

APÉNDICE D

Selección y tablas del sistema motriz del extrusor

Tabla 1. Factor de diámetro.

| Conveyor Diameter Factor, F_d | | | |
|---------------------------------|--------------|-----------------------|--------------|
| Screw Diameter Inches | Factor F_d | Screw Diameter Inches | Factor F_d |
| 4 | 12.0 | 14 | 76.0 |
| 6 | 18.0 | 16 | 106.0 |
| 9 | 31.0 | 18 | 135.0 |
| 10 | 37.0 | 20 | 165.0 |
| 12 | 55.0 | 24 | 235.0 |
| | | 30 | 300 |

Tabla 2. Factor de rodamientos.

| Hanger Bearing Factor F_b | | |
|-----------------------------|--|-----------------------------|
| Bearing Type | | Hanger Bearing Factor F_b |
| B | Ball | 1.0 |
| L | Machine Bronze | 2.0 |
| S | *Graphite Bronze *Melamine *Oil Impreg. Bronze *Oil Impreg. Wood *Nylatron *Nylon *Teflon *UHMW | 2.0 |
| | Machine Hard Iron | 3.4 |
| H | *Hard Surfaced *Stellite | 4.4 |

*Non lubricated bearings, or bearings not additionally lubricated.

Tabla 3. Factor de hélice.

Flight Factor, F_f

| Flight Type | F_f Factor for Percent Conveyor Loading | | | |
|---------------------|---|------|------|------|
| | 19% | 30% | 45% | 95% |
| Standard | 1.0 | 1.0 | 1.0 | 1.0 |
| Cut Flight | 1.10 | 1.15 | 1.20 | 1.3 |
| Cut & Folded Flight | N.R.* | 1.50 | 1.70 | 2.20 |
| Ribbon Flight | 1.05 | 1.14 | 1.20 | — |
| *Not Recommended | | | | |

Tabla 4. Factor de paso.

| Paddle Factor F_p | | | | | |
|--|-----|------|------|------|------|
| Standard Paddles per Pitch, Paddles Set at 45° Reverse Pitch | | | | | |
| Number of Paddles per Pitch | 0 | 1 | 2 | 3 | 4 |
| Paddle Factor — F_p | 1.0 | 1.29 | 1.58 | 1.87 | 2.16 |

Tabla 5. Factor de potencias.

