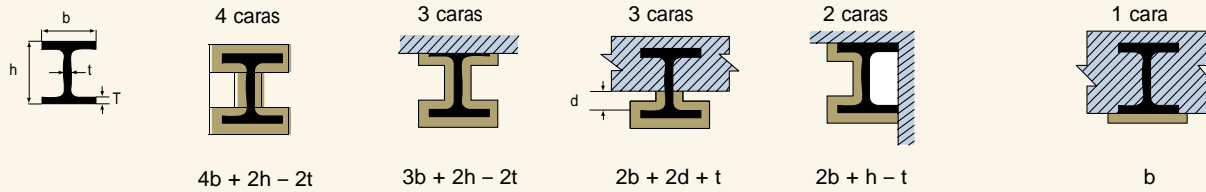


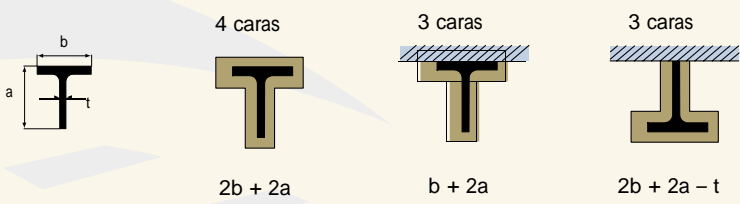


PERÍMETRO PARA PERFIL CON MONTAJE DE PROTECCIÓN «CONTORNEADO»

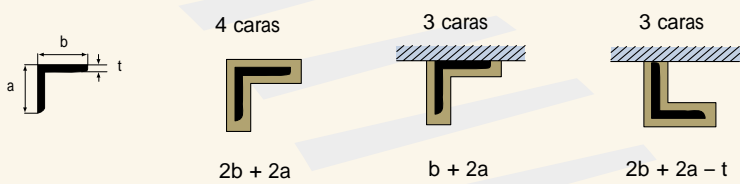
PERFILES «I»



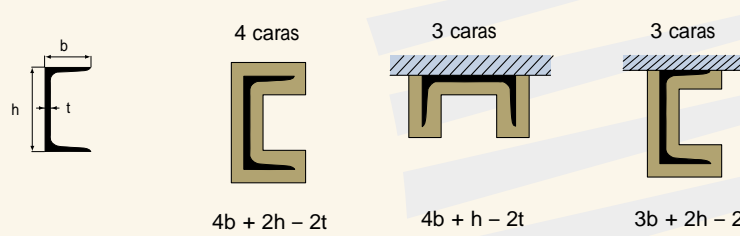
PERFILES «T»



PERFILES «L»



PERFILES «U»



TUBOS RECTANGULARES



EJEMPLO:

Cálculo de la masividad para un perfil tipo UPN 300 con tres caras expuestas y una protección contorneada a tres lados.

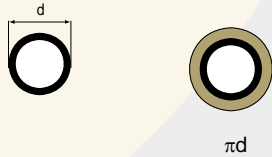
$h = 300 \text{ mm}$
 $b = 100 \text{ mm}$
 $t = 10 \text{ mm}$

Sección = (A) = $58,8 \text{ cm}^2 = 0,00588 \text{ m}^2$

$P = 4b + h - 2t$

$P = 4 \times 100 + 300 - 2 \times 10 = 400 + 300 - 20 = 680 \text{ mm} = 0,68 \text{ m}$

