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# CATÁLOGO

*Herramientas de corte*

CLEVELAND | WALTER



# NUESTRA GARANTÍA

**HERRAMIENTAS CLEVELAND S.A. DE C.V.**

Garantiza que los productos vendidos por esta empresa están libres de defectos en materiales y fabricación. La compañía reemplazará o reparará cualquier producto que no cumpla con esta disposición. Esta Garantía no aplica a ningún producto el cual haya sido alterado en sus condiciones originales, usado inadecuadamente, que haya sido sujeto de un accidente o usado más allá de su vida útil, los reclamos a la Garantía deberán ser acompañados de la información completa referente al motivo de la evolución.

Esta Garantía reemplaza a las anteriores antes expresadas o tácitas, incluyendo cualquier Garantía comercial y reemplaza también todas otras obligaciones y responsabilidades derivadas de contratos y daños directos, indirectos o consecuenciales. No existe otra Garantía expresada o tácita hecha por nosotros, excepto la garantía contra defectos en materiales y fabricación, tampoco autorizamos a persona o firma alguna a asumir por esta compañía cualquier otra obligación o responsabilidad aquí no expresada.

Somos una compañía establecida en México que se ha constituido desde 1960, como una de las más importantes empresas fabricantes y proveedoras de herramientas de corte de acero de alta velocidad y carburo sólido de tungsteno adicionando a nuestras herramientas los más innovadores recubrimientos para responder a los requerimientos más exigentes que demanda el sector de la industria en México.

Herramientas Cleveland en conjunto con Greenfield Industries trabajamos para ofrecer la más amplia variedad en herramientas de calidad, teniendo además el valor agregado de proporcionar soporte técnico, entrenamiento y capacitaciones así como ingeniería, desarrollo y soluciones en la aplicación de nuestros productos. Así mismo, con el propósito de lograr la confianza de nuestros clientes hacia los productos que ofrecemos y para cumplir nuestros objetivos de negocio, logramos en agosto de 2014 la certificación a ISO 9001:2008, fortalecida por la experiencia de nuestra gente, la capacidad de nuestra infraestructura de manufactura y el constante desarrollo y mejora de nuestros procesos.

Como consecuencia al crecimiento y posicionamiento de nuestra empresa hemos desarrollado un departamento exclusivamente dedicado al desarrollo de herramienta especial así como la apertura de nuestro Centro de Distribución en Monterrey N.L. Desde el cual nos encargamos de suministrar y distribuir a toda la zona norte de México.

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# GLOSARIO

### Aplicación/ Material según ISO

| | |
|---|---|
| P | Acero |
| K | Hierro Fundido |
| M | Acero Inoxidable |

| | |
|---|---|
| N | Aluminio y No Ferrosos |
| S | Superaleaciones |
| H | Acero Endurecido |

### Material de la Herramienta

| | |
|---|---|
| HSS | Acero Alta Velocidad |
| HSS-E | Acero Alta Velocidad al Vanadio |
| Acero al Carbón | Acero al Carbón |
| M42 Cobalto | Acero Alta Velocidad al Cobalto |
| Punta de Carburo | Punta de Carburo |

### Acabado

| | |
|---|---|
| Brillante | Acabado Cobrizo |
| Óxido al Vapor | Black Gold |

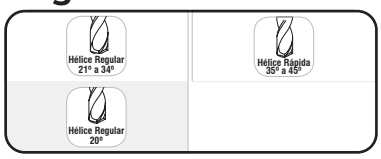
### Norma

| | |
|---|---|
| ASME B94.11M | ANSI |
| ASME | NAS 907 Type J |
| DIN 338 | |

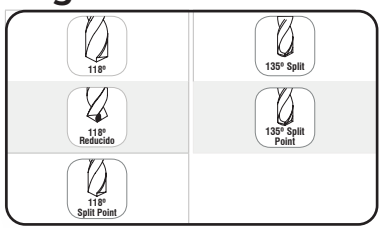
# GLOSARIO

## Brocas

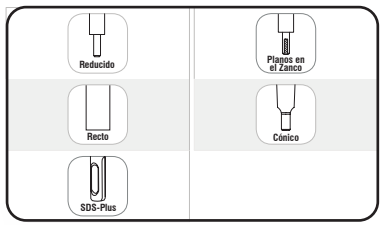
### Ángulo de Hélice




### Ángulo de Punta

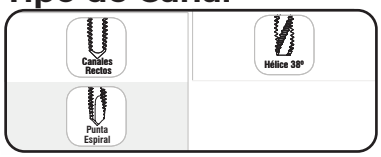



### Zanco




## Machuelos

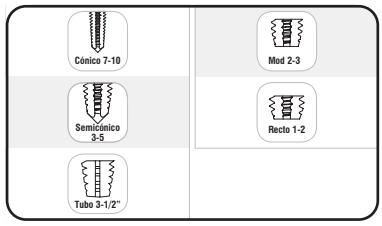
### Tipo de Canal




### Aplicación

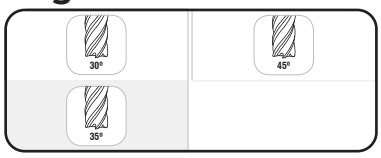



### Chaflán

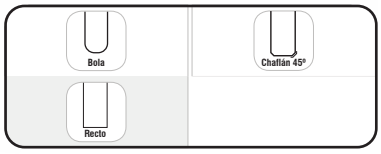



## Cortadores

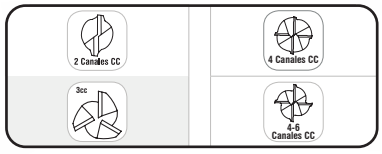
### Ángulo de Hélice




### Punta




### Canales




## Otras Herramientas

### Buril y Cuchilla





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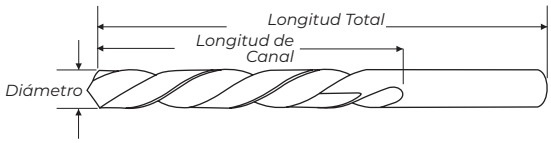
# BROCAS



# LISTA: 2927
## Broca Jobber

### Características

ASME B94.11M | HSS | Óxido al Vapor | Hélice Regular 21° a 34° | Recto | 118°






| Diámetro | | Longitud de Canal | | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|---|---|---|
| Fraccional | Milimétrica | pulgs | mm | pulgs | mm | | |
| 1/64 | | 0.188 | 4.76 | 0.750 | 19.05 | 292697 | 10 |
| | 0.50 | 0.236 | 6.00 | 0.866 | 22.00 | 290050 | 10 |
| | 0.55 | 0.276 | 7.00 | 0.945 | 24.00 | 290055 | 10 |
| | 0.60 | 0.276 | 7.00 | 0.945 | 24.00 | 290060 | 10 |
| | 0.65 | 0.315 | 8.00 | 1.024 | 26.00 | 290065 | 10 |
| | 0.70 | 0.354 | 9.00 | 1.102 | 28.00 | 290070 | 10 |
| | 0.75 | 0.354 | 9.00 | 1.102 | 28.00 | 290075 | 10 |
| 1/32 | | 0.500 | 12.70 | 1.375 | 34.93 | 292698 | 10 |
| | 0.80 | 0.394 | 10.00 | 1.181 | 30.00 | 290080 | 10 |
| | 0.85 | 0.394 | 10.00 | 1.181 | 30.00 | 290085 | 10 |
| | 0.90 | 0.438 | 11.00 | 1.260 | 32.00 | 290090 | 10 |
| | 0.95 | 0.438 | 11.00 | 1.260 | 32.00 | 290095 | 10 |
| | 1.00 | 0.472 | 12.00 | 1.339 | 34.00 | 290100 | 10 |
| | 1.05 | 0.472 | 12.00 | 1.339 | 34.00 | 290105 | 10 |
| | 1.10 | 0.551 | 14.00 | 1.417 | 36.00 | 290110 | 10 |
| | 1.15 | 0.551 | 14.00 | 1.417 | 36.00 | 290115 | 10 |
| 3/64 | | 0.750 | 19.05 | 1.750 | 44.45 | 292699 | 10 |
| | 1.20 | 0.630 | 16.00 | 1.496 | 38.00 | 290120 | 10 |
| | 1.25 | 0.630 | 16.00 | 1.496 | 38.00 | 290125 | 10 |
| | 1.30 | 0.630 | 16.00 | 1.496 | 38.00 | 290130 | 10 |
| | 1.35 | 0.709 | 18.00 | 1.575 | 40.00 | 290135 | 10 |
| | 1.40 | 0.709 | 18.00 | 1.575 | 40.00 | 290140 | 10 |
| | 1.45 | 0.709 | 18.00 | 1.575 | 40.00 | 290145 | 10 |
| | 1.50 | 0.709 | 18.00 | 1.575 | 40.00 | 290150 | 10 |
| | 1.55 | 0.787 | 20.00 | 1.693 | 43.00 | 290155 | 10 |
| 1/16 | | 0.875 | 22.23 | 1.875 | 47.63 | 292700 | 10 |
| | 1.60 | 0.787 | 20.00 | 1.693 | 43.00 | 290160 | 10 |
| | 1.65 | 0.787 | 20.00 | 1.693 | 43.00 | 290165 | 10 |
| | 1.70 | 0.787 | 20.00 | 1.693 | 43.00 | 290170 | 10 |
| | 1.75 | 0.866 | 22.00 | 1.811 | 46.00 | 290175 | 10 |
| | 1.80 | 0.866 | 22.00 | 1.811 | 46.00 | 290180 | 10 |
| | 1.85 | 0.866 | 22.00 | 1.811 | 46.00 | 290185 | 10 |
| | 1.90 | 0.866 | 22.00 | 1.811 | 46.00 | 290190 | 10 |
| | 1.95 | 0.945 | 24.00 | 1.929 | 49.00 | 290195 | 10 |
| 5/64 | | 1.000 | 25.40 | 2.000 | 50.80 | 292701 | 10 |
| | 2.00 | 0.945 | 24.00 | 1.929 | 49.00 | 290200 | 10 |
| | 2.05 | 0.945 | 24.00 | 1.929 | 49.00 | 290205 | 10 |
| | 2.10 | 0.945 | 24.00 | 1.929 | 49.00 | 290210 | 10 |
| | 2.15 | 1.063 | 27.00 | 2.087 | 53.00 | 290215 | 10 |
| | 2.20 | 1.063 | 27.00 | 2.087 | 53.00 | 290220 | 10 |
| | 2.25 | 1.063 | 27.00 | 2.087 | 53.00 | 290225 | 10 |
| | 2.30 | 1.063 | 27.00 | 2.087 | 53.00 | 290230 | 10 |

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| Óxido al vapor | ★ | | ★ | | | | ★ | | ✔ | | | |

✔ Bueno ★ Mejor



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# LISTA: 2927
## Broca Jobber



| Diámetro | | Longitud de Canal | | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|---|---|---|
| Fraccional | Milimétrica | pulgs | mm | pulgs | mm | | |
| | 2.35 | 1.063 | 27.00 | 2.087 | 53.00 | 290235 | 10 |
| 3/32 | | 1.250 | 31.75 | 2.250 | 57.15 | 292702 | 10 |
| | 2.40 | 1.181 | 30.00 | 2.244 | 57.00 | 290240 | 10 |
| | 2.45 | 1.181 | 30.00 | 2.244 | 57.00 | 290245 | 10 |
| | 2.50 | 1.181 | 30.00 | 2.244 | 57.00 | 290250 | 10 |
| | 2.55 | 1.181 | 30.00 | 2.244 | 57.00 | 290255 | 10 |
| | 2.60 | 1.181 | 30.00 | 2.244 | 57.00 | 290260 | 10 |
| | 2.65 | 1.299 | 33.00 | 2.402 | 61.00 | 290265 | 10 |
| | 2.70 | 1.299 | 33.00 | 2.402 | 61.00 | 290270 | 10 |
| | 2.75 | 1.299 | 33.00 | 2.402 | 61.00 | 290275 | 10 |
| 7/64 | | 1.500 | 38.10 | 2.625 | 66.68 | 292703 | 10 |
| | 2.80 | 1.299 | 33.00 | 2.402 | 61.00 | 290280 | 10 |
| | 2.85 | 1.299 | 33.00 | 2.402 | 61.00 | 290285 | 10 |
| | 2.90 | 1.299 | 33.00 | 2.402 | 61.00 | 290290 | 10 |
| | 2.95 | 1.299 | 33.00 | 2.402 | 61.00 | 290295 | 10 |
| | 3.00 | 1.299 | 33.00 | 2.402 | 61.00 | 290300 | 10 |
| | 3.10 | 1.417 | 36.00 | 2.559 | 65.00 | 290310 | 10 |
| 1/8 | | 1.625 | 41.28 | 2.750 | 69.85 | 292704 | 10 |
| | 3.20 | 1.417 | 36.00 | 2.559 | 65.00 | 290320 | 10 |
| | 3.25 | 1.417 | 36.00 | 2.559 | 65.00 | 290325 | 10 |
| | 3.30 | 1.496 | 38.00 | 2.559 | 65.00 | 290330 | 10 |
| | 3.40 | 1.535 | 39.00 | 2.756 | 70.00 | 290340 | 10 |
| | 3.50 | 1.535 | 39.00 | 2.756 | 70.00 | 290350 | 10 |
| 9/64 | | 1.750 | 44.45 | 2.875 | 73.03 | 292705 | 10 |
| | 3.60 | 1.535 | 39.00 | 2.756 | 70.00 | 290360 | 10 |
| | 3.70 | 1.535 | 39.00 | 2.756 | 70.00 | 290370 | 10 |
| | 3.75 | 1.535 | 39.00 | 2.756 | 70.00 | 290375 | 10 |
| | 3.80 | 1.693 | 43.00 | 2.953 | 75.00 | 290380 | 10 |
| | 3.90 | 1.693 | 43.00 | 2.953 | 75.00 | 290390 | 10 |
| | 5/32 | 2.000 | 50.80 | 3.125 | 79.38 | 292706 | 10 |
| | 4.00 | 1.693 | 43.00 | 2.953 | 75.00 | 290400 | 10 |
| | 4.10 | 1.693 | 43.00 | 2.953 | 75.00 | 290410 | 10 |
| | 4.20 | 1.693 | 43.00 | 2.953 | 75.00 | 290420 | 10 |
| | 4.25 | 1.693 | 43.00 | 2.953 | 75.00 | 290425 | 10 |
| | 4.30 | 1.850 | 47.00 | 3.150 | 80.00 | 290430 | 10 |
| 11/64 | | 2.125 | 53.98 | 3.250 | 82.55 | 292707 | 10 |
| | 4.40 | 1.850 | 47.00 | 3.150 | 80.00 | 290440 | 10 |
| | 4.50 | 1.850 | 47.00 | 3.150 | 80.00 | 290450 | 10 |
| | 4.60 | 1.850 | 47.00 | 3.150 | 80.00 | 290460 | 10 |
| | 4.70 | 1.850 | 47.00 | 3.150 | 80.00 | 290470 | 10 |
| | 4.75 | 1.850 | 47.00 | 3.150 | 80.00 | 290475 | 10 |
| 3/16 | | 2.312 | 58.74 | 3.500 | 88.90 | 292708 | 10 |
| | 4.80 | 2.047 | 52.00 | 3.386 | 86.00 | 290480 | 10 |
| | 4.90 | 2.047 | 52.00 | 3.386 | 86.00 | 290490 | 10 |
| | 5.00 | 2.047 | 52.00 | 3.386 | 86.00 | 290500 | 10 |
| | 5.10 | 2.047 | 52.00 | 3.386 | 86.00 | 290510 | 10 |
| 13/64 | | 2.437 | 61.91 | 3.625 | 92.08 | 292709 | 10 |
| | 5.20 | 2.047 | 52.00 | 3.386 | 86.00 | 290520 | 10 |
| | 5.25 | 2.047 | 52.00 | 3.386 | 86.00 | 290525 | 10 |
| | 5.30 | 2.047 | 52.00 | 3.386 | 86.00 | 290530 | 10 |
| | 5.40 | 2.244 | 57.00 | 3.661 | 93.00 | 290540 | 10 |
| | 5.50 | 2.244 | 57.00 | 3.661 | 93.00 | 290550 | 10 |
| 7/32 | | 2.500 | 63.50 | 3.750 | 95.25 | 292710 | 10 |
| | 5.60 | 2.244 | 57.00 | 3.661 | 93.00 | 290560 | 10 |
| | 5.70 | 2.244 | 57.00 | 3.661 | 93.00 | 290570 | 10 |
| | 5.75 | 2.244 | 57.00 | 3.661 | 93.00 | 290575 | 10 |
| | 5.80 | 2.244 | 57.00 | 3.661 | 93.00 | 290580 | 10 |

# LISTA: 2927

## Broca Jobber



| Diámetro | | Longitud de Canal | | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|---|---|---|
| Fraccional | Milimétrica | pulgs | mm | pulgs | mm | | |
| | 5.90 | 2.244 | 57.00 | 3.661 | 93.00 | 290590 | 10 |
| 15/64 | | 2.625 | 66.68 | 3.875 | 98.43 | 292711 | 10 |
| | 6.00 | 2.244 | 57.00 | 3.661 | 93.00 | 290600 | 10 |
| | 6.10 | 2.480 | 63.00 | 3.976 | 101.00 | 290610 | 10 |
| | 6.20 | 2.480 | 63.00 | 3.976 | 101.00 | 290620 | 10 |
| | 6.30 | 2.480 | 63.00 | 3.976 | 101.00 | 290630 | 10 |
| 1/4 | | 2.750 | 69.85 | 4.000 | 101.60 | 292712 | 10 |
| | 6.40 | 2.480 | 63.00 | 3.976 | 101.00 | 290640 | 10 |
| | 6.50 | 2.480 | 63.00 | 3.976 | 101.00 | 290650 | 10 |
| | 6.60 | 2.480 | 63.00 | 3.976 | 101.00 | 290660 | 10 |
| | 6.70 | 2.480 | 63.00 | 3.976 | 101.00 | 290670 | 10 |
| 17/64 | | 2.875 | 73.03 | 4.125 | 104.78 | 292713 | 10 |
| | 6.75 | 2.717 | 69.00 | 4.291 | 109.00 | 290675 | 10 |
| | 6.80 | 2.717 | 69.00 | 4.291 | 109.00 | 290680 | 10 |
| | 6.90 | 2.717 | 69.00 | 4.291 | 109.00 | 290690 | 10 |
| | 7.00 | 2.717 | 69.00 | 4.291 | 109.00 | 290700 | 10 |
| | 7.10 | 2.717 | 69.00 | 4.291 | 109.00 | 290710 | 10 |
| | 9/32 | 2.937 | 74.61 | 4.250 | 107.95 | 292714 | 10 |
| | 7.20 | 2.717 | 69.00 | 4.291 | 109.00 | 290720 | 10 |
| | 7.25 | 2.717 | 69.00 | 4.291 | 109.00 | 290725 | 10 |
| | 7.30 | 2.717 | 69.00 | 4.291 | 109.00 | 290730 | 10 |
| | 7.40 | 2.717 | 69.00 | 4.291 | 109.00 | 290740 | 5 |
| | 7.50 | 2.717 | 69.00 | 4.291 | 109.00 | 290750 | 5 |
| 19/64 | | 3.062 | 77.79 | 4.375 | 111.13 | 292715 | 5 |
| | 7.60 | 2.953 | 75.00 | 4.606 | 117.00 | 290760 | 5 |
| | 7.70 | 2.953 | 75.00 | 4.606 | 117.00 | 290770 | 5 |
| | 7.80 | 2.953 | 75.00 | 4.606 | 117.00 | 290780 | 5 |
| | 7.90 | 2.953 | 75.00 | 4.606 | 117.00 | 290790 | 5 |
| 5/16 | | 3.187 | 80.96 | 4.500 | 114.30 | 292716 | 5 |
| | 8.00 | 2.953 | 75.00 | 4.606 | 117.00 | 290800 | 5 |
| | 8.10 | 2.953 | 75.00 | 4.606 | 117.00 | 290810 | 5 |
| | 8.20 | 2.953 | 75.00 | 4.606 | 117.00 | 290820 | 5 |
| | 8.25 | 2.953 | 75.00 | 4.606 | 117.00 | 290825 | 5 |
| | 8.30 | 2.953 | 75.00 | 4.606 | 117.00 | 290830 | 5 |
| 21/64 | | 3.312 | 84.14 | 4.625 | 117.48 | 292717 | 5 |
| | 8.40 | 2.953 | 75.00 | 4.606 | 117.00 | 290840 | 5 |
| | 8.50 | 2.953 | 75.00 | 4.606 | 117.00 | 290850 | 5 |
| | 8.60 | 3.189 | 81.00 | 4.921 | 125.00 | 290860 | 5 |
| | 8.70 | 3.189 | 81.00 | 4.921 | 125.00 | 290870 | 5 |
| 11/32 | | 3.437 | 87.31 | 4.750 | 120.65 | 292718 | 5 |
| | 8.80 | 3.189 | 81.00 | 4.921 | 125.00 | 290880 | 5 |
| | 8.90 | 3.189 | 81.00 | 4.921 | 125.00 | 290890 | 5 |
| | 9.00 | 3.189 | 81.00 | 4.921 | 125.00 | 290900 | 5 |
| | 9.10 | 3.189 | 81.00 | 4.921 | 125.00 | 290910 | 5 |
| 23/64 | | 3.500 | 88.90 | 4.875 | 123.83 | 292719 | 5 |
| | 9.20 | 3.189 | 81.00 | 4.921 | 125.00 | 290920 | 5 |
| | 9.30 | 3.189 | 81.00 | 4.921 | 125.00 | 290930 | 5 |
| | 9.40 | 3.189 | 81.00 | 4.921 | 125.00 | 290940 | 5 |
| | 9.50 | 3.189 | 81.00 | 4.921 | 125.00 | 290950 | 5 |
| 3/8 | | 3.625 | 92.08 | 5.000 | 127.00 | 292720 | 5 |
| | 9.60 | 3.425 | 87.00 | 5.236 | 133.00 | 290960 | 5 |
| | 9.70 | 3.425 | 87.00 | 5.236 | 133.00 | 290970 | 5 |
| | 9.75 | 3.425 | 87.00 | 5.236 | 133.00 | 290975 | 5 |
| | 9.80 | 3.425 | 87.00 | 5.236 | 133.00 | 290980 | 5 |
| | 9.90 | 3.425 | 87.00 | 5.236 | 133.00 | 290990 | 5 |
| 25/64 | | 3.750 | 95.25 | 5.125 | 130.18 | 292721 | 5 |
| | 10.00 | 3.425 | 87.00 | 5.236 | 133.00 | 291000 | 5 |

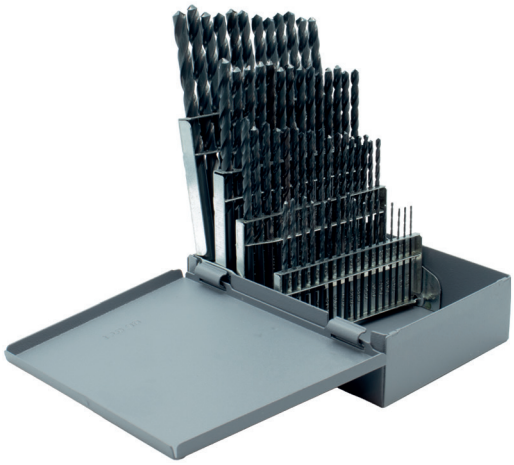
# LISTA: 2927
## Broca Jobber



| Diámetro | | Longitud de Canal | | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|---|---|---|
| Fraccional | Milimétrica | pulgs | mm | pulgs | mm | | |
| | 10.10 | 3.425 | 87.00 | 5.236 | 133.00 | 291010 | 5 |
| | 10.20 | 3.425 | 87.00 | 5.236 | 133.00 | 291020 | 5 |
| | 10.30 | 3.425 | 87.00 | 5.236 | 133.00 | 291030 | 5 |
| 13/32 | | 3.875 | 98.43 | 5.250 | 133.35 | 292722 | 5 |
| | 10.40 | 3.425 | 87.00 | 5.236 | 133.00 | 291040 | 5 |
| | 10.50 | 3.425 | 87.00 | 5.236 | 133.00 | 291050 | 5 |
| | 10.60 | 3.700 | 94.00 | 5.591 | 142.00 | 291060 | 5 |
| | 10.70 | 3.700 | 94.00 | 5.591 | 142.00 | 291070 | 5 |
| 27/64 | | 3.937 | 100.01 | 5.375 | 136.53 | 292723 | 5 |
| | 10.80 | 3.700 | 94.00 | 5.591 | 142.00 | 291080 | 5 |
| | 10.90 | 3.700 | 94.00 | 5.591 | 142.00 | 291090 | 5 |
| | 11.00 | 3.700 | 94.00 | 5.591 | 142.00 | 291100 | 5 |
| | 11.10 | 3.700 | 94.00 | 5.591 | 142.00 | 291110 | 5 |
| 7/16 | | 4.062 | 103.19 | 5.500 | 139.70 | 292724 | 5 |
| | 11.20 | 3.700 | 94.00 | 5.591 | 142.00 | 291120 | 5 |
| | 11.30 | 3.700 | 94.00 | 5.591 | 142.00 | 291130 | 5 |
| | 11.40 | 3.700 | 94.00 | 5.591 | 142.00 | 291140 | 5 |
| | 11.50 | 3.700 | 94.00 | 5.591 | 142.00 | 291150 | 5 |
| 29/64 | | 4.187 | 106.36 | 5.625 | 142.88 | 292725 | 5 |
| | 11.60 | 3.700 | 94.00 | 5.591 | 142.00 | 291160 | 5 |
| | 11.70 | 3.700 | 94.00 | 5.591 | 142.00 | 291170 | 5 |
| | 11.80 | 3.976 | 101.00 | 5.945 | 151.00 | 291180 | 5 |
| 15/32 | | 4.312 | 109.54 | 5.750 | 146.05 | 292726 | 5 |
| | 11.90 | 3.976 | 101.00 | 5.945 | 151.00 | 291190 | 5 |
| | 12.00 | 3.976 | 101.00 | 5.945 | 151.00 | 291200 | 5 |
| | 12.10 | 3.976 | 101.00 | 5.945 | 151.00 | 291210 | 5 |
| | 12.20 | 3.976 | 101.00 | 5.945 | 151.00 | 291220 | 5 |
| | 12.30 | 3.976 | 101.00 | 5.945 | 151.00 | 291230 | 5 |
| 31/64 | | 4.375 | 111.13 | 5.875 | 149.23 | 292727 | 5 |
| | 12.40 | 3.976 | 101.00 | 5.945 | 151.00 | 291240 | 5 |
| | 12.50 | 3.976 | 101.00 | 5.945 | 151.00 | 291250 | 5 |
| | 12.60 | 3.976 | 101.00 | 5.945 | 151.00 | 291260 | 5 |
| 1/2 | | 4.500 | 114.30 | 6.000 | 152.40 | 292728 | 5 |
| | 12.70 | 3.976 | 101.00 | 5.945 | 151.00 | 291270 | 5 |
| | 12.80 | 3.976 | 101.00 | 5.945 | 151.00 | 291280 | 5 |
| | 12.90 | 3.976 | 101.00 | 5.945 | 151.00 | 291290 | 5 |
| | 13.00 | 3.976 | 101.00 | 5.945 | 151.00 | 291300 | 1 |
| | 13.50 | 4.251 | 108.00 | 6.299 | 160.00 | 291350 | 1 |
| | 14.00 | 4.251 | 108.00 | 6.299 | 160.00 | 291400 | 1 |
| | 14.50 | 4.488 | 114.00 | 6.654 | 169.00 | 291450 | 1 |
| | 15.00 | 4.488 | 114.00 | 6.654 | 169.00 | 291500 | 1 |
| | 15.50 | 4.724 | 120.00 | 7.008 | 178.00 | 291550 | 1 |
| | 16.00 | 4.724 | 120.00 | 7.008 | 178.00 | 291600 | 1 |
| | 16.50 | 4.921 | 125.00 | 7.244 | 184.00 | 291650 | 1 |
| | 17.00 | 4.921 | 125.00 | 7.244 | 184.00 | 291700 | 1 |
| | 17.50 | 5.118 | 130.00 | 7.520 | 191.00 | 291750 | 1 |
| | 18.00 | 5.118 | 130.00 | 7.520 | 191.00 | 291800 | 1 |
| | 18.50 | 5.315 | 135.00 | 7.795 | 198.00 | 291850 | 1 |
| | 19.00 | 5.315 | 135.00 | 7.795 | 198.00 | 291900 | 1 |
| | 19.50 | 5.512 | 140.00 | 8.070 | 205.00 | 291950 | 1 |
| | 20.00 | 5.512 | 140.00 | 8.070 | 205.00 | 292000 | 1 |

