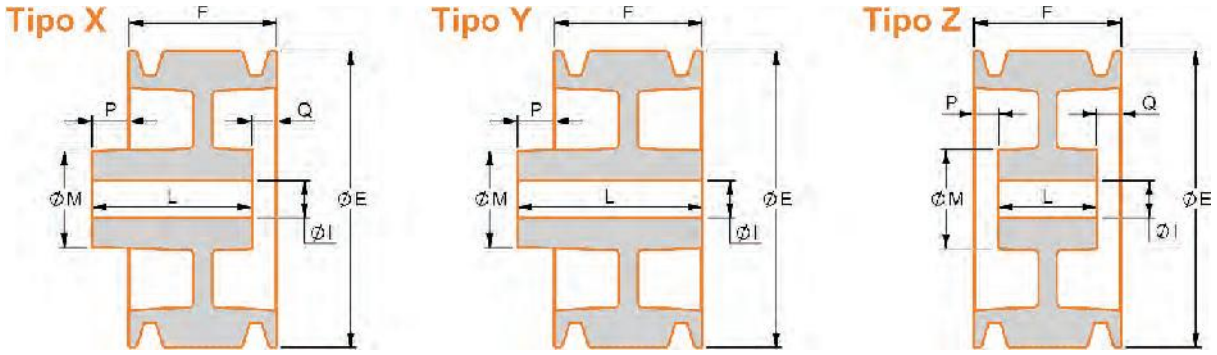
# POLEAS DE FUNDICIÓN GRIS CON MAZA FIJA



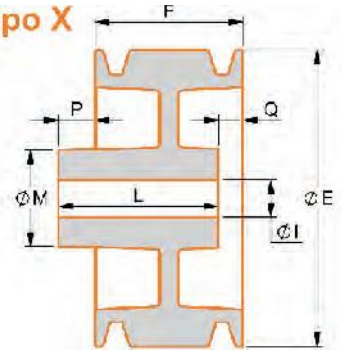

**1 canal perfil "A"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 50 | X | 18 | 35 | 12 | 31 | 16 | 3 | Disco |
| 60 | X | 18 | 34 | 12 | 34 | 19 | 3 | Disco |
| 70 | X | 18 | 39 | 12 | 31 | 16 | 3 | Disco |
| 80 | X | 18 | 43 | 12 | 31 | 16 | 3 | Disco |
| 90 | X | 18 | 44 | 12 | 30 | 15 | 3 | Disco |
| 100 | X | 18 | 45 | 12 | 30 | 15 | 3 | Disco |
| 110 | X | 19 | 45 | 12 | 32 | 16 | 3 | Disco |
| 120 | X | 19 | 47 | 12 | 32 | 16 | 3 | Disco |
| 130 | X | 18 | 49 | 12 | 31 | 16 | 3 | Disco |
| 140 | X | 18 | 51 | 12 | 31 | 16 | 3 | Disco |
| 150 | X | 18 | 51 | 12 | 31 | 16 | 3 | Disco |
| 160 | X | 18 | 51 | 12 | 31 | 15 | 2 | 3 |
| 170 | X | 19 | 55 | 12 | 31 | 15 | 3 | 3 |
| 180 | X | 19 | 54 | 12 | 32 | 16 | 3 | 4 |
| 190 | X | 18 | 55 | 12 | 31 | 16 | 3 | 4 |
| 200 | X | 20 | 55 | 12 | 33 | 16 | 3 | 4 |
| 210 | Y | 20 | 67 | 16 | 26 | 6 | - | 4 |
| 220 | Y | 19 | 70 | 16 | 27 | 8 | - | 4 |
| 230 | Y | 18 | 71 | 16 | 26 | 8 | - | 4 |
| 240 | Y | 19 | 71 | 16 | 28 | 9 | - | 4 |
| 250 | Y | 19 | 71 | 16 | 26 | 7 | - | 4 |
| 260 | Y | 19 | 72 | 16 | 27 | 8 | - | 4 |
| 270 | Y | 19 | 69 | 16 | 27 | 8 | - | 4 |
| 280 | Y | 20 | 72 | 16 | 30 | 10 | - | 4 |
| 290 | Y | 19 | 74 | 16 | 29 | 10 | - | 4 |
| 300 | Y | 19 | 72 | 16 | 27 | 8 | - | 4 |
| 310 | Y | 20 | 74 | 19 | 26 | 6 | - | 4 |
| 320 | Y | 20 | 74 | 19 | 27 | 7 | - | 4 |
| 330 | Y | 20 | 72 | 19 | 28 | 8 | - | 4 |
| 340 | Y | 20 | 73 | 19 | 26 | 6 | - | 4 |
| 350 | Y | 21 | 76 | 19 | 27 | 6 | - | 4 |
| 360 | Y | 20 | 78 | 19 | 26 | 6 | - | 5 |
| 380 | Y | 19 | 79 | 19 | 26 | 7 | - | 5 |
| 400 | Y | 23 | 78 | 19 | 31 | 8 | - | 5 |
| 420 | Y | 21 | 79 | 19 | 26 | 5 | - | 5 |
| 440 | Y | 23 | 79 | 19 | 31 | 8 | - | 5 |
| 450 | Y | 21 | 80 | 19 | 31 | 10 | - | 5 |
| 480 | Y | 20 | 81 | 19 | 27 | 7 | - | 5 |
| 500 | Y | 22 | 84 | 19 | 38 | 16 | - | 5 |
| 550 | Y | 23 | 83 | 19 | 38 | 15 | - | 5 |
| 600 | Y | 22 | 83 | 19 | 39 | 17 | - | 5 |

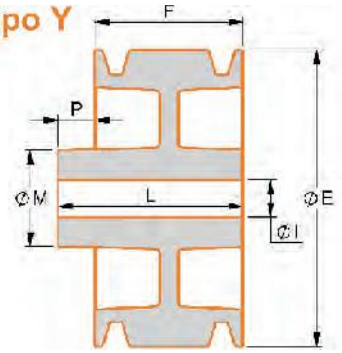
**2 canales perfil "A"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 50 | X | 34 | 36 | 12 | 48 | 18 | 4 | Disco |
| 60 | X | 34 | 38 | 12 | 40 | 15 | 9 | Disco |
| 70 | X | 35 | 44 | 12 | 33 | 16 | 18 | Disco |
| 80 | X | 35 | 45 | 12 | 39 | 16 | 12 | Disco |
| 90 | X | 34 | 47 | 12 | 35 | 16 | 15 | Disco |
| 100 | X | 34 | 48 | 12 | 39 | 16 | 11 | Disco |
| 110 | X | 34 | 49 | 12 | 39 | 16 | 11 | Disco |
| 120 | X | 35 | 51 | 12 | 40 | 16 | 11 | Disco |
| 130 | X | 35 | 52 | 14 | 41 | 16 | 10 | Disco |
| 140 | X | 34 | 54 | 14 | 38 | 16 | 12 | Disco |
| 150 | X | 35 | 55 | 14 | 40 | 16 | 11 | Disco |
| 160 | X | 34 | 56 | 14 | 40 | 17 | 11 | 4 |
| 170 | X | 34 | 61 | 14 | 38 | 16 | 12 | Disco |
| 180 | X | 35 | 59 | 14 | 40 | 16 | 11 | Disco |
| 190 | X | 34 | 60 | 14 | 38 | 15 | 11 | 4 |
| 200 | X | 34 | 61 | 14 | 41 | 16 | 9 | 4 |
| 210 | X | 36 | 70 | 16 | 37 | 7 | 6 | 4 |
| 220 | X | 33 | 72 | 16 | 37 | 7 | 3 | 4 |
| 230 | X | 35 | 75 | 16 | 35 | 8 | 8 | 4 |
| 240 | X | 35 | 72 | 16 | 37 | 8 | 6 | 4 |
| 250 | X | 35 | 72 | 16 | 37 | 8 | 6 | 4 |
| 260 | X | 35 | 74 | 16 | 36 | 8 | 7 | 4 |
| 270 | X | 35 | 76 | 16 | 39 | 7 | 3 | 4 |
| 280 | X | 36 | 75 | 16 | 38 | 7 | 5 | 4 |
| 290 | X | 35 | 77 | 16 | 38 | 8 | 5 | 4 |
| 300 | X | 35 | 77 | 19 | 37 | 7 | 5 | 4 |
| 310 | X | 35 | 75 | 19 | 35 | 7 | 7 | 4 |
| 320 | X | 36 | 79 | 19 | 36 | 6 | 6 | 4 |
| 330 | X | 38 | 78 | 19 | 41 | 7 | 4 | 4 |
| 340 | X | 37 | 79 | 19 | 36 | 6 | 7 | 4 |
| 350 | Y | 36 | 80 | 19 | 41 | 5 | - | 4 |
| 360 | X | 38 | 81 | 19 | 41 | 7 | 4 | 5 |
| 380 | X | 36 | 84 | 19 | 36 | 7 | 7 | 5 |
| 400 | Y | 36 | 88 | 19 | 41 | 5 | - | 5 |
| 420 | X | 38 | 87 | 19 | 38 | 5 | 5 | 5 |
| | | | | | | | | |
| 450 | Y | 36 | 91 | 25 | 42 | 6 | - | 5 |
| 480 | Y | 39 | 93 | 25 | 47 | 8 | - | 5 |
| 500 | Y | 37 | 90 | 25 | 45 | 8 | - | 5 |
| 550 | Y | 39 | 92 | 25 | 44 | 5 | - | 5 |
| 600 | Y | 39 | 90 | 25 | 45 | 6 | - | 5 |

