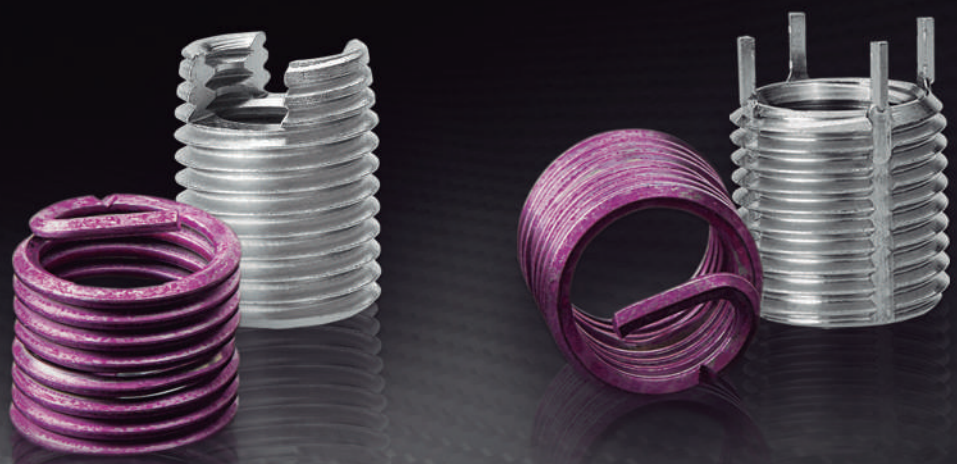
2018

BLUE-MASTER®

by celesa



Manual para la Reparación de Roscas

Thread Restoration Guide • Guide de Restauration du Filetage • Manual para a Reparação de Roscas

DESCUENTO FONDO ROSA PINK DISCOUNT REMISES FOND ROSE DESCONTO FUNDO ROSA

tapsert®
by celesa
100-105

e-zsert®
by celesa
106-109

ROTA THREAD® by celesa

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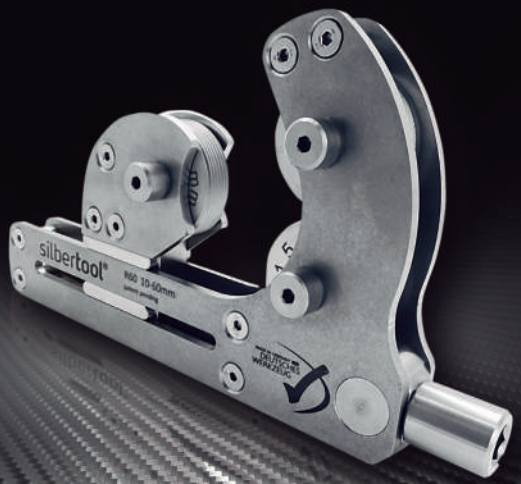
silbertool® by celesa



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Insertos Roscados
Screw Thread Inserts
Filets Rapportés
Insertos Roscados
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Insertos de Bloqueo con Llave
Key Lock Inserts
Filets de Blocage à Clé
Insertos de Bloqueio com Chave
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Insertos Autorroscantes
Self Tapping Inserts
Douilles Auto-Taraudeuses
Insertos Auto-Roscantes

Insertos Sólidos con Sellador Anaeróbico
Solid Inserts with Anaerobic Threadlocker
Douilles Rigides à Scellant Anaérobie
Insertos Sólidos com Vedante Anaeróbico

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Thread Restoring CBN Rotary Burrs
Limes Rotatives CBN pour Réparation de Filetage
Fresas Rotativas CBN para Reparação de Roscas

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Reparador de Roscas Externas por Laminación
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Restaurateur de Filetages Extérieurs par Refoulement
Reparador de Roscas Externas por Laminação

Adhesivos y Selladores Anaeróbicos para Roscas
Anaerobic Adhesives and Sealants. Threadlocking
Adhésifs et Scellants Anaérobies pour les Filetages
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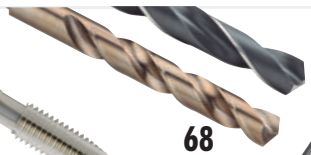
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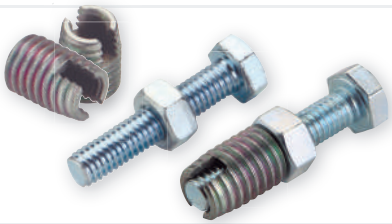

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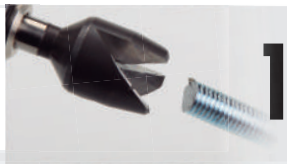
Avellanador Externo para Reparación de Hilos de Entrada
External Countersink for Restoring Starting Threads
Alésoir Extérieur pour Réparation de Filets d'Entrée
Escareador Externo para Reparação de Fios de Entrada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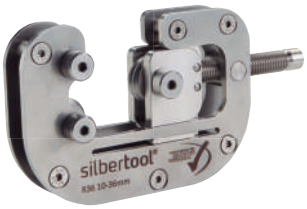

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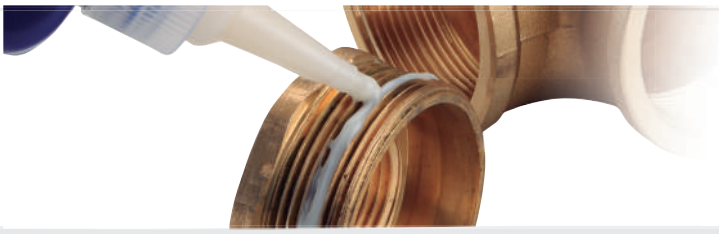

120

Código 35 20-12.00 X 1.5D

35	PowerCoil en acero inoxidable
36	Loksert en acero al carbono
37	Loksert en acero inoxidable

DIÁMETRO

XX . XX	Métrica
XX / XX	Pulgadas

20	Métrica
21	Métrica fina
22	Bujía
23	Métrica fina
24	Métrica fina
28	BSW
30	BSF
00	Multifuncional

32	UNC
34	UNF
44	BA
46	BSP
52	NPT
60	BSB
70	8-UN

X.XD	Longitud del inserto
IR	Carrete de alimentación de insertos
SL	Insertos autoblocantes (de seguridad)
K	Estuche de reparación de roscas
P	Blister de insertos para colgar
WK	Estuche completo para taller
HIT	Herramienta de instalación manual Series Cortas
HIP	Herramienta de instalación Series Medianas
MIT	Herramienta para insertar a máquina
HIM	Herramienta para insertar con mango hexagonal
MIP	Herramienta de instalación neumática
TB	Herramienta rompedora de cola Manual
STB	Herramienta rompedora de cola Automática
PTB	Herramienta rompedora de cola Neumática
RT	Herramienta extractora de insertos
LH	Giro izquierda
GC	Comprobador de roscas en tolerancia 4H5H
GM	Comprobador de roscas en tolerancia 6H
PB	Bronce con fósforo

INC	Inconel X-750
NM	Nimonic 90
NT	Nitronic 60
Y	Acero Inoxidable 316
CD	Terminado en cadmio
ZN	Terminado de zinc
AG	Terminado de plata
FL	Lubricado en seco
I	Macho 4-5 hilos
T	Macho 6-8 hilos
B	Macho 2-3 hilos
SF	Macho de máquina helicoidal
SP	Macho de máquina con entrada corregida
FT	Macho laminación
PD	Loksert de pared delgada
PR	Loksert de pared reforzada
TT	Herramienta instalación de Loksert de pared delgada
HT	Herramienta instalación de Loksert de pared reforzada
T	Herramienta de instalación universal para Loksert

Part No. 35 20-12.00 X 1.5D

35	PowerCoil - Stainless Steel
36	Loksert - Carbon Steel
37	Loksert - Stainless Steel

DIAMETER

XX . XX	Metric
XX / XX	Imperial

20	Metric Coarse
21	Metric Fine
22	Spark Plug
23	Metric Fine
24	Metric Fine
28	BSW
30	BSF
00	Multifunctional

32	UNC
34	UNF
44	BA
46	BSP
52	NPT
60	BSB
70	8-UN

X.XD	Insert length as a factor of nominal screw
IR	PowerCoil strip-feed reel
SL	PowerCoil screw locking
K	PowerCoil thread repair kit
P	PowerCoil Hang sell insert packet
WK	PowerCoil workshop kit
HIT	Hand installation tool
HIP	Prewinder installation tool
MIT	Machine installation tool
HIM	Hex drive installation mandrel
MIP	Pneumatic installation tool
TB	Tang break tool
STB	Spring loaded tang break tool
PTB	Pneumatic tang break tool
RT	Removal/extraction tool
LH	Left Hand
GC	Gauge STI 4H5H tolerance
GM	Gauge STI 6H tolerance
PB	Phosphor bronze

INC	Inconel X-750
NM	Nimonic 90
NT	Nitronic 60
Y	316 Stainless Steel
CD	Cadmium plate
ZN	Zinc plate
AG	Silver plate
FL	Dry fim lubricant
I	Tap Intermediate STI
T	Tap Taper STI
B	Tap Bottoming STI
SF	Tap Spiral Flute STI
SP	Tap Spiral Point STI
FT	Tap Fluteless STI
PD	Loksert Thin Wall
PR	Loksert Heavy Duty
TT	Loksert Thin Wall install tool
HT	Loksert Heavy Duty install tool
T	Loksert Universal install tool

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Pièce No. 35 20-12.00 X 1.5D

35	PowerCoil - Acier inoxydable
36	Loksert - Acier au carbone
37	Loksert - Acier inoxydable

DIAMÈTRE

XX . XX	Métrique
XX / XX	Pouces

20	Métrique à pas normaux
21	Métrique à pas fins
22	Bougie d'allumage
23	Métrique à pas fins
24	Métrique à pas fins
28	BSW
30	BSF
00	Multifonctionnel
32	UNC
34	UNF
44	BA
46	BSP
52	NPT
60	BSB
70	8-UN

X.XD	Longueur du filet rapporté
IR	Rouleaux d'alimentation de filets rapportés
SL	Filets rapportés à frein
K	kit de réparation de filetage
P	Blister de filets rapportés
WK	kit complet pour atelier
HIT	Outil de pose manuel séries courtes
HIP	Outil de pose séries moyennes
MIT	Outil de pose machine
HIM	Outil de pose queue Hexagonale
MIP	Outil de pose pneumatique
TB	Rupteur
STB	Rupteur automatique
PTB	Rupteur Pneumatique
RT	Outil d'extraction
LH	À gauche
GC	Jauge STI de tolérance 4H5H
GM	Jauge STI tolérance 6H
PB	Bronze au phosphore
INC	Inconel X-750
NM	Nimonic 90
NT	Nitronic 60
Y	Acier inoxydable 316
CD	Finition au cadmium
ZN	Finition au zinc
AG	Finition argent
FL	Film de lubrifiant sec
I	Taraud intermédiaire
T	Taraud ébaucheur
B	Taraud finisseur
SF	Taraud machine à goujures hélicoïdales
SP	Taraud machine à entrée gun
FT	Taraud à refouler
PD	Loksert à paroi fine
PR	Loksert à paroi renforcée
TT	Outil de pose pour Loksert à paroi fine
HT	Outil de pose pour Loksert à paroi renforcée
T	Outil d'installation universel pour Loksert

Código 35 20-12.00 X 1.5D

35	Powercoil em Aço Inoxidável
36	Locksert em Aço ao Carbono
37	Locksert em Aço Inoxidável

DIÂMETRO

XX . XX	Métrica
XX / XX	Polegadas

20	Métrica
21	Métrica fina
22	Vela de ignição
23	Métrica fina
24	Métrica fina
28	BSW
30	BSF
00	Multifunção
32	UNC
34	UNF
44	BA
46	BSP
52	NPT
60	BSB
70	8-UN

X.XD	Longitude do inserto
IR	Carreto de alimentação de insertos
SL	Insertos Auto-bloqueadores (de segurança)
K	Kit de reparação de roscas
P	Blister de insertos
WK	Estojo completo para oficina
HIT	Ferramenta de instalação manual series curtas
HIP	Ferramenta de instalação series meias
MIT	Ferramentas para insertar a máquina
HIM	Ferramenta para insertar com cabo sextavado
MIP	Ferramentas de instalação pneumática
TB	Ferramenta quebradora manual
STB	Ferramenta quebradora automática
PTB	Ferramenta quebradora pneumática
RT	Ferramenta para a extração dos insertos
LH	Rotação a esquerda
GC	Verificador de roscas em tolerância 4h5h
GM	Verificador de roscas em tolerância 6h
PB	Bronze com fósforo
INC	Inconel X-750
NM	Nimonic 90
NT	Nitronic 60
Y	Aço inoxidável
CD	Terminado em cadmio
ZN	Terminado em zinco
AG	Terminado em prata
FL	Lubrificado a seco
I	Macho 4-5 fios
T	Macho 6-8 fios
B	Macho 2-3 fios
SF	Macho de máquina helicoidal
SP	Macho de máquina com entrada corrigida
FT	Macho laminação
PD	Locksert de parede fina
PR	Locksert de parede reforçada
TT	Ferramenta para a instalação do locksert de parede fina
HT	Ferramenta para a instalação do locksert de parede reforçada
T	Ferramenta instalação universal para locksert

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FREE	Inserto standard (free) Free running insert Filet rapporté standard Inserto standard (free)
LOCK	Inserto Autoblocante Screw Locking Insert Filet rapporté à frein Inserto Auto-bloqueador
M/MF	Métrica y métrica fina Metric course and metric fine Métrique à pas normal et fin Métrica e métrica fina
UNC	Rosca Americana UNC Unified National Course Pas normal américain Rosca americana UNC
UNF	Rosca American fina UNF Unified National Fine Pas fin américain Rosca americana UNF
BSW	Rosca Inglesa Whitworth British Standard Whitworth Pas normal Whitworth Rosca inglesa Whitworth
BSF	Rosca Inglesa Whitworth fina British Standard Fine Pas fin Whitworth Rosca inglesa Withworth fina
BSP	Rosca Inglesa BSP / GAS British Standard Pipe Pas Gas britannique Rosca inglesa BSP / GAS
NPT	Rosca cónica Americana NPT National Pipe Taper Pas conique américain Rosca conica Americana NPT
8-UN	Rosca Americana UN-8hilos 8-UN Constant Pitch Pas Américain constant UN-8 filets Rosca Americana UN-8 Fios
BA	Rosca Inglesa BA British Association Pas Association britannique Rosca inglesa
BSB	Rosca Inglesa BSB (Latón) British Standard Brass Pas Anglais BSB (Laiton) Rosca inglesa BSB (Latão)

...X	Código de Familia Group Code Code Famille Código de Família
1.0D	Longitud del inserto instalado = Ø x 1.0 Installed Insert Length = Ø x 1.0 Longueur du filet installé = Ø x 1.0 Longitude do inserto instalado = Ø x 1.0
1.5D	Longitud del inserto instalado = Ø x 1.5 Installed Insert Length = Ø x 1.5 Longueur du filet installé = Ø x 1.5 Longitude do inserto instalado= Ø x 1.5
2.0D	Longitud del inserto instalado = Ø x 2.0 Installed Insert Length = Ø x 2.0 Longueur du filet installé = Ø x 2.0 Longitude do inserto instalado = Ø x 2.0
2.5D	Longitud del inserto instalado = Ø x 2.5 Installed Insert Length = Ø x 2.5 Longueur du filet installé = Ø x 2.5 Longitude do inserto instalado = Ø x 2.5
3.0D	Longitud del inserto instalado = Ø x 3.0 Installed Insert Length = Ø x 3.0 Longueur du filet installé = Ø x 3.0 Longitude do inserto instalado = Ø x 3.0
3.5D	Longitud del inserto instalado = Ø x 3.5 Installed Insert Length = Ø x 3.5 Longueur du filet installé = Ø x 3.5 Longitude do inserto instalado = Ø x 3.5
X.XD	Codificación de la long. del inserto instalado=Øx"D" Installed Insert length Codification = Ø x"D" Codification de la longueur du filet installé = Ø x "D" Codificação da long. do inserto instalado = Ø x "D"
AISI 304	Inserto de acero inoxidable 304 304 Stainless steel insert Filet rapporté en acier inox. 304 Inserto de aço inoxidavel 304
	Longitud de rosca de la bujía Spark plug Installed insert Length Longueur de filetage de la bougie Longitude da rosca da vela de ignição
	Conformidad en pedido especial Standard Compliance By Special Order Conformité des filets pour commande spéciale Conformidade em encomenda especial
	Conformidad de inserto Insert Standard Compliance Conformité du filet rapporté Conformidade de inserto
HSS	Broca de HSS High Speed Steel Drill Foret en acier HSS Broca de HSS
	Comprobador pasa, no pasa STI Go No - Go Gauges Calibre Go / No - Go Verificador passa, não passa

HSS	Macho de mano HSS High Speed Steel STI Tap Taraud à main HSS STI Macho manual HSS	
HSS	Macho de mano HSS STI Tap Taraud à main STI Macho manual	M/MF, UNC, UNF, 8 UN, NPT
HSS	Macho de mano HSS STI Tap Taraud à main STI Macho manual	BSW, BSF, BSP, BSB
HSS	Macho de mano HSS STI Tap Taraud à main STI Macho manual	BA
HSS-V3	Macho con doble entrada para bujías Spark Plug - HSS Pilot Nose STI Tap Taraud HSS STI pour bougie d'allumage Macho com dupla entrada para as velas de ignição	
HSS-V3	Macho Helicoidal 35º HSS - V3 (3%V) HSS - V3 (3%V) Spiral Flute STI Tap Taraud Hélicoïdal STI 35º HSS-V3 (3%V) Macho Helicoidal 35º HSS-V3 (3%V)	
HSS-V3	Macho con entrada corregida F/B HSS-V3 3%V) HSS - V3 (3%V) Spiral Point (Gun Nose) STI Tap Taraud entrée gun STI HSS-V3 (3%V) Macho com entrada corrigida HSS-V3 (3%V)	
TOL 4H5H	Macho en tolerancia 4H/5H STI Tap 4H/5H Tolerance Taraud STI de tolérance 4H/5H Macho em tolerância 4h/5h	
TOL (3B)	Macho en tolerancia 3B STI Tap 3B Tolerance Taraud STI de tolérance 3B Macho em tolerância 3B	
	Carretes de insertos Strip Feed Inserts Rouleaux de Filets rapportés Carreto de insertos	
	Series cortas Low Volume Série Courte Series curtas	
	Series medianas Low - Medium Volume Série Moyenne Series meias	
	Series largas High Volume Série Importante Series longas	
	Herramienta de instalación manual Hand Installation Tool Outil manuel de pose Ferramentas de instalação manual	

Diámetro del inserto Insert Diameter Diamètre du filet Diâmetro do inserto	Paso en mm y pulgada Pich (mm & TPI) Pas (mm et TPI) Passo em mm e polegada	Longitud instalada Installed Length Longueur posée Longitude instalada	Unidades de embalaje Units of packing Unités d'emballage Unidades da embalagem	Nº de Insertos No of inserts Nb de filets Nº de Insertos	Diámetro de la broca Drill Size Diamètre du foret Diâmetro da broca	Macho de roscar Tap Taraud Macho	Herramienta de instalación Nº Instal Toll Part No Code de l'outil de pose Ferramenta de instalação Nº	Rompedor de cola Tang Break Part No Rupteur Quebrador

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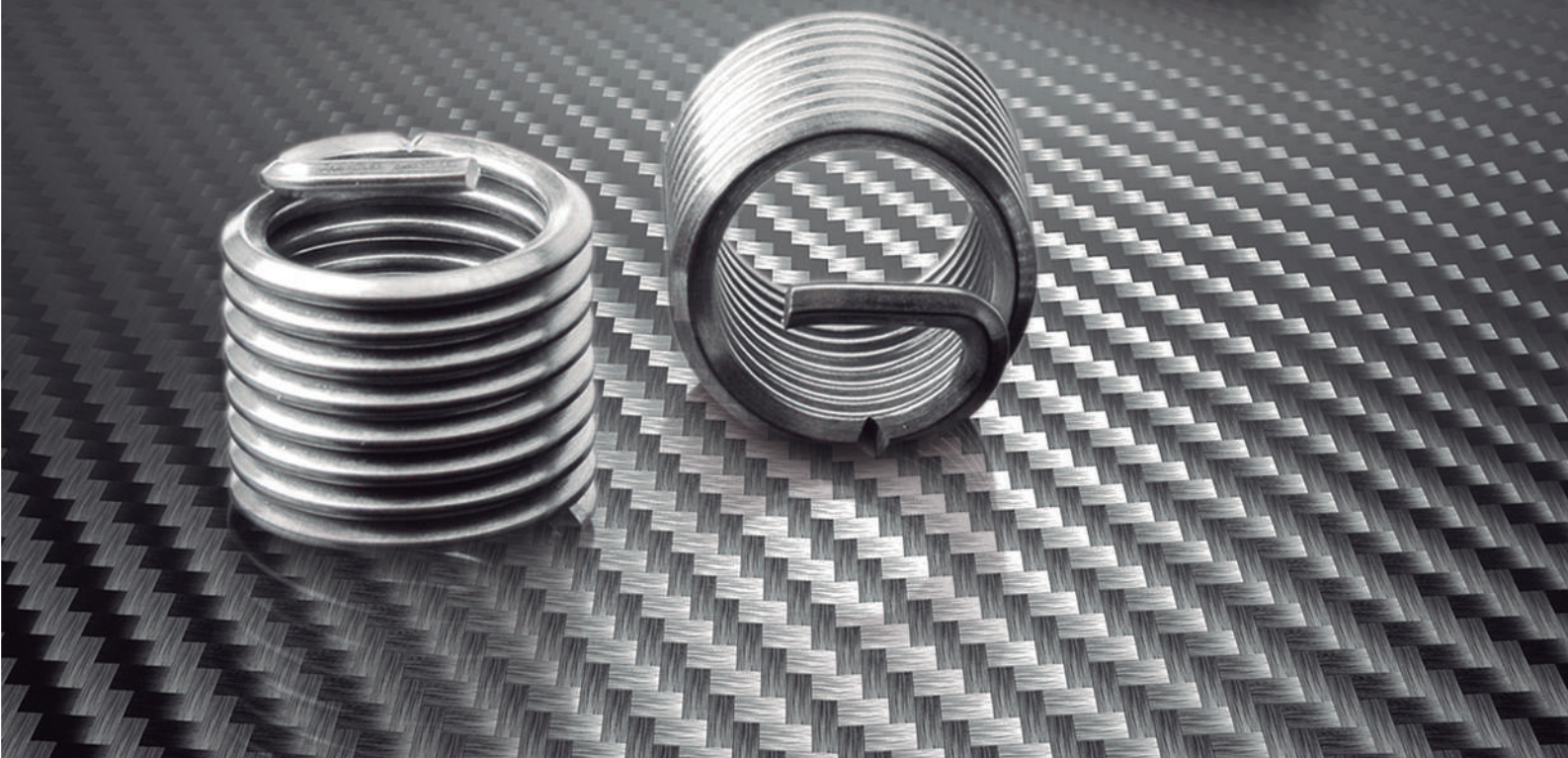
Insertos Roscados
Screw Thread Inserts
Filets Rapportés
Insertos Roscados



Fabricados en acero inoxidable al cromo níquel de alta calidad (AISI 304), los insertos para reparación de roscas Power Coil proporcionan una alta resitencia a la temperatura y a la corrosión. Su diseño único asegura roscas de superior calidad cuyo comportamiento no puede ser igualado por ningún otro método de seguridad. Se encuentran disponibles en dos presentaciones básicas, standard y autoblocante o de seguridad, son mucho mas ligeros y menos costosos que cualquier otro tipo de inserto equivalente y dado su tamaño compacto pueden generalmente incorporarse a diseños existentes en donde no sea necesaria ningún tipo de reparación.

Insertos Standard

Fabricados a partir de un alambre de acero inoxidable austenítico, y perfilados de forma precisa en forma de espiral helicoidal, los insertos standard Power Coil tienen forma de muelle. Cuando se instalan utilizando cualquiera de las herramientas, ya sean manuales o automáticas, proporcionan roscas internas resistentes y permanentes que soportan el calor y la corrosión. Una vez instalados su posición se mantiene por la acción de presión radial entre los filetes y las ranuras del agujero roscado. Esta presión existe porque su diámetro libre es ligeramente superior al instalado en una pequeña proporción previamente calculada.

Insertos Autoblocantes (Seguridad)

El inserto autoblocante está especialmente indicado en aplicaciones sujetas a vibración cíclica o impactos. Además de las ventajas proporcionadas por los insertos standard, los insertos autoblocantes (de seguridad) Power Coil ofrecen una seguridad adicional por su auto freno interno que lo hace más efectivo. Esto se consigue gracias a la acción de una espira poligonal de la rosca del inserto posicionada a lo largo del mismo, que ejerce presión radial sobre los hilos del tornillo. En la medida en que la rosca pasa a través de estos hilos de seguridad, los dispositivos se expanden aplicando gradualmente presión radial o freno efectivo en la rosca del tornillo. Al retirar el tornillo roscado, los hilos de seguridad relajan su expansión a su forma original permitiendo repetir el roscado del tornillo y manteniendo su nivel de presión radial de seguridad.

NOTA:

Se recomienda que solamente se utilicen tornillos niquelados o bien lubricados, con los insertos de seguridad.

Características y Beneficios

Durante muchos años, los insertos helicoidales han sido subestimados. El concepto popular de ser diseñados para reparar roscas dañadas ha dado a este sistema único, esta falsa imagen.

Son mucho más ligeros y menos costosos que cualquier otro tipo equivalente de inserto de rosca, y por su tamaño compacto, pueden generalmente introducirse en diseños preexistentes en donde no se requiera una reparación adicional. Además de otros beneficios económicos, su utilización incrementa la calidad y rendimiento mientras reduce el costo total del producto. Su utilización es efectiva al utilizar materiales más delgados o más ligeros sin sacrificar la resistencia de la rosca.

Los insertos protegen las roscas originales contra posibles fallos de pérdida de hilos, pérdida de medida, corrosión o desgaste. Los insertos Power Coil están fabricados con cable de acero inoxidable austenítico, que le permite trabajar con una fuerza a la tensión de 200,000 psi y una dureza de RC 43-50. Los insertos tienen un acabado superficial tan fino que prácticamente elimina la fricción que induce al posible desgaste.

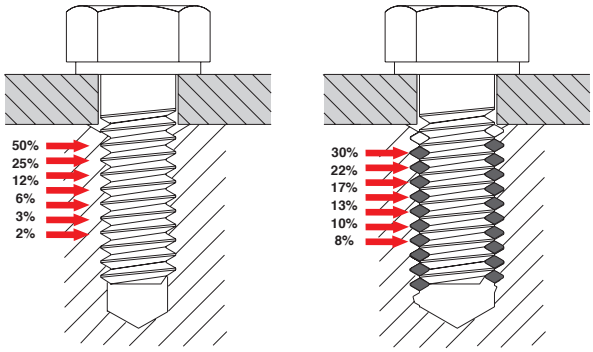
La rosca está perfilada con diamante, y está preparada para alojar tornillos con garantía de éxito. Los insertos Power Coil pueden instalarse en secciones reducidas de bordes, flancos y dentro de áreas pequeñas – salvando espacio y peso mientras proporcionan alta resistencia.

Una amplia gama de herramientas de instalación se encuentra disponible para adaptarse a diferentes técnicas de producción. Existe una gama de herramientas manuales para pequeñas reparaciones; y las herramientas de máquina y neumáticas, por lo general; están disponibles para altas producciones.

Resistencia

Debido a su flexibilidad, los insertos conforman roscas internas que cuentan con una mucho mejor distribución de carga residuales comparados con agujeros roscados convencionales, en donde un porcentaje superior al 70% de las fuerzas cortantes son llevadas a cabo por los tres primeros hilos en el agujero roscado. La flexibilidad de los insertos ayudan a compensar los errores del paso y del ángulo de flancos inherentes a los agujeros normales roscados, y mejora significativamente la capacidad de carga por deflexión de fuerzas residuales dentro de la rosca en donde la presión se dispersa hacia las paredes del agujero roscado. Esto hace que el diseño sea muy fiable y de gran resistencia utilizando roscas más pequeñas y más cortas aun cuando los insertos sean usados en materiales menos resistentes.

Los insertos Power Coil de alta flexibilidad reducen su diámetro durante la instalación. La fuerza del inserto al expandirse en el agujero asegura el inserto en su lugar correcto. Cada filete puede flexionarse independientemente para ponerse en contacto con la mayor cantidad de material de la superficie de la rosca.



Elimina Tensiones

No existe sistema de sujeción, amarre, bloqueo, etc, del inserto en su alojamiento, sino que la propia acción de muelle del inserto lo mantiene en su lugar. Por lo tanto, el inserto está exento de padecer tensiones externas.

Resistencia al Desgaste

La combinación de la dureza en el material y el acabado brillante de los insertos configuran roscas, en las que el desgaste de la rosca ocasionada por el uso es prácticamente nulo. Esto es de gran valor para aplicaciones que requieren ensamblaje y desensamblaje repetido. El bajo coeficiente de fricción asegura prácticamente que todas las fuerzas de ensamblaje aplicadas se conviertan en cargas de sujeción, dando como resultado que las roscas se mantengan firmes.

Protección Contra Corrosión

El alambre de acero inoxidable austenítico 18/8 usado en los insertos Power Coil resiste la corrosión bajo condiciones ambientales normales. La acción corrosiva de agentes externos dentro del ensamblaje de la rosca se reduce, incrementando la vida de la unión inserto-tornillo.

La corrosión galvánica es la forma más significativa de corrosión y afecta tanto a los insertos como a los tornillos. La corrosión galvánica aparece cuando existen metales en presencia de una solución electrolítica. Todos los metales tienen grados diferentes de "actividad" o "nobleza". El oro y el platino son los más nobles, mientras el zinc y el magnesio son los más activos. La solución electrolítica más común es el agua ordinaria. El agua de mar o spray salado es más dañina por la alta concentración de sales disueltas.

La mejor manera de prevenir la corrosión galvánica es usar metales potencialmente similares y eliminar el conductor electrolítico. El activo del acero inoxidable usado en las roscas de los insertos Power Coil no está pasivizado. Esto minimiza la posibilidad de que se produzca corrosión galvánica cuando se instalan en aluminio y magnesio o materiales similares. Algunas precauciones adicionales que deben tomarse en cuenta para prevenir la corrosión galvánica son:

1. Aislar los tornillos de los electrolitos. Esto puede hacerse a través de encapsulado o sellado
2. Específicamente usar insertos recubiertos de cadmio. El acabado en cadmio proporciona una barrera contra la corrosión. Adicionalmente, el acabado en cadmio tiene propiedades lubricantes que minimizan el roce cuando se usan tornillos de acero inoxidable.
3. Aplicar pastas o compuestos inhibidores de corrosión al tornillo. Esto incluye al sellador zinc cromado (MIL-P-8585) y el sellador estroncio cromado (MIL-P-23377). Nota: Las pastas aplicadas al inserto helicoidal entre las roscas y el agujero pueden causar perdida de la tolerancia propia. Por lo tanto se recomienda aplicar la pasta solamente al tornillo y no al inserto. Si el sellador cromo zinc es aplicado al agujero roscado debe rebajarse y aplicarse escasamente. El inserto debe instalarse mientras el sellador esta aun húmedo.
4. Dar una película de lubricante seco como el disulfato de molibdeno en los insertos, proporciona una barrera secundaria contra la corrosión.
5. Cuando sea práctico o cuando no interfiera con el ensamblaje, la junta externa deberá ser cubierta con una pintura adecuada.

Normas de referencia

SBAC AS 6734 & 8456

Norma de la Sociedad Británica de Compañías Aerospaciales. Referida específicamente a los insertos libres Rosca UNC, requisito obligatorio exigido por la Sociedad. En realidad, muy similar al Standard Militar.

SBAC AS 6733 & 8455

Mismo requisito que el anterior extensivo a todos los insertos libres con carácter general.

BS

Standard Británico para Insertos de diámetro reducido. Es la norma generalizada para todos los fabricantes de insertos, equivalente a DIN8140.

NASM3279, 3280 & 3281

Standard militar para insertos libres. Los Insertos según Standard militar son mayores en diámetro en estado libre que los insertos comunes, por lo que son más difíciles de instalar, y de extraer. CELESA puede suministrar y certificar este tipo de insertos bajo demanda. La norma alemana DIN8140 para insertos de uso general tiene similares tolerancias que los Insertos de según Standard militar.

LN9499

Standard aerospacial alemán. En desuso, aunque CELESA puede suministrar y certificar este tipo de insertos bajo demanda.

DIN8140

Los insertos Powercoil disctribuidos por CELESA cumplen con los requisitos recogidos en la Norma DIN8140

Manufactured from high quality chromium nickel stainless steel, PowerCoil Wire Thread Inserts provide high strength internal threads that resist the effects of temperature and corrosion. Their unique design ensures superior threads whose compound performance cannot be reproduced by any other single fastening method. Available in two basic forms, free running or screw locking, they are much lighter and less expensive than any other equivalent type of thread insert and because of their compact size they can generally be incorporated into existing designs where no previous provision has been made.

Free Running

Produced from precision profiled austenitic stainless steel wire wound into a helical spiral, PowerCoil free running inserts have a spring like appearance. When installed, using any one of a variety of manual or automatic tools, they provide strong permanent internal threads which resist heat and corrosion. Once fitted, their position is maintained by the action of radial pressure between their coils and the flanks of the tapped hole. This pressure exists because their free diameter is larger by a calculated amount, than their installed diameter.

Screw Locking

Screw locking (or prevailing torque) inserts are of particular value in applications subject to the effects of cyclic vibration or impact. In addition to the benefits afforded by free running inserts, PowerCoil screw locking inserts offer the additional security of prevailing locking torque. This is achieved by the action of one or more polygonal grip coils positioned within the insert's length, which exert radial pressure on the male thread. Each grip coil consists of a number of tangential locking chords which protrude inside the minor diameter of the normal free running coils. As the male thread passes through these grip coils, the locking flats are displaced thus exerting radial pressure or prevailing torque on the male thread. On removal of the male thread, the locking coils relax to their original form permitting repeated assembly whilst retaining a measurable level of prevailing torque.

NOTE:

It is recommended that only close fit plated or lubricated bolts or screws are used with screw locking inserts.

Features & Benefits

For many years, helically coiled wire thread inserts have been vastly underestimated. The popular misconception that they were designed for the repair of damaged threads has given this unique fastener a false image.

They are much lighter and less expensive than any other equivalent type of thread insert and because of their compact size, can generally be introduced into existing designs where no previous provision has been made. Unlike many other economic measures, their introduction increases quality and performance whilst reducing overall product cost. Their introduction may result in the use of thinner sections or lighter parent materials without sacrificing thread strength.

They protect tapped threads against failures due to stripping, seizing, corrosion and wear. PowerCoil wire thread inserts are produced from austenitic stainless steel wire which is work hardened to a tensile strength above 200,000psi and a hardness of Rc43-50.The inserts have an exceedingly smooth surface finish which virtually eliminates friction-induced thread errosion.

The continuous helically coiled design negates the need for thick wall structures to support the internal and external threads - the diamond profile wire coil IS the thread. PowerCoil wire thread inserts can be installed in rteduced size bosses or flanges and within constricted areas – saving space and weight while providing high strength.

A boss radius equal to the nominal bolt diameter is usually sufficient.

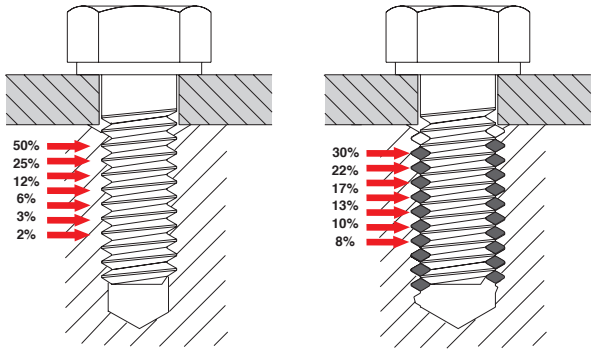
A complete range of installation tools are available to suit specific production techniques. A range of hand tools exist for small runs and repairs; electric and pneumatic tools are available for high volume production requirements.

Strength

Due to their flexibility, wire thread inserts create internal threads which have a much improved distribution of residual stress loading when compared with conventional tapped holes, where up to 70% of the shearing forces are carried by the first three threads in the tapped hole. The flexibility of wire thread inserts helps to compensate for pitch and flank angle errors, inherent in normal tapped holes, and significantly enhances the load bearing capacity by deflecting the residual forces into a helical hoop stress which is dispersed into the wall of the tapped hole. This enables the design to be confidently based on the bolt strength utilising smaller and shorter threads even when used in low strength materials..

The high tensile coils of a wire thread insert undergo a diameter reduction during installation. The outward spring-like force of the coils "locks" the insert into place.

Each coil can flex independently to contact the greatest amount of parent material thread surface. Both static and dynamic load bearing capabilities are improved.



Eliminate Stress

Virtually no stress is introduced into the parent material because there is no staking, locking, swaging or keying in place. The outward "spring action" of the insert holds it in place.

Wear Resistance

The combination of material hardness and the brilliant surface finish of wire thread inserts creates internal threads in which wear due to thread friction is virtually eliminated. This is of particular value in applications requiring repeated assembly & disassembly. The low frictional coefficient ensures that virtually all of the applied assembly torque is converted into clamping load. Thus providing threads that stay tight.

Corrosion Protection

The 18/8 austenitic stainless steel wire used in PowerCoil inserts resists corrosion under normal environmental conditions. Galvanic action within the thread assembly is reduced, increasing the life of the fastening assembly.

Galvanic corrosion is most significant form of corrosion affecting inserts and fasteners. Galvanic corrosion occurs when dissimilar metals are in contact in the presence of an electrolytic solution. All metals exhibit different degrees of "activity" or "nobility" and can be arranged in a galvanic series of increasing activity. Gold and platinum are most noble while zinc and magnesium are most active. The most common electrolytic solution encountered is ordinary water. Seawater or salt spray is more damaging because of high concentrations of dissolved salts.

The best way to preclude galvanic corrosion is to use similar potential metals and eliminate the electrolyte conductor. The active stainless steel of PowerCoil wire thread inserts are not passivated. This minimizes the possibility of galvanic corrosion occurring when they are installed in aluminum or magnesium parent materials.

Some additional precautions for reducing galvanic corrosion are:

1. Isolate the fasteners from the electrolyte. This can be done through gasketing or sealing.
2. Specify cadmium plated inserts. The cadmium plate provides a sacrificial barrier against corrosion. In addition, the cadmium plate has lubricating properties that minimize galling when stainless steel screws are used.
3. Apply corrosion inhibiting pastes or compounds to the screw. These include zinc chromate primer (MIL-P-8585) and strontium chromate primer (MIL-P-23377). Note: Pastes applied to the CoilThread Insert can become trapped between the wire and the hole and cause loss of proper tolerance. It is therefore recommended to apply the paste only to the screw, not the insert. If zinc chromate primer is applied to the tapped hole it should be thinned and applied sparingly. The insert should be installed while the primer is still wet.
4. Specify a dry film lubricant such as molybdenum disulphide on the inserts. This provides a secondary barrier against corrosion.
5. Where practical or where it will not interfere with the completed assembly, the external joint should be coated with a suitable paint.

Fabriqués à partir d'acier inoxydable chrome-nickel de qualité supérieure, les filets rapportés PowerCoil offrent une résistance élevée à la température et à la corrosion. Leur design unique garantit des filetages de qualité supérieure dont la performance ne peut être atteinte par aucune autre méthode de fixation simple. Disponibles sous deux formes de base, standard ou à frein, ils sont plus légers et moins chers que tout autre type de filet rapporté équivalent et, grâce à leur petite taille, ils peuvent être généralement incorporés à des profils existants sans qu'il n'y ait à réaliser de réparation.

