



2020
CATÁLOGO



▶ 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 devolución.

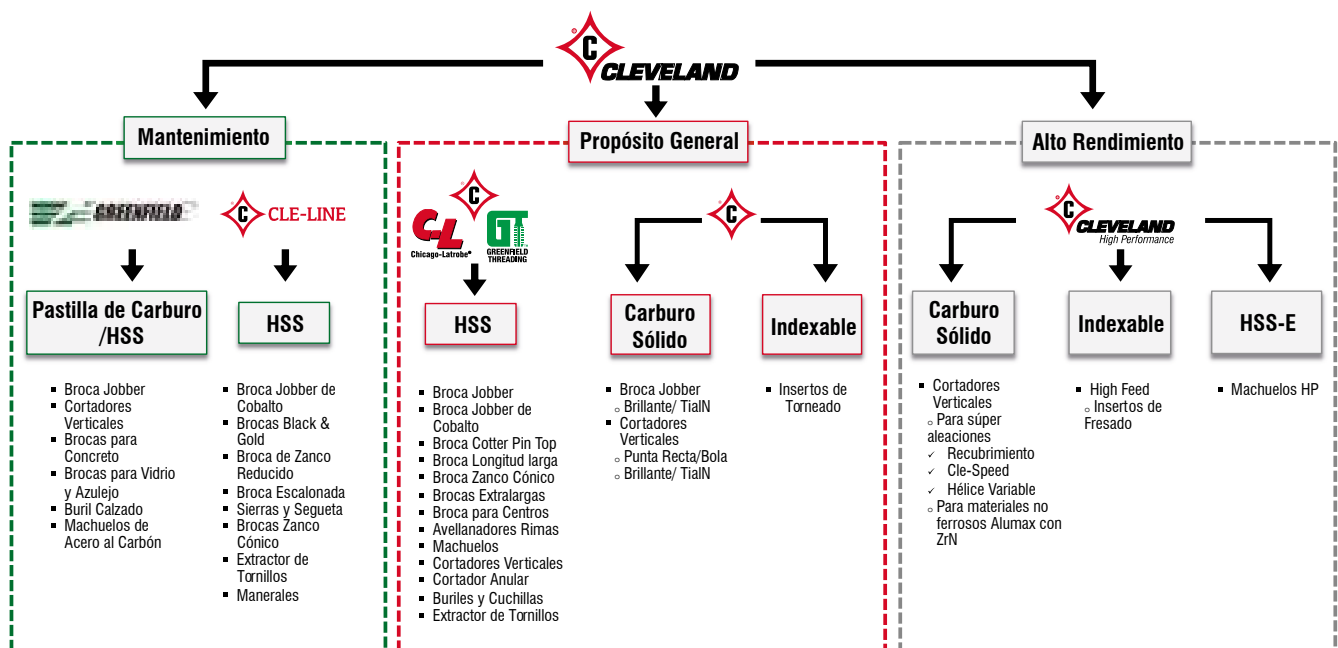
Esta Garantía reemplaza a las anteriores antes expresadas o tácitas, incluyendo cualquier Garantía comercial y reemplaza también todas otras obligaciones y responsabilidades derivadas de contratos y daños directos, indirectos o consecuenciales. No existe otra Garantía expresada o tácita hecha por nosotros, 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.

▶ INTRODUCCIÓN

Herramientas Cleveland en conjunto con Greenfield Industries trabaja para ofrecer herramienta de la más alta calidad acompañado con un excelente servicio a cliente, asesoramiento técnico experto en herramienta de corte y soluciones que incrementan la productividad de nuestros clientes.

Este catalogo proporciona todas las herramientas necesarias para resolver los problemas del grupo ferretero e industrial con una amplia oferta con nuevos productos y recubrimientos para satisfacer a cada sector.

Toda esta variedad dividido en 3 secciones con nuestras diferentes marcas:



Una línea completa de herramienta para el sector de mantenimiento, reparaciones y otras aplicaciones (MRO).

Productos para aplicaciones generales con rendimiento sobresaliente. Extenso surtido de herramienta de corte en HSS y Carburo.

Herramienta de alto rendimiento para aplicaciones específicas con la finalidad de incrementar la productividad.



▶ ÍNDICE

Pág Producto

11 Mantenimiento

- Brocas**
Lista: 2927
- 13 Broca Jobber
 16 Exhibidor de Brocas MRO
 16 Juego de Brocas Jobber
Lista: 7000
- 17 Broca Jobber de Cobalto
Lista: 1607 -Nuevos Productos-
- 19 Broca Black & Gold
 19 Juego de Brocas
Lista: 1803
- 20 Broca Zanco Reducido a 1/2"
Lista: 1682 -Nuevos Productos-
- 21 Broca Zanco Cónico
Lista: 1874 y 1874TN
- 23 Broca Escalonada
Lista: 8900
- 24 Broca para Concreto
Lista: 8700
- 25 Broca para Concreto SDS-Plus
Lista: 8800
- 26 Broca para Vidrio y Azulejo
Cortadores
Lista: 600
- 27 Cortadores Verticales HSS
Machuelos
Lista: 1070
- 29 Machuelos de Acero al Carbón
Lista: 1080
- 31 Machuelos de Acero al Carbón NPT
Manerales
Lista: 222
- 32 Maneral para Dado de Roscado
Lista: 224
- 32 Maneral para Dado de Roscado
Lista: 240
- 32 Maneral Universal
Lista: 243
- 33 Maneral Tipo "T"
Lista: 245
- 33 Maneral Tipo "T" Zanco Largo
Buriles
Lista: 1060 & 1020
- 34 Buril Calzado Tipo "A"
 34 Buril Calzado Tipo "B"
 35 Buril Calzado Tipo "C"
 35 Buril Calzado Tipo "D"
 35 Buril Calzado Tipo "E"
Varias Herramientas
Lista: E0200
- 36 Seguetas Bimetálicas
Lista: 1887
- 37 Sierra Copa Bimetálica
 38 Mandril
 38 Lista: CHK Juego Sierra Copa Bimetálica

Pág Producto

- Lista: 1816**
- 39 Sierra Cinta Bimetálica
Lista: 1829
- 40 Extractores de Tornillo
 40 Juego de Extractores de Tornillo
Limas Rotativas
Lista: 1845
- 41 Lima Rotativa SA Cilíndrica sin Corte Frontal
Lista: 1846
- 41 Lima Rotativa SB Cilíndrica con Corte Frontal
Lista: 1847
- 42 Lima Rotativa SC Cilíndrica Punta de Bola
Lista: 1853
- 42 Lima Rotativa SD Esférica
Lista: 1851
- 42 Lima Rotativa SE Ovoide
Lista: 1848
- 43 Lima Rotativa SF Forma de Árbol con Punta de Bola
Lista: 1849
- 43 Lima Rotativa SG Forma Punta de Árbol
Lista: 1854
- 43 Lima Rotativa SH Forma de Flama Doble Corte
Lista: 1852
- 44 Lima Rotativa SL Cono con Punta Bola
Lista: 1850
- 44 Lima Rotativa SM Cono con Punta
- ## 45 Uso General
- Brocas**
Lista: 2120
- 47 Broca Corta
Lista: 2001
- 48 Broca Jobber
 52 Juego de Brocas Jobber
Lista: 2001G
- 53 Broca Jobber Cle-Max
 54 Juego de Brocas Jobber Cle-Max
Lista: 2213
- 55 Broca Jobber de Cobalto Trabajo Pesado
 55 Juego de Brocas
Lista: 8000
- 56 Broca Cotter Pin-Top
Lista: 2510
- 57 Broca Serie Larga
Lista: 2410
- 59 Broca Zanco Cónico
Lista: 950E
- 62 Broca Extra Larga
Lista: 936
- 64 Broca Zanco Reducido a 1/2"
Lista: 998
- 66 Broca para Centro Tipo Plana
Lista: 996
- 66 Broca para Centro Tipo Campana
Varias Herramientas
Lista: 610
- 67 Avellanador

Pág Producto

- Lista: 4001**
- 68 Rima para Máquina
Lista: 4005
- 69 Rima Zanco Cónico
Machuelos
Lista: 1001, 1002, 1003 & 1004
- 70 Machuelos HSS
Lista: 1053
- 73 Machuelo Punta Espiral
Lista: 965B
- 74 Machuelo NPT
Lista: 963B
- 74 Machuelo NPS
Cortador
Lista: 582
- 75 Cortador con Doble Extremo de Corte
Lista: 556, 557 & 558
- 76 Cortador Recto al Cobalto
Lista: 685
- 77 Cortador Recto 2 Canales
Lista: 690
- 78 Cortador Bola 2 Canales
Lista: 583
- 79 Cortador Recto
Lista: 584
- 80 Cortador Bola 4 Canales
Lista: 506
- 81 Cortador Rougher
Lista: 8400
- 82 Cortador Anular HSS
- 83 Pilot Pin
Lista: 8440
- 84 Cortador Anular con Pastilla de Carburo
- 85 Pilot Pin
Varias Herramientas
Lista: 850 & 855
- 86 Butil Cuadrado Mo-Max
Lista: 3510 & 3515
- 87 Butil Extra Largo Mo-Max
Lista: 853 & 858
- 88 Cuchilla de Tronzado para Porta Cuchilla
Lista: 852 & 857
- 88 Cuchilla de Tronzado
Lista: 3558
- 89 Butil Redondo
Lista: 192
- 90 Extractor de Tornillos
- 90 Juego de Extractor de Tornillos
Chicago Latrobe
Brocas
Lista: 150
- 91 Broca Jobber
- 95 Juego Broca Jobber
Lista: 550
- 96 Broca Jobber de Cobalto
Lista: 120
- 97 Broca Serie Larga

Pág Producto

- Lista: 120X**
- 99 Broca Extralarga
Lista: 906 & 912
- 101 Broca Aircraft
Lista: 190C
- 102 Broca Zanco Reducido a 1/2" de Cobalto
Lista: 120DH
- 103 Broca Parabólica
Greenfield Threading
Machuelos
Lista: 3105
- 104 Machuelos HSS
Lista: SPGP
- 106 Machuelos Punta Espiral
Lista: 3181
- 108 Machuelos NPS
Lista: 3180
- 108 Machuelo NPT
Carburo
Broca
Lista: 5010
- 111 Broca Jobber
Lista: 5040
- 112 Broca para Centros
Cortador
Lista: 2050
- 113 Cortador Recto 2 Canales
Lista: 2060
- 115 Cortador Recto 4 Canales
Lista: 2055
- 117 Cortador Bola 2 Canales
Lista: 2065
- 119 Cortador Bola 4 Canales
Lista: 2070
- 121 Cortador Recto 2 Canales
Lista: 2080
- 122 Cortador Recto 4 Canales
Lista: 2075
- 124 Cortador Recto 2 Canales
Lista: 2085
- 125 Cortador Bola 4 Canales
Lima
Lista: 6010
- 127 Lima Rotativa SA Cilíndrica sin Corte Frontal
Lista: 6020
- 127 Lima Rotativa SB Cilíndrica con Corte Frontal
Lista: 6030
- 128 Lima Rotativa SC Cilíndrica Punta de Bola
Lista: 6040
- 128 Lima Rotativa SD Esférica
Lista: 6050
- 129 Lima Rotativa SE Ovoide
Lista: 6060
- 129 Lima Rotativa SF Forma de Árbol con Punta de Bola
Lista: 6070
- 129 Lima Rotativa SF Forma de Árbol con Punta
Lista: 6080
- 130 Lima Rotativa SH Forma de Flama Doble Corte

Pág Producto

Lista: 6090
130 Lima Rotativa SL Cono con Punta Bola
Lista: 6091
131 Lima Rotativa SM Cono con Punta
Lista: 6092
131 Lima Rotativa SN Cono Invertido

Insertos
Insertos Negativos
138 Lista: CNMG-PF4
138 Lista: CNMG-PV
139 Lista: CNMG-PR4
139 Lista: CNMG-PM4
140 Lista: CNMG-MF2
140 Lista: CNMG-MM2
141 Lista: CNMG-KM
141 Lista: CNMG-KR
141 Lista: CNMG
142 Lista: DNMG-PF4
142 Lista: DNMG-PM4
142 Lista: DNMG-PR4
143 Lista: DNMG-MF2
143 Lista: DNMG-MM2
143 Lista: DNMG-KM
144 Lista: DNMG-KR
144 Lista: DNMA
144 Lista: SNMG-PF4
145 Lista: SNMG-PV
145 Lista: SNMG-PR4
146 Lista: SNMG-PM4
146 Lista: SNMG-KR
147 Lista: SNMG-MM2
147 Lista: SNMG-MF2
148 Lista: SNMA
148 Lista: TNMG-PF4
148 Lista: TNMG-PV
149 Lista: TNMG-PR4
149 Lista: TNMG-PM4
150 Lista: TNMG-MF2
150 Lista: TNMG-MM2
150 Lista: TNMG-KM
151 Lista: TNMG-KR
151 Lista: TNMA
151 Lista: VNMG-PF4
152 Lista: VNMG-PM4
152 Lista: VNMG-MF2
152 Lista: VNMG-MM2
153 Lista: VNMG-KM
153 Lista: WNMG-PF4
153 Lista: WNMG-PR4
154 Lista: WNMG-PM4
154 Lista: WNMG-MF2
154 Lista: WNMA
155 Lista: WNMG-MM2
155 Lista: WNMG-KM
155 Lista: WNMG-KR

Insertos Positivos
156 Lista: CCMT-KM
156 Lista: CCMT-MM2

Pág Producto

157 Lista: CCGT-KM
157 Lista: CPGT-KM
157 Lista: DCGT-KM
158 Lista: DCMT-KM
158 Lista: SCMT-KM
159 Lista: TCMT-KM
159 Lista: TCGT-KM
159 Lista: TCMT-PM2
160 Lista: TPGT-KM
160 Lista: VBMT-KM
160 Lista: VCMT-KM
161 Lista: VCGT-KM
161 Lista: WCMT-KM
161 Lista: CCGX-AL
162 Lista: DCGX-AL
162 Lista: SCGX-AL
162 Lista: TCGX-AL
163 Lista: VCGX-AL

Insertos para Ranurado
165 Lista: GNGP

Insertos para Tronzado
166 Lista: MGGN

Insertos de Roscado
168 Exterior Derecha de 55°
168 Interior Derecha de 55°
168 Exterior Derecha de 60°
169 Interior Derecha de 60°
169 Exterior Derecha Tipo ISO
169 Interior Derecha Tipo ISO
170 Exterior Derecha Tipo UN (Estándar Americano)
170 Interior Derecha Tipo UN (Estándar Americano)
170 Exterior Derecha Tipo NPT
171 Interior Derecha Tipo NPT

Porta Insertos
174 Tipo C
174 Tipo D
175 Tipo T
175 Tipo V
175 Tipo W
176 Roscado Externo
176 Roscado Interno

179 Alto Rendimiento
Lista: CEM-AM2 -Nuevos Productos-
179 Cortadores para Aluminio 2 canales
Lista: CEM-AM3 -Nuevos Productos-
180 Cortadores para Aluminio 3 Canales
Lista: CEM-V-AR -Nuevos Productos-
181 Cortadores High Performance 4 Canales
Lista: CEM-V-4B -Nuevos Productos-
182 Cortadores High Performance 4 Canales
Lista: PER-862SP & PER-960SP
183 Machuelo
Lista: PER-893SP & PER-980SP
185 Machuelo Helicoidal
187 **Cortadores High Feed -Nuevos Productos-**
187 **Insertos High Feed -Nuevos Productos-**

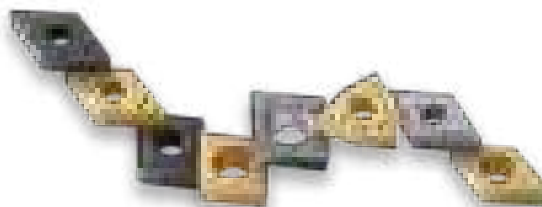
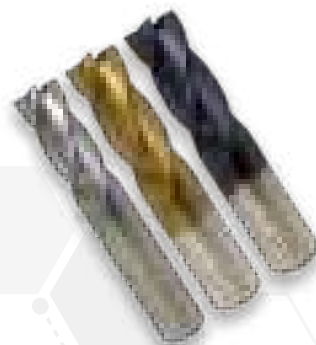
Pág Producto

189 Información Técnica

- 7 Recubrimientos
- 8 Glosario
- Insertos**
- 135 Rompeviruta para Insertos Negativos
- 136 Grados de Rebubrimiento para Insertos Negativos
- 136 Grados de Rebubrimiento para Insertos Positivos
- 137 Nomenclatura para Insertos de Torneado
- 164 Nomenclatura para Insertos de Ranurado
- 167 Nomenclatura para Insertos de Roscado
- 172 Nomenclatura para Porta Insertos Externos
- 173 Nomenclatura para Porta Insertos de Roscado
- 209 Fórmulas Insertos de Torneado
- 209 Guía de selección para Insertos de Torneado
- Brocas**
- 191 Nomenclatura de Brocas
- 192 Angulo de Punta
- 192 Especificaciones de Cono Morse
- 193 Parámetros para Brocas de Acero Alta Velocidad
- 193 Avances para Barrenado
- Tabla de Velocidades de Corte*
- 194 Brocas en Fracciones de Pulgada
- 196 Brocas Numéricas
- 197 Brocas Alfabéticas
- 198 Parámetros de Operación para Brocas de Carburo
- Cortadores**
- 199 Información Técnica de Cortadores
- 199 Constantes de Potencia para Usar en Cálculos de Potencia
- 199 Definición de Símbolos y Unidades de Medidas
- 200 Velocidades de Corte y Avance para Cortadores HSS y HSS al Cobalto
- 202 Avance y Velocidades para Cortadores de Aluminio
- 203 Parámetros de Operación para Cortadores de Aluminio
- 204 Parámetros de Operación para Cortadores High Performance
- Machuelos**
- 205 Tipos de Chaflán
- 205 Parámetros de Operación
- 206 Machuelos UNC/UNF y NPT/NPTF
- Selección de Brocas para Roscado*
- 207 Numéricos, Fraccionales y Porcentajes de Rosca
- 208 Métricas y Porcentajes de Rosca
- Recomendaciones de Operación Cortadores High Feed*
- 210 Recomendaciones de Avance
- 210 Recomendaciones de Velocidad
- 211 Declive
- 211 Fresado Helicoidal
- 211 Fresado por Externo
- 212 Fórmulas
- 212 Glosario
- 212 Información de Grados
- Varios**
- 213 Sierra Cinta Bimetálica
- 214 Limas Rotativas

237 Tabla de Equivalencias

215 Índice Códigos



▶ RECUBRIMIENTOS DISPONIBLES

Recubrimiento	Color	Descripción	
	Dorado	<p>Recubrimiento universal que mejora la lubricidad y flujo de rebaba, aumenta la resistencia al desgaste y proporciona un mejor acabado. El recubrimiento TiN es usado en un amplio rango de materiales, especialmente en materiales ferrosos.</p> <p>Permite incrementar entre un 25% a 30% la velocidad de corte en comparación con una herramienta sin recubrimiento.</p>	
	Violeta/Negro	<p>Recubrimiento diseñado para el maquinado agresivo de materiales como acero inoxidable, aleaciones de acero al carbón, aleaciones de Níquel y aleaciones de Titanio.</p> <p>Mejora la resistencia al desgaste especialmente en condiciones de alta temperatura, además de tener una alta resistencia a la oxidación.</p> <p>Las herramientas recubiertas con TiAlN permiten aumentar hasta de un 75% a un 100% más la velocidad de corte en comparación con una herramienta sin recubrimiento.</p>	
	Dorado opaco	<p>Revestimiento especialmente diseñado para maquinado de aluminio además de ofrecer un óptimo desempeño en otros materiales no ferrosos.</p> <p>El recubrimiento ZrN reduce la posibilidad de adhesión de rebaba en la herramienta, problema común en materiales de viruta larga.</p>	
	Gris/Violeta	<p>Recubrimiento para aplicaciones de uso general en alto rendimiento, para el fresado a alta velocidad con o sin refrigerante de materiales como fundición gris y aleaciones de acero hasta 54 Rc.</p>	
	Gris oscuro	<p>Recubrimiento especialmente diseñado para la aplicación de machueado en materiales difíciles de maquinar tales como acero inoxidable, aleaciones de Níquel y aleaciones de Titanio donde el trabajo puede ser con o sin refrigerante.</p>	

► GLOSARIO

Aplicación/ Material según ISO

P	Acero
K	Hierro Fundido
M	Acero Inoxidable

N	Aluminio y No Ferrosos
S	Superalaciones
H	Acero Endurecido

Recubrimiento

TiN	Nitruro de Titanio
TiAlN	Nitruro de Aluminio Titanio
ZrN	Nitruro de Zirconio

Hardlube	Hardlube
Cle-Speed Cr	Cle-Speed Cr

Material de la Herramienta

HSS	Acero Alta Velocidad
HSS-E	Acero Alta Velocidad al Vanadio
Acero al Carbon	Acero al Carbón
M42 Cobalto	Acero Alta Velocidad al Cobalto

Carburo Sólido	Carburo Sólido
Punta de Carburo	Punta de Carburo
Plaquita de Carburo	Plaquita de Carburo
Acero Aleado	Acero Aleado

Acabado

Brillante	Acabado Cobre
Óxido al Vapor	Black Gold

Norma

ASME B94.11M	ANSI	302A
ASME	NAS 907 Type J	
DIN 338	302	

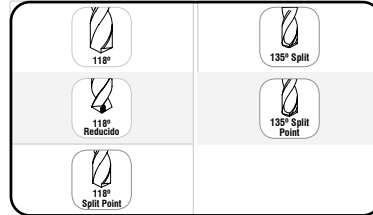
► GLOSARIO

Brocas

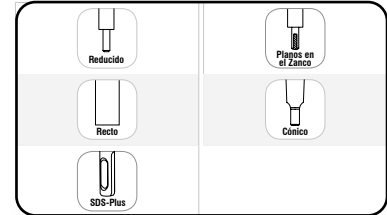
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Ángulo de Punta

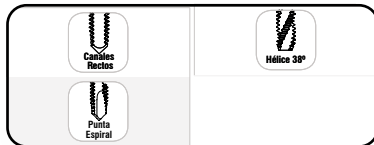


Zanco



Machuelos

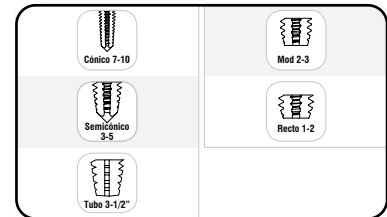
Tipo de Canal



Aplicación

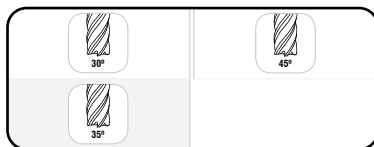


Chafilán

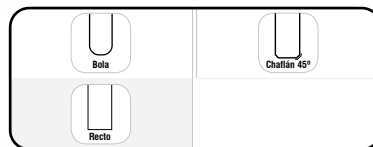


Cortadores

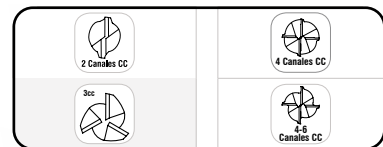
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Punta



Canales



Rompeviruta



Otras Herramientas

Rimas



Buril y Cuchilla



Lima Rotativa





2020 MANTENIMIENTO



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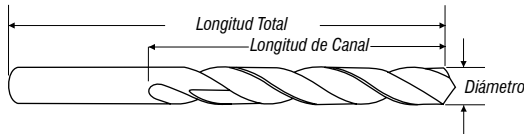
▶ LISTA: 2927 BROCA JOBBER



Aplicaciones



Características



Diámetro		Longitud de Canal		Longitud Total		Código	
Fraccional	Milimétrica	pulg	mm	pulg	mm		
1/64		0.188	4.76	0.750	19.05	292697	
		0.50	0.236	6.00	0.866	22.00	290050
		0.55	0.276	7.00	0.945	24.00	290055
		0.60	0.276	7.00	0.945	24.00	290060
		0.65	0.315	8.00	1.024	26.00	290065
		0.70	0.354	9.00	1.102	28.00	290070
		0.75	0.354	9.00	1.102	28.00	290075
1/32		0.500	12.70	1.375	34.93	292698	
		0.80	0.394	10.00	1.181	30.00	290080
		0.85	0.394	10.00	1.181	30.00	290085
		0.90	0.438	11.00	1.260	32.00	290090
		0.95	0.438	11.00	1.260	32.00	290095
		1.00	0.472	12.00	1.339	34.00	290100
		1.05	0.472	12.00	1.339	34.00	290105
		1.10	0.551	14.00	1.417	36.00	290110
3/64		0.551	14.00	1.417	36.00	290115	
		0.750	19.05	1.750	44.45	292699	
		1.20	0.630	16.00	1.496	38.00	290120
		1.25	0.630	16.00	1.496	38.00	290125
		1.30	0.630	16.00	1.496	38.00	290130
		1.35	0.709	18.00	1.575	40.00	290135
		1.40	0.709	18.00	1.575	40.00	290140
		1.45	0.709	18.00	1.575	40.00	290145
		1.50	0.709	18.00	1.575	40.00	290150
		1.55	0.787	20.00	1.693	43.00	290155
1/16		0.875	22.23	1.875	47.63	292700	
		1.60	0.787	20.00	1.693	43.00	290160
		1.65	0.787	20.00	1.693	43.00	290165
		1.70	0.787	20.00	1.693	43.00	290170
		1.75	0.866	22.00	1.811	46.00	290175
		1.80	0.866	22.00	1.811	46.00	290180
		1.85	0.866	22.00	1.811	46.00	290185
		1.90	0.866	22.00	1.811	46.00	290190
5/64		0.945	24.00	1.929	49.00	290195	
		1.000	25.40	2.000	50.80	292701	
		2.00	0.945	24.00	1.929	49.00	290200
		2.05	0.945	24.00	1.929	49.00	290205
		2.10	0.945	24.00	1.929	49.00	290210
		2.15	1.063	27.00	2.087	53.00	290215
		2.20	1.063	27.00	2.087	53.00	290220
		2.25	1.063	27.00	2.087	53.00	290225
3/32		1.063	27.00	2.087	53.00	290230	
		2.35	1.063	27.00	2.087	53.00	290235
		1.250	31.75	2.250	57.15	292702	

Diámetro		Longitud de Canal		Longitud Total		Código
Fraccional	Milimétrica	pulg	mm	pulg	mm	
	2.40	1.181	30.00	2.244	57.00	290240
	2.45	1.181	30.00	2.244	57.00	290245
	2.50	1.181	30.00	2.244	57.00	290250
	2.55	1.181	30.00	2.244	57.00	290255
	2.60	1.181	30.00	2.244	57.00	290260
	2.65	1.299	33.00	2.402	61.00	290265
	2.70	1.299	33.00	2.402	61.00	290270
	2.75	1.299	33.00	2.402	61.00	290275
7/64		1.500	38.10	2.625	66.68	292703
	2.80	1.299	33.00	2.402	61.00	290280
	2.85	1.299	33.00	2.402	61.00	290285
	2.90	1.299	33.00	2.402	61.00	290290
	2.95	1.299	33.00	2.402	61.00	290295
	3.00	1.299	33.00	2.402	61.00	290300
	3.10	1.417	36.00	2.559	65.00	290310
1/8		1.625	41.28	2.750	69.85	292704
	3.20	1.417	36.00	2.559	65.00	290320
	3.25	1.417	36.00	2.559	65.00	290325
	3.30	1.496	38.00	2.559	65.00	290330
	3.40	1.535	39.00	2.756	70.00	290340
	3.50	1.535	39.00	2.756	70.00	290350
9/64		1.750	44.45	2.875	73.03	292705
	3.60	1.535	39.00	2.756	70.00	290360
	3.70	1.535	39.00	2.756	70.00	290370
	3.75	1.535	39.00	2.756	70.00	290375
	3.80	1.693	43.00	2.953	75.00	290380
	3.90	1.693	43.00	2.953	75.00	290390
5/32		2.000	50.80	3.125	79.38	292706
	4.00	1.693	43.00	2.953	75.00	290400
	4.10	1.693	43.00	2.953	75.00	290410
	4.20	1.693	43.00	2.953	75.00	290420
	4.25	1.693	43.00	2.953	75.00	290425
	4.30	1.850	47.00	3.150	80.00	290430
11/64		2.125	53.98	3.250	82.55	292707
	4.40	1.850	47.00	3.150	80.00	290440
	4.50	1.850	47.00	3.150	80.00	290450
	4.60	1.850	47.00	3.150	80.00	290460
	4.70	1.850	47.00	3.150	80.00	290470
	4.75	1.850	47.00	3.150	80.00	290475
3/16		2.312	58.74	3.500	88.90	292708
	4.80	2.047	52.00	3.386	86.00	290480
	4.90	2.047	52.00	3.386	86.00	290490
	5.00	2.047	52.00	3.386	86.00	290500
	5.10	2.047	52.00	3.386	86.00	290510
13/64		2.437	61.91	3.625	92.08	292709
	5.20	2.047	52.00	3.386	86.00	290520
	5.25	2.047	52.00	3.386	86.00	290525
	5.30	2.047	52.00	3.386	86.00	290530
	5.40	2.244	57.00	3.661	93.00	290540
	5.50	2.244	57.00	3.661	93.00	290550
7/32		2.500	63.50	3.750	95.25	292710
	5.60	2.244	57.00	3.661	93.00	290560
	5.70	2.244	57.00	3.661	93.00	290570
	5.75	2.244	57.00	3.661	93.00	290575
	5.80	2.244	57.00	3.661	93.00	290580
	5.90	2.244	57.00	3.661	93.00	290590
15/64		2.625	66.68	3.875	98.43	292711
	6.00	2.244	57.00	3.661	93.00	290600
	6.10	2.480	63.00	3.976	101.00	290610
	6.20	2.480	63.00	3.976	101.00	290620
	6.30	2.480	63.00	3.976	101.00	290630
1/4		2.750	69.85	4.000	101.60	292712
	6.40	2.480	63.00	3.976	101.00	290640

Fraccional	Diámetro		Longitud de Canal		Longitud Total		Código
	Milimétrica		pulg	mm	pulg	mm	
	6.50		2.480	63.00	3.976	101.00	290650
	6.60		2.480	63.00	3.976	101.00	290660
	6.70		2.480	63.00	3.976	101.00	290670
17/64			2.875	73.03	4.125	104.78	292713
	6.75		2.717	69.00	4.291	109.00	290675
	6.80		2.717	69.00	4.291	109.00	290680
	6.90		2.717	69.00	4.291	109.00	290690
	7.00		2.717	69.00	4.291	109.00	290700
	7.10		2.717	69.00	4.291	109.00	290710
9/32			2.937	74.61	4.250	107.95	292714
	7.20		2.717	69.00	4.291	109.00	290720
	7.25		2.717	69.00	4.291	109.00	290725
	7.30		2.717	69.00	4.291	109.00	290730
	7.40		2.717	69.00	4.291	109.00	290740
	7.50		2.717	69.00	4.291	109.00	290750
19/64			3.062	77.79	4.375	111.13	292715
	7.60		2.953	75.00	4.606	117.00	290760
	7.70		2.953	75.00	4.606	117.00	290770
	7.80		2.953	75.00	4.606	117.00	290780
	7.90		2.953	75.00	4.606	117.00	290790
5/16			3.187	80.96	4.500	114.30	292716
	8.00		2.953	75.00	4.606	117.00	290800
	8.10		2.953	75.00	4.606	117.00	290810
	8.20		2.953	75.00	4.606	117.00	290820
	8.25		2.953	75.00	4.606	117.00	290825
	8.30		2.953	75.00	4.606	117.00	290830
21/64			3.312	84.14	4.625	117.48	292717
	8.40		2.953	75.00	4.606	117.00	290840
	8.50		2.953	75.00	4.606	117.00	290850
	8.60		3.189	81.00	4.921	125.00	290860
	8.70		3.189	81.00	4.921	125.00	290870
11/32			3.437	87.31	4.750	120.65	292718
	8.80		3.189	81.00	4.921	125.00	290880
	8.90		3.189	81.00	4.921	125.00	290890
	9.00		3.189	81.00	4.921	125.00	290900
	9.10		3.189	81.00	4.921	125.00	290910
23/64			3.500	88.90	4.875	123.83	292719
	9.20		3.189	81.00	4.921	125.00	290920
	9.30		3.189	81.00	4.921	125.00	290930
	9.40		3.189	81.00	4.921	125.00	290940
	9.50		3.189	81.00	4.921	125.00	290950
3/8			3.625	92.08	5.000	127.00	292720
	9.60		3.425	87.00	5.236	133.00	290960
	9.70		3.425	87.00	5.236	133.00	290970
	9.75		3.425	87.00	5.236	133.00	290975
	9.80		3.425	87.00	5.236	133.00	290980
	9.90		3.425	87.00	5.236	133.00	290990
25/64			3.750	95.25	5.125	130.18	292721
	10.00		3.425	87.00	5.236	133.00	291000
	10.10		3.425	87.00	5.236	133.00	291010
	10.20		3.425	87.00	5.236	133.00	291020
	10.30		3.425	87.00	5.236	133.00	291030
13/32			3.875	98.43	5.250	133.35	292722
	10.40		3.425	87.00	5.236	133.00	291040
	10.50		3.425	87.00	5.236	133.00	291050
	10.60		3.700	94.00	5.591	142.00	291060
	10.70		3.700	94.00	5.591	142.00	291070
27/64			3.937	100.01	5.375	136.53	292723
	10.80		3.700	94.00	5.591	142.00	291080
	10.90		3.700	94.00	5.591	142.00	291090
	11.00		3.700	94.00	5.591	142.00	291100
	11.10		3.700	94.00	5.591	142.00	291110
7/16			4.062	103.19	5.500	139.70	292724

Diámetro		Longitud de Canal		Longitud Total		Código
Fracional	Milimétrica	pulg	mm	pulg	mm	
	11.20	3.700	94.00	5.591	142.00	291120
	11.30	3.700	94.00	5.591	142.00	291130
	11.40	3.700	94.00	5.591	142.00	291140
	11.50	3.700	94.00	5.591	142.00	291150
29/64		4.187	106.36	5.625	142.88	292725
	11.60	3.700	94.00	5.591	142.00	291160
	11.70	3.700	94.00	5.591	142.00	291170
	11.80	3.976	101.00	5.945	151.00	291180
15/32		4.312	109.54	5.750	146.05	292726
	11.90	3.976	101.00	5.945	151.00	291190
	12.00	3.976	101.00	5.945	151.00	291200
	12.10	3.976	101.00	5.945	151.00	291210
	12.20	3.976	101.00	5.945	151.00	291220
	12.30	3.976	101.00	5.945	151.00	291230
31/64		4.375	111.13	5.875	149.23	292727
	12.40	3.976	101.00	5.945	151.00	291240
	12.50	3.976	101.00	5.945	151.00	291250
	12.60	3.976	101.00	5.945	151.00	291260
1/2		4.500	114.30	6.000	152.40	292728
	12.70	3.976	101.00	5.945	151.00	291270
	12.80	3.976	101.00	5.945	151.00	291280
	12.90	3.976	101.00	5.945	151.00	291290
	13.00	3.976	101.00	5.945	151.00	291300
	13.20	3.976	101.00	5.945	151.00	291320
	13.50	4.251	108.00	6.299	160.00	291350
	13.80	4.251	108.00	6.299	160.00	291380
	14.00	4.251	108.00	6.299	160.00	291400
	14.20	4.488	114.00	6.654	169.00	291420
	14.50	4.488	114.00	6.654	169.00	291450
	14.80	4.488	114.00	6.654	169.00	291480
	15.00	4.488	114.00	6.654	169.00	291500
	15.50	4.724	120.00	7.008	178.00	291550
	16.00	4.724	120.00	7.008	178.00	291600
	16.20	4.921	125.00	7.244	184.00	291620
	16.50	4.921	125.00	7.244	184.00	291650
	17.00	4.921	125.00	7.244	184.00	291700
	17.50	5.118	130.00	7.520	191.00	291750
	18.00	5.118	130.00	7.520	191.00	291800
	18.50	5.315	135.00	7.795	198.00	291850
	19.00	5.315	135.00	7.795	198.00	291900
	19.50	5.512	140.00	8.070	205.00	291950
	20.00	5.512	140.00	8.070	205.00	292000

► EXHIBIDOR DE BROCAS MRO

Descripción	Código
EXHIBIDOR SOLO 465 BROCAS	EEXHIB/ BR J292700A

*Nota: 20 Brocas de cada uno de los códigos del 292700 al 292709
10 Brocas de cada uno de los códigos del 292710 al 292712
20 Brocas de cada uno de los códigos del 292713 al 292715
15 Brocas de cada uno de los códigos del 292716 al 292719
10 Brocas de cada uno de los códigos del 292720 al 292721
15 Brocas de cada uno de los códigos del 292722 al 292724
10 Brocas de cada uno de los códigos del 292725 al 292728*



► JUEGO DE BROCAS JOBBER

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

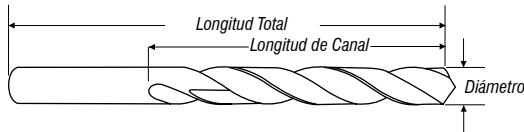
▶ LISTA: 7000 BROCA JOBBER DE COBALTO



Aplicaciones



Características



Fraccional	Diámetro		Longitud de Canal		Longitud Total		Código
	Milimétrica		pulg	mm	pulg	mm	
	1.00		.472	12.00	1.339	34.03	710100
	1.50		.709	18.00	1.575	40.05	710150
1/16			0.875	22.23	1.875	36.00	C68344
5/64			1.000	25.40	2.000	50.80	C68345
	2.00		.945	24.00	1.929	49.00	710200
3/32			1.250	31.75	2.250	50.80	C68346
	2.50		1.181	30.00	2.244	57.00	710250
7/64			1.500	38.10	2.625	66.68	C68347
	3.00		1.299	33.00	2.402	66.01	710300
1/8			1.625	41.28	2.750	69.85	C68351
	3.50		1.535	39.00	2.756	70.00	710350
9/64			1.750	44.45	2.875	73.00	C68352
5/32			2.000	50.80	3.125	79.38	C68353
	4.00		1.693	43.00	2.953	75.00	710400
11/64			2.125	53.98	3.250	82.55	C68354
	4.50		1.850	47.00	3.150	80.01	710450
3/16			2.312	58.75	3.500	88.90	C68355
	5.00		2.047	52.00	3.386	86.00	710500
13/64			2.437	61.93	3.625	92.08	C68356
	5.50		2.244	57.00	3.661	93.00	710550
7/32			2.500	63.50	3.750	95.25	C68357
15/64			2.625	66.68	3.875	98.43	C68358
	6.00		2.244	57.00	3.661	93.00	710600
1/4			2.750	69.85	4.000	101.60	C68359
	6.50		2.480	63.00	3.976	101.00	710650
17/64			2.875	73.03	4.125	104.78	C68360
	7.00		2.717	69.00	4.291	109.00	710700
9/32			2.937	74.63	4.250	107.95	C68361
	7.50		2.717	69.00	4.291	109.00	710750
19/64			3.062	77.80	4.375	111.13	C68362
5/16			3.187	80.98	4.500	114.30	C68363
	8.00		2.953	75.00	4.606	117.00	710800
21/64			3.312	84.15	4.625	117.48	C68364
	8.50		2.953	75.00	4.606	117.00	710850
11/32			3.437	87.33	4.750	120.65	C68365
	9.00		3.189	81.00	4.921	125.00	710900
23/64			3.500	88.90	4.875	123.83	C68366
	9.50		3.189	81.00	4.921	125.00	710950
3/8			3.625	92.08	5.000	127.00	C68367
25/64			3.750	95.25	5.125	130.18	C68368
	10.00		3.425	87.00	5.236	133.00	711000
13/32			3.875	98.43	5.250	133.35	C68369
	10.50		3.425	87.00	5.236	133.00	711050
27/64			3.937	100.00	5.375	137.00	C68370

Diámetro		Longitud de Canal		Longitud Total		Código
Fraccional	Milimétrica	pulg	mm	pulg	mm	
	11.00	3.701	94.00	5.591	142.00	711100
7/16		4.062	103.20	5.500	140.00	C68371
	11.50	3.701	94.00	5.591	142.00	711150
29/64		4.187	106.36	5.625	143.00	C68372
15/32		4.312	109.54	5.750	147.00	C68373
	12.00	3.976	101.00	5.945	151.00	711200
31/64		4.375	111.13	5.875	149.00	C68374
	12.50	3.976	101.00	5.945	151.00	711250
1/2		4.500	114.30	6.000	152.00	C68375
	13.00	3.976	101.00	5.945	151.00	711300
	13.50	4.252	108.00	6.299	160.00	711350
	14.00	4.252	108.00	6.299	160.00	711400
	14.50	4.488	114.00	6.654	169.00	711450
	15.00	4.488	114.00	6.654	169.00	711500
	15.50	4.724	120.00	7.008	178.00	711550
	16.00	4.724	120.00	7.008	178.00	711600
	16.50	4.724	120.00	7.244	184.00	711650
	17.00	4.724	120.00	7.244	184.00	711700
	17.50	5.118	130.00	7.520	191.00	711750
	18.00	5.118	130.00	7.520	191.00	711800
	18.50	5.314	135.00	7.795	198.00	711850
	19.00	5.314	135.00	7.795	198.00	711900
	19.50	5.511	140.00	8.070	205.00	711950
	20.00	5.511	140.00	8.070	205.00	712000

▶ LISTA: 1607 BROCA BLACK & GOLD

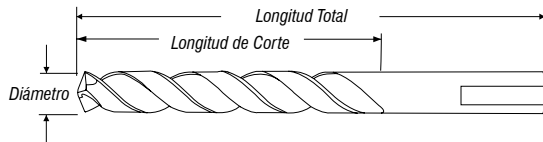
**NUEVOS
PRODUCTOS**



Aplicaciones



Características



Diámetro	Equivalencia Decimal	Longitud de Canal		Longitud Total		Código
		pulg		pulg		
*1/16	.0625	7/8	1-7/8			C69339
*5/64	.0781	1	2			C69340
*3/32	.0938	1-1/4	2-1/4			C69341
*7/64	.1094	1-1/2	2-5/8			C69342
*1/8	.1250	1-5/8	2-3/4			C69343
*9/64	.1406	1-3/4	2-7/8			C69344
*5/32	.1562	2	3-1/8			C69345
*11/64	.1719	2-1/8	3-1/4			C69346
3/16	.1875	2-5/16	3-1/2			C69347
13/64	.2031	2-7/16	3-5/8			C69348
7/32	.2188	2-1/2	3-3/4			C69349
15/64	.2344	2-5/8	3-7/8			C69350
1/4	.2500	2-3/4	4			C69351
17/64	.2656	2-7/8	4-1/8			C69352
9/32	.2812	2-15/16	4-1/4			C69353
19/64	.2969	3-1/16	4-3/8			C69354
5/16	.3125	3-3/16	4-1/2			C69355
21/64	.3281	3-5/16	4-5/8			C69356
11/32	.3438	3-7/16	4-3/4			C69357
23/64	.3594	3-1/2	4-7/8			C69358
3/8	.3750	3-5/8	5			C69359
25/64	.3906	3-3/4	5-1/8			C69360
13/32	.4062	3-7/8	5-1/4			C69361
27/64	.4219	3-15/16	5-3/8			C69362
7/16	.4375	4-1/16	5-1/2			C69363
29/64	.4531	4-3/16	5-5/8			C69364
15/32	.4688	4-5/16	5-3/4			C69365
31/64	.4844	4-3/8	5-7/8			C69366
1/2	.5000	4-1/2	6			C69367

*Sin planos en el zanco.

▶ JUEGO DE BROCAS

Fraccional	Núm. de Piezas	Código
1/16"-1/2" x 1/64"	Juego de 29 Piezas	C69385



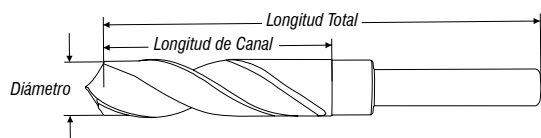
► LISTA: 1803 BROCA ZANCO REDUCIDO A 1/2"



Aplicaciones



Características



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

▶ LISTA: 1682 BROCA ZANCO CÓNICO

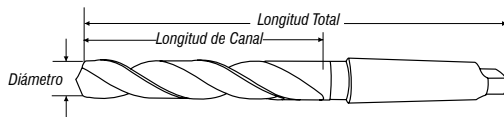
**NUEVOS
PRODUCTOS**



Aplicaciones



Características



Diámetro Fraccional	Equivalencia Decimal	Longitud de Canal pulgs	Longitud Total pulgs	Cono Morse	Código
5/16	.3125	6-3/8	3-1/8	1	C68779
21/64	.3281	6-1/2	3-1/4	1	C68780
11/32	.3438	6-1/2	3-1/4	1	C68781
23/64	.3594	6-3/4	3-1/2	1	C68782
3/8	.3750	6-3/4	3-1/2	1	C68794
25/64	.3906	7	3-5/8	1	C68795
13/32	.4062	7	3-5/8	1	C68796
27/64	.4219	7-1/4	3-7/8	1	C68797
7/16	.4375	7-1/4	3-7/8	1	C68798
29/64	.4531	7-1/2	4-1/8	1	C68799
15/32	.4688	7-1/2	4-1/8	1	C68800
31/64	.4844	8-1/4	4-3/8	2	C68801
1/2	.5000	8-1/4	4-3/8	2	C68802
33/64	.5156	8-1/2	4-5/8	2	C68803
17/32	.5312	8-1/2	4-5/8	2	C68804
35/64	.5469	8-3/4	4-7/8	2	C68805
9/16	.5625	8-3/4	4-7/8	2	C68806
37/64	.5781	8-3/4	4-7/8	2	C68807
19/32	.5938	8-3/4	4-7/8	2	C68808
39/64	.6094	8-3/4	4-7/8	2	C68809
5/8	.6250	8-3/4	4-7/8	2	C68810
41/64	.6406	9	5-1/8	2	C68811
21/32	.6562	9	5-1/8	2	C68812
43/64	.6719	9-1/4	5-3/8	2	C68813
11/16	.6875	9-1/4	5-3/8	2	C68814
45/64	.7031	9-1/2	5-5/8	2	C68815
23/32	.7188	9-1/2	5-5/8	2	C68816
47/64	.7344	9-3/4	5-7/8	2	C68817
3/4	.7500	9-3/4	5-7/8	2	C68818
49/64	.7656	9-7/8	6	2	C68819
25/32	.7812	9-7/8	6	2	C68820
51/64	.7969	10-3/4	6-1/8	3	C68821
13/16	.8125	10-3/4	6-1/8	3	C68822
53/64	.8281	10-3/4	6-1/8	3	C68823
27/32	.8438	10-3/4	6-1/8	3	C68824
55/64	.8594	10-3/4	6-1/8	3	C68825
7/8	.8750	10-3/4	6-1/8	3	C68826
57/64	.8906	10-3/4	6-1/8	3	C68827
29/32	.9062	10-3/4	6-1/8	3	C68828
59/64	.9219	10-3/4	6-1/8	3	C68829
15/16	.9375	10-3/4	6-1/8	3	C68830
61/64	.9531	11	6-3/8	3	C68831
31/32	.9688	11	6-3/8	3	C68832
63/64	.9844	11	6-3/8	3	C68833

Diámetro Fraccional	Equivalencia Decimal	Longitud de Canal	Longitud Total	Cono Morse	Código
		pulg	pulg		
1	1.0000	11	6-3/8	3	C68834
1-1/64	1.0156	11-1/8	6-1/2	3	C68835
1-1/32	1.0312	11-1/8	6-1/2	3	C68836
1-3/64	1.0469	11-1/4	6-5/8	3	C68837
1-1/16	1.0625	11-1/4	6-5/8	3	C68838
1-5/64	1.0781	12-1/2	6-7/8	4	C68839
1-3/32	1.0938	12-1/2	6-7/8	4	C68840
1-7/64	1.1094	12-3/4	7-1/8	4	C68841
1-1/8	1.1250	12-3/4	7-1/8	4	C68842
1-9/64	1.1406	12-7/8	7-1/4	4	C68843
1-5/32	1.1562	12-7/8	7-1/4	4	C68844
1-11/64	1.1719	13	7-3/8	4	C68845
1-3/16	1.1875	13	7-3/8	4	C68846
1-13/64	1.2031	13-1/8	7-1/2	4	C68847
1-7/32	1.2188	13-1/8	7-1/2	4	C68848
1-15/64	1.2344	13-1/2	7-7/8	4	C68849
1-1/4	1.2500	13-1/2	7-7/8	4	C68850
1-17/64	1.2656	14-1/8	8-1/2	4	C68851
1-9/32	1.2812	14-1/8	8-1/2	4	C68852
1-19/64	1.2969	14-1/4	8-5/8	4	C68853
1-5/16	1.3125	14-1/4	8-5/8	4	C68854
1-21/64	1.3281	14-3/8	8-3/4	4	C68855
1-11/32	1.3438	14-3/8	8-3/4	4	C68856
1-23/64	1.3594	14-1/2	8-7/8	4	C68857
1-3/8	1.3750	14-1/2	8-7/8	4	C68858
1-25/64	1.3906	14-5/8	9	4	C68859
1-13/32	1.4062	14-5/8	9	4	C68860
1-27/64	1.4219	14-3/4	9-1/8	4	C68861
1-7/16	1.4375	14-3/4	9-1/8	4	C68862
1-29/64	1.4531	14-7/8	9-1/4	4	C68863
1-15/32	1.4688	14-7/8	9-1/4	4	C68864
1-31/64	1.4844	15	9-3/8	4	C68865
1-1/2	1.5000	15	9-3/8	4	C68866
1-17/32	1.5312	15	9-3/8	4	C68762
1-9/16	1.5625	16-5/8	9-5/8	5	C68784
1-19/32	1.5938	16-7/8	9-7/8	5	C68785
1-5/8	1.6250	17	10	5	C68786
1-21/32	1.6562	17-1/8	10-1/8	5	C68787
1-11/16	1.6875	17-1/8	10-1/8	5	C68788
1-23/32	1.7188	17-1/8	10-1/8	5	C68764
1-3/4	1.7500	17-1/8	10-3/8	5	C68789
1-13/16	1.8125	17-1/8	10-1/8	5	C68790
1-7/8	1.8750	17-3/8	10-3/8	5	C68791
1-15/16	1.9375	17-3/8	10-3/8	5	C68792
2	2.0000	17-3/8	10-3/8	5	C68793

 Ver página 192 para Información Técnica.

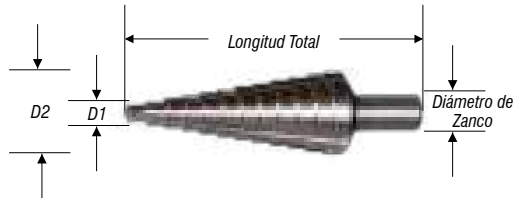
▶ LISTA: 1874 Y 1874TN BROCA ESCALONADA



Aplicaciones



Características



Descripción	Diámetro		Diámetro del Zanco	Longitud Total	Brillante	TiN
	D1	D2				
3/16"-1/2" x 1/16	3/16	1/2	1/4	3-1/8	C20285	C20295
3/16"-7/8" x 1/16	3/16	7/8	3/8	3-1/4	C20288	C20298
1/8"-1/2" x 1/32	1/8	1/2	1/4	3-1/8	C20286	C20296
1/4"-3/4" x 1/16	1/4	3/4	3/8	2-3/4	C20287	C20297
7/8" x 1-3/8	7/8	1-3/8	3/8	3-1/4	C20290	-
7/8" x 1-1/8	7/8	1-1/8	3/8	3-7/64	C20293	-

Descripción	Diámetro		Diámetro del Zanco	Longitud Total	Brillante	TiN
	D1	D2				
4.0 - 12.0 x 1.0	4.0	12.0	6	65	C20305	C20315
4.0 - 20.0 x 2.0	4.0	20.0	6	67	C20306	-
4.0 - 30.0 x 2.0	6.0	30.0	6	98	C20307	-

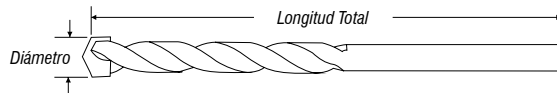
▶ LISTA: 8900 BROCA PARA CONCRETO



Aplicaciones



Características



Diámetro Fraccional	Longitud Total		Código
	pulg	mm	
1/8	3	76.20	890304
5/32	3	76.20	890305
3/16	4	101.60	890406
3/16	6	152.40	890606
1/4	4	101.60	890408
1/4	6	152.40	890608
5/16	4	101.60	890410
5/16	6	152.40	890610
3/8	4	101.60	890412
3/8	6	152.40	890612
7/16	6	152.40	890614
1/2	6	152.40	890616
5/8	6	152.40	890620
3/4	6	152.40	890624
7/8	6	152.40	890628
1	6	152.40	890632
1/4	12	304.80	891308
5/16	12	304.80	891310
3/8	12	304.80	891312
1/2	12	304.80	891316
5/8	12	304.80	891320
3/4	12	304.80	891324
7/8	12	304.80	891328
1	12	304.80	891332
1-1/8	12	304.80	891336
1-1/4	12	304.80	891340
1-3/8	12	304.80	891344
1-1/2	12	304.80	891348
1/4	18	457.20	891808
3/8	18	457.20	891812
1/2	18	457.20	891816
5/16	18	457.20	891810
1/4	24	609.60	892408
3/8	24	609.60	892412
1/2	24	609.60	892416
5/16	24	609.60	892410
5/8	24	609.60	892420
1/4	31.5	800.10	893108
3/8	31.5	800.10	893112
1/2	31.5	800.10	893116
5/16	31.5	800.10	893110

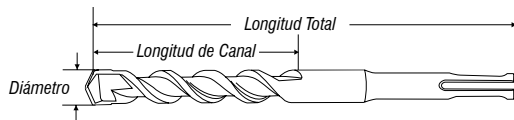
▶ LISTA: 8700 BROCA PARA CONCRETO SDS-PLUS



Aplicaciones



Características



Diámetro Fraccional	Longitud Total		Código
	pulg	mm	
1/4	4	101.60	870408
1/4	6	152.40	870608
1/4	8	203.20	870808
1/4	12	304.80	871208
1/4	18	457.20	871808
9/32	4	101.60	870409
9/32	6	152.40	870609
5/16	4	101.60	870410
5/16	6	52.40	870610
5/16	8	203.20	870810
5/16	12	304.80	871210
3/8	6	152.40	870612
3/8	8	203.20	870812
3/8	12	304.80	871212
3/8	18	457.20	871812
3/8	24	609.60	872412
7/16	6	152.40	870614
7/16	12	304.80	871214
1/2	6	152.40	870616
1/2	8	203.20	870816
1/2	12	304.80	871216
1/2	18	457.20	871816
1/2	24	609.60	872416
9/16	6	152.40	870618
9/16	12	304.80	871218
9/16	18	457.20	871818
5/8	6	152.40	870620
5/8	8	203.20	870820
5/8	12	304.80	871220
5/8	18	457.20	871820
5/8	24	609.60	872420
11/16	6	152.40	870622
11/16	8	203.20	870822
3/4	6	152.40	870624
3/4	8	203.20	870824
3/4	12	304.80	871224
3/4	16	406.40	871624
3/4	18	457.20	871824
27/32	6	152.40	870627
7/8	10	254.00	871028
7/8	12	304.80	871228
7/8	18	457.20	871828
1	12	304.80	871232
1	18	457.20	871832

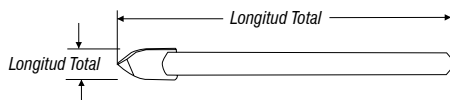
▶ LISTA: 8800 BROCA PARA VIDRIO Y AZULEJO



Aplicaciones



Características



Fraccional	Diámetro		Longitud Total pulg	Código
	Decimal	Milimétrica		
1/8	.1250	3.18	2-1/2	882504
3/16	.1875	4.76	2-1/2	882506
1/4	.2500	6.35	2-1/2	882508
5/16	.3125	7.94	2-3/4	882810
3/8	.3750	9.53	3-1/8	883112
1/2	.5000	12.70	3-1/8	883116

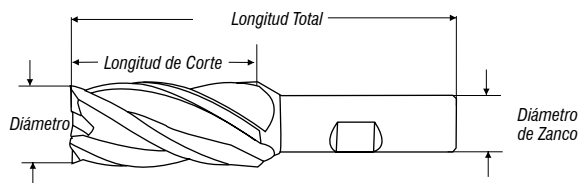
▶ LISTA: 600 CORTADORES VERTICALES HSS



Aplicaciones



Características



Diámetro		Diámetro de Zanco		Longitud de Corte		Longitud Total		Canales	Código
Fracional	Milimétrica	pulg	mm	pulg	mm	pulg	mm		
	3	0.375	9.53	0.375	9.53	2.313	58.74	4	610312
1/8		0.375	9.53	0.375	9.53	2.313	58.74	4	600412
5/32		0.375	9.53	0.500	12.70	2.375	60.33	4	600512
	4	0.375	9.53	0.500	12.70	2.375	60.33	4	610412
3/16		0.375	9.53	0.500	12.70	2.375	60.33	4	600612
	5	0.375	9.53	0.625	15.88	2.438	61.91	4	610512
7/32		0.375	9.53	0.625	15.88	2.438	61.91	4	600712
	6	0.375	9.53	0.625	15.88	2.438	61.91	4	610612
1/4		0.375	9.53	0.625	15.88	2.438	61.91	4	600812
	7	0.375	9.53	0.750	19.05	2.500	63.50	4	610712
5/16		0.375	9.53	0.750	19.05	2.500	63.50	4	601012
	8	0.375	9.53	0.750	19.05	2.500	63.50	4	610812
	9	0.375	9.53	0.750	19.05	2.500	63.50	4	610912
3/8		0.375	9.53	0.750	19.05	2.500	63.50	4	601212
	10	0.375	9.53	1.000	25.40	2.688	68.26	4	611012
	11	0.375	9.53	1.000	25.40	2.688	68.26	4	611112
7/16		0.375	9.53	1.000	25.40	2.688	68.26	4	601412
	12	0.500	12.70	1.250	31.75	3.250	82.55	4	611216
1/2		0.375	9.53	1.000	25.40	2.688	68.26	4	601612
1/2		0.500	12.70	1.250	31.75	3.250	82.55	4	601616
	13	0.500	12.70	1.375	34.93	3.375	85.73	4	611316
	14	0.500	12.70	1.375	34.93	3.375	85.73	4	611416
9/16		0.500	12.70	1.375	34.93	3.375	85.73	4	601816
	15	0.500	12.70	1.375	34.93	3.375	85.73	4	611516
5/8		0.500	12.70	1.375	34.93	3.375	85.73	4	602016
5/8		0.625	15.88	1.625	41.28	3.750	95.25	4	602020
	16	0.591	15.00	1.625	41.28	3.750	95.25	4	611620
11/16		0.500	12.70	1.625	41.28	3.375	85.73	4	602216
11/16		0.625	15.88	1.625	41.28	3.750	95.25	4	602220
	18	0.625	15.88	1.625	41.28	3.750	95.25	4	611820
	19	0.750	19.05	1.625	41.28	3.875	98.43	4	611924
3/4		0.500	12.70	1.625	41.28	3.375	85.73	4	602416
3/4		0.625	15.88	1.625	41.28	3.750	95.25	4	602420
3/4		0.750	19.05	1.625	41.28	3.875	98.43	4	602424
	20	0.625	15.88	1.875	47.63	4.000	101.60	4	612020
13/16		0.625	15.88	1.875	47.63	4.000	101.60	4	602620
13/16		0.750	19.05	1.875	47.63	4.125	104.78	4	602624
7/8		0.500	12.70	1.625	41.28	3.625	92.08	4	602816
7/8		0.625	15.88	1.875	47.63	4.000	101.60	4	602820
7/8		0.750	19.05	1.875	47.63	4.125	104.78	4	602824
7/8		0.875	22.23	1.875	47.63	4.125	104.78	4	602828
	24	1.000	25.40	2.000	50.80	4.500	114.30	4	612432
1		0.500	12.70	1.875	47.63	4.125	104.78	4	603216
1		0.625	15.88	1.875	47.63	4.000	101.60	4	603220

Diámetro		Diámetro de Zanco		Longitud de Corte		Longitud Total		Canales	Código
Fracional	Milimétrica	pulg	mm	pulg	mm	pulg	mm		
1		0.750	19.05	1.875	47.63	4.125	104.78	4	603224
1		0.875	22.23	1.875	47.63	4.125	104.78	4	603228
1		1.000	25.40	2.000	50.80	4.500	114.30	4	603232
1-1/8		0.875	22.23	2.000	50.80	4.313	109.54	6	603628
1-1/8		1.000	25.40	2.000	50.80	4.500	114.30	6	603632
1-1/4		0.875	22.23	2.000	50.80	4.313	109.54	6	604028
1-1/4		1.000	25.40	2.000	50.80	4.500	114.30	6	604032
1-1/4		1.250	31.75	2.000	50.80	4.500	114.30	6	604040
1-3/8		1.000	25.40	2.000	50.80	4.500	114.30	6	604432
1-1/2		1.000	25.40	2.000	50.80	4.500	114.30	6	604832
1-1/2		1.250	31.75	2.000	50.80	4.500	114.30	6	604840
1-3/4		1.250	31.75	2.000	50.80	4.500	114.30	6	605640
2		1.250	31.75	2.000	50.80	4.500	114.30	8	606440

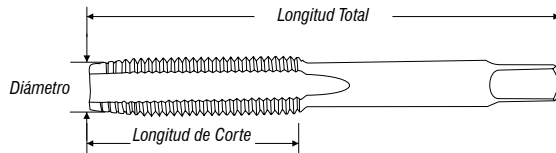
▶ LISTA: 1070 MACHUELOS DE ACERO AL CARBÓN



Aplicaciones



Características



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

Nota: Set de 3 piezas; un cónico, un semi cónico y un recto.

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

Nota: Set de 3 piezas; un cónico, un semi cónico y un recto.

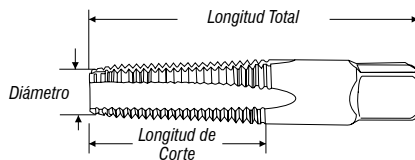
▶ LISTA: 1080 MACHUELOS DE ACERO AL CARBÓN NPT



Aplicaciones



Características



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

▶ LISTA: 222 MANERAL PARA DADO DE ROSCADO



Número de Producto	Diámetro de Tarraja	Longitud Total	Código
2	13/16	7	C67223
3	1	10-1/2	C67224
5	1-1/2	14-1/2	C67226
6	2	23	C67227
7	2-1/2	29	C67228
8	3	40	C67229

▶ LISTA: 224 MANERAL PARA DADO DE ROSCADO



Número de Producto	Die O.D.	Longitud Total	Código
13	13/16	6-1/4	C67235
14	1	13	C67236
15	1-1/2	18	C67237
16	2	26	C67238

▶ LISTA: 240 MANERAL UNIVERSAL



Número de Producto	Rangos de Tamaños de Machuelos				Largo Total	Código
	Pernos Máq.	Fraccional	Métrico	NPT		
0	0 a 14	1/16 a 1/4	M1.5 a M6.3	-	5	C67201
1	0 a 14	3/16 a 3/8	M5 a M10	1/8 a 25/64	9	C67199
2	8 a 14	5/32 a 1/2	M4 a M12.5	1/8	11	C67202
3	8 a 14	1/4 a 3/4	M6 a M19	1/8 a 1/4	15	C67203
5	-	5/16 a 1-1/8	M7 a M27	1/8 a 3/4	19	C67204
8	-	3/4 a 1-5/8	M19 a M40	3/8 a 1-1/4	40	C67205

▶ LISTA: 243 MANERAL TIPO "T"



Número de Producto	Rangos de Tamaños de Machuelos			Largo Total	Código
	Pernos Máq.	Fraccional	Métrico		
T11	0 A 14	1/16 a 1/4	M1.5 a M6.3	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



Número de Producto	Rangos de Tamaños de Machuelos			Largo Total	Código
	Pernos Máq.	Fraccional	Métrico		
T16	0 A 14	1/16 a 1/4	M1.5 a M6.3	8-3/4	C67212
T17	12 A 14	7/32 a 1/2	M5.5 a M12.5	10-5/8	C67213

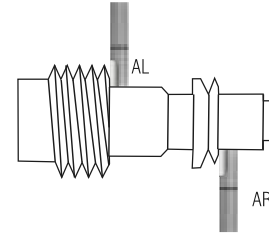
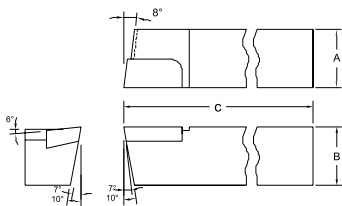
▶ LISTA: 1060 & 1020 BURIL CALZADO



Aplicaciones

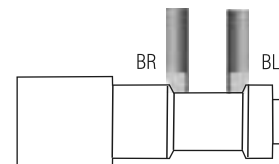
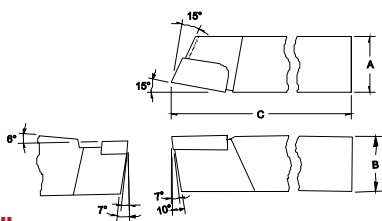


Características



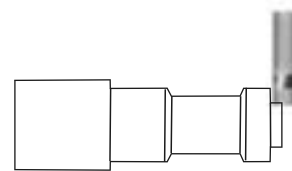
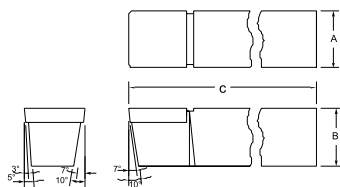
Tipo "A"

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



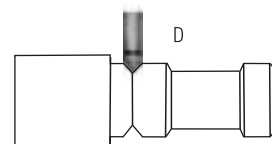
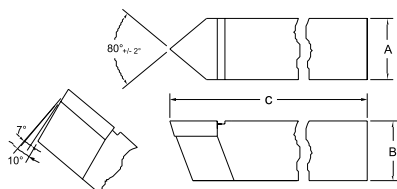
Tipo "B"

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



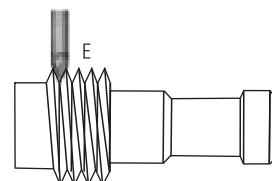
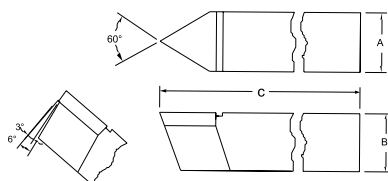
Tipo "C"

Modelo	A	B	C	Grado C-6	Grado C-2
C-4	1/4	1/4	2	BT-12608	BT-12208
C-5	5/16	5/16	2-1/4	BT-12610	BT-12210
C-6	3/8	3/8	2-1/2	BT-12612	BT-12212
C-7	7/16	7/16	3	BT-12614	BT-12214
C-8	1/2	1/2	3-1/2	BT-12616	BT-12216
C-10	5/8	5/8	4	BT-12620	BT-12220
C-12	3/4	3/4	4-1/2	BT-12624	BT-12224
C-16	1	1	7	BT-12632	BT-12232



Tipo "D"

Modelo	A	B	C	Grado C-6	Grado C-2
D-4	1/4	1/4	2	BT-13608	BT-13208
D-5	5/16	5/16	2-1/4	BT-13610	BT-13210
D-6	3/8	3/8	2-1/2	BT-13612	BT-13212
D-7	7/16	7/16	3	BT-13614	BT-13214
D-8	1/2	1/2	3-1/2	BT-13616	BT-13216
D-10	5/8	5/8	4	BT-13620	BT-13220
D-12	3/4	3/4	4-1/2	BT-13624	BT-13224
D-16	1	1	7	BT-13632	BT-13232



Tipo "E"

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

▶ LISTA: E0200 SEGUETA BIMETÁLICA



Aplicaciones



Características



Descripción	Código
18 Dientes por Pulg.	CLE1218BM
24 Dientes por Pulg.	CLE1224BM

▶ LISTA: 1887 SIERRA COPA BIMETÁLICA



Aplicaciones



Características



Diámetro		Código
pulg	mm	
9/16	14	C25000
5/8	16	C26121
11/16	17	C25002
3/4	19	C26113
-	20	C25004
13/16	21	C26105
7/8	22	C25006
15/16	24	C25007
1	25	C26101
1-1/16	27	C25009
1-1/8	29	C26103
1-3/16	30	C25011
1-1/4	32	C25012
1-5/16	33	C25013
1-3/8	35	C25014
1-7/16	37	C25015
1-1/2	38	C25016
1-9/16	40	C25017
1-5/8	41	C25018
1-11/16	43	C26104
1-3/4	44	C26107
-	45	C25021
1-13/16	46	C25022
1-7/8	48	C25023
(50mm)	50	C25024
2	51	C25025
2-1/16	52	C25026
2-1/8	54	C25027
55mm	55	C25028
2-1/4	57	C25029
2-5/16	59	C25030
2-3/8	60	C25031
2-1/2	64	C25032
2-9/16	65	C25033
2-5/8	67	C26111
-	68	C25035
2-3/4	70	C25036
2-7/8	73	C25037
-	75	C25038
3	76	C25039
3-1/8	79	C25040
3-1/4	83	C26115
3-3/8	86	C25042
3-1/2	89	C25043

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

▶ MANDRIL



C17965



C17967



C17970

Capacidad	Zanco	Código
9/16 - 1 3/16	1/4 Redondo	C17965
9/16 - 1 3/16	3/8 Hexagonal	C17967
1 1/4 - 6	3/8 Hexagonal QC	C17970

▶ LISTA: CHK JUEGO SIERRA COPA BIMETÁLICA



Juegos	Descripción	Código
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

▶ LISTA: 1816 SIERRA CINTA BIMÉTALICA



Aplicaciones



Características



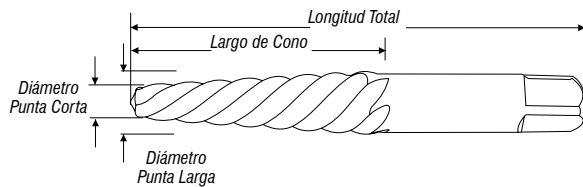
Ancho Pulgadas	Espesor Pulgadas	Ángulo de Diente	Descripción	Paso de Diente	Código
3/4	0.035	0°	SC BM Co 3/4 x 93"	6/10	C25149-93
3/4	0.035	0°	SC BM Co 3/4 x 93"	8/12	C25150-93
3/4	0.035	0°	SC BM Co 3/4 x 93"	10/14	C26136-93
3/4	0.035	5°	SC BM Co 3/4 x 93"	5/7	C25167-93
3/4	0.035	0°	SC BM Co 3/4 x 93"	14	C25153-93
3/4	0.035	5°	SC BM Co 3/4 x 93"	4/6	C25166-93
3/4	0.035	10°	SC BM Co 3/4 x 93"	4/6	C26146-93
1	0.035	0°	SC BM Co 1 x 93"	4/6	C26134-93
1	0.035	0°	SC BM Co 1 x 93"	3/4	C25154-93
1	0.035	0°	SC BM Co 1 x 93"	8/12	C25158-93
1	0.035	5°	SC BM Co 1 x 93"	3/4	C25169-93
1	0.035	5°	SC BM Co 1 x 93"	4/6	C25170-93
1	0.035	10°	SC BM Co 1 x 93"	3/4	C26140-93
1	0.035	10°	SC BM Co 1 x 93"	4/6	C25186-93
1-1/4	0.042	0°	SC BM Co 1-1/4 x 93"	4/6	C25162-93
1-1/4	0.042	5°	SC BM Co 1-1/4 x 93"	4/6	C25177-93
1-1/4	0.042	10°	SC BM Co 1-1/4 x 93"	4/6	C25189-93
1-1/2	0.050	0°	SC BM Co 1-1/2 x 93"	4/6	C26135-93
1-1/2	0.050	5°	SC BM Co 1-1/2 x 93"	4/6	C25182-93
1-1/2	0.050	10°	SC BM Co 1-1/2 x 93"	4/6	C25192-93
1/2	0.020	0°	SC BM Co 1/2 x 93"	10/14	C25133-93
1/2	0.020	0°	SC BM Co 1/2 x 93"	18	C25136-93
1/2	0.025	0°	SC BM Co 1/2 x 93"	10/14	C25141-93
1/2"	0.025	0°	SC BM Co 1/2 x 93"	18	C25143-93

Ver página 213 para Información Técnica.



