740 | 39,800 | 42,860 |
| 40                   | 25,120        | 26,690 | 28,260 | 29,830 | 31,400 | 34,540 | 37,680 | 40,820 | 43,960 |
| 41                   | 25,750        | 27,360 | 28,970 | 30,580 | 32,190 | 35,400 | 38,620 | 41,840 | 45,060 |
| 42                   | 26,380        | 28,030 | 29,670 | 31,320 | 33,070 | 36,270 | 39,560 | 42,860 | 46,160 |
| 43                   | 27,000        | 28,690 | 30,380 | 32,070 | 33,760 | 37,130 | 40,510 | 43,880 | 47,260 |
| 44                   | 27,630        | 29,360 | 31,090 | 32,810 | 34,540 | 37,990 | 41,450 | 44,900 | 48,360 |
| 45                   | 28,260        | 30,030 | 31,790 | 33,560 | 35,330 | 38,860 | 42,390 | 45,920 | 49,460 |

Calidad: S275 JR.

## PLETINAS Y LLANTAS

| Espesor<br>en<br>mm. | Anchos en mm. |        |        |        |        |        |        |        |        |
|----------------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                      | 150           | 160    | 170    | 180    | 190    | 200    | 210    | 220    | 230    |
| 1                    | 1,178         | 1,256  | 1,335  | 1,413  | 1,492  | 1,570  | 1,649  | 1,727  | 1,806  |
| 2                    | 2,355         | 2,512  | 2,670  | 2,826  | 2,983  | 3,140  | 3,297  | 3,454  | 3,612  |
| 3                    | 3,533         | 3,768  | 4,004  | 4,239  | 4,475  | 4,710  | 4,946  | 5,181  | 5,417  |
| 4                    | 4,710         | 5,024  | 5,338  | 5,652  | 5,966  | 6,280  | 6,595  | 6,98   | 7,222  |
| 5                    | 5,887         | 6,280  | 6,673  | 7,065  | 7,458  | 7,850  | 8,243  | 8,635  | 9,028  |
| 6                    | 7,065         | 7,563  | 8,007  | 8,478  | 8,949  | 9,420  | 9,891  | 10,362 | 10,830 |
| 7                    | 8,242         | 8,792  | 9,342  | 9,891  | 10,440 | 10,990 | 11,540 | 12,089 | 12,640 |
| 8                    | 9,420         | 10,050 | 10,680 | 11,300 | 11,930 | 12,560 | 13,190 | 13,816 | 14,440 |
| 9                    | 10,600        | 11,300 | 12,010 | 12,720 | 13,420 | 14,130 | 14,840 | 15,543 | 16,250 |
| 10                   | 11,770        | 12,560 | 13,350 | 14,130 | 14,920 | 15,700 | 16,490 | 17,270 | 18,060 |
| 11                   | 12,950        | 13,820 | 14,680 | 15,540 | 16,410 | 17,270 | 18,130 | 18,997 | 19,360 |
| 12                   | 14,130        | 15,070 | 16,010 | 16,960 | 17,900 | 18,340 | 19,780 | 20,724 | 21,670 |
| 13                   | 15,310        | 16,330 | 17,350 | 18,370 | 19,390 | 20,410 | 21,430 | 22,451 | 23,470 |
| 14                   | 16,480        | 17,580 | 18,680 | 19,780 | 20,880 | 21,980 | 23,080 | 24,178 | 25,280 |
| 15                   | 17,650        | 18,840 | 20,020 | 21,200 | 22,370 | 23,550 | 24,730 | 25,905 | 27,080 |
| 16                   | 18,840        | 20,100 | 21,350 | 22,610 | 23,860 | 25,120 | 26,380 | 27,632 | 28,890 |
| 17                   | 20,020        | 21,250 | 22,690 | 24,020 | 25,360 | 26,690 | 28,020 | 29,359 | 30,690 |
| 18                   | 21,200        | 22,610 | 24,020 | 25,430 | 26,850 | 28,260 | 29,670 | 31,086 | 32,500 |
| 19                   | 22,370        | 23,960 | 25,360 | 26,850 | 28,340 | 29,830 | 31,320 | 32,813 | 34,300 |
| 20                   | 23,550        | 25,120 | 26,690 | 28,260 | 29,830 | 31,400 | 32,970 | 34,540 | 36,110 |
| 21                   | 24,730        | 26,380 | 28,020 | 29,670 | 31,320 | 32,970 | 34,620 | 36,270 | 37,920 |
| 22                   | 25,910        | 27,630 | 29,360 | 31,090 | 32,810 | 34,540 | 36,270 | 37,994 | 39,720 |
| 23                   | 27,080        | 28,890 | 30,690 | 32,500 | 34,310 | 36,110 | 37,920 | 39,468 | 41,530 |
| 24                   | 28,260        | 30,140 | 32,030 | 33,910 | 35,800 | 37,680 | 39,560 | 41,184 | 43,330 |
| 25                   | 29,440        | 31,400 | 33,360 | 35,330 | 37,290 | 39,250 | 41,210 | 42,900 | 45,140 |
| 26                   | 30,610        | 32,660 | 34,700 | 36,740 | 38,780 | 40,280 | 42,860 | 44,902 | 46,940 |
| 27                   | 31,790        | 33,910 | 36,030 | 38,150 | 40,270 | 42,390 | 44,510 | 46,630 | 48,750 |
| 28                   | 32,970        | 35,170 | 37,370 | 39,550 | 41,760 | 43,960 | 46,160 | 48,360 | 50,550 |
| 29                   | 34,150        | 36,420 | 38,700 | 40,980 | 43,250 | 45,530 | 47,810 | 50,083 | 52,360 |
| 30                   | 35,330        | 37,680 | 40,040 | 42,390 | 44,750 | 47,100 | 49,460 | 51,810 | 54,170 |
| 31                   | 36,500        | 38,940 | 41,370 | 43,800 | 46,240 | 48,670 | 51,100 | 53,540 | 55,970 |
| 32                   | 37,680        | 40,190 | 42,700 | 45,220 | 47,730 | 50,240 | 52,750 | 55,264 | 57,780 |
| 33                   | 38,860        | 41,450 | 44,040 | 47,630 | 49,220 | 51,810 | 54,400 | 56,991 | 59,580 |
| 34                   | 40,040        | 42,700 | 45,370 | 48,040 | 50,710 | 53,380 | 56,050 | 58,720 | 61,390 |
| 35                   | 41,210        | 43,960 | 46,710 | 49,960 | 52,200 | 54,950 | 57,700 | 60,450 | 63,190 |
| 36                   | 42,390        | 45,220 | 48,040 | 50,870 | 53,690 | 56,520 | 59,350 | 62,172 | 64,990 |
| 37                   | 43,570        | 46,470 | 49,380 | 52,280 | 55,190 | 58,090 | 60,990 | 63,899 | 65,800 |
| 38                   | 44,750        | 47,730 | 50,710 | 53,690 | 56,680 | 59,660 | 62,640 | 65,630 | 68,610 |
| 39                   | 45,920        | 48,980 | 52,050 | 55,110 | 58,170 | 61,230 | 64,290 | 67,353 | 70,410 |
| 40                   | 47,100        | 50,240 | 53,380 | 56,520 | 59,660 | 62,800 | 65,940 | 69,080 | 72,220 |
| 41                   | 48,280        | 51,500 | 54,720 | 57,930 | 61,150 | 64,370 | 67,590 | 70,810 | 74,030 |
| 42                   | 49,460        | 52,750 | 56,050 | 59,350 | 62,640 | 65,940 | 69,240 | 72,534 | 75,830 |
| 43                   | 50,630        | 54,010 | 57,380 | 60,760 | 64,140 | 67,510 | 70,890 | 74,261 | 77,640 |
| 44                   | 51,810        | 55,260 | 58,720 | 62,170 | 65,630 | 69,080 | 72,530 | 75,998 | 79,440 |
| 45                   | 52,990        | 56,520 | 60,050 | 63,590 | 67,120 | 70,650 | 74,180 | 77,720 | 81,250 |

Calidad: S275 JR.

## PLETINAS Y LLANTAS

| Espesor<br>en<br>mm. | Anchos en mm. |        |        |        |        |         |         |         |         |
|----------------------|---------------|--------|--------|--------|--------|---------|---------|---------|---------|
|                      | 240           | 250    | 260    | 270    | 280    | 290     | 300     | 310     | 320     |
| 1                    | 1,884         | 1,963  | 2,041  | 2,119  | 2,198  | 2,277   | 2,355   | 2,434   | 2,512   |
| 2                    | 3,768         | 3,925  | 4,082  | 4,238  | 4,396  | 4,553   | 4,710   | 4,867   | 5,024   |
| 3                    | 5,652         | 5,887  | 6,123  | 6,357  | 6,594  | 6,829   | 7,065   | 7,300   | 7,536   |
| 4                    | 7,536         | 7,850  | 8,164  | 8,476  | 8,792  | 9,106   | 9,420   | 9,734   | 10,048  |
| 5                    | 9,420         | 9,810  | 10,205 | 10,595 | 10,990 | 11,382  | 11,775  | 12,167  | 12,560  |
| 6                    | 11,304        | 11,775 | 12,246 | 12,714 | 13,188 | 13,659  | 14,130  | 14,601  | 15,072  |
| 7                    | 13,188        | 13,737 | 14,287 | 14,833 | 15,386 | 15,935  | 16,485  | 17,034  | 17,584  |
| 8                    | 15,072        | 15,700 | 16,328 | 16,952 | 17,584 | 18,212  | 18,840  | 19,468  | 20,096  |
| 9                    | 16,956        | 17,662 | 18,369 | 19,071 | 19,782 | 20,488  | 21,195  | 21,901  | 22,608  |
| 10                   | 18,840        | 19,625 | 20,410 | 21,191 | 21,980 | 22,765  | 23,550  | 24,335  | 25,120  |
| 11                   | 20,724        | 21,587 | 22,451 | 23,309 | 24,178 | 25,041  | 25,905  | 26,768  | 27,632  |
| 12                   | 22,608        | 23,550 | 24,492 | 25,428 | 26,376 | 27,318  | 28,260  | 29,202  | 30,144  |
| 13                   | 24,492        | 25,512 | 26,533 | 27,547 | 28,574 | 29,594  | 30,615  | 31,635  | 32,656  |
| 14                   | 26,376        | 27,475 | 28,574 | 29,666 | 30,772 | 31,871  | 32,970  | 34,069  | 35,168  |
| 15                   | 28,260        | 29,437 | 30,615 | 31,785 | 32,970 | 34,147  | 35,325  | 36,502  | 37,680  |
| 16                   | 30,144        | 31,400 | 32,656 | 33,904 | 35,168 | 36,424  | 37,680  | 38,936  | 40,195  |
| 17                   | 32,028        | 33,362 | 34,697 | 36,023 | 37,366 | 38,700  | 40,035  | 41,369  | 42,704  |
| 18                   | 33,912        | 35,325 | 36,738 | 38,142 | 39,564 | 40,977  | 42,390  | 43,803  | 45,216  |
| 19                   | 35,796        | 37,287 | 38,779 | 40,261 | 41,762 | 43,253  | 44,745  | 46,236  | 47,728  |
| 20                   | 37,680        | 39,250 | 40,820 | 42,380 | 43,960 | 45,530  | 47,100  | 48,670  | 50,240  |
| 21                   | 39,564        | 41,212 | 42,861 | 44,499 | 46,158 | 47,806  | 49,455  | 51,103  | 52,752  |
| 22                   | 41,448        | 43,175 | 44,902 | 46,618 | 48,356 | 50,083  | 51,810  | 53,537  | 55,264  |
| 23                   | 43,332        | 45,137 | 46,943 | 48,737 | 50,554 | 52,359  | 54,165  | 55,970  | 57,776  |
| 24                   | 45,216        | 47,100 | 48,984 | 50,856 | 52,752 | 54,636  | 56,520  | 58,404  | 60,288  |
| 25                   | 47,100        | 49,062 | 51,025 | 52,975 | 54,950 | 56,912  | 58,875  | 60,837  | 62,800  |
| 26                   | 48,984        | 51,025 | 53,066 | 55,094 | 57,148 | 59,189  | 61,230  | 63,271  | 65,312  |
| 27                   | 50,868        | 52,987 | 55,107 | 57,213 | 59,346 | 61,465  | 63,585  | 65,704  | 67,824  |
| 28                   | 52,752        | 54,950 | 57,148 | 59,332 | 61,544 | 63,742  | 65,940  | 68,138  | 70,336  |
| 29                   | 54,636        | 56,912 | 59,189 | 61,451 | 63,742 | 66,018  | 68,295  | 70,571  | 72,848  |
| 30                   | 56,520        | 58,875 | 61,230 | 63,570 | 65,940 | 68,295  | 70,650  | 73,005  | 75,360  |
| 31                   | 58,404        | 60,837 | 63,271 | 65,689 | 68,138 | 70,571  | 73,005  | 75,438  | 77,872  |
| 32                   | 60,288        | 62,800 | 65,312 | 67,808 | 70,336 | 72,848  | 75,360  | 77,872  | 80,384  |
| 33                   | 62,172        | 64,762 | 67,353 | 69,927 | 72,534 | 75,124  | 77,715  | 80,305  | 82,896  |
| 34                   | 64,056        | 66,725 | 69,394 | 72,046 | 74,732 | 77,401  | 80,070  | 82,739  | 85,408  |
| 35                   | 65,940        | 68,687 | 71,435 | 74,165 | 76,930 | 79,677  | 82,425  | 85,172  | 87,920  |
| 36                   | 67,824        | 70,650 | 73,476 | 76,284 | 79,128 | 81,954  | 84,780  | 87,606  | 90,432  |
| 37                   | 69,708        | 72,612 | 75,517 | 78,403 | 81,326 | 84,230  | 87,135  | 90,039  | 92,944  |
| 38                   | 71,592        | 74,575 | 77,558 | 80,522 | 83,524 | 86,507  | 89,490  | 92,473  | 95,456  |
| 39                   | 73,476        | 76,537 | 79,599 | 82,641 | 85,722 | 88,783  | 91,845  | 94,906  | 97,968  |
| 40                   | 75,360        | 78,500 | 81,640 | 84,760 | 87,920 | 91,060  | 94,200  | 97,340  | 100,480 |
| 41                   | 77,244        | 80,462 | 83,681 | 86,879 | 90,118 | 93,336  | 96,555  | 99,773  | 102,992 |
| 42                   | 79,128        | 82,425 | 85,722 | 88,998 | 92,316 | 95,613  | 98,910  | 102,207 | 105,504 |
| 43                   | 81,012        | 84,387 | 87,763 | 91,117 | 94,514 | 97,889  | 101,265 | 104,640 | 108,016 |
| 44                   | 82,896        | 86,350 | 89,804 | 93,236 | 96,712 | 100,166 | 103,620 | 107,074 | 110,528 |
| 45                   | 84,780        | 88,312 | 91,845 | 95,355 | 98,910 | 102,442 | 105,975 | 109,507 | 113,040 |