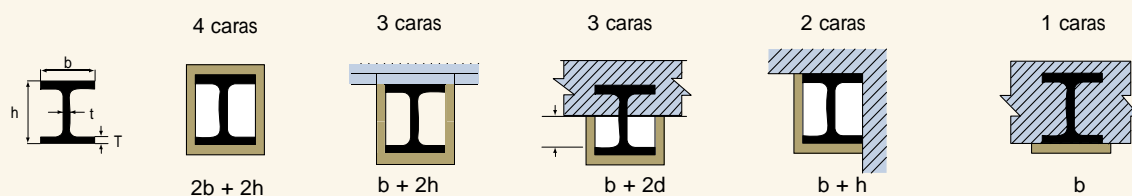
TUBOS CIRCULARES



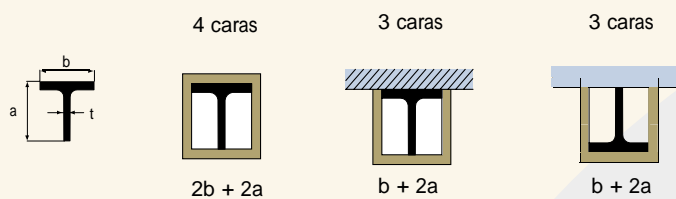
$$\text{masividad} = \frac{0,68}{0,00588} = 115,6 \text{ m}^{-1}$$

PERÍMETRO PARA PERFIL DE MONTAJE DE PROTECCIÓN «CAJEADO»

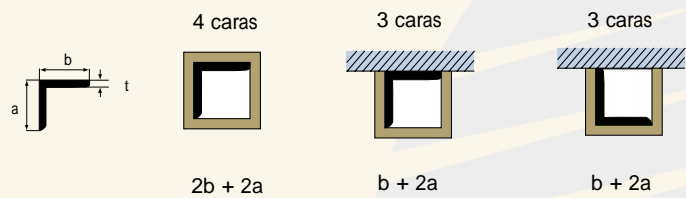
PERFILES «I»



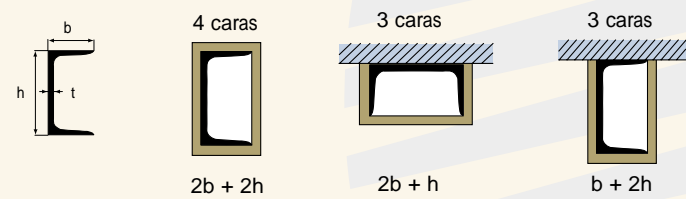
PERFILES «T»



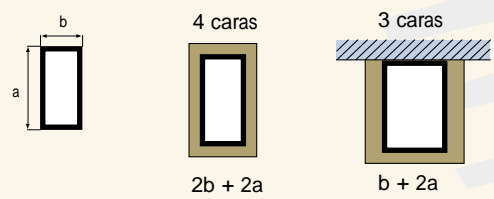
PERFILES «L»



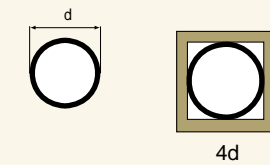
PERFILES «U»



TUBOS RECTANGULARES



TUBOS CIRCULARES

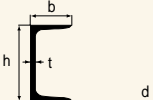








PERFILES UPN

TABLA I. PERFILES NORMALIZADOS. MASIVIDADES

UNE 36.522
DIN 1026

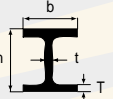






| DENOMINACIÓN UPN | PESO kg/m | h mm | b mm | t mm | T mm | Sección cm ² | Masividades | | | |
|---------------------|--------------|---------|---------|---------|---------|----------------------------|---|---|---|---|
| | | | | | | |  m ⁻¹ |  m ⁻¹ |  m ⁻¹ |  m ⁻¹ |
| 80 | 8,64 | 80 | 45 | 6,0 | 8,0 | 11,0 | 283,6 | 227,3 | 242,7 | 186,4 |
| 100 | 10,60 | 100 | 50 | 6,0 | 8,5 | 13,5 | 275,6 | 222,2 | 238,5 | 185,2 |
| 120 | 13,40 | 120 | 55 | 7,0 | 9,0 | 17,0 | 255,3 | 205,9 | 222,9 | 173,5 |
| 140 | 16,00 | 140 | 60 | 7,0 | 10,0 | 20,4 | 239,7 | 196,1 | 210,3 | 166,7 |
| 160 | 18,80 | 160 | 65 | 7,5 | 10,5 | 24,0 | 227,5 | 187,5 | 200,4 | 160,4 |
| 180 | 22,00 | 180 | 70 | 8,0 | 11,0 | 28,0 | 218,2 | 178,6 | 193,2 | 153,6 |
| 200 | 25,30 | 200 | 75 | 8,5 | 11,5 | 32,2 | 205,3 | 170,8 | 182,0 | 147,5 |
| 220 | 29,40 | 220 | 80 | 9,0 | 12,5 | 37,4 | 192,0 | 160,4 | 170,6 | 139,0 |
| 240 | 33,20 | 240 | 85 | 9,5 | 13,0 | 42,3 | 183,2 | 153,7 | 163,1 | 133,6 |
| 260 | 37,90 | 260 | 90 | 10,0 | 14,0 | 48,3 | 172,7 | 144,9 | 154,0 | 126,3 |
| 300 | 46,20 | 300 | 100 | 10,0 | 16,0 | 58,8 | 161,6 | 136,1 | 144,6 | 119,0 |