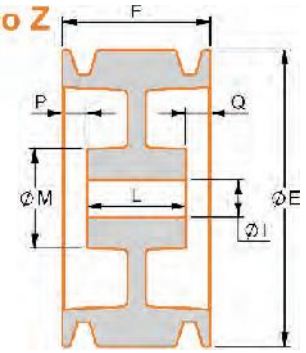
Tipo X




Tipo Y




Tipo Z



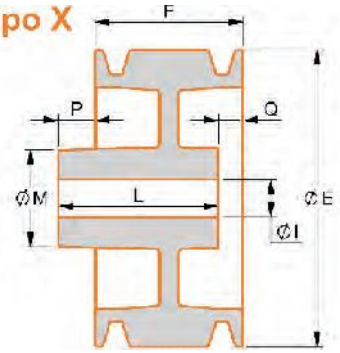

### 3 canales perfil "A"

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 60 | Y | 53 | 47 | 14 | 68 | 15 | - | Disco |
| 70 | X | 51 | 51 | 14 | 49 | 16 | 18 | Disco |
| 80 | X | 50 | 58 | 19 | 46 | 16 | 20 | Disco |
| 90 | X | 50 | 60 | 19 | 46 | 16 | 20 | Disco |
| 100 | X | 51 | 62 | 19 | 49 | 16 | 18 | Disco |
| 110 | X | 50 | 63 | 19 | 48 | 16 | 18 | Disco |
| 120 | X | 50 | 65 | 19 | 48 | 16 | 18 | Disco |
| 130 | X | 50 | 66 | 19 | 46 | 16 | 20 | Disco |
| 140 | X | 50 | 67 | 19 | 49 | 16 | 17 | Disco |
| 150 | X | 52 | 70 | 19 | 49 | 16 | 19 | Disco |
| 160 | X | 51 | 71 | 19 | 49 | 17 | 19 | Disco |
| 170 | X | 51 | 72 | 19 | 49 | 18 | 20 | Disco |
| 180 | X | 50 | 74 | 19 | 49 | 16 | 17 | Disco |
| 190 | X | 50 | 75 | 19 | 51 | 17 | 16 | Disco |
| 200 | X | 50 | 77 | 19 | 49 | 17 | 18 | Disco |
| 210 | X | 52 | 81 | 19 | 54 | 9 | 7 | 4 |
| 220 | X | 48 | 74 | 19 | 50 | 10 | 8 | 4 |
| 230 | X | 52 | 79 | 19 | 51 | 7 | 8 | 4 |
| 240 | X | 50 | 80 | 19 | 48 | 7 | 9 | 4 |
| 250 | X | 50 | 76 | 19 | 49 | 8 | 9 | 4 |
| 260 | X | 51 | 80 | 19 | 49 | 7 | 9 | 4 |
| 280 | X | 52 | 80 | 19 | 51 | 7 | 8 | 4 |
| 300 | X | 51 | 81 | 19 | 50 | 8 | 9 | 4 |
| 310 | X | 51 | 79 | 19 | 51 | 6 | 6 | 4 |
| 320 | X | 51 | 83 | 19 | 51 | 7 | 7 | 4 |
| 340 | X | 52 | 82 | 25 | 50 | 5 | 7 | 4 |
| 350 | X | 53 | 86 | 25 | 54 | 7 | 6 | 4 |
| 360 | X | 52 | 86 | 25 | 51 | 7 | 8 | 5 |
| 380 | X | 52 | 87 | 25 | 51 | 6 | 7 | 5 |
| 400 | Z | 53 | 88 | 25 | 41 | 10 | 2 | 5 |
| 450 | X | 53 | 97 | 25 | 48 | 5 | 10 | 5 |
| 500 | Z | 54 | 90 | 25 | 46 | 7 | 1 | 5 |
| 550 | Z | 55 | 91 | 25 | 45 | 7 | 3 | 5 |

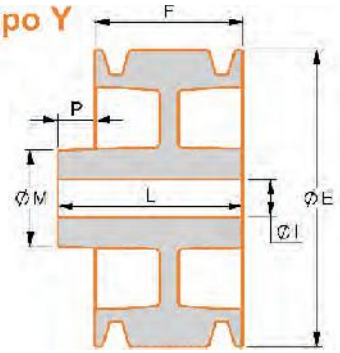
### 4 canales perfil "A"

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| 70 | X | 67 | 56 | 19 | 66 | 16 | 17 | Disco |
| 80 | X | 67 | 60 | 19 | 63 | 14 | 18 | Disco |
| 90 | X | 68 | 65 | 19 | 58 | 16 | 26 | Disco |
| 100 | X | 69 | 70 | 19 | 58 | 17 | 28 | Disco |
| 110 | X | 69 | 71 | 19 | 56 | 17 | 30 | Disco |
| 120 | X | 69 | 72 | 19 | 52 | 16 | 33 | Disco |
| 130 | X | 67 | 70 | 19 | 51 | 16 | 32 | Disco |
| 140 | X | 68 | 71 | 19 | 52 | 16 | 32 | Disco |
| 150 | X | 67 | 73 | 19 | 49 | 15 | 33 | Disco |
| 160 | X | 68 | 75 | 19 | 53 | 17 | 32 | Disco |
| 170 | X | 69 | 77 | 19 | 55 | 16 | 30 | Disco |
| 180 | X | 67 | 81 | 19 | 53 | 16 | 30 | Disco |
| 190 | X | 68 | 83 | 19 | 53 | 15 | 30 | Disco |
| 200 | X | 68 | 85 | 19 | 53 | 16 | 31 | Disco |
| | | | | | | | | |
| 220 | X | 65 | 84 | 19 | 55 | 10 | 20 | 4 |
| | | | | | | | | |
| 240 | X | 68 | 90 | 19 | 55 | 8 | 21 | 4 |
| 250 | X | 68 | 93 | 19 | 56 | 8 | 20 | 4 |
| 260 | X | 69 | 95 | 19 | 57 | 8 | 20 | 4 |
| 280 | X | 68 | 95 | 19 | 53 | 5 | 20 | 4 |
| 300 | X | 66 | 96 | 19 | 56 | 8 | 18 | 4 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 350 | X | 67 | 98 | 25 | 54 | 6 | 19 | 4 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 450 | X | 67 | 104 | 25 | 54 | 6 | 19 | 5 |
| | | | | | | | | |
| | | | | | | | | |

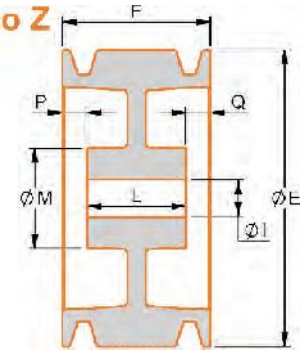
Tipo X




Tipo Y




Tipo Z

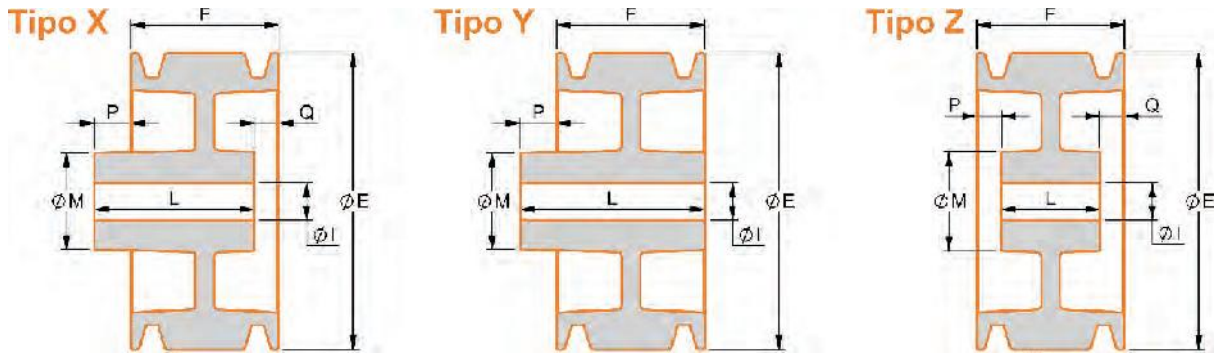



**1 canal perfil "B"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 50 | X | 22 | 34 | 12 | 35 | 16 | 3 | Disco |
| 60 | X | 22 | 37 | 12 | 34 | 16 | 4 | Disco |
| 70 | X | 22 | 39 | 12 | 32 | 16 | 6 | Disco |
| 80 | X | 22 | 43 | 12 | 28 | 16 | 10 | Disco |
| 90 | X | 21 | 44 | 12 | 29 | 16 | 8 | Disco |
| 100 | X | 22 | 44 | 12 | 30 | 16 | 8 | Disco |
| 110 | X | 22 | 46 | 12 | 34 | 16 | 4 | Disco |
| 120 | X | 24 | 47 | 12 | 34 | 16 | 6 | Disco |
| 130 | X | 23 | 49 | 12 | 33 | 16 | 6 | Disco |
| 140 | X | 23 | 51 | 12 | 34 | 16 | 5 | Disco |
| 150 | X | 22 | 50 | 12 | 33 | 17 | 6 | Disco |
| 160 | X | 24 | 51 | 12 | 32 | 15 | 7 | 3 |
| 170 | X | 24 | 50 | 12 | 32 | 16 | 8 | 3 |
| 180 | X | 23 | 54 | 12 | 34 | 16 | 5 | 4 |
| 190 | X | 25 | 56 | 12 | 32 | 15 | 8 | 4 |
| 200 | X | 23 | 56 | 12 | 34 | 16 | 5 | 4 |
| 210 | Y | 23 | 70 | 16 | 29 | 6 | - | 4 |
| 220 | Y | 23 | 71 | 16 | 31 | 8 | - | 4 |
| 230 | Y | 23 | 72 | 16 | 31 | 8 | - | 4 |
| 240 | Y | 22 | 71 | 16 | 32 | 10 | - | 4 |
| 250 | Y | 22 | 75 | 16 | 30 | 8 | - | 4 |
| 260 | Y | 23 | 76 | 16 | 31 | 8 | - | 4 |
| 270 | Y | 23 | 74 | 16 | 31 | 8 | - | 4 |
| 280 | Y | 22 | 76 | 16 | 32 | 10 | - | 4 |
| 290 | Y | 23 | 77 | 16 | 31 | 8 | - | 4 |
| 300 | Y | 23 | 76 | 16 | 30 | 7 | - | 4 |
| 310 | Y | 24 | 76 | 19 | 29 | 5 | - | 4 |
| 320 | Y | 23 | 72 | 19 | 30 | 7 | - | 4 |
| 330 | Y | 25 | 73 | 19 | 33 | 8 | - | 4 |
| 340 | Y | 22 | 79 | 19 | 28 | 6 | - | 4 |
| 350 | Y | 25 | 78 | 19 | 32 | 7 | - | 4 |
| 360 | Y | 23 | 81 | 19 | 29 | 6 | - | 5 |
| 380 | Y | 23 | 78 | 19 | 30 | 7 | - | 5 |
| 400 | Y | 25 | 80 | 19 | 33 | 8 | - | 5 |
| 420 | Y | 26 | 78 | 19 | 34 | 8 | - | 5 |
| 440 | Y | 25 | 81 | 19 | 35 | 10 | - | 5 |
| 450 | Y | 23 | 83 | 19 | 32 | 9 | - | 5 |
| 480 | Y | 25 | 89 | 19 | 35 | 10 | - | 5 |
| 500 | Y | 26 | 90 | 19 | 41 | 15 | - | 5 |
| 550 | Y | 26 | 90 | 19 | 41 | 15 | - | 5 |
| 600 | Y | 26 | 91 | 19 | 40 | 14 | - | 5 |
| 650 | Y | 26 | 117 | 36 | 37 | 11 | - | 6 |
| 700 | Y | 26 | 117 | 36 | 37 | 11 | - | 6 |
| 800 | Y | 27 | 121 | 36 | 39 | 12 | - | 6 |