# JUEGO DE BROCAS USO GENERAL

## Juego de Broacas MRO



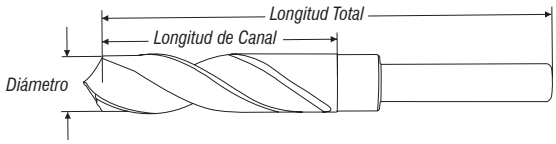
| Descripción | Núm. de Piezas | Código |
|---|---|---|
| 1/16”-1/2” x 1/64” | 29 | 292729 |
| 1 a 13 mm x 0.5 | 25 | 290000 |
| 1/16”-1/4” x 1/64” | 13 | 292730 |

292729

# LISTA: 1803
## Broca Zanco Reducido a 1/2”

**CARACTERÍSTICAS**

ASME B94.11M | HSS | Óxido al Vapor | Hélice Regular 21° a 34° | Reducido | 118°





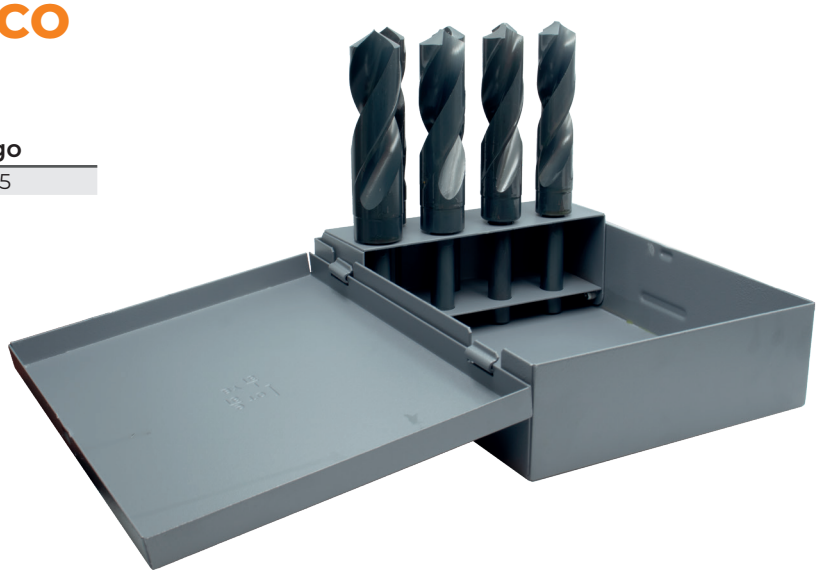

| Diámetro | Longitud de Canal | | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|---|---|
| Fraccional | pulgs | mm | pulgs | mm | | |
| 1/2 | 3-1/8 | 79.38 | 6 | 152.40 | C20732 | 1 |
| 33/64 | 3-1/8 | 79.38 | 6 | 152.40 | C20733 | 1 |
| 17/32 | 3-1/8 | 79.38 | 6 | 152.40 | C20734 | 1 |
| 35/64 | 3-1/8 | 79.38 | 6 | 152.40 | C20735 | 1 |
| 9/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20736 | 1 |
| 37/64 | 3-1/8 | 79.38 | 6 | 152.40 | C20737 | 1 |
| 19/32 | 3-1/8 | 79.38 | 6 | 152.40 | C20738 | 1 |
| 39/64 | 3-1/8 | 79.38 | 6 | 152.40 | C20739 | 1 |
| 5/8 | 3-1/8 | 79.38 | 6 | 152.40 | C20740 | 1 |
| 41/64 | 3-1/8 | 79.38 | 6 | 152.40 | C20741 | 1 |
| 21/32 | 3-1/8 | 79.38 | 6 | 152.40 | C20742 | 1 |
| 43/64 | 3-1/8 | 79.38 | 6 | 152.40 | C20743 | 1 |
| 11/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20744 | 1 |
| 45/64 | 3-1/8 | 79.38 | 6 | 152.40 | C20745 | 1 |
| 23/32 | 3-1/8 | 79.38 | 6 | 152.40 | C20746 | 1 |
| 47/64 | 3-1/8 | 79.38 | 6 | 152.40 | C20747 | 1 |
| 3/4 | 3-1/8 | 79.38 | 6 | 152.40 | C20748 | 1 |
| 49/64 | 3-1/8 | 79.38 | 6 | 152.40 | C20749 | 1 |
| 25/32 | 3-1/8 | 79.38 | 6 | 152.40 | C20750 | 1 |
| 13/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20751 | 1 |
| 27/32 | 3-1/8 | 79.38 | 6 | 152.40 | C20752 | 1 |
| 7/8 | 3-1/8 | 79.38 | 6 | 152.40 | C20753 | 1 |
| 29/32 | 3-1/8 | 79.38 | 6 | 152.40 | C20754 | 1 |
| 15/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20755 | 1 |
| 31/32 | 3-1/8 | 79.38 | 6 | 152.40 | C20756 | 1 |
| 1 | 3-1/8 | 79.38 | 6 | 152.40 | C20757 | 1 |
| 1-1/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20758 | 1 |
| 1-1/8 | 3-1/8 | 79.38 | 6 | 152.40 | C20759 | 1 |
| 1-3/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20760 | 1 |
| 1-1/4 | 3-1/8 | 79.38 | 6 | 152.40 | C20761 | 1 |
| 1-5/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20762 | 1 |
| 1-3/8 | 3-1/8 | 79.38 | 6 | 152.40 | C20763 | 1 |
| 1-7/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20764 | 1 |
| 1-1/2 | 3-1/8 | 79.38 | 6 | 152.40 | C20765 | 1 |

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| Óxido al vapor | ★ | | ★ | | | | ★ | | ✔ | | | |

✔ Bueno ★ Mejor

# JUEGO DE BROCAS ZANCO REDUCIDO A 1/2”

| Descripción | Núm. de Piezas | Código |
|---|---|---|
| 9/16” a 1” x 1/16” | 8 | C21135 |



## Brocas en el juego

| Diámetro | Longitud de Canal | | Longitud Total | | Código |
|---|---|---|---|---|---|
| Fraccional | pulgs | mm | pulgs | mm | |
| 9/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20736 |
| 5/8 | 3-1/8 | 79.38 | 6 | 152.40 | C20740 |
| 11/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20744 |
| 3/4 | 3-1/8 | 79.38 | 6 | 152.40 | C20748 |
| 13/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20751 |
| 7/8 | 3-1/8 | 79.38 | 6 | 152.40 | C20753 |
| 15/16 | 3-1/8 | 79.38 | 6 | 152.40 | C20755 |
| 1 | 3-1/8 | 79.38 | 6 | 152.40 | C20757 |

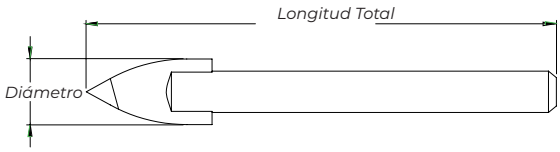
# LISTA: 8800
## Broca para Vidrio y Azulejo

**CARACTERÍSTICAS**

Brillante | Recto | Punta de Carburo

**APLICACIONES**

Vidrio | Azulejo






| Diámetro | | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|---|
| Fraccional | mm | pulgs | mm | | |
| 1/8 | .1250 | 3.18 | 2-1/2 | 882504 | 10 |
| 3/16 | .1875 | 4.76 | 2-1/2 | 882506 | 10 |
| 1/4 | .2500 | 6.35 | 2-1/2 | 882508 | 10 |
| 5/16 | .3125 | 7.94 | 2-3/4 | 882810 | 5 |
| 3/8 | .3750 | 9.53 | 3-1/8 | 883112 | 5 |
| 1/2 | .5000 | 12.70 | 3-1/8 | 883116 | 5 |

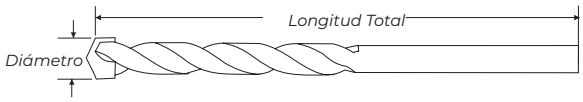
# LISTA: 8900
## Broca para concreto

**CARACTERÍSTICAS**

Punta de Carburo | Brillante | Recto

**APLICACIONES**

Concreto | Ladrillo | Piedra



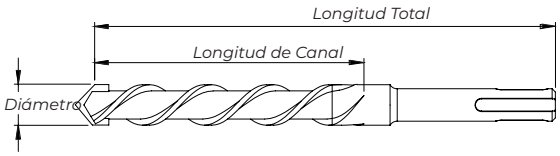



| Diámetro | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|
| Fraccional | pulgs | mm | | |
| 1/8 | 3 | 76.20 | 890304 | 100 |
| 5/32 | 3 | 76.20 | 890305 | 100 |
| 3/16 | 4 | 101.60 | 890406 | 100 |
| 3/16 | 6 | 152.40 | 890606 | 50 |
| 1/4 | 4 | 101.60 | 890408 | 100 |
| 1/4 | 6 | 152.40 | 890608 | 50 |
| 1/4 | 12 | 304.80 | 891308 | 10 |
| 1/4 | 18 | 457.20 | 891808 | 5 |
| 1/4 | 24 | 609.60 | 892408 | 5 |
| 1/4 | 31.5 | 800.10 | 893108 | 1 |
| 5/16 | 4 | 101.60 | 890410 | 50 |
| 5/16 | 6 | 152.40 | 890610 | 50 |
| 5/16 | 12 | 304.80 | 891310 | 10 |
| 5/16 | 18 | 457.20 | 891810 | 5 |
| 5/16 | 24 | 609.60 | 892410 | 5 |
| 5/16 | 31.5 | 800.10 | 893110 | 1 |
| 3/8 | 4 | 101.60 | 890412 | 50 |
| 3/8 | 6 | 152.40 | 890612 | 25 |
| 3/8 | 12 | 304.80 | 891312 | 10 |
| 3/8 | 18 | 457.20 | 891812 | 1 |
| 3/8 | 24 | 609.60 | 892412 | 1 |
| 3/8 | 31.5 | 800.10 | 893112 | 1 |
| 7/16 | 6 | 152.40 | 890614 | 25 |
| 1/2 | 6 | 152.40 | 890616 | 25 |
| 1/2 | 12 | 304.80 | 891316 | 10 |
| 1/2 | 18 | 457.20 | 891816 | 1 |
| 1/2 | 24 | 609.60 | 892416 | 1 |
| 1/2 | 31.5 | 800.10 | 893116 | 1 |
| 5/8 | 6 | 152.40 | 890620 | 10 |
| 5/8 | 12 | 304.80 | 891320 | 5 |
| 5/8 | 24 | 609.60 | 892420 | 1 |
| 3/4 | 6 | 152.40 | 890624 | 10 |
| 3/4 | 12 | 304.80 | 891324 | 5 |
| 7/8 | 6 | 152.40 | 890628 | 5 |
| 7/8 | 12 | 304.80 | 891328 | 5 |
| 1 | 6 | 152.40 | 890632 | 5 |
| 1 | 12 | 304.80 | 891332 | 5 |

# LISTA: 8700
## Broca SDS-Plus

**CARACTERÍSTICAS**

Brillante | SDS-Plus | Punta de Carburo



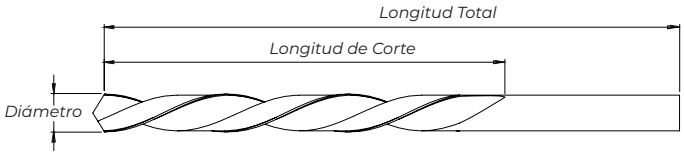



| Diámetro | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|
| Fraccional | pulgs | mm | | |
| 1/4 | 4 | 101.60 | 870408 | 10 |
| 1/4 | 6 | 152.40 | 870608 | 10 |
| 1/4 | 8 | 203.20 | 870808 | 10 |
| 1/4 | 12 | 304.80 | 871208 | 5 |
| 1/4 | 18 | 457.20 | 871808 | 5 |
| 9/32 | 6 | 152.40 | 870609 | 5 |
| 5/16 | 4 | 101.60 | 870410 | 10 |
| 5/16 | 6 | 52.40 | 870610 | 10 |
| 5/16 | 8 | 203.20 | 870810 | 10 |
| 5/16 | 12 | 304.80 | 871210 | 5 |
| 3/8 | 6 | 152.40 | 870612 | 10 |
| 3/8 | 8 | 203.20 | 870812 | 5 |
| 3/8 | 12 | 304.80 | 871212 | 5 |
| 3/8 | 18 | 457.20 | 871812 | 1 |
| 3/8 | 24 | 609.60 | 872412 | 1 |
| 7/16 | 6 | 152.40 | 870614 | 5 |
| 7/16 | 12 | 304.80 | 871214 | 5 |
| 1/2 | 6 | 152.40 | 870616 | 5 |
| 1/2 | 8 | 203.20 | 870816 | 5 |
| 1/2 | 12 | 304.80 | 871216 | 1 |
| 1/2 | 18 | 457.20 | 871816 | 1 |
| 1/2 | 24 | 609.60 | 872416 | 1 |
| 9/16 | 6 | 152.40 | 870618 | 5 |
| 5/8 | 6 | 152.40 | 870620 | 5 |
| 5/8 | 8 | 203.20 | 870820 | 5 |
| 5/8 | 12 | 304.80 | 871220 | 1 |
| 5/8 | 18 | 457.20 | 871820 | 1 |
| 5/8 | 24 | 609.60 | 872420 | 1 |
| 11/16 | 6 | 152.40 | 870622 | 1 |
| 11/16 | 8 | 203.20 | 870822 | 1 |
| 3/4 | 6 | 152.40 | 870624 | 5 |
| 3/4 | 8 | 203.20 | 870824 | 1 |
| 3/4 | 12 | 304.80 | 871224 | 1 |
| 3/4 | 16 | 406.40 | 871624 | 1 |
| 3/4 | 18 | 457.20 | 871824 | 1 |
| 27/32 | 6 | 152.40 | 870627 | 1 |
| 7/8 | 10 | 254.00 | 871028 | 1 |
| 7/8 | 12 | 304.80 | 871228 | 1 |
| 7/8 | 18 | 457.20 | 871828 | 1 |
| 1 | 12 | 304.80 | 871232 | 1 |
| 1 | 18 | 457.20 | 871832 | 1 |

# LISTA: 7000
## Broca de Cobalto

### CARACTERÍSTICAS

NAS 907 Type J | M42 Cobalto | Acabado Cobrizo | Hélice Regular 21° a 34° | Recto | 135° Split Point






| Diámetro | | Longitud de Canal | | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|---|---|---|
| Fraccional | Milimétrica | pulgs | mm | pulgs | mm | | |
| | 1.00 | .472 | 12.00 | 1.339 | 34.03 | 710100 | 10 |
| | 1.50 | .709 | 18.00 | 1.575 | 40.05 | 710150 | 10 |
| 1/16 | | 0.875 | 22.23 | 1.875 | 36.00 | C68344 | 12 |
| 5/64 | | 1.000 | 25.40 | 2.000 | 50.80 | C68345 | 12 |
| | 2.00 | .945 | 24.00 | 1.929 | 49.00 | 710200 | 10 |
| 3/32 | | 1.250 | 31.75 | 2.250 | 50.80 | C68346 | 12 |
| | 2.50 | 1.181 | 30.00 | 2.244 | 57.00 | 710250 | 10 |
| 7/64 | | 1.500 | 38.10 | 2.625 | 66.68 | C68347 | 12 |
| | 3.00 | 1.299 | 33.00 | 2.402 | 66.01 | 710300 | 10 |
| 1/8 | | 1.625 | 41.28 | 2.750 | 69.85 | C68351 | 12 |
| | 3.50 | 1.535 | 39.00 | 2.756 | 70.00 | 710350 | 10 |
| 9/64 | | 1.750 | 44.45 | 2.875 | 73.00 | C68352 | 12 |
| 5/32 | | 2.000 | 50.80 | 3.125 | 79.38 | C68353 | 12 |
| | 4.00 | 1.693 | 43.00 | 2.953 | 75.00 | 710400 | 10 |
| 11/64 | | 2.125 | 53.98 | 3.250 | 82.55 | C68354 | 12 |
| | 4.50 | 1.850 | 47.00 | 3.150 | 80.01 | 710450 | 10 |
| 3/16 | | 2.312 | 58.75 | 3.500 | 88.90 | C68355 | 12 |
| | 5.00 | 2.047 | 52.00 | 3.386 | 86.00 | 710500 | 10 |
| 13/64 | | 2.437 | 61.93 | 3.625 | 92.08 | C68356 | 12 |
| | 5.50 | 2.244 | 57.00 | 3.661 | 93.00 | 710550 | 10 |
| 7/32 | | 2.500 | 63.50 | 3.750 | 95.25 | C68357 | 12 |
| 15/64 | | 2.625 | 66.68 | 3.875 | 98.43 | C68358 | 12 |
| | 6.00 | 2.244 | 57.00 | 3.661 | 93.00 | 710600 | 10 |
| 1/4 | | 2.750 | 69.85 | 4.000 | 101.60 | C68359 | 12 |
| | 6.50 | 2.480 | 63.00 | 3.976 | 101.00 | 710650 | 10 |
| 17/64 | | 2.875 | 73.03 | 4.125 | 104.78 | C68360 | 12 |
| | 7.00 | 2.717 | 69.00 | 4.291 | 109.00 | 710700 | 10 |
| 9/32 | | 2.937 | 74.63 | 4.250 | 107.95 | C68361 | 12 |
| | 7.50 | 2.717 | 69.00 | 4.291 | 109.00 | 710750 | 5 |
| 19/64 | | 3.062 | 77.80 | 4.375 | 111.13 | C68362 | 6 |
| 5/16 | | 3.187 | 80.98 | 4.500 | 114.30 | C68363 | 6 |
| | 8.00 | 2.953 | 75.00 | 4.606 | 117.00 | 710800 | 5 |
| 21/64 | | 3.312 | 84.15 | 4.625 | 117.48 | C68364 | 6 |
| | 8.50 | 2.953 | 75.00 | 4.606 | 117.00 | 710850 | 5 |
| 11/32 | | 3.437 | 87.33 | 4.750 | 120.65 | C68365 | 6 |
| | 9.00 | 3.189 | 81.00 | 4.921 | 125.00 | 710900 | 5 |
| 23/64 | | 3.500 | 88.90 | 4.875 | 123.83 | C68366 | 6 |
| | 9.50 | 3.189 | 81.00 | 4.921 | 125.00 | 710950 | 5 |
| 3/8 | | 3.625 | 92.08 | 5.000 | 127.00 | C68367 | 6 |

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro | Hierro | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| Cobalto | ★ | | ★ | | ✓ | | ★ | | | | | |

✓ Bueno ★ Mejor

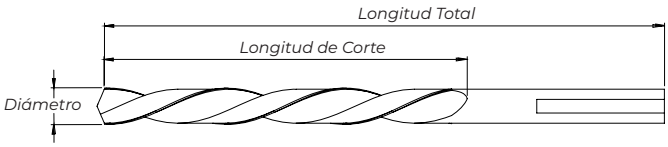
# LISTA: 7000
## Broca de Cobalto

| Diámetro | | Longitud de Canal | | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|---|---|---|
| Fraccional | Milimétrica | pulgs | mm | pulgs | mm | | |
| 25/64 | | 3.750 | 95.25 | 5.125 | 130.18 | C68368 | 6 |
| | 10.00 | 3.425 | 87.00 | 5.236 | 133.00 | 711000 | 5 |
| 13/32 | | 3.875 | 98.43 | 5.250 | 133.35 | C68369 | 6 |
| | 10.50 | 3.425 | 87.00 | 5.236 | 133.00 | 711050 | 5 |
| 27/64 | | 3.937 | 100.00 | 5.375 | 137.00 | C68370 | 6 |
| | 11.00 | 3.701 | 94.00 | 5.591 | 142.00 | 711100 | 5 |
| 7/16 | | 4.062 | 103.20 | 5.500 | 140.00 | C68371 | 6 |
| | 11.50 | 3.701 | 94.00 | 5.591 | 142.00 | 711150 | 5 |
| 29/64 | | 4.187 | 106.36 | 5.625 | 143.00 | C68372 | 6 |
| 15/32 | | 4.312 | 109.54 | 5.750 | 147.00 | C68373 | 6 |
| | 12.00 | 3.976 | 101.00 | 5.945 | 151.00 | 711200 | 5 |
| 31/64 | | 4.375 | 111.13 | 5.875 | 149.00 | C68374 | 6 |
| | 12.50 | 3.976 | 101.00 | 5.945 | 151.00 | 711250 | 5 |
| 1/2 | | 4.500 | 114.30 | 6.000 | 152.00 | C68375 | 6 |
| | 13.00 | 3.976 | 101.00 | 5.945 | 151.00 | 711300 | 1 |
| | 14.00 | 4.252 | 108.00 | 6.299 | 160.00 | 711400 | 1 |
| | 15.00 | 4.488 | 114.00 | 6.654 | 169.00 | 711500 | 5 |
| | 16.00 | 4.724 | 120.00 | 7.008 | 178.00 | 711600 | 1 |
| | 17.00 | 4.724 | 120.00 | 7.244 | 184.00 | 711700 | 1 |
| | 18.00 | 5.118 | 130.00 | 7.520 | 191.00 | 711800 | 1 |
| | 19.00 | 5.314 | 135.00 | 7.795 | 198.00 | 711900 | 1 |
| | 20.00 | 5.511 | 140.00 | 8.070 | 205.00 | 712000 | 1 |

# LISTA: 1607
## Broca Black & Gold

### CARACTERÍSTICAS

ASME B94.11M | HSS | Black & Gold | Hélice Regular 21° a 34° | Planos en el Zanco | 135° Split Point






| Diámetro Fraccional | Equivalencia decimal | Longitud de Canal pulgs | Longitud de Canal mm | Longitud Total pulgs | Longitud Total mm | Código | Piezas por empaque |
|---|---|---|---|---|---|---|---|
| *1/16 | .0625 | 7/8 | 1-7/8 | C69339 | 12 | 292697 | 10 |
| *5/64 | .0781 | 1 | 2 | C69340 | 12 | 290050 | 10 |
| *3/32 | .0938 | 1-1/4 | 2-1/4 | C69341 | 12 | 290055 | 10 |
| *7/64 | .1094 | 1-1/2 | 2-5/8 | C69342 | 12 | 290060 | 10 |
| *1/8 | .1250 | 1-5/8 | 2-3/4 | C69343 | 12 | 290065 | 10 |
| *9/64 | .1406 | 1-3/4 | 2-7/8 | C69344 | 12 | 290070 | 10 |
| *5/32 | .1562 | 2 | 3-1/8 | C69345 | 12 | 290075 | 10 |
| *11/64 | .1719 | 2-1/8 | 3-1/4 | C69346 | 12 | 292698 | 10 |
| 3/16 | .1875 | 2-5/16 | 3-1/2 | C69347 | 12 | 290080 | 10 |
| 13/64 | .2031 | 2-7/16 | 3-5/8 | C69348 | 12 | 290085 | 10 |
| 7/32 | .2188 | 2-1/2 | 3-3/4 | C69349 | 12 | 290090 | 10 |
| 15/64 | .2344 | 2-5/8 | 3-7/8 | C69350 | 12 | 290095 | 10 |
| 1/4 | .2500 | 2-3/4 | 4 | C69351 | 12 | 290100 | 10 |
| 17/64 | .2656 | 2-7/8 | 4-1/8 | C69352 | 12 | 290105 | 10 |
| 9/32 | .2812 | 2-15/16 | 4-1/4 | C69353 | 12 | 290110 | 10 |
| 19/64 | .2969 | 3-1/16 | 4-3/8 | C69354 | 6 | 290115 | 10 |
| 5/16 | .3125 | 3-3/16 | 4-1/2 | C69355 | 6 | 292699 | 10 |
| 21/64 | .3281 | 3-5/16 | 4-5/8 | C69356 | 6 | 290120 | 10 |
| 11/32 | .3438 | 3-7/16 | 4-3/4 | C69357 | 6 | 290125 | 10 |
| 23/64 | .3594 | 3-1/2 | 4-7/8 | C69358 | 6 | 290130 | 10 |
| 3/8 | .3750 | 3-5/8 | 5 | C69359 | 6 | 290135 | 10 |
| 25/64 | .3906 | 3-3/4 | 5-1/8 | C69360 | 6 | 290140 | 10 |
| 13/32 | .4062 | 3-7/8 | 5-1/4 | C69361 | 6 | 290145 | 10 |
| 27/64 | .4219 | 3-15/16 | 5-3/8 | C69362 | 6 | 290150 | 10 |
| 7/16 | .4375 | 4-1/16 | 5-1/2 | C69363 | 6 | 290155 | 10 |
| 29/64 | .4531 | 4-3/16 | 5-5/8 | C69364 | 6 | 292700 | 10 |
| 15/32 | .4688 | 4-5/16 | 5-3/4 | C69365 | 6 | 290160 | 10 |
| 31/64 | .4844 | 4-3/8 | 5-7/8 | C69366 | 6 | 290165 | 10 |
| 1/2 | .5000 | 4-1/2 | 6 | C69367 | 6 | 290170 | 10 |

**Sin planos en el zanco*

# JUEGO DE BROCAS

| Descripción | Núm. de Piezas | Código |
|---|---|---|
| 1/16" a 1/2" x 1/64" | 29 | C69385 |




| | Acero | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | Aleado | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 >38 | 16-38 >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| B&G | ★ | ★ | ✔ | | ★ | | | | | |