PERFILES HEB

TABLA II. PERFILES NORMALIZADOS. MASIVIDADES

UNE 36.527
DIN 1025-2

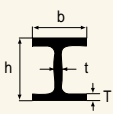




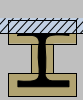
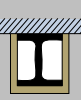
| DENOMINACIÓN HEB | PESO kg/m | h mm | b mm | t mm | T mm | Sección cm ² | Masividades | | | |
|---------------------|--------------|---------|---------|---------|---------|----------------------------|---|---|---|---|
| | | | | | | |  m ⁻¹ |  m ⁻¹ |  m ⁻¹ |  m ⁻¹ |
| 100 | 20,4 | 100 | 100 | 6,1 | 10,0 | 26,0 | 218,1 | 153,8 | 179,6 | 115,4 |
| 120 | 26,7 | 120 | 120 | 6,1 | 11,0 | 34,0 | 201,8 | 141,2 | 166,5 | 105,9 |
| 140 | 33,7 | 140 | 140 | 7,1 | 12,0 | 43,0 | 187,2 | 130,2 | 154,7 | 97,7 |
| 160 | 42,6 | 160 | 160 | 8,1 | 13,0 | 54,3 | 169,1 | 117,9 | 139,6 | 88,4 |
| 180 | 51,2 | 180 | 180 | 8,1 | 14,0 | 65,3 | 157,7 | 110,3 | 130,2 | 82,7 |
| 200 | 61,3 | 200 | 200 | 9,1 | 15,0 | 78,1 | 147,2 | 102,4 | 121,6 | 76,8 |
| 220 | 71,5 | 220 | 220 | 9,1 | 16,0 | 91,0 | 139,6 | 96,7 | 115,4 | 72,5 |
| 240 | 83,2 | 240 | 240 | 10 | 17,0 | 106,0 | 130,2 | 90,6 | 107,5 | 67,9 |
| 260 | 93,0 | 260 | 260 | 10 | 17,5 | 118,0 | 126,7 | 87,8 | 104,7 | 65,9 |
| 280 | 103,0 | 280 | 280 | 10 | 18,0 | 131,0 | 123,3 | 85,2 | 102,0 | 63,9 |
| 300 | 117,0 | 300 | 300 | 11 | 19,0 | 149,0 | 116,0 | 80,5 | 95,9 | 60,4 |
| 320 | 127,0 | 320 | 300 | 11 | 20,5 | 161,0 | 109,7 | 76,9 | 91,1 | 58,3 |
| 340 | 134,0 | 340 | 300 | 12 | 21,5 | 171,0 | 105,9 | 74,9 | 88,4 | 57,3 |
| 360 | 142,0 | 360 | 300 | 12 | 22,5 | 181,0 | 102,4 | 73,1 | 85,8 | 56,5 |
| 400 | 155,0 | 400 | 300 | 13 | 24,0 | 198,0 | 97,6 | 70,8 | 82,4 | 55,6 |
| 450 | 171,0 | 450 | 300 | 14 | 26,0 | 218,0 | 91,3 | 68,4 | 77,5 | 55,0 |
| 500 | 187,0 | 500 | 300 | 14 | 28,0 | 239,0 | 88,9 | 67,1 | 76,3 | 54,5 |
| 550 | 199,0 | 550 | 300 | 15 | 29,0 | 254,0 | 87,4 | 66,9 | 75,6 | 55,1 |
| 600 | 212,0 | 600 | 300 | 15 | 30,0 | 270,0 | 85,9 | 66,7 | 74,8 | 55,6 |