**2 canales perfil "B"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 50 | X | 42 | 36 | 12 | 54 | 16 | 4 | Disco |
| 60 | X | 42 | 38 | 12 | 48 | 15 | 9 | Disco |
| 70 | X | 42 | 44 | 12 | 43 | 16 | 15 | Disco |
| 80 | X | 41 | 44 | 12 | 42 | 16 | 15 | Disco |
| 90 | X | 41 | 46 | 12 | 43 | 17 | 15 | Disco |
| 100 | X | 42 | 47 | 14 | 44 | 16 | 14 | Disco |
| 110 | X | 41 | 50 | 14 | 44 | 17 | 14 | Disco |
| 120 | X | 42 | 50 | 14 | 42 | 16 | 16 | Disco |
| 130 | X | 42 | 53 | 14 | 45 | 17 | 14 | Disco |
| 140 | X | 42 | 54 | 14 | 45 | 16 | 13 | Disco |
| 150 | X | 42 | 55 | 14 | 43 | 16 | 15 | Disco |
| 160 | X | 41 | 55 | 14 | 42 | 18 | 17 | 4 |
| 170 | X | 43 | 58 | 14 | 42 | 13 | 14 | Disco |
| 180 | X | 41 | 58 | 14 | 43 | 16 | 14 | Disco |
| 190 | X | 41 | 59 | 14 | 40 | 17 | 18 | 4 |
| 200 | X | 42 | 68 | 14 | 44 | 16 | 14 | 4 |
| 210 | X | 41 | 70 | 19 | 43 | 8 | 6 | 4 |
| 220 | X | 42 | 78 | 19 | 45 | 8 | 5 | 4 |
| 230 | X | 43 | 81 | 19 | 45 | 8 | 6 | 4 |
| 240 | X | 43 | 77 | 19 | 46 | 8 | 5 | 4 |
| 250 | X | 42 | 77 | 19 | 45 | 9 | 6 | 4 |
| 260 | X | 42 | 79 | 19 | 45 | 9 | 6 | 4 |
| 270 | X | 44 | 81 | 19 | 45 | 7 | 6 | 4 |
| 280 | X | 44 | 84 | 19 | 43 | 7 | 8 | 4 |
| 290 | X | 44 | 81 | 19 | 44 | 7 | 7 | 4 |
| 300 | X | 43 | 84 | 19 | 44 | 7 | 6 | 4 |
| 310 | X | 44 | 85 | 19 | 44 | 7 | 7 | 4 |
| 320 | X | 43 | 82 | 19 | 43 | 7 | 7 | 4 |
| 330 | X | 45 | 84 | 19 | 46 | 6 | 5 | 4 |
| 340 | X | 43 | 79 | 19 | 43 | 7 | 7 | 4 |
| 350 | X | 44 | 88 | 25 | 43 | 6 | 7 | 4 |
| 360 | X | 44 | 85 | 25 | 42 | 6 | 8 | 5 |
| 380 | X | 42 | 88 | 25 | 43 | 8 | 7 | 5 |
| 400 | X | 46 | 93 | 25 | 46 | 6 | 6 | 5 |
| 420 | X | 45 | 94 | 25 | 46 | 6 | 5 | 5 |
| | | | | | | | | |
| 450 | X | 45 | 95 | 25 | 46 | 6 | 5 | 5 |
| 480 | Y | 44 | 95 | 25 | 49 | 5 | - | 5 |
| 500 | Y | 44 | 96 | 25 | 52 | 8 | - | 5 |
| 550 | Y | 46 | 96 | 25 | 55 | 9 | - | 5 |
| 600 | Y | 44 | 97 | 25 | 50 | 6 | - | 5 |
| 650 | Y | 45 | 118 | 36 | 53 | 8 | - | 6 |
| 700 | Y | 45 | 122 | 36 | 54 | 9 | - | 6 |
| 800 | Y | 48 | 127 | 36 | 54 | 6 | - | 6 |

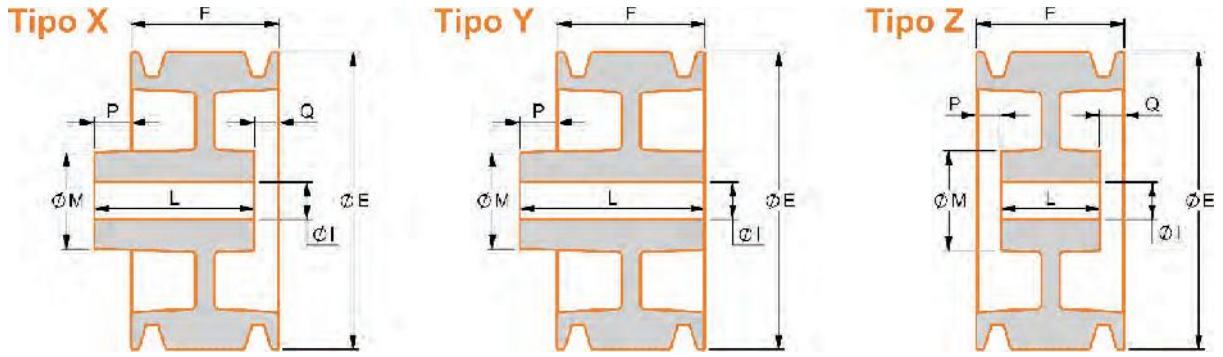



### 3 canales perfil "B"

| ØE | Tipo | F | ØM | Øl | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 70 | X | 63 | 55 | 14 | 64 | 16 | 15 | Disco |
| 80 | X | 61 | 56 | 19 | 59 | 16 | 18 | Disco |
| 90 | X | 61 | 61 | 19 | 58 | 16 | 19 | Disco |
| 100 | X | 62 | 61 | 19 | 62 | 16 | 16 | Disco |
| 110 | X | 61 | 64 | 19 | 56 | 13 | 18 | Disco |
| 120 | X | 62 | 65 | 19 | 62 | 16 | 16 | Disco |
| 130 | X | 61 | 67 | 19 | 62 | 17 | 16 | Disco |
| 140 | X | 61 | 70 | 19 | 60 | 16 | 17 | Disco |
| 150 | X | 62 | 72 | 19 | 58 | 16 | 20 | Disco |
| 160 | X | 62 | 72 | 19 | 59 | 16 | 19 | Disco |
| 170 | X | 60 | 75 | 19 | 60 | 16 | 16 | Disco |
| 180 | X | 62 | 75 | 19 | 59 | 16 | 19 | Disco |
| 190 | X | 63 | 75 | 19 | 60 | 17 | 20 | Disco |
| 200 | X | 61 | 77 | 19 | 57 | 17 | 21 | Disco |
| 210 | X | 62 | 80 | 19 | 61 | 9 | 10 | 4 |
| 220 | X | 63 | 80 | 19 | 60 | 8 | 11 | 4 |
| 230 | X | 61 | 80 | 19 | 62 | 8 | 7 | 4 |
| 240 | X | 62 | 79 | 19 | 57 | 9 | 14 | 4 |
| 250 | X | 62 | 81 | 19 | 59 | 8 | 11 | 4 |
| 260 | X | 62 | 81 | 19 | 60 | 9 | 11 | 4 |
| 270 | X | 63 | 84 | 19 | 62 | 8 | 9 | 4 |
| 280 | X | 63 | 81 | 19 | 63 | 7 | 7 | 4 |
| 290 | X | 62 | 84 | 19 | 62 | 7 | 7 | 4 |
| 300 | X | 63 | 85 | 19 | 63 | 9 | 9 | 4 |
| 310 | X | 63 | 84 | 25 | 60 | 6 | 9 | 4 |
| 320 | X | 63 | 83 | 25 | 62 | 6 | 7 | 4 |
| 330 | X | 63 | 83 | 25 | 63 | 9 | 9 | 4 |
| 340 | X | 64 | 88 | 25 | 64 | 5 | 5 | 4 |
| 350 | X | 65 | 90 | 25 | 68 | 8 | 5 | 4 |
| 360 | X | 63 | 91 | 25 | 62 | 5 | 6 | 5 |
| 380 | X | 63 | 93 | 25 | 61 | 5 | 7 | 5 |
| 400 | X | 65 | 95 | 25 | 65 | 8 | 8 | 5 |
| 420 | X | 65 | 94 | 25 | 65 | 6 | 6 | 5 |
| 450 | Y | 64 | 97 | 25 | 69 | 5 | - | 5 |
| 480 | X | 66 | 103 | 25 | 66 | 5 | 5 | 5 |
| 500 | Y | 64 | 106 | 25 | 68 | 4 | - | 5 |
| 550 | Y | 65 | 104 | 25 | 68 | 3 | - | 5 |
| 600 | Y | 66 | 106 | 25 | 68 | 2 | - | 5 |
| 650 | X | 65 | 122 | 36 | 69 | 9 | 5 | 6 |
| 700 | X | 65 | 129 | 36 | 71 | 12 | 6 | 6 |
| 800 | Y | 65 | 131 | 36 | 72 | 7 | - | 6 |