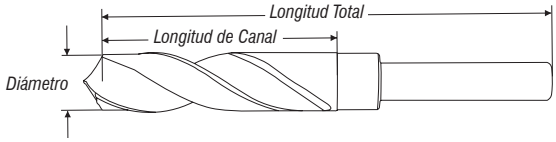
✔ Bueno ★ Mejor

# LISTA: 1877

## Broca Zanco Reducido a 1/2” Black & Gold

### CARACTERÍSTICAS

ASME B94.11M | HSS | Black & Gold | Hélice Regular 21° a 34° | Planos en el Zanco | 118° Split Point






| Diámetro | | Longitud de Canal | | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|---|---|---|
| Fraccional | Milimétrica | pulgs | mm | pulgs | mm | | |
| | 13.0 | | 79 | | 152 | C21170 | 1 |
| 33/64 | | 3-1/8 | | 6 | | C17031 | 1 |
| 17/32 | | 3-1/8 | | 6 | | C17032 | 1 |
| | 13.5 | | 79 | | 152 | C21171 | 1 |
| 35/64 | | 3-1/8 | | 6 | | C17033 | 1 |
| | 14.0 | | 79 | | 152 | C21172 | 1 |
| 9/16 | | 3-1/8 | | 6 | | C17034 | 1 |
| | 14.5 | | 79 | | 152 | C21173 | 1 |
| 37/64 | | 3-1/8 | | 6 | | C17035 | 1 |
| | 15.0 | | 79 | | 152 | C21174 | 1 |
| 19/32 | | 3-1/8 | | 6 | | C17036 | 1 |
| 39/64 | | 3-1/8 | | 6 | | C17037 | 1 |
| | 15.5 | | 79 | | 152 | C21175 | 1 |
| 5/8 | | 3-1/8 | | 6 | | C17038 | 1 |
| | 16.0 | | 79 | | 152 | C21176 | 1 |
| 41/64 | | 3-1/8 | | 6 | | C17039 | 1 |
| | 16.5 | | 79 | | 152 | C21177 | 1 |
| 21/32 | | 3-1/8 | | 6 | | C17040 | 1 |
| | 17.0 | | 79 | | 152 | C21178 | 1 |
| 43/64 | | 3-1/8 | | 6 | | C17041 | 1 |
| 11/16 | | 3-1/8 | | 6 | | C17042 | 1 |
| | 17.5 | | 79 | | 152 | C21179 | 1 |
| 45/64 | | 3-1/8 | | 6 | | C17043 | 1 |
| | 18.0 | | 79 | | 152 | C21180 | 1 |
| 23/32 | | 3-1/8 | | 6 | | C17044 | 1 |
| | 18.5 | | 79 | | 152 | C21181 | 1 |
| 47/64 | | 3-1/8 | | 6 | | C17045 | 1 |
| | 19.0 | | 79 | | 152 | C21182 | 1 |
| 3/4 | | 3-1/8 | | 6 | | C17046 | 1 |
| 49/64 | | 3-1/8 | | 6 | | C17047 | 1 |
| | 19.5 | | 79 | | 152 | C21183 | 1 |
| 25/32 | | 3-1/8 | | 6 | | C17048 | 1 |
| | 20.0 | | 79 | | 152 | C21184 | 1 |
| 13/16 | | 3-1/8 | | 6 | | C17050 | 1 |
| | 21.0 | | 79 | | 152 | C21185 | 1 |
| 27/32 | | 3-1/8 | | 6 | | C17052 | 1 |
| | 22.0 | | 79 | | 152 | C21186 | 1 |
| 7/8 | | 3-1/8 | | 6 | | C17054 | 1 |
| | 23.0 | | 79 | | 152 | C21187 | 1 |
| 29/32 | | 3-1/8 | | 6 | | C17056 | 1 |
| 15/16 | | 3-1/8 | | 6 | | C17058 | 1 |
| | 24.0 | | 79 | | 152 | C21188 | 1 |
| 31/32 | | 3-1/8 | | 6 | | C17060 | 1 |
| | 25.0 | | 79 | | 152 | C21189 | 1 |
| 1 | | 3-1/8 | | 6 | | C17062 | 1 |

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| B&G | ★ | | ★ | | ✓ | | ★ | | | | | |

✓ Bueno ★ Mejor

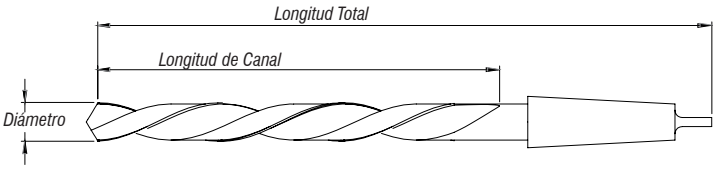


CLEVELAND | WALTER GREENFIELD | WALTER

# LISTA: 1682
## Broca Zanco Cónico

**CARACTERÍSTICAS**

ASME B94.11M | HSS | Óxido al Vapor | Hélice Regular 21° a 34° | Cónico | 118° Split Point






| Diámetro | Longitud de Canal | | Longitud Total | | Cono Morse | Código | Piezas por empaque |
|---|---|---|---|---|---|---|---|
| Fraccional | pulgs | mm | pulgs | mm | | | |
| 5/16 | 3-1/8 | 79.38 | 6-3/8 | 161.93 | 1 | C68779 | 1 |
| 21/64 | 3-1/4 | 82.55 | 6-1/2 | 165.10 | 1 | C68780 | 1 |
| 11/32 | 3-1/4 | 82.55 | 6-1/2 | 165.10 | 1 | C68781 | 1 |
| 23/64 | 3-1/2 | 88.90 | 6-3/4 | 171.45 | 1 | C68782 | 1 |
| 3/8 | 3-1/2 | 88.90 | 6-3/4 | 171.45 | 1 | C68794 | 1 |
| 25/64 | 3-5/8 | 92.08 | 7 | 177.80 | 1 | C68795 | 1 |
| 13/32 | 3-5/8 | 92.08 | 7 | 177.80 | 1 | C68796 | 1 |
| 27/64 | 3-7/8 | 98.43 | 7-1/4 | 184.15 | 1 | C68797 | 1 |
| 7/16 | 3-7/8 | 98.43 | 7-1/4 | 184.15 | 1 | C68798 | 1 |
| 29/64 | 4-1/8 | 104.78 | 7-1/2 | 190.50 | 1 | C68799 | 1 |
| 15/32 | 4-1/8 | 104.78 | 7-1/2 | 190.50 | 1 | C68800 | 1 |
| 31/64 | 4-3/8 | 111.13 | 8-1/4 | 209.55 | 2 | C68801 | 1 |
| 1/2 | 4-3/8 | 111.13 | 8-1/4 | 209.55 | 2 | C68802 | 1 |
| 33/64 | 4-5/8 | 117.48 | 8-1/2 | 215.90 | 2 | C68803 | 1 |
| 17/32 | 4-5/8 | 117.48 | 8-1/2 | 215.90 | 2 | C68804 | 1 |
| 35/64 | 4-7/8 | 123.83 | 8-3/4 | 222.25 | 2 | C68805 | 1 |
| 9/16 | 4-7/8 | 123.83 | 8-3/4 | 222.25 | 2 | C68806 | 1 |
| 37/64 | 4-7/8 | 123.83 | 8-3/4 | 222.25 | 2 | C68807 | 1 |
| 19/32 | 4-7/8 | 123.83 | 8-3/4 | 222.25 | 2 | C68808 | 1 |
| 39/64 | 4-7/8 | 123.83 | 8-3/4 | 222.25 | 2 | C68809 | 1 |
| 5/8 | 4-7/8 | 123.83 | 8-3/4 | 222.25 | 2 | C68810 | 1 |
| 41/64 | 5-1/8 | 130.18 | 9 | 228.60 | 2 | C68811 | 1 |
| 21/32 | 5-1/8 | 130.18 | 9 | 228.60 | 2 | C68812 | 1 |
| 43/64 | 5-3/8 | 136.53 | 9-1/4 | 234.95 | 2 | C68813 | 1 |
| 11/16 | 5-3/8 | 136.53 | 9-1/4 | 234.95 | 2 | C68814 | 1 |
| 45/64 | 5-5/8 | 142.88 | 9-1/2 | 241.30 | 2 | C68815 | 1 |
| 23/32 | 5-5/8 | 142.88 | 9-1/2 | 241.30 | 2 | C68816 | 1 |
| 47/64 | 5-7/8 | 149.23 | 9-3/4 | 247.65 | 2 | C68817 | 1 |
| 3/4 | 5-7/8 | 149.23 | 9-3/4 | 247.65 | 2 | C68818 | 1 |
| 49/64 | 6 | 152.40 | 9-7/8 | 250.83 | 2 | C68819 | 1 |
| 25/32 | 6 | 152.40 | 9-7/8 | 250.83 | 2 | C68820 | 1 |
| 51/64 | 6-1/8 | 155.58 | 10-3/4 | 273.05 | 3 | C68821 | 1 |
| 13/16 | 6-1/8 | 155.58 | 10-3/4 | 273.05 | 3 | C68822 | 1 |
| 53/64 | 6-1/8 | 155.58 | 10-3/4 | 273.05 | 3 | C68823 | 1 |
| 27/32 | 6-1/8 | 155.58 | 10-3/4 | 273.05 | 3 | C68824 | 1 |
| 55/64 | 6-1/8 | 155.58 | 10-3/4 | 273.05 | 3 | C68825 | 1 |
| 7/8 | 6-1/8 | 155.58 | 10-3/4 | 273.05 | 3 | C68826 | 1 |
| 57/64 | 6-1/8 | 155.58 | 10-3/4 | 273.05 | 3 | C68827 | 1 |
| 29/32 | 6-1/8 | 155.58 | 10-3/4 | 273.05 | 3 | C68828 | 1 |
| 59/64 | 6-1/8 | 155.58 | 10-3/4 | 273.05 | 3 | C68829 | 1 |
| 15/16 | 6-1/8 | 155.58 | 10-3/4 | 273.05 | 3 | C68830 | 1 |
| 61/64 | 6-3/8 | 161.93 | 11 | 279.40 | 3 | C68831 | 1 |
| 31/32 | 6-3/8 | 161.93 | 11 | 279.40 | 3 | C68832 | 1 |

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| Óxido al vapor | ★ | | ★ | | | | ★ | | ✔ | | | |

✔ Bueno ★ Mejor

# LISTA: 1682
## Broca Zanco Cónico

| Diámetro | Longitud de Canal | | Longitud Total | | Cono Morse | Código | Piezas por empaque |
|---|---|---|---|---|---|---|---|
| Fraccional | pulgs | mm | pulgs | mm | | | |
| 63/64 | 6-3/8 | 161.93 | 11 | 279.40 | 3 | C68833 | 1 |
| 1 | 6-3/8 | 161.93 | 11 | 279.40 | 3 | C68834 | 1 |
| 1-1/64 | 6-1/2 | 165.10 | 11-1/8 | 282.58 | 3 | C68835 | 1 |
| 1-1/32 | 6-1/2 | 165.10 | 11-1/8 | 282.58 | 3 | C68836 | 1 |
| 1-3/64 | 6-5/8 | 168.28 | 11-1/4 | 285.75 | 3 | C68837 | 1 |
| 1-1/16 | 6-5/8 | 168.28 | 11-1/4 | 285.75 | 3 | C68838 | 1 |
| 1-5/64 | 6-7/8 | 174.63 | 12-1/2 | 317.50 | 4 | C68839 | 1 |
| 1-3/32 | 6-7/8 | 174.63 | 12-1/2 | 317.50 | 4 | C68840 | 1 |
| 1-7/64 | 7-1/8 | 180.98 | 12-3/4 | 323.85 | 4 | C68841 | 1 |
| 1-1/8 | 7-1/8 | 180.98 | 12-3/4 | 323.85 | 4 | C68842 | 1 |
| 1-9/64 | 7-1/4 | 184.15 | 12-7/8 | 327.03 | 4 | C68843 | 1 |
| 1-5/32 | 7-1/4 | 184.15 | 12-7/8 | 327.03 | 4 | C68844 | 1 |
| 1-11/64 | 7-3/8 | 187.33 | 13 | 330.20 | 4 | C68845 | 1 |
| 1-3/16 | 7-3/8 | 187.33 | 13 | 330.20 | 4 | C68846 | 1 |
| 1-13/64 | 7-1/2 | 190.50 | 13-1/8 | 333.38 | 4 | C68847 | 1 |
| 1-7/32 | 7-1/2 | 190.50 | 13-1/8 | 333.38 | 4 | C68848 | 1 |
| 1-15/64 | 7-7/8 | 200.03 | 13-1/2 | 342.90 | 4 | C68849 | 1 |
| 1-1/4 | 7-7/8 | 200.03 | 13-1/2 | 342.90 | 4 | C68850 | 1 |
| 1-17/64 | 8-1/2 | 215.90 | 14-1/8 | 358.78 | 4 | C68851 | 1 |
| 1-9/32 | 8-1/2 | 215.90 | 14-1/8 | 358.78 | 4 | C68852 | 1 |
| 1-19/64 | 8-5/8 | 219.08 | 14-1/4 | 361.95 | 4 | C68853 | 1 |
| 1-5/16 | 8-5/8 | 219.08 | 14-1/4 | 361.95 | 4 | C68854 | 1 |
| 1-21/64 | 8-3/4 | 222.25 | 14-3/8 | 365.13 | 4 | C68855 | 1 |
| 1-11/32 | 8-3/4 | 222.25 | 14-3/8 | 365.13 | 4 | C68856 | 1 |
| 1-23/64 | 8-7/8 | 225.43 | 14-1/2 | 368.30 | 4 | C68857 | 1 |
| 1-3/8 | 8-7/8 | 225.43 | 14-1/2 | 368.30 | 4 | C68858 | 1 |
| 1-25/64 | 9 | 228.60 | 14-5/8 | 371.48 | 4 | C68859 | 1 |
| 1-13/32 | 9 | 228.60 | 14-5/8 | 371.48 | 4 | C68860 | 1 |
| 1-27/64 | 9-1/8 | 231.78 | 14-3/4 | 374.65 | 4 | C68861 | 1 |
| 1-7/16 | 9-1/8 | 231.78 | 14-3/4 | 374.65 | 4 | C68862 | 1 |
| 1-29/64 | 9-1/4 | 234.95 | 14-7/8 | 377.83 | 4 | C68863 | 1 |
| 1-15/32 | 9-1/4 | 234.95 | 14-7/8 | 377.83 | 4 | C68864 | 1 |
| 1-31/64 | 9-3/8 | 238.13 | 15 | 381.00 | 4 | C68865 | 1 |
| 1-1/2 | 9-3/8 | 238.13 | 15 | 381.00 | 4 | C68866 | 1 |
| 1-17/32 | 9-3/8 | 238.13 | 15 | 381.00 | 4 | C68762 | 1 |
| 1-9/16 | 9-5/8 | 244.48 | 16-5/8 | 422.28 | 5 | C68784 | 1 |
| 1-19/32 | 9-7/8 | 250.83 | 16-7/8 | 428.63 | 5 | C68785 | 1 |
| 1-5/8 | 10 | 254.00 | 17 | 431.80 | 5 | C68786 | 1 |
| 1-21/32 | 10-1/8 | 257.18 | 17-1/8 | 434.98 | 5 | C68787 | 1 |
| 1-11/16 | 10-1/8 | 257.18 | 17-1/8 | 434.98 | 5 | C68788 | 1 |
| 1-23/32 | 10-1/8 | 257.18 | 17-1/8 | 434.98 | 5 | C68764 | 1 |
| 1-3/4 | 10-3/8 | 263.53 | 17-1/8 | 434.98 | 5 | C68789 | 1 |
| 1-13/16 | 10-1/8 | 257.18 | 17-1/8 | 434.98 | 5 | C68790 | 1 |
| 1-7/8 | 10-3/8 | 263.53 | 17-3/8 | 441.33 | 5 | C68791 | 1 |
| 1-15/16 | 10-3/8 | 263.53 | 17-3/8 | 441.33 | 5 | C68792 | 1 |
| 2 | 10-3/8 | 263.53 | 17-3/8 | 441.33 | 5 | C68793 | 1 |

CLEVELAND | WALTER GREENFIELD | WALTER

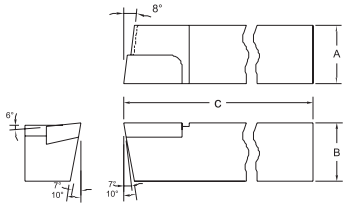


# BURILES

# LISTA: 1060 - 1020
## Buril Calzado

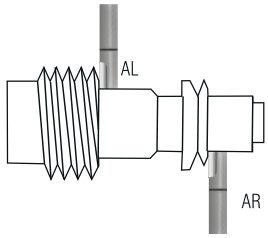
**CARACTERÍSTICAS**

Brillante | Punta de Carburo










## ESTILO "A"

| Modelo | A | Sentido de corte B | C | Derecho | Izquierdo | Grado C-6 | Grado C-2 | Piezas por empaque |
|---|---|---|---|---|---|---|---|---|
| AR-4 | 1/4 | 1/4 | 2 | * | | BT-10608 | BT-10208 | 10 |
| AR-5 | 5/16 | 5/16 | 2-1/4 | * | | BT-10610 | BT-10210 | 5 |
| AR-6 | 3/8 | 3/8 | 2-1/2 | * | | BT-10612 | BT-10212 | 5 |
| AR-7 | 7/16 | 7/16 | 3 | * | | BT-10614 | BT-10214 | 5 |
| AR-8 | 1/2 | 1/2 | 3-1/2 | * | | BT-10616 | BT-10216 | 5 |
| AR-10 | 5/8 | 5/8 | 4 | * | | BT-10620 | BT-10220 | 3 |
| AR-12 | 3/4 | 3/4 | 4-1/2 | * | | BT-10624 | BT-10224 | 1 |
| AR-16 | 1 | 1 | 7 | * | | BT-10632 | BT-10232 | 1 |
| AL-4 | 1/4 | 1/4 | 2 | | * | BT-11608 | BT-11208 | 10 |
| AL-5 | 5/16 | 5/16 | 2-1/4 | | * | BT-11610 | BT-11210 | 10 |
| AL-6 | 3/8 | 3/8 | 2-1/2 | | * | BT-11612 | BT-11212 | 5 |
| AL-7 | 7/16 | 7/16 | 3 | | * | BT-11614 | BT-11214 | 5 |
| AL-8 | 1/2 | 1/2 | 3-1/2 | | * | BT-11616 | BT-11216 | 5 |
| AL-10 | 5/8 | 5/8 | 4 | | * | BT-11620 | BT-11220 | 3 |
| AL-12 | 3/4 | 3/4 | 4-1/2 | | * | BT-11624 | BT-11224 | 1 |
| AL-16 | 1 | 1 | 7 | | * | BT-11632 | BT-11232 | 1 |

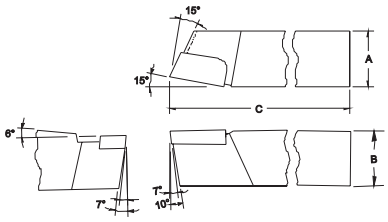
*Nota: Buriles Grado C-6 (k42) útil para el maquinado de aceros y aceros aleados.*
*Buriles Grado C-2 (k58) se utilizan para el maquinado de fundición gris y materiales no ferrosos.*

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| Brillante | ✔ | | ✔ | | | | ✔ | | ✔ | | | |

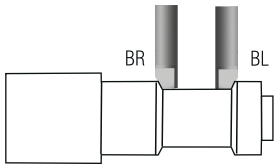
✔ Bueno Mejor



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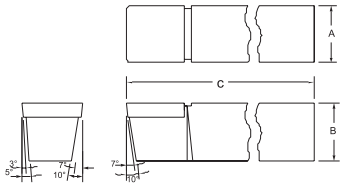




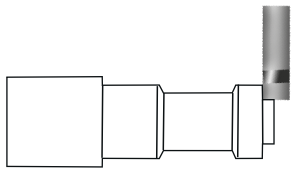




## ESTILO “B”

| Modelo | A | Sentido de corte B | C | Derecho | Izquierdo | Grado C-6 | Grado C-2 | Piezas por empaque |
|---|---|---|---|---|---|---|---|---|
| BR-5 | 5/16 | 5/16 | 2-1/4 | * | | BT-17610 | BT-17210 | 5 |
| BR-6 | 3/8 | 3/8 | 2-1/2 | * | | BT-17612 | BT-17212 | 5 |
| BR-8 | 1/2 | 1/2 | 3-1/2 | * | | BT-17616 | BT-17216 | 5 |
| BR-10 | 5/8 | 5/8 | 4 | * | | BT-17620 | BT-17220 | 3 |
| BR-12 | 3/4 | 3/4 | 4-1/2 | * | | BT-17624 | BT-17224 | 1 |
| BL-5 | 5/16 | 5/16 | 2-1/4 | | * | BT-18610 | BT-18210 | 5 |
| BL-6 | 3/8 | 3/8 | 2-1/2 | | * | BT-18612 | BT-18212 | 5 |
| BL-8 | 1/2 | 1/2 | 3-1/2 | | * | BT-18616 | BT-18216 | 5 |
| BL-10 | 5/8 | 5/8 | 4 | | * | BT-18620 | BT-18220 | 3 |
| BL-12 | 3/4 | 3/4 | 4-1/2 | | * | BT-18624 | BT-18224 | 1 |

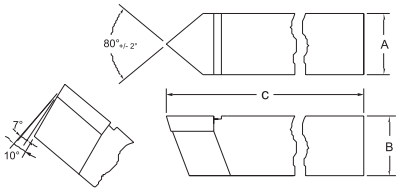




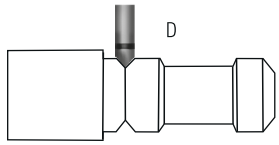



## ESTILO “C”

| Modelo | A | Sentido de corte B | C | Grado C-6 | Grado C-2 | Piezas por empaque |
|---|---|---|---|---|---|---|
| C-4 | 1/4 | 1/4 | 2 | BT-12608 | BT-12208 | 10 |
| C-5 | 5/16 | 5/16 | 2-1/4 | BT-12610 | BT-12210 | 5 |
| C-6 | 3/8 | 3/8 | 2-1/2 | BT-12612 | BT-12212 | 5 |
| C-7 | 7/16 | 7/16 | 3 | BT-12614 | BT-12214 | 5 |
| C-8 | 1/2 | 1/2 | 3-1/2 | BT-12616 | BT-12216 | 5 |
| C-10 | 5/8 | 5/8 | 4 | BT-12620 | BT-12220 | 3 |
| C-12 | 3/4 | 3/4 | 4-1/2 | BT-12624 | BT-12224 | 1 |
| C-16 | 1 | 1 | 7 | BT-12632 | BT-12232 | 1 |
| BL-10 | 5/8 | 5/8 | 4 | BT-18620 | BT-18220 | 3 |
| BL-12 | 3/4 | 3/4 | 4-1/2 | BT-18624 | BT-18224 | 1 |
| C-16 | 1 | 1 | 7 | BT-12632 | BT-12232 | 1 |

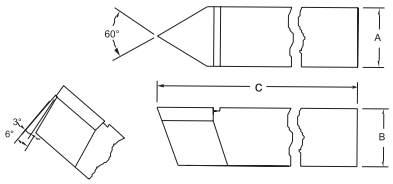




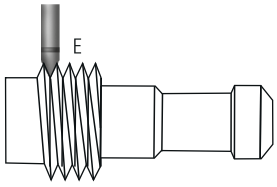




## ESTILO “D”

| Modelo | A | Sentido de corte B | C | Grado C-6 | Grado C-2 | Piezas por empaque |
|---|---|---|---|---|---|---|
| D-4 | 1/4 | 1/4 | 2 | BT-13608 | BT-13208 | 10 |
| D-5 | 5/16 | 5/16 | 2-1/4 | BT-13610 | BT-13210 | 5 |
| D-6 | 3/8 | 3/8 | 2-1/2 | BT-13612 | BT-13212 | 5 |
| D-7 | 7/16 | 7/16 | 3 | BT-13614 | BT-13214 | 5 |
| D-8 | 1/2 | 1/2 | 3-1/2 | BT-13616 | BT-13216 | 5 |
| D-10 | 5/8 | 5/8 | 4 | BT-13620 | BT-13220 | 3 |
| D-12 | 3/4 | 3/4 | 4-1/2 | BT-13624 | BT-13224 | 1 |
| D-16 | 1 | 1 | 7 | BT-13632 | BT-13232 | 1 |
| BL-10 | 5/8 | 5/8 | 4 | BT-18620 | BT-18220 | 3 |
| BL-12 | 3/4 | 3/4 | 4-1/2 | BT-18624 | BT-18224 | 1 |
| D-16 | 1 | 1 | 7 | BT-13632 | BT-13232 | 1 |






## ESTILO “E”

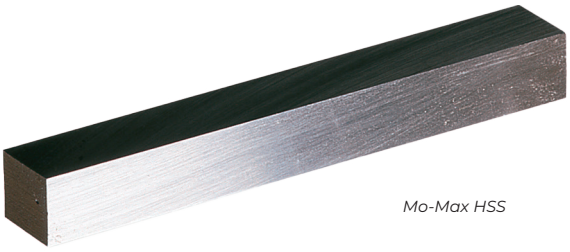
| Modelo | A | Sentido de corte B | C | Grado C-6 | Grado C-2 | Piezas por empaque |
|---|---|---|---|---|---|---|
| E-4 | 1/4 | 1/4 | 2 | BT-14608 | BT-14208 | 10 |
| E-5 | 5/16 | 5/16 | 2-1/4 | BT-14610 | BT-14210 | 10 |
| E-6 | 3/8 | 3/8 | 2-1/2 | BT-14612 | BT-14212 | 5 |
| E-7 | 7/16 | 7/16 | 3 | BT-14614 | BT-14214 | 5 |
| E-8 | 1/2 | 1/2 | 3-1/2 | BT-14616 | BT-14216 | 5 |
| E-10 | 5/8 | 5/8 | 4 | BT-14620 | BT-14220 | 3 |
| E-12 | 3/4 | 3/4 | 4-1/2 | BT-14624 | BT-14224 | 1 |
| E-16 | 1 | 1 | 7 | BT-14632 | BT-14232 | 1 |

# LISTA: 850 & 855
## Buril Cuadrado Mo-Max

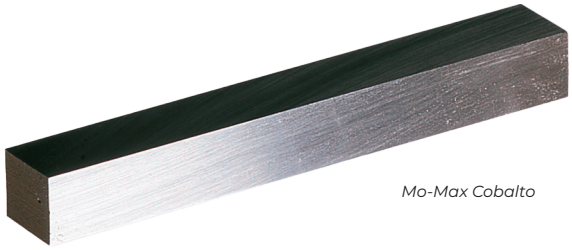
**CARACTERÍSTICAS** | **APLICACIONES**

*Mo-Max HSS* — HSS | ANSI | 10° Bisel — P | K

*Mo-Max Cobalto* — M42 Cobalto | ANSI | 10° Bisel — P | K | M



*Mo-Max HSS*



*Mo-Max Cobalto*

| Ancho | Longitud Total | | Mo-Max Hss | Mo-Max Cobalto |
|---|---|---|---|---|
| Pulgadas | pulgs | mm | | |
| 1/8 | 2-1/2 | 63.50 | C44505 | C44536 |
| 3/16 | 2-1/2 | 63.50 | C44509 | C44540 |
| 1/4 | 2-1/2 | 63.50 | C44513 | C44544 |
| 5/16 | 2-1/2 | 53.50 | C44514 | C44545 |
| 3/8 | 3 | 76.20 | C44516 | C44547 |
| 7/16 | 3-1/2 | 88.90 | C44518 | C44549 |
| 1/2 | 4 | 101.60 | C44520 | C44551 |
| 5/8 | 4-1/2 | 114.30 | C44522 | C44553 |
| 3/4 | 5 | 127.00 | C44525 | C44556 |
| 7/8 | 6 | 152.40 | C44527 | C44558 |
| 1 | 7 | 177.80 | C44528 | C44559 |
| 1-1/4 | 9 | 228.60 | C44530 | C44561 |