Calidad: S275 JR.

## LLANTA BULBO

(Llantas con nervio - construcción naval)



| Designación del Perfil | Peso Kg / m | MEDIDAS EN (mm) |      |      |                | Sección cm <sup>2</sup> | Superficie m <sup>2</sup> / m |
|------------------------|-------------|-----------------|------|------|----------------|-------------------------|-------------------------------|
|                        |             | b               | e    | c    | r <sub>1</sub> |                         |                               |
| 60 x 4                 | 2,81        | 60              | 4    | 13,0 | 3,5            | 3,58                    | 0,146                         |
| 60 x 5                 | 3,28        | 60              | 5    | 13,0 | 3,5            | 4,18                    | 0,148                         |
| 60 x 6                 | 3,75        | 60              | 6    | 13,0 | 3,5            | 4,78                    | 0,150                         |
| 80 x 5                 | 4,25        | 80              | 5    | 14,0 | 4,0            | 5,41                    | 0,189                         |
| 80 x 6                 | 4,88        | 80              | 6    | 14,0 | 4,0            | 6,21                    | 0,191                         |
| 80 x 7                 | 5,50        | 80              | 7    | 14,0 | 4,0            | 7,00                    | 0,194                         |
| 80 x 8                 | 6,12        | 80              | 8    | 14,0 | 4,0            | 7,80                    | 0,196                         |
| 100 x 6                | 6,08        | 100             | 6    | 15,5 | 4,5            | 7,74                    | 0,234                         |
| 100 x 7                | 6,86        | 100             | 7    | 15,5 | 4,5            | 8,74                    | 0,236                         |
| 100 x 8                | 7,65        | 100             | 8    | 15,5 | 4,5            | 9,74                    | 0,238                         |
| 120 x 6                | 7,32        | 120             | 6    | 17,0 | 5,0            | 9,32                    | 0,276                         |
| 120 x 7                | 8,26        | 120             | 7    | 17,0 | 5,0            | 10,52                   | 0,278                         |
| 120 x 8                | 9,20        | 120             | 8    | 17,0 | 5,0            | 11,72                   | 0,280                         |
| 140 x 6,5              | 9,21        | 140             | 6,5  | 19,0 | 5,5            | 11,70                   | 0,319                         |
| 140 x 7                | 9,75        | 140             | 7    | 19,0 | 5,5            | 12,43                   | 0,320                         |
| 140 x 8                | 10,85       | 140             | 8    | 19,0 | 5,5            | 13,83                   | 0,322                         |
| 140 x 9                | 11,90       | 140             | 9    | 19,0 | 5,5            | 15,20                   | 0,324                         |
| 140 x 10               | 13,00       | 140             | 10   | 19,0 | 5,5            | 16,60                   | 0,326                         |
| 160 x 7                | 11,46       | 160             | 7    | 22,0 | 6,0            | 14,60                   | 0,365                         |
| 160 x 8                | 12,72       | 160             | 8    | 22,0 | 6,0            | 16,20                   | 0,367                         |
| 160 x 9                | 13,97       | 160             | 9    | 22,0 | 6,0            | 17,80                   | 0,369                         |
| 160 x 11,5             | 17,30       | 160             | 11,5 | 22,0 | 6,0            | 21,80                   | 0,374                         |
| 180 x 8                | 14,80       | 180             | 8    | 25,0 | 7,0            | 18,86                   | 0,411                         |
| 180 x 9                | 16,22       | 180             | 9    | 25,0 | 7,0            | 20,66                   | 0,413                         |
| 180 x 10               | 17,63       | 180             | 10   | 25,0 | 7,0            | 22,46                   | 0,415                         |
| 180 x 11               | 19,04       | 180             | 11   | 25,0 | 7,0            | 24,26                   | 0,417                         |
| 180 x 11,5             | 19,70       | 180             | 11,5 | 25,0 | 7,0            | 25,20                   | 0,418                         |
| 200 x 8,5              | 17,80       | 200             | 8,5  | 28,0 | 8,0            | 22,60                   | 0,456                         |
| 200 x 9                | 18,50       | 200             | 9    | 28,0 | 8,0            | 23,60                   | 0,457                         |
| 200 x 10               | 20,10       | 200             | 10   | 28,0 | 8,0            | 25,60                   | 0,459                         |
| 200 x 11               | 21,70       | 200             | 11   | 28,0 | 8,0            | 27,60                   | 0,461                         |
| 200 x 12               | 23,20       | 200             | 12   | 28,0 | 8,0            | 29,60                   | 0,462                         |



| Designación<br>del Perfil | Peso<br>kg / m | MEDIDAS EN (mm) |      |      |                | Peso<br>cm² | Superficie<br>m² / m |
|---------------------------|----------------|-----------------|------|------|----------------|-------------|----------------------|
|                           |                | b               | e    | c    | r <sub>1</sub> |             |                      |
| 220 x 9                   | 21,00          | 220             | 9    | 31,0 | 9,0            | 26,80       | 0,501                |
| 220 x 10                  | 22,80          | 220             | 10   | 31,0 | 9,0            | 29,00       | 0,503                |
| 220 x 11                  | 24,50          | 220             | 11   | 31,0 | 9,0            | 31,20       | 0,505                |
| 220 x 12                  | 26,20          | 220             | 12   | 31,0 | 9,0            | 33,40       | 0,507                |
| 240 x 9,5                 | 24,40          | 240             | 9,5  | 34,0 | 10,0           | 31,20       | 0,546                |
| 240 x 10                  | 25,40          | 240             | 10   | 34,0 | 10,0           | 23,40       | 0,547                |
| 240 x 11                  | 27,40          | 240             | 11   | 34,0 | 10,0           | 34,90       | 0,549                |
| 240 x 12                  | 29,30          | 240             | 12   | 34,0 | 10,0           | 37,30       | 0,551                |
| 260 x 10                  | 28,30          | 260             | 10   | 37,0 | 11,0           | 36,10       | 0,593                |
| 260 x 11                  | 30,30          | 260             | 11   | 37,0 | 11,0           | 38,70       | 0,593                |
| 260 x 12                  | 32,40          | 260             | 12   | 37,0 | 11,0           | 41,30       | 0,595                |
| 280 x 10,5                | 32,40          | 280             | 10,5 | 40,0 | 12,0           | 41,20       | 0,636                |
| 280 x 11                  | 33,50          | 280             | 11   | 40,0 | 12,0           | 42,60       | 0,637                |
| 280 x 12                  | 35,70          | 280             | 12   | 40,0 | 12,0           | 45,50       | 0,639                |
| 280 x 13                  | 37,90          | 280             | 13   | 40,0 | 12,0           | 48,40       | 0,641                |
| 300 x 11                  | 36,70          | 300             | 11   | 43,0 | 13,0           | 46,70       | 0,681                |
| 300 x 12                  | 39,00          | 300             | 12   | 43,0 | 13,0           | 49,70       | 0,683                |
| 300 x 13                  | 41,50          | 300             | 13   | 43,0 | 13,0           | 52,80       | 0,685                |
| 320 x 11,5                | 41,20          | 320             | 11,5 | 46,0 | 14,0           | 52,60       | 0,727                |
| 320 x 12                  | 42,50          | 320             | 12   | 46,0 | 14,0           | 54,20       | 0,728                |
| 320 x 13                  | 45,00          | 320             | 13   | 46,0 | 14,0           | 57,40       | 0,730                |
| 320 x 14                  | 47,50          | 320             | 14   | 46,0 | 14,0           | 60,60       | 0,732                |
| 340 x 12                  | 46,10          | 340             | 12   | 49,0 | 15,0           | 58,80       | 0,772                |
| 340 x 13                  | 48,80          | 340             | 13   | 49,0 | 15,0           | 62,20       | 0,774                |
| 340 x 14                  | 51,50          | 340             | 14   | 49,0 | 15,0           | 65,50       | 0,776                |
| 340 x 15                  | 54,20          | 340             | 15   | 49,0 | 15,0           | 69,00       | 0,778                |
| 370 x 12,5                | 53,10          | 370             | 12,5 | 53,5 | 16,5           | 67,80       | 0,839                |
| 370 x 13                  | 54,60          | 370             | 13   | 53,5 | 16,5           | 69,60       | 0,840                |
| 370 x 14                  | 57,50          | 370             | 14   | 53,5 | 16,5           | 73,30       | 0,842                |
| 370 x 15                  | 60,50          | 370             | 15   | 53,5 | 16,5           | 77,00       | 0,844                |
| 370 x 16                  | 63,50          | 370             | 16   | 53,5 | 16,5           | 80,70       | 0,846                |
| 400 x 13                  | 60,80          | 400             | 13   | 58,0 | 18,0           | 77,40       | 0,907                |
| 400 x 14                  | 63,90          | 400             | 14   | 58,0 | 18,0           | 81,40       | 0,908                |
| 400 x 15                  | 67,00          | 400             | 15   | 58,0 | 18,0           | 85,40       | 0,910                |
| 400 x 16                  | 70,20          | 400             | 16   | 58,0 | 18,0           | 89,40       | 0,912                |
| 430 x 14                  | 70,60          | 430             | 14   | 62,5 | 19,5           | 89,70       | 0,975                |
| 430 x 15                  | 73,90          | 430             | 15   | 62,5 | 19,5           | 94,10       | 0,976                |
| 430 x 17                  | 80,60          | 430             | 17   | 62,5 | 19,5           | 103,00      | 0,980                |
| 430 x 19                  | 87,40          | 430             | 19   | 62,5 | 19,5           | 111,39      | 0,984                |
| 430 x 20                  | 90,80          | 430             | 20   | 62,5 | 19,5           | 115,00      | 0,986                |