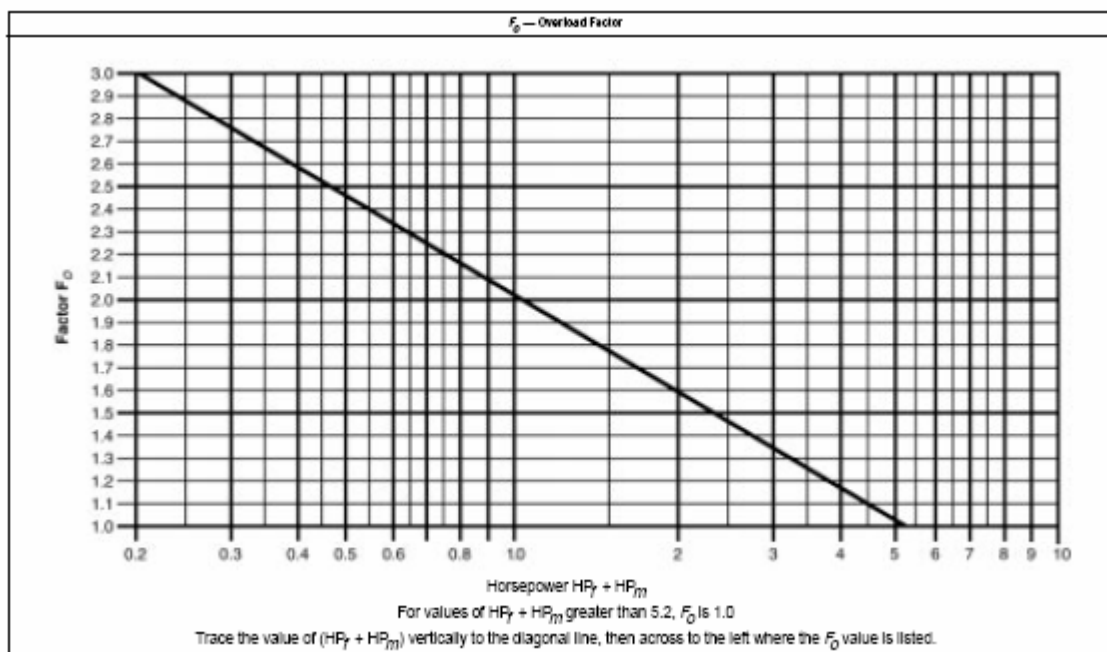


Tabla 6. Eficiencia del tipo de transmisión.

| Drive Efficiency Factor | | | | |
|--|--|--------------------------|-----------------------------|-------------------------|
| Screw Drive or Shaft Mount w/ V-Belt Drive | V-Belt to Helical Gear and Coupling | Gearmotor w/ Coupling | Gearmotor w/ Chain Drive | Worm Gear |
| .88 | .87 | .95 | .87 | Consult Manufacturer |

Tabla 7. Factores de servicio para impulsores de cadena

| Tipo de carga | Tipo de impulsor | | |
|--|------------------------|------------------------------|--|
| | Impulsor hidráulico | Motor eléctrico o turbina | Motor de combustión integral con impulsor mecánico |
| Ligera (agitadores, ventiladores, transportadores que se someten a la acción uniforme de cargas ligeras) | 1.0 | 1.0 | 1.2 |
| Choque moderado (herramientas mecánicas, grúas, transportadores pesados, mezcladoras y molidoras de alimentos) | 1.2 | 1.3 | 1.4 |
| Choque pesado (prensas de punzón, molinos de martillo, transportadores recíprocos, impulsor de molino giratorio) | 1.4 | 1.5 | 1.7 |

Tabla 8. Tabla de potencias para cadena estándar.

Especificaciones de potencia, cadena estándar con rodamientos de un solo torón, número 80, paso de 1"