Modèle standard

Fabriqués à partir de fil d'acier inoxydable austénitique et profilés en spirale hélicoïdale, les filets rapportés PowerCoil standard ressemblent à des ressorts. Une fois installés, à l'aide de l'un des outils manuels ou automatiques, ils fournissent des filets internes solides et permanents qui résistent à la chaleur et à la corrosion. Une fois posés, leur position est maintenue par l'action de la pression radiale qui s'exerce entre les filets et les flancs du trou taraudé. Cette pression existe parce que leur diamètre réel est légèrement supérieur à la valeur du diamètre une fois posé.

Modèle à frein

Les filets rapportés à frein sont extrêmement utiles pour les applications sujettes aux effets provoqués par les vibrations cycliques ou les chocs. En plus des avantages des filets rapportés standard, les filets rapportés PowerCoil à frein offrent une sécurité supplémentaire avec le couple de freinage permanent. Ceci est accompli par la pression radiale exercée sur le filetage extérieur par une spire à déformation polygonale positionnée sur la longueur du filet rapporté. Chaque spire déformée exerce une pression radiale ou couple permanent sur les filets de la vis. Lorsque l'on retire la vis, la spire de freinage reprend sa forme originale, permettant des assemblages répétés tout en conservant un niveau de couple de freinage permanent.

REMARQUE :

Il est recommandé d'utiliser uniquement des vis niquelées ou lubrifiées avec les filets rapportés à frein.

Caractéristiques et avantages

Pendant de nombreuses années, les filets rapportés à spires hélicoïdales ont été largement sous-estimés. L'idée qu'ils étaient destinés à la réparation des filets endommagés donna une image erronée à cette pièce de fixation unique.

Ils sont plus légers et moins chers que tout autre filet rapporté équivalent et, grâce à leur petite taille, ils peuvent généralement être introduits dans des profils existants. En plus d'autres avantages économiques, leur utilisation permet d'augmenter la qualité et les performances tout en réduisant le coût total de production. Leur utilisation permet l'emploi de matériels plus fins ou plus légers sans renoncer à la résistance des filetages.

Ils protègent les filetages originels de la perte de filets ou de dimension, la corrosion et l'usure. Les filets rapportés PowerCoil sont fabriqués à partir de fil en acier inoxydable austénitique permettant de travailler jusqu'à une charge de rupture supérieure à 200 000 psi et une dureté de Rc43-50. Les filets rapportés bénéficient d'une finition de surface extrêmement fine qui élimine virtuellement l'érosion du filet causée par le frottement.

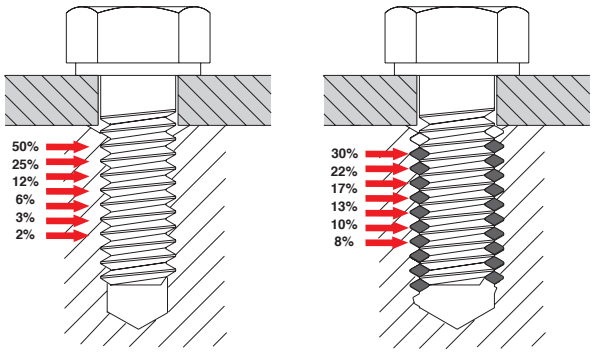
Le filet est profilé au diamant et est conçu pour que les vis viennent s'y loger dans les meilleures conditions. Les filets rapportés Power Coil peuvent se poser dans des espaces réduits , permettant de gagner de l'espace et du poids tout en fournissant une résistance élevée.

Une large gamme d'outils de pose est disponible pour s'adapter aux techniques particulières de production. Il existe une gamme d'outils manuels pour les petits travaux et réparations ainsi que des outils électriques et pneumatiques pour les besoins de production de gros volume.

Résistance

Grâce à leur flexibilité, les filets rapportés génèrent des filetages qui bénéficient d'une distribution de la charge de tension résiduelle nettement améliorée en comparaison avec les trous taraudés conventionnels pour lesquels jusqu'à 70% des forces de cisaillement est exercée par les trois premiers filets. La flexibilité des filets rapportés aide à compenser les erreurs de pas et d'angle de flanc, inhérentes aux taraudages habituels, et améliore nettement la portance en dispersant vers les parois du trou taraudé la pression. Ceci permet de se baser en toute confiance sur la résistance des filets rapportés en utilisant des filets plus petits et plus courts même lorsqu'ils sont utilisés dans des matériaux de faible résistance

Les filets rapportés Power Coil à haute flexibilité subissent une réduction de diamètre durant leur pose. La force du filet rapporté lors de son expansion dans le trou assure son positionnement. Chaque spire peut se positionner indépendamment pour entrer en contact avec la plus grande partie possible de surface du filetage du matériau récepteur.



Elimine la tension

Aucune tension n'est introduite à l'intérieur du matériau récepteur du fait qu'il n'existe pas de système d'attache, de blocage, de retenue du filet rapporté dans son emplacement mais le propre "jeu" de ressort du filet rapporté qui le maintient en place et lui permet de ne subir aucune tension externe.

Résistance à l'usure

La combinaison de la dureté du matériel avec la finition brillante des filets rapportés génère des filetages pour lesquels l'usure causée par l'utilisation est virtuellement éliminée. Ceci est particulièrement utile pour les applications qui requièrent des montages et démontages répétés. Le faible coefficient de friction garantit que l'ensemble du couple d'assemblage appliqué est converti en charge de serrage et que, par voie de conséquence les filetages soient maintenus dans les meilleures conditions.

Protection contre la corrosion

Le fil en acier inoxydable 18/8 austénitique utilisé pour les filets rapportés PowerCoil résiste à la corrosion dans des conditions environnementales normales. L'action corrosive d'agents extérieurs à l'intérieur de l'assemblage est réduite, augmentant ainsi la durée de vie de l'union filet rapporté/vis.

La corrosion galvanique est la forme de corrosion la plus importante qui touche les filets rapportés et les pièces de fixation. La corrosion galvanique apparaît lorsque des métaux sont en présence d'une solution électrolytique. Tous les métaux déploient différents degrés d'« activité » ou de « noblesse ». L'or et le platine sont les plus nobles tandis que le zinc et le magnésium sont les plus actifs. La solution électrolytique la plus souvent rencontrée est l'eau ordinaire. L'eau de mer ou la vapeur saline provoque plus de dégâts à cause des concentrations élevées de sel dissous.

La meilleure façon d'éviter la corrosion galvanique est d'utiliser des métaux similaires et d'éliminer le conducteur électrolytique. Ceci minimise la possibilité d'apparition de la corrosion galvanique lorsqu'ils sont posés dans des matériaux récepteurs comme l'aluminium ou le magnésium. Les précautions supplémentaires à prendre pour réduire la corrosion galvanique sont :

1. Isoler les vis de l'électrolyte. Ceci peut être réalisé à l'aide de joints et de dispositifs d'étanchéité.
2. Utiliser des filets rapportés cadmiés. Le dépôt de cadmium fournit une barrière contre la corrosion. De plus, le dépôt de cadmium a des propriétés lubrifiantes qui minimisent la friction lorsque des vis en acier inoxydable sont utilisées.
3. Appliquer de la pâte ou un mélange inhibiteur de corrosion sur la vis. Ceux-ci incluent le chromate de zinc (MIL-P-8585) et le chromate de strontium (MIL-P-23377). Remarque : la pâte appliquée sur le filet rapporté peut provoquer une perte de tolérance propre. Il est donc recommandé de n'appliquer la pâte que sur la vis et non sur le filet rapporté. Si une pâte au chromate de zinc est appliquée sur le trou taraudé, elle doit être afinée et appliquée avec parcimonie. Le filet rapporté doit être posé lorsque la primaire est encore humide.
4. Appliquer un film de lubrifiant hydrofuge tel que le disulfure de molybdène sur les filets rapportés. Celui-ci fournira une seconde barrière pour lutter contre la corrosion.
5. Si cela est possible ou ne perturbe pas l'assemblage, le joint externe pourra être revêtu d'une peinture appropriée.

Fabricados em aço inoxidável ao cromo-níquel de alta qualidade, os insertos para a reparação de roscas Power Coil fornecem uma alta resistência à temperatura e à corrosão. O seu desenho exclusivo garante roscas de qualidade superior cujo comportamento não pode ser igualado por qualquer outro método de segurança.

Eles estão disponíveis em duas apresentações básicas, standard e Auto-bloqueador ou de segurança, são muito mais leves e menos caros do que qualquer outro inserto equivalente e dado o seu tamanho compacto podem geralmente ser incorporados aos desenhos existentes, onde não é necessário nenhum tipo de reparação.

Insertos Standard

Fabricados a partir dum fio de aço inoxidável austenítico e perfilados com precisão em forma de espiral helicoidal, os insertos standard PowerCoil têm forma de mola. Quando são instalados usando qualquer das ferramentas, já sejam manuais ou automáticas, fornecem roscas internas resistentes e permanentes que resistem o calor e a corrosão.

Uma vez instalados a sua posição é mantida pela ação da pressão radial entre os filetes e as ranhuras do furo roscado. Esta pressão existe porque o seu diâmetro livre é ligeiramente superior ao instalado em uma pequena proporção previamente calculada.

Insertos Auto-bloqueadores (Segurança)

O inserto Auto-bloqueador é especialmente indicado em aplicações sujeitas a vibração cíclica ou impactos.

Além das vantagens proporcionadas pelos insertos standard, os insertos auto-bloqueadores (segurança) Power Coil oferecem uma segurança adicional pelo auto-freio interno que o torna mais eficaz.

Isto é conseguido graças à ação duma espira poligonal da rosca do inserto posicionada ao longo do mesmo, que exerce pressão radial sobre os fios do parafuso.

Na medida em que a rosca passa através destos fios de segurança, os dispositivos se expandem aplicando gradualmente pressão radial ou freio efetivo na rosca do parafuso.

Ao remover o parafuso roscado, os fios de segurança relaxam a sua expansão para a sua forma original, permitindo repetir a roscagem do parafuso e mantendo o seu nível de pressão radial de segurança.

NOTA:

Recomenda-se a utilização só de parafusos niquelados ou bem lubrificados, com os insertos de segurança

Características e Benefícios

Durante muitos anos, os insertos helicoidais foram subestimados. O conceito popular de ser desenhado para reparar as roscas danificadas deu a este sistema exclusivo, essa imagem falsa.

Eles são muito mais leves e menos caros do que qualquer outro tipo equivalente de insertos para roscas, e devido ao seu tamanho compacto geralmente podem ser introduzidos em desenhos preexistentes onde não é requerida uma reparação adicional.

Além de outros benefícios econômicos, o seu uso aumenta a qualidade e o desempenho, reduzindo o custo total do produto. O seu uso é efetivo ao usar materiais mais finos ou mais leves sem sacrificar a resistência da rosca.

Os insertos protegem as rocas originais contra possíveis falhas na perda de fios, a perda de medição, a corrosão ou o desgaste.

Os insertos Power Coil são fabricados com cabo de aço inoxidável austenítico, o que lhe permite trabalhar com uma força na tensão de 200.000psi e uma dureza de RC 43-50.

Os insertos têm um acabamento superficial tão fino que praticamente elimina a fricção que induz ao possível desgaste.

A rosca é perfilada com diamante e está preparada para alojar os parafusos com garantia de sucesso.

Os insertos Power Coil podem ser instalados em pequenas secções de bordas, flancos e áreas internas, salvando espaço e peso, e proporcionando alta resistência.

Uma ampla gama de ferramentas de instalação está disponível para se adaptar a diferentes técnicas de produção. Há uma gama de ferramentas manuais para pequenas reparações; e as ferramentas mecânicas e pneumáticas, geralmente; estão disponíveis para grandes produções.

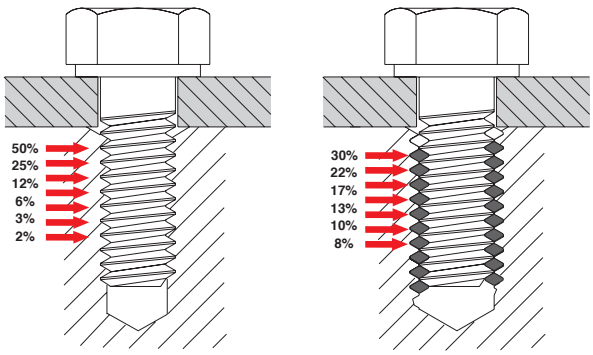
Resistência

Devido à sua flexibilidade, os insertos conformam as roscas internas que têm uma muito melhor distribuição da carga residual em comparação com os furos roscados convencionais, onde uma percentual superior ao 70% das forças de corte são realizadas pelos três primeiros fios no furo roscado.

A flexibilidade dos insertos ajuda a compensar os erros do passo e do ângulo de flancos inerentes aos furos normais roscados, e melhora significativamente a capacidade de carga por deflexão das forças residuais dentro da rosca onde a pressão se dispersa em direção às paredes do furo roscado.

Isto torna o desenho muito confiável e altamente resistente usando roscas mais pequenas e mais curtas mesmo quando os insertos são usados em materiais menos resistentes.

Os insertos Power Coil de alta flexibilidade reduzem o seu diâmetro durante a instalação. A força do inserto ao expandir no furo garante a inserção no lugar certo. Cada filete se pode flexionar independentemente para entrar em contato com a maior quantidade do material da superfície da rosca.



Elimina as tensões

Não há sistema de fixação, amarração, bloqueio, etc., do inserto no seu alojamento, mas a própria ação da mola do inserto mantém-lo no seu lugar. Portanto, o inserto é livre das tensões externas.

Resistência ao desgaste

A combinação da dureza no material e o acabamento brilhante dos insertos fazem roscas, nas que o desgaste da rosca causado pelo uso é praticamente nulo. Isto é de grande valor para as aplicações que requerem montagems e desmontagems repetidas. O baixo coeficiente de fricção praticamente garante que todas as forças da montagem aplicadas se tornem cargas de fixação, resultando que as roscas fiquem firmes.

Proteção Contra a Corrosão

O fio de aço inoxidável Austenitico 18/8 usado nos insertos Power Coil resiste à corrosão em condições ambientais normais. A ação corrosiva de agentes externos dentro da montagem da rosca é reduzida, aumentando a vida útil da união do parafuso-inserto.

A corrosão galvânica é a forma mais significativa de corrosão e afeta tanto aos insertos como aos parafusos. A corrosão galvânica ocorre quando os metais existem na presença de uma solução eletrólitica. Todos os metais têm diferentes graus de "atividade" ou "nobreza". O ouro e a platina são os mais nobres, enquanto o zinco eo magnésio são os mais ativos. A solução eletrolítica mais comum é a água comum. A água do mar ou spray salgado é mais prejudicial devido à alta concentração de sais dissolvidos.

A melhor maneira de evitar a corrosão galvânica é usar metais potencialmente similares e eliminar o condutor eletrolítico. O ativo do aço inoxidável utilizado nos fios dos insertos Power Coil não é passiviçado. Isto minimiza a possibilidade de corrosão galvânica quando são instalados em alumínio e magnésio ou materiais similares. Algumas precauções adicionais que devem ser levadas em consideração para evitar a corrosão galvânica são:

1. Isolar os parafusos dos eletrólitos. Isto pode ser feito através de encapsulamento ou vedação.
2. Especificamente usar insertos revestidos com cádmio. O acabamento em cádmio fornece uma barreira contra a corrosão. Além disso, o acabamento em cádmio tem propriedades lubrificantes que minimizam a fricção ao usar parafusos de aço inoxidável.
3. Aplicar pastas ou compostos inibidores de corrosão no parafuso. Isto inclui o selante de zinco cromado (MIL-P-8585) e o selante de estrôncio cromado (MIL-P-23377). Nota: as pastas aplicadas no inserto helicoidal entre as roscas e o furo podem causar perda da tolerância própia. Recomenda-se, portanto, aplicar a pasta apenas ao parafuso e não ao inserto. Se o selante de cromo e zinco for aplicado ao furo roscado, ele deve ser abaixado e aplicado com moderação. O inserto deve ser instalado enquanto o selante ainda estiver húmido.
4. Dar uma camada de lubrificante seco como o dissulfato de molibdênio nos insertos, fornece uma barreira secundária contra a corrosão.
5. Quando seja prático ou quando não interfera com a montagem, a junta externa devera ser coberta com uma tinta adequada.

Normas de referência

SBAC AS 6734 e 8456
Norma da Sociedade Britânica de Empresas Aeroespaciais. Especificamente referida aos Insertos livres com Rosca UNC, requisito obrigatório exigido pela Sociedade. Na verdade, muito parecido ao Standard militar.

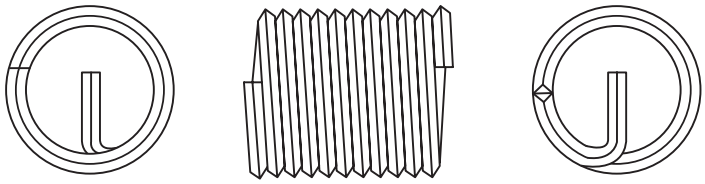
SBAC AS 6733 & 8455
O mesmo requisito que o anterior, estendido a todos os insertos livres com caráter geral.

BS
Standard britânico para os insertos de diâmetro reduzido. É a norma geral para todos os fabricantes de insertos, equivalente à DIN8140.

NASM3279, 3280 & 3281
Standard militar para os insertos livres. Os insertos de acordo com o Standard militar são maiores em diâmetro no estado livre do que os insertos comuns, pelo que são mais difíceis de instalar e para extrair. A CELESA pode fornecer e certificar este tipo de insertos sob demanda. A norma alemã DIN8140 para os insertos de uso geral tem tolerâncias semelhantes aos insertos de acordo com o Standard militar.

LN9499
Standard aeroespacial alemão. Em desuso, embora a CELESA pode fornecer e certificar este tipo de insertos sob demanda.

DIN8140
Os insertos Powercoil distribuídos pela CELESA cumprem com os requisitos da norma DIN8140



Materiales

Los insertos libres Power Coil están fabricados en acero inoxidable austenítico 304 (18/8) y certificados según las normas de conformidad aeroespacial DTD 734 A. Los materiales alternativos incluyen aceros inoxidables como AISI 3160 ó Inconel y una variedad de aplicaciones específicas para superficies recubiertas.

Materiales alternativos

Fósforo Bronce

Aleación no ferrosa de cobre estaño de acuerdo a BS2783 PB 102 E4 – es adecuada para trabajar a temperaturas entre -200º C a + 300º.C

Inconel X-750

La aleación base níquel resistente a temperaturas de temple (especificaciones equivalentes SAE AS 7246, DIN/NF3018 W.NR 2.4669, UNS N07750). El Inconel X-750 se recomienda para el rango de temperaturas de -200º.C a +550º. Celsius.

Nimonic 90

La aleación base níquel resistente a temperatura de temple de conformidad con BS2 HR 501 (especificaciones equivalentes W.NR 2.4632, UNS N07090).

El Nimonic 90 es recomendable para trabajar a temperaturas entre – 100º.C a +650º.Celsius.

Material del Inserto	Tª Pico	Máxima Continua	Aplicaciones típicas	Recubrimientos
AISI 304	425ºC 800ºF	315ºC 600ºF	Aplicaciones generales Para todos los materiales	FL, AG, CD
AISI 316	425ºC 800ºF	315ºC 600ºF	Incrementa la resistencia a la corrosión, para aplicaciones en agua salada	FL, AG, CD
Fósforo Bronce	300ºC 572ºF	235ºC 455ºF	Material de cobre, no magnético, aplicaciones de baja permeabilidad	AG, CD
Inconel X-750	650ºC 1200ºF	550ºC 1020ºF	Aeroespacial, turbinas ambientes corrosivos, Uso en altas temperaturas	AG
Nimonic 90	650ºC 1200ºF	550ºC 1020ºF	Aeroespacial y aplicaciones en turbinas	AG

Alternativas de terminado y recubrimiento

Terminado Cadmio

Cadmio electro depositado de conformidad con DTD905/Def. Stan 03-19 especificaciones equivalentes FED, QQ-P416, LN 9368) El terminado cadmio proporciona una excelente barrera entre metales diferentes reduciendo drásticamente los efectos de la corrosión galvánica, su alta lubricidad y excelente resistencia a la corrosión previene el roce y la sobremedida entre los componentes de la rosca. El terminado cadmio esta recomendado para trabajar en el rango de temperatura de -200º.C a +235º.C.

Las partes terminadas en Cadmio no deben

- Someterse a temperaturas por encima de 235º.C (455º.F)
- Ponerse en contacto con combustible o aceite caliente
- Ponerse en contacto con comida o agua potable.
- Ser usados con componentes de titanio (ya sea directa o indirectamente).
  A temperaturas elevadas pueden ocurrir resquebrajamientos y fallos en los componentes.
- El cadmio es altamente tóxico - consecuentemente deben tomarse cuidadosas precauciones cuando se manipula, se maneja y se instala.

Terminado Zinc

El zinc es depositado electrolíticamente de conformidad con BS3382. El zinc electro depositado es el terminado mas aplicado en la industria. El zinc esta recomendado para trabajar en el rango de temperaturas de -200º.C a + 250º.C.

Terminado Plata

La plata es depositada electrolíticamente de conformidad con DTD939. El terminado plata es usado para prevenir que haya roces o sobremedida entre los componentes de la rosca cuando se usa a altas temperaturas y es el más comúnmente usado en los tornillos para motores de aviación. El terminado plata esta recomendado para trabajar a temperaturas en el rango de -200º.C a +650º.C. Los insertos terminados en plata pueden ser utilizados con varios materiales incluyendo aleaciones de aluminio, aleaciones de magnesio, materiales resistentes al calor y a la corrosión, etc.

Los insertos terminados en plata no están recomendados para instalación en aleaciones de titanio que puedan exceder temperaturas de 300º.C (570º.F).Una alta corrosión como resultado de la combinación de plata y titanio puede ocurrir en el alojamiento.

Película Lubricante seca

Una sólida película de resistencia al calor, recubierto con una película lubricante seca de conformidad con MIL-L-0046010 provee un recubrimiento con bajo coeficiente de fricción con excelente capacidad de soporte de carga. La película lubricante seca previene el roce y las sobremedidas entre los componentes roscados y es particularmente efectivo en la aplicación de los insertos de seguridad. La película seca lubricante es recomendada para la operación en el rango de temperatura de -100º.C a +250º.C.

Terminado	Sufijo de No. De parte	Especificaciones a procesos aplicables
Recubrimiento plata	AG	DTD 939
Terminado de cadmio	CD	QQP-416 ou DEF STD 03-19
Película lubricante seca	FL	MIL-L-8937 ou MIL-L-46010
Tintado rojo	–	aplicado a insertos de seguridad para efectos de identificación*

* Otros colores de tintado pueden utilizarse para efectos de identificación específica.

Selección de la correcta longitud del inserto

Los insertos de rosca PowerCoil están disponibles en todos los tipos de rosca comunes. Hay cinco longitudes disponibles para cada medida. Es muy importante seleccionar la longitud correcta del inserto con efecto de equilibrar la dureza del material del tornillo con la dureza del material de alojamiento. Las cinco longitudes de insertos, 1D, 1.5D, 2D, 2.5D y 3D se muestran en el área sombreada en la tabla de abajo.

Los números están previamente calculados ya que los insertos no pueden medirse en estado libre (no instalado). Los números son múltiplos del tamaño de rosca nominal, o diámetro del inserto. Las longitudes actuales del inserto en posición instalada están listadas en las tablas de selección de insertos. Ahí se representa la longitud actual instalada más medio (1/2) paso. Usando la tabla siguiente la longitud de un inserto puede seleccionarse para conseguir un sistema suficientemente resistente para romper un tornillo antes de dañar el inserto o el material de alojamiento.

Longitud nominal recomendada de insertos basada en material de alojamiento vs. longitud de tornillo

Unificado (fuente BS7752 Part 1:1994)

Resistencia en materiales de alojamiento (KSI)	Material del tornillo fuerza de tensión (KSI) - (Lib / pulg²)								
	54	75	96	108	125	132	160	180	220
10	2.0	2.5	3.0	3.0	–	–	–	–	–
15	1.5	1.5	2.0	2.5	2.5	3.0	–	–	–
20	1.0	1.5	1.5	2.0	2.0	2.0	2.5	3.0	3.0
25	1.0	1.0	1.5	1.5	1.5	2.0	2.0	2.5	2.5
30	1.0	1.0	1.0	1.5	1.5	1.5	2.0	2.0	2.5
40	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	2.0
50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5

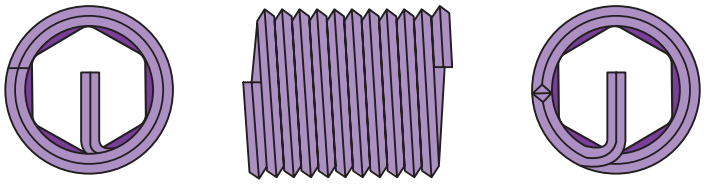
EJEMPLO: Si el material de alojamiento es 10KS1 y la tensión del tornillo es 54KSI, la longitud correcta del inserto es 2.0 de diámetro (2D).

MÉTRICO

Resistencia en materiales de alojamiento (MPa)	Material del tornillo fuerza de tensión (MPa)							
	300	400	500	600	800	1000	1200	1400
70	1.5	2.0	2.5	2.5	–	–	–	–
100	1.0	1.5	1.5	2.0	2.5	3.0	–	–
150	1.0	1.0	1.5	1.5	2.0	2.0	2.5	3.0
200	1.0	1.0	1.0	1.0	1.5	1.5	2.0	2.5
250	1.0	1.0	1.0	1.0	1.0	1.5	1.5	2.0
300	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5
350	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5

EJEMPLO: Si el material de alojamiento es 150 Mpa y la tensión del tornillo es 500Mpa, la longitud correcta del inserto es de 1.5 de diámetro (1.5 D)

NOTA: Pa: 6894´75 psi / Pa: 6´89 Ksi



Proyección del tornillo

Los insertos Power Coil están diseñados para ser usados con tornillos Standard, normales disponibles que no requieran de especificaciones especiales.

El tornillo debe roscarse a lo largo de todo el inserto para asegurar la máxima firmeza de la unión. Para asegurar el roscado total, se recomienda cortar siempre el arrastre de la cola. Esto garantizará que las roscas de seguridad enrosquen en todas los hilos del tornillo. Si necesitan ver el diseño de cómo se hace, contactar con CELESA para asistencia.

NOTAS:

1. Se especifican las resistencias mínimas de los tornillos. Cuando se escoge una longitud de inserto, se debe poner atención a la resistencia máxima permitida por el tornillo o sus especificaciones.
2. La temperatura puede provocar variaciones significativas en los valores de resistencia, por lo tanto se debe permitir la compensación.
3. La importancia de los valores de corte deben tenerse en cuenta dado que el material de alojamiento está sujeto a la presión de corte en la mayor parte del diámetro del agujero roscado.
4. Cuando los valores de resistencia caen entre dos valores en las tablas, se debe optar por el material hacia abajo del valor de corte, o el valor inmediatamente más alto de resistencia a la tensión del tornillo.
5. Para asegurar la máxima resistencia, la longitud del tornillo y de la rosca, así como la profundidad del agujero roscado, deben ser suficientes para asegurar el total roscado de todos los filetes a lo largo de todo el inserto.

Insertos para tornillos autoblocantes o de seguridad

Los insertos de seguridad Power Coil están diseñados para aplicaciones sujetas a los efectos de impacto y vibración cíclica. Los insertos de seguridad ejercen una fuerza de cierre en los hilos de los tornillos para prevenir su perdida debido a vibración o impacto. Eliminan la necesidad de otras opciones, menos deseables y mas costosas de mecanismos de seguridad. Son excelentes en el "ajuste del tornillo" previniendo que el tornillo se desplace de su lugar.

¿Cómo funcionan los insertos de seguridad?

Los insertos de seguridad Power Coil ofrecen una seguridad adicional de cierre al inserto Standard. Esto se consigue gracias a la acción de uno o varios cierres poligonales de las roscas del inserto posicionados a lo largo del mismo, que ejercen presión radial en los flancos de la rosca. En cada vuelta de agarre la rosca de seguridad consta de un número tangencial de roscas que empujan dentro del diámetro menor de la rosca standard.

En la medida en que la rosca pasa a través de estos hilos de seguridad, los dispositivos se expanden aplicando presión radial o freno efectivo en la rosca del tornillo. Al retirar el tornillo roscado, las roscas de seguridad relajan su expansión a su forma original permitiendo repetir el roscado del tornillo y manteniendo su nivel de presión radial de seguridad.

NOTA:

Con los insertos de seguridad Power Coil, se recomienda utilizar solamente tornillos cerrados recubiertos o tornillos lubricados. Cuando se utilicen tornillos no recubiertos o de acero inoxidable, debe utilizarse un compuesto anti–agarre, como por ejemplo, molibdeno disulfuro, que deberá utilizarse para reducir el roce y asegurar el ciclo máximo de vida. La vida de uso de un tornillo o perno usando los insertos de seguridad Power Coil también puede mejorarse al aplicarse una película lubricante seca o terminado en Cadmio.

Ubicación de los filetes autoblocantes o de seguridad

Para longitudes de 1D, 1.5D y 2D veces el diámetro: El centro de la espira poligonal autoblocante debe estar a la mitad del número de espiras del inserto standard. Para las longitudes de 2.5 D y 3D del diámetro: La espira poligonal autoblocante se encuentra a la misma distancia del arrastre que los insertos Standard de 2D de longitud.

Los insertos de seguridad están marcados con rojo para su fácil identificación exclusivamente. Este color es soluble en alcohol y puede quitarse, si se desea.

Recubrimiento en rojo

Los insertos de seguridad Power Coil están generalmente coloreados con una pintura orgánica roja para efectos de identificación. El color no afecta la instalación o el trabajo del inserto y no requiere ser eliminado (en la mayoría de los casos).

En casos en que se requiere extrema claridad (tales como instrumentos de ensamblajes de precisión en condiciones de limpieza) la pintura puede ser eliminada, remojando los insertos en una solución de alcohol desnaturalizado antes de su instalación.

Valores de apriete de los insertos de seguridad PowerCoil

MÉTRICA			MÉTRICA FINA		
Rosca mm x mm	Máximo (Nm)	Mínimo (Nm)	Rosca mm x mm	Máximo (Nm)	Mínimo (Nm)
M2.2x0.45	0.14	0.02	M8.0x1.00	6.00	0.80
M2.5x0.45	0.23	0.05	M10.0x1.00	10.50	1.40
M3.0x0.50	0.45	0.10	M10.0x1.25	10.50	1.40
M3.5x0.60	0.68	0.12	M12.0x1.25	15.50	2.10
M4.0x0.70	0.90	0.15	M12.0x1.50	15.50	2.10
M5.0x0.80	1.60	0.30	M14.0x1.50	23.50	3.00
M6.0x1.00	3.00	0.40	M16.0x1.50	31.50	4.20
M7.0x1.00	4.50	0.60	M18.0x1.50	42.00	5.50
M8.0x1.25	6.00	0.80	M20.0x1.50	54.00	7.00
M10.0x1.50	10.50	1.40	M22.0x1.50	67.50	9.00
M12.0x1.75	15.50	2.10	M18.0x2.00	42.00	5.50
M14.0x2.00	23.50	3.00	M20.0x2.00	54.00	7.00
M16.0x2.00	31.50	4.20	M22.0x2.00	67.50	9.00
M18.0x2.50	42.00	5.50	M24.0x2.00	80.00	10.50
M20.0x2.50	54.00	7.00	M27.0x2.00	94.00	12.00
M22.0x2.50	67.50	9.00	M30.0x2.00	108.00	14.00
M24.0x3.00	80.00	10.50	M33.0x2.00	122.00	15.50
M27.0x3.00	94.00	12.00	M36.0x2.00	136.00	17.50
M30.0x3.50	108.00	14.00	M39.0x2.00	150.00	19.50
M33.0x3.50	122.00	15.50	M36.0x3.00	136.00	17.50
M36.0x4.00	136.00	17.50	M39.0x3.00	150.00	19.50
M39.0x4.00	150.00	19.5			

Los valores de apriete siguen la norma MP3329, MP3330, MP3331

Valores de apriete de los insertos de seguridad PowerCoil

PASO GRUESO AMERICANO UNC			PASO FINO AMERICANO UNF		
Rosca inch x tpi	Máximo (lb in)	Mínimo (lb in)	Rosca inch x tpi	Máximo (lb in)	Mínimo (lb in)
2x56	1.25	0.19	3x56	0.13	0.44
3x48	2.00	0.44	4x48	0.19	0.63
4x40	3.00	0.63	6x40	6.00	1.00
5x40	4.69	0.81	8x36	9.00	1.50
6x32	6.00	1.00	10x32	13.00	2.00
8x32	9.00	1.50	1/4x28	30.00	3.50
10x24	13.00	2.00	5/16x24	60.00	6.50
12x24	24.00	3.00	3/8x24	80.00	9.50
1/4x20	30.00	4.50	7/16x20	100.00	14.00
5/16x18	60.00	7.50	1/2x20	150.00	18.00
3/8x18	80.00	12.00	9/16x18	200.00	24.00
7/16x14	100.00	16.50	5/8x18	300.00	32.00
1/2x13	150.00	24.00	3/4x16	400.00	50.00
9/16x12	200.00	30.00	7/8x14	600.00	70.00
5/8x11	300.00	40.00	1x12	800.00	90.00
3/4x10	400.00	60.00	11/8x12	900.00	117.00
7/8x9	600.00	82.00	11/4x12	1000.00	143.00
1x8	800.00	110.00	13/8x12	1150.00	165.00
11/8x7	900.00	137.00	11/2x12	1350.00	190.00
11/4x7	1000.00	165.00			
13/8x6	1150.00	185.00			
11/2x6	1350.00	210.00			

Los valores de apriete siguen la norma NASM8846

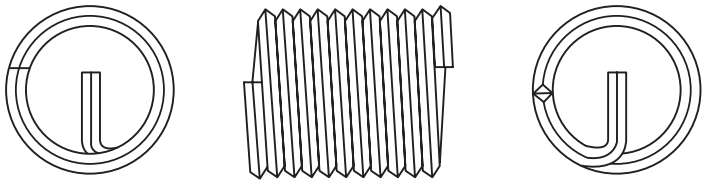
NOTA:

También es esencial que el tornillo se enrosque perfectamente en todos los hilos del inserto para mayor resistencia.

Los insertos de seguridad PowerCoil pueden ser diseñados de conformidad con las necesidades específicas de un cliente. En algunos casos y aplicaciones el apriete común puede ser disminuido o incrementado para una aplicación específica. En estos casos, consulte con nuestra oficina técnica para evaluar sus necesidades especificas.

NOTA:

La instalación de los insertos de seguridad PowerCoil requiere del uso de una herramienta pre-rosca especial. Consulte otras opciones de instalación con nuestro departamento comercial.



Materials

PowerCoil standard inserts are manufactured from fully certified, aircraft quality, 304 (18/8) austenitic stainless steel in accordance with DTD 734A. Alternative materials include 316 stainless steel and a variety of application specific surface coatings.

Alternative Materials

Phosphor Bronze

Non ferrous copper/tin alloy in accordance with BS2783 PB 102 EH – is suitable for operation in temperatures ranging from -200ºC to +300ºC.

Inconel X-750

Heat resisting precipitation hardenable nickel base alloy (equivalent specifications SAE AS 7246, DIN/NF 3018, W.NR 2.4669, UNS N07750). Inconel X-750 is suitable for operation in temperatures ranging from -200ºC to +550º degrees celsius.

Nimonic 90

Heat resisting precipitation hardenable nickel base alloy in accordance with BS2 HR 501 (equivalent specifications W.NR 2.4632, UNS N07090). Nimonic 90 is suitable for operation in temperatures ranging from -100ºC to +650º degrees celsius.

Insert Material	Max. Peak	Tª Continuous	Typical Applications	Coatings
Stainless 304	425ºC 800ºF	315ºC 600ºF	Most general applications in all materials	FL, AG, CD
Stainless 316	425ºC 800ºF	315ºC 600ºF	Increased corrosion resistance for salt water applications	FL, AG, CD
Phosphor Bronze	300ºC 572ºF	235ºC 455ºF	Copper parts, non-magnetic, low permeability applications	AG, CD
Iconel X-750	650ºC 1200ºF	550ºC 1020ºF	Aerospace, turbines, corrosive environments, high temp. use	AG
Nimonic 90	650ºC 1200ºF	550ºC 1020ºF	Aerospace and turbine applications	AG

Alternative Finishes & Coatings

Cadmium Plate

Electro-deposited Cadmium in accordance with DTD 904/Def Stan 03-19 (equivalent specifications FED. QQ-P-416, LN 9368). Cadmium plating provides an excellent barrier between dissimilar metals dramatically reducing the effects of galvanic corrosion, its high lubricity and excellent corrosion resistance prevents seizure and galling between threaded components. Cadmium plate is suitable for operation in temperatures ranging from -200ºC to +235ºC.

Cadmium plated parts must not be

- sujected to temperatures exceeding 235ºC (455ºF)
- come into contact with fuel or hot oil
- come into contact with food or drinking water
- be used with titanium components (either directly or indirectly). At elevated temperatures embrittlement and subsequent component failure may occur.
- Cadmium is highly toxic – consequently extreme care must be taken whenshipping, handling and installing.

Zinc Plate

Electrolytically deposited zinc in accordance with BS 3382. Electro-deposited zinc is the most widely applied electroplated finish in industry. Zinc is suitable for operation in temperatures ranging from -200ºC to +250ºC.

Silver Plate

Electrolytically deposited silver in accordance with DTD 939. Silver plating is used to prevent seizure and galling between thread components in high temperature applications and is most commonly applied to aero-engine fasteners. Silver plate is suitable for operation in temperatures ranging from -200ºC to +650ºC. Silver plated wire inserts may be installed in various materials including aluminium alloys, magnesium alloys, corrosion and heat resistant materials etc.

Silver plated inserts are not recommended for installation in titanium alloy which may exceed a service temperature of 300ºC (570ºF). Stress corrosion as a result of the combination of silver and titanium may occur in the housing material.

Dry Film Lubricant

Solid film heat cured molybdenum disulphide dry film lubricant coating in accordance with MIL-L-0046010 provides a low frictional coefficient coating with excellent load bearing capabilities. Dry film lubricant prevents seizing and galling between threaded components and is particularly effective in screw locking insert applications. Dry film lubricant is suitable for operation in temperatures ranging from -100ºC to +250ºC.

Plating / Finish	Part No. Suffix	Applicable Process Specification
Silver Plating	AG	DTD 939
Cadmium Plating	CD	QQP-416 or DEF STD 03-19
Dry Film Lubricant	FL	MIL-L-8937 or MIL-L-46010
Red Dye	–	Applied to locking inserts for identification purposes*

* other color dyes may also be utilised for specific identification purposes

Selection of Correct Insert Length

PowerCoil wire thread inserts are available in all popular thread types. Five insert lengths are available for each thread size. It is important to select the correct insert length in order to balance the bolt tensile strength against the shear strength of the parent material. The five insert lengths (recommended thread engagement of the PowerCoil wire thread insert), 1D, 1.5D, 2D, 2.5D and 3D are shown in the shaded area of the table below. These are calculated numbers since the inserts cannot be measured in the free (un-installed) state. The numbers are multiples of the nominal thread size, or diameter, of the insert. The actual insert lengths in the installed position are listed in the insert selection tables. There they represent the actual installed length plus 1/2 pitch. Using the table below, an insert length can be selected which will produce a thread system strong enough to fracture a bolt before it will strip or damage either the parent material or the insert.

Recommended Nominal Insert lengths Based on Parent Material Versus Bolt Material Strengths

Unified (source BS7752 Part 1:1994)

Shear Strength of Parent Material (KSI)	Bolt Material Minimum Ultimate Tensile Strength (KSI)								
	54	75	96	108	125	132	160	180	220
10	2.0	2.5	3.0	3.0	–	–	–	–	–
15	1.5	1.5	2.0	2.5	2.5	3.0	–	–	–
20	1.0	1.5	1.5	2.0	2.0	2.0	2.5	3.0	3.0
25	1.0	1.0	1.5	1.5	1.5	2.0	2.0	2.5	2.5
30	1.0	1.0	1.0	1.5	1.5	1.5	2.0	2.0	2.5
40	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	2.0
50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5

EXAMPLE: If parent material shear strength is 10KSI and the bolt tensile strength is 54 KSI, the correct insert length is 2.0 diameters (2D).