*-Los buriles Mo-Max están diseñados para uso general.*
*-Los buriles Mo-Max al Cobalto están diseñados para materiales más duros.*
*-Todos los buriles Mo-Max están biselados por ambos extremos a 10°.*



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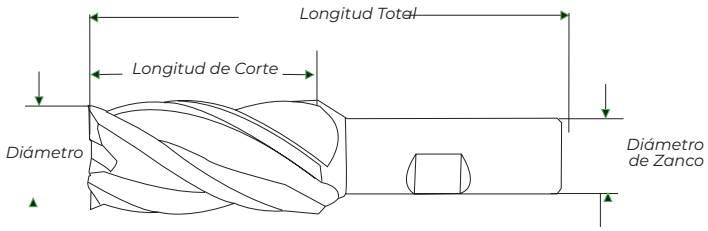
# CORTADORES



# LISTA: 600
## Cortador Vertical Punta Recta

**CARACTERÍSTICAS**

Brillante | HSS | ANSI | 4-6 Canales CC | 30° | Recto






| Diámetro | | Diámetro de zanco | | Longitud de corte | | Longitud Total | | Código | Piezas por empaque |
|---|---|---|---|---|---|---|---|---|---|
| Fraccional | mm | pulgs | mm | pulgs | mm | pulgs | mm | | |
| 3 | 0.375 | 9.53 | 0.375 | 9.53 | 2.313 | 58.74 | 4 | 610312 | 1 |
| 1/8 | 0.375 | 9.53 | 0.375 | 9.53 | 2.313 | 58.74 | 4 | 600412 | 1 |
| 5/32 | 0.375 | 9.53 | 0.500 | 12.70 | 2.375 | 60.33 | 4 | 600512 | 1 |
| 4 | 0.375 | 9.53 | 0.500 | 12.70 | 2.375 | 60.33 | 4 | 610412 | 1 |
| 3/16 | 0.375 | 9.53 | 0.500 | 12.70 | 2.375 | 60.33 | 4 | 600612 | 1 |
| 5 | 0.375 | 9.53 | 0.625 | 15.88 | 2.438 | 61.91 | 4 | 610512 | 1 |
| 7/32 | 0.375 | 9.53 | 0.625 | 15.88 | 2.438 | 61.91 | 4 | 600712 | 1 |
| 6 | 0.375 | 9.53 | 0.625 | 15.88 | 2.438 | 61.91 | 4 | 610612 | 1 |
| 1/4 | 0.375 | 9.53 | 0.625 | 15.88 | 2.438 | 61.91 | 4 | 600812 | 1 |
| 7 | 0.375 | 9.53 | 0.750 | 19.05 | 2.500 | 63.50 | 4 | 610712 | 1 |
| 5/16 | 0.375 | 9.53 | 0.750 | 19.05 | 2.500 | 63.50 | 4 | 601012 | 1 |
| 8 | 0.375 | 9.53 | 0.750 | 19.05 | 2.500 | 63.50 | 4 | 610812 | 1 |
| 9 | 0.375 | 9.53 | 0.750 | 19.05 | 2.500 | 63.50 | 4 | 610912 | 1 |
| 3/8 | 0.375 | 9.53 | 0.750 | 19.05 | 2.500 | 63.50 | 4 | 601212 | 1 |
| 10 | 0.375 | 9.53 | 1.000 | 25.40 | 2.688 | 68.26 | 4 | 611012 | 1 |
| 11 | 0.375 | 9.53 | 1.000 | 25.40 | 2.688 | 68.26 | 4 | 611112 | 1 |
| 7/16 | 0.375 | 9.53 | 1.000 | 25.40 | 2.688 | 68.26 | 4 | 601412 | 1 |
| 12 | 0.500 | 12.70 | 1.250 | 31.75 | 3.250 | 82.55 | 4 | 611216 | 1 |
| 1/2 | 0.375 | 9.53 | 1.000 | 25.40 | 2.688 | 68.26 | 4 | 601612 | 1 |
| 1/2 | 0.500 | 12.70 | 1.250 | 31.75 | 3.250 | 82.55 | 4 | 601616 | 1 |
| 13 | 0.500 | 12.70 | 1.375 | 34.93 | 3.375 | 85.73 | 4 | 611316 | 1 |
| 14 | 0.500 | 12.70 | 1.375 | 34.93 | 3.375 | 85.73 | 4 | 611416 | 1 |
| 9/16 | 0.500 | 12.70 | 1.375 | 34.93 | 3.375 | 85.73 | 4 | 601816 | 1 |
| 15 | 0.500 | 12.70 | 1.375 | 34.93 | 3.375 | 85.73 | 4 | 611516 | 1 |
| 5/8 | 0.500 | 12.70 | 1.375 | 34.93 | 3.375 | 85.73 | 4 | 602016 | 1 |
| 5/8 | 0.625 | 15.88 | 1.625 | 41.28 | 3.750 | 95.25 | 4 | 602020 | 1 |
| 16 | 0.591 | 15.00 | 1.625 | 41.28 | 3.750 | 95.25 | 4 | 611620 | 1 |
| 11/16 | 0.500 | 12.70 | 1.625 | 41.28 | 3.375 | 85.73 | 4 | 602216 | 1 |
| 11/16 | 0.625 | 15.88 | 1.625 | 41.28 | 3.750 | 95.25 | 4 | 602220 | 1 |
| 18 | 0.625 | 15.88 | 1.625 | 41.28 | 3.750 | 95.25 | 4 | 611820 | 1 |
| 19 | 0.750 | 19.05 | 1.625 | 41.28 | 3.875 | 98.43 | 4 | 611924 | 1 |
| 3/4 | 0.500 | 12.70 | 1.625 | 41.28 | 3.375 | 85.73 | 4 | 602416 | 1 |
| 3/4 | 0.625 | 15.88 | 1.625 | 41.28 | 3.750 | 95.25 | 4 | 602420 | 1 |
| 3/4 | 0.750 | 19.05 | 1.625 | 41.28 | 3.875 | 98.43 | 4 | 602424 | 1 |
| 20 | 0.625 | 15.88 | 1.875 | 47.63 | 4.000 | 101.60 | 4 | 612020 | 1 |
| 13/16 | 0.625 | 15.88 | 1.875 | 47.63 | 4.000 | 101.60 | 4 | 602620 | 1 |

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| Brillante | ★ | ✔ | ★ | ✔ | | | ★ | ★ | | | | |

✔ Bueno ★ Mejor



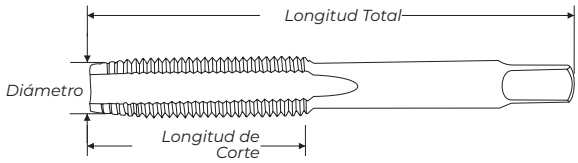
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# MACHUELOS

# LISTA: 1070
## Machuelos de Acero al Carbón




### Características






| Diámetro Fraccional | Hilos por Pulgada | Longitud de Corte pulgs | Longitud Total pulgs | Diámetro Zanco pulgs | Semicónico | piezas por empaque | juego | Piezas por empaque |
|---|---|---|---|---|---|---|---|---|
| 1/8 | NS-40 | 5/8 | 1-15/16 | 9/64 | 10788 | 10 | 107883 | 1 |
| 1/8 | NS-44 | 5/8 | 1-15/16 | 9/64 | 10791 | 10 | 107913 | 1 |
| 5/32 | NS-32 | 3/4 | 2-1/8 | 11/64 | 10794 | 10 | 107943 | 1 |
| 5/32 | NS-36 | 3/4 | 2-1/8 | 11/64 | 10796 | 10 | 107963 | 1 |
| 3/16 | NS-24 | 7/8 | 2-3/8 | 3/16 | 10800 | 10 | 108003 | 1 |
| 3/16 | NS-32 | 7/8 | 2-3/8 | 3/16 | 10803 | 10 | 108033 | 1 |
| 1/4 | NC-20 | 1 | 2-1/2 | 1/4 | 10811 | 10 | 108113 | 1 |
| 1/4 | NF-28 | 1 | 2-1/2 | 1/4 | 10814 | 10 | 108143 | 1 |
| 5/16 | NC-18 | 1-1/8 | 2-23/32 | 5/16 | 10817 | 5 | 108173 | 1 |
| 5/16 | NF-24 | 1-1/8 | 2-23/32 | 5/16 | 10820 | 5 | 108203 | 1 |
| 3/8 | NC-16 | 1-1/4 | 2-15/16 | 5/16 | 10823 | 5 | 108233 | 1 |
| 3/8 | NF-24 | 1-1/4 | 2-15/16 | 5/16 | 10826 | 5 | 108263 | 1 |
| 7/16 | NC-14 | 1-7/16 | 3-5/32 | 3/8 | 10829 | 5 | 108293 | 1 |
| 7/16 | NF-20 | 1-7/16 | 3-5/32 | 3/8 | 10832 | 5 | 108323 | 1 |
| 1/2 | NC-13 | 1-21/32 | 3-3/8 | 23/64 | 10835 | 5 | 108353 | 1 |
| 1/2 | NF-20 | 1-21/32 | 3-3/8 | 23/64 | 10838 | 5 | 108383 | 1 |
| 9/16 | NC-12 | 1-21/32 | 3-19/32 | 27/64 | 10841 | 3 | 108413 | 1 |
| 9/16 | NF-18 | 1-21/32 | 3-19/32 | 27/64 | 10844 | 3 | 108443 | 1 |
| 5/8 | NC-11 | 1-13/16 | 3-13/16 | 7/16 | 10847 | 3 | 108473 | 1 |
| 5/8 | NF-18 | 1-13/16 | 3-13/16 | 7/16 | 10850 | 3 | 108503 | 1 |
| 3/4 | NC-10 | 2 | 4-1/4 | 19/32 | 10853 | 3 | 108533 | 1 |
| 3/4 | NF-16 | 2 | 4-1/4 | 19/32 | 10856 | 3 | 108563 | 1 |
| 7/8 | NC-9 | 2-7/32 | 4-11/16 | 11/16 | 10859 | 1 | 108593 | 1 |
| 7/8 | NF-14 | 2-7/32 | 4-11/16 | 11/16 | 10862 | 1 | 108623 | 1 |
| 1 | NC-8 | 2-1/2 | 5-1/8 | 13/16 | 10866 | 1 | 108663 | 1 |
| 1 | NF-12 | 2-1/2 | 5-1/8 | 13/16 | 10870 | 1 | 108703 | 1 |
| 1 | NS-14 | 2-1/2 | 5-1/8 | 13/16 | 10873 | 1 | 108733 | 1 |
| 1-1/8 | NC-7 | 2-9/16 | 5-7/16 | 57/64 | 10876 | 1 | 108763 | 1 |
| 1-1/8 | NF-12 | 2-9/16 | 5-7/16 | 57/64 | 10879 | 1 | 108793 | 1 |
| 1-1/4 | NC-7 | 2-9/16 | 5-3/4 | 1-1/16 | 10882 | 1 | 108823 | 1 |
| 1-1/4 | NF-12 | 2-9/16 | 5-3/4 | 1-1/16 | 10885 | 1 | 108853 | 1 |
| 1-3/8 | NC-6 | 3 | 6-1/2 | 1-1/8 | 10888 | 1 | 108883 | 1 |
| 1-3/8 | NF-12 | 3 | 6-1/2 | 1-1/8 | 10891 | 1 | 108913 | 1 |
| 1-1/2 | NC-6 | 3 | 6-3/8 | 1-1/4 | 10894 | 1 | 108943 | 1 |
| 1-1/2 | NF-12 | 3 | 6-3/8 | 1-1/4 | 10897 | 1 | 108973 | 1 |

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| Brillante | ✔ | | ✔ | | | | ✔ | | ✔ | | | |

✔ Bueno ★ Mejor



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# LISTA: 1070
## Machuelos de Acero al Carbón

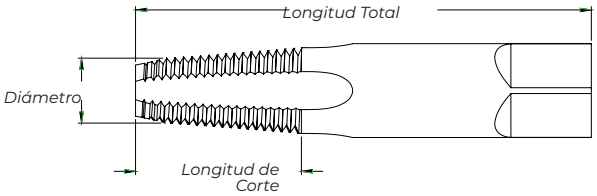
| Diámetro | Hilos por Pulgada | Longitud de Corte | Longitud Total | Diámetro Zanco | Semicónico | piezas por empaque | juego | Piezas por empaque |
|---|---|---|---|---|---|---|---|---|
| Milímetros | | pulgs | pulgs | pulgs | | | | |
| M3 | 0.50 | 5/8 | 1-15/16 | 1/8 | 30007660 | 10 | 300076603 | 1 |
| M4 | 0.70 | 3/4 | 2-1/8 | 1/64 | 30007692 | 10 | 300076923 | 1 |
| M5 | 0.80 | 7/8 | 2-3/8 | 3/16 | 30007725 | 10 | 300077253 | 1 |
| M5 | 0.90 | 7/8 | 2-3/8 | 3/16 | 30007726 | 10 | - | - |
| M6 | 1.00 | 1 | 2-1/2 | 1/4 | 30007756 | 10 | 300077563 | 1 |
| M7 | 1.00 | 1-1/8 | 2-23/32 | 9/32 | 30007776 | 10 | 300077763 | 1 |
| M8 | 1.25 | 1-1/8 | 2-23/32 | 21/64 | 30007800 | 5 | 300078003 | 1 |
| M9 | 1.25 | 1-1/4 | 2-15/16 | 23/64 | 30007814 | 5 | 300078143 | 1 |
| M10 | 1.50 | 1-1/4 | 2-15/16 | 13/32 | 30007848 | 5 | 300078483 | 1 |
| M10 | 0.75 | 1-1/4 | 2-15/16 | 13/32 | 30007822 | 5 | 300078223 | 1 |
| M10 | 1.00 | 1-1/4 | 2-15/16 | 13/32 | 30007829 | 5 | 300078293 | 1 |
| M10 | 1.25 | 1-1/4 | 2-15/16 | 13/32 | 30007840 | 5 | 300078403 | 1 |
| M11 | 1.50 | 1-7/16 | 3-5/32 | 5/16 | 30007858 | 5 | 300078583 | 1 |
| M12 | 1.00 | 1-21/32 | 3-3/8 | 3/8 | 30007868 | 5 | 300078683 | 1 |
| M12 | 1.25 | 1-21/32 | 3-3/8 | 3/8 | 30007875 | 5 | 300078753 | 1 |
| M12 | 1.50 | 1-21/32 | 3-3/8 | 3/8 | 30007878 | 5 | 300078783 | 1 |
| M12 | 1.75 | 1-21/32 | 3-3/8 | 3/8 | 30007888 | 5 | 300078883 | 1 |
| M14 | 1.25 | 1-1/4 | 3-1/32 | 27/64 | 30007915 | 3 | 300079153 | 1 |
| M14 | 1.50 | 1-1/4 | 3-1/32 | 27/64 | 30007918 | 3 | 300079183 | 1 |
| M14 | 2.00 | 1-1/4 | 3-1/32 | 27/64 | 30007928 | 3 | 300079283 | 1 |
| M16 | 1.00 | 1-3/4 | 3 | 31/64 | 30007975 | 3 | 300079753 | 1 |
| M16 | 2.00 | 1-3/4 | 3-13/16 | 31/64 | 30007978 | 3 | 300079783 | 1 |
| M18 | 1.50 | 1-3/16 | 3 | 17/32 | 30008010 | 3 | 300080103 | 1 |
| M18 | 2.50 | 1-3/16 | 3 | 17/32 | 30008038 | 3 | 300080383 | 1 |
| M20 | 1.00 | 2 | 4-1/4 | 19/32 | 30008050 | 1 | 300080503 | 1 |
| M20 | 2.50 | 2 | 4-1/4 | 19/32 | 30008078 | 1 | 300080783 | 1 |
| M22 | 1.50 | 2-3/16 | 4-5/8 | 11/16 | 30008111 | 1 | 300081113 | 1 |
| M22 | 2.50 | 2-3/16 | 4-5/8 | 11/16 | 30008118 | 1 | 300081183 | 1 |
| M24 | 1.50 | 2-3/8 | 4-15/64 | 23/32 | 30008151 | 1 | 300081513 | 1 |
| M24 | 3.00 | 2-1/4 | 4-3/4 | 47/64 | 30008158 | 1 | 300081583 | 1 |
| M27 | 3.00 | 2-1/2 | 5-1/8 | 51/64 | 30008238 | 1 | - | - |
| M30 | 1.50 | 2-9/16 | 5-7/16 | 57/64 | 30008261 | 1 | 300082613 | 1 |
| M30 | 2.00 | 2-9/16 | 5-7/16 | 57/64 | 30008315 | 1 | 300083153 | 1 |
| M30 | 3.50 | 2-9/16 | 5-7/16 | 57/64 | 30008318 | 1 | 300083183 | 1 |
| M33 | 3.50 | 2-1/2 | 5-3/4 | 1-1/16 | 30008378 | 1 | - | - |
| M36 | 4.00 | 3 | 6-1/8 | 1-1/8 | 30008428 | 1 | - | - |

# LISTA: 1080

## Machuelo NPT de Acero al Carbón

**CARACTERÍSTICAS**

Brillante | HSS | NPT | 3/4" / 12" | Tubo 3-1/2"






| Diámetro Fraccional | Hilos por Pulgada | Longitud de Corte pulgs | Longitud Total pulgs | Diámetro Zanco pulgs | Código | Piezas por empaque |
|---|---|---|---|---|---|---|
| 1/8 | 27 | 3/4 | 2-1/8 | 7/16 | 10899 | 5 |
| 1/4 | 18 | 1-1/6 | 2-7/16 | 9/16 | 10900 | 5 |
| 3/8 | 18 | 1-1/16 | 2-9/16 | 23/32 | 10901 | 3 |
| 1/2 | 14 | 1-3/8 | 3-1/8 | 11/16 | 10902 | 3 |
| 3/4 | 14.0 | 1-3/8 | 3-1/4 | 29/32 | 10903 | 1 |
| 1 | 11.5 | 1-3/4 | 3-1/4 | 1-1/8 | 10904 | 1 |
| 1-1/4 | 11.5 | 1-5/8 | 4 | 1-5/16 | 10905 | 1 |
| 1-1/2 | 11.5 | 1-3/4 | 4-1/4 | 1-5/16 | 10906 | 1 |

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| Brillante | ✔ | | ✔ | | | | ✔ | | ✔ | | | |

✔ Bueno ★ Mejor



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CLEVELAND | WALTER GREENFIELD | WALTER



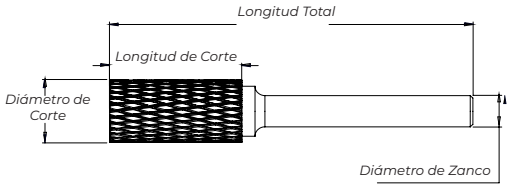
# LIMAS ROTATIVAS

# LISTA: 1845

## Lima Rotativa SA Cilíndrica Sin Corte Frontal

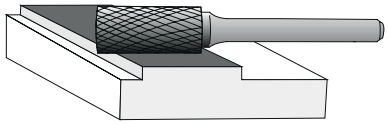
**CARACTERÍSTICAS**

Carburo Sólido | Brillante | Doble





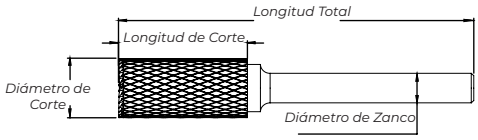




| USCTI | Diámetro de Corte | Diámetro de Zanco | Longitud de Corte | Longitud Total | Código |
|---|---|---|---|---|---|
| SA-1 | 1/4 | 1/4 | 5/8 | 2-3/8 | C17552 |
| SA-3 | 3/8 | 1/4 | 3/4 | 2-1/2 | C17554 |
| SA-5 | 1/2 | 1/4 | 1 | 2-3/4 | C17555 |
| SA-51 | 1/4 | 1/4 | 5/8 | 2 | C17605 |
| SA-5L6 | 1/2 | 1/4 | 1 | 7 | C17825 |
| SA-2 | 5/16 | 1/4 | 3/4 | 2-1/2 | C17553 |

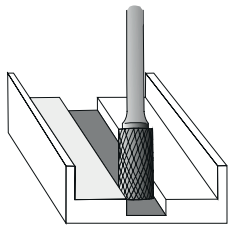
# LISTA: 1846

## Lima Rotativa SB Cilíndrica Con Corte Frontal









| USCTI | Diámetro de Corte | Diámetro de Zanco | Longitud de Corte | Longitud Total | Código |
|---|---|---|---|---|---|
| SB-3 | 3/8 | 1/4 | 3/4 | 2-1/2 | C17547 |
| SB-5 | 1/2 | 1/4 | 1 | 2-3/4 | - |
| SB-6 | 5/8 | 1/4 | 1 | 2-3/4 | - |

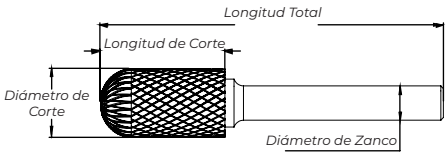
| | Acero | | | | Acero Inoxidable | | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | PH | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | - | 18-22 | 22-32 | - | - | - | >45 |
| brillante | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | ✓ | | |

✓ Bueno ★ Mejor



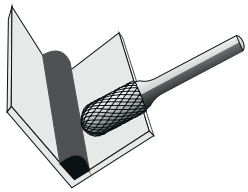
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# LISTA: 1847 Lima Rotativa SC Cilíndrica Punta de Bola



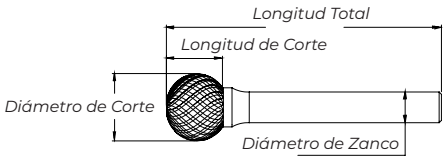






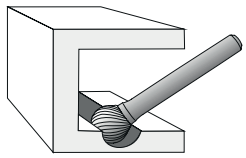
| USCTI | Diámetro de Corte | Diámetro de Zanco | Longitud de Corte | Longitud Total | Código |
|---|---|---|---|---|---|
| SC-42 | 1/8 | 1/8 | 9/16 | 1-1/2 | C17540 |
| SC-1 | 1/4 | 1/4 | 5/8 | 2-3/8 | C17541 |
| SC-3 | 3/8 | 1/4 | 3/4 | 2-1/2 | C17543 |
| SC-5 | 1/2 | 1/4 | 1 | 2-3/4 | C17544 |
| SC-3L6 | 3/8 | 1/4 | 3/4 | 6-3/4 | C17827 |
| SC-11 | 1/8 | 1/4 | 1/2 | 2 | C17539 |
| SC-51 | 6.35 | 3 | 12.7 | 44.5 | C17519 |

# LISTA: 1853 Lima Rotativa SD Esférica



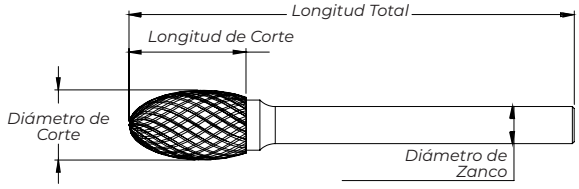






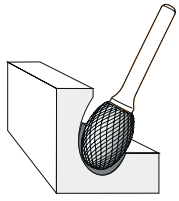
| USCTI | Diámetro de Corte | Diámetro de Zanco | Longitud de Corte | Longitud Total | Código |
|---|---|---|---|---|---|
| SD-1 | 1/4 | 1/4 | 3/16 | 1-15/16 | C17533 |
| SD-3 | 3/8 | 1/4 | 5/16 | 2-1/16 | C17535 |
| SD-5 | 1/2 | 1/4 | 7/16 | 2-3/16 | C17536 |
| SD-5L6 | 1/2 | 1/4 | 7/16 | 6-7/16 | C17831 |

# LISTA: 1851 Lima Rotativa SE Ovoide



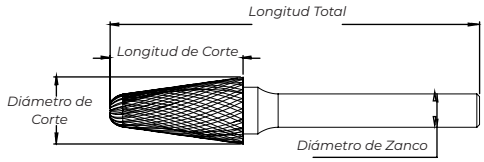






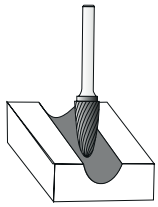
| USCTI | Diámetro de Corte | Diámetro de Zanco | Longitud de Corte | Longitud Total | Código |
|---|---|---|---|---|---|
| SE-3 | 3/8 | 1/4 | 5/8 | 2-3/8 | C17559 |
| SE-51 | 1/4 | 1/8 | 3/8 | 1-5/8 | C17357 |
| SE-3L6 | 3/8 | 1/4 | 5/8 | 6-5/8 | C17833 |

# LISTA: 1848 Lima Rotativa SF Forma de Árbol con Punta de Bola



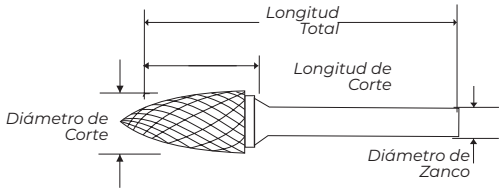






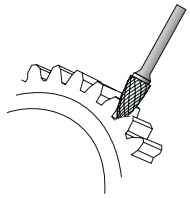
| USCTI | Diámetro de Corte | Diámetro de Zanco | Longitud de Corte | Longitud Total | Código |
|---|---|---|---|---|---|
| SF-1 | 1/4 | 1/4 | 5/8 | 2-3/8 | C17580 |
| SF-3 | 3/8 | 1/4 | 3/4 | 2-1/2 | C17581 |
| SF-5 | 1/2 | 1/4 | 1 | 2-3/4 | C17582 |
| SF-5L6 | 1/2 | 1/4 | 1 | 7 | C17837 |
| SF-3L6 | 3/8 | 1/4 | 3/4 | 6-3/4 | C17836 |
| SF-51 | 6.35 | 3 | 12.7 | 44.5 | C17597 |

# LISTA: 1849 Lima Rotativa SG Forma Punta de Árbol



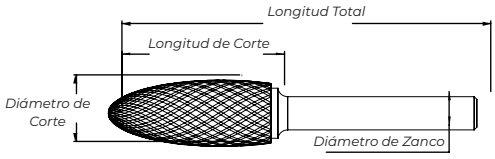






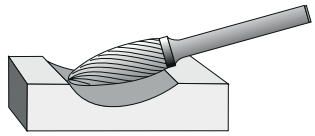
| USCTI | Diámetro de Corte | Diámetro de Zanco | Longitud de Corte | Longitud Total | Código |
|---|---|---|---|---|---|
| SG-1 | 1/4 | 1/4 | 5/8 | 2-3/8 | C17575 |
| SG-3 | 3/8 | 1/4 | 3/4 | 2-1/2 | C17576 |
| SG-5 | 1/2 | 1/4 | 1 | 2-3/4 | C17578 |
| SG-44 | 3 | 3 | 12.7 | 38.1 | C17486 |