## ANGULARES DE LADOS IGUALES (Perfiles L)



| Designación    | Kg/m. | m <sup>2</sup> /m. | Designación     | Kg/m. | m <sup>2</sup> /m. |
|----------------|-------|--------------------|-----------------|-------|--------------------|
| L 20 x 20 x 3  | 0,88  | 0,077              | L 55 x 55 x 4   | 3,38  | 0,213              |
| L 20 x 20 x 4  | 1,14  | 0,077              | L 55 x 55 x 5   | 4,18  | 0,213              |
| L 20 x 20 x 5  | 1,39  | 0,077              | L 55 x 55 x 5,5 | 4,57  | 0,213              |
|                |       |                    | L 55 x 55 x 6   | 4,95  | 0,213              |
| L 25 x 25 x 3  | 1,12  | 0,097              | L 55 x 55 x 7   | 5,71  | 0,213              |
| L 25 x 25 x 4  | 1,46  | 0,097              | L 55 x 55 x 8   | 6,46  | 0,213              |
| L 25 x 25 x 5  | 1,78  | 0,097              | L 55 x 55 x 9   | 7,19  | 0,213              |
| L 25 x 25 x 6  | 2,09  | 0,097              | L 55 x 55 x 10  | 7,90  | 0,213              |
|                |       |                    |                 |       |                    |
| L 30 x 30 x 3  | 1,36  | 0,116              | L 60 x 60 x 4,5 | 4,13  | 0,233              |
| L 30 x 30 x 4  | 1,78  | 0,116              | L 60 x 60 x 5   | 4,57  | 0,233              |
| L 30 x 30 x 5  | 2,18  | 0,116              | L 60 x 60 x 6   | 5,42  | 0,233              |
| L 30 x 30 x 6  | 2,56  | 0,116              | L 60 x 60 x 7   | 6,26  | 0,233              |
| L 30 x 30 x 7  | 2,93  | 0,116              | L 60 x 60 x 8   | 7,09  | 0,233              |
|                |       |                    | L 60 x 60 x 9   | 7,90  | 0,233              |
| L 35 x 35 x 3  | 1,60  | 0,136              | L 60 x 60 x 10  | 8,69  | 0,233              |
| L 35 x 35 x 4  | 2,09  | 0,136              |                 |       |                    |
| L 35 x 35 x 5  | 2,57  | 0,136              | L 65 x 65 x 5   | 4,97  | 0,252              |
| L 35 x 35 x 6  | 3,04  | 0,136              | L 65 x 65 x 6   | 5,91  | 0,252              |
| L 35 x 35 x 7  | 3,48  | 0,136              | L 65 x 65 x 7   | 6,83  | 0,252              |
|                |       |                    | L 65 x 65 x 8   | 7,73  | 0,252              |
| L 40 x 40 x 3  | 1,84  | 0,155              | L 65 x 65 x 9   | 8,62  | 0,252              |
| L 40 x 40 x 4  | 2,42  | 0,155              | L 65 x 65 x 10  | 9,49  | 0,252              |
| L 40 x 40 x 5  | 2,97  | 0,155              | L 65 x 65 x 11  | 10,3  | 0,252              |
| L 40 x 40 x 6  | 3,52  | 0,155              | L 65 x 65 x 12  | 11,2  | 0,252              |
| L 40 x 40 x 7  | 4,04  | 0,155              |                 |       |                    |
| L 40 x 40 x 8  | 4,55  | 0,155              | L 70 x 70 x 5   | 5,37  | 0,272              |
|                |       |                    | L 70 x 70 x 6   | 6,38  | 0,272              |
| L 45 x 45 x 3  | 2,09  | 0,174              | L 70 x 70 x 7   | 7,38  | 0,272              |
| L 45 x 45 x 4  | 2,74  | 0,174              | L 70 x 70 x 9   | 9,32  | 0,272              |
| L 45 x 45 x 5  | 3,38  | 0,174              | L 70 x 70 x 11  | 11,2  | 0,272              |
| L 45 x 45 x 6  | 4,00  | 0,174              |                 |       |                    |
| L 45 x 45 x 7  | 4,60  | 0,174              | L 75 x 75 x 5   | 5,78  | 0,291              |
| L 45 x 45 x 8  | 5,19  | 0,174              | L 75 x 75 x 6   | 6,87  | 0,291              |
|                |       |                    | L 75 x 75 x 7   | 7,94  | 0,291              |
| L 50 x 50 x 3  | 2,33  | 0,194              | L 75 x 75 x 8   | 9,00  | 0,291              |
| L 50 x 50 x 4  | 3,06  | 0,194              | L 75 x 75 x 10  | 11,1  | 0,291              |
| L 50 x 50 x 5  | 3,77  | 0,194              | L 75 x 75 x 12  | 13,1  | 0,291              |
| L 50 x 50 x 6  | 4,47  | 0,194              |                 |       |                    |
| L 50 x 50 x 7  | 5,15  | 0,194              | L 80 x 80 x 6   | 7,34  | 0,311              |
| L 50 x 50 x 8  | 5,82  | 0,194              | L 80 x 80 x 7   | 8,49  | 0,311              |
| L 50 x 50 x 9  | 6,47  | 0,194              | L 80 x 80 x 8   | 9,63  | 0,311              |
| L 50 x 50 x 10 | 7,11  | 0,194              | L 80 x 80 x 9   | 10,8  | 0,311              |
| L 50 x 50 x 11 | 7,73  | 0,194              | L 80 x 80 x 10  | 11,9  | 0,311              |
| L 50 x 50 x 12 | 8,33  | 0,194              | L 80 x 80 x 11  | 13,0  | 0,311              |
|                |       |                    | L 80 x 80 x 12  | 14,0  | 0,311              |

Calidad: S275 JR. - S355J2G3

| Designación      | Kg/m. | m <sup>2</sup> /m. | Designación      | Kg/m. | m <sup>2</sup> /m. |
|------------------|-------|--------------------|------------------|-------|--------------------|
| L 80 x 80 x 13   | 15,1  | 0,311              | L 140 x 140 x 12 | 25,4  | 0,547              |
| L 80 x 80 x 14   | 16,1  | 0,311              | L 140 x 140 x 13 | 27,4  | 0,547              |
|                  |       |                    | L 140 x 140 x 14 | 29,4  | 0,547              |
| L 90 x 90 x 6    | 8,30  | 0,351              | L 140 x 140 x 15 | 31,4  | 0,547              |
| L 90 x 90 x 7    | 9,61  | 0,351              | L 140 x 140 x 16 | 33,3  | 0,547              |
| L 90 x 90 x 8    | 10,9  | 0,351              |                  |       |                    |
| L 90 x 90 x 9    | 12,2  | 0,351              | L 150 x 150 x 10 | 23,0  | 0,586              |
| L 90 x 90 x 10   | 13,4  | 0,351              | L 150 x 150 x 11 | 25,2  | 0,586              |
| L 90 x 90 x 11   | 14,7  | 0,351              | L 150 x 150 x 12 | 27,3  | 0,586              |
| L 90 x 90 x 12   | 15,9  | 0,351              | L 150 x 150 x 13 | 29,5  | 0,586              |
| L 90 x 90 x 13   | 17,1  | 0,351              | L 150 x 150 x 14 | 31,6  | 0,586              |
| L 90 x 90 x 14   | 18,3  | 0,351              | L 150 x 150 x 15 | 33,8  | 0,586              |
| L 90 x 90 x 15   | 19,5  | 0,351              | L 150 x 150 x 16 | 35,9  | 0,586              |
| L 90 x 90 x 16   | 20,7  | 0,351              | L 150 x 150 x 17 | 38,0  | 0,586              |
|                  |       |                    | L 150 x 150 x 18 | 40,1  | 0,586              |
| L 100 x 100 x 6  | 9,26  | 0,390              | L 150 x 150 x 19 | 42,1  | 0,586              |
| L 100 x 100 x 7  | 10,7  | 0,390              | L 150 x 150 x 20 | 44,2  | 0,586              |
| L 100 x 100 x 8  | 12,2  | 0,390              |                  |       |                    |
| L 100 x 100 x 9  | 13,6  | 0,390              | L 160 x 160 x 15 | 36,2  | 0,625              |
| L 100 x 100 x 10 | 15,0  | 0,390              | L 160 x 160 x 16 | 38,4  | 0,625              |
| L 100 x 100 x 11 | 16,4  | 0,390              | L 160 x 160 x 17 | 40,7  | 0,625              |
| L 100 x 100 x 12 | 17,8  | 0,390              | L 160 x 160 x 18 | 42,9  | 0,625              |
| L 100 x 100 x 13 | 19,2  | 0,390              | L 160 x 160 x 19 | 45,1  | 0,625              |
| L 100 x 100 x 14 | 20,6  | 0,390              | L 160 x 160 x 20 | 47,3  | 0,625              |
|                  |       |                    |                  |       |                    |
| L 110 x 110 x 8  | 13,5  | 0,429              | L 180 x 180 x 13 | 35,7  | 0,705              |
| L 110 x 110 x 9  | 15,0  | 0,429              | L 180 x 180 x 14 | 38,3  | 0,705              |
| L 110 x 110 x 10 | 16,6  | 0,429              | L 180 x 180 x 15 | 40,9  | 0,705              |
| L 110 x 110 x 11 | 18,2  | 0,429              | L 180 x 180 x 16 | 43,5  | 0,705              |
| L 110 x 110 x 12 | 19,7  | 0,429              | L 180 x 180 x 17 | 46,0  | 0,705              |
| L 110 x 110 x 13 | 21,3  | 0,429              | L 180 x 180 x 18 | 48,6  | 0,705              |
| L 110 x 110 x 14 | 22,8  | 0,429              | L 180 x 180 x 19 | 51,1  | 0,705              |
|                  |       |                    | L 180 x 180 x 20 | 53,7  | 0,705              |
| L 120 x 120 x 8  | 14,7  | 0,469              |                  |       |                    |
| L 120 x 120 x 9  | 16,5  | 0,469              | L 200 x 200 x 11 | 33,9  | 0,785              |
| L 120 x 120 x 10 | 18,2  | 0,469              | L 200 x 200 x 12 | 36,8  | 0,785              |
| L 120 x 120 x 11 | 19,9  | 0,469              | L 200 x 200 x 13 | 39,8  | 0,785              |
| L 120 x 120 x 12 | 21,6  | 0,469              | L 200 x 200 x 14 | 42,7  | 0,785              |
| L 120 x 120 x 13 | 23,3  | 0,469              | L 200 x 200 x 15 | 45,6  | 0,785              |
| L 120 x 120 x 14 | 25,0  | 0,469              | L 200 x 200 x 16 | 48,5  | 0,785              |
| L 120 x 120 x 15 | 26,6  | 0,469              | L 200 x 200 x 17 | 51,4  | 0,785              |
|                  |       |                    | L 200 x 200 x 18 | 54,2  | 0,785              |
| L 130 x 130 x 10 | 19,8  | 0,508              | L 200 x 200 x 19 | 57,1  | 0,785              |
| L 130 x 130 x 11 | 21,7  | 0,508              | L 200 x 200 x 20 | 59,9  | 0,785              |
| L 130 x 130 x 12 | 23,5  | 0,508              | L 200 x 200 x 21 | 62,8  | 0,785              |
| L 130 x 130 x 13 | 25,4  | 0,508              | L 200 x 200 x 22 | 65,6  | 0,785              |
| L 130 x 130 x 14 | 27,2  | 0,508              | L 200 x 200 x 23 | 68,3  | 0,785              |
| L 130 x 130 x 15 | 29,0  | 0,508              | L 200 x 200 x 24 | 71,1  | 0,785              |
| L 130 x 130 x 16 | 30,8  | 0,508              | L 200 x 200 x 25 | 73,9  | 0,785              |
|                  |       |                    | L 200 x 200 x 26 | 76,6  | 0,785              |