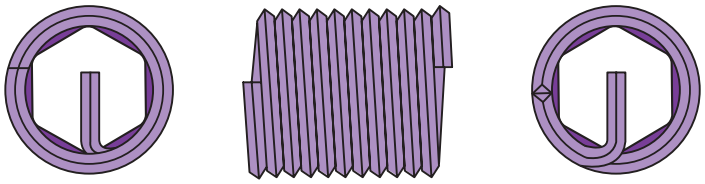
METRIC

Shear Strength of Parent Material (MPa)	Bolt Material Minimum Ultimate Tensile Strength (MPa)							
	300	400	500	600	800	1000	1200	1400
70	1.5	2.0	2.5	2.5	–	–	–	–
100	1.0	1.5	1.5	2.0	2.5	3.0	–	–
150	1.0	1.0	1.5	1.5	2.0	2.0	2.5	3.0
200	1.0	1.0	1.0	1.0	1.5	1.5	2.0	2.5
250	1.0	1.0	1.0	1.0	1.0	1.5	1.5	2.0
300	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5
350	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5

EXAMPLE: If parent material shear strength is 150Mpa and the bolt tensile strength is 600Mpa, the correct insert length is 1.5 diameters (1.5D).

Bolt Projection

PowerCoil wire thread inserts are designed to be used with standard, readily available bolts and screws that require no special hardware.



The bolt must engage the entire insert length to achieve maximum assembly strength. To ensure against partial engagement, it is recommended that the tang always be removed. This will also guarantee that the locking coil(s) will be engaged by the full threads of the bolt. If design parameters prevent this, contact CELESA for assistance.

NOTES:

1. Bolt tensile strengths are specified minimums. When choosing an insert length, consideration should be given the maximum tensile strength allowed by the bolt drawing or procurement specification.
2. Service temperatures can cause significant variations in strengthvalues, therefore compensation should be allowed.
3. The importance of shear values should be kept in mind because the parent material is subject to shear ing stress near the major diameter of the tapped threads.
4. When the strength values fall between two values in the tables, use next lower material shear value, or the next higher bolt tensile strength value.
5. To achieve maximum strength, bolt length and thread length as well as full tapped thread depth must be sufficient to assure full thread engagement over the entire length of the insert.

Screw Locking (Prevailing Torque) Inserts

Screw Locking PowerCoil wire thread inserts are designed for applications subject to the effects of cyclic vibration or impact. The screw locking insert exerts a prevailing torque on male threaded fasteners to prevent loosening due to vibration or impact. They eliminate the need for other, less desirable and costly locking mechanisms. They are excellent in "adjusting screw" applications by preventing the male fastener from creeping.

How Screw Locking Inserts Work

PowerCoil Screw Locking inserts offer the additional security of prevailing locking torque. This is achieved by the action of one or more polygonal grip coils positioned within the insert's length, which exert radial pressure on the male thread. Each grip coil consists of a number of tangential locking chords which protrude inside the minor diameter of the normal free running coils. As the male thread passes through these grip coils, the locking flats are displaced and exert radial pressure (prevailing torque) on the male thread.

On removal of the male thread, the locking coils relax to their original form permitting repeated assembly whilst retaining a measurable level of
prevailing torque.

Please note:

It is recommended that only close fit plated or lubricated bolts or screws are used with screw locking PowerCoil wire thread inserts. When using heat treated unplated or stainless steel bolts, an anti-seize compound, e.g., molybdenum disulfide, must be used in order to minimize galling and assure maximum cycle life. Wear life of screw or bolt using PowerCoil screw locking wire thread inserts can also be improved by specifying dry film lubrication or cadmium plating.

Location of Locking Coils

For 1D, 1.5D, and 2D diameter lengths: The center of the locking coil (or coils) equals 1/2 the number of free coils. For 2.5D and 3D diameter lengths: The locking coil is located the same distance from the tang as 2D length inserts.

Screw locking inserts are dyed red for easy identification purposes only.
It is alcohol soluble and can be removed if desired.

Red Dye Coating

PowerCoil screw locking inserts are generally colour coded with an organic red dye for identification purposes. The dye does not affect the installation or performance of the insert and does not need to be removed (in most situations). In situations requiring extreme cleanliness (such as assembly of precision instruments in clean room conditions) the dye may be removed by soaking the inserts in a denatured alcohol solution prior to installation.

PowerCoil Locking Insert Torque Values

MÉTRIC COARSE			MÉTRIC FINE		
Thread mm x mm	Maximum Torque(Nm)	Minimum Torque(Nm)	Thread mm x mm	Maximum Torque(Nm)	Minimum Torque(Nm)
M2.2x0.45	0.14	0.02	M8.0x1.00	6.00	0.80
M2.5x0.45	0.23	0.05	M10.0x1.00	10.50	1.40
M3.0x0.50	0.45	0.10	M10.0x1.25	10.50	1.40
M3.5x0.60	0.68	0.12	M12.0x1.25	15.50	2.10
M4.0x0.70	0.90	0.15	M12.0x1.50	15.50	2.10
M5.0x0.80	1.60	0.30	M14.0x1.50	23.50	3.00
M6.0x1.00	3.00	0.40	M16.0x1.50	31.50	4.20
M7.0x1.00	4.50	0.60	M18.0x1.50	42.00	5.50
M8.0x1.25	6.00	0.80	M20.0x1.50	54.00	7.00
M10.0x1.50	10.50	1.40	M22.0x1.50	67.50	9.00
M12.0x1.75	15.50	2.10	M18.0x2.00	42.00	5.50
M14.0x2.00	23.50	3.00	M20.0x2.00	54.00	7.00
M16.0x2.00	31.50	4.20	M22.0x2.00	67.50	9.00
M18.0x2.50	42.00	5.50	M24.0x2.00	80.00	10.50
M20.0x2.50	54.00	7.00	M27.0x2.00	94.00	12.00
M22.0x2.50	67.50	9.00	M30.0x2.00	108.00	14.00
M24.0x3.00	80.00	10.50	M33.0x2.00	122.00	15.50
M27.0x3.00	94.00	12.00	M36.0x2.00	136.00	17.50
M30.0x3.50	108.00	14.00	M39.0x2.00	150.00	19.50
M33.0x3.50	122.00	15.50	M36.0x3.00	136.00	17.50
M36.0x4.00	136.00	17.50	M39.0x3.00	150.00	19.50
M39.0x4.00	150.00	19.50			

Locking torque values conform to MP3329, MP3330.

PowerCoil Locking Insert Torque Values

UNIFIED NATIONAL COURSE UNC			UNIFIED NATIONAL COURSE UNF		
Thread inch x tpi	Maximum Torque(lb in)	Minimum Torque(lb in)	Thread inch x tpi	Maximum Torque(lb in)	Minimum Torque(lb in)
2x56	1.25	0.19	3x56	0.13	0.44
3x48	2.00	0.44	4x48	0.19	0.63
4x40	3.00	0.63	6x40	6.00	1.00
5x40	4.69	0.81	8x36	9.00	1.50
6x32	6.00	1.00	10x32	13.00	2.00
8x32	9.00	1.50	1/4x28	30.00	3.50
10x24	13.00	2.00	5/16x24	60.00	6.50
12x24	24.00	3.00	3/8x24	80.00	9.50
1/4x20	30.00	4.50	7/16x20	100.00	14.00
5/16x18	60.00	7.50	1/2x20	150.00	18.00
3/8x18	80.00	12.00	9/16x18	200.00	24.00
7/16x14	100.00	16.50	5/8x18	300.00	32.00
1/2x13	150.00	24.00	3/4x16	400.00	50.00
9/16x12	200.00	30.00	7/8x14	600.00	70.00
5/8x11	300.00	40.00	1x12	800.00	90.00
3/4x10	400.00	60.00	11/8x12	900.00	117.00
7/8x9	600.00	82.00	11/4x12	1000.00	143.00
1x8	800.00	110.00	13/8x12	1150.00	165.00
11/8x7	900.00	137.00	11/2x12	1350.00	190.00
11/4x7	1000.00	165.00			
13/8x6	1150.00	185.00			
11/2x6	1350.00	210.00			

Locking torque values conform to NASM8846

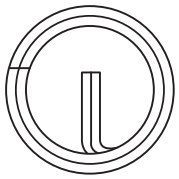
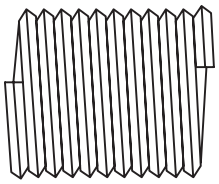
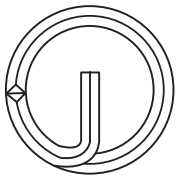
NOTE:

It is also essential that the bolt fully engages all insert coils for maximum strength.

PowerCoil screw locking inserts can be designed to suit a customer's specific needs. In certain instances and appllications prevailing torque can be lessened or increased to cater for a specific application. In these situations please contact your PowerCoil representative to discuss your specific requirements.

PLEASE NOTE:

Installation of PowerCoil screw locking inserts requires the use of a pre-winder tool. Please discuss other installation options with your PowerCoil agent.

Matériaux

Les filets rapportés standard PowerCoil sont fabriqués à partir d'acier inoxydable austénitique 304 (18/8), pleinement certifiés pour l'aéronautique en conformité avec la norme DTD 734A.
Les matériaux alternatifs incluent des aciers inoxydables 316 et une variété d'applications spécifiques pour des surfaces revêtues.

Matériaux alternatifs

Bronze de phosphore:
Alliage en cuivre-étain non ferreux, conformément au BS2783 PB 102 EH, approprié pour un fonctionnement à des températures allant de -200ºC à +300ºC.

Inconel X-750:
Alliage à base de nickel durci résistant aux températures de trempe (spécifications équivalentes SAE AS 7246, DIN/NF 3018, W.NR 2.4669, UNS N07750). L'Inconel X-750 est approprié pour le fonctionnement à des températures allant de -200ºC à +550ºC.

Inconel X-750:
Alliage à base de nickel durci résistant aux températures de trempe (spécifications équivalentes SAE AS 7246, DIN/NF 3018, W.NR 2.4669, UNS N07750). L'Inconel X-750 est approprié pour le fonctionnement à des températures allant de -200ºC à +550ºC.

Nimonic 90
Alliage à base de nickel résistant aux températures élevées conformément au BS2 HR 501 (spécifications équivalentes W.NR 2.4632, UNS N07090). Le Nimonic 90 est approprié pour le fonctionnement à des températures allant de -100ºC à +650ºC

Matière du filet	Températ. Max pic	Températ. Max continue	Applications classiques	Revêtements
Acier inoxydable	425ºC 800ºF	315ºC 600ºF	Applications générales avec tous les matériaux	FL, AG, CD
Acier inoxydable	425ºC 800ºF	315ºC 600ºF	Meilleure résistance à la corrosion pour les applications en eau de mer	FL, AG, CD
Bronze de phosphore	300ºC 572ºF	235ºC 455ºF	Pièces en cuivre, non magnétiques et à faible perméabilité	AG, CD
Inconel X-750	650ºC 1200ºF	550ºC 1020ºF	Aéronautique, turbines, environnements corrosifs, températures élevées	AG
Nimonic 90	650ºC 1200ºF	550ºC 1020ºF	Aéronautique et turbines	AG

Alternatives de finition et revêtements

Finition au cadmium
Cadmium électro-déposé en conformité avec le DTD 904/Def Stan 03-19 (spécifications équivalentes à FED. QQ-P-416, LN 9368). La finition au cadmium fournit une excellente barrière entre des métaux distincts réduisant ainsi de manière très importante les effets de la corrosion galvanique. Sa lubrification élevée et son excellente résistance à la corrosion prévient le frottement entre les composants du taraudage. La finition au cadmium est recommandée pour travailler à des températures allant de -200ºC à +235ºC.

Les pièces plaquées au cadmium ne doivent pas

- être soumises à des températures supérieures à 235ºC (455ºF)
- entrer en contact avec du combustible ou de l'huile chaude
- entrer en contact avec de la nourriture ou de l'eau potable
- être utilisées avec des composants en titane (directement ou indirectement). A des températures élevées, une fragilisation et les dommages qui en résultent peuvent apparaître.
- Le cadmium est hautement toxique ; en conséquence, une attention particulière doit être observée durant le transport, la manipulation et l'installation.

Finition au zinc
Le zinc est déposé électrolytiquement conformément au BS 3382. Le zinc électro-déposé est la finition la plus largement utilisée dans l'industrie. Le zinc est recommandé pour travailler à des températures allant de -200ºC à +250ºC.

Finition en argent
L'argent est déposé électrolytiquement conformément au DTD 939. Le plaquage en argent est utilisé afin de prévenir le frottement entre les composants du filetage qui peut apparaître lors d'applications à des températures élevées et il est le plus largement appliqué pour les vis des moteurs d'avion. La finition en argent est recommandée pour travailler à des températures allant de -200ºC à +650ºC. Les filets rapportés plaqués à l'argent peuvent être utilisés dans divers matériaux incluant les alliages d'aluminium, les alliages de magnésium, les matériaux résistants à la chaleur et à la corrosion...
Les filets rapportés avec une finition argent ne sont pas recommandés pour une pose dans des alliages de titane qui pourraient excéder des températures de 300ºC (570ºF). Une corrosion importante pourrait survenir, résultante de la combinaison argent-titane.

Film de lubrifiant sec
Une pellicule solide résistant à la chaleur, revêtue d'une pellicule de lubrifiant sèche, en conformité avec le MIL-L-0046010, fournit un revêtement avec un faible coefficient de friction et avec d'excellentes capacités de portance. Le film de lubrifiant sec prévient le frottement entre les composants filetés et est particulièrement efficace dans les applications de filets rapportés à frein. Le film de lubrifiant sec est recommandé pour travailler à des températures allant de -100ºC à +250ºC.

Finition	Suffixe du no. de pièce	Spécifications applicables aux processus
Argent	AG	DTD 939
Cadmium	CD	QQP-416 our DEF STD 03-19
Film de lubrifiant sec	FL	MIL-L-8937 or MIL-L-46010
Colorant rouge	–	Appliqué aux filets rapportés à frein pour leur identification*

* des colorants d'autre couleur peuvent être utilisés à des fins d'identification particulière

Sélection de la longueur correcte du filet rapporté

Les filets rapportés PowerCoil sont disponibles pour tous les types de filetages classiques. Cinq longueurs de filets rapportés sont disponibles pour chaque taille de filet. Il est important de sélectionner la longueur correcte de filet rapporté afin d'équilibrer la dureté du matériel de la vis avec la dureté du matériel récepteur. Les cinq longueurs de filet rapporté, 1D, 1.5D, 2D, 2.5D et 3D sont indiquées dans la zone ombragée du tableau ci-dessous. Les valeurs sont préalablement calculées puisque les filets rapportés ne peuvent pas être mesurés à l'état libre (non posés). Les nombres sont des multiples du diamètre nominal du filet rapporté. Les longueurs actuelles du filet rapporté posé sont énumérées dans les tableaux de sélection des filets rapportés. Elles représentent la longueur réelle lorsqu'ils sont posés, plus 1/2 pas. A l'aide du tableau ci-dessous, la longueur du filet rapporté peut être sélectionnée afin de produire un filetage suffisamment résistant permettant que se casse la vis avant d'endommager le matériel récepteur ou le filet rapporté.

Longueur nominale recommandée du filet rapporté basée sur la résistance du matériel récepteur versus longueur de la vis

Unifié (source BS7752 Part 1:1994)

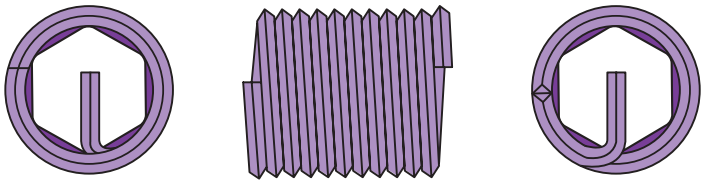
Résistance matériel récepteur (KSI)	Matériel de la vis/résistance à la traction (KSI) - (Livre / Pouce²)								
	54	75	96	108	125	132	160	180	220
10	2.0	2.5	3.0	3.0	–	–	–	–	–
15	1.5	1.5	2.0	2.5	2.5	3.0	–	–	–
20	1.0	1.5	1.5	2.0	2.0	2.0	2.5	3.0	3.0
25	1.0	1.0	1.5	1.5	1.5	2.0	2.0	2.5	2.5
30	1.0	1.0	1.0	1.5	1.5	1.5	2.0	2.0	2.5
40	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	2.0
50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5

EXEMPLE : Si la résistance du matériel récepteur est de 10KSI et la résistance à la traction de la vis de 54 KSI, la longueur correcte du filet rapporté est de 2.0 x diamètre (2D).

MÉTRIQUE

Résistance matériel récepteur (MPa)	Matériel de la vis/résistance à la traction (Mpa)							
	300	400	500	600	800	1000	1200	1400
70	1.5	2.0	2.5	2.5	–	–	–	–
100	1.0	1.5	1.5	2.0	2.5	3.0	–	–
150	1.0	1.0	1.5	1.5	2.0	2.0	2.5	3.0
200	1.0	1.0	1.0	1.0	1.5	1.5	2.0	2.5
250	1.0	1.0	1.0	1.0	1.0	1.5	1.5	2.0
300	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5
350	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5

EXEMPLE : Si la résistance du matériel récepteur est de 150Mpa et la résistance à la traction de la vis de 600Mpa, la longueur correcte du filet rapporté est de 1.5 x diamètre (1.5D).



Projection de la vis

Les filets rapportés PowerCoil sont conçus pour être utilisés avec des vis standards, facilement disponibles qui ne demandent pas de spécificités particulières.
La vis doit s'accoupler sur toute la longueur du filet rapporté pour atteindre la résistance maximale de l'assemblage. Afin d'éviter un accouplage partiel, il est recommandé de toujours casser la languette/tenon d'entraînement. Cela garantira également que les spires de sécurité soient parfaitement en contact avec tous les filets de la vis. Si vous avez besoin de visualiser le design de ce fonctionnement, contactez CELESA, SA pour demander assistance.

REMARQUES :

1. Les résistances spécifiées sont les résistances minimales des vis. Lorsque vous choisissez une longueur de filet rapporté, vous devez prendre en considération la résistance maximale de la vis ou ses spécifications.
2. La température peut provoquer des variations significatives des valeurs de résistance, en conséquence de quoi une marge doit être permise.
3. L'importance des valeurs de cisaillement doit être prise en compte étant donné que le matériel récepteur est sujet à une contrainte de cisaillement sur la majeure partie du diamètre du trou taraudé.
4. Lorsque les valeurs de résistance se trouvent entre deux valeurs du tableau, utilisez la valeur immédiatement inférieure de résistance du matériel, ou la valeur immédiatement supérieure de résistance de la vis.
5. Pour atteindre la résistance maximale, la longueur de la vis et celle du filetage, de même que la profondeur du trou taraudé, doivent être suffisantes pour assurer un accouplage complet de tous les filets sur toute la longueur du filet rapporté.

Filets rapportés à frein

Les filets rapportés PowerCoil à frein sont conçus pour les applications sujettes aux effets causés par les vibrations cycliques ou par les impacts. Les filets rapportés à frein exercent une force de serrage sur les filets des vis afin d'éviter leur perte dûe aux vibrations et aux impacts. Ils éliminent le besoin d'utiliser d'autres mécanismes de sécurité, moins désirables et plus chers. Ils sont excellents lorsqu'ils sont utilisés dans des applications de «réglage de vis » évitant le déplacement de la vis.

Fonctionnement des filets rapportés à frein

Les filets rapportés PowerCoil à frein offrent une sécurité supplémentaire relativement aux filets rapportés standards. Ceci est obtenu grâce à la pression radiale exercée sur les flancs de la vis par une spire à déformation polygonale positionnée sur la longueur du filet rapporté. A mesure que la vis passe à travers les filets, la spire de freinage se déplace et exerce une pression radiale sur les filets de la vis.

Lorsque l'on retire la vis, la spire de freinage reprend sa forme originale, permettant des assemblages répétés tout en conservant un niveau de serrage permanent.

Veuillez noter :

Il est recommandé d'utiliser uniquement des vis lubrifiées ou fermées et revêtues avec les filets rapportés PowerCoil à frein. Si l'on utilise des vis en acier inoxydable ou non revêtues, un lubrifiant anti-friction, comme par exemple du disulfure de molybdène, doit être utilisé afin de minimiser la friction et assurer une durée de vie maximale. La vie utile d'une vis placée dans un filet rapporté à frein PowerCoil peut être augmentée en appliquant un lubrifiant sec ou un revêtement de cadmium.

Emplacement des spires de freinage

Pour les longueurs de diamètre 1D, 1.5D et 2D, le centre de la spire polygonale de freinage est à la moitié du nombre des spires libres. Pour les longueurs de diamètre 2.5D et 3D : la spire de freinage est située à la même distance du tenon que pour les filets rapportés de longueur 2D.

Revêtement de teinture rouge

Les filets rapportés PowerCoil à frein ont généralement un code couleur à l'aide d'un colorant organique à des fins d'identification. Le colorant n'affecte en aucune manière l'installation ou les performances du filet rapporté et il n'est pas nécessaire de l'éliminer (dans la majorité des situations). Dans les situations qui nécessitent une propreté extrême (comme l'assemblage d'instruments de précision dans une pièce propre), le colorant peut être éliminé en immergeant les filets rapportés dans une solution d'alcool dénaturé avant d'être posés.

Valeurs de couple de serrage du Filet rapporté à Frein PowerCoil

MÉTRIQUE			MÉTRIQUE FINE		
mm x mm	Maximum (Nm)	Minimum (Nm)	mm x mm	Maximum (Nm)	Minimum (Nm)
M2.2x0.45	0.14	0.02	M8.0x1.00	6.00	0.80
M2.5x0.45	0.23	0.05	M10.0x1.00	10.50	1.40
M3.0x0.50	0.45	0.10	M10.0x1.25	10.50	1.40
M3.5x0.60	0.68	0.12	M12.0x1.25	15.50	2.10
M4.0x0.70	0.90	0.15	M12.0x1.50	15.50	2.10
M5.0x0.80	1.60	0.30	M14.0x1.50	23.50	3.00
M6.0x1.00	3.00	0.40	M16.0x1.50	31.50	4.20
M7.0x1.00	4.50	0.60	M18.0x1.50	42.00	5.50
M8.0x1.25	6.00	0.80	M20.0x1.50	54.00	7.00
M10.0x1.50	10.50	1.40	M22.0x1.50	67.50	9.00
M12.0x1.75	15.50	2.10	M18.0x2.00	42.00	5.50
M14.0x2.00	23.50	3.00	M20.0x2.00	54.00	7.00
M16.0x2.00	31.50	4.20	M22.0x2.00	67.50	9.00
M18.0x2.50	42.00	5.50	M24.0x2.00	80.00	10.50
M20.0x2.50	54.00	7.00	M27.0x2.00	94.00	12.00
M22.0x2.50	67.50	9.00	M30.0x2.00	108.00	14.00
M24.0x3.00	80.00	10.50	M33.0x2.00	122.00	15.50
M27.0x3.00	94.00	12.00	M36.0x2.00	136.00	17.50
M30.0x3.50	108.00	14.00	M39.0x2.00	150.00	19.50
M33.0x3.50	122.00	15.50	M36.0x3.00	136.00	17.50
M36.0x4.00	136.00	17.50	M39.0x3.00	150.00	19.50
M39.0x4.00	150.00	19.50			

Valeurs du couple de freinage en conformité avec MP3329, MP3330, MP3331

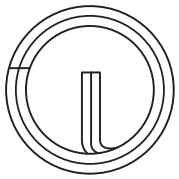
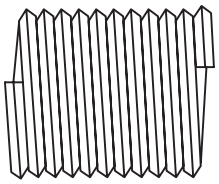
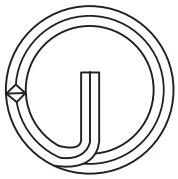
Valeurs de couple de serrage du la norme Filet rapporté à Frein PowerCoil

UNC			UNF		
inch x tpi	Maximum (lb in)	Minimum (lb in)	inch x tpi	Maximum (lb in)	Minimum (lb in)
2x56	1.25	0.19	3x56	0.13	0.44
3x48	2.00	0.44	4x48	0.19	0.63
4x40	3.00	0.63	6x40	6.00	1.00
5x40	4.69	0.81	8x36	9.00	1.50
6x32	6.00	1.00	10x32	13.00	2.00
8x32	9.00	1.50	1/4x28	30.00	3.50
10x24	13.00	2.00	5/16x24	60.00	6.50
12x24	24.00	3.00	3/8x24	80.00	9.50
1/4x20	30.00	4.50	7/16x20	100.00	14.00
5/16x18	60.00	7.50	1/2x20	150.00	18.00
3/8x18	80.00	12.00	9/16x18	200.00	24.00
7/16x14	100.00	16.50	5/8x18	300.00	32.00
1/2x13	150.00	24.00	3/4x16	400.00	50.00
9/16x12	200.00	30.00	7/8x14	600.00	70.00
5/8x11	300.00	40.00	1x12	800.00	90.00
3/4x10	400.00	60.00	11/8x12	900.00	117.00
7/8x9	600.00	82.00	11/4x12	1000.00	143.00
1x8	800.00	110.00	13/8x12	1150.00	165.00
11/8x7	900.00	137.00	11/2x12	1350.00	190.00
11/4x7	1000.00	165.00			
13/8x6	1150.00	185.00			
11/2x6	1350.00	210.00			

Valeurs du couple de freinage en conformité avec la norme NASM8846

REMARQUE :
Il est essentiel que la vis soit complètement accouplée avec toutes les spires du filet rapporté pour assurer une résistance maximale.
Les filets rapportés à frein PowerCoil peuvent être conçus pour répondre aux besoins particuliers du client. Dans certains cas, le couple de serrage peut être diminué ou augmenté afin de répondre aux besoins d'une application spécifique. Dans ce cas, veuillez contacter CELESA, SA pour évaluer vos besoins particuliers.

REMARQUE:
L'installation des filets rapportés à frein PowerCoil exige l'utilisation d'un outil spécial. Veuillez discuter des autres options d'installation avec le département commercial de CELESA, SA.

Materiais

Os insertos livres Power Coil são fabricados em aço inoxidável austenítico 304 (18/8) e certificados de acordo com as normas de conformidade aeroespacial DTD 734 A. Os materiais alternativos incluem aços inoxidáveis, como AISI 3160 ou Inconel e uma variedade de aplicações específicas para superfícies revestidas.

Materiais alternativos

Fósforo Bronze

Liga de cobre de estanho não ferroso de acordo com a BS2783 PB 102 E4 - é adequado para trabalhar a temperaturas entre -200º C a + 300º

Inconel X-750

Liga de níquel resistente a temperaturas de têmpera (especificações equivalentes SAE AS 7246, DIN / NF3018 W.NR 2.4669, UNS N07750). O Inconel X-750 é recomendado para o intervalo de temperaturas de -200º.C a + 550º. Celsius

Nimonic 90

A liga base de níquel é resistente à temperatura de têmpera de acordo com BS2 HR 501 (especificações equivalentes W.NR 2.4632, UNS N07090).

O Nimonic 90 é recomendado para trabalhar a temperaturas entre - 100º.C a + 650º.Celsius.

Material do inserto	Tª Máxima	Máxima Continua	Aplicações típicas	Revestimentos
AISI 304	425ºC 800ºF	315ºC 600ºF	Aplicações gerais Para todos os materiais	FL, AG, CD
AISI 316	425ºC 800ºF	315ºC 600ºF	Aumenta a resistência à corrosão, para aplicações em água salgada	FL, AG, CD
Fósforo Bronce	300ºC 572ºF	235ºC 455ºF	Material de cobre não magnético, aplicações de baixa permeabilidade.	AG, CD
Inconel X-750	650ºC 1200ºF	550ºC 1020ºF	Aeroespacial, turbinas ambientes corrosivos, Uso em altas temperaturas	AG
Nimonic 90	650ºC 1200ºF	550ºC 1020ºF	Aeroespacial e aplicações em turbinas	AG

Alternativas de acabamento e revestimento

Acabamento Cádmio

Cádmio eletrodepositado de acordo com a DTD905 / Def. Stan 03-19 especificações equivalentes FED, QQ-P416, LN 9368) O acabamento cádmio proporciona uma excelente barreira entre metais diferentes reduzindo drasticamente os efeitos da corrosão galvânica, a sua alta lubricidade e excelente resistência à corrosão evitam o atrito e a sobremedição entre os componentes da rosca. O acabamento cádmio é recomendado para trabalhar na faixa de temperatura de -200ºC a + 235ºC

As partes terminadas em cádmio não devem

- Submeterse a temperaturas acima de 235ºC (455ºF).
- Entrar em contato com óleo quente ou combustível.
- Entrar em contato com alimentos ou água potável.
- Ser usadas com componentes de titânio (direta ou indiretamente).

Em altas temperaturas, podem acontecer resquebrajamentos ou defeitos nos componentes.

- O cádmio é altamente tóxico - conseqüentemente, devem ser tomadas precauções cuidadosas ao manipular e instalar.

Acabamento Zinco

O zinco é depositado eletrolíticamente de acordo com a BS3382. O zinco electrodepositado é o acabamento mais aplicado na indústria. O zinco é recomendado para trabalhar na faixa de temperaturas de -200ºC a + 250ºC.

Acabamento Prata

A prata é depositada eletrolíticamente de acordo com a DTD939. O acabamento prata é usado para evitar o atrito ou sobremedição entre os componentes da rosca quando é usado em altas temperaturas e é o mais comumente usado nos parafusos para motores de aviação. O acabamento prata é recomendado para trabalhar a temperaturas na faixa de -200ºC a + 650ºC. Os insertos terminados em prata podem ser usadas com vários materiais incluindo as ligas de alumínio, as ligas de magnésio, os materiais resistentes ao calor e à corrosão, etc.

Os insertos terminados em prata não são recomendadas para a instalação em ligas de titânio que podam exceder temperaturas de 300ºC (570ºF). Uma alta corrosão como resultado da combinação da prata e o titânio pode ocorrer no alojamento.

Camada lubrificante seca

Uma camada sólida resistente ao calor, revestida com uma camada lubrificante seca de acordo com a MIL-L-0046010 fornece um revestimento com baixo coeficiente de fricção com excelente capacidade de suporte de carga. A camada lubrificante seca evita o atrito e a sobremedição entre os componentes roscados e é particularmente eficaz na aplicação dos insertos de segurança. A pelicula lubrificante seca é recomendada para operar na faixa de temperatura de -100ºC a +250ºC.

Acabamento Revestimento de prata	Sufixo de Nº de parte AG	Especificações aos processos aplicáveis DTD 939
Acabamento de Cádmio	CD	QQP-416 ou DEF STD 03-19
Camada lubrificante seca	FL	MIL-L-8937 ou MIL-L-46010
Pintado vermelho	–	Aplicado aos insertos de segurança para efeitos de identificação *

* Outras cores de pintado podem ser usadas para efeitos de identificação específica.

Seleção do comprimento correto do inserto

Os insertos de rosca PowerCoil estão disponíveis em todos os tipos de roscas comuns. Há cinco comprimentos disponíveis para cada medida. É muito importante selecionar o comprimento correto do inserto com o efeito de equilibrar a dureza do material do parafuso com a dureza do material do alojamento. Os cinco comprimentos de insertos, 1D, 1.5D, 2D, 2.5D e 3D são mostrados na área sombreada na tabela abaixo.

Os números são previamente calculados uma vez que os insertos não podem ser medidos em estado livre (não instalado). Os números são múltiplos do tamanho de rosca nominal ou diâmetro do inserto.

Os comprimentos atuais do inserto na posição instalada estão listados nas tabelas de seleção de insertos. Lá, apresenta-se o comprimento atual instalado mais meio (1/2) passo. Usando a seguinte tabela o comprimento dum inserto pode ser selecionado para obter um sistema suficientemente resistente para quebrar um parafuso antes de danificar o inserto ou o material do alojamento.

Comprimento nominal recomendado dos insertos baseado no material do alojamento vs. comprimento do parafuso

Unificado (fonte BS7752 Parte 1:1994)

Resistência nos Materiais de Alojamento (KSI)	Material do parafuso Força de tensão (KSI) - (Lib / pulg²)								
	54	75	96	108	125	132	160	180	220
10	2.0	2.5	3.0	3.0	–	–	–	–	–
15	1.5	1.5	2.0	2.5	2.5	3.0	–	–	–
20	1.0	1.5	1.5	2.0	2.0	2.0	2.5	3.0	3.0
25	1.0	1.0	1.5	1.5	1.5	2.0	2.0	2.5	2.5
30	1.0	1.0	1.0	1.5	1.5	1.5	2.0	2.0	2.5
40	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	2.0
50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5

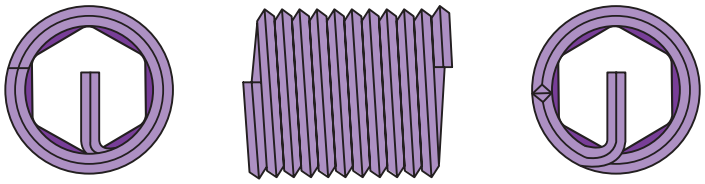
EXEMPLO: Se o material do alojamento é 10KS1 e a tensão do parafuso é 54KSI, o comprimento certo do inserto é de 2,0 de diâmetro (2D).

MÉTRICO

Resistência nos Materiais de Alojamento (MPa)	Material do parafuso Força de tensão (MPa)							
	300	400	500	600	800	1000	1200	1400
70	1.5	2.0	2.5	2.5	–	–	–	–
100	1.0	1.5	1.5	2.0	2.5	3.0	–	–
150	1.0	1.0	1.5	1.5	2.0	2.0	2.5	3.0
200	1.0	1.0	1.0	1.0	1.5	1.5	2.0	2.5
250	1.0	1.0	1.0	1.0	1.0	1.5	1.5	2.0
300	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5
350	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5

EXEMPLO: Se o material do alojamento é 150 Mpa e a tensão do parafuso é 500Mpa, o comprimento certo correto do inserto é de 1,5 de diâmetro (1,5 D)

NOTA: Pa: 6894'75 psi / Pa: 6'89 Ksi



Projeção do parafuso

Os insertos PowerCoil estão desenhados para serem usados com parafusos Standard disponíveis e que não requerem especificações especiais.

O parafuso deve ser roscado ao longo de toda a superficie do inserto para garantir a máxima firmeza da união.

Para garantir a roscagem total, recomenda-se sempre cortar o arrasto do final. Isto garantirá que as roscas de segurança rosquem em todos os fios do parafuso. Se você precisa ver o desenho de como é feito, entre em contato com a CELESA para obter assistência.

NOTAS:

1. As resistências mínimas do parafuso são especificadas. Quando o comprimento do inserto é escolhido, deve ser dada atenção à resistência máxima permitida pelo parafuso ou as suas especificações.
2. A temperatura pode causar variações significativas nos valores da resistência, portanto, a compensação deve ser permitida.
3. A importância dos valores de corte deve ser levada em consideração, uma vez que o material do alojamento está sujeito à pressão de corte na maior parte do diâmetro do furo roscado.
4. Quando os valores de resistência caem entre dois valores nas tabelas, você deve escolher o material abaixo do valor de corte, ou o valor imediatamente maior de resistência à tensão do parafuso.
5. Para garantir a máxima resistência, o comprimento do parafuso e da rosca, bem como a profundidade do furo roscado, devem ser suficientes para garantir o rosqueamento total de todos os filetes ao longo do inserto inteiro.

Insertos para parafusos auto-bloqueadores ou de segurança

Os insertos de segurança PowerCoil estão desenhados para as aplicações sujeitas aos efeitos do impacto e a vibração cíclica. Os insertos de segurança exercem uma força de fecho nos fios dos parafusos para prever a perda por vibração ou impacto. Eliminam a necessidade de outras opções menos desejáveis e mais caras de mecanismos de segurança. Eles são excelentes no "Ajuste do parafuso" impedindo que o parafuso se mova do seu lugar

Como funcionam os insertos de segurança?

Os insertos de segurança PowerCoil oferecem uma segurança de fechamento adicional ao inserto Standard.

Isto é conseguido graças à ação dum ou vários fechos poligonais das roscas do inserto posicionados ao longo dele, que exercem pressão radial nos flancos da rosca. Em cada volta de aperto, a rosca de segurança consiste num número tangencial de roscas que empurram dentro do diâmetro menor da rosca Standard.

Na medida em que a rosca passa por esses fios de segurança, os dispositivos se expandem aplicando pressão radial ou freio efetivo na rosca do parafuso. Ao remover o parafuso roscado, as roscas de segurança relaxam a sua expansão para a sua forma original, permitindo repetir a roscagem do parafuso e mantendo o seu nível de pressão radial de segurança.

NOTA:

Com os insertos de segurança PowerCoil, recomenda-se usar apenas parafusos fechados revestidos ou parafusos lubrificados. Ao usar parafusos não revestidos ou de aço inoxidável, deve utilizar um composto anti-fixação, como o dissulfureto de molibdênio, devera ser usado, para reduzir o atrito e garantir o ciclo de vida máximo. A vida de uso dum parafuso ou perno usando os insertos de segurança PowerCoil também podem ser melhorados aplicando um camada de lubrificante seco ou com acabamento em cádmio.

Localização dos filetes auto-bloqueadores ou de segurança

Para comprimentos de 1D, 1,5D e 2D vezes o diâmetro: O centro da espira poligonal auto-bloqueadora deve ser à metade do número de espiras do inserto Standard. Para os comprimentos de 2,5 D e 3D do diâmetro: a espira poligonal auto-bloqueadora está à mesma distância do arrasto do que os insertos Standard de comprimento 2D.

Os insertos de segurança são marcadas com vermelho apenas para a sua facil identificação. Esta cor é solúvel em álcool e pode ser removida, se desejado.

Revestimento em vermelho

Os insertos de segurança PowerCoil geralmente são coloridos com uma tinta orgânica vermelha para efeitos de identificação. A cor não afeta à instalação ou ao trabalho do inserto e não requer ser eliminada (na maioria dos casos).

Nos casos em que seja necessária clareza extrema (como instrumentos de montagem de precisão em condições de limpeza) a tinta pode ser removida, embebendo os insertos numa solução de álcool desnaturado antes da sua instalação.