# LISTA: 1854 Lima Rotativa SH Forma de Flama Doble Corte



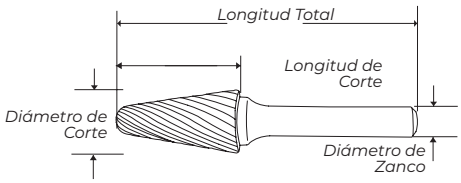






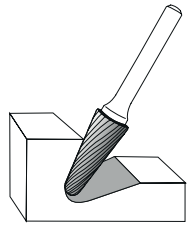
| USCTI | Diámetro de Corte | Diámetro de Zanco | Longitud de Corte | Longitud Total | Código |
|---|---|---|---|---|---|
| SH-5 | 1/2 | 1/4 | 1-1/4 | 3 | C17563 |
| SH-1 | 1/4 | 1/4 | 1/2 | 2 | C17300 |
| SH-6 | 5/8 | 1/4 | 1-7/16 | 3-3/16 | C17301 |

# LISTA: 1852 Lima Rotativa SL Cono con Punta Bola



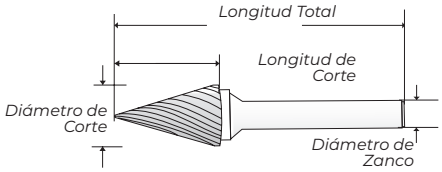






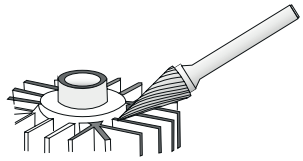
| USCTI | Diámetro de Corte | Diámetro de Zanco | Longitud de Corte | Longitud Total | Código |
|---|---|---|---|---|---|
| SL-1 | 1/4 | 1/4 | 5/8 | 2-3/8 | C17564 |
| SL-3 | 3/8 | 1/4 | 1-1/16 | 2-13/16 | C17566 |
| SL-4 | 1/2 | 1/4 | 1-1/8 | 2-7/8 | C17567 |
| SL- 42 | 1/8 | 1/8 | 1/2 | 1-1/2 | C17362 |
| SL - 7 | 3/4 | 1/4 | 1-1/2 | 3-1/4 | C17302 |

# LISTA: 1850 Lima Rotativa SM Cono con Punta









| USCTI | Diámetro de Corte | Diámetro de Zanco | Longitud de Corte | Longitud Total | Código |
|---|---|---|---|---|---|
| 22° SM-1 | 1/4 | 1/4 | 1/2 | 2-1/4 | C17569 |
| 28° SM-5 | 1/2 | 1/4 | 1 | 2-3/4 | C17573 |
| 14° SM - 42 | 1/8 | 1/8 | 7/16 | 1-1/2 | C17568 |
| 10° SM - 3 | 1/4 | 1/4 | 1 | 2 | C17571 |

# JUEGO LIMAS ROTATIVAS



código:C177700

| USCTI | Diámetro de Corte | Diámetro de Zanco | Longitud de Corte | Longitud Total | Doble Corte |
|---|---|---|---|---|---|
| SA-5 | 1/2 | 1/4 | 1 | 2-3/4 | C17555 |
| SC-5 | 1/2 | 1/4 | 1 | 2-3/4 | C17544 |
| SF-5 | 1/2 | 1/4 | 1 | 2-3/4 | C17582 |
| SH-5 | 1/2 | 1/4 | 1-1/4 | 3 | C17563 |
| SL-4 | 1/2 | 1/4 | 1-1/8 | 2-7/8 | C17567 |

** Incluye 5 piezas.*


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# MANDRILES

# MANDRIL

| Rango | Zanco | Código | Piezas por empaque |
|---|---|---|---|
| 9/16 a 1-3/16 | 1/4 Redondo | C17965 | 1 |
| 9/16 a 1-3/16 | 3/8 Hexagonal | C17967 | 1 |
| 1-1/4 a 6 | 7/16 Hexagonal QC | C17970 | 1 |



código:C17965

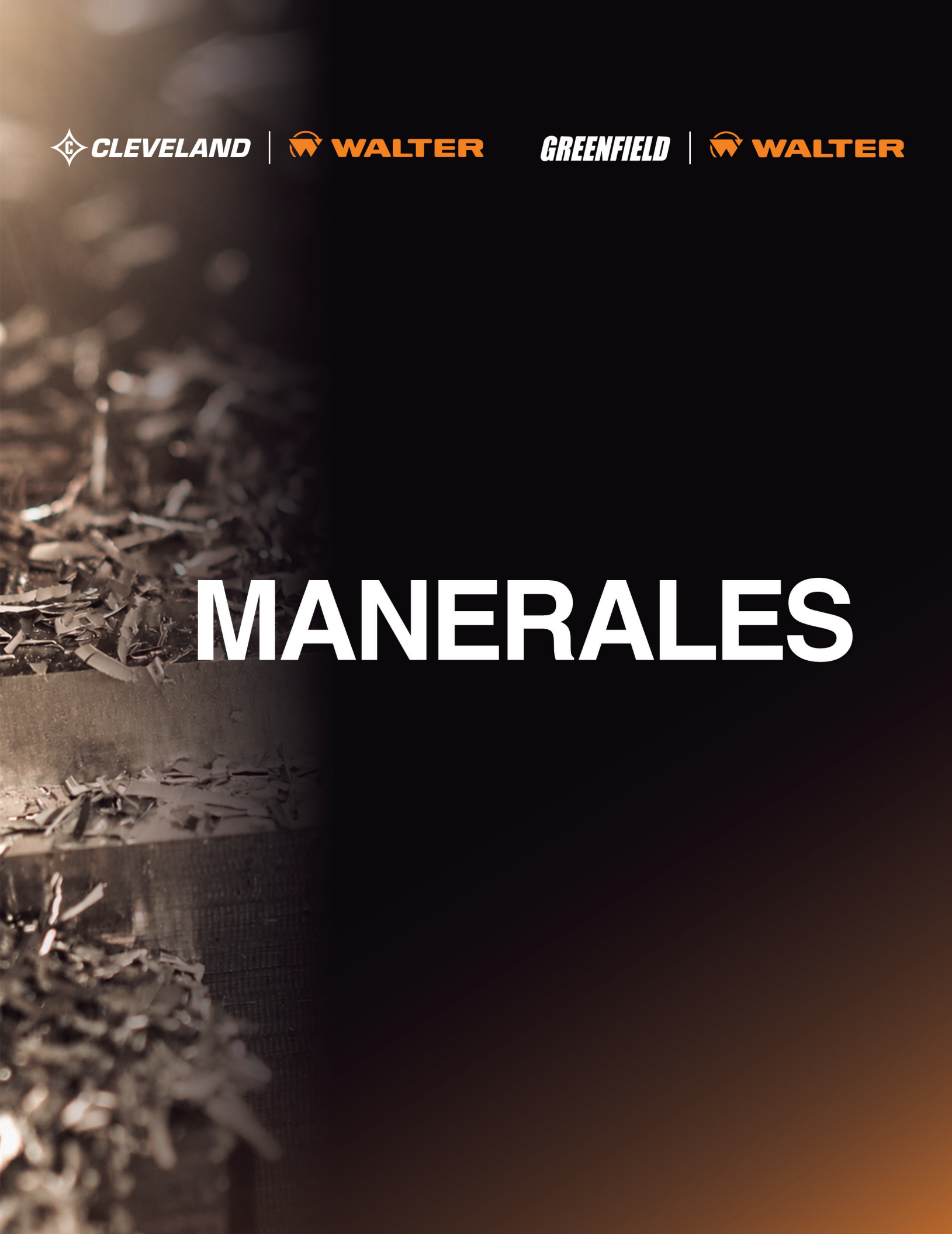


código:C17967



código:C17970

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# MANERALES

# LISTA: 240
## Maneral Universal



| Rangos de Tamaño de Machuelos | | | | Largo total | Semicónico |
|---|---|---|---|---|---|
| Número | Fraccional | Métrico | NTP | Pulg | |
| 0 | 1/16 a 1/4 | M1 a M8 | - | 5 | C67201 |
| 1 | 1/16 a 3/8 | M1 a M10 | 1/16 a 1/8* | 7 | C67199 |
| 2 | 3/16 a 1/2 | M4 a M12 | 1/16 a 1/8 | 11 | C67202 |
| 3 | 1/4 a 3/4 | M5 a M20 | 1/16 a 1/2 | 15 | C67203 |
| 5 | 1/2 a 1-5/16 | M13 a M33 | 1/4 a 1-1/4 | 24 | C67204 |

# LISTA: 243
## Maneral Tipo T



| Rangos de Tamaño de Machuelos | | | | Largo total | Semicónico |
|---|---|---|---|---|---|
| Número | Fraccional | Métrico | NTP | Pulg | |
| T11 | 0 a 14 | 1/16 a 1/4 | M1.5 a M6 | 2-3/4 | C67208 |
| T12 | 12 a 14 | 7/32 a 1/2 | M5.5 a M12.5 | 3-5/8 | C67209 |

# LISTA: 245
## Maneral Tipo T Zanco Largo



| Rangos de Tamaño de Machuelos | | | | Largo total | Semicónico |
|---|---|---|---|---|---|
| Número | Fraccional | Métrico | NTP | Pulg | |
| T16 | 0 a 14 | 1/16 a 1/4 | M1.5 a M6 | 8-3/4 | C67212 |
| T17 | 12 a 14 | 7/32 a 1/2 | M5.5 a M12.5 | 10-5/8 | C67213 |

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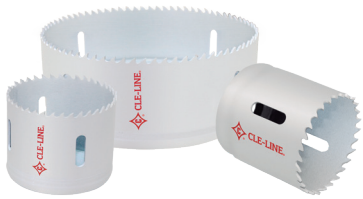


# SIERRA Y SEGUETA

# LISTA: 1887
## Sierra Copa Bimetálica

**CARACTERÍSTICAS**

M42 Cobalto




| Diámetro | | Código | Piezas por empaque |
|---|---|---|---|
| pulgs | mm | | |
| 9/16 | 14 | C25000 | 1 |
| 5/8 | 16 | C26121 | 1 |
| 11/16 | 17 | C25002 | 1 |
| 3/4 | 19 | C26113 | 1 |
| - | 20 | C25004 | 1 |
| 13/16 | 21 | C26105 | 1 |
| 7/8 | 22 | C25006 | 1 |
| 15/16 | 24 | C25007 | 1 |
| 1 | 25 | C26101 | 1 |
| 1-1/16 | 27 | C25009 | 1 |
| 1-1/8 | 29 | C26103 | 1 |
| 1-3/16 | 30 | C25011 | 1 |
| 1-1/4 | 32 | C25012 | 1 |
| 1-5/16 | 33 | C25013 | 1 |
| 1-3/8 | 35 | C25014 | 1 |
| 1-7/16 | 37 | C25015 | 1 |
| 1-1/2 | 38 | C25016 | 1 |
| 1-9/16 | 40 | C25017 | 1 |
| 1-5/8 | 41 | C25018 | 1 |
| 1-11/16 | 43 | C26104 | 1 |
| 1-3/4 | 44 | C26107 | 1 |
| - | 45 | C25021 | 1 |
| 1-13/16 | 46 | C25022 | 1 |
| 1-7/8 | 48 | C25023 | 1 |
| (50mm) | 50 | C25024 | 1 |
| 2 | 51 | C25025 | 1 |
| 2-1/16 | 52 | C25026 | 1 |
| 2-1/8 | 54 | C25027 | 1 |
| 55mm | 55 | C25028 | 1 |
| 2-1/4 | 57 | C25029 | 1 |
| 2-5/16 | 59 | C25030 | 1 |
| 2-3/8 | 60 | C25031 | 1 |
| 2-1/2 | 64 | C25032 | 1 |
| 2-9/16 | 65 | C25033 | 1 |
| 2-5/8 | 67 | C26111 | 1 |
| - | 68 | C25035 | 1 |
| 2-3/4 | 70 | C25036 | 1 |
| 2-7/8 | 73 | C25037 | 1 |
| - | 75 | C25038 | 1 |
| 3 | 76 | C25039 | 1 |
| 3-1/8 | 79 | C25040 | 1 |
| 3-1/4 | 83 | C26115 | 1 |
| 3-3/8 | 86 | C25042 | 1 |

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| Cobalto | ★ | | ★ | | ✓ | | ★ | | ★ | | | |

✓ Bueno ★ Mejor

# LISTA: 1887
## Sierra Copa Bimetálica

| Diámetro | | Código | Piezas por empaque |
|---|---|---|---|
| pulgs | mm | | |
| 3-1/2 | 89 | C25043 | 1 |
| 3-5/8 | 92 | C25044 | 1 |
| 3-3/4 | 95 | C25045 | 1 |
| 3-7/8 | 98 | C25046 | 1 |
| - | 100 | C25047 | 1 |
| 4 | 102 | C25048 | 1 |
| 4-1/8 | 105 | C25049 | 1 |
| 4-1/4 | 108 | C25050 | 1 |
| 4-3/8 | 111 | C25051 | 1 |
| 4-1/2 | 114 | C25052 | 1 |
| 4-3/4 | 121 | C26119 | 1 |
| 5 | 127 | C25054 | 1 |
| 5-1/2 | 140 | C25055 | 1 |
| 5-3/4 | 146 | C25056 | 1 |
| 6 | 152 | C25057 | 1 |

# LISTA: E0200
## Segueta Bimetálica

**CARACTERÍSTICAS**

M42 Cobalto




| Descripción | Código | Piezas por empaque |
|---|---|---|
| 18 Dientes por Pulg. | CLE1218BM | 100 |
| 24 Dientes por Pulg. | CLE1224BM | 100 |

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| Cobalto | ★ | | ★ | | ✔ | | ★ | | ★ | | | |

✔ Bueno ★ Mejor

# JUEGO SIERRA COPA BIMETÁLICA




| | | |
|---|---|---|
| Juego de 7 Pzas. Mantenimiento | Incluye un mandril y un adaptador 5 Sierras Copa: 7/8, 1”, 1-1/8,1-1/4, 1-1/2 | CHK01 |
| Juego de 9 Pzas. Cerrajero | Incluye dos mandriles y un adaptador 6 Sierras Copa: 7/8, 1”, 1-1/4, 1-1/2, 1-3/4, 2-1/8 | CHK02 |
| Juego de 9 Pzas. Plomero | Incluye dos mandriles y un adaptador 6 Sierras Copa: 3/4, 7/8, 1-1/8, 1-1/2, 1-3/4, 2-1/4 | CHK03 |
| Juego de 9 Pzas. Electricista | Incluye dos mandriles y un adaptador 6 Sierras Copa: 7/8, 1-1/8, 1-3/8, 1-3/4, 2”, 2-1/2 | CHK04 |
| Juego de 9 Pzas. Electricista mm | Incluye dos mandriles y un adaptador 6 Sierras Copa: 16mm, 20mm, 25mm, 32mm, 40mm, 51mm | CHK05 |
| Juego de 13 Pzas. Mantenimiento en General | “Incluye dos mandriles, una broca piloto y un adaptador 9 Sierras Copa: 3/4, 7/8, 1-1/8, 1-3/8, 1-1/2, 1-3/4, 2”, 2-1/4, 2-1/2” | CHK06 |

| | Acero | | | | Acero Inoxidable | | Hierro Fundido | | Aluminio y No Ferrosos | Super Aleaciones Termoresistentes | | Acero Endurecido |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bajo Carbón | | Aleado | | Austenítico | Martensítico | Hierro gris | Hierro nodular | | Aleaciones base Ni,Co,Fe | Titanio | |
| Dureza (HRc) | 13-38 | >38 | 16-38 | >38 | Serie 300 | Serie 400 | 18-22 | 22-32 | - | - | - | >45 |
| Cobalto | ★ | | ★ | | ✔ | | ★ | | ★ | | | |

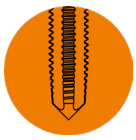
✔ Bueno ★ Mejor



# FLUIDOS DE CORTE

# FLUIDOS DE CORTE

CLEVELAND WALTER



**TAPCUT**
Lubricante para roscado
**3 SKUs**

- **TAPCUT 350 ml** (Envase dosificador)
- **TAPCUT 3.78L** (1 Gal)
- **TAPCUT 20 L** (5.2 Gal)

CLEVELAND WALTER



**ICECUT**
Lubricante para Cortadores Anulares
**3 SKUs**

- **ICECUT 3.78 L** (1 Gal)
- **ICECUT 20L** (5.2 Gal)
- **ICECUT 208 L** (55 Gal)

CLEVELAND WALTER



**COOLCUT Lub Stick**
para uso general
(300 g)

- **COOLCUT**
  Lubricante de uso general
  **1 SKU**

CLEVELAND WALTER

AL

**ALCUT**
Lubricante de corte para aluminio
**1 SKUs**

- **ALCUT Lub Stick**
  (300 g)

**4** **Familias**
Cobertura para las principales aplicaciones de mecanizado

**8** **SKUs**
Portafolio seleccionado para el mercado mexicano.

**Ventaja Comercial**
Alta demanda, alto potencial de venta cruzada y consumo recurrente

**Baja Complejidad**
Fácil de gestionar y con bajo riesgo de inventario.

Incrementa la vida de sus herramientas de corte y prevenga el quiebre de la herramienta con nuestros lubricantes de corte de metales listos para usar que resisten la presión y el calor.

## Asegurando la compatibilidad con el material

**Cuando elija un fluido de corte, es importante identificar qué materiales van a utilizar.**

- Busque los siguientes iconos para elegir el producto correcto para su aplicación:



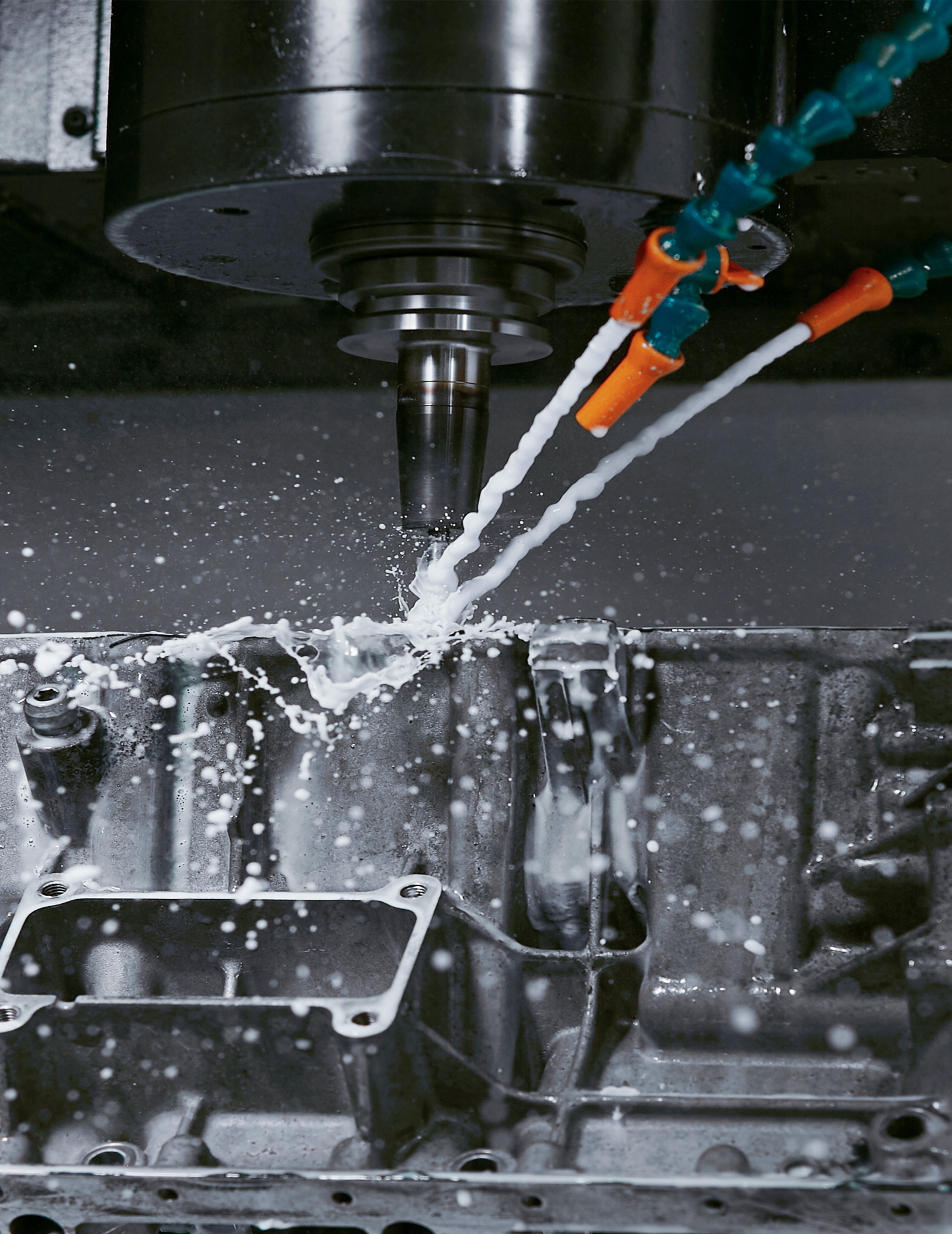

## CERTIFICACIONES

WALTER ofrece químicos que cumplen con varios niveles de certificaciones y beneficios.

VOC free

**COMPUESTOS ORGÁNICOS VOLÁTILES**
Los productos con este logo presente son aceptados para usarse en plantas alimenticias dentro de la frontera canadiense.

**COMPUESTOS ORGÁNICOS VOLÁTILES**
Los productos con este logo presente son aceptados para usarse en plantas alimenticias dentro de la frontera canadiense.

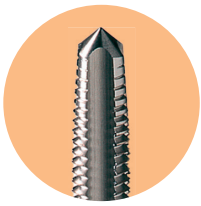


# TAPCUT™
# Lubricante de corte roscas

CLEVELAND | WALTER

¡Útilizalo con nuestros **Machuelos Cleveland!**

Manchuelo acero al carbón



Manchuelo Alta Velocidad



Manchuelo Alta Velocidad Hardlub



Manchuelo NPT



P K M N

Aplicaciones:
*Machuelado manual.*
*Machuelado a máquina.*

TAPCUT™ es un lubricante no tóxico y biodegradable que está especialmente formulado para corte de roscas con machuelos y dados.




| Descripción | Tamaño | | Num. Parte | HDS | Pqt. Std. |
|---|---|---|---|---|---|
| | Métrico | US Gal | | | |
| Botella apretable | 350 ml | 11.8 fl. oz | 53-A 103 | L-115 | 12 |
| Líquido | 3.78 L | 1 gal | 53-A 105 | L-115 | 1 |
| Líquido | 20 L | 5.2 gal | 53-A 107 | L-115 | 1 |

| Accesorios | Num. Parte |
|---|---|
| Grifo para porrón plástico cuadrado 20 L | 53-L 207 |



# ICECUT™
## Refrigerante/lubricante listo para usar

P M N

VOC free




Aplicaciones:
*Taladro con cortadores anulares.*
*Cortadores de núcleo de carburo y brocas helicoidales.*

ICECUT™ es un refrigerante/ lubricante listo para usar especialmente formulado para uso unidades magnéticas de taladrado para reducir el desgaste de la herramienta y mejorar las tasas de producción.



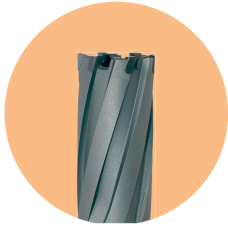

| Descripción | Tamaño | | Num. Parte | HDS | Pqt. Std. |
|---|---|---|---|---|---|
| | Métrico | US Gal | | | |
| Líquido | 350 ml | 11.8fl. oz | 53-B 003 | L-09 | 12 |
| Spray | 500 ml | 16.9 oz | 53-B 004 | L-09 | 12 |
| Líquido | 3.78 L | 1 gal | 53-B 005 | L-09 | 1 |
| Líquido | 3.78 L | 1 gal | 53-C 055 | L-122 | 1 |
| Líquido | 20 L | 5.2 gal | 53-C 057 | L-122 | 1 |
| Líquido | 208 L | 55 gal | 53-C 058 | L-122 | 1 |

CLEVELAND | WALTER

¡Útilizalo con nuestros **Cortadores Cleveland!**



Cortador anular HSS



Cortador anular TCT


COOLCUT™

# COOLCUT ™

## Lubricante de corte de metal

P K M N

VOC free

Aplicaciones:
*Operaciones de maquinado.*
*Barrenado.*
*Sistema MQL.*




COOLCUT™ es un lubricante de corte de metal de alto rendimiento listo para usarse que soporta la presión y el calor para reducir el desgaste de la herramienta y prevenir que la herramienta se quiebre.