## ANGULARES DE LADOS DESIGUALES (Perfiles LD)



| Designación   | Kg/m. | m <sup>2</sup> /m | Designación       | Kg/m. | m <sup>2</sup> /m |
|---------------|-------|-------------------|-------------------|-------|-------------------|
| L 30 × 20 × 3 | 1,12  | 0,097             | L 75 × 50 × 5     | 4,75  | 0,244             |
| L 30 × 20 × 4 | 1,46  | 0,097             | L 75 × 50 × 6     | 5,65  | 0,244             |
| L 30 × 20 × 5 | 1,78  | 0,097             | L 75 × 50 × 7     | 6,53  | 0,244             |
|               |       |                   | L 75 × 50 × 8     | 7,39  | 0,244             |
| L 40 × 20 × 3 | 1,36  | 0,117             | L 75 × 50 × 9     | 8,24  | 0,244             |
| L 40 × 20 × 4 | 1,77  | 0,117             | L 75 × 50 × 10    | 9,07  | 0,244             |
| L 40 × 20 × 5 | 2,17  | 0,117             |                   |       |                   |
| L 40 × 20 × 6 | 2,56  | 0,117             | L 75 × 55 × 5     | 4,95  | 0,254             |
|               |       |                   | L 75 × 55 × 7     | 6,80  | 0,254             |
| L 45 × 30 × 3 | 1,71  | 0,147             | L 75 × 55 × 9     | 8,59  | 0,254             |
| L 45 × 30 × 4 | 2,24  | 0,147             |                   |       |                   |
| L 45 × 30 × 5 | 2,76  | 0,147             | L 80 × 40 × 6     | 5,41  | 0,234             |
| L 45 × 30 × 6 | 3,26  | 0,147             | L 80 × 40 × 7     | 6,25  | 0,234             |
|               |       |                   | L 80 × 40 × 8     | 7,07  | 0,234             |
| L 50 × 30 × 4 | 2,41  | 0,156             | L 80 × 40 × 9     | 7,88  | 0,234             |
| L 50 × 30 × 5 | 2,96  | 0,156             | L 80 × 40 × 10    | 8,68  | 0,234             |
| L 50 × 30 × 6 | 3,51  | 0,156             | L 80 × 60 × 7     | 7,36  | 0,262             |
|               |       |                   |                   |       |                   |
| L 50 × 40 × 3 | 2,07  | 0,176             |                   |       |                   |
| L 50 × 40 × 4 | 2,72  | 0,176             |                   |       |                   |
| L 50 × 40 × 5 | 3,36  | 0,176             | L 100 × 50 × 6    | 6,85  | 0,292             |
| L 50 × 40 × 6 | 3,98  | 0,176             | L 100 × 50 × 8    | 8,99  | 0,292             |
|               |       |                   | L 100 × 50 × 10   | 11,1  | 0,292             |
| L 60 × 30 × 3 | 2,08  | 0,175             |                   |       |                   |
| L 60 × 30 × 4 | 2,73  | 0,175             | L 100 × 65 × 7    | 8,77  | 0,321             |
| L 60 × 30 × 5 | 3,37  | 0,175             | L 100 × 65 × 9    | 11,1  | 0,321             |
| L 60 × 30 × 6 | 3,99  | 0,175             | L 100 × 65 × 11   | 13,4  | 0,321             |
| L 60 × 30 × 7 | 4,59  | 0,175             |                   |       |                   |
|               |       |                   | L 100 × 75 × 6,5  | 8,68  | 0,341             |
| L 60 × 40 × 3 | 2,31  | 0,195             | L 100 × 75 × 7    | 9,32  | 0,341             |
| L 60 × 40 × 4 | 3,04  | 0,195             | L 100 × 75 × 8    | 10,6  | 0,341             |
| L 60 × 40 × 5 | 3,76  | 0,195             | L 100 × 75 × 9    | 11,8  | 0,341             |
| L 60 × 40 × 6 | 4,46  | 0,195             | L 100 × 75 × 10   | 13,0  | 0,341             |
| L 60 × 40 × 7 | 5,14  | 0,195             | L 100 × 75 × 11   | 14,2  | 0,341             |
|               |       |                   | L 100 × 75 × 12,7 | 16,3  | 0,341             |
| L 65 × 50 × 5 | 4,35  | 0,225             |                   |       |                   |
| L 65 × 50 × 6 | 5,16  | 0,225             | L 120 × 80 × 8    | 12,2  | 0,391             |
| L 65 × 50 × 7 | 5,96  | 0,225             | L 120 × 80 × 9    | 13,6  | 0,391             |
| L 65 × 50 × 8 | 6,75  | 0,225             | L 120 × 80 × 10   | 15,0  | 0,391             |
| L 65 × 50 × 9 | 7,52  | 0,225             | L 120 × 80 × 11   | 16,4  | 0,391             |
|               |       |                   | L 120 × 80 × 12   | 17,8  | 0,391             |
|               |       |                   | L 120 × 80 × 13   | 19,2  | 0,391             |
|               |       |                   | L 120 × 80 × 14   | 20,5  | 0,391             |

Calidad: S275 JR. - S355J2G3

| Designación     | Kg/m. | m <sup>2</sup> /m | Designación      | Kg/m. | m <sup>2</sup> /m |
|-----------------|-------|-------------------|------------------|-------|-------------------|
| L 130 × 65 × 8  | 11,8  | 0,381             | L 150 × 100 × 10 | 19,0  | 0,489             |
| L 130 × 65 × 9  | 13,2  | 0,381             | L 150 × 100 × 11 | 20,8  | 0,489             |
| L 130 × 65 × 10 | 14,6  | 0,381             | L 150 × 100 × 12 | 22,6  | 0,489             |
| L 130 × 65 × 11 | 16,0  | 0,381             | L 150 × 100 × 13 | 24,3  | 0,489             |
| L 130 × 65 × 12 | 17,3  | 0,381             | L 150 × 100 × 14 | 26,1  | 0,489             |
|                 |       |                   | L 150 × 100 × 15 | 27,8  | 0,489             |
| L 150 × 75 × 8  | 13,7  | 0,441             |                  |       |                   |
| L 150 × 75 × 9  | 15,4  | 0,441             | L 160 × 80 × 10  | 18,2  | 0,469             |
| L 150 × 75 × 10 | 17,0  | 0,441             | L 160 × 80 × 11  | 19,9  | 0,469             |
| L 150 × 75 × 11 | 18,6  | 0,441             | L 160 × 80 × 12  | 21,6  | 0,469             |
| L 150 × 75 × 12 | 20,21 | 0,258             | L 160 × 80 × 13  | 23,3  | 0,469             |
|                 |       |                   | L 160 × 80 × 14  | 25,0  | 0,469             |
|                 |       |                   |                  |       |                   |
| L 150 × 90 × 10 | 18,2  | 0,470             | L 200 × 100 × 10 | 23,0  | 0,587             |
| L 150 × 90 × 11 | 19,9  | 0,470             | L 200 × 100 × 11 | 25,1  | 0,587             |
| L 150 × 90 × 12 | 21,6  | 0,470             | L 200 × 100 × 12 | 27,3  | 0,587             |
| L 150 × 90 × 13 | 23,3  | 0,470             | L 200 × 100 × 13 | 29,5  | 0,587             |
| L 150 × 90 × 14 | 25,0  | 0,470             | L 200 × 100 × 14 | 31,6  | 0,587             |
| L 150 × 90 × 15 | 26,6  | 0,470             | L 200 × 100 × 15 | 33,7  | 0,587             |
|                 |       |                   | L 200 × 100 × 16 | 35,9  | 0,587             |

Calidad: S275 JR. - S355J2G3

## PERFILES SIMPLE T



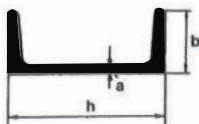
| Designación | kg/m. | Dimensiones |          |          |          |
|-------------|-------|-------------|----------|----------|----------|
|             |       | h<br>mm.    | b<br>mm. | a<br>mm. | e<br>mm. |
| T 25        | 1,29  | 25          | 25       | 3,5      | 3,5      |
| T 30        | 1,77  | 30          | 30       | 4        | 4        |
| T 35        | 2,33  | 35          | 35       | 4,5      | 4,5      |
| T 40        | 2,96  | 40          | 40       | 5        | 5        |
| T 45        | 3,67  | 45          | 45       | 5,5      | 5,5      |
| T 50        | 4,44  | 50          | 50       | 6        | 6        |
| T 60        | 6,23  | 60          | 60       | 7        | 7        |
| T 70        | 8,32  | 70          | 70       | 8        | 8        |
| T 80        | 10,7  | 80          | 80       | 9        | 9        |
| T 100       | 16,4  | 100         | 100      | 11       | 11       |

## PERFILES U PEQUEÑOS



| Designación | kg/m. | Dimensiones |          |          |          | m <sup>2</sup> /m. |
|-------------|-------|-------------|----------|----------|----------|--------------------|
|             |       | h<br>mm.    | b<br>mm. | a<br>mm. | e<br>mm. |                    |
| U 30 x 15   | 1,74  | 30          | 15       | 4        | 4,5      | 0,103              |
| U 40 x 20   | 2,87  | 40          | 20       | 5        | 5,5      | 0,142              |
| U 40 x 35   | 4,87  | 40          | 35       | 5        | 7        | 0,199              |
| U 50 x 25   | 3,86  | 50          | 25       | 5        | 6        | 0,181              |
| U 50 x 38   | 5,59  | 50          | 38       | 5        | 7        | 0,232              |
| U 60 x 30   | 5,07  | 60          | 30       | 6        | 6        | 0,215              |
| U 65 x 42   | 7,09  | 65          | 42       | 5,5      | 7,5      | 0,273              |
| U 70 x 40   | 6,77  | 70          | 40       | 6        | 6,5      | 0,276              |

Calidad: S275 JR



## UPN

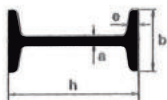
### Perfiles U Normales

| Designación | kg/m. | Dimensiones |          |          |          | m <sup>2</sup> /m. |
|-------------|-------|-------------|----------|----------|----------|--------------------|
|             |       | h<br>mm.    | b<br>mm. | a<br>mm. | e<br>mm. |                    |
| UPN 80      | 8,64  | 80          | 45       | 6        | 8        | 0,312              |
| UPN 100     | 10,6  | 100         | 50       | 6        | 8,5      | 0,372              |
| UPN 120     | 13,4  | 120         | 55       | 7        | 9        | 0,434              |
| UPN 140     | 16,0  | 140         | 60       | 7        | 10       | 0,489              |
| UPN 160     | 18,8  | 160         | 65       | 7,5      | 10,5     | 0,546              |
| UPN 180     | 22,0  | 180         | 70       | 8        | 11       | 0,611              |
| UPN 200     | 25,3  | 200         | 75       | 8,5      | 11,5     | 0,661              |
| UPN 220     | 29,4  | 220         | 80       | 9        | 12,5     | 0,718              |
| UPN 240     | 33,2  | 240         | 85       | 9,5      | 13       | 0,775              |
| UPN 260     | 37,9  | 260         | 90       | 10       | 14       | 0,834              |
| UPN 280     | 41,8  | 280         | 95       | 10       | 15       | 0,890              |
| UPN 300     | 46,2  | 300         | 100      | 10       | 16       | 0,950              |
| UPN 320     | 59,5  | 320         | 100      | 14       | 17,5     | 0,982              |
| UPN 350     | 60,6  | 350         | 100      | 14       | 16       | 1,047              |
| UPN 380     | 63,1  | 380         | 102      | 13,5     | 16       | 1,110              |
| UPN 400     | 71,8  | 400         | 110      | 14       | 18       | 1,182              |

Calidad: S275 JR

## IPN

### Perfiles de Doble T Normal



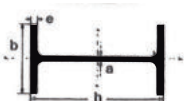
| Designación | kg/m. | Dimensiones |          |          |          | m <sup>2</sup> /m. |
|-------------|-------|-------------|----------|----------|----------|--------------------|
|             |       | h<br>mm.    | b<br>mm. | a<br>mm. | e<br>mm. |                    |
| IPN 80      | 5,9   | 80          | 42       | 3,9      | 5,9      | 0,031              |
| IPN 100     | 8,3   | 100         | 50       | 4,5      | 6,8      | 0,379              |
| IPN 120     | 11,2  | 120         | 58       | 5,1      | 7,7      | 0,431              |
| IPN 140     | 14,4  | 140         | 66       | 5,7      | 8,6      | 0,512              |
| IPN 160     | 17,9  | 160         | 74       | 6,3      | 9,5      | 0,575              |
| IPN 180     | 21,9  | 180         | 82       | 6,9      | 10,4     | 0,640              |
| IPN 200     | 26,2  | 200         | 90       | 7,5      | 11,3     | 0,709              |
| IPN 220     | 31,1  | 220         | 98       | 8,1      | 12,2     | 0,775              |
| IPN 240     | 36,2  | 240         | 106      | 8,7      | 13,1     | 0,844              |
| IPN 260     | 41,9  | 260         | 113      | 9,4      | 14,1     | 0,906              |
| IPN 280     | 47,9  | 280         | 119      | 10,1     | 15,2     | 0,966              |
| IPN 300     | 54,2  | 300         | 125      | 10,8     | 16,2     | 1,03               |
| IPN 320     | 61,0  | 320         | 131      | 11,5     | 17,3     | 1,09               |
| IPN 340     | 68,0  | 340         | 137      | 12,2     | 18,3     | 1,15               |
| IPN 360     | 76,1  | 360         | 143      | 13,0     | 19,5     | 1,21               |
| IPN 380     | 84,0  | 380         | 149      | 13,7     | 20,5     | 1,27               |
| IPN 400     | 92,4  | 400         | 155      | 14,4     | 21,6     | 1,33               |
| IPN 450     | 115   | 450         | 170      | 16,2     | 24,3     | 1,48               |
| IPN 500     | 141   | 500         | 185      | 18,0     | 27,0     | 1,63               |
| IPN 550     | 166   | 550         | 200      | 19,0     | 30,0     | 1,80               |
| IPN 600     | 199   | 600         | 215      | 21,6     | 32,4     | 1,97               |