Para una longitud específica contacte a su ejecutivo de cuenta.

▶ LISTA: 1829 EXTRACTORES DE TORNILLO



Número	Diámetro Menor	Diámetro Mayor	Largo de Cono		Longitud Total		Diámetro de Broca Recomendada	Código
			pulg	mm	pulg	mm	pulg	
1	.0625	5/32	3/4	19.05	2	50.80	5/64	C17170
2	.0860	3/16	3/4	19.05	2-3/8	60.32	7/64	C17171
3	.1250	1/4	1	25.40	2-3/4	69.86	5/32	C17172
4	.1875	5/16	1	25.40	3	76.20	1/4	C17173
5	.2500	7/16	1-1/2	38.10	3-3/8	85.73	9/32	C17174
6	.3750	19/32	1-3/4	44.45	3-3/4	95.25	13/32	C17176
7	.5000	25/32	2-1/4	57.15	4-1/8	104.77	17/32	C17178
8	.7500	1-1/32	2-1/4	57.15	4-3/8	111.13	13/16	C17180
9	1.0000	1-9/32	2-1/4	57.15	4-5/8	117.48	1-1/16	C17181
10	1.2500	1-9/16	2-1/2	63.50	5	127.00	1-5/16	C17182

▶ JUEGO DE EXTRACTORES DE TORNILLO

Número	Código
#1 AL #5	C21149
#1 AL #9	C21151



Utilice extractores de tornillos para quitar los tornillos y pernos rotos.

Los extractores de tornillo son especialmente utilizados en los departamentos de mantenimiento, talleres mecánicos y automotrices.

Para extraer un tornillo roto siga el procedimiento:
 -Taladre un agujero en la rotura del tornillo usando el diámetro de broca recomendada en la tabla anterior.
 -Inserte el extractor de tornillos adecuado en el agujero y gírelo hacia la izquierda auxiliado con un maneral sobre el cuadro del extractor.

-El extractor se adhiere a la pared del agujero hecho en el tornillo roto y al girarlo, el tornillo sale sin dañar la rosca.

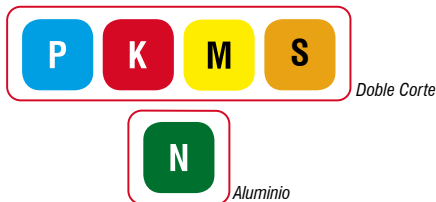
-En algunos casos es recomendable la ayuda de un lubricante para eliminar el óxido o corrosión entre la cuerda y el tornillo roto.



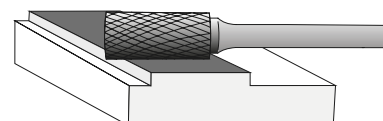
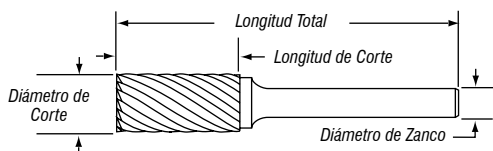
▶ LISTA: 1845 LIMA ROTATIVA SA CILÍNDRICA SIN CORTE FRONTAL



Aplicaciones

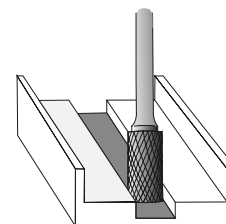
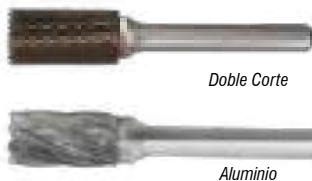
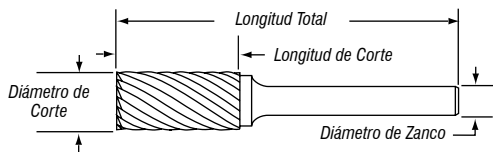


Características



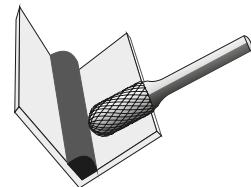
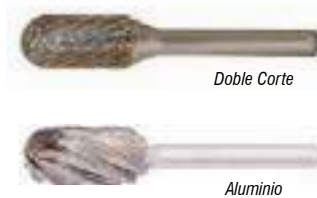
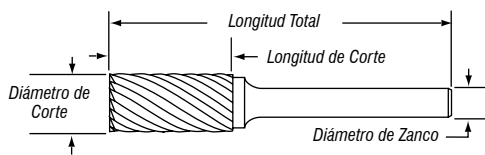
USCTI	Diámetro de Corte	Diámetro de Zanco	Longitud de Corte	Longitud Total	Doble Corte	Aluminio
SA-1	1/4	1/4	5/8	2-3/8	C17552	-
SA-3	3/8	1/4	3/4	2-1/2	C17554	C17210
SA-5	1/2	1/4	1	2-3/4	C17555	C17211
SA-51	1/4	1/4	5/8	2	C17605	-
SA-5L6	1/2	1/4	1	7	C17825	-
SA-2	5/16	1/4	3/4	2-1/2	C17553	-

▶ LISTA: 1846 LIMA ROTATIVA SB CILÍNDRICA CON CORTE FRONTAL



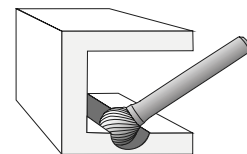
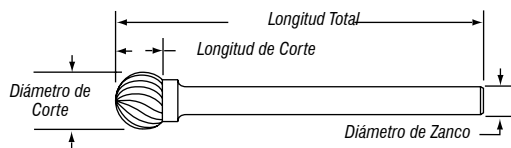
USCTI	Diámetro de Corte	Diámetro de Zanco	Longitud de Corte	Longitud Total	Doble Corte	Aluminio
SB-3	3/8	1/4	3/4	2-1/2	C17547	C17212
SB-5	1/2	1/4	1	2-3/4	-	C17213
SB-6	5/8	1/4	1	2-3/4	-	C17214

▶ LISTA: 1847 LIMA ROTATIVA SC CILÍNDRICA PUNTA DE BOLA



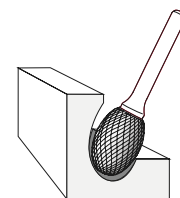
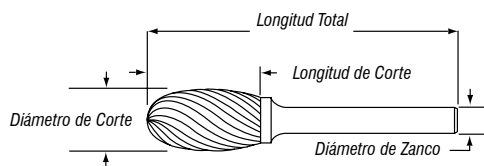
USCTI	Diámetro de Corte	Diámetro de Zanco	Longitud de Corte	Longitud Total	Doble Corte	Aluminio
SC-42	1/8	1/8	9/16	1-1/2	C17540	-
SC-1	1/4	1/4	5/8	2-3/8	C17541	-
SC-3	3/8	1/4	3/4	2-1/2	C17543	C17215
SC-5	1/2	1/4	1	2-3/4	C17544	C17216
SC-3L6	3/8	1/4	3/4	6-3/4	C17827	-
SC-11	1/8	1/4	1/2	2	C17539	-
SC-51	6.35	3	12.7	44.5	C17519	-

▶ LISTA: 1853 LIMA ROTATIVA SD ESFÉRICA



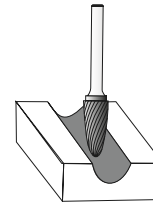
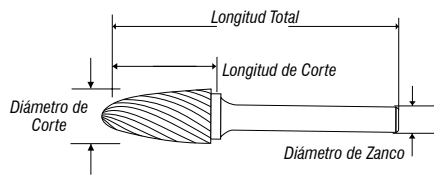
USCTI	Diámetro de Corte	Diámetro de Zanco	Longitud de Corte	Longitud Total	Doble Corte	Aluminio
SD-1	1/4	1/4	3/16	1-15/16	C17533	C17217
SD-3	3/8	1/4	5/16	2-1/16	C17535	C17218
SD-5	1/2	1/4	7/16	2-3/16	C17536	C17219
SD-5L6	1/2	1/4	7/16	6-7/16	C17831	-

▶ LISTA: 1851 LIMA ROTATIVA SE OVOIDE



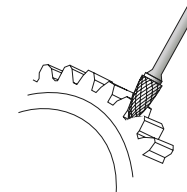
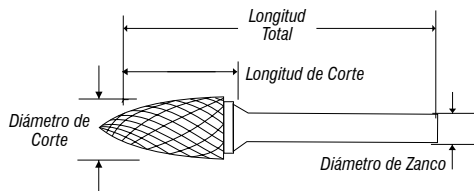
USCTI	Diámetro de Corte	Diámetro de Zanco	Longitud de Corte	Longitud Total	Doble Corte	Aluminio
SE-3	3/8	1/4	5/8	2-3/8	C17559	C17220
SE-51	1/4	1/8	3/8	1-5/8	C17357	-
SE-3L6	3/8	1/4	5/8	6-5/8	C17833	-

▶ LISTA: 1848 LIMA ROTATIVA SF FORMA DE ÁRBOL CON PUNTA DE BOLA



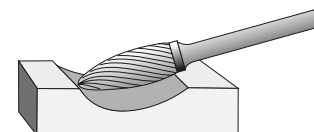
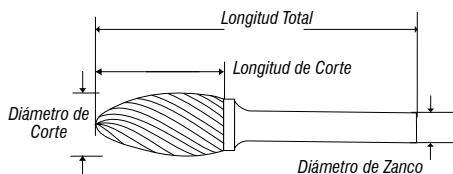
USCTI	Diámetro de Corte	Diámetro de Zanco	Longitud de Corte	Longitud Total	Doble Corte	Aluminio
SF-1	1/4	1/4	5/8	2-3/8	C17580	-
SF-3	3/8	1/4	3/4	2-1/2	C17581	C17221
SF-5	1/2	1/4	1	2-3/4	C17582	C17222
SF-5L6	1/2	1/4	1	7	C17837	-
SF-3L6	3/8	1/4	3/4	6-3/4	C17836	-
SF-51	6.35	3	12.7	44.5	C17597	-

▶ LISTA: 1849 LIMA ROTATIVA SG FORMA PUNTA DE ÁRBOL



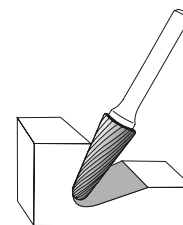
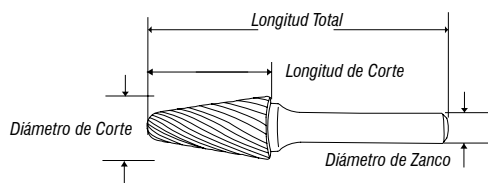
USCTI	Diámetro de Corte	Diámetro de Zanco	Longitud de Corte	Longitud Total	Doble Corte	Aluminio
SG-1	1/4	1/4	5/8	2-3/8	C17575	C17223
SG-3	3/8	1/4	3/4	2-1/2	C17576	C17224
SG-5	1/2	1/4	1	2-3/4	C17578	C17225
SG-44	3	3	12.7	38.1	C17486	-

▶ LISTA: 1854 LIMA ROTATIVA SH FORMA DE FLAMA DOBLE CORTE



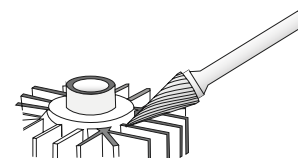
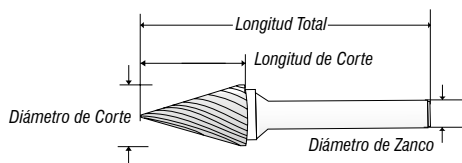
USCTI	Diámetro de Corte	Diámetro de Zanco	Longitud de Corte	Longitud Total	Código
SH-5	1/2	1/4	1-1/4	3	C17563
SH-1	1/4	1/4	1/2	2	C17300
SH-6	5/8	1/4	1-7/16	3-3/16	C17301

▶ LISTA: 1852 LIMA ROTATIVA SL CONO CON PUNTA BOLA



USCTI	Diámetro de Corte	Diámetro de Zanco	Longitud de Corte	Longitud Total	Doble Corte	Aluminio
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	C17226
SL-4	1/2	1/4	1-1/8	2-7/8	C17567	C17227
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

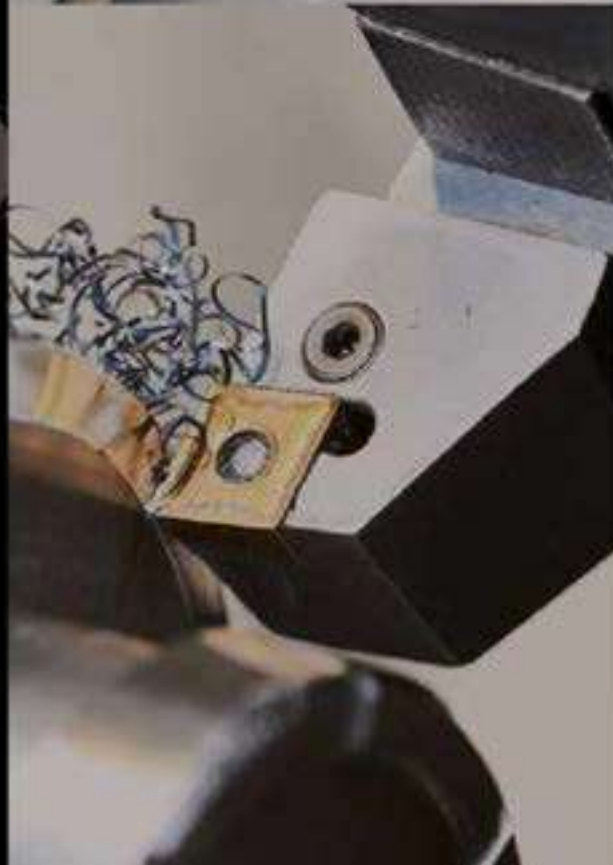
Ver página 214 para Información Técnica.



2020
USO GENERAL



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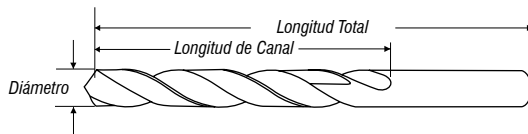
► LISTA: 2120 BROCA CORTA



Aplicaciones



Características



Diámetro Fraccional	Longitud de Canal		Longitud Total		Código
	pulg	mm	pulg	mm	
9/64	.9383	23.81	1.938	49.21	C04437
3/16	.2500	28.58	2.188	55.56	C04470
1/4	3.375	34.93	2.500	63.50	C04509
5/16	1.125	41.28	2.813	71.44	C04542
21/64	1.375	42.86	3.000	76.20	C04550
3/8	1.438	46.04	3.125	79.38	C04572
29/64	1.625	53.98	3.563	90.49	C04594
1/2	1.688	57.15	3.750	95.25	C04601
37/64	1.813	66.68	4.125	104.78	C04614
5/8	2.125	69.85	4.250	107.95	C04622
41/64	2.250	73.03	4.500	114.30	C04625
11/16	2.625	73.03	4.625	117.48	C04632
45/64	2.750	76.20	4.750	120.65	C04634
23/32	2.875	76.20	4.750	120.65	C04636
47/64	2.875	79.38	5.000	127.00	C04638
3/4	3.000	79.38	5.000	127.00	C04640
49/64	3.000	82.55	5.125	130.18	C04641
25/32	3.125	79.38	5.125	130.18	C04643
13/16	3.125	79.38	5.250	133.35	C04647
53/64	3.250	82.55	5.375	136.53	C04649
55/64	3.500	88.90	5.500	139.70	C04652
7/8	3.500	88.90	5.500	139.70	C04654
57/64	3.625	92.08	5.625	142.88	C04656
29/32	3.625	92.08	5.625	142.88	C04658
15/16	3.750	95.25	5.750	146.05	C04661
61/64	3.875	98.43	5.875	149.23	C04663
31/32	3.875	98.43	5.875	149.23	C04665
63/64	4.000	101.60	6.000	152.40	C04667
1	4.000	101.60	6.000	152.40	C04668
1-1/16*	4.000	101.60	6.250	158.75	C04675
1-1/8*	4.000	101.60	6.375	161.93	C04683
1-1/4*	4.375	111.13	6.750	171.45	C04697



Ventajas del uso de Brocas de longitud corta:
 -Ofrece mayor rigidez
 -Mantiene una mayor precisión al perforar

* Desde 1" hasta 1-1/4" tienen 1" en el zanco.



Ver página 191 para Información Técnica.



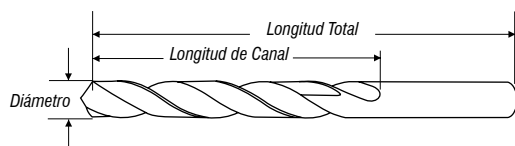
▶ LISTA: 2001 BROCA JOBBER



Aplicaciones



Características



Fraccional	Diámetro		Longitud de Canal		Longitud Total		Código	
	Númerica	Milimétrica	pulg	mm	pulg	mm		
1/64	80		0.125	3.18	0.750	19.05	C01012	
			0.188	4.76	0.750	19.05	C01016	
		78		0.188	4.76	0.875	22.23	C01018
		77		0.188	4.76	0.875	22.23	C01021
		76		0.188	4.76	0.875	22.23	C01024
		75		0.250	6.35	1.000	25.40	C01025
		74		0.250	6.35	1.000	25.40	C01027
		73		0.313	7.94	1.125	28.58	C01029
		72		0.313	7.94	1.125	28.58	C01030
		71		0.375	9.53	1.125	31.75	C01032
		70		0.375	9.53	1.125	31.75	C01034
		69		0.500	12.70	1.375	34.93	C01035
1/32	68		0.500	12.70	1.375	34.93	C01037	
			0.500	12.70	1.375	34.93	C01038	
		67		0.500	12.70	1.375	34.93	C01040
		66		0.500	12.70	1.375	34.93	C01041
		65		0.625	15.88	1.500	38.10	C01043
		64		0.625	15.88	1.500	38.10	C01045
		63		0.625	15.88	1.500	38.10	C01046
		62		0.625	15.88	1.500	38.10	C01048
		61		0.688	17.48	1.500	38.10	C01049
			1.00	0.472	12.00	1.339	34.00	C01050
		60		0.688	17.48	1.625	41.28	C01051
		59		0.688	17.48	1.625	41.28	C01052
	58		0.688	17.48	1.625	41.28	C01054	
	57		0.750	19.05	1.750	44.45	C01055	
		1.10	0.551	14.00	1.417	36.00	C01056	
		1.15	0.551	14.00	1.417	36.00	C01057	
3/64	56		0.750	19.05	1.750	44.45	C01058	
			0.750	19.05	1.750	44.45	C01059	
			1.20	0.630	16.00	1.496	38.00	C01060
			1.25	0.630	16.00	1.496	38.00	C01061
			1.30	0.630	16.00	1.496	38.00	C01062
		55		0.875	22.23	1.875	47.63	C01063
			1.35	0.709	18.00	1.575	40.00	C01064
		54		0.875	22.23	1.875	47.63	C01065
			1.40	0.709	18.00	1.575	40.00	C01066
			1.45	0.709	18.00	1.575	40.00	C01067
			1.50	0.709	18.00	1.575	40.00	C01068
		53		0.875	22.23	1.875	47.63	C01069
1/16		1.55	0.787	20.00	1.693	43.00	C01070	
			0.875	22.23	1.875	47.63	C01071	
		1.60	0.787	20.00	1.693	43.00	C01072	
	52		0.875	22.23	1.875	47.63	C01073	

Fraccional	Diámetro		Longitud de Canal		Longitud Total		Código
	Númerica	Milimétrica	pulg	mm	pulg	mm	
		1.65	0.787	20.00	1.693	43.00	C01074
		1.70	0.787	20.00	1.693	43.00	C01075
	51		1.000	25.40	2.000	50.80	C01076
		1.75	0.866	22.00	1.811	46.00	C01077
	50		1.000	25.40	2.000	50.80	C01078
		1.80	0.866	22.00	1.811	46.00	C01079
		1.85	0.866	22.00	1.811	46.00	C01080
	49		1.000	25.40	2.000	50.80	C01081
		1.90	0.866	22.00	1.811	46.00	C01082
	48		1.000	25.40	2.000	50.80	C01083
		1.95	0.945	24.00	1.929	49.00	C01084
	5/64		1.000	25.40	2.000	50.80	C01085
			1.000	25.40	2.000	50.80	C01086
		2.00	0.945	24.00	1.929	49.00	C01087
		2.05	0.945	24.00	1.929	49.00	C01088
	46		1.125	28.58	2.125	53.98	C01089
	45		1.125	28.58	2.125	53.98	C01090
		2.10	0.945	24.00	1.929	49.00	C01091
		2.15	1.063	27.00	2.087	53.00	C01092
	44		1.125	28.58	2.125	53.98	C01093
		2.20	1.063	27.00	2.087	53.00	C01094
		2.25	1.063	27.00	2.087	53.00	C01095
	43		1.250	31.75	2.250	57.15	C01096
		2.30	1.063	27.00	2.087	53.00	C01097
		2.35	1.063	27.00	2.087	53.00	C01098
	42		1.250	31.75	2.250	57.15	C01099
	3/32		1.250	31.75	2.250	57.15	C01100
		2.40	1.181	30.00	2.244	57.00	C01101
	41		1.375	34.93	2.375	60.33	C01102
		2.45	1.181	30.00	2.244	57.00	C01103
	40		1.375	34.93	2.375	60.33	C01104
		2.50	1.181	30.00	2.244	57.00	C01105
	39		1.375	34.93	2.375	60.33	C01106
	38		1.438	36.53	2.500	63.50	C01107
		2.60	1.181	30.00	2.244	57.00	C01108
	37		1.438	36.53	2.500	63.50	C01109
		2.70	1.299	33.00	2.402	61.00	C01110
	36		1.438	36.53	2.500	63.50	C01111
		2.75	1.438	36.53	2.500	63.50	C01112
	7/64		1.500	38.10	2.625	66.68	C01113
			1.500	38.10	2.625	66.68	C01114
	35		1.299	33.00	2.402	61.00	C01115
		2.80	1.500	38.10	2.625	66.68	C01116
	34		1.500	38.10	2.625	66.68	C01117
			1.500	38.10	2.625	66.68	C01118
	32		1.299	33.00	2.402	61.00	C01119
		2.90	1.299	33.00	2.402	61.00	C01120
		3.00	1.625	41.28	2.750	68.85	C01121
	31		1.299	33.00	2.402	61.00	C01122
		3.10	1.625	41.28	2.750	68.85	C01123
	1/8		1.417	36.00	2.559	65.00	C01124
			1.625	41.28	2.750	68.85	C01125
		3.20	1.457	36.00	2.598	65.00	C01126
		3.25	1.457	37.00	2.598	66.00	C01127
	30		1.625	41.28	2.750	68.85	C01128
		3.30	1.496	36.00	2.638	65.00	C01129
		3.40	1.535	39.00	2.756	70.00	C01130
	29		1.750	44.45	2.875	73.00	C01131
		3.50	1.535	39.00	2.756	70.00	C01132
	28		1.750	44.45	2.875	73.00	C01133
	9/64		1.750	44.45	2.875	73.00	C01134
			1.750	44.45	2.875	73.03	C01135
		3.60	1.535	39.00	2.756	70.00	C01136
	27		1.875	47.63	3.000	76.20	C01137
		3.70	1.535	39.00	2.756	70.00	C01138
	26		1.875	47.63	3.000	76.20	C01139
		3.75	1.535	39.00	2.756	70.00	C01140

Fraccional	Diámetro			Longitud de Canal		Longitud Total		Código
	Númerica	Milimétrica	Alfabética	pulg	mm	pulg	mm	
	25			1.875	47.63	3.000	76.20	C01138
		3.80		1.693	43.00	2.953	75.00	C01139
	24			2.000	50.80	3.125	79.38	C01140
		3.90		1.693	43.00	2.953	75.00	C01141
	23			2.000	50.80	3.125	79.38	C01142
5/32				2.000	50.80	3.125	79.38	C01143
	22			2.000	50.80	3.125	79.38	C01144
		4.00		1.693	43.00	2.953	75.00	C01145
	21			2.125	53.98	3.250	82.55	C01146
	20			2.125	53.98	3.250	82.55	C01147
		4.10		1.693	43.00	2.953	75.00	C01148
		4.20		1.693	43.00	2.953	75.00	C01149
	19			2.125	53.98	3.250	82.55	C01150
		4.25		1.850	47.00	3.150	80.00	C01151
		4.30		1.850	47.00	3.150	80.00	C01152
	18			2.125	53.98	3.250	82.55	C01153
11/64				2.125	53.98	3.250	82.55	C01154
	17			2.188	55.58	3.375	85.73	C01155
		4.40		1.850	47.00	3.150	80.00	C01156
	16			2.188	55.58	3.375	85.73	C01157
		4.50		1.850	47.00	3.150	80.00	C01158
	15			2.188	55.58	3.375	85.73	C01159
		4.60		1.850	47.00	3.150	80.00	C01160
	14			2.188	55.58	3.375	85.73	C01161
	13			2.313	58.75	3.500	88.90	C01162
		4.70		1.850	47.00	3.150	80.00	C01163
		4.75		1.850	47.00	3.150	80.00	C01164
3/16				2.313	58.75	3.500	88.90	C01165
	12			2.313	58.75	3.500	88.90	C01166
		4.80		2.047	52.00	3.386	86.00	C01167
	11			2.313	58.75	3.500	88.90	C01168
		4.90		2.047	52.00	3.386	86.00	C01169
	10			2.438	61.93	3.625	92.08	C01170
	9			2.438	61.93	3.625	92.08	C01171
		5.00		2.047	52.00	3.386	86.00	C01172
	8			2.438	61.93	3.625	92.08	C01173
		5.10		2.047	52.00	3.386	86.00	C01174
	7			2.438	61.93	3.625	92.08	C01175
13/64				2.438	61.93	3.625	92.08	C01176
	6			2.500	61.93	3.750	95.25	C01177
		5.20		2.047	52.00	3.386	86.00	C01178
	5			2.500	61.93	3.750	95.25	C01179
		5.25		2.047	52.00	3.386	86.00	C01180
		5.30		2.244	57.00	3.661	93.00	C01181
	4			2.500	61.93	3.750	95.25	C01182
		5.40		2.244	57.00	3.661	93.00	C01183
	3			2.500	61.93	3.750	95.25	C01184
		5.50		2.244	57.00	3.661	93.00	C01185
7/32				2.500	61.93	3.750	95.25	C01186
		5.60		2.244	57.00	3.661	93.00	C01187
	2			2.625	66.68	3.875	98.43	C01188
		5.70		2.244	57.00	3.661	93.00	C01189
		5.75		2.244	57.00	3.661	93.00	C01190
	1			2.625	66.68	3.875	98.43	C01191
		5.80		2.244	57.00	3.661	93.00	C01192
		5.90		2.244	57.00	3.661	93.00	C01193
15/64			A	2.625	66.68	3.875	98.43	C01194
				2.625	66.68	3.875	98.43	C01195
		6.00		2.244	57.00	3.661	93.00	C01196
			B	2.750	69.85	4.000	101.60	C01197
		6.10		2.480	63.00	3.976	101.00	C01198
			C	2.750	69.85	4.000	101.60	C01199
		6.20		2.480	63.00	3.976	101.00	C01200
			D	2.750	69.85	4.000	101.60	C01201

Fraccional	Diámetro		Longitud de Canal		Longitud Total		Código	
	Milimétrica	Alfabética	pulg	mm	pulg	mm		
1/4	6.25		2.480	63.00	3.976	101.00	C01202	
	6.30		2.480	63.00	3.976	101.00	C01203	
		E	2.750	69.85	4.000	101.60	C01204	
	6.40		2.480	63.00	3.976	101.00	C01206	
	6.50		2.480	63.00	3.976	101.00	C01207	
		F	2.875	73.03	4.125	104.78	C01208	
	6.60		2.480	63.00	3.976	101.00	C01209	
		G	2.875	73.03	4.125	104.78	C01210	
	6.70		2.480	63.00	3.976	101.00	C01211	
	17/64			2.875	73.03	4.125	104.78	C01212
6.75			2.480	63.00	3.976	101.00	C01213	
		H	2.875	73.03	4.125	104.78	C01214	
6.80			2.717	69.00	4.291	109.00	C01215	
6.90			2.717	69.00	4.291	109.00	C01216	
		I	2.875	73.03	4.125	104.78	C01217	
	7.00		2.717	69.00	4.291	109.00	C01218	
		J	2.875	73.03	4.125	104.78	C01219	
	7.10		2.717	69.00	4.291	109.00	C01220	
		K	2.938	74.63	4.250	107.95	C01221	
	7.20		2.717	69.00	4.291	109.00	C01222	
	7.25		2.717	69.00	4.291	109.00	C01223	
	7.30		2.717	69.00	4.291	109.00	C01224	
		L	2.938	74.63	4.250	107.95	C01225	
	9/32			2.938	74.63	4.250	107.95	C01226
7.40			2.717	69.00	4.291	109.00	C01227	
		M	3.063	77.80	4.375	111.13	C01228	
	7.50		2.717	69.00	4.291	109.00	C01229	
	19/64			3.063	77.80	4.375	111.13	C01230
		7.60		3.063	77.80	4.375	111.13	C01231
		N	3.063	77.80	4.375	111.13	C01232	
	7.70		2.953	75.00	4.606	117.00	C01233	
	7.75		2.953	75.00	4.606	117.00	C01234	
	7.80		2.953	75.00	4.606	117.00	C01235	
	5/16	7.90		2.953	75.00	4.606	117.00	C01236
				3.188	80.98	4.500	114.30	C01237
	8.00		2.953	75.00	4.606	117.00	C01238	
		O	3.188	80.98	4.500	114.30	C01239	
	8.10		2.953	75.00	4.606	117.00	C01240	
	8.20		2.953	75.00	4.606	117.00	C01241	
		P	3.313	84.15	4.625	117.40	C01242	
	8.25		3.313	84.15	4.625	117.40	C01243	
	21/64	8.30		3.313	84.15	4.625	117.40	C01244
				3.313	84.15	4.625	117.40	C01245
	8.40		2.953	75.00	4.606	117.00	C01246	
		Q	3.438	87.33	4.750	120.65	C01247	
	8.50		2.953	75.00	4.606	117.00	C01248	
	8.60		3.438	87.33	4.750	120.65	C01249	
		R	3.438	87.33	4.750	120.65	C01250	
	11/32	8.70		3.189	81.00	4.921	125.00	C01251
				3.438	87.33	4.750	120.65	C01252
	8.75		3.189	81.00	4.921	125.00	C01253	
	8.80		3.189	81.00	4.921	125.00	C01254	
		S	3.500	88.00	4.875	123.83	C01255	
	8.90		3.189	81.00	4.921	125.00	C01256	
	9.00		3.189	81.00	4.921	125.00	C01257	
		T	3.500	88.00	4.875	123.83	C01258	
	23/64	9.10		3.500	88.00	4.875	123.83	C01259
				3.500	88.00	4.875	123.83	C01260
	9.20		3.189	81.00	4.921	125.00	C01261	
	9.25		3.189	81.00	4.921	125.00	C01262	
	9.30		3.189	81.00	4.921	125.00	C01263	
		U	3.625	92.08	5.000	127.00	C01264	
	9.40		3.189	81.00	4.921	125.00	C01265	
	9.50		3.189	81.00	4.921	125.00	C01266	

Fraccional	Diámetro		Longitud de Canal		Longitud Total		Código
	Milimétrica	Alfabética	pulg	mm	pulg	mm	
3/8			3.625	92.08	5.000	127.00	C01267
		V	3.625	92.08	5.000	127.00	C01268
	9.60		3.425	87.00	5.236	133.00	C01269
	9.70		3.425	87.00	5.236	133.00	C01270
	9.75		3.425	87.00	5.236	133.00	C01271
	9.80		3.425	87.00	5.236	133.00	C01272
		W	3.750	95.25	5.125	130.18	C01273
	9.90		3.750	95.25	5.125	130.18	C01274
25/64			3.750	95.25	5.125	130.18	C01275
	10.00		3.425	87.00	5.236	133.00	C01276
		X	3.750	95.25	5.125	130.18	C01277
	10.20		3.425	87.00	5.236	133.00	C01278
		Y	3.875	98.43	5.250	133.35	C01279
	10.30		3.875	98.43	5.250	133.35	C01280
13/32			3.875	98.43	5.250	133.35	C01281
		Z	3.875	98.43	5.250	133.35	C01282
	10.50		3.425	87.00	5.236	133.00	C01283
27/64			3.938	100.03	5.375	136.53	C01284
	10.80		3.701	94.00	5.591	142.00	C01285
	11.00		3.701	94.00	5.591	142.00	C01286
7/16			4.063	103.20	5.500	139.70	C01287
	11.20		3.701	94.00	5.591	142.00	C01288
	11.50		3.701	94.00	5.591	142.00	C01289
29/64			4.188	106.38	5.625	142.88	C01290
	11.80		3.701	94.00	5.750	146.05	C01291
15/32			4.313	109.55	5.750	146.05	C01292
	12.00		3.976	101.00	5.945	151.00	C01293
	12.20		3.976	101.00	5.945	151.00	C01294
31/64			4.375	111.13	5.875	149.23	C01295
	12.50		3.976	101.00	5.945	151.00	C01296
1/2			4.500	114.30	6.000	152.40	C01297
	13.00		3.976	101.00	5.945	151.00	C01299
33/64			4.813	122.25	6.625	168.28	C01300
17/32			4.813	122.25	6.625	168.28	C01302
	13.50		4.253	108.00	6.266	160.00	C01303
35/64			4.813	122.25	6.625	168.28	C01305
	14.00		4.252	108.00	6.299	160.00	C01306
9/16			4.813	122.25	6.625	168.28	C01308
	14.50		4.488	114.00	6.654	169.00	C01309
37/64			4.813	122.25	6.625	168.28	C01310
	15.00		4.488	114.00	6.654	169.00	C01312
19/32			5.188	131.78	7.125	180.98	C01313
39/64			5.188	131.78	7.125	180.98	C01315
	15.50		4.724	120.00	7.008	178.000	C01316
5/8			5.188	131.78	7.125	180.98	C01318
	16.00		4.724	120.00	7.008	178.000	C01319
41/64			5.188	131.78	7.125	180.98	C01321
	16.50		4.724	120.00	7.008	178.000	C01322
21/32			5.188	131.78	7.125	180.98	C01323
	17.00		4.724	120.00	7.008	178.000	C01325
43/64			5.625	142.88	7.625	193.68	C01326
11/16			5.625	142.88	7.625	193.68	C01328
	17.50		5.118	130.00	7.520	191.00	C01329

Medidas	No. de Piezas	Código
Juego de 29 Brocas ZR FR N°429	29	C00888
Juego de Brocas ZR MIL 1mm - 13mm	25	C00943
Juego de Brocas 1/16"-1/4" x 1/64"	13	2001-5



► LISTA: 2001G BROCA JOBBER CLE-MAX



Aplicaciones



Características



Fraccional	Diámetro		Longitud de Canal		Longitud Total		Código
	Milimétrica		pulg	mm	pulg	mm	
3/64	1.00		0.472	12.00	1.339	34.00	C71200
	1.10		0.551	14.00	1.417	36.00	C71202
	1.40		0.709	18.00	1.575	40.00	C71208
	1.45		0.709	18.00	1.575	40.00	C71209
	1.55		0.787	20.00	1.693	43.00	C71211
1/16	0.875		22.23		1.875	47.63	C71004
	1.60		0.787	20.00	1.693	43.00	C71212
	1.65		0.787	20.00	1.693	43.00	C71213
	1.80		0.866	22.00	1.811	46.00	C71216
	2.00		0.945	24.00	1.929	49.00	C71220
5/64	2.25		1.063	27.00	2.087	53.00	C71225
	2.30		1.063	27.00	2.087	53.00	C71226
	3/32		1.250	31.75	2.250	57.15	C71006
	2.40		1.181	30.00	2.244	57.00	C71228
	7/64		1.500	38.10	2.625	66.68	C71007
1/8	3.00		1.299	33.00	2.402	61.00	C71235
	1.625		41.28		2.750	69.85	C71008
	3.50		1.535	39.00	2.756	70.00	C71240
	9/64		1.535	39.00	2.756	70.00	C71009
	5/32		2.000	50.80	3.125	79.38	C71010
11/64	4.00		1.693	43.00	2.953	75.00	C71245
	4.50		2.125	53.98	3.250	82.55	C71011
	4.60		1.850	47.00	3.150	80.00	C71250
	4.60		1.850	47.00	3.150	80.00	C71251
	3/16		2.313	58.75	3.350	88.90	C71012
13/64	5.00		2.047	52.00	3.386	86.00	C71255
	2.438		61.93		3.625	92.08	C71013
	5.50		2.244	57.00	3.661	93.00	C71260
	7/32		2.500	61.93	3.750	95.25	C71014
	5.70		2.244	57.00	3.661	93.00	C71262
15/64	2.625		66.68		3.875	98.43	C71015
	1/4		2.750	69.85	4.000	101.60	C71016
	6.40		2.480	63.00	3.976	101.00	C71269
	17/64		2.875	73.03	4.125	104.78	C71017
	7.00		2.717	69.00	4.291	109.00	C71275
9/32	2.938		74.63		4.250	107.95	C71018
	7.40		2.717	69.00	4.291	109.00	C71279
	19/64		2.953	75.00	4.606	117.00	C71019
	7.70		2.953	75.00	4.606	117.00	C71282
	5/16		3.188	80.98	4.500	114.30	C71020
8.00		2.953	75.00	4.606	117.00	C71285	
	8.10		2.953	75.00	4.606	117.00	C71286

USO GENERAL



Diámetro		Longitud de Canal		Longitud Total		Código
Fraccional	Milimétrica	pulg	mm	pulg	mm	
21/64		3.313	84.15	4.625	117.40	C71021
	8.50	2.953	75.00	4.606	117.00	C71290
	8.70	3.189	81.00	4.921	125.00	C71292
11/32		3.438	87.33	4.750	120.65	C71022
	9.00	3.189	81.00	4.921	125.00	C71295
23/64		3.500	88.00	4.875	123.83	C71023
	9.50	3.189	81.00	4.921	125.00	C71300
3/8		3.625	92.08	5.000	127.00	C71024
25/64		3.750	95.25	5.125	130.18	C71025
	10.00	3.425	87.00	5.236	133.00	C71305
13/32		3.875	98.43	5.250	133.35	C71026
	10.50	3.425	87.00	5.236	133.00	C71308
27/64		3.938	100.03	5.375	136.53	C71027
7/16		4.063	103.20	5.500	139.70	C71028
	11.50	3.701	94.00	5.591	142.00	C71312
29/64		4.188	106.38	5.625	142.88	C71029
15/32		4.313	109.55	5.750	146.05	C71030
	12.00	3.976	101.00	5.945	151.00	C71314
	12.20	3.976	101.00	5.945	151.00	C71315
31/64		4.375	111.13	5.875	149.23	C71031
	12.50	3.976	101.00	5.945	151.00	C71316
1/2		4.500	114.30	6.000	152.40	C71032
33/64		4.813	122.25	6.625	168.28	C71033
17/32		4.813	122.25	6.625	168.28	C71034
35/64		4.813	122.25	6.625	168.28	C71035
9/16		4.813	122.25	6.625	68.28	C71036
37/64		4.813	122.25	6.625	168.28	C71037
19/32		5.188	131.78	7.125	180.98	C71038
39/64		5.188	131.78	7.125	180.98	C71039
	15.50	4.724	120.00	7.008	178.00	C71329
5/8		5.188	131.78	7.125	180.98	C71040
41/64		5.188	131.78	7.125	180.98	C71041
21/32		5.188	131.78	7.125	180.98	C71042
	17.00	4.724	120.00	7.244	184.00	C71335
43/64		5.625	142.88	7.625	193.68	C71043
11/16		5.625	142.88	7.625	193.68	C71044
	17.50	5.188	130.00	7.520	191.00	C71337

Medidas	No. de Piezas	Acabado	Código
Brocas Fracc. de 1/16 a 1/2, Alfabéticas de la A a la Z, Numéricas del No. 1 al No. 60	115	Brillante	C01330



Fabricadas en Acero alta velocidad al Vanadio para mejorar la resistencia al desgaste.

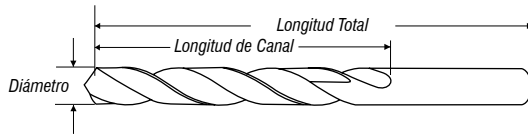
▶ LISTA: 2213 BROCA JOBBER DE COBALTO TRABAJO PESADO



Aplicaciones



Características



Diámetro Fraccional	Longitud de Canal		Longitud Total		Código
	pulg	mm	pulg	mm	
1/64	.188	4.761	.750	19.05	C70000
1/32	.500	12.70	1.375	34.93	C70001
3/64	.750	19.05	1.750	44.45	C70002
1/16	.875	22.23	1.875	47.63	C70003
5/64	1.000	25.40	2.000	50.80	C70004
3/32	1.125	28.58	2.250	57.15	C70005
7/64	1.500	38.10	2.625	66.68	C70006
1/8	1.625	41.28	2.750	68.85	C70007
9/64	1.750	44.45	2.875	73.03	C70008
5/32	2.000	50.80	3.125	79.38	C70009
11/64	2.125	53.98	3.250	82.55	C70010
3/16	2.313	58.74	3.500	88.90	C70011
13/64	2.438	61.91	3.625	92.08	C70012
7/32	2.500	63.50	3.750	95.25	C70013
15/64	2.625	66.68	3.875	98.43	C70014
1/4	2.750	69.85	4.000	101.60	C70015
17/64	2.875	73.03	4.125	104.78	C70016
9/32	2.938	74.61	4.250	107.95	C70017
19/64	3.063	77.79	4.375	111.13	C70018
5/16	3.188	80.96	4.500	114.30	C70019
21/64	3.313	84.14	4.625	117.48	C70020
23/64	3.500	88.90	4.875	123.83	C70022
3/8	3.625	92.08	5.000	127.00	C70023
25/64	3.750	95.25	5.125	130.18	C70024
13/32	3.875	98.43	5.250	133.35	C70025
27/64	3.938	100.01	5.375	136.53	C70026
7/16	4.063	103.19	5.500	139.70	C70027
29/64	4.188	106.36	5.625	142.88	C70028
15/32	4.313	109.54	5.750	146.05	C70029
31/64	4.375	111.12	5.875	149.23	C70030
1/2	4.500	114.30	6.000	152.40	C70031

Medidas	No. de Piezas	Código
1/16 a 1/2 x 1/64	29	C70365
De la letra A a la letra Z	26	C00986
Del #1 a calibre #60	60	C70366
1/16 a 1/2 x 1/64 de la letra A a la letra Z del #1 a calibre #60	115	C70367

USO GENERAL



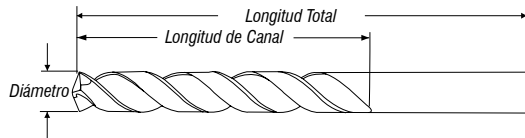
▶ LISTA: 8000 BROCA COTTER PIN-TOP



Aplicaciones



Características



Fraccional	Diámetro		Longitud de Canal		Longitud Total		Código
	Milimétrica		pulg	mm	pulg	mm	
	1.00		0.472	12	1.339	34	C80100
	1.50		0.709	18	1.575	40	C80150
	2.00		0.945	24	1.929	49	C80200
3/32			1.181	30	2.244	57	C80002
	2.50		1.181	30	2.244	57	C80250
7/64			1.30	33	2.402	61	C80003
	3.00		1.30	33	2.402	61	C80300
1/8			1.417	36	2.559	65	C80004
	3.50		1.535	39	2.756	70	C80350
9/64			1.535	39	2.756	70	C80005
5/32			1.693	43	2.953	75	C80006
	4.00		1.693	43	2.953	75	C80400
11/64			1.850	47	3.150	80	C80007
	4.50		1.850	47	3.150	80	C80450
3/16			2.047	52	3.386	86	C80008
	5.00		2.047	52	3.386	86	C80500
13/64			2.047	52	3.386	86	C80009
	5.50		2.244	57	3.361	93	C80550
7/32			2.244	57	3.361	93	C80010
	6.00		2.244	57	3.391	93	C80600
1/4			2.480	63	3.976	101	C80012
	6.50		2.480	63	3.976	101	C80650
	7.00		2.717	69	4.291	109	C80700
9/32			2.717	69	4.291	109	C80014
	7.50		2.717	69	4.606	109	C80750
5/16			2.953	75	4.606	117	C80016
	8.00		2.953	75	4.606	117	C80800
	8.50		2.953	75	4.606	117	C80850
11/32			3.189	81	4.921	125	C80018
	9.00		3.189	81	4.921	125	C80900
	9.50		3.189	81	4.921	125	C80950
3/8			3.425	87	5.236	133	C80020
	10.00		3.425	87	5.236	133	C81000
	10.50		3.425	87	5.236	133	C81050
	11.00		3.701	94	5.591	142	C81100
7/16			3.701	94	5.591	142	C80024
	11.50		3.701	94	5.591	142	C81150
	12.00		3.976	101	5.945	151	C81200
	12.50		3.976	101	5.945	151	C81250
1/2			3.976	101	5.945	151	C80032
	13.00		3.976	101	5.945	151	C81300

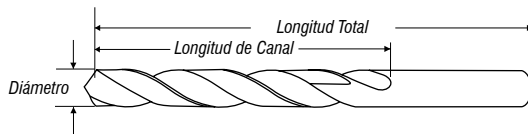
▶ LISTA: 2510 BROCA SERIE LARGA



Aplicaciones



Características



Diámetro Fraccional	Longitud de Canal		Longitud Total		Código
	pulg	mm	pulg	mm	
3/64	1-1/8	28.58	2-1/4	57.15	C08601
1/16	1-3/4	44.45	3	76.20	C08613
5/64	2	50.80	3-1/4	95.25	C08627
3/32	2-1/4	57.15	4-1/4	107.95	C08642
7/64	2-1/2	63.50	4-5/8	117.48	C08655
1/8	2-3/4	69.85	5-1/8	130.18	C08665
9/64	3	76.20	5-3/8	136.53	C08674
5/32	3	76.20	5-3/8	136.53	C08685
11/64	3-3/8	85.73	5-3/4	146.50	C08696
3/16	3-3/8	85.73	5-3/4	146.50	C08707
13/64	3.625	92.08	6	152.40	C08718
7/32	3.625	92.08	6	152.40	C08728
15/64	3-3/4	95.25	6-1/8	155.58	C08737
1/4	3-3/4	95.25	6-1/8	155.58	C08746
17/64	3-7/8	98.43	6-1/4	158.75	C08752
9/32	3-7/8	98.43	6-1/4	158.75	C08766
19/64	4	101.60	6-3/8	161.93	C08770
5/16	4	101.60	6-3/8	161.93	C08777
21/64	4-1/8	104.78	6-1/2	165.10	C08785
11/32	4-1/8	104.78	6-1/2	165.10	C08792
23/64	4-1/4	107.95	6-3/4	171.45	C08800
3/8	4-1/4	107.95	6-3/4	171.45	C08807
25/64	4-3/8	111.13	7	177.80	C08815
13/32	4-3/8	111.13	7	177.80	C08821
27/64	4-5/8	117.48	7-1/4	184.15	C08824
7/16	4-5/8	117.48	7-1/4	184.15	C08827
29/64	4-3/4	120.65	7-1/2	190.50	C08830
15/32	4-3/4	120.65	7-1/2	190.50	C08832
31/64	4-3/4	120.65	7-3/4	196.85	C08835
1/2	4-3/4	120.65	7-3/4	196.85	C08837
33/64	4-3/4	120.65	8	203.20	C08840
17/32	4-3/4	120.65	8	203.20	C08842
35/64	4-7/8	123.83	8-1/4	209.55	C08845
9/16	4-7/8	123.83	8-1/4	209.55	C08848
37/64	4-7/8	123.83	8-3/4	222.25	C08850
19/32	4-7/8	123.83	8-3/4	222.25	C08853
39/64	4-7/8	123.83	8-3/4	225.25	C08855
5/8	4-7/8	123.83	8-3/4	225.25	C08858
41/64	5-1/8	130.18	9	228.60	C08861
21/32	5-1/8	130.18	9	228.60	C08863
43/64	5-3/8	136.53	9-1/4	234.95	C08866
11/16	5-3/8	136.53	9-1/4	234.95	C08868
45/64	5-5/8	142.88	9-1/2	241.30	C08870
23/32	5-5/8	142.88	9-1/2	241.00	C08872

USO GENERAL



Diámetro	Longitud de Canal		Longitud Total		Código
	Fraccional	pulg	mm	pulg	
47/64	5-7/8	149.23	9-3/4	247.65	C08874
3/4	5-7/8	149.23	9-3/4	247.65	C08876
49/64	6	152.40	9-7/8	250.83	C08877
25/32	6	152.40	9-7/8	250.83	C08879
51/64	6-1/8	155.58	10	254.00	C08881
13/16	6-1/8	155.58	10	254.00	C08883
53/64	6-1/8	155.58	10	254.00	C08885
27/32	6-1/8	155.58	10	254.00	C08886
7/8	6-1/8	155.58	10	254.00	C08890
57/64	6-1/8	155.58	10	254.00	C08892
29/32	6-1/8	155.58	10	254.00	C08894
59/64	6-1/8	155.58	10-3/4	273.05	C08895
15/16	6-1/8	155.58	10-3/4	273.05	C08897
61/64	6-3/8	161.93	11	279.40	C08899
31/32	6-3/8	161.93	11	279.40	C08901
63/64	6-3/8	161.93	11	279.40	C08903
1	6-3/8	161.93	11	279.40	C08904
1-1/64	6-1/2	165.10	11-1/8	282.58	C08906
1-1/32	6-1/2	165.10	11-1/8	282.58	C08908
1-3/64	6-5/8	168.28	11-1/4	285.75	C08910
1-1/16	6-5/8	168.28	11-1/4	285.75	C08911
1-1/8	7-1/8	180.98	11-3/4	298.45	C08919
1-1/4	7-7/8	200.03	12-1/2	317.50	C08933

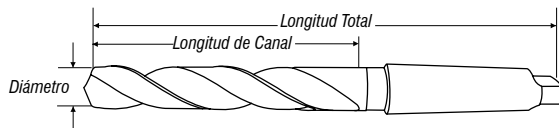
▶ LISTA: 2410 BROCA ZANCO CÓNICO



Aplicaciones



Características



Diámetro Fraccional	Longitud de Canal		Longitud Total		Cono Morse	Código
	pulg	mm	pulg	mm		
1/8	1-7/8	47.63	5-1/8	130.18	1	C12040
5/32	2-1/8	53.98	5-3/8	136.53	1	C12052
11/64	2-1/2	63.50	5-3/4	146.05	1	C12058
3/16	2-1/2	63.50	5-3/4	146.05	1	C12064
13/64	2-3/4	69.85	6	152.40	1	C12069
7/32	2-3/4	69.85	6	152.40	1	C12075
15/64	2-7/8	73.03	6-1/8	155.58	1	C12082
1/4	2-7/8	73.03	6-1/8	155.58	1	C12091
17/64	3	76.20	6-1/4	158.75	1	C12099
9/32	3	76.20	6-1/4	158.75	1	C12113
19/64	3-1/8	79.38	6-3/8	161.93	1	C12117
5/16	3-1/8	79.38	6-3/8	161.93	1	C12124
21/64	3-1/4	82.55	6-1/2	165.10	1	C12132
11/32	3-1/4	82.55	6-1/2	165.10	1	C12139
23/64	3-1/2	88.90	6-3/4	171.45	1	C12147
3/8	3-1/2	88.90	6-3/4	171.45	1	C12154
25/64	3-5/8	92.08	7	177.80	1	C12162
13/32	3-5/8	92.08	7	177.80	1	C12167
27/64	3-7/8	98.43	7-1/4	184.15	1	C12170
7/16	3-7/8	98.43	7-1/4	184.15	1	C12173
29/64	4-1/8	104.78	7-1/2	190.50	1	C12176
15/32	4-1/8	104.78	7-1/2	190.50	1	C12178
31/64	4-3/8	111.13	8-1/4	209.55	2	C12181
1/2	4-3/8	111.13	8-1/4	209.55	2	C12183
33/64	4-5/8	117.48	8-1/2	215.90	2	C12186
17/32	4-5/8	117.48	8-1/2	215.90	2	C12188
35/64	4-7/8	123.83	8-3/4	222.25	2	C12191
9/16	4-7/8	123.83	8-3/4	222.25	2	C12194
37/64	4-7/8	123.83	8-3/4	222.25	2	C12196
19/32	4-7/8	123.83	8-3/4	222.25	2	C12199
39/64	4-7/8	123.83	8-3/4	222.25	2	C12201
5/8	4-7/8	123.83	8-3/4	222.25	2	C12204
41/64	5-1/8	130.18	9	228.60	2	C12207
21/32	5-1/8	130.18	9	228.60	2	C12209
43/64	5-3/8	136.53	9-1/4	234.95	2	C12212
11/16	5-3/8	136.53	9-1/4	234.95	2	C12214
45/64	5-5/8	142.88	9-1/2	241.30	2	C12216
23/32	5-5/8	142.88	9-1/2	241.30	2	C12218
47/64	5-7/8	149.23	9-3/4	247.65	2	C12220
3/4	5-7/8	149.23	9-3/4	247.65	2	C12222
49/64	6	152.40	9-7/8	250.83	2	C12223
25/32	6	152.40	9-7/8	250.83	2	C12225
51/64	6-1/8	155.58	10-3/4	273.05	3	C12227
13/16	6-1/8	155.58	10-3/4	273.05	3	C12229

USO GENERAL



Diámetro	Longitud de Canal		Longitud Total		Cono Morse	Código
	Fracional	pulg	mm	pulg		
53/64	6-1/8	155.58	10-3/4	273.05	3	C12231
27/32	6-1/8	155.58	10-3/4	273.05	3	C12232
55/64	6-1/8	155.58	10-3/4	273.05	3	C12234
7/8	6-1/8	155.58	10-3/4	273.05	3	C12236
57/64	6-1/8	155.58	10-3/4	273.05	3	C12238
29/32	6-1/8	155.58	10-3/4	273.05	3	C12240
59/64	6-1/8	155.58	10-3/4	273.05	3	C12241
15/16	6-1/8	155.58	10-3/4	273.05	3	C12243
61/64	6-3/8	161.93	11	279.40	3	C12245
31/32	6-3/8	161.93	11	279.40	3	C12247
63/64	6-3/8	161.93	11	279.40	3	C12249
1	6-3/8	161.93	11	279.40	3	C12250
1	6-3/8	161.93	12	304.80	4	C12684
1-1/64	6-1/2	165.10	11-1/8	282.58	3	C12252
1-1/32	6-1/2	165.10	11-1/8	282.58	3	C12254
1-3/64	6-5/8	168.28	11-1/4	285.75	3	C12256
1-1/16	6-5/8	168.28	11-1/4	285.75	3	C12257
1-5/64	6-7/8	174.63	12-1/2	317.50	4	C12259
1-3/32	6-7/8	174.63	12-1/2	317.50	4	C12261
1-7/64	7-1/8	180.98	12-3/4	323.85	4	C12263
1-1/8	7-1/8	180.98	12-3/4	323.85	4	C12265
1-9/64	7-1/4	184.15	12-7/8	327.03	4	C12266
1-5/32	7-1/4	184.15	12-7/8	327.03	4	C12268
1-11/64	7-3/8	187.33	13	330.20	4	C12270
1-3/16	7-3/8	187.33	13	330.20	4	C12272
1-13/64	7-1/2	191.50	13-1/8	333.38	4	C12274
1-7/32	7-1/2	190.50	13-1/8	333.38	4	C12275
1-15/64	7-7/8	200.03	13-1/2	342.90	4	C12277
1-1/4	7-7/8	200.03	13-1/2	342.90	4	C12279
1-17/64	8-1/2	215.90	14-1/8	358.78	4	C12281
1-9/32	8-1/2	215.90	14-1/8	358.78	4	C12283
1-19/64	8-5/8	219.08	14-1/4	361.95	4	C12284
1-5/16	8-5/8	219.08	14-1/4	361.95	4	C12286
1-21/64	8-3/4	222.25	14-3/8	365.13	4	C12288
1-11/32	8-3/4	222.25	14-3/8	365.13	4	C12290
1-23/64	8-7/8	225.43	14-1/2	368.30	4	C12292
1-3/8	8-7/8	225.43	14-1/2	368.30	4	C12293
1-25/64	9	228.60	14-5/8	371.48	4	C12295
1-13/32	9	228.60	14-5/8	371.48	4	C12297
1-27/64	9-1/8	231.78	14-3/4	374.65	4	C12299
1-7/16	9-1/8	231.78	14-3/4	374.65	4	C12301
1-29/64	9-1/4	234.95	14-7/8	377.83	4	C12302
1-15/32	9-1/4	234.95	14-7/8	377.83	4	C12304
1-31/64	9-3/8	238.15	15	381.00	4	C12306
1-1/2	9-3/8	238.15	15	381.00	4	C12308
1-17/32	9-3/8	238.15	16-3/8	422.28	5	C12311
1-9/16	9-7/8	244.48	16-5/8	422.28	5	C12315
1-19/32	9-7/8	244.48	16-5/8	422.28	5	C12318
1-5/8	10	254.00	17	431.80	5	C12322
1-21/32	10	254.00	17-1/8	431.80	5	C12326
1-11/16	10-1/8	257.18	17-1/8	434.98	5	C12329
1-23/32	10-1/8	257.18	17-1/8	434.98	5	C12333
1-3/4	10-1/8	257.18	17-1/8	434.98	5	C12336
1-25/32	10-1/8	257.18	17-1/8	434.98	5	C12340
1-13/16	10-1/8	257.18	17-1/8	434.98	5	C12344
1-27/32	10-1/8	257.18	17-1/8	434.98	5	C12347
1-7/8	10-3/8	263.53	17-3/8	441.33	5	C12351
1-29/32	10-3/8	263.53	17-3/8	441.33	5	C12354
1-15/16	10-3/8	263.53	17-3/8	441.33	5	C12358
1-31/32	10-3/8	263.53	17-3/8	441.33	5	C12362
2	10-3/8	263.53	17-3/8	441.33	5	C12365
2-1/32	10-3/8	263.53	17-3/8	441.33	5	C12368
2-1/16	10-1/4	263.53	17-3/8	441.33	5	C12371
2-3/32	10-1/4	263.53	17-3/8	441.33	5	C12374

Diámetro Fraccional	Longitud de Canal		Longitud Total		Cono Morse	Código
	pulg	mm	pulg	mm		
2-1/8	10-1/4	263.53	17-3/8	441.33	5	C12376
2-5/32	10-1/4	263.53	17-3/8	441.33	5	C12379
2-3/16	10-1/4	257.18	17-3/8	441.33	5	C12382
2-7/32	10-1/8	257.18	17-3/8	441.33	5	C12385
2-1/4	10-1/8	257.18	17-3/8	441.33	5	C12388
2-5/16	10-1/8	257.18	17-3/8	441.33	5	C12393
2-3/8	10-1/8	285.75	17-3/8	476.25	5	C12399
2-7/16	11-1/4	285.75	18-3/4	476.25	5	C12404
2-1/2	11-1/4	285.75	18-3/4	476.25	5	C12410
2-9/16	11-7/8	285.75	19-1/2	476.25	5	C12416
2-5/8	11-7/8	285.75	19-1/2	476.25	5	C12421
2-11/16	12-3/4	285.75	20-3/8	476.25	5	C12427
2-3/4	12-3/4	285.75	20-3/8	476.25	5	C12432
2-7/8	13-3/8	285.75	21-1/8	476.25	5	C12444
2-15/16	14	285.75	21-3/4	476.25	5	C12449
3	14	285.75	21-3/4	476.25	5	C12455
3-1/8	14-5/8	374.65	24-1/2	622.30	6	C12460
3-1/4	15-1/2	396.88	25-1/2	647.70	6	C12462
3-3/8	15-1/2	393.70	25-1/2	647.70	6	C12465
3-1/2	16-3/8	415.93	26-1/2	673.10	6	C12468

 Ver página 192 para Información Técnica.