### 4 canales perfil "B"

| ØE | Tipo | F | ØM | Øl | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 70 | X | 82 | 57 | 14 | 84 | 17 | 15 | Disco |
| 80 | X | 82 | 61 | 19 | 85 | 16 | 13 | Disco |
| 90 | X | 82 | 65 | 19 | 70 | 16 | 28 | Disco |
| 100 | X | 82 | 65 | 19 | 72 | 16 | 26 | Disco |
| 110 | X | 80 | 67 | 19 | 70 | 16 | 26 | Disco |
| 120 | X | 84 | 66 | 19 | 71 | 15 | 28 | Disco |
| 130 | X | 80 | 69 | 19 | 73 | 16 | 23 | Disco |
| 140 | X | 80 | 71 | 19 | 70 | 17 | 27 | Disco |
| 150 | X | 83 | 71 | 19 | 67 | 15 | 31 | Disco |
| 160 | X | 82 | 75 | 19 | 68 | 16 | 30 | Disco |
| 170 | X | 81 | 77 | 19 | 75 | 17 | 23 | Disco |
| 180 | X | 83 | 75 | 19 | 71 | 16 | 28 | Disco |
| 190 | X | 81 | 78 | 19 | 78 | 17 | 20 | Disco |
| 200 | X | 83 | 80 | 19 | 73 | 17 | 27 | Disco |
| 210 | X | 82 | 82 | 19 | 69 | 9 | 22 | 4 |
| 220 | X | 83 | 80 | 19 | 70 | 9 | 22 | 4 |
| 230 | X | 82 | 83 | 19 | 75 | 9 | 16 | 4 |
| 240 | X | 81 | 82 | 19 | 69 | 9 | 21 | 4 |
| 250 | X | 83 | 83 | 19 | 68 | 8 | 23 | 4 |
| 260 | X | 81 | 83 | 19 | 68 | 9 | 22 | 4 |
| 270 | X | 83 | 84 | 19 | 74 | 9 | 18 | 4 |
| 280 | X | 84 | 88 | 19 | 72 | 9 | 21 | 4 |
| 290 | X | 82 | 84 | 19 | 69 | 8 | 21 | 4 |
| 300 | X | 82 | 85 | 19 | 70 | 10 | 22 | 4 |
| 310 | X | 82 | 89 | 25 | 82 | 7 | 7 | 4 |
| 320 | X | 84 | 91 | 25 | 84 | 7 | 7 | 4 |
| 330 | X | 84 | 90 | 25 | 83 | 7 | 8 | 4 |
| 340 | X | 84 | 91 | 25 | 84 | 7 | 7 | 4 |
| 350 | X | 86 | 93 | 25 | 72 | 7 | 21 | 4 |
| 360 | X | 85 | 97 | 25 | 86 | 6 | 5 | 4 |
| 380 | X | 84 | 101 | 25 | 82 | 7 | 9 | 5 |
| 400 | X | 85 | 102 | 25 | 82 | 7 | 10 | 5 |
| 420 | X | 84 | 104 | 25 | 84 | 7 | 7 | 5 |
| 450 | X | 86 | 100 | 25 | 82 | 7 | 11 | 5 |
| 480 | X | 86 | 102 | 25 | 82 | 7 | 11 | 5 |
| 500 | X | 86 | 107 | 25 | 80 | 4 | 10 | 5 |
| 550 | X | 87 | 106 | 25 | 73 | 5 | 19 | 5 |
| 600 | X | 85 | 108 | 25 | 87 | 6 | 4 | 5 |
| 650 | X | 85 | 137 | 36 | 80 | 10 | 15 | 6 |
| 700 | Z | 84 | 136 | 36 | 82 | 2 | - | 6 |
| 800 | X | 84 | 137 | 36 | 79 | 7 | 12 | 6 |



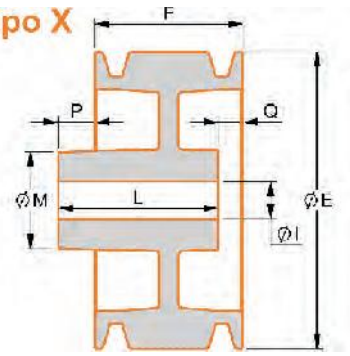

**5 canales perfil "B"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 90 | X | 102 | 68 | 19 | 98 | 16 | 20 | Disco |
| 100 | X | 102 | 69 | - | 102 | 16 | 16 | Disco |
| 110 | X | 100 | 75 | 19 | 97 | 17 | 20 | Disco |
| 120 | X | 102 | 71 | 19 | 90 | 16 | 28 | Disco |
| 130 | X | 104 | 81 | 19 | 88 | 20 | 36 | Disco |
| 140 | X | 100 | 79 | 19 | 92 | 16 | 24 | Disco |
| 150 | X | 102 | 80 | 19 | 95 | 17 | 24 | Disco |
| 160 | X | 101 | 82 | 19 | 95 | 17 | 23 | Disco |
| 170 | X | 101 | 83 | 19 | 87 | 18 | 32 | Disco |
| 180 | X | 101 | 79 | 19 | 100 | 17 | 18 | Disco |
| 190 | X | 101 | 84 | 19 | 87 | 18 | 32 | Disco |
| 200 | X | 101 | 82 | 19 | 102 | 17 | 16 | Disco |
| 210 | X | 103 | 86 | 25 | 96 | 16 | 23 | 4 |
| 220 | X | 101 | 85 | 25 | 92 | 9 | 18 | 4 |
| 230 | X | 102 | 88 | 25 | 102 | 8 | 8 | 4 |
| 240 | X | 102 | 87 | 25 | 84 | 8 | 26 | 4 |
| 250 | X | 102 | 86 | 25 | 81 | 8 | 29 | 4 |
| 260 | X | 101 | 90 | 25 | 83 | 9 | 27 | 4 |
| 280 | X | 105 | 90 | 25 | 88 | 9 | 26 | 4 |
| 300 | X | 102 | 90 | 25 | 83 | 8 | 27 | 4 |
| 310 | X | 102 | 91 | 25 | 103 | 7 | 6 | 4 |
| 320 | X | 105 | 99 | 25 | 105 | 7 | 7 | 4 |
| 330 | X | 104 | 102 | 25 | 105 | 5 | 4 | 4 |
| 340 | X | 103 | 102 | 25 | 103 | 8 | 8 | 4 |
| 350 | X | 104 | 105 | 36 | 103 | 9 | 10 | 4 |
| 360 | X | 104 | 105 | 36 | 104 | 9 | 9 | 5 |
| 380 | X | 103 | 105 | 36 | 102 | 2 | 3 | 5 |
| 400 | X | 104 | 112 | 36 | 105 | 6 | 5 | 5 |
| 420 | X | 104 | 113 | 36 | 103 | 7 | 8 | 5 |
| 450 | X | 106 | 115 | 36 | 112 | 9 | 3 | 5 |
| 500 | X | 108 | 119 | 36 | 108 | 2 | 2 | 5 |
| 550 | X | 105 | 119 | 36 | 107 | 5 | 3 | 5 |
| 600 | Y | 104 | 118 | 36 | 111 | 7 | - | 5 |
| 650 | X | 104 | 140 | 36 | 89 | 8 | 23 | 6 |
| 700 | X | 103 | 139 | 36 | 96 | 9 | 16 | 6 |
| 800 | X | 104 | 146 | 36 | 84 | 8 | 28 | 6 |

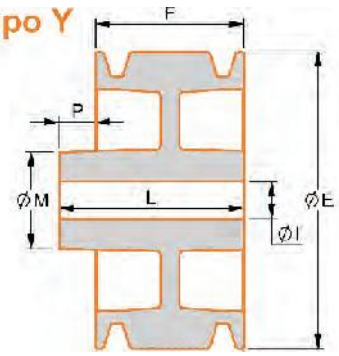
**6 canales perfil "B"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 120 | X | 122 | 90 | - | 109 | 16 | 29 | Disco |
| 130 | X | 125 | 85 | 36 | 99 | 20 | 46 | Disco |
| | | | | | | | | |
| 150 | X | 121 | 92 | - | 80 | 16 | 57 | Disco |
| 160 | X | 122 | 99 | - | 82 | 15 | 55 | Disco |
| 170 | X | 124 | 95 | - | 93 | 17 | 48 | Disco |
| 180 | X | 122 | 98 | - | 80 | 19 | 61 | Disco |
| | | | | | | | | |
| 200 | X | 122 | 103 | - | 78 | 21 | 65 | Disco |
| 210 | X | 123 | 109 | - | 90 | 10 | 43 | Disco |
| 220 | X | 122 | 124 | - | 75 | 12 | 59 | Disco |
| 230 | X | 123 | 124 | - | 76 | 12 | 59 | Disco |
| 240 | X | 123 | 126 | - | 79 | 15 | 59 | Disco |
| 250 | X | 124 | 111 | - | 81 | 17 | 60 | Disco |
| 260 | X | 123 | 106 | - | 81 | 12 | 54 | 4 |
| 280 | X | 124 | 116 | - | 80 | 12 | 56 | 4 |
| 300 | X | 123 | 117 | 36 | 88 | 10 | 45 | 4 |
| | | | | | | | | |
| 320 | X | 124 | 123 | 36 | 87 | 9 | 46 | 4 |
| 330 | X | 123 | 128 | 36 | 84 | 9 | 48 | 4 |
| 340 | X | 122 | 120 | 36 | 86 | 9 | 45 | 4 |
| 350 | X | 123 | 122 | 36 | 86 | 10 | 47 | 6 |
| 360 | X | 124 | 122 | 36 | 85 | 9 | 48 | 6 |
| 380 | X | 124 | 121 | - | 86 | 9 | 47 | 6 |
| 400 | X | 123 | 136 | 36 | 92 | 15 | 46 | 6 |
| 420 | X | 124 | 134 | 36 | 95 | 18 | 47 | 6 |
| 450 | X | 124 | 138 | 36 | 88 | 14 | 50 | 6 |
| 500 | X | 123 | 141 | 36 | 88 | 9 | 44 | 6 |
| 550 | X | 124 | 138 | 36 | 88 | 11 | 47 | 6 |
| 600 | X | 124 | 139 | 36 | 88 | 9 | 45 | 6 |
| 650 | X | 123 | 146 | 36 | 104 | 8 | 27 | 6 |
| 700 | X | 123 | 146 | 36 | 107 | 8 | 24 | 6 |
| 800 | X | 123 | 157 | 36 | 108 | 11 | 26 | 6 |