Calidad: S275 JR



## IPE

### Perfiles Europeos IPE

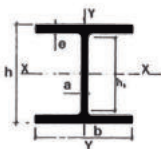


| Designación   | kg/m. | Dimensiones |          |          |          | m <sup>2</sup> /m. |
|---------------|-------|-------------|----------|----------|----------|--------------------|
|               |       | h<br>mm.    | b<br>mm. | a<br>mm. | e<br>mm. |                    |
| IPE 80        | 6,0   | 80          | 46       | 3,8      | 5,2      | 0,328              |
| IPE 100       | 8,1   | 100         | 55       | 4,1      | 5,7      | 0,400              |
| IPE 120       | 10,4  | 120         | 64       | 4,4      | 6,3      | 0,475              |
| IPE 140       | 12,9  | 140         | 73       | 4,7      | 6,9      | 0,551              |
| IPE 160       | 15,8  | 160         | 82       | 5        | 7,4      | 0,623              |
| IPE 180       | 18,8  | 180         | 91       | 5,3      | 8        | 0,698              |
| IPE 200       | 22,4  | 200         | 100      | 5,6      | 8,5      | 0,768              |
| IPE 220       | 26,2  | 220         | 110      | 5,9      | 9,2      | 0,848              |
| IPE 240       | 30,7  | 240         | 120      | 6,2      | 9,8      | 0,922              |
| IPE 270       | 36,1  | 270         | 135      | 6,6      | 10,2     | 1,04               |
| IPE 300       | 42,2  | 300         | 150      | 7,1      | 10,7     | 1,16               |
| IPE 330       | 49,1  | 330         | 160      | 7,5      | 11,5     | 1,25               |
| IPE 360       | 57,1  | 360         | 170      | 8        | 12,7     | 1,35               |
| IPE 400       | 66,3  | 400         | 180      | 8,6      | 13,5     | 1,47               |
| IPE 450       | 77,6  | 450         | 190      | 9,4      | 14,6     | 1,61               |
| IPE 500       | 90,7  | 500         | 200      | 10,2     | 16       | 1,74               |
| IPE 550       | 106   | 550         | 210      | 11,1     | 17,2     | 1,88               |
| IPE 600       | 122   | 600         | 220      | 12       | 19       | 2,01               |
| IPE 750 (137) | 137   | 753         | 263      | 11,5     | 17       | 2,51               |
| IPE 750 (147) | 147   | 753         | 265      | 13,2     | 17       | 2,51               |
| IPE 750 (161) | 161   | 758         | 266      | 13,8     | 19,3     | 2,52               |
| IPE 750 (173) | 173   | 762         | 267      | 14,4     | 21,6     | 2,53               |
| IPE 750 (185) | 185   | 766         | 267      | 14,9     | 23,6     | 2,54               |
| IPE 750 (196) | 196   | 770         | 268      | 15,6     | 25,4     | 2,55               |
| IPE 750 (210) | 210   | 775         | 268      | 15,6     | 28       | 2,56               |
| IPE 750 (222) | 222   | 778         | 269      | 17       | 29,5     | 2,57               |

Calidad: S275 JR

# HE PERFILES HEB (ALA ANCHA)

HEA (ALIGERADA)  
HEM (REFORZADA)



| Designación | kg/m. | Dimensiones |          |          |          | m <sup>2</sup> /m. |
|-------------|-------|-------------|----------|----------|----------|--------------------|
|             |       | h<br>mm.    | b<br>mm. | a<br>mm. | e<br>mm. |                    |
| HEA         | 16,7  | 96          | 100      | 5        | 8        | 0,561              |
| HEB 100     | 20,4  | 100         | 100      | 6        | 10       | 0,567              |
| HEM         | 41,8  | 120         | 106      | 12       | 20       | 0,619              |
| HEA         | 19,9  | 114         | 120      | 5        | 8        | 0,677              |
| HEB 120     | 26,7  | 120         | 120      | 6,5      | 11       | 0,686              |
| HEM         | 52,1  | 140         | 126      | 12,5     | 21       | 0,738              |
| HEA         | 24,7  | 133         | 140      | 5,5      | 8,5      | 0,794              |
| HEB 140     | 33,7  | 140         | 140      | 7        | 12       | 0,805              |
| HEM         | 63,2  | 160         | 146      | 13       | 22       | 0,857              |
| HEA         | 30,4  | 152         | 160      | 6        | 9        | 0,906              |
| HEB 160     | 42,6  | 160         | 160      | 8        | 13       | 0,918              |
| HEM         | 76,2  | 180         | 166      | 14       | 23       | 0,970              |
| HEA         | 35,5  | 171         | 180      | 6        | 9,5      | 1,02               |
| HEB 180     | 51,2  | 180         | 180      | 8,5      | 14       | 1,04               |
| HEM         | 88,9  | 200         | 186      | 14,5     | 24       | 1,09               |
| HEA         | 42,3  | 190         | 200      | 6,5      | 10       | 1,14               |
| HEB 200     | 61,3  | 200         | 200      | 9        | 15       | 1,15               |
| HEM         | 103   | 220         | 206      | 15       | 25       | 1,20               |
| HEA         | 50,5  | 210         | 220      | 7        | 11       | 1,26               |
| HEB 220     | 71,5  | 220         | 220      | 9,5      | 16       | 1,27               |
| HEM         | 117   | 240         | 226      | 15,5     | 26       | 1,32               |
| HEA         | 60,3  | 230         | 240      | 7,5      | 12       | 1,37               |
| HEB 240     | 83,2  | 240         | 240      | 10       | 17       | 1,38               |
| HEM         | 157   | 270         | 248      | 18       | 32       | 1,46               |

Calidad: S275 JR

| Designación    | kg/m. | Dimensiones |          |          |          | m <sup>2</sup> /m. |
|----------------|-------|-------------|----------|----------|----------|--------------------|
|                |       | h<br>mm.    | b<br>mm. | a<br>mm. | e<br>mm. |                    |
| HEA <b>260</b> | 68,2  | 250         | 260      | 7,5      | 12,5     | 1,48               |
| HEB <b>260</b> | 93,0  | 260         | 260      | 10       | 17,5     | 1,50               |
| HEM            | 172   | 290         | 268      | 18       | 32,5     | 1,57               |
| HEA <b>280</b> | 76,4  | 270         | 280      | 8        | 13       | 1,60               |
| HEB <b>280</b> | 103   | 280         | 280      | 10,5     | 18       | 1,62               |
| HEM            | 189   | 310         | 288      | 18,5     | 33       | 1,69               |
| HEA <b>300</b> | 88,3  | 290         | 300      | 8,5      | 14       | 1,72               |
| HEB <b>300</b> | 117   | 300         | 300      | 11       | 19       | 1,73               |
| HEM            | 238   | 340         | 310      | 21       | 39       | 1,83               |
| HEA <b>320</b> | 97,6  | 310         | 300      | 9        | 15,5     | 1,76               |
| HEB <b>320</b> | 127   | 320         | 300      | 11,5     | 20,5     | 1,77               |
| HEM            | 245   | 359         | 309      | 21       | 40       | 1,87               |
| HEA <b>340</b> | 105   | 330         | 300      | 9,5      | 16,5     | 1,79               |
| HEB <b>340</b> | 134   | 340         | 300      | 12       | 21,5     | 1,81               |
| HEM            | 248   | 377         | 309      | 21       | 40       | 1,90               |
| HEA <b>360</b> | 112   | 350         | 300      | 10       | 17,5     | 1,83               |
| HEB <b>360</b> | 142   | 360         | 300      | 12,5     | 22,5     | 1,85               |
| HEM            | 250   | 395         | 308      | 21       | 40       | 1,93               |
| HEA <b>400</b> | 125   | 390         | 300      | 11       | 19       | 1,91               |
| HEB <b>400</b> | 155   | 400         | 300      | 13,5     | 24       | 1,93               |
| HEM            | 256   | 432         | 307      | 21       | 40       | 2,00               |
| HEA <b>450</b> | 140   | 440         | 300      | 11,5     | 21       | 2,01               |
| HEB <b>450</b> | 171   | 450         | 300      | 14       | 26       | 2,03               |
| HEM            | 263   | 478         | 307      | 21       | 40       | 2,10               |

Calidad: S275 JR

| Designación | kg/m. | Dimensiones |          |          |          | m <sup>2</sup> /m. |
|-------------|-------|-------------|----------|----------|----------|--------------------|
|             |       | h<br>mm.    | b<br>mm. | a<br>mm. | e<br>mm. |                    |
| HEA 500     | 155   | 490         | 300      | 12       | 23       | 2,11               |
| HEB 500     | 187   | 500         | 300      | 14,5     | 28       | 2,12               |
| HEM 500     | 270   | 524         | 306      | 21       | 40       | 2,18               |
| HEA 550     | 166   | 540         | 300      | 12,5     | 24       | 2,21               |
| HEB 550     | 199   | 550         | 300      | 15       | 29       | 2,22               |
| HEM 550     | 278   | 572         | 306      | 21       | 40       | 2,28               |
| HEA 600     | 178   | 590         | 300      | 13       | 25       | 2,31               |
| HEB 600     | 212   | 600         | 300      | 15,5     | 30       | 2,32               |
| HEM 600     | 285   | 620         | 305      | 21       | 40       | 2,37               |
| HEA 650     | 190   | 640         | 300      | 13,5     | 26       | 2,41               |
| HEB 650     | 225   | 650         | 300      | 16       | 31       | 2,42               |
| HEM 650     | 293   | 668         | 305      | 21       | 40       | 2,47               |
| HEA 700     | 204   | 690         | 300      | 14,5     | 27       | 2,50               |
| HEB 700     | 241   | 700         | 300      | 17       | 32       | 2,52               |
| HEM 700     | 301   | 716         | 304      | 21       | 40       | 2,56               |
| HEA 800     | 224   | 790         | 300      | 15       | 28       | 2,70               |
| HEB 800     | 262   | 800         | 300      | 17,5     | 33       | 2,71               |
| HEM 800     | 317   | 814         | 303      | 21       | 40       | 2,75               |
| HEA 900     | 252   | 890         | 300      | 16       | 30       | 2,90               |
| HEB 900     | 291   | 900         | 300      | 18,5     | 35       | 2,91               |
| HEM 900     | 333   | 910         | 302      | 21       | 40       | 2,93               |
| HEA 1000    | 272   | 990         | 300      | 16,5     | 31       | 3,10               |
| HEB 1000    | 314   | 1000        | 300      | 19       | 36       | 3,11               |
| HEM 1000    | 349   | 1008        | 302      | 21       | 40       | 3,13               |

Calidad: S275 JR

## PERFILES ESTRUCTURALES CALIDADES Y NORMAS

| Acero               |                             | País          | Perfil                                                               |                                                                                                        |
|---------------------|-----------------------------|---------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Designación         | Norma                       |               | Designación                                                          | Tolerancias Norma                                                                                      |
| S275 JR<br>S355J2G3 | UNE EN-10025                | ESPAÑA        | IPN<br>UPN<br>L<br>LD<br>IPE<br>HEB<br>HEA<br>HEM                    | UNE 36521<br>UNE 36522<br>UNE 36531<br>UNE 36532<br>UNE 36526<br>UNE 36527<br>UNE 36528<br>UNE 36529   |
| S275 JR             | UNE EN-10025                | ALEMANIA R.F. | IPN<br>UPN<br>L<br>LD<br>IPE<br>HEB (IPB)<br>HEA (IPB)<br>HEM (IPBv) | DIN 1025-1<br>DIN 1026<br>DIN 1028<br>DIN 1029<br>DIN 1025-5<br>DIN 1025-2<br>DIN 1025-3<br>DIN 1025-4 |
| S275 JR             | EURONORM<br>EU 25           | C.E.E.        | IPN<br>UPN<br>L<br>LD<br>IPE<br>HE (B, A y M)                        | EU 24<br>EU 25<br>EU 56<br>EU 57<br>EU 44<br>EU 53                                                     |
| A 36                | ASTM A-36                   | EE.UU         | W, HP y C                                                            | A6                                                                                                     |
| 44 W                | CSA G 40.21                 | CANADA        | W y HP                                                               | G 40.20                                                                                                |
| 43 A                | BS 4360                     | INGLATERRA    | WF y BP                                                              | BS-4                                                                                                   |
| SS 41               | JIS G 3101                  | JAPON         | W y HP                                                               | G3192                                                                                                  |
| V St 3 PS 4         | GOST 380                    | URSS          | I<br>U                                                               | GOST 8239<br>GOST 8240                                                                                 |
| Naval A             | Soc. Clasificadores Navales |               | Llanta con bulbo                                                     | UNE 36548                                                                                              |
| Corten              | Las de Fabricante           | Varios        | Varios                                                               | Las del perfil correspondiente                                                                         |
| ENSACOR D           | ENSIDESA                    | ESPAÑA        | (1)                                                                  | "                                                                                                      |

## CARACTERÍSTICAS SEGÚN NORMAS UNE 36080-I Y MV-102

| Designación según Norma |          | Re mín.<br>Kg/mm <sup>2</sup><br>(N/mm <sup>2</sup> ) |             | Rm.<br>Kg/mm <sup>2</sup><br>(N/mm <sup>2</sup> ) | A % mín.<br>L <sub>0</sub> = 5,65<br>VST | Doblado<br>O | Resiliencia KV<br>kgm (J) |     |
|-------------------------|----------|-------------------------------------------------------|-------------|---------------------------------------------------|------------------------------------------|--------------|---------------------------|-----|
| Antigua                 | Actual   | e < 16                                                | e > 16      |                                                   |                                          |              | Vm                        | °C  |
| A 37 b                  | S275 JR  | 24<br>(235)                                           | 23<br>(225) | 37/48<br>(360/470)                                | 24                                       | 1 a          | 2,8<br>(27)               | +20 |
| A 42 b                  | S275 JR  | 26<br>(255)                                           | 25<br>(245) | 42/53<br>(410/510)                                | 22                                       | 2 a          | 2,8<br>(27)               | +20 |
| A 52 b                  | S355J2G3 | 36<br>(355)                                           | 35<br>(345) | 50/64<br>(490/630)                                | 20                                       | 2,5 a        | 2,8<br>(27)               | +20 |

# CÁLCULO DE ESTRUCTURAS. TABLAS DE EJEMPLOS PRÁCTICOS. ESTRUCTURAS DE ACERO EN EDIFICACIÓN. NORMA NBE EA-95.

## Piezas sometidas a flexión (vigas).

Carga uniformemente repartida entre dos puntos de apoyo para las luces indicadas en las tablas. Momentos flectores, esfuerzos constantes y flechas según las fórmulas del cálculo de vigas. Las tablas han sido calculadas para acero tipo S-275-JR ( $\sigma_u = 2600 \text{ kg/cm}^2$ ).