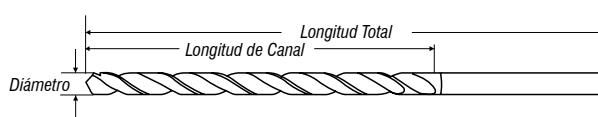
▶ LISTA: 950E BROCA EXTRA LARGA



Aplicaciones



Características



Diámetro Fraccional	Longitud de Canal		Longitud Total		Código
	pulg	mm	pulg	mm	
3/32	5-1/2	139.70	8	203.20	C09655
7/64	5-1/2	139.70	8	203.20	C09656
1/8	5-1/2	139.70	8	203.20	C09657
1/8	7-1/2	190.50	10	254.00	C09707
1/8	9	228.60	12	304.80	C09736
9/64	5-1/2	139.70	8	203.20	C09658
5/32	5-1/2	139.70	8	203.20	C09659
5/32	7-1/2	190.50	10	254.00	C09709
5/32	9	228.60	12	304.80	C09738
11/64	5-1/2	139.70	8	203.20	C09660
3/16	5-1/2	139.70	8	203.20	C09661
3/16	7-1/2	190.50	10	254.00	C09711
3/16	9	228.60	12	304.80	C09740
13/64	5-1/2	139.70	8	203.20	C09662
7/32	5-1/2	139.70	8	203.20	C09663
7/32	7-1/2	190.50	10	254.00	C09713
7/32	9	228.60	12	304.80	C09742
15/64	5-1/2	139.70	8	203.20	C09664
15/64	7-1/2	190.50	10	254.00	C09714
1/4	5-1/2	139.70	8	203.20	C09665
1/4	7-1/2	190.50	10	254.00	C09715
1/4	9	228.60	12	304.80	C09744
17/64	5-1/2	139.70	8	203.20	C09666
9/32	5-1/2	139.70	8	203.20	C09667
9/32	9	228.60	12	304.80	C09746
19/64	5-1/2	139.70	8	203.20	C09668
5/16	5-1/2	139.70	8	203.20	C09669
5/16	7-1/2	190.50	10	254.00	C09719
5/16	9	228.60	12	304.80	C09748
21/64	5-1/2	139.70	8	203.20	C09670
11/32	5-1/2	139.70	8	203.20	C09671
11/32	7-1/2	190.50	10	254.00	C09721
11/32	9	228.60	12	304.80	C09750
23/64	5-1/2	139.70	8	203.20	C09672
3/8	5-1/2	139.70	8	203.20	C09673
3/8	7-1/2	190.50	10	254.00	C09723
3/8	9	228.60	12	304.80	C09752
25/64	5-1/2	139.70	8	203.20	C09674
13/32	5-1/2	139.70	8	203.20	C09675
13/32	7-1/2	190.50	10	254.00	C09725
27/64	5-1/2	139.70	8	203.20	C09676
7/16	5-1/2	139.70	8	203.20	C09677
7/16	7-1/2	190.50	10	254.00	C09727
7/16	9	228.60	12	304.80	C09756



Diámetro	Longitud de Canal		Longitud Total		Código
	Fraccional	pulg	mm	pulg	
29/64	5-1/2	139.70	8	203.20	C09678
15/32	5-1/2	139.70	8	203.20	C09679
15/32	7-1/2	190.50	10	254.00	C09729
15/32	9	228.60	12	304.80	C09758
31/64	5-1/2	139.70	8	203.20	C09680
1/2	5-1/2	139.70	8	203.20	C09681
1/2	7-1/2	190.50	10	254.00	C09731
1/2	9	228.60	12	304.80	C09760
17/32	7-1/2	190.50	10	254.00	C09733
17/32	9	228.60	12	304.80	C09762
9/16	7-1/2	190.50	10	254.00	C09735
9/16	9	228.60	12	304.80	C09764
5/8	9	228.60	12	304.80	C09768
21/32	9	228.60	12	304.80	C09770
11/16	9	228.60	12	304.80	C09772
23/32	9	228.60	12	304.80	C09774
3/4	9	228.60	12	304.80	C09776

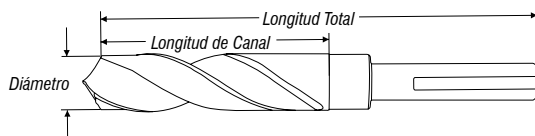
▶ LISTA: 936 BROCA ZANCO REDUCIDO A 1/2"



Aplicaciones



Características



Fraccional	Diámetro		Longitud de Canal		Longitud Total		Código
	Milimétrica	Decimal	pulg	mm	pulg	mm	
1/2	12.50	.4921	3-1/8	79.38	6	152.4	C113125
	13.00	.5118	3-1/8	79.38	6	152.40	C11159
3-1/8			79.38	6	152.4	C113130	
33/64	13.50	.5315	3-1/8	79.38	6	152.4	C11162
17/32			3-1/8	79.38	6	152.4	C11164
35/64	14.00	.5512	3-1/8	79.38	6	152.4	C113135
9/16	14.50	.5709	3-1/8	79.38	6	152.4	C113140
			3-1/8	79.38	6	152.4	C11170
37/64	15.00	.5906	3-1/8	79.38	6	152.4	C113145
19/32	15.50	.6102	3-1/8	79.38	6	152.4	C11172
			3-1/8	79.38	6	152.4	C113150
39/64	16.00	.6299	3-1/8	79.38	6	152.4	C11175
5/8	16.50	.6496	3-1/8	79.38	6	152.4	C11177
			3-1/8	79.38	6	152.4	C113155
41/64	17.00	.6693	3-1/8	79.38	6	152.4	C11180
21/32	17.50	.6890	3-1/8	79.38	6	152.4	C11183
			3-1/8	79.38	6	152.4	C113165
43/64	18.00	.7087	3-1/8	79.38	6	152.4	C11185
11/16	18.50	.7283	3-1/8	79.38	6	152.4	C113170
45/64	19.00	.7480	3-1/8	79.38	6	152.4	C11188
			3-1/8	79.38	6	152.4	C11190
47/64	19.50	.7677	3-1/8	79.38	6	152.4	C11199
3/4	20.00	.7874	3	79.38	6	152.4	C113175
			3	79.38	6	152.4	C11192
49/64	20.50	.8071	3	79.38	6	152.4	C113180
25/32	21.00	.8268	3	79.38	6	152.4	C113185
			3	79.38	6	152.4	C11194
13/16	21.50	.8465	3	79.38	6	152.4	C113185
			3	79.38	6	152.4	C11196
27/32	22.00	.8661	3	79.38	6	152.4	C113190
			3	79.38	6	152.4	C11199
7/8	22.50	.8858	3	79.38	6	152.4	C11199
			3	79.38	6	152.4	C113195
	23.00	.9055	3	79.38	6	152.4	C113195
			3	79.38	6	152.4	C11201
			3	73.50	6	152.4	C113200
			3	73.50	6	152.4	C113205
			3	76.19	6	152.4	C11205
			3	73.50	6	152.4	C113210
			3	76.19	6	152.4	C11208
			3	73.50	6	152.4	C113215
			3	73.50	6	152.4	C113220
			3	76.19	6	152.40	C11212
			3	73.50	6	152.4	C113225
			3	73.50	6	152.4	C113230

Fraccional	Diámetro		Longitud de Canal		Longitud Total		Código
	Milimétrica	Decimal	pulg	mm	pulg	mm	
29/32			3	76.19	6	152.4	C11216
	23.50	.9252	3	73.50	6	152.4	C113235
15/16			3	76.19	6	152.4	C11219
	24.00	.9449	3	73.50	6	152.4	C113240
	24.50	.9646	3	73.50	6	152.4	C113245
31/32			3	76.19	6	152.4	C11223
	25.00	.9843	3	73.50	6	152.4	C113250
1			3	76.19	6	152.4	C11226
	25.50	1.0039	3	73.50	6	152.4	C113255
	26.00	1.0236	3	73.50	6	152.4	C113260
1-1/32			3	76.19	6	152.4	C11230
	26.50	1.0433	3	73.50	6	152.4	C113265
1-1/16			3	76.19	6	152.4	C11233
	27.0	1.0630	3	73.50	6	152.4	C113270
	27.50	1.0837	3	73.50	6	152.4	C113275
1-3/32			3	73.50	6	152.4	C11237
	28.00	1.1024	3	73.50	6	152.4	C113280
	28.50	1.1220	3	73.50	6	152.4	C113285
1-1/8			3	76.19	6	152.4	C11241
	29.0	1.1417	3	73.50	6	152.4	C113290
1-5/32			3	73.50	6	152.4	C11245
	29.5	1.1614	3	73.50	6	152.4	C113295
	30.0	1.1811	3	73.50	6	152.4	C113300
1-3/16			3	76.19	6	152.4	C11248
	30.5	1.2008	3	73.50	6	152.4	C113305
1-7/32			3	76.19	6	152.4	C11252
	31.0	1.2205	3	73.50	6	152.4	C113310
	31.5	1.2402	3	73.50	6	152.4	C113315
1-1/4			3	76.19	6	152.4	C11255
	32.0	1.2598	3	73.50	6	152.4	C113320
	32.5	1.2795	3	73.50	6	152.4	C113325
	33.0	1.2992	3	73.50	6	152.4	C113330
	33.5	1.3189	3	73.50	6	152.4	C113335
	34.0	1.3386	3	73.50	6	152.4	C113340
	34.5	1.3583	3	73.50	6	152.4	C113345
	35.0	1.3780	3	73.50	6	152.4	C113350
	35.5	1.3976	3	73.50	6	152.4	C113355
	36.0	1.4173	3	73.50	6	152.4	C113360
	36.5	1.4370	3	73.50	6	152.4	C113365
	37.0	1.4567	3	73.50	6	152.4	C113370
	37.5	1.4764	3	73.50	6	152.4	C113375
	38.0	1.4961	3	73.50	6	152.4	C113380

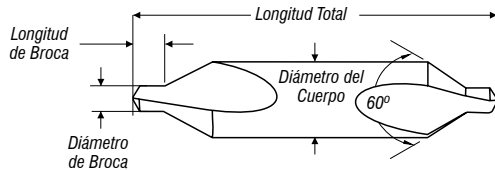
▶ LISTA: 998 BROCA PARA CENTRO TIPO PLANA



Aplicaciones

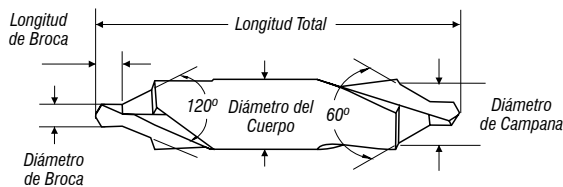


Características



Diámetro Númerica	Diámetro de Broca		Diámetro del Cuerpo		Longitud de Broca		Longitud Total		Código
	pulg	mm	pulg	mm	pulg	mm	pulg	mm	
#00	.025		3/32	2.38	.030	0.76	1-1/8	28.58	C46261
#0	1/32		3/32	2.38	.038	0.97	1-1/8	28.58	C46262
#1	3/64		1/8	3.18	3/64	1.19	1-1/4	31.75	C46263
#2	5/64		3/16	4.76	1/16	1.98	1-7/8	47.63	C46264
#3	7/64		1/4	6.35	3/32	2.78	2	50.80	C46265
#4	1/8		5/16	7.94	7/64	3.18	2-1/8	53.98	C46266
#5	3/16		7/16	11.11	5/32	4.76	2-3/4	69.85	C46267
#6	7/32		1/2	12.70	3/16	5.56	3	76.20	C46268
#7	1/4		5/8	15.88	7/32	6.35	3-1/4	82.55	C46269
#8	5/16		3/4	19.05	1/4	7.94	3-1/2	88.90	C46270

▶ LISTA: 996 BROCA PARA CENTRO TIPO CAMPANA

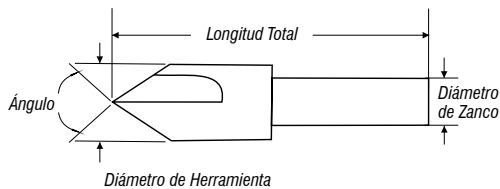


Diámetro Númerica	Diámetro de Broca		Diámetro del Cuerpo		Longitud de Broca		Longitud Total		Diámetro Campana		Código
	pulg	mm	pulg	mm	pulg	mm	pulg	mm	pulg	mm	
#11	3/64		1/8	3.18	3/64	1.19	1-1/4	31.75	.100	2.54	C46272
#12	1/16		3/16	4.76	1/16	1.59	1-7/8	47.63	.150	3.81	C46273
#13	3/32		1/4	6.35	3/32	2.38	2	50.80	.200	5.08	C46274
#14	7/64		5/16	7.94	7/64	2.78	2-1/8	53.98	.250	6.35	C46275
#15	5/32		7/16	11.11	5/32	3.97	2-3/4	69.85	.350	8.89	C46276
#16	3/16		1/2	12.70	3/16	4.76	3	76.20	.400	10.16	C46277
#17	7/32		5/8	15.88	7/32	5.56	3-1/4	82.55	.500	12.70	C46278
#18	1/4		3/4	19.05	1/4	6.35	3-1/2	88.90	.600	15.24	C46279

▶ LISTA: 610 AVELLANADOR



Aplicaciones



Características



Diámetro Fraccional	Diámetro de Zanco		Longitud Total		Canales	Ángulo de 60°	Ángulo de 82°	Ángulo de 90°	Ángulo de 120°
	pulg	mm	pulg	mm					
1/4	3/16	4.76	1-1/2	38.10	1		C46102	C46103	C46106
1/4	3/16	4.76	1-1/2	38.10	3	C46150	C46151	C46152	C46155
1/4	3/16	4.76	1-1/2	38.10	4	C46198	C46199	C46200	-
3/8	1/4	6.35	1-3/4	44.45	1	C46107	C46108	C46109	C46112
3/8	1/4	6.35	1-3/4	44.45	3	C46156	C46157	C46158	C46161
3/8	1/4	6.35	1-3/4	44.45	4	C46204	C46205	C46206	-
1/2	1/4	6.35	2	50.80	1	C46113	C46114	C46115	C46118
1/2	1/4	6.35	2	50.80	3	C46162	C46163	C46164	C46167
1/2	1/4	6.35	2	50.80	4	C46210	C46211	C46212	-
5/8	3/8	9.53	2-1/4	57.15	1	C46119	C46120	C46121	C46123
5/8	3/8	9.53	2-1/4	57.15	3	C46168	C46169	C46170	C46173
5/8	3/8	9.53	2-1/4	57.15	4	C46216	C46217	C46218	-
3/4	3/8	12.70	2-5/8	66.68	1	C46124	C46125	C46126	C46129
3/4	3/8	12.70	2-5/8	66.68	3	C46174	C46175	C46176	C46179
3/4	1/2	12.70	2-5/8	66.68	4	C46222	C46223	C46224	-
1	1/2	12.70	3-1/8	79.38	1	C46130	C46131	C46132	C46135
1	1/2	12.70	3-1/8	79.38	3	C46180	C46181	C46182	C46185
1-1/4	1/2	12.70	3-31/32	100.81	1	C46136	C46137	C46138	-
1-1/4	1/2	12.70	3-31/32	100.81	3	C46186	C46187	C46188	-
1-1/2	1/2	19.05	4-5/16	109.54	1	C46141	C46139	-	-
1-1/2	1/2	19.05	3-3/4	95.25	1	-	-	C46140	-
1-1/2	3/4	19.05	4-5/16	109.54	3	C46189	C46190	-	-
1-1/2	3/4	19.05	3-3/4	95.25	3	-	-	C46191	-
2	1/2	19.05	5	127.00	1	C46142	-	-	-
2	1/2	19.05	4-1/4	107.95	1	-	C46143	-	-
2	1/2	19.05	5	127.00	3	-	-	C46192	-



El barreno no debera ser menor del 10% del diametro del avellanador.
Usar a un 50% -66% de las velocidades recomendadas para brocas.

USO GENERAL



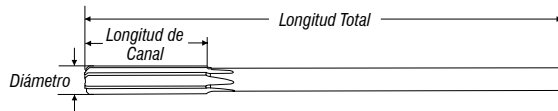
▶ LISTA: 4001 RIMA PARA MÁQUINA



Aplicaciones



Características



Diámetro		Longitud de Canal		Longitud Total		Canales	Código
Fracional	Milimétrica	pulg	mm	pulg	mm		
1/16	1.5	1/2	12.70	2-1/2	63.50	4	C25059
		1/2	12.70	2-1/2	63.50	4	C25060
	2.0	3/4	19.05	3	76.20	4	C25095
3/32		3/4	19.05	3	76.20	4	C25140
7/64		7/8	22.23	3-1/2	88.90	4	C25178
	3.0	7/8	22.23	3-1/2	88.90	4	C25185
1/8		7/8	22.23	3-1/2	88.90	6	C25216
5/32		1	25.40	4	101.60	6	C25290
	4.0	1	25.40	4	101.60	6	C25291
3/16		1-1/8	28.58	4-1/2	114.30	6	C25366
	5.0	1-1/4	31.75	5	127.00	6	C25314
7/32		1-1/4	31.75	5	127.00	6	C25438
	6.0	1-1/2	38.10	6	152.40	6	C25475
1/4		1-1/2	38.10	6	152.40	6	C25513
	7.0	1-1/2	38.10	6	152.40	6	C25567
9/32		1-1/2	38.10	6	152.40	6	C25608
5/16		1-1/2	38.10	6	152.40	6	C25661
	8.0	1-1/2	38.10	6	152.40	6	C25668
11/32		1-1/2	38.10	6	152.40	6	C25733
	9.0	1-3/4	44.45	7	177.80	6	C25743
3/8		1-3/4	44.45	7	177.80	6	C25807
25/64		1-3/4	44.45	7	177.80	6	C25844
	10.0	1.750	44.45	7	177.80	6	C25845
13/32		1-3/4	44.45	7	177.80	6	C25878
	11.0	1.750	44.45	7	177.80	6	C25912
7/16		1-3/4	44.45	7	177.80	6	C25947
15/32		1-3/4	44.45	7	177.80	6	C26014
	12.0	1-3/4	44.45	7	177.80	6	C26015
1/2		2	50.80	8	203.20	6	C26083
	13.0	2	50.80	8	203.20	8	C26086
17/32		2	50.80	8	203.20	8	C26150
	14.0	2	50.80	8	203.20	8	C26151
9/16		2	50.80	8	203.20	8	C26217
	15.0	2	50.80	8	203.20	8	C26218
19/32		2	50.80	8	203.20	8	C26284
5/8		2-1/2	57.15	9	228.60	8	C26351
	16.0	2-1/4	57.15	9	228.60	8	C26352
11/16		2-1/4	57.15	9	228.60	8	C26485
3/4		2-1/4	63.50	9-1/2	241.30	8	C26615
13/16		2-1/4	63.50	9-1/2	241.30	8	C26746
7/8		2-5/8	66.68	10	254.00	8	C26876
1		2-3/4	69.85	10-1/2	266.70	8	C27137
1-8		2-7/8	73.03	11	279.40	10	C27152
1-1/4		3	76.20	11-1/2	292.10	10	C27166
1-3/8		2-1/4	82.55	12	304.80	10	C27180

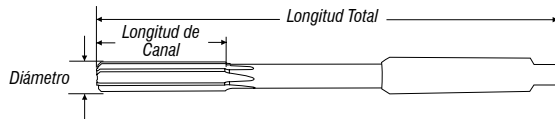
▶ LISTA: 4005 RIMA ZANCO CÓNICO



Aplicaciones



Características



Diámetro Fraccional	Longitud de Canal		Longitud Total		Cono Morse	Canales	Código
	pulg	mm	pulg	mm			
3/8	1-3/4	44.45	7	177.80	1	6	C34129
7/16	1-3/4	44.45	7	177.80	1	6	C34266
9/16	2	50.80	8	203.20	1	8	C34534
5/8	2-1/4	57.15	9	228.60	2	8	C34668
11/16	2-1/4	57.15	9	228.60	2	8	C34802
3/4	2-1/2	63.50	9-1/2	241.31	2	8	C34932
25/32	2-1/2	63.50	9-1/2	241.31	2	8	C34997
7/8	2-5/8	66.68	10	254.00	2	8	C35193
1	2-3/4	69.85	10-1/2	266.70	3	8	C35454
1-1/8	2-7/8	73.03	11	279.40	3	10	C35469
1-1/4	3	76.20	11-1/2	292.10	4	10	C35483



TIP:
Las rimas de canales rectos se recomiendan para aplicaciones de barrenos pasados.

USO GENERAL

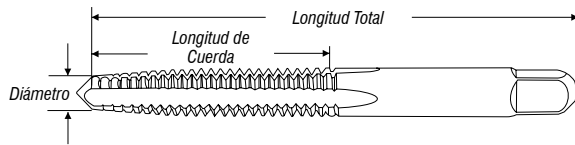
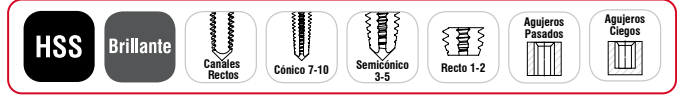
LISTA: 1001, 1002, 1003 & 1004 MACHUELOS HSS



Aplicaciones



Características



Diámetro Fraccional	Hilos por Pulgada	Ajuste	Longitud de Cuerda		Longitud Total		Canales	Cónico	Semi-cónico	Recto	Set
			pulg	mm	pulg	mm					
0	NF-80	H1	5/16	7.94	1-5/8	41.28	2	C54025	C54026	C54027	C54028
1	NC-64	H1	3/8	9.53	1-11/16	42.86	2	C54055	C54056	C54057	C54058
1	NF-72	H1	3/8	9.53	1-11/16	42.88	2	C54060	C54061	C54062	C54063
2	NC-56	H2	3/8	9.53	1-3/4	44.45	3	C54089	C54090	C54091	C54092
2	NF-64	H2	7/16	11.11	1-3/4	44.45	3	C54093	C54094	C54095	C54096
3	NC-48	H2	1/2	12.70	1-13/16	46.04	3	C54115	C54116	C54117	C54118
3	NF-56	H2	1/2	12.70	1-13/16	46.04	3	C54120	C54121	C54122	C54123
4	NS-36	H2	9/16	14.30	1-7/8	47.63	3	C54139	C54140	C54141	C54137
4	NC-40	H2	9/16	14.30	1-7/8	47.63	3	C54149	C54150	C54151	C54152
4	NF-48	H2	9/16	14.30	1-7/8	47.63	3	C54153	C54154	C54155	C54156
5	NC-40	H2	5/8	15.88	1-15/16	49.21	3	C54188	C54189	C54190	C54191
5	NF-44	H2	5/8	15.88	1-15/16	49.21	3	C54192	C54193	C54194	C54195
6	NC-32	H3	11/16	17.46	2	50.80	3	C54223	C54224	C54225	C54226
6	NF-40	H2	11/16	17.46	2	50.80	3	C54232	C54233	C54234	C54235
8	NC-32	H3	3/4	19.05	2-1/8	53.98	4	C54277	C54278	C54279	C54280
8	NF-36	H2	3/4	19.05	2-1/8	53.98	4	C54289	C54290	C54291	C54292
10	NC-24	H3	7/8	22.23	2-3/8	60.33	4	C54329	C54330	C54331	C54332
10	NF-32	H3	7/8	22.23	2-3/8	60.33	4	C54356	C54357	C54358	C54359
12	NC-24	H3	15/16	23.81	2-3/8	60.33	4	C54385	C54386	C54387	C54388
12	NF-28	H3	15/16	23.81	2-3/8	60.33	4	C54389	C54390	C54391	C54392
1/8	NS-40	H2	5/8	15.88	1-15/16	49.21	3	1001-04402	1002-04402	1003-04402	1123-04402
1/8	NF-44	H2	5/8	15.88	1-15/16	49.21	3	1001-04442	1002-04442	1003-04442	1123-04442
5/32	NS-32	H3	3/4	19.05	2-1/8	53.98	4	1001-05323	1002-05323	1003-05323	1123-05323
5/32	NS-36	H2	3/4	19.05	2-1/8	53.98	4	1001-05362	1002-05362	1003-05362	1123-05362
3/16	NC-24	H3	7/8	22.22	2-3/8	60.33	4	1001-06243	1002-06243	1003-06243	1123-06243
3/16	NS-32	H3	7/8	22.22	2-3/8	60.33	4	1001-06323	1002-06323	1003-06323	1123-06323
7/32	NS-24	H3	15/16	23.81	2-3/8	60.33	4	1001-07243	1002-07243	1003-07243	1123-07243
7/32	NS-32	H3	15/16	23.81	2-3/8	60.33	4	1001-07323	1002-07323	1003-07323	1123-07323
1/4	NC-20	H3	1	25.40	2-1/2	63.50	4	C54453	C54454	C54455	C54460
1/4	NF-28	H3	1	25.40	2-1/2	63.50	4	C54469	C54470	C54471	C54476
5/16	NC-18	H3	1-1/8	28.58	2-23/32	69.06	4	C54504	C54505	C54506	C54511
5/16	NF-24	H3	1-1/8	28.58	2-23/32	69.06	4	C54518	C54519	C54520	C54523
3/8	NC-16	H3	1.250	31.75	2.938	74.61	4	C54582	C54583	C54584	C54587
3/8	NF-24	H3	1.250	31.75	2.938	74.61	4	C54595	C54596	C54597	C54600
7/16	NC-14	H3	1.438	36.51	3.156	80.17	4	C54652	C54653	C54654	C54656



Diámetro Fraccional	Hilos por Pulgada	Ajuste	Longitud de Cuerda		Longitud Total		Canales	Cónico	Semi-cónico	Recto	Set
			pulg	mm	pulg	mm					
7/16	NF-20	H3	1.438	36.51	3.156	80.17	4	C54661	C54662	C54663	C54665
1/2	NC-13	H3	1.656	42.06	3.375	85.73	4	C54726	C54727	C54728	C54731
1/2	NF-20	H3	1.656	42.06	3.375	85.73	4	C54737	C54738	C54739	C54741
9/16	NC-12	H3	1.656	42.07	3.594	91.28	4	C54759	C54760	C54761	C54762
9/16	NF-18	H3	1.656	42.07	3.594	91.28	4	C54765	C54766	C54767	C54768
5/8	NC-11	H3	1.813	46.04	3.813	96.84	4	C54779	C54780	C54781	C54782
5/8	NF-18	H3	1.813	46.04	3.813	96.84	4	C54787	C54788	C54789	C54790
11/16	NC-11	H3	1.813	46.04	4.031	102.39	4	C54813	C54814	C54815	C54816
11/16	NF-16	H3	2.000	46.04	4.031	102.39	4	C54817	C54818	C54819	C54820
3/4	NC-10	H3	2.000	50.80	4.250	107.95	4	C54838	C54839	C54840	C54841
3/4	NF-16	H3	2.019	50.80	4.250	107.95	4	C54846	C54847	C54848	C54849
7/8	NC-9	H4	2.219	56.36	4.688	119.06	4	C54884	C54885	C54886	C54887
7/8	NF-14	H4	2.500	56.36	4.688	119.06	4	C54890	C54891	C54892	C54893
1	NC-8	H4	2.500	63.50	5.125	130.18	4	C54923	C54924	C54925	C54926
1	NF-12	H4	2.500	63.50	5.125	130.18	4	C54928	C54929	C54930	C54931
1	NS-14	H4	2.563	63.50	5.125	130.18	4	C54933	C54934	C54935	C54936
1-1/8	NC-7	H4	2.563	65.09	5.438	138.11	4	C54965	C54966	C54967	1123-36074
1-1/8	NF-12	H4	2.563	65.09	5.438	138.11	4	C54971	C54972	C54973	1123-36124
1-1/4	NC-7	H4	2.563	65.09	5.750	146.05	4	C54994	C54995	C54996	1123-40074
1-1/4	NF-12	H4	2.563	65.09	5.750	146.05	6	C55000	C55001	C55002	1123-40124
1-3/8	NC-6	H4	2.563	65.09	5.750	146.05	4	C55027	C55028	C55029	1123-44064
1-3/8	NF-12	H4	2.563	65.09	5.750	146.05	6	C55030	C55031	C55032	1123-44124
1-1/2	NC-6	H4	3.000	76.20	6.375	161.93	4	C55057	C55058	C55059	1123-48064
1-1/2	NF-12	H4	3.000	76.20	6.375	161.93	6	C55063	C55064	C55065	1123-48124

Diámetro Milimétrica	Paso	Ajuste	Longitud de Cuerda		Longitud Total		Canales	Cónico	Semi-cónico	Recto	Set
			pulg	mm	pulg	mm					
M2	0.40	D3	7/16	11.11	1-3/4	44.45	3	C54073	C54074	C54075	-
M2.5	0.45	D3	1/2	12.70	1-13/16	46.04	3	C54131	C54132	C54133	-
M3	0.50	D3	5/8	15.88	1-15/16	49.21	3	C54164	C54165	C54166	1123-030503M
M3.5	0.60	D4	11/16	17.46	2	50.8	3	C54203	C54204	C54205	-
M4	0.70	D4	3/4	19.05	2-1/8	53.98	4	C54246	C54247	C54248	1123-040704M
M4.5	0.75	D4	7/8	22.23	2-3/8	60.33	4	C54303	C54304	C54305	-
M5	0.80	D4	7/8	22.23	2-3/8	60.33	4	C54374	C54375	C54376	1123-050804M
M6	0.75	D5	1	25.40	2-1/2	63.5	4	1001-060755M	1002-060755M	1003-060755M	1123-060755M
M6	1.00	D5	1	25.40	2-1/2	63.5	4	C54413	C54414	C54415	1123-061005M
M7	1.00	D5	1-1/8	28.58	2-23/32	69.06	4	C54489	C54490	C54491	1123-071005M
M8	0.75	D5	1-1/8	28.58	2-23/32	69.06	4	1001-080755M	1002-080755M	1003-080755M	1123-080755M
M8	1.00	D5	1-1/8	28.58	2-23/32	69.06	4	C54536	C54537	C54538	1123-081005M
M8	1.25	D5	1-1/8	28.58	2-23/32	69.06	4	C54546	C54547	C54548	1123-081255M
M9	1.25	D5	1-1/4	31.75	2-15/16	74.61	4	1001-091255M	1002-091255M	1003-091255M	1123-091255M
M10	0.75	D5	1-1/4	31.75	2-15/16	74.61	4	1001-100755M	1002-100755M	1003-100755M	1123-100755M
M10	1.00	D5	1-1/4	31.75	2-15/16	74.61	4	1001-101005M	1002-101005M	1003-101005M	1123-101005M
M10	1.25	D5	1-1/4	31.75	2-15/16	74.61	4	C54617	C54618	C54619	1123-101255M
M10	1.50	D6	1-1/4	31.75	2-15/16	74.61	4	C54624	C54625	C54626	1123-101506M
M11	1.50	D6	1-7/16	36.51	3-5/32	80.16	4	1001-111506M	1002-111506M	1003-111506M	1123-111506M
M12	1.00	D6	1-21/32	42.07	3-3/8	85.73	4	1001-121006M	1002-121006M	1003-121006M	1123-121006M
M12	1.25	D5	1-21/32	42.07	3-3/8	85.73	4	C54675	C54676	C54677	1123-121255M
M12	1.50	D6	1-21/32	42.07	3-3/8	85.73	4	1001-121506M	1002-121506M	1003-121506M	1123-121506M
M12	1.75	D6	1-21/32	42.07	3-3/8	85.73	4	C54689	C54690	C54691	1123-121756M
M14	1.00	D6	1-21/32	42.07	3-19/32	91.28	4	1001-141006M	1002-141006M	1003-141006M	1123-141006M
M14	1.25	D6	1-21/32	42.07	3-19/32	91.28	4	1001-141256M	1002-141256M	1003-141256M	1123-141256M
M14	1.50	D6	1-21/32	42.07	3-19/32	91.28	4	C54751	C54752	C54753	1123-141506M
M14	2.00	D7	1-21/32	42.07	3-19/32	91.28	4	C54755	C54756	C54757	1123-142007M
M16	1.00	D6	1-13/16	46.06	3-13/16	96.84	4	1001-161006M	1002-161006M	1003-161006M	1123-161006M
M16	1.50	D6	1-13/16	46.06	3-13/16	96.84	4	C54797	C54798	C54799	1123-161506M
M16	2.00	D7	1-13/16	46.06	3-13/16	96.84	4	C54801	C54802	C54803	1123-162007M
M18	1.50	D6	1-13/16	46.04	4-1/32	102.39	4	C54825	C54826	C54827	1123-181506M

Diámetro Milimétrica	Paso	Ajuste	Longitud de Cuerda		Longitud Total		Canales	Cónico	Semi-cónico	Recto	Set
			pulg	mm	pulg	mm					
M18	2.5	D7	1-13/16	46.04	4-1/32	102.39	4	C54833	C54834	C54835	-
M20	1.5	D6	2	50.8	4-15/32	113.51	4	C54856	C54857	C54858	1123-201506M
M20	2.5	D7	2	50.8	4-15/32	113.51	4	C54864	C54865	C54866	1123-202507M
M22	1.5	D6	2-7/32	56.36	4-11/16	119.06	4	C54872	C54873	C54874	1123-221506M
M22	2.5	D7	2-7/32	56.36	4-11/16	119.06	4	C54880	C54881	C54882	-
M24	2	D7	2-7/32	56.36	4-29/32	124.62	4	C54903	C54904	C54905	-
M24	3	D8	2-7/32	56.36	4-29/32	124.62	4	C54907	C54908	C54909	-
M27	2	D7	2-1/2	65.5	5-1/8	130.18	4	C54949	C54950	C54951	-
M27	3	D8	2-1/2	63.5	5-1/8	130.18	4	C54953	C54954	C54955	-
M30	2	D7	2-9/16	65.09	5-7/16	138.11	4	C54982	C54983	C54984	-
M30	3.5	D9	2-9/16	65.09	5-7/16	138.11	4	C54990	C54991	C54992	-
M33	2	D7	2-9/16	65.09	5-3/4	146.05	6	C55015	C55016	C55017	-
M33	3.5	D9	2-9/16	65.09	5-3/4	146.05	4	C55023	C55024	C55025	-
M36	3	D8	3	76.2	6-1/16	153.99	4	C55045	C55046	C55047	-
M36	4	D9	3	76.2	6-1/16	153.99	4	C55049	C55050	C55051	-
M39	3	D8	3-3/16	80.96	6-11/16	169.86	6	C55074	C55075	C55076	-
M39	4	D9	3-3/16	80.96	6-11/16	169.86	6	C55078	C55079	C55080	-

Nota: Set de 3 piezas; un cónico, un semi cónico y un recto.

 Ver página 205 para Información Técnica.

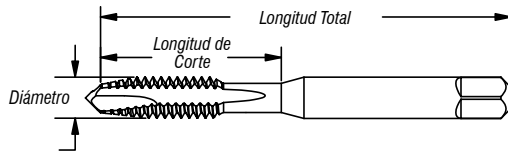
▶ LISTA: 1053 MACHUELO PUNTA ESPIRAL



Aplicaciones



Características



Diámetro Fraccional	Hilos por Pulgada	Ajuste	Longitud de Cuerda		Longitud Total		Canales	Código
			pulg	mm	pulg	mm		
4	NC-40	H2	9/16	14.29	1-7/8	47.63	2	C57324
5	NC-40	H2	5/8	15.88	1-15/16	49.21	2	C57338
6	NC-32	H3	11/16	17.46	2	50.80	2	C57348
8	NC-32	H3	3/4	19.05	2-1/8	53.98	2	C57361
10	NC-24	H3	7/8	22.23	2-3/8	60.33	2	C57373
10	NF-32	H3	7/8	22.23	2-3/8	60.33	2	C57380
12	NC-24	H3	15/16	23.81	2-3/8	60.33	2	C57388
1/4	NC-20	H3	1	25.40	2-1/2	63.50	2	C57406
1/4	NF-28	H3	1	2.40	2-1/2	63.50	2	C57415
5/16	NC-18	H3	1-1/8	28.58	2-23/32	69.06	2	C57428
5/16	NF-24	H3	1-1/8	28.58	2-23/32	69.06	2	C57437
3/8	NC-16	H3	1-1/4	31.75	2-15/16	74.61	3	C57452
3/8	NF-24	H3	1-1/4	31.75	2-15/16	74.61	3	C57458
7/16	NC-14	H3	1-7/16	36.51	3-5/32	80.17	3	C57469
7/16	NF-20	H3	1-4/16	36.51	3-5/32	80.17	3	C57472
1/2	NC-13	H3	1-21/32	42.07	3-3/8	85.73	3	C57492
1/2	NF-20	H3	1-21/32	42.07	3-3/8	85.73	3	C57497
5/8	NC-11	H3	1-13/16	46.04	3-13/16	96.84	3	C57507
3/4	NC-10	H3	2	50.80	4-1/4	107.95	3	C57523

USO GENERAL

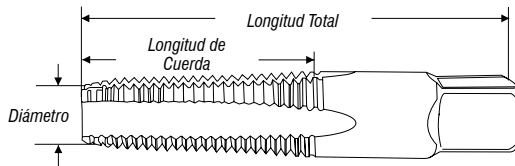
► LISTA: 965B MACHUELO NPT



Aplicaciones



Características



Diámetro Fraccional	Hilos por Pulgada	Diámetro de Zanco		Longitud de Cuerda		Longitud Total		Canales	Código
		pulg	mm	pulg	mm	pulg	mm		
1/16	27	.3125	7.94	11/16	17.46	2-1/8	53.98	4	C64036
1/8*	27	.3125	7.94	3/4	19.05	2-1/8	53.98	4	C64037
1/8	27	.4375	11.11	3/4	19.05	2-1/8	53.98	4	C64038
1/4	18	.5625	14.29	1-1/16	26.99	2-7/16	61.91	4	C64039
3/8	18	.7000	17.78	1-1/16	26.99	2-9/16	65.09	4	C64040
1/2	14	.6875	17.46	1-3/8	34.93	3-1/8	79.38	4	C64041
3/4	14	.9063	23.02	1-3/8	34.93	3-1/4	82.55	5	C64042
1	11-1/2	1.1250	28.58	1-3/4	44.45	3-3/4	95.25	5	C64043
1-1/4	11-1/2	1.3125	33.34	1-3/4	44.45	4	101.60	5	C64044
1-1/2	11-1/2	1.5000	38.10	1-3/4	44.45	4-1/4	107.95	7	C64045
2	11-1/2	1.8750	47.63	1-3/4	44.45	4-1/2	114.30	7	C64046

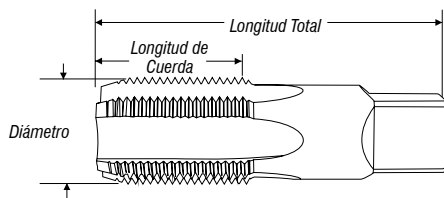
*Zanco Corto

► LISTA: 963B MACHUELO NPS

Aplicaciones



Características



Diámetro Fraccional	Hilos por Pulgada	Diámetro de Zanco		Longitud de Cuerda		Longitud Total		Canales	Código
		pulg	mm	pulg	mm	pulg	mm		
1/8*	27	.3125	7.94	3/4	19.05	2-1/8	53.98	4	C64115
1/8	27	.4375	11.11	3/4	19.05	2-1/8	53.98	4	C64116
1/4	18	.5625	14.29	1-1/16	26.99	2-7/16	63.91	4	C64117
3/8	18	.7000	17.78	1-1/16	26.99	2-9/16	65.09	4	C64118
1/2	14	.6875	17.46	1-3/8	34.93	3-1/8	79.38	4	C64119
3/4	14	.9063	23.02	1-3/8	34.93	3-1/4	82.55	5	C64120
1	11-1/2	1.1250	28.58	1-3/4	44.45	3-3/4	95.25	5	C64121

*Zanco Corto

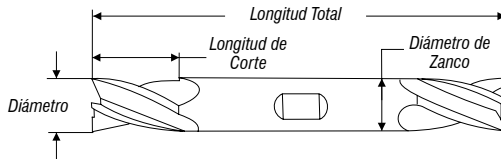
▶ LISTA: 582 CORTADOR CON DOBLE EXTREMO DE CORTE



Aplicaciones



Características



Diámetro Fraccional	Diámetro de Zanco		Longitud de Corte		Longitud Total		Canales	Código
	pulg	mm	pulg	mm	pulg	mm		
1/8	3/8	9.53	3/8	9.53	3-1/16	77.79	4	C41202
5/32	3/8	9.53	7/16	11.11	3-1/8	79.38	4	C33029
3/16	3/8	9.53	1/2	12.70	3-1/4	82.55	4	C41204
7/32	3/8	9.53	9/16	14.29	3-1/4	82.55	4	C33032
1/4	3/8	9.53	5/8	15.88	3-3/8	85.73	4	C41207
5/16	3/8	9.53	3/4	19.05	3-1/2	88.90	4	C41209
3/8	3/8	9.53	3/4	19.05	3-1/2	88.90	4	C41212
7/16	1/2	12.70	1	25.40	4-1/2	114.30	4	C33043
1/2	1/2	12.70	1	25.40	4-1/8	104.78	4	C41216
5/8	5/8	15.88	1-3/8	34.93	5	127.00	4	C41219
11/16	3/4	19.05	1-5/8	41.28	5-5/8	142.88	4	C33051
1	1	25.40	1-7/8	47.63	6-3/8	161.93	4	C41231

Ver página 199 para Información Técnica.

USO GENERAL

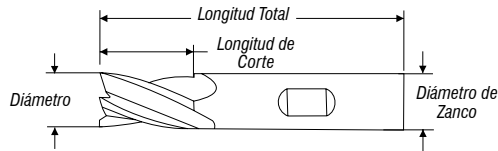
► LISTA: 556, 557 & 558 CORTADOR RECTO AL COBALTO



Aplicaciones



Características



Diámetro	Diámetro de Zanco		Longitud de Corte		Longitud Total		Canales	Código
	pulg	mm	pulg	mm	pulg	mm		
1/8	3/8	9.53	3/8	9.53	2-5/16	58.74	4	C42684
5/32	3/8	9.53	1/2	12.70	2-3/8	60.33	4	C32556
3/16	3/8	9.53	1/2	12.70	2-3/8	60.33	4	C42686
1/4	3/8	9.53	5/8	15.88	2-7/16	61.91	4	C42689
1/4	3/8	9.53	1-1/4	31.75	3-1/16	77.79	4	C32646
1/4	3/8	9.53	1-3/4	44.45	3-9/16	90.49	4	C32691
5/16	3/8	9.53	1-3/8	34.93	3-1/8	79.38	4	C32648
5/16	3/8	9.53	2	50.80	3-1/4	82.55	4	C32693
3/8	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C42694
3/8	3/8	9.53	1-1/2	38.10	3-1/4	82.55	4	C42857
3/8	3/8	9.53	2-1/2	63.50	4-1/4	107.95	4	C42913
7/16	3/8	9.53	1	25.40	2-11/16	68.26	4	C32570
7/16	3/8	9.53	1-3/4	44.45	3-1/4	82.55	4	C32651
1/2	1/2	12.70	1-1/4	31.75	3-1/4	82.55	4	C42699
1/2	1/2	12.70	1-1/4	31.75	3-1/4	82.55	6	C42698
1/2	1/2	12.70	2	50.80	4	101.60	4	C42861
1/2	1/2	12.70	2	50.80	5	127.00	4	C42917
5/8	5/8	15.88	1-5/8	41.28	3-1/4	82.55	4	C42703
5/8	5/8	15.88	2-1/2	63.50	4-5/8	117.48	4	C42864
3/4	3/4	19.05	1-5/8	41.28	3-7/8	98.43	4	C42707
3/4	3/4	19.05	2	50.80	5-1/4	133.35	4	C42868
7/8	7/8	22.23	3-1/2	88.90	5-3/4	146.05	4	C32653
1	1.000	25.40	2	50.80	4-1/2	114.30	4	C42715
1	1.000	25.40	2	50.80	4-1/2	114.30	6	C42714
1	1.000	25.40	4	101.60	6-1/2	165.10	4	C42876
1-1/4	1-1/4	31.75	4	101.60	6-1/2	165.10	4	C42881
1-1/2	1-1/4	31.75	2	50.80	4-1/2	114.30	6	C42726

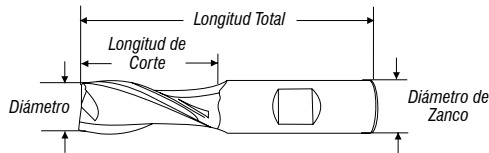
► LISTA: 685 CORTADOR RECTO 2 CANALES



Aplicaciones



Características



Diámetro Fraccional	Diámetro de Zanco		Longitud de Corte		Longitud Total		Código Brillante	Código TiN
	pulg	mm	pulg	mm	pulg	mm		
1/8	3/8	9.53	3/8	9.53	2-5/16	58.74	C41602	-
5/32	3/8	9.53	7/16	11.11	2-3/8	60.33	C33730	-
3/16	3/8	9.53	7/16	11.11	2-3/8	60.33	C41604	C41551
1/4	3/8	9.53	1/2	12.70	2-7/16	61.91	C41607	-
5/16	3/8	9.53	9/16	14.29	2-1/2	63.50	C41609	C41553
3/8	3/8	9.53	9/16	14.29	2-1/2	63.50	C41612	C41554
7/16	3/8	9.53	13/16	20.64	2-11/16	68.26	C41615	-
1/2	3/8	9.53	13/16	20.64	2-11/16	68.26	C41617	-
1/2	1/2	12.70	1	25.40	3-1/4	82.55	C41618	C41555
9/16	1/2	12.70	1-1/8	28.58	3-3/8	85.73	C41620	C33776
5/8	1/2	12.70	1-1/8	28.58	3-3/8	85.73	C41622	-
5/8	5/8	15.88	1-5/16	33.34	3-1/4	82.55	C41623	-
3/4	1/2	12.70	1-5/16	33.34	3-1/4	82.55	C41628	-
3/4	5/8	15.88	1-5/16	33.34	3-3/4	98.43	C41629	-
3/4	3/4	19.05	1-5/16	33.34	3-7/8	92.08	C41630	-
7/8	5/8	15.88	1-1/2	38.10	4-1/8	104.78	C41635	-
7/8	7/8	22.23	1-1/2	38.10	4-1/8	104.78	C41637	-
1	1	25.40	1-5/8	41.28	4-1/2	114.30	C41644	-
1-1/8	1	25.40	1-5/8	41.28	4-1/2	114.30	C41648	-
1-1/4	1	25.40	1-5/8	41.28	4-1/2	114.30	C41651	-
1-3/8	1	25.40	1-5/8	41.28	4-1/2	114.30	C41655	-
1-1/2	1	25.40	1-5/8	41.28	4-1/2	114.30	C41659	-
1-3/4	1-1/4	31.75	1-5/8	41.28	4-1/2	114.30	C41662	-
2	1-1/4	31.75	1-5/8	41.28	4-1/2	114.30	C41665	-

USO GENERAL

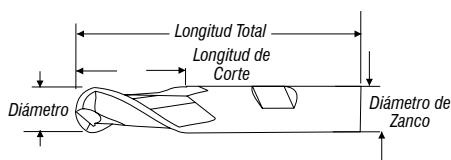
▶ LISTA: 690 CORTADOR BOLA 2 CANALES



Aplicaciones



Características



Diámetro Fraccional	Diámetro de Zanco		Longitud de Corte		Longitud Total		Código Brillante	Código TiN
	pulg	mm	pulg	mm	pulg	mm		
1/8	3/8	9.53	3/8	9.53	2-5/16	58.74	C42109	C39010
3/16	3/8	9.53	1/2	12.70	2-3/8	60.33	C42111	C39011
1/4	3/8	9.53	5/8	15.88	2-7/16	61.91	C42114	C39012
5/16	3/8	9.53	3/4	19.05	2-1/4	63.50	C42116	C39013
3/8	3/8	9.53	3/4	19.05	2-1/2	63.50	C42119	C39014
7/16	1/2	12.70	1	25.40	3-1/4	82.55	C42122	C39015
1/2	1/2	12.70	1	25.40	3-1/4	82.55	C42124	C39016
9/16	1/2	12.70	1-1/8	28.58	3-3/8	85.73	C42126	C39017
5/8	1/2	12.70	1-1/8	28.58	3-3/8	85.73	C42128	C39018
5/8	5/8	15.88	1-3/8	28.58	3-1/4	82.55	C42129	C39019
3/4	1/2	12.70	1-5/16	33.34	3-5/8	92.08	C42132	C39020
3/4	3/4	19.05	1-5/8	41.28	3-7/8	98.43	C42133	C39021
7/8	7/8	22.23	2	50.80	4-1/4	107.95	C42137	C39022
1	1	25.40	2-1/4	57.15	4-1/2	114.30	C42141	C39023
1-1/8	1	25.40	2-1/4	57.15	4-1/2	114.30	C42144	C39024
1-1/4	1-1/4	31.75	2-1/4	63.50	4-1/2	114.30	C42146	C39025
1-1/2	1-1/4	31.75	2-1/4	63.50	4-1/2	114.30	C42152	C39026

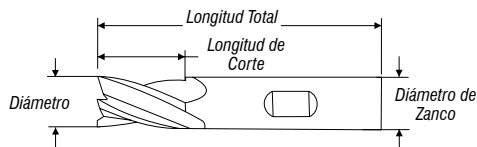
▶ LISTA: 583 CORTADOR RECTO



Aplicaciones



Características



Diámetro Fraccional	Diámetro de Zanco		Longitud de Corte		Longitud Total		Canales	Código Brillante	Código TiN
	pulg	mm	pulg	mm	pulg	mm			
1/8	3/8	9.53	3/8	9.53	2-5/16	58.74	4	C41243	C41520
9/64	3/8	9.53	1/2	12.70	2-5/16	58.74	4	C33141	C33188
5/32	3/8	9.53	1/2	12.70	2-3/8	60.33	4	C33142	C33189
11/64	3/8	9.53	1/2	12.70	2-3/8	60.33	4	C33143	C33190
3/16	3/8	9.53	1/2	12.70	2-3/8	60.33	4	C41245	C41521
3/16	3/8	9.53	1-1/4	31.75	3-1/16	77.79	4	C33371	C33384
13/64	3/8	9.53	5/8	15.88	2-7/16	61.91	4	C33144	C33191
7/32	3/8	9.53	5/8	15.88	2-7/16	61.91	4	C33145	C33192
15/64	3/8	9.53	5/8	15.88	2-7/16	61.91	4	C33146	C33193
1/4	3/8	9.53	5/8	15.88	2-7/16	61.91	4	C41248	C41522
17/64	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C33147	C33194
9/32	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C33148	C33195
19/64	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C33149	C33196
5/16	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C41250	C41523
5/16	3/8	9.53	1-3/8	34.03	3-1/8	79.38	4	C41328	C33388
21/64	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C33150	C33197
11/32	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C33151	C33198
23/64	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C33152	C33199
3/8	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C41253	C41524
3/8	3/8	9.53	1-1/2	38.10	3-1/4	82.55	4	C41331	C33390
25/64	3/8	9.53	1	25.40	2-11/16	68.26	4	C33153	C33200
13/32	3/8	9.53	1	25.40	2-11/16	68.26	4	C33154	C33201
7/16	1/2	12.7	1	25.40	2-11/16	68.26	4	C41254	C33203
29/64	1/2	12.7	1-1/4	31.75	3-1/4	82.55	4	C33157	C33204
15/32	1/2	12.7	1-1/4	31.75	3-1/4	82.55	4	C33158	C33205
31/64	3/8	9.53	1-1/4	31.75	3-1/4	82.55	4	C33159	C33206
1/2	3/8	9.53	1	25.40	2-11/16	68.28	4	C33160	C33207
1/2	1/2	12.7	1-1/4	31.75	3-1/4	88.55	4	C41257	C41525
1/2	1/2	9.53	2	50.80	4	101.60	4	C41335	C33394
17/32	1/2	12.7	1-3/8	34.93	3-3/8	85.73	4	C33161	C33208
9/16	1/2	12.7	1-3/8	34.93	3-3/8	85.73	4	C33162	C33209
19/32	1/2	12.7	1-3/8	34.93	3-3/8	85.73	4	C33163	C33210
5/8	1/2	12.7	1-3/8	34.93	3-3/8	85.73	4	C33164	C33211
5/8	5/8	15.88	1-5/8	41.28	3-3/4	95.25	4	C41260	C41526
21/32	5/8	15.88	1-5/8	41.28	3-3/4	95.25	4	C33165	C33212
11/16	5/8	15.88	1-5/8	41.28	3-5/8	85.73	4	C33166	C33213
11/16	5/8	15.88	1-5/8	41.28	3-3/4	95.25	4	C41262	C33214
23/32	3/4	19.05	1-5/8	41.28	3-7/8	98.43	4	C33167	C33215
3/4	1/2	12.7	1-5/8	41.28	3-5/8	85.73	4	C33168	C33216
3/4	5/8	15.88	1-5/8	41.28	3-3/4	95.25	4	C33169	C33217
3/4	3/4	19.05	1-5/8	41.28	3-7/8	98.43	4	C41264	C41527
25/32	3/4	19.05	1-7/8	47.63	4-1/8	104.78	4	C33170	C33218
13/16	5/8	15.88	1-7/8	47.63	4	101.60	4	C33171	C33219
27/32	7/8	22.23	1-7/8	47.63	4-1/8	104.78	4	C33172	C33220

USO GENERAL



Diámetro Fraccional	Diámetro de Zanco		Longitud de Corte		Longitud Total		Canales	Código Brillante	Código TiN
	pulg	mm	pulg	mm	pulg	mm			
7/8	5/8	15.88	1-7/8	47.63	4	101.60	4	C33173	C33221
7/8	3/4	19.05	1-7/8	47.63	4-1/8	104.78	4	C33174	C33222
7/8	7/8	22.23	1-7/8	47.63	4-1/8	104.78	4	C41268	C33223
29/32	7/8	22.23	1-7/8	47.63	4-1/8	104.78	4	C33175	C33224
15/16	7/8	22.23	1-7/8	47.63	4-1/8	104.78	4	C33176	C33225
31/32	1	25.40	2	50.80	4-1/2	114.30	4	C33177	C33226
1	5/8	15.88	1-7/8	47.63	4	101.60	4	C33178	C33227
1	3/4	19.05	1-7/8	47.63	4-1/8	104.78	4	C33179	C33228
1	7/8	22.23	1-7/8	47.63	4-1/8	104.78	4	C33180	C33229
1	1	25.40	2	50.80	4-1/2	114.30	4	C41272	C41528
1	1	25.40	4	101.60	6-1/2	165.10	4	C41349	C33398
1-1/8	7/8	22.23	2	50.80	4-1/2	114.30	4	C33181	C33230
1-1/8	1	25.40	2	50.80	4-1/2	114.30	4	C41275	C33231
1-1/4	7/8	22.23	2	50.80	4-1/2	114.30	4	C33182	C33232
1-1/4	1	25.40	2	50.80	4-1/2	114.30	4	C33183	C33233
1-1/4	1-1/4	31.75	2	50.80	4-1/2	114.30	4	C41277	C33234
1-3/8	1	25.40	2	50.80	4-1/2	114.30	4	C33184	C33235
1-1/2	1	25.40	2	50.80	4-1/2	114.30	6	C33185	C33236
1-1/2	1-1/4	31.75	2	50.80	4-1/2	114.30	4	C41283	C33237
1-3/4	1-1/4	31.75	2	50.80	4-1/2	114.30	6	C33186	C33238
2	1-1/4	31.75	2	50.80	4-1/2	114.30	8	C33187	C33239

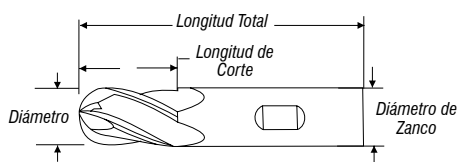
▶ LISTA: 584 CORTADOR BOLA 4 CANALES



Aplicaciones



Características



Diámetro Fraccional	Diámetro de Zanco		Longitud de Corte		Longitud Total		Canales	Código Brillante	Código TiN
	pulg	mm	pulg	mm	pulg	mm			
1/4	3/8	9.53	5/8	15.88	2-7/16	61.91	4	C33301	C33303
5/16	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C33302	C33304
3/8	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C41289	C33305
1/2	1/2	12.70	1-1/4	31.75	3-1/4	82.55	4	C41293	C33306
5/8	5/8	15.88	2-1/2	63.50	3-3/4	117.48	4	C41297	C33307
3/4	3/4	19.05	1-5/8	41.28	3-7/8	98.43	4	C41300	-
7/8	7/8	22.23	1-7/8	47.63	4-1/8	104.78	4	C41304	-
1	1	25.40	2	50.80	4-1/2	114.30	4	C41308	-

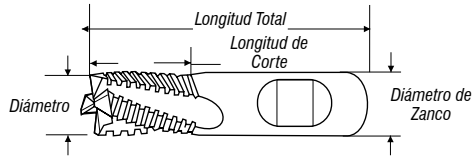
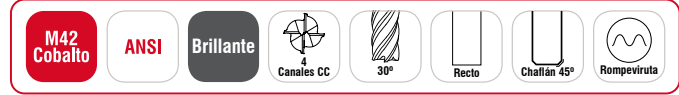
▶ LISTA: 506 CORTADOR ROUGHER



Aplicaciones



Características



Diámetro	Diámetro de Zanco		Longitud de Corte		Longitud Total		Canales	Código
	pulg	mm	pulg	mm	pulg	mm		
3/16	3/8	9.53	1/2	12.70	2-3/8	60.33	4	C30709
1/4	3/8	9.53	5/8	15.88	2-7/16	61.91	4	C31174
1/4	3/8	9.53	1-1/4	31.75	3-1/8	79.38	4	C31175
5/16	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C31176
3/8	3/8	9.53	3/8	9.53	2-5/32	54.77	4	C31177
3/8	3/8	9.53	3/4	19.05	2-1/2	63.50	4	C31178
7/16	1/2	12.70	1-1/4	31.75	3-1/4	82.55	4	C30710
1/2	1/2	12.70	1/2	12.70	2-1/2	63.50	4	C31180
1/2	1/2	12.70	1-1/4	31.75	3-1/2	82.55	4	C31181
1/2	1/2	12.70	2	50.80	4	101.60	4	C31182
3/4	3/4	19.05	3/4	19.05	2-7/8	73.03	4	C31193
3/4	3/4	19.05	1-5/8	41.28	3-7/8	98.43	4	C31194

USO GENERAL

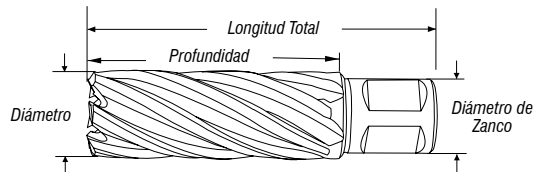
▶ LISTA: 8400 CORTADOR ANULAR HSS



Aplicaciones



Características

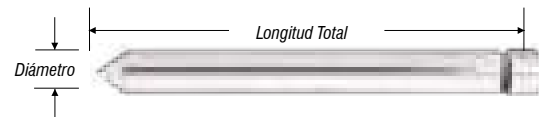


Fraccional	Diámetro		Diámetro de Zanco		Profundidad	
	Milimétrica	Pulgadas	pulg	mm	1-1/4"	2-1/4"
1/2	12.70	0.5000	3/4	19.05	C84001	C84002
	13	0.5118	3/4	19.05	C850313	C850513
	14	0.5512	3/4	19.05	C850314	C850514
9/16	14.29	0.5625	3/4	19.05	C84003	C84004
	15	0.5906	3/4	19.05	C850315	C850515
5/8	15.88	0.6250	3/4	19.05	C84005	C84006
	16	0.6299	3/4	19.05	C850316	C850516
	17	0.6693	3/4	19.05	C850317	C850517
11/16	17.46	0.6875	3/4	19.05	C84007	C84008
	18	0.7087	3/4	19.05	C850318	C850518
	19	0.7480	3/4	19.05	C850319	C850519
3/4	19.05	0.7500	3/4	19.05	C84009	C84010
	20	0.7874	3/4	19.05	C850320	C850520
13/16	20.64	0.8125	3/4	19.05	C84011	C84012
	21	0.8268	3/4	19.05	C850321	C850521
	22	0.8661	3/4	19.05	C850322	C850522
7/8	22.23	0.8750	3/4	19.05	C84013	C84014
	23	0.9055	3/4	19.05	C850323	C850523
15/16	23.81	0.9375	3/4	19.05	C84015	C84016
	24	0.9449	3/4	19.05	C850324	C850524
	25	0.9843	3/4	19.05	C850325	C850525
1	25.40	1.0000	3/4	19.05	C84017	C84018
	26	1.0236	3/4	19.05	C850326	C850526
1-1/16	26.99	1.0625	3/4	19.05	C84019	C84020
	27	1.0630	3/4	19.05	C850327	C850527
	28	1.1024	3/4	19.05	C850328	C850528
1-1/8	28.58	1.1250	3/4	19.05	C84021	C84022
	29	1.1417	3/4	19.05	C850329	C850529
	30	1.1811	3/4	19.05	C850330	C850530
1-3/16	30.16	1.1875	3/4	19.05	C84023	C84024
	31	1.2205	3/4	19.05	C850331	C850531
1-1/4	31.75	1.2500	3/4	19.05	C84025	C84026
	32	1.2598	3/4	19.05	C850332	C850532
	33	1.2992	3/4	19.05	C850333	C850533
1-5/16	33.34	1.3125	3/4	19.05	-	C84027
	34	1.3386	3/4	19.05	C850334	C850534
1-3/8	34.93	1.3750	3/4	19.05	-	C84028
	35	1.3780	3/4	19.05	C850335	C850535
	36	1.4173	3/4	19.05	C850336	C850536
	37	1.4567	3/4	19.05	C850337	C850537
	38	1.4961	3/4	19.05	C850338	C850538
1-1/2	38.10	1.5000	3/4	19.05	C84029	C84030
1-9/16	38.69	1.5625	3/4	19.05	-	C84031
	39	1.5354	3/4	19.05	C850339	C850539



Fraccional	Diámetro		Diámetro de Zanco		Profundidad	
	Milimétrica	Pulgadas	pulg	mm	1-1/4"	2-1/4"
	40	1.5748	3/4	19.05	C850340	C850540
	41	1.6142	3/4	19.05	C850341	C850541
1-5/8	41.28	1.6250	3/4	19.05	C84032	C84033
	42	1.6535	3/4	19.05	C850342	C850542
1-11/16	42.86	1.6875	3/4	19.05	-	C84034
	43	1.6929	3/4	19.05	C850343	C850543
	44	1.7323	3/4	19.05	C850344	C850544
1-3/4	44.45	1.7500	3/4	19.05	-	C84035
	45	1.7717	3/4	19.05	C850345	C850545
	46	1.8110	3/4	19.05	C850346	C850546
1-13/16	46.04	1.8125	3/4	19.05	C84036	C84037
	47	1.8504	3/4	19.05	C850347	C850547
1-7/8	47.63	1.8750	3/4	19.05	-	C84038
	48	1.8898	3/4	19.05	C850348	C850548
	49	1.9291	3/4	19.05	C850349	C850549
	50	1.9685	3/4	19.05	C850350	C850550
2	50.80	2.0000	3/4	19.05	C84039	C84040
	51	2.0079	3/4	19.05	C850351	C850551
	52	2.0472	3/4	19.05	C850352	C850552
	53	2.0866	3/4	19.05	C850353	C850553
2-1/8	53.98	2.1250	3/4	19.05	-	C84067
	54	2.1260	3/4	19.05	C850354	C850554
	55	2.1654	3/4	19.05	C850355	C850555
	56	2.2047	3/4	19.05	C850356	C850556
	57	2.2441	3/4	19.05	C850357	C850557
2-1/4	57.15	2.2500	3/4	19.05	-	C84065
	58	2.2835	3/4	19.05	C850358	C850558
	59	2.3228	3/4	19.05	C850359	C850559
	60	2.3622	3/4	19.05	C850360	C850560
2-3/8	60.33	2.3750	1-1/4	31.75	-	C84069
2-7/16	61.91	2.4375	1-1/4	31.75	-	C84071
2-1/2	63.50	2.5000	1-1/4	31.75	C84072	C84073

▶ **PILOT PIN**



Diámetro de Cortador	Diámetro		Longitud Total	Profundidad de cortador	
	mm	mm		1-1/4"	2-1/4"
12 a 65 mm (1/2" a 2-3/8")	6.34	77	C84060	-	
12 a 65 mm (1/2" a 2-3/8")	6.34	103	-	C84062	
2-3/8" a 2-1/2"	7.98	90	C84063	-	
2-3/8" a 2-1/2"	7.98	103	-	C84064	

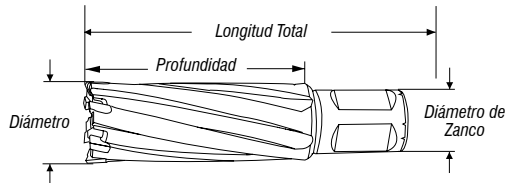
▶ LISTA: 8440 CORTADOR ANULAR CON PLAQUITA DE CARBURO



Aplicaciones



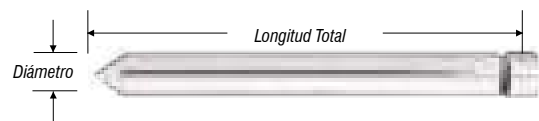
Características



Fraccional	Diámetro		Diámetro de Zanco		Profundidad	
	Milimétrica	Pulgadas	pulg	mm	1-1/4"	2-1/4"
1/2	12.70	0.5000	3/4	19.05	C84401	C84402
	14	0.5512	3/4	19.05	C854314	C854514
9/16	14.29	0.5625	3/4	19.05	C84403	C84404
	15	0.5906	3/4	19.05	C854315	C854515
5/8	15.88	0.6250	3/4	19.05	C84405	C84406
	16	0.6299	3/4	19.05	C854316	C854516
	17	0.6693	3/4	19.05	C854317	C854517
11/16	17.46	0.6875	3/4	19.05	C84407	C84408
	18	0.7087	3/4	19.05	C854318	C854518
	19	0.7480	3/4	19.05	C854319	C854519
3/4	19.05	0.7500	3/4	19.05	C84409	C84410
	20	0.7874	3/4	19.05	C854320	C854520
13/16	20.64	0.8125	3/4	19.05	C84411	C84412
	21	0.8268	3/4	19.05	C854321	C854521
	22	0.8661	3/4	19.05	C854322	C854522
7/8	22.23	0.8750	3/4	19.05	C84413	C84414
	23	0.9055	3/4	19.05	C854323	C854523
15/16	23.81	0.9375	3/4	19.05	C84415	C84416
	24	0.9449	3/4	19.05	C854324	C854524
	25	0.9843	3/4	19.05	C854325	C854525
1	25.40	1.0000	3/4	19.05	C84417	C84418
	26	1.0236	3/4	19.05	C854326	C854526
1-1/16	26.99	1.0625	3/4	19.05	C84419	C84420
	27	1.0630	3/4	19.05	C854327	C854527
	28	1.1024	3/4	19.05	C854328	C854528
1-1/8	28.58	1.1250	3/4	19.05	C84421	C84422
	29	1.1417	3/4	19.05	C854329	C854529
	30	1.1811	3/4	19.05	C854330	C854530
1-3/16	30.16	1.1875	3/4	19.05	C84423	C84424
	31	1.2205	3/4	19.05	C854331	C854531
1-1/4	31.75	1.2500	3/4	19.05	C84425	C84426
	32	1.2598	3/4	19.05	C854332	C854532
	33	1.2992	3/4	19.05	C854333	C854533
1-5/16	33.34	1.3125	3/4	19.05	C84443	C84427
	34	1.3386	3/4	19.05	C854334	C854534
1-3/8	34.93	1.3750	3/4	19.05	C84444	C84428
	35	1.3780	3/4	19.05	C854335	C854535
	36	1.4173	3/4	19.05	C854336	C854536
	37	1.4567	3/4	19.05	C854337	C854537
	38	1.4961	3/4	19.05	C854338	C854538
1-1/2	38.10	1.5000	3/4	19.05	C84429	C84430
1-9/16	38.69	1.5625	3/4	19.05	C84447	C84431
	39	1.5354	3/4	19.05	C854339	C854539
	40	1.5748	3/4	19.05	C854340	C854540

Fraccional	Diámetro		Diámetro de Zanco		Profundidad	
	Milimétrica	Pulgadas	pulg	mm	1-1/4"	2-1/4"
	41	1.6142	3/4	19.05	C854341	C854541
1-5/8	41.28	1.6250	3/4	19.05	C84432	C84433
	42	1.6535	3/4	19.05	C854342	C854542
1-11/16	42.86	1.6875	3/4	19.05	C84448	C84434
	43	1.6929	3/4	19.05	C854343	C854543
	44	1.7323	3/4	19.05	C854344	C854544
1-3/4	44.45	1.7500	3/4	19.05	C84449	C84435
	45	1.7717	3/4	19.05	C854345	C854545
	46	1.8110	3/4	19.05	C854346	C854546
1-13/16	46.04	1.8125	3/4	19.05	C84436	C84437
	47	1.8504	3/4	19.05	C854347	C854547
1-7/8	47.63	1.8750	3/4	19.05	C84450	C84438
	48	1.8898	3/4	19.05	C854348	C854548
	49	1.9291	3/4	19.05	C854349	C854549
	50	1.9685	3/4	19.05	C854350	C854550
2	50.80	2.0000	3/4	19.05	C84439	C84440
	51	2.0079	3/4	19.05	-	C854551
	52	2.0472	3/4	19.05	-	C854552
2-1/16	52.39	2.0625	3/4	19.05	-	C84454
	53	2.0866	3/4	19.05	-	C854553
2-1/8	53.98	2.1250	3/4	19.05	-	C84456
	54	2.1260	3/4	19.05	-	C854554
	55	2.1654	3/4	19.05	-	C854555
2-3/16	55.56	2.1875	3/4	19.05	-	C84458
	56	2.2047	3/4	19.05	-	C854556
	57	2.2441	3/4	19.05	-	C854557
2-1/4	57.15	2.2500	3/4	19.05	-	C84460
	58	2.2835	3/4	19.05	-	C854558
2-5/16	58.74	2.3125	3/4	19.05	-	C84462
	59	2.3228	3/4	19.05	-	C854559
	60	2.3622	3/4	19.05	-	C854560
2-3/8	60.33	2.3750	1-1/4	31.75	-	C84464
2-1/2	63.50	2.5000	1-1/4	31.75	-	C84468

▶ **PILOT PIN**



Diámetro de Cortador	Diámetro		Longitud Total	Profundidad de cortador	
	mm	mm		1-1/4"	2-1/4"
14 a 16 mm (9/16" a 5/8")	6.34	90	C84061	-	
14 a 16 mm (9/16" a 5/8")	6.34	103	-	C84062	
17 a 60 mm (11/16" a 2-1/2")	7.98	90	C84063	-	
17 a 60 mm (11/16" a 2-1/2")	7.98	103	-	C84064	

▶ LISTA: 850 & 855 BURIL CUADRADO MO-MAX



Aplicaciones



Mo-Max HSS



Mo-Max Cobalto

Características



Mo-Max HSS



Mo-Max Cobalto

Ancho		Longitud Total		Mo-Max Hss	Mo-Max Cobalto
Pulgadas	pulg	mm	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°.