**¿SABÍAS QUE? Utilizando Lubricantes de Corte COOLCUT™ puede incrementar hasta 5 veces la vida de sus herramientas**

| Descripción | Tamaño | | Num. Parte | HDS | Pqt. Std. |
|---|---|---|---|---|---|
| | Métrico | US Gal | | | |
| Barra sólida | 300 g | 300 g | 53-B 013 | L-22 | 12 |

CLEVELAND | WALTER

¡Útilizalo con nuestras **Brocas Cleveland!**




WALTER
ALUCUT
Stick
Lubricant
Lubrifiant en bâtonnet
Lubricante
en barra

# ALUCUT ™

## Lubricante de corte para aluminio en barra

N

Aplicaciones:
*Cortes con sierras circulares,Taladro.*

CLEVELAND | WALTER

¡Útilizalo con nuestras **Herramientas Cleveland!**

ALUCUT™ es un lubricante de alto rendimiento que extiende la vida de las herramientas de corte. Especialmente formaulado para usarse con aluminio y otros metales no ferrosos.

| Descripción | Tamaño | | Num. Parte | HDS | Pqt. Std. |
|---|---|---|---|---|---|
| | Métrico | US Gal | | | |
| Barra sólida | 300 g | 10.5 oz. | 53-B 303 | L-04 | 12 |



Broca Parabólica



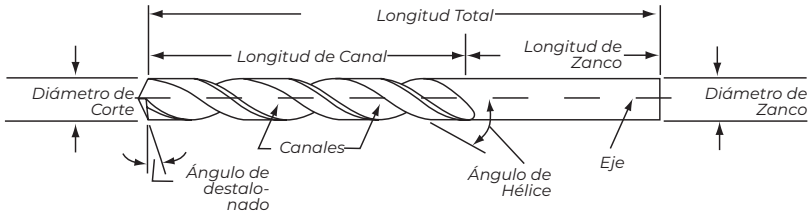


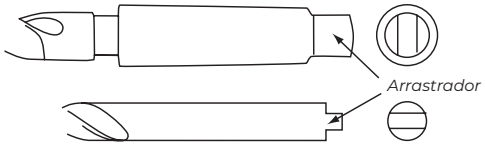
# INFORMACIÓN TÉCNICA

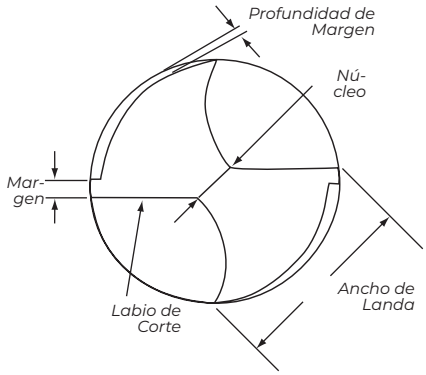
# Información Técnica

## Nomenclatura de brocas

| Característica | Descripción |
|---|---|
| Profundidad de margen | Desahogo de la landa paraevitar el rozamiento contra las paredes del barreno. |
| Diámetro de corte | Diámetro medido sobre los márgenes en la punta. |
| Canales | Ranuras helicoidales o rectas formadas en el cuerpo de la broca que permiten la evacuación de rebaba. |
| Longitud de canal | Es la distancia entre la esquina del labio de corte a donde termina la canal. |
| Longitud total | Es la longitud medida desde la base del zanco a la esquina del labio de corte. En brocas metricas es medido desde la base del zanco hasta la punta de la broca. |
| Ángulo de punta | Es el ángulo fomado entre los labios de corte. |
| Zanco | Parte de la broca por la que es sujetada. |
| Núcleo | Es el centro de los canales de la broca. |

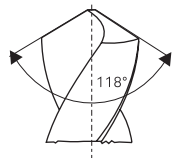
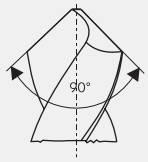
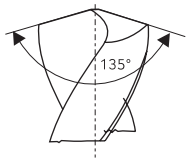


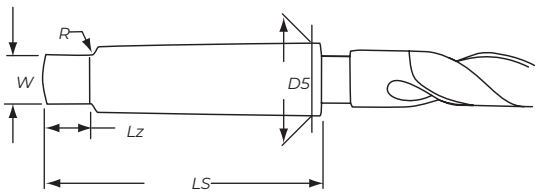
# Ángulo de punta

Puntas perfectamente afiladas para máxima eficiencia y vida útil de la broca.

| Para Uso General | |
|---|---|
| **Ángulo de 118°** | |
|  | Broca de 118°, con acabado óxido al vapor que mejora el rendiemiento de la broca. Para diferentes tipos de materiales como metal, plástico y madera. |
| **Ángulo de 90°** | |
|  | Sí el material a barrenar es blando puede afilar su broca con un ángulo de punta de 90° como se indica en la imagen para mejorar el rendimiento. |
| **Ángulo de 135°** | |
|  | Sí el material a barrenar es duro puede afilar su broca con un ángulo de punta de 135° como se indica en la imagen para mejorar el rendimiento. |

# Especificaciones de cono morse

| Número de Cono Morse | Diámetro de Zanco Máximo | Longitud de Zanco | Longitud de Arrastrador | Espesor del Arrastrado | Radio |
|---|---|---|---|---|---|
| | D5 | LS | Lz | W | R |
| 1 | 0.475 | 2.562 | 0.375 | 0.203 | 0.188 |
| 2 | 0.700 | 3.125 | 0.438 | 0.250 | 0.250 |
| 3 | 0.938 | 3.875 | 0.563 | 0.312 | 0.281 |
| 4 | 1.231 | 4.875 | 0.625 | 0.469 | 0.313 |
| 5 | 1.748 | 6.125 | 0.750 | 0.625 | 0.375 |
| 6 | 2.494 | 8.562 | 1.125 | 0.750 | 0.500 |



# Parámetros de corte para brocas de Acero Alta Velocidad

**Velocidades de corte y refrigerantes recomendados para barrenado**

| Material | Dureza Brinell | SFM | Refrigerante |
|---|---|---|---|
| Acero al Bajo Carbón | 85-125 | 80-95 | Aceite soluble |
| Acero al Medio Carbón | 125-175 | 70-85 | Aceite soluble |
| Acero al Alto Carbón | 175-225 | 45-65 | Aceite soluble |
| Acero Aleado | <200 | 30-40 | Aceite de corte |
| | 200-300 | 20-30 | Aceite de corte |
| | >300 | 10-20 | Aceite de corte |
| Hierro Gris | 125 | 140-150 | En seco |
| | 120-200 | 50-80 | Aceite soluble |
| | >350 | 25-40 | Aceite soluble |
| Aleación de titanio | 300-440 | 50-60 | Aceite de corte |
| Ti-150A | 300-440 | 40-50 | Aceite de corte |
| Ti-140A | 300-440 | 30-40 | Aceite de corte |
| Ti-6AL-4V | 300-440 | 20-30 | Aceite de corte |
| Acero Inoxidable Serie 300 | 120-200 | 20-40 | Aceite de corte |
| Acero Inoxidable Serie 400 | 200-300 | 40-70 | Aceite de corte |
| "Acero Inoxidable endurecido por precipitación" | 325-375 | 30 | Aceite de corte |
| Aluminio puro | 140-350 | 130-200 | Aceite soluble |
| Aleación de Aluminio | 140-330 | 150-300 | Aceite soluble |
| Latón | 190-210 | 200-250 | Aceite soluble |
| Bronce | 150-200 | 200-250 | Aceite soluble |
| Cobre | 65-100 | 140-200 | Aceite soluble |
| Aleación de Magnesio | 50-90 | 140-330 | Aceite soluble |
| Aleación de Níquel/Monel | 115-240 | 55 | Aceite soluble |
| Aleación de Zinc | 112-126 | 200-250 | Aceite soluble |

# Avances para barrenado

| Rango de diámetro | Avance normal | Avance alto |
|---|---|---|
| (pulgadas) | IPR | IPR |
| 1/16 a 1/8 | 0.001-0.002 | 0.002-0.004 |
| 1/8 a 1/4 | 0.002-0.004 | 0.004-0.008 |
| 1/4 a 1/2 | 0.004-0.008 | 0.008-0.016 |
| 1/2 a 1 | 0.008-0.016 | 0.016-0.024 |
| Arriba de 1" | 0.016-0.024 | 0.024-0.032 |

**Nomenclatura**

| Símbolo | Definición |
|---|---|
| RPM | Revoluciones por minuto |
| SFM | Pies superficiales por minuto |
| FR | Avance en pulgadas por minuto |
| IPR | Avance en pulgadas por revolución |
| D | Diámetro de broca |

**Fórmula**

| |
|---|
| RPM=(3.8xSFM)/D |
| SFM=0.26xRPMxD |
| FR=RPMxIPR |

# TABLA DE VELOCIDADES DE CORTE

## Brocas en fracciones de pulgada

| Pies por Minuto | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diámetro | | Revoluciones por Minuto | | | | | | | | | | | | | | |
| frac | pulgs | | | | | | | | | | | | | | | |
| 1/16 | .0625 | 611 | 1222 | 1833 | 2445 | 3056 | 3667 | 4278 | 4889 | 5550 | 6111 | 6722 | 7334 | 7945 | 8556 | 9167 |
| 1/8 | .1250 | 306 | 611 | 917 | 1222 | 1528 | 1833 | 2139 | 2445 | 2750 | 3056 | 3361 | 3667 | 3973 | 4278 | 4584 |
| 3/16 | .1875 | 204 | 407 | 611 | 815 | 1019 | 1222 | 1426 | 1630 | 1833 | 2037 | 2241 | 2445 | 2648 | 2852 | 3056 |
| 1/4 | .2500 | 153 | 306 | 458 | 611 | 764 | 917 | 1070 | 1222 | 1375 | 1528 | 1681 | 1833 | 1986 | 2139 | 2292 |
| 5/16 | .3125 | 122 | 244 | 367 | 489 | 611 | 733 | 856 | 978 | 1100 | 1222 | 1345 | 1467 | 1589 | 1711 | 1833 |
| 3/8 | .3750 | 102 | 204 | 306 | 407 | 509 | 611 | 713 | 815 | 917 | 1019 | 1120 | 1222 | 1324 | 1426 | 1528 |
| 7/16 | .4375 | 87 | 175 | 262 | 349 | 437 | 524 | 611 | 698 | 786 | 873 | 960 | 1048 | 1135 | 1222 | 1310 |
| 1/2 | .5000 | 76 | 153 | 229 | 306 | 382 | 458 | 535 | 611 | 688 | 764 | 840 | 917 | 993 | 1070 | 1146 |
| 5/8 | .6250 | 61 | 122 | 183 | 244 | 306 | 367 | 428 | 489 | 550 | 611 | 672 | 733 | 794 | 856 | 917 |
| 3/4 | .7500 | 51 | 102 | 153 | 203 | 255 | 306 | 357 | 407 | 458 | 509 | 560 | 611 | 662 | 713 | 764 |
| 7/8 | .8750 | 44 | 87 | 131 | 175 | 218 | 262 | 306 | 349 | 393 | 436 | 480 | 524 | 568 | 611 | 655 |
| 1 | 1.0000 | 38 | 76 | 115 | 153 | 191 | 229 | 267 | 306 | 344 | 382 | 420 | 458 | 497 | 535 | 573 |
| 1-1/8 | 1.1250 | 34 | 68 | 102 | 136 | 170 | 204 | 238 | 272 | 306 | 340 | 373 | 407 | 441 | 475 | 509 |
| 1-1/4 | 1.2500 | 31 | 61 | 92 | 122 | 153 | 183 | 214 | 244 | 275 | 306 | 336 | 367 | 397 | 428 | 458 |
| 1-3/8 | 1.3750 | 28 | 56 | 83 | 111 | 139 | 167 | 194 | 222 | 250 | 278 | 306 | 333 | 361 | 389 | 417 |
| 1-1/2 | 1.5000 | 26 | 51 | 76 | 102 | 127 | 153 | 178 | 204 | 229 | 255 | 280 | 306 | 331 | 357 | 382 |
| 1-5/8 | 1.6250 | 24 | 47 | 70 | 94 | 117 | 141 | 165 | 188 | 212 | 235 | 259 | 282 | 306 | 329 | 353 |
| 1-3/4 | 1.7500 | 22 | 44 | 65 | 87 | 109 | 131 | 153 | 175 | 196 | 218 | 240 | 262 | 284 | 306 | 327 |
| 1-7/8 | 1.8750 | 20 | 41 | 61 | 81 | 102 | 122 | 143 | 163 | 183 | 204 | 224 | 244 | 265 | 285 | 306 |
| 2 | 2.0000 | 19 | 38 | 57 | 76 | 95 | 115 | 134 | 153 | 172 | 191 | 210 | 229 | 248 | 267 | 287 |
| 2-1/4 | 2.2500 | 17 | 34 | 51 | 68 | 85 | 102 | 119 | 136 | 153 | 170 | 187 | 204 | 221 | 238 | 255 |
| 2-1/2 | 2.5000 | 15 | 31 | 46 | 61 | 76 | 92 | 107 | 122 | 137 | 153 | 168 | 183 | 199 | 214 | 229 |
| 2-3/4 | 2.7500 | 14 | 28 | 42 | 56 | 69 | 83 | 97 | 111 | 125 | 139 | 153 | 167 | 181 | 194 | 208 |
| 3 | 3.0000 | 13 | 25 | 38 | 51 | 64 | 76 | 89 | 102 | 115 | 127 | 140 | 153 | 166 | 178 | 191 |

# TABLA DE VELOCIDADES DE CORTE

## Brocas numéricas

| Pies por Minuto | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diámetro | | Revoluciones por Minuto | | | | | | | | | | | | | | |
| No. | Dec. | | | | | | | | | | | | | | | |
| 1 | .2280 | 168 | 335 | 503 | 670 | 838 | 1005 | 1173 | 1340 | 1508 | 1675 | 1843 | 2010 | 2179 | 2346 | 2513 |
| 2 | .2210 | 173 | 345 | 518 | 691 | 864 | 1037 | 1210 | 1382 | 1555 | 1728 | 1901 | 2074 | 2247 | 2420 | 2593 |
| 3 | .213 | 179 | 359 | 538 | 717 | 897 | 1076 | 1255 | 1434 | 1614 | 1793 | 1974 | 2152 | 2331 | 2511 | 2690 |
| 4 | .2090 | 183 | 365 | 548 | 731 | 914 | 1097 | 1280 | 1462 | 1645 | 1828 | 2010 | 2193 | 2376 | 2560 | 2741 |
| 5 | .2055 | 186 | 372 | 558 | 744 | 930 | 1115 | 1301 | 1487 | 1673 | 1859 | 2045 | 2230 | 2416 | 2602 | 2788 |
| 6 | .2040 | 187 | 374 | 562 | 749 | 936 | 1123 | 1310 | 1498 | 1685 | 1872 | 2060 | 2247 | 2434 | 2621 | 2809 |
| 7 | .2010 | 190 | 380 | 570 | 760 | 950 | 1140 | 1330 | 1520 | 1710 | 1900 | 2090 | 2281 | 2470 | 2660 | 2850 |
| 8 | .1990 | 192 | 384 | 576 | 768 | 960 | 1151 | 1343 | 1535 | 1727 | 1919 | 2111 | 2303 | 2495 | 2687 | 2879 |
| 9 | .1960 | 195 | 390 | 585 | 780 | 975 | 1169 | 1364 | 1559 | 1754 | 1949 | 2144 | 2339 | 2534 | 2728 | 2923 |
| 10 | .1935 | 197 | 395 | 592 | 790 | 987 | 1184 | 1382 | 1579 | 1777 | 1974 | 2171 | 2369 | 2566 | 2764 | 2961 |
| 11 | .1910 | 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 | 2200 | 2400 | 2600 | 2800 | 3001 |
| 12 | .1890 | 202 | 404 | 606 | 808 | 1010 | 1213 | 1415 | 1617 | 1819 | 2021 | 2223 | 2425 | 2627 | 2829 | 3032 |
| 13 | .1850 | 206 | 413 | 620 | 826 | 1032 | 1239 | 1450 | 1652 | 1859 | 2065 | 2271 | 2479 | 2684 | 2891 | 3097 |
| 14 | .1820 | 210 | 420 | 630 | 840 | 1050 | 1259 | 1469 | 1679 | 1889 | 2099 | 2309 | 2518 | 2728 | 2938 | 3148 |
| 15 | .1800 | 213 | 425 | 638 | 851 | 1064 | 1276 | 1489 | 1702 | 1914 | 2127 | 2334 | 2546 | 2759 | 2971 | 3183 |
| 16 | .1770 | 216 | 432 | 647 | 863 | 1079 | 1295 | 1511 | 1726 | 1942 | 2158 | 2374 | 2590 | 2806 | 3021 | 3237 |
| 17 | .1730 | 221 | 442 | 662 | 883 | 1104 | 1325 | 1546 | 1766 | 1987 | 2208 | 2429 | 2650 | 2870 | 3091 | 3313 |
| 18 | .1695 | 226 | 452 | 678 | 904 | 1130 | 1356 | 1582 | 1808 | 2034 | 2260 | 2479 | 2704 | 2930 | 3155 | 3380 |
| 19 | .1660 | 230 | 460 | 690 | 920 | 1151 | 1381 | 1611 | 1841 | 2071 | 2301 | 2531 | 2761 | 2991 | 3222 | 3453 |
| 20 | .1610 | 237 | 475 | 712 | 949 | 1186 | 1423 | 1660 | 1898 | 2135 | 2372 | 2610 | 2847 | 3084 | 3322 | 3559 |
| 21 | .1590 | 240 | 480 | 721 | 961 | 1201 | 1441 | 1681 | 1922 | 2162 | 2402 | 2644 | 2883 | 3123 | 3363 | 3604 |
| 22 | .1570 | 243 | 487 | 730 | 973 | 1217 | 1460 | 1703 | 1946 | 2190 | 2433 | 2676 | 2920 | 3164 | 3406 | 3649 |
| 23 | .1540 | 248 | 496 | 744 | 992 | 1240 | 1488 | 1736 | 1984 | 2232 | 2480 | 2728 | 2976 | 3224 | 3472 | 3720 |
| 24 | .1520 | 251 | 503 | 754 | 1005 | 1257 | 1508 | 1759 | 2010 | 2262 | 2513 | 2764 | 3016 | 3267 | 3518 | 3769 |
| 25 | .1495 | 256 | 511 | 767 | 1022 | 1276 | 1533 | 1789 | 2044 | 2300 | 2555 | 2810 | 3066 | 3322 | 3577 | 3832 |
| 26 | .1470 | 260 | 520 | 779 | 1039 | 1299 | 1559 | 1819 | 2078 | 2338 | 2598 | 2858 | 3118 | 3378 | 3638 | 3898 |
| 27 | .1440 | 265 | 531 | 796 | 1061 | 1327 | 1592 | 1857 | 2122 | 2388 | 2653 | 2919 | 3183 | 3448 | 3714 | 3979 |
| 28 | .1405 | 272 | 544 | 816 | 1088 | 1360 | 1631 | 1903 | 2175 | 2447 | 2719 | 2990 | 3262 | 3534 | 3806 | 4078 |
| 29 | .1360 | 281 | 562 | 843 | 1124 | 1405 | 1685 | 1966 | 2247 | 2528 | 2809 | 3090 | 33701 | 3651 | 3932 | 4213 |
| 30 | .1285 | 297 | 595 | 892 | 1189 | 1487 | 1784 | 2081 | 2378 | 2676 | 2973 | 3270 | 3567 | 3864 | 4162 | 4459 |
| 31 | .1200 | 318 | 637 | 955 | 1273 | 1592 | 1910 | 2228 | 2546 | 2865 | 3183 | 3501 | 3821 | 4138 | 4456 | 4775 |
| 32 | .1160 | 329 | 659 | 988 | 1317 | 1647 | 1976 | 2305 | 2634 | 2964 | 3293 | 3622 | 3951 | 4281 | 4610 | 4939 |
| 33 | .1130 | 338 | 676 | 1014 | 1352 | 1690 | 2028 | 2366 | 2704 | 3042 | 3380 | 3718 | 4056 | 4394 | 4732 | 5070 |
| 34 | .1110 | 344 | 688 | 1032 | 1376 | 1721 | 2065 | 2409 | 2753 | 3097 | 3442 | 3785 | 4129 | 4474 | 4818 | 5162 |
| 35 | .1100 | 347 | 694 | 1042 | 1389 | 1736 | 2083 | 2430 | 2778 | 3125 | 3472 | 3821 | 4167 | 4514 | 4861 | 5209 |

| Pies por Minuto | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diámetro | | Revoluciones por Minuto | | | | | | | | | | | | | | |
| No. | Dec. | | | | | | | | | | | | | | | |
| 36 | .1065 | 359 | 717 | 1076 | 1435 | 1794 | 2152 | 2511 | 2870 | 3228 | 3587 | 3945 | 4304 | 4663 | 5021 | 5380 |
| 37 | .1040 | 367 | 735 | 1102 | 1469 | 1837 | 2204 | 2571 | 2938 | 3306 | 3673 | 4040 | 4407 | 4775 | 5142 | 5509 |
| 38 | .1015 | 376 | 753 | 1129 | 1505 | 1882 | 2258 | 2634 | 3010 | 3387 | 3763 | 4140 | 4516 | 4892 | 5269 | 5645 |
| 39 | .0995 | 384 | 768 | 1152 | 1536 | 1920 | 2303 | 2687 | 3071 | 3455 | 3839 | 4222 | 4607 | 4991 | 5374 | 5758 |
| 40 | .0980 | 390 | 780 | 1169 | 1559 | 1949 | 2339 | 2729 | 3118 | 3508 | 3898 | 4287 | 4677 | 5067 | 5457 | 5846 |
| 41 | .0960 | 398 | 796 | 1194 | 1592 | 1990 | 2387 | 2785 | 3183 | 3581 | 3979 | 4377 | 4775 | 5172 | 5570 | 5968 |
| 42 | .0935 | 408 | 817 | 1226 | 1634 | 2043 | 2451 | 2860 | 3268 | 3677 | 4085 | 4494 | 4902 | 5311 | 5719 | 6128 |

# TABLA DE VELOCIDADES DE CORTE

## Brocas numéricas

| Pies por Minuto | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diámetro | | Revoluciones por Minuto | | | | | | | | | | | | | | |
| No. | Dec. | | | | | | | | | | | | | | | |
| 43 | .0890 | 429 | 858 | 1288 | 1717 | 2146 | 2575 | 3004 | 3434 | 3863 | 4292 | 4721 | 5150 | 5579 | 6008 | 6438 |
| 44 | .0860 | 444 | 888 | 1333 | 1777 | 2221 | 2665 | 3109 | 3554 | 3999 | 4442 | 4886 | 5330 | 5774 | 6218 | 6662 |
| 45 | .0820 | 466 | 932 | 1397 | 1863 | 2329 | 2795 | 3261 | 3726 | 4192 | 4658 | 5124 | 5590 | 6056 | 6522 | 6987 |
| 46 | .0810 | 472 | 943 | 1415 | 1886 | 2358 | 2830 | 3301 | 3773 | 4244 | 4716 | 5187 | 5659 | 6130 | 6602 | 7074 |
| 47 | .0785 | 487 | 973 | 1460 | 1946 | 2433 | 2920 | 3406 | 3893 | 4379 | 4866 | 5352 | 5839 | 6326 | 6812 | 7299 |
| 48 | .0760 | 503 | 1005 | 1508 | 2010 | 2513 | 3016 | 3518 | 4021 | 4523 | 5026 | 5528 | 6031 | 6534 | 7036 | 7539 |
| 49 | .0730 | 523 | 1047 | 1570 | 2093 | 2617 | 3140 | 3663 | 4186 | 4710 | 5233 | 5756 | 6279 | 6808 | 7326 | 7849 |
| 50 | .0700 | 546 | 1091 | 1637 | 2183 | 2729 | 3274 | 3820 | 4366 | 4911 | 5457 | 6002 | 6548 | 7094 | 7640 | 8185 |
| 51 | .0670 | 570 | 1140 | 1710 | 2280 | 2851 | 3421 | 3991 | 4561 | 5131 | 5701 | 6271 | 6841 | 7413 | 798 | 8552 |
| 52 | .0635 | 602 | 1203 | 1805 | 2406 | 3008 | 3609 | 4211 | 4812 | 5414 | 6015 | 6619 | 7218 | 7820 | 8421 | 9023 |
| 53 | .0595 | 641 | 1283 | 1924 | 2566 | 3207 | 3848 | 4490 | 5131 | 5773 | 6414 | 7062 | 7704 | 8346 | 8988 | 9630 |
| 54 | .0550 | 694 | 1389 | 2084 | 2778 | 3473 | 4167 | 4862 | 5556 | 6251 | 6945 | 7639 | 8334 | 9028 | 9723 | 10417 |
| 55 | .0520 | 735 | 1469 | 2204 | 2938 | 3673 | 4408 | 5142 | 5877 | 6611 | 7346 | 8080 | 8815 | 9549 | 10284 | 11028 |
| 56 | .0465 | 821 | 1643 | 2465 | 3286 | 4108 | 4929 | 5751 | 6572 | 7394 | 8215 | 9036 | 9857 | 10678 | 11500 | 12322 |
| 57 | .0430 | 888 | 1777 | 2671 | 3561 | 4452 | 5342 | 6232 | 7122 | 8013 | 8903 | 9771 | 10660 | 11548 | 12436 | 13325 |
| 58 | .0420 | 910 | 1819 | 2729 | 3637 | 4547 | 5456 | 6367 | 7275 | 8186 | 9095 | 10004 | 10913 | 11823 | 12732 | 13642 |
| 59 | .0410 | 932 | 1863 | 2795 | 3726 | 4658 | 5590 | 6521 | 7453 | 8388 | 9316 | 10248 | 11180 | 12111 | 13043 | 13975 |
| 60 | .0400 | 955 | 1910 | 2865 | 3820 | 4775 | 5729 | 6684 | 7639 | 8594 | 9549 | 10504 | 11459 | 12414 | 13369 | 14324 |
| 61 | .0390 | 979 | 1959 | 2938 | 3918 | 4897 | 5876 | 6856 | 7835 | 8815 | 9794 | 10774 | 11753 | 12732 | 13712 | 14691 |
| 62 | .0380 | 1005 | 2010 | 3015 | 4020 | 5025 | 6030 | 7035 | 8040 | 9045 | 10050 | 11057 | 12060 | 13068 | 14073 | 15078 |
| 63 | .0370 | 1032 | 2064 | 3096 | 4128 | 5160 | 6192 | 7224 | 8256 | 9288 | 10320 | 11366 | 12398 | 13421 | 14453 | 15485 |

| Pies por Minuto | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diámetro | | Revoluciones por Minuto | | | | | | | | | | | | | | |
| No. | Dec. | | | | | | | | | | | | | | | |
| 64 | .0360 | 1061 | 2122 | 3183 | 4244 | 5305 | 6366 | 7427 | 8488 | 9549 | 10610 | 11671 | 12732 | 13793 | 14854 | 15915 |
| 65 | .0350 | 1091 | 2182 | 3273 | 4364 | 5455 | 6546 | 7637 | 8728 | 9819 | 10910 | 12005 | 13096 | 14187 | 15279 | 16370 |
| 66 | .0330 | 1158 | 2316 | 3474 | 4632 | 5790 | 6948 | 8106 | 9264 | 10422 | 11580 | 12732 | 13890 | 15047 | 16205 | 17362 |
| 67 | .0320 | 1194 | 2388 | 3582 | 4776 | 5970 | 7164 | 8358 | 9552 | 10746 | 11940 | 13130 | 14324 | 15517 | 16712 | 17905 |
| 68 | .0310 | 1232 | 2465 | 3696 | 4928 | 6160 | 7392 | 8624 | 9856 | 11088 | 12320 | 13554 | 14786 | 16018 | 17250 | 18482 |
| 69 | .0292 | 1308 | 2616 | 3918 | 5224 | 6530 | 7836 | 9142 | 1048 | 11754 | 13060 | 14389 | 15697 | 17006 | 18314 | 19622 |
| 70 | .0280 | 1364 | 2729 | 4091 | 5456 | 6820 | 8184 | 9548 | 10912 | 12276 | 13640 | 15006 | 16370 | 17734 | 19099 | 20463 |
| 71 | .0260 | 1469 | 2938 | 4419 | 5892 | 7365 | 8838 | 10311 | 11784 | 13257 | 14730 | 16160 | 17629 | 19099 | 20568 | 22037 |
| 72 | .0250 | 1528 | 3056 | 4584 | 6112 | 7640 | 9168 | 10696 | 12224 | 13752 | 15280 | 16807 | 18335 | 19863 | 21390 | 22918 |
| 73 | .0240 | 1592 | 3183 | 4776 | 6368 | 7960 | 9552 | 11144 | 12736 | 14328 | 15920 | 17507 | 19099 | 20690 | 22282 | 23873 |
| 74 | .0225 | 1698 | 3396 | 5106 | 6808 | 8510 | 10212 | 11914 | 13616 | 15318 | 17020 | 18674 | 20372 | 22069 | 23767 | 25465 |
| 75 | .0210 | 1819 | 3638 | 5457 | 7276 | 9095 | 10914 | 12733 | 14552 | 16371 | 18190 | 20008 | 21827 | 23646 | 25465 | 27284 |
| 76 | .0200 | 1910 | 3820 | 5730 | 7640 | 9550 | 11460 | 13370 | 15280 | 17190 | 19100 | 21008 | 22918 | 24828 | 26738 | 28648 |
| 77 | .0180 | 2122 | 4244 | 6366 | 8488 | 10610 | 12732 | 14854 | 16976 | 19098 | 21220 | 23343 | 25465 | 27587 | 29709 | 31831 |
| 78 | .0160 | 2388 | 4775 | 7161 | 9548 | 11935 | 14322 | 16709 | 19096 | 21483 | 23870 | 26260 | 28648 | 31035 | 33422 | 35810 |
| 79 | .0145 | 2634 | 5269 | 7902 | 10536 | 13170 | 15804 | 18438 | 21072 | 23706 | 26340 | 28988 | 31611 | 34246 | 36880 | 39514 |
| 80 | .0135 | 2830 | 5659 | 8490 | 11320 | 14150 | 16980 | 19810 | 22640 | 25470 | 28300 | 31123 | 33953 | 36782 | 39612 | 42441 |