El valor de la flecha máxima posible para cada caso de carga y perfil viene dado por:  $f \text{ (mm)} = k_f \times l^2 \text{ (m}^2\text{)}$ .

Para otro tipo de acero o consideración de seguridad limitante de la tensión (coeficiente de trabajo) admisible  $1600 \text{ kg/cm}^2$ .

Los valores obtenidos han de multiplicarse por la relación  $\sigma_u/2600$ . Esta consideración es también válida para el cálculo de la flecha.

**Cálculo de estructuras - piezas sometidas a flexión (Vigas) - Máximo valor de  $q(t/m)$  que agota el perfil UPN para una determinada luz en metros.**

| UPN | $K_f$   | Luz en metros |       |       |       |       |      |      |      |      |      |
|-----|---------|---------------|-------|-------|-------|-------|------|------|------|------|------|
|     |         | 1,0           | 1,5   | 2,0   | 2,5   | 3,0   | 3,5  | 4,0  | 4,5  | 5,0  | 5,5  |
| 80  | 3,25000 | 5,51          | 2,45  | 1,38  | 0,88  | 0,61  | 0,45 | 0,34 | 0,27 | 0,22 | 0,18 |
| 100 | 2,60000 | 8,57          | 3,81  | 2,14  | 1,37  | 0,95  | 0,70 | 0,54 | 0,42 | 0,34 | 0,28 |
| 120 | 2,16667 | 12,63         | 5,61  | 3,16  | 2,02  | 1,40  | 1,03 | 0,79 | 0,62 | 0,51 | 0,42 |
| 140 | 1,85714 | 17,97         | 7,99  | 4,49  | 2,88  | 2,00  | 1,47 | 1,12 | 0,89 | 0,72 | 0,59 |
| 160 | 1,62500 | 24,13         | 10,72 | 6,03  | 3,86  | 2,68  | 1,97 | 1,51 | 1,19 | 0,97 | 0,80 |
| 180 | 1,44444 | 31,20         | 13,87 | 7,80  | 4,99  | 3,47  | 2,55 | 1,95 | 1,54 | 1,25 | 1,03 |
| 200 | 1,30000 | 39,73         | 17,66 | 9,93  | 6,36  | 4,41  | 3,24 | 2,48 | 1,96 | 1,59 | 1,31 |
| 220 | 1,18182 | 50,96         | 22,65 | 12,74 | 8,15  | 5,66  | 4,16 | 3,19 | 2,52 | 2,04 | 1,68 |
| 240 | 1,08333 | 62,40         | 27,73 | 15,60 | 9,98  | 6,93  | 5,09 | 3,90 | 3,08 | 2,50 | 2,06 |
| 260 | 1,00000 | 77,17         | 34,30 | 19,29 | 12,35 | 8,57  | 6,30 | 4,82 | 3,81 | 3,09 | 2,55 |
| 280 | 0,92857 | 93,18         | 41,42 | 23,30 | 14,91 | 10,35 | 7,61 | 5,82 | 4,60 | 3,73 | 3,08 |
| 300 | 0,86667 | 111,28        | 49,46 | 27,82 | 17,80 | 12,36 | 9,08 | 6,96 | 5,50 | 4,45 | 3,68 |



**Cálculo de estructuras - piezas sometidas a flexión (Vigas) - Máximo valor de  $q(t/m)$  que agota el perfil UPN para una determinada luz en metros.**

| UPN | Luz en metros |      |      |      |      |      |      |      |      |      |      |
|-----|---------------|------|------|------|------|------|------|------|------|------|------|
|     | 6,0           | 6,5  | 7,0  | 7,5  | 8,0  | 8,5  | 9,0  | 9,5  | 10,0 | 11,0 | 12,0 |
| 80  | 0,15          | 0,13 | 0,11 | 0,10 | 0,09 | 0,08 | 0,07 | 0,06 | 0,06 | 0,05 | 0,04 |
| 100 | 0,24          | 0,20 | 0,17 | 0,15 | 0,13 | 0,12 | 0,11 | 0,09 | 0,09 | 0,07 | 0,06 |
| 120 | 0,35          | 0,30 | 0,26 | 0,22 | 0,20 | 0,17 | 0,16 | 0,14 | 0,13 | 0,10 | 0,09 |
| 140 | 0,50          | 0,43 | 0,37 | 0,32 | 0,28 | 0,25 | 0,22 | 0,20 | 0,18 | 0,15 | 0,12 |
| 160 | 0,67          | 0,57 | 0,49 | 0,43 | 0,38 | 0,33 | 0,30 | 0,27 | 0,24 | 0,20 | 0,17 |
| 180 | 0,87          | 0,74 | 0,64 | 0,55 | 0,49 | 0,43 | 0,39 | 0,35 | 0,31 | 0,26 | 0,22 |
| 200 | 1,10          | 0,94 | 0,81 | 0,71 | 0,62 | 0,55 | 0,49 | 0,44 | 0,40 | 0,33 | 0,28 |
| 220 | 1,42          | 1,21 | 1,04 | 0,91 | 0,80 | 0,71 | 0,63 | 0,56 | 0,51 | 0,42 | 0,35 |
| 240 | 1,73          | 1,48 | 1,27 | 1,11 | 0,98 | 0,86 | 0,77 | 0,69 | 0,62 | 0,52 | 0,43 |
| 260 | 2,14          | 1,83 | 1,57 | 1,37 | 1,21 | 1,07 | 0,95 | 0,86 | 0,77 | 0,64 | 0,54 |
| 280 | 2,59          | 2,21 | 1,90 | 1,66 | 1,46 | 1,29 | 1,15 | 1,03 | 0,93 | 0,77 | 0,65 |
| 300 | 3,09          | 2,63 | 2,27 | 1,98 | 1,74 | 1,54 | 1,37 | 1,23 | 1,11 | 0,92 | 0,77 |

**Tabla 2-28 Cálculo de estructuras - piezas sometidas a flexión (Vigas) - Máximo valor de  $q(t/m)$  que agota el perfil UPN para una determinada luz en metros.**

| IPN | $K_f$   | Luz en metros |        |        |        |        |       |       |       |       |       |
|-----|---------|---------------|--------|--------|--------|--------|-------|-------|-------|-------|-------|
|     |         | 1,0           | 1,5    | 2,0    | 2,5    | 3,0    | 3,5   | 4,0   | 4,5   | 5,0   | 5,5   |
| 80  | 3,25000 | 4,06          | 1,80   | 1,01   | 0,65   | 0,45   | 0,33  | 0,25  | 0,20  | 0,16  | 0,13  |
| 100 | 2,60000 | 7,11          | 3,16   | 1,78   | 1,14   | 0,79   | 0,58  | 0,44  | 0,35  | 0,28  | 0,24  |
| 120 | 2,16667 | 11,38         | 5,06   | 2,84   | 1,82   | 1,26   | 0,93  | 0,71  | 0,56  | 0,46  | 0,38  |
| 140 | 1,85714 | 17,04         | 7,57   | 4,26   | 2,73   | 1,89   | 1,39  | 1,06  | 0,84  | 0,68  | 0,56  |
| 160 | 1,62500 | 24,34         | 10,82  | 6,08   | 3,89   | 2,70   | 1,99  | 1,52  | 1,20  | 0,97  | 0,80  |
| 180 | 1,44444 | 33,49         | 14,88  | 8,37   | 5,36   | 3,72   | 2,73  | 2,09  | 1,65  | 1,34  | 1,11  |
| 200 | 1,30000 | 44,51         | 19,78  | 11,13  | 7,12   | 4,95   | 3,63  | 2,78  | 2,20  | 1,78  | 1,47  |
| 220 | 1,18182 | 57,82         | 25,70  | 14,46  | 9,25   | 6,42   | 4,72  | 3,61  | 2,86  | 2,31  | 1,91  |
| 240 | 1,08333 | 73,63         | 32,73  | 18,41  | 11,78  | 8,18   | 6,01  | 4,60  | 3,64  | 2,95  | 2,43  |
| 260 | 1,00000 | 91,94         | 40,86  | 22,98  | 14,71  | 10,22  | 7,50  | 5,75  | 4,54  | 3,68  | 3,04  |
| 280 | 0,92857 | 112,74        | 50,10  | 28,18  | 18,04  | 12,53  | 9,20  | 7,05  | 5,57  | 4,51  | 3,73  |
| 300 | 0,86667 | 135,82        | 60,37  | 33,96  | 21,73  | 15,09  | 11,09 | 8,49  | 6,71  | 5,43  | 4,49  |
| 320 | 0,81250 | 162,66        | 72,29  | 40,66  | 26,02  | 18,07  | 13,28 | 10,17 | 8,03  | 6,51  | 5,38  |
| 340 | 0,76471 | 191,98        | 85,33  | 48,00  | 30,72  | 21,33  | 15,67 | 12,00 | 9,48  | 7,68  | 6,35  |
| 360 | 0,72222 | 226,72        | 100,76 | 56,68  | 36,28  | 25,19  | 18,51 | 14,17 | 11,20 | 9,07  | 7,49  |
| 380 | 0,68421 | 262,08        | 116,48 | 65,52  | 41,93  | 29,12  | 21,39 | 16,38 | 12,94 | 10,48 | 8,66  |
| 400 | 0,65000 | 303,68        | 134,97 | 75,92  | 48,59  | 33,74  | 24,79 | 18,98 | 15,00 | 12,15 | 10,04 |
| 450 | 0,57778 | 424,32        | 188,59 | 106,08 | 67,89  | 47,15  | 34,64 | 26,52 | 20,95 | 16,97 | 14,03 |
| 500 | 0,52000 | 572,00        | 254,22 | 143,00 | 91,52  | 63,56  | 46,69 | 35,75 | 28,25 | 22,88 | 18,91 |
| 550 | 0,47273 | 750,88        | 333,72 | 187,72 | 120,14 | 83,43  | 61,30 | 46,93 | 37,08 | 30,04 | 24,82 |
| 600 | 0,43333 | 963,04        | 428,02 | 240,76 | 154,09 | 107,00 | 78,62 | 60,19 | 47,56 | 38,52 | 31,84 |