▶ LISTA-3510 & 3515 BURIL EXTRA LARGO MO-MAX



Aplicaciones



Características



Mo-Max HSS



Mo-Max Cobalto

Ancho Pulgadas	Longitud Total		Mo-Max Hss	Mo-Max Cobalto
	pulg	mm		
3/16	3	76.20	-	3515-018730
3/16	4	101.60	3510-018740	-
3/16	6	152.40	-	3515-018760
1/4	3	76.20	3510-025030	3515-025030
1/4	4	101.60	3510-025040	3515-025040
1/4	6	152.40	3510-025060	-
1/4	8	203.20	3510-025080	3515-025080
5/16	3	76.20	3510-031230	-
5/16	4	101.60	3510-031240	3515-031240
5/16	6	152.40	3510-031260	-
5/16	8	203.20	3510-031280	3515-031280
3/8	4	101.60	3510-037540	3515-037540
3/8	6	152.40	3510-037560	3515-037560
3/8	8	203.20	3510-037580	3515-037580
7/16	6	152.40	3510-043760	-
1/2	6	152.40	3510-050060	3515-050060
1/2	8	203.20	3510-050080	3515-050080
5/8	6	152.40	3510-062560	3515-062560
5/8	8	203.20	3510-062580	3515-062580
3/4	8	203.20	-	3515-075080

Ancho Milímetros	Longitud Total		Mo-Max Hss	Mo-Max Cobalto
	pulg	mm		
10.00	8.874	200.00	3510-1010200	3515-1010200
12.00	8.874	200.00	3510-1212200	3515-1212200

USO GENERAL

▶ LISTA: 853 & 858

CUCHILLA DE TRONZADO
PARA PORTA CUCHILLA
ARMSTRONG Y WILLIAMS



Aplicaciones



Mo-Max HSS



Mo-Max Cobalto

Características



Mo-Max HSS



Mo-Max Cobalto

Ancho		Altura		Longitud Total		Mo-Max Hss	Mo-Max Cobalto
Pulgadas	pulg	mm	pulg	mm			
5/64	1/2	12.70	4-1/2	114.30	C44738	-	
3/32	1/2	12.70	4-1/2	114.30	C44740	C44741	
3/32	5/8	15.88	5	127.00	C44742	C44743	
1/8	3/4	19.05	5	127.00	C44744	C44745	
1/8	7/8	22.23	6	152.40	C44746	C44747	
3/16	1	25.40	6-1/2	165.10	C44748	C44749	
3/16	1-1/8	28.58	7	117.80	C44750	C44751	
1/4	1-1/4	31.75	7	117.80	C44754	-	
1/4	1-3/8	39.93	7	117.80	-	C44757	

▶ LISTA: 852 & 857

CUCHILLA DE TRONZADO



Mo-Max HSS



Mo-Max Cobalto

Ancho		Altura		Longitud Total		Mo-Max Hss	Mo-Max Cobalto
Pulgadas	pulg	mm	pulg	mm			
1/16	1/2	12.70	4-1/2	114.30	C44701	C44702	
3/32	1/2	12.70	4-1/2	114.30	C44707	C44708	
3/32	11/16	17.46	5	127.00	-	C44710	
1/8	11/16	17.46	5	127.00	-	C44716	
1/8	13/16	20.64	6	152.40	C44717	C44718	
1/8	1	25.40	6-1/2	165.10	C44719	C44720	
3/16	13/16	20.64	6	152.40	C44723	-	
3/16	1	25.40	6-1/2	165.10	C44725	C44726	

Mo-Max Cobalto



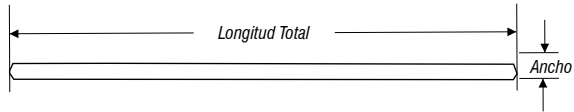
▶ LISTA: 3558 BURIL REDONDO



Aplicaciones



Características



Ancho Pulgadas	Longitud Total		Código
	pulg	mm	
1/16	4	101.60	3558-0062
1/8	4	101.60	3558-0125
5/32	4	101.60	3558-0156
3/16	4	101.60	3558-0187
1/4	4	101.60	3558-0250
5/16	4	101.60	3558-0312
3/8	4	101.60	3558-0375
7/16	4	101.60	3558-0437
1/2	4	101.60	3558-0500

USO GENERAL

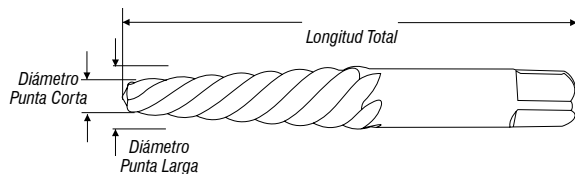
▶ LISTA: 192 EXTRACTOR DE TORNILLOS



Aplicaciones



Características



Número	Punta Corta		Punta Larga		Longitud Total		Medida de Tornillo	Díametro Broca Recomendada	Código
	pulg	mm	pulg	mm	pulg	mm		pulg	
1	0.054	1.37	0.156	3.97	2	50.80	3/16 a 1/4	5/64	C53651
2	0.080	2.03	0.188	4.76	2-3/8	60.33	1/4 a 5/16	7/64	C53652
3	0.125	3.18	0.250	6.35	2-11/16	68.26	5/16 a 7/16	5/32	C53653
4	0.188	4.76	0.328	8.33	2-7/8	73.03	7/16 a 9/16	1/4	C53654
5	0.250	6.35	0.438	11.11	3-3/8	85.73	9/16 a 3/4	9/32	C53655
6	0.375	9.53	0.594	15.08	3-3/4	95.25	3/4 a 1	13/32	C53656
7	0.500	12.70	0.750	19.05	4-1/8	104.78	1 a 1-3/8	17/32	C53657
8	0.750	19.05	1.000	25.40	4-3/8	111.13	1-3/8 a 1-3/4	13/16	C53658
9	1.000	25.40	1.281	32.54	4-5/8	117.48	1-3/4 a 2-1/8	1-1/16	C53659
10	1.250	31.75	1.563	39.69	5	127.00	2-1/8 a 2-1/2	1-5/16	C53660

▶ JUEGO DE EXTRACTORES DE TORNILLO

Número	Medida de Tornillo	Código
15	1 al 5	C00906
15-A	1 al 6	C00907
16	6, 7, 8 y 9	C00908



Utilice extractores de tornillos para quitar los tornillos y pernos rotos.

Los extractores de tornillo son especialmente utilizados en los departamentos de mantenimiento, talleres mecánicos y automotrices.

Para extraer un tornillo roto siga el procedimiento:
 -Taladre un agujero en la rotura del tornillo usando el diámetro de broca recomendada en la tabla anterior.
 -Inserte el extractor de tornillos adecuado en el agujero y girelo hacia la izquierda auxiliado con un maneral sobre el cuadro del extractor.

-El extractor se adhiere a la pared del agujero hecho en el tornillo roto y al girarlo, el tornillo sale sin dañar la rosca.

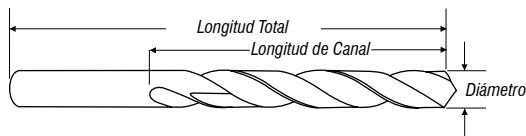
-En algunos casos es recomendable la ayuda de un lubricante para eliminar el óxido o corrosión entre la cuerda y el tornillo roto.



▶ LISTA: 150 BROCA JOBBER



Aplicaciones



Características



USO GENERAL

Fraccional	Diámetro			Longitud Total		Longitud de Canal		Brillante	Óxido al Vapor	TiN
	Númerica	Milimétrica	Alfabética	pulg	mm	pulg	mm			
1/64	80			0.750	19.05	0.125	3.18	-	44150	-
	79			0.750	19.05	0.125	3.18	-	44149	-
				0.750	19.05	0.187	4.76	-	44001	-
		.40		0.787	20.00	0.197	5.00	47211	-	-
	78			0.875	22.23	0.187	4.76	-	44148	-
	77			0.875	22.23	0.187	4.76	-	44147	70177
		.50		0.866	22.00	0.236	6.00	47213	-	-
	76			0.875	22.23	0.187	4.76	-	44146	-
	75			1.000	25.40	0.250	6.35	-	44145	-
	74			1.000	25.40	0.250	6.35	-	44144	-
1/32		.60		0.945	24.00	0.276	7.00	47215	-	-
	73			1.000	25.40	0.250	6.35	-	44143	70173
	72			1.125	28.58	0.313	7.94	-	44142	70172
	71			1.250	31.75	0.375	9.53	-	44141	-
	70			1.250	31.75	0.375	9.53	-	44140	-
	69			1.375	34.93	0.500	12.70	-	44139	-
	68			1.375	34.93	0.500	12.70	-	44138	-
				1.375	34.93	0.500	12.70	-	44002	70202
	67			1.377	34.93	0.500	12.70	-	44137	-
	66			1.375	34.93	0.500	12.70	-	44136	-
		.85		1.181	30.00	0.394	10.00	47220	-	-
	65			1.500	38.10	0.625	15.88	-	44135	-
		.90		1.181	32.00	0.433	11.00	47221	-	-
	64			1.500	38.10	0.625	15.88	-	44134	-
	63			1.500	38.10	0.625	15.88	-	44133	-
		.95		1.260	32.00	0.433	11.00	47222	-	-
	62			1.500	38.10	0.625	15.88	-	44132	-
	61			1.625	41.28	0.688	17.46	-	44131	-
		1.00		1.339	34.00	0.472	12.00	-	47223	70331
	60			1.625	41.28	0.688	17.46	-	44130	-
59			1.625	41.28	0.688	17.46	-	44129	-	
58			1.625	41.28	0.688	17.46	-	44128	-	
57			1.750	44.45	0.375	9.53	-	44127	-	
	1.10		1.417	36.00	0.551	14.00	-	47225	-	

Fraccional	Diámetro			Longitud Total		Longitud de Canal		Brillante	Óxido al Vapor	TiN
	Númerica	Milimétrica	Alfabética	pulg	mm	pulg	mm			
		1.15		1.417	36.00	0.551	14.00	-	47226	-
3/64	56			1.750	44.45	0.750	19.05	-	44126	-
				1.750	44.45	0.750	19.05	-	44003	70203
		1.20		1.496	38.00	0.630	16.00	-	47227	-
		1.25		1.496	38.00	0.630	16.00	-	47228	-
		1.30		1.496	38.00	0.630	16.00	-	47229	-
	55			1.875	47.63	0.875	22.23	-	44125	-
	54			1.875	47.63	0.875	22.23	-	44124	70154
		1.45		1.575	40.00	0.709	18.00	-	47232	-
		1.50		1.575	40.00	0.709	18.00	-	47233	70347
	53			1.875	47.63	0.875	22.23	-	44123	70153
1/16		1.55		1.693	43.00	0.787	20.00	-	47234	-
				1.875	47.63	0.875	22.23	-	44004	70204
		1.60		1.693	43.00	0.787	20.00	-	47235	-
	52			1.875	47.63	0.875	22.23	-	44122	-
		1.65		1.693	43.00	0.787	20.00	-	47236	-
		1.70		1.693	43.00	0.787	20.00	-	47237	-
	51			2.000	50.80	1.000	25.40	-	44121	-
	50			2.000	50.80	1.000	25.40	-	44120	-
		1.80		1.811	46.00	0.875	22.00	-	47239	-
		1.85		1.811	46.00	0.875	22.00	-	47240	-
	49			2.000	50.80	1.000	25.40	-	44119	-
		1.90		1.811	46.00	0.875	22.00	-	47241	-
5/64	48			2.000	50.80	1.000	25.40	-	44118	-
				2.000	50.80	1.000	25.40	-	44005	70205
	47			2.000	50.80	1.000	25.40	-	44117	-
		2.00		1.929	49.00	0.945	24.00	-	47243	70332
		2.05		1.929	49.00	0.945	24.00	-	47244	-
	46			2.125	53.98	1.125	28.58	-	44116	-
	45			2.125	53.98	1.125	28.58	-	44115	-
		2.10		1.929	49.00	0.945	24.00	-	47245	-
		2.15		2.087	53.00	1.063	27.00	-	47246	-
	44			2.125	53.98	1.125	28.58	-	44114	-
		2.20		2.087	53.00	1.063	27.00	-	47247	-
		2.25		2.087	53.00	1.063	27.00	-	47248	-
	43			2.250	57.15	1.250	31.75	-	44113	-
		2.30		2.087	53.00	1.063	27.00	-	47249	70368
		2.35		2.087	53.00	1.063	27.00	-	47250	-
3/32	42			2.250	57.15	1.250	31.75	-	44112	-
				2.250	57.15	1.250	31.75	-	44006	70206
		2.40		2.244	57.00	1.181	30.30	-	47251	-
	41			2.375	60.33	1.375	34.93	-	44111	-
	40			2.375	60.33	1.375	34.93	-	44110	-
		2.50		2.244	57.00	1.181	30.00	-	47253	70369
	39			2.375	60.33	1.375	34.93	-	44109	-
	38			2.500	63.50	1.437	36.51	-	44108	70138
		2.60		2.244	57.00	1.181	33.00	-	47254	-
	37			2.500	63.50	1.437	36.51	-	44107	-
		2.70		2.402	61.00	1.299	33.00	-	47255	-
7/64	36			2.500	63.50	1.437	36.51	-	44106	-
				2.625	66.68	1.500	38.10	-	44007	70207
	35			2.625	66.67	1.500	38.10	-	44105	-
		2.80		2.402	61.00	1.299	33.00	-	47257	70370
	34			2.625	66.67	1.500	38.10	-	44104	70134
	33			2.625	66.67	1.500	38.10	-	44103	-
		2.90		2.402	61.00	1.299	33.00	-	47258	70371
	32			2.750	69.85	1.625	41.28	-	44102	-
		3.00		2.402	61.00	1.417	36.00	-	47259	70333
	31			2.750	69.85	1.625	41.28	-	44101	-
1/8		3.10		2.559	65.00	1.417	36.00	-	47260	-
				2.750	69.85	1.625	41.25	-	44008	70208
		3.20		2.559	65.00	1.417	36.00	-	47261	70373
	30			2.750	69.85	1.625	41.28	-	44100	-

Fraccional	Diámetro		Alfabetica	Longitud Total		Longitud de Canal		Brillante	Óxido al Vapor	TiN
	Númerica	Milimétrica		pulg	mm	pulg	mm			
		3.30		2.559	65.00	1.535	39.00	-	47263	70374
		3.40		2.756	70.00	1.535	39.00	-	47264	-
	29			2.875	73.03	1.750	44.45	-	44099	-
		3.50		2.756	70.00	1.535	39.00	-	47265	70376
	28			2.875	73.03	1.750	44.45	-	44098	-
9/64				2.875	73.03	1.750	44.45	-	44009	70209
		3.60		2.756	70.00	1.535	39.00	-	47266	-
	27			3.000	76.20	1.875	47.62	-	44097	70127
		3.70		2.756	70.00	1.693	43.00	-	47267	-
	26			3.000	76.20	1.875	47.62	-	44096	70126
	25			3.000	76.20	1.875	47.62	-	44095	70125
		3.80		2.953	75.00	1.693	43.00	-	47269	-
	24			3.125	79.38	2.000	50.80	-	44094	-
		3.90		2.953	75.00	1.693	43.00	-	47270	-
	23			3.125	79.38	2.000	50.80	-	44093	-
5/32				3.125	79.38	2.000	50.80	-	44010	70210
	22			3.125	79.38	2.000	50.80	-	44092	70122
		4.00		2.953	75.00	1.693	43.00	-	47271	70334
	21			3.500	88.90	2.312	58.74	-	44091	70121
	20			3.250	88.55	2.125	53.98	-	44090	-
		4.10		2.953	75.00	1.693	43.00	-	47272	-
		4.20		2.953	75.00	1.693	43.00	-	47273	70378
	19			3.250	88.55	2.125	53.98	-	44089	-
		4.30		3.150	80.00	1.850	47.00	-	47275	-
	18			3.250	88.55	2.125	53.98	-	44088	-
11/64				3.250	82.55	2.125	53.98	-	44011	70211
	17			3.375	85.73	2.187	55.56	-	44087	-
		4.40		3.150	80.00	1.850	47.00	-	47276	-
	16			3.375	85.73	2.187	55.56	-	44086	-
		4.50		3.150	80.00	1.850	47.00	-	47277	-
	15			3.375	85.73	2.187	55.56	-	44085	70115
		4.60		3.150	80.00	1.850	47.00	-	47278	-
	14			3.750	85.73	2.187	55.56	-	44084	-
	13			3.500	88.90	2.312	55.56	-	44083	-
		4.70		3.150	80.00	1.850	47.00	-	47279	-
3/16				3.500	88.90	2.312	58.74	-	44012	70212
		4.80		3.386	86.00	2.047	52.00	-	47281	-
	12			3.500	88.90	2.312	55.56	-	44082	-
	11			3.500	88.90	2.312	55.56	-	44081	-
		4.90		3.386	86.00	2.047	52.00	-	47282	-
	10			3.625	92.08	2.437	61.91	-	44080	70110
	9			3.625	92.08	2.437	61.91	-	44079	-
		5.00		3.386	86.00	2.047	52.00	-	47283	70335
	8			3.625	92.08	2.437	61.91	-	44078	-
		5.10		3.386	86.00	2.047	52.00	-	47284	-
	7			3.625	92.08	2.437	61.91	-	44077	-
13/64				3.625	92.08	2.437	61.91	-	44013	70213
	6			3.750	95.25	2.500	63.50	-	44076	70106
		5.20		3.386	86.00	2.047	52.00	-	47285	-
	5			3.750	95.25	2.500	63.50	-	44075	-
		5.30		3.386	86.00	2.047	52.00	-	47287	-
	4			3.750	95.25	2.500	63.50	-	44074	70104
		5.40		3.661	93.00	2.244	57.00	-	47288	-
	3			3.750	95.25	2.500	63.50	-	44073	-
		5.50		3.661	93.00	2.244	57.00	-	47289	70381
7/32				3.750	95.25	2.500	63.50	-	44014	70214
	2			3.875	98.43	2.625	66.68	-	44072	70102
	1			3.875	98.43	2.625	66.68	-	44071	-
		5.80		3.661	93.00	2.244	57.00	-	47293	-
		5.90		3.661	93.00	2.244	57.00	-	47294	-
			A	3.875	98.43	2.625	66.68	-	44171	-
15/64				3.875	98.43	2.625	66.68	-	44015	70215
		6.00		3.976	101.00	2.244	57.00	-	47295	70336

Fraccional	Diámetro			Longitud Total		Longitud de Canal		Brillante	Óxido al Vapor	TiN
	Númerica	Milimétrica	Alfabética	pulg	mm	pulg	mm			
			B	4.000	101.60	2.750	69.85	-	44172	-
		6.10		3.976	101.00	2.480	63.00	-	47296	-
			C	4.000	101.60	2.750	69.85	-	44173	-
		6.20		3.976	101.00	2.480	63.00	-	47297	-
			D	4.000	101.60	2.750	69.85	-	44174	-
		6.30		3.976	101.00	2.480	63.00	-	47299	-
1/4			E	4.000	101.60	2.750	69.85	-	44016	70216
		6.40		3.976	101.00	2.480	63.00	-	47300	-
		6.50		3.976	101.00	2.480	63.00	-	47301	70384
			F	4.125	104.78	2.875	73.03	-	44176	-
		6.60		3.976	101.00	2.480	63.00	-	47302	-
			G	4.125	104.78	2.875	73.03	-	44177	-
		6.70		3.976	109.00	2.480	63.00	-	47303	70385
17/64				4.125	104.78	2.875	73.03	-	44017	70217
			H	4.125	104.78	2.875	73.03	-	44178	70308
		6.80		4.291	109.00	2.717	69.00	-	47305	70386
		6.90		4.291	109.00	2.717	69.00	-	47306	-
			I	4.125	104.78	2.875	73.03	-	44179	-
		7.00		4.291	109.00	2.717	69.00	-	47307	70337
			J	4.125	104.78	2.875	73.03	-	44180	70310
		7.10		4.291	109.00	2.717	69.00	-	47308	-
			K	4.250	107.95	2.937	74.61	-	44181	70311
9/32				4.250	107.95	2.937	74.61	-	44018	70218
		7.20		4.291	109.00	2.717	69.00	-	47309	-
		7.30		4.291	109.00	2.717	69.00	-	47311	-
			L	4.250	107.95	2.937	74.61	-	44182	70312
			M	4.375	111.13	3.062	77.79	-	44183	-
		7.50		4.606	117.00	2.717	69.00	-	47313	70388
19/64				4.375	111.13	3.063	77.79	-	44019	70219
		7.60		4.606	117.00	2.953	75.00	-	47314	-
			N	4.375	111.13	3.063	77.79	-	44184	-
		7.70		4.606	117.00	2.953	75.00	-	47315	-
		7.80		4.606	117.00	2.953	75.00	-	47317	-
		7.90		4.606	117.00	2.953	75.00	-	47318	-
5/16				4.500	114.30	3.187	80.96	-	44020	70220
		8.00		4.606	117.00	2.953	75.00	-	47319	70338
			O	4.500	114.30	3.187	77.79	-	44185	70315
		8.10		4.606	117.00	2.953	75.00	-	47320	-
		8.20		4.606	117.00	2.953	75.00	-	47321	-
			P	4.625	117.48	3.312	84.14	-	44186	70316
		8.30		4.606	117.00	2.953	75.00	-	47323	-
21/64				4.625	117.48	3.312	84.14	-	44021	70221
		8.40		4.606	117.00	2.953	75.00	-	47324	-
			Q	4.750	120.65	3.437	87.61	-	44187	70317
		8.50		4.921	125.00	2.953	75.00	-	47325	70389
		8.60		4.921	125.00	3.189	81.00	-	47326	-
			R	4.750	120.65	3.437	87.61	-	44188	-
		8.70		4.921	125.00	3.189	81.00	-	47327	-
11/32				4.750	120.65	3.437	87.31	-	44022	70222
		8.80		4.921	125.00	3.189	81.00	-	47329	-
			S	4.875	123.83	3.500	88.90	-	44189	-
		8.90		4.921	125.00	3.189	81.00	-	47330	-
		9.00		4.920	125.00	3.189	81.00	-	47331	70339
			T	4.875	123.83	3.500	88.90	-	44190	70320
23/64				4.875	123.83	3.500	88.90	-	44023	70223
		9.20		4.920	125.00	3.189	81.00	-	47333	-
			U	5.000	127.00	3.625	92.08	-	44191	-
		9.40		5.240	133.00	3.189	81.00	-	47336	-
		9.50		5.240	133.00	3.189	81.00	-	47337	70391
3/8				5.000	127.00	3.625	92.08	-	44024	70224
			V	5.000	127.00	3.625	92.08	-	44192	70322
		9.60		5.240	133.00	3.425	87.00	-	47338	-
		9.70		5.240	133.00	3.425	87.00	-	47339	-

Fraccional	Diámetro			Longitud Total		Longitud de Canal		Brillante	Óxido al Vapor	TiN
	Númerica	Milimétrica	Alfabética	pulg	mm	pulg	mm			
		9.80		5.240	133.00	3.425	87.00	-	47341	-
			W	5.125	130.18	3.750	95.25	-	44193	70323
		9.90		5.240	133.00	3.425	87.00	-	47342	-
25/64				5.125	130.18	3.750	95.25	-	44025	70225
		10.00		5.240	133.00	3.425	87.00	-	47343	70340
			X	5.125	130.18	3.750	95.25	-	44194	70324
		10.20		5.240	133.00	3.425	87.00	-	47354	-
			Y	5.250	133.35	3.875	98.43	-	44195	70325
13/32				5.250	133.35	3.875	98.43	-	44026	70226
			Z	5.250	133.35	3.875	98.43	-	44196	-
		10.50		5.590	142.00	3.425	87.00	-	47344	70393
27/64				5.375	136.53	3.937	100.01	-	44027	70227
		11.00		5.590	142.00	3.701	94.00	-	47345	-
7/16				5.500	139.70	4.063	103.19	-	44028	70228
		11.50		5.590	142.00	3.701	94.00	-	47346	-
29/64				5.625	142.88	4.187	106.36	-	44029	70229
15/32				5.750	146.05	4.312	109.54	-	44030	70230
		12.00		5.940	151.00	3.976	101.00	-	47347	70342
31/64				5.875	149.23	4.750	111.13	-	44031	70231
		12.50		5.940	151.00	3.976	101.00	-	47348	70397
1/2				6.000	152.40	4.500	114.30	-	44032	70232
		13.00		5.940	151.00	3.976	101.00	-	47349	70343
33/64				6.625	168.28	4.812	122.24	-	44033	-
17/32				6.625	168.28	4.812	122.24	-	44034	70234
		13.50		6.299	160.00	4.252	108.00	-	47363	-
35/64				6.625	168.28	4.812	122.24	-	44035	70235
		14.00		6.299	160.00	4.252	108.00	-	47362	-
9/16				6.625	168.28	4.812	122.24	-	44036	70236
		14.50		6.299	160.00	4.488	114.00	-	47366	-
37/64				6.625	168.28	4.812	122.24	-	44037	-
		15.00		6.299	160.00	4.488	114.00	-	47369	-
19/32				7.125	180.98	5.187	131.76	-	44038	-
39/64				7.125	180.98	5.187	131.76	-	44039	-
		15.50		7.007	178.00	4.724	120.00	-	47368	-
5/8				7.125	180.98	5.187	131.76	-	44040	70240
		16.00		7.007	178.00	4.724	120.00	-	47372	-
41/64				7.125	180.98	5.187	131.76	-	44041	70241
		16.50		7.244	184.00	4.920	125.00	-	47374	-
21/32				7.125	180.98	5.187	131.76	-	44042	70242
		16.75		7.244	184.00	4.920	125.00	-	47376	-
43/64				7.125	180.98	5.187	131.76	-	44043	70243
11/16				7.125	180.98	5.187	131.76	-	44044	70244
		17.00		7.244	184.00	4.920	125.00	-	47377	-
		17.50		7.519	191.00	5.118	130.00	-	47375	-

Descripción	No. de Piezas	Código
1/16-1/4" x 64 Avos	13	57711
1/16-1/2" x 64 Avos	29	57714
1 A 60 (Numérica)	60	57716
A a Z (Alfabética)	26	57718
1.0 a 13.0 x 0.5mm	25	57725
1/16-1/2" x 64 Avos, A a Z, 1 A 60	115	57728
1.0 a 13.0mm x 0.1mm	118	57727
1/16-1/2" x 1/64 Avos TiN	29	69861
1.0 a 13.0 x 0.5mm Cobalto	25	54127

 Ver página 191 para Información Técnica.

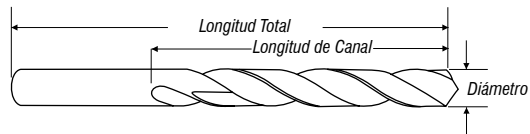
▶ LISTA: 550 BROCA JOBBER DE COBALTO



Aplicaciones



Características



Diámetro		Longitud Total		Longitud de Canal		Código
Fracional	Númerica	pulg	mm	pulg	mm	
1/64		3/4	19.05	3/16	4.76	46601
	73	1-1/8	28.58	5/16	7.94	46743
1/32		1-3/8	34.93	1/2	12.70	46602
3/64		1-3/4	44.45	3/8	9.53	46603
1/16		1-7/8	47.63	7/8	22.23	46604
5/64		2	50.80	1	25.40	46605
3/32		2-1/4	57.15	1-1/4	31.75	46606
	40	2-3/8	60.33	1-3/8	34.93	46710
7/64		2-5/8	66.68	1-1/2	38.10	46607
1/8		2-3/4	69.85	1-5/8	41.28	46608
	30	2-3/4	68.85	1-5/8	41.28	46700
9/64		2-7/8	73.03	1-3/4	44.45	46609
	27	3	76.20	1-7/8	47.63	46697
5/32		3-1/8	79.38	2	50.80	46610
11/64		3-1/4	82.55	2-1/8	53.98	46611
3/16		3-1/2	88.90	2-5/16	58.74	46612
	10	3-5/8	92.08	2-7/16	61.91	46680
13/64		3-5/8	92.08	2-7/16	61.91	46613
7/32		3-3/4	95.25	2-1/2	63.50	46614
15/64		3-7/8	98.43	2-5/8	66.68	46615
1/4-E		4	101.60	2-3/4	69.85	46616
17/64		4-1/8	104.78	2-7/8	73.03	46617
9/32		4-1/4	107.95	2-15/16	74.61	46618
19/64		4-3/8	111.13	3-1/16	77.79	46619
5/16		4-1/2	114.30	3-3/16	80.96	46620
21/64		4-5/8	117.48	3-5/16	84.14	46621
11/32		4-3/4	120.65	3-7/16	87.31	46622
23/64		4-7/8	123.83	3-1/2	88.90	46623
3/8		5	127.00	3-5/8	92.08	46624
25/64		5-1/8	130.18	3-3/4	95.25	46625
13/32		5-1/4	133.35	3-7/8	98.43	46626
27/64		5-3/8	136.53	3-15/16	100.01	46627
7/16		5-1/2	139.70	4-1/16	103.19	46628
29/64		5-5/8	142.88	4-3/16	106.36	46629
15/32		5-3/4	146.05	4-5/16	109.54	46630
31/64		5-7/8	149.23	4-3/8	111.13	46631
1/2		6	152.40	4-1/2	114.30	46632
33/64		6-5/8	168.27	4-13/16	122.24	50075
17/32		6-5/8	168.27	4-13/16	122.24	50076
35/64		6-5/8	168.27	4-13/16	122.24	50077
9/16		6-5/8	168.27	4-13/16	122.24	50078
5/8		7-1/8	190.98	5-3/16	131.76	50082
41/64		7-1/8	190.98	5-3/16	131.76	50083
21/32		7-1/8	190.98	5-3/16	131.76	50084
11/16		7-1/8	190.98	5-3/16	131.76	50086

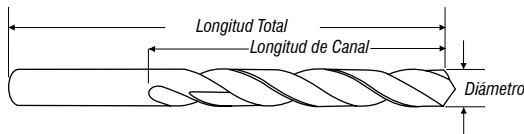
▶ LISTA: 120 BROCA SERIE LARGA



Aplicaciones



Características



Diámetro		Longitud Total		Longitud de Canal		Código
Fracional	Númerica	pulg	mm	pulg	mm	
	73	1-1/2	38.10	5/16	7.94	50363
	70	2	50.80	3/4	19.05	50360
1/32		2	50.80	3/4	19.05	49702
3/64		2-1/4	57.15	1-1/8	28.58	49703
1/16		3	76.20	1-3/4	44.45	49704
5/64		3-3/4	95.25	2	50.80	49705
3/32		4-1/4	107.95	2-1/4	57.15	49706
7/64		4-5/8	117.47	2-1/2	63.50	49707
1/8		5-1/8	130.17	2-3/4	69.85	49708
	29	5-3/8	136.53	3	76.20	50319
9/64		5-3/8	136.53	3	76.20	49709
5/32		5-3/8	136.53	3	76.20	49710
11/64		5-3/4	146.05	3-3/8	85.73	49711
3/16		5-3/4	146.05	3-3/8	85.73	49712
	9	6	152.40	3-5/8	92.07	50299
13/64		6	152.40	3-5/8	92.07	49713
7/32		6	152.40	3-5/8	92.07	49714
15/64		6-1/8	155.57	3-3/4	95.25	49715
1/4-E		6-1/8	155.57	3-3/4	95.25	49716
17/64		6-1/4	158.75	3-7/8	98.43	49717
9/32		6-1/4	158.75	3-7/8	98.43	49718
19/64		6-3/8	161.92	4	101.60	49719
5/16		6-3/8	161.92	4	101.60	49720
21/64		6-1/2	165.10	4-1/8	104.77	49721
11/32		6-1/2	165.10	4-1/8	104.77	49722
23/64		6-3/4	171.45	4-1/4	107.95	49723
3/8		6-3/4	171.45	4-1/4	107.95	49724
25/64		7	177.80	4-3/8	111.13	49725
13/32		7	177.80	4-3/8	111.13	49726
27/64		7-1/4	184.15	4-5/8	117.48	49727
7/16		7-1/4	184.15	4-5/8	117.48	49728
29/64		7-1/2	190.50	4-3/4	120.65	49729
15/32		7-1/2	190.50	4-3/4	120.65	49730
31/64		7-3/4	196.85	4-3/4	120.65	49731
1/2		7-3/4	196.85	4-3/4	120.65	49732
33/64		8	203.20	4-3/4	120.65	49733
17/32		8	203.20	4-3/4	120.65	49734
9/16		8-1/4	209.55	4-7/8	123.82	49736
19/32		8-3/4	222.25	4-7/8	123.82	49738
39/64		8-3/4	222.25	4-7/8	123.82	49739
5/8		8-3/4	222.25	4-7/8	123.82	49740
41/64		9	228.60	5-1/8	130.17	49741
21/32		9	228.60	5-1/8	130.17	49742
43/64		9-1/4	234.95	5-3/8	136.56	49743

USO GENERAL

Diámetro		Longitud de Canal		Longitud Total		Código
Fraccional	Númerica	pulg	mm	pulg	mm	
11/16		5-3/8	136.56	9-1/4	234.95	49744
45/64		5-5/8	142.88	9-1/2	241.30	49745
23/32		5-5/8	142.88	9-1/2	241.30	49746
3/4		5-7/8	149.23	9-3/4	247.65	49748
49/64		6	152.40	9-7/8	250.82	49749
25/32		6	152.40	9-7/8	250.82	49750
51/64		6-1/8	155.58	10	254.00	49751
13/16		6-1/8	155.58	10	254.00	49752
53/64		6-1/8	155.58	10	254.00	49753
27/32		6-1/8	155.58	10	254.00	49754
55/64		6-1/8	155.58	10	254.00	49755
7/8		6-1/8	155.58	10	254.00	49756
57/64		6-1/8	155.58	10	254.00	49757
29/32		6-1/8	155.58	10	254.00	49758
59/64		6-1/8	155.58	10-3/4	273.05	49759
15/16		6-1/8	155.58	10-3/4	273.05	49760
61/64		6-3/8	161.92	11	279.40	49761
31/32		6-3/8	161.92	11	279.40	49762
63/64		6-3/8	161.92	11	279.40	49763
1		6-3/8	161.92	11	279.40	49764
1-1/32		6-1/2	165.10	11-1/8	252.80	49766
1-1/16		6-5/8	168.27	11-1/4	285.75	49768
1-3/32		6-7/8	174.73	11-1/2	292.10	49770
1-1/8		7-1/8	180.98	11-3/4	298.45	49772
1-3/16		7-3/8	187.33	12	304.80	49776
1-7/32		7-1/2	190.50	12-1/8	307.97	49778
1-1/4		7-7/8	200.02	12-1/2	317.50	49780
1-3/8		8-7/8	225.42	14-1/2	368.30	49788
1-7/8		9-1/8	231.77	14-3/4	374.65	49792

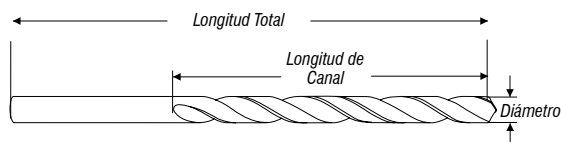
▶ LISTA: 120X BROCA EXTRALARGA



Aplicaciones



Características



Diámetro Fraccional	Longitud de Canal pulg	Long. Total pulg	Código
3/32	5-1/2	8	50448
7/64	5-1/2	8	50455
1/8	5-1/2	8	50458
1/8	7-1/2	10	50460
1/8	9	12	50461
9/64	5-1/2	8	50463
9/64	7-1/2	10	50465
9/64	9	12	50466
5/32	5-1/2	8	50468
5/32	7-1/2	10	50717
5/32	9	12	50718
11/64	5-1/2	8	50471
11/64	9	12	50719
3/16	5-1/2	8	50720
3/16	7-1/2	10	50722
3/16	9	12	50723
13/64	5-1/2	8	50476
13/64	7-1/2	10	59725
13/64	9	12	50726
7/32	5-1/2	8	50479
7/32	7-1/2	10	50728
7/32	9	12	50729
15/64	5-1/2	8	50730
15/64	7-1/2	10	50731
15/64	9	12	50732
1/4	5-1/2	8	50485
1/4	7-1/2	10	50734
1/4	9	12	50735
17/64	5-1/2	8	50489
17/64	7-1/2	10	50736
17/64	9	12	50737
9/32	5-1/2	8	50493
9/32	7-1/2	10	50495
9/32	9	12	50738
19/64	5-1/2	8	50498
19/64	7-1/2	10	50500
19/64	9	12	50739
5/16	5-1/2	8	50503
5/16	7-1/2	10	50505
5/16	9	12	50740
21/64	5-1/2	8	50509
21/64	7-1/2	10	50511
21/64	9	12	50741
11/32	5-1/2	8	50514

USO GENERAL

Diámetro	Longitud de Canal	Long. Total	Código
Fraccional	pulg	pulg	
11/32	7-1/2	10	50516
11/32	9	12	50742
23/64	5-1/2	8	50520
23/64	7-1/2	10	50522
23/64	9	12	50523
3/8	5-1/2	8	50527
3/8	7-1/2	10	50529
3/8	9	12	50743
13/32	5-1/2	8	50540
13/32	7-1/2	10	50746
13/32	9	12	50747
27/64	7-1/2	10	50546
27/64	9	12	50749
7/16	5-1/2	8	50550
7/16	7-1/2	10	50552
7/16	9	12	50750
29/64	7-1/2	10	50557
29/64	9	12	50558
15/32	5-1/2	8	50561
15/32	7-1/2	10	50563
15/32	9	12	50751
1/2	5-1/2	8	50570
1/2	7-1/2	10	50571
1/2	9	12	50572
33/64	7-1/2	10	50580
33/64	9	12	50581
17/32	7-1/2	10	50585
17/32	9	12	50586
35/64	9	12	50591
9/16	9	12	50596
39/64	9	12	50613
5/8	9	12	50619
41/64	9	12	50624
21/32	9	12	50629
11/16	9	12	50639
47/64	9	12	50654
3/4	9	12	50659

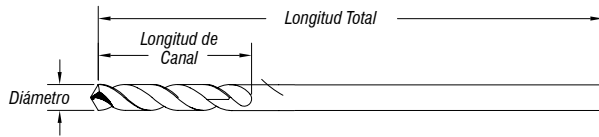
▶ LISTA: 906 & 912 BROCA AIRCRAFT



Aplicaciones



Características



Diámetro Fraccional	Longitud de Canal		Serie 906 6" Largo	Serie 912 12" Largo
	pulg	mm		
1/16	7/8	22.33	-	11096
3/32	1-1/4	31.75	11003	11098
1/8	1-5/8	41.28	11005	11100
9/64	1-3/4	44.45	-	11101
3/16	2-5/16	58.74	11009	11104
1/4-E	2-3/4	69.85	11013	11108
5/16	3-3/16	80.96	11018	11112
3/8	3-5/8	92.08	11022	11116
1/2	4-1/2	114.30	11030	11124

USO GENERAL

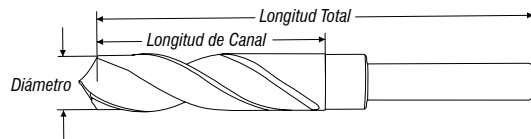
► LISTA: 190C BROCA ZANCO REDUCIDO A 1/2" DE COBALTO



Aplicaciones



Características



Diámetro Fraccional	Longitud Total		Longitud de Canal		Serie 190C	Serie 190C-TiN
	pulg	mm	pulg	mm		
1/2	6	152.40	3-1/8	79.38	53432	-
33/64	6	152.40	3-1/8	79.38	53433	-
17/32	6	152.40	3-1/8	79.38	53434	53634
35/64	6	152.40	3-1/8	79.38	53435	-
9/16	6	152.40	3-1/8	79.38	53436	53636
37/64	6	152.40	3-1/8	79.38	53437	-
19/32	6	152.40	3-1/8	79.38	53438	53638
39/64	6	152.40	3-1/8	79.38	53439	-
5/8	6	152.40	3-1/8	79.38	53440	53640
41/64	6	152.40	3-1/8	79.38	53441	-
21/32	6	152.40	3-1/8	79.38	53442	53642
43/64	6	152.40	3-1/8	79.38	53443	-
11/16	6	152.40	3-1/8	79.38	53444	53644
45/64	6	152.40	3-1/8	79.38	53445	-
23/32	6	152.40	3-1/8	79.38	53446	53646
47/64	6	152.40	3-1/8	79.38	53447	-
3/4	6	152.40	3-1/8	79.38	53448	53648
49/64	6	152.40	3-1/8	79.38	53449	-
25/32	6	152.40	3-1/8	79.38	53450	53650
51/64	6	152.40	3-1/8	79.38	53451	-
13/16	6	152.40	3-1/8	79.38	53452	53652
53/64	6	152.40	3-1/8	79.38	53453	-
27/32	6	152.40	3-1/8	79.38	53454	53654
55/64	6	152.40	3-1/8	79.38	53455	-
7/8	6	152.40	3-1/8	79.38	53456	53656
57/64	6	152.40	3-1/8	79.38	53457	-
29/32	6	152.40	3-1/8	79.38	53458	53658
59/64	6	152.40	3-1/8	79.38	53459	-
15/16	6	152.40	3-1/8	79.38	53460	53660
61/64	6	152.40	3-1/8	79.38	53461	-
31/32	6	152.40	3-1/8	79.38	53462	53662
63/64	6	152.40	3-1/8	79.38	53463	-
1	6	152.40	3-1/8	79.38	53464	53664
1-1/16	6	152.40	3-1/8	79.38	53468	-
1-1/8	6	152.40	3-1/8	79.38	53472	-
1-3/16	6	152.40	3-1/8	79.38	53475	-
1-1/4	6	152.40	3-1/8	79.38	53480	-
1-3/8	6	152.40	3-1/8	79.38	53488	-
1-1/2	6	152.40	3-1/8	79.38	53496	-

▶ LISTA: 120DH BROCA PARABÓLICA



Aplicaciones



Características



Diámetro Fraccional	Longitud Total		Longitud de Canal		Brillante	TiN
	pulg	mm	pulg	mm		
1/16	3	76.20	2	50.80	68804	55236
5/64	3-3/4	95.25	2-1/2	57.15	68805	55237
3/32	4-1/4	107.95	2-1/2	57.15	68806	55238
7/64	4-5/8	117.48	3-1/8	79.38	68807	55239
1/8	5-1/8	130.18	3-3/8	85.73	68808	55240
9/64	5-3/8	136.53	3-5/8	92.08	68809	55241
5/32	5-3/8	136.53	3-3/4	95.25	68810	55242
11/64	5-3/4	146.05	4-1/8	104.78	68811	55243
3/16	5-3/4	146.05	4-1/8	104.78	68812	55244
13/64	6	152.40	4-3/8	111.13	68813	55245
7/32	6	152.40	4-3/8	111.13	68814	55246
15/64	6-1/8	155.58	4-13/16	122.24	68815	55247
1/4-E	6-1/8	155.58	4-13/16	122.24	68816	55248
17/64	6-1/4	158.75	5	127.00	68817	55249
9/32	6-1/4	158.75	5	127.00	68818	55250
19/64	6-3/8	161.93	5-1/8	130.18	68819	55251
5/16	6-3/8	161.93	5-1/8	130.18	68820	55252
21/64	6-1/2	165.10	5-1/4	133.35	68821	55253
11/32	6-1/2	165.10	5-1/4	133.35	68822	55254
23/64	6-3/4	171.45	5-3/8	136.53	68823	55255
3/8	6-3/4	171.45	5-3/8	136.53	68824	55256
25/64	7	177.80	5-5/8	142.88	68825	55257
13/32	7	177.80	5-5/8	142.88	68826	55258
27/64	7-1/4	184.15	5-11/16	144.46	68827	55259
7/16	7-1/4	184.15	5-11/16	144.46	68828	55260
29/64	7-1/2	190.50	5-3/4	146.05	68829	55261
15/32	7-1/2	190.50	5-3/4	146.05	68830	55262
31/64	7-1/2	190.50	5-3/4	146.05	68831	55263
1/2	7-1/2	190.50	5-3/4	146.05	68832	55264
33/64	8	203.20	6	152.40	68833	55265
17/32	8	203.20	6	152.40	68834	55266
35/64	8-1/4	209.55	6-1/4	158.78	68835	55267
9/16	8-1/4	209.55	6-1/4	158.78	68836	55268
37/64	8-3/4	222.25	6-1/2	165.10	68837	55269
19/32	8-3/4	222.25	6-1/2	165.10	68838	55270
39/64	8-3/4	222.25	6-1/2	165.10	68839	55271
5/8	8-3/4	222.25	6-1/2	165.10	68840	55272

USO GENERAL

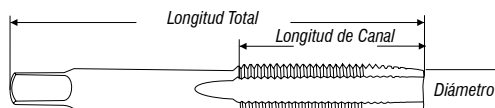
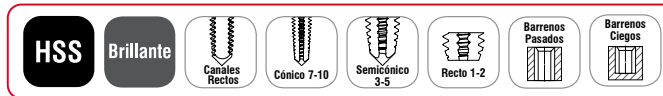
▶ LISTA: 3105 MACHUELOS HSS



Aplicaciones



Características



Diámetro Fraccional	Hilos por Pulgada	Ajuste	Longitud Total pulgs	Longitud Cuerda pulgs	Canales				
						Cónico	Semi-Cónico	Recto	Set
3	48 NC	H2	1-13/16	1/2	3	300512	-	-	-
3	56 NF	H2	1-13/16	1/2	3	300637	300645	300652	-
4	40 NC	H2	1-7/8	9/16	3	300819	300827	300835	341623
4	48 NF	H2	1-7/8	9/16	3	-	300942	300959	341649
5	40 NC	H2	1-15/16	5/8	3	-	301064	301072	341664
5	44 NF	H2	1-15/16	5/8	3	301171	301189	301197	341672
6	32 NC	H2	2	11/16	3	-	301338	301346	341698
6	32 NC	H3	2	11/16	3	-	-	301379	341706
6	40 NF	H2	2	11/16	3	301478	-	301494	-
8	32 NC	H2	2-1/8	3/4	4	-	-	-	341730
8	32 NC	H3	2-1/8	3/4	4	-	301759	301767	341748
8	36 NF	H2	2-1/8	3/4	4	-	301933	-	341755
10	24 NC	H2	2-3/8	7/8	4	-	-	-	341771
10	24 NC	H3	2-3/8	7/8	4	302195	302203	302211	341789
10	32 NF	H2	2-3/8	7/8	2	-	302260	-	341805
10	32 NF	H3	2-3/8	7/8	4	302468	302476	302484	341813
12	24 NC	H3	2-3/8	15/16	4	-	302534	302542	341821
12	28 NF	H3	2-3/8	15/16	4	302583	302591	-	341839
1/4	20 NC	H3	2-1/2	1	2	-	326004	-	-
1/4	20 NC	H3	2-1/2	1	4	305065	305073	305081	-
1/4	20 NC	H5	2-1/2	1	4	-	305107	305115	342522
1/4	28 NF	H3	2-1/2	1	4	305214	305222	-	342530
5/16	18 NC	H3	2-23/32	1-1/8	4	305396	305404	305412	-
5/16	18 NC	H5	2-23/32	1-1/8	4	-	305438	-	342555
5/16	24 NF	H3	2-23/32	1-1/8	4	-	305529	-	342563
3/8	16 NC	H3	2-15/16	1-1/4	4	305693	305701	305719	342589
3/8	24 NF	H3	2-15/16	1-1/4	4	-	305826	305834	342597
7/16	14 NC	H3	3-5/32	1-7/16	4	305990	306006	-	342605
7/16	20 NF	H3	3-5/32	1-7/16	4	306113	-	306139	342613
1/2	13 NC	H3	3-3/8	1-21/32	4	306295	306303	306311	-
1/2	13 NC	H5	3-3/8	1-21/32	4	-	-	306345	342621
1/2	20 NF	H3	3-3/8	1-21/32	4	306444	306451	306469	342639
1/2	20 NF	H5	3-3/8	1-21/32	4	-	306485	-	-
9/16	12 NC	H3	3-19/32	1-13/16	4	-	306634	306642	342647
9/16	18 NF	H3	3-19/32	1-13/16	4	306741	306758	306766	342654
5/8	11 NC	H3	3-13/16	1-13/16	4	-	306931	306949	-
5/8	11 NC	H5	3-13/16	1-13/16	4	-	306964	-	342662
5/8	18 NF	H3	3-13/16	1-13/16	4	-	-	307061	342670
11/16	11 NC	H3	4-1/32	1-13/16	4	307160	307178	-	-
11/16	16 NF	H3	4-1/32	1-13/16	4	307194	307202	-	342696
3/4	10 NC	H3	4-1/4	2	4	-	307350	307368	342704
3/4	16 NF	H3	2	4-1/4	4	307467	-	307483	342712

Diámetro Fraccional	Hilos por Pulgada	Ajuste	Longitud Total pulgs	Longitud Cuerda pulgs	Canales	Cónico	Semi-Cónico	Recto	Set
7/8	9 NC	H4	2-7/32	4-11/16	4	307707	307715	-	342720
7/8	14 NF	H4	2-7/32	4-11/16	4	-	307830	307848	342738
1	8 NC	H4	2-1/2	5-1/8	4	308069	308077	308085	342746
1	12 NF	H4	2-1/2	5-1/8	4	-	308192	308200	-
1	14 NS	H4	5-1/8	2-1/2	4	308275	308283	308291	-
1-1/8	7 NC	H4	5-7/16	2-9/16	4	308424	308432	308440	-
1-1/8	12 NF	H4	5-7/16	2-9/16	4	308457	308465	308473	-
1-1/4	7 NC	H4	5-3/4	2-9/16	4	308549	308556	308564	-
1-1/4	12 NF	H4	5-3/4	2-9/16	6	308572	308580	308598	-
1-3/8	6 NC	H4	6-1/16	3	4	-	308671	-	-
1-3/8	12 NF	H4	6-1/16	3	6	-	-	308713	-
1-1/2	6 NC	H4	6-3/8	3	4	308788	308796	308804	-
1-1/2	12 NF	H4	6-3/8	3	6	308812	308820	-	-

Nota: Set de 3 piezas; un cónico, un semi cónico y un recto.

Diámetro Milimétrica	Paso	Ajuste	Longitud Total pulgs	Longitud de Cuerda pulgs	Canales	Cónico	Semi-Cónico	Recto
M4	0.7	D4	2-1/8	3/4	4	328273	328281	328299
M5	0.8	D4	2-3/8	7/8	4	328364	328372	328380
M6	1	D5	2-1/2	1	4	328422	328430	328448
M7	1	D5	2-23/32	1-1/8	4	-	328497	-
M8	1.25	D5	2-23/32	1-1/8	4	328547	328554	328562
M10	1.5	D6	2-15/16	1-1/4	4	328604	-	328620
M12	1.75	D6	3-3/8	1-21/32	4	329661	328679	328687
M14	2	D7	3-19/32	1-21/32	4	-	328760	328778
M16	2	D7	3-13/16	1-13/16	4	328810	328828	328836
M20	2.5	D7	4-15/32	2	4	328935	328943	328950

 Ver página 205 para Información Técnica.

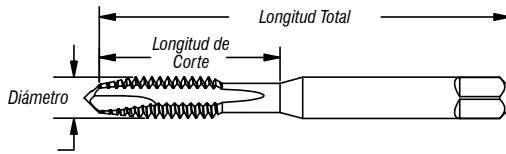
▶ LISTA: SPGP MACHUELOS PUNTA ESPIRAL



Aplicaciones



Características



Diámetro Fraccional	Hilos por Pulgada	Ajuste	Longitud Total pulgs	Longitud Corte pulgs	Canales	Brillante	Óxido al Vapor	TiN
0	80 UNF	H1	1-11/16	3/8	2	356002	-	-
0	80 UNF	H2	1-11/16	3/8	2	356027	330100	-
1	64 UNC	H2	1-11/16	3/8	2	356068	-	356061
1	72 UNF	H1	1-11/16	3/8	2	356084	-	-
1	72 UNF	H2	1-11/16	3/8	2	356102	-	356106
2	56 UNC	H2	1-3/4	7/16	2	356142	330101	356148
2	64 UNF	H2	1-3/4	7/16	2	356183	-	-
3	48 UNC	H2	1-13/16	1/2	2	356225	-	356221
3	56 UNF	H2	1-16/16	1/2	2	356266	-	356262
4	40 UNC	H1	1-7/8	9/16	2	356308	-	-
4	40 UNC	H2	1-7/8	9/16	2	356324	330102	356320
4	48 UNF	H2	1-7/8	9/16	2	356365	-	356361
5	40 UNC	H2	1-15/16	5/8	2	356407	330103	356403
6	32 UNC	H1	2	11/16	2	356421	-	-
6	32 UNC	H2	2	11/16	2	356422	330104	356486
6	32 UNC	H3	2	11/16	2	356506	330105	356502
6	32 UNC	H7	2	11/16	2	359005	-	-
6	40 UNF	H2	2	11/16	2	356548	-	356544
8	32 UNC	H2	2-1/8	3/4	2	356589	330106	-
8	32 UNC	H3	2-1/8	3/4	2	356633	330107	356602
8	32 UNC	H7	2-1/8	3/4	2	359047	-	330138
8	36 UNF	H2	2-1/8	3/4	2	356647	-	330139
10	24 UNC	H1	2-3/8	7/8	2	356662	-	-
10	24 UNC	H2	2-3/8	7/8	2	356688	-	330140
10	24 UNC	H3	2-3/8	7/8	2	356704	-	356703
10	24 UNC	H7	2-3/8	7/8	2	359088	-	330141
10	32 UNF	H2	2-3/8	7/8	2	356746	-	356742
10	32 UNF	H3	2-3/8	7/8	2	356761	-	356767
10	32 UNF	H7	2-3/8	7/8	2	359120	-	330142
12	24 UNC	H3	2-3/8	15/16	2	356803	330108	356809
12	28 UNF	H3	2-3/8	15/16	2	356845	-	356841
1/4	20 UNC	H1	2-1/2	1	2	357009	-	330143
1/4	20 UNC	H2	2-1/2	1	2	357025	330109	357021
1/4	20 UNC	H3	2-1/2	1	2	357041	330110	357047
1/4	20 UNC	H5	2-1/2	1	2	357066	-	357062
1/4	20 UNC	H11	2-1/2	1	2	330111	-	-
1/4	20 UNC	H3	2-1/2	1	3	357082	330112	357088
1/4	20 UNC	H5	2-1/2	1	3	357108	-	-
1/4	20 UNC	H13	2-1/2	1	2	358494	-	358490
1/4	28 UNF	H2	2	2-1/2	1	330113	-	-
1/4	28 UNF	H3	2	2-1/2	1	357165	330114	357161
1/4	28 UNF	H2	2	2-1/2	3	330115	-	-
5/16	18 UNC	H1	1-1/8	2-23/32	2	357249	-	-
5/16	18 UNC	H2	1-1/8	2-23/32	2	357264	-	330144

Diámetro Fraccional	Hilos por Pulgada	Ajuste	Longitud Total	Longitud Corte	Canales	Brillante	Óxido al Vapor	TiN
			pulg	pulg				
5/16	18 UNC	H3	2-23/32	1-1/8	2	357280	330116	357286
5/16	18 UNC	H5	2-23/32	1-1/8	2	357306	-	330145
5/16	18 UNC	H3	2-23/32	1-1/8	3	357322	330117	357328
5/16	18 UNC	H5	2-23/32	1-1/8	3	357348	-	357344
5/16	18 UNC	H13	2-23/32	1-1/8	3	358510	-	-
5/16	24 UNF	H1	2-23/32	1-1/8	2	357363	-	-
5/16	24 UNF	H3	2-23/32	1-1/8	2	357405	330118	357401
5/16	24 UNC	H4	2-23/32	1-1/8	3	330119	-	-
3/8	16 UNC	H2	2-15/16	1-1/4	3	357504	-	330146
3/8	16 UNC	H3	2-15/16	1-1/4	3	357520	330120	357526
3/8	16 UNC	H5	2-15/16	1-1/4	3	357546	-	357542
3/8	24 UNF	H1	2-15/16	1-1/4	3	357561	-	-
3/8	24 UNF	H2	2-15/16	1-1/4	3	357587	-	-
3/8	24 UNF	H3	2-15/16	1-1/4	3	357603	330121	357609
3/8	24 UNF	H4	2-15/16	1-1/4	3	357629	-	-
7/16	14 UNC	H2	3-5/32	1-7/16	3	357660	-	-
7/16	14 UNC	H3	3-5/32	1-7/16	3	357686	330122	357682
7/16	14 UNC	H5	3-5/32	1-7/16	3	357702	-	-
7/16	20 UNF	H3	3-5/32	1-7/16	3	357769	-	357765
7/16	20 UNF	H5	3-5/32	1-7/16	3	357785	-	-
1/2	13 UNC	H2	3-3/8	1-21/32	3	357819	-	-
1/2	13 UNC	H3	3-3/8	1-21/32	3	357827	330123	357823
1/2	13 UNC	H5	3-3/8	1-21/32	3	357835	-	357831
1/2	20 UNF	H3	3-3/8	1-21/32	3	357868	330125	357864
5/8	11 UNC	H3	3-13/16	1-13/16	3	357926	330126	357922
5/8	11 UNC	H5	3-13/16	1-13/16	3	357934	-	357930
5/8	18 UNF	H3	3-13/16	1-13/16	3	357942	330128	-
3/4	10 UNC	H3	4-1/4	2	3	357967	330129	357963
3/4	10 UNC	H5	4-1/4	2	3	357975	-	-
3/4	16 UNF	H3	4-1/4	2	3	330130	-	-

Diámetro Milimétrica	Paso	Ajuste	Longitud Total	Longitud Cuerda	Canales	Brillante	TiN	TiCN
			pulg	pulg				
M1.6	0.35	D3	1-3/4	7/16	2	360755	-	-
M1.8	0.35	D3	1-3/4	7/16	2	330131	-	-
M2	0.40	D3	1-3/4	7/16	2	360771	360774	-
M2.2	0.45	D3	1-3/4	7/16	2	330132	-	-
M2.5	0.45	D3	1-13/16	1/2	2	360797	-	-
M3	0.50	D3	1-15/16	5/8	2	360805	360801	330168
M3.5	0.60	D4	2	11/16	2	360821	-	-
M4	0.70	D4	2-1/8	3/4	2	360839	360835	330169
M4.5	0.75	D4	2-3/8	7/8	2	360854	-	-
M5	0.80	D4	2-3/8	7/8	2	360862	360868	330170
M6	1.00	D5	2-1/2	1	2	360888	360884	330171
M7	1.00	D5	2-23/32	1-1/8	2	360904	-	-
M8	1.00	D5	2-23/32	1-1/8	2	330133	-	-
M8	1.25	D5	2-23/32	1-1/8	2	360920	360926	330172
M10	1.25	D5	2-15/16	1-1/4	3	330134	-	-
M10	1.5	D6	2-15/16	1-1/4	3	360946	360942	330173
M12	1.25	D5	3-3/8	1-21/32	3	330135	330147	-
M12	1.75	D6	3-38	1-21/32	3	360961	360967	330174
M14	1.50	D6	3-19/32	1-21/32	3	330136	-	-
M14	2.00	D7	3-19/32	1-21/32	3	360995	-	-
M16	1.50	D6	3-13/16	1-13/16	3	330137	-	-
M16	2.00	D7	3-13/16	1-13/16	3	361019	-	-
M20	2.50	D7	3-13/16	1-13/16	3	361050	-	-

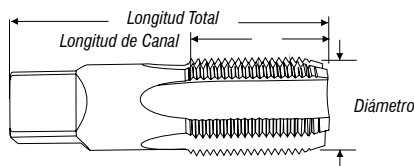
▶ LISTA: 3181 MACHUELOS NPS



Aplicaciones



Características



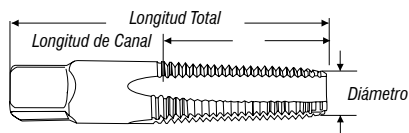
Diámetro Fraccional	Hilos por Pulgada	Longitud Total		Longitud de Cuerda		Canales	Código
		pulg	mm	pulg	mm		
1/8	27	2-1/8	53.97	3/4	19.05	4	387113
1/4	18	2-7/16	61.91	1-1/16	26.99	4	387121

▶ LISTA: 3180 MACHUELO NPT

Aplicaciones



Características



Diámetro Fraccional	Hilos por Pulgada	Longitud Total		Longitud de Cuerda		Canales	Código
		pulg	mm	pulg	mm		
1/6	27	2-1/8	53.98	11/16	17.46	4	385307
1/8	27	2-1/8	53.98	3/4	19.05	4	385364
1/4	18	2-7/16	61.91	1-1/16	26.99	4	385398
3/8	18	2-9/16	65.09	1-1/16	26.99	4	385422
1/2	14	3-1/8	79.38	1-3/8	34.93	4	385455
3/4	14	3-1/8	79.38	1-3/8	34.93	5	385489
1	11.5	3-3/4	95.25	1-3/4	44.45	5	385513
1-1/4	11.5	4	101.60	1-3/4	44.45	5	385547
1-1/2	11.5	4-1/4	107.95	1-3/4	44.45	7	385570
2	11.5	4-1/2	114.30	1-3/4	44.45	7	385604



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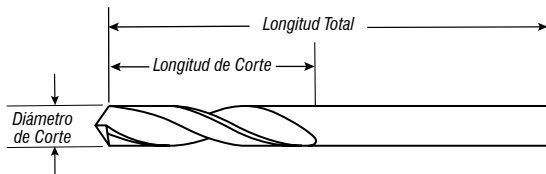
▶ LISTA: 5010 BROCA JOBBER



Aplicaciones



Características



Fraccional	Diámetro		Longitud de Canal	Longitud Total	Brillante	TiAlN
	Decimal	Milimétrica				
1/32	0.0312		5/16	1-1/4	C111002	C111002TIALN
3/64	0.0469		3/4	1-1/2	C111003	C111003TIALN
1/16	0.0625		3/4	1-1/2	C111004	C111004TIALN
5/64	0.0781		7/8	1-3/4	C111005	C111005TIALN
3/32	0.0938		1	2	C111006	C111006TIALN
7/64	0.1094		1-1/4	2-1/4	C111007	C111007TIALN
	0.1181	3.00	1-1/4	2-1/4	C114030	C114030TIALN
1/8	0.1250		1-1/4	2-1/4	C111008	C111008TIALN
	0.1378	3.50	1-3/8	2-1/2	C114035	C114035TIALN
9/64	0.1406		1-3/8	2-1/2	C111009	C111009TIALN
5/32	0.1563		1-3/8	2-1/2	C111010	C111010TIALN
	0.1575	4.00	1-3/8	2-1/2	C114040	C114040TIALN
11/64	0.1719		1-5/8	2-3/4	C111011	C111011TIALN
	0.1772	4.50	1-5/8	2-3/4	C114045	C114045TIALN
3/16	0.1875		1-5/8	2-3/4	C111012	C111012TIALN
	0.1969	5.00	1-3/4	3	C114050	C114050TIALN
13/64	0.2031		1-3/4	3	C111013	C111013TIALN
	0.2165	5.50	1-3/4	3	C114055	C114055TIALN
7/32	0.2188		1-3/4	3	C111014	C111014TIALN
15/64	0.2344		2	3-1/4	C111015	C111015TIALN
	0.2362	6.00	2	3-1/4	C114060	C114060TIALN
1/4	0.2500		2	3-1/4	C111016	C111016TIALN
	0.2559	6.50	2	3-1/4	C114065	C114065TIALN
17/64	0.2656		2-1/8	3-1/2	C111017	C111017TIALN
	0.2756	7.00	2-1/8	3-1/2	C114070	C114070TIALN
9/32	0.2812		2-1/8	3-1/2	C111018	C111018TIALN
	0.2953	7.50	2-3/8	3-3/4	C114075	C114075TIALN
19/64	0.2969		2-3/8	4	C111019	C111019TIALN
5/16	0.3125		2-3/8	4	C111020	C111020TIALN
	0.3150	8.00	2-3/8	3-3/4	C114080	C114080TIALN
21/64	0.3281		2-3/8	4	C111021	C111021TIALN
	0.3346	8.50	2-1/2	4	C114085	C114085TIALN
11/32	0.3438		2-3/8	4	C111022	C111022TIALN
	0.3543	9.00	2-1/2	4	C114090	C114090TIALN
23/64	0.3594		2-3/4	4-1/4	C111023	C111023TIALN
	0.3740	9.50	2-3/4	4-1/4	C114095	C114095TIALN
3/8	0.3750		2-3/4	4-1/4	C111024	C111024TIALN
25/64	0.3906		2-7/8	4-1/2	C111025	C111025TIALN
	0.3937	10.00	2-7/8	4-1/2	C114100	C114100TIALN
13/32	0.4062		2-7/8	4-1/2	C111026	C111026TIALN
	0.4134	10.50	2-7/8	4-1/2	C114105	C114105TIALN
27/64	0.4219		2-7/8	4-1/2	C111027	C111027TIALN
	0.4331	11.00	2-7/8	4-1/2	C114110	C114110TIALN
7/16	0.4375		2-7/8	4-1/2	C111028	C111028TIALN

USO GENERAL



Fraccional	Diámetro		Longitud de Canal	Longitud Total	Brillante	TiAlN
	Decimal	Milimétrica				
	0.4528	11.50	3	4-3/4	C114115	C114115TIALN
29/64	0.4531		3	4-3/4	C111029	C111029TIALN
15/32	0.4688		3	4-3/4	C111030	C111030TIALN
	0.4724	12.00	3	4-3/4	C114120	C114120TIALN
31/64	0.4844		3	4-3/4	C111031	C111031TIALN
1/2	0.5000		3	4-3/4	C111032	C111032TIALN
17/32	0.5313		4	6	C111034	C111034TIALN
9/16	0.5625		4	6	C111036	C111036TIALN
19/32	0.5938		4	6	C111038	C111038TIALN
5/8	0.6250		4	6	C111040	C111040TIALN
21/32	0.6563		4	6	C111042	C111042TIALN
11/16	0.6875		4	6	C111044	C111044TIALN
23/32	0.7188		4	6	C111046	C111046TIALN
3/4	0.7500		4	6	C111048	C111048TIALN
7/8	0.8750		4	6	C111056	C111056TIALN
1	1.0000		4	6	C111064	C111064TIALN

 Ver página 198 para Información Técnica.