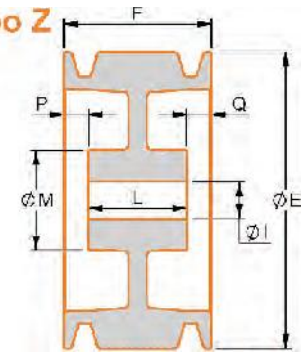
Tipo X




Tipo Y



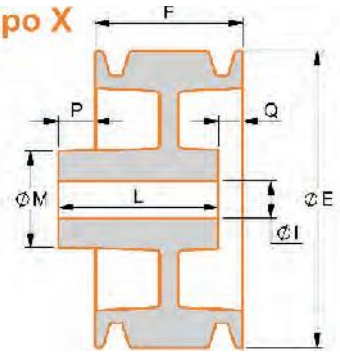

Tipo Z



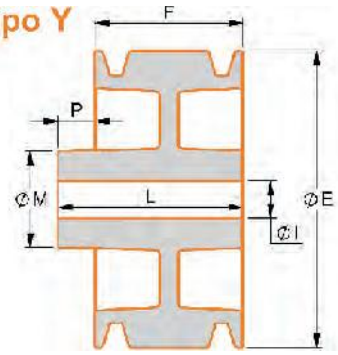

**7 canales perfil "B"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 120 | Y | 138 | 109 | - | 153 | 15 | - | Disco |
| 130 | X | 143 | 80 | 36 | 114 | 20 | 49 | Disco |
| 150 | X | 142 | 91 | 36 | 85 | 14 | 71 | Disco |
| 160 | X | 143 | 100 | - | 87 | 15 | 71 | Disco |
| 170 | X | 140 | 97 | - | 86 | 9 | 63 | Disco |
| 180 | X | 141 | 96 | 36 | 85 | 16 | 72 | Disco |
| 190 | X | 144 | 101 | - | 89 | 10 | 65 | Disco |
| 200 | X | 144 | 100 | - | 88 | 19 | 75 | Disco |
| 210 | X | 143 | 139 | - | 89 | 17 | 71 | Disco |
| 220 | X | 142 | 124 | - | 84 | 12 | 70 | Disco |
| 230 | X | 143 | 123 | - | 87 | 14 | 70 | Disco |
| 240 | X | 143 | 126 | - | 87 | 14 | 70 | Disco |
| 250 | X | 142 | 113 | - | 91 | 14 | 65 | Disco |
| 280 | X | 145 | 139 | - | 103 | 16 | 58 | Disco |
| 300 | X | 143 | 139 | - | 102 | 16 | 57 | Disco |
| 320 | X | 142 | 126 | - | 100 | 16 | 58 | 4 |
| 330 | X | 144 | 129 | 36 | 132 | 16 | 28 | 4 |
| 340 | X | 142 | 121 | 36 | 102 | 16 | 56 | 4 |
| 350 | X | 139 | 117 | 36 | 96 | 16 | 59 | 6 |
| 360 | X | 144 | 123 | 36 | 103 | 15 | 56 | 6 |
| 380 | X | 144 | 120 | 36 | 101 | 12 | 55 | 6 |
| 400 | X | 144 | 137 | 36 | 97 | 10 | 57 | 6 |
| 420 | X | 143 | 134 | 36 | 100 | 12 | 55 | 6 |
| 450 | X | 143 | 139 | 36 | 103 | 14 | 54 | 6 |
| 500 | X | 144 | 139 | 36 | 130 | 16 | 30 | 6 |
| 550 | X | 144 | 138 | 36 | 142 | 10 | 12 | 6 |
| 600 | X | 145 | 136 | 36 | 98 | 9 | 56 | 6 |
| 650 | X | 143 | 148 | 36 | 112 | 8 | 39 | 6 |
| 700 | X | 142 | 156 | 36 | 112 | 9 | 39 | 6 |
| 800 | X | 142 | 159 | 36 | 103 | 8 | 47 | 6 |

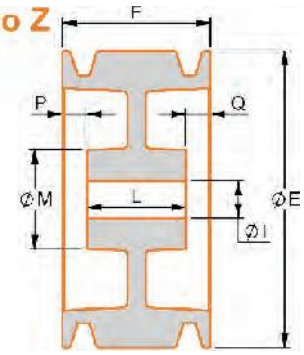
Tipo X




Tipo Y




Tipo Z

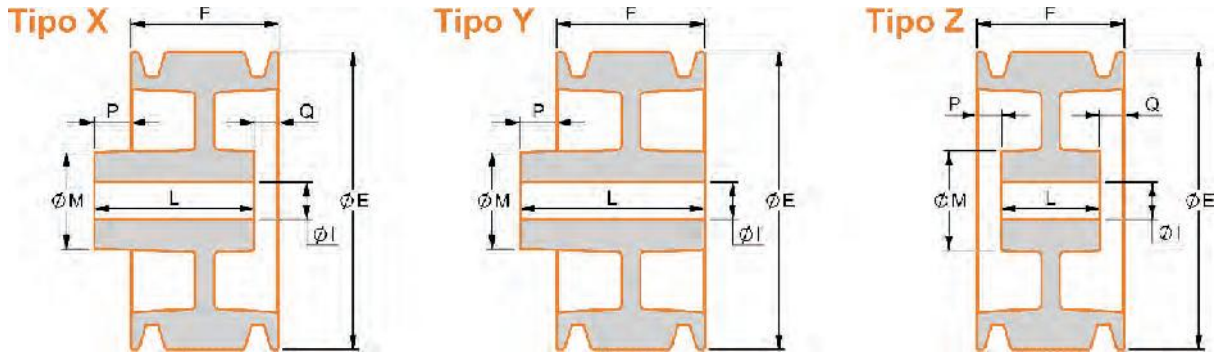



**1 canal perfil "C"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 80 | X | 28 | 50 | 14 | 38 | 16 | 6 | Disco |
| 90 | X | 29 | 53 | 14 | 40 | 17 | 6 | Disco |
| 100 | X | 30 | 55 | 16 | 41 | 17 | 6 | Disco |
| 110 | X | 29 | 59 | 16 | 38 | 17 | 8 | Disco |
| 120 | X | 30 | 59 | 16 | 38 | 16 | 8 | Disco |
| 130 | X | 29 | 62 | 16 | 39 | 17 | 7 | Disco |
| 140 | X | 29 | 63 | 16 | 41 | 17 | 5 | Disco |
| 150 | X | 29 | 64 | 16 | 40 | 16 | 5 | Disco |
| 160 | X | 28 | 68 | 16 | 35 | 16 | 9 | Disco |
| 170 | X | 28 | 68 | 16 | 36 | 14 | 6 | Disco |
| 180 | X | 28 | 70 | 16 | 40 | 17 | 5 | Disco |
| 190 | X | 30 | 70 | 16 | 36 | 15 | 9 | 3 |
| 200 | X | 29 | 71 | 16 | 39 | 16 | 6 | Disco |
| 210 | Y | 29 | 73 | 19 | 36 | 7 | - | 4 |
| 220 | Y | 28 | 73 | 19 | 35 | 7 | - | 4 |
| 230 | Y | 28 | 76 | 19 | 37 | 9 | - | 4 |
| 240 | Y | 28 | 75 | 19 | 35 | 7 | - | 4 |
| 250 | X | 29 | 76 | 19 | 33 | 8 | 4 | 4 |
| 260 | Y | 28 | 78 | 19 | 35 | 7 | - | 4 |
| 270 | Y | 29 | 77 | 19 | 37 | 8 | - | 4 |
| 280 | Y | 28 | 77 | 19 | 35 | 7 | - | 4 |
| 290 | Y | 29 | 79 | 19 | 37 | 8 | - | 4 |
| 300 | Y | 28 | 79 | 19 | 36 | 8 | - | 4 |
| 310 | Y | 30 | 78 | 19 | 38 | 8 | - | 4 |
| 320 | Y | 28 | 78 | 19 | 35 | 7 | - | 4 |
| 330 | Y | 30 | 76 | 19 | 37 | 7 | - | 4 |
| 340 | Y | 30 | 76 | 19 | 37 | 7 | - | 4 |
| 350 | X | 31 | 80 | 19 | 36 | 8 | 3 | 4 |
| 360 | Y | 29 | 75 | 19 | 35 | 6 | - | 5 |
| 380 | Y | 28 | 80 | 19 | 34 | 6 | - | 5 |
| 400 | X | 32 | 85 | 19 | 36 | 12 | 8 | 5 |
| 420 | Y | 31 | 85 | 19 | 37 | 6 | - | 5 |
| 450 | Y | 29 | 89 | 19 | 37 | 8 | - | 5 |
| 480 | Y | 33 | 91 | 19 | 44 | 11 | - | 5 |
| 500 | Y | 32 | 91 | 19 | 46 | 14 | - | 5 |
| 550 | Y | 32 | 93 | 19 | 47 | 15 | - | 5 |
| 600 | Y | 32 | 93 | 19 | 40 | 8 | - | 5 |
| 650 | Y | 32 | 117 | 36 | 41 | 9 | - | 6 |
| 700 | Y | 35 | 115 | 36 | 45 | 10 | - | 6 |
| 800 | Y | 28 | 122 | 36 | 38 | 10 | - | 6 |

**2 canales perfil "C"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 80 | X | 53 | 56 | 16 | 55 | 16 | 14 | Disco |
| 90 | X | 54 | 58 | 16 | 51 | 16 | 19 | Disco |
| 100 | X | 53 | 59 | 16 | 48 | 17 | 22 | Disco |
| 110 | X | 54 | 64 | 16 | 52 | 17 | 19 | Disco |
| 120 | X | 53 | 64 | 16 | 47 | 17 | 23 | Disco |
| 130 | X | 53 | 66 | 16 | 47 | 17 | 23 | Disco |
| 140 | X | 53 | 67 | 16 | 52 | 17 | 18 | Disco |
| 150 | X | 52 | 69 | 16 | 50 | 17 | 19 | Disco |
| 160 | X | 53 | 71 | 16 | 42 | 15 | 26 | Disco |
| 170 | X | 54 | 74 | 16 | 48 | 15 | 21 | Disco |
| 180 | X | 53 | 73 | 16 | 51 | 16 | 18 | Disco |
| 190 | X | 54 | 75 | 16 | 42 | 15 | 27 | 3 |
| 200 | X | 54 | 75 | 16 | 54 | 16 | 16 | Disco |
| 210 | X | 53 | 75 | 19 | 53 | 8 | 8 | 4 |
| 220 | X | 55 | 79 | 19 | 54 | 8 | 9 | 4 |
| 230 | X | 55 | 80 | 19 | 54 | 8 | 9 | 4 |
| 240 | X | 54 | 80 | 19 | 52 | 8 | 10 | 4 |
| 250 | X | 53 | 80 | 19 | 53 | 8 | 8 | 4 |
| 260 | X | 53 | 85 | 19 | 53 | 8 | 8 | 4 |
| 270 | X | 55 | 84 | 19 | 57 | 8 | 6 | 4 |
| 280 | X | 55 | 86 | 19 | 56 | 8 | 7 | 4 |
| 290 | X | 53 | 86 | 19 | 54 | 8 | 7 | 4 |
| 300 | X | 55 | 85 | 19 | 55 | 7 | 7 | 4 |
| 310 | X | 55 | 86 | 19 | 55 | 7 | 7 | 4 |
| 320 | X | 55 | 86 | 25 | 53 | 5 | 7 | 4 |
| 330 | X | 55 | 85 | 25 | 57 | 7 | 5 | 4 |
| 340 | X | 55 | 85 | 25 | 54 | 6 | 7 | 4 |
| 350 | X | 55 | 89 | 25 | 54 | 6 | 7 | 4 |
| 360 | X | 55 | 87 | 25 | 54 | 7 | 8 | 5 |
| 380 | X | 53 | 91 | 25 | 54 | 7 | 6 | 5 |
| 400 | X | 56 | 98 | 25 | 56 | 6 | 6 | 5 |
| 420 | X | 57 | 92 | 25 | 58 | 7 | 6 | 5 |
| 450 | X | 57 | 95 | 25 | 59 | 7 | 5 | 5 |
| 480 | X | 58 | 97 | 25 | 63 | 10 | 5 | 5 |
| 500 | X | 58 | 100 | 25 | 66 | 11 | 3 | 5 |
| 550 | X | 58 | 103 | 25 | 63 | 8 | 3 | 5 |
| 600 | X | 58 | 106 | 25 | 61 | 8 | 5 | 5 |
| 650 | Y | 57 | 129 | 36 | 65 | 8 | - | 6 |
| 700 | Y | 57 | 125 | 36 | 68 | 11 | - | 6 |
| 800 | X | 57 | 137 | 36 | 55 | 7 | 9 | 6 |