PERFILES IPE

TABLA III. PERFILES NORMALIZADOS. MASIVIDADES

UNE 36.526
DIN 1025-5

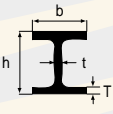




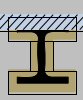
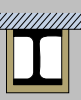
| DENOMINACIÓN IPE | PESO kg/m | h mm | b mm | t mm | T mm | Sección cm ² | Masividades | | | |
|---------------------|--------------|---------|---------|---------|---------|----------------------------|---|---|---|---|
| | | | | | | |  m ⁻¹ |  m ⁻¹ |  m ⁻¹ |  m ⁻¹ |
| 80 | 6,0 | 80 | 46 | 3,8 | 5,2 | 7,64 | 430,6 | 329,8 | 370,4 | 269,6 |
| 100 | 8,1 | 100 | 55 | 4,1 | 5,7 | 10,30 | 389,3 | 301,0 | 335,9 | 247,6 |
| 120 | 10,4 | 120 | 64 | 4,4 | 6,3 | 13,20 | 359,1 | 278,8 | 310,6 | 230,3 |
| 140 | 12,9 | 140 | 73 | 4,7 | 6,9 | 16,40 | 335,4 | 259,8 | 290,9 | 215,2 |
| 160 | 15,8 | 160 | 82 | 5,0 | 7,4 | 20,10 | 309,5 | 240,8 | 268,7 | 200,0 |
| 180 | 18,8 | 180 | 91 | 5,3 | 8,0 | 23,90 | 292,1 | 226,8 | 254,0 | 188,7 |
| 200 | 22,4 | 200 | 100 | 5,6 | 8,5 | 28,50 | 269,5 | 210,5 | 234,4 | 175,4 |
| 220 | 26,2 | 220 | 110 | 5,9 | 9,2 | 33,40 | 253,9 | 197,6 | 221,0 | 164,7 |
| 240 | 30,7 | 240 | 120 | 6,2 | 9,8 | 39,10 | 235,5 | 184,1 | 204,9 | 153,5 |
| 270 | 36,1 | 270 | 135 | 6,6 | 10,2 | 45,90 | 226,6 | 176,5 | 197,2 | 147,1 |
| 300 | 42,2 | 300 | 150 | 7,1 | 10,7 | 53,80 | 215,6 | 167,3 | 187,7 | 139,4 |
| 330 | 49,1 | 330 | 160 | 7,5 | 11,5 | 62,60 | 199,7 | 156,5 | 174,1 | 131,0 |
| 360 | 57,1 | 360 | 170 | 8,0 | 12,7 | 72,70 | 185,7 | 145,8 | 162,3 | 122,4 |
| 400 | 66,3 | 400 | 180 | 8,6 | 13,5 | 84,50 | 174,0 | 137,3 | 152,7 | 116,0 |
| 450 | 77,6 | 450 | 190 | 9,4 | 14,6 | 98,80 | 163,0 | 129,6 | 143,7 | 110,3 |
| 500 | 90,7 | 500 | 200 | 10,2 | 16,0 | 116,00 | 150,0 | 120,7 | 132,8 | 103,4 |
| 550 | 106,0 | 550 | 210 | 11,1 | 17,2 | 134,00 | 140,3 | 113,4 | 124,6 | 97,8 |
| 600 | 122,0 | 600 | 220 | 12,0 | 19,0 | 156,00 | 129,5 | 105,1 | 115,4 | 91,0 |