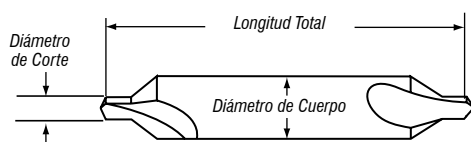
► LISTA: 5040 BROCA PARA CENTROS



Aplicaciones



Características



Número	Diámetro de Corte		Diámetro de Cuerpo	Longitud de Broca	Longitud Total	Código
	Fraccional	Decimal				
1	3/64	0.047	1/8	0.0469	1-1/2	C121001
2	5/64	0.078	3/16	0.0781	2	C121002
3	7/64	0.109	1/4	0.1094	2	C121003
4	1/8	0.125	5/16	0.125	2-1/8	C121004
5	3/16	0.188	7/16	0.1875	2-3/4	C121005
6	7/32	0.219	1/2	0.2188	3	C121006

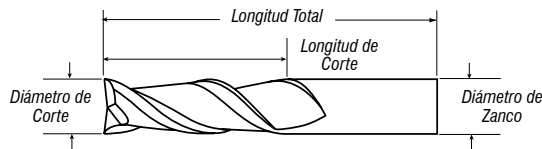
▶ LISTA: 2050 CORTADOR RECTO 2 CANALES



Aplicaciones



Características



Longitud Estándar

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAlN
	Decimal	Milimétrica						
1/16	0.0625	1.59	1/8	3/16	1-1/2	2	C141004	C141104
5/64	0.0781	1.98	1/8	3/16	1-1/2	2	C141005	C141105
3/32	0.0938	2.38	1/8	3/8	1-1/2	2	C141006	C141106
7/64	0.1094	2.78	1/8	3/8	1-1/2	2	C141007	C141107
1/8	0.1250	3.18	1/8	1/2	1-1/2	2	C141008	C141108
9/64	0.1406	3.57	3/16	9/16	2	2	C141009	C141109
5/32	0.1563	3.97	5/32	9/16	2	2	C141010	C141110
3/16	0.1875	4.75	3/16	5/8	2	2	C141012	C141112
13/64	0.2031	5.16	1/4	5/8	2-1/2	2	C141013	C141113
7/32	0.2188	5.56	1/4	5/8	2-1/2	2	C141014	C141114
15/64	0.2344	5.95	1/4	3/4	2-1/2	2	C141015	C141115
1/4	0.2500	6.35	1/4	3/4	2-1/2	2	C141016	C141116
17/64	0.2656	6.75	5/16	3/4	2-1/2	2	C141017	C141117
9/32	0.2813	7.14	5/16	3/4	2 1/2	2	C141018	C141118
19/64	0.2969	7.54	5/16	13/16	2 1/2	2	C141019	C141119
5/16	0.3125	7.94	5/16	13/16	2-1/2	2	C141020	C141120
21/64	0.3281	8.33	3/8	1	2-1/2	2	C141021	C141121
11/32	0.3438	8.73	3/8	1	2-1/2	2	C141022	C141122
23/64	0.3594	9.13	3/8	1	2-1/2	2	C141023	C141123
3/8	0.3750	9.53	3/8	1	2-1/2	2	C141024	C141124
25/64	0.3906	9.92	7/16	1	2-1/2	2	C141025	C141125
13/32	0.4063	10.32	7/16	1	2-1/2	2	C141026	C141126
27/64	0.4219	10.72	7/16	1	2-1/2	2	C141027	C141127
7/16	0.4375	11.11	7/16	1	2-1/2	2	C141028	C141128
29/64	0.4531	11.51	1/2	1	3	2	C141029	C141129
15/32	0.4688	11.91	1/2	1	3	2	C141030	C141130
31/64	0.4844	12.30	1/2	1	3	2	C141031	C141131
1/2	0.5000	12.70	1/2	1	3	2	C141032	C141132
9/16	0.5625	14.29	9/16	1 1/4	3-1/2	2	C141036	C141136
5/8	0.6250	15.88	5/8	1 1/4	3-1/2	2	C141040	C141140
3/4	0.7500	19.05	3/4	1 1/2	4	2	C141048	C141148
7/8	0.8750	22.23	7/8	1 1/2	4	2	C141056	C141156
1	1.0000	25.40	1	1 1/2	4	2	C141064	C141164

USO GENERAL



Longitud Larga

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
	Decimal	Milimétrica						
1/8	0.1250	3.18	1/8	3/4	2-1/4	2	C141208	C141308
3/16	0.1875	4.76	3/16	3/4	2-1/2	2	C141212	C141312
1/4	0.2500	6.35	1/4	1-1/8	3	2	C141216	C141316
5/16	0.3125	7.94	5/16	1-1/8	3	2	C141220	C141320
3/8	0.3750	9.53	3/8	1-1/8	3	2	C141224	C141324
7/16	0.4375	11.11	7/16	2	4	2	C141228	C141328
1/2	0.5000	12.7	1/2	2	4	2	C141238	C141338
5/8	0.6250	15.88	5/8	2-1/4	5	2	C141240	C141340
3/4	0.7500	19.05	3/4	2-1/4	5	2	C141248	C141348
1	1.0000	25.40	1	2-1/4	5	2	C141264	C141364

Longitud Extra Larga

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
	Decimal	Milimétrica						
1/8	0.1250	3.18	1/8	1	3	2	C141206	C141306
3/16	0.1875	4.76	3/16	1-1/8	3	2	C141214	C141314
1/4	0.2500	6.35	1/4	1-1/2	6	2	C141219	C141319
5/16	0.3125	7.94	5/16	1-5/8	4	2	C141222	C141322
3/8	0.3750	9.53	3/8	1-1/2	6	2	C141227	C141327
7/16	0.4375	11.11	7/16	3	6	2	C141230	C141330
1/2	0.5000	12.7	1/2	3	6	2	C141236	C141336
5/8	0.6250	15.88	5/8	3	6	2	C141242	C141342
3/4	0.7500	19.05	3/4	3	6	2	C141250	C141350
1	1.0000	25.40	1	3	6	2	C141268	C141368

 Ver página 202 para Información Técnica.

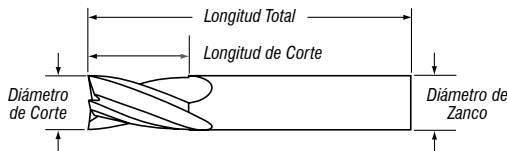
▶ LISTA: 2060 CORTADOR RECTO 4 CANALES



Aplicaciones



Características



Longitud Estándar

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAlN
	Decimal	Milimétrica						
1/32	0.0312	0.79	1/8	3/32	1-1/2	4	C141702	C141802
3/64	0.0469	1.19	1/8	1/8	1-1/2	4	C141703	C141803
1/16	0.0625	1.59	1/8	1/4	1-1/2	4	C141704	C141804
5/64	0.0781	1.98	1/8	3/16	1-1/2	4	C141705	C141805
3/32	0.0938	2.38	1/8	3/8	1-1/2	4	C141706	C141806
7/64	0.1094	2.78	1/8	3/8	1-1/2	4	C141707	C141807
1/8	0.1250	3.18	1/8	1/2	1-1/2	4	C141708	C141808
9/64	0.1406	3.57	3/16	9/16	2	4	C141709	C141809
5/32	0.1563	3.97	3/16	9/16	2	4	C141710	C141810
11/64	0.1719	4.36	3/16	9/16	2	4	C141711	C141811
3/16	0.1875	4.76	3/16	5/8	2	4	C141712	C141812
13/64	0.2031	5.16	1/4	5/8	2-1/2	4	C141713	C141813
7/32	0.2188	5.56	1/4	5/8	2-1/2	4	C141714	C141814
15/64	0.2344	5.95	1/4	3/4	2-1/2	4	C141715	C141815
1/4	0.2500	6.35	1/4	3/4	2-1/2	4	C141716	C141816
17/64	0.2656	6.75	5/16	3/4	2-1/2	4	C141717	C141817
9/32	0.2813	7.14	5/16	3/4	2-1/2	4	C141718	C141818
19/64	0.2969	7.54	5/16	13/16	2-1/2	4	C141719	C141819
5/16	0.3125	7.94	5/16	13/16	2-1/2	4	C141720	C141820
21/64	0.3281	8.33	3/8	1	2-1/2	4	C141721	C141821
11/32	0.3438	8.73	3/8	1	2-1/2	4	C141722	C141822
23/64	0.3594	9.13	3/8	1	2-1/2	4	C141723	C141823
3/8	0.3750	9.53	3/8	7/8	2-1/2	4	C141724	C141824
25/64	0.3906	9.92	7/16	1	2-1/2	4	C141725	C141825
13/32	0.4063	10.32	7/16	1	2-1/2	4	C141726	C141826
27/64	0.4219	10.72	7/16	1	2-1/2	4	C141727	C141827
7/16	0.4375	11.11	7/16	1	2-1/2	4	C141728	C141828
29/64	0.4531	11.51	1/2	1	3	4	C141729	C141829
15/32	0.4688	11.91	1/2	1	3	4	C141730	C141830
31/64	0.4844	12.30	1/2	1	3	4	C141731	C141831
1/2	0.5000	12.70	1/2	1	3	4	C141732	C141832
9/16	0.5625	14.29	9/16	1-1/4	3-1/2	4	C141736	C141836
5/8	0.6250	15.88	5/8	1-1/4	3-1/2	4	C141740	C141840
3/4	0.7500	19.05	3/4	1-1/2	4	4	C141748	C141848
7/8	0.8750	22.23	7/8	1-1/2	4	4	C141756	C141856
1	1.0000	25.40	1	1-1/2	4	4	C141764	C141864

USO GENERAL



Longitud Larga

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
	Decimal	Milimétrica						
1/8	0.1250	3.18	1/8	3/4	2-1/4	4	C141908	C142008
3/16	0.1875	4.76	3/16	3/4	3-1/2	4	C141912	C142012
1/4	0.2500	6.35	1/4	1-1/8	3	4	C141916	C142016
5/16	0.3125	7.94	5/16	1-1/8	3	4	C141920	C142020
3/8	0.3750	9.53	3/8	1-1/8	3	4	C141924	C142024
7/16	0.4375	11.11	7/16	2	4	4	C141928	C142028
1/2	0.5000	12.7	1/2	2	4	4	C141932	C142032
5/8	0.6250	15.88	5/8	2-1/4	5	4	C141940	C142040
3/4	0.7500	19.05	3/4	2-1/4	5	4	C141948	C142048
7/8	0.8750	22.23	7/8	2-1/4	5	4	C141952	C142052

Longitud Extra Larga

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
	Decimal	Milimétrica						
1/8	0.1250	3.18	1/8	1	3	4	C141910	C142010
3/16	0.1875	4.76	3/16	1-1/8	3	4	C141913	C142013
1/4	0.2500	6.35	1/4	1-1/2	6	4	C141919	C142019
5/16	0.3125	7.94	5/16	1-5/8	4	4	C141922	C142022
3/8	0.3750	9.53	3/8	1-1/2	6	4	C141926	C142026
7/16	0.4375	11.11	7/16	3	6	4	C141929	C142029
1/2	0.5000	12.7	1/2	3	6	4	C141936	C142036
5/8	0.6250	15.88	5/8	3	6	4	C141942	C142942
3/4	0.7500	19.05	3/4	3	6	4	C141950	C142050
7/8	0.8750	22.23	7/8	3	6	4	C141954	C142054
1	1.0000	25.4	1	3	6	4	C141964	C142064

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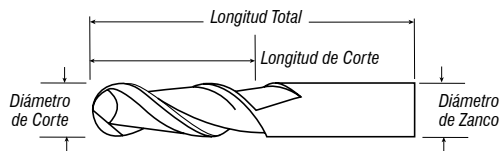
▶ LISTA: 2055 CORTADOR BOLA 2 CANALES



Aplicaciones



Características



Longitud Estándar

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAlN
	Decimal	Milimétrica						
1/16	0.0625	1.59	1/8	1/4	1-1/2	2	C141404	C141504
5/64	0.0781	1.98	1/8	3/16	1-1/2	2	C141405	C141505
3/32	0.0938	2.38	1/8	3/8	1-1/2	2	C141406	C141506
7/64	0.1094	2.78	1/8	3/8	1-1/2	2	C141407	C141507
1/8	0.1250	3.18	1/8	1/2	1-1/2	2	C141408	C141508
9/64	0.1406	3.57	3/16	9/16	2	2	C141409	C141509
5/32	0.1563	3.97	3/16	9/16	2	2	C141410	C141510
11/64	0.1719	4.37	3/16	5/8	2	2	C141411	C141511
3/16	0.1875	4.76	3/16	5/8	2	2	C141412	C141512
13/64	0.2031	5.16	1/4	5/8	2-1/2	2	C141413	C141513
7/32	0.2188	5.56	1/4	5/8	2-1/2	2	C141414	C141514
15/64	0.2344	5.95	1/4	3/4	2-1/2	2	C141415	C141515
1/4	0.2500	6.35	1/4	3/4	2-1/2	2	C141416	C141516
17/64	0.2656	6.75	5/16	3/4	2-1/2	2	C141417	C141517
9/32	0.2813	7.14	5/16	3/4	2-1/2	2	C141418	C141518
19/64	0.2969	7.54	5/16	13/16	2-1/2	2	C141419	C141519
5/16	0.3125	7.94	5/16	13/16	2-1/2	2	C141420	-
21/64	0.3281	8.33	3/8	1	2-1/2	2	C141421	C141521
11/32	0.3438	8.73	3/8	1	2-1/2	2	C141422	C141522
23/64	0.3594	9.13	3/8	1	2-1/2	2	C141423	C141523
3/8	0.3750	9.53	3/8	1	2-1/2	2	C141424	C141524
25/64	0.3906	9.92	7/16	1	2-1/2	2	C141425	C141525
13/32	0.4063	10.32	7/16	1	2-1/2	2	C141426	C141526
27/64	0.4219	10.72	7/16	1	2-1/2	2	C141427	C141527
7/16	0.4375	11.11	7/16	1	2-1/2	2	C141428	C141528
29/64	0.4531	11.51	1/2	1	3	2	C141429	C141529
15/32	0.4688	11.91	1/2	1	3	2	C141430	C141530
31/64	0.4844	12.30	1/2	1	3	2	C141431	C141531
1/2	0.5000	12.70	1/2	1	3	2	C141432	C141532
9/16	0.5625	14.29	9/16	1-1/4	3-1/2	2	C141436	C141536
5/8	0.6250	15.88	5/8	1-1/4	3-1/2	2	C141440	C141540
3/4	0.7500	19.05	3/4	1-1/2	4	2	C141448	C141548
7/8	0.8750	22.23	7/8	1-1/2	4	2	C141456	C141556
1	1.000	25.40	1	1-1/2	4	2	C141464	C141564

USO GENERAL




Longitud Larga

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
	Decimal	Milimétrica						
1/8	0.1250	3.18	1/8	3/4	2 1/4	2	C142508	C141608
3/16	0.1875	4.76	3/16	3/4	2 1/2	2	C142512	C141612
1/4	0.2500	6.35	1/4	1	3	2	C142516	C141616
5/16	0.3125	7.94	5/16	1-1/8	3	2	C142520	C141620
3/8	0.3750	9.53	3/8	1-1/8	3	2	C142525	C141625
7/16	0.4375	11.11	7/16	2	4	2	C142528	C141628
1/2	0.5000	12.7	1/2	3	4	2	C142538	C141638
3/4	0.7500	19.05	3/4	2-1/4	5	2	C142548	C141648

Longitud Extra Larga

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
	Decimal	Milimétrica						
1/8	0.1250	3.18	1/8	1	3	2	C142510	C141610
3/16	0.1875	4.76	3/16	1-1/8	3	2	C142514	C141614
1/4	0.2500	6.35	1/4	1-1/2	6	2	C142519	C141619
5/16	0.3125	7.94	5/16	1-5/8	4	2	C142522	C141622
3/8	0.3750	9.53	3/8	1-1/2	6	2	C142527	C141627
7/16	0.4375	11.11	7/16	3	6	2	C142530	C141630
1/2	0.5000	12.7	1/2	2	6	2	C142534	C141634
5/8	0.6250	15.88	5/8	3	6	2	C142542	C141642
3/4	0.7500	19.05	3/4	3	6	2	C142550	C141650
1	1.0000	25.40	1	3	6	2	C142566	C141666

 Ver página 202 para Información Técnica.

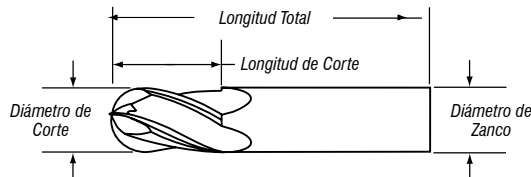
▶ LISTA: 2065 CORTADOR BOLA 4 CANALES



Aplicaciones



Características



Longitud Estándar

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAlN
	Decimal	Milimétrica						
1/32	0.0312	0.79	1/8	3/32	1-1/2	4	C142102	C142202
3/64	0.0469	1.19	1/8	1/8	1-1/2	4	C142103	C142203
1/16	0.0625	1.59	1/8	1/4	1-1/2	4	C142104	C142204
5/64	0.0781	1.98	1/8	3/16	1-1/2	4	C142105	C142205
3/32	0.0938	2.38	1/8	3/8	1-1/2	4	C142106	C142206
7/64	0.1094	2.78	1/8	3/8	1-1/2	4	C142107	C142207
1/8	0.1250	3.18	1/8	1/2	1-1/2	4	C142108	C142208
9/64	0.1406	3.57	3/16	9/16	2	4	C142109	C142209
5/32	0.1563	3.97	3/16	9/16	2	4	C142110	C142210
11/64	0.1719	4.37	3/16	9/16	2	4	C142111	C142211
3/16	0.1875	4.76	3/16	5/8	2	4	C142112	C142212
13/64	0.2031	5.16	1/4	5/8	2-1/2	4	C142113	C142213
7/32	0.2188	5.56	1/4	5/8	2-1/2	4	C142114	C142214
15/64	0.2344	5.95	1/4	3/4	2-1/2	4	C142115	C142215
1/4	0.2500	6.35	1/4	3/4	2-1/2	4	C142116	C142216
17/64	0.2656	6.75	5/16	3/4	2-1/2	4	C142117	C142217
9/32	0.2813	7.14	5/16	3/4	2-1/2	4	C142118	C142218
19/64	0.2969	7.54	5/16	13/16	2-1/2	4	C142119	C142219
5/16	0.3125	7.94	5/16	13/16	2-1/2	4	C142120	C142220
21/64	0.3281	8.33	3/8	1	2-1/2	4	C142121	C142221
11/32	0.3438	8.73	3/8	1	2-1/2	4	C142122	C142222
23/64	0.3594	9.13	3/8	1	2-1/2	4	C142123	C142223
3/8	0.3750	9.53	3/8	1	2-1/2	4	C142124	C142224
25/64	0.3906	9.92	7/16	1	2-1/2	4	C142125	C142225
13/32	0.4063	10.32	7/16	1	2-1/2	4	C142126	C142226
27/64	0.4219	10.72	7/16	1	2-1/2	4	C142127	C142227
7/16	0.4375	11.11	7/16	1	2-1/2	4	C142128	C142228
29/64	0.4531	11.51	1/2	1	3	4	C142129	C142229
15/32	0.4688	11.91	1/2	1	3	4	C142130	C142230
31/64	0.4844	12.30	1/2	1	3	4	C142131	C142231
1/2	0.5000	12.70	1/2	1	3	4	C142132	C142232
9/16	0.5625	14.29	9/16	1-1/4	3-1/2	4	C142136	C142236
5/8	0.6250	15.88	5/8	1-1/4	3-1/2	4	C142140	C142240
3/4	0.7500	19.05	3/4	1-1/2	4	4	C142148	C142248
7/8	0.8750	22.23	7/8	1-1/2	4	4	C142156	C142256
1	1.0000	25.40	1	1-1/2	4	4	C142164	C142264

USO GENERAL



Longitud Larga

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
	Decimal	Milimétrica						
1/8	0.1250	3.18	1/8	3/4	2 1/4	4	C142308	C142408
3/16	0.1875	4.76	3/16	3/4	2 1/2	4	C142312	C142412
1/4	0.2500	6.35	1/4	1 1/8	3	4	C142316	C142416
5/16	0.3125	7.94	5/16	1 1/8	3	4	C142320	C142420
3/8	0.3750	9.53	3/8	1 1/8	3	4	C142324	C142424
7/16	0.4375	11.11	7/16	2	4	4	C142328	C142428
1/2	0.5000	12.7	1/2	2	4	4	C142332	C142432
5/8	0.6250	15.88	5/8	2 1/4	5	4	C142340	C142440
3/4	0.7500	19.05	3/4	2 1/4	5	4	C142348	C142448

Longitud Extra Larga

Fraccional	Diámetro		Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
	Decimal	Milimétrica						
1/8	0.1250	3.18	1/8	1	3	4	C142310	C142410
3/16	0.1875	4.76	3/16	1 1/8	3	4	C142314	C142414
1/4	0.2500	6.35	1/4	1 1/2	6	4	C142318	C142418
5/16	0.3125	7.94	5/16	1 5/8	4	4	C142321	C142421
3/8	0.3750	9.53	3/8	1 1/2	6	4	C142326	C142426
7/16	0.4375	11.11	7/16	3	6	4	C142330	C142430
1/2	0.5000	12.7	1/2	3	6	4	C142336	C142436
5/8	0.6250	15.88	5/8	3	6	4	C142342	C142442
3/4	0.7500	19.05	3/4	3	6	4	C142350	C142450
1	1.0000	25.40	1	3	6	4	C142364	C142464

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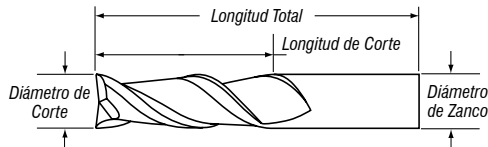
▶ LISTA: 2070 CORTADOR RECTO 2 CANALES



Aplicaciones



Características



Longitud Estándar

Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAlN
1.0	3	3	38	2	C162010	C166010
1.5	3	5	38	2	C162015	C166015
2.0	3	6	38	2	C162020	C166020
2.5	3	7	38	2	C162025	C166025
3.0	3	12	38	2	C162030	C166030
3.5	4	12	50	2	C162035	C166035
4.0	4	14	50	2	C162040	C166040
4.5	5	14	50	2	C162045	C166045
5.0	5	16	50	2	C162050	C166050
6.0	6	19	63	2	C162060	C166060
7.0	8	19	63	2	C162070	C166070
8.0	8	19	63	2	C162080	C166080
9.0	10	22	70	2	C162090	C166090
10.0	10	22	70	2	C162100	C166100
12.0	12	25	75	2	C162120	C166120
14.0	14	30	88	2	C162140	C166140
16.0	16	32	88	2	C162160	C166160
18.0	18	36	100	2	C162180	C166180
20.0	20	38	100	2	C162200	C166200
22.0	22	38	100	2	C162220	C166220
25.0	25	38	100	2	C162250	C166250

Longitud Larga

Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAlN
3.0	3	25	65	2	C162403	C162503
4.0	4	25	65	2	C162404	C162504
5.0	5	25	75	2	C162405	C162505
6.0	6	25	75	2	C162406	C162506
8.0	8	25	75	2	C162408	C162508
10.0	10	38	100	2	C162410	C162510
12.0	12	50	100	2	C162412	C162512
14.0	14	56	125	2	C162414	C162514
16.0	16	75	150	2	C162416	C162516
18.0	18	75	150	2	C162418	C162518
20.0	20	75	150	2	C162420	C162520
25.0	25	75	150	2	C162425	C162525

USO GENERAL

Longitud Extra Larga

Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
6	75	150	2	2	C162806	C162906
8	75	150	2	2	C162808	C162908
10	75	150	2	2	C162810	C162910
12	75	150	2	2	C162812	C162912
14	75	150	2	2	C162814	C162914

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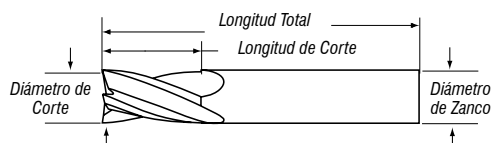
▶ LISTA: 2080 CORTADOR RECTO 4 CANALES



Aplicaciones



Características



Longitud Estándar

Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
1.0	3	3	38	4	C161010	C165010
1.5	3	5	38	4	C161015	C165015
2.0	3	6	38	4	C161020	C165020
2.5	3	7	38	4	C161025	C165025
3.0	3	12	38	4	C161030	C165030
3.5	4	12	50	4	C161035	C165035
4.0	4	14	50	4	C161040	C165040
4.5	5	14	50	4	C161045	C165045
5.0	5	16	50	4	C161050	C165050
6.0	6	19	63	4	C161060	C165060
7.0	8	19	63	4	C161070	C165070
8.0	8	19	63	4	C161080	C165080
9.0	10	22	70	4	C161090	C165090
10.0	10	22	70	4	C161100	C165100
12.0	12	25	75	4	C161120	C165120
14.0	14	30	88	4	C161140	C165140
16.0	16	32	88	4	C161160	C165160
18.0	18	36	100	4	C161180	C165180
20.0	20	38	100	4	C161200	C165200
22.0	22	38	100	4	C161220	C165220
25.0	25	38	100	4	C161250	C165250

Longitud Larga

Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
3.0	3	25	65	4	C167203	C167403
4.0	4	25	65	4	C167204	C167404
5.0	5	25	75	4	C167205	C167405
6.0	6	25	75	4	C167206	C167406
8.0	8	25	75	4	C167208	C167408
10.0	10	38	100	4	C167210	C167410
12.0	12	50	100	4	C167212	C167412
14.0	14	56	125	4	C167214	C167414
16.0	16	75	150	4	C167216	C167416
18.0	18	75	150	4	C167218	C167418
20.0	20	75	150	4	C167221	C167420
25.0	25	75	150	4	C167225	C167425

Longitud Extra Larga

Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Brillante	TiAIN
6.0	6	75	150	4	C167706	C167906
8.0	8	75	150	4	C167708	C167908
10.0	10	75	150	4	C167710	C167910
12.0	12	75	150	4	C167712	C167912
14.0	14	75	150	4	C167714	C167914

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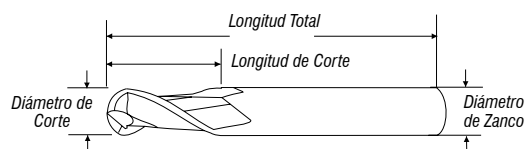
▶ LISTA: 2075 CORTADOR RECTO 2 CANALES



Aplicaciones



Características



Longitud Estándar

Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Código Brillante	Código TiAlN
1.0	3	3	38	2	C164010	C168010
1.5	3	5	38	2	C164015	C168015
2.0	3	6	38	2	C164020	C168020
2.5	3	7	38	2	C164025	C168025
3.0	3	12	38	2	C164030	C168030
3.5	4	12	50	2	C164035	C168035
4.0	4	14	50	2	C164040	C168040
4.5	5	14	50	2	C164045	C168045
5.0	5	16	50	2	C164050	C168050
6.0	6	19	63	2	C164060	C168060
7.0	8	19	63	2	C164070	C168070
8.0	8	19	63	2	C164080	C168080
9.0	10	22	70	2	C164090	C168090
10.0	10	22	70	2	C164100	C168100
12.0	12	25	75	2	C164120	C168120
14.0	14	30	88	2	C164140	C168140
16.0	16	32	88	2	C164160	C168160
18.0	18	36	100	2	C164180	C168180
20.0	20	38	100	2	C164200	C168200
22.0	22	38	100	2	C164220	C168220
25.0	25	38	100	2	C164250	C168250

Longitud Larga

Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Código Brillante	Código TiAlN
3	3	25	65	2	C164403	C164503
4	4	25	65	2	C164404	C164504
5	5	25	75	2	C164405	C164505
6	6	25	75	2	C164406	C164506
8	8	25	75	2	C164408	C164508
10	10	38	100	2	C164410	C164510
12	12	50	100	2	C164412	C164512
14	14	56	125	2	C164414	C164514
16	16	75	150	2	C164416	C164516
18	18	75	150	2	C164418	C164518
20	20	75	150	2	C164420	C164520
25	25	75	150	2	C164425	C164525

Longitud Extra Larga

Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Código Brillante	Código TiAlN
6	6	75	150	2	C164806	C164906
8	8	75	150	2	C164808	C164908
10	10	75	150	2	C164810	C164910
12	12	75	150	2	C164812	C164912
14	14	75	150	2	C164814	C164914

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▶ LISTA: 2085 CORTADOR BOLA 4 CANALES

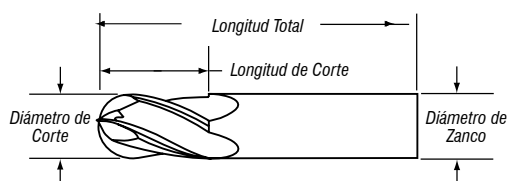


USO GENERAL

Aplicaciones



Características



Longitud Estándar


Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Código Brillante	Código TiAlN
1.0	3	3	38	4	C163010	C167010
1.5	3	5	38	4	C163015	C167015
2.0	3	6	38	4	C163020	C167020
2.5	3	7	38	4	C163025	C167025
3.0	3	12	38	4	C163030	C167030
3.5	4	12	50	4	C163035	C167035
4.0	4	14	50	4	C163040	C167040
4.5	5	14	50	4	C163045	C167045
5.0	5	16	50	4	C163050	C167050
6.0	6	19	63	4	C163060	C167060
7.0	8	19	63	4	C163070	C167070
8.0	8	19	63	4	C163080	C167080
9.0	10	22	70	4	C163090	C167090
10.0	10	22	70	4	C163100	C167100
12.0	12	25	75	4	C163120	C167120
14.0	14	30	88	4	C163140	C167140
16.0	16	32	88	4	C163160	C167160
18.0	18	36	100	4	C163180	C167180
20.0	20	38	100	4	C163200	C167200
22.0	22	38	100	4	C163220	C167220
25.0	25	38	100	4	C163250	C167250

Longitud Larga

Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Código Brillante	Código TiAIN
3.0	3	25	65	4	C167003	C167103
4.0	4	25	65	4	C167004	C167104
5.0	5	25	75	4	C167005	C167105
6.0	6	25	75	4	C167006	C167106
8.0	8	25	75	4	C167008	C167108
10.0	10	38	100	4	C167013	C167111
12.0	12	50	100	4	C167012	C167112
14.0	14	56	125	4	C167014	C167114
16.0	16	75	150	4	C167016	C167116
18.0	18	75	150	4	C167018	C167118
20.0	20	75	150	4	C167021	C167121
25.0	25	75	150	4	C167026	C167125

Longitud Extra Larga

Diámetro Milimétrica	Diámetro de Zanco	Longitud de Corte	Longitud Total	Canales	Código Brillante	Código TiAIN
6.0	6	75	150	4	C167306	C167506
8.0	8	75	150	4	C167308	C167508
10.0	10	75	150	4	C167310	C167510
12.0	12	75	150	4	C167312	C167512
14.0	14	75	150	4	C167314	C167514

 Ver página 202 para Información Técnica.

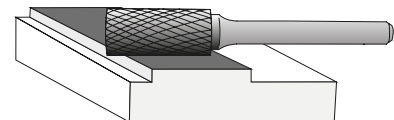
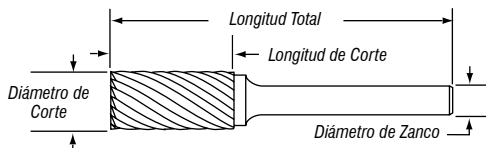
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Aplicaciones

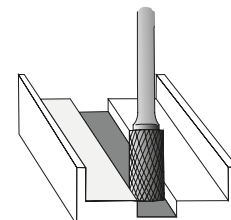
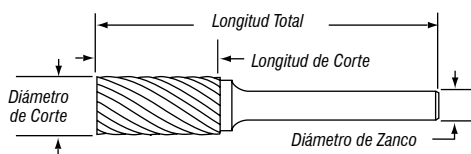


Características



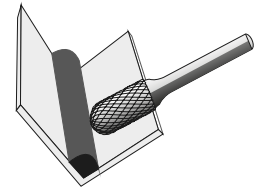
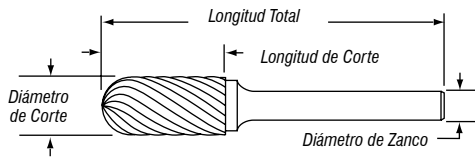
Referencia	Diámetro de Corte		Longitud de Corte	Longitud Total	Diámetro de Zanco	Código
	Fracional	Decimal				
SA-41	1/16	0.6250	1/4	1-1/2	1/8	C650104
SA-42	3/32	0.0938	7/16	1-1/2	1/8	C650206
SA-43	1/8	0.1250	9/16	1-1/2	1/8	C650308
SA-14	3/16	0.1875	5/8	2	1/4	C650512
SA-1	1/4	0.2500	5/8	2	1/4	C650716
SA-2	5/16	0.3125	3/4	2-1/2	1/4	C650920
SA-3	3/8	0.3750	3/4	2-1/2	1/4	C651024
SA-4	7/16	0.4375	1	2-3/4	1/4	C651228
SA-5	1/2	0.5000	1	2-3/4	1/4	C651332
SA-6	5/8	0.6250	1	2-3/4	1/4	C651540
SA-7	3/4	0.7500	1	2-3/4	1/4	C651748
SA-9	1	1.0000	1	2-3/4	1/4	C651864

▶ LISTA: 6020 LIMA ROTATIVA SB CILÍNDRICA CON CORTE FRONTAL



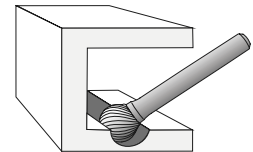
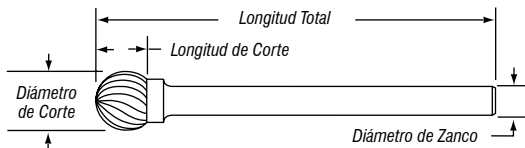
Referencia	Diámetro de Corte		Longitud de Corte	Longitud Total	Diámetro de Zanco	Código
	Fracional	Decimal				
SB-41	1/16	0.6250	1/4	1-1/2	1/8	C570104
SB-42	3/32	0.0938	7/16	1-1/2	1/8	C570206
SB-43	1/8	0.1250	9/16	1-1/2	1/8	C570308
SB-14	3/16	0.1875	5/8	2	1/4	C570512
SB-1	1/4	0.2500	5/8	2	1/4	C570816
SB-2	5/16	0.3125	3/4	2-1/2	1/4	C571020
SB-3	3/8	0.3750	3/4	2-1/2	1/4	C571124
SB-4	7/16	0.4375	1	2-3/4	1/4	C571328
SB-5	1/2	0.5000	1	2-3/4	1/4	C571432
SB-6	5/8	0.6250	1	2-3/4	1/4	C571640
SB-7	3/4	0.7500	1	2-3/4	1/4	C571848

▶ LISTA: 6030 LIMA ROTATIVA SC CILINDRICA PUNTA DE BOLA



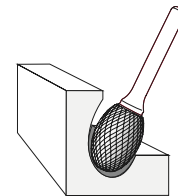
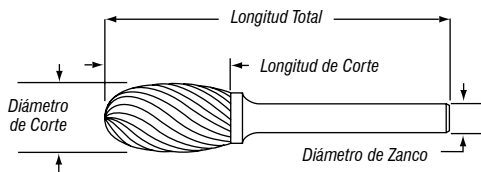
Referencia	Diámetro de Corte		Longitud de Corte	Longitud Total	Diámetro de Zanco	Código
	Fraccional	Decimal				
SC-41	3/32	0.094	7/16	1-1/2	1/8	C600106
SC-42	1/8	0.125	9/16	1-1/2	1/8	C600208
SC-14	3/16	0.188	5/8	2	1/4	C600416
SC-1	1/4	0.250	5/8	2	1/4	C600716
SC-2	5/16	0.313	3/4	2-1/2	1/4	C600920
SC-3	3/8	0.375	3/4	2-1/2	1/4	C601024
SC-4	7/16	0.438	1	2-3/4	1/4	C601228
SC-5	1/2	0.500	1	2-3/4	1/4	C601332
SC-6	5/8	0.625	1	2-3/4	1/4	C601540
SC-7	3/4	0.750	1	2-3/4	1/4	C601748

▶ LISTA: 6040 LIMA ROTATIVA SD ESFÉRICA



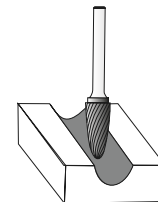
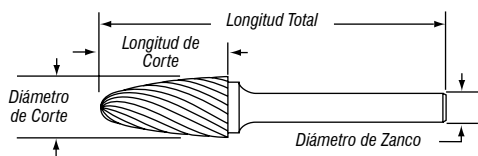
Referencia	Diámetro de Corte		Longitud de Corte	Longitud Total	Diámetro de Zanco	Código
	Fraccional	Decimal				
SD-41	3/32	0.0938	3/32	1-1/2	1/8	C630104
SD-42	1/8	0.1250	1/8	1-1/2	1/8	C630208
SD-14	3/16	0.1875	1/8	2	1/4	C630412
SD-1	1/4	0.2500	7/32	2	1/4	C630816
SD-2	5/16	0.3125	1/4	2-1/16	1/4	C631020
SD-3	3/8	0.3750	5/16	2-1/8	1/4	C631124
SD-4	7/16	0.4375	3/8	2-3/16	1/4	C631428
SD-5	1/2	0.5000	7/16	2-1/4	1/4	C631532
SD-6	5/8	0.6250	9/16	2-3/8	1/4	C631840
SD-7	3/4	0.7500	11/16	2-1/2	1/4	C632048
SD-9	1	1.0000	15/16	2-3/4	1/4	C632264

▶ LISTA: 6050 LIMA ROTATIVA SE OVOIDE



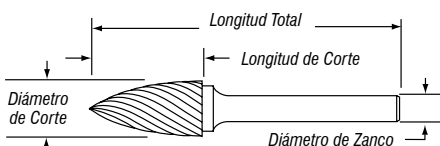
Referencia	Diámetro de Corte		Longitud de Corte	Longitud Total	Diámetro de Zanco	Código
	Fraccional	Decimal				
SE-41	1/8	0.1250	7/32	1-1/2	1/8	C660108
SE-1	1/4	0.2500	3/8	2	1/4	C660416
SE-3	3/8	0.3750	5/8	2-3/8	1/4	C660624
SE-5	1/2	0.5000	7/8	2-5/8	1/4	C660832
SE-6	5/8	0.6250	1	2-3/4	1/4	C661040
SE-7	3/4	0.7500	1	2-3/4	1/4	C661148

▶ LISTA: 6060 LIMA ROTATIVA SF FORMA DE ÁRBOL CON PUNTA DE BOLA

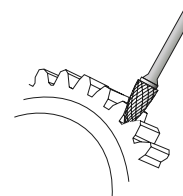


Referencia	Diámetro de Corte		Longitud de Corte	Longitud Total	Diámetro de Zanco	Código
	Fraccional	Decimal				
SF-42	1/8	0.1250	1/2	1-1/2	1/8	C690208
SF-1	1/4	0.2500	5/8	2	1/4	C690616
SF-3	3/8	0.3750	3/4	2-1/2	1/4	C690824
SF-4	7/16	0.4375	1	2-3/4	1/4	C691028
SF-5	1/2	0.5000	1	2-3/4	1/4	C691232
SF-6	5/8	0.6250	1	2-3/4	1/4	C691440
SF-7	3/4	0.7500	1	2-3/4	1/4	C691548

▶ LISTA: 6070 LIMA ROTATIVA SF FORMA DE ÁRBOL CON PUNTA

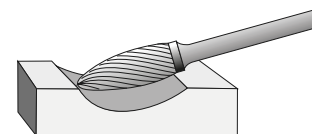
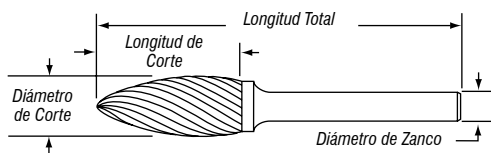


Corte Estándar



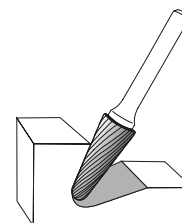
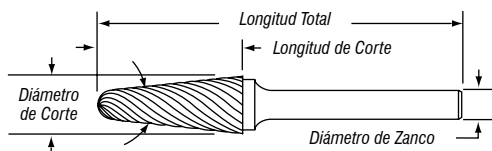
Referencia	Diámetro de Corte		Longitud de Corte	Longitud Total	Diámetro de Zanco	Código
	Fraccional	Decimal				
SG-43	1/8	0.1250	3/8	1-1/2	1/8	C710308
SG-1	1/4	0.2500	5/8	2	1/4	C710716
SG-2	5/16	0.3125	3/4	2-1/2	1/4	C710920
SG-3	3/8	0.3750	3/4	2-1/2	1/4	C711024

▶ LISTA: 6080 LIMA ROTATIVA SH FORMA DE FLAMA DOBLE CORTE



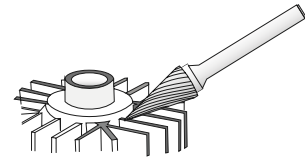
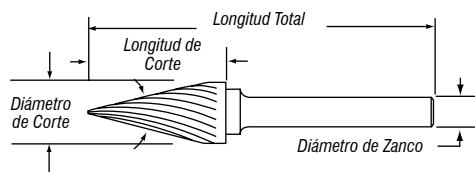
Referencia	Diámetro de Corte		Longitud de Corte	Longitud Total	Diámetro de Zanco	Código
	Fracional	Decimal				
SH-41	1/8	0.1250	1/4	1-1/2	1/8	C740108
SH-1	1/4	0.2500	1/2	2	1/4	C740216
SH-2	5/16	0.3125	3/4	2-1/2	1/4	C740420
SH-5	1/2	0.5000	1-1/4	3	1/4	C740632
SH-6	5/8	0.6250	1-7/16	3-3/16	1/4	C740848
SH-7	3/4	0.7500	1-5/8	3-3/8	1/4	C740948

▶ LISTA: 6090 LIMA ROTATIVA SL CONO CON PUNTA BOLA



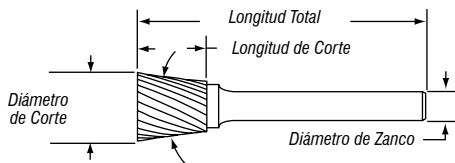
Referencia	Diámetro de Corte		Longitud de Corte	Longitud Total	Diámetro de Zanco	Código
	Fracional	Decimal				
SL-42	1/8	0.1250	1/2	1-1/2	1/8	C760208
SL-1	1/4	0.2500	5/8	2	1/4	C760316
SL-3	3/8	0.3750	1-1/16	2-15/16	1/4	C760420
SL-4	1/2	0.5000	1-1/8	3	1/4	C760532
SL-6	5/8	0.6250	1-5/16	3-3/16	1/4	C760640

▶ LISTA: 6091 LIMA ROTATIVA SM CONO CON PUNTA



Referencia	Ángulo Inclinado	Diámetro de Corte		Longitud de Corte	Longitud Total	Diámetro de Zanco	Código
		Fracional	Decimal				
SM-41	12°	1/8	0.1250	3/8	1-1/2	1/8	C790208
SM-42	14°	1/8	0.1250	7/16	1-1/2	1/8	C790308
SM-1	22°	1/4	0.2500	1/2	2	1/4	C790716
SM-2	14°	1/4	0.2500	3/4	2	1/4	C790916
SM-3	10°	1/4	0.2500	1	2	1/4	C791116
SM-3	14°	1/4	0.2500	1	2	1/4	C791216
SM-4	14°	3/8	0.3750	5/8	2-1/2	1/4	C791324
SM-5	14°	1/2	0.5000	7/8	2-5/8	1/4	C791632
SM-5	28°	1/2	0.5000	7/8	2-3/4	1/4	C791732
SM-6	14°	5/8	0.6250	1	2-3/4	1/4	C791940

▶ LISTA: 6092 LIMA ROTATIVA SN CONO INVERTIDO



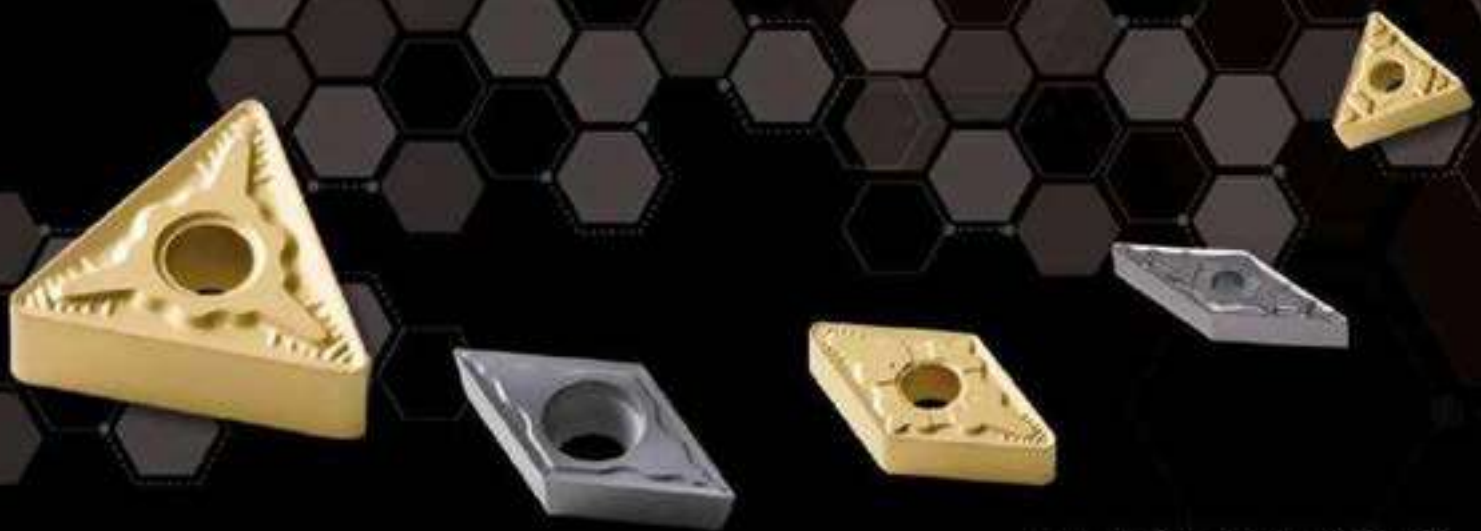
Referencia	Ángulo Inclinado	Diámetro de Corte		Longitud de Corte	Longitud Total	Diámetro de Zanco	Código
		Fracional	Decimal				
SN-41	10°	3/32	0.0938	1/8	1-1/2	1/8	C810106
SN-42	10°	1/8	0.1250	3/16	1-1/2	1/8	C810308
SN-1	10°	1/4	0.2500	5/16	2	1/4	C810616
SN-2	13°	3/8	0.3750	3/8	2-1/8	1/4	C810824
SN-3	16°	1/2	0.5000	1/2	2-1/4	1/4	C810932
SN-4	28°	1/2	0.5000	1/2	2-1/4	1/4	C811032
SN-5	19°	5/8	0.6250	5/8	2-1/2	1/4	C811240
SN-6	18°	5/8	0.6250	3/4	2-5/8	1/4	C811340
SN-7	30°	3/4	0.7500	5/8	2-3/4	1/4	C811448

Ver página 214 para Información Técnica.





2020 CATÁLOGO



INSERTOS

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► ROMPEVIRUTA PARA INSERTOS NEGATIVOS

Romeviruta	Descripción	Rango de Romeviruta	Diseño
PF4 P Acero	<ul style="list-style-type: none"> - Ángulo de incidencia variable. - Filo radial. - Buen control de rebaba con un excelente acabado superficial a diferentes profundidades de corte. 		
PV P Acero	<ul style="list-style-type: none"> - Ranura amplia para salida de rebaba. - Para máquinas inestables. - Capaz de mantener diferentes profundidades de corte. 		
PM4 P Acero	<ul style="list-style-type: none"> - Ranura amplia para salida de rebaba. - Excelente balance entre rigidez y filo. - Amplio rango de aplicaciones. - Capaz de mantener diferentes profundidades de corte. 		
PR4 P Acero	<ul style="list-style-type: none"> - Alto rendimiento en acero. - Filos de corte agresivos. - Excelente control de rebaba en pequeñas profundidades de corte. - Para cortes interrumpidos. - Fácil remoción de rebaba en avances altos. 		
MF2 M Acero Inoxidable	<ul style="list-style-type: none"> - Filo de corte agudo. - Excelente control de rebaba en pequeñas profundidades de corte. - Landa diseñada para proteger los filos. - Excelentes acabados superficiales. 		
MM2 M Acero Inoxidable	<ul style="list-style-type: none"> - Landa reforzada. - El diseño del borde provee un buen flujo de rebaba. - Por su diseño puede utilizarse en distintas aplicaciones. 		
KM K Hierro Fundido	<ul style="list-style-type: none"> - Para máquinas inestables. - Reduce adhesión de materiales. 		
KR K Hierro Fundido	<ul style="list-style-type: none"> - Excelente rendimiento en hierro fundido. - Amplio rango de aplicaciones. - Sustituye a los insertos tradicionales de asiento plano. 		

► ROMPEVIRUTA PARA INSERTOS POSITIVOS

Romeviruta	Descripción	Rango de Romeviruta	Diseño
KM positivo P M K	<ul style="list-style-type: none"> - Landa reducida, para avances menores a 0.004". - Amplio rango de aplicaciones. 		
AL N No Ferrosos	<ul style="list-style-type: none"> - Filos de corte agresivos. - Excelente desalajo de rebaba. - Reduce adhesión de materiales. 		

GRADOS DE RECUBRIMIENTO PARA INSERTOS NEGATIVOS

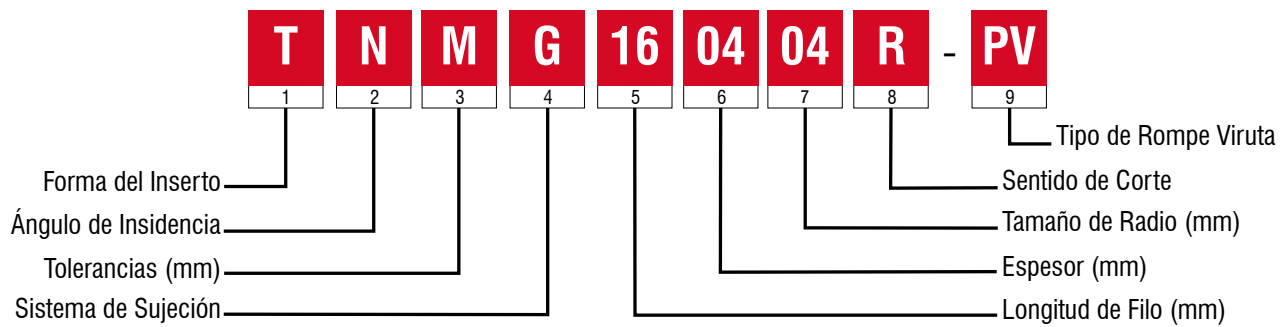
Material de Trabajo	ANSI	ISO	Tipo de Recubrimiento		
			CVD	PVD	
P Acero	C8	01	TP15CG		Resistencia al Desgaste
	C7	10	TP25CG		
	C6	20	TP34CG		
	-	30			
	-	40			
M Acero Inoxidable	-	01	CM6125	TS15CG	Resistencia al Desgaste
	-	10			Tenacidad
	-	20			
	-	30			TM10CB
K Hierro Fundido	C4	01	TK15CG		Resistencia al Desgaste
	C3	10			Tenacidad
	C2	20	TK25CG		
	C1	30			
S Aleaciones Termo-resistentes	C4	01		TS15CG	Resistencia al Desgaste
	C3	10			Tenacidad
	C2	20			
	C1	30			

GRADOS DE RECUBRIMIENTO PARA INSERTOS POSITIVOS

Material de Trabajo	ANSI	ISO	Tipo de Recubrimiento			
			CVD	PVD	Sin Recubrimiento	
P Acero	C8	01		CP2425		Resistencia al Desgaste
	C7	10	TP25CG			
	C6	20		CP2425		
	-	30				
	-	40				
M Acero Inoxidable	-	01				Resistencia al Desgaste
	-	10		CP2425		Tenacidad
	-	20				
	-	30				
K Hierro Fundido	C4	01	TK15CG	CP2425		Resistencia al Desgaste
	C3	10				Tenacidad
	C2	20				
	C1	30				
N No Ferrosos	C4	01			TN10CB	Resistencia al Desgaste
	C3	10				Tenacidad
	C2	20				
	C1	30				

 Ver página 209 para Información Técnica.

NOMENCLATURA PARA INSERTOS DE TORNEADO



1	Forma de Inserto	2	Ángulo de Insidencia	3	Tolerancias (mm)																						
C	80° Diamante	<table border="1"> <tr><td>B</td><td>5°</td><td>Rake Positivo</td></tr> <tr><td>C</td><td>7°</td><td>Rake Positivo</td></tr> <tr><td>N</td><td>0°</td><td>Rake Negativo</td></tr> <tr><td>P</td><td>11°</td><td>Rake Positivo</td></tr> </table>	B	5°	Rake Positivo	C	7°	Rake Positivo	N	0°	Rake Negativo	P	11°	Rake Positivo	<table border="1"> <tr> <th>Tolerancia Clase</th> <th>Tolerancia en "d"</th> <th>Tolerancia en "B"</th> <th>Tolerancia en "s"</th> </tr> <tr> <td>G</td> <td>± 0.025</td> <td>± 0.025</td> <td>± 0.13</td> </tr> <tr> <td>M</td> <td>Ver tabla de Tolerancias M</td> <td>Ver tabla de Tolerancias B</td> <td>± 0.13</td> </tr> </table>	Tolerancia Clase	Tolerancia en "d"	Tolerancia en "B"	Tolerancia en "s"	G	± 0.025	± 0.025	± 0.13	M	Ver tabla de Tolerancias M	Ver tabla de Tolerancias B	± 0.13
B	5°		Rake Positivo																								
C	7°		Rake Positivo																								
N	0°		Rake Negativo																								
P	11°		Rake Positivo																								
Tolerancia Clase	Tolerancia en "d"	Tolerancia en "B"	Tolerancia en "s"																								
G	± 0.025	± 0.025	± 0.13																								
M	Ver tabla de Tolerancias M	Ver tabla de Tolerancias B	± 0.13																								
D	55° Diamante																										
S	Cuadrado																										
T	Triangular																										
V	35° Diamante																										
W	Corner Trigon																										

4	Sistema de Sujeción	5	Longitud de Filo Longitud de corte en el borde (mm)	6	Espesor (mm)																																																																																																
G	Con Barrenos, Sujeción Pin/Top Ambos Lados	<table border="1"> <thead> <tr> <th>Símbolo</th> <th>C</th> <th>D</th> <th>S</th> <th>T</th> <th>V</th> <th>W</th> </tr> </thead> <tr> <td>06</td> <td>6.5</td> <td></td> <td></td> <td></td> <td></td> <td>6.5</td> </tr> <tr> <td>07</td> <td></td> <td>7.8</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>08</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>8.7</td> </tr> <tr> <td>09</td> <td>9.7</td> <td></td> <td>9.5</td> <td>9.6</td> <td></td> <td></td> </tr> <tr> <td>11</td> <td></td> <td>11.6</td> <td></td> <td>11.0</td> <td>11.1</td> <td></td> </tr> <tr> <td>12</td> <td>12.9</td> <td></td> <td>12.7</td> <td></td> <td></td> <td></td> </tr> <tr> <td>15</td> <td></td> <td>15.5</td> <td>15.9</td> <td></td> <td></td> <td></td> </tr> <tr> <td>16</td> <td>16.1</td> <td></td> <td></td> <td>16.5</td> <td>16.6</td> <td></td> </tr> <tr> <td>19</td> <td>19.4</td> <td></td> <td>19.1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>22</td> <td></td> <td></td> <td></td> <td>22.0</td> <td>22.2</td> <td></td> </tr> <tr> <td>27</td> <td></td> <td></td> <td></td> <td>27.5</td> <td></td> <td></td> </tr> </table>	Símbolo	C	D	S	T	V	W	06	6.5					6.5	07		7.8					08						8.7	09	9.7		9.5	9.6			11		11.6		11.0	11.1		12	12.9		12.7				15		15.5	15.9				16	16.1			16.5	16.6		19	19.4		19.1				22				22.0	22.2		27				27.5			<table border="1"> <thead> <tr> <th>Símbolo</th> <th>s</th> </tr> </thead> <tr> <td>02</td> <td>2.38</td> </tr> <tr> <td>03</td> <td>3.18</td> </tr> <tr> <td>T3</td> <td>3.97</td> </tr> <tr> <td>04</td> <td>4.76</td> </tr> <tr> <td>05</td> <td>5.56</td> </tr> <tr> <td>06</td> <td>6.35</td> </tr> </table>	Símbolo	s	02	2.38	03	3.18	T3	3.97	04	4.76	05	5.56	06	6.35
Símbolo	C		D	S	T	V	W																																																																																														
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T	Con Barrenos, Sujeción por Tornillo Un lado																																																																																																				
X	Manufactura - Diseño Especial																																																																																																				

7	Tamaño de Radio	8	Sentido del Corte (opcional)	9	Designación de Rompevirutas
Símbolo	s	R	Corte Derecho	Indica las propiedades del maquinado o las características del rompeviruta Manufactura especial	
02	0.2	L	Corte Izquierdo		
04	0.4				
08	0.8				
12	1.2				
16	1.6				
30	3.0				

Tolerancias M (mm)				
d	Tolerancia en "d"	Tolerancia en "B"		
	Todas las formas	Forma C, S, T, W	Forma D	Forma V
5.556	± 0.05	± 0.08	± 0.10	N/A
6.350	± 0.05	± 0.08	± 0.10	± 0.18
9.525	± 0.05	± 0.08	± 0.10	± 0.18
12.700	± 0.08	± 0.13	± 0.15	± 0.25
15.875	± 0.10	± 0.15	± 0.18	N/A
19.050	± 0.10	± 0.15	± 0.18	N/A

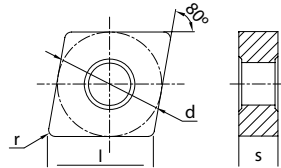
USO GENERAL



▶ INSERTOS NEGATIVOS

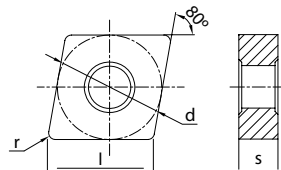


▶ LISTA: CNMG-PF4



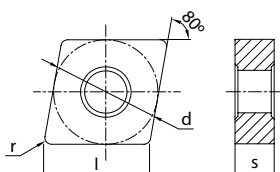
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CNMG321-PF4	CNMG090304-PF4	TP15CG	3/8	0.381	1/8	1/64	C990002
CNMG321-PF4	CNMG090304-PF4	TP25CG	3/8	0.381	1/8	1/64	C990004
CNMG322-PF4	CNMG090308-PF4	TP15CG	3/8	0.381	1/8	1/32	C990006
CNMG322-PF4	CNMG090308-PF4	TP25CG	3/8	0.381	1/8	1/32	C990008
CNMG431-PF4	CNMG120404-PF4	TP15CG	1/2	0.508	3/16	1/64	C990010
CNMG431-PF4	CNMG120404-PF4	TP25CG	1/2	0.508	3/16	1/64	C990012
CNMG432-PF4	CNMG120408-PF4	TP15CG	1/2	0.508	3/16	1/32	C990014
CNMG432-PF4	CNMG120408-PF4	TP25CG	1/2	0.508	3/16	1/32	C990016

▶ LISTA: CNMG-PV



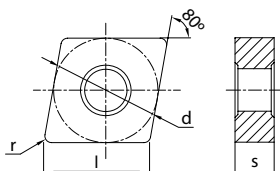
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CNMG432R-PV	CNMG120408R-PV	TP25CG	1/2	0.508	3/16	1/32	C990018
CNMG432L-PV	CNMG120408L-PV	TP25CG	1/2	0.508	3/16	1/32	C990020

▶ LISTA: CNMG-PR4



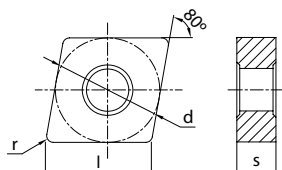
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CNMG432-PR4	CNMG120408-PR4	TP25CG	1/2	0.508	3/16	1/32	C990062
CNMG432-PR4	CNMG120408-PR4	TP34CG	1/2	0.508	3/16	1/32	C990064
CNMG433-PR4	CNMG120412-PR4	TP25CG	1/2	0.508	3/16	3/64	C990066
CNMG433-PR4	CNMG120412-PR4	TP34CG	1/2	0.508	3/16	3/64	C990068
CNMG543-PR4	CNMG160612-PR4	TP25CG	5/8	0.635	1/4	3/64	C990070
CNMG543-PR4	CNMG160612-PR4	TP34CG	5/8	0.635	1/4	3/64	C990072
CNMG544-PR4	CNMG160616-PR4	TP34CG	5/8	0.635	1/4	1/16	C990074
CNMG643-PR4	CNMG190612-PR4	TP25CG	3/4	0.762	1/4	3/64	C990076
CNMG643-PR4	CNMG190612-PR4	TP34CG	3/4	0.762	1/4	3/64	C990078
CNMG644-PR4	CNMG190616-PR4	TP34CG	3/4	0.762	1/4	1/16	C990080

▶ LISTA: CNMG-PM4



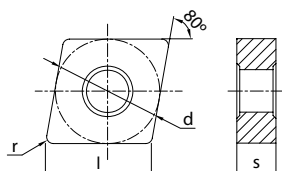
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CNMG321-PM4	CNMG090304-PM4	TP15CG	3/8	0.381	1/8	1/64	C990022
CNMG321-PM4	CNMG090304-PM4	TP25CG	3/8	0.381	1/8	1/64	C990024
CNMG322-PM4	CNMG090308-PM4	TP15CG	3/8	0.381	1/8	1/32	C990026
CNMG322-PM4	CNMG090308-PM4	TP25CG	3/8	0.381	1/8	1/32	C990028
CNMG431-PM4	CNMG120404-PM4	TP15CG	1/2	0.508	3/16	1/64	C990030
CNMG431-PM4	CNMG120404-PM4	TP25CG	1/2	0.508	3/16	1/64	C990032
CNMG432-PM4	CNMG120408-PM4	TP15CG	1/2	0.508	3/16	1/32	C990034
CNMG432-PM4	CNMG120408-PM4	TP25CG	1/2	0.508	3/16	1/32	C990036
CNMG433-PM4	CNMG120412-PM4	TP15CG	1/2	0.508	3/16	3/64	C990038
CNMG433-PM4	CNMG120412-PM4	TP25CG	1/2	0.508	3/16	3/64	C990040
CNMG434-PM4	CNMG120416-PM4	TP25CG	1/2	0.508	3/16	1/16	C990042
CNMG542-PM4	CNMG160608-PM4	TP15CG	5/8	0.635	1/4	1/32	C990044
CNMG542-PM4	CNMG160608-PM4	TP25CG	5/8	0.635	1/4	1/32	C990046
CNMG543-PM4	CNMG160612-PM4	TP15CG	5/8	0.635	1/4	3/64	C990048
CNMG543-PM4	CNMG160612-PM4	TP25CG	5/8	0.635	1/4	3/64	C990050
CNMG642-PM4	CNMG190608-PM4	TP15CG	3/4	0.762	1/4	1/32	C990052
CNMG642-PM4	CNMG190608-PM4	TP25CG	3/4	0.762	1/4	1/32	C990054
CNMG643-PM4	CNMG190612-PM4	TP15CG	3/4	0.762	1/4	3/64	C990056
CNMG643-PM4	CNMG190612-PM4	TP25CG	3/4	0.762	1/4	3/64	C990058
CNMG644-PM4	CNMG190616-PM4	TP25CG	3/4	0.762	1/4	1/16	C990060

► LISTA: CNMG-MF2



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CNMG431-MF2	CNMG120404-MF2	TS15CG	1/2	0.508	3/16	1/64	C990082
CNMG432-MF2	CNMG120408-MF2	TS15CG	1/2	0.508	3/16	1/32	C990084

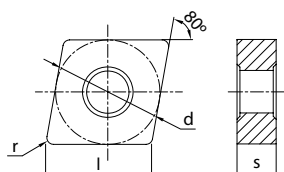
► LISTA: CNMG-MM2



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CNMG321-MM2	CNMG090304-MM2	CM6125	3/8	0.381	1/8	1/64	C990086
CNMG321-MM2	CNMG090304-MM2	TM10CB	3/8	0.381	1/8	1/64	C990088
CNMG322-MM2	CNMG090308-MM2	CM6125	3/8	0.381	1/8	1/32	C990090
CNMG322-MM2	CNMG090308-MM2	TM10CB	3/8	0.381	1/8	1/32	C990092
CNMG431-MM2	CNMG120404-MM2	CM6125	1/2	0.508	3/16	1/64	C990094
CNMG431-MM2	CNMG120404-MM2	TM10CB	1/2	0.508	3/16	1/64	C990096
CNMG432-MM2	CNMG120408-MM2	CM6125	1/2	0.508	3/16	1/32	C990098
CNMG432-MM2	CNMG120408-MM2	TM10CB	1/2	0.508	3/16	1/32	C990100
CNMG433-MM2	CNMG120412-MM2	CM6125	1/2	0.508	3/16	3/64	C990102
CNMG433-MM2	CNMG120412-MM2	TM10CB	1/2	0.508	3/16	3/64	C990104
CNMG434-MM2	CNMG120416-MM2	CM6125	1/2	0.508	3/16	1/16	C990106
CNMG434-MM2	CNMG120416-MM2	TM10CB	1/2	0.508	3/16	1/16	C990108
CNMG542-MM2	CNMG160608-MM2	CM6125	5/8	0.635	1/4	1/32	C990110
CNMG542-MM2	CNMG160608-MM2	TM10CB	5/8	0.635	1/4	1/32	C990112
CNMG543-MM2	CNMG160612-MM2	CM6125	5/8	0.635	1/4	3/64	C990114
CNMG543-MM2	CNMG160612-MM2	TM10CB	5/8	0.635	1/4	3/64	C990116
CNMG544-MM2	CNMG160616-MM2	CM6125	5/8	0.635	1/4	1/16	C990118
CNMG544-MM2	CNMG160616-MM2	TM10CB	5/8	0.635	1/4	1/16	C990120
CNMG642-MM2	CNMG190608-MM2	CM6125	3/4	0.762	1/4	1/32	C990122
CNMG642-MM2	CNMG190608-MM2	TM10CB	3/4	0.762	1/4	1/32	C990124
CNMG643-MM2	CNMG190612-MM2	CM6125	3/4	0.762	1/4	3/64	C990126
CNMG643-MM2	CNMG190612-MM2	TM10CB	3/4	0.762	1/4	3/64	C990128
CNMG644-MM2	CNMG190616-MM2	CM6125	3/4	0.762	1/4	1/16	C990130
CNMG644-MM2	CNMG190616-MM2	TM10CB	3/4	0.762	1/4	1/16	C990132

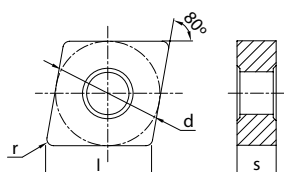


LISTA: CNMG-KM



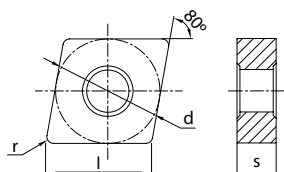
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CNMG431-KM	CNMG120404-KM	TK15CG	1/2	0.508	3/16	1/64	C990134
CNMG431-KM	CNMG120404-KM	TK25CG	1/2	0.508	3/16	1/64	C990136
CNMG432-KM	CNMG120408-KM	TK15CG	1/2	0.508	3/16	1/32	C990138
CNMG432-KM	CNMG120408-KM	TK25CG	1/2	0.508	3/16	1/32	C990140

LISTA: CNMG-KR



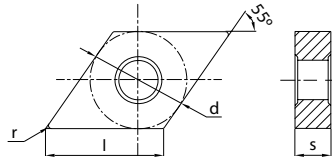
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CNMG432-KR	CNMG120408-KR	TK15CG	1/2	0.508	3/16	1/32	C990142
CNMG432-KR	CNMG120408-KR	TK25CG	1/2	0.508	3/16	1/32	C990144
CNMG433-KR	CNMG120412-KR	TK15CG	1/2	0.508	3/16	3/64	C990146
CNMG433-KR	CNMG120412-KR	TK25CG	1/2	0.508	3/16	3/64	C990148
CNMG543-KR	CNMG160612-KR	TK15CG	5/8	0.635	1/4	3/64	C990150
CNMG543-KR	CNMG160612-KR	TK25CG	5/8	0.635	1/4	3/64	C990152
CNMG544-KR	CNMG160616-KR	TK25CG	5/8	0.635	1/4	1/16	C990154
CNMG643-KR	CNMG190612-KR	TK15CG	3/4	0.762	1/4	3/64	C990156
CNMG643-KR	CNMG190612-KR	TK25CG	3/4	0.762	1/4	3/64	C990158
CNMG644-KR	CNMG190616-KR	TK25CG	3/4	0.762	1/4	1/16	C990160

LISTA: CNMG



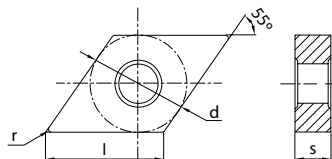
Designación	Grado	Dimensiones (IN)				Código
ISO		d	l	s	r	
CNMA120404	TK25CG	1/2"	0.508"	3/16	1/64	C991002
CNMA120404	TK15CG	1/2"	0.508"	3/16	1/64	C991004
CNMA120408	TK25CG	1/2"	0.508"	3/16	1/32	C991006
CNMA120408	TK15CG	1/2"	0.508"	3/16	1/32	C991008
CNMA160616	TK25CG	5/8"	0.635"	1/4	1/16	C991016
CNMA160616	TK15CG	5/8"	0.635"	1/4	1/16	C991018
CNMA190616	TK25CG	3/4"	0.762"	1/4	1/16	C991020
CNMA190616	TK15CG	3/4"	0.762"	1/4	1/16	C991022

► LISTA: DNMG-PF4



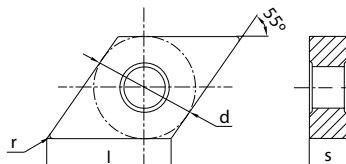
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
DNMG331-PF4	DNMG110404-PF4	TP15CG	3/8	0.458	3/16	1/64	C990162
DNMG331-PF4	DNMG110404-PF4	TP25CG	3/8	0.458	3/16	1/64	C990164
DNMG332-PF4	DNMG110408-PF4	TP15CG	3/8	0.458	3/16	1/32	C990166
DNMG332-PF4	DNMG110408-PF4	TP25CG	3/8	0.458	3/16	1/32	C990168
DNMG431-PF4	DNMG150404-PF4	TP15CG	1/2	0.610	3/16	1/64	C990170
DNMG431-PF4	DNMG150404-PF4	TP25CG	1/2	0.610	3/16	1/64	C990172
DNMG432-PF4	DNMG150408-PF4	TP15CG	1/2	0.610	3/16	1/32	C990174
DNMG432-PF4	DNMG150408-PF4	TP25CG	1/2	0.610	3/16	1/32	C990176