**Tabla 2-28 Cálculo de estructuras - piezas sometidas a flexión (Vigas) - Máximo valor de  $q(t/m)$  que agota el perfil UPN para una determinada luz en metros.**

| IPN | Luz en metros |       |       |        |       |       |       |       |      |      |      |
|-----|---------------|-------|-------|--------|-------|-------|-------|-------|------|------|------|
|     | 6,0           | 6,5   | 7,0   | 7,5    | 8,0   | 8,5   | 9,0   | 9,5   | 10,0 | 11,0 | 12,0 |
| 80  | 0,11          | 0,10  | 0,08  | 0,072  | 0,06  | 0,06  | 0,05  | 0,04  | 0,04 | 0,03 | 0,03 |
| 100 | 0,20          | 0,17  | 0,15  | 0,126  | 0,11  | 0,10  | 0,09  | 0,08  | 0,07 | 0,06 | 0,05 |
| 120 | 0,32          | 0,27  | 0,23  | 0,202  | 0,18  | 0,16  | 0,14  | 0,13  | 0,11 | 0,09 | 0,08 |
| 140 | 0,47          | 0,40  | 0,35  | 0,303  | 0,27  | 0,24  | 0,21  | 0,19  | 0,17 | 0,14 | 0,12 |
| 160 | 0,68          | 0,58  | 0,50  | 0,433  | 0,38  | 0,34  | 0,30  | 0,27  | 0,24 | 0,20 | 0,17 |
| 180 | 0,93          | 0,79  | 0,68  | 0,595  | 0,52  | 0,46  | 0,41  | 0,37  | 0,33 | 0,28 | 0,23 |
| 200 | 1,24          | 1,05  | 0,91  | 0,791  | 0,70  | 0,62  | 0,55  | 0,49  | 0,45 | 0,37 | 0,31 |
| 220 | 1,61          | 1,37  | 1,18  | 1,028  | 0,90  | 0,80  | 0,71  | 0,64  | 0,58 | 0,48 | 0,40 |
| 240 | 2,05          | 1,74  | 1,50  | 1,309  | 1,15  | 1,02  | 0,91  | 0,82  | 0,74 | 0,61 | 0,51 |
| 260 | 2,55          | 2,18  | 1,88  | 1,634  | 1,44  | 1,27  | 1,14  | 1,02  | 0,92 | 0,76 | 0,64 |
| 280 | 3,13          | 2,67  | 2,30  | 2,004  | 1,76  | 1,56  | 1,39  | 1,25  | 1,13 | 0,93 | 0,78 |
| 300 | 3,77          | 3,21  | 2,77  | 2,415  | 2,12  | 1,88  | 1,68  | 1,50  | 1,36 | 1,12 | 0,94 |
| 320 | 4,52          | 3,85  | 3,32  | 2,892  | 2,54  | 2,25  | 2,01  | 1,80  | 1,63 | 1,34 | 1,13 |
| 340 | 5,33          | 4,54  | 3,92  | 3,413  | 3,00  | 2,66  | 2,37  | 2,13  | 1,92 | 1,59 | 1,33 |
| 360 | 6,30          | 5,37  | 4,63  | 4,031  | 3,54  | 3,14  | 2,80  | 2,51  | 2,27 | 1,87 | 1,57 |
| 380 | 7,28          | 6,20  | 5,35  | 4,659  | 4,10  | 3,63  | 3,24  | 2,90  | 2,62 | 2,17 | 1,82 |
| 400 | 8,44          | 7,19  | 6,20  | 5,399  | 4,75  | 4,20  | 3,75  | 3,36  | 3,04 | 2,51 | 2,11 |
| 450 | 11,79         | 10,04 | 8,66  | 7,543  | 6,63  | 5,87  | 5,24  | 4,70  | 4,24 | 3,51 | 2,95 |
| 500 | 15,89         | 13,54 | 11,67 | 10,169 | 8,94  | 7,92  | 7,06  | 6,34  | 5,72 | 4,73 | 3,97 |
| 550 | 20,86         | 17,77 | 15,32 | 13,349 | 11,73 | 10,39 | 9,27  | 8,32  | 7,51 | 6,21 | 5,21 |
| 600 | 26,75         | 22,79 | 19,65 | 17,121 | 15,05 | 13,33 | 11,89 | 10,67 | 9,63 | 7,96 | 6,69 |

**Tabla 2-29 Cálculo de estructuras - piezas sometidas a flexión (Vigas) - Máximo valor de  $q(t/m)$  que agota el perfil IPE para una determinada luz en metros.**

| IPE | $K_f$   | Luz en metros |        |        |        |       |       |       |       |       |       |
|-----|---------|---------------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
|     |         | 1,0           | 1,5    | 2,0    | 2,5    | 3,0   | 3,5   | 4,0   | 4,5   | 5,0   | 5,5   |
| 80  | 3,25000 | 4,16          | 1,85   | 1,04   | 0,67   | 0,46  | 0,34  | 0,26  | 0,21  | 0,17  | 0,14  |
| 100 | 2,60000 | 7,11          | 3,16   | 1,78   | 1,14   | 0,79  | 0,58  | 0,44  | 0,35  | 0,28  | 0,24  |
| 120 | 2,16667 | 11,02         | 4,90   | 2,76   | 1,76   | 1,22  | 0,90  | 0,69  | 0,54  | 0,44  | 0,36  |
| 140 | 1,85714 | 16,08         | 7,15   | 4,02   | 2,57   | 1,79  | 1,31  | 1,00  | 0,79  | 0,64  | 0,53  |
| 160 | 1,62500 | 22,67         | 10,08  | 5,67   | 3,63   | 2,52  | 1,85  | 1,42  | 1,12  | 0,91  | 0,75  |
| 180 | 1,44444 | 30,37         | 13,50  | 7,59   | 4,86   | 3,37  | 2,48  | 1,90  | 1,50  | 1,21  | 1,00  |
| 200 | 1,30000 | 40,35         | 17,93  | 10,09  | 6,46   | 4,48  | 3,29  | 2,52  | 1,99  | 1,61  | 1,33  |
| 220 | 1,18182 | 52,42         | 23,30  | 13,10  | 8,39   | 5,82  | 4,28  | 3,28  | 2,59  | 2,10  | 1,73  |
| 240 | 1,08333 | 67,39         | 29,95  | 16,85  | 10,78  | 7,49  | 5,50  | 4,21  | 3,33  | 2,70  | 2,23  |
| 270 | 0,96296 | 89,23         | 39,66  | 22,31  | 14,28  | 9,91  | 7,28  | 5,58  | 4,41  | 3,57  | 2,95  |
| 300 | 0,86667 | 115,86        | 51,49  | 28,96  | 18,54  | 12,87 | 9,46  | 7,24  | 5,72  | 4,63  | 3,83  |
| 330 | 0,78788 | 148,30        | 65,91  | 37,08  | 23,73  | 16,48 | 12,11 | 9,27  | 7,32  | 5,93  | 4,90  |
| 360 | 0,72222 | 188,03        | 83,57  | 47,01  | 30,09  | 20,89 | 15,35 | 11,75 | 9,29  | 7,52  | 6,22  |
| 400 | 0,65000 | 241,28        | 107,24 | 60,32  | 38,60  | 26,81 | 19,70 | 15,08 | 11,92 | 9,65  | 7,98  |
| 450 | 0,57778 | 312,00        | 138,67 | 78,00  | 49,92  | 34,67 | 25,47 | 19,50 | 15,41 | 12,48 | 10,31 |
| 500 | 0,52000 | 401,44        | 178,42 | 100,36 | 64,23  | 44,60 | 32,77 | 25,09 | 19,82 | 16,06 | 13,27 |
| 550 | 0,47273 | 507,52        | 225,56 | 126,88 | 81,20  | 56,39 | 41,43 | 31,72 | 25,06 | 20,30 | 16,78 |
| 600 | 0,43333 | 638,56        | 283,80 | 159,64 | 102,17 | 70,95 | 52,13 | 39,91 | 31,53 | 25,54 | 21,11 |

**Tabla 2-29 Cálculo de estructuras - piezas sometidas a flexión (Vigas) - Máximo valor de  $q(t/m)$  que agota el perfil IPE para una determinada luz en metros.**

| IPE | Luz en metros |       |       |       |      |      |      |      |      |      |      |
|-----|---------------|-------|-------|-------|------|------|------|------|------|------|------|
|     | 6,0           | 6,5   | 7,0   | 7,5   | 8,0  | 8,5  | 9,0  | 9,5  | 10,0 | 11,0 | 12,0 |
| 80  | 0,12          | 0,10  | 0,08  | 0,07  | 0,07 | 0,06 | 0,05 | 0,05 | 0,04 | 0,03 | 0,03 |
| 100 | 0,20          | 0,17  | 0,15  | 0,13  | 0,11 | 0,10 | 0,09 | 0,08 | 0,07 | 0,06 | 0,05 |
| 120 | 0,31          | 0,26  | 0,22  | 0,20  | 0,17 | 0,15 | 0,14 | 0,12 | 0,11 | 0,09 | 0,08 |
| 140 | 0,45          | 0,38  | 0,33  | 0,29  | 0,25 | 0,22 | 0,20 | 0,18 | 0,16 | 0,13 | 0,11 |
| 160 | 0,63          | 0,54  | 0,46  | 0,40  | 0,35 | 0,31 | 0,28 | 0,25 | 0,23 | 0,19 | 0,16 |
| 180 | 0,84          | 0,72  | 0,62  | 0,54  | 0,47 | 0,42 | 0,37 | 0,34 | 0,30 | 0,25 | 0,21 |
| 200 | 1,12          | 0,96  | 0,82  | 0,72  | 0,63 | 0,56 | 0,50 | 0,45 | 0,40 | 0,33 | 0,28 |
| 220 | 1,46          | 1,24  | 1,07  | 0,93  | 0,82 | 0,73 | 0,65 | 0,58 | 0,52 | 0,43 | 0,36 |
| 240 | 1,87          | 1,60  | 1,38  | 1,20  | 1,05 | 0,93 | 0,83 | 0,75 | 0,67 | 0,56 | 0,47 |
| 270 | 2,48          | 2,11  | 1,82  | 1,59  | 1,39 | 1,24 | 1,10 | 0,99 | 0,89 | 0,74 | 0,62 |
| 300 | 3,22          | 2,74  | 2,36  | 2,06  | 1,81 | 1,60 | 1,43 | 1,28 | 1,16 | 0,96 | 0,80 |
| 330 | 4,12          | 3,51  | 3,03  | 2,64  | 2,32 | 2,05 | 1,83 | 1,64 | 1,48 | 1,23 | 1,03 |
| 360 | 5,22          | 4,45  | 3,84  | 3,34  | 2,94 | 2,60 | 2,32 | 2,08 | 1,88 | 1,55 | 1,31 |
| 400 | 6,70          | 5,71  | 4,92  | 4,29  | 3,77 | 3,34 | 2,98 | 2,67 | 2,41 | 1,99 | 1,68 |
| 450 | 8,67          | 7,38  | 6,37  | 5,55  | 4,88 | 4,32 | 3,85 | 3,46 | 3,12 | 2,58 | 2,17 |
| 500 | 11,15         | 9,50  | 8,19  | 7,14  | 6,27 | 5,56 | 4,96 | 4,45 | 4,01 | 3,32 | 2,79 |
| 550 | 14,10         | 12,01 | 10,36 | 9,02  | 7,93 | 7,02 | 6,27 | 5,62 | 5,08 | 4,19 | 3,52 |
| 600 | 17,74         | 15,11 | 13,03 | 11,35 | 9,98 | 8,84 | 7,88 | 7,08 | 6,39 | 5,28 | 4,43 |

**Tabla 2-30 Cálculo de estructuras - piezas sometidas a flexión (Vigas) - Máximo valor de  $q(t/m)$  que agota el perfil HEA para una determinada luz en metros.**

| HEA | $K_f$   | Luz en metros |        |        |        |        |       |       |       |       |       |
|-----|---------|---------------|--------|--------|--------|--------|-------|-------|-------|-------|-------|
|     |         | 1,0           | 1,5    | 2,0    | 2,5    | 3,0    | 3,5   | 4,0   | 4,5   | 5,0   | 5,5   |
| 100 | 2,60000 | 15,14         | 6,73   | 3,79   | 2,42   | 1,68   | 1,24  | 0,95  | 0,75  | 0,61  | 0,50  |
| 120 | 2,16667 | 22,05         | 9,80   | 5,51   | 3,53   | 2,45   | 1,80  | 1,38  | 1,09  | 0,88  | 0,73  |
| 140 | 1,85714 | 32,24         | 14,33  | 8,06   | 5,16   | 3,58   | 2,63  | 2,02  | 1,59  | 1,29  | 1,07  |
| 160 | 1,62500 | 45,76         | 20,34  | 11,44  | 7,32   | 5,08   | 3,74  | 2,86  | 2,26  | 1,83  | 1,51  |
| 180 | 1,44444 | 61,15         | 27,18  | 15,29  | 9,78   | 6,79   | 4,99  | 3,82  | 3,02  | 2,45  | 2,02  |
| 200 | 1,30000 | 80,91         | 35,96  | 20,23  | 12,95  | 8,99   | 6,61  | 5,06  | 4,00  | 3,24  | 2,67  |
| 220 | 1,18182 | 107,12        | 47,61  | 26,78  | 17,14  | 11,90  | 8,74  | 6,70  | 5,29  | 4,28  | 3,54  |
| 240 | 1,08333 | 140,40        | 62,40  | 35,10  | 22,46  | 15,60  | 11,46 | 8,78  | 6,93  | 5,62  | 4,64  |
| 260 | 1,00000 | 173,89        | 77,28  | 43,47  | 27,82  | 19,32  | 14,19 | 10,87 | 8,59  | 6,96  | 5,75  |
| 280 | 0,92857 | 210,08        | 93,37  | 52,52  | 33,61  | 23,34  | 17,15 | 13,13 | 10,37 | 8,40  | 6,94  |
| 300 | 0,86667 | 262,08        | 116,48 | 65,52  | 41,93  | 29,12  | 21,39 | 16,38 | 12,94 | 10,48 | 8,66  |
| 320 | 0,81250 | 307,84        | 136,82 | 76,96  | 49,25  | 34,20  | 25,13 | 19,24 | 15,20 | 12,31 | 10,18 |
| 340 | 0,76471 | 349,44        | 155,31 | 87,36  | 55,91  | 38,83  | 28,53 | 21,84 | 17,26 | 13,98 | 11,55 |
| 360 | 0,72222 | 393,12        | 174,72 | 98,28  | 62,90  | 43,68  | 32,09 | 24,57 | 19,41 | 15,72 | 13,00 |
| 400 | 0,65000 | 480,48        | 213,55 | 120,12 | 76,88  | 53,39  | 39,22 | 30,03 | 23,73 | 19,22 | 15,88 |
| 450 | 0,57778 | 603,20        | 268,09 | 150,80 | 96,51  | 67,02  | 49,24 | 37,70 | 29,79 | 24,13 | 19,94 |
| 500 | 0,52000 | 738,40        | 328,18 | 184,60 | 118,14 | 82,04  | 60,28 | 46,15 | 36,46 | 29,54 | 24,41 |
| 550 | 0,47273 | 863,20        | 383,64 | 215,80 | 138,11 | 95,91  | 70,47 | 53,95 | 42,63 | 34,53 | 28,54 |
| 600 | 0,43333 | 996,32        | 442,81 | 249,08 | 159,41 | 110,70 | 81,33 | 62,27 | 49,20 | 39,85 | 32,94 |