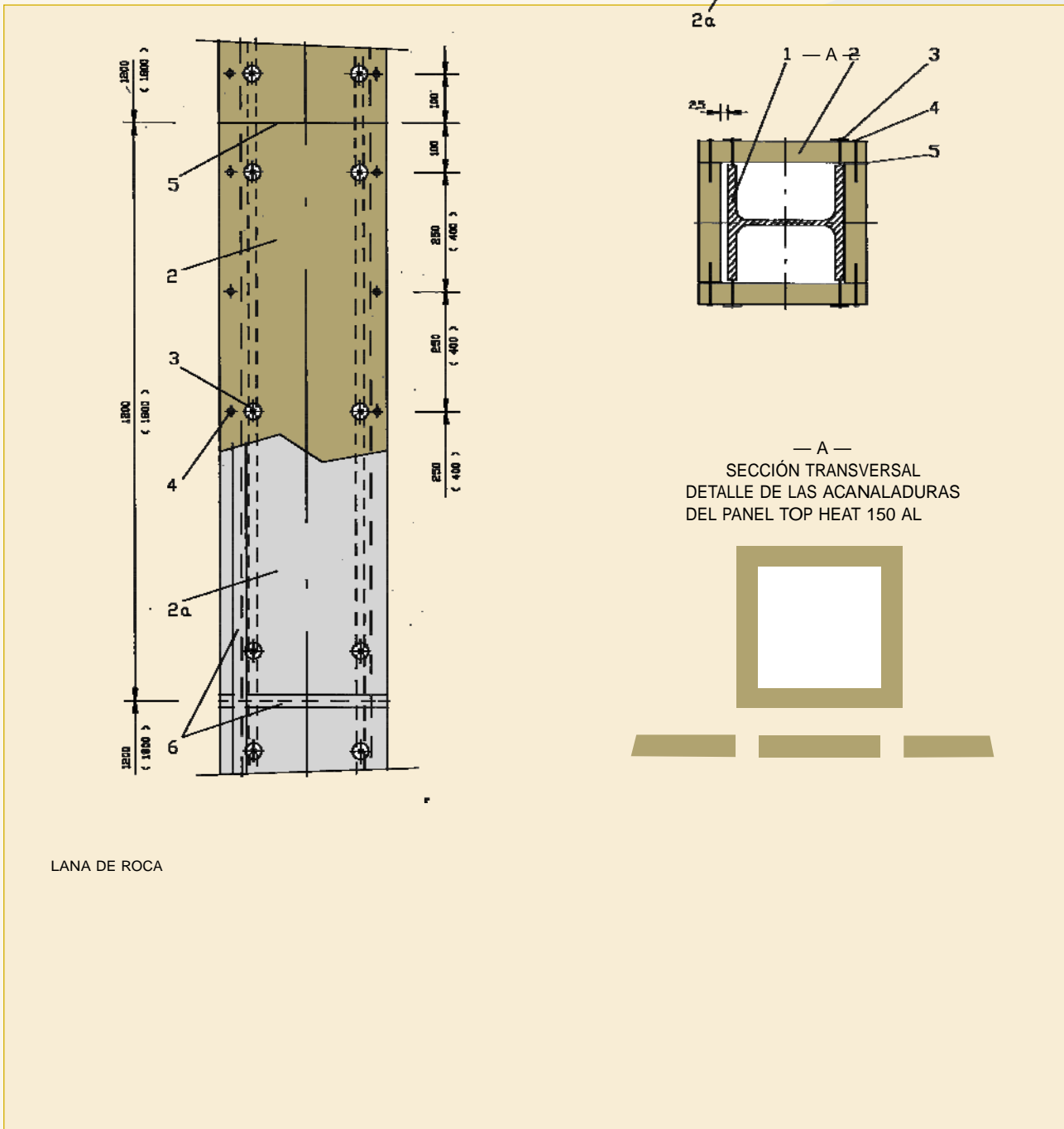
PERFILES IPN

TABLA IV. PERFILES NORMALIZADOS. MASIVIDADES

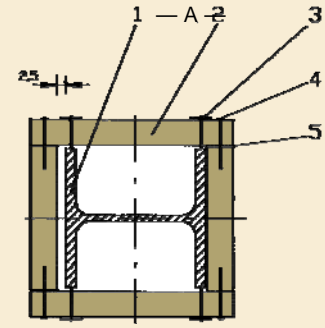
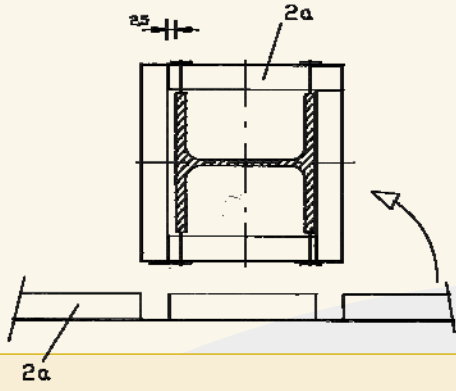
UNE 36.521
DIN 1025-1