Valores de aperto dos insertos de segurança PowerCoil

MÉTRICA			MÉTRICA FINA		
Rosca mm x mm	Máximo (Nm)	Mínimo (Nm)	Rosca mm x mm	Máximo (Nm)	Mínimo (Nm)
M2.2x0.45	0.14	0.02	M8.0x1.00	6.00	0.80
M2.5x0.45	0.23	0.05	M10.0x1.00	10.50	1.40
M3.0x0.50	0.45	0.10	M10.0x1.25	10.50	1.40
M3.5x0.60	0.68	0.12	M12.0x1.25	15.50	2.10
M4.0x0.70	0.90	0.15	M12.0x1.50	15.50	2.10
M5.0x0.80	1.60	0.30	M14.0x1.50	23.50	3.00
M6.0x1.00	3.00	0.40	M16.0x1.50	31.50	4.20
M7.0x1.00	4.50	0.60	M18.0x1.50	42.00	5.50
M8.0x1.25	6.00	0.80	M20.0x1.50	54.00	7.00
M10.0x1.50	10.50	1.40	M22.0x1.50	67.50	9.00
M12.0x1.75	15.50	2.10	M18.0x2.00	42.00	5.50
M14.0x2.00	23.50	3.00	M20.0x2.00	54.00	7.00
M16.0x2.00	31.50	4.20	M22.0x2.00	67.50	9.00
M18.0x2.50	42.00	5.50	M24.0x2.00	80.00	10.50
M20.0x2.50	54.00	7.00	M27.0x2.00	94.00	12.00
M22.0x2.50	67.50	9.00	M30.0x2.00	108.00	14.00
M24.0x3.00	80.00	10.50	M33.0x2.00	122.00	15.50
M27.0x3.00	94.00	12.00	M36.0x2.00	136.00	17.50
M30.0x3.50	108.00	14.00	M39.0x2.00	150.00	19.50
M33.0x3.50	122.00	15.50	M36.0x3.00	136.00	17.50
M36.0x4.00	136.00	17.50	M39.0x3.00	150.00	19.50
M39.0x4.00	150.00	19.5			

Os valores de aperto seguem a norma MP3329, MP3330, MP3331

Valores de aperto dos insertos de segurança PowerCoil

PASSO GROSSEIRO AMERICANO UNC			PASSO FINO AMERICANO UNF		
Rosca inch x tpi	Máximo (lb in)	Mínimo (lb in)	Rosca inch x tpi	Máximo (lb in)	Mínimo (lb in)
2x56	1.25	0.19	3x56	0.13	0.44
3x48	2.00	0.44	4x48	0.19	0.63
4x40	3.00	0.63	6x40	6.00	1.00
5x40	4.69	0.81	8x36	9.00	1.50
6x32	6.00	1.00	10x32	13.00	2.00
8x32	9.00	1.50	1/4x28	30.00	3.50
10x24	13.00	2.00	5/16x24	60.00	6.50
12x24	24.00	3.00	3/8x24	80.00	9.50
1/4x20	30.00	4.50	7/16x20	100.00	14.00
5/16x18	60.00	7.50	1/2x20	150.00	18.00
3/8x18	80.00	12.00	9/16x18	200.00	24.00
7/16x14	100.00	16.50	5/8x18	300.00	32.00
1/2x13	150.00	24.00	3/4x16	400.00	50.00
9/16x12	200.00	30.00	7/8x14	600.00	70.00
5/8x11	300.00	40.00	1x12	800.00	90.00
3/4x10	400.00	60.00	11/8x12	900.00	117.00
7/8x9	600.00	82.00	11/4x12	1000.00	143.00
1x8	800.00	110.00	13/8x12	1150.00	165.00
11/8x7	900.00	137.00	11/2x12	1350.00	190.00
11/4x7	1000.00	165.00			
13/8x6	1150.00	185.00			
11/2x6	1350.00	210.00			

Os valores de aperto seguem a norma NASM8846

NOTA:

Também é essencial que o parafuso seja aparafusado perfeitamente em todos os fios do inserto para maior resistência.

Os insertos de segurança PowerCoil podem ser desenhados de acordo com as necessidades específicas dum cliente. Em alguns casos e aplicações, o aperto comum pode ser diminuído ou aumentado para uma aplicação específica. Nestes casos, consulte com o nosso escritório técnico para avaliar as suas necessidades específicas.

NOTA:

A instalação dos insertos de segurança PowerCoil requer o uso de uma ferramenta pré-rosca especial. Consulte outras opções de instalação com o nosso departamento comercial.

powercoil
M/MF

FREE | M/MF | AISI 304 | BS7752 DIN8140 | NASM3279 NASM3280 NASM3281 LN9039 | ...D

			1.0D				1.5D				2.0D			
			mm	€			mm	€			mm	€		
M/MF	Ref.	ø	L	<500	500-999	1000-...	L	<500	500-999	1000-...	L	<500	500-999	1000-...
M 2 x 0.40	3520-2.00	2.10	2.00	0,43	0,40	0,38	3.00	0,44	0,42	0,39	4.00	0,45	0,44	0,43
M 2.20 x 0.45	3520-2.20	2.30	2.20	0,43	0,40	0,38	3.30	0,44	0,42	0,39	4.40	0,45	0,44	0,43
M 2.50 x 0.45	3520-2.50	2.60	2.50	0,25	0,22	0,20	3.75	0,26	0,23	0,21	5.00	0,29	0,26	0,24
M 3 x 0.50	3520-3.00	3.20	3.00	0,25	0,22	0,20	4.50	0,26	0,23	0,21	6.00	0,29	0,24	0,22
M 3.50 x 0.60	3520-3.50	3.70	3.50	0,29	0,26	0,24	5.25	0,30	0,28	0,26	7.00	0,33	0,30	0,28
M 4 x 0.70	3520-4.00	4.20	4.00	0,24	0,20	0,19	6.00	0,25	0,22	0,20	8.00	0,29	0,24	0,22
M 5 x 0.80	3520-5.00	5.20	5.00	0,29	0,24	0,22	7.50	0,24	0,23	0,21	10.00	0,33	0,27	0,25
M 6 x 1.00	3520-6.00	6.30	6.00	0,30	0,25	0,23	9.00	0,25	0,23	0,22	12.00	0,37	0,33	0,30
M 7 x 1.00	3520-7.00	7.30	7.00	0,34	0,30	0,28	10.50	0,40	0,34	0,31	14.00	0,45	0,39	0,36
M 8 x 1.00	3521-8.00	8.30	8.00	0,35	0,33	0,30	12.00	0,37	0,35	0,31	16.00	0,47	0,40	0,37
M 8 x 1.25	3520-8.00	8.30	8.00	0,30	0,27	0,25	12.00	0,33	0,28	0,26	16.00	0,45	0,37	0,34
M 9 x 1.25	3520-9.00	9.40	9.00	0,45	0,40	0,38	13.50	0,56	0,52	0,47	18.00	0,59	0,53	0,48
M 10 x 1.00	3523-10.00	10.30	10.00	0,39	0,35	0,32	15.00	0,45	0,39	0,36	20.00	0,52	0,45	0,41
M 10 x 1.25	3521-10.00	10.30	10.00	0,39	0,34	0,31	15.00	0,45	0,39	0,36	20.00	0,52	0,48	0,44
M 10 x 1.50	3520-10.00	10.40	10.00	0,39	0,33	0,30	15.00	0,45	0,37	0,34	20.00	0,52	0,44	0,40
M 11 x 1.00	3523-11.00	11.30	11.00	0,52	0,46	0,42	16.50	0,78	0,70	0,65	22.00	1,07	0,96	0,88
M 11 x 1.25	3521-11.00	11.30	11.00	0,52	0,46	0,42	16.50	0,65	0,63	0,58	22.00	1,07	0,96	0,90
M 11 x 1.50	3520-11.00	11.40	11.00	0,67	0,54	0,50	16.50	0,76	0,64	0,59	22.00	0,79	0,70	0,65
M 12 x 1.00	3524-12.00	12.30	12.00	0,55	0,53	0,50	18.00	0,66	0,65	0,63	24.00	1,08	1,03	0,94
M 12 x 1.25	3523-12.00	12.30	12.00	0,55	0,47	0,43	18.00	0,66	0,53	0,48	24.00	0,77	0,70	0,65
M 12 x 1.50	3521-12.00	12.40	12.00	0,55	0,47	0,43	18.00	0,66	0,48	0,44	24.00	0,77	0,70	0,65
M 12 x 1.75	3520-12.00	12.50	12.00	0,55	0,46	0,42	18.00	0,66	0,57	0,53	24.00	0,77	0,66	0,61
M 13 x 1.25	3523-13.00	13.25	13.00	0,82	0,76	0,70	19.50	1,25	1,17	1,08	26.00	1,69	1,56	1,43
M 13 x 1.50	3521-13.00	13.25	13.00	0,82	0,76	0,70	19.50	1,25	1,17	1,08	26.00	1,69	1,56	1,43
M 13 x 1.75	3520-13.00	13.50	13.00	0,82	0,76	0,70	19.50	1,25	1,17	1,08	26.00	1,69	1,56	1,43
M 14 x 1.00	3524-14.00	14.25	14.00	1,02	0,99	0,96	21.00	1,06	1,02	0,97	28.00	1,21	1,17	1,10
M 14 x 1.25	3523-14.00	14.25	14.00	0,85	0,78	0,72	21.00	0,97	0,84	0,77	28.00	1,02	0,95	0,87
M 14 x 1.50	3521-14.00	14.50	14.00	0,85	0,74	0,68	21.00	0,97	0,80	0,74	28.00	1,02	0,99	0,91
M 14 x 2.00	3520-14.00	14.50	14.00	0,85	0,70	0,65	21.00	0,97	0,88	0,81	28.00	1,02	0,97	0,90

INSERTO A IZQUIERDA
LEFT HAND THREAD INSERT
FILET RAPPORTÉ À GAUCHE
INSERTO A ESQUERDAS

M/MF	Ref.	ø	1.5D mm	1.5D €	Ref.	€
M 3 x 0.50	3520-3.00x1.5D-LH	3.20	4.50	**3,92**	3520-3.00I-LH	**23,40**
M 4 x 0.70	3520-4.00x1.5D-LH	4.20	6.00	**3,92**	3520-4.00I-LH	**23,40**
M 5 x 0.80	3520-5.00x1.5D-LH	5.20	7.50	**3,92**	3520-5.00I-LH	**23,40**
M 6 x 1.00	3520-6.00x1.5D-LH	6.30	9.00	**2,70**	3520-6.00I-LH	**23,40**
M 8 x 1.25	3520-8.00x1.5D-LH	8.30	12.00	**2,70**	3520-8.00I-LH	**29,15**
M 10 x 1.50	3520-10.00x1.5D-LH	10.40	15.00	**3,60**	3520-10.00I-LH	**35,72**
M 12 x 1.75	3520-12.00x1.5D-LH	12.50	18.00	**5,40**	3520-12.00I-LH	**40,43**

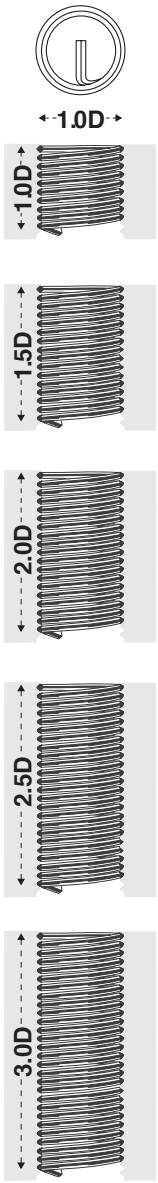
FREE | M/MF | AISI 304 | BS7752 DIN8140 | NASM3279 NASM3280 NASM3281 LN9039 | ...D

powercoil® M/MF

powercoil® by celesa

M/MF	Ref.	ø	L	2.5D mm	2.5D € <500	2.5D € 500-999	2.5D € 1000-...	L	3.0D mm	3.0D € <500	3.0D € 500-999	3.0D € 1000-...	
M 2 x 0.40	3520-2.00	2.10	5.00	**0,50**	**0,47**	**0,45**	6.00	**0,55**	**0,53**	**0,50**			
M 2.20 x 0.45	3520-2.20	2.30	5.50	**0,50**	**0,47**	**0,45**	6.60	**0,55**	**0,53**	**0,50**			
M 2.50 x 0.45	3520-2.50	2.60	6.25	**0,34**	**0,30**	**0,28**	7.50	**0,40**	**0,35**	**0,32**			
M 3 x 0.50	3520-3.00	3.20	7.50	**0,34**	**0,30**	**0,28**	9.00	**0,40**	**0,35**	**0,32**			
M 3.50 x 0.60	3520-3.50	3.70	8.75	**0,37**	**0,34**	**0,31**	10.50	**0,45**	**0,42**	**0,38**			
M 4 x 0.70	3520-4.00	4.20	10.00	**0,34**	**0,30**	**0,28**	12.00	**0,37**	**0,33**	**0,30**			
M 5 x 0.80	3520-5.00	5.20	12.50	**0,39**	**0,33**	**0,30**	15.00	**0,46**	**0,39**	**0,36**			
M 6 x 1.00	3520-6.00	6.30	15.00	**0,45**	**0,42**	**0,38**	18.00	**0,55**	**0,48**	**0,44**			
M 7 x 1.00	3520-7.00	7.30	17.50	**0,54**	**0,48**	**0,44**	21.00	**0,64**	**0,62**	**0,57**			
M 8 x 1.00	3521-8.00	8.30	20.00	**0,56**	**0,52**	**0,47**	24.00	**0,68**	**0,65**	**0,60**			
M 8 x 1.25	3520-8.00	8.30	20.00	**0,54**	**0,48**	**0,44**	24.00	**0,64**	**0,57**	**0,53**			
M 9 x 1.25	3520-9.00	9.40	22.50	**0,65**	**0,59**	**0,57**	27.00	**0,77**	**0,74**	**0,71**			
M 10 x 1.00	3523-10.00	10.30	25.00	**0,62**	**0,56**	**0,52**	30.00	**0,75**	**0,68**	**0,63**			
M 10 x 1.25	3521-10.00	10.30	25.00	**0,62**	**0,58**	**0,55**	30.00	**0,75**	**0,73**	**0,68**			
M 10 x 1.50	3520-10.00	10.40	25.00	**0,62**	**0,55**	**0,51**	30.00	**0,75**	**0,66**	**0,61**			
M 11 x 1.00	3523-11.00	11.30	27.50	**1,43**	**1,36**	**1,28**	33.00	**1,76**	**1,68**	**1,57**			
M 11 x 1.25	3521-11.00	11.30	27.50	**1,43**	**1,36**	**1,28**	33.00	**1,76**	**1,68**	**1,57**			
M 11 x 1.50	3520-11.00	11.40	27.50	**0,98**	**0,90**	**0,83**	33.00	**1,16**	**1,12**	**1,07**			
M 12 x 1.00	3524-12.00	12.30	30.00	**1,36**	**1,32**	**1,26**	36.00	**1,66**	**1,59**	**1,47**			
M 12 x 1.25	3523-12.00	12.30	30.00	**0,90**	**0,88**	**0,84**	36.00	**1,10**	**1,04**	**0,97**			
M 12 x 1.50	3521-12.00	12.40	30.00	**0,90**	**0,88**	**0,84**	36.00	**1,26**	**1,04**	**0,97**			
M 12 x 1.75	3520-12.00	12.50	30.00	**0,90**	**0,87**	**0,79**	36.00	**1,16**	**1,09**	**1,04**			
M 13 x 1.25	3523-13.00	13.25	32.50	**2,28**	**2,10**	**1,94**	39.00	**2,62**	**2,42**	**2,23**			
M 13 x 1.50	3521-13.00	13.25	32.50	**2,28**	**2,10**	**1,94**	39.00	**2,62**	**2,42**	**2,23**			
M 13 x 1.75	3520-13.00	13.50	32.50	**2,28**	**2,10**	**1,94**	39.00	**2,62**	**2,42**	**2,23**			
M 14 x 1.00	3524-14.00	14.25	35.00	**1,46**	**1,39**	**1,28**	42.00	**1,90**	**1,60**	**1,48**			
M 14 x 1.25	3523-14.00	14.25	35.00	**1,20**	**1,14**	**1,05**	42.00	**1,47**	**1,29**	**1,19**			
M 14 x 1.50	3521-14.00	14.50	35.00	**1,20**	**1,13**	**1,04**	42.00	**1,47**	**1,35**	**1,24**			
M 14 x 2.00	3520-14.00	14.50	35.00	**1,20**	**1,16**	**1,13**	42.00	**1,47**	**1,40**	**1,29**			

100	
50	



AISI 316

M/MF	Ref.	ø	L 1.5D mm	L 1.5D €
M 3 x 0.50	3520-3.00x1.5DY	3.20	4.50	**2,02**
M 4 x 0.70	3520-4.00x1.5DY	4.20	6.00	**2,12**
M 5 x 0.80	3520-5.00x1.5DY	5.20	7.50	**2,19**
M 6 x 1.00	3520-6.00x1.5DY	6.30	9.00	**2,23**
M 8 x 1.25	3520-8.00x1.5DY	8.30	12.00	**2,69**
M 10 x 1.50	3520-10.00x1.5DY	10.40	15.00	**2,78**
M 12 x 1.75	3520-12.00x1.5DY	12.50	18.00	**3,02**

X.XD

Ejemplo de codificación: INSERTO LIBRE
Coding example: THREAD INSERT
Exemple de codification: FILET RAPPORTÉ
Exemplo de codificação: INSERTO LIVRE

	1.0D	1.5D
M 6 x 1.00	3520-6.00x1.0D	3520-6.00x1.5D

powercoil
M/MF

FREE | M/MF | AISI 304 | BS7752 DIN8140 | NASM3279 NASM3280 NASM3281 LN9039 | ...D

M/MF	Ref.	ø	L 1.0D mm	L 1.0D € <100	L 1.0D € 100-500	L 1.5D mm	L 1.5D € <100	L 1.5D € 100-500	L 2.0D mm	L 2.0D € <100	L 2.0D € 100-500	
M 15 x 1.50	3521-15.00	15.25	15.00	1,36	1,13	22.50	1,75	1,44	30.00	2,20	1,84	50
M 15 x 2.00	3520-15.00	15.50	15.00	1,36	1,13	22.50	1,75	1,45	30.00	2,20	1,83	
M 16 x 1.50	3521-16.00	16.50	16.00	1,14	0,77	24.00	1,19	0,86	32.00	1,47	1,13	
M 16 x 2.00	3520-16.00	16.50	16.00	1,14	0,94	24.00	1,19	0,99	32.00	1,47	1,22	
M 18 x 1.50	3523-18.00	18.50	18.00	1,66	1,41	27.00	1,94	1,65	36.00	2,62	2,23	
M 18 x 2.00	3521-18.00	18.50	18.00	1,66	1,44	27.00	1,94	1,78	36.00	2,62	2,04	
M 18 x 2.50	3520-18.00	19.00	18.00	1,66	1,38	27.00	1,94	1,61	36.00	2,62	2,18	
M 20 x 1.50	3523-20.00	20.50	20.00	1,94	1,65	30.00	2,45	2,08	40.00	3,15	2,68	25
M 20 x 2.00	3521-20.00	20.50	20.00	1,94	1,38	30.00	2,45	1,95	40.00	3,15	2,68	
M 20 x 2.50	3520-20.00	20.75	20.00	1,94	1,65	30.00	2,45	2,08	40.00	3,15	2,68	
M 22 x 1.50	3523-22.00	22.50	22.00	2,10	1,79	33.00	2,62	2,23	44.00	3,32	2,83	
M 22 x 2.00	3521-22.00	22.50	22.00	2,10	1,83	33.00	2,62	2,23	44.00	3,32	2,77	
M 22 x 2.50	3520-22.00	22.75	22.00	2,10	1,78	33.00	2,62	2,23	44.00	3,32	2,83	
M 24 x 1.50	3523-24.00	24.50	24.00	2,62	2,22	36.00	2,76	2,61	48.00	3,50	3,18	
M 24 x 2.00	3521-24.00	24.50	24.00	2,62	2,34	36.00	2,76	2,61	48.00	3,50	3,25	
M 24 x 3.00	3520-24.00	25.00	24.00	2,62	2,34	36.00	2,76	2,61	48.00	3,50	3,06	
M 26 x 1.50	3523-26.00	26.50	26.00	3,98	3,38	39.00	4,53	3,85	52.00	5,89	5,01	10
M 27 x 1.50	3523-27.00	27.50	27.00	3,75	3,18	40.50	4,53	3,85	54.00	5,55	4,72	
M 27 x 2.00	3521-27.00	27.50	27.00	3,85	3,27	40.50	4,53	3,89	54.00	5,55	4,67	
M 27 x 3.00	3520-27.00	28.00	27.00	3,29	2,80	40.50	4,53	4,26	54.00	5,79	5,51	
M 28 x 1.50	3523-28.00	28.50	28.00	3,82	3,25	42.00	4,53	3,85	56.00	5,89	5,01	
M 30 x 1.50	3523-30.00	30.50	30.00	4,51	3,84	45.00	5,18	4,40	60.00	6,41	5,45	
M 30 x 2.00	3521-30.00	30.50	30.00	4,25	3,61	45.00	5,18	4,40	60.00	6,66	5,67	
M 30 x 3.50	3520-30.00	31.00	30.00	3,79	3,35	45.00	5,18	3,72	60.00	6,92	5,89	
M 33 x 2.00	3521-33.00	33.50	33.00	6,39	5,43	49.50	6,64	5,78	66.00	7,77	6,64	
M 33 x 3.50	3520-33.00	34.00	33.00	5,55	4,72	49.50	6,64	5,78	66.00	7,96	6,80	
M 36 x 1.50	3524-36.00	36.50	36.00	5,47	4,65	54.00	6,64	5,78	72.00	8,00	7,55	
M 36 x 2.00	3523-36.00	36.50	36.00	5,47	4,65	54.00	6,64	5,65	72.00	8,00	7,55	
M 36 x 3.00	3521-36.00	37.00	36.00	4,62	4,18	54.00	6,64	6,37	72.00	8,11	7,55	
M 36 x 4.00	3520-36.00	37.00	36.00	5,47	4,65	54.00	6,64	5,50	72.00	8,00	7,03	

X.XD

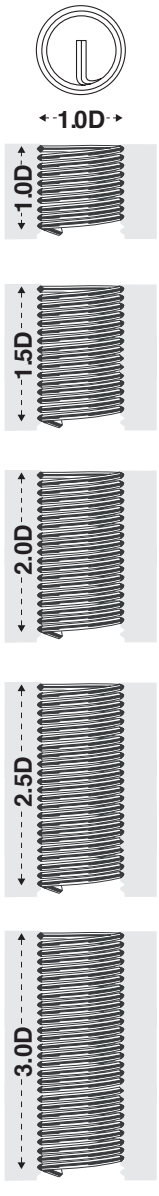
Ejemplo de codificación: INSERTO LIBRE
Coding example: THREAD INSERT
Exemple de codification: FILET RAPPORTÉ
Exemplo de codificação: INSERTO LIVRE

	1.0D	1.5D
M 15 x 1.50	3520-15.00x1.0D	3520-15.00x1.5D

powercoil by celesa

FREE | M/MF | AISI 304 | BS7752 DIN8140 | NASM3279 NASM3280 NASM3281 LN9039 | ...D

M/MF	Ref.	ø	L 2.5D mm	2.5D € <100	2.5D € 100-500	L 3.0D mm	3.0D € <100	3.0D € 100-500	
M 15 x 1.50	3521-15.00	15.25	37.50	2,71	2,26	45.00	3,15	2,60	
M 15 x 2.00	3520-15.00	15.50	37.50	2,71	2,26	45.00	3,15	2,60	
M 16 x 1.50	3521-16.00	16.50	40.00	1,61	1,38	48.00	1,90	1,54	
M 16 x 2.00	3520-16.00	16.50	40.00	1,61	1,43	48.00	1,90	1,63	50
M 18 x 1.50	3523-18.00	18.50	45.00	2,98	2,53	54.00	3,50	2,98	
M 18 x 2.00	3521-18.00	18.50	45.00	2,98	2,39	54.00	3,50	2,75	
M 18 x 2.50	3520-18.00	19.00	45.00	2,98	2,47	54.00	3,50	2,91	
M 20 x 1.50	3523-20.00	20.50	50.00	3,50	2,98	60.00	4,02	3,42	
M 20 x 2.00	3521-20.00	20.50	50.00	3,50	2,98	60.00	4,02	3,42	
M 20 x 2.50	3520-20.00	20.75	50.00	3,50	2,98	60.00	4,02	3,42	
M 22 x 1.50	3523-22.00	22.50	55.00	3,80	3,23	66.00	4,58	3,89	
M 22 x 2.00	3521-22.00	22.50	55.00	3,80	3,23	66.00	4,58	3,89	25
M 22 x 2.50	3520-22.00	22.75	55.00	3,80	3,23	66.00	4,58	3,89	
M 24 x 1.50	3523-24.00	24.50	60.00	4,59	3,82	72.00	4,90	4,49	
M 24 x 2.00	3521-24.00	24.50	60.00	4,59	3,91	72.00	4,90	4,58	
M 24 x 3.00	3520-24.00	25.00	60.00	4,59	3,90	72.00	5,61	4,93	
M 26 x 1.50	3523-26.00	26.50	65.00	7,87	6,69	78.00	9,84	8,36	
M 27 x 1.50	3523-27.00	27.50	67.50	7,21	6,13	81.00	8,51	7,23	
M 27 x 2.00	3521-27.00	27.50	67.50	6,55	5,57	81.00	7,73	6,57	
M 27 x 3.00	3520-27.00	28.00	67.50	6,82	5,80	81.00	8,05	6,85	
M 28 x 1.50	3523-28.00	28.50	70.00	8,46	7,19	84.00	10,16	8,64	
M 30 x 1.50	3523-30.00	30.50	75.00	8,62	7,33	90.00	10,33	8,78	
M 30 x 2.00	3521-30.00	30.50	75.00	7,66	6,52	90.00	8,82	7,50	
M 30 x 3.50	3520-30.00	31.00	75.00	7,62	6,48	90.00	8,39	7,13	10
M 33 x 2.00	3521-33.00	33.50	82.50	8,55	7,27	99.00	9,41	8,00	
M 33 x 3.50	3520-33.00	34.00	82.50	9,97	8,48	99.00	11,24	9,55	
M 36 x 1.50	3524-36.00	36.50	90.00	10,46	8,89	108.00	11,52	9,79	
M 36 x 2.00	3523-36.00	36.50	90.00	9,86	8,38	108.00	10,81	9,19	
M 36 x 3.00	3521-36.00	37.00	90.00	9,72	8,26	108.00	10,71	9,10	
M 36 x 4.00	3520-36.00	37.00	90.00	11,26	9,57	108.00	14,51	12,34	



powercoil
UNC

FREE | UNC | AISI 304 | SBAC AS 6734 | NASM122076 – NASM122275 NASM8846 | ...D

				1.0D				1.5D				2.0D			
				mm	€			mm	€			mm	€		
UNC	Ref.	D1	ø	L	<500	500-999	1000-...	L	<500	500-999	1000-...	L	<500	500-999	1000-...
UNC Nº2 - 56	3532-2G	2.18	2.40	2.29	**0,57**	**0,52**	**0,48**	3.30	**0,67**	**0,60**	**0,55**	4.32	**0,87**	**0,78**	**0,72**
UNC Nº3 - 48	3532-3G	2.51	2.70	2.54	**0,58**	**0,54**	**0,50**	3.81	**0,63**	**0,57**	**0,53**	5.08	**0,66**	**0,62**	**0,57**
UNC Nº4 - 40	3532-4G	2.84	3.00	2.79	**0,30**	**0,27**	**0,25**	4.32	**0,31**	**0,28**	**0,26**	5.59	**0,32**	**0,29**	**0,27**
UNC Nº5 - 40	3532-5G	3.17	3.40	3.30	**0,33**	**0,29**	**0,27**	4.83	**0,34**	**0,30**	**0,28**	6.35	**0,36**	**0,33**	**0,30**
UNC Nº6 - 32	3532-6G	3.50	3.70	3.56	**0,25**	**0,23**	**0,21**	5.33	**0,27**	**0,25**	**0,23**	7.11	**0,30**	**0,26**	**0,24**
UNC Nº8 - 32	3532-8G	4.17	4.40	4.06	**0,26**	**0,24**	**0,22**	6.35	**0,29**	**0,26**	**0,24**	8.38	**0,32**	**0,27**	**0,25**
UNC Nº10 - 24	3532-10G	4.83	5.10	4.83	**0,29**	**0,26**	**0,24**	7.37	**0,32**	**0,27**	**0,25**	9.65	**0,34**	**0,30**	**0,28**
UNC Nº12 - 24	3532-12G	5.49	5.70	5.59	**0,33**	**0,29**	**0,27**	8.13	**0,36**	**0,33**	**0,30**	10.92	**0,39**	**0,35**	**0,32**
UNC 1/4 - 20	3532-1/4	6.35	6.70	6.35	**0,33**	**0,29**	**0,27**	9.65	**0,36**	**0,33**	**0,30**	12.70	**0,39**	**0,35**	**0,32**
UNC 5/16 - 18	3532-5/16	7.94	8.30	7.87	**0,44**	**0,37**	**0,34**	11.94	**0,53**	**0,46**	**0,42**	15.75	**0,55**	**0,48**	**0,44**
UNC 3/8 - 16	3532-3/8	9.52	9.90	9.65	**0,61**	**0,55**	**0,51**	14.48	**0,66**	**0,58**	**0,54**	19.30	**0,87**	**0,76**	**0,70**
UNC 7/16 - 14	3532-7/16	11.11	11.60	11.18	**0,74**	**0,65**	**0,60**	16.76	**0,88**	**0,78**	**0,72**	22.35	**1,00**	**0,88**	**0,81**
UNC 1/2 - 13	3532-1/2	12.70	13.00	12.70	**0,79**	**0,69**	**0,64**	19.05	**0,88**	**0,78**	**0,72**	25.40	**1,00**	**0,88**	**0,81**
UNC 9/16 - 12	3532-9/16	14.28	15.00	14.22	**1,53**	**1,35**	**1,24**	21.34	**1,79**	**1,58**	**1,45**	28.45	**2,28**	**2,01**	**1,85**
UNC 5/8 - 11	3532-5/8	15.87	16.50	16.00	**1,54**	**1,36**	**1,25**	24.13	**1,80**	**1,59**	**1,46**	32.00	**2,30**	**2,03**	**1,87**
UNC 3/4 - 10	3532-3/4	19.05	20.00	19.05	**1,70**	**1,50**	**1,38**	28.70	**2,12**	**1,87**	**1,72**	38.10	**2,53**	**2,23**	**2,05**
UNC 7/8 - 9	3532-7/8	22.22	23.00	22.35	**2,21**	**1,94**	**1,79**	33.53	**2,76**	**2,43**	**2,24**	44.70	**3,29**	**2,90**	**2,67**
UNC 1 - 8	3532-1	25.40	26.25	25.40	**3,22**	**3,15**	**2,89**	38.10	**4,82**	**4,71**	**4,33**	50.80	**6,12**	**5,99**	**5,51**
UNC 1.1/8 - 7	3532-1.1/8	28.57	29.50	28.70	**5,13**	**4,52**	**4,16**	42.93	**6,78**	**5,97**	**5,49**	57.15	**7,03**	**6,19**	**5,69**
UNC 1.1/4 - 7	3532-1.1/4	31.75	32.50	31.75	**5,59**	**4,92**	**4,53**	47.75	**7,10**	**6,25**	**5,75**	63.50	**8,01**	**7,05**	**6,48**
UNC 1.3/8 - 6	3532-1.3/8	34.92	36.00	35.05	**6,13**	**5,40**	**4,97**	52.58	**7,56**	**6,66**	**6,13**	69.85	**8,97**	**7,90**	**7,27**
UNC 1.1/2 - 6	3532-1.1/2	38.10	39.50	38.10	**7,10**	**6,25**	**5,75**	57.15	**9,76**	**8,59**	**7,91**	76.20	**11,28**	**9,93**	**9,14**

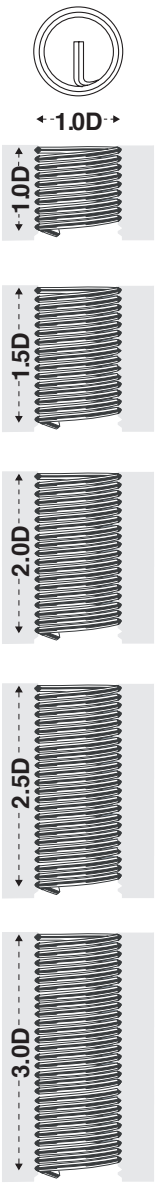
X.XD

Ejemplo de codificación: INSERTO LIBRE
Coding example: THREAD INSERT
Exemple de codification: FILET RAPPORTÉ
Exemplo de codificação: INSERTO LIVRE

	1.0D	1.5D
UNC 1/4 - 20	3532-1/4x1.0D	3532-1/4x1.5D

FREE | UNC | AISI 304 | SBAC AS 6734 | NASM122076 – NASM122275 NASM8846 | ...D

				L 2.5D				L 3.0D				
				mm	€			mm	€			
UNC	Ref.	D1	ø	L	<500	500-999	1000-...	L	<500	500-999	1000-...	
UNC N°2 - 56	3532-2G	2.18	2.40	5.59	0,98	0,88	0,81	6.60	1,22	1,10	1,01	100
UNC N°3 - 48	3532-3G	2.51	2.70	6.35	0,69	0,64	0,59	7.62	0,77	0,70	0,65	
UNC N°4 - 40	3532-4G	2.84	3.00	9.65	0,36	0,33	0,30	8.64	0,44	0,37	0,34	
UNC N°5 - 40	3532-5G	3.17	3.40	7.87	0,44	0,37	0,34	9.65	0,53	0,46	0,42	
UNC N°6 - 32	3532-6G	3.50	3.70	8.89	0,33	0,29	0,27	10.41	0,39	0,34	0,31	
UNC N°8 - 32	3532-8G	4.17	4.40	10.41	0,34	0,31	0,28	12.45	0,41	0,36	0,33	
UNC N°10 - 24	3532-10G	4.83	5.10	12.19	0,42	0,36	0,33	14.48	0,50	0,44	0,40	
UNC N°12 - 24	3532-12G	5.49	5.70	13.72	0,47	0,43	0,39	16.51	0,58	0,52	0,47	
UNC 1/4 - 20	3532-1/4	6.35	6.70	16.00	0,47	0,43	0,39	19.05	0,58	0,52	0,47	
UNC 5/16 - 18	3532-5/16	7.94	8.30	19.81	0,66	0,57	0,53	23.62	0,79	0,69	0,64	
UNC 3/8 - 16	3532-3/8	9.52	9.90	24.13	0,99	0,87	0,80	28.96	1,18	1,04	0,95	
UNC 7/16 - 14	3532-7/16	11.11	11.60	27.94	1,20	1,06	0,98	33.53	1,47	1,29	1,19	
UNC 1/2 - 13	3532-1/2	12.70	13.00	31.75	1,20	1,06	0,98	38.10	1,47	1,29	1,19	
UNC 9/16 - 12	3532-9/16	14.28	15.00	35.56	2,85	2,51	2,31	42.67	3,08	2,72	2,50	50
UNC 5/8 - 11	3532-5/8	15.87	16.50	40.13	2,89	2,55	2,34	48.01	3,12	2,75	2,53	
UNC 3/4 - 10	3532-3/4	19.05	20.00	47.75	3,30	2,91	2,68	57.15	3,63	3,20	2,94	
UNC 7/8 - 9	3532-7/8	22.22	23.00	55.88	4,29	3,78	3,48	67.06	4,72	4,16	3,83	25
UNC 1 - 8	3532-1	25.40	26.25	63.50	7,23	7,08	6,51	76.20	8,78	8,57	7,89	
UNC 1.1/8 - 7	3532-1.1/8	28.57	29.50	71.37	8,77	7,72	7,10	85.85	9,76	8,59	7,90	
UNC 1.1/4 - 7	3532-1.1/4	31.75	32.50	79.50	10,04	8,84	8,13	95.25	11,29	9,94	9,14	10
UNC 1.3/8 - 6	3532-1.3/8	34.92	36.00	87.38	11,34	9,98	9,18	104.90	12,36	10,88	10,01	
UNC 1.1/2 - 6	3532-1.1/2	38.10	39.50	95.25	14,75	12,98	11,94	114.30	16,78	14,76	13,58	



powercoil

UNF

FREE | UNF | AISI 304 | SBAC AS 6733 | NASM124651-124850 NASM8846 SBAC8455 | ...D

UNF	Ref.	D1	ø	1.0D L mm	1.0D € <500	1.0D € 500-999	1.0D € 1000-...	1.5D L mm	1.5D € <500	1.5D € 500-999	1.5D € 1000-...	2.0D L mm	2.0D € <500	2.0D € 500-999	2.0D € 1000-...
UNF Nº3 - 56	3534-3G	2.51	2.70	2.54	0,45	0,40	0,37	3.81	0,55	0,49	0,45	5.08	0,67	0,59	0,55
UNF Nº4 - 48	3534-4G	2.84	3.00	2.79	0,45	0,40	0,37	4.32	0,55	0,49	0,45	5.59	0,67	0,59	0,55
UNF Nº6 - 40	3534-6G	3.50	3.70	3.56	0,45	0,40	0,37	5.33	0,55	0,49	0,45	7.11	0,67	0,59	0,55
UNF Nº8 - 36	3534-8G	4.17	4.40	4.06	0,45	0,40	0,37	6.35	0,55	0,49	0,45	8.38	0,67	0,59	0,55
UNF Nº10 - 32	3534-10G	4.83	5.10	4.83	0,32	0,27	0,25	7.37	0,33	0,29	0,27	9.65	0,39	0,34	0,31
UNF Nº12 - 28	3534-12G	5.49	5.70	5.59	0,52	0,46	0,42	8.13	0,54	0,50	0,46	10.92	0,56	0,53	0,48
UNF 1/4 - 28	3534-1/4	6.35	6.60	6.35	0,32	0,27	0,25	9.65	0,33	0,29	0,27	12.70	0,39	0,34	0,31
UNF 5/16 - 24	3534-5/16	7.94	8.20	7.87	0,43	0,37	0,34	11.94	0,46	0,40	0,37	15.75	0,55	0,47	0,43
UNF 3/8 - 24	3534-3/8	9.52	9.80	9.65	0,64	0,55	0,51	14.48	0,66	0,57	0,53	19.30	0,79	0,69	0,64
UNF 7/16 - 20	3534-7/16	11.11	11.50	11.18	0,78	0,68	0,63	16.76	0,88	0,77	0,71	22.35	0,99	0,87	0,80
UNF 1/2 - 20	3534-1/2	12.70	13.00	12.70	0,78	0,68	0,63	19.05	0,88	0,77	0,71	25.40	0,99	0,87	0,80
UNF 9/16 - 18	3534-9/16	14.29	14.70	14.22	1,75	1,54	1,42	21.34	1,84	1,63	1,50	28.45	2,20	1,95	1,79
UNF 5/8 - 18	3534-5/8	15.87	16.30	16.00	1,79	1,58	1,45	24.13	1,94	1,71	1,58	32.00	2,20	1,95	1,79
UNF 3/4 - 16	3534-3/4	19.05	19.50	19.05	1,97	1,74	1,60	28.70	2,12	1,87	1,72	38.10	2,42	2,13	1,96
UNF 7/8 - 14	3534-7/8	22.22	22.50	22.35	4,11	3,61	3,32	33.53	6,05	5,33	4,91	44.70	7,70	6,78	6,23
UNF 1 - 12	3534-1	25.40	26.00	25.40	4,11	3,61	3,32	38.10	6,05	5,33	4,91	50.80	7,70	6,78	6,23
UNF 1 - 14	3535-1	25.40	26.00	25.40	4,27	3,75	3,45	38.10	6,30	5,54	5,10	50.80	8,01	7,04	6,48
UNF 1.1/8 - 12	3534-1.1/8	28.57	29.50	28.70	5,88	5,17	4,76	43.18	7,77	6,84	6,30	57.15	8,06	7,10	6,53
UNF 1.1/4 - 12	3534-1.1/4	31.75	32.50	31.75	6,39	5,62	5,17	47.75	8,45	7,44	6,85	63.50	9,17	8,07	7,43
UNF 1.3/8 - 12	3534-1.3/8	34.92	35.50	35.05	7,01	6,17	5,68	52.58	8,67	7,63	7,02	69.85	10,27	9,04	8,32
UNF 1.1/2 - 12	3534-1.1/2	38.10	38.50	38.10	8,12	7,15	6,58	57.15	10,56	10,25	9,43	76.20	12,91	11,37	10,46

X.XD

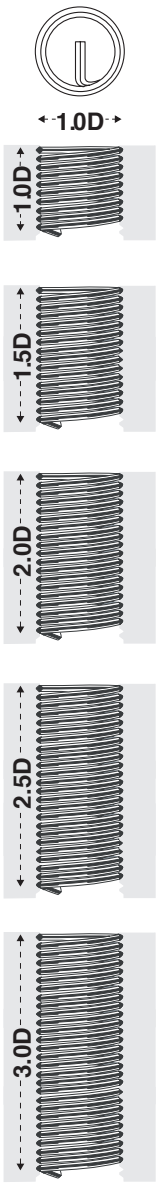
Ejemplo de codificación: INSERTO LIBRE
Coding example: THREAD INSERT
Exemple de codification: FILET RAPPORTÉ
Exemplo de codificação: INSERTO LIVRE