► LISTA: DNMG-PM4



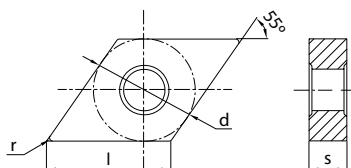
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
DNMG331-PM4	DNMG110404-PM4	TP15CG	3/8	0.458	3/16	1/64	C990178
DNMG331-PM4	DNMG110404-PM4	TP25CG	3/8	0.458	3/16	1/64	C990180
DNMG332-PM4	DNMG110408-PM4	TP15CG	3/8	0.458	3/16	1/32	C990182
DNMG332-PM4	DNMG110408-PM4	TP25CG	3/8	0.458	3/16	1/32	C990184
DNMG333-PM4	DNMG110412-PM4	TP15CG	3/8	0.458	3/16	3/64	C990186
DNMG333-PM4	DNMG110412-PM4	TP25CG	3/8	0.458	3/16	3/64	C990188
DNMG431-PM4	DNMG150404-PM4	TP15CG	1/2	0.610	3/16	1/64	C990190
DNMG431-PM4	DNMG150404-PM4	TP25CG	1/2	0.610	3/16	1/64	C990192
DNMG432-PM4	DNMG150408-PM4	TP15CG	1/2	0.610	3/16	1/32	C990194
DNMG432-PM4	DNMG150408-PM4	TP25CG	1/2	0.610	3/16	1/32	C990196
DNMG433-PM4	DNMG150412-PM4	TP15CG	1/2	0.610	3/16	3/64	C990198
DNMG433-PM4	DNMG150412-PM4	TP25CG	1/2	0.610	3/16	3/64	C990200

► LISTA: DNMG-PR4



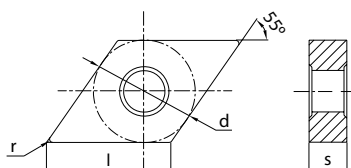
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
DNMG442-PR4	DNMG150608-PR4	TP34CG	1/2	0.610	1/4	1/32	C991462
DNMG442-PR4	DNMG150608-PR4	TP25CG	1/2	0.610	1/4	1/32	C991464
DNMG443-PR4	DNMG150612-PR4	TP34CG	1/2	0.610	1/4	3/64	C991466
DNMG443-PR4	DNMG150612-PR4	TP25CG	1/2	0.610	1/4	3/64	C991468

▶ LISTA: DNMG-MF2



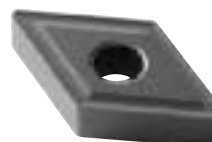
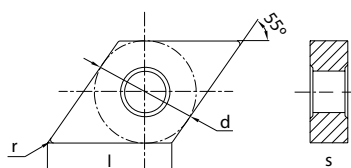
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
DNMG431-MF2	DNMG150404-MF2	TS15CG	1/2	0.610	3/16	1/64	C990202
DNMG432-MF2	DNMG150408-MF2	TS15CG	1/2	0.610	3/16	1/32	C990204

▶ LISTA: DNMG-MM2



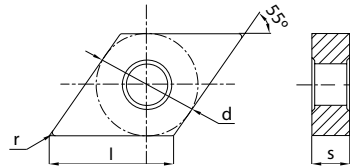
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
DNMG331-MM2	DNMG110404-MM2	CM6125	3/8	0.458	3/16	1/64	C990206
DNMG332-MM2	DNMG110408-MM2	CM6125	3/8	0.458	3/16	1/32	C990208
DNMG332-MM2	DNMG110408-MM2	TM10CB	3/8	0.458	3/16	1/32	C990210
DNMG333-MM2	DNMG110412-MM2	CM6125	3/8	0.458	3/16	3/64	C990212
DNMG333-MM2	DNMG110412-MM2	TM10CB	3/8	0.458	3/16	3/64	C990214
DNMG431-MM2	DNMG150404-MM2	CM6125	1/2	0.610	3/16	1/64	C990216
DNMG431-MM2	DNMG150404-MM2	TM10CB	1/2	0.610	3/16	1/64	C990218
DNMG432-MM2	DNMG150408-MM2	CM6125	1/2	0.610	3/16	1/32	C990220
DNMG432-MM2	DNMG150408-MM2	TM10CB	1/2	0.610	3/16	1/32	C990222
DNMG433-MM2	DNMG150412-MM2	CM6125	1/2	0.610	3/16	3/64	C990224
DNMG433-MM2	DNMG150412-MM2	TM10CB	1/2	0.610	3/16	3/64	C990226

▶ LISTA: DNMG-KM



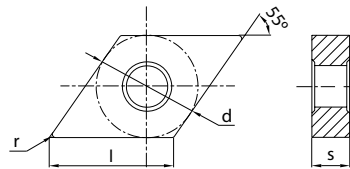
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
DNMG431-KM	DNMG150404-KM	TK15CG	1/2	0.610	3/16	1/64	C990228
DNMG431-KM	DNMG150404-KM	TK25CG	1/2	0.610	3/16	1/64	C990230
DNMG432-KM	DNMG150408-KM	TK15CG	1/2	0.610	3/16	1/32	C990232
DNMG432-KM	DNMG150408-KM	TK25CG	1/2	0.610	3/16	1/32	C990234
DNMG441-KM	DNMG150604-KM	TK25CG	1/2	1/2	1/4	1/64	C991228
DNMG441-KM	DNMG150604-KM	TK15CG	1/2	1/2	1/4	1/64	C991230
DNMG442-KM	DNMG150608-KM	TK25CG	1/2	1/2	1/4	1/32	C991232
DNMG442-KM	DNMG150608-KM	TK15CG	1/2	1/2	1/4	1/32	C991234
DNMG443-KM	DNMG150612-KM	TK25CG	1/2	1/2	1/4	3/64	C991236
DNMG443-KM	DNMG150612-KM	TK15CG	1/2	1/2	1/4	3/64	C991238

▶ LISTA: DNMG-KR



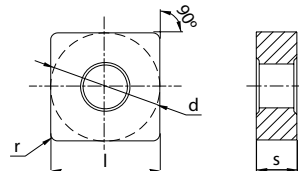
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
DNMG432-KR	DNMG150408-KR	TK15CG	1/2	0.610	3/16	1/32	C990236
DNMG432-KR	DNMG150408-KR	TK25CG	1/2	0.610	3/16	1/32	C990238
DNMG433-KR	DNMG150412-KR	TK15CG	1/2	0.610	3/16	3/64	C990240
DNMG433-KR	DNMG150412-KR	TK25CG	1/2	0.610	3/16	3/64	C990242

▶ LISTA: DNMA



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
DNMA431	DNMA150404	TP15CG	1/2	0.610	3/16	1/64	C991162
DNMA431	DNMA150404	TP25CG	1/2	0.610	3/16	1/64	C991164
DNMA432	DNMA150408	TP15CG	1/2	0.610	3/16	1/32	C991166
DNMA432	DNMA150408	TP25CG	1/2	0.610	3/16	1/32	C991168
DNMA433	DNMA150412	TP15CG	1/2	0.610	3/16	3/64	C991170
DNMA433	DNMA150412	TP25CG	1/2	0.610	3/16	1/64	C991172
DNMA442	DNMA150608	TP15CG	1/2	0.610	1/4	1/32	C991174
DNMA442	DNMA150608	TP25CG	1/2	0.610	1/4	1/32	C991176
DNMA443	DNMA150612	TP15CG	1/2	0.610	1/4	3/64	C991178
DNMA443	DNMA150612	TP25CG	1/2	0.610	1/4	3/64	C991180

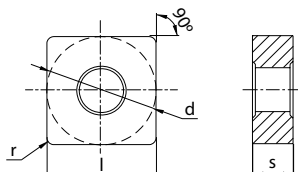
▶ LISTA: SNMG-PF4



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
SNMG321-PF4	SNMG090304-PF4	TP15CG	3/8	0.375	1/8	1/64	C990244
SNMG321-PF4	SNMG090304-PF4	TP25CG	3/8	0.375	1/8	1/64	C990246
SNMG322-PF4	SNMG090308-PF4	TP15CG	3/8	0.375	1/8	1/32	C990248
SNMG322-PF4	SNMG090308-PF4	TP25CG	3/8	0.375	1/8	1/32	C990250
SNMG431-PF4	SNMG120404-PF4	TP15CG	1/2	0.500	3/16	1/64	C990252
SNMG431-PF4	SNMG120404-PF4	TP25CG	1/2	0.500	3/16	1/64	C990254
SNMG432-PF4	SNMG120408-PF4	TP15CG	1/2	0.500	3/16	1/32	C990256
SNMG432-PF4	SNMG120408-PF4	TP25CG	1/2	0.500	3/16	1/32	C990258

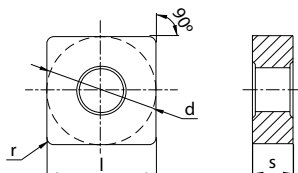


▶ LISTA: SNMG-PV



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
SNMG432R-PV	DSNM120408R-PV	TP25CG	1/2	0.500	3/16	1/32	C990260
SNMG432L-PV	ISNM120408L-PV	TP25CG	1/2	0.500	3/16	1/32	C990262

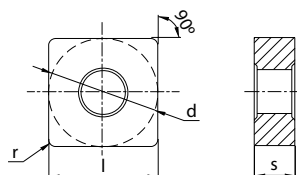
▶ LISTA: SNMG-PR4



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
SNMG432-PR4	SNMG120408-PR4	TP25CG	1/2	0.500	3/16	1/32	C990298
SNMG432-PR4	SNMG120408-PR4	TP34CG	1/2	0.500	3/16	1/32	C990300
SNMG433-PR4	SNMG120412-PR4	TP34CG	1/2	0.500	3/16	3/64	C990302
SNMG543-PR4	SNMG150612-PR4	TP25CG	5/8	0.625	1/4	3/64	C990304
SNMG543-PR4	SNMG150612-PR4	TP34CG	5/8	0.625	1/4	3/64	C990306
SNMG544-PR4	SNMG150616-PR4	TP34CG	5/8	0.625	1/4	1/16	C990308
SNMG643-PR4	SNMG190612-PR4	TP25CG	3/4	0.750	1/4	3/64	C990310
SNMG643-PR4	SNMG190612-PR4	TP34CG	3/4	0.750	1/4	3/64	C990312
SNMG644-PR4	SNMG190616-PR4	TP34CG	3/4	0.750	1/4	1/16	C990314

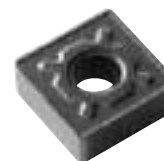
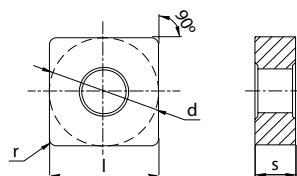
USO GENERAL

► LISTA: SNMG-PM4



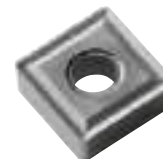
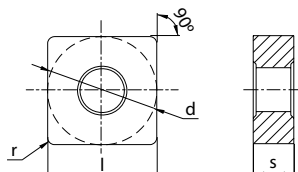
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
SNMG321-PM4	SNMG090304-PM4	TP15CG	3/8	0.375	1/8	1/64	C990264
SNMG321-PM4	SNMG090304-PM4	TP25CG	3/8	0.375	1/8	1/64	C990266
SNMG322-PM4	SNMG090308-PM4	TP15CG	3/8	0.375	1/8	1/32	C990268
SNMG322-PM4	SNMG090308-PM4	TP25CG	3/8	0.375	1/8	1/32	C990270
SNMG431-PM4	SNMG120404-PM4	TP15CG	1/2	0.500	3/16	1/64	C990272
SNMG431-PM4	SNMG120404-PM4	TP25CG	1/2	0.500	3/16	1/64	C990274
SNMG432-PM4	SNMG120408-PM4	TP15CG	1/2	0.500	3/16	1/32	C990276
SNMG432-PM4	SNMG120408-PM4	TP25CG	1/2	0.500	3/16	1/32	C990278
SNMG433-PM4	SNMG120412-PM4	TP15CG	1/2	0.500	3/16	3/64	C990280
SNMG433-PM4	SNMG120412-PM4	TP25CG	1/2	0.500	3/16	3/64	C990282
SNMG434-PM4	SNMG120416-PM4	TP25CG	1/2	0.500	3/16	1/16	C990284
SNMG542-PM4	SNMG150608-PM4	TP15CG	5/8	0.625	1/4	1/32	C990286
SNMG542-PM4	SNMG150608-PM4	TP25CG	5/8	0.625	1/4	1/32	C990288
SNMG543-PM4	SNMG150612-PM4	TP15CG	5/8	0.625	1/4	3/64	C990290
SNMG543-PM4	SNMG150612-PM4	TP25CG	5/8	0.625	1/4	3/64	C990292
SNMG643-PM4	SNMG190612-PM4	TP15CG	3/4	0.750	1/4	3/64	C990294
SNMG643-PM4	SNMG190612-PM4	TP25CG	3/4	0.750	1/4	3/64	C990296

► LISTA: SNMG-KR



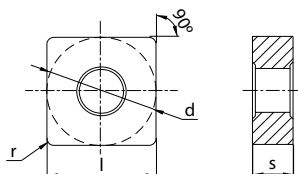
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
SNMG432-KR	SNMG120408-KR	TK15CG	1/2	0.500	3/16	1/32	C990360
SNMG432-KR	SNMG120408-KR	TK25CG	1/2	0.500	3/16	1/32	C990362
SNMG433-KR	SNMG120412-KR	TK15CG	1/2	0.500	3/16	3/64	C990364
SNMG433-KR	SNMG120412-KR	TK25CG	1/2	0.500	3/16	3/64	C990366
SNMG434-KR	SNMG120416-KR	TK25CG	1/2	0.500	3/16	1/16	C990368
SNMG543-KR	SNMG150612-KR	TK15CG	5/8	0.625	1/4	3/64	C990370
SNMG543-KR	SNMG150612-KR	TK25CG	5/8	0.625	1/4	3/64	C990372
SNMG544-KR	SNMG150616-KR	TK25CG	5/8	0.625	1/4	1/16	C990374
SNMG643-KR	SNMG190612-KR	TK15CG	3/4	0.750	1/4	3/64	C990376
SNMG643-KR	SNMG190612-KR	TK25CG	3/4	0.750	1/4	3/64	C990378
SNMG644-KR	SNMG190616-KR	TK25CG	3/4	0.750	1/4	1/16	C990380

LISTA: SNMG-MM2



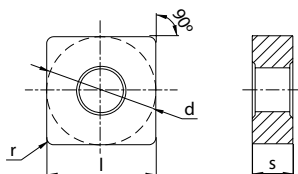
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
SNMG321-MM2	SNMG090304-MM2	CM6125	3/8	0.375	1/8	1/64	C990316
SNMG321-MM2	SNMG090304-MM2	TM10CB	3/8	0.375	1/8	1/64	C990318
SNMG322-MM2	SNMG090308-MM2	CM6125	3/8	0.375	1/8	1/32	C990320
SNMG322-MM2	SNMG090308-MM2	TM10CB	3/8	0.375	1/8	1/32	C990322
SNMG431-MM2	SNMG120404-MM2	CM6125	1/2	0.500	3/16	1/64	C990324
SNMG431-MM2	SNMG120404-MM2	TM10CB	1/2	0.500	3/16	1/64	C990326
SNMG432-MM2	SNMG120408-MM2	CM6125	1/2	0.500	3/16	1/32	C990328
SNMG432-MM2	SNMG120408-MM2	TM10CB	1/2	0.500	3/16	1/32	C990330
SNMG433-MM2	SNMG120412-MM2	CM6125	1/2	0.500	3/16	3/64	C990434
SNMG433-MM2	SNMG120412-MM2	TM10CB	1/2	0.500	3/16	3/64	C990334
SNMG434-MM2	SNMG120416-MM2	CM6125	1/2	0.500	3/16	1/16	C990336
SNMG434-MM2	SNMG120416-MM2	TM10CB	1/2	0.500	3/16	1/16	C990338
SNMG542-MM2	SNMG150608-MM2	CM6125	5/8	0.625	1/4	1/32	C990340
SNMG542-MM2	SNMG150608-MM2	TM10CB	5/8	0.625	1/4	1/32	C990342
SNMG543-MM2	SNMG150612-MM2	CM6125	5/8	0.625	1/4	3/64	C990344
SNMG543-MM2	SNMG150612-MM2	TM10CB	5/8	0.625	1/4	3/64	C990346
SNMG544-MM2	SNMG150616-MM2	CM6125	5/8	0.625	1/4	1/16	C990348
SNMG544-MM2	SNMG150616-MM2	TM10CB	5/8	0.625	1/4	1/16	C990350
SNMG643-MM2	SNMG190612-MM2	CM6125	3/4	0.750	1/4	3/64	C990352
SNMG643-MM2	SNMG190612-MM2	TM10CB	3/4	0.750	1/4	3/64	C990354
SNMG644-MM2	SNMG190616-MM2	CM6125	3/4	0.750	1/4	1/16	C990356
SNMG644-MM2	SNMG190616-MM2	TM10CB	3/4	0.750	1/4	1/16	C990358

LISTA: SNMG-MF2



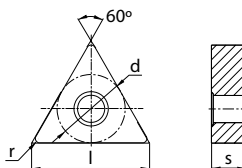
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
SNMG431-MF2	SNMG120404-MF2	TS15CG	1/2	0.500	3/16	1/64	C991316
SNMG432-MF2	SNMG120408-MF2	TS15CG	1/2	0.500	3/16	1/32	C991318

LISTA: SNMA



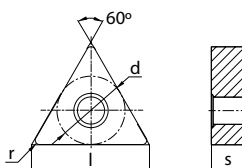
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
SNMA432	SNMA120408	TK25CG	1/2	0.500	3/16	1/32	C991244
SNMA432	SNMA120408	TK15CG	1/2	0.500	3/16	1/32	C991246
SNMA433	SNMA120412	TK15CG	1/2	0.500	3/16	3/64	C991248
SNMA643	SNMA190612	TK25CG	3/4	0.751	1/4	3/64	C991250
SNMA643	SNMA190612	TK15CG	3/4	0.751	1/4	3/64	C991252
SNMA644	SNMA190616	TK25CG	3/4	0.751	1/4	1/16	C991254
SNMA644	SNMA190616	TK15CG	3/4	0.751	1/4	1/16	C991256

LISTA: TNMG-PF4



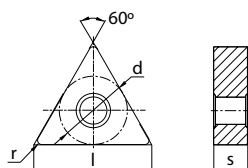
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TNMG331-PF4	TNMG160404-PF4	TP15CG	3/8	0.650	3/16	1/64	C990382
TNMG331-PF4	TNMG160404-PF4	TP25CG	3/8	0.650	3/16	1/64	C990384
TNMG332-PF4	TNMG160408-PF4	TP15CG	3/8	0.650	3/16	1/32	C990386
TNMG332-PF4	TNMG160408-PF4	TP25CG	3/8	0.650	3/16	1/32	C990388
TNMG431-PF4	TNMG220404-PF4	TP15CG	1/2	0.866	3/16	1/64	C990390
TNMG431-PF4	TNMG220404-PF4	TP25CG	1/2	0.866	3/16	1/64	C990392
TNMG432-PF4	TNMG220408-PF4	TP15CG	1/2	0.866	3/16	1/32	C990394
TNMG432-PF4	TNMG220408-PF4	TP25CG	1/2	0.866	3/16	1/32	C990396

LISTA: TNMG-PV



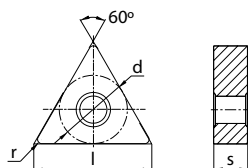
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TNMG331R-PV	TNMG160404R-PV	TP25CG	3/8	0.650	3/16	1/64	C990398
TNMG331L-PV	TNMG160404L-PV	TP25CG	3/8	0.650	3/16	1/64	C990400
TNMG332R-PV	TNMG160408R-PV	TP25CG	3/8	0.650	3/16	1/32	C990402
TNMG332L-PV	TNMG160408L-PV	TP25CG	3/8	0.650	3/16	1/32	C990404

▶ LISTA:TNMG-PR4



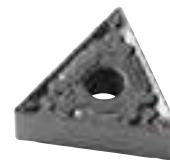
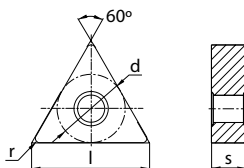
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TNMG433-PR4	TNMG220412-PR4	TP25CG	1/2	0.866	3/16	3/64	C990436
TNMG433-PR4	TNMG220412-PR4	TP34CG	1/2	0.866	3/16	3/64	C990438
TNMG434-PR4	TNMG220416-PR4	TP34CG	1/2	0.866	3/16	1/16	C990440
TNMG543-PR4	TNMG270612-PR4	TP25CG	5/8	1.083	1/4	3/64	C990442
TNMG543-PR4	TNMG270612-PR4	TP34CG	5/8	1.083	1/4	3/64	C990444
TNMG544-PR4	TNMG270616-PR4	TP34CG	5/8	1.083	1/4	1/16	C990446
TNMG332-PR4	TNMG160408-PR4	TP34CG	3/8	0.650	3/16	1/32	C994436
TNMG332-PR4	TNMG160408-PR4	TP25CG	3/8	0.650	3/16	1/32	C994438
TNMG333-PR4	TNMG160412-PR4	TP34CG	3/8	0.650	3/16	3/64	C994440
TNMG333-PR4	TNMG160412-PR4	TP25CG	3/8	0.650	3/16	3/64	C994442

▶ LISTA: TNMG-PM4



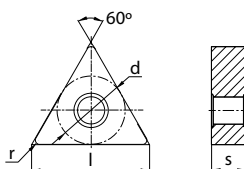
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TNMG221-PM4	TNMG110304-PM4	TP15CG	0.433	0.433	1/8	1/64	C990406
TNMG221-PM4	TNMG110304-PM4	TP25CG	0.433	0.433	1/8	1/64	C990408
TNMG222-PM4	TNMG110308-PM4	TP15CG	0.433	0.433	1/8	1/32	C990410
TNMG222-PM4	TNMG110308-PM4	TP25CG	0.433	0.433	1/8	1/32	C990412
TNMG331-PM4	TNMG160404-PM4	TP15CG	0.650	0.650	3/16	1/64	C990414
TNMG331-PM4	TNMG160404-PM4	TP25CG	0.650	0.650	3/16	1/64	C990416
TNMG332-PM4	TNMG160408-PM4	TP15CG	0.650	0.650	3/16	1/32	C990418
TNMG332-PM4	TNMG160408-PM4	TP25CG	0.650	0.650	3/16	1/32	C990420
TNMG333-PM4	TNMG160412-PM4	TP15CG	0.650	0.650	3/16	3/64	C990422
TNMG333-PM4	TNMG160412-PM4	TP25CG	0.650	0.650	3/16	3/64	C990424
TNMG432-PM4	TNMG220408-PM4	TP15CG	0.866	0.866	3/16	1/32	C990426
TNMG432-PM4	TNMG220408-PM4	TP25CG	0.866	0.866	3/16	1/32	C990428
TNMG433-PM4	TNMG220412-PM4	TP15CG	0.866	0.866	3/16	3/64	C990430
TNMG433-PM4	TNMG220412-PM4	TP25CG	0.866	0.866	3/16	3/64	C990432

► LISTA:TNMG-MF2



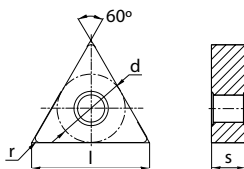
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TNMG331-MF2	TNMG160404-MF2	TS15CG	3/8	0.650	3/16	1/6	C990448
TNMG332-MF2	TNMG160408-MF2	TS15CG	3/8	0.650	3/16	1/32	C990450

► LISTA: TNMG-MM2



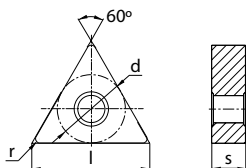
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TNMG331-MM2	TNMG160404-MM2	CM6125	3/8	0.650	3/16	1/64	C990452
TNMG331-MM2	TNMG160404-MM2	TM10CB	3/8	0.650	3/16	1/64	C990454
TNMG332-MM2	TNMG160408-MM2	CM6125	3/8	0.650	3/16	1/32	C990456
TNMG332-MM2	TNMG160408-MM2	TM10CB	3/8	0.650	3/16	1/32	C990458
TNMG333-MM2	TNMG160412-MM2	CM6125	3/8	0.650	3/16	3/64	C990460
TNMG333-MM2	TNMG160412-MM2	TM10CB	3/8	0.650	3/16	3/64	C990462
TNMG432-MM2	TNMG220408-MM2	CM6125	1/2	0.866	3/16	1/32	C990464
TNMG432-MM2	TNMG220408-MM2	TM10CB	1/2	0.866	3/16	1/32	C990466
TNMG433-MM2	TNMG220412-MM2	CM6125	1/2	0.866	3/16	3/64	C990468
TNMG433-MM2	TNMG220412-MM2	TM10CB	1/2	0.866	3/16	3/64	C990470
TNMG434-MM2	TNMG220416-MM2	CM6125	1/2	0.866	3/16	1/16	C990472
TNMG434-MM2	TNMG220416-MM2	TM10CB	1/2	0.866	3/16	1/16	C990474

► LISTA:TNMG-KM



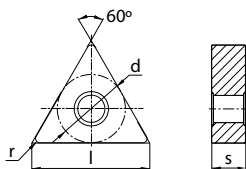
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TNMG331-KM	TNMG160404-KM	TK15CG	3/8	0.650	3/16	1/64	C990476
TNMG331-KM	TNMG160404-KM	TK25CG	3/8	0.650	3/16	1/64	C990478
TNMG332-KM	TNMG160408-KM	TK15CG	3/8	0.650	3/16	1/32	C990480
TNMG332-KM	TNMG160408-KM	TK25CG	3/8	0.650	3/16	1/32	C990482
TNMG432-KM	TNMG220408-KM	TK15CG	1/2	0.866	3/16	1/32	C990477

▶ LISTA: TNMG-KR



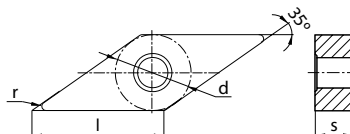
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TNMG332-KR	TNMG160408-KR	TK15CG	3/8	0.650	3/16	1/32	C990484
TNMG332-KR	TNMG160408-KR	TK25CG	3/8	0.650	3/16	1/32	C990486
TNMG333-KR	TNMG160412-KR	TK15CG	3/8	0.650	3/16	3/64	C990488
TNMG333-KR	TNMG160412-KR	TK25CG	3/8	0.650	3/16	3/64	C990490
TNMG432-KR	TNMG220408-KR	TK15CG	1/2	0.866	3/16	1/32	C990492
TNMG432-KR	TNMG220408-KR	TK25CG	1/2	0.866	3/16	1/32	C990494
TNMG433-KR	TNMG220412-KR	TK15CG	1/2	0.866	3/16	3/64	C990496
TNMG433-KR	TNMG220412-KR	TK25CG	1/2	0.866	3/16	3/64	C990498
TNMG434-KR	TNMG220416-KR	TK25CG	1/2	0.866	3/16	1/16	C990500
TNMG543-KR	TNMG270612-KR	TK15CG	5/8	1.083	1/4	3/64	C990502
TNMG543-KR	TNMG270612-KR	TK25CG	5/8	1.083	1/4	3/64	C990504
TNMG544-KR	TNMG270616-KR	TK15CG	5/8	1.083	1/4	1/16	C990506

▶ LISTA: TNMA



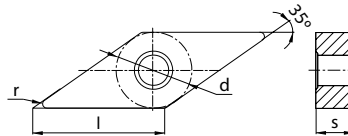
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TNMA332	TNMA160408	TK25CG	3/8	0.650	3/16	1/32	C991382
TNMA332	TNMA160408	TK15CG	3/8	0.650	3/16	1/32	C991384
TNMA333	TNMA160412	TK25CG	3/8	0.650	3/16	3/64	C991386
TNMA333	TNMA160412	TK15CG	3/8	0.650	3/16	3/64	C991388
TNMA432	TNMA220408	TK25CG	1/2	0.866	3/16	1/32	C991400
TNMA434	TNMA220416	TK15CG	1/2	0.866	3/16	1/16	C991402

▶ LISTA: VNMG-PF4



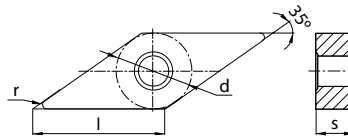
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
VNMG331-PF4	VNMG160404-PF4	TP15CG	3/8	0.654	3/16	1/64	C990508
VNMG331-PF4	VNMG160404-PF4	TP25CG	3/8	0.654	3/16	1/64	C990510
VNMG332-PF4	VNMG160408-PF4	TP15CG	3/8	0.654	3/16	1/32	C990512
VNMG332-PF4	VNMG160408-PF4	TP25CG	3/8	0.654	3/16	1/32	C990514
VNMG431-PF4	VNMG220404-PF4	TP15CG	1/2	0.872	3/16	1/64	C990516
VNMG432-PF4	VNMG220408-PF4	TP15CG	1/2	0.872	3/16	1/32	C990518

▶ LISTA: VNMG-PM4



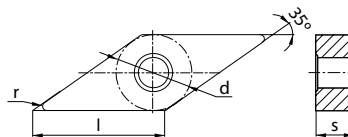
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
VNMG331-PM4	VNMG160404-PM4	TP15CG	3/8	0.654	3/16	1/64	C990520
VNMG331-PM4	VNMG160404-PM4	TP25CG	3/8	0.654	3/16	1/64	C990522
VNMG332-PM4	VNMG160408-PM4	TP15CG	3/8	0.654	3/16	1/32	C990524
VNMG332-PM4	VNMG160408-PM4	TP25CG	3/8	0.654	3/16	1/32	C990526
VNMG333-PM4	VNMG160412-PM4	TP15CG	3/8	0.654	3/16	3/64	C990528
VNMG333-PM4	VNMG160412-PM4	TP25CG	3/8	0.654	3/16	3/64	C990530

▶ LISTA: VNMG-MF2



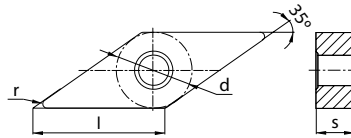
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
VNMG331-MF2	VNMG160404-MF2	TS15CG	3/8	0.654	3/16	1/64	C990532
VNMG332-MF2	VNMG160408-MF2	TS15CG	3/8	0.654	3/16	1/32	C990534

▶ LISTA: VNMG-MM2



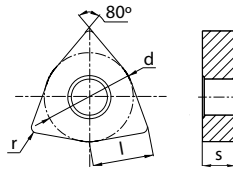
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
VNMG331-MM2	VNMG160404-MM2	CM6125	3/8	0.654	3/16	1/64	C990536
VNMG331-MM2	VNMG160404-MM2	TM10CB	3/8	0.654	3/16	1/64	C990538
VNMG332-MM2	VNMG160408-MM2	CM6125	3/8	0.654	3/16	1/32	C990540
VNMG332-MM2	VNMG160408-MM2	TM10CB	3/8	0.654	3/16	1/32	C990542

▶ LISTA: VNMG-KM



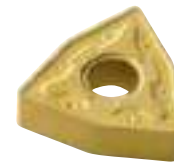
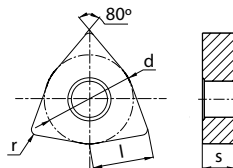
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
VNMG331-KM	VNMG160404-KM	TK15CG	3/8	0.654	3/16	1/64	C990544
VNMG331-KM	VNMG160404-KM	TK25CG	3/8	0.654	3/16	1/64	C990546
VNMG332-KM	VNMG160408-KM	TK15CG	3/8	0.654	3/16	1/32	C990548
VNMG332-KM	VNMG160408-KM	TK25CG	3/8	0.654	3/16	1/32	C990550

▶ LISTA: WNMG-PF4



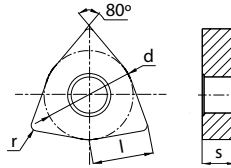
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
WNMG331-PF4	WNMG060404-PF4	TP15CG	3/8	0.257	3/16	1/64	C990552
WNMG331-PF4	WNMG060404-PF4	TP25CG	3/8	0.257	3/16	1/64	C990554
WNMG332-PF4	WNMG060408-PF4	TP15CG	3/8	0.257	3/16	1/32	C990556
WNMG332-PF4	WNMG060408-PF4	TP25CG	3/8	0.257	3/16	1/32	C990558
WNMG431-PF4	WNMG080404-PF4	TP15CG	1/2	0.342	3/16	1/64	C990560
WNMG431-PF4	WNMG080404-PF4	TP25CG	1/2	0.342	3/16	1/64	C990562
WNMG432-PF4	WNMG080408-PF4	TP15CG	1/2	0.342	3/16	1/32	C990564
WNMG432-PF4	WNMG080408-PF4	TP25CG	1/2	0.342	3/16	1/32	C990566

▶ LISTA: WNMG-PR4



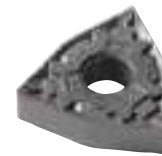
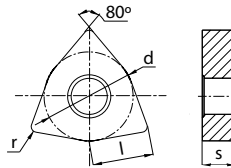
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
WNMG432-PR4	WNMG080408-PR4	TP34CG	1/2	0.342	3/16	1/32	C990592
WNMG433-PR4	WNMG080412-PR4	TP25CG	1/2	0.342	3/16	3/64	C990594
WNMG433-PR4	WNMG080412-PR4	TP34CG	1/2	0.342	3/16	3/64	C990596
WNMG434-PR4	WNMG080416-PR4	TP34CG	1/2	0.342	3/16	1/16	C990598

► LISTA: WNMG-PM4



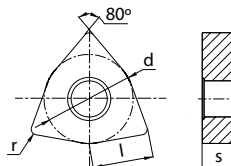
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
WNMG331-PM4	WNMG060404-PM4	TP15CG	3/8	0.257	3/16	1/64	C990568
WNMG331-PM4	WNMG060404-PM4	TP25CG	3/8	0.257	3/16	1/64	C990570
WNMG332-PM4	WNMG060408-PM4	TP15CG	3/8	0.257	3/16	1/32	C990572
WNMG332-PM4	WNMG060408-PM4	TP25CG	3/8	0.257	3/16	1/32	C990574
WNMG431-PM4	WNMG080404-PM4	TP15CG	1/2	0.342	3/16	1/64	C990576
WNMG431-PM4	WNMG080404-PM4	TP25CG	1/2	0.342	3/16	1/64	C990578
WNMG432-PM4	WNMG080408-PM4	TP15CG	1/2	0.342	3/16	1/32	C990580
WNMG432-PM4	WNMG080408-PM4	TP25CG	1/2	0.342	3/16	1/32	C990582
WNMG433-PM4	WNMG080412-PM4	TP15CG	1/2	0.342	3/16	3/64	C990584
WNMG433-PM4	WNMG080412-PM4	TP25CG	1/2	0.342	3/16	3/64	C990586
WNMG434-PM4	WNMG080416-PM4	TP25CG	1/2	0.342	3/16	1/16	C990588

► LISTA: WNMG-MF2



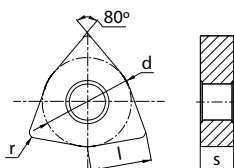
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
WNMG431-MF2	WNMG080404-MF2	TS15CG	1/2	0.342	3/16	1/64	C990600
WNMG432-MF2	WNMG080408-MF2	TS15CG	1/2	0.342	3/16	1/32	C990602

► LISTA: WNMA



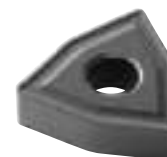
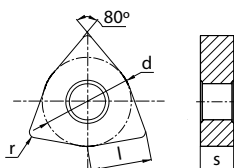
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
WNMA432	WNMA080408	TK25CG	1/2	0.324	3/16	1/32	C991552
WNMA432	WNMA080408	TK15CG	1/2	0.324	3/16	1/32	C991554
WNMA433	WNMA080412	TK25CG	1/2	0.342	3/16	3/64	C991556
WNMA433	WNMA080412	TK15CG	1/2	0.342	3/16	3/64	C991558

▶ LISTA: WNMG-MM2



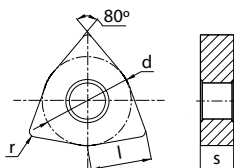
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
WNMG331-MM2	WNMG060404-MM2	CM6125	3/8	0.257	3/16	1/64	C990604
WNMG331-MM2	WNMG060404-MM2	TM10CB	3/8	0.257	3/16	1/64	C990606
WNMG332-MM2	WNMG060408-MM2	CM6125	3/8	0.257	3/16	1/32	C990608
WNMG332-MM2	WNMG060408-MM2	TM10CB	3/8	0.257	3/16	1/32	C990610
WNMG333-MM2	WNMG060412-MM2	CM6125	3/8	0.257	3/16	3/64	C990612
WNMG333-MM2	WNMG060412-MM2	TM10CB	3/8	0.257	3/16	3/64	C990614
WNMG431-MM2	WNMG080404-MM2	CM6125	1/2	0.342	3/16	1/64	C990616
WNMG431-MM2	WNMG080404-MM2	TM10CB	1/2	0.342	3/16	1/64	C990618
WNMG432-MM2	WNMG080408-MM2	CM6125	1/2	0.342	3/16	1/32	C990620
WNMG432-MM2	WNMG080408-MM2	TM10CB	1/2	0.342	3/16	1/32	C990622
WNMG433-MM2	WNMG080412-MM2	CM6125	1/2	0.342	3/16	3/64	C990624
WNMG433-MM2	WNMG080412-MM2	TM10CB	1/2	0.342	3/16	3/64	C990626

▶ LISTA: WNMG-KM



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
WNMG431-KM	WNMG080404-KM	TK15CG	1/2	0.342	3/16	1/64	C990628
WNMG431-KM	WNMG080404-KM	TK25CG	1/2	0.342	3/16	1/64	C990630
WNMG432-KM	WNMG080408-KM	TK15CG	1/2	0.342	3/16	1/32	C990632
WNMG432-KM	WNMG080408-KM	TK25CG	1/2	0.342	3/16	1/32	C990634

▶ LISTA: WNMG-KR



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
WNMG432-KR	WNMG080408-KR	TK15CG	1/2	0.342	3/16	1/32	C990636
WNMG432-KR	WNMG080408-KR	TK25CG	1/2	0.342	3/16	1/32	C990638
WNMG433-KR	WNMG080412-KR	TK15CG	1/2	0.342	3/16	3/64	C990640
WNMG433-KR	WNMG080412-KR	TK25CG	1/2	0.342	3/16	3/64	C990642

▶ INSERTOS POSITIVOS



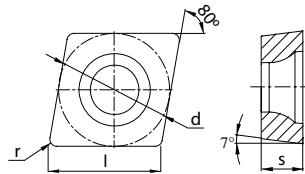
▶ LISTA: CCMT-KM



TP25CG

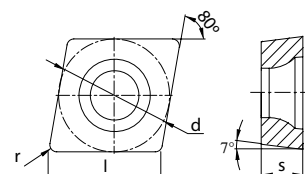


TP15CG



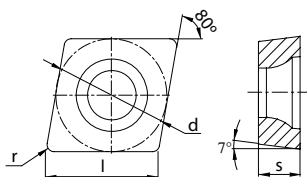
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CCMT2(1.5)1-KM	CCMT060204-KM	TP25CG	1/4	0.254	3/32	1/64	C990644
CCMT2(1.5)1-KM	CCMT060204-KM	TK15CG	1/4	0.254	3/32	1/64	C990646
CCMT2(1.5)2-KM	CCMT060208-KM	TP25CG	1/4	0.254	3/32	1/32	C990648
CCMT2(1.5)2-KM	CCMT060208-KM	TK15CG	1/4	0.254	3/32	1/32	C990650
CCMT3(2.5)0.5-KM	CCMT09T302-KM	TP25CG	3/8	0.381	5/32	0.008	C990652
CCMT3(2.5)0.5-KM	CCMT09T302-KM	TK15CG	3/8	0.381	5/32	0.008	C990654
CCMT3(2.5)1-KM	CCMT09T304-KM	TP25CG	3/8	0.381	5/32	1/64	C990656
CCMT3(2.5)1-KM	CCMT09T304-KM	TK15CG	3/8	0.381	5/32	1/64	C990658
CCMT3(2.5)2-KM	CCMT09T308-KM	TP25CG	3/8	0.381	5/32	1/32	C990660
CCMT3(2.5)2-KM	CCMT09T308-KM	TK15CG	3/8	0.381	5/32	1/32	C990662
CCMT431-KM	CCMT120404-KM	TP25CG	1/2	0.508	3/16	1/64	C990664
CCMT431-KM	CCMT120404-KM	TK15CG	1/2	0.508	3/16	1/64	C990666
CCMT432-KM	CCMT120408-KM	TP25CG	1/2	0.508	3/16	1/32	C990668
CCMT432-KM	CCMT120408-KM	TK15CG	1/2	0.508	3/16	1/32	C990670
CCMT433-KM	CCMT120412-KM	TP25CG	1/2	0.508	3/16	3/64	C990672
CCMT433-KM	CCMT120412-KM	TK15CG	1/2	0.508	3/16	3/64	C990674

▶ LISTA: CCMT-MM2



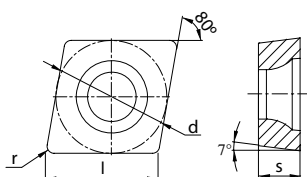
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CCMT3251-MM2	CCMT09T304-MM2	CM6125	3/8	0.381	5/32	1/64	C994644
CCMT3252-MM2	CCMT09T308-MM2	CM6125	3/8	0.381	5/32	1/32	C994646

▶ LISTA: CCGT-KM



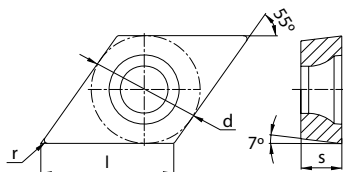
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CCGT2(1.5)1-KM	CCGT060204-KM	CP2425	1/4	0.254	3/32	1/64	C990676
CCGT2(1.5)2-KM	CCGT060208-KM	CP2425	1/4	0.254	3/32	1/32	C990678
CCGT3(2.5) 0.5-KM	CCGT09T302-KM	CP2425	3/8	0.381	5/32	0.008	C990680
CCGT3(2.5)1-KM	CCGT09T304-KM	CP2425	3/8	0.381	5/32	1/64	C990682
CCGT3(2.5)2-KM	CCGT09T308-KM	CP2425	3/8	0.381	5/32	1/32	C990684
CCGT431-KM	CCGT120404-KM	CP2425	1/2	0.508	3/16	1/64	C990686
CCGT432-KM	CCGT120408-KM	CP2425	1/2	0.508	3/16	1/32	C990688

▶ LISTA: CPGT-KM



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CPGT2(1.5)1 -KM	CPGT060204-KM	CP2425	1/4	0.254	3/32	1/64	C990690
CPGT2(1.5)2 -KM	CPGT060208-KM	CP2425	1/4	0.254	3/32	1/32	C990692
CPGT3(2.5) 0.5-KM	CPGT09T302-KM	CP2425	3/8	0.381	5/32	0.008	C990694
CPGT3(2.5)1 -KM	CPGT09T304-KM	CP2425	3/8	0.381	5/32	1/64	C990696
CPGT3(2.5)2 -KM	CPGT09T308-KM	CP2425	3/8	0.381	5/32	1/32	C990698
CPGT431-KM	CPGT120404-KM	CP2425	1/2	0.508	3/16	1/64	C990700
CPGT432-KM	CPGT120408-KM	CP2425	1/2	0.508	3/16	1/32	C990702

▶ LISTA: DCGT-KM



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
DCGT2(1.5)0.5 -AP	DCGT070202-AP	CP2425	1/4	0.305	3/32	0.008	C990736
DCGT2(1.5)1-AP	DCGT070204-AP	CP2425	1/4	0.305	3/32	1/64	C990738
DCGT2(1.5)2-AP	DCGT070208-AP	CP2425	1/4	0.305	3/32	1/32	C990740
DCGT3(2.5)0.5 -AP	DCGT11T302-AP	CP2425	3/8	0.458	5/32	0.008	C990742
DCGT3(2.5)1-AP	DCGT11T304-AP	CP2425	3/8	0.458	5/32	1/64	C990744
DCGT3(2.5)2-AP	DCGT11T308-AP	CP2425	3/8	0.458	5/32	1/32	C990746

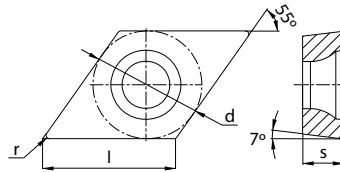
► LISTA: DCMT-KM



TP25CG



TP15CG



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
DCMT2(1.5)1 -KM	DCMT070204-KM	TP25CG	1/4	0.305	3/32	1/64	C990704
DCMT2(1.5)1 -KM	DCMT070204-KM	TK15CG	1/4	0.305	3/32	1/64	C990706
DCMT2(1.5)2 -KM	DCMT070208-KM	TP25CG	1/4	0.305	3/32	1/32	C990708
DCMT2(1.5)2 -KM	DCMT070208-KM	TK15CG	1/4	0.305	3/32	1/32	C990710
DCMT3(2.5)0.5-KM	DCMT11T302-KM	TP25CG	3/8	0.458	5/32	0.008	C990712
DCMT3(2.5)0.5-KM	DCMT11T302-KM	TK15CG	3/8	0.458	5/32	0.008	C990714
DCMT3(2.5)1 -KM	DCMT11T304-KM	TP25CG	3/8	0.458	5/32	1/64	C990716
DCMT3(2.5)1 -KM	DCMT11T304-KM	TK15CG	3/8	0.458	5/32	1/64	C990718
DCMT3(2.5)2 -KM	DCMT11T308-KM	TP25CG	3/8	0.458	5/32	1/32	C990720
DCMT3(2.5)2 -KM	DCMT11T308-KM	TK15CG	3/8	0.458	5/32	1/32	C990722
DCMT431-KM	DCMT150404-KM	TP25CG	1/2	0.610	3/16	1/64	C990724
DCMT431-KM	DCMT150404-KM	TK15CG	1/2	0.610	3/16	1/64	C990726
DCMT432-KM	DCMT150408-KM	TP25CG	1/2	0.610	3/16	1/32	C990728
DCMT432-KM	DCMT150408-KM	TK15CG	1/2	0.610	3/16	1/32	C990730
DCMT433-KM	DCMT150412-KM	TP25CG	1/2	0.610	3/16	3/64	C990732
DCMT433-KM	DCMT150412-KM	TK15CG	1/2	0.610	3/16	3/64	C990734

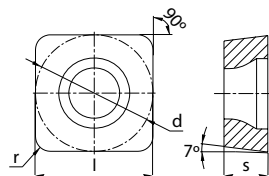
► LISTA: SCMT-KM



TP25CG



TP15CG



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
SCMT3(2.5)1-KM	SCMT09T304-KM	TP25CG	3/8	0.375	5/32	1/64	C990748
SCMT3(2.5)1-KM	SCMT09T304-KM	TK15CG	3/8	0.375	5/32	1/64	C990750
SCMT3(2.5)2-KM	SCMT09T308-KM	TP25CG	3/8	0.375	5/32	1/32	C990752
SCMT3(2.5)2-KM	SCMT09T308-KM	TK15CG	3/8	0.375	5/32	1/32	C990754
SCMT431-KM	SCMT120404-KM	TP25CG	1/2	0.500	3/16	1/64	C990756
SCMT431-KM	SCMT120404-KM	TK15CG	1/2	0.500	3/16	1/64	C990758
SCMT432-KM	SCMT120408-KM	TP25CG	1/2	0.500	3/16	1/32	C990760
SCMT432-KM	SCMT120408-KM	TK15CG	1/2	0.500	3/16	1/32	C990762

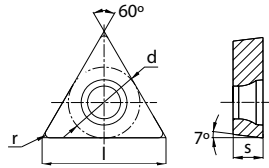
► LISTA: TCMT-KM



TP25CG

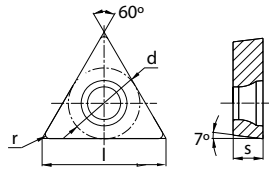


TP15CG



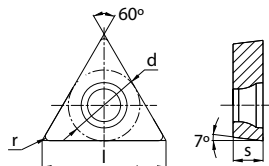
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TCMT2(1.5)1-KM	TCMT110204-KM	TP25CG	1/4	0.433	3/32	1/64	C990764
TCMT2(1.5)1-KM	TCMT110204-KM	TK15CG	1/4	0.433	3/32	1/64	C990766
TCMT2(1.5)2-KM	TCMT110208-KM	TP25CG	1/4	0.433	3/32	1/32	C990768
TCMT2(1.5)2-KM	TCMT110208-KM	TK15CG	1/4	0.433	3/32	1/32	C990770
TCMT3(2.5)1-KM	TCMT16T304-KM	TP25CG	3/8	0.650	5/32	1/64	C990772
TCMT3(2.5)1-KM	TCMT16T304-KM	TK15CG	3/8	0.650	5/32	1/64	C990774
TCMT3(2.5)2-KM	TCMT16T308-KM	TP25CG	3/8	0.650	5/32	1/32	C990776
TCMT3(2.5)2-KM	TCMT16T308-KM	TK15CG	3/8	0.650	5/32	1/32	C990778
TCMT432-KM	TCMT220408-KM	TP25CG	1/2	0.866	3/16	1/32	C990780
TCMT432-KM	TCMT220408-KM	TK15CG	1/2	0.866	3/16	1/32	C990782

► LISTA: TCGT-KM



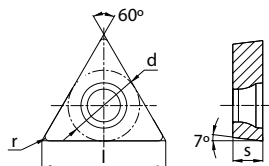
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TCGT 1.8(1.5)1-KM	TCGT090204-KM	CP2425	7/32	0.379	3/32	1/64	C990784
TCGT2(1.5)0.5-KM	TCGT110202-KM	CP2425	1/4	0.433	3/32	0.008	C990786
TCGT2(1.5)1 -KM	TCGT110204-KM	CP2425	1/4	0.433	3/32	1/64	C990788
TCGT2(1.5)2 -KM	TCGT110208-KM	CP2425	1/4	0.433	3/32	1/32	C990790
TCGT3(2.5)1 -KM	TCGT16T304-KM	CP2425	3/8	0.650	5/32	1/64	C990792
TCGT3(2.5)2 -KM	TCGT16T308-KM	CP2425	3/8	0.650	5/32	1/32	C990794

► LISTA: TCMT-PM2



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TCMT325-PM2	TCMT16T304-PM2	TP25CG	3/8	0.650	5/32	1/64	C991646

▶ LISTA: TPGT-KM



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TPGT2(1.5)1 -KM	TPGT110204-KM	CP2425	1/4	0.433	3/32	1/64	C990796
TPGT2(1.5)2 -KM	TPGT110208-KM	CP2425	1/4	0.433	3/32	1/32	C990798
TPGT3(2.5)1 -KM	TPGT16T304-KM	CP2425	3/8	0.650	5/32	1/64	C990800
TPGT3(2.5)2 -KM	TPGT16T308-KM	CP2425	3/8	0.650	5/32	1/32	C990802

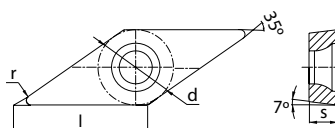
▶ LISTA: VBMT-KM



TP25CG



TP15CG



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
VBMT331-KM	VBMT160404-KM	TP25CG	3/8	0.654	3/16	1/64	C990804
VBMT331-KM	VBMT160404-KM	TK15CG	3/8	0.654	3/16	1/64	C990806
VBMT332-KM	VBMT160408-KM	TP25CG	3/8	0.654	3/16	1/32	C990808
VBMT332-KM	VBMT160408-KM	TK15CG	3/8	0.654	3/16	1/32	C990810

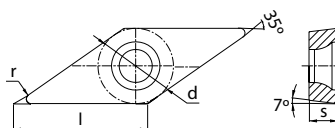
▶ LISTA: VCMT-KM



TP25CG

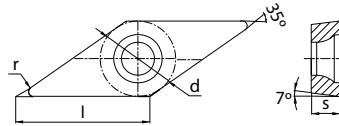


TP15CG



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
VCMT221-KM	VCMT110304-KM	TP25CG	1/4	0.436	1/8	1/64	C990812
VCMT221-KM	VCMT110304-KM	TK15CG	1/4	0.436	1/8	1/64	C990814
VCMT331-KM	VCMT160404-KM	TP25CG	3/8	0.654	3/16	1/64	C990816
VCMT331-KM	VCMT160404-KM	TK15CG	3/8	0.654	3/16	1/64	C990818
VCMT332-KM	VCMT160408-KM	TP25CG	3/8	0.654	3/16	1/32	C990820
VCMT332-KM	VCMT160408-KM	TK15CG	3/8	0.654	3/16	1/32	C990822

▶ LISTA: VCGT-KM



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
VCGT221-KM	VCGT110304-KM	CP2425	1/4	0.436	1/8	1/64	C990824
VCGT331-KM	VCGT160404-KM	CP2425	3/8	0.654	3/16	1/64	C990826
VCGT332-KM	VCGT160408-KM	CP2425	3/8	0.654	3/16	1/32	C990828

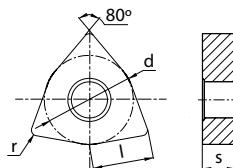
▶ LISTA: WCMT-KM



TP25CG

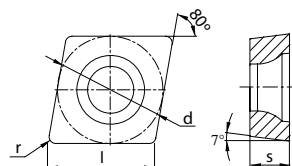


TP15CG



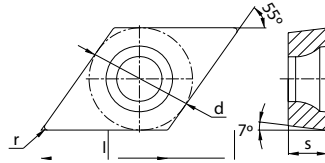
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
WCMT 3(2.5)1-KM	WCMT06T304-KM	TP25CG	3/8	0.257	5/32	1/64	C990830
WCMT 3(2.5)1-KM	WCMT06T304-KM	TK15CG	3/8	0.257	5/32	1/64	C990832
WCMT 3(2.5)2-KM	WCMT06T308-KM	TP25CG	3/8	0.257	5/32	1/32	C990834
WCMT 3(2.5)2-KM	WCMT06T308-KM	TK15CG	3/8	0.257	5/32	1/32	C990836

▶ LISTA: CCGX-AL



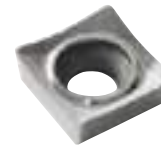
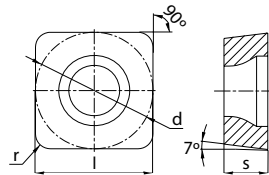
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
CCGX2(1.5)1-AL	CCGX060204-AL	TN10CB	1/4	0.254	3/32	1/64	C990838
CCGX2(1.5)2-AL	CCGX060208-AL	TN10CB	1/4	0.254	3/32	1/32	C990840
CCGX3(2.5)1-AL	CCGX09T304-AL	TN10CB	3/8	0.381	5/32	1/64	C990842
CCGX3(2.5)2-AL	CCGX09T308-AL	TN10CB	3/8	0.381	5/32	1/32	C990844
CCGX431-AL	CCGX120404-AL	TN10CB	1/2	0.508	3/16	1/64	C990846
CCGX432-AL	CCGX120408-AL	TN10CB	1/2	0.508	3/16	1/32	C990848

► LISTA: DCGX-AL



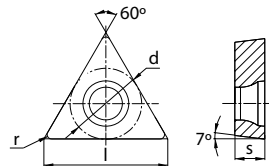
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
DCGX2(1.5)1-AL	DCGX070204-AL	TN10CB	1/4	0.305	3/32	1/64	C990850
DCGX2(1.5)2-AL	DCGX070208-AL	TN10CB	1/4	0.305	3/32	1/32	C990852
DCGX3(2.5)1-AL	DCGX11T304-AL	TN10CB	3/8	0.458	5/32	1/64	C990854
DCGX3(2.5)2-AL	DCGX11T308-AL	TN10CB	3/8	0.458	5/32	1/32	C990856

► LISTA: SCGX-AL



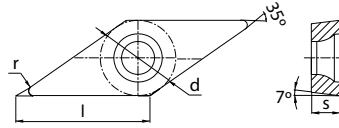
Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
SCGX3(2.5)1-AL	SCGX09T304-AL	CN9125	3/8	0.375	5/32	1/64	C990858
SCGX3(2.5)2-AL	SCGX09T308-AL	CN9125	3/8	0.375	5/32	1/32	C990860
SCGX431-AL	SCGX120404-AL	CN9125	1/2	0.500	3/16	1/64	C990862
SCGX432-AL	SCGX120408-AL	CN9125	1/2	0.500	3/16	1/32	C990864

► LISTA: TCGX-AL



Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
TCGX1.8(1.5)1-AL	TCGX090204-AL	TN10CB	7/32	0.379	3/32	1/64	C990866
TCGX2(1.5)1-AL	TCGX110204-AL	TN10CB	1/4	0.433	3/32	1/64	C990868
TCGX2(1.5)2-AL	TCGX110208-AL	TN10CB	1/4	0.433	3/32	1/32	C990870
TCGX3(2.5)1-AL	TCGX16T304-AL	TN10CB	3/8	0.650	5/32	1/64	C990872
TCGX3(2.5)2-AL	TCGX16T308-AL	TN10CB	3/8	0.650	5/32	1/32	C990874

LISTA: VCGX-AL

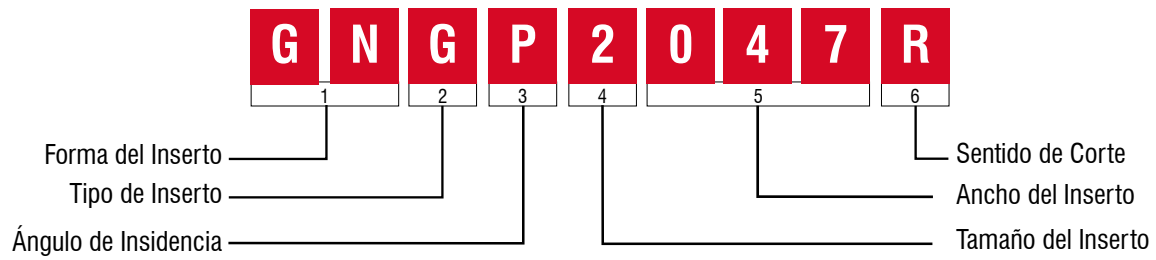


Designación		Grado	Dimensiones (IN)				Código
ANSI	ISO		d	l	s	r	
VCGX221-AL	VCGX110304-AL	TN10CB	1/4	0.436	1/8	1/64	C990876
VCGX222-AL	VCGX110308-AL	TN10CB	1/4	0.436	1/8	1/32	C990878
VCGX331-AL	VCGX160404-AL	TN10CB	3/8	0.654	3/16	1/64	C990880
VCGX332-AL	VCGX160408-AL	TN10CB	3/8	0.654	3/16	1/32	C990882
VCGX333-AL	VCGX160412-AL	TN10CB	3/8	0.654	3/16	3/64	C990884
VCGX220-AL	VCGX220512-AL	TN10CB	1/2	0.872	7/32	3/64	C990886
VCGX220-AL	VCGX220516-AL	TN10CB	1/2	0.872	7/32	1/16	C990888
VCGX220-AL	VCGX220530-AL	TN10CB	1/2	0.872	7/32	0.118	C990890

USO GENERAL



► NOMENCLATURA PARA INSERTOS DE RANURADO

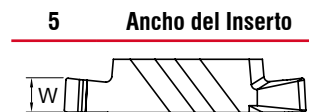


1	Forma del Inserto
GN	Sistema de Ranurado G-Notch

2	Tipo del Inserto
G	Ranurado

3	Ángulo de Insidencia
P	Positivo

4	Tamaño
2	Tamaño de Inserto 2
3	Tamaño de Inserto 3



El símbolo indica la anchura W en milésimas de pulgada

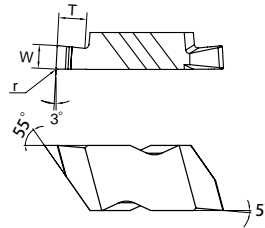
Símbolo	W (pulgs)
047	.047
062	.062
078	.078
094	.094
125	.125

6	Sentido del Corte
R	Corte Derecho
L	Corte Izquierdo

▶ INSERTOS PARA RANURADO



▶ LISTA: GNGP



Medida del Inserto	Designación ISO	Grado	Dimensiones (IN)			Código
			W	T	r	
2	GNGP 2047R	TM10CB	.047	.050	.004	C990892
2	GNGP 2047L	TM10CB	.047	.050	.004	C990894
2	GNGP 2062R	TM10CB	.062	.110	.008	C990896
2	GNGP 2062L	TM10CB	.062	.110	.008	C990898
2	GNGP 2078R	TM10CB	.078	.110	.008	C990900
2	GNGP 2078L	TM10CB	.078	.110	.008	C990902
2	GNGP 2094R	TM10CB	.094	.110	.008	C990904
2	GNGP 2094L	TM10CB	.094	.110	.008	C990906
2	GNGP 2125R	TM10CB	.125	.110	.008	C990908
2	GNGP 2125L	TM10CB	.125	.110	.008	C990910
3	GNGP 3047R	TM10CB	.047	.075	.008	C990912
3	GNGP 3047L	TM10CB	.047	.075	.008	C990914
3	GNGP 3062R	TM10CB	.062	.094	.008	C990916
3	GNGP 3062L	TM10CB	.062	.094	.008	C990918
3	GNGP 3078R	TM10CB	.078	.094	.008	C990920
3	GNGP 3078L	TM10CB	.078	.094	.008	C990922
3	GNGP 3094R	TM10CB	.094	.150	.008	C990924
3	GNGP 3094L	TM10CB	.094	.150	.008	C990926
3	GNGP 3125R	TM10CB	.125	.150	.008	C990928
3	GNGP 3125L	TM10CB	.125	.150	.008	C990930

USO GENERAL

▶ INSERTOS PARA TRONZADO



▶ LISTA: MGGN



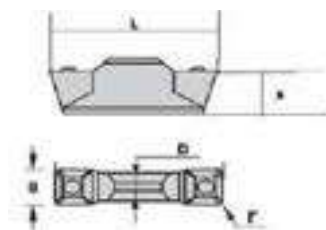
TM20CB



TN10CB



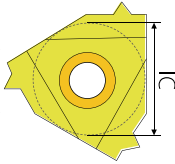
TP25CG



Descripción	Dimensiones (mm)					Grado	Código
	B	r	L	D	s		
MGGN 200-G	2	0.2	16	1.6	3.5	TM20CB	C998102
MGGN 300-G	3	0.4	21	2.35	4.8	TM20CB	C998104
MGGN 400-G	4	0.4	21	3.3	4.8	TM20CB	C998106
MGGN 200-LH	2	0.2	16	1.5	3.5	TN10CB	C998108
MGGN 300-LH	3	0.2	20	2.35	4.8	TN10CB	C998110
MGGN 200-M	2	0.2	16	1.5	3.5	-	C998112
MGGN 300-M	3	0.4	21	2.35	4.8	-	C998114
MGGN 400-M	4	0.4	21	3.3	4.8	-	C998116
MGMN 200-G	2	0.2	16	1.6	3.5	TP25CG	C998118
MGMN 300-G	3	1.4	21	2.35	4.8	TP25CG	C998120
MGMN 400-G	4	0.4	21	3.3	4.8	TP25CG	C998122

NOMENCLATURA PARA INSERTOS DE ROSCADO



1	Tamaño de Inserto
11-IC6.35mm	
16-IC9.525mm	
22-IC12.7mm	

2	Aplicación
	Roscado Externo
	Roscado Interno

3	Dirección de Corte
	Izquierdo
	Derecho

4	Hilos por Pulgada
paso mm	Hilos por Pulgada
0.5-0.6	48-4

5	Estilo de Rosca
	Rosca ISO
	Rosca 55°
	Rosca 60°
	Rosca Whitworth
	Rosca BSPT
	Rosca UN (Unificada)
	Rosca NPT



TP20TA-TiAIN

Buena resistencia al desgaste, para aplicaciones generales

TP25TA-TiAISiN

Excelente resistencia al desgaste, ampliamente recomendado para acero inoxidable.