**Tabla 2-30 Cálculo de estructuras - piezas sometidas a flexión (Vigas) - Máximo valor de  $q(t/m)$  que agota el perfil HEA para una determinada luz en metros.**

| HEA | Luz en metros |       |       |       |       |       |       |       |      |      |      |
|-----|---------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|
|     | 6,0           | 6,5   | 7,0   | 7,5   | 8,0   | 8,5   | 9,0   | 9,5   | 10,0 | 11,0 | 12,0 |
| 100 | 0,42          | 0,36  | 0,31  | 0,27  | 0,24  | 0,21  | 0,19  | 0,17  | 0,15 | 0,13 | 0,11 |
| 120 | 0,61          | 0,52  | 0,45  | 0,39  | 0,34  | 0,31  | 0,27  | 0,24  | 0,22 | 0,18 | 0,15 |
| 140 | 0,90          | 0,76  | 0,66  | 0,57  | 0,50  | 0,45  | 0,40  | 0,36  | 0,32 | 0,27 | 0,22 |
| 160 | 1,27          | 1,08  | 0,93  | 0,81  | 0,72  | 0,63  | 0,56  | 0,51  | 0,46 | 0,38 | 0,32 |
| 180 | 1,70          | 1,45  | 1,25  | 1,09  | 0,96  | 0,85  | 0,75  | 0,68  | 0,61 | 0,51 | 0,42 |
| 200 | 2,25          | 1,92  | 1,65  | 1,44  | 1,26  | 1,12  | 1,00  | 0,90  | 0,81 | 0,67 | 0,56 |
| 220 | 2,98          | 2,54  | 2,19  | 1,90  | 1,67  | 1,48  | 1,32  | 1,19  | 1,07 | 0,89 | 0,74 |
| 240 | 3,90          | 3,32  | 2,87  | 2,50  | 2,19  | 1,94  | 1,73  | 1,56  | 1,40 | 1,16 | 0,98 |
| 260 | 4,83          | 4,12  | 3,55  | 3,09  | 2,72  | 2,41  | 2,15  | 1,93  | 1,74 | 1,44 | 1,21 |
| 280 | 5,84          | 4,97  | 4,29  | 3,73  | 3,28  | 2,91  | 2,59  | 2,33  | 2,10 | 1,74 | 1,46 |
| 300 | 7,28          | 6,20  | 5,35  | 4,66  | 4,10  | 3,63  | 3,24  | 2,90  | 2,62 | 2,17 | 1,82 |
| 320 | 8,55          | 7,29  | 6,28  | 5,47  | 4,81  | 4,26  | 3,80  | 3,41  | 3,08 | 2,54 | 2,14 |
| 340 | 9,71          | 8,27  | 7,13  | 6,21  | 5,46  | 4,84  | 4,31  | 3,87  | 3,49 | 2,89 | 2,43 |
| 360 | 10,92         | 9,30  | 8,02  | 6,99  | 6,14  | 5,44  | 4,85  | 4,36  | 3,93 | 3,25 | 2,73 |
| 400 | 13,35         | 11,37 | 9,81  | 8,54  | 7,51  | 6,65  | 5,93  | 5,32  | 4,80 | 3,97 | 3,34 |
| 450 | 16,76         | 14,28 | 12,31 | 10,72 | 9,43  | 8,35  | 7,45  | 6,68  | 6,03 | 4,99 | 4,19 |
| 500 | 20,51         | 17,48 | 15,07 | 13,13 | 11,54 | 10,22 | 9,12  | 8,18  | 7,38 | 6,10 | 5,13 |
| 550 | 23,98         | 20,43 | 17,62 | 15,35 | 13,49 | 11,95 | 10,66 | 9,56  | 8,63 | 7,13 | 5,99 |
| 600 | 27,68         | 23,58 | 20,33 | 17,71 | 15,57 | 13,79 | 12,30 | 11,04 | 9,96 | 8,23 | 6,92 |

**Tabla 2-31 Cálculo de estructuras - piezas sometidas a flexión (Vigas) - Máximo valor de  $q(t/m)$  que agota el perfil HEB para una determinada luz en metros.**

| HEB | $K_f$   | Luz en metros |        |        |        |        |       |       |       |       |       |
|-----|---------|---------------|--------|--------|--------|--------|-------|-------|-------|-------|-------|
|     |         | 1,0           | 1,5    | 2,0    | 2,5    | 3,0    | 3,5   | 4,0   | 4,5   | 5,0   | 5,5   |
| 100 | 2,60000 | 18,70         | 8,31   | 4,67   | 2,99   | 2,08   | 1,53  | 1,17  | 0,92  | 0,75  | 0,62  |
| 120 | 2,16667 | 29,95         | 13,31  | 7,49   | 4,79   | 3,33   | 2,45  | 1,87  | 1,48  | 1,20  | 0,99  |
| 140 | 1,85714 | 44,93         | 19,97  | 11,23  | 7,19   | 4,99   | 3,67  | 2,81  | 2,22  | 1,80  | 1,49  |
| 160 | 1,62500 | 64,69         | 28,75  | 16,17  | 10,35  | 7,19   | 5,28  | 4,04  | 3,19  | 2,59  | 2,14  |
| 180 | 1,44444 | 88,61         | 39,38  | 22,15  | 14,18  | 9,85   | 7,23  | 5,54  | 4,38  | 3,54  | 2,93  |
| 200 | 1,30000 | 118,56        | 52,69  | 29,64  | 18,97  | 13,17  | 9,68  | 7,41  | 5,85  | 4,74  | 3,92  |
| 220 | 1,18182 | 153,09        | 68,04  | 38,27  | 24,49  | 17,01  | 12,50 | 9,57  | 7,56  | 6,12  | 5,06  |
| 240 | 1,08333 | 195,10        | 86,71  | 48,78  | 31,22  | 21,68  | 15,93 | 12,19 | 9,63  | 7,80  | 6,45  |
| 260 | 1,00000 | 239,20        | 106,31 | 59,80  | 38,27  | 26,58  | 19,53 | 14,95 | 11,81 | 9,57  | 7,91  |
| 280 | 0,92657 | 287,04        | 127,57 | 71,76  | 45,93  | 31,89  | 23,43 | 17,94 | 14,17 | 11,48 | 9,49  |
| 300 | 0,86667 | 349,44        | 155,31 | 87,36  | 55,91  | 38,83  | 28,53 | 21,84 | 17,26 | 13,98 | 11,55 |
| 320 | 0,81250 | 401,44        | 178,42 | 100,36 | 64,23  | 44,60  | 32,77 | 25,09 | 19,82 | 16,06 | 13,27 |
| 340 | 0,76471 | 449,28        | 199,68 | 112,32 | 71,88  | 49,92  | 36,68 | 28,08 | 22,19 | 17,97 | 14,85 |
| 360 | 0,72222 | 499,20        | 221,87 | 124,80 | 79,87  | 55,47  | 40,75 | 31,20 | 24,65 | 19,97 | 16,50 |
| 400 | 0,65000 | 599,04        | 266,24 | 149,76 | 95,85  | 66,56  | 48,90 | 37,44 | 29,58 | 23,96 | 19,80 |
| 450 | 0,57778 | 738,40        | 328,18 | 184,60 | 118,14 | 82,04  | 60,28 | 46,15 | 36,46 | 29,54 | 24,41 |
| 500 | 0,52000 | 892,32        | 396,59 | 223,08 | 142,77 | 99,15  | 72,84 | 55,77 | 44,07 | 35,69 | 29,50 |
| 550 | 0,47273 | 1033,76       | 459,45 | 258,44 | 165,40 | 114,86 | 84,39 | 64,61 | 51,05 | 41,35 | 34,17 |
| 600 | 0,43333 | 1185,60       | 526,93 | 296,40 | 189,70 | 131,73 | 96,78 | 74,10 | 58,55 | 47,42 | 39,19 |

**Tabla 2-31 Cálculo de estructuras - piezas sometidas a flexión (Vigas) - Máximo valor de  $q(t/m)$  que agota el perfil HEB para una determinada luz en metros.**

| HEB | Luz en metros |       |       |       |       |       |       |       |       |      |      |
|-----|---------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
|     | 6,0           | 6,5   | 7,0   | 7,5   | 8,0   | 8,5   | 9,0   | 9,5   | 10,0  | 11,0 | 12,0 |
| 100 | 0,52          | 0,44  | 0,38  | 0,33  | 0,29  | 0,26  | 0,23  | 0,21  | 0,19  | 0,15 | 0,13 |
| 120 | 0,83          | 0,71  | 0,61  | 0,53  | 0,47  | 0,41  | 0,37  | 0,33  | 0,30  | 0,25 | 0,21 |
| 140 | 1,25          | 1,06  | 0,92  | 0,80  | 0,70  | 0,62  | 0,55  | 0,50  | 0,45  | 0,37 | 0,31 |
| 160 | 1,80          | 1,53  | 1,32  | 1,15  | 1,01  | 0,90  | 0,80  | 0,72  | 0,65  | 0,53 | 0,45 |
| 180 | 2,46          | 2,10  | 1,81  | 1,58  | 1,38  | 1,23  | 1,09  | 0,98  | 0,89  | 0,73 | 0,62 |
| 200 | 3,29          | 2,81  | 2,42  | 2,11  | 1,85  | 1,64  | 1,46  | 1,31  | 1,19  | 0,98 | 0,82 |
| 220 | 4,25          | 3,62  | 3,12  | 2,72  | 2,39  | 2,12  | 1,89  | 1,70  | 1,53  | 1,27 | 1,06 |
| 240 | 5,42          | 4,62  | 3,98  | 3,47  | 3,05  | 2,70  | 2,41  | 2,16  | 1,95  | 1,61 | 1,35 |
| 260 | 6,84          | 5,66  | 4,88  | 4,25  | 3,74  | 3,31  | 2,95  | 2,65  | 2,39  | 1,98 | 1,66 |
| 280 | 7,97          | 6,79  | 5,86  | 5,10  | 4,49  | 3,97  | 3,54  | 3,18  | 2,87  | 2,37 | 1,99 |
| 300 | 9,71          | 8,27  | 7,13  | 6,21  | 5,46  | 4,84  | 4,31  | 3,87  | 3,49  | 2,89 | 2,43 |
| 320 | 11,15         | 9,50  | 8,19  | 7,14  | 6,27  | 5,56  | 4,96  | 4,45  | 4,01  | 3,32 | 2,79 |
| 340 | 12,48         | 10,63 | 9,17  | 7,99  | 7,02  | 6,22  | 5,55  | 4,98  | 4,49  | 3,71 | 3,12 |
| 360 | 13,87         | 11,82 | 10,19 | 8,87  | 7,80  | 6,91  | 6,16  | 5,53  | 4,99  | 4,13 | 3,47 |
| 400 | 16,64         | 14,18 | 12,23 | 10,65 | 9,36  | 8,29  | 7,40  | 6,64  | 5,99  | 4,95 | 4,16 |
| 450 | 20,51         | 17,48 | 15,07 | 13,13 | 11,54 | 10,22 | 9,12  | 8,18  | 7,38  | 6,10 | 5,13 |
| 500 | 24,79         | 21,12 | 18,21 | 15,86 | 13,94 | 12,35 | 11,02 | 9,89  | 8,92  | 7,37 | 6,20 |
| 550 | 28,72         | 24,47 | 21,10 | 18,38 | 16,15 | 14,31 | 12,76 | 11,45 | 10,34 | 8,54 | 7,18 |
| 600 | 32,93         | 28,06 | 24,20 | 21,08 | 18,53 | 16,41 | 14,64 | 13,14 | 11,86 | 9,80 | 8,23 |