	1.0D	1.5D
UNF Nº3 - 56	3534-3Gx1.0D	3534-3Gx1.5D

powercoil by celesa

FREE | UNF | AISI 304 | SBAC AS 6733 | NASM124651-124850 NASM8846 SBAC8455 | ...D

				L 2.5D				L 3.0D				
				mm	€			mm	€			
UNF	Ref.	D1	ø	L	<500	500-999	1000-...	L	<500	500-999	1000-...	
UNF Nº3 - 56	3534-3G	2.51	2.70	6.35	0,77	0,68	0,63	7.62	0,89	0,79	0,73	100
UNF Nº4 - 48	3534-4G	2.84	3.00	7.11	0,77	0,68	0,63	8.64	0,89	0,79	0,73	
UNF Nº6 - 40	3534-6G	3.50	3.70	8.89	0,77	0,68	0,63	10.41	0,89	0,79	0,73	
UNF Nº8 - 36	3534-8G	4.17	4.40	10.41	0,77	0,68	0,63	12.45	0,89	0,79	0,73	
UNF Nº10 - 32	3534-10G	4.83	5.10	12.19	0,50	0,44	0,40	14.48	0,58	0,52	0,47	
UNF Nº12 - 28	3534-12G	5.49	5.70	13.72	0,59	0,55	0,51	16.51	0,66	0,62	0,57	
UNF 1/4 - 28	3534-1/4	6.35	6.60	16.00	0,50	0,44	0,40	19.05	0,58	0,52	0,47	
UNF 5/16 - 24	3534-5/16	7.94	8.20	19.81	0,67	0,59	0,55	23.62	0,79	0,69	0,64	
UNF 3/8 - 24	3534-3/8	9.52	9.80	24.13	1,00	0,88	0,81	28.96	1,18	1,04	0,95	
UNF 7/16 - 20	3534-7/16	11.11	11.50	27.94	1,23	1,08	1,00	33.53	1,47	1,29	1,19	
UNF 1/2 - 20	3534-1/2	12.70	13.00	31.75	1,23	1,08	1,00	38.10	1,47	1,29	1,19	
UNF 9/16 - 18	3534-9/16	14.29	14.70	35.56	2,80	2,46	2,26	42.67	3,14	2,76	2,54	50
UNF 5/8 - 18	3534-5/8	15.87	16.30	40.13	2,62	2,31	2,13	48.01	3,14	2,76	2,54	
UNF 3/4 - 16	3534-3/4	19.05	19.50	47.75	3,30	2,91	2,68	57.15	3,63	3,20	2,94	
UNF 7/8 - 14	3534-7/8	22.22	22.50	55.88	9,20	8,10	7,45	67.06	10,72	9,43	8,67	25
UNF 1 - 12	3534-1	25.40	26.00	63.50	9,20	8,10	7,45	76.20	10,72	9,43	8,67	
UNF 1 - 14	3535-1	25.40	26.00	63.50	9,20	8,10	7,45	76.20	11,03	9,71	8,93	
UNF 1.1/8 - 12	3534-1.1/8	28.57	29.50	71.37	10,04	8,84	8,13	85.85	11,18	9,84	9,05	10
UNF 1.1/4 - 12	3534-1.1/4	31.75	32.50	79.50	11,48	10,11	9,30	95.25	12,93	11,37	10,47	
UNF 1.3/8 - 12	3534-1.3/8	34.92	35.50	87.38	12,98	11,42	10,51	104.90	14,15	12,45	11,45	
UNF 1.1/2 - 12	3534-1.1/2	38.10	38.50	95.25	16,87	14,85	13,66	114.30	19,21	16,90	15,55	



Consulte nuestra gama de organizadores / Look up our organizers range / Consultez notre gamme d'organizers / Consulte a nossa gama de organizadores.

powercoil
BSW/BSF

FREE | BSW | AISI 304 | SBAC AS 4736 SBAC AS 4947 | ...D

BSW	Ref.	D1	ø	1.0D L mm	€	1.5D L mm	€	2.0D L mm	€	2.5D L mm	€	3.0D L mm	€	
BSW 1/8 - 40	3528-1/8	3.17	3.40	3.30	0,39	5.08	0,43	6.60	0,50	8.38	0,65	9.91	0,84	100
BSW 3/16 - 24	3528-3/16	4.76	5.00	4.83	0,39	7.37	0,43	9.65	0,50	12.19	0,65	14.48	0,84	
BSW 1/4 - 20	3528-1/4	6.35	6.70	6.35	0,35	9.65	0,39	12.70	0,45	16.00	0,58	19.05	0,63	
BSW 5/16 - 18	3528-5/16	7.94	8.30	7.87	0,41	11.94	0,47	15.75	0,51	19.81	0,61	23.62	0,75	
BSW 3/8 - 16	3528-3/8	9.52	10.00	9.65	0,73	14.48	0,78	19.30	0,92	24.13	1,08	28.96	1,29	
BSW 7/16 - 14	3528-7/16	11.11	11.60	11.18	0,88	16.76	0,97	22.35	1,12	27.94	1,32	33.53	1,62	
BSW 1/2 - 12	3528-1/2	12.70	13.00	12.70	0,88	19.05	0,97	25.40	1,12	31.75	1,32	38.10	1,62	
BSW 9/16 - 12	3528-9/16	14.29	14.75	14.22	2,20	21.34	3,08	28.45	3,61	35.56	4,30	42.67	5,26	50
BSW 5/8 - 11	3528-5/8	15.87	16.50	16.00	2,20	24.13	3,08	32.00	3,61	40.13	4,30	48.01	5,26	
BSW 3/4 - 10	3528-3/4	19.05	20.00	19.05	2,85	28.70	3,66	38.10	4,46	47.75	5,35	57.15	6,41	
BSW 7/8 - 9	3528-7/8	22.22	23.25	22.35	3,66	33.53	5,11	44.70	6,39	55.88	7,69	67.06	9,22	25
BSW 1 - 8	3528-1	25.40	26.50	25.40	3,95	38.10	5,85	50.80	6,39	63.50	7,69	76.20	9,22	

FREE | BSF | AISI 304 | SBAC AS 4737-48 SBAC AS 4948-59 | ...D

BSF	Ref.	D1	ø	1.0D L mm	€	1.5D L mm	€	2.0D L mm	€	2.5D L mm	€	3.0D L mm	€	
BSF 3/16 - 32	3530-3/16	4.76	5.00	4.83	0,39	7.37	0,43	9.65	0,51	12.19	0,60	14.48	0,71	100
BSF 1/4 - 26	3530-1/4	6.35	6.60	6.35	0,37	9.65	0,39	12.70	0,46	16.00	0,55	19.05	0,64	
BSF 5/16 - 22	3530-5/16	7.94	8.30	7.87	0,39	11.94	0,48	15.75	0,52	19.81	0,64	23.62	0,77	
BSF 3/8 - 20	3530-3/8	9.52	9.80	9.65	0,74	14.48	0,80	19.30	0,94	24.13	1,10	28.96	1,32	
BSF 7/16 - 18	3530-7/16	11.11	11.60	11.18	0,90	16.76	0,99	22.35	1,14	27.94	1,35	33.53	1,65	
BSF 1/2 - 16	3530-1/2	12.70	13.25	12.70	0,90	19.05	0,99	25.40	1,14	31.75	1,35	38.10	1,65	
BSF 9/16 - 16	3530-9/16	14.29	14.75	14.22	2,25	21.34	2,99	28.45	3,69	35.56	4,39	42.67	5,97	50
BSF 5/8 - 14	3530-5/8	15.88	16.50	16.00	2,25	24.13	2,99	32.00	3,69	40.13	4,39	48.01	5,38	
BSF 3/4 - 12	3530-3/4	19.05	19.50	19.05	2,91	28.70	3,74	38.10	4,56	47.75	5,47	57.15	6,56	
BSF 7/8 - 11	3530-7/8	22.23	22.75	22.35	3,74	33.53	5,23	44.70	6,53	55.88	7,86	67.06	9,42	25
BSF 1 - 10	3530-1	25.40	26.25	25.40	3,74	38.10	5,23	50.80	6,53	63.50	7,86	76.20	9,42	

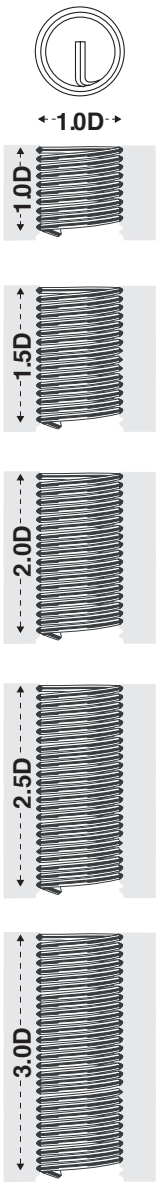
X.XD

Ejemplo de codificación: INSERTO LIBRE
Coding example: THREAD INSERT
Exemple de codification: FILET RAPPORTÉ
Exemplo de codificação: INSERTO LIVRE

	1.0D	1.5D
BSW 1/8 - 40	3528-1/8x1.0D	3528-1/8x1.5D

FREE | BSP | AISI 304 | SBAC AS 4736 SBAC AS 4947 | ...D

BSP	Ref.	D1	Ø	L 1.0D mm	€	L 1.5D mm	€	L 2.0D mm	€	
BSP 1/8 - 28	3546-1/8	9.73	10.00	3.30	0,54	4.83	0,77	6.35	0,85	100
BSP 1/4 - 19	3546-1/4	13.16	13.75	6.35	0,73	9.65	1,05	12.70	1,18	
BSP 3/8 - 19	3546-3/8	16.66	17.00	9.65	0,65	14.22	1,19	19.05	1,35	
BSP 1/2 - 14	3546-1/2	20.95	21.50	12.70	1,69	19.05	1,71	25.40	2,71	50
BSP 5/8 - 14	3546-5/8	22.91	23.50	16.00	2,59	23.88	3,82	31.75	3,98	
BSP 3/4 - 14	3546-3/4	26.44	27.00	19.05	2,59	28.70	3,82	38.10	3,98	
BSP 7/8 - 14	3546-7/8	30.20	30.50	22.35	6,65	33.53	11,69	44.45	14,57	25
BSP 1 - 11	3546-1	33.25	33.75	25.40	7,46	38.10	11,69	50.80	11,81	



FREE | NPT | 60° P 1:16 | AISI 304 | SBAC AS 4737-48 SBAC AS 4948-59 | ...D

NPT	Ref.	L 1.5D mm	€	
NPT 1/8 - 27	3552-1/8	4.78	1,09	100
NPT 1/4 - 18	3552-1/4	9.53	1,57	
NPT 3/8 - 18	3552-3/8	14.30	1,98	
NPT 1/2 - 14	3552-1/2	19.05	3,24	50
NPT 3/4 - 14	3552-3/4	28.58	4,66	
NPT 1 - 11.1/2	3552-1	38.10	6,25	25

X.XD

Ejemplo de codificación: INSERTO LIBRE
Coding example: THREAD INSERT
Exemple de codification: FILET RAPPORTÉ
Exemplo de codificação: INSERTO LIVRE

	1.0D	1.5D
BSP 1/8-28	3546-1/8x1.0D	3546-1/8x1.5D

powercoil
8-UN/BA

FREE | 8-UN | AISI 304 | ...D

D			ø	L 1.0D mm		L 1.5D mm		L 2.0D mm		
8 - UN	Ref.	D1	ø	L	€	L	€	L	€	
UN 1.1/8 - 8	3570-1.1/8	28.57	28.50	28.70	**9,81**	42.93	**11,56**	57.15	**12,34**	10
UN 1.1/4 - 8	3570-1.1/4	31.75	32.00	31.75	**11,75**	47.75	**14,18**	63.50	**16,05**	
UN 1.3/8 - 8	3570-1.3/8	34.92	35.00	35.05	**13,27**	52.32	**17,63**	69.85	**19,41**	
UN 1.1/2 - 8	3570-1.1/2	38.10	38.00	38.10	**14,81**	57.15	**19,65**	76.20	**23,04**	
UN 1.5/8 - 8	3570-1.5/8	41.27	41.00	41.40	**16,21**	61.98	**20,84**	82.55	**25,69**	
UN 1.3/4- 8	3570-1.3/4	44.45	44.50	44.45	**17,57**	66.80	**22,64**	88.90	**26,04**	
UN 1.7/8 - 8	3570-1.7/8	47.62	47.50	47.75	**18,97**	71.37	**24,29**	95.25	**29,98**	
UN 2 - 8	3570-2	50.80	51.00	50.80	**20,30**	76.20	**26,09**	101.60	**32,13**	

FREE | BA | AISI 304 | SBAC AS 4736 SBAC AS 4947 | ...D

D			ø	L 1.0D mm		L 1.5D mm		L 2.0D mm		L 2.5D mm		L 3.0D mm		
BA	Ref.	D1	ø	L	€	L	€	L	€	L	€	L	€	
BA 0	3544-0	6.00	6.20	6.10	**2,43**	8.89	**3,21**	11.94	**3,85**	14.99	**4,43**	18.03	**5,10**	100
BA 2	3544-2	4.70	4.90	4.83	**1,26**	7.11	**1,41**	9.40	**1,55**	11.68	**1,83**	14.22	**1,97**	
BA 4	3544-4	3.60	3.80	3.56	**1,26**	5.33	**1,41**	7.11	**1,55**	8.89	**1,83**	10.92	**1,97**	
BA 6	3544-6	2.80	2.90	2.79	**1,26**	4.32	**1,41**	5.59	**1,55**	7.11	**1,83**	8.38	**1,97**	

X.XD

Ejemplo de codificación: INSERTO LIBRE
Coding example: THREAD INSERT
Exemple de codification: FILET RAPPORTÉ
Exemplo de codificação: INSERTO LIVRE

	1.0D	1.5D
UN 1.1/8 - 8	3570-1.1/8x1.0D	3570-1.1/8x1.5D

powercoil by celesa

FREE | BSB | AISI 304 | ...D

D			ø	L 1.0D		L 1.5D		L 2.0D		
				mm		mm		mm		
BSB	Ref.	D1	ø	L	€	L	€	L	€	
BSB 1/4 - 26	3560-1/4	6,35	6.60	6,35	1,49	9.53	2,05	12.70	2,05	100
BSB 5/16 - 26	3560-5/16	7,94	8.20	7,95	0,67	11.91	0,81	15.88	1,08	
BSB 3/8 - 26	3560-3/8	9,52	9.80	9,53	0,78	14.30	0,93	19.05	1,26	
BSB 7/16 - 26	3560-7/16	11,11	11.30	11,13	0,83	16.66	1,26	22.23	1,72	
BSB 1/2 - 26	3560-1/2	12,70	12.70	12,70	1,68	19.05	2,13	25.40	2,71	50

FREE | M/MF | AISI 304 | ...D

D		ø	L 8.40mm	L 12.40mm	L 16.40mm	
	Ref.	ø	€	€	€	
14x1.25	3522-14.00	14.25	0,90	0,90	0,90	50

M14x1,25

M12x1,25

D		ø	L 1/2"	L 3/4"	
	Ref.	ø	€	€	
10x1.00	3522-10.00	10.30	0,46	-	100
12x1.25	3522-12.00	12.30	0,54	0,66	
14x1.25	3522-14.00	14.25	0,79	1,21	50
18x1.50	3522-18.00	18.50	1,06	-	

D		ø	L 0.339"	L 3/8"	L 7/16"	
	Ref.	ø	€	€	€	
10x1.00	3522-10.00	10.30	0,38	-	-	100
14x1.25	3522-14.00	14.25	-	0,85	0,79	50

FREE

M/MF

AISI 304

BS7752
DIN8140

...P

M/MF	Ref.	€	D	mm	Unit	mm	Accesorios / Accessories / Accessoires / Acessórios		
M 3 x 0.50	3520-3.00X1.0DP	3,55	1.00	3.00	10	3.20	3520-3.00I	3500-HIT4	3500-TB4
M 3 x 0.50	3520-3.00X1.5DP	3,71	1.50	4.50	10	3.20	3520-3.00I	3500-HIT4	3500-TB4
M 3 x 0.50	3520-3.00X2.0DP	4,19	2.00	6.00	10	3.20	3520-3.00I	3500-HIT4	3500-TB4
M 4 x 0.70	3520-4.00X1.0DP	3,38	1.00	4.00	10	4.20	3520-4.00I	3500-HIT6	3500-TB6
M 4 x 0.70	3520-4.00X1.5DP	3,55	1.50	6.00	10	4.20	3520-4.00I	3500-HIT6	3500-TB6
M 4 x 0.70	3520-4.00X2.0DP	4,19	2.00	8.00	10	4.20	3520-4.00I	3500-HIT6	3500-TB6
M 5 x 0.80	3520-5.00X1.0DP	4,19	1.00	5.00	10	5.20	3520-5.00I	3500-HIT8	3500-TB8
M 5 x 0.80	3520-5.00X1.5DP	3,38	1.50	7.50	10	5.20	3520-5.00I	3500-HIT8	3500-TB8
M 5 x 0.80	3520-5.00X2.0DP	4,67	2.00	10.00	10	5.20	3520-5.00I	3500-HIT8	3500-TB8
M 6 x 1.00	3520-6.00X1.0DP	4,35	1.00	6.00	10	6.30	3520-6.00I	3500-HIT9	3500-TB9
M 6 x 1.00	3520-6.00X1.5DP	3,55	1.50	9.00	10	6.30	3520-6.00I	3500-HIT9	3500-TB9
M 6 x 1.00	3520-6.00X2.0DP	5,32	2.00	12.00	10	6.30	3520-6.00I	3500-HIT9	3500-TB9
M 6 x 1.00	3520-6.00X2.5DP	6,44	2.50	15.00	10	6.30	3520-6.00I	3500-HIT9	3500-TB9
M 8 x 1.00	3521-8.00X1.0DP	4,99	1.00	8.00	10	8.30	3521-8.00I	3500-HIT11	3500TB12
M 8 x 1.00	3521-8.00X1.5DP	5,32	1.50	12.00	10	8.30	3521-8.00I	3500-HIT11	3500TB12
M 8 x 1.00	3521-8.00X2.0DP	6,76	2.00	16.00	10	8.30	3521-8.00I	3500-HIT11	3500TB12
M 8 x 1.25	3520-8.00X1.0DP	4,35	1.00	8.00	10	8.30	3520-8.00I	3500-HIT11	3500-TB12
M 8 x 1.25	3520-8.00X1.5DP	4,67	1.50	12.00	10	8.30	3520-8.00I	3500-HIT11	3500-TB12
M 8 x 1.25	3520-8.00X2.0DP	6,44	2.00	16.00	10	8.30	3520-8.00I	3500-HIT11	3500-TB12
M 10 x 1.25	3521-10.00X1.5DP	6,22	1.50	15.00	10	10.30	3521-10.00I	3500-HIT13	3500-TB13
M 10 x 1.50	3520-10.00X1.0DP	5,44	1.00	10.00	10	10.40	3520-10.00I	3500-HIT13	3500-TB13
M 10 x 1.50	3520-10.00X1.5DP	6,22	1.50	15.00	10	10.40	3520-10.00I	3500-HIT13	3500-TB13
M 10 x 1.50	3520-10.00X2.0DP	7,15	2.00	20.00	10	10.40	3520-10.00I	3500-HIT13	3500-TB13
M 12 x 1.50	3521-12.00X1.5DP	9,17	1.50	18.00	10	12.40	3521-12.00I	3500-HIT15	3500-TB15
M 12 x 1.75	3520-12.00X1.0DP	7,62	1.00	12.00	10	12.50	3520-12.00I	3500-HIT15	3500-TB15
M 12 x 1.75	3520-12.00X1.5DP	9,17	1.50	18.00	10	12.50	3520-12.00I	3500-HIT15	3500-TB15
M 12 x 1.75	3520-12.00X2.0DP	10,78	2.00	24.00	10	12.50	3520-12.00I	3500-HIT15	3500-TB15
M 14 x 1.50	3521-14.00X1.5DP	6,76	1.50	21.00	5	14.40	3521-14.00I	3500-HIT16	–
M 14 x 2.00	3520-14.00X1.0DP	5,91	1.00	14.00	5	14.50	3520-14.00I	3500-HIT16	–
M 14 x 2.00	3520-14.00X1.5DP	6,76	1.50	21.00	5	14.50	3520-14.00I	3500-HIT16	–
M 14 x 2.00	3520-14.00X2.0DP	7,08	2.00	28.00	5	14.50	3520-14.00I	3500-HIT16	–
M 16 x 1.50	3521-16.00X1.5DP	8,32	1.50	24.00	5	16.50	3521-16.00I	3500-HIT18	–
M 16 x 2.00	3520-16.00X1.0DP	7,93	1.00	16.00	5	16.50	3520-16.00I	3500-HIT18	–
M 16 x 2.00	3520-16.00X1.5DP	8,32	1.50	24.00	5	16.50	3520-16.00I	3500-HIT18	–
M 16 x 2.00	3520-16.00X2.0DP	10,26	2.00	32.00	5	16.50	3520-16.00I	3500-HIT18	–
M 18 x 2.00	3521-18.00X1.5DP	13,52	1.50	27.00	5	18.50	3521-18.00I	3500-HIT20	–
M 18 x 2.50	3520-18.00X1.0DP	10,76	1.00	18.00	5	19.00	3520-18.00I	3500-HIT20	–
M 18 x 2.50	3520-18.00X1.5DP	12,56	1.50	27.00	5	19.00	3520-18.00I	3500-HIT20	–
M 18 x 2.50	3520-18.00X2.0DP	17,03	2.00	36.00	5	19.00	3520-18.00I	3500-HIT20	–
M 20 x 2.50	3520-20.00X1.0DP	12,56	1.00	20.00	5	20.75	3520-20.00I	3500-HIT21	–
M 20 x 2.50	3520-20.00X1.5DP	15,88	1.50	30.00	5	20.75	3520-20.00I	3500-HIT21	–
M 20 x 2.50	3520-20.00X2.0DP	20,42	2.00	40.00	5	20.75	3520-20.00I	3500-HIT21	–
M 22 x 2.50	3520-22.00X1.5DP	10,22	1.50	33.00	3	22.75	3520-22.00I	3500-HIT22	–
M 22 x 2.50	3520-22.00X2.0DP	12,95	2.00	44.00	3	22.75	3520-22.00I	3500-HIT22	–
M 24 x 2.00	3521-24.00X1.5DP	11,57	1.50	36.00	3	24.50	3521-24.00I	3500-HIT23	–

Accesorios no incluidos en el precio / Accessories not included in listed price / Accessoires non inclus dans le prix / Acessórios não incluídos no preço.

M/MF	Ref.	€	D	mm	Unit	mm	Accesorios / Accessories / Accessoires / Acessórios		
M 12 x 1.25	3522-12.00X1/2P	7,46	-	1/2	10	12.30	3522-12.00PN	3500-HIT15	3500-TB15
M 12 x 1.25	3522-12.00X3/4P	9,17	-	3/4	10	12.30	3522-12.00PN	3500-HIT15	3500-TB15
M 14 x 1.25	3522-14.00X3/8P	11,87	-	3/8	10	14.30	3522-14.00PN	3500-HIT17	3500-HIT17
M 14 x 1.25	3522-14.00X1/2P	11,04	-	1/2	10	14.30	3522-14.00PN	3500-HIT17	3500-HIT17
M 14 x 1.25	3522-14.00X3/4P	16,81	-	3/4	10	14.30	3522-14.00PN	3500-HIT17	3500-HIT17
M 14 x 1.25	3522-14.00X8.4P	6,30	-	8.4	5	14.30	3522-14.00PN	3500-HIT17	3500-HIT17
M 14 x 1.25	3522-14.00X12.4P	6,30	-	12.4	5	14.30	3522-14.00PN	3500-HIT17	3500-HIT17
M 14 x 1.25	3522-14.00X16.4P	6,30	-	16.4	5	14.30	3522-14.00PN	3500-HIT17	3500-HIT17

Accesorios no incluidos en el precio / Accessories not included in listed price / Accessoires non inclus dans le prix / Acessórios não incluídos no preço.

UNC	Ref.	€	D	mm	Unit	mm			
						Accesorios / Accessories / Accessoires / Acessórios			
UNC Nº6 - 32	3532-6GX1.5DP	**3,73**	1.50	5.33	10	3.80	3532-6GI	3500-HIT5	3500-TB5
UNC Nº8 - 32	3532-8GX1.5DP	**3,93**	1.50	6.35	10	4.40	3532-8GI	3500-HIT6	3500-TB6
UNC Nº10 - 24	3532-10GX1.5DP	**4,36**	1.50	7.11	10	5.20	3532-10GI	3500-HIT7	3500-TB8
UNC 1/4 - 20	3532-1/4X1.5DP	**4,98**	1.50	9.65	10	6.70	3532-1/4I	3500-HIT9	3500-TB9
UNC 5/16 - 18	3532-5/16X1.0DP	**6,07**	1.00	7.87	10	8.30	3532-5/16I	3500-HIT10	3500-TB12
UNC 5/16 - 18	3532-5/16X1.5DP	**7,31**	1.50	11.94	10	8.30	3532-5/16I	3500-HIT10	3500-TB12
UNC 3/8 - 16	3532-3/8X1.5DP	**9,17**	1.50	14.22	10	9.90	3532-3/8I	3500-HIT13	3500-TB12
UNC 3/8 - 16	3532-3/8X2.0DP	**12,13**	2.00	19.05	10	9.90	3532-3/8I	3500-HIT13	3500-TB12
UNC 7/16 - 14	3532-7/16X1.5DP	**12,28**	1.50	16.76	10	11.60	3532-7/16I	3500-HIT14	3500-TB14
UNC 1/2 - 13	3532-1/2X1.5DP	**12,28**	1.50	19.05	10	13.00	3532-1/2I	3500-HIT15	3500-TB15
UNC 5/8 - 11	3532-5/8X1.5DP	**12,60**	1.50	23.88	5	16.50	3532-5/8I	3500-HIT18	–
UNC 3/4 - 10	3532-3/4X1.5DP	**14,84**	1.50	28.70	5	20.00	3532-3/4I	3500-HIT20	–
UNC 7/8 - 9	3532-7/8X1.5DP	**11,58**	1.50	33.27	3	23.00	3532-7/8I	3500-HIT22	–
UNC 1 - 8	3532-1X1.5DP	**20,25**	1.50	38.10	3	26.25	3532-1I	3500-HIT23	–

UNF									
UNF Nº10 - 32	3534-10GX1.5DP	**4,51**	1.50	7.11	10	5.10	3534-10GI	3500-HIT8	3500-TB8
UNF 1/4 - 28	3534-1/4X1.5DP	**4,51**	1.50	9.65	10	6.70	3534-1/4I	3500-HIT9	3500-TB9
UNF 5/16 - 24	3534-5/16X1.5DP	**6,38**	1.50	11.94	10	8.30	3534-5/16I	3500-HIT11	3500-TB12
UNF 3/8 - 24	3534-3/8X1.5DP	**9,17**	1.50	14.22	10	9.80	3534-3/8I	3500-HIT13	3500-TB13
UNF 7/16 - 20	3534-7/16X1.5DP	**12,28**	1.50	16.76	10	11.50	3534-7/16I	3500-HIT14	3500-TB14
UNF 1/2 - 20	3534-1/2X1.5DP	**12,28**	1.50	19.05	10	13.00	3534-1/2I	3500-HIT15	3500-TB15
UNF 5/8 - 18	3534-5/8X1.5DP	**13,58**	1.50	24.13	5	16.50	3534-5/8I	3500-HIT18	–
UNF 3/4 - 16	3534-3/4X1.5DP	**14,84**	1.50	28.70	5	19.50	3534-3/4I	3500-HIT21	–

FREE | UNC/UNF | AISI 304

SBAC AS 6734 SBAC AS 8456 | SBAC AS 6733 SBAC AS 8455 | ...P

Accesorios no incluidos en el precio / Accessories not included in listed price / Accessoires non inclus dans le prix / Acessórios não incluídos no preço.

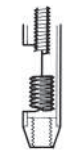
FREE | BSP | AISI 304 | BS84 | ...P

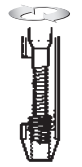
BSP	Ref.	€	D	mm	Unit	mm		
						Accesorios / Accessories Accessoires / Acessórios		
BSP 1/8 - 28	3546-1/8X1.5DP	**10,71**	1.50	4.83	10	10.00	3546-1/8I	3500-HIT14
BSP 1/4 - 19	3546-1/4X1.5DP	**14,67**	1.50	9.65	10	13.75	3546-1/4I	3500-HIT16
BSP 3/8 - 19	3546-3/8X1.5DP	**16,64**	1.50	14.22	10	17.00	3546-3/8I	3500-HIT20
BSP 1/2 - 14	3546-1/2X1.5DP	**23,89**	1.50	19.05	10	21.50	3546-1/2I	3500-HIT23
BSP 3/4 - 14	3546-3/4X1.5DP	**26,69**	1.50	28.70	5	27.00	3546-3/4I	3500-HIT24
BSP 1 - 11	3546-1X1.5DP	**49,08**	1.50	38.10	3	33.75	3546-1I	3500-HIT27

Accesorios no incluidos en el precio / Accessories not included in listed price / Accessoires non inclus dans le prix / Acessórios não incluídos no preço.

powercoil
M/MF

LOCK | M/MF | AISI 304 | NASM3329 NASM3330 NASM3331 LN9499 NASM8846 | BS7751 DIN8140 | ...DSL





D		ø	L 1.0D				L 1.5D				L 2.0D			
			mm	€			mm	€			mm	€		
M/MF	Ref.		L	<500	500-999	1000-...	L	<500	500-999	1000-...	L	<500	500-999	1000-...
M 2 x 0.40	3520-2.00	2.10	2.00	0,58	0,51	0,47	3.00	0,76	0,67	0,62	4.00	0,88	0,78	0,71
M 2.20 x 0.45	3520-2.20	2.30	2.20	0,55	0,48	0,45	3.30	0,72	0,64	0,59	4.40	0,83	0,73	0,67
M 2.50 x 0.45	3520-2.50	2.60	2.50	0,37	0,32	0,30	3.75	0,38	0,35	0,32	5.00	0,39	0,36	0,33
M 3 x 0.50	3520-3.00	3.20	3.00	0,28	0,25	0,23	4.50	0,32	0,28	0,25	6.00	0,33	0,30	0,28
M 3.50 x 0.60	3520-3.50	3.70	3.50	0,33	0,30	0,28	5.25	0,35	0,33	0,31	7.00	0,37	0,35	0,32
M 4 x 0.70	3520-4.00	4.20	4.00	0,28	0,26	0,24	6.00	0,32	0,28	0,25	8.00	0,33	0,29	0,26
M 5 x 0.80	3520-5.00	5.20	5.00	0,33	0,29	0,26	7.50	0,34	0,30	0,28	10.00	0,37	0,33	0,31
M 6 x 1.00	3520-6.00	6.30	6.00	0,36	0,32	0,30	9.00	0,38	0,33	0,31	12.00	0,43	0,38	0,35
M 7 x 1.00	3520-7.00	7.30	7.00	0,43	0,38	0,35	10.50	0,50	0,45	0,42	14.00	0,56	0,50	0,46
M 8 x 1.00	3521-8.00	8.30	8.00	0,46	0,41	0,37	12.00	0,49	0,42	0,38	16.00	0,57	0,49	0,45
M 8 x 1.25	3520-8.00	8.30	8.00	0,37	0,33	0,31	12.00	0,43	0,38	0,35	16.00	0,50	0,43	0,39
M 9 x 1.25	3520-9.00	9.40	9.00	0,91	0,82	0,75	13.50	1,17	0,97	0,89	18.00	1,23	1,03	0,95
M 10 x 1.00	3523-10.00	10.30	10.00	0,49	0,43	0,39	15.00	0,60	0,51	0,47	20.00	0,62	0,55	0,50
M 10 x 1.25	3521-10.00	10.30	10.00	0,47	0,42	0,38	15.00	0,59	0,54	0,50	20.00	0,61	0,58	0,53
M 10 x 1.50	3520-10.00	10.40	10.00	0,49	0,42	0,39	15.00	0,59	0,50	0,46	20.00	0,62	0,55	0,50
M 11 x 1.50	3520-11.00	11.40	11.00	0,96	0,81	0,75	16.50	0,97	0,83	0,77	22.00	0,98	0,89	0,82
M 12 x 1.25	3523-12.00	12.30	12.00	0,79	0,65	0,60	18.00	0,85	0,71	0,65	24.00	0,92	0,83	0,76
M 12 x 1.50	3521-12.00	12.40	12.00	0,80	0,69	0,63	18.00	0,86	0,75	0,69	24.00	0,95	0,88	0,81
M 12 x 1.75	3520-12.00	12.50	12.00	0,71	0,60	0,55	18.00	0,85	0,72	0,67	24.00	0,92	0,81	0,75
M 14 x 1.50	3521-14.00	14.50	14.00	1,09	0,97	0,89	21.00	1,26	1,03	0,95	28.00	1,39	1,16	1,08
M 14 x 2.00	3520-14.00	14.50	14.00	1,00	0,88	0,81	21.00	1,15	1,07	0,98	28.00	1,41	1,34	1,23
M 16 x 1.50	3521-16.00	16.50	16.00	1,48	1,32	1,24	24.00	1,59	1,43	1,32	32.00	1,92	1,77	1,63
M 16 x 2.00	3520-16.00	16.50	16.00	1,38	1,23	1,13	24.00	1,44	1,33	1,23	32.00	1,78	1,65	1,52
M 18 x 1.50	3523-18.00	18.50	18.00	2,40	1,99	1,83	27.00	2,43	2,10	1,93	36.00	3,72	3,05	2,81
M 18 x 2.00	3521-18.00	18.50	18.00	2,04	1,83	1,68	27.00	2,28	2,13	2,03	36.00	3,11	2,72	2,51
M 18 x 2.50	3520-18.00	19.00	18.00	2,06	1,83	1,69	27.00	2,34	2,07	1,90	36.00	3,19	2,87	2,64
M 20 x 1.50	3523-20.00	20.50	20.00	2,71	2,36	2,17	30.00	3,20	2,89	2,66	40.00	3,75	3,25	2,99
M 20 x 2.00	3521-20.00	20.50	20.00	2,36	2,04	1,88	30.00	2,89	2,56	2,35	40.00	3,72	3,24	2,98
M 20 x 2.50	3520-20.00	20.75	20.00	2,48	2,18	2,01	30.00	2,99	2,66	2,44	40.00	3,85	3,41	3,14
M 22 x 1.50	3523-22.00	22.50	22.00	2,75	2,61	2,33	33.00	3,08	2,93	2,55	44.00	4,11	3,97	3,09
M 22 x 2.00	3521-22.00	22.50	22.00	2,49	2,26	2,08	33.00	3,11	2,81	2,55	44.00	3,94	3,64	3,43
M 22 x 2.50	3520-22.00	22.75	22.00	2,58	2,39	2,20	33.00	3,22	2,93	2,70	44.00	4,08	3,73	3,43
M 24 x 1.50	3523-24.00	24.50	24.00	3,16	2,99	2,51	36.00	3,60	3,16	3,02	48.00	4,29	3,73	3,51
M 24 x 2.00	3521-24.00	24.50	24.00	3,11	2,86	2,68	36.00	3,74	3,43	3,19	48.00	4,14	3,90	3,77
M 24 x 3.00	3520-24.00	25.00	24.00	3,25	3,04	2,80	36.00	3,90	3,64	3,35	48.00	4,32	4,05	3,72

X.XD

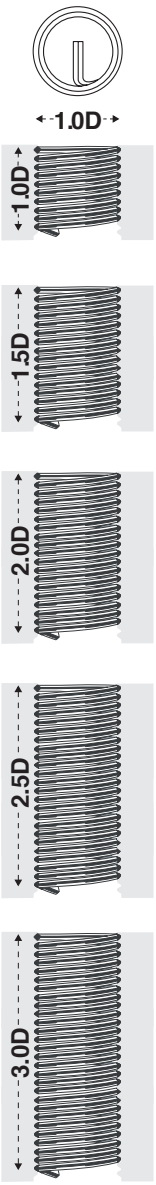
Ejemplo de codificación: INSERTO AUTOBLOCANTE
Coding example: SCREW LOCKING INSERT
Exemple de codification: FILET RAPPORTÉ À FREIN
Exemplo de codificação: INSERTO AUTO-BLOQUEADOR

	1.0D	1.5D
M 14 x 2.00	3520-14.00x1.0DSL	3520-14.00x1.5DSL

powercoil by celesa

LOCK | M/MF | AISI 304 | NASM3329 NASM3330 NASM3331 LN9499 NASM8846 | BS7751 DIN8140 | ...DSL

M/MF	Ref.	ø	L mm	2.5D € <500	2.5D € 500-999	2.5D € 1000-...	L mm	3.0D € <500	3.0D € 500-999	3.0D € 1000-...	
M 2 x 0.40	3520-2.00	2.10	5.00	**1,00**	**0,88**	**0,81**	6.00	**1,25**	**1,10**	**1,01**	
M 2.20 x 0.45	3520-2.20	2.30	5.50	**0,94**	**0,83**	**0,76**	6.60	**1,18**	**1,04**	**0,95**	
M 2.50 x 0.45	3520-2.50	2.60	6.25	**0,41**	**0,38**	**0,35**	9.00	**0,49**	**0,47**	**0,44**	
M 3 x 0.50	3520-3.00	3.20	7.50	**0,38**	**0,36**	**0,33**	9.00	**0,46**	**0,42**	**0,38**	
M 3.50 x 0.60	3520-3.50	3.70	8.75	**0,43**	**0,41**	**0,37**	10.50	**0,52**	**0,48**	**0,44**	
M 4 x 0.70	3520-4.00	4.20	10.00	**0,38**	**0,36**	**0,33**	12.00	**0,43**	**0,39**	**0,36**	
M 5 x 0.80	3520-5.00	5.20	12.50	**0,45**	**0,42**	**0,38**	15.00	**0,54**	**0,49**	**0,45**	
M 6 x 1.00	3520-6.00	6.30	15.00	**0,52**	**0,48**	**0,44**	18.00	**0,62**	**0,56**	**0,51**	
M 7 x 1.00	3520-7.00	7.30	17.50	**0,61**	**0,58**	**0,54**	21.00	**0,73**	**0,69**	**0,63**	
M 8 x 1.00	3521-8.00	8.30	20.00	**0,66**	**0,59**	**0,55**	24.00	**0,81**	**0,76**	**0,72**	100
M 8 x 1.25	3520-8.00	8.30	20.00	**0,61**	**0,56**	**0,51**	24.00	**0,73**	**0,66**	**0,61**	
M 9 x 1.25	3520-9.00	9.40	22.50	**1,37**	**1,21**	**1,11**	27.00	**1,78**	**1,63**	**1,50**	
M 10 x 1.00	3523-10.00	10.30	25.00	**0,73**	**0,63**	**0,58**	30.00	**1,00**	**0,89**	**0,82**	
M 10 x 1.25	3521-10.00	10.30	25.00	**0,74**	**0,70**	**0,64**	30.00	**1,02**	**0,98**	**0,91**	
M 10 x 1.50	3520-10.00	10.40	25.00	**0,73**	**0,65**	**0,60**	30.00	**1,00**	**0,91**	**0,83**	
M 11 x 1.50	3520-11.00	11.40	27.50	**1,21**	**1,11**	**1,03**	33.00	**1,49**	**1,43**	**1,32**	
M 12 x 1.25	3523-12.00	12.30	30.00	**1,19**	**1,15**	**1,06**	36.00	**1,49**	**1,42**	**1,39**	
M 12 x 1.50	3521-12.00	12.40	30.00	**1,19**	**1,01**	**0,93**	36.00	**1,53**	**1,51**	**1,39**	
M 12 x 1.75	3520-12.00	12.50	30.00	**1,19**	**1,14**	**1,05**	36.00	**1,49**	**1,46**	**1,35**	
M 14 x 1.50	3521-14.00	14.50	35.00	**1,70**	**1,35**	**1,24**	42.00	**2,83**	**2,79**	**2,57**	
M 14 x 2.00	3520-14.00	14.50	35.00	**1,70**	**1,61**	**1,48**	42.00	**2,04**	**1,98**	**1,82**	
M 16 x 1.50	3521-16.00	16.50	40.00	**2,11**	**1,97**	**1,81**	48.00	**2,72**	**2,64**	**2,43**	
M 16 x 2.00	3520-16.00	16.50	40.00	**2,14**	**2,06**	**1,89**	48.00	**2,65**	**2,60**	**2,40**	50
M 18 x 1.50	3523-18.00	18.50	45.00	**3,97**	**3,36**	**3,09**	54.00	**4,44**	**3,90**	**3,59**	
M 18 x 2.00	3521-18.00	18.50	45.00	**3,53**	**3,12**	**2,87**	54.00	**4,14**	**3,90**	**3,59**	
M 18 x 2.50	3520-18.00	19.00	45.00	**3,62**	**3,29**	**3,03**	54.00	**4,25**	**4,11**	**3,68**	
M 20 x 1.50	3523-20.00	20.50	50.00	**4,13**	**3,79**	**3,49**	60.00	**5,26**	**4,81**	**4,42**	
M 20 x 2.00	3521-20.00	20.50	50.00	**4,14**	**3,81**	**3,56**	60.00	**5,26**	**4,98**	**4,85**	
M 20 x 2.50	3520-20.00	20.75	50.00	**4,28**	**4,01**	**3,69**	60.00	**5,35**	**5,18**	**4,77**	
M 22 x 1.50	3523-22.00	22.50	55.00	**4,80**	**4,21**	**3,87**	66.00	**6,10**	**5,84**	**5,31**	
M 22 x 2.00	3521-22.00	22.50	55.00	**4,82**	**4,57**	**4,45**	66.00	**6,92**	**6,45**	**6,17**	25
M 22 x 2.50	3520-22.00	22.75	55.00	**4,99**	**4,67**	**4,30**	66.00	**6,75**	**6,26**	**5,76**	
M 24 x 1.50	3523-24.00	24.50	60.00	**5,90**	**4,95**	**4,55**	72.00	**7,45**	**6,30**	**5,80**	
M 24 x 2.00	3521-24.00	24.50	60.00	**6,00**	**5,43**	**4,93**	72.00	**7,16**	**6,84**	**6,75**	
M 24 x 3.00	3520-24.00	25.00	60.00	**6,26**	**5,63**	**5,18**	72.00	**6,77**	**6,58**	**6,06**	