| No. de dientes en la rueda dentada pequeña | Revoluciones por minuto—medida dentada pequeña | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| | 10 | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1 000 | 1 100 | 1 200 | 1 400 | 1 600 | 1 800 | 2 000 | 2 400 | 2 700 | 3 000 | 3 400 | |
| 9 | 0.34 | 0.78 | 1.45 | 2.71 | 3.90 | 5.05 | 7.28 | 9.43 | 11.5 | 13.6 | 15.6 | 17.6 | 17.0 | 14.5 | 12.6 | 11.0 | 8.76 | 7.17 | 6.01 | 5.13 | 4.45 | 3.90 | 3.27 | 2.79 | 2.32 |
| 10 | 0.38 | 0.87 | 1.63 | 3.03 | 4.37 | 5.66 | 8.16 | 10.6 | 12.9 | 15.2 | 17.5 | 19.7 | 19.9 | 17.0 | 14.7 | 12.9 | 10.3 | 8.40 | 7.04 | 6.01 | 5.21 | 4.57 | 3.83 | 3.27 | 2.71 |
| 11 | 0.42 | 0.97 | 1.80 | 3.36 | 4.84 | 6.28 | 9.04 | 11.7 | 14.3 | 16.9 | 19.4 | 21.9 | 23.0 | 19.6 | 17.0 | 14.9 | 11.8 | 9.69 | 8.12 | 6.93 | 6.01 | 5.27 | 4.42 | 3.77 | 1.70 |
| 12 | 0.47 | 1.06 | 1.98 | 3.69 | 5.32 | 6.89 | 9.93 | 12.9 | 15.7 | 18.5 | 21.3 | 24.0 | 26.2 | 22.3 | 19.4 | 17.0 | 13.5 | 11.0 | 9.25 | 7.90 | 6.85 | 6.01 | 5.04 | 4.30 | 0 |
| 13 | 0.51 | 1.16 | 2.16 | 4.03 | 5.80 | 7.52 | 10.8 | 14.0 | 17.1 | 20.2 | 23.2 | 26.2 | 29.1 | 25.2 | 21.8 | 19.2 | 15.2 | 12.5 | 10.4 | 8.91 | 7.72 | 6.78 | 5.68 | 4.85 | 0 |
| 14 | 0.55 | 1.25 | 2.34 | 4.36 | 6.29 | 8.14 | 11.7 | 15.2 | 18.6 | 21.9 | 25.1 | 28.4 | 31.5 | 28.2 | 24.4 | 21.4 | 17.0 | 13.9 | 11.7 | 9.96 | 8.63 | 7.57 | 6.35 | 5.42 | 0 |
| 15 | 0.59 | 1.35 | 2.52 | 4.70 | 6.77 | 8.77 | 12.6 | 16.4 | 20.0 | 23.6 | 27.1 | 30.6 | 34.0 | 31.2 | 27.1 | 23.8 | 18.9 | 15.4 | 12.9 | 11.0 | 9.57 | 8.40 | 7.04 | 6.01 | 0 |
| 16 | 0.63 | 1.45 | 2.70 | 5.04 | 7.26 | 9.41 | 13.5 | 17.6 | 21.5 | 25.3 | 29.0 | 32.8 | 36.4 | 34.4 | 29.8 | 26.2 | 20.8 | 17.0 | 14.2 | 12.2 | 10.5 | 9.25 | 7.76 | 6.62 | 0 |
| 17 | 0.68 | 1.55 | 2.88 | 5.38 | 7.75 | 10.0 | 14.5 | 18.7 | 22.9 | 27.0 | 31.0 | 35.0 | 38.9 | 37.7 | 32.7 | 28.7 | 22.7 | 18.6 | 15.6 | 13.3 | 11.5 | 10.1 | 8.49 | 7.25 | 0 |
| 18 | 0.72 | 1.64 | 3.07 | 5.72 | 8.25 | 10.7 | 15.4 | 19.9 | 24.4 | 28.7 | 33.0 | 37.2 | 41.4 | 41.1 | 35.6 | 31.2 | 24.8 | 20.3 | 17.0 | 14.5 | 12.6 | 11.0 | 9.25 | 7.90 | 0 |
| 19 | 0.76 | 1.74 | 3.25 | 6.07 | 8.74 | 11.3 | 16.3 | 21.1 | 25.8 | 30.4 | 35.0 | 39.4 | 43.8 | 44.5 | 38.6 | 33.9 | 26.9 | 22.0 | 18.4 | 15.7 | 13.6 | 12.0 | 10.0 | 8.57 | 0 |
| 20 | 0.81 | 1.84 | 3.44 | 6.41 | 9.24 | 12.0 | 17.2 | 22.3 | 27.3 | 32.2 | 37.0 | 41.7 | 46.3 | 48.1 | 41.7 | 36.6 | 29.0 | 23.8 | 19.9 | 17.0 | 14.7 | 12.9 | 10.8 | 0 | |