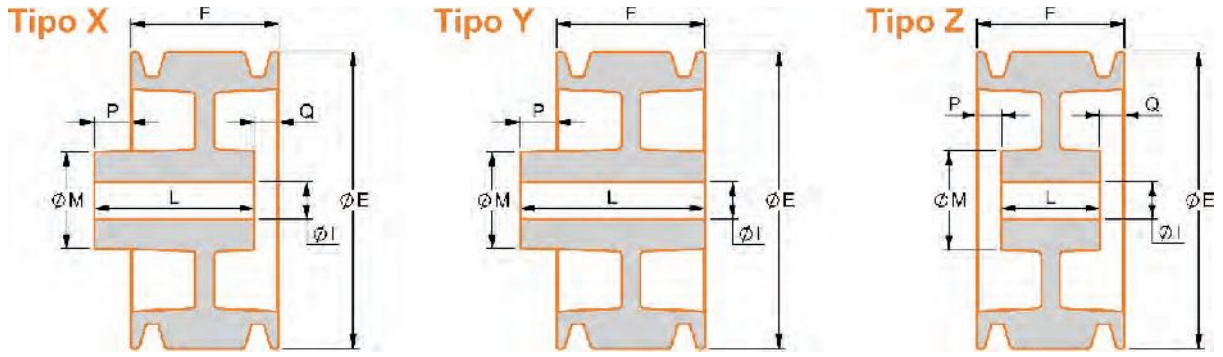



### 3 canales perfil "C"

| ØE | Tipo | F | ØM | Øl | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 90 | X | 78 | 63 | 19 | 76 | 17 | 19 | Disco |
| 100 | X | 80 | 65 | 19 | 70 | 16 | 26 | Disco |
| 110 | X | 79 | 65 | 19 | 72 | 17 | 24 | Disco |
| 120 | X | 80 | 71 | 19 | 69 | 17 | 28 | Disco |
| 130 | X | 78 | 68 | 19 | 71 | 17 | 24 | Disco |
| 140 | X | 78 | 70 | 19 | 67 | 17 | 28 | Disco |
| 150 | X | 80 | 72 | 19 | 75 | 17 | 22 | Disco |
| 160 | X | 77 | 71 | 19 | 64 | 16 | 29 | Disco |
| 170 | X | 77 | 76 | 19 | 72 | 18 | 23 | Disco |
| 180 | X | 79 | 77 | 19 | 76 | 18 | 21 | Disco |
| 190 | X | 79 | 80 | 19 | 73 | 17 | 23 | Disco |
| 200 | X | 79 | 81 | 19 | 73 | 18 | 24 | Disco |
| 210 | X | 78 | 84 | 19 | 73 | 8 | 13 | 4 |
| 220 | X | 79 | 87 | 19 | 72 | 8 | 15 | 4 |
| 230 | X | 78 | 85 | 19 | 72 | 8 | 14 | 4 |
| 240 | X | 83 | 86 | 19 | 72 | 7 | 18 | 4 |
| 250 | X | 79 | 88 | 19 | 71 | 7 | 15 | 4 |
| 260 | X | 79 | 87 | 19 | 72 | 8 | 15 | 4 |
| 270 | X | 80 | 87 | 19 | 73 | 8 | 15 | 4 |
| 280 | X | 81 | 90 | 19 | 74 | 8 | 15 | 4 |
| 290 | X | 80 | 90 | 19 | 74 | 8 | 14 | 4 |
| 300 | X | 80 | 92 | 19 | 76 | 8 | 12 | 4 |
| 310 | X | 80 | 94 | 25 | 80 | 6 | 6 | 4 |
| 320 | X | 82 | 92 | 25 | 81 | 5 | 6 | 4 |
| 330 | X | 81 | 85 | 25 | 69 | 7 | 19 | 4 |
| 340 | X | 80 | 91 | 25 | 80 | 6 | 6 | 4 |
| 350 | X | 80 | 93 | 25 | 79 | 7 | 8 | 4 |
| 360 | X | 82 | 94 | 25 | 82 | 6 | 6 | 5 |
| 380 | X | 82 | 97 | 25 | 83 | 5 | 4 | 5 |
| 400 | X | 83 | 104 | 25 | 77 | 5 | 11 | 5 |
| 420 | X | 84 | 96 | 25 | 80 | 4 | 8 | 5 |
| 450 | X | 83 | 99 | 25 | 82 | 6 | 7 | 5 |
| 480 | X | 83 | 105 | 25 | 80 | 6 | 9 | 5 |
| 500 | Y | 83 | 105 | 25 | 88 | 5 | - | 5 |
| 550 | Y | 82 | 105 | 25 | 89 | 7 | - | 5 |
| 600 | X | 84 | 105 | 25 | 85 | 5 | 4 | 5 |
| 650 | Y | 82 | 144 | 36 | 107 | 25 | - | 6 |
| 700 | X | 83 | 137 | 36 | 80 | 8 | 11 | 6 |
| 800 | X | 82 | 140 | 36 | 79 | 7 | 10 | 6 |

### 4 canales perfil "C"

| ØE | Tipo | F | ØM | Øl | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 90 | X | 104 | 66 | 19 | 99 | 16 | 21 | Disco |
| 100 | X | 104 | 68 | 19 | 91 | 18 | 31 | Disco |
| 110 | X | 104 | 71 | 19 | 92 | 16 | 28 | Disco |
| 120 | X | 105 | 72 | 19 | 92 | 16 | 29 | Disco |
| 130 | Z | 103 | 73 | 19 | 88 | 5 | 10 | Disco |
| 140 | X | 102 | 75 | 19 | 87 | 17 | 32 | Disco |
| 150 | X | 105 | 75 | 19 | 92 | 17 | 30 | Disco |
| 160 | X | 101 | 78 | 19 | 87 | 17 | 31 | Disco |
| 170 | X | 103 | 76 | 19 | 89 | 17 | 31 | Disco |
| 180 | X | 104 | 80 | 19 | 82 | 15 | 37 | Disco |
| 190 | X | 103 | 79 | 19 | 89 | 19 | 33 | Disco |
| 200 | X | 106 | 83 | 19 | 86 | 17 | 37 | Disco |
| 210 | X | 105 | 84 | 19 | 85 | 9 | 29 | 4 |
| 220 | X | 105 | 82 | 19 | 88 | 12 | 29 | 4 |
| 230 | X | 103 | 86 | 19 | 85 | 9 | 27 | 4 |
| 240 | X | 104 | 86 | 19 | 88 | 10 | 26 | 4 |
| 250 | X | 104 | 86 | 19 | 87 | 11 | 28 | 4 |
| 260 | X | 103 | 87 | 19 | 86 | 12 | 29 | 4 |
| 270 | X | 104 | 91 | 19 | 88 | 9 | 25 | 4 |
| 280 | X | 104 | 90 | 19 | 88 | 9 | 25 | 4 |
| 290 | X | 103 | 89 | 19 | 91 | 10 | 22 | 4 |
| 300 | X | 104 | 90 | 25 | 85 | 8 | 27 | 4 |
| 310 | X | 106 | 94 | 25 | 105 | 7 | 8 | 4 |
| 320 | X | 106 | 93 | 25 | 104 | 7 | 9 | 4 |
| 330 | X | 107 | 94 | 25 | 102 | 8 | 13 | 4 |
| 340 | X | 104 | 95 | 25 | 105 | 6 | 5 | 4 |
| 350 | X | 107 | 98 | 25 | 85 | 7 | 29 | 4 |
| 360 | X | 106 | 97 | 25 | 106 | 7 | 7 | 5 |
| 380 | X | 108 | 99 | 25 | 105 | 6 | 9 | 5 |
| 400 | X | 108 | 103 | 25 | 95 | 5 | 18 | 5 |
| 420 | X | 106 | 105 | 25 | 104 | 7 | 9 | 5 |
| 450 | X | 107 | 103 | 25 | 100 | 8 | 15 | 5 |
| 480 | X | 109 | 105 | 25 | 50 | 10 | 69 | 5 |
| 500 | X | 108 | 107 | 25 | 100 | 4 | 12 | 5 |
| 550 | X | 108 | 103 | 25 | 106 | 4 | 6 | 5 |
| 600 | X | 107 | 107 | 36 | 106 | 6 | 7 | 5 |
| 650 | Y | 107 | 141 | 36 | 115 | 8 | - | 6 |
| 700 | X | 107 | 160 | 36 | 98 | 7 | 16 | 6 |
| 800 | X | 107 | 147 | 36 | 85 | 9 | 31 | 6 |