▶ INSERTOS DE ROSCADO



Aplicaciones

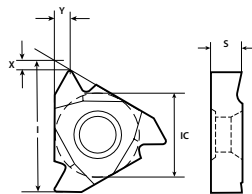


TP20TA



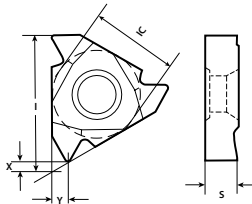
TP25TA

▶ EXTERIOR DERECHA DE 55°



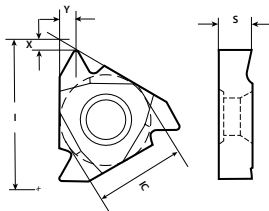
Descripción	TPI	Paso	Dimensiones					TP20TA	TP25TA
		mm	X	Y	I	IC	S		
16ERAG55A	48-8	0.5-0.3	1.2	1.7	16.5	9.525	3.52	C999102	C999104
16ERG55A	14-8	1.75-3.0	1.2	1.7	16.5	9.525	3.52	C999106	C999108

▶ INTERIOR DERECHA DE 55°



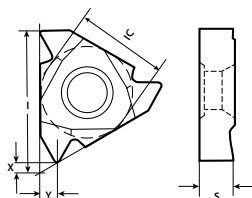
Descripción	TPI	Paso	Dimensiones					TP20TA	TP25TA
		mm	X	Y	I	IC	S		
16IRAG55A	48-8	0.5-0.3	1.2	1.7	16.5	9.525	3.52	C999114	C999116
16IRG55A	14-8	1.75-3.0	1.2	1.7	16.5	9.525	3.52	C999118	C999120

▶ EXTERIOR DERECHA DE 60°



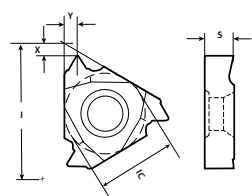
Descripción	TPI	PASO	Dimensiones					TP20TA	TP25TA
		mm	X	Y	I	IC	S		
16ERAG60A	48-8	0.5-0.3	1.2	1.7	16.5	9.525	3.52	C999202	C999204
16ERG60A	14-8	1.75-3.0	1.2	1.7	16.5	9.525	3.52	C999206	C999208

▶ INTERIOR DERECHA DE 60°



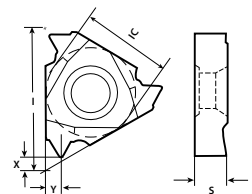
Descripción	TPI	PASO mm	Dimensiones					TP20TA	TP25TA
			X	Y	I	IC	S		
16IRAG60A	48-8	0.5-0.3	1.2	1.7	16.5	9.525	3.52	C999214	C999216
16IRG60A	14-8	1.75-3.0	1.2	1.7	16.5	9.525	3.52	C999218	C999220

▶ EXTERIOR DERECHA TIPO ISO



Descripción	PASO mm	Dimensiones					TP20TA	TP25TA
		X	Y	I	IC	S		
16ER1.00ISOA	1.00	0.7	0.7	16.5	9.525	3.52	C999302	C999304
16ER1.25ISOA	1.25	0.8	0.9	16.5	9.525	3.52	C999306	C999308
16ER1.50ISOA	1.50	0.8	1.0	16.5	9.525	3.52	C999310	C999312
16ER1.75ISOA	1.75	0.9	1.2	16.5	9.525	3.52	C999314	C999316
16ER2.00ISOA	2.00	1.0	1.3	16.5	9.525	3.52	C999318	C999320
16ER2.50ISOA	2.50	1.1	1.5	16.5	9.525	3.52	C999322	C999324
16ER3.00ISOA	3.00	1.2	1.6	16.5	9.525	3.52	C999326	C999328

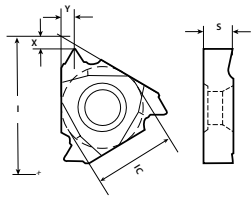
▶ INTERIOR DERECHA TIPO ISO



Descripción	PASO mm	Dimensiones					TP20TA	TP25TA
		X	Y	I	IC	S		
16IR1.00ISOA	1.00	0.6	0.4	16.5	9.525	3.52	C999330	C999332
16IR1.25ISOA	1.25	0.7	0.7	16.5	9.525	3.52	C999334	C999336
16IR1.50ISOA	1.50	0.8	0.9	16.5	9.525	3.52	C999338	C999340
16IR1.75ISOA	1.75	0.8	1.0	16.5	9.525	3.52	C999342	C999344
16IR2.00ISOA	2.00	1.0	1.3	16.5	9.525	3.52	C999346	C999348
16IR2.50ISOA	2.50	1.1	1.5	16.5	9.525	3.52	C999350	C999352
16IR3.00ISOA	3.00	1.2	1.6	16.5	9.525	3.52	C999354	C999356

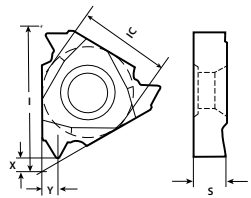
USO GENERAL

▶ EXTERIOR DERECHA TIPO UN (ESTÁNDAR AMERICANO)



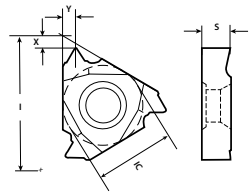
Descripción	TPI	Dimensiones					TP20TA	TP25TA
		X	Y	I	IC	S		
16ER12UNA	12	1.1	1.4	16.5	9.525	3.52	C999502	C999504
16ER14UNA	14	1.0	1.2	16.5	9.525	3.52	C999506	C999508

▶ INTERIOR DERECHA TIPO UN (ESTÁNDAR AMERICANO)



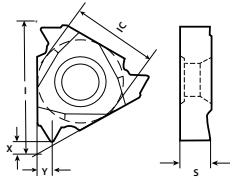
Descripción	TPI	Dimensiones					TP20TA	TP25TA
		X	Y	I	IC	S		
16IR12UNA	12	1.1	1.4	16.5	9.525	3.52	C999514	C999516
16IR14UNA	14	0.9	1.2	16.5	9.525	3.52	C999518	C999520

▶ EXTERIOR DERECHA TIPO NPT



Descripción	TPI	Dimensiones					TP20TA
		X	Y	I	IC	S	
16ER8NPT	8	1.3	1.8	16.5	9.525	3.52	C999602
16ER11.5NPT	11.5	1.1	1.5	16.5	9.525	3.52	C999606
16ER14NPT	14	0.9	1.2	16.5	9.525	3.52	C999610
16ER18NPT	18	0.8	1.0	16.5	9.525	3.52	C999614
16ER27NPT	27	0.7	0.8	16.5	9.525	3.52	C999618

▶ INTERIOR DERECHA TIPO NPT



Descripción	TPI	Dimensiones					TP20TA
		X	Y	I	IC	S	
16IR8NPT	8	1.3	1.8	16.5	9.525	3.52	C999622
16IR11.5NPT	11.5	1.1	1.5	16.5	9.525	3.52	C999626
16IR14NPT	14	0.9	1.2	16.5	9.525	3.52	C999630
16IR18NPT	18	0.8	1.0	16.5	9.525	3.52	C999634
16IR27NPT	27	0.7	0.8	16.5	9.525	3.52	C999638

USO GENERAL

NOMENCLATURA PARA PORTA INSERTOS EXTERNOS

P	S	K	N	R	25	25	M	12	C
1	2	3	4	5	6	7	8	9	10

1 Método de Montaje

C T M P S

2 Forma del Inserto

C D E K
L R S T
V W A B
H M O P

3 Forma del Portainsero

A B D E F G
J K L M N R
S T V Y Z

5 Dirección de Corte

L N R

4 Ángulo de Despeje

A B C
D E F
G N P

6 Altura **7 Ancho**

8 Longitud

A - 32	H - 100	Q - 180	x-special
B - 40	J - 110	R - 200	
C - 50	K - 125	S - 250	
D - 60	L - 140	T - 300	
E - 70	M - 150	U - 350	
F - 80	N - 160	V - 400	
G - 90	P - 170	W - 450	

9 Dimensión de Inserto

10 Clamp

NOMENCLATURA PARA PORTA INSERTOS DE ROSCADO

S	E	R	25	25	M	16	C
1	2	3	4-5		6	7	8

1 Método de Montaje

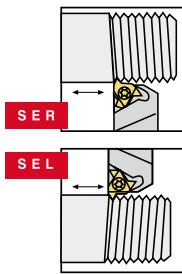
S: Tornillo y Sujetador
T: Tornillo

2 Aplicación

E: Externa
I: Interna

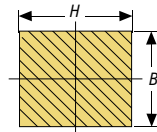
3 Dirección de Corte

R: Derecho
L: Izquierdo

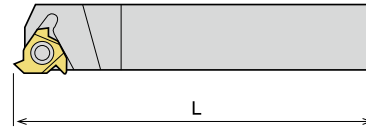


4-5 Dimensión del Zanco

Zanco: H x B



6 Longitud

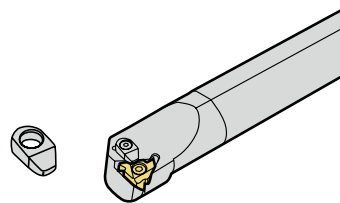


A - 32	H - 100	Q - 180	x-special
B - 40	J - 110	R - 200	
C - 50	K - 125	S - 250	
D - 60	L - 140	T - 300	
E - 70	M - 150	U - 350	
F - 80	N - 160	V - 400	
G - 90	P - 170	W - 450	

7 Tamaño del Inserto

	l (mm)	d
	06	5/32"
	08	3/16"
	11	1/4"
	16	3/8"
	22	1/2"
	27	5/8"

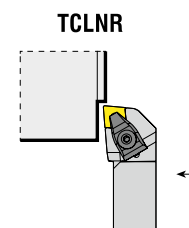
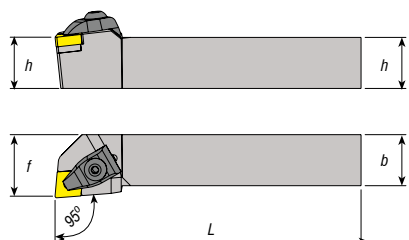
10 Clamp



PORTA INSERTOS

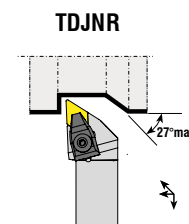
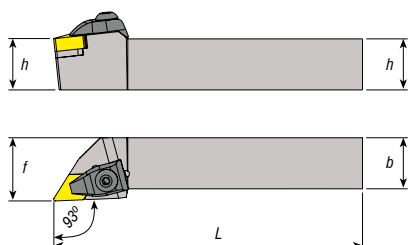


TIPO C



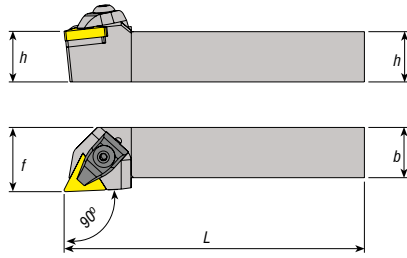
Descripción	Izquierda	Derecha	Dimensiones				Inserto	Código
			h	b	L	f		
TCLNR2020K12		*	20	20	125	25	CNMG 1204	C998202
TCLNR2525M12		*	25	25	150	32	CNMG 1204	C998204
TCLNR2525M16		*	25	25	150	32	CNMG 1606	C998206
TCLNL2020K12	*		20	20	125	25	CNMG 1204	C998208
TCLNL2525M12	*		25	25	150	32	CNMG 1204	C998210
TCLNL2525M16	*		25	25	150	32	CNMG 1606	C998212

TIPO D

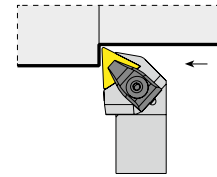


Descripción	Izquierda	Derecha	Dimensiones				Inserto	Código
			h	b	L	f		
TDJNR2020K11		*	20	20	125	25	DNMG 1104	C998214
TDJNR2525M11		*	25	25	150	32	DNMG 1104	C998216
TDJNR2525M1504		*	25	25	150	32	DNMG 1504	C998218
TDJNL2020K11	*		20	20	125	25	DNMG 1104	C998220
TDJNL2525M11	*		25	25	150	32	DNMG 1104	C998222
TDJNL2525M1504	*		25	25	150	32	DNMG 1504	C998224

▶ TIPO T

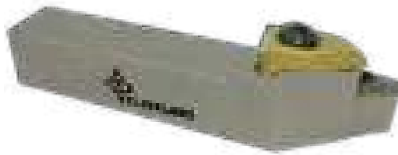
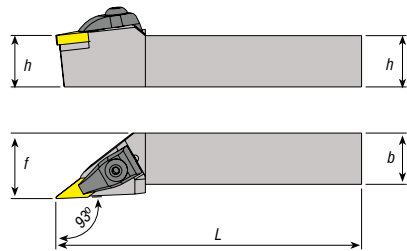


TTGNR

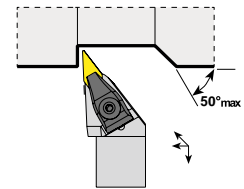


Descripción	Izquierda	Derecha	Dimensiones				Inserto	Código
			h	b	L	f		
TTGNR2020K16		*	20	20	125	25	TNMG 1604	C998226
TTGNR2525M16		*	25	25	150	32	TNMG 1604	C998228
TTGNR2525M22		*	25	25	150	32	TNMG 2204	C998230
TTGNL2020K16	*		20	20	125	25	TNMG 1604	C998232
TTGNL2525M16	*		25	25	150	32	TNMG 1604	C998234
TTGNL2525M22	*		25	25	150	32	TNMG 2204	C998236

▶ TIPO V

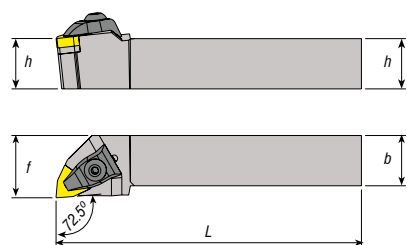


TVJNR

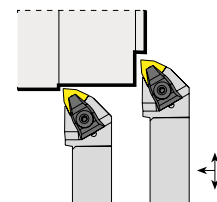


Descripción	Izquierda	Derecha	Dimensiones				Inserto	Código
			h	b	L	f		
TVJNR2020K16		*	20	20	125	25	VNMG 1604	C998238
TVJNR2525M16		*	25	25	150	32	VNMG 1604	C998240
TVJNL2020K16	*		20	20	125	25	VNMG 1604	C998242
TVJNL2525M16	*		25	25	150	32	VNMG 1604	C998244

▶ TIPO W

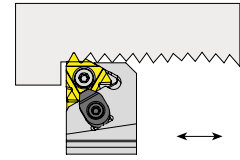
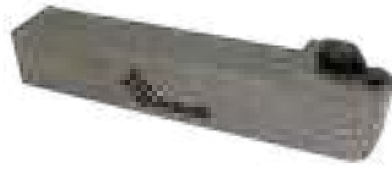
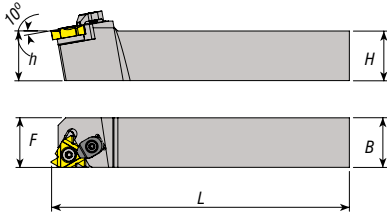


TWLNR



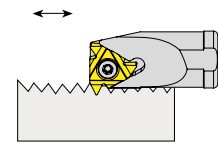
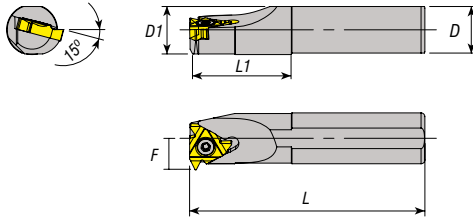
Descripción	Izquierda	Derecha	Dimensiones				Inserto	Código
			h	b	L	f		
TWLN2020K06		*	20	20	125	25	WNMG 0604	C998246
TWLN2525M06		*	25	25	150	32	WNMG 0604	C998248
TWLN2525M08		*	25	25	150	32	WNMG 0804	C998250
TWLN2020K06	*		20	20	125	25	WNMG 0604	C998252
TWLN2525M06	*		25	25	150	32	WNMG 0604	C998254
TWLN2525M08	*		25	25	150	32	WNMG 0804	C998256

▶ ROSCADO EXTERNO



Descripción	Izquierda	Derecha	Dimensiones				Inserto	Código
			H=h	B	L	F		
SER2020K16C		*	20	20	125	20	16 ER	C999806
SER2525M16C		*	25	25	150	25	16 ER	C999808
SEL2020K16C	*		20	20	125	20	16 EL	C999810
SEL2525M16C	*		25	25	150	25	16 EL	C999812

▶ ROSCADO INTERNO



Descripción	Izquierda	Derecha	Dimensiones					Inserto	Código
			D	D1	L	L1	F		
SIRS20P16		*	20	20	170	-	13.7	16 IR	C999814
SIRS25R16C		*	25	25	200	-	16.2	16 IR	C999816
SILS20P16	*		20	20	170	-	13.7	16 IL	C999818
SILS25R16C	*		25	25	200	-	16.2	16 IL	C999820



2020
ALTO RENDIMIENTO



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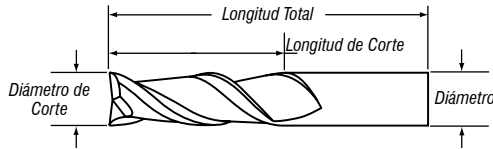


ALTO RENDIMIENTO

► LISTA: CEM-AM2 CORTADORES PARA ALUMINIO ALUMAX 2 CANALES

**NUEVOS
PRODUCTOS**

Aplicaciones



Características



Longitud Estándar

Diámetro de Corte		Diámetro de Zanco	Longitud de Corte	Longitud Total	Brillante	ZRN
Fraccional	Decimal	pulg	pulg	pulg		
1/8	0.1250	1/8	3/8	1-1/2	C60478	C60478ZRN
3/16	0.1875	3/16	9/16	2	C60480	C60480ZRN
1/4	0.2500	1/4	3/4	2-1/2	C60482	C60482ZRN
5/16	0.3125	5/16	13/16	2-1/2	C60485	C60485ZRN
3/8	0.3750	3/8	1	2-1/2	C60489	C60489ZRN
7/16	0.4375	7/16	1	2-1/2	C60493	C60493ZRN
1/2	0.5000	1/2	1-1/4	3	C60496	C60496ZRN
5/8	0.6250	5/8	1-5/8	4	C60500	C60500ZRN
3/4	0.7500	3/4	1-5/8	4	C60504	C60504ZRN
1	1.0000	1	1-1/4	5	C60507	C60507ZRN

Extralargo

Diámetro de Corte		Diámetro de Zanco	Longitud de Corte	Longitud Total	Brillante	ZRN
Fraccional	Decimal	pulg	pulg	pulg		
1/4	0.2500	1/4	1-1/4	3	C60483	C60483ZRN
5/16	0.3125	5/16	2-1/8	4	C60487	C60487ZRN
3/8	0.3750	3/8	2-1/2	6	C60491	C60491ZRN
1/2	0.5000	1/2	3-1/8	6	C60498	C60498ZRN
5/8	0.6250	5/8	3-3/4	6	C60502	C60502ZRN
3/4	0.7500	3/4	3-1/4	6	C60505	C60505ZRN
1	1.0000	1	3-1/4	6	C60509	C60509ZRN

ALTO RENDIMIENTO

► LISTA: CEM-AM3 CORTADORES PARA ALUMINIO

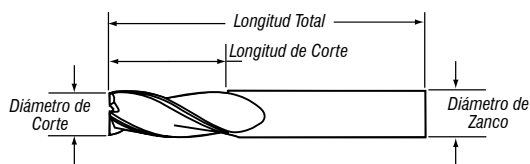
ALUMAX 3 CANALES

**NUEVOS
PRODUCTOS**

Aplicaciones



Características



Longitud Estándar

Diámetro de Corte		Diámetro de Zanco	Longitud de Corte	Longitud Total	Brillante	ZrN
Fracional	Decimal					
1/8	0.1250	1/8	3/8	1-1/2	C60617	C60617ZRN
3/16	0.1875	3/16	9/16	2	C60619	C60619ZRN
1/4	0.2500	1/4	3/4	2-1/2	C60621	C60621ZRN
5/16	0.3125	5/16	5/8	2-1/2	C60624	C60624ZRN
3/8	0.3750	3/8	1	2-1/2	C60628	C60628ZRN
7/16	0.4375	7/16	1-1/4	2-1/2	C60632	C60632ZRN
1/2	0.5000	1/2	1-1/4	3	C60635	C60635ZRN
5/8	0.6250	5/8	1-5/8	4	C60639	C60639ZRN
3/4	0.7500	3/4	1-5/8	4	C60643	C60643ZRN
1	1.0000	1	1-1/2	4	C60645	C60645ZRN

Extralargo

Diámetro de Corte		Diámetro de Zanco	Longitud de Corte	Longitud Total	Brillante	ZrN
Fracional	Decimal					
1/4	0.2500	1/4	1-1/4	3	C60622	C60622ZRN
5/16	0.3125	5/16	2-1/8	4	C60626	C60626ZRN
3/8	0.3750	3/8	2-1/2	6	C60630	C60630ZRN
1/2	0.5000	1/2	3-1/8	6	C60637	C60637ZRN
5/8	0.6250	5/8	3-3/4	6	C60641	C60641ZRN
3/4	0.7500	3/4	3-1/4	6	C60644	C60644ZRN
1	1.0000	1	3-1/2	6	C60647	C60647ZRN

Ver página 203 para Información Técnica.

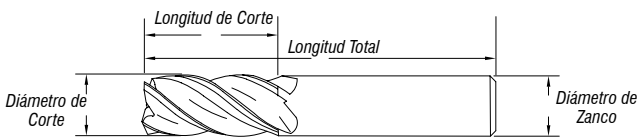
▶ LISTA: CEM-V-AR CORTADORES HIGH PERFORMANCE 4 CANALES

NUEVOS PRODUCTOS

Aplicaciones



Características



Longitud Estándar

Diámetro de Corte		Diámetro de Zanco	Longitud de Corte	Longitud Total	No. de Filos	Brillante	CLE-SPEED
Fraccional	Decimal	pulg	pulg	pulg			
1/8	0.1250	1/8	1/2	1 1/2	4	C60005	C60005CR
3/16	0.1875	3/16	7/16	2	4	C60009	C60009CR
1/4	0.2500	1/4	3/4	2 1/2	4	C60015	C60015CR
5/16	0.3125	5/16	13/16	2 1/2	4	C60023	C60023CR
3/8	0.3750	3/8	7/8	2 1/2	4	C60029	C60029CR
7/16	0.4375	7/16	1	3	4	C60037	C60037CR
1/2	0.5000	1/2	1	3	4	C60043	C60043CR
5/8	0.6250	5/8	1 1/4	3 1/2	4	C60061	C60061CR
3/4	0.7500	3/4	1 1/2	4	4	C60074	C60074CR
1	1.0000	1	1 1/2	4	4	C60084	C60084CR

Extra Largo Recto

Diámetro de Corte		Diámetro de Zanco	Longitud de Corte	Longitud Total	No. de Filos	Brillante	CLE-SPEED
Fraccional	Decimal	pulg	pulg	pulg			
1/4	0.2500	1/4	1 1/4	3	4	C60020	C60020CR
5/16	0.3125	5/16	1 1/4	3	4	C60025	C60025CR
3/8	0.3750	3/8	2	4	4	C60033	C60033CR
1/2	0.5000	1/2	2	4	4	C60054	C60054CR
5/8	0.6250	5/8	2 1/4	5	4	C60066	C60066CR
3/4	0.7500	3/4	2 1/4	5	4	C60079	C60079CR
1	1.0000	1	3	6	4	C60094	C60094CR

ALTO RENDIMIENTO



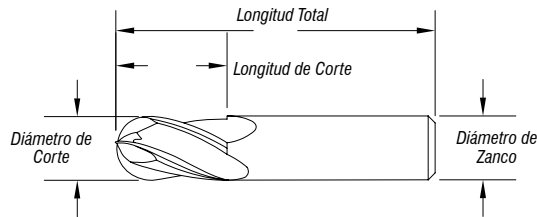
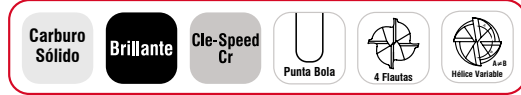
▶ LISTA: CEM-V-4B CORTADORES HIGH PERFORMANCE 4 CANALES

**NUEVOS
PRODUCTOS**

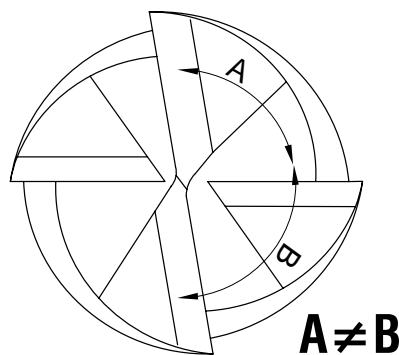
Aplicaciones



Características



Diámetro de Corte		Diámetro de Zanco pulg	Longitud de Corte pulg	Longitud Total pulg	No. de Filos	Brillante	CLE-SPEED
Fraccional	Decimal						
1/8	0.1250	1/8	3/8	1 1/2	4	C60108	C60108CR
3/16	0.1875	3/16	7/16	2	4	C60109	C60109CR
1/4	0.2500	1/4	3/4	2 1/2	4	C60110	C60110CR
5/16	0.3125	5/16	13/16	2 1/2	4	C60111	C60111CR
3/8	0.3750	3/8	7/8	2 1/2	4	C60112	C60112CR
7/16	0.4375	7/16	1	3	4	C60113	C60113CR
1/2	0.5000	1/2	1	3	4	C60115	C60115CR
5/8	0.6250	5/8	1-1/4	3 1/2	4	C60116	C60116CR
3/4	0.7500	3/4	1-1/2	4	4	C60117	C60117CR
1	1.0000	1	2-1/4	5	4	C60118	C60118CR



Los cortadores Cleveland High Performance cuentan con espacio desigual entre canales. Este diseño reduce la vibración durante el mecanizado permitiendo un mejor acabado.

Ver página 204 para Información Técnica.

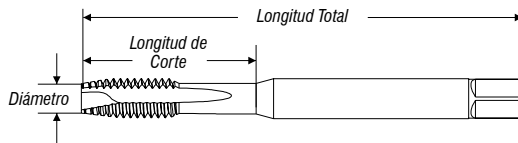
▶ LISTA: PER-862SP PER-960SP MACHUELO PUNTA ESPIRAL



Aplicaciones



Características



Diámetro Fraccional	Hilos por Pulgada	Equivalencia Decimal pulgs	Canales	Ajuste	Diámetro de Zanco pulgs	Longitud Total pulgs	Longitud de Corte pulgs	Óxido al Vapor	Hardlube
2	56 UNC	0.0860	3	2B	0.141	1.772	0.551	C86201	C96001
3	48 UNC	0.0990	3	2B	0.141	1.969	0.591	C86202	C96002
4	40 UNC	0.1120	3	2B	0.141	2.205	0.669	C86203	C96003
4	48 UNF	0.1120	3	2B	0.141	2.205	0.669	C86204	C96004
5	40 UNC	0.1250	3	2B	0.141	2.205	0.748	C86205	C96005
6	32 UNC	0.1380	3	2B	0.141	2.205	0.787	C86206	C96006
6	40 UNF	0.1380	3	2B	0.141	2.205	0.787	C86207	C96007
8	32 UNC	0.1640	3	2B	0.168	2.480	0.827	C86208	C96008
8	36 UNF	0.1640	3	2B	0.168	2.480	0.827	C86209	C96009
10	24 UNC	0.1900	3	2B	0.194	2.756	1.024	C86210	C96010
10	32 UNF	0.1900	3	2B	0.194	2.756	1.024	C86211	C96011
12	24 UNC	0.2160	3	2B	0.220	3.150	1.063	C86212	C96012
12	28 UNF	0.2160	3	2B	0.220	3.150	1.063	C86213	C96013
1/4	20 UNC	0.2500	3	2B	0.255	3.150	1.260	C86214	C96014
1/4	28 UNF	0.2500	3	2B	0.255	3.150	1.260	C86215	C96015
5/16	18 UNC	0.3125	3	2B	0.318	3.543	1.378	C86216	C96016
5/16	24 UNF	0.3125	3	2B	0.318	3.543	1.378	C86217	C96017
3/8	16 UNC	0.3750	3	2B	0.381	3.937	1.732	C86218	C96018
3/8	24 UNF	0.3750	3	2B	0.381	3.937	1.732	C86219	C96019
7/16	14 UNC	0.4375	3	2B	0.323	3.937	1.614	C86220	C96020
7/16	20 UNF	0.4375	3	2B	0.323	3.937	1.614	C86221	C96021
1/2	13 UNC	0.5000	3	2B	0.367	4.331	1.535	C86222	C96022
1/2	20 UNF	0.5000	3	2B	0.367	4.331	1.535	C86223	C96023
9/16	12 UNC	0.5625	3	2B	0.429	4.331	1.772	C86224	C96024
9/16	18 UNF	0.5625	3	2B	0.429	4.331	1.772	C86225	C96025
5/8	11 UNC	0.6250	3	2B	0.480	4.331	2.087	C86226	C96026
5/8	18 UNF	0.6250	3	2B	0.480	4.331	2.087	C86227	C96027
3/4	10 UNC	0.7500	4	2B	0.590	4.921	2.205	C86228	C96028
3/4	16 UNF	0.7500	4	2B	0.590	4.921	2.205	C86229	C96029
7/8	9 UNC	0.8750	4	2B	0.697	5.512	2.362	C86230	C96030
7/8	14 UNF	0.8750	4	2B	0.697	5.512	2.362	C86231	C96031
1	8 UNC	1.0000	4	2B	0.800	6.299	2.520	C86232	C96032
1	12 UNF	1.0000	4	2B	0.800	6.299	2.520	C86233	C96033

ALTO RENDIMIENTO

Diámetro	Hilos por Pulgada	Equivalencia Decimal	Canales	Ajuste	Diámetro de Zanco	Longitud Total	Longitud de Corte	Óxido al Vapor	Hardlube
Milimétrico		pulg			pulg	pulg	pulg		
M3	0.5	0.1181	3	6H	0.141	2.205	0.748	C86234	C96034
M3.5	0.6	0.1378	3	6H	0.141	2.205	0.787	C86235	C96035
M4	0.7	0.1575	3	6H	0.168	2.480	0.827	C86236	C96036
M5	0.8	0.1969	3	6H	0.194	2.756	1.024	C86237	C96037
M6	1	0.2362	3	6H	0.255	3.150	1.260	C86238	C96038
M7	1	0.2756	3	6H	0.318	3.150	1.181	C86239	C96039
M8	1	0.3150	3	6H	0.318	3.543	1.378	C86240	C96040
M8	1.25	0.3150	3	6H	0.318	3.543	1.378	C86241	C96041
M10	1.25	0.3937	3	6H	0.381	3.937	1.575	C86242	C96042
M10	1.5	0.3937	3	6H	0.381	3.937	1.575	C86243	C96043
M12	1.25	0.4724	3	6H	0.367	4.331	1.575	C86244	C96044
M12	1.75	0.4724	3	6H	0.367	4.331	1.575	C86245	C96045
M14	1.5	0.5512	3	6H	0.429	4.331	1.772	C86246	C96046
M14	2	0.5512	3	6H	0.429	4.331	1.772	C86247	C96047
M16	1.5	0.6299	3	6H	0.480	4.331	2.087	C86248	C96048
M16	2	0.6299	3	6H	0.480	4.331	2.087	C86249	C96049
M18	1.5	0.7087	4	6H	0.542	4.921	2.165	C86250	C96050
M18	2.5	0.7087	4	6H	0.542	4.921	2.165	C86251	C96051

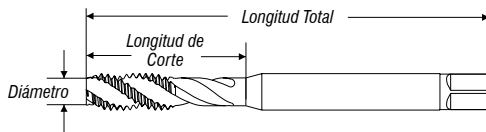
▶ LISTA: PER-893SP MACHUELO HELICOIDAL PER-980SP



Aplicaciones



Características



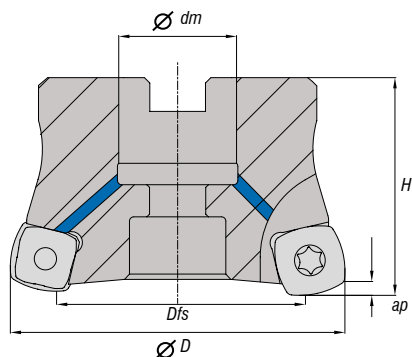
Diámetro Fraccional	Hilos por Pulgada	Equivalencia Decimal pulgs	Canales	Ajuste	Diámetro de Zanco pulgs	Longitud Total pulgs	Longitud de Corte pulgs	Óxido al Vapor	Hardlube
2	56 UNC	0.0860	3	2B	0.141	1.772	0.551	C89301	C98001
3	48 UNC	0.0990	3	2B	0.141	1.969	0.591	C89302	C98002
4	40 UNC	0.1120	3	2B	0.141	2.205	0.669	C89303	C98003
4	48 UNF	0.1120	3	2B	0.141	2.205	0.669	C89304	C98004
5	40 UNC	0.1250	3	2B	0.141	2.205	0.748	C89305	C98005
6	32 UNC	0.1380	3	2B	0.141	2.205	0.787	C89306	C98006
6	40 UNF	0.1380	3	2B	0.141	2.205	0.787	C89307	C98007
8	32 UNC	0.1640	3	2B	0.168	2.480	0.827	C89308	C98008
8	36 UNF	0.1640	3	2B	0.168	2.480	0.827	C89309	C98009
10	24 UNC	0.1900	3	2B	0.194	2.756	1.024	C89310	C98010
10	32 UNF	0.1900	3	2B	0.194	2.756	1.024	C89311	C98011
12	24 UNC	0.2160	3	2B	0.220	3.150	1.063	C89312	C98012
12	28 UNF	0.2160	3	2B	0.220	3.150	1.063	C89313	C98013
1/4	20 UNC	0.2500	3	2B	0.255	3.150	1.260	C89314	C98014
1/4	28 UNF	0.2500	3	2B	0.255	3.150	1.260	C89315	C98015
5/16	18 UNC	0.3125	3	2B	0.318	3.543	1.378	C89316	C98016
5/16	24 UNF	0.3125	3	2B	0.318	3.543	1.378	C89317	C98017
3/8	16 UNC	0.3750	3	2B	0.381	3.937	1.732	C89318	C98018
3/8	24 UNF	0.3750	3	2B	0.381	3.937	1.732	C89319	C98019
7/16	14 UNC	0.4375	3	2B	0.323	3.937	1.614	C89320	C98020
7/16	20 UNF	0.4375	3	2B	0.323	3.937	1.614	C89321	C98021
1/2	13 UNC	0.5000	3	2B	0.367	4.331	1.535	C89322	C98022
1/2	20 UNF	0.5000	3	2B	0.367	4.331	1.535	C89323	C98023
9/16	12 UNC	0.5625	4	2B	0.429	4.331	1.772	C89324	C98024
9/16	18 UNF	0.5625	4	2B	0.429	4.331	1.772	C89325	C98025
5/8	11 UNC	0.6250	4	2B	0.480	4.331	2.087	C89326	C98026
5/8	18 UNF	0.6250	4	2B	0.480	4.331	2.087	C89327	C98027
3/4	10 UNC	0.7500	4	2B	0.590	4.921	2.205	C89328	C98028
3/4	16 UNF	0.7500	4	2B	0.590	4.921	2.205	C89329	C98029
7/8	9 UNC	0.8750	4	2B	0.697	5.512	2.362	C89330	C98030
7/8	14 UNF	0.8750	4	2B	0.697	5.512	2.362	C89331	C98031
1	8 UNC	1.0000	4	2B	0.800	6.299	2.520	C89332	C98032
1	12 UNF	1.0000	4	2B	0.800	6.299	2.520	C89333	C98033

ALTO RENDIMIENTO

Diámetro	Hilos por Pulgada	Equivalencia Decimal	Canales	Ajuste	Diámetro de Zanco	Longitud Total	Longitud de Corte	Óxido al Vapor	Hardlube
Milimétrico		pulg			pulg	pulg	pulg		
M3	0.5	0.1181	3	6H	0.141	2.205	0.748	C89334	C98034
M3.5	0.6	0.1378	3	6H	0.141	2.205	0.787	C89335	C98035
M4	0.7	0.1575	3	6H	0.168	2.480	0.827	C89336	C98036
M5	0.8	0.1969	3	6H	0.194	2.756	1.024	C89337	C98037
M6	1	0.2362	3	6H	0.255	3.150	1.260	C89338	C98038
M7	1	0.2756	3	6H	0.318	3.150	1.181	C89339	C98039
M8	1	0.3150	3	6H	0.318	3.543	1.378	C89340	C98040
M8	1.25	0.3150	3	6H	0.318	3.543	1.378	C89341	C98041
M10	1.25	0.3937	3	6H	0.381	3.937	1.575	C89342	C98042
M10	1.5	0.3937	3	6H	0.381	3.937	1.575	C89343	C98043
M12	1.25	0.4724	3	6H	0.367	4.331	1.575	C89344	C98044
M12	1.75	0.4724	3	6H	0.367	4.331	1.575	C89345	C98045
M14	1.5	0.5512	3	6H	0.429	4.331	1.772	C89346	C98046
M14	2	0.5512	3	6H	0.429	4.331	1.772	C89347	C98047
M16	1.5	0.6299	4	6H	0.480	4.331	2.087	C89348	C98048
M16	2	0.6299	4	6H	0.480	4.331	2.087	C89349	C98049
M18	1.5	0.7087	4	6H	0.542	4.921	2.165	C89350	C98050
M18	2.5	0.7087	4	6H	0.542	4.921	2.165	C89351	C98051
M20	2.5	0.7874	4	6H	0.650	5.512	2.480	C89352	C98052
M22	2.5	0.8661	4	6H	0.697	5.512	2.362	C89353	C98053
M24	3.0	0.9449	4	6H	0.760	6.299	2.598	C89354	C98054

CORTADORES HIGH FEED

**NUEVOS
PRODUCTOS**

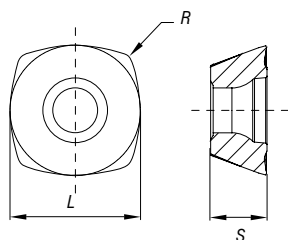


Díametro D Ø	Número de Insertos Z Ø	Diámetro de Montaje dm	Altura H	Máx. Profundi- dad de Corte ap	Díam. de Corte Real Dfs	Código
2	4	0.750	1.580	0.078	1.280	C998050
2.5	5	0.750	1.580	0.078	1.780	C998052
3	6	1.000	1.970	0.078	2.280	C998054
4	8	1.250	1.970	0.078	3.280	C998056
5	10	1.500	2.480	0.078	4.280	C998058

*Todos los cortadores incluyen tornillo y llave para montaje de inserto.

*Los insertos se solicitan por separado.

▶ INSERTOS HIGH FEED



SDMT120512-CM
Para maquinados medios
con bajo esfuerzos de
corte.
Rompeviruta CM



SDMT120512-CH
Para desbaste y trabajo
pesado.
Rompeviruta CH

Aplicaciones



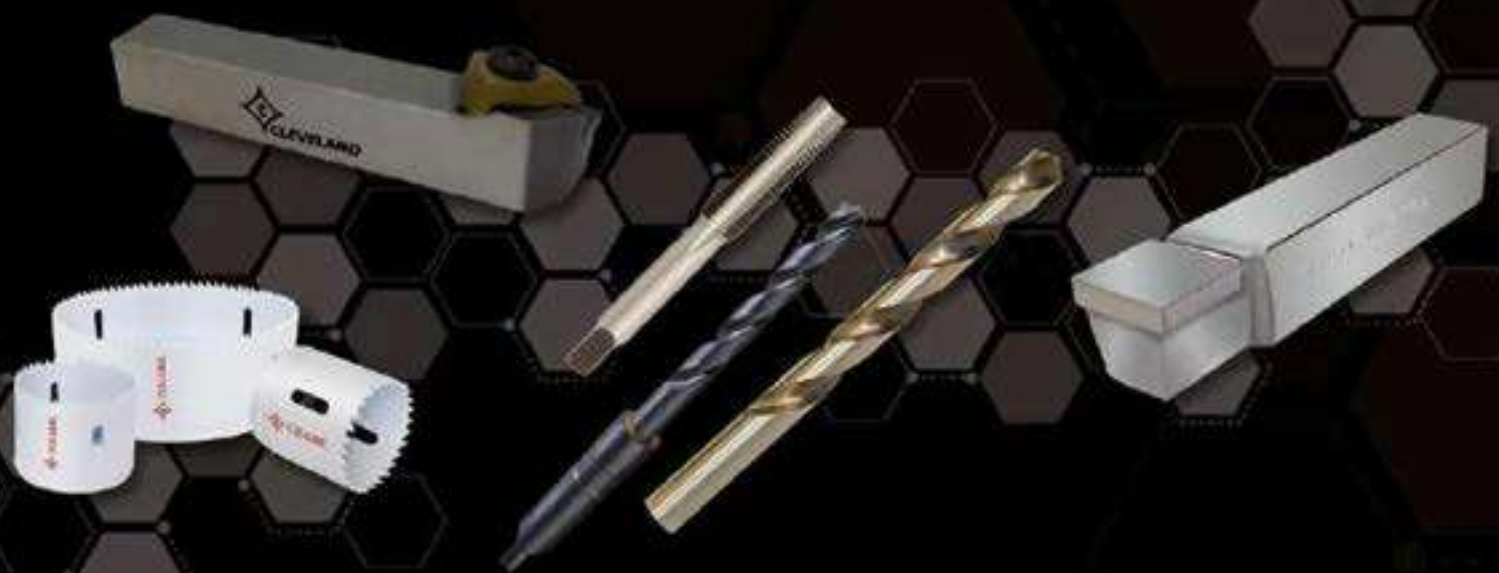
Descripción	Recubrimiento		L	S	R	Código
	CA2225	CA2230				
ICT SDMT120512-CM	*		0.500	0.219	0.047	C997102
ICT SDMT120512-CH		*	0.500	0.219	0.047	C997104

Ver página 210 para Información Técnica.





2020 CATÁLOGO



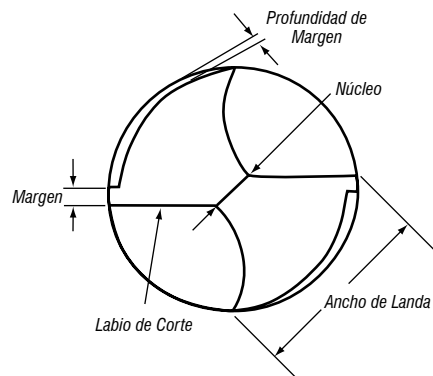
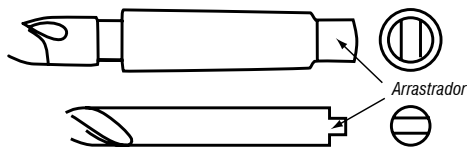
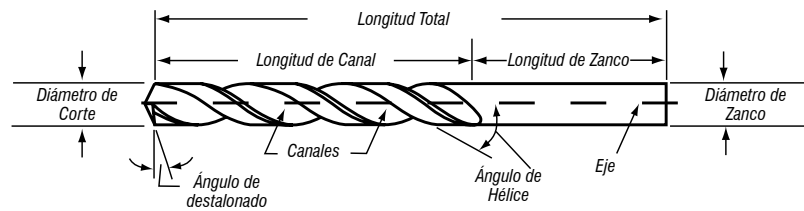
INFORMACIÓN TÉCNICA

www.herramientascleveland.com



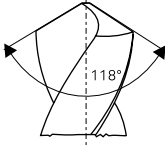
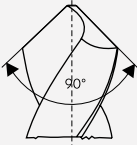
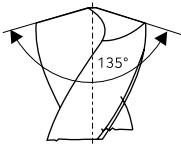
► NOMENCLATURA DE BROCAS

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 métricas 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 sujetaada.
Núcleo	Es el centro de los canales de la broca.



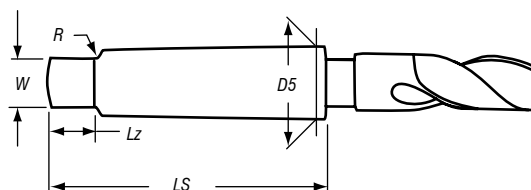
▶ **ÁNGULO DE PUNTA**

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

Para Uso General	
<p>Ángulo de 118°</p> 	<p>Broca de 118°, con acabado óxido al vapor que mejora el rendimiento de la broca. Para diferentes tipos de materiales como metal, plástico y madera.</p>
<p>Ángulo de 90°</p> 	<p>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.</p>
<p>Ángulo de 135°</p> 	<p>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.</p>

▶ **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	2.560	0.370	0.200	0.190
2	0.700	3.120	0.440	0.250	0.250
3	0.938	3.870	0.560	0.310	0.280
4	1.231	4.870	0.620	0.470	0.310
5	1.749	6.120	0.750	0.620	0.370
6	2.494	8.560	1.120	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 (pulgadas)	Avance normal IPR	Avance alto 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

Fórmula

$$RPM = (3.8 \times SFM) / D$$

$$SFM = 0.26 \times RPM \times D$$

$$FR = RPM \times IPR$$

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

▶ 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														
fracc	pulg															
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
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
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	10448	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	1988	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
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

▶ PARÁMETROS DE CORTE PARA BROCAS DE CARBURO

Grupo de Materiales	Velocidad (SFM)	Avance (Pulgada / Diente) Diámetro de Broca					
		1/16"	1/8"	1/4"	1/2"	3/4"	1"
Aluminio y Aleación de Aluminio	150 - 400	.0010 .0020	.0020 .0040	.0030 .0070	.0050 .0130	- -	- -
Latón / Bronce	100 - 300	.0005 .0015	.0010 .0030	.0020 .0040	.0040 .0100	- -	- -
Cobre y Aleación de Cobre	150 - 400	.0010 .0030	.0030 .0050	.0050 .0120	.0060 .0140	- -	- -
Hierro Fundido (Suave) 120-220 Bhn	100 - 300	.0010 .0020	.0020 .0040	.0040 .0080	.0050 .0100	.0070 .0120	.0090 .0140
Hierro Fundido (Duro) 220-320 Bhn	60 - 200	.0015 .0020	.0010 .0030	.0020 .0040	.0030 .0070	.0040 .0080	.0050 .0100
Hierro Dúctil	70 - 250	.0010 .0020	.0020 .0040	.0030 .0060	.0050 .0080	.0050 .0090	.0070 .0150
Hierro Maleable	80 - 250	.0010 .0020	.0020 .0050	.0030 .0060	.0050 .0120	.0060 .0140	.0070 .0150
Magnesio y Aleaciones de Magnesio	200 - 650	.0015 .0030	.0030 .0070	.0050 .0120	.0050 .0150	- -	- -
Aleaciones de Alta Temperatura Níquel Base	30 - 90	.0005 .0010	.0005 .0030	.0010 .0040	.0015 .0050	.0020 .0050	.0025 .0070
Monel, Níquel, Acero de Alta	30 - 90	.0005 .0010	.0005 .0020	.0010 .0030	.0015 .0040	.0020 .0050	.0025 .0060
Relleno de Vidrio/Plásticos	150 - 300	.0010 .0020	.0020 .0040	.0030 .0060	.0050 .0120	- -	- -
Plásticos	250 - 600	.0015 .0030	.0030 .0050	.0040 .0120	.0060 .0160	- -	- -
Aceros Bajos en Carbono Recocidos	85 - 150	.0005 .0015	.0010 .0030	.0020 .0050	.0040 .0060	.0050 .0100	.0060 .0120
Aceros de Medio Carbono 275-425 Bhn	65 - 120	.0005 .0010	.0010 .0020	.0020 .0040	.0030 .0060	.0040 .0090	.0040 .0100
Aceros Endurecidos 48-52 Rc "C"	30 - 90	.0005 .0010	.0010 .0030	.0020 .0030	.0030 .0050	.0040 .0060	.0040 .0070
Acero Inoxidable Suave 135-275 Bhn	50 - 150	.0005 .0010	.0005 .0030	.0020 .0060	.0040 .0060	.0050 .0080	.0060 .0100
Acero Inoxidable Duro 275-425 Bhn	30 - 90	.0005 .0010	.0005 .0020	.0010 .0030	.0015 .0040	.0020 .0060	.0025 .0070
Titanio (Suave)	50 - 200	.0005 .0010	.0020 .0030	.0040 .0050	.0050 .0060	.0060 .0080	.0070 .0100
Titanio (Duro)	45 - 200	.0005 .0020	.0010 .0040	.0020 .0070	.0040 .0090	.0040 .0100	.0050 .0120
Aleación Refractaria	50 - 200	.0005 .0010	.0005 .0030	.0020 .0060	.0040 .0100	.0050 .0120	.0050 .0120

- Para materiales suaves se recomienda los valores más altos de avance y velocidad.
- Los parámetros mostrados arriba son recomendadas para barrenos con una profundidad de 2 veces el diámetro.
- Cuando se va a barrenar a una profundidad de 3 a 6 veces el diámetro de la broca, la velocidad debe reducirse de 10% a 35% respectivamente, el avance debe ser reducido de 10% a 20% respectivamente.

▶ INFORMACIÓN TÉCNICA DE CORTADORES

A encontrar	Valores conocidos	Fórmulas
Velocidad de corte periférica - SFM	Diámetro del cortador - D Velocidad rotacional, RPM	$SFM = 0.262 \times RPM \times D$ $SFM \text{ estimado} = (RPM \times D) / 4$
Velocidad rotacional - RPM	Velocidad de corte periférica, SFM Diámetro del cortador, D	$RPM = SFM / (0.262 \times D)$ $RPM \text{ estimado} = (4 \times SFM) / D$
Velocidad de alimentación de la máquina - IPM	Velocidad rotacional, RPM Número de flautas (canales), T Alimentación por diente, IPT	$IPM = T \times IPT \times RPM$
Alimentación por diente - IPT	Velocidad de alimentación de la máquina, IPM Velocidad rotacional, RPM Número de dientes	$IPT = IPM / (RPM \times T)$
Alimentación por revolución - IPR	Velocidad de alimentación de la máquina, IPM	$IPR = IPM / RPM$
Entrada de potencia de corte - HP	Ancho de corte, WOC Profundidad del corte, DOC Velocidad de alimentación de la máquina, IPM Constante de potencia material de pieza, K	$HP = WOC \times DOC \times IPM \times K$

▶ 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	-

▶ VELOCIDADES DE CORTE Y AVANCE PARA CORTADORES HSS Y HSS AL COBALTO

Material	-Aleación Base de Cobalto -Acero de Alta resistencia (50-55Rc)	-Aleación Austenítica -Acero de Alta Resistencia (46-50Rc)	-Aleación Base de Níquel -Acero Inoxidable de Alta Resistencia, -Aleación de Titanio	-Acero inoxidable de Alta Resistencia, -Acero de Alta Resistencia (40-46Rc) Fuerza Media -Aleación de Titanio	-Aleación Ferrítico Resistente al Calor -Acero de Resistencia Media (30-40Rc)
Estilo del cortador	Cobalto HSS HSS 2 o más flautas	Cobalto HSS HSS 2 o más flautas	Cobalto HSS HSS 2 o más flautas	Cobalto HSS HSS 2 o más flautas	Cobalto HSS HSS 2 o más flautas
Velocidad Todos los diámetros	5 - 10 SFM	10 - 15 SFM	15 - 20 SFM	20 - 40 SFM	40 - 60 SFM Todos los diámetros

Diámetro	Velocidad	Avance	Velocidad	Avance	Velocidad	Avance	Velocidad	Avance	Velocidad	Avance
	RPM	Carga de viruta por diente	RPM	Carga de viruta por diente	RPM	Carga de viruta por diente	RPM	Carga de viruta por diente	RPM	Carga de viruta por diente
1/16	-	-	-	-	-	-	1222-2444	.0002-.0005	2444-3667	.0002-.0005
3/32	-	-	-	-	611-815	.0002-.0005	815-1629	.0002-.0005	1629-2750	.0002-.0005
1/8	-	-	-	-	456-611	.0002-.0005	611-1222	.0002-.0005	1222-1833	.0002-.0005
3/16	-	-	204-306	.0002-.0005	306-407	.0002-.0005	407-815	.0002-.0005	815-1222	.0002-.0005
1/4	76-153	.0002-.0010	153-203	.0002-.0010	229-306	.0002-.0010	306-611	.0002-.0010	611-917	.0002-.0010
5/16	61-122	.0002-.0010	122-183	.0002-.0010	183-244	.0002-.0010	244-489	.0002-.0010	489-733	.0002-.0010
3/8	51-102	.0002-.0010	102-153	.0002-.0010	153-203	.0002-.0010	203-407	.0005-.0020	407-611	.0005-.0020
7/16	44-88	.0005-.0010	88-132	.0002-.0010	131-175	.0002-.0020	175-349	.0005-.0020	349-524	.0005-.0020
1/2	38-76	.0005-.0010	76-115	.0002-.0010	115-153	.0002-.0020	153-306	.0005-.0030	306-458	.0010-.0030
9/16	34-68	.0005-.0020	68-104	.0005-.0020	104-136	.0002-.0020	136-272	.0005-.0030	272-412	.0010-.0030
3/8	31-61	.0005-.0020	61-92	.0005-.0020	92-122	.0002-.0020	122-244	.0010-.0040	244-367	.0010-.0040
11/16	28-56	.0005-.0020	56-84	.0005-.0020	84-111	.0002-.0020	111-222	.0010-.0040	222-337	.0010-.0040
3/4	26-51	.0005-.0020	51-76	.0005-.0020	76-102	.0010-.0040	102-203	.0010-.0040	203-306	.0010-.0040
13/16	24-47	.0010-.0030	47-71	.0010-.0030	71-94	.0010-.0040	94-189	.0010-.0040	189-284	.0010-.0040
7/8	22-44	.0010-.0030	44-65	.0010-.0030	65-87	.0010-.0040	87-175	.0010-.0040	175-262	.0020-.0060
15/16	20-40	.0010-.0030	40-62	.0010-.0030	62-81	.0010-.0040	81-163	.0010-.0040	163-246	.0020-.0060
1	19-38	.0010-.0030	38-58	.0010-.0030	58-76	.0010-.0040	76-153	.0020-.0060	153-229	.0020-.0060
1-1/8	34	.0015-.0040	34-51	.0015-.0040	51-68	.0015-.0050	68-136	.0020-.0060	136-204	.0020-.0060
1-1/4	31	.0015-.0040	31-46	.0015-.0040	46-61	.0015-.0050	61-122	.0020-.0060	122-183	.0020-.0060
1-3/8	28	.0015-.0040	28-42	.0015-.0040	42-55	.0015-.0050	55-111	.0020-.0060	111-168	.0030+
1-1/2	26	.0015-.0040	26-38	.0015-.0040	38-51	.0020+	51-102	.0030+	102-153	.0030+
1-5/8	24	.0020+	35	.0020+	35-47	.0020+	47-94	.0030+	94-141	.0030+
1-3/4	22	.0020+	32	.0020+	32-43	.0020+	43-87	.0030+	87-131	.0030+
1-7/8	20	.0020+	30	.0020+	30-40	.0030+	40-81	.0030+	81-122	.0030+
2	19	.0020+	29	.0030+	29-38	.0030+	38-76	.0030+	76-115	.0030+
2-1/8	18	.0030+	28	.0030+	36	.0030+	36-72	.0030+	72-108	.0030+
2-1/4	17	.0030+	26	.0030+	34	.0030+	34-68	.0030+	68-102	.0030+
2-3/8	16	.0030+	25	.0030+	32	.0030+	32-64	.0030+	64-97	.0030+
2-1/2	15	.0030+	23	.0030+	30	.0030+	30-61	.0030+	61-92	.0030+
2-5/8	15	.0030+	22	.0030+	29	.0030+	29-58	.0030+	58-88	.0030+
2-3/4	14	.0030+	21	.0030+	28	.0030+	28-56	.0030+	56-83	.0030+
2-7/8	14	.0030+	20	.0030+	27	.0030+	27-53	.0030+	53-80	.0030+
3	13	.0030+	19	.0030+	26	.0030+	26-51	.0030+	51-76	.0030+

▶ VELOCIDADES DE CORTE Y AVANCE PARA CORTADORES HSS Y HSS AL COBALTO

Material	-Latón duro y bronce -Cobre -Acero dulce	-Hierro fundido -Acero dulce -Latón -Bronce	-Latón y bronce -Aleación de Aluminio -Plásticos abrasivos	Aluminio Plásticos Madera
Estilo del cortador	HSS 2 o más flautas	HSS 2 o más flautas	Hélice Rápida HSS 1 a 6 flautas	Hélice Rápida HSS 1 a 6 flautas
Velocidad Todos los diámetros	60 - 80 SMF	800 - 100 SFM	100 - 200 SFM	200 - 600 SFM

Diámetro	Velocidad	Avance	Velocidad	Avance	Velocidad	Avance	Velocidad	Avance
	RPM	Carga de viruta por diente	RPM	Carga de viruta por diente	RPM	Carga de viruta por diente	RPM	Carga de viruta por diente
1/16	3667-4888	.0002-.0005	4888-611	.0002-.0005	6111-12222	.0002-.0005	12222 +	.0002-.0005
3/32	2750-3259	.0002-.0005	3259-4073	.0002-.0005	4073-8146	.0002-.0005	8146 +	.0002-.0005
1/8	1833-2440	.0002-.0010	2440-3056	.0002-.0010	3056-6112	.0002-.0010	6112 +	.0002-.0010
3/16	1222-1625	.0002-.0010	1625-2037	.0002-.0010	2037-4074	.0002-.0010	4074 - 12222	.0002-.0010
1/4	917-1222	.0005-.0020	1222-1528	.0005-.0020	1528-3056	.0005-.0020	3056 - 9168	.0005-.0020
5/16	733-978	.0005-.0020	978-1222	.0005-.0020	1222-2444	.0005-.0020	2444 - 7332	.0005-.0020
3/8	611-815	.0010-.0030	815-1019	.0010-.0030	1019-2038	.0005-.0030	2038 - 6114	.0005-.0020
7/16	524-698	.0010-.0030	698-873	.0010-.0030	873-1746	.0005-.0030	1746 - 5238	.0005-.0020
1/2	458-611	.0010-.0030	611-764	.0010-.0030	764-1528	.0005-.0030	1528 - 4584	.0005-.0020
9/16	412-543	.0010-.0040	543-678	.0010-.0040	678-1358	.0005-.0040	1356 - 4071	.0005-.0030
3/8	367-489	.0010-.0040	489-611	.0010-.0040	611-1222	.0005-.0040	1222 - 3666	.0005-.0030
11/16	337-444	.0010-.0040	444-555	.0010-.0040	555-1110	.0005-.0040	1110 - 3330	.0005-.0030
3/4	306-407	.0010-.0040	407-509	.0020-.0060	509-1018	.0010-.0060	1018 - 3054	.0010-.0040
13/16	284-379	.0020-.0060	379-469	.0020-.0060	469-938	.0010-.0060	938 - 2814	.0010-.0040
7/8	262-349	.0020-.0060	349-436	.0020-.0060	436-872	.0010-.0060	872 - 2616	.0010-.0040
15/16	246-326	.0020-.0060	326-407	.0020-.0060	407-814	.0010-.0060	814 - 2442	.0010-.0040
1	229-306	.0020-.0060	306-382	.0020-.0060	382-764	.0020 +	764 - 2292	.0020 +
1 - 1/8	204-272	.0020-.0060	272-340	.0030 +	340-680	.0020 +	680 - 2040	.0020 +
1 - 1/4	183-244	.0030 +	244-306	.0030 +	306-612	.0020 +	612 - 1836	.0020 +
1 - 3/8	167-222	.0030 +	222-278	.0030 +	278-556	.0020 +	556 - 1668	.0020 +
1 - 1/2	153-204	.0030 +	240-255	.0030 +	255-510	.0030 +	510 - 1530	.0020 +
1 - 5/8	141-188	.0030 +	288-235	.0030 +	235-470	.0030 +	470 - 1410	.0020 +
1 - 3/4	131-175	.0030 +	175-218	.0030 +	218-436	.0030 +	436 - 1308	.0020 +
1 - 7/8	122-163	.0030 +	163-204	.0030 +	201-408	.0030 +	408 - 1224	.0030 +
2	115-153	.0030 +	153-191	.0030 +	191-382	.0030 +	382 - 1146	.0030 +
2 - 1/8	108-144	.0030 +	144-179	.0030 +	179-358	.0030 +	358 - 1074	.0030 +
2 - 1/4	102-136	.0030 +	136-170	.0030 +	170-340	.0030 +	340 - 1020	.0030 +
2 - 3/8	97-128	.0030 +	128-161	.0030 +	161-322	.0030 +	322 - 966	.0030 +
2 - 1/2	92-122	.0030 +	122-153	.0030 +	153-306	.0030 +	306 - 918	.0030 +
2 - 5/8	88-116	.0030 +	116-145	.0030 +	145-290	.0030 +	290 - 870	.0030 +
2 - 3/4	83-111	.0030 +	111-139	.0030 +	139-278	.0030 +	278 - 834	.0030 +
2 - 7/8	80-106	.0030 +	106-132	.0030 +	132-264	.0030 +	264 - 792	.0030 +
3	76-102	.0030 +	102-127	.0030 +	127-254	.0030 +	254 - 762	.0030 +

▶ AVANCE Y VELOCIDADES PARA CORTADORES DE USO GENERAL DE CARBURO SÓLIDO

Material	Velocidad (SFM)	Avance (Pulgada / Diente) Diámetro del Cortador Vertical				
		1/8"	1/4"	1/2"	3/4"	1"
Aluminio y Aleación de Aluminio	800 - 1300	0.0005	0.0020	0.0040	0.0060	0.0080
Latón / Bronce	250 - 400	0.0010	0.0020	0.0030	0.0040	0.0050
Cobre y Aleación de Cobre	400 - 800	0.0010	0.0020	0.0020	0.0040	0.0060
Hierro Fundido (Suave) 120-220 Bhn	250 - 600	0.0010	0.0020	0.0030	0.0060	0.0080
Hierro Fundido (Duro) 220-320 Bhn	100 - 300	0.0004	0.0008	0.0020	0.0030	0.0040
Hierro Dúctil	100 - 400	0.0005	0.0010	0.0020	0.0040	0.0060
Hierro Maleable	250 - 400	0.0005	0.0010	0.0030	0.0050	0.0070
Magnesio y Aleaciones de Magnesio	1000 - 1500	0.0010	0.0020	0.0040	0.0060	0.0100
Aleaciones de Alta Temperatura Níquel Base	25 - 100	0.0004	0.0008	0.0010	0.0010	0.0020
Monel, Níquel, Acero de Alta	200 - 250	0.0005	0.0020	0.0020	0.0030	0.0040
Relleno de Vidrio/Plásticos	350 - 600	0.0015	0.0030	0.0040	0.0060	0.0120
Plásticos	800 - 1600	0.0015	0.0030	0.0060	0.0100	0.0150
Aceros Bajos en Carbono Recocidos	250 - 400	0.0005	0.0010	0.0030	0.0050	0.0070
Aceros de Medio Carbono 275-425 Bhn	125 - 300	0.0006	0.0015	0.0020	0.0040	0.0050
Aceros Endurecidos 48-52 Rc "C"	30 - 100	0.0002	0.0005	0.0010	0.0020	0.0030
Acero Inoxidable Suave 135-275 Bhn	200 - 400	0.0005	0.0010	0.0020	0.0040	0.0060
Acero Inoxidable Duro 275-425 Bhn	60 - 250	0.0002	0.0005	0.0010	0.0030	0.0050
Titanio (Suave)	150 - 400	0.0005	0.0010	0.0020	0.0040	0.0060
Titanio (Duro)	50 - 200	0.0003	0.0005	0.0010	0.0020	0.0040
Aleación Refractaria	100 - 300	0.0005	0.0010	0.0010	0.0015	0.0020

LINEAMIENTOS GENERALES DE MECANIZADO

- Los valores más altos de velocidad debe ser usados con profundidades radiales de corte menor al 25% del diámetro del cortador.
- Los valores más bajos de velocidad deben ser utilizados con profundidades radiales de corte mayor al 25% del diámetro del cortador.

- Las recomendaciones anteriores son para profundidades axiales de corte que no exceden 1 vez el diámetro del cortador para perfilado y 0.5 veces el diámetro para ranurado.

- Las recomendaciones anteriores son para herramienta sin recubrimiento y deberán ser ajustados cuando se use herramienta recubierta. Generalmente la velocidad puede ser incrementada siguiendo los siguientes factores:

-TiAlN: Incrementar 40%-50%
(Para herramienta de carburo de uso general)

- Los valores recomendados arriba son condiciones iniciales, si la herramienta trabaja bien, sin vibraciones o con ruido notable incrementar los sfm en 5-10%.

▶ PARÁMETROS DE OPERACIÓN PARA CORTADORES DE ALUMINIO

Tipo de Corte	Aleaciones de Aluminio 6061-T6, 7075-T6, 40, 356, 380, C61300	% profundidad de corte del diámetro de la herramienta	SFM (Velocidad)	Avance por Diente					
				1/4"	3/8"	1/2"	5/8"	3/4"	1"
Ranurado poco Profundo	<32 HRC	< 50%	1200 +	.0045	.0071	.0100	.0123	.0149	.0200
	>32 HRC		600 +	.0036	.0057	.0080	.0098	.0119	.0160
Ranurado Profundo	<32 HRC	75-100%	1200 +	.0036	.0057	.0080	.0098	.0119	.0160
	>32 HRC		600 +	.0027	.0043	.0060	.0074	.0089	.0120
Radial Medio 1.0 x prof. diam.	<32 HRC	30% x Diámetro Radial	1200 +	.0045	.0071	.0100	.0123	.0149	.0200
	>32 HRC		600 +	.0036	.0057	.0080	.0098	.0119	.0160
Radial Pesado 1.0 x prof. diam.	<32 HRC	50% x Diámetro Radial	1200 +	.0036	.0057	.0080	.0098	.0119	.0160
Radial Medio 2.0 x prof. diam.	<32 HRC	30% x Diámetro Radial	1200 +	.0045	.0071	.0100	.0123	.0149	.0200
	>32 HRC		600 +	.0036	.0057	.0080	.0098	.0119	.0160
Radial Pesado 2.0 x prof. diam.	<32 HRC	50% x Diámetro Radial	1200 +	.0045	.0071	.0100	.0123	.0149	.0200
Acabado Radial Medio	<32 HRC	<25% de Diámetro	1200 +	.0045	.0071	.0100	.0123	.0149	.0200
	>32 HRC		600 +	.0036	.0057	.0080	.0098	.0119	.0160
Acabado Radial Ligero	<32 HRC	<10% de Diámetro	1200 +	.0045	.0071	.0100	.0123	.0149	.0200
Acabado	<32 HRC	<.010 Radial Prof.	1200 +	.0054	.0086	.0120	.0147	.0178	.0240
	>32 HRC		600 +	.0045	.0071	.0100	.0123	.0149	.0200

Esta tabla representa condiciones basadas en una herramientas con recubrimiento, cuando se utilice una herramienta sin recubrimiento bajar la velocidad hasta un 50%.

Estos rangos de velocidad y avance son sugeridos como guías en general. El tipo de maquinado, la potencia, limitaciones de la velocidad del husillo, la sujeción de la herramienta y elementos de sujeción pueden tener un impacto en el desempeño de la herramienta.

▶ PARÁMETROS DE OPERACIÓN PARA CORTADORES HIGH PERFORMANCE

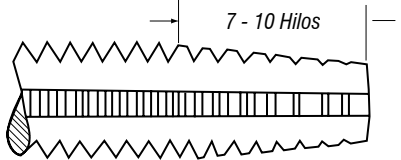
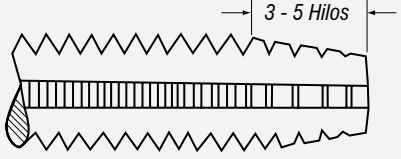
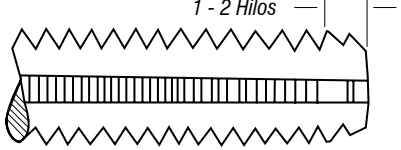
Material de la pieza de trabajo	Velocidad de Corte	1/4"		5/16"		3/8"		1/2"		5/8"		3/4"		1"		
		SFM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
Hierro Gris	Baja	450	6870	28	5500	27	4580	30	3430	34	2750	33	2300	32	1720	31
	Alta	550	8400	34	6720	32	5600	36	3200	32	3360	40	2800	39	2100	38
Acero al bajo Carbono	Baja	500	7640	30	6100	29	5100	32	3800	38	3050	36	2500	35	1900	34
	Alta	600	9200	37	7300	35	6100	39	4580	46	3650	44	3050	43	2300	41
"Aceros Aleados >36 Rc (4140-4340)"	Baja	350	5348	34.23	4285	34.28	3565	35.65	2674	33.16	2139	29.95	1783	26.38	1337	21.39
	Alta	450	6876	44.01	5510	44.08	4584	45.8	3438	42.63	2750	38.51	2292	33.92	1719	27.5
"Aceros Aleados <36 Rc (4140-4340)"	Baja	250	3820	24.45	3061	24.49	2547	25.47	1910	23.68	1528	21.39	1273	18.85	955	15.28
	Alta	300	4584	29.34	3673	29.38	3056	30.56	2292	28.42	1834	25.67	1528	22.61	1146	18.34
Acero grado herramienta <36 Rc	Baja	159	2430	13.61	1947	14.8	1620	12.96	1215	12.15	972	12.05	810	10.37	607	8.5
	Alta	200	3056	17.11	2449	18.6	2037	16.3	1528	15.28	1222	15.16	1019	13.04	754	10.7
Acero grado herramienta >36 Rc	Baja	350	5348	34.23	4285	34.28	3565	35.65	2674	33.16	2139	29.95	1783	26.38	1337	21.39
	Alta	450	6876	44.01	5510	44.08	4584	45.84	3438	42.63	2750	38.51	2292	33.92	1719	27.5
Acero Inoxidable (303)	Baja	300	4540	15	3670	13	3050	17	2300	20	1830	19	1530	19	1150	18
	Alta	380	5800	19	4650	17	3870	22	2900	25	2320	24	1940	24	1450	23
Acero Inoxidable (304)	Baja	260	3970	9	3180	9	2650	14	1990	16	1590	15	1320	15	990	13
	Alta	290	4430	11	3550	10	2950	15	2220	18	1780	17	1480	17	1110	15
"Acero Inoxidable (316L)"	Baja	250	3820	9	3060	9	2550	13	1910	15	1530	14	1270	14	960	12
	Alta	280	4280	10	3420	10	2850	15	2140	17	1700	16	1430	16	1070	13
"Superaleaciones (718 Inconel)"	Baja	75	1150	2.5	920	2.5	780	3.1	570	3.6	460	3.1	380	3	290	2.8
	Alta	90	1380	3	1100	3	920	3.7	690	4.4	550	3.7	460	3.7	350	3.4
Aleaciones de Titanio (Ti6Al4V)	Baja	160	2450	7	1950	6.2	1630	9	1220	10	980	9.4	820	9.2	610	9
	Alta	190	2900	9	2300	7.5	1940	11	1450	11.6	1160	11	970	11	720	10.5

*Recomendaciones para ranurado con profundidad igual al diámetro del cortador.

*Para perfilado incrementar el avance un 20%.