| DENOMINACIÓN IPN | PESO kg/m | h mm | b mm | t mm | T mm | Sección cm ² | Masividades | | | |
|---------------------|--------------|---------|---------|---------|---------|----------------------------|---|---|---|---|
| | | | | | | |  m ⁻¹ |  m ⁻¹ |  m ⁻¹ |  m ⁻¹ |
| 80 | 5,95 | 80 | 42 | 3,9 | 5,9 | 7,58 | 401,1 | 321,9 | 345,6 | 266,5 |
| 100 | 8,32 | 100 | 50 | 4,5 | 6,8 | 10,60 | 349,1 | 283,0 | 301,9 | 235,8 |
| 120 | 11,10 | 120 | 58 | 5,1 | 7,7 | 14,20 | 309,2 | 250,7 | 268,3 | 209,9 |
| 140 | 14,40 | 140 | 66 | 5,7 | 8,6 | 18,30 | 274,3 | 225,1 | 238,3 | 189,1 |
| 160 | 17,90 | 160 | 74 | 6,3 | 9,5 | 22,80 | 252,2 | 205,3 | 219,7 | 172,8 |
| 180 | 21,90 | 180 | 82 | 6,9 | 10,4 | 27,90 | 229,4 | 187,8 | 200,0 | 158,4 |
| 200 | 26,30 | 200 | 90 | 7,5 | 11,3 | 33,50 | 211,6 | 173,1 | 184,8 | 146,3 |
| 220 | 31,10 | 220 | 98 | 8,1 | 12,2 | 39,60 | 195,7 | 160,6 | 171,0 | 135,9 |
| 240 | 36,20 | 240 | 106 | 8,7 | 13,1 | 46,10 | 183,1 | 150,1 | 160,1 | 127,1 |
| 260 | 41,90 | 260 | 113 | 9,4 | 14,1 | 53,40 | 169,7 | 139,7 | 148,5 | 118,5 |
| 280 | 48,00 | 280 | 119 | 10,1 | 15,2 | 61,10 | 158,1 | 130,6 | 138,6 | 111,1 |
| 300 | 54,20 | 300 | 125 | 10,8 | 16,2 | 69,10 | 149,1 | 123,0 | 131,0 | 104,9 |
| 320 | 61,10 | 320 | 131 | 11,5 | 17,3 | 77,80 | 140,1 | 115,0 | 123,3 | 99,1 |
| 340 | 68,10 | 340 | 137 | 12,2 | 18,3 | 86,80 | 132,5 | 109,9 | 116,7 | 94,1 |
| 360 | 76,20 | 360 | 143 | 13,0 | 19,5 | 97,10 | 124,6 | 103,6 | 109,9 | 88,9 |
| 380 | 84,00 | 380 | 149 | 13,7 | 20,5 | 107,00 | 118,7 | 98,9 | 104,8 | 85,0 |
| 400 | 92,60 | 400 | 155 | 14,4 | 21,6 | 118,00 | 112,7 | 94,1 | 99,6 | 80,9 |
| 450 | 115,00 | 450 | 170 | 16,2 | 24,3 | 147,00 | 100,7 | 94,4 | 89,1 | 72,8 |
| 500 | 141,00 | 500 | 185 | 18,0 | 27,0 | 180,00 | 90,6 | 76,1 | 80,3 | 65,8 |
| 550 | 167,00 | 550 | 200 | 19,0 | 30,0 | 213,00 | 84,0 | 70,4 | 75,1 | 61,0 |
| 600 | 199,00 | 600 | 215 | 21,6 | 32,4 | 254,00 | 75,6 | 64,2 | 67,1 | 55,7 |



LANA DE ROCA



— A —
SECCIÓN TRANSVERSAL
DETALLE DE LAS ACANALADURAS
DEL PANEL TOP HEAT 150 AL