LOCK | UNC | AISI 304 | AGS3600 | NASM21209 NASM8846 | ...DSL

UNC	Ref.	D1	ø	L 1.0D mm	L 1.0D € <500	500-999	1000-...	L 1.5D mm	L 1.5D € <500	500-999	1000-...	L 2.0D mm	L 2.0D € <500	500-999	1000-...
UNC Nº2 - 56	3532-2G	2.18	2.40	2.29	0,72	0,63	0,58	3.30	0,84	0,73	0,67	4.32	1,09	0,94	0,87
UNC Nº4 - 40	3532-4G	2.84	3.00	2.79	0,32	0,28	0,26	4.32	0,35	0,30	0,28	5.59	0,37	0,32	0,30
UNC Nº5 - 40	3532-5G	3.17	3.40	3.30	0,44	0,38	0,35	4.83	0,46	0,41	0,37	6.35	0,48	0,43	0,39
UNC Nº6 - 32	3532-6G	3.50	3.70	3.56	0,28	0,25	0,23	5.33	0,33	0,29	0,26	7.11	0,35	0,31	0,29
UNC Nº8 - 32	3532-8G	4.17	4.40	4.06	0,28	0,25	0,23	6.35	0,33	0,29	0,26	8.38	0,35	0,31	0,29
UNC Nº10 - 24	3532-10G	4.83	5.10	4.83	0,34	0,30	0,28	7.37	0,37	0,32	0,30	9.65	0,41	0,35	0,32
UNC Nº12 - 24	3532-12G	5.49	5.70	5.59	0,38	0,33	0,31	8.13	0,43	0,37	0,34	10.92	0,46	0,39	0,36
UNC 1/4 - 20	3532-1/4	6.35	6.70	6.35	0,38	0,33	0,31	9.65	0,43	0,37	0,34	12.70	0,46	0,39	0,36
UNC 5/16 - 18	3532-5/16	7.94	8.30	7.87	0,52	0,44	0,41	11.94	0,61	0,52	0,48	15.75	0,64	0,56	0,51
UNC 3/8 - 16	3532-3/8	9.52	9.90	9.65	0,74	0,64	0,59	14.48	0,78	0,68	0,62	19.05	1,02	0,89	0,82
UNC 7/16 - 14	3532-7/16	11.11	11.60	11.18	0,86	0,75	0,69	16.76	1,04	0,90	0,83	22.35	1,18	1,02	0,94
UNC 1/2 - 13	3532-1/2	12.70	13.00	12.70	0,93	0,81	0,74	19.05	1,04	0,90	0,83	25.40	1,18	1,02	0,94
UNC 9/16 - 12	3532-9/16	14.28	15.00	14.22	2,30	1,99	1,83	21.34	3,06	2,64	2,43	28.45	3,93	3,40	3,13
UNC 5/8 - 11	3532-5/8	15.87	16.50	16.00	2,09	1,80	1,65	23.88	2,79	2,41	2,22	31.75	3,46	3,00	2,76
UNC 3/4 - 10	3532-3/4	19.05	19.80	19.05	2,42	2,10	1,93	28.70	3,28	2,84	2,62	38.10	4,10	3,55	3,26
UNC 7/8 - 9	3532-7/8	22.22	23.00	22.35	3,36	2,91	2,68	33.53	5,03	4,34	4,00	44.45	6,38	5,52	5,07
UNC 1 - 8	3532-1	25.40	26.20	25.40	4,55	3,93	3,62	38.10	6,81	5,88	5,41	50.80	8,64	7,46	6,87

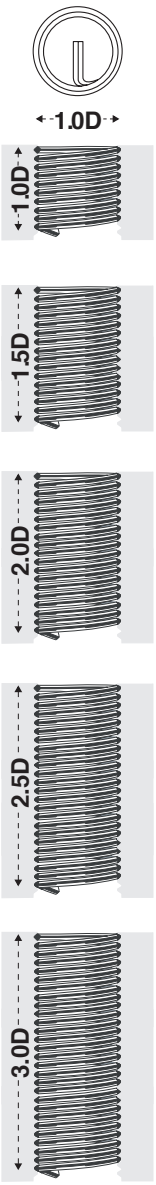
X.XD

Ejemplo de codificación: INSERTO AUTOBLOCANTE
Coding example: SCREW LOCKING INSERT
Exemple de codification: FILET RAPPORTÉ À FREIN
Exemplo de codificação: INSERTO AUTO-BLOQUEADOR

	1.0D	1.5D
UNC 1/4 - 20	3532-1/4x1.0DSL	3532-1/4x1.5DSL

LOCK | UNC | AISI 304 | AGS3600 | NASM21209 NASM8846 | ...DSL

				L 2.5D				L 3.0D				
				mm	€			mm	€			
UNC	Ref.	D1	ø	L	<500	500-999	1000-...	L	<500	500-999	1000-...	
UNC Nº2 - 56	3532-2G	2.18	2.40	5.59	1,23	1,06	0,97	6.60	1,32	1,14	1,05	100
UNC Nº4 - 40	3532-4G	2.84	3.00	7.11	0,43	0,37	0,34	8.64	0,52	0,44	0,41	
UNC Nº5 - 40	3532-5G	3.17	3.40	7.87	0,52	0,44	0,41	9.65	0,72	0,62	0,57	
UNC Nº6 - 32	3532-6G	3.50	3.70	8.89	0,38	0,33	0,31	10.41	0,45	0,39	0,36	
UNC Nº8 - 32	3532-8G	4.17	4.40	10.41	0,38	0,33	0,31	12.45	0,45	0,39	0,36	
UNC Nº10 - 24	3532-10G	4.83	5.10	12.19	0,48	0,42	0,38	14.48	0,58	0,51	0,47	
UNC Nº12 - 24	3532-12G	5.49	5.70	13.72	0,56	0,49	0,45	16.51	0,68	0,59	0,55	
UNC 1/4 - 20	3532-1/4	6.35	6.70	16.00	0,56	0,49	0,45	19.05	0,68	0,59	0,55	
UNC 5/16 - 18	3532-5/16	7.94	8.30	19.81	0,77	0,66	0,61	23.62	0,93	0,81	0,74	
UNC 3/8 - 16	3532-3/8	9.52	9.90	23.88	1,17	1,01	0,93	28.70	1,38	1,19	1,10	
UNC 7/16 - 14	3532-7/16	11.11	11.60	27.94	1,41	1,22	1,12	33.53	1,72	1,49	1,37	
UNC 1/2 - 13	3532-1/2	12.70	13.00	31.75	1,41	1,22	1,12	38.10	1,72	1,49	1,37	
UNC 9/16 - 12	3532-9/16	14.28	15.00	35.56	4,50	3,89	3,58	42.93	5,43	4,69	4,32	50
UNC 5/8 - 11	3532-5/8	15.87	16.50	39.62	4,14	3,58	3,30	47.75	4,94	4,27	3,93	
UNC 3/4 - 10	3532-3/4	19.05	19.80	47.75	4,87	4,20	3,87	57.15	5,83	5,04	4,64	
UNC 7/8 - 9	3532-7/8	22.22	23.00	55.63	7,56	6,52	6,00	66.80	9,17	7,92	7,29	25
UNC 1 - 8	3532-1	25.40	26.20	63.50	10,23	8,83	8,12	76.20	12,41	10,72	9,87	



LOCK | UNF | AISI 304 | NASM21209 NASM8846 | ...DSL

D		D1	ø	L 1.0D				L 1.5D				L 2.0D			
				mm	€			mm	€			mm	€		
UNF	Ref.			L	<500	500-999	1000-...	L	<500	500-999	1000-...	L	<500	500-999	1000-...
UNF Nº4 - 48	3534-4G	2.84	3.00	2.79	0,65	0,58	0,53	4.32	0,75	0,66	0,61	5.59	0,87	0,77	0,71
UNF Nº6 - 40	3534-6G	3.50	3.70	3.56	0,65	0,58	0,53	5.33	0,75	0,66	0,61	7.11	0,87	0,77	0,71
UNF Nº8 - 36	3534-8G	4.17	4.40	4.06	0,65	0,58	0,53	6.35	0,75	0,66	0,61	8.38	0,87	0,77	0,71
UNF Nº10 - 32	3534-10G	4.83	5.10	4.83	0,37	0,32	0,30	7.37	0,38	0,33	0,31	9.65	0,46	0,39	0,36
UNF 1/4 - 28	3534-1/4	6.35	6.60	6.35	0,37	0,32	0,30	9.65	0,38	0,33	0,31	12.70	0,46	0,39	0,36
UNF 5/16 - 24	3534-5/16	7.94	8.20	7.87	0,52	0,44	0,41	11.94	0,55	0,46	0,43	16.00	0,64	0,56	0,51
UNF 3/8 - 24	3534-3/8	9.52	9.80	9.65	0,75	0,64	0,59	14.48	0,78	0,68	0,62	19.05	0,93	0,81	0,74
UNF 7/16 - 20	3534-7/16	11.11	11.50	11.18	0,93	0,81	0,74	16.76	1,04	0,90	0,83	22.35	1,18	1,02	0,94
UNF 1/2 - 20	3534-1/2	12.70	13.00	12.70	0,93	0,81	0,74	19.05	1,04	0,90	0,83	25.40	1,18	1,02	0,94
UNF 9/16 - 18	3534-9/16	14.29	14.75	14.22	2,05	1,76	1,62	21.34	2,18	1,82	1,68	28.70	2,62	2,25	2,07
UNF 5/8 - 18	3534-5/8	15.87	16.50	16.00	2,09	1,77	1,63	23.88	2,18	1,88	1,73	31.75	2,62	2,25	2,07
UNF 3/4 - 16	3534-3/4	19.05	19.50	19.05	2,75	2,37	2,19	28.70	3,83	3,30	3,04	38.10	4,63	3,98	3,66
UNF 7/8 - 14	3534-7/8	22.22	22.50	22.35	4,68	4,03	3,71	33.27	6,90	5,95	5,47	44.45	8,78	7,56	6,95
UNF 1 - 12	3534-1	25.40	26.00	25.40	4,68	4,03	3,71	38.10	6,90	5,95	5,47	50.80	8,78	7,56	6,95
UNF 1 - 14	3535-1	25.40	26.00	25.40	4,68	4,08	3,75	38.10	6,90	6,02	5,54	50.80	8,78	7,66	7,05

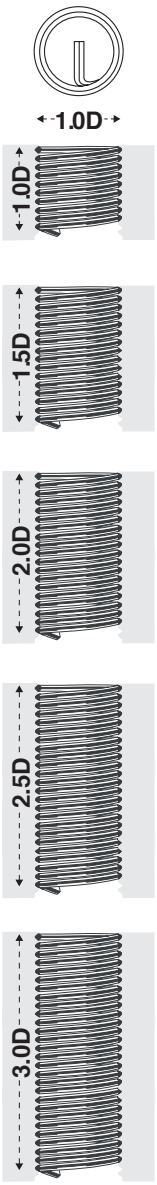
X.XD

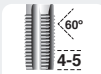
Ejemplo de codificación: INSERTO AUTOBLOCANTE
Coding example: SCREW LOCKING INSERT
Exemple de codification: FILET RAPPORTÉ À FREIN
Exemplo de codificação: INSERTO AUTO-BLOQUEADOR

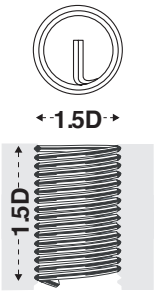
	1.0D	1.5D
UNF Nº4 - 48	3534-4Gx1.0DSL	3534-4Gx1.5DSL

LOCK | UNF | AISI 304 | NASM21209 NASM8846 | ...DSL

D			ø	L 2.5D				L 3.0D				
				mm	€			mm	€			
UNF	Ref.	D1	ø	L	<500	500-999	1000-...	L	<500	500-999	1000-...	
UNF Nº4 - 48	3534-4G	2.84	3.00	7.11	0,99	0,88	0,81	8.64	1,39	1,23	1,13	100
UNF Nº6 - 40	3534-6G	3.50	3.70	8.89	0,99	0,88	0,81	10.41	1,39	1,23	1,13	
UNF Nº8 - 36	3534-8G	4.17	4.40	10.41	0,99	0,88	0,81	12.45	1,39	1,23	1,13	
UNF Nº10 - 32	3534-10G	4.83	5.10	12.19	0,56	0,49	0,45	14.48	0,68	0,59	0,55	
UNF 1/4 - 28	3534-1/4	6.35	6.60	16.00	0,56	0,49	0,45	19.05	0,68	0,59	0,55	
UNF 5/16 - 24	3534-5/16	7.94	8.20	19.81	0,77	0,68	0,62	23.88	0,93	0,81	0,74	
UNF 3/8 - 24	3534-3/8	9.52	9.80	23.88	1,15	1,01	0,93	28.70	1,38	1,19	1,10	
UNF 7/16 - 20	3534-7/16	11.11	11.50	27.69	1,41	1,23	1,13	33.27	1,72	1,49	1,37	
UNF 1/2 - 20	3534-1/2	12.70	13.00	31.75	1,41	1,23	1,13	38.10	1,72	1,49	1,37	
UNF 9/16 - 18	3534-9/16	14.29	14.75	35.81	3,19	2,79	2,57	42.93	3,68	3,18	2,93	50
UNF 5/8 - 18	3534-5/8	15.87	16.50	39.62	3,35	2,95	2,72	47.75	3,68	3,18	2,93	
UNF 3/4 - 16	3534-3/4	19.05	19.50	47.75	5,60	4,89	4,50	57.15	6,71	5,80	5,33	
UNF 7/8 - 14	3534-7/8	22.22	22.50	55.63	10,09	8,79	8,09	66.80	12,09	10,44	9,61	25
UNF 1 - 12	3534-1	25.40	26.00	63.50	12,03	10,49	9,65	76.20	14,48	12,51	11,51	
UNF 1 - 14	3535-1	25.40	26.00	63.50	12,03	10,50	9,66	76.20	14,48	12,63	11,62	







M/MF	Ref.	€	D	mm	Unit	mm			
					Contenido / Content / Contenu / Conteúdo				
M 2 x 0.40	3520-2.00K	**48,46**	1.50	3.00	20	2.10	3520-2.00I	3500-HIT2	3500-TB2
M 2.20 x 0.45	3520-2.20K	**64,87**	1.50	3.30	20	2.30	3520-2.20I	3500-HIT2	3500-TB2
M 2.50 x 0.45	3520-2.50K	**44,80**	1.50	3.75	20	2.60	3520-2.50I	3500-HIT3	3500-TB3
M 3 x 0.50	3520-3.00K	**44,80**	1.50	4.50	20	3.20	3520-3.00I	3500-HIT4	3500-TB4
M 3.50 x 0.60	3520-3.50K	**44,80**	1.50	5.25	20	3.70	3520-3.50I	3500-HIT5	3500-TB5
M 4 x 0.70	3520-4.00K	**44,80**	1.50	6.00	20	4.20	3520-4.00I	3500-HIT6	3500-TB6
M 5 x 0.80	3520-5.00K	**44,57**	1.50	7.50	20	5.20	3520-5.00I	3500-HIT8	3500-TB8
M 6 x 1.00	3520-6.00K	**48,01**	1.50	9.00	20	6.30	3520-6.00I	3500-HIT9	3500-TB9
M 7 x 1.00	3520-7.00K	**61,05**	1.50	10.50	20	7.30	3520-7.00I	3500-HIT10	3500-TB11
M 8 x 1.00	3521-8.00K	**61,05**	1.50	12.00	20	8.30	3521-8.00I	3500-HIT11	3500-TB12
M 8 x 1.25	3520-8.00K	**61,05**	1.50	12.00	20	8.30	3520-8.00I	3500-HIT11	3500-TB12
M 9 x 1.25	3520-9.00K	**67,71**	1.50	13.50	15	9.40	3520-9.00I	3500-HIT13	3500-TB12
M 10 x 1.00	3523-10.00K	**65,37**	1.50	15.00	15	10.30	3523-10.00I	3500-HIT13	3500-TB13
M 10 x 1.25	3521-10.00K	**65,37**	1.50	15.00	15	10.30	3521-10.00I	3500-HIT13	3500-TB13
M 10 x 1.50	3520-10.00K	**65,37**	1.50	15.00	15	10.40	3520-10.00I	3500-HIT13	3500-TB13
M 11 x 1.00	3523-11.00K	**90,60**	1.50	16.50	10	11.30	3523-11.00I	3500-HIT14	3500-TB14
M 11 x 1.25	3521-11.00K	**90,60**	1.50	16.50	10	11.30	3521-11.00I	3500-HIT14	3500-TB14
M 11 x 1.50	3520-11.00K	**74,95**	1.50	16.50	10	11.40	3520-11.00I	3500-HIT14	3500-TB14
M 12 x 1.00	3524-12.00K	**74,95**	1.50	18.00	10	12.30	3524-12.00I	3500-HIT15	3500-TB15
M 12 x 1.25	3523-12.00K	**74,95**	1.50	18.00	10	12.30	3523-12.00I	3500-HIT15	3500-TB15
M 12 x 1.50	3521-12.00K	**74,95**	1.50	18.00	10	12.40	3521-12.00I	3500-HIT15	3500-TB15
M 12 x 1.75	3520-12.00K	**74,95**	1.50	18.00	10	12.50	3520-12.00I	3500-HIT15	3500-TB15
M 13 x 1.25	3523-13.00K	**107,86**	1.50	19.50	10	–	3523-13.00I	3500-HIT15	–
M 13 x 1.50	3521-13.00K	**107,86**	1.50	19.50	10	–	3521-13.00I	3500-HIT15	–
M 13 x 1.75	3520-13.00K	**107,86**	1.50	19.50	10	–	3520-13.00I	3500-HIT15	–
M 14 x 1.00	3524-14.00K	**86,16**	1.50	21.00	10	–	3524-14.00I	3500-HIT16	–
M 14 x 1.25	3523-14.00K	**86,16**	1.50	21.00	10	–	3523-14.00I	3500-HIT16	–
M 14 x 1.50	3521-14.00K	**86,16**	1.50	21.00	10	–	3521-14.00I	3500-HIT16	–
M 14 x 2.00	3520-14.00K	**86,16**	1.50	21.00	10	–	3520-14.00I	3500-HIT16	–
M 15 x 1.50	3521-15.00K	**128,92**	1.50	22.50	10	–	3521-15.00I	3500-HIT16	–
M 15 x 2.00	3520-15.00K	**128,92**	1.50	22.50	10	–	3520-15.00I	3500-HIT16	–
M 16 x 1.50	3521-16.00K	**101,48**	1.50	24.00	10	–	3521-16.00I	3500-HIT18	–
M 16 x 2.00	3520-16.00K	**101,48**	1.50	24.00	10	–	3520-16.00I	3500-HIT18	–
M 18 x 1.50	3523-18.00K	**120,54**	1.50	27.00	5	–	3523-18.00I	3500-HIT20	–

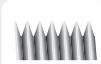
FREE | M/MF | 1.5D

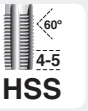
AISI 304 | HSS | HSS | ...K

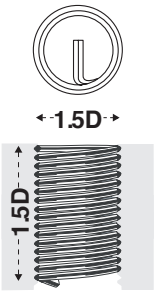
M MF

M/MF	Ref.	€	D	mm	Unit	mm			
					Contenido / Content / Contenu / Conteúdo				
M 18 x 2.00	3521-18.00K	120,54	1.50	27.00	5	–	3521-18.00I	3500-HIT20	–
M 18 x 2.50	3520-18.00K	122,88	1.50	27.00	5	–	3520-18.00I	3500-HIT20	–
M 20 x 1.50	3523-20.00K	131,41	1.50	30.00	5	–	3523-20.00I	3500-HIT21	–
M 20 x 2.00	3521-20.00K	131,41	1.50	30.00	5	–	3521-20.00I	3500-HIT21	–
M 20 x 2.50	3520-20.00K	131,41	1.50	30.00	5	–	3520-20.00I	3500-HIT21	–
M 22 x 1.50	3523-22.00K	150,92	1.50	33.00	5	–	3523-22.00I	3500-HIT22	–
M 22 x 2.00	3521-22.00K	150,92	1.50	33.00	5	–	3521-22.00I	3500-HIT22	–
M 22 x 2.50	3520-22.00K	150,92	1.50	33.00	5	–	3520-22.00I	3500-HIT22	–
M 24 x 1.50	3523-24.00K	173,13	1.50	36.00	5	–	3523-24.00I	3500-HIT23	–
M 24 x 2.00	3521-24.00K	173,13	1.50	36.00	5	–	3521-24.00I	3500-HIT23	–
M 24 x 3.00	3520-24.00K	173,13	1.50	36.00	5	–	3520-24.00I	3500-HIT23	–

M/MF	Ref.	€	D	mm	Unit	mm			
					Contenido / Content / Contenu / Conteúdo				
M 26 x 1.50	3523-26.00K	350,35	1.50	39.00	5	–	3523-26.00I	3500-HIT24	–
M 27 x 1.50	3523-27.00K	350,35	1.50	40.50	5	–	3523-27.00I	3500-HIT24	–
M 27 x 2.00	3521-27.00K	350,35	1.50	40.50	5	–	3521-27.00I	3500-HIT24	–
M 27 x 3.00	3520-27.00K	350,35	1.50	40.50	5	–	3520-27.00I	3500-HIT24	–
M 28 x 1.50	3523-28.00K	405,97	1.50	42.00	5	–	3523-28.00I	3500-HIT24	–
M 30 x 1.50	3523-30.00K	424,75	1.50	45.00	5	–	3523-30.00I	3500-HIT26	–
M 30 x 2.00	3521-30.00K	447,00	1.50	45.00	5	–	3521-30.00I	3500-HIT26	–
M 30 x 3.50	3520-30.00K	424,75	1.50	45.00	5	–	3520-30.00I	3500-HIT25	–
M 33 x 2.00	3521-33.00K	443,53	1.50	49.50	5	–	3521-33.00I	3500-HIT26	–
M 33 x 3.50	3520-33.00K	443,53	1.50	49.50	5	–	3520-33.00I	3500-HIT26	–
M 36 x 1.50	3524-36.00K	492,20	1.50	54.00	3	–	3524-36.00I	3500-HIT28	–
M 36 x 2.00	3523-36.00K	492,20	1.50	54.00	3	–	3523-36.00I	3500-HIT28	–
M 36 x 3.00	3521-36.00K	492,20	1.50	54.00	3	–	3521-36.00I	3500-HIT28	–
M 36 x 4.00	3520-36.00K	492,20	1.50	54.00	3	–	3520-36.00I	3500-HIT28	–







UNC	Ref.	€	D	mm	Unit	mm			
					Contenido / Content / Contenu / Conteúdo				
UNC Nº2 - 56	3532-2GK	**63,56**	1.50	3.30	20	2.40	3532-2GI	3500-HIT2	3500-TB2
UNC Nº3 - 48	3532-3GK	**60,87**	1.50	3.81	20	2.70	3532-3GI	3500-HIT3	3500-TB3
UNC Nº4 - 40	3532-4GK	**57,65**	1.50	4.32	20	3.10	3532-4GI	3500-HIT4	3500-TB4
UNC Nº5 - 40	3532-5GK	**57,65**	1.50	4.83	20	3.40	3532-5GI	3500-HIT4	3500-TB4
UNC Nº6 - 32	3532-6GK	**57,65**	1.50	5.33	20	3.80	3532-6GI	3500-HIT5	3500-TB5
UNC Nº8 - 32	3532-8GK	**57,65**	1.50	6.35	20	4.40	3532-8GI	3500-HIT6	3500-TB6
UNC Nº10 - 24	3532-10GK	**57,65**	1.50	7.11	20	5.20	3532-10GI	3500-HIT7	3500-TB8
UNC Nº12 - 24	3532-12GK	**57,65**	1.50	8.38	20	5.80	3532-12GI	3500-HIT8	3500-TB8
UNC 1/4 - 20	3532-1/4K	**51,94**	1.50	9.65	20	6.70	3532-1/4I	3500-HIT9	3500-TB9
UNC 5/16 - 18	3532-5/16K	**63,56**	1.50	11.94	20	8.30	3532-5/16I	3500-HIT10	3500-TB12
UNC 3/8 - 16	3532-3/8K	**67,94**	1.50	14.22	15	9.90	3532-3/8I	3500-HIT13	3500-TB12
UNC 7/16 - 14	3532-7/16K	**76,28**	1.50	16.76	10	11.60	3532-7/16I	3500-HIT14	3500-TB14
UNC 1/2 - 13	3532-1/2K	**83,72**	1.50	19.05	10	13.00	3532-1/2I	3500-HIT15	3500-TB15
UNC 9/16 - 12	3532-9/16K	**111,77**	1.50	21.34	10	–	3532-9/16I	3500-HIT16	–
UNC 5/8 - 11	3532-5/8K	**111,77**	1.50	23.88	10	–	3532-5/8I	3500-HIT18	–
UNC 3/4 - 10	3532-3/4K	**142,46**	1.50	28.70	5	–	3532-3/4I	3500-HIT20	–
UNC 7/8 - 9	3532-7/8K	**173,13**	1.50	33.27	5	–	3532-7/8I	3500-HIT22	–
UNC 1 - 8	3532-1K	**172,01**	1.50	38.10	5	–	3532-1I	3500-HIT23	–

UNC	Ref.	€	D	mm	Unit	mm			
					Contenido / Content / Contenu / Conteúdo				
UNC 1.1/8 - 7	3532-1.1/8K	**346,74**	1.50	42.93	3	–	3532-1.1/8I	3500-HIT25	–
UNC 1.1/4 - 7	3532-1.1/4K	**385,74**	1.50	47.75	3	–	3532-1.1/4I	3500-HIT26	–
UNC 1.3/8 - 6	3532-1.3/8K	**463,75**	1.50	52.32	3	–	3532-1.3/8I	3500-HIT27	–
UNC 1.1/2 - 6	3532-1.1/2K	**540,32**	1.50	57.15	3	–	3532-1.1/2I	3500-HIT28	–

FREE | UNF | 1.5D

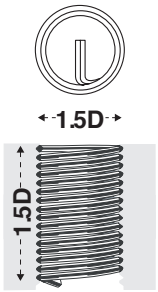
AISI 304 | HSS | HSS | ...K

UNF	Ref.	€	D	mm	Unit	mm			
					Contenido / Content / Contenu / Conteúdo				
UNF Nº3 - 56	3534-3GK	**63,45**	1.50	3.30	20	2.70	3534-3GI	3500-HIT3	3500-TB3
UNF Nº4 - 48	3534-4GK	**57,65**	1.50	3.81	20	3.00	3534-4GI	3500-HIT4	3500-TB4
UNF Nº6 - 40	3534-6GK	**57,65**	1.50	4.32	20	3.80	3534-6GI	3500-HIT5	3500-TB5
UNF Nº8 - 36	3534-8GK	**57,65**	1.50	4.83	20	4.40	3534-8GI	3500-HIT6	3500-TB6
UNF Nº10 - 32	3534-10GK	**57,65**	1.50	5.33	20	5.10	3534-10GI	3500-HIT8	3500-TB8
UNF Nº12 - 28	3534-12GK	**63,16**	1.50	6.35	20	5.60	3534-12GI	3500-HIT8	3500-TB8
UNF 1/4 - 28	3534-1/4K	**51,94**	1.50	7.11	20	6.70	3534-1/4I	3500-HIT9	3500-TB9
UNF 5/16 - 24	3534-5/16K	**63,56**	1.50	8.38	20	8.30	3534-5/16I	3500-HIT11	3500-TB12
UNF 3/8 - 24	3534-3/8K	**67,94**	1.50	9.65	15	9.80	3534-3/8I	3500-HIT13	3500-TB13
UNF 7/16 - 16	3534-7/16-16K	**92,43**	1.50	11.94	10	11.50	3534-7/16-16I	3500-HIT14	3500-TB14
UNF 7/16 - 20	3534-7/16K	**76,28**	1.50	14.22	10	11.50	3534-7/16I	3500-HIT14	3500-TB14
UNF 1/2 - 20	3534-1/2K	**83,72**	1.50	16.76	10	13.00	3534-1/2I	3500-HIT15	3500-TB15
UNF 9/16 - 18	3534-9/16K	**111,77**	1.50	19.05	10	–	3534-9/16I	3500-HIT16	–
UNF 5/8 - 18	3534-5/8K	**111,77**	1.50	21.34	10	–	3534-5/8I	3500-HIT18	–
UNF 3/4 - 16	3534-3/4K	**142,46**	1.50	23.88	5	–	3534-3/4I	3500-HIT21	–
UNF 7/8 - 14	3534-7/8K	**173,13**	1.50	28.70	5	–	3534-7/8I	3500-HIT22	–
UNF 1 - 12	3534-1K	**169,65**	1.50	33.27	5	–	3534-1I	3500-HIT23	–
UNF 1 - 14	3535-1K	**189,91**	1.50	38.10	5	–	3535-1I	3500-HIT23	–

UNF	Ref.	€	D	mm	Unit	mm			
					Contenido / Content / Contenu / Conteúdo				
UNF 1.1/8 -12	3534-1.1/8K	**346,74**	1.50	42.93	3	–	3534-1.1/8I	3500-HIT25	–
UNF 1.1/4 -12	3534-1.1/4K	**385,74**	1.50	47.75	3	–	3534-1.1/4I	3500-HIT26	–
UNF 1.3/8 -12	3534-1.3/8K	**463,75**	1.50	52.32	3	–	3534-1.3/8I	3500-HIT27	–
UNF 1.1/2 -12	3534-1.1/2K	**540,32**	1.50	57.15	3	–	3534-1.1/2I	3500-HIT28	–

FREE | BSW | 1.5D

AISI 304 | HSS | HSS 55° 4-5 | ...K



BSW	Ref.	€	D	mm	Unit	mm	55° 4-5		
					Contenido / Content / Contenu / Conteúdo				
BSW 1/8 - 40	3528-1/8K	**59,19**	1.50	4.83	20	3.40	3528-1/8I	3500-HIT4	3500-TB4
BSW 3/16 - 24	3528-3/16K	**57,65**	1.50	7.11	20	5.00	3528-3/16I	3500-HIT7	3500-TB8
BSW 1/4 - 20	3528-1/4K	**53,33**	1.50	9.65	20	6.70	3528-1/4I	3500-HIT9	3500-TB9
BSW 5/16 - 18	3528-5/16K	**63,56**	1.50	11.94	20	8.30	3528-5/16I	3500-HIT10	3500-TB11
BSW 3/8 - 16	3528-3/8K	**67,94**	1.50	14.22	15	9.90	3528-3/8I	3500-HIT11	3500-TB12
BSW 7/16 - 14	3528-7/16K	**76,28**	1.50	16.76	10	11.50	3528-7/16I	3500-HIT14	3500-TB14
BSW 1/2 - 12	3528-1/2K	**83,72**	1.50	19.05	10	13.00	3528-1/2I	3500-HIT15	3500-TB15
BSW 9/16 - 12	3528-9/16K	**111,77**	1.50	21.34	10	–	3528-9/16I	3500-HIT16	–
BSW 5/8 - 11	3528-5/8K	**111,77**	1.50	23.88	10	–	3528-5/8I	3500-HIT18	–
BSW 3/4 - 10	3528-3/4K	**142,46**	1.50	28.70	5	–	3528-3/4I	3500-HIT20	–
BSW 7/8 - 9	3528-7/8K	**173,13**	1.50	33.27	5	–	3528-7/8I	3500-HIT22	–
BSW 1 - 8	3528-1K	**172,01**	1.50	38.10	5	–	3528-1I	3500-HIT23	–

FREE | BSF | 1.5D | AISI 304 | HSS | HSS 55° 4-5 | ...K

BSF	Ref.	€	D	mm	Unit	mm	55° 4-5		
					Contenido / Content / Contenu / Conteúdo				
BSF 3/16 - 32	3530-3/16K	**57,65**	1.50	7.11	20	5.0	3530-3/16I	3500-HIT8	3500-TB6
BSF 1/4 - 26	3530-1/4K	**51,94**	1.50	9.65	20	6.6	3530-1/4I	3500-HIT9	3500-TB9
BSF 5/16 - 22	3530-5/16K	**63,56**	1.50	11.94	20	8.3	3530-5/16I	3500-HIT11	3500-TB11
BSF 3/8 - 20	3530-3/8K	**67,94**	1.50	14.22	15	9.9	3530-3/8I	3500-HIT13	3500-TB12
BSF 7/16 - 18	3530-7/16K	**76,28**	1.50	16.76	10	11.5	3530-7/16I	3500-HIT14	3500-TB14
BSF 1/2 - 16	3530-1/2K	**83,72**	1.50	19.05	10	13.0	3530-1/2I	3500-HIT15	3500-TB15
BSF 9/16 - 16	3530-9/16K	**111,77**	1.50	21.34	10	–	3530-9/16I	3500-HIT16	–
BSF 5/8 - 14	3530-5/8K	**111,77**	1.50	23.88	10	–	3530-5/8I	3500-HIT18	–
BSF 3/4 - 12	3530-3/4K	**142,46**	1.50	28.70	5	–	3530-3/4I	3500-HIT20	–
BSF 7/8 - 11	3530-7/8K	**173,13**	1.50	33.27	5	–	3530-7/8I	3500-HIT22	–
BSF 1 - 10	3530-1K	**174,71**	1.50	38.10	5	–	3530-1I	3500-HIT23	–

FREE | BSP | 1.5D

AISI 304 | HSS | HSS | ...K

powercoil BSP NPT

BSP	Ref.	€	D	mm	Unit	mm			
					Contenido / Content / Contenu / Conteúdo				
BSP 1/8 - 28	3546-1/8K	92,48	1.50	4.83	10	–	3546-1/8I	3500-HIT14	–
BSP 1/4 - 19	3546-1/4K	97,65	1.50	9.65	10	–	3546-1/4I	3500-HIT16	–
BSP 3/8 - 19	3546-3/8K	112,23	1.50	14.22	10	–	3546-3/8I	3500-HIT20	–
BSP 1/2 - 14	3546-1/2K	147,52	1.50	19.05	10	–	3546-1/2I	3500-HIT23	–
BSP 5/8 - 14	3546-5/8K	302,85	1.50	23.88	10	–	3546-5/8I	3500-HIT23	–
BSP 3/4 - 14	3546-3/4K	317,33	1.50	28.70	10	–	3546-3/4I	3500-HIT24	–
BSP 7/8 - 14	3546-7/8K	424,75	1.50	33.27	5	–	3546-7/8I	3500-HIT27	–
BSP 1 - 11	3546-1K	424,75	1.50	38.10	5	–	3546-1I	3500-HIT27	–

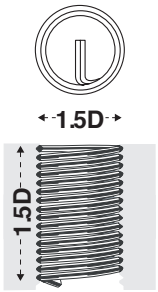
FREE | NPT | 1.5D | AISI 304 | HSS | HSS | ...K

NPT	Ref.	€	D	mm	Unit	mm			
					Contenido / Content / Contenu / Conteúdo				
NPT 1/8 - 27	3552-1/8K	224,85	1.50	4,78	10	–	3552-1/8I	3500-HIT13	–
NPT 1/4 - 18	3552-1/4K	254,17	1.50	9,53	10	–	3552-1/4I	3500-HIT16	–
NPT 3/8 - 18	3552-3/8K	322,62	1.50	14,30	10	–	3552-3/8I	3500-HIT18	–
NPT 1/2 - 14	3552-1/2K	421,75	1.50	19,05	10	–	3552-1/2I	3500-HIT22	–
NPT 3/4 - 14	3552-3/4K	515,47	1.50	28,58	10	–	3552-3/4I	3500-HIT24	–
NPT 1 - 11.1/2	3552-1K	684,15	1.50	38,10	10	–	3552-1I	3500-HIT27	–

8-UN BA

FREE | 8-UN | 1.5D

AISI 304 | HSS | HSS | ...K



8 - UN	Ref.	€	D	mm	Unit	mm			
					Contenido / Content / Contenu / Conteúdo				
UN 1.1/8 - 8	3570-1.1/8K	515,47	1.50	42.88	3	–	3570-1.1/8I	3500-HIT25	–
UN 1.1/4 - 8	3570-1.1/4K	627,93	1.50	47.63	3	–	3570-1.1/4I	3500-HIT26	–
UN 1.3/8 - 8	3570-1.3/8K	777,88	1.50	52.37	3	–	3570-1.3/8I	3500-HIT27	–
UN 1.1/2 - 8	3570-1.1/2K	684,15	1.50	57.15	3	–	3570-1.1/2I	3500-HIT28	–
UN 1.5/8 - 8	3570-1.5/8K	965,32	1.50	61.93	3	–	3570-1.5/8I	3500-HIT28	–
UN 1.3/4- 8	3570-1.3/4K	1.002,81	1.50	66.68	3	–	3570-1.3/4I	3500-HIT28	–
UN 1.7/8 - 8	3570-1.7/8K	1.134,01	1.50	71.42	3	–	3570-1.7/8I	3500-HIT30	–
UN 2 - 8	3570-2K	1.265,23	1.50	76.20	3	–	3570-2I	3500-HIT30	–

FREE | BA | 1.5D

AISI 304 | HSS | HSS | ...K

BA	Ref.	€	D	mm	Unit	mm			
					Contenido / Content / Contenu / Conteúdo				
BA 0	3544-0K	110,07	1.50	8.99	20	6.20	3544-0I	3500-HIT9	3500-TB11
BA 2	3544-2K	110,07	1.50	7.06	20	4.90	3544-2I	3500-HIT7	3500-TB8
BA 4	3544-4K	110,07	1.50	5.41	20	3.80	3544-4I	3500-HIT5	3500-TB5
BA 6	3544-6K	120,94	1.50	4.19	20	2.90	3544-6I	3500-HIT3	3500-TB3

FREE | BSB | 1.5D

AISI 304 | HSS | HSS 55° 4-5 | ...K

D			D	mm	Unit	mm	55° 4-5		
BSB	Ref.	€			Contenido / Content / Contenu / Conteúdo				
BSB 1/4 - 26	3560-1/4K	**134,71**	1.50	9,53	20	6.6	3560-1/4I	3500-HIT10	3500-TB9
BSB 5/16 - 26	3560-5/16K	**107,05**	1.50	11,91	20	8.0	3560-5/16I	3500-HIT11	3500-TB12
BSB 3/8 - 26	3560-3/8K	**115,97**	1.50	14,30	15	9.8	3560-3/8I	3500-HIT13	3500-TB13
BSB 7/16 - 26	3560-7/16K	**124,90**	1.50	16,66	10	11.1	3560-7/16I	3500-HIT14	3500-TB14
BSB 1/2 - 26	3560-1/2K	**133,83**	1.50	19,05	10	12.7	3560-1/2I	3500-HIT15	3500-TB15