Material de la pieza de trabajo	Velocidad de Corte											Perfilado		
		1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	Profundidad		Ranurado	
											Axial	Radial		
Hierro Gris	450-550	0.0008	0.001	0.0015	0.002	0.0023	0.0026	0.0029	0.0033	0.0036	1xD	0.5xD	1xD	
Acero grado herramienta	300-400	0.0008	0.001	0.0016	0.002	0.0022	0.003	0.0032	0.0035	0.004	1xD	0.5xD	1xD	
Acero al bajo Carbono	500-600	0.0008	0.001	0.0016	0.002	0.0022	0.003	0.0032	0.0035	0.004	1xD	0.5xD	1xD	
Acero Inoxidable(303)	300-380	0.0007	0.0011	0.0015	0.0018	0.0021	0.0024	0.0027	0.003	0.0033	1xD	0.5xD	1xD	
Acero Inoxidable(304)	260-290	0.0005	0.0009	0.0013	0.0016	0.0018	0.0022	0.0025	0.0028	0.0031	1xD	0.5xD	1xD	
Acero Inoxidable(316L)	150-210	0.0004	0.0007	0.0011	0.0014	0.0016	0.002	0.0023	0.0026	0.0029	1xD	0.5xD	1xD	
Aceros Aleados	250-320	0.0006	0.001	0.0016	0.002	0.0025	0.0031	0.0035	0.0037	0.004	1xD	0.5xD	1xD	
Superaleaciones (718 Inconel)	75-90	0.0004	0.0007	0.0009	0.0012	0.0014	0.0016	0.0018	0.002	0.0022	1xD	0.2xD	0.3xD	
Aleaciones de Titanio (Ti6Al4V)	120-160	0.0007	0.001	0.0013	0.0016	0.002	0.0023	0.0026	0.0029	0.0033	1xD	0.3xD	0.5xD	

▶ TIPOS DE CHAFLÁN

<p style="text-align: center;">Cónico</p>  <p style="text-align: center;">7 - 10 Hilos</p>	<p>El machuelo cónico tiene chaflán desde la punta hasta unos 7-10 hilos lo que permite iniciar una rosca con facilidad</p>
<p style="text-align: center;">Semiconico</p>  <p style="text-align: center;">3 - 5 Hilos</p>	<p>Es el tipo de chaflán mas común para machuleado manual o en máquina ya sea para barrenos ciegos o pasados.</p>
<p style="text-align: center;">Recto</p>  <p style="text-align: center;">1 - 2 Hilos</p>	<p>Usado para roscar hasta el fondo de barrenos ciegos.</p>

▶ PARÁMETROS DE OPERACIÓN

Velocidades de corte

Fórmulas

Tamaños en pulgadas
$SFM = (RPM \times Dm) / 3.82$
$RPM = (3.82 \times SFM) / Dm$
$IPM = RPM / TPI = P \times RPM$

Tamaños milimétricos
$S m/m = (\pi \times Dm \times RPM) / 1000$
$RPM = (m / m \times 1000) / \pi \times Dm$
$mm/m = P \times RPM$

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
$\pi = 3.1416$
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	1659	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
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	647	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	2491	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

SELECCIÓN DE BROCAS PARA ROSCADO NÚMERICOS, FRACCIONALES Y PORCENTAJES DE ROSCA

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

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

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

$$\text{Medida de Broca} = \text{Díam. Exterior de la Rosca} - \left(\frac{0.01299 \times \% \text{ de Rosca}}{\text{Nº de Hilos por pulg.}} \right)$$

Fórmula para obtener el porcentaje de rosca p/otras medidas de broca

$$\% \text{ de Rosca} = \text{Nº de Hilos por pulg.} \times \left(\frac{\text{Díam Ext. de Rosca} - \text{Díam Broca selec.}}{0.01299} \right)$$

SELECCIÓN DE BROCAS PARA ROSCADO MÉTRICAS Y PORCENTAJES DE ROSCA

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

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

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

Fórmula de Rosca Métrica

$$\text{Medida de Broca} = \text{Diám. Exterior de la Rosca} - \frac{\% \text{ Rosca} \times \text{Paso en mm}}{76.980}$$

$$\% \text{ de Rosca} = \frac{76.980}{\text{Paso en mm}} \times \left(\text{Diám. Exterior de Rosca} - \text{Medida de Broca Seleccionada} \right)$$

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	-	-






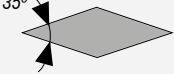
*Para roscado sin rimar.

▶ INSERTOS DE TORNEADO FÓRMULAS

Nombre	Fórmula
Velocidad del husillo(RPM)	$n = \frac{3.82 \times V_c}{D}$
Velocidad de corte (ft/min)	$V_c = .262 \times D \times n$
Avance (in/min)	$V_f = n \times f_n$

Nomenclatura		
Símbolo	Atributo	Unidad
D	Diámetro de la pieza	Pulgada
F_n	Avance por revolución	Pulgada
n	Velocidad del husillo	RPM
V_c	Velocidad de corte	ft/min
V_f	Avance	plg/min

▶ INSERTOS DE TORNEADO GUÍA DE SELECCIÓN PARA INSERTOS DE TORNEADO

Forma del inserto	Características
 <p>90°</p> <p>S - Cuadrado</p>	<p>Con esquinas muy fuertes de 90°, excelente economía (8 filos en total para insertos negativos). Principalmente usado para operaciones de careado.</p>
 <p>80°</p> <p>C - Diamante 80°</p>	<p>Es la forma de insertos más popular debido a una alta versatilidad. Filo de corte fuerte con ajuste seguro en el portainsero. Con esquinas de 80° que pueden ser usadas para operaciones de torneado y careado.</p>
 <p>80°</p> <p>W - Esquina 80°</p>	<p>Forma de inserto con 6 esquinas en total de 80° que pueden incrementar la economía comparado con un inserto CNMG. Recomendado para profundidades de corte menores comparado con un inserto CNMG.</p>
 <p>60°</p> <p>T - Triángulo</p>	<p>Forma de inserto muy versátil, puede ser usado para torneado, careado, torneado interno y perfilado. Buena economía con hasta 6 filos de corte (en insertos negativos). Excelente elección para torneado interno debido a una configuración estable en el portainsero.</p>
 <p>55°</p> <p>D - Diamante 55°</p>	<p>Generalmente es la primera elección para aplicaciones de perfilado, copiado. Filo de corte más débil comparado con un inserto de forma triangular.</p>
 <p>35°</p> <p>V - Diamante 35°</p>	<p>Primera elección para perfilado de formas complicadas. Forma de inserto con los filos más débiles. El avance y profundidad de corte deben ser ligeros.</p>

► RECOMENDACIONES DE OPERACIÓN CORTADORES HIGH FEED

Recomendaciones de Avance

Designación ISO	Material	Dureza Rc	Avance por Diente fz	
			CM	CH
P	Acero al Bajo Carbón	<25	0.045	0.060
	Aleación de acero y acero grado herramienta	<35	0.045	0.060
	Aleación de acero y acero grado herramienta	35-45	0.035	0.045
M	Acero Inoxidable	<35	0.030	0.040
K	Fundición	<35	0.045	0.060
S	Súper Aleaciones	<35	0.015	0.020
H	Acero Endurecido	45-55	0.010	0.015

Recomendaciones de Velocidad

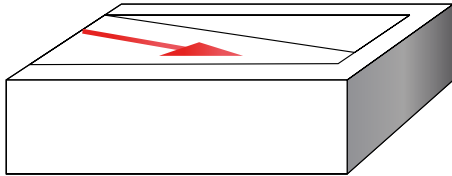
Designación ISO	Material	Dureza RC	Vc (ft/min)					
			CA2225 fz(plg)			CA2230 fz(plg)		
			0.035	0.050	0.065	0.035	0.050	0.065
P	Acero Bajo Carbón, Viruta Larga	-	760	650	525	720	620	500
	Acero Bajo Carbón, Viruta Corta	-	690	560	440	655	530	420
	Acero Medio y Alto Carbón	<25	620	535	430	590	510	410
	Aleación de Acero y Acero Grado Herramienta	<35	510	410	325	480	390	310
		35-48	380	305	240	360	290	230
		<35	605	525	420	55	500	400
35-48	440	360	285	420	340	270		
M	Acero Inoxidable Austenítico	-	595	550	515	656	525	490
	Fundición de Acero Inoxidable y Acero Inoxidable Austenítico	<25	460	410	380	435	390	360
	Acero Inoxidable Duplex	<30	560	515	485	530	490	460
K	Fundición Gris	<32	690	560	440	655	530	420
	Hierro Nodular	<28	620	520	390	590	490	370
	Fundición Nodulares Austempladas (ADI)	<43	550	470	360	525	450	345
S	Aleación Base Hierro	25-48	-	-	-	200	130	100
	Aleación Base Cobalto	25-48	-	-	-	170	100	80
	Aleación Base Níquel	<48	-	-	-	180	110	90
	Titanio y Aleaciones de Titanio	33-38	-	-	-	190	120	95
H	Aleación de Acero Endurecido y Acero Grado Herramienta	44-48	-	-	-	320	260	210
		48-55	-	-	-	260	260	165
		56-60	-	-	-	-	-	-
		>60	-	-	-	-	-	-

Declive

Recomendación

Para aplicaciones de maquinado en declive reduzca a un 75% el avance recomendado.

Diámetro	Ángulo de Rampeado Máx.
2	1.2°
2.5	0.9°
3	0.8°
4	0.6°
5	0.4°

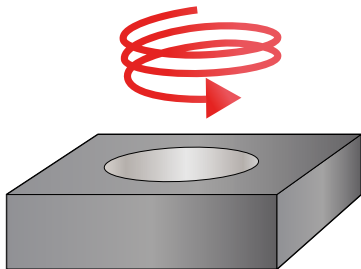


Fresado Helicoidal

Recomendación

Reduzca el avance a 30%-50% del valor recomendable.

Diámetro	Tamaño de Agujero Mín.	Tamaño de Agujero Máx.
2	3.21	3.92
2.5	4.21	4.92
3	5.21	5.92
4	7.21	7.92
5	9.21	9.92



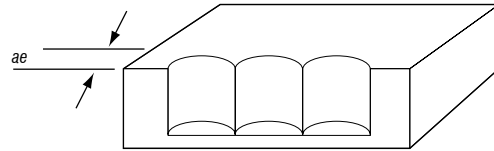
Fresado por Externo

Máximo ancho de corte

$$a_e = 0.330$$

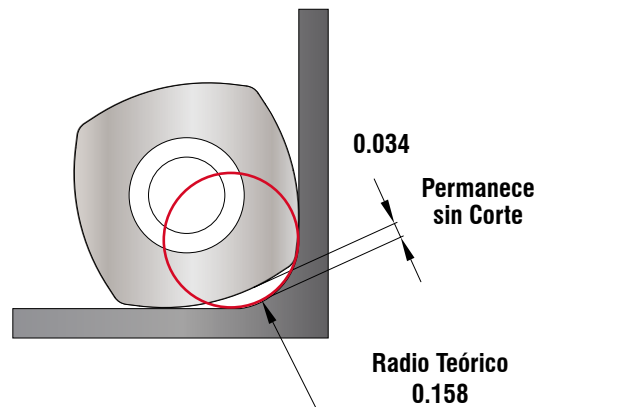
Avance inicial recomendado por inserto

$$f_z = 0.006 \text{ (0.002-0.010)}$$



Fresado Helicoidal

Durante el fresado de cavidades es necesario definir el radio teórico en la programación de sistemas CAD/CAM ya que quedara un resto de material sin cortar durante el fresado, tomar en cuenta el radio teórico recomendado de otra forma el acabado puede ser no deseado.



Fórmulas

Atributo	Fórmulas
Velocidad de Husillo	$n = (3.82 \times Vc) / D$
Velocidad de Corte	$Vc = 0.262 \times D \times n$
Avance	$Vf = n \times fz \times z$
Avance por Inserto	$fz = Vf / (n \times z)$
Volumen de material a remover	$Q = ae \times ap \times Vf$

Glosario

Símbolo	Atributo	Unidad
ae	Ancho de corte	pulgada
ap	Profundidad de corte	pulgada
D	Diametro de cortador	pulgada
fz	Avance por inserto	pulgada
n	Velocidad de husillo	rpm
Q	Volumen de material a remover	pulg ³ /min
Vc	Velocidad de corte	ft/min
Vf	Avance	pulg/min
z	Número de insertos	-

Información de Grados

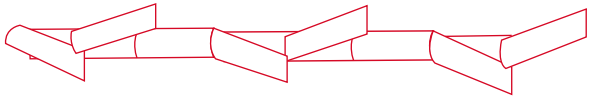

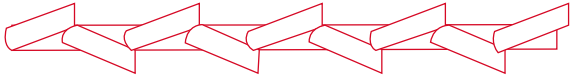

CA2225 **P M K**

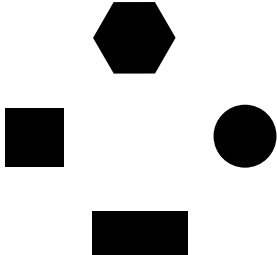

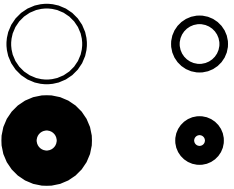
Grado complementario para aceros, aceros inoxidables y fundiciones. Es un recubrimiento PVD AlCrN con alta dureza que ofrece buena resistencia al desgaste.

CA2230 **P M K S H**

Recubrimiento universal, primera elección con amplio rango de aplicaciones. Es un recubrimiento PVD TiAlN con una excelente resistencia a la oxidación y al calor.

SIERRA CINTA BIMETÁLICA

<p style="text-align: center;">Triscado Raker</p> 	<p>Estos son dientes acomodados de manera individual, es conformado de un diente hacia la derecha y un diente hacia la izquierda, seguido de un diente recto.</p> <p>El diente recto permite la rápida salida de rebaba y un corte recto. Este tipo de dentado es recomendado para aplicaciones generales.</p>
<p style="text-align: center;">Triscado Wavy (ondulado)</p> 	<p>En el triscado ondulado los dientes están acomodados en grupos, los cuales van hacia la derecha o la izquierda con diferentes ángulos. El triscado ondulado es recomendado para corte ligeros de metales como hojas, tubos y sólidos de pequeñas dimensiones.</p>
<p style="text-align: center;">Triscado Alternado</p> 	<p>En un triscado alternado, los dientes se acomodan uno hacia la derecha y uno hacia la izquierda, a través de toda la longitud de la sierra cinta. Este tipo de triscado es utilizado principalmente para cortes de madera.</p>
<p style="text-align: center;">Triscado Variable</p> 	<p>El triscado variable está acomodado en grupos alternados, los cuales se distinguen por tener un diente recto entre ellos.</p> <p>Con estas combinaciones se obtiene un corte rápidos y suaves. Este tipo de triscado funciona perfectamente en la mayoría de aplicaciones y provee un corte rápido en sólidos, materiales estructurales y tubería.</p>

Usos			
Sólidos 	Sección Transversal	Paso	
	1/4"	10/14 TPI 14 TPI	
	3/8"-3/4"	8/12 TPI 10 TPI 8 TPI	
	3/4" - 1-1/2"	4/6 TPI 6 TPI 5/8 TPI	
	1-1/2" - 3"	4/6 TPI 4 TPI 3/4 TPI	
	3" - 6"	2/3 TPI 3/4 TPI 3 TPI	
	6" - 10"	2 TPI 2/3 TPI	
	10" - 14"	.75 TPI .8/1.5 TPI	
	Estructural 	Sección Transversal	Paso
		1/4" - 1/2"	10/14 TPI 10 TPI 8/12 TPI
1/2" - 3/4"		8 TPI 6/10 TPI 5/8 TPI	
3/4" - 1"		4/6 TPI 5/8 TPI 6 TPI	
Estructural 		Espesor de Pared	Paso
		1/4" - 1/2"	10/14 TPI 10 TPI 8/12 TPI
		1/2" - 3/4"	8 TPI 6/10 TPI 5/8 TPI
		3/4" - 1"	4/6 TPI 6/10 TPI 6 TPI

▶ 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



2020 CATÁLOGO



ÍNDICE CÓDIGOS

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Código	Lista	Página
10788	1070	29
10791	1070	29
10794	1070	29
10796	1070	29
10800	1070	29
10803	1070	29
10811	1070	29
10814	1070	29
10817	1070	29
10820	1070	29
10823	1070	29
10826	1070	29
10829	1070	29
10832	1070	29
10835	1070	29
10838	1070	29
10841	1070	29
10844	1070	29
10847	1070	29
10850	1070	29
10853	1070	29
10856	1070	29
10859	1070	29
10862	1070	29
10866	1070	29
10870	1070	29
10873	1070	29
10876	1070	29
10879	1070	29
10882	1070	29
10885	1070	29
10888	1070	29
10891	1070	29
10894	1070	29
10897	1070	29
10899	1080	31
10900	1080	31
10901	1080	31
10902	1080	31
10903	1080	31
10904	1080	31
10905	1080	31
10906	1080	31
11003	906	101
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11009	906	101
11013	906	101
11018	906	101
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11112	906	101
11116	906	101
11124	906	101
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44010	150	93
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44012	150	93
44013	150	93
44014	150	93
44015	150	93
44016	150	94
44017	150	94
44018	150	94
44019	150	94

Código	Lista	Página
44020	150	94
44021	150	94
44022	150	94
44023	150	94
44024	150	94
44025	150	95
44026	150	95
44027	150	95
44028	150	95
44029	150	95
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44031	150	95
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44118	150	92
44119	150	92
44120	150	92
44121	150	92
44122	150	92
44123	150	92

Código	Lista	Página
44124	150	92
44125	150	92
44126	150	92
44127	150	91
44128	150	91
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44130	150	91
44131	150	91
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46619	550	96
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46621	550	96
46622	550	96
46623	550	96
46624	550	96
46625	550	96
46626	550	96

Código	Lista	Página
46627	550	96
46628	550	96
46629	550	96
46630	550	96
46631	550	96
46632	550	96
46680	550	96
46697	550	96
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47288	150	93
47289	150	93
47293	150	93
47294	150	93
47295	150	93
47296	150	94
47297	150	94
47299	150	94

Código	Lista	Página	Código	Lista	Página	Código	Lista	Página	Código	Lista	Página
47300	150	94	49729	120	97	50520	120X	100	53454	190C	102
47301	150	94	49730	120	97	50522	120X	100	53455	190C	102
47302	150	94	49731	120	97	50523	120X	100	53456	190C	102
47303	150	94	49732	120	97	50527	120X	100	53457	190C	102
47305	150	94	49733	120	97	50529	120X	100	53458	190C	102
47306	150	94	49734	120	97	50540	120X	100	53459	190C	102
47307	150	94	49736	120	97	50546	120X	100	53460	190C	102
47308	150	94	49738	120	97	50550	120X	100	53461	190C	102
47309	150	94	49739	120	97	50552	120X	100	53462	190C	102
47311	150	94	49740	120	97	50557	120X	100	53463	190C	102
47313	150	94	49741	120	97	50558	120X	100	53464	190C	102
47314	150	94	49742	120	97	50561	120X	100	53468	190C	102
47315	150	94	49743	120	97	50563	120X	100	53472	190C	102
47317	150	94	49744	120	98	50570	120X	100	53475	190C	102
47318	150	94	49745	120	98	50571	120X	100	53480	190C	102
47319	150	94	49746	120	98	50572	120X	100	53488	190C	102
47320	150	94	49748	120	98	50580	120X	100	53496	190C	102
47321	150	94	49749	120	98	50581	120X	100	53634	190C	102
47323	150	94	49750	120	98	50585	120X	100	53636	190C	102
47324	150	94	49751	120	98	50586	120X	100	53638	190C	102
47325	150	94	49752	120	98	50591	120X	100	53640	190C	102
47326	150	94	49753	120	98	50596	120X	100	53642	190C	102
47327	150	94	49754	120	98	50613	120X	100	53644	190C	102
47329	150	94	49755	120	98	50619	120X	100	53646	190C	102
47330	150	94	49756	120	98	50624	120X	100	53648	190C	102
47331	150	94	49757	120	98	50629	120X	100	53650	190C	102
47333	150	94	49758	120	98	50639	120X	100	53652	190C	102
47336	150	94	49759	120	98	50654	120X	100	53654	190C	102
47337	150	94	49760	120	98	50659	120X	100	53656	190C	102
47338	150	94	49761	120	98	50717	120X	99	53658	190C	102
47339	150	94	49762	120	98	50718	120X	99	53660	190C	102
47341	150	95	49763	120	98	50719	120X	99	53662	190C	102
47342	150	95	49764	120	98	50720	120X	99	53664	190C	102
47343	150	95	49766	120	98	50722	120X	99	54127	150	95
47344	150	95	49768	120	98	50723	120X	99	55236	120DH	103
47345	150	95	49770	120	98	50726	120X	99	55237	120DH	103
47346	150	95	49772	120	98	50728	120X	99	55238	120DH	103
47347	150	95	49776	120	98	50729	120X	99	55239	120DH	103
47348	150	95	49778	120	98	50730	120X	99	55240	120DH	103
47349	150	95	49780	120	98	50731	120X	99	55241	120DH	103
47354	150	95	49788	120	98	50732	120X	99	55242	120DH	103
47362	150	95	49792	120	98	50734	120X	99	55243	120DH	103
47363	150	95	50075	550	96	50735	120X	99	55244	120DH	103
47366	150	95	50076	550	96	50736	120X	99	55245	120DH	103
47368	150	95	50077	550	96	50737	120X	99	55246	120DH	103
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47372	150	95	50082	550	96	50739	120X	99	55248	120DH	103
47374	150	95	50083	550	96	50740	120X	99	55249	120DH	103
47375	150	95	50084	550	96	50741	120X	99	55250	120DH	103
47376	150	95	50086	550	96	50742	120X	100	55251	120DH	103
47377	150	95	50299	120	97	50743	120X	100	55252	120DH	103
49702	120	97	50319	120	97	50746	120X	100	55253	120DH	103
49703	120	97	50360	120	97	50747	120X	100	55254	120DH	103
49704	120	97	50363	120	97	50749	120X	100	55255	120DH	103
49705	120	97	50448	120X	99	50750	120X	100	55256	120DH	103
49706	120	97	50455	120X	99	50751	120X	100	55257	120DH	103
49707	120	97	50458	120X	99	53432	190C	102	55258	120DH	103
49708	120	97	50460	120X	99	53433	190C	102	55259	120DH	103
49709	120	97	50461	120X	99	53434	190C	102	55260	120DH	103
49710	120	97	50463	120X	99	53435	190C	102	55261	120DH	103
49711	120	97	50465	120X	99	53436	190C	102	55262	120DH	103
49712	120	97	50466	120X	99	53437	190C	102	55263	120DH	103
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49714	120	97	50471	120X	99	53439	190C	102	55265	120DH	103
49715	120	97	50476	120X	99	53440	190C	102	55266	120DH	103
49716	120	97	50479	120X	99	53441	190C	102	55267	120DH	103
49717	120	97	50485	120X	99	53442	190C	102	55268	120DH	103
49718	120	97	50489	120X	99	53443	190C	102	55269	120DH	103
49719	120	97	50493	120X	99	53444	190C	102	55270	120DH	103
49720	120	97	50495	120X	99	53445	190C	102	55271	120DH	103
49721	120	97	50498	120X	99	53446	190C	102	55272	120DH	103
49722	120	97	50500	120X	99	53447	190C	102	57711	150	95
49723	120	97	50503	120X	99	53448	190C	102	57714	150	95
49724	120	97	50505	120X	99	53449	190C	102	57716	150	95
49725	120	97	50509	120X	99	53450	190C	102	57718	150	95
49726	120	97	50511	120X	99	53451	190C	102	57725	150	95
49727	120	97	50514	120X	99	53452	190C	102	57727	150	95
49728	120	97	50516	120X	100	53453	190C	102	57728	150	95



Código	Lista	Página
59725	120X	99
68804	120DH	103
68805	120DH	103
68806	120DH	103
68807	120DH	103
68808	120DH	103
68809	120DH	103
68810	120DH	103
68811	120DH	103
68812	120DH	103
68813	120DH	103
68814	120DH	103
68815	120DH	103
68816	120DH	103
68817	120DH	103
68818	120DH	103
68819	120DH	103
68820	120DH	103
68821	120DH	103
68822	120DH	103
68823	120DH	103
68824	120DH	103
68825	120DH	103
68826	120DH	103
68827	120DH	103
68828	120DH	103
68829	120DH	103
68830	120DH	103
68831	120DH	103
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68840	120DH	103
69861	150	95
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70104	150	93
70106	150	93
70110	150	93
70115	150	93
70121	150	93
70122	150	93
70125	150	93
70126	150	93
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70218	150	94
70219	150	94
70220	150	94
70221	150	94
70222	150	94
70223	150	94

Código	Lista	Página
70224	150	94
70225	150	95
70226	150	95
70227	150	95
70228	150	95
70229	150	95
70230	150	95
70231	150	95
70232	150	95
70234	150	95
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108323	1070	29
108353	1070	29
108383	1070	29
108413	1070	29
108443	1070	29
108473	1070	29

Código	Lista	Página
108503	1070	29
108533	1070	29
108563	1070	29
108593	1070	29
108623	1070	29
108663	1070	29
108703	1070	29
108733	1070	29
108763	1070	29
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108823	1070	29
108853	1070	29
108883	1070	29
108913	1070	29
108943	1070	29
108973	1070	29
290000	2927	16
290050	2927	13
290055	2927	13
290060	2927	13
290065	2927	13
290070	2927	13
290075	2927	13
290080	2927	13
290085	2927	13
290090	2927	13
290095	2927	13
290100	2927	13
290105	2927	13
290110	2927	13
290115	2927	13
290120	2927	13
290125	2927	13
290130	2927	13
290135	2927	13
290140	2927	13
290145	2927	13
290150	2927	13
290155	2927	13
290160	2927	13
290165	2927	13
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290175	2927	13
290180	2927	13
290185	2927	13
290190	2927	13
290195	2927	13
290200	2927	13
290205	2927	13
290210	2927	13
290215	2927	13
290220	2927	13
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290325	2927	14
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290340	2927	14
290350	2927	14
290360	2927	14
290370	2927	14
290375	2927	14
290380	2927	14

Código	Lista	Página
290390	2927	14
290400	2927	14
290410	2927	14
290420	2927	14
290425	2927	14
290430	2927	14
290440	2927	14
290450	2927	14
290460	2927	14
290470	2927	14
290475	2927	14
290480	2927	14
290490	2927	14
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290520	2927	14
290525	2927	14
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290575	2927	14
290580	2927	14
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290620	2927	14
290630	2927	14
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290650	2927	15
290660	2927	15
290670	2927	15
290675	2927	15
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290690	2927	15
290700	2927	15
290710	2927	15
290720	2927	15
290725	2927	15
290730	2927	15
290740	2927	15
290750	2927	15
290760	2927	15
290770	2927	15
290780	2927	15
290790	2927	15
290800	2927	15
290810	2927	15
290820	2927	15
290825	2927	15
290830	2927	15
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290970	2927	15
290975	2927	15
290980	2927	15
290990	2927	15
291000	2927	15
291010	2927	15
291020	2927	15
291030	2927	15
291040	2927	15
291050	2927	15
291060	2927	15
291070	2927	15
291080	2927	15



Código	Lista	Página	Código	Lista	Página	Código	Lista	Página	Código	Lista	Página
291090	2927	15	300652	3105	104	307830	3105	105	330122	SPGP	107
291100	2927	15	300819	3105	104	307848	3105	105	330123	SPGP	107
291110	2927	15	300827	3105	104	308069	3105	105	330125	SPGP	107
291120	2927	16	300835	3105	104	308077	3105	105	330126	SPGP	107
291130	2927	16	300942	3105	104	308085	3105	105	330128	SPGP	107
291140	2927	16	300959	3105	104	308192	3105	105	330129	SPGP	107
291150	2927	16	301064	3105	104	308200	3105	105	330130	SPGP	107
291160	2927	16	301072	3105	104	308275	3105	105	330131	SPGP	107
291170	2927	16	301171	3105	104	308283	3105	105	330132	SPGP	107
291180	2927	16	301189	3105	104	308291	3105	105	330133	SPGP	107
291190	2927	16	301197	3105	104	308424	3105	105	330134	SPGP	107
291200	2927	16	301338	3105	104	308432	3105	105	330135	SPGP	107
291210	2927	16	301346	3105	104	308440	3105	105	330136	SPGP	107
291220	2927	16	301379	3105	104	308457	3105	105	330137	SPGP	107
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291240	2927	16	301494	3105	104	308473	3105	105	330139	SPGP	106
291250	2927	16	301759	3105	104	308549	3105	105	330140	SPGP	106
291260	2927	16	301767	3105	104	308556	3105	105	330141	SPGP	106
291270	2927	16	301933	3105	104	308564	3105	105	330142	SPGP	106
291280	2927	16	302195	3105	104	308572	3105	105	330143	SPGP	106
291290	2927	16	302203	3105	104	308580	3105	105	330144	SPGP	106
291300	2927	16	302211	3105	104	308598	3105	105	330145	SPGP	107
291320	2927	16	302260	3105	104	308671	3105	105	330146	SPGP	107
291350	2927	16	302468	3105	104	308713	3105	105	330147	SPGP	107
291380	2927	16	302476	3105	104	308788	3105	105	330168	SPGP	107
291400	2927	16	302484	3105	104	308796	3105	105	330169	SPGP	107
291420	2927	16	302534	3105	104	308804	3105	105	330170	SPGP	107
291450	2927	16	302542	3105	104	308812	3105	105	330171	SPGP	107
291480	2927	16	302583	3105	104	308820	3105	105	330172	SPGP	107
291500	2927	16	302591	3105	104	326004	3105	104	330173	SPGP	107
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291600	2927	16	305073	3105	104	328281	3105	105	341623	3105	104
291620	2927	16	305081	3105	104	328299	3105	105	341649	3105	104
291650	2927	16	305107	3105	104	328364	3105	105	341664	3105	104
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291950	2927	16	305412	3105	104	328497	3105	105	341755	3105	104
292000	2927	16	305438	3105	104	328547	3105	105	341771	3105	104
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292698	2927	13	305693	3105	104	328562	3105	105	341805	3105	104
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292702	2927	13	305834	3105	104	328687	3105	105	342522	3105	104
292703	2927	14	305990	3105	104	328760	3105	105	342530	3105	104
292704	2927	14	306006	3105	104	328778	3105	105	342555	3105	104
292705	2927	14	306113	3105	104	328810	3105	105	342563	3105	104
292706	2927	14	306139	3105	104	328828	3105	105	342589	3105	104
292707	2927	14	306295	3105	104	328836	3105	105	342597	3105	104
292708	2927	14	306303	3105	104	328935	3105	105	342605	3105	104
292709	2927	14	306311	3105	104	328943	3105	105	342613	3105	104
292710	2927	14	306345	3105	104	328950	3105	105	342621	3105	104
292711	2927	14	306444	3105	104	329661	3105	105	342639	3105	104
292712	2927	14	306451	3105	104	330100	SPGP	106	342647	3105	104
292713	2927	15	306469	3105	104	330101	SPGP	106	342654	3105	104
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292717	2927	15	306741	3105	104	330105	SPGP	106	342704	3105	104
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292721	2927	15	306949	3105	104	330109	SPGP	106	342746	3105	105
292722	2927	15	306964	3105	104	330110	SPGP	106	356002	SPGP	106
292723	2927	15	307061	3105	104	330111	SPGP	106	356027	SPGP	106
292724	2927	15	307160	3105	104	330112	SPGP	106	356061	SPGP	106
292725	2927	16	307178	3105	104	330113	SPGP	106	356068	SPGP	106
292726	2927	16	307194	3105	104	330114	SPGP	106	356084	SPGP	106
292727	2927	16	307202	3105	104	330115	SPGP	106	356102	SPGP	106
292728	2927	16	307350	3105	104	330116	SPGP	107	356106	SPGP	106
292729	2927	16	307368	3105	104	330117	SPGP	107	356142	SPGP	106
292730	2927	16	307467	3105	104	330118	SPGP	107	356148	SPGP	106
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300637	3105	104	307707	3105	105	330120	SPGP	107	356221	SPGP	106
300645	3105	104	307715	3105	105	330121	SPGP	107	356225	SPGP	106

Código	Lista	Página
356262	SPGP	106
356266	SPGP	106
356308	SPGP	106
356320	SPGP	106
356324	SPGP	106
356361	SPGP	106
356365	SPGP	106
356403	SPGP	106
356407	SPGP	106
356421	SPGP	106
356422	SPGP	106
356486	SPGP	106
356502	SPGP	106
356506	SPGP	106
356544	SPGP	106
356548	SPGP	106
356589	SPGP	106
356602	SPGP	106
356633	SPGP	106
356647	SPGP	106
356662	SPGP	106
356688	SPGP	106
356703	SPGP	106
356704	SPGP	106
356742	SPGP	106
356746	SPGP	106
356761	SPGP	106
356767	SPGP	106
356803	SPGP	106
356809	SPGP	106
356841	SPGP	106
356845	SPGP	106
357009	SPGP	106
357021	SPGP	106
357025	SPGP	106
357041	SPGP	106
357047	SPGP	106
357062	SPGP	106
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357082	SPGP	106
357088	SPGP	106
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357161	SPGP	106
357165	SPGP	106
357249	SPGP	106
357264	SPGP	106
357280	SPGP	107
357286	SPGP	107
357306	SPGP	107
357322	SPGP	107
357328	SPGP	107
357344	SPGP	107
357348	SPGP	107
357363	SPGP	107
357401	SPGP	107
357405	SPGP	107
357504	SPGP	107
357520	SPGP	107
357526	SPGP	107
357542	SPGP	107
357546	SPGP	107
357561	SPGP	107
357587	SPGP	107
357603	SPGP	107
357609	SPGP	107
357629	SPGP	107
357660	SPGP	107
357682	SPGP	107
357686	SPGP	107
357702	SPGP	107
357765	SPGP	107
357769	SPGP	107
357785	SPGP	107
357819	SPGP	107
357823	SPGP	107
357827	SPGP	107
357831	SPGP	107
357835	SPGP	107

Código	Lista	Página
357864	SPGP	107
357868	SPGP	107
357922	SPGP	107
357926	SPGP	107
357930	SPGP	107
357934	SPGP	107
357942	SPGP	107
357963	SPGP	107
357967	SPGP	107
357975	SPGP	107
358490	SPGP	106
358494	SPGP	106
358510	SPGP	107
359005	SPGP	106
359047	SPGP	106
359088	SPGP	106
359120	SPGP	106
360755	SPGP	107
360771	SPGP	107
360774	SPGP	107
360797	SPGP	107
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360805	SPGP	107
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360854	SPGP	107
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360868	SPGP	107
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360888	SPGP	107
360904	SPGP	107
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360926	SPGP	107
360942	SPGP	107
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360967	SPGP	107
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361019	SPGP	107
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385307	3180	108
385364	3180	108
385398	3180	108
385422	3180	108
385455	3180	108
385489	3180	108
385513	3180	108
385547	3180	108
385570	3180	108
385604	3180	108
387113	3181	108
387121	3181	108
600412	600	27
600512	600	27
600612	600	27
600712	600	27
600812	600	27
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601212	600	27
601412	600	27
601612	600	27
601616	600	27
601816	600	27
602016	600	27
602020	600	27
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602220	600	27
602416	600	27
602420	600	27
602424	600	27
602620	600	27
602624	600	27
602816	600	27
602820	600	27
602824	600	27
602828	600	27
603216	600	27

Código	Lista	Página
603220	600	27
603224	600	28
603228	600	28
603232	600	28
603628	600	28
603632	600	28
604028	600	28
604032	600	28
604040	600	28
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604832	600	28
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606440	600	28
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611924	600	27
612020	600	27
612432	600	27
710100	7000	17
710150	7000	17
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710250	7000	17
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710850	7000	17
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711000	7000	17
711050	7000	17
711100	7000	18
711200	7000	18
711250	7000	18
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711350	7000	18
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711850	7000	18
711900	7000	18
711950	7000	18
712000	7000	18
809606	8900	24
870408	8700	25
870409	8700	25
870410	8700	25
870608	8700	25
870609	8700	25
870610	8700	25
870612	8700	25

Código	Lista	Página
870614	8700	25
870616	8700	25
870618	8700	25
870620	8700	25
870622	8700	25
870624	8700	25
870627	8700	25
870808	8700	25
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890406	8900	24
890408	8900	24
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890412	8900	24
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890610	8900	24
890612	8900	24
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890616	8900	24
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891320	8900	24
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891332	8900	24
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891340	8900	24
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891348	8900	24
891808	8900	24
891810	8900	24
891812	8900	24
891816	8900	24
892408	8900	24
892410	8900	24
892412	8900	24
892416	8900	24



Código	Lista	Página	Código	Lista	Página	Código	Lista	Página	Código	Lista	Página
892420	8900	24	1001-06243	1001	70	1123-121756M	1004	71	BT-10614	1060	34
893108	8900	24	1001-06323	1001	70	1123-141006M	1004	71	BT-10616	1060	34
893110	8900	24	1001-07243	1001	70	1123-141256M	1004	71	BT-10620	1060	34
893112	8900	24	1001-07323	1001	70	1123-141506M	1004	71	BT-10624	1060	34
893116	8900	24	1001-080755M	1001	71	1123-142007M	1004	71	BT-10632	1060	34
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30007814	1070	30	1001-141256M	1001	71	1123-36074	1004	71	BT-11232	1020	34
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30008238	1070	30	1003-05323	1003	70	3510-050080	3510	87	BT-12624	1060	35
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300078223	1070	30	1003-121506M	1003	71	3515-037560	3515	87	BT-13614	1060	35
300078293	1070	30	1003-141006M	1003	71	3515-037580	3515	87	BT-13616	1060	35
300078403	1070	30	1003-141256M	1003	71	3515-050060	3515	87	BT-13620	1060	35
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Código	Lista	Página
BT-17624	1060	34
BT-18210	1020	34
BT-18212	1020	34
BT-18216	1020	34
BT-18220	1020	34
BT-18224	1020	34
BT-18610	1060	34
BT-18612	1060	34
BT-18616	1060	34
BT-18620	1060	34
BT-18624	1060	34
C00888	2001	52
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C00907	192	90
C00908	192	90
C00943	2001	52
C00986	2213	55
C01012	2001	48
C01016	2001	48
C01018	2001	48
C01021	2001	48
C01024	2001	48
C01025	2001	48
C01027	2001	48
C01029	2001	48
C01030	2001	48
C01032	2001	48
C01034	2001	48
C01035	2001	48
C01037	2001	48
C01038	2001	48
C01040	2001	48
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C01056	2001	48
C01057	2001	48
C01058	2001	48
C01059	2001	48
C01060	2001	48
C01061	2001	48
C01062	2001	48
C01063	2001	48
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C01065	2001	48
C01066	2001	48
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C01068	2001	48
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C01070	2001	48
C01071	2001	48
C01072	2001	48
C01073	2001	48
C01074	2001	49
C01075	2001	49
C01076	2001	49
C01077	2001	49
C01078	2001	49
C01079	2001	49
C01080	2001	49
C01081	2001	49
C01082	2001	49
C01083	2001	49
C01084	2001	49
C01085	2001	49
C01086	2001	49
C01087	2001	49
C01088	2001	49
C01089	2001	49
C01090	2001	49

Código	Lista	Página
C01091	2001	49
C01092	2001	49
C01093	2001	49
C01094	2001	49
C01095	2001	49
C01096	2001	49
C01097	2001	49
C01098	2001	49
C01099	2001	49
C01100	2001	49
C01101	2001	49
C01102	2001	49
C01103	2001	49
C01104	2001	49
C01105	2001	49
C01106	2001	49
C01107	2001	49
C01108	2001	49
C01109	2001	49
C01110	2001	49
C01111	2001	49
C01112	2001	49
C01113	2001	49
C01114	2001	49
C01115	2001	49
C01116	2001	49
C01117	2001	49
C01118	2001	49
C01119	2001	49
C01120	2001	49
C01121	2001	49
C01122	2001	49
C01123	2001	49
C01124	2001	49
C01125	2001	49
C01126	2001	49
C01127	2001	49
C01128	2001	49
C01129	2001	49
C01130	2001	49
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C01132	2001	49
C01133	2001	49
C01134	2001	49
C01135	2001	49
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C01164	2001	50
C01165	2001	50
C01166	2001	50
C01167	2001	50
C01168	2001	50

Código	Lista	Página
C01169	2001	50
C01170	2001	50
C01171	2001	50
C01172	2001	50
C01173	2001	50
C01174	2001	50
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C01207	2001	51
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C01209	2001	51
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C01211	2001	51
C01212	2001	51
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C01214	2001	51
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C01216	2001	51
C01217	2001	51
C01218	2001	51
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C01220	2001	51
C01221	2001	51
C01222	2001	51
C01223	2001	51
C01224	2001	51
C01225	2001	51
C01226	2001	51
C01227	2001	51
C01228	2001	51
C01229	2001	51
C01230	2001	51
C01231	2001	51
C01232	2001	51
C01233	2001	51
C01234	2001	51
C01235	2001	51
C01236	2001	51
C01237	2001	51
C01238	2001	51
C01239	2001	51
C01240	2001	51
C01241	2001	51
C01242	2001	51
C01243	2001	51
C01244	2001	51
C01245	2001	51
C01246	2001	51
C01247	2001	51

Código	Lista	Página
C01248	2001	51
C01249	2001	51
C01250	2001	51
C01251	2001	51
C01252	2001	51
C01253	2001	51
C01254	2001	51
C01255	2001	51
C01256	2001	51
C01257	2001	51
C01258	2001	51
C01259	2001	51
C01260	2001	51
C01261	2001	51
C01262	2001	51
C01263	2001	51
C01264	2001	51
C01265	2001	51
C01266	2001	51
C01267	2001	52
C01268	2001	52
C01269	2001	52
C01270	2001	52
C01271	2001	52
C01272	2001	52
C01273	2001	52
C01274	2001	52
C01275	2001	52
C01276	2001	52
C01277	2001	52
C01278	2001	52
C01279	2001	52
C01280	2001	52
C01281	2001	52
C01282	2001	52
C01283	2001	52
C01284	2001	52
C01285	2001	52
C01286	2001	52
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C01288	2001	52
C01289	2001	52
C01290	2001	52
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C01292	2001	52
C01293	2001	52
C01294	2001	52
C01295	2001	52
C01296	2001	52
C01297	2001	52
C01299	2001	52
C01300	2001	52
C01302	2001	52
C01303	2001	52
C01305	2001	52
C01306	2001	52
C01308	2001	52
C01309	2001	52
C01310	2001	52
C01312	2001	52
C01313	2001	52
C01315	2001	52
C01316	2001	52
C01318	2001	52
C01319	2001	52
C01321	2001	52
C01322	2001	52
C01323	2001	52
C01325	2001	52
C01326	2001	52
C01328	2001	52
C01329	2001	52
C01330	2001G	54
C04437	2120	47
C04470	2120	47
C04509	2120	47
C04542	2120	47
C04550	2120	47

Código	Lista	Página	Código	Lista	Página	Código	Lista	Página	Código	Lista	Página
C04572	2120	47	C08886	2510	58	C111002TIALN	5010	111	C111056TIALN	5010	112
C04594	2120	47	C08890	2510	58	C111003	5010	111	C111064	5010	112
C04601	2120	47	C08892	2510	58	C111003TIALN	5010	111	C111064TIALN	5010	112
C04614	2120	47	C08894	2510	58	C111004	5010	111	C111159	936	64
C04622	2120	47	C08895	2510	58	C111004TIALN	5010	111	C111162	936	64
C04625	2120	47	C08897	2510	58	C111005	5010	111	C111164	936	64
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C08870	2510	57	C09760	950E	63	C111042	5010	112	C113285	936	65
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C08885	2510	58	C111002	5010	111	C111056	5010	112	C113325	936	65



Código	Lista	Página
C113330	936	65
C113335	936	65
C113340	936	65
C113345	936	65
C113350	936	65
C113355	936	65
C113360	936	65
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C114115	5010	112
C114115TIALN	5010	112
C114120	5010	112
C114120TIALN	5010	112
C12040	2410	59
C12052	2410	59
C12058	2410	59
C12064	2410	59
C12069	2410	59
C12075	2410	59
C12082	2410	59
C12091	2410	59
C12099	2410	59
C121001	5040	112
C121002	5040	112
C121003	5040	112
C121004	5040	112
C121005	5040	112
C121006	5040	112
C12113	2410	59
C12117	2410	59
C12124	2410	59
C12132	2410	59
C12139	2410	59
C12147	2410	59
C12154	2410	59
C12162	2410	59
C12167	2410	59
C12170	2410	59
C12173	2410	59
C12176	2410	59
C12178	2410	59
C12181	2410	59

Código	Lista	Página
C12183	2410	59
C12186	2410	59
C12188	2410	59
C12191	2410	59
C12194	2410	59
C12196	2410	59
C12199	2410	59
C12201	2410	59
C12204	2410	59
C12207	2410	59
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Código	Lista	Página	Código	Lista	Página	Código	Lista	Página	Código	Lista	Página
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Código	Lista	Página
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Código	Lista	Página
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C17182	1829	40
C17210	1845	41
C17211	1845	41
C17212	1846	41
C17213	1846	41
C17214	1846	41
C17215	1847	42

Código	Lista	Página	Código	Lista	Página	Código	Lista	Página	Código	Lista	Página
C17216	1847	42	C20739	1803	20	C25060	4001	68	C30709	506	81
C17217	1853	42	C20740	1803	20	C25095	4001	68	C30710	506	81
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C17224	1849	43	C20747	1803	20	C25150-93	1816	39	C31181	506	81
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C20288	1874	23	C25039	1887	37	C26136-93	1816	39	C33179	583	79
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C20293	1874	23	C25042	1887	37	C26146-93	1816	39	C33181	583	79
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Código	Lista	Página
C33197	583	79
C33198	583	79
C33199	583	79
C33200	583	79
C33201	583	79
C33203	583	79
C33204	583	79
C33205	583	79
C33206	583	79
C33207	583	79
C33208	583	79
C33209	583	79
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C33388	583	79
C33390	583	79
C33394	583	79
C33398	583	79
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C34129	4005	69
C34266	4005	69
C34534	4005	69
C34668	4005	69
C34802	4005	69
C34932	4005	69
C34997	4005	69
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C39014	690	78
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C39016	690	78
C39017	690	78
C39018	690	78
C39019	690	78

Código	Lista	Página
C39020	690	78
C39021	690	78
C39022	690	78
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C39025	690	78
C39026	690	78
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C42109	690	78
C42111	690	78

Código	Lista	Página
C42114	690	78
C42116	690	78
C42119	690	78
C42122	690	78
C42124	690	78
C42126	690	78
C42128	690	78
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C42132	690	78
C42133	690	78
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C42141	690	78
C42144	690	78
C42146	690	78
C42152	690	78
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C42913	556	76
C42917	556	76
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C44509	850	86
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C44514	850	86
C44516	850	86
C44518	850	86
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C44561	855	86
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C44702	857	88
C44707	852	88
C44708	857	88
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C44719	852	88
C44720	857	88
C44723	852	88
C44725	852	88
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C44740	853	88
C44741	858	88
C44742	853	88
C44743	858	88
C44744	853	88
C44745	858	88

Código	Lista	Página
C44746	853	88
C44747	858	88
C44748	853	88
C44749	858	88
C44750	853	88
C44751	858	88
C44754	853	88
C44757	858	88
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C46192	610	67
C46198	610	67
C46199	610	67
C46200	610	67
C46204	610	67
C46205	610	67
C46206	610	67
C46210	610	67
C46211	610	67

Código	Lista	Página	Código	Lista	Página	Código	Lista	Página	Código	Lista	Página
C46212	610	67	C54154	1002	70	C54520	1003	70	C54819	1003	71
C46216	610	67	C54155	1003	70	C54523	1004	70	C54820	1004	71
C46217	610	67	C54156	1004	70	C54536	1001	71	C54825	1001	71
C46218	610	67	C54164	1001	71	C54537	1002	71	C54826	1002	71
C46222	610	67	C54165	1002	71	C54538	1003	71	C54827	1003	71
C46223	610	67	C54166	1003	71	C54546	1001	71	C54833	1001	72
C46224	610	67	C54188	1001	70	C54547	1002	71	C54834	1002	72
C46261	998	66	C54189	1002	70	C54548	1003	71	C54835	1003	72
C46262	998	66	C54190	1003	70	C54582	1001	70	C54838	1001	71
C46263	998	66	C54191	1004	70	C54583	1002	70	C54839	1002	71
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C46265	998	66	C54193	1002	70	C54587	1004	70	C54841	1004	71
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C46268	998	66	C54203	1001	71	C54597	1003	70	C54848	1003	71
C46269	998	66	C54204	1002	71	C54600	1004	70	C54849	1004	71
C46270	998	66	C54205	1003	71	C54617	1001	71	C54856	1001	72
C46272	996	66	C54223	1001	70	C54618	1002	71	C54857	1002	72
C46273	996	66	C54224	1002	70	C54619	1003	71	C54858	1003	72
C46274	996	66	C54225	1003	70	C54624	1001	71	C54864	1001	72
C46275	996	66	C54226	1004	70	C54625	1002	71	C54865	1002	72
C46276	996	66	C54232	1001	70	C54626	1003	71	C54866	1003	72
C46277	996	66	C54233	1002	70	C54652	1001	70	C54872	1001	72
C46278	996	66	C54234	1003	70	C54653	1002	70	C54873	1002	72
C46279	996	66	C54235	1004	70	C54654	1003	70	C54874	1003	72
C53651	192	90	C54246	1001	71	C54656	1004	70	C54880	1001	72
C53652	192	90	C54247	1002	71	C54661	1001	71	C54881	1002	72
C53653	192	90	C54248	1003	71	C54662	1002	71	C54882	1003	72
C53654	192	90	C54277	1001	70	C54663	1003	71	C54884	1001	71
C53655	192	90	C54278	1002	70	C54665	1004	71	C54885	1002	71
C53656	192	90	C54279	1003	70	C54675	1001	71	C54886	1003	71
C53657	192	90	C54280	1004	70	C54676	1002	71	C54887	1004	71
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C54055	1001	70	C54329	1001	70	C54731	1004	71	C54907	1001	72
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Código	Lista	Página
C55015	1001	72
C55016	1002	72
C55017	1003	72
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C55024	1002	72
C55025	1003	72
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C57523	1053	73
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C60033	CEM-V-AR	181
C60033CR	CEM-V-AR	181

Código	Lista	Página
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C60094CR	CEM-V-AR	181
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C60108CR	CEM-V-4B	182
C60109	CEM-V-4B	182
C60109CR	CEM-V-4B	182
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C601228	6030	128
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Código	Lista	Página
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Código	Lista	Página
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C661148	6050	129
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C68796	1682	21
C68797	1682	21
C68798	1682	21
C68799	1682	21
C68800	1682	21
C68801	1682	21

Código	Lista	Página	Código	Lista	Página	Código	Lista	Página	Código	Lista	Página
C68802	1682	21	C69345	1607	19	C71023	2001G	54	C790716	6091	131
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C69344	1607	19	C71022	2001G	54	C790308	6091	131	C84020	8400	82

Código	Lista	Página
C84021	8400	82
C84022	8400	82
C84023	8400	82
C84024	8400	82
C84025	8400	82
C84026	8400	82
C84027	8400	82
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Código	Lista	Página
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Código	Lista	Página
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Código	Lista	Página
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C86242	PER-862SP	184
C86243	PER-862SP	184
C86244	PER-862SP	184
C86245	PER-862SP	184
C86246	PER-862SP	184
C86247	PER-862SP	184
C86248	PER-862SP	184



Código	Lista	Página	Código	Lista	Página	Código	Lista	Página	Código	Lista	Página
C86249	PER-862SP	184	C96022	PER-960SP	183	C98049	PER-980SP	186	C990146	CNMG-KR	141
C86250	PER-862SP	184	C96023	PER-960SP	183	C98050	PER-980SP	186	C990148	CNMG-KR	141
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C96002	PER-960SP	183	C98029	PER-980SP	185	C990106	CNMG-MM2	140	C990262	SNMG-PV	145
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C96019	PER-960SP	183	C98046	PER-980SP	186	C990140	CNMG-KM	141	C990296	SNMG-PM4	146
C96020	PER-960SP	183	C98047	PER-980SP	186	C990142	CNMG-KR	141	C990298	SNMG-PR4	145
C96021	PER-960SP	183	C98048	PER-980SP	186	C990144	CNMG-KR	141	C990300	SNMG-PR4	145

Código	Lista	Página	Código	Lista	Página	Código	Lista	Página	Código	Lista	Página
C990302	SNMG-PR4	145	C990460	TNMG-MM2	150	C990616	WNMG-MM2	155	C990772	TCMT-KM	159
C990304	SNMG-PR4	145	C990462	TNMG-MM2	150	C990618	WNMG-MM2	155	C990774	TCMT-KM	159
C990306	SNMG-PR4	145	C990464	TNMG-MM2	150	C990620	WNMG-MM2	155	C990776	TCMT-KM	159
C990308	SNMG-PR4	145	C990466	TNMG-MM2	150	C990622	WNMG-MM2	155	C990778	TCMT-KM	159
C990310	SNMG-PR4	145	C990468	TNMG-MM2	150	C990624	WNMG-MM2	155	C990780	TCMT-KM	159
C990312	SNMG-PR4	145	C990470	TNMG-MM2	150	C990626	WNMG-MM2	155	C990782	TCMT-KM	159
C990314	SNMG-PR4	145	C990472	TNMG-MM2	150	C990628	WNMG-KM	155	C990784	TCGT-KM	159
C990316	SNMG-MM2	147	C990474	TNMG-MM2	150	C990630	WNMG-KM	155	C990786	TCGT-KM	159
C990318	SNMG-MM2	147	C990476	TNMG-KM	150	C990632	WNMG-KM	155	C990788	TCGT-KM	159
C990320	SNMG-MM2	147	C990477	TNMG-KM	150	C990634	WNMG-KM	155	C990790	TCGT-KM	159
C990322	SNMG-MM2	147	C990478	TNMG-KM	150	C990636	WNMG-KR	155	C990792	TCGT-KM	159
C990324	SNMG-MM2	147	C990480	TNMG-KM	150	C990638	WNMG-KR	155	C990794	TCGT-KM	159
C990326	SNMG-MM2	147	C990482	TNMG-KM	150	C990640	WNMG-KR	155	C990796	TPGT-KM	160
C990328	SNMG-MM2	147	C990484	TNMG-KR	151	C990642	WNMG-KR	155	C990798	TPGT-KM	160
C990330	SNMG-MM2	147	C990486	TNMG-KR	151	C990644	CCMT-KM	156	C990800	TPGT-KM	160
C990334	SNMG-MM2	147	C990488	TNMG-KR	151	C990646	CCMT-KM	156	C990802	TPGT-KM	160
C990336	SNMG-MM2	147	C990490	TNMG-KR	151	C990648	CCMT-KM	156	C990804	VBMT-KM	160
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C990340	SNMG-MM2	147	C990494	TNMG-KR	151	C990652	CCMT-KM	156	C990808	VBMT-KM	160
C990342	SNMG-MM2	147	C990496	TNMG-KR	151	C990654	CCMT-KM	156	C990810	VBMT-KM	160
C990344	SNMG-MM2	147	C990498	TNMG-KR	151	C990656	CCMT-KM	156	C990812	VCMT-KM	160
C990346	SNMG-MM2	147	C990500	TNMG-KR	151	C990658	CCMT-KM	156	C990814	VCMT-KM	160
C990348	SNMG-MM2	147	C990502	TNMG-KR	151	C990660	CCMT-KM	156	C990816	VCMT-KM	160
C990350	SNMG-MM2	147	C990504	TNMG-KR	151	C990662	CCMT-KM	156	C990818	VCMT-KM	160
C990352	SNMG-MM2	147	C990506	TNMG-KR	151	C990664	CCMT-KM	156	C990820	VCMT-KM	160
C990354	SNMG-MM2	147	C990508	VNMG-PF4	151	C990666	CCMT-KM	156	C990822	VCMT-KM	160
C990356	SNMG-MM2	147	C990510	VNMG-PF4	151	C990668	CCMT-KM	156	C990824	VCMT-KM	161
C990358	SNMG-MM2	147	C990512	VNMG-PF4	151	C990670	CCMT-KM	156	C990826	VCMT-KM	161
C990360	SNMG-KR	146	C990514	VNMG-PF4	151	C990672	CCMT-KM	156	C990828	VCMT-KM	161
C990362	SNMG-KR	146	C990516	VNMG-PF4	151	C990674	CCMT-KM	156	C990830	VCMT-KM	161
C990364	SNMG-KR	146	C990518	VNMG-PF4	151	C990676	CCGT-KM	157	C990832	VCMT-KM	161
C990366	SNMG-KR	146	C990520	VNMG-PM4	152	C990678	CCGT-KM	157	C990834	VCMT-KM	161
C990368	SNMG-KR	146	C990522	VNMG-PM4	152	C990680	CCGT-KM	157	C990836	VCMT-KM	161
C990370	SNMG-KR	146	C990524	VNMG-PM4	152	C990682	CCGT-KM	157	C990838	VCMT-KM	161
C990372	SNMG-KR	146	C990526	VNMG-PM4	152	C990684	CCGT-KM	157	C990840	VCMT-KM	161
C990374	SNMG-KR	146	C990528	VNMG-PM4	152	C990686	CCGT-KM	157	C990842	VCMT-KM	161
C990376	SNMG-KR	146	C990530	VNMG-PM4	152	C990688	CCGT-KM	157	C990844	VCMT-KM	161
C990378	SNMG-KR	146	C990532	VNMG-MF2	152	C990690	CPGT-KM	157	C990846	VCMT-KM	161
C990380	SNMG-KR	146	C990534	VNMG-MF2	152	C990692	CPGT-KM	157	C990848	VCMT-KM	161
C990382	TNMG-PF4	148	C990536	VNMG-MM2	152	C990694	CPGT-KM	157	C990850	VCMT-KM	162
C990384	TNMG-PF4	148	C990538	VNMG-MM2	152	C990696	CPGT-KM	157	C990852	VCMT-KM	162
C990386	TNMG-PF4	148	C990540	VNMG-MM2	152	C990698	CPGT-KM	157	C990854	VCMT-KM	162
C990388	TNMG-PF4	148	C990542	VNMG-MM2	152	C990700	CPGT-KM	157	C990856	VCMT-KM	162
C990390	TNMG-PF4	148	C990544	VNMG-KM	153	C990702	CPGT-KM	157	C990858	VCMT-KM	162
C990392	TNMG-PF4	148	C990546	VNMG-KM	153	C990704	DCMT-KM	158	C990860	VCMT-KM	162
C990394	TNMG-PF4	148	C990548	VNMG-KM	153	C990706	DCMT-KM	158	C990862	VCMT-KM	162
C990396	TNMG-PF4	148	C990550	VNMG-KM	153	C990708	DCMT-KM	158	C990864	VCMT-KM	162
C990398	TNMG-PV	148	C990552	WNMG-PF4	153	C990710	DCMT-KM	158	C990866	VCMT-KM	162
C990400	TNMG-PV	148	C990554	WNMG-PF4	153	C990712	DCMT-KM	158	C990868	VCMT-KM	162
C990402	TNMG-PV	148	C990556	WNMG-PF4	153	C990714	DCMT-KM	158	C990870	VCMT-KM	162
C990404	TNMG-PV	148	C990558	WNMG-PF4	153	C990716	DCMT-KM	158	C990872	VCMT-KM	162
C990406	TNMG-PM4	149	C990560	WNMG-PF4	153	C990718	DCMT-KM	158	C990874	VCMT-KM	162
C990408	TNMG-PM4	149	C990562	WNMG-PF4	153	C990720	DCMT-KM	158	C990876	VCMT-KM	163
C990410	TNMG-PM4	149	C990564	WNMG-PF4	153	C990722	DCMT-KM	158	C990878	VCMT-KM	163
C990412	TNMG-PM4	149	C990566	WNMG-PF4	153	C990724	DCMT-KM	158	C990880	VCMT-KM	163
C990414	TNMG-PM4	149	C990568	WNMG-PM4	154	C990726	DCMT-KM	158	C990882	VCMT-KM	163
C990416	TNMG-PM4	149	C990570	WNMG-PM4	154	C990728	DCMT-KM	158	C990884	VCMT-KM	163
C990418	TNMG-PM4	149	C990572	WNMG-PM4	154	C990730	DCMT-KM	158	C990886	VCMT-KM	163
C990420	TNMG-PM4	149	C990574	WNMG-PM4	154	C990732	DCMT-KM	158	C990888	VCMT-KM	163
C990422	TNMG-PM4	149	C990576	WNMG-PM4	154	C990734	DCMT-KM	158	C990890	VCMT-KM	163
C990424	TNMG-PM4	149	C990578	WNMG-PM4	154	C990736	DCGT-KM	157	C990892	VCMT-KM	165
C990426	TNMG-PM4	149	C990580	WNMG-PM4	154	C990738	DCGT-KM	157	C990894	VCMT-KM	165
C990428	TNMG-PM4	149	C990582	WNMG-PM4	154	C990740	DCGT-KM	157	C990896	VCMT-KM	165
C990430	TNMG-PM4	149	C990584	WNMG-PM4	154	C990742	DCGT-KM	157	C990898	VCMT-KM	165
C990432	TNMG-PM4	149	C990586	WNMG-PM4	154	C990744	DCGT-KM	157	C990900	VCMT-KM	165
C990434	SNMG-MM2	147	C990588	WNMG-PM4	154	C990746	DCGT-KM	157	C990902	VCMT-KM	165
C990436	TNMG-PR4	149	C990592	WNMG-PR4	153	C990748	SCMT-KM	158	C990904	VCMT-KM	165
C990438	TNMG-PR4	149	C990594	WNMG-PR4	153	C990750	SCMT-KM	158	C990906	VCMT-KM	165
C990440	TNMG-PR4	149	C990596	WNMG-PR4	153	C990752	SCMT-KM	158	C990908	VCMT-KM	165
C990442	TNMG-PR4	149	C990598	WNMG-PR4	153	C990754	SCMT-KM	158	C990910	VCMT-KM	165
C990444	TNMG-PR4	149	C990600	WNMG-MF2	154	C990756	SCMT-KM	158	C990912	VCMT-KM	165
C990446	TNMG-PR4	149	C990602	WNMG-MF2	154	C990758	SCMT-KM	158	C990914	VCMT-KM	165
C990448	TNMG-MF2	150	C990604	WNMG-MM2	155	C990760	SCMT-KM	158	C990916	VCMT-KM	165
C990450	TNMG-MF2	150	C990606	WNMG-MM2	155	C990762	SCMT-KM	158	C990918	VCMT-KM	165
C990452	TNMG-MM2	150	C990608	WNMG-MM2	155	C990764	TCMT-KM	159	C990920	VCMT-KM	165
C990454	TNMG-MM2	150	C990610	WNMG-MM2	155	C990766	TCMT-KM	159	C990922	VCMT-KM	165
C990456	TNMG-MM2	150	C990612	WNMG-MM2	155	C990768	TCMT-KM	159	C990924	VCMT-KM	165
C990458	TNMG-MM2	150	C990614	WNMG-MM2	155	C990770	TCMT-KM	159	C990926	VCMT-KM	165

Código	Lista	Página	Código	Lista	Página	Código	Lista	Página
C990928	GNGP	165	C998210	TCLNL	174	C999610	EXT/DERNPT	170
C990930	GNGP	165	C998212	TCLNL	174	C999614	EXT/DERNPT	170
C991002	CNMG	141	C998214	TDJNR	174	C999618	EXT/DERNPT	170
C991004	CNMG	141	C998216	TDJNR	174	C999622	INT/DERNPT	171
C991006	CNMG	141	C998218	TDJNR	174	C999626	INT/DERNPT	171
C991008	CNMG	141	C998220	TDJNL	174	C999630	INT/DERNPT	171
C991016	CNMG	141	C998222	TDJNL	174	C999634	INT/DERNPT	171
C991018	CNMG	141	C998224	TDJNL	174	C999638	INT/DERNPT	171
C991020	CNMG	141	C998226	TTGNR	175	C999806	SER	176
C991022	CNMG	141	C998228	TTGNR	175	C999808	SER	176
C991162	DNMA	144	C998230	TTGNR	175	C999810	SEL	176
C991164	DNMA	144	C998232	TTGNL	175	C999812	SEL	176
C991166	DNMA	144	C998234	TTGNL	175	C999814	SIR	176
C991168	DNMA	144	C998236	TTGNL	175	C999816	SIR	176
C991170	DNMA	144	C998238	TVJNR	175	C999818	SIL	176
C991172	DNMA	144	C998240	TVJNR	175	C999820	SIL	176
C991174	DNMA	144	C998242	TVJNL	175	CHK01	CHK	38
C991176	DNMA	144	C998244	TVJNL	175	CHK02	CHK	38
C991178	DNMA	144	C998246	TWLNR	175	CHK03	CHK	38
C991180	DNMA	144	C998248	TWLNLR	175	CHK04	CHK	38
C991228	DNMG-KM	143	C998250	TWLNLR	175	CHK05	CHK	38
C991230	DNMG-KM	143	C998252	TWLNLR	175	CHK06	CHK	38
C991232	DNMG-KM	143	C998254	TWLNLR	175	CLE1218BM	E0200	36
C991234	DNMG-KM	143	C998256	TWLNLR	175	CLE1224BM	E0200	36
C991236	DNMG-KM	143	C999102	EXT/DER55	168	EEXHIB/BR	2927	16
C991238	DNMG-KM	143	C999104	EXT/DER55	168			
C991244	SNMA	148	C999106	EXT/DER55	168			
C991246	SNMA	148	C999108	EXT/DER55	168			
C991248	SNMA	148	C999114	INT/DER55	168			
C991250	SNMA	148	C999116	INT/DER55	168			
C991252	SNMA	148	C999118	INT/DER55	168			
C991254	SNMA	148	C999120	INT/DER55	168			
C991256	SNMA	148	C999202	EXT/DER60	168			
C991316	SNMG-MF2	147	C999204	EXT/DER60	168			
C991318	SNMG-MF2	147	C999206	EXT/DER60	168			
C991382	TNMA	151	C999208	EXT/DER60	168			
C991384	TNMA	151	C999214	INT/DER60	169			
C991386	TNMA	151	C999216	INT/DER60	169			
C991388	TNMA	151	C999218	INT/DER60	169			
C991400	TNMA	151	C999220	INT/DER60	169			
C991402	TNMA	151	C999302	EXT/DERISO	169			
C991462	DNMG-PR4	142	C999304	EXT/DERISO	169			
C991464	DNMG-PR4	142	C999306	EXT/DERISO	169			
C991466	DNMG-PR4	142	C999308	EXT/DERISO	169			
C991468	DNMG-PR4	142	C999310	EXT/DERISO	169			
C991552	WNMA	154	C999312	EXT/DERISO	169			
C991554	WNMA	154	C999314	EXT/DERISO	169			
C991556	WNMA	154	C999316	EXT/DERISO	169			
C991558	WNMA	154	C999318	EXT/DERISO	169			
C991646	TCMT-PM2	159	C999320	EXT/DERISO	169			
C994436	TNMG-PR4	149	C999322	EXT/DERISO	169			
C994438	TNMG-PR4	149	C999324	EXT/DERISO	169			
C994440	TNMG-PR4	149	C999326	EXT/DERISO	169			
C994442	TNMG-PR4	149	C999328	EXT/DERISO	169			
C994644	CCMT-MM2	156	C999330	INT/DERISO	169			
C994646	CCMT-MM2	156	C999332	INT/DERISO	169			
C997102	ICT SDMT	187	C999334	INT/DERISO	169			
C997104	ICT SDMT	187	C999336	INT/DERISO	169			
C998050	HFCUTTER	187	C999338	INT/DERISO	169			
C998052	HFCUTTER	187	C999340	INT/DERISO	169			
C998054	HFCUTTER	187	C999342	INT/DERISO	169			
C998056	HFCUTTER	187	C999344	INT/DERISO	169			
C998058	HFCUTTER	187	C999346	INT/DERISO	169			
C998102	MGGN	166	C999348	INT/DERISO	169			
C998104	MGGN	166	C999350	INT/DERISO	169			
C998106	MGGN	166	C999352	INT/DERISO	169			
C998108	MGGN	166	C999354	INT/DERISO	169			
C998110	MGGN	166	C999356	INT/DERISO	169			
C998112	MGGN	166	C999502	EXT/DERUN	170			
C998114	MGGN	166	C999504	EXT/DERUN	170			
C998116	MGGN	166	C999506	EXT/DERUN	170			
C998118	MGGN	166	C999508	EXT/DERUN	170			
C998120	MGGN	166	C999514	INT/DERUN	170			
C998122	MGGN	166	C999516	INT/DERUN	170			
C998202	TCLNR	174	C999518	INT/DERUN	170			
C998204	TCLNR	174	C999520	INT/DERUN	170			
C998206	TCLNR	174	C999602	EXT/DERNPT	170			
C998208	TCLNL	174	C999606	EXT/DERNPT	170			

▶ 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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