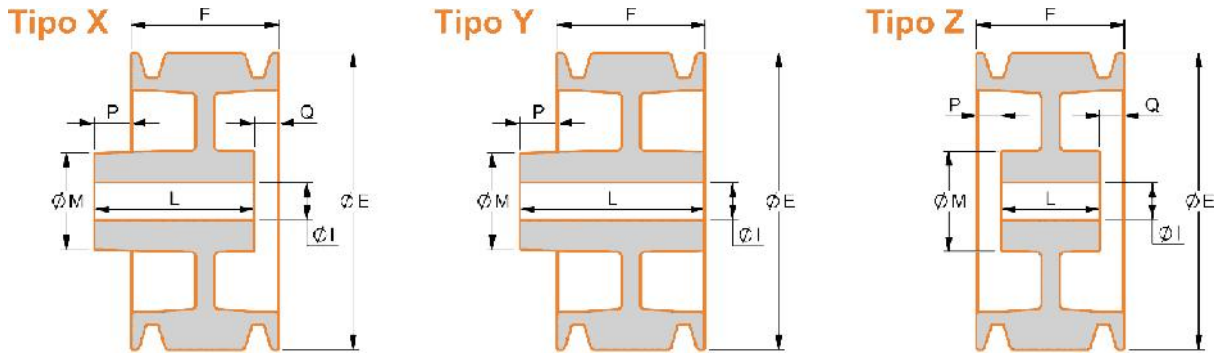



**5 canales perfil "C"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 90 | X | 129 | 71 | 25 | 125 | 16 | 20 | Disco |
| 100 | X | 129 | 78 | - | 127 | 16 | 18 | Disco |
| 110 | X | 129 | 79 | 25 | 126 | 16 | 19 | Disco |
| 120 | X | 132 | 82 | 25 | 129 | 17 | 20 | Disco |
| 130 | X | 133 | 85 | 25 | 110 | 20 | 43 | Disco |
| 140 | X | 128 | 81 | 25 | 119 | 15 | 24 | Disco |
| 150 | X | 132 | 85 | 25 | 128 | 17 | 21 | Disco |
| 160 | X | 129 | 87 | 25 | 111 | 11 | 29 | Disco |
| 170 | X | 131 | 91 | 25 | 107 | 17 | 41 | Disco |
| 180 | X | 131 | 89 | 25 | 128 | 17 | 20 | Disco |
| 190 | X | 131 | 90 | 25 | 106 | 16 | 41 | Disco |
| 200 | X | 131 | 92 | 25 | 128 | 17 | 20 | Disco |
| 210 | X | 132 | 95 | 25 | 104 | 17 | 45 | Disco |
| 220 | X | 130 | 97 | 25 | 124 | 9 | 15 | Disco |
| 230 | X | 131 | 98 | 25 | 120 | 8 | 19 | 4 |
| 240 | X | 130 | 99 | 25 | 123 | 9 | 16 | 4 |
| 250 | X | 132 | 100 | 25 | 124 | 9 | 17 | 4 |
| 260 | X | 126 | 101 | 25 | 119 | 9 | 16 | 4 |
| | | | | | | | | |
| 280 | X | 131 | 99 | 25 | 122 | 8 | 17 | 4 |
| 300 | X | 132 | 100 | 25 | 126 | 9 | 15 | 4 |
| 310 | X | 131 | 98 | 25 | 131 | 7 | 7 | 4 |
| 320 | X | 131 | 104 | 25 | 122 | 7 | 16 | 4 |
| 330 | X | 132 | 108 | 25 | 126 | 3 | 9 | 4 |
| 340 | X | 132 | 104 | 25 | 124 | 8 | 16 | 4 |
| 350 | X | 132 | 105 | 36 | 115 | 5 | 22 | 4 |
| 360 | X | 133 | 105 | 36 | 128 | 5 | 10 | 5 |
| 380 | X | 133 | 109 | 36 | 131 | 6 | 8 | 5 |
| 400 | X | 133 | 115 | 36 | 120 | - | 13 | 5 |
| 420 | X | 134 | 116 | 36 | 130 | 8 | 12 | 5 |
| 450 | Z | 134 | 113 | 36 | 130 | 4 | - | 5 |
| 480 | X | 134 | 117 | 36 | 130 | 10 | 14 | 5 |
| 500 | X | 134 | 119 | 36 | 133 | 2 | 3 | 5 |
| 550 | Y | 133 | 125 | 36 | 141 | 8 | - | 5 |
| 600 | Y | 133 | 125 | 36 | 135 | 2 | - | 5 |
| 650 | X | 131 | 148 | 36 | 111 | 7 | 27 | 6 |
| 700 | X | 131 | 156 | 36 | 111 | 7 | 27 | 6 |
| 800 | X | 132 | 154 | 36 | 107 | 7 | 32 | 6 |

**6 canales perfil "C"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 130 | X | 159 | 84 | - | 136 | 20 | 43 | Disco |
| | | | | | | | | |
| 150 | X | 158 | 96 | 36 | 116 | 17 | 59 | Disco |
| 160 | X | 157 | 102 | 36 | 116 | 17 | 58 | Disco |
| 170 | X | 157 | 99 | 36 | 123 | 20 | 54 | Disco |
| 180 | X | 156 | 98 | - | 108 | 8 | 56 | Disco |
| 190 | X | 154 | 112 | 36 | 114 | 17 | 57 | Disco |
| 200 | X | 155 | 103 | - | 104 | 9 | 60 | Disco |
| 210 | X | 155 | 114 | 36 | 112 | 17 | 60 | Disco |
| 220 | X | 156 | 123 | - | 102 | 10 | 64 | Disco |
| 230 | X | 156 | 126 | - | 95 | 10 | 71 | Disco |
| 240 | X | 156 | 125 | - | 117 | 15 | 54 | Disco |
| 250 | X | 156 | 137 | - | 106 | 9 | 59 | Disco |
| 260 | X | 155 | 128 | - | 103 | 15 | 67 | Disco |
| 270 | X | 157 | 119 | - | 107 | 16 | 66 | Disco |
| 280 | X | 156 | 127 | - | 103 | 14 | 67 | Disco |
| 300 | X | 158 | 130 | - | 107 | 15 | 66 | Disco |
| | | | | | | | | |
| 320 | X | 157 | 129 | - | 104 | 12 | 65 | Disco |
| 330 | X | 156 | 128 | - | 109 | 13 | 60 | Disco |
| 340 | X | 158 | 130 | - | 108 | 15 | 65 | 4 |
| 350 | X | 155 | 129 | 36 | 103 | 9 | 61 | 6 |
| 360 | X | 156 | 135 | - | 106 | 13 | 63 | 6 |
| 380 | X | 155 | 135 | 36 | 109 | 13 | 59 | 6 |
| 400 | X | 156 | 133 | 42 | 100 | 9 | 65 | 6 |
| 420 | X | 156 | 135 | - | 97 | 4 | 63 | 6 |
| 450 | X | 157 | 135 | 42 | 102 | 5 | 60 | 6 |
| | | | | | | | | |
| 500 | X | 158 | 133 | 42 | 102 | 5 | 61 | 6 |
| 550 | X | 158 | 137 | 42 | 98 | 2 | 62 | 6 |
| 600 | X | 157 | 129 | 42 | 97 | 1 | 61 | 6 |
| 650 | X | 157 | 147 | 42 | 121 | 8 | 44 | 6 |
| 700 | X | 157 | 155 | 42 | 127 | 8 | 38 | 6 |
| 800 | X | 156 | 162 | 42 | 116 | 8 | 48 | 6 |




**8 canales perfil "C"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 180 | X | 208 | 120 | 36 | 172 | 21 | 57 | Disco |
| 200 | X | 217 | 128 | 34 | 175 | 20 | 62 | Disco |
| 230 | X | 213 | 123 | 36 | 148 | 8 | 73 | Disco |
| 250 | X | 214 | 135 | 36 | 162 | 8 | 60 | Disco |
| 280 | Z | 218 | 166 | - | 134 | 6 | 78 | Disco |
| 300 | X | 210 | 139 | - | 135 | 8 | 83 | Disco |
| 320 | X | 212 | 150 | 36 | 155 | 8 | 65 | Disco |
| 340 | X | 213 | 150 | - | 182 | 7 | 38 | Disco |
| 350 | X | 205 | 148 | - | 154 | 9 | 60 | Disco |
| 380 | X | 208 | 146 | 36 | 153 | 5 | 60 | 6 |
| 400 | X | 208 | 146 | 42 | 154 | 10 | 64 | 6 |
| 500 | X | 210 | 150 | - | 156 | 8 | 62 | Disco |

**7 canales perfil "C"**

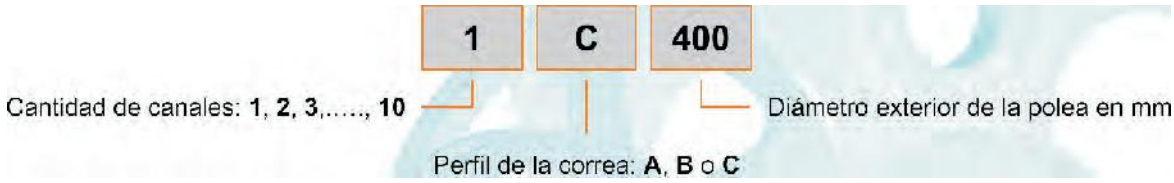
| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 300 | X | 186 | 139 | 36 | 123 | 6 | 69 | 4 |
| 340 | X | 187 | 138 | - | 154 | 7 | 40 | Disco |

**10 canales perfil "C"**

| ØE | Tipo | F | ØM | ØI | L | P | Q | Rayos |
|---|---|---|---|---|---|---|---|---|
| 210 | X | 259 | 143 | - | 170 | 8 | 97 | Disco |
| 310 | X | 260 | 137 | - | 155 | 2 | 107 | Disco |
| 340 | X | 263 | 148 | - | 115 | 32 | 180 | Disco |
| 350 | X | 264 | 149 | - | 156 | 9 | 117 | Disco |
| 450 | X | 262 | 146 | - | 166 | 10 | 106 | Disco |

## COMO SOLICITAR UNA POLEA CON MAZA FIJA

La nomenclatura que identifica las poleas de esta clase se conforma de tres partes ordenadas de la siguiente manera:




De esta manera, en el ejemplo se solicita una polea para una correa sección “C” de 400 mm de diámetro exterior.

# COMO OBTENER EL MEJOR RESULTADO DE SUS POLEAS

**Si usted busca**

- Gran duración de correas
- El menor desgaste de los canales
- Funcionamiento sin vibraciones
- Marcha silenciosa

**¿Qué variables debe tener en cuenta para lograr estos objetivos?**

La excentricidad de la polea con respecto al eje, el desbalanceo, el desgaste de los canales y la falta de alineación son las principales causas que impiden lograr buenos resultados.

**¿Cómo evitarlos?**

Cuando se mecaniza el agujero central de la polea o buje, es el momento clave de evitar la **excentricidad**.
Al colocar la pieza en el torno, debe centrar la misma utilizando un reloj comparador midiendo sobre la superficie del diámetro exterior y sin excesos de pintura. Se recomienda que la oscilación de la aguja del comparador en un giro completo no supere los **0.05** mm.

De esta manera se logra que el agujero que se utilizará para ubicar la polea en el eje, esté centrado con respecto a los canales y luego la correa tendrá un funcionamiento regular y uniforme, sin alteraciones o deformaciones por estiramiento.

Conjuntamente, deberá tener en cuenta el huelgo entre el diámetro del eje y el del agujero. La diferencia entre ambos no debe ser mayor a **0.03** mm para ejes hasta 30 mm y se puede aceptar diferencias de **0.04** mm para ejes superiores. Errores por encima de estos valores ocasionan descentrados al ajustar el prisionero y se generan vibraciones no deseables.

Luego de realizado el agujero es necesario mantener la pieza **balanceada**. Si tiene que colocar prisioneros de fijación, estos deben estar dispuestos en forma equilibrada.
Si la polea posee un refuerzo en la zona de prisionero y chaveta, es conveniente compensar este peso.
Cuando la pieza vaya a girar a velocidades mayores a 500 rpm se recomienda el equilibrado del conjunto. Esta tarea evitará vibraciones excesivas en el equipo.