FREE | M/MF | AISI 304 | HSS | HSS 60° | ...K

D			D	mm	Unit	mm	60°		
M/MF	Ref.	€			Contenido / Content / Contenu / Conteúdo				
10 x 1.00	3522-10.00K	**97,71**	-	1/2	5	–	3520-10.00PN	3500-HIT13	3500-TB13
			-	0.339	5	–	–	–	–
12 x 1.25	3522-12.00K	**119,09**	-	1/2	5	–	3522-12.00PN	3500-HIT15	3500-TB15
			-	3/4	5	–	–	–	–
14 x 1.25	3522-14.00K	**127,74**	-	3/8	5	–	3522-14.00PN	3500-HIT17	–
			-	1/2	5	–	–	–	–
			-	3/4	5	–	–	–	–
18 x 1.50	3522-18.00K	**193,32**	-	1/2	5	–	3522-18.00PN	3500-HIT20	–
14 x 1.25	3522-14.00K1	**103,01**	8.40	-	5	–	3522-14.00PN	3500-HIT17	–
			12.40	-	5	–	–	–	–
			16.40	-	5	–	–	–	–

FREE | M/MF | 1.5D | AISI 304 | HSS | HSS | ...WK

	M/MF	D	mm	Unit	mm			
				SET M5 - M12				
	M 5 x 0.80	1.50	7.50	25	5.20	3520-5.00I	3500-HIT8	3500-TB8
	M 6 x 1.00	1.50	9.00	25	6.30	3520-6.00I	3500-HIT9	3500-TB9
	M 8 x 1.25	1.50	12.00	25	8.30	3520-8.00I	3500-HIT11	3500-TB12
Ref. 3520-WK1	M 10 x 1.50	1.50	15.00	25	10.40	3520-10.00I	3500-HIT13	3500-TB13
315,67 €	M 12 x 1.75	1.50	18.00	10	12.50	3520-12.00I	3500-HIT15	3500-TB15

FREE | M/MF | 1.5D | AISI 304 | HSS | HSS | HSS | ...WK

M14x1,25

	M/MF	D	mm	Unit	mm				
				SET BUJÍAS / SPARK PLUG / BOUGIES / VELA DE IGNIÇÃO M6 - M12 + M14 X 1.25					
	M 6 x 1.00	1.50	9.00	25	6.30	3520-6.00I	-	3500-HIT9	3500-TB9
	M 8 x 1.25	1.50	12.00	25	8.30	3520-8.00I	-	3500-HIT11	3500-TB12
	M 10 x 1.50	1.50	15.00	25	10.40	3520-10.00I	-	3500-HIT13	3500-TB13
	M 12 x 1.75	1.50	18.00	10	12.50	3520-12.00I	-	3500-HIT15	3500-TB15
	M 14 x 1.25	-	8.40	5	14.25	-	3522-14.00PN	3500-HIT17	-
Ref. 3522-WK4		-	12.40	5	-	-	-	-	-
363,77 €		-	16.40	5	-	-	-	-	-

FREE | UNC/UNF | 1.5D

AISI 304 | HSS | HSS | ...WK

UNC	D	mm	Unit	mm				
			SET UNC 1/4" - 1/2"					
UNC 1/4 - 20	1.50	9.65	25	6.70	3532-1/4I	3500-HIT9	3500-TB9	
UNC 5/16 - 18	1.50	11.94	25	8.30	3532-5/16I	3500-HIT10	3500-TB12	
UNC 3/8 - 16	1.50	14.22	25	9.90	3532-3/8I	3500-HIT13	3500-TB12	
UNC 7/16 - 14	1.50	16.76	10	11.60	3532-7/16I	3500-HIT14	3500-TB14	Ref. 3532-WK1
UNC 1/2 - 13	1.50	19.05	10	13.00	3532-1/2I	3500-HIT15	3500-TB15	394,49 €

UNF								
			SET UNF 1/4" - 1/2"					
UNF 1/4 - 28	1.50	9.65	25	6.70	3534-1/4I	3500-HIT9	3500-TB9	
UNF 5/16 - 24	1.50	11.94	25	8.30	3534-5/16I	3500-HIT11	3500-TB12	
UNF 3/8 - 24	1.50	14.22	25	9.80	3534-3/8I	3500-HIT13	3500-TB13	
UNF 7/16 - 20	1.50	16.76	10	11.50	3534-7/16I	3500-HIT14	3500-TB14	Ref. 3534-WK1
UNF 1/2 - 20	1.50	19.05	10	13.00	3534-1/2I	3500-HIT15	3500-TB15	394,49 €

FREE | BSW/BSF | 1.5D | AISI 304 | HSS | HSS | ...WK

BSW	D	mm	Unit	mm				
			SET BSW 1/4" - 1/2"					
BSW 1/4 - 20	1.50	9,65	25	6.70	3528-1/4I	3500-HIT9	3500-TB9	
BSW 5/16 - 18	1.50	11,94	25	8.30	3528-5/16I	3500-HIT10	3500-TB11	
BSW 3/8 - 16	1.50	14,22	25	9.90	3528-3/8I	3500-HIT11	3500-TB12	
BSW 7/16 - 14	1.50	16,76	10	11.50	3528-7/16I	3500-HIT14	3500-TB14	Ref. 3528-WK1
BSW 1/2 - 12	1.50	19,05	10	13.00	3528-1/2I	3500-HIT15	3500-TB15	394,49 €

BSF								
			SET BSF 1/4" - 1/2"					
BSF 1/4 - 26	1.50	9,65	25	6.60	3530-1/4I	3500-HIT9	3500-TB9	
BSF 5/16 - 22	1.50	11,94	25	8.30	3530-5/16I	3500-HIT11	3500-TB11	
BSF 3/8 - 20	1.50	14,22	25	9.90	3530-3/8I	3500-HIT13	3500-TB12	
BSF 7/16 - 18	1.50	16,76	10	11.50	3530-7/16I	3500-HIT14	3500-TB14	Ref. 3530-WK1
BSF 1/2 - 16	1.50	19,05	10	13.00	3530-1/2I	3500-HIT15	3500-TB15	394,49 €

FREE

AISI 304

Ref. 1-87

1637,67 €

CONTENIDO DEL EXPOSITOR / DISPLAY CONTENT
CONTENU DU PRÉSENTOIR / CONTEÚDO DO EXPOSITOR

ESTUCHES / SETS / COFFRETS / ESTOJOS		
M/MF		
4 Unit.	M3x0.5	3520-3.00K
4 Unit.	M4x0.7	3520-4.00K
4 Unit.	M5x0.8	3520-5.00K
3 Unit.	M6x1.0	3520-6.00K
3 Unit.	M8x1.25	3520-8.00K
3 Unit.	M10x1.5	3520-10.00K
2 Unit.	M12x1.75	3520-12.00K
2 Unit.	M14x2.0	3520-14.00K
BUJÍA / SPARK PLUG / BOUGIE / VELA DE IGNIÇÃO		
2 Unit.	M14x1.25	3522-14.00K

CONTENIDO DEL EXPOSITOR / DISPLAY CONTENT
CONTENU DU PRÉSENTOIR / CONTEÚDO DO EXPOSITOR

ESTUCHES / SETS / COFFRETS / ESTOJOS			BLISTERS		
M/MF			**M/MF**		
4 Unit.	M3x0.5	3520-3.00K	5 Unit.	M4x0.7-1.5D	3520-4.00x1.5DP
4 Unit.	M4x0.8	3520-4.00K	5 Unit.	M5x0.8-1.5D	3520-5.00x1.5DP
4 Unit.	M5x0.8	3520-5.00K	5 Unit.	M6x1.0-1.5D	3520-6.00x1.5DP
4 Unit.	M6x1.0	3520-6.00K	5 Unit.	M8x1.25-1.5D	3520-8.00x1.5DP
3 Unit.	M8x1.25	3520-8.00K	5 Unit.	M10x1.50-1.5D	3521-10.00x1.5DP
3 Unit.	M10x1.5	3520-10.00K	5 Unit.	M12x1.75-1.5D	3520-12.00x1.5DP

Ref. 1-88

1260,68 €

FREE

AISI 304

330 x 360 x 515

CONTENIDO DEL EXPOSITOR / DISPLAY CONTENT
CONTENU DU PRÉSENTOIR / CONTEÚDO DO EXPOSITOR

ESTUCHES / SETS / COFFRETS / ESTOJOS

M/MF

4 Unit.	M5x0.8	3520-5.00K
4 Unit.	M6x1.0	3520-6.00K
3 Unit.	M8x1.25	3520-8.00K

BUJÍA / SPARK PLUG
BOUGIE / VELA DE IGNIÇÃO

BLISTERS

M/MF

5 Unit.	M3x0.5-1.5D	3520-3.00x1.5DP
5 Unit.	M4x0.7-1.5D	3520-4.00x1.5DP
5 Unit.	M5x0.8-1.5D	3520-5.00x1.5DP
5 Unit.	M6x1.0-1.0D	3520-6.00x1.0DP
5 Unit.	M6x1.0-1.5D	3520-6.00x1.5DP
3 Unit.	M8x1.25-1.0D	3520-8.00x1.0DP
5 Unit.	M8x1.25-2.0D	3520-8.00x2.0DP
5 Unit.	M10x1.5-1.5D	3520-10.00x1.5DP
5 Unit.	M10x1.5-2.0D	3521-10.00x2.0DP
5 Unit.	M12x1.75-1.5D	3520-12.00x1.5DP
3 Unit.	M16x2.0-1.5D	3520-16.00x2.0DP

BUJÍA / SPARK PLUG
BOUGIE / VELA DE IGNIÇÃO

5 Unit.	M14x1.25-1/2"	M14x1.25-1/2P

Ref. 1-89

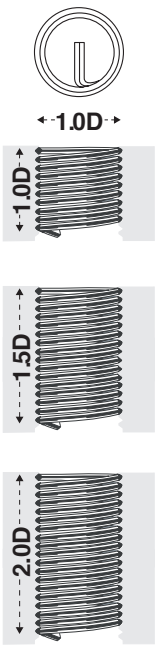
884,13 €

M/MF

FREE | M/MF | AISI 304

BS7752 DIN8140 | NASM3279 NASM3280 NASM3281 LN9039 | ...DIR

D			1.0D		1.5D		2.0D	
M/MF	Ref.	Unit.	mm	€	mm	€	mm	€
M 2.20 x 0.45	3520-2.20	1000	2.20	393,31	3.30	399,01	4.40	430,36
M 2.50 x 0.45	3520-2.50	1000	2.50	188,39	3.75	202,36	5.00	228,01
M 3 x 0.50	3520-3.00	1000	3.00	176,71	4.50	202,36	6.00	219,45
M 4 x 0.70	3520-4.00	1000	4.00	173,86	6.00	185,25	8.00	205,20
M 5 x 0.80	3520-5.00	1000	5.00	173,86	7.50	205,49	10.00	222,74
M 6 x 1.00	3520-6.00	500	6.00	107,65	9.00	115,56	12.00	150,20
M 8 x 1.00	3521-8.00	250	8.00	80,88	12.00	86,32	16.00	109,65
M 8 x 1.25	3520-8.00	250	8.00	68,04	12.00	74,66	16.00	102,65
M 10 x 1.50	3520-10.00	250	10.00	90,50	15.00	102,65	20.00	118,99
M 12 x 1.75	3520-12.00	125	12.00	64,19	18.00	76,07	24.00	89,81



X.XD

Ejemplo de codificación: CARRETE
Coding example: REEL
Exemple de codification: ROULEAUX-CHARGEUR
Exemplo de codificação: CARRETO

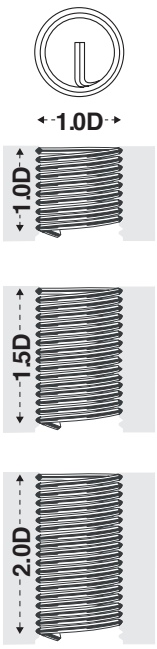
	1.0D	1.5D	2.0D
M 6 x 1.00	3520-6.00x1.0DIR	3520-6.00x1.5DIR	3520-6.00x2.0DIR

FREE | UNC | AISI 304

SBAC AS 6734 | NASM122076 – NASM122275 NASM8846 | ...DIR

D			1.0D		1.5D		2.0D	
UNC	Ref.	Unit.	mm	€	mm	€	mm	€
UNC Nº2 - 56	3532-2G	1000	2.29	**520,76**	3.30	**609,67**	4.32	**787,48**
UNC Nº4 - 40	3532-4G	1000	2.79	**190,56**	4.32	**198,88**	5.59	**203,22**
UNC Nº5 - 40	3532-5G	1000	3.30	**209,57**	4.83	**222,27**	6.35	**234,98**
UNC Nº6 - 32	3532-6G	1000	3.56	**188,83**	5.33	**211,48**	7.11	**226,59**
UNC Nº8 - 32	3532-8G	1000	4.06	**188,83**	6.35	**211,48**	8.38	**226,59**
UNC Nº10 - 24	3532-10G	1000	4.83	**203,22**	7.37	**213,33**	9.65	**222,27**
UNC 1/4 - 20	3532-1/4	500	6.35	**131,74**	9.65	**147,70**	12.70	**159,68**
UNC 5/16 - 18	3532-5/16	250	7.87	**99,80**	11.94	**120,21**	15.75	**127,01**
UNC 3/8 - 16	3532-3/8	250	9.65	**154,23**	14.48	**176,55**	19.30	**201,87**

FREE | UNF | AISI 304 | SBAC AS 6733 | NASM124651-124850 NASM8846 SBAC8455 | ...DIR



D			1.0D		1.5D		2.0D	
UNF	Ref	Unit.	mm	€	mm	€	mm	€
UNF Nº4 - 48	3534-4G	1000	2.79	**465,03**	4.32	**527,87**	5.59	**703,83**
UNF Nº6 - 40	3534-6G	1000	3.56	**465,03**	5.33	**527,87**	7.11	**703,83**
UNF Nº8 - 36	3534-8G	1000	4.06	**465,03**	6.35	**527,87**	8.38	**703,83**
UNF Nº10 - 32	3534-10G	1000	4.83	**201,09**	7.37	**207,38**	9.65	**251,37**
UNF 1/4 - 28	3534-1/4	500	6.35	**130,33**	9.65	**140,20**	12.70	**158,00**
UNF 5/16 - 24	3534-5/16	250	7.87	**98,75**	11.94	**105,48**	15.75	**125,68**
UNF 3/8 - 24	3534-3/8	250	9.65	**145,89**	14.48	**152,62**	19.30	**184,04**

	1.0D	1.5D	2.0D
UNC 1/4 - 20	3532-1/4x1.0DIR	3532-1/4x1.5DIR	3532-1/4x2.0DIR

Ejemplo de codificación: CARRETE
Coding example: REEL
Exemple de codification: ROULEAUX-CHARGEUR
Exemplo de codificação: CARRETO

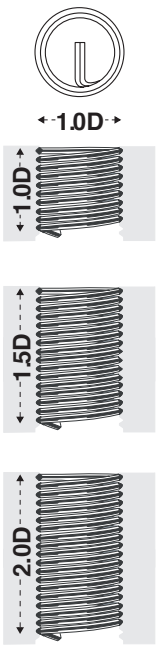
X.XD

powercoil
M/MF

LOCK | M/MF | AISI 304

NASM3329 NASM3330 NASM3331 LN9499 NASM8846 | BS7751 DIN8140 | ...DIRSL

D			1.0D		1.5D		2.0D	
M/MF	Ref.	Unit.	mm	€	mm	€	mm	€
M 2.20 x 0.45	3520-2.20	1000	2.20	487,39	3.30	570,00	4.40	598,51
M 2.50 x 0.45	3520-2.50	1000	2.50	251,56	3.75	257,88	5.00	342,01
M 3 x 0.50	3520-3.00	1000	3.00	216,63	4.50	249,04	6.00	285,00
M 4 x 0.70	3520-4.00	1000	4.00	243,71	6.00	256,50	8.00	262,23
M 5 x 0.80	3520-5.00	1000	5.00	243,71	7.50	270,76	10.00	313,50
M 6 x 1.00	3520-6.00	500	6.00	144,56	9.00	150,88	12.00	183,50
M 8 x 1.00	3521-8.00	250	8.00	103,68	12.00	115,54	16.00	131,58
M 8 x 1.25	3520-8.00	250	8.00	86,44	12.00	102,65	16.00	120,03
M 10 x 1.50	3520-10.00	250	10.00	108,61	15.00	141,21	20.00	142,77
M 12 x 1.75	3520-12.00	125	12.00	79,80	18.00	99,49	24.00	108,48



X.XD

Ejemplo de codificación: CARRETE AUTOBLOCANTE
Coding example: SCREW LOCKING REEL
Exemple de codification: ROULEAUX-CHARGEUR À FREIN
Exemplo de codificação: CARRETO AUTO-BLOQUEADOR

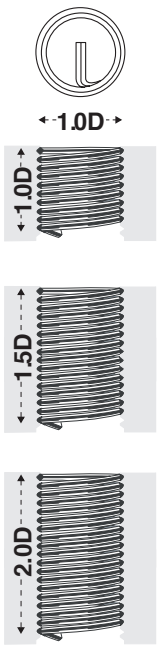
	1.0D	1.5D	2.0D
M 3 x 0.50	3520-3.00x1.0DIRSL	3520-3.00x1.5DIRSL	3520-3.00x2.0DIRSL

LOCK | UNC | AISI 304 | NASN21209 NASM8846 | ...DIRSL

D			1.0D		1.5D		2.0D	
UNC	Ref.	Unit.	mm	€	mm	€	mm	€
UNC Nº2 - 56	3532-2G	1000	2.29	**624,91**	3.30	**731,60**	4.32	**944,99**
UNC Nº4 - 40	3532-4G	1000	2.79	**243,86**	4.32	**256,55**	5.59	**278,56**
UNC Nº5 - 40	3532-5G	1000	3.30	**281,98**	4.83	**297,55**	6.35	**308,33**
UNC Nº6 - 32	3532-6G	1000	3.56	**226,59**	5.33	**253,77**	7.11	**271,91**
UNC Nº8 - 32	3532-8G	1000	4.06	**226,59**	6.35	**253,77**	8.38	**271,91**
UNC Nº10 - 24	3532-10G	1000	4.83	**243,86**	7.37	**252,34**	9.65	**266,73**
UNC 1/4 - 20	3532-1/4	500	6.35	**159,66**	9.65	**179,00**	12.70	**193,51**
UNC 5/16 - 18	3532-5/16	250	7.87	**123,18**	11.94	**148,38**	15.75	**156,77**
UNC 3/8 - 16	3532-3/8	250	9.65	**190,37**	14.48	**197,56**	19.30	**249,16**

LOCK | UNF | AISI 304 | NASN21209 NASM8846 | ...DIRSL

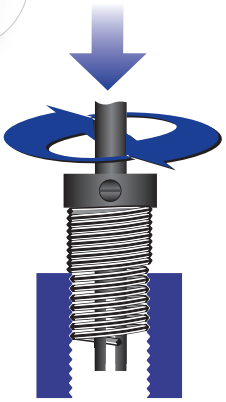
D			1.0D		1.5D		2.0D	
UNF	Ref.	Unit.	mm	€	mm	€	mm	€
UNF Nº4 - 48	3534-4G	1000	2.79	**558,04**	4.32	**633,45**	5.59	**844,60**
UNF Nº6 - 40	3534-6G	1000	3.56	**558,04**	5.33	**633,45**	7.11	**844,60**
UNF Nº8 - 36	3534-8G	1000	4.06	**558,04**	6.35	**633,45**	8.38	**844,60**
UNF Nº10 - 32	3534-10G	1000	4.83	**241,31**	7.37	**248,86**	9.65	**301,64**
UNF 1/4 - 28	3534-1/4	500	6.35	**159,77**	9.65	**171,34**	12.70	**192,84**
UNF 5/16 - 24	3534-5/16	250	7.87	**123,18**	11.94	**131,58**	15.75	**156,77**
UNF 3/8 - 24	3534-3/8	250	9.65	**181,97**	14.48	**190,37**	19.30	**229,56**



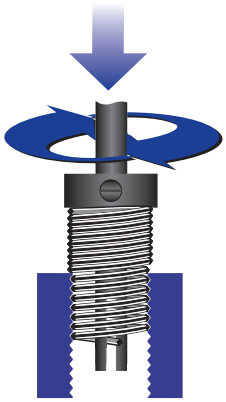
	1.0D	1.5D	2.0D
UNF 1/4 - 28	3534-1/4x1.0DIRSL	3534-1/4x1.5DIRSL	3534-1/4x2.0DIRSL

Ejemplo de codificación: CARRETE AUTOBLOCANTE
Coding example: SCREW LOCKING REEL
Exemple de codification: ROULEAUX-CHARGEUR À FREIN
Exemplo de codificação: CARRETO AUTO-BLOQUEADOR

X.XD



M/MF	Ref.	€	Ref.	€	Ref.	€	Ref.	€	Ref.	€
M 2.20 x 0.45	3520-2.20MIP	**399,43**	3520-2.20MIPM	**145,79**	3520-2.20MIPN	**254,63**	3500-MIP1	**1.566,19**	-	**-**
M 2.50 x 0.45	3520-2.50MIP	**254,63**	3520-2.50MIPM	**91,87**	3520-2.50MIPN	**163,76**	3500-MIP1	**1.566,19**	-	**-**
M 3 x 0.50	3520-3.00MIP	**254,63**	3520-3.00MIPM	**91,87**	3520-3.00MIPN	**163,76**	3500-MIP1	**1.566,19**	-	**-**
M 3.50 x 0.60	3520-3.50MIP	**399,43**	3520-3.50MIPM	**145,79**	3520-3.50MIPN	**254,63**	3500-MIP1	**1.566,19**	-	**-**
M 4 x 0.70	3520-4.00MIP	**254,63**	3520-4.00MIPM	**91,87**	3520-4.00MIPN	**163,76**	3500-MIP1	**1.566,19**	-	**-**
M 5 x 0.80	3520-5.00MIP	**254,63**	3520-5.00MIPM	**91,87**	3520-5.00MIPN	**163,76**	3500-MIP1	**1.566,19**	-	**-**
M 6 x 1.00	3520-6.00MIP	**254,63**	3520-6.00MIPM	**91,87**	3520-6.00MIPN	**163,76**	3500-MIP1	**1.566,19**	-	**-**
M 8 x 1.00	3521-8.00MIP	**544,20**	3521-8.00MIPM	**199,71**	3521-8.00MIPN	**345,50**	-	**-**	3500-MIP2	**1.868,87**
M 8 x 1.25	3520-8.00MIP	**544,20**	3520-8.00MIPM	**199,71**	3520-8.00MIPN	**345,50**	-	**-**	3500-MIP2	**1.868,87**
M 10 x 1.00	3523-10.00MIP	**363,46**	3523-10.00MIPM	**127,82**	3523-10.00MIPN	**236,66**	-	**-**	3500-MIP2	**1.868,87**
M 10 x 1.25	3521-10.00MIP	**544,20**	3521-10.00MIPM	**199,71**	3521-10.00MIPN	**345,50**	-	**-**	3500-MIP2	**1.868,87**
M 10 x 1.50	3520-10.00MIP	**544,20**	3520-10.00MIPM	**199,71**	3520-10.00MIPN	**345,50**	-	**-**	3500-MIP2	**1.868,87**
M 12 x 1.25	3523-12.00MIP	**617,11**	3523-12.00MIPM	**236,66**	3523-12.00MIPN	**381,45**	-	**-**	3500-MIP2	**1.868,87**
M 12 x 1.50	3521-12.00MIP	**617,11**	3521-12.00MIPM	**236,66**	3521-12.00MIPN	**381,45**	-	**-**	3500-MIP2	**1.868,87**
M 12 x 1.75	3520-12.00MIP	**363,46**	3520-12.00MIPM	**127,82**	3520-12.00MIPN	**236,66**	-	**-**	3500-MIP2	**1.868,87**



FREE LOCK

FREE LOCK

UNC

D

UNC	Ref.	€	Ref.	€	Ref.	€	Ref.	€	Ref.	€
UNC Nº2 - 56	3532-2GMIP	375,46	3532-2GMIPM	145,79	3532-2GMIPN	230,66	3500-MIP1	1.566,19	-	-
UNC Nº4 - 40	3532-4GMIP	254,63	3532-4GMIPM	91,87	3532-4GMIPN	163,76	3500-MIP1	1.566,19	-	-
UNC Nº5 - 40	3532-5GMIP	399,43	3532-5GMIPM	145,79	3532-5GMIPN	254,63	3500-MIP1	1.566,19	-	-
UNC Nº6 - 32	3532-6GMIP	254,63	3532-6GMIPM	91,87	3532-6GMIPN	163,76	3500-MIP1	1.566,19	-	-
UNC Nº8 - 32	3532-8GMIP	254,63	3532-8GMIPM	91,87	3532-8GMIPN	163,76	3500-MIP1	1.566,19	-	-
UNC Nº10 - 24	3532-10GMIP	254,63	3532-10GMIPM	91,87	3532-10GMIPN	163,76	3500-MIP1	1.566,19	-	-
UNC Nº12 - 24	3532-12GMIP	254,63	3532-12GMIPM	91,87	3532-12GMIPN	163,76	3500-MIP1	1.566,19	-	-
UNC 1/4 - 20	3532-1/4MIP	254,63	3532-1/4MIPM	91,87	3532-1/4MIPN	163,76	3500-MIP1	1.566,19	-	-
UNC 5/16 - 18	3532-5/16MIP	544,20	3532-5/16MIPM	199,71	3532-5/16MIPN	345,50	-	-	3500-MIP2	1.868,87
UNC 3/8 - 16	3532-3/8MIP	544,20	3532-3/8MIPM	199,71	3532-3/8MIPN	345,50	-	-	3500-MIP2	1.868,87
UNC 7/16 - 14	3532-7/16MIP	617,11	3532-7/16MIPM	236,66	3532-7/16MIPN	381,45	-	-	3500-MIP2	1.868,87
UNC 1/2 - 13	3532-1/2MIP	617,11	3532-1/2MIPM	236,66	3532-1/2MIPN	381,45	-	-	3500-MIP2	1.868,87

UNF

D

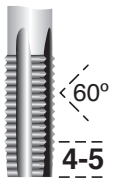
UNF	Ref.	€	Ref.	€	Ref.	€	Ref.	€	Ref.	€
UNF Nº6 - 40	3534-6GMIP	399,43	3534-6GMIPM	145,79	3534-6GMIPN	254,63	3500-MIP1	1.566,19	-	-
UNF Nº8 - 36	3534-8GMIP	399,43	3534-8GMIPM	145,79	3534-8GMIPN	254,63	3500-MIP1	1.566,19		
UNF Nº10 - 32	3534-10GMIP	254,63	3534-10GMIPM	91,87	3534-10GMIPN	163,76	3500-MIP1	1.566,19	-	-
UNF 1/4 - 28	3534-1/4MIP	254,63	3534-1/4MIPM	91,87	3534-1/4MIPN	163,76	3500-MIP1	1.566,19	-	-
UNF 5/16 - 24	3534-5/16MIP	544,20	3534-5/16MIPM	199,71	3534-5/16MIPN	345,50	-	-	3500-MIP2	1.868,87
UNF 3/8 - 24	3534-3/8MIP	544,20	3534-3/8MIPM	199,71	3534-3/8MIPN	345,50	-	-	3500-MIP2	1.868,87
UNF 7/16 - 20	3534-7/16MIP	617,11	3534-7/16MIPM	236,66	3534-7/16MIPN	381,45	-	-	3500-MIP2	1.868,87
UNF 1/2 - 20	3534-1/2MIP	617,11	3534-1/2MIPM	236,66	3534-1/2MIPN	381,45	-	-	3500-MIP2	1.868,87

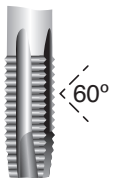
M/MF

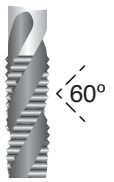
STI-ISO529
4H5H, BS437

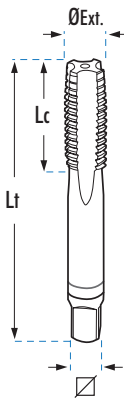
Ref...I Ref...SP Ref...SF Ref...GC

TOL4H5H HSS TOL4H5H HSS-V3 TOL4H5H HSS-V3 TOL4H5H









		Dim.		Mano/Hand Main/ Mão		F / B		35°		Calibre / Gauge	
M/MF	Ø	Ø Ext.	Lt x Lc x ⧄	Ref.	€	Ref.	€	Ref.	€	Ref.	€
M 2 x 0.40	2.10	2.52	44x9.5x2.2	3520-2.00I	13,41	3520-2.00SP	17,69	3520-2.00SF	17,69	3520-2.00GC	197,22
M 2.20 x 0.45	2.30	2.78	48x11x2.5	3520-2.20I	15,92	3520-2.20SP	17,69	3520-2.20SF	17,69	3520-2.20GC	220,50
M 2.50 x 0.45	2.60	3.08	48x11x2.5	3520-2.50I	13,41	3520-2.50SP	17,69	3520-2.50SF	17,69	3520-2.50GC	220,50
M 3 x 0.50	3.20	3.65	53x13x3.15	3520-3.00I	11,70	3520-3.00SP	13,41	3520-3.00SF	13,41	3520-3.00GC	159,66
M 3.50 x 0.60	3.70	4.27	53x13x3.55	3520-3.50I	11,70	3520-3.50SP	13,41	3520-3.50SF	13,41	3520-3.50GC	154,95
M 4 x 0.70	4.20	4.90	58x16x4	3520-4.00I	11,70	3520-4.00SP	13,41	3520-4.00SF	13,41	3520-4.00GC	150,27
M 5 x 0.80	5.20	6.03	66x19x5	3520-5.00I	11,70	3520-5.00SP	13,41	3520-5.00SF	13,41	3520-5.00GC	145,58
M 6 x 1.00	6.30	7.29	72x22x6.3	3520-6.00I	11,70	3520-6.00SP	13,41	3520-6.00SF	13,41	3520-6.00GC	140,87
M 7 x 1.00	7.30	8.29	72x22x7.1	3520-7.00I	14,58	3520-7.00SP	16,81	3520-7.00SF	16,81	3520-7.00GC	162,00
M 8 x 1.00	8.30	9.29	80x24x8	3521-8.00I	14,58	3521-8.00SP	16,81	3521-8.00SF	16,81	3521-8.00GC	173,39
M 8 x 1.25	8.30	9.62	80x24x8	3520-8.00I	14,58	3520-8.00SP	16,81	3520-8.00SF	16,81	3520-8.00GC	145,58
M 9 x 1.25	9.40	10.62	85x25x6.3	3520-9.00I	17,86	3520-9.00SP	25,91	3520-9.00SF	25,91	3520-9.00GC	150,27
M 10 x 1.00	10.30	11.29	85x25x6.3	3523-10.00I	17,86	3523-10.00SP	20,22	3523-10.00SF	20,22	3523-10.00GC	197,22
M 10 x 1.25	10.30	11.62	85x25x6.3	3521-10.00I	17,86	3521-10.00SP	24,97	3521-10.00SF	24,97	3521-10.00GC	201,92
M 10 x 1.50	10.40	11.94	89x29x7.1	3520-10.00I	17,86	3520-10.00SP	20,22	3520-10.00SF	20,22	3520-10.00GC	154,95
M 11 x 1.00	11.30	12.29	89x29x7.1	3523-11.00I	24,19	3523-11.00SP	26,93	3523-11.00SF	26,93	3523-11.00GC	206,61
M 11 x 1.25	11.30	12.62	89x29x7.1	3521-11.00I	24,29	3521-11.00SP	26,93	3521-11.00SF	26,93	3521-11.00GC	201,38
M 11 x 1.50	11.40	12.94	89x29x7.1	3520-11.00I	20,22	3520-11.00SP	26,93	3520-11.00SF	26,93	3520-11.00GC	159,66
M 12 x 1.00	12.30	13.29	95x30x9	3524-12.00I	24,69	3524-12.00SP	30,72	3524-12.00SF	30,72	3524-12.00GC	209,91
M 12 x 1.25	12.30	13.62	95x30x9	3523-12.00I	24,69	3523-12.00SP	26,81	3523-12.00SF	26,81	3523-12.00GC	209,91
M 12 x 1.50	12.40	14.13	95x30x9	3521-12.00I	24,69	3521-12.00SP	30,19	3521-12.00SF	30,19	3521-12.00GC	187,83
M 12 x 1.75	12.50	14.27	95x30x9	3520-12.00I	20,22	3520-12.00SP	26,48	3520-12.00SF	26,48	3520-12.00GC	164,36
M 13 x 1.25	13.25	14.62	95x30x9	3521-13.00I	28,32	3521-13.00SP	38,27	3521-13.00SF	38,27	3521-13.00GC	201,92
M 13 x 1.75	13.50	15.27	102x32x10	3520-13.00I	28,32	3520-13.00SP	38,27	3520-13.00SF	38,27	3520-13.00GC	188,04
M 14 x 1.00	14.25	15.29	102x32x10	3524-14.00I	28,08	3524-14.00SP	47,08	3524-14.00SF	47,08	3524-14.00GC	225,41
M 14 x 1.25	14.25	15.62	102x32x10	3523-14.00I	28,08	3523-14.00SP	37,03	3523-14.00SF	37,03	3523-14.00GC	225,41
M 14 x 1.50	14.50	15.94	102x32x10	3521-14.00I	28,08	3521-14.00SP	37,03	3521-14.00SF	37,03	3521-14.00GC	206,61
M 14 x 2.00	14.50	16.59	102x32x10	3520-14.00I	28,08	3520-14.00SP	37,03	3520-14.00SF	37,03	3520-14.00GC	173,76

Las dimensiones generales de los machos de mano y máquina son las mismas. Machos disponibles con otras entradas (2-3 h y 6-8 h) u otros especiales
Overall dimensions for hand and machine taps are the same. Taps produced with further chamfers (2-3h and 6-8) or other special sizes are available upon request.
Les dimensions générales des tarauds à main et tarauds machine sont les mêmes. Tarauds avec entrées différentes (2-3 filets et 6-8 filets) et autres tarauds spéciaux disponibles.
As dimensões gerais dos machos manuais e da máquina são as mesmas. Machos disponíveis com outras entradas (2-3 h e 6-8 h) e outros especiais.