| 21 | 0.85 | 1.94 | 3.62 | 6.76 | 9.74 | 12.6 | 18.2 | 23.5 | 28.8 | 33.9 | 39.0 | 43.9 | 48.9 | 51.7 | 44.8 | 39.4 | 31.2 | 25.6 | 21.4 | 18.3 | 15.9 | 13.9 | 11.7 | 0 | |
| 22 | 0.90 | 2.04 | 3.81 | 7.11 | 10.2 | 13.3 | 19.1 | 24.8 | 30.3 | 35.7 | 41.0 | 46.2 | 51.4 | 55.5 | 48.1 | 42.2 | 33.5 | 27.4 | 23.0 | 19.6 | 17.0 | 14.9 | 12.5 | 0 | |
| 23 | 0.94 | 2.14 | 4.00 | 7.46 | 10.7 | 13.9 | 20.1 | 26.0 | 31.8 | 37.4 | 43.0 | 48.5 | 53.9 | 59.3 | 51.4 | 45.1 | 35.8 | 29.3 | 24.6 | 21.0 | 18.2 | 15.9 | 13.4 | 0 | |
| 24 | 0.98 | 2.24 | 4.19 | 7.81 | 11.3 | 14.6 | 21.0 | 27.2 | 33.2 | 39.2 | 45.0 | 50.8 | 56.4 | 62.0 | 54.8 | 48.1 | 38.2 | 31.2 | 26.2 | 22.3 | 19.4 | 17.0 | 14.2 | 0 | |
| 25 | 1.03 | 2.34 | 4.37 | 8.16 | 11.8 | 15.2 | 21.9 | 28.4 | 34.7 | 40.9 | 47.0 | 53.0 | 59.0 | 64.8 | 58.2 | 51.1 | 40.6 | 33.2 | 27.8 | 23.8 | 20.6 | 18.1 | 15.1 | 0 | |
| 26 | 1.07 | 2.45 | 4.56 | 8.52 | 12.3 | 15.9 | 22.9 | 29.7 | 36.2 | 42.7 | 49.1 | 55.3 | 61.5 | 67.6 | 61.8 | 54.2 | 43.0 | 35.2 | 29.5 | 25.2 | 21.8 | 19.2 | 16.1 | 0 | |
| 28 | 1.16 | 2.65 | 4.94 | 9.23 | 13.3 | 17.2 | 24.8 | 32.1 | 39.3 | 46.3 | 53.2 | 59.9 | 66.7 | 73.3 | 69.0 | 60.6 | 48.1 | 39.4 | 33.0 | 28.2 | 24.4 | 21.4 | 0 | | |
| 30 | 1.25 | 2.85 | 5.33 | 9.94 | 14.3 | 18.5 | 26.7 | 34.6 | 42.3 | 49.9 | 57.3 | 64.6 | 71.8 | 78.9 | 76.6 | 67.2 | 53.3 | 43.6 | 36.6 | 31.2 | 27.1 | 23.8 | 0 | | |
| 32 | 1.34 | 3.06 | 5.71 | 10.7 | 15.3 | 19.9 | 28.6 | 37.1 | 45.4 | 53.5 | 61.4 | 69.2 | 77.0 | 84.6 | 84.3 | 74.0 | 58.7 | 48.1 | 40.3 | 34.4 | 29.8 | 26.2 | 0 | | |
| 35 | 1.48 | 3.37 | 6.29 | 11.7 | 16.9 | 21.9 | 31.6 | 40.9 | 50.0 | 58.9 | 67.6 | 76.3 | 84.8 | 93.3 | 96.5 | 84.7 | 67.2 | 55.0 | 46.1 | 39.4 | 34.1 | 0 | | | |
| 40 | 1.71 | 3.89 | 7.27 | 13.6 | 19.5 | 25.3 | 36.4 | 47.2 | 57.7 | 68.0 | 78.1 | 88.1 | 98.0 | 108 | 117 | 103 | 82.1 | 67.2 | 56.3 | 48.1 | 20.0 | 0 | | | |
| 45 | 1.94 | 4.42 | 8.25 | 15.4 | 22.2 | 28.7 | 41.4 | 53.6 | 65.6 | 77.2 | 88.7 | 100 | 111 | 122 | 133 | 123 | 98.0 | 80.2 | 67.2 | 54.1 | 0 | | | | |

Fuente: se reimprime de *Chains for Power Transmission and Material Handling*, p. 149, por cortesía de Marcel Dekker, Inc.

TIPO I: Lubricación manual o por goteo El límite de rpm para cada tipo de lubricación se lee a partir de la columna hacia la izquierda de la línea límite que se ilustra.
 TIPO II: Lubricación por disco o baño
 TIPO III: Lubricación por flujo de aceite