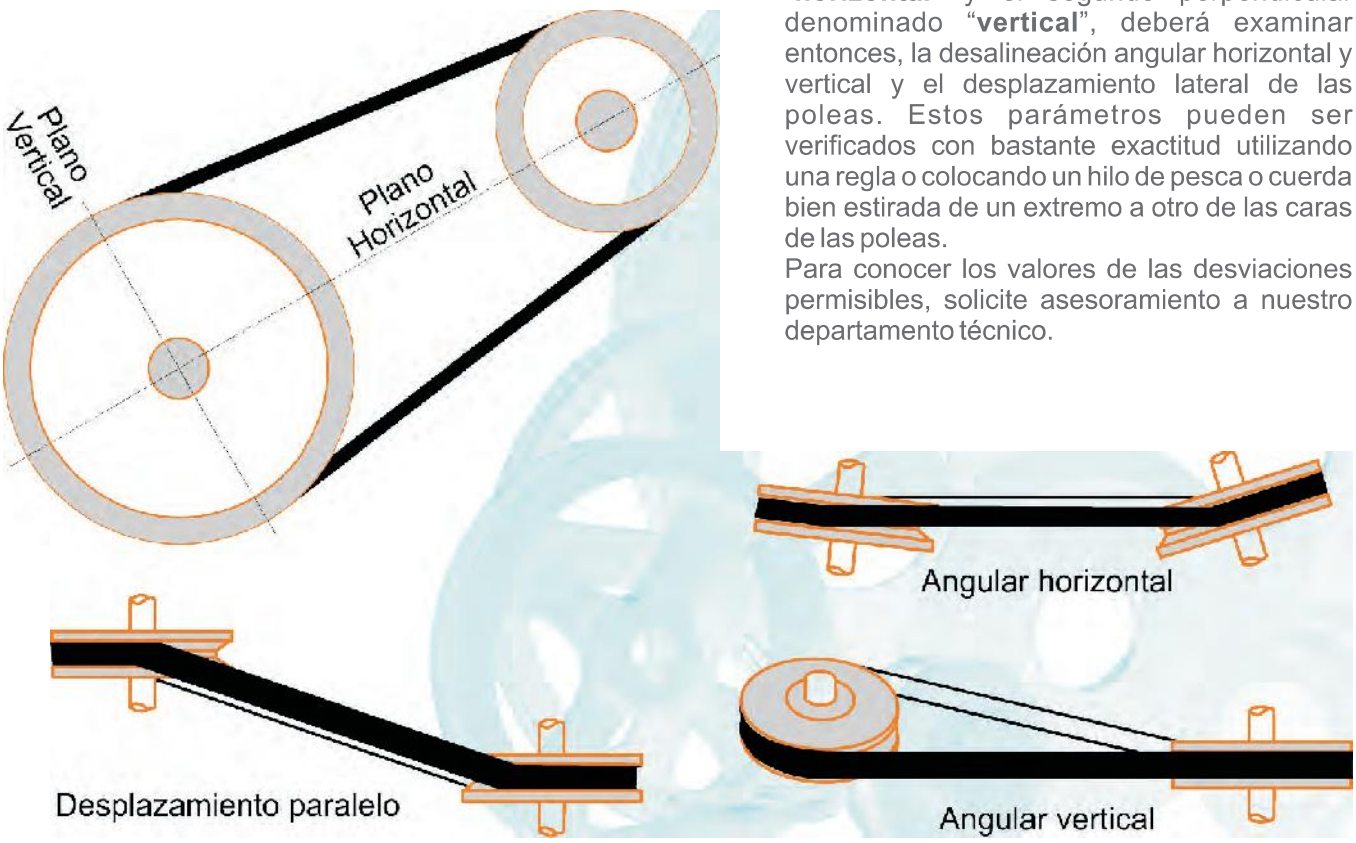
**El desgaste de los canales**, es una de las principales causas de falla prematura de las correas. Haga valer su dinero invertido en un nuevo juego de correas, inspeccionando cuidadosamente las poleas

- Limpie restos de polvo, lubricante, suciedad y óxido de la polea. Estos restarán eficiencia al sistema de transmisión.
- Utilizando guantes o un trapo, verifique que la superficie de los canales se presente lisa y suave, sin marcas o rayas.
- La correa debe situarse de manera tal que la cara superior se aliñe a ras con el diámetro exterior de la polea. Si el canal se encuentra gastado a tal punto que la cara inferior de la correa hace contacto con el fondo del canal, la correa patinará y se quemará. Brillo en el fondo del canal es una evidencia clara de este defecto.
- Si las paredes del canal están gastadas en forma curva hacia fuera, los vértices inferiores de la correa se dañarán causando una falla prematura. Revise visualmente, con los dedos o por media de plantillas el deterioro de los canales. La curvatura no debe exceder los **0.8 mm** para correas individuales y los **0.4 mm** para correas unidas por el lomo. Cuando una correa unida trabaja demasiado bajo en un canal desgastado, el vínculo de las bandas se puede cortar por el filo entre los canales.

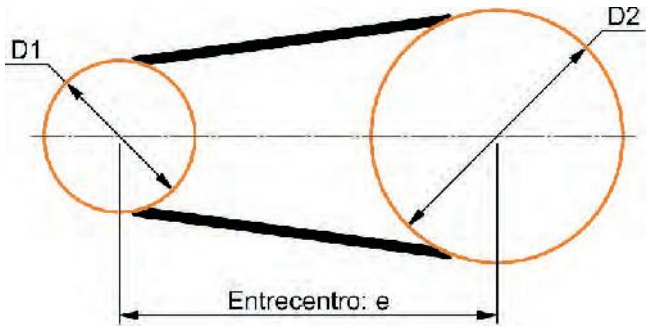
Finalmente, la **falta de alineación** de las poleas acelerará el desgaste de las caras laterales de la correa, acortando simultáneamente la vida de la polea y la correa. La desalineación puede causar también la rotación de la correa dentro del canal o provocar que toda la carga se aplique a un solo lado de la correa, estirando o cortando las cuerdas interiores.

Definiendo dos planos de referencia, el primero que una los centros de los ejes de transmisión llamándolo el "**horizontal**" y el segundo perpendicular denominado "**vertical**", deberá examinar entonces, la desalineación angular horizontal y vertical y el desplazamiento lateral de las poleas. Estos parámetros pueden ser verificados con bastante exactitud utilizando una regla o colocando un hilo de pesca o cuerda bien estirada de un extremo a otro de las caras de las poleas.

Para conocer los valores de las desviaciones permisibles, solicite asesoramiento a nuestro departamento técnico.



# CÁLCULOS VARIOS




## SÍMBOLOS UTILIZADOS

e = Distancia entre centros de ejes [ mm]
i = Relación de transmisión
L = Longitud de correa [mm]
$D_{máq}$ = Diámetro de la polea de la máquina [mm]
$D_{motor}$ = Diámetro de la polea del motor [mm]
$D_1$ = Diámetro de la polea menor [mm]
$D_2$ = Diámetro de la polea mayor [mm]
H = Potencia [kW], [hp] o [cv]
Mt = Torque o Par motor [Nm] o [kgm]
n = Velocidad de giro del motor [rpm]

## DIÁMETRO DE LA POLEA DE LA MÁQUINA

$$D_{máq} = D_{motor} \bullet \frac{\text{rpm del motor}}{\text{rpm de la máquina}}$$

## DIÁMETRO DE LA POLEA DEL MOTOR

$$D_{motor} = D_{máq} \bullet \frac{\text{rpm de la máquina}}{\text{rpm del motor}}$$

## RELACIÓN DE TRANSMISIÓN

$$i = \frac{\text{rpm del motor}}{\text{rpm de la máquina}} = \frac{D_{máq}}{D_{motor}}$$

## ENTRECENTRO RECOMENDADO

$$e > 0.7 \cdot (D_1 + D_2)$$
$$e < 2 \cdot (D_1 + D_2)$$

## LONGITUD PRIMITIVA DE LA CORREA

La longitud de la correa es igual a la suma de los dos tramos rectos más las longitudes en contacto con las poleas.

$$L = 2 \cdot e + 1.57 \cdot (D_2 + D_1) + \frac{(D_2 + D_1)^2}{4 \cdot e}$$

## TORQUE O MOMENTO TORSOR DE TRABAJO

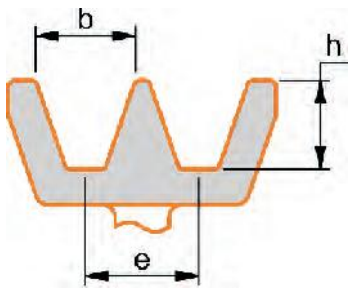
El par motor es la fuerza que es capaz de ejercer un motor en cada giro. El giro de un motor tiene dos características: el par motor y la velocidad de giro. Del producto de estas dos se obtiene la potencia.

$$Mt\ [Nm] = 9550 \bullet \frac{H\ [kW]}{n\ [rpm]}$$

$$Mt\ [kgm] = 725.8 \bullet \frac{H\ [hp]}{n\ [rpm]}$$

$$Mt\ [kgm] = 716.2 \bullet \frac{H\ [cv]}{n\ [rpm]}$$

## DIMENSIÓN DE LOS CANALES




| Canal | b (ancho) | h (profundidad) | e (separación) |
|---|---|---|---|
| **Y** | 6.3 | 6.3 | 8 |
| **Z** | 10 | 9 | 12 |
| **A** | 13 | 12 | 15 |
| **B** | 16.5 | 15 | 19 |
| **C** | 22.4 | 20 | 25.4 |
| **D** | 32.8 | 29 | 37 |
| **E** | 38.6 | 34 | 44.5 |
| **SPZ** | 10 | 11 | 12 |
| **SPA** | 13 | 14.3 | 15 |
| **SPB** | 16.5 | 18.1 | 19 |
| **SPC** | 22.4 | 24.6 | 25.4 |
| **3V / 9N** | 8.9 | 8.9 | 10.3 |
| **5V / 15N** | 15.2 | 15.2 | 17.5 |
| **8V / 25N** | 25.4 | 25.4 | 28.6 |

## CONVERSIÓN DE UNIDADES

| Dado | Multiplique por | Para obtener |
|---|---|---|
| ft | 12 | in |
| ft | 304.8 | mm |
| in | 25.4 | mm |
| kgf | 9.8 | N |
| lbf | 0.45 | kgf |
| lbf | 4.45 | N |
| kgf.m | 86.8 | lbf-in |
| kgf.m | 9.8 | N.m |
| lbf-ft | 12 | lbf-in |
| lbf-in | 0.113 | N.m |

| Dado | Multiplique por | Para obtener |
|---|---|---|
| cv | 0.986 | hp |
| cv | 75 | kgm/s |
| cv | 0.74 | kW |
| hp | 1.014 | cv |
| hp | 76 | kgm/s |
| hp | 0.75 | kW |
| kW | 1.36 | cv |
| kW | 1.34 | hp |
| kW | 102 | kgm/s |
| kW | 1 000 | W |

| Dado | Multiplique por | Para obtener |
|---|---|---|
| $kgf/cm^2$ | 10 000 | $kgf/m^2$ |
| $kgf/cm^2$ | 0.01 | $kgf/mm^2$ |
| $kgf/m^2$ | 9.8 | $N/m^2$ |
| kPa | 1 000 | $N/m^2$ |
| kPa | 0.001 | MPa |
| ksi | 144 | ksf |
| ksi | 6.9 | MPa |
| ksi | 1 000 | psi |
| psi | 703 | $kgf/m^2$ |
| psi | 6.9 | kPa |