# TABLA DE VELOCIDADES DE CORTE

## Brocas alfabéticas

| Pies por Minuto | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diámetro | | Revoluciones por Minuto | | | | | | | | | | | | | | |
| Letra | Dec. | | | | | | | | | | | | | | | |
| A | .2340 | 163 | 326 | 491 | 654 | 818 | 982 | 1145 | 1309 | 1472 | 1636 | 1796 | 1959 | 2122 | 2285 | 2448 |
| B | .2380 | 161 | 321 | 482 | 642 | 803 | 963 | 1124 | 1284 | 1445 | 1605 | 1765 | 1926 | 2086 | 2247 | 2407 |
| C | .2420 | 158 | 316 | 473 | 631 | 789 | 947 | 1105 | 1262 | 1420 | 1578 | 1736 | 1894 | 2052 | 2210 | 2368 |
| D | .2460 | 155 | 311 | 467 | 622 | 778 | 934 | 1089 | 1245 | 1400 | 1556 | 1708 | 1863 | 2018 | 2174 | 2329 |
| E | .2500 | 153 | 306 | 458 | 611 | 764 | 917 | 1070 | 1222 | 1375 | 1528 | 1681 | 1834 | 1968 | 2139 | 2292 |
| F | .2570 | 149 | 297 | 446 | 594 | 743 | 892 | 1040 | 1189 | 1337 | 1486 | 1635 | 1784 | 1932 | 2081 | 2229 |
| G | .2610 | 146 | 293 | 440 | 585 | 732 | 878 | 1024 | 1170 | 1317 | 1463 | 1610 | 1756 | 1903 | 2049 | 2195 |
| H | .2660 | 144 | 287 | 430 | 574 | 718 | 862 | 1005 | 1149 | 1292 | 1436 | 1580 | 1723 | 1867 | 2010 | 2154 |
| I | .2720 | 140 | 281 | 421 | 562 | 702 | 842 | 983 | 1123 | 1264 | 1404 | 1545 | 1685 | 1826 | 1966 | 2106 |
| J | .2770 | 138 | 276 | 414 | 552 | 690 | 827 | 965 | 1103 | 1241 | 1379 | 1517 | 1655 | 1793 | 1930 | 2068 |
| K | .2810 | 136 | 272 | 408 | 544 | 680 | 815 | 951 | 1087 | 1223 | 1359 | 1495 | 1631 | 1767 | 1903 | 2039 |
| L | .2900 | 132 | 263 | 395 | 527 | 659 | 790 | 922 | 1054 | 1185 | 1317 | 1449 | 1581 | 1712 | 1844 | 1976 |
| M | .2950 | 129 | 259 | 389 | 518 | 648 | 777 | 907 | 1036 | 1166 | 1295 | 1424 | 1554 | 1683 | 1813 | 1942 |

| Pies por Minuto | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diámetro | | Revoluciones por Minuto | | | | | | | | | | | | | | |
| Letra | Dec. | | | | | | | | | | | | | | | |
| N | .3020 | 126 | 253 | 380 | 506 | 633 | 759 | 886 | 1012 | 1139 | 1265 | 1391 | 1518 | 1644 | 1771 | 1897 |
| O | .3160 | 121 | 242 | 363 | 484 | 605 | 725 | 846 | 967 | 1088 | 1209 | 1330 | 1450 | 1571 | 1692 | 1813 |
| P | .3230 | 118 | 237 | 355 | 473 | 592 | 710 | 828 | 946 | 1065 | 1183 | 1301 | 1419 | 1537 | 1657 | 1774 |
| Q | .3320 | 115 | 230 | 345 | 460 | 575 | 690 | 805 | 920 | 1035 | 1150 | 1266 | 1384 | 1496 | 1611 | 1726 |
| R | .3390 | 113 | 225 | 338 | 451 | 564 | 676 | 789 | 902 | 1014 | 1127 | 1239 | 1355 | 1465 | 1577 | 1690 |
| S | .3480 | 110 | 220 | 329 | 439 | 549 | 659 | 769 | 878 | 988 | 1098 | 1207 | 1317 | 1427 | 1537 | 1646 |
| T | .3580 | 107 | 213 | 320 | 426 | 533 | 640 | 746 | 853 | 959 | 1066 | 1173 | 1280 | 1387 | 1494 | 1600 |
| U | .3680 | 104 | 208 | 311 | 415 | 519 | 623 | 727 | 830 | 934 | 1038 | 1142 | 1246 | 1349 | 1453 | 1557 |
| V | .3770 | 101 | 203 | 304 | 405 | 507 | 608 | 709 | 810 | 912 | 1013 | 1114 | 1219 | 1317 | 1418 | 1520 |
| W | .3860 | 99 | 198 | 297 | 396 | 495 | 594 | 693 | 792 | 891 | 989 | 1088 | 1188 | 1286 | 1385 | 1484 |
| X | .3970 | 96 | 192 | 289 | 385 | 481 | 576 | 672 | 769 | 865 | 962 | 1058 | 1155 | 1251 | 1347 | 1443 |
| Y | .4040 | 95 | 189 | 284 | 378 | 473 | 567 | 662 | 756 | 851 | 945 | 1040 | 1135 | 1229 | 1324 | 1418 |
| Z | .4130 | 92 | 185 | 277 | 370 | 462 | 555 | 647 | 740 | 832 | 925 | 1017 | 1110 | 1202 | 1295 | 1387 |

# Información técnica de cortadores

| A encontrar | Valores conocidos | Fórmulas |
|---|---|---|
| Velocidad de corte periférica - SFM | Diámetro del cortador - D<br>Velocidad rotacional, RPM | SFM = 0.262 x RPM x D<br>SFM estímado = ( RPM x D ) / 4 |
| Velocidad rotacional - RPM | Velocidad de corte periférica, SFM<br>Diámetro del cortador, D | RPM = SFM / ( 0.262 x D )<br>RPM estímado = ( 4 x SFM ) / D |
| Velocidad de alimentación de la máquina - IPM | Velocidad rotacional, RPM<br>Número de flautas ( canales ), T<br>Alimentación por diente, IPT | IPM = T x IPT x RPM |
| Alimentación por diente - IPT | Velocidad de alimentación de la máquina, IPM<br>Velocidad rotacional, RPM<br>Número de dientes | IPT = IPM / ( RPM x T ) |
| Alimentación por revolución - IPR | Velocidad de alimentacón de la máquina, IPM | IPR = IPM / RPM |
| Entrada de potencia de corte - HP | Ancho de corte, WOC<br>Profundidad del corte, DOC<br>Velocidad de alimentación de la máquina, IPM<br>Constante de potencia material de pieza, K | HP = WOC x DOC x IPM x K |

# Constantes de potencia para usar en cálculos de potencia

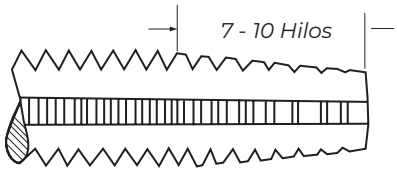
| Material de trabajo | K (constante) | Material de trabajo | K (constante) | Material de trabajo | K (constante) |
|---|---|---|---|---|---|
| Aluminio | 0.3 | Aleaciones Termo-resistentes | | Aleación de Alta Resistencia | |
| Magnesio | 0.3 | Ferrítico | 1.7 | 180,000 = 220,000 psi | 2.0 |
| Cobre | 0.5 | Austenítico | 2.0 | 220,000 = 260,000 psi | 2.5 |
| Latón | 0.4 | Base de níquel | 2.5 | 260,000 = 300,000 psi | 3.3 |
| Bronce | 0.5 | Base de cobalto | 2.5 | Titaneo | |
| Hierros fundidos | | Acero | | Debajo 100,000 psi | 1.3 |
| Ferrítico | 0.7 | Hasta 150 Brinell | 1.4 | 100,000 - 135,000 psi | 1.7 |
| Perlítico | 1.0 | Hasta 300 Brinell | 1.7 | 135,000 psi & mayor | 2.5 |
| Enfriado | 1.7 | Hasta 400 Brinell | 2.0 | Acero Inoxidable | |
| Hierro maleable | 1.0 | Hasta 500 Brinell | 2.5 | Mecanizado Libre | 1.0 |
| | | | | Otros | 1.7 |

# Definición de símbolos y unidades de medidas

| Atributo | Símbolo | Unidades de medida |
|---|---|---|
| Velocidad de corte | SFM | Pies por minuto |
| Revoluciones por Minuto | RPM | Revoluciones por minuto |
| Diámetro del cortador | D | Pulgadas |
| Alimentación por diente | IPT | Pulgadas por diente |
| Velocidad de alimentación de la máquina | IPM | Pulgadas por minuto |
| Alimentación por revolución | IPR | Pulgadas por revolución |
| Entrada de potencia de corte | HP | Caballo de fuerza |
| Constante de Potencia | K | Caballo de fuerza / pulgada cúbica / minuto |
| Ancho de corte | WOC | Pulgadas |
| Profundidad de corte | DOC | Pulgadas |
| Número de dientes | T | - |

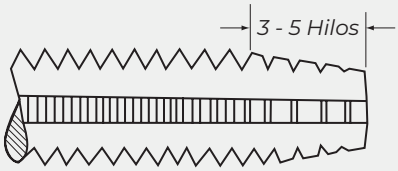
## Tipos de chaflán

Cónico



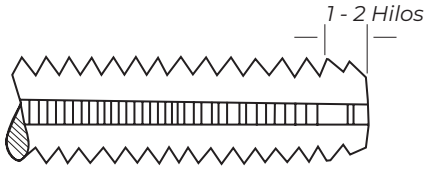

El machuelo cónico tiene chaflán desde la punta hasta unos 7- 10 hilos lo que permite iniciar una rosca con facilidad

Semiconico




Es el tipo de chaflán mas común para machuleado manual o en máquina ya sea para barrenos ciegos o pasados.

Recto




Usado para roscar hasta el fondo de barrenos ciegos.

# PARÁMETROS DE OPERACIÓN

## Velocidades de corte

*Fórmulas*

| Tamaños en pulgadas |
|---|
| **SFM=(RPMxDm)/3.82** |
| **RPM=(3.82xSFM)/Dm** |
| **IPM=RPM/TPI=PxRPM** |

| Tamaños milimétricos |
|---|
| **Sm/m=(πxDmxRPM)/1000** |
| **RPM=(m/mx1000)/πxDm** |
| **mm/m=PxRPM** |

| | Donde |
|---|---|
| SFM= | Pies superficiales por minuto |
| RPM= | Revoluciones por minuto |
| IPM= | Pulgadas por minuto |
| TPI= | Hilos por pulgada |
| **S m/m=** | Metros superficiales por minuto |
| **π=** | 3.1416 |
| **mm/m=** | Milímetros por minuto |
| **P=** | Paso= 1/num. de hilos por plg |

# Machuelos UNC/UNF Y NPT/NPTF

| Medida del machuelo | | Pies superficiales por minuto (SFM) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
| UNC/ UNF | NPT/ NPTF | Revoluciones por minuto (RPM) | | | | | | | | | | | | | | | | | |
| 0 | - | 318 | 637 | 955 | 1273 | 1592 | 1910 | 2546 | 3183 | 3820 | 4456 | 5093 | 5729 | 6366 | 7003 | 7639 | 8276 | 8913 | 9549 |
| 1 | - | 273 | 546 | 819 | 1046 | 1308 | 1570 | 2093 | 2617 | 3140 | 3663 | 4186 | 4710 | 5233 | 5756 | 6279 | 6805 | 7326 | 1849 |
| 2 | - | 212 | 424 | 637 | 888 | 1110 | 1333 | 1777 | 2221 | 2665 | 3109 | 3554 | 3999 | 4442 | 4886 | 5330 | 5774 | 6218 | 6662 |
| 3 | - | 191 | 382 | 573 | 772 | 964 | 1157 | 1543 | 1929 | 2315 | 2701 | 3086 | 3472 | 3858 | 4244 | 4629 | 5015 | 5401 | 5787 |
| 4 | - | 174 | 347 | 521 | 682 | 853 | 1023 | 1364 | 1705 | 2046 | 2387 | 2728 | 3069 | 3411 | 3751 | 4092 | 4434 | 4775 | 5115 |
| 5 | - | 147 | 294 | 441 | 611 | 764 | 917 | 1222 | 1528 | 1833 | 2139 | 2445 | 2750 | 3056 | 3361 | 3667 | 3973 | 4278 | 4584 |
| 6 | - | 136 | 273 | 409 | 553 | 691 | 829 | 1106 | 1382 | 1859 | 1935 | 2212 | 2488 | 2766 | 3042 | 3318 | 3595 | 3871 | 4148 |
| 8 | - | 119 | 239 | 358 | 466 | 583 | 699 | 932 | 1165 | 1398 | 1631 | 1864 | 2097 | 2330 | 2563 | 2796 | 3029 | 3262 | 3495 |
| 10 | - | 101 | 201 | 302 | 402 | 502 | 603 | 804 | 1005 | 1205 | 1406 | 1607 | 1808 | 2009 | 2210 | 2411 | 2612 | 2813 | 3014 |
| 12 | - | 87 | 174 | 260 | 354 | 442 | 531 | 707 | 884 | 1061 | 1238 | 1415 | 1592 | 1769 | 1945 | 2122 | 2300 | 2476 | 2653 |
| 1/4 | - | 76 | 153 | 229 | 306 | 382 | 458 | 611 | 764 | 917 | 1070 | 1222 | 1375 | 1528 | 1681 | 1833 | 1986 | 2139 | 2292 |
| 5/16 | - | 62 | 123 | 185 | 245 | 306 | 367 | 489 | 611 | 733 | 856 | 978 | 1100 | 1222 | 1345 | 1467 | 1589 | 1711 | 1833 |
| 3/8 | - | 50 | 101 | 151 | 204 | 255 | 305 | 407 | 509 | 611 | 713 | 815 | 917 | 1019 | 1120 | 1222 | 1324 | 1426 | 1528 |
| 7/16 | 1/8 | 43 | 87 | 130 | 175 | 219 | 262 | 349 | 437 | 524 | 611 | 698 | 786 | 873 | 960 | 1048 | 1135 | 1222 | 1310 |
| 1/2 | - | 38 | 76 | 115 | 153 | 191 | 229 | 305 | 382 | 458 | 535 | 611 | 688 | 764 | 840 | 917 | 993 | 1070 | 1146 |
| 9/16 | 1/4 | 34 | 68 | 102 | 137 | 172 | 206 | 274 | 342 | 410 | 478 | 547 | 616 | 683 | 752 | 820 | 888 | 952 | 1020 |
| 5/8 | - | 32 | 64 | 96 | 122 | 153 | 183 | 244 | 306 | 367 | 428 | 489 | 550 | 611 | 672 | 733 | 794 | 856 | 917 |
| 11/16 | 3/8 | 28 | 55 | 83 | 111 | 138 | 167 | 222 | 278 | 333 | 389 | 444 | 500 | 556 | 611 | 667 | 722 | 778 | 833 |
| 3/4 | - | 25 | 51 | 76 | 102 | 128 | 153 | 203 | 255 | 305 | 357 | 407 | 458 | 509 | 560 | 611 | 662 | 713 | 764 |
| 7/8 | 1/2 | 22 | 43 | 65 | 87 | 109 | 131 | 175 | 218 | 262 | 306 | 350 | 392 | 437 | 480 | 524 | 568 | 611 | 655 |
| 1 | - | 19 | 38 | 57 | 76 | 96 | 115 | 153 | 191 | 230 | 268 | 305 | 344 | 382 | 420 | 458 | 497 | 535 | 573 |

| Medida del machuelo | | Pies superficiales por minuto (SFM) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
| UNC/ UNF | NPT/ NPTF | Revoluciones por minuto (RPM) | | | | | | | | | | | | | | | | | |
| 1-1/8 | 3/4 | 17 | 34 | 51 | 68 | 84 | 102 | 136 | 170 | 204 | 238 | 272 | 306 | 340 | 373 | 407 | 441 | 475 | 509 |
| 1-1/4 | - | 15 | 31 | 46 | 61 | 76 | 92 | 122 | 153 | 183 | 214 | 244 | 275 | 305 | 336 | 367 | 397 | 428 | 458 |
| 1-3/8 | 1 | 14 | 28 | 42 | 56 | 69 | 83 | 111 | 139 | 167 | 194 | 222 | 250 | 278 | 306 | 333 | 361 | 389 | 417 |
| 1-1/2 | - | 13 | 25 | 38 | 51 | 63 | 76 | 102 | 127 | 153 | 178 | 204 | 229 | 255 | 280 | 305 | 331 | 356 | 382 |
| 1-5/8 | - | 12 | 23 | 35 | 47 | 59 | 71 | 94 | 118 | 141 | 165 | 188 | 212 | 235 | 259 | 282 | 306 | 329 | 353 |
| 1-3/4 | - | 11 | 22 | 33 | 44 | 55 | 65 | 87 | 109 | 131 | 153 | 175 | 196 | 218 | 240 | 262 | 284 | 306 | 327 |
| 1-7/8 | - | 10 | 20 | 30 | 41 | 51 | 61 | 81 | 102 | 122 | 143 | 163 | 183 | 204 | 224 | 244 | 265 | 285 | 306 |
| 2 | - | 9 | 19 | 29 | 38 | 48 | 57 | 76 | 96 | 115 | 134 | 153 | 172 | 191 | 210 | 229 | 248 | 267 | 287 |

| Medida del Machuelo | Pies superficiales por minuto (SFM) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
| | Revoluciones por minuto (RPM) | | | | | | | | | | | | | | | | | |
| M1 | 490 | 979 | 1469 | 1959 | 2449 | 2938 | 3918 | 4897 | 5877 | 6856 | 7836 | 8815 | 9795 | 10774 | 11754 | 12733 | 13713 | 14692 |
| M2 | 242 | 484 | 725 | 967 | 1209 | 1451 | 1934 | 2418 | 2901 | 3385 | 3868 | 4352 | 4835 | 5319 | 5803 | 6286 | 6770 | 7253 |
| M3 | 162 | 324 | 486 | 347 | 809 | 971 | 1295 | 1619 | 1942 | 2266 | 2590 | 2914 | 3237 | 3561 | 3885 | 4208 | 4532 | 4856 |
| M3.5 | 138 | 277 | 415 | 554 | 692 | 830 | 1107 | 1384 | 1661 | 1938 | 2214 | 1491 | 2768 | 3045 | 3322 | 3599 | 3875 | 4152 |
| M4 | 122 | 243 | 365 | 487 | 608 | 730 | 973 | 1217 | 1460 | 1703 | 1946 | 2190 | 2433 | 2676 | 2920 | 3163 | 3406 | 3650 |
| M5 | 97 | 194 | 291 | 388 | 485 | 582 | 776 | 970 | 1163 | 1357 | 1551 | 1745 | 1939 | 2133 | 2327 | 2521 | 2715 | 2905 |
| M6 | 81 | 162 | 243 | 324 | 405 | 486 | 647 | 809 | 971 | 1133 | 1295 | 1457 | 1619 | 1781 | 1942 | 2104 | 2266 | 2428 |
| M7 | 69 | 138 | 208 | 277 | 346 | 415 | 554 | 692 | 830 | 969 | 1107 | 1246 | 1384 | 1522 | 1661 | 1799 | 1938 | 2076 |
| M8 | 61 | 121 | 182 | 243 | 303 | 364 | 485 | 606 | 728 | 849 | 970 | 1091 | 1213 | 1334 | 1455 | 1577 | 1698 | 1819 |
| M10 | 48 | 97 | 145 | 194 | 242 | 291 | 388 | 485 | 582 | 679 | 776 | 873 | 970 | 1067 | 1163 | 1260 | 1357 | 1454 |
| M12 | 40 | 81 | 121 | 162 | 202 | 243 | 324 | 405 | 486 | 567 | 647 | 728 | 809 | 890 | 971 | 1052 | 1133 | 1214 |
| M14 | 35 | 69 | 104 | 139 | 173 | 208 | 277 | 347 | 416 | 485 | 555 | 624 | 693 | 763 | 832 | 901 | 971 | 1040 |
| M16 | 30 | 61 | 91 | 121 | 152 | 182 | 243 | 303 | 364 | 424 | 485 | 546 | 606 | 667 | 728 | 788 | 849 | 910 |
| M18 | 27 | 54 | 81 | 108 | 135 | 162 | 216 | 269 | 323 | 377 | 431 | 485 | 539 | 593 | 647 | 700 | 754 | 808 |
| M20 | 24 | 49 | 73 | 97 | 121 | 146 | 194 | 243 | 291 | 340 | 388 | 437 | 485 | 534 | 582 | 631 | 680 | 728 |
| M22 | 22 | 44 | 66 | 88 | 110 | 132 | 176 | 221 | 265 | 309 | 353 | 397 | 441 | 485 | 529 | 573 | 618 | 662 |
| M24 | 20 | 40 | 61 | 81 | 101 | 121 | 162 | 202 | 243 | 283 | 323 | 364 | 404 | 445 | 485 | 526 | 566 | 606 |
| M27 | 18 | 36 | 54 | 72 | 90 | 108 | 144 | 180 | 216 | 252 | 287 | 323 | 359 | 395 | 431 | 467 | 503 | 539 |
| M30 | 16 | 32 | 49 | 65 | 81 | 97 | 129 | 162 | 194 | 226 | 259 | 291 | 323 | 356 | 388 | 420 | 453 | 485 |

# TABLA DE VELOCIDADES DE CORTE

## Números, fraccionales y porcentajes de rosca

| Machuelo | | Diám. Broca | Equiv. Decimal | % Teor. Rosca |
|---|---|---|---|---|
| Medida | Hilos x Pulg. | | | |
| 0 | 80 | 56<br>3/64 | 0.0465<br>0.0469 | 83<br>81 |
| 1 | 64 | 54 | 0.0550<br>0.0595 | 89<br>67 |
| 1 | 72 | 53<br>1/16 | 0.0595<br>0.0625 | 75<br>58 |
| 2 | 56 | 51<br>50<br>49 | 0.0670<br>0.0700<br>0.0730 | 82<br>69<br>56 |
| 2 | 64 | 50<br>49 | 0.0700<br>0.0730 | 79<br>64 |
| 3 | 48 | 5/64<br>47<br>46 | 0.0781<br>0.0785<br>0.0810 | 77<br>76<br>67 |
| 3 | 56 | 46<br>45<br>44 | 0.0810<br>0.0820<br>0.0960 | 78<br>73<br>56 |
| 4 | 40 | 43<br>42 | 0.0890<br>0.0935 | 71<br>57 |
| 4 | 48 | 42<br>3/32 | 0.0935<br>0.0938 | 68<br>68 |
| 5 | 40 | 39<br>38 | 0.0995<br>0.1015 | 79<br>72 |
| 5 | 44 | 38<br>37 | 0.1015<br>0.1040 | 79<br>71 |
| 6 | 32 | 36<br>7/64<br>35 | 0.1065<br>0.1094<br>0.110 | 78<br>70<br>69 |
| 6 | 40 | 33<br>32 | 0.1130<br>0.1160 | 77<br>68 |
| 8 | 32 | 29<br>28 | 0.1360<br>0.1405 | 69<br>58 |
| 8 | 36 | 29<br>28<br>9/64 | 0.1360<br>0.1405<br>0.1406 | 78<br>68<br>68 |
| 10 | 24 | 25<br>24<br>23 | 0.1495<br>0.1520<br>0.1540 | 75<br>70<br>67 |
| 10 | 32 | 22<br>21<br>20 | 0.1570<br>0.1590<br>0.1610 | 81<br>76<br>71 |
| 12 | 24 | 17<br>16<br>15 | 0.1730<br>0.1770<br>0.1800 | 79<br>72<br>67 |
| 12 | 28 | 15<br>14<br>13 | 0.1800<br>0.1820<br>0.1850 | 78<br>73<br>67 |
| 1/4 | 20 | 7<br>13/64<br>6<br>5 | 0.2010<br>0.2031<br>0.2040<br>0.2055 | 75<br>72<br>71<br>69 |
| 1/4 | 24 | 4 | 4 | 76 |
| 1/4 | 28 | 7/32<br>2 | 0.2188<br>0.2210 | 67<br>73 |

| Machuelo | | Diám. Broca | Equiv. Decimal | % Teor. Rosca |
|---|---|---|---|---|
| Medida | Hilos x Pulg. | | | |
| 1/4 | 32 | 7/32 | 0.2188 | 77 |
| 5/16 | 18 | F<br>G<br>17/64 | 0.2570<br>0.2610<br>0.2656 | 77<br>71<br>65 |
| 5/16 | 20 | 17/64 | 0.2656 | 72 |
| 5/16 | 24 | I<br>J | 0.2720<br>0.2770 | 75<br>66 |
| 5/16 | 32 | 9/32 | 0.2813 | 77 |
| 3/8 | 16 | 5/16<br>O<br>P | 0.3125<br>0.3160<br>0.3230 | 77<br>73<br>64 |
| 3/8 | 20 | 21/64 | 0.3281 | 72 |
| 3/8 | 24 | Q<br>R | 0.3320<br>0.3390 | 79<br>67 |
| 3/8 | 32 | 11/32 | 0.3438 | 77 |
| 7/16 | 14 | U<br>3/8<br>V | 0.3680<br>0.3750<br>0.3770 | 75<br>67<br>65 |
| 7/16 | 20 | W<br>25/64 | 0.3860<br>0.3906 | 79<br>72 |
| 7/16 | 24 | X | 0.3970 | 75 |
| 7/16 | 28 | Y | 0.4040 | 72 |
| 1/2 | 13 | 27/64<br>7/16 | 0.4219<br>0.4375 | 78<br>63 |
| 1/2 | 20 | 29/64 | 0.4531 | 72 |
| 1/2 | 24 | 29/64 | 0.4531 | 87 |
| 1/2 | 28 | 15/32 | 0.4688 | 67 |
| 9/16 | 12 | 15/32<br>31/64 | 0.4688<br>0.4844 | 87<br>72 |
| 9/16 | 18 | 1/2<br>33/64 | 0.5000<br>0.5156 | 87<br>65 |
| 9/16 | 24 | 33/64 | 0.5156 | 87 |
| 5/8 | 11 | 17/32<br>35/64 | 0.5313<br>0.5469 | 79<br>66 |
| 5/8 | 12 | 35/64 | 0.5469 | 72 |
| 5/8 | 18 | 9/16<br>37/64 | 0.5625<br>0.5781 | 87<br>65 |
| 5/8 | 24 | 37/64 | 0.5781 | 87 |
| 11/16 | 12 | 39/64 | 0.6094 | 72 |
| 11/16 | 24 | 41/64 | 0.6406 | 87 |
| 3/4 | 10 | 41/64<br>21/32 | 0.6406<br>0.6563 | 84<br>72 |
| 3/4 | 12 | 43/64 | 0.6719 | 72 |
| 3/4 | 16 | 11/16 | 0.6875 | 77 |
| 3/4 | 20 | 45/64 | 0.7031 | 72 |
| 13/16 | 12 | 47/64 | 0.7344 | 72 |
| 13/16 | 16 | 3/4 | 0.7500 | 77 |
| 13/16 | 20 | 49/64 | 0.7656 | 72 |
| 7/8 | 9 | 49/64<br>25/32 | 0.7656<br>0.7813 | 76<br>65 |
| 7/8 | 12 | 51/64 | 0.7969 | 72 |

| Machuelo | | Diám. Broca | Equiv. Decimal | % Teor. Rosca |
|---|---|---|---|---|
| Medida | Hilos x Pulg. | | | |
| 7/8 | 14 | 51/64<br>13/16 | 0.7969<br>0.8125 | 84<br>67 |
| 7/8 | 16 | 13/16 | 0.8125 | 77 |
| 15/16 | 12 | 55/64 | 0.8594 | 72 |
| 15/16 | 16 | 7/8 | 0.8750 | 77 |
| 15/16 | 12 | 57/64 | 0.8906 | 72 |
| 1 | 8 | 7/8<br>57/64 | 0.8750<br>0.8906 | 77<br>67 |
| 1 | 12 | 59/64<br>15/16 | 0.9219<br>0.9375 | 72<br>58 |
| 1 | 14 | 59/64<br>15/16 | 0.9219<br>0.9375 | 84<br>67 |
| 1 | 16 | 15/16 | 0.9375 | 77 |
| 1 | 20 | 61/64 | 0.9531 | 72 |
| 1-1/8 | 7 | 63/64<br>1 | 0.9844<br>1.0000 | 76<br>67 |
| 1-1/8 | 12 | 1-1/32<br>1-3/64 | 1.0313<br>1.0469 | 87<br>72 |
| 1-1/8 | 16 | 1-1/16 | 1.0625 | 77 |
| 1-1/8 | 18 | 1-1/16 | 1.0625 | 87 |
| 1-1/4 | 7 | 1-3/32<br>1-7/64<br>1-1/8 | 1.0938<br>1.1094<br>1.1250 | 84<br>76<br>67 |
| 1-1/4 | 12 | 1-5/32<br>1-11/64 | 1.1563<br>1.1719 | 87<br>72 |
| 1-1/4 | 16 | 1-3/16 | 1.1875 | 77 |
| 1-1/4 | 18 | 1-3/16 | 1.1875 | 87 |
| 1-3/8 | 6 | 1-3/16<br>1- 13/64<br>1-7/32<br>1-15/64 | 1.1875<br>1.2031<br>1.2188<br>1.2344 | 87<br>79<br>72<br>65 |
| 1-3/8 | 12 | 1-9/32<br>1-19/64 | 1.2813<br>1.2969 | 87<br>72 |
| 1-3/8 | 26 | 1-5/16 | 1.3125 | 77 |
| 1-3/8 | 18 | 1-5/16 | 1.3125 | 87 |
| 1-1/2 | 6 | 1-5/16<br>1-21/64<br>1-11/32<br>1-23/64 | 1.3125<br>1.3281<br>1.3438<br>1.3594 | 87<br>79<br>72<br>65 |
| 1-1/2 | 12 | 1-13/32<br>1-27/64 | 1.4063<br>1.4219 | 87<br>72 |
| 1-1/2 | 16 | 1-7/16 | 1.4375 | 77 |
| 1-1/2 | 18 | 1-7/16 | 1.4375 | 87 |
| 1-3/4 | 16 | 1-7/16 | 1.6875 | 77 |
| 2 | 16 | 1-15/16 | 1.9375 | 77 |
| 2-1/4 | 16 | 2-3/16 | 2.1875 | 77 |
| 2-1/2 | 16 | 2-7/16 | 2.4375 | 77 |
| 2-3/4 | 16 | 2-11/16 | 2.6875 | 77 |
| 3 | 16 | 2-15/16 | 2.9375 | 77 |

| | |
|---|---|
| Fórmula para obtener la medida de broca | $\text{Medida de Broca} = \text{Diám. Exterior de la Rosca} - \left(\frac{0.01299 \times \% \text{ de Rosca}}{\text{Nº de Hilos por pulg.}}\right)$ |
| Fórmula para obtener el porcentaje de rosca p/otras medidas de broca | $\% \text{ de Rosca} = \text{Nº de Hilos por pulg.} \times \left(\frac{\text{Diám Ext. de Rosca- Diám Broca selecc.}}{0.01299}\right)$ |

# SELECCIÓN DE BROCAS PARA ROSCADO

## Métricas y porcentajes de rosca

| Machuelo | Diám. Broca | Equiv. Decimal | % Teor. Rosca |
|---|---|---|---|
| M1.6 x .35 | 1.25mm<br>1.30mm<br>#55 | 0.0492<br>0.0512<br>0.0520 | 77<br>66<br>61 |
| M1.8 x .35 | 1.45mm<br>1.50mm<br>#53 | 0.0571<br>0.0591<br>0.0595 | 77<br>66<br>64 |
| M2 x .4 | 1.60mm<br>#52 | 0.0630<br>0.0635 | 77<br>74 |
| M2.2 X .45 | 1.75mm<br>#50 | 0.0689<br>0.0700 | 77<br>72 |
| M2.5 X .45 | 2.05mm<br>#45 | 0.0700<br>0.0820 | 77<br>71 |
| M3 X .5 | 2.50mm<br>#39 | 0.0984<br>0.0995 | 77<br>73 |
| M3.5 x .6 | 2.9mm<br>#32 | 0.1142<br>0.1160 | 77<br>71 |
| M4 x .7 | 3.30mm<br>3.40mm<br>#29 | 0.1299<br>0.1339<br>0.1360 | 77<br>66<br>60 |
| M4.5 x .75 | 3.75mm<br>#25 | 0.1476<br>0.1495 | 77<br>72 |
| M5 x .8 | 4.2mm<br>#18 | 0.1654<br>0.1696 | 77<br>67 |
| M6 X 1 | 5.00mm<br>#8 | 0.1969<br>0.1990 | 77<br>73 |
| M7 X 1 | 6.00mm<br>B | 0.2362<br>0.2380 | 77<br>74 |
| M8 X 1.25 | 6.75mm<br>6.80mm | 0.2657<br>0.2677 | 77<br>74 |

| Machuelo | Diám. Broca | Equiv. Decimal | % Teor. Rosca |
|---|---|---|---|
| M8 X 1 | I<br>7.00mm<br>J | 0.2720<br>0.2756<br>0.2770 | 67<br>77<br>74 |
| M10 X 1.5 | 8.50mm<br>R | 0.3346<br>0.3390 | 77<br>71 |
| M10 X 1.25 | 8.75mm<br>S | 0.3445<br>0.3480 | 77<br>71 |
| M12 X 1.75 | 13/32<br>Z | 0.4062<br>0.4130 | 74<br>66 |
| M12 X 1.25 | 27/64<br>11.00mm | 0.4219<br>0.4331 | 79<br>62 |
| M14 X 2 | 12.00mm<br>31/64 | 0.4724<br>0.4844 | 77<br>65 |
| M14 X 1.5 | 12.50mm<br>1/2 | 0.4921<br>0.5000 | 77<br>67 |
| M16 X 2 | 14.00mm<br>9/16 | 0.5512<br>0.5625 | 77<br>66 |
| M16 X 1.5 | 14.50mm<br>37/64 | 0.5709<br>0.5781 | 77<br>68 |
| M18 x 2.5 | 15.5mm<br>5/8 | 0.6102<br>0.6250 | 77<br>65 |
| M18 x 1.5 | 16.50mm<br>21/32 | 0.6496<br>0.6562 | 77<br>68 |
| M20 X 2.5 | 17.50mm<br>45/64 | 0.6890<br>0.7031 | 77<br>68 |
| M20 X 1.5 | 18.50mm<br>47/64 | 0.7283<br>0.7344 | 77<br>69 |
| M22 X 2.5 | 19.50mm<br>25/32 | 0.7677<br>0.7812 | 77<br>66 |

| Machuelo | Diám. Broca | Equiv. Decimal | % Teor. Rosca |
|---|---|---|---|
| M22 X 1.5 | 20.50mm<br>13/16 | 0.8071<br>0.8125 | 77<br>70 |
| M24 X 3 | 21.00mm<br>27/32 | 0.8268<br>0.8438 | 77<br>66 |
| M24 X 2 | 22.00mm<br>7/8 | 0.8661<br>0.8750 | 77<br>68 |
| M27 X 3 | 24.00mm<br>61/64 | 0.9449<br>0.9531 | 77<br>72 |
| M27 X 2 | 25.00mm<br>63/64 | 0.9843<br>0.9844 | 77<br>77 |
| M30 X 3.5 | 26.50mm<br>1-1/16 | 1.0433<br>1.0625 | 77<br>66 |
| M30 X 2 | 28.00mm<br>1-7/64 | 1.1024<br>1.1094 | 77<br>70 |
| M33 X 3.5 | 29.50mm<br>1-11/64 | 1.1614<br>1.1719 | 77<br>71 |
| M33 X 2 | 31.00mm<br>1-15/64 | 1.2205<br>1.2344 | 77<br>63 |
| M36 X 4 | 32.00mm<br>1-17/64 | 1.2598<br>1.2656 | 77<br>74 |
| M36 X 3 | 1-19/64<br>33.00mm<br>1-5/16 | 1.2869<br>1.2992<br>1.3125 | 79<br>77<br>68 |
| M39 X 4 | 1-3/8<br>35.00mm<br>1-25/64 | 1.3750<br>1.3780<br>1.3906 | 79<br>77<br>71 |
| M39 X 3 | 36.00mm<br>1-27/64 | 1.4173<br>1.4219 | 77<br>74 |

| | |
|---|---|
| Fórmula de Rosca Métrica | $\text{Medida de Broca} = \text{Diám. Exterior de la Rosca} - \frac{\% \text{ Rosca x Paso en mm}}{76.980}$<br>$\% \text{ de Rosca} = \frac{76.980}{\text{Paso en mm}} \times \left(\text{Diám. Exterior de Rosca} - \text{Medida de Broca Selecc.}\right)$ |

| Machuelo | *NPT | | *NPTF | | *NPS | |
|---|---|---|---|---|---|---|
| | Medida | Equivalencia Decimal | Medida | Equivalencia Decimal | Medida | Equivalencia Decimal |
| 1/16 | D | 0.2460 | D | 0.2460 | 1/4 | 0.2500 |
| 1/8 | Q | 0.3320 | R | 0.3390 | 11/32 | 0.3438 |
| 1/4 | 7/16 | 0.4375 | 7/16 | 0.4375 | 7/16 | 0.4375 |
| 3/8 | 9/16 | 0.5625 | 37/64 | 0.5781 | 31/64 | 0.5781 |
| 1/2 | 45/64 | 0.7031 | 45/64 | 0.7031 | 23/32 | 0.7188 |
| 3/4 | 29/32 | 0.9062 | 59/64 | 0.9219 | 59/64 | 0.9219 |
| 1 | 1-9/64 | 1.1406 | 1-5/32 | 1.1562 | 1-5/32 | 1.1562 |
| 1-1/4 | 1-31/64 | 1.4844 | 1-1/2 | 1.5000 | 1-1/2 | 1.5000 |
| 1-1/2 | 1-47/64 | 1.7344 | 1-47/64 | 1.7344 | 1-3/4 | 1.7500 |
| 2 | 2-13/64 | 0.2031 | 2-7/32 | 2.2188 | 2-7/32 | 2.2188 |
| 2-1/2 | 2-5/8 | 2.6250 | 2-41/64 | 2.6406 | 2-21/32 | 2.6562 |
| 3 | - | - | 3-17/64 | 3.2656 | - | - |

***Para roscado sin rimar.**

# LIMAS ROTATIVAS

## Velocidades de corte

| Diámetro Pulgada | Velocidad de Corte ( Recomendado ) R.P.M. | Velocidad de Corte ( Máximo ) R.P.M. |
|---|---|---|
| 1/16 | 60,000 - 90,000 | 100,000 |
| 1/8 | 40,000 - 70,000 | 90,000 |
| 3/16 | 35,000 - 60,000 | 80,000 |
| 1/4 | 30,000 - 50,000 | 70,000 |
| 5/16 | 20,000 - 40,000 | 68,000 |
| 3/8 | 20,000 - 40,000 | 66,000 |
| 7/16 | 15,000 - 40,000 | 58,000 |
| 1/2 | 15,000 - 40,000 | 50,000 |
| 5/8 | 12,000 - 25,000 | 40,000 |
| 3/4 | 10,000 - 20,000 | 33,000 |
| 1 | 7,500 - 20,000 | 25,000 |
| 1-1/8 | 7.000 - 13,000 | 20,000 |
| 1-1/2 | 5,000 - 10,000 | 17,000 |
| 1-3/4 | 4,500 - 9,000 | 14,000 |
| 2 | 4,000 - 8,000 | 12,500 |

## Tabla de conversiones

### Sistema Inglés a Sistema Métrico

| Multiplicar | Por | Se Obtiene |
|---|---|---|
| Pulgadas | 25.4 | Milímetros |
| Pulgadas | 2.54 | Centímetros |
| Pies | .3048 | Metros |
| Pulgadas por minuto | 25.4 | Milímetros por minuto |
| Pulgadas cúbicas por minuto | 16.387 | Centímetros cúbicos por minutos |
| Pies de superficie por minuto | .3048 | Metros cuadrados por minutos |

### Sistema Métrico a Sistema Inglés

| Multiplicar | Por | Se Obtiene |
|---|---|---|
| Milímetros | .03937 | Pulgadas |
| Centímetros | .3937 | Pulgadas |
| Metros | 3.2808 | Pies |
| Milímetros por minuto | .0394 | Pulgadas por minuto |
| Centímetros cúbicos por minutos | .0610 | Pulgadas cúbicas por minuto |
| Metros cuadrados por minutos | 3.2808 | Pies de superficie por minuto |

# TABLA DE EQUIVALENCIAS

| Diámetro | Pulgadas Decimales |
|---|---|
| 0.22mm | 0.0087 |
| 89 | 0.0091 |
| 88 | 0.0095 |
| 0.25mm | 0.0098 |
| 87 | 0.0100 |
| 86 | 0.0105 |
| 85 | 0.0110 |
| 0.28mm | 0.0110 |
| 84 | 0.0115 |
| 0.30mm | 0.0118 |
| 83 | 0.0120 |
| 82 | 0.0125 |
| 0.32mm | 0.0126 |
| 81 | 0.0130 |
| 80 | 0.0135 |
| 0.35mm | 0.0138 |
| 79 | 0.0145 |
| 1/64 | 0.0156 |
| 0.40mm | 0.0157 |
| 78 | 0.0160 |
| 0.45mm | 0.0177 |
| 77 | 0.0180 |
| 0.50mm | 0.0197 |
| 76 | 0.0200 |
| 75 | 0.0210 |
| 0.55mm | 0.0217 |
| 74 | 0.0225 |
| 0.60mm | 0.0236 |
| 73 | 0.0240 |
| 72 | 0.0250 |
| 0.65mm | 0.0256 |
| 71 | 0.0260 |
| 0.70mm | 0.0276 |
| 70 | 0.0280 |
| 69 | 0.0292 |
| 0.75mm | 0.0295 |
| 68 | 0.0310 |
| 1/32 | 0.0313 |
| 0.80mm | 0.0315 |
| 67 | 0.0320 |
| 66 | 0.0330 |
| 0.85mm | 0.0335 |
| 65 | 0.0350 |
| 0.90mm | 0.0354 |
| 64 | 0.0360 |
| 63 | 0.0370 |
| 0.95mm | 0.0374 |
| 62 | 0.0380 |
| 61 | 0.0390 |
| 1.00mm | 0.0394 |
| 60 | 0.0400 |
| 1.15mm | 0.0453 |
| 56 | 0.0465 |
| 3/64 | 0.0469 |
| 1.20mm | 0.0472 |
| 1.15mm | 0.0453 |
| 56 | 0.0465 |
| 3/64 | 0.0469 |
| 1.20mm | 0.0472 |
| 1.25mm | 0.0492 |
| 1.30mm | 0.0512 |
| 55 | 0.0520 |
| 1.35mm | 0.0531 |
| 54 | 0.0550 |
| 1.40mm | 0.0551 |
| 1.45mm | 0.0571 |
| 1.50mm | 0.0591 |
| 53 | 0.0595 |
| 1.55mm | 0.0610 |
| 1.50mm | 0.0591 |

| Diámetro | Pulgadas Decimales |
|---|---|
| 53 | 0.0595 |
| 1.55mm | 0.0610 |
| 1/16 | 0.0625 |
| 1.60mm | 0.0630 |
| 52 | 0.0635 |
| 1.65mm | 0.0650 |
| 1.70mm | 0.0669 |
| 51 | 0.0670 |
| 1.75mm | 0.0689 |
| 50 | 0.0700 |
| 1.80mm | 0.0709 |
| 1.85mm | 0.0728 |
| 49 | 0.0730 |
| 1.90mm | 0.0748 |
| 48 | 0.0760 |
| 1.95mm | 0.0768 |
| 5/64 | 0.0781 |
| 47 | 0.0785 |
| 2.00mm | 0.0787 |
| 2.05mm | 0.0807 |
| 46 | 0.0810 |
| 45 | 0.0820 |
| 2.10mm | 0.0827 |
| 2.15mm | 0.0846 |
| 44 | 0.0960 |
| 2.20mm | 0.0866 |
| 2.25mm | 0.0886 |
| 43 | 0.0890 |
| 2.30mm | 0.0906 |
| 2.35mm | 0.0925 |
| 42 | 0.0935 |
| 3/32 | 0.0938 |
| 2.40mm | 0.0945 |
| 41 | 0.0960 |
| 2.45mm | 0.0965 |
| 40 | 0.0980 |
| 2.50mm | 0.0984 |
| 39 | 0.0995 |
| 38 | 0.1015 |
| 2.60mm | 0.1024 |
| 37 | 0.1040 |
| 2.70mm | 0.1063 |
| 36 | 0.1065 |
| 2.75mm | 0.1083 |
| 7/64 | 0.1094 |
| 35 | 0.1100 |
| 2.80mm | 0.1102 |
| 34 | 0.1110 |
| 33 | 0.1130 |
| 2.90mm | 0.1142 |
| 32 | 0.1160 |
| 3.00mm | 0.1181 |
| 31 | 0.1200 |
| 3.10mm | 0.1220 |
| 1/8 | 0.1250 |
| 3.20mm | 0.1260 |
| 3.25mm | 0.1280 |
| 30 | 0.1285 |
| 3.30mm | 0.1299 |
| 3.40mm | 0.1339 |
| 29 | 0.1360 |
| 3.50mm | 0.1378 |
| 28 | 0.1405 |
| 9/64 | 0.1406 |
| 3.60mm | 0.1417 |
| 27 | 0.1440 |
| 3.70mm | 0.1457 |
| 26 | 0.1470 |
| 3.75mm | 0.1476 |
| 25 | 0.1495 |

| Diámetro | Pulgadas Decimales |
|---|---|
| 3.80mm | 0.1496 |
| 24 | 0.1520 |
| 3.9mm | 0.1535 |
| 23 | 0.1540 |
| 5/32 | 0.1563 |
| 22 | 0.1570 |
| 4.0mm | 0.1575 |
| 21 | 0.1590 |
| 20 | 0.1610 |
| 4.1mm | 0.1614 |
| 4.2mm | 0.1654 |
| 19 | 0.1660 |
| 4.25mm | 0.1673 |
| 4.30mm | 0.1693 |
| 18 | 0.1695 |
| 11/64 | 0.1719 |
| 17 | 0.1730 |
| 4.40mm | 0.1732 |
| 16 | 0.1770 |
| 4.50mm | 0.1772 |
| 15 | 0.1800 |
| 4.60mm | 0.1811 |
| 14 | 0.1820 |
| 13 | 0.1850 |
| 4.70mm | 0.1850 |
| 4.75mm | 0.1870 |
| 3/16 | 0.1875 |
| 4.80mm | 0.1890 |
| 12 | 0.1890 |
| 11 | 0.1910 |
| 4.90mm | 0.1929 |
| 10 | 0.1935 |
| 9 | 0.1960 |
| 5.00mm | 0.1969 |
| 8 | 0.1990 |
| 5.10mm | 0.2008 |
| 7 | 0.2010 |
| 13/64 | 0.2031 |
| 6 | 0.2040 |
| 5.20mm | 0.2047 |
| 5 | 0.2055 |
| 5.25mm | 0.2067 |
| 5.3mm | 0.2087 |
| 4 | 0.2090 |
| 5.4mm | 0.2126 |
| 3 | 0.2130 |
| 5.5mm | 0.2165 |
| 7/32 | 0.2188 |
| 5.6mm | 0.2205 |
| 2 | 0.2210 |
| 5.7mm | 0.2244 |
| 5.75mm | 0.2264 |
| 1 | 0.2280 |
| 5.8mm | 0.2283 |
| 5.9mm | 0.2323 |
| A | 0.2340 |
| 15/64 | 0.2344 |
| 6.0mm | 0.2362 |
| B | 0.2380 |
| 6.1mm | 0.2402 |
| C | 0.2420 |
| 6.2mm | 0.2441 |
| D | 0.2460 |
| 6.25mm | 0.2461 |
| 6.3mm | 0.2480 |
| E | 0.2500 |
| 1/4 | 0.2500 |
| 6.4mm | 0.2520 |
| 6.5mm | 0.2559 |
| F | 0.2570 |

| Diámetro | Pulgadas Decimales |
|---|---|
| 6.6mm | 0.2598 |
| G | 0.2610 |
| 6.7mm | 0.2638 |
| 17/64 | 0.2656 |
| 6.75mm | 0.2657 |
| H | 0.2660 |
| 6.80mm | 0.2677 |
| 6.90mm | 0.2717 |
| I | 0.2720 |
| 7.00mm | 0.2756 |
| J | 0.2770 |
| 7.10mm | 0.2795 |
| K | 0.2810 |
| 9/32 | 0.2813 |
| 7.20mm | 0.2835 |
| 7.25mm | 0.2854 |
| 7.30mm | 0.2874 |
| L | 0.2900 |
| 7.40mm | 0.2913 |
| M | 0.2950 |
| 7.50mm | 0.2953 |
| 19/64 | 0.2969 |
| 7.60mm | 0.2992 |
| N | 0.3020 |
| 7.70mm | 0.3031 |
| 7.75mm | 0.3051 |
| 7.80mm | 0.3071 |
| 7.90mm | 0.3110 |
| 5/16 | 0.3125 |
| 8.00mm | 0.3150 |
| O | 0.3160 |
| 8.10mm | 0.3189 |
| 8.20mm | 0.3228 |
| P | 0.3230 |
| 8.25mm | 0.3248 |
| 8.30mm | 0.3268 |
| 21/64 | 0.3281 |
| 8.40mm | 0.3307 |
| Q | 0.3320 |
| 8.50mm | 0.3346 |
| 8.60mm | 0.3386 |
| R | 0.3390 |
| 8.70mm | 0.3425 |
| 11/32 | 0.3438 |
| 8.75mm | 0.3445 |
| 8.80mm | 0.3465 |
| S | 0.3480 |
| 8.90mm | 0.3504 |
| 9.00mm | 0.3543 |
| T | 0.3580 |
| 9.10mm | 0.3583 |
| 23/64 | 0.3594 |
| 9.20mm | 0.3622 |
| 9.25mm | 0.3642 |
| 9.30mm | 0.3661 |
| U | 0.3680 |
| 9.40mm | 0.3701 |
| 9.50mm | 0.3740 |
| 3/8 | 0.3750 |
| V | 0.3770 |
| 9.60mm | 0.3780 |
| 9.70mm | 0.3819 |
| 9.75mm | 0.3839 |
| 9.80mm | 0.3858 |
| W | 0.3860 |
| 9.90mm | 0.3898 |
| 25/64 | 0.3906 |
| 10.00mm | 0.3937 |
| X | 0.3970 |
| Y | 0.4040 |

| Diámetro | Pulgadas Decimales |
|---|---|
| 13/32 | 0.4063 |
| Z | 0.4130 |
| 10.50mm | 0.4134 |
| 27/64 | 0.4219 |
| 11.00mm | 0.4331 |
| 7/16 | 0.4375 |
| 11.50mm | 0.4528 |
| 29/64 | 0.4531 |
| 15/32 | 0.4688 |
| 12.00mm | 0.4724 |
| 31/64 | 0.4844 |
| 12.50mm | 0.4921 |
| 1/2 | 0.5000 |
| 13.00mm | 0.5118 |
| 33/64 | 0.5156 |
| 17/32 | 0.5313 |
| 13.50mm | 0.5315 |
| 35/64 | 0.5469 |
| 14.00mm | 0.5512 |
| 9/16 | 0.5625 |
| 14.50mm | 0.5709 |
| 37/64 | 0.5781 |
| 15.00mm | 0.5906 |
| 19/32 | 0.5938 |
| 39/64 | 0.6094 |
| 15.50mm | 0.6102 |
| 5/8 | 0.6250 |
| 16.00mm | 0.6299 |
| 41/64 | 0.6406 |
| 16.50mm | 0.6496 |
| 21/32 | 0.6563 |
| 17.00mm | 0.6693 |
| 43/64 | 0.6719 |
| 11/16 | 0.6875 |
| 17.50mm | 0.6890 |
| 45/64 | 0.7031 |
| 18.00mm | 0.7087 |
| 23/32 | 0.7188 |
| 18.50mm | 0.7283 |
| 47/64 | 0.7344 |
| 19.00mm | 0.7480 |
| 3/4 | 0.7500 |
| 49/64 | 0.7656 |
| 19.50mm | 0.7677 |
| 25/32 | 0.7813 |
| 20.00mm | 0.7874 |
| 51/64 | 0.7969 |
| 20.50mm | 0.8071 |
| 13/16 | 0.8125 |
| 21.00mm | 0.8268 |
| 53/64 | 0.8281 |
| 27/32 | 0.8438 |
| 21.50mm | 0.8465 |
| 55/64 | 0.8594 |
| 22.00mm | 0.8661 |
| 7/8 | 0.8750 |
| 22.50mm | 0.8858 |
| 57/64 | 0.8906 |
| 23.00mm | 0.9055 |
| 29/32 | 0.9063 |
| 59/64 | 0.9219 |
| 23.50mm | 0.9252 |
| 15/16 | 0.9375 |
| 24.00mm | 0.9449 |
| 61/64 | 0.9531 |
| 24.50mm | 0.9646 |
| 31/32 | 0.9688 |
| 25.00mm | 0.9843 |
| 63/64 | 0.9844 |
| 1 | 1.0000 |



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