M/MF

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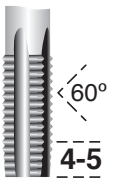
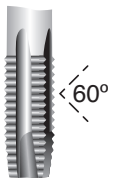
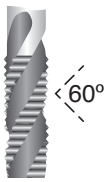
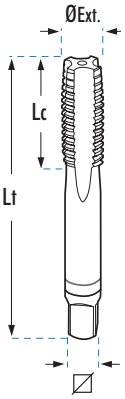
TOL4H5H | HSS | TOL4H5H | HSS-V3 | TOL4H5H | HSS-V3 | TOL4H5H









		Dim.		Mano/Hand Main/ Mão		F / B		35º		Calibre / Gauge	
M/MF	Ø	Ø Ext.	Lt x Lc x ⧄	Ref.	€	Ref.	€	Ref.	€	Ref.	€
M 15 x 1.50	15.25	16.94	102x32x10	3521-15.00I	**33,53**	3521-15.00SP	**52,80**	3521-15.00SF	**52,80**	3521-15.00GC	**216,02**
M 15 x 2.00	15.50	17.59	112x37x11.2	3520-15.00I	**33,53**	3520-15.00SP	**52,80**	3520-15.00SF	**52,80**	3520-15.00GC	**202,88**
M 16 x 1.50	16.50	17.94	112x37x11.2	3521-16.00I	**33,62**	3521-16.00SP	**46,74**	3521-16.00SF	**46,74**	3521-16.00GC	**220,71**
M 16 x 2.00	16.50	18.59	112x37x11.2	3520-16.00I	**33,62**	3520-16.00SP	**39,15**	3520-16.00SF	**39,15**	3520-16.00GC	**192,53**
M 18 x 1.50	18.50	19.94	112x37x11.2	3523-18.00I	**42,56**	3523-18.00SP	**58,96**	3523-18.00SF	**58,96**	3523-18.00GC	**224,52**
M 18 x 2.00	18.50	20.59	112x37x11.2	3521-18.00I	**42,56**	3521-18.00SP	**58,96**	3521-18.00SF	**58,96**	3521-18.00GC	**230,09**
M 18 x 2.50	19.00	21.24	118x38x12.5	3520-18.00I	**42,56**	3520-18.00SP	**58,96**	3520-18.00SF	**58,96**	3520-18.00GC	**206,61**
M 20 x 1.50	20.50	21.94	118x38x12.5	3523-20.00I	**46,81**	3523-20.00SP	**69,46**	3523-20.00SF	**69,46**	3523-20.00GC	**267,68**
M 20 x 2.00	20.50	22.59	118x38x12.5	3521-20.00I	**46,81**	3521-20.00SP	**69,46**	3521-20.00SF	**69,46**	3521-20.00GC	**244,19**
M 20 x 2.50	20.75	23.24	118x38x12.5	3520-20.00I	**46,81**	3520-20.00SP	**69,46**	3520-20.00SF	**69,46**	3520-20.00GC	**220,71**
M 22 x 1.50	22.50	23.94	130x45x14	3523-22.00I	**53,84**	3523-22.00SP	**98,24**	3523-22.00SF	**98,24**	3523-22.00GC	**286,22**
M 22 x 2.00	22.50	24.59	130x45x14	3521-22.00I	**53,84**	3521-22.00SP	**98,24**	3521-22.00SF	**98,24**	3521-22.00GC	**277,05**
M 22 x 2.50	22.75	25.24	130x45x14	3520-22.00I	**53,84**	3520-22.00SP	**98,24**	3520-22.00SF	**98,24**	3520-22.00GC	**234,78**
M 24 x 1.50	24.50	25.94	130x45x14	3523-24.00I	**68,08**	3523-24.00SP	**117,89**	3523-24.00SF	**117,89**	3523-24.00GC	**304,71**
M 24 x 2.00	24.50	26.59	127x37x16	3521-24.00I	**68,08**	3521-24.00SP	**117,89**	3521-24.00SF	**117,89**	3521-24.00GC	**277,28**
M 24 x 3.00	25.00	27.89	135x45x16	3520-24.00I	**68,08**	3520-24.00SP	**117,89**	3520-24.00SF	**117,89**	3520-24.00GC	**262,97**
M 26 x 1.50	26.50	27.94	127x37x16	3523-26.00I	**127,91**	-	-	-	-	-	-
M 27 x 1.50	27.50	28.97	127x37x16	3523-27.00I	**150,82**	-	-	-	-	-	-
M 27 x 2.00	27.50	29.59	127x37x16	3521-27.00I	**150,82**	-	-	-	-	-	-
M 27 x 3.00	28.00	30.89	151x51x18	3520-27.00I	**150,82**	-	-	-	-	-	-
M 28 x 1.50	28.50	29.99	137x37x18	3523-28.00I	**168,13**	-	-	-	-	-	-
M 30 x 1.50	30.50	31.96	137x37x18	3523-30.00I	**179,41**	-	-	-	-	-	-
M 30 x 2.00	30.50	32.59	137x37x18	3521-30.00I	**179,41**	-	-	-	-	-	-
M 30 x 3.50	31.00	34.54	162x57x20	3520-30.00I	**179,41**	-	-	-	-	-	-
M 33 x 2.00	33.50	35.59	144x39x20	3521-33.00I	**217,84**	-	-	-	-	-	-
M 33 x 3.50	34.00	37.54	170x60x22.4	3520-33.00I	**217,84**	-	-	-	-	-	-
M 36 x 1.50	36.50	37.92	149x39x22.4	3524-36.00I	**250,47**	-	-	-	-	-	-
M 36 x 2.00	36.50	38.55	149x39x22.4	3523-36.00I	**250,47**	-	-	-	-	-	-
M 36 x 3.00	37.00	39.89	170x60x22.4	3521-36.00I	**250,47**	-	-	-	-	-	-
M 36 x 4.00	37.00	41.19	170x60x22.4	3520-36.00I	**250,47**	-	-	-	-	-	-

UNC

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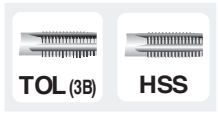
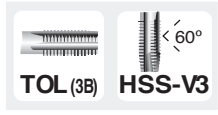
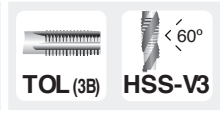
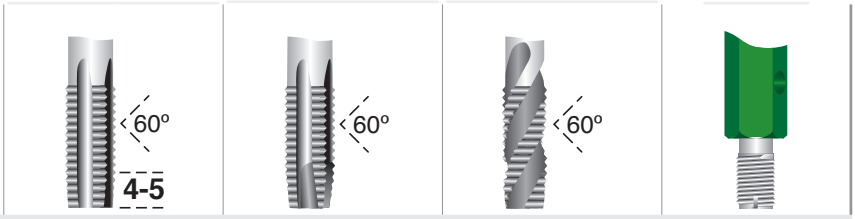
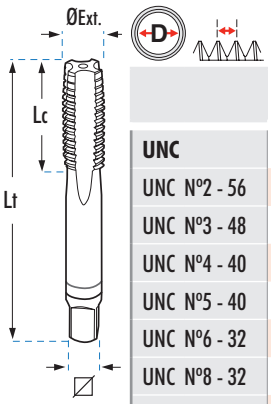
Ref...I Ref...SP Ref...SF Ref...GC











		Dim.		Mano/Hand Main/ Mão		F / B		35º		Calibre / Gauge	
UNC	ø	Ø Ext.	Lt x Lc x ⧄	Ref.	€	Ref.	€	Ref.	€	Ref.	€
UNC Nº2 - 56	2.40	2.77	44x9.5x2.2	3532-2GI	**17,86**	3532-2GSP	**24,39**	3532-2GSF	**24,39**	3532-2GGC	**280,50**
UNC Nº3 - 48	2.70	3.02	44x9.5x2.2	3532-3GI	**17,86**	3532-3GSP	**25,81**	3532-3GSF	**25,81**	3532-3GGC	**280,50**
UNC Nº4 - 40	3.00	3.67	53x13x3.15	3532-4GI	**17,86**	3532-4GSP	**24,39**	3532-4GSF	**24,39**	3532-4GGC	**281,75**
UNC Nº5 - 40	3.40	4.00	53x13x3.15	3532-5GI	**17,86**	3532-5GSP	**24,39**	3532-5GSF	**24,39**	3532-5GGC	**280,53**
UNC Nº6 - 32	3.70	4.53	58x16x4	3532-6GI	**17,86**	3532-6GSP	**24,39**	3532-6GSF	**24,39**	3532-6GGC	**170,76**
UNC Nº8 - 32	4.40	5.19	62x17x4.5	3532-8GI	**17,86**	3532-8GSP	**24,39**	3532-8GSF	**24,39**	3532-8GGC	**166,49**
UNC Nº10 - 24	5.10	6.20	66x19x5	3532-10GI	**17,86**	3532-10GSP	**22,36**	3532-10GSF	**22,36**	3532-10GGC	**162,21**
UNC Nº12 - 24	5.70	6.86	66x19x5.6	3532-12GI	**17,86**	3532-12GSP	**22,36**	3532-12GSF	**22,36**	3532-12GGC	**162,21**
UNC 1/4 - 20	6.70	8.00	72x22x6.3	3532-1/4I	**11,70**	3532-1/4SP	**16,27**	3532-1/4SF	**16,27**	3532-1/4GC	**153,69**
UNC 5/16 - 18	8.30	9.77	80x24x8	3532-5/16I	**14,50**	3532-5/16SP	**19,31**	3532-5/16SF	**19,31**	3532-5/16GC	**162,21**
UNC 3/8 - 16	9.90	11.58	85x25x6.3	3532-3/8I	**13,41**	3532-3/8SP	**24,39**	3532-3/8SF	**24,39**	3532-3/8GC	**162,21**
UNC 7/16 - 14	11.60	13.47	95x30x9	3532-7/16I	**17,86**	3532-7/16SP	**27,74**	3532-7/16SF	**27,74**	3532-7/16GC	**170,76**
UNC 1/2 - 13	13.00	15.23	102x32x10	3532-1/2I	**20,22**	3532-1/2SP	**30,49**	3532-1/2SF	**30,49**	3532-1/2GC	**183,56**
UNC 9/16 - 12	15.00	17.03	112x37x11.2	3532-9/16I	**33,62**	3532-9/16SP	**50,81**	3532-9/16SF	**50,81**	3532-9/16GC	**196,37**
UNC 5/8 - 11	16.50	18.87	112x37x11.2	3532-5/8I	**41,50**	3532-5/8SP	**70,82**	3532-5/8SF	**70,82**	3532-5/8GC	**204,92**
UNC 3/4 - 10	20.00	22.34	118x38x12.5	3532-3/4I	**50,43**	3532-3/4SP	**71,83**	3532-3/4SF	**71,83**	3532-3/4GC	**234,78**
UNC 7/8 - 9	23.00	25.89	130x45x14	3532-7/8I	**58,85**	3532-7/8SP	**104,16**	3532-7/8SF	**104,16**	3532-7/8GC	**264,68**
UNC 1 - 8	26.25	29.52	138x48x16	3532-1I	**58,85**	3532-1SP	**121,94**	3532-1SF	**121,94**	3532-1GC	**298,83**
UNC 1.1/8 - 7	29.50	33.28	151x51x18	3532-1.1/8I	**178,19**	-	-	-	-	-	-
UNC 1.1/4 - 7	32.50	36.46	162x57x20	3532-1.1/4I	**213,80**	-	-	-	-	-	-
UNC 1.3/8 - 6	36.00	40.42	170x60x22.4	3532-1.3/8I	**267,27**	-	-	-	-	-	-
UNC 1.1/2 - 6	39.50	43.59	187x67x25	3532-1.1/2I	**346,40**	-	-	-	-	-	-

UNF

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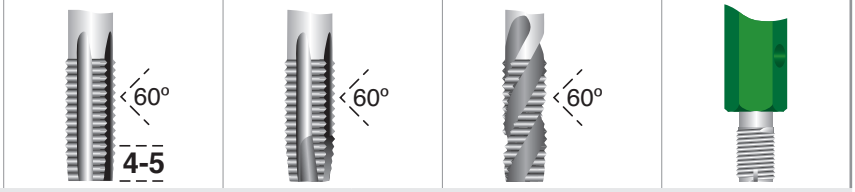
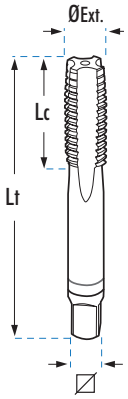
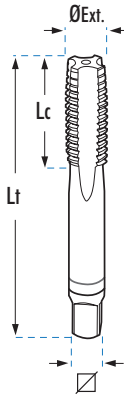
TOL (3B) | HSS | TOL (3B) | HSS-V3 | TOL (3B) | HSS-V3 | TOL (3B)

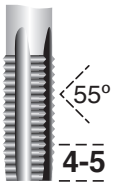


		Dim.		Mano/Hand Main/ Mão		F / B		35°		Calibre / Gauge	
UNF	Ø	Ø Ext.	Lt x Lc x ⧄	Ref.	€	Ref.	€	Ref.	€	Ref.	€
UNF Nº3 - 56	2.70	3.09	44x9.5x2.2	3534-3GI	**18,70**	3534-3GSP	**25,81**	3534-3GSF	**25,81**	3534-3GGC	**281,75**
UNF Nº4 - 48	3.00	3.53	50x13x2.80	3534-4GI	**17,86**	3534-4GSP	**24,39**	3534-4GSF	**24,39**	3534-4GGC	**281,75**
UNF Nº6 - 40	3.70	4.33	53x13x3.55	3534-6GI	**17,86**	3534-6GSP	**24,39**	3534-6GSF	**24,39**	3534-6GGC	**170,76**
UNF Nº8 - 36	4.40	5.08	62x17x4.50	3534-8GI	**17,86**	3534-8GSP	**24,39**	3534-8GSF	**24,39**	3534-8GGC	**166,49**
UNF Nº10 - 32	5.10	5.85	66x19x5.00	3534-10GI	**17,86**	3534-10GSP	**22,36**	3534-10GSF	**22,36**	3534-10GGC	**162,21**
UNF Nº12 - 28	5.80	6.75	66x19x5.60	3534-12GI	**20,48**	3534-12GSP	**22,39**	3534-12GSF	**22,39**	3534-12GGC	**273,20**
UNF 1/4 - 28	6.60	7.52	72x22x6.30	3534-1/4I	**11,70**	3534-1/4SP	**16,27**	3534-1/4SF	**16,27**	3534-1/4GC	**153,69**
UNF 5/16 - 24	8.20	9.31	80x24x8.00	3534-5/16I	**12,88**	3534-5/16SP	**19,31**	3534-5/16SF	**19,31**	3534-5/16GC	**162,21**
UNF 3/8 - 24	9.80	10.89	85x25x6.30	3534-3/8I	**13,41**	3534-3/8SP	**24,39**	3534-3/8SF	**24,39**	3534-3/8GC	**162,21**
UNF 7/16 - 20	11.50	12.76	89x29x7.10	3534-7/16I	**17,86**	3534-7/16SP	**27,74**	3534-7/16SF	**27,74**	3534-7/16GC	**170,76**
UNF 1/2 - 20	13.00	14.35	95x30x9.00	3534-1/2I	**18,38**	3534-1/2SP	**30,49**	3534-1/2SF	**30,49**	3534-1/2GC	**183,56**
UNF 9/16 - 18	14.75	16.12	102x32x10	3534-9/16I	**33,62**	3534-9/16SP	**50,81**	3534-9/16SF	**50,81**	3534-9/16GC	**196,37**
UNF 5/8 - 18	16.50	17.00	112x37x11.2	3534-5/8I	**41,50**	3534-5/8SP	**70,82**	3534-5/8SF	**70,82**	3534-5/8GC	**200,64**
UNF 3/4 - 16	19.50	21.11	112x37x11.2	3534-3/4I	**50,43**	3534-3/4SP	**71,83**	3534-3/4SF	**71,83**	3534-3/4GC	**162,21**
UNF 7/8 - 14	22.50	24.58	130x45x14	3534-7/8I	**65,90**	3534-7/8SP	**104,16**	3534-7/8SF	**104,16**	3534-7/8GC	**243,35**
UNF 1 - 12	26.00	28.15	127x37x16	3534-1I	**58,52**	3534-1SP	**121,94**	3534-1SF	**121,94**	3534-1GC	**221,99**
UNF 1 - 14	26.00	27.76	127x37x16	3535-1I	**58,52**	3535-1SP	**121,94**	3535-1SF	**121,94**	3535-1GC	**221,99**
UNF 1.1/8 - 12	29.50	31.32	137x37x18	3534-1.1/8I	**178,19**	-	-	-	-	-	-
UNF 1.1/4 - 12	32.50	34.50	144x39x20	3534-1.1/4I	**213,80**	-	-	-	-	-	-
UNF 1.3/8 - 12	35.50	37.67	149x39x22.4	3534-1.3/8I	**267,27**	-	-	-	-	-	-
UNF 1.1/2 - 12	38.50	40.85	149x39x22.4	3534-1.1/2I	**346,40**	-	-	-	-	-	-



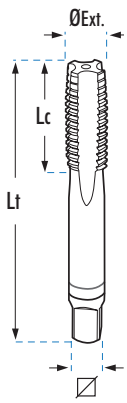
BSW | TOL (3B) | HSS | STI-ISO529 | ...I

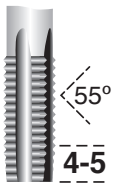




BSW	Ø	Dim. Ø Ext.	Lt x Lc x ⧄	Mano/Hand Main/Mão Ref.	€
BSW 1/8 - 40	3.40	3.93	53x13x3.15	3528-1/8I	11,70
BSW 3/16 - 24	5.00	6.00	66x19x5	3528-3/16I	11,70
BSW 1/4 - 20	6.70	7.84	72x22x6.3	3528-1/4I	11,70
BSW 5/16 - 18	8.30	9.59	80x24x8	3528-5/16I	12,88
BSW 3/8 - 16	10.00	11.38	85x25x6.3	3528-3/8I	13,41
BSW 7/16 - 14	11.60	13.23	95x30x9	3528-7/16I	17,86
BSW 1/2 - 12	13.00	15.17	102x32x10	3528-1/2I	20,72
BSW 9/16 - 12	14.75	16.76	102x32x10	3528-9/16I	33,62
BSW 5/8 - 11	16.50	18.57	112x37x11.2	3528-5/8I	41,50
BSW 11/16 - 11	17.50	19.60	112x37x11.2	3528-11/16I	50,43
BSW 3/4 - 10	20.00	22.01	118x38x12.5	3528-3/4I	50,43
BSW 7/8 - 9	23.25	25.52	130x45x14	3528-7/8I	58,52
BSW 1 - 8	26.50	29.10	138x48x16	3528-1I	58,52

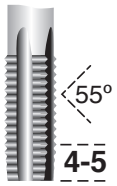
BSF | TOL (3B) | HSS | STI-ISO529 | ...I



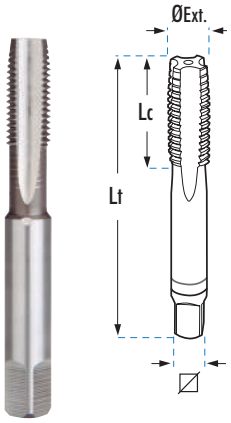


BSF	Ø	Dim. Ø Ext.	Lt x Lc x ⧄	Mano/Hand Main/Mão Ref.	€
BSF 3/16 - 32	5.00	5.70	66x19x5	3530-3/16I	11,70
BSF 1/4 - 26	6.60	7.51	72x22x6.3	3530-1/4I	11,70
BSF 5/16 - 22	8.30	9.30	80x24x8	3530-5/16I	12,88
BSF 3/8 - 20	9.80	11.02	85x25x6.3	3530-3/8I	13,41
BSF 7/16 - 18	11.60	12.77	89x29x7.1	3530-7/16I	17,86
BSF 1/2 - 16	13.25	14.56	95x30x9	3530-1/2I	20,72
BSF 9/16 - 16	14.75	16.15	102x32x10	3530-9/16I	33,62
BSF 5/8 - 14	16.50	18.01	112x37x11.2	3530-5/8I	41,50
BSF 11/16 - 14	17.50	19.60	112x37x11.2	3530-11/16I	50,43
BSF 3/4 - 12	19.50	21.53	118x38x12.5	3530-3/4I	50,43
BSF 7/8 - 11	22.75	24.93	130x45x14	3530-7/8I	58,52
BSF 1 - 10	26.25	28.37	138x48x16	3530-1I	58,52

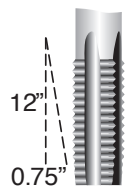
BSP | TOL (3B) | HSS | STI-ISO529 | ...I



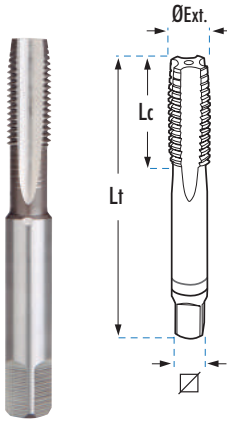
	Dim.			Mano/Hand Main/Mão	
BSP	Ø	Ø Ext.	Lt x Lc x ⧄	Ref.	€
BSP 1/8 - 28	10.00	10.81	85x25x6.3	3546-1/8I	**17,73**
BSP 1/4 - 19	13.75	14.73	95x30x9	3546-1/4I	**20,12**
BSP 3/8 - 19	17.00	18.24	112x37x11.2	3546-3/8I	**26,48**
BSP 1/2 - 14	21.50	23.09	118x38x12.5	3546-1/2I	**42,89**
BSP 5/8 - 14	23.50	25.05	130x45x14	3546-5/8I	**63,03**
BSP 3/4 - 14	27.00	28.58	127x37x16	3546-3/4I	**63,03**
BSP 1 - 11	33.75	35.96	162x57x20	3546-1I	**98,49**



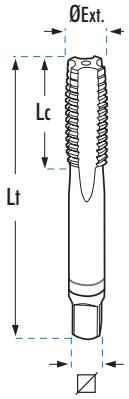
NPT | TOL (3B) | HSS | ANSI 949 | ...I

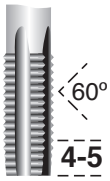


	Dim.		Mano/Hand Main/Mão	
NPT	Ø Ext.	Lt x Lc x ⧄	Ref.	€
NPT 1/8 - 27	10.43	54x19x8.3	3552-1/8I	**85,98**
NPT 1/4 - 18	13.95	62x27x10.7	3552-1/4I	**96,73**
NPT 3/8 - 18	17.37	65x27x13.5	3552-3/8I	**128,97**
NPT 1/2 - 14	21.65	80x35x13.1	3552-1/2I	**155,84**
NPT 3/4 - 14	26.96	83x35x17.2	3552-3/4I	**204,20**
NPT 1 - 11.1/2	33.75	95x44x22.7	3552-1I	**279,42**



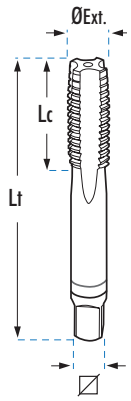
8-UN | TOL (3B) | HSS | ...I

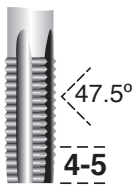




8 - UN	ø	Dim. Ø Ext.	Dim. Lt x Lc x ⧄	Mano/Hand Main/Mão Ref.	€
UN 1.1/8 - 8	28.50	1.26	5.9x2.0x0.7	3570-1.1/8I	306,39
UN 1.1/4 - 8	32.00	1.38	6.3x2.2x0.7	3570-1.1/4I	352,93
UN 1.3/8 - 8	35.00	1.51	6.6x2.3x0.8	3570-1.3/8I	400,54
UN 1.1/2 - 8	38.00	1.63	6.6x2.3x0.8	3570-1.1/2I	439,98
UN 1.5/8 - 8	41.00	1.76	7.3x2.6x0.9	3570-1.5/8I	514,68
UN 1.3/4 - 8	44.50	1.88	7.3x2.6x0.9	3570-1.3/4I	557,44
UN 1.7/8 - 8	47.50	2.01	7.8x2.7x1.1	3570-1.7/8I	648,05
UN 2 - 8	51.00	2.13	7.8x2.7x1.1	3570-2I	553,15

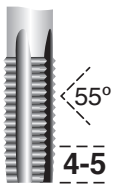
BA | TOL (3B) | HSS | ...I



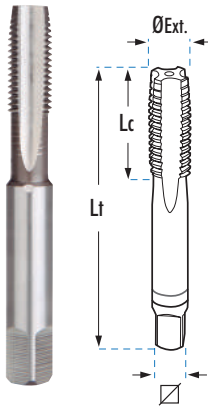


BA	ø	Dim. Ø Ext.	Dim. Lt x Lc x ⧄	Mano/Hand Main/Mão Ref.	€
BA 0	6.20	7.12	66x19x5.6	3544-0I	11,90
BA 2	4.90	5.60	62x17x4.5	3544-2I	11,90
BA 4	3.80	4.34	53x13x3.5	3544-4I	11,90
BA 6	2.90	3.40	50x13x2.8	3544-6I	11,90

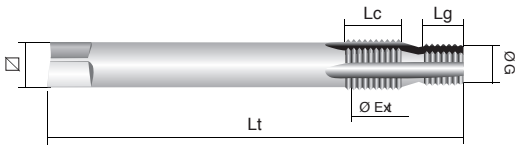
BSB | TOL (3B) | HSS | ...I

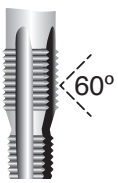


BSB	ø	Dim. Ø Ext.	Lt x Lc x ⧄	Mano/Hand Main/Mão Ref.	€
BSB 1/4 - 26	6.60	7.72	72x22x6.3	3560-1/4I	13,18
BSB 5/16 - 26	8.00	9.30	72x22x7.1	3560-5/16I	14,50
BSB 3/8 - 26	9.80	10.89	85x25x6.3	3560-3/8I	15,10
BSB 7/16 - 26	11.10	12.48	89x29x7.1	3560-7/16I	20,12
BSB 1/2 - 26	12.70	14.07	95x30x9	3560-1/2I	22,77



M/MF | HSS | ...I





M/MF	ø	Dim. Ø Ext.	Lg	Ø G	Lt x Lc x ⧄	Mano/Hand Main/Mão Ref.	€
M 6 x 1.00	6.30	7.29	7	6	70x28x6.3	3520-6.00PN	22,75
M 8 x 1.25	8.30	9.62	9	8	75x32x6.3	3520-8.00PN	22,75
M 10 x 1.00	10.30	11.29	8	10	74x30x6.3	3522-10.00PN	28,45
M 10 x 1.50	10.40	11.94	9	10	89x29x7.1	3520-10.00PN	28,45
M 12 x 1.25	12.30	13.62	9	12	75x32x7.1	3522-12.00PN	40,42
M 14 x 1.25	14.25	15.62	10	14	90x45x9.2	3522-14.00PN	47,04
M 18 x 1.50	18.50	19.94	10	18	116x47x12.5	3522-18.00PN	67,25

HSSCo 5% | DIN 338 | 135° | 30° "N" | GOLD | 120 Kg/mm²

Ø mm.	Ø "	L1 x L2	Ref.	€
2.10	#45	49x24	3520-0210	2,54
2.30	3/32	53x27	3520-0230	2,54
2.40	#41	57x30	3520-0240	2,54
2.60	-	57x30	3520-0260	2,44
2.70	#37	61x33	3520-0270	2,44
2.90	#33	61x33	3520-0290	2,44
3.00	#31	61x33	3520-0300	1,94
3.20	1/8	65x36	3520-0320	2,34
3.40	#30	70x39	3520-0340	2,44
3.70	#27	70x39	3520-0370	2,94
3.80	#25	75x43	3520-0380	2,94
4.20	-	75x43	3520-0420	2,77
4.30	-	80x47	3520-0430	2,94
4.40	11/64	80x47	3520-0440	2,94
4.80	-	86x52	3520-0480	3,27
4.90	#10	86x52	3520-0490	3,27
5.00	-	86x52	3520-0500	2,97
5.10	-	86x52	3520-0510	3,57
5.20	13/64	86x52	3520-0520	3,57
5.50	7/32	93x57	3520-0550	3,77
5.70	15/64	93x57	3520-0570	4,47
6.20	C	101x63	3520-0620	4,97
6.30	1/4	101x63	3520-0630	4,97
6.60	-	101x63	3520-0660	5,97
6.70	17/64	101x63	3520-0670	5,97
6.90	-	109x69	3520-0690	5,97
7.30	9/32	109x69	3520-0730	7,60
7.60	-	117x75	3520-0760	9,14
8.00	5/16	117x75	3520-0800	6,57
8.20	-	117x75	3520-0820	8,77
8.30	21/64	117x75	3520-0830	8,77

Ø mm.	Ø "	L1 x L2	Ref.	€
8.40	-	117x75	3520-0840	8,77
8.80	-	125x81	3520-0880	11,14
9.30	23/64	125x81	3520-0930	12,34
9.40	3/8	125x81	3520-0940	12,30
9.80	-	133x87	3520-0980	14,47
9.90	25/64	133x87	3520-0990	14,47
10.00	-	133x87	3520-1000	9,94
10.10	-	133x87	3520-1010	16,64
10.30	13/32	133x87	3520-1030	16,67
10.40	-	133x87	3520-1040	16,64
10.80	-	142x94	3520-1080	19,34
11.10	7/16	142x94	3520-1110	22,07
11.30	-	142x94	3520-1130	22,07
11.40	-	142x94	3520-1140	22,07
11.50	29/64	142x94	3520-1150	18,57
11.60	-	142x94	3520-1160	22,80
12.30	-	151x101	3520-1230	26,47
12.40	31/64	151x101	3520-1240	26,47
12.50	-	151x101	3520-1250	24,17
12.70	1/2	151x101	3520-1270	27,54
12.80	-	151x101	3520-1280	27,54
13.00	33/64	151x101	3520-1300	24,70
13.25	-	160x108	3520-1325	34,20
13.50	-	160x108	3520-1350	27,24
13.75	-	160x108	3520-1375	34,20
14.25	9/16	169x114	3520-1425	44,94
14.50	-	169x114	3520-1450	38,20
14.75	-	169x114	3520-1475	44,94
15.00	19/32	169x114	3520-1500	38,77
15.25	-	178x120	3520-1525	62,00

HSSCo 5% | DIN 338

135° | 30° "N" | GOLD | 12,70

Ø mm.	Ø "	L1 x L2	Ref.	€
15.50	39/64	178x120	3520-1550	**57,94**
16.50	-	184x125	3520-1650	**68,07**
16.75	-	184x125	3520-1675	**91,23**
17.00	-	184x125	3520-1700	**68,50**
17.50	-	191x130	3520-1750	**75,40**
18.50	23/32	198x135	3520-1850	**92,20**
18.75	-	198x135	3520-1875	**115,60**
19.00	3/4	198x135	3520-1900	**91,40**
19.50	49/64	205x140	3520-1950	**101,27**
20.00	-	205x240	3520-2000	**108,50**
20.50	13/16	205x140	3520-2050	**129,17**

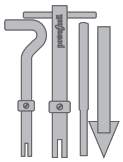
HSS | DIN 345

118° | 30° "N" | OX | 70 Kg/mm²

Ø mm.	Ø "	L1 x L2	Ref.	€
20.75	-	243x145	3520-2075	**69,97**
21.00	-	243x145	3520-2100	**66,87**
21.50	27/32	248x150	3520-2150	**66,87**
22.50	57/64	253x155	3520-2250	**73,30**
22.75	-	253x155	3520-2275	**84,50**
23.00	29/32	253x155	3520-2300	**73,14**
23.25	-	276x155	3520-2325	**93,17**
23.50	-	276x155	3520-2350	**81,17**
24.50	31/32	281x160	3520-2450	**88,40**
25.00	-	281x160	3520-2500	**88,04**
25.75	1.1/64	286x165	3520-2575	**110,57**
26.00	-	286x165	3520-2600	**95,80**
26.25	-	286x165	3520-2625	**119,74**
26.50	-	286x165	3520-2650	**103,70**
27.00	1.1/16	291x170	3520-2700	**103,80**
27.50	1.5/64	291x170	3520-2750	**111,04**
28.00	1.3/32	291x170	3520-2800	**111,37**
28.50	1.1/8	296x175	3520-2850	**119,04**
29.50	1.5/32	296x175	3520-2950	**131,07**
30.00	1.11/64	296x175	3520-3000	**131,17**
30.50	1.3/16	301x180	3520-3050	**146,34**
31.00	1.7/32	301x180	3520-3100	**146,47**
32.00	1.1/4	334x185	3520-3200	**154,30**
32.50	1.9/32	334x185	3520-3250	**177,24**
33.00	1.19/64	334x185	3520-3300	**176,17**
33.25	-	334x185	3520-3325	**217,30**
33.50	1.5/16	334x185	3520-3350	**192,20**
33.75	-	339x190	3520-3375	**218,47**
34.00	1.21/64	339x190	3520-3400	**191,60**
35.00	1.3/8	339x190	3520-3500	**210,30**
35.50	1.13/32	339x190	3520-3550	**224,50**
36.00	-	344x195	3520-3600	**225,07**
36.50	-	344x195	3520-3650	**238,04**
37.00	1.29/64	344x195	3520-3700	**237,70**
38.00	1.1/2	349x200	3520-3800	**249,67**
38.50	-	349x200	3520-3850	**265,67**
39.00	1.17/32	349x200	3520-3900	**265,90**
39.50	1.35/64	349x200	3520-3950	**281,60**
39.75		349x200	3520-3975	**312,84**
40.00	1.9/16	349x200	3520-4000	**281,24**
41.00	1.5/8	354x205	3520-4100	**295,17**
42.50	1.43/64	354x205	3520-4250	**329,04**
43.00	1.11/16	359x210	3520-4300	**329,07**
44.50	1.3/8	359x210	3520-4450	**360,54**
46.00		364x215	3520-4600	**373,34**
47.50	1.7/8	364x215	3520-4750	**403,30**
48.50	1.29/32	369x220	3520-4850	**419,30**
51.00	2	412x225	3520-5100	**510,44**

	FREE		FREE	LOCK	FREE	FREE	LOCK	FREE	LOCK
M/MF									

M/MF	Ref.	€	Ref.	€	Ref.	€	Ref.	€	Ref.	€
M 2 x 0.40	3500-HIT2	**11,70**	3520-2.00HIP	**112,87**	-	**-**	3520-2.00MIT	**71,31**	-	**-**
M 2.20 x 0.45	3500-HIT2	**11,70**	3520-2.20HIP	**112,87**	-	**-**	3520-2.20MIT	**71,31**	-	**-**
M 2.50 x 0.45	3500-HIT3	**11,70**	3520-2.50HIP	**112,87**	-	**-**	3520-2.50MIT	**71,31**	-	**-**
M 3 x 0.50	3500-HIT4	**11,70**	3520-3.00HIP	**84,15**	-	**-**	3520-3.00MIT	**65,61**	-	**-**
M 3.50 x 0.60	3500-HIT5	**11,70**	3520-3.50HIP	**84,15**	-	**-**	3520-3.50MIT	**65,61**	-	**-**
M 4 x 0.70	3500-HIT6	**11,70**	3520-4.00HIP	**84,15**	-	**-**	3520-4.00MIT	**65,61**	-	**-**
M 5 x 0.80	3500-HIT8	**11,70**	3520-5.00HIP	**84,15**	-	**-**	3520-5.00MIT	**65,61**	-	**-**
M 6 x 1.00	3500-HIT9	**11,70**	3520-6.00HIP	**87,50**	-	**-**	3520-6.00MIT	**65,61**	-	**-**
M 7 x 1.00	3500-HIT10	**13,41**	3520-7.00HIP	**87,50**	-	**-**	3520-7.00MIT	**65,61**	-	**-**
M 8 x 1.00	3500-HIT11	**13,41**	3521-8.00HIP	**83,74**	-	**-**	3521-8.00MIT	**65,61**	-	**-**
M 8 x 1.25	3500-HIT11	**13,41**	3520-8.00HIP	**71,22**	-	**-**	3520-8.00MIT	**65,61**	-	**-**
M 9 x 1.25	3500-HIT13	**13,41**	3520-9.00HIP	**70,71**	-	**-**	3520-9.00MIT	**65,61**	-	**-**
M 10 x 1.00	3500-HIT13	**13,41**	3523-10.00HIP	**95,63**	-	**-**	3523-10.00MIT	**71,31**	-	**-**
M 10 x 1.25	3500-HIT13	**13,41**	3521-10.00HIP	**104,48**	-	**-**	3521-10.00MIT	**71,31**	-	**-**
M 10 x 1.50	3500-HIT13	**13,41**	3520-10.00HIP	**94,89**	-	**-**	3520-10.00MIT	**71,31**	-	**-**
M 11 x 1.00	3500-HIT14	**16,81**	-	**-**	-	**-**	-	**-**	-	**-**
M 11 x 1.25	3500-HIT14	**16,81**	-	**-**	-	**-**	-	**-**	-	**-**
M 11 x 1.50	3500-HIT14	**16,81**	3520-11.00HIP	**106,17**	-	**-**	3520-11.00MIT	**76,07**	-	**-**
M 12 x 1.00	3500-HIT15	**16,81**	-	**-**	-	**-**	-	**-**	-	**-**
M 12 x 1.25	3500-HIT15	**16,81**	3523-12.00HIP	**98,95**	-	**-**	3523-12.00MIT	**76,07**	-	**-**
M 12 x 1.50	3500-HIT15	**16,81**	3521-12.00HIP	**92,87**	-	**-**	3521-12.00MIT	**76,07**	-	**-**
M 12 x 1.75	3500-HIT15	**16,81**	3520-12.00HIP	**91,35**	-	**-**	3520-12.00MIT	**76,07**	-	**-**
M 13 x 1.25	3500-HIT16	**20,22**	-	**-**	-	**-**	-	**-**	-	**-**
M 13 x 1.50	3500-HIT15	**16,81**	-	**-**	-	**-**	-	**-**	-	**-**
M 13 x 1.75	3500-HIT15	**16,81**	-	**-**	-	**-**	3520-13.00MIT	**76,06**	-	**-**
M 14 x 1.00	3500-HIT16	**20,22**	-	**-**	-	**-**	-	**-**	-	**-**
M 14 x 1.25	3500-HIT16	**20,22**	3523-14.00HIP	**192,81**	-	**-**	3523-14.00MIT	**80,82**	-	**-**
M 14 x 1.50	3500-HIT16	**20,22**	3521-14.00HIP	**106,13**	-	**-**	3521-14.00MIT	**80,82**	-	**-**
M 14 x 2.00	3500-HIT16	**20,22**	3520-14.00HIP	**81,26**	-	**-**	3520-14.00MIT	**80,82**	-	**-**

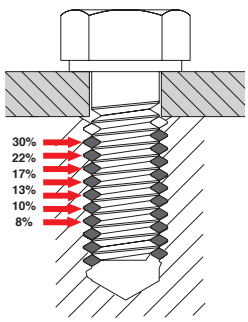


	FREE	FREE	LOCK	FREE	FREE	LOCK	FREE	LOCK
M/MF								
D								

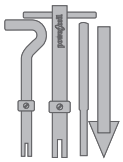
M/MF	Ref.	€	Ref.	€	Ref.	€	Ref.	€	Ref.	€
M 15 x 1.50	3500-HIT16	20,22	-	-	-	-	-	-	-	-
M 15 x 2.00	3500-HIT16	20,22	-	-	-	-	-	-	-	-
M 16 x 1.50	3500-HIT18	22,34	3521-16.00HIP	98,95	-	-	3521-16.00MIT	80,82	-	-
M 16 x 2.00	3500-HIT18	22,34	-	-	-	-	3520-16.00MIT	80,82	-	-
M 18 x 1.50	3500-HIT20	22,34	-	-	-	-	-	-	3523-18.00HIP	185,80
M 18 x 2.00	3500-HIT20	22,34	-	-	-	-	-	-	3521-18.00HIP	185,80
M 18 x 2.50	3500-HIT20	22,34	-	-	-	-	-	-	3520-18.00HIP	89,43
M 20 x 1.50	3500-HIT21	22,34	-	-	-	-	-	-	3523-20.00HIP	231,52
M 20 x 2.00	3500-HIT21	22,34	-	-	-	-	-	-	3521-20.00HIP	231,52
M 20 x 2.50	3500-HIT21	22,34	-	-	-	-	-	-	3520-20.00HIP	104,80
M 22 x 1.50	3500-HIT22	28,08	-	-	-	-	-	-	3523-22.00HIP	283,18
M 22 x 2.00	3500-HIT22	28,08	-	-	-	-	-	-	3521-22.00HIP	283,18
M 22 x 2.50	3500-HIT22	28,08	-	-	-	-	-	-	3520-22.00HIP	92,51
M 24 x 1.50	3500-HIT23	28,08	-	-	-	-	-	-	3523-24.00HIP	330,37
M 24 x 2.00	3500-HIT23	28,08	-	-	-	-	-	-	3521-24.00HIP	330,37
M 24 x 3.00	3500-HIT23	28,08	-	-	-	-	-	-	3520-24.00HIP	116,81
M 26 x 1.50	3500-HIT24	50,42	-	-	3523-26.00HIM	28,13	-	-	-	-
M 27 x 1.50	3500-HIT24	50,42	-	-	3523-27.00HIM	28,13	-	-	-	-
M 27 x 2.00	3500-HIT24	50,42	-	-	3521-27.00HIM	28,13	-	-	-	-
M 27 x 3.00	3500-HIT24	50,42	-	-	3520-27.00HIM	28,13	-	-	-	-
M 28 x 1.50	3500-HIT24	50,42	-	-	3523-28.00HIM	28,13	-	-	-	-
M 30 x 1.50	3500-HIT26	79,39	-	-	3523-30.00HIM	33,76	-	-	-	-
M 30 x 2.00	3500-HIT26	79,39	-	-	3521-30.00HIM	33,76	-	-	-	-
M 30 x 3.50	3500-HIT25	50,42	-	-	3520-30.00HIM	33,76	-	-	-	-
M 33 x 2.00	3500-HIT26	79,39	-	-	3521-33.00HIM	39,39	-	-	-	-
M 33 x 3.50	3500-HIT26	79,39	-	-	3520-33.00HIM	39,39	-	-	-	-
M 36 x 1.50	3500-HIT28	79,51	-	-	3524-36.00HIM	39,39	-	-	-	-
M 36 x 2.00	3500-HIT28	79,51	-	-	3523-36.00HIM	39,39	-	-	-	-
M 36 x 3.00	3500-HIT27	79,51	-	-	3521-36.00HIM	39,39	-	-	-	-
M 36 x 4.00	3500-HIT27	79,51	-	-	3520-36.00HIM	39,39	-	-	-	-

	FREE	FREE	LOCK	FREE	FREE	LOCK	FREE	LOCK
UNC								
D								

UNC	Ref.	€	Ref.	€	Ref.	€	Ref.	€	Ref.	€
UNC Nº2 - 56	3500-HIT2	11,70	3532-2GHIP	117,69	-	-	3532-2GMIT	71,31	-	-
UNC Nº3 - 48	3500-HIT3	11,70		-	-	-	3532-3GMIT	71,31	-	-
UNC Nº4 - 40	3500-HIT4	11,70	3532-4GHIP	117,69	-	-	3532-4GMIT	71,31	-	-
UNC Nº5 - 40	3500-HIT4	11,70	3532-5GHIP	117,69	-	-	3532-5GMIT	71,31	-	-
UNC Nº6 - 32	3500-HIT5	11,70	3532-6GHIP	114,48	-	-	3532-6GMIT	65,61	-	-
UNC Nº8 - 32	3500-HIT6	11,70	3532-8GHIP	114,48	-	-	3532-8GMIT	65,61	-	-
UNC Nº10 - 24	3500-HIT7	11,70	3532-10GHIP	114,48	-	-	3532-10GMIT	65,61	-	-
UNC Nº12 - 24	3500-HIT8	11,70	3532-12GHIP	114,48	-	-	3532-12GMIT	65,60	-	-
UNC 1/4 - 20	3500-HIT9	11,70	3532-1/4HIP	77,82	-	-	3532-1/4MIT	65,61	-	-
UNC 5/16 - 18	3500-HIT10	13,41	3532-5/16HIP	77,87	-	-	3532-5/16MIT	65,61	-	-
UNC 3/8 - 16	3500-HIT13	13,41	3532-3/8HIP	90,41	-	-	3532-3/8MIT	71,31	-	-
UNC 7/16 - 14	3500-HIT14	16,81	3532-7/16HIP	90,41	-	-	3532-7/16MIT	71,31	-	-
UNC 1/2 - 13	3500-HIT15	16,81	3532-1/2HIP	104,53	-	-	3532-1/2MIT	76,07	-	-
UNC 9/16 - 12	3500-HIT16	20,22	-	-	-	-	-	-	3532-9/16HIP	94,49
UNC 5/8 - 11	3500-HIT18	22,34	-	-	-	-	-	-	3532-5/8HIP	99,28
UNC 3/4 - 10	3500-HIT20	22,34	-	-	-	-	-	-	3532-3/4HIP	111,66
UNC 7/8 - 9	3500-HIT22	28,08	-	-	-	-	-	-	3532-7/8HIP	120,25
UNC 1 - 8	3500-HIT23	28,08	-	-	-	-	-	-	3532-1HIP	137,43
UNC 1.1/8 - 7	3500-HIT24	50,42	-	-	3532-1.1/8HIM	33,76	-	-	3532-1.1/8HIP	156,91
UNC 1.1/4 - 7	3500-HIT25	50,42	-	-	3532-1.1/4HIM	33,76	-	-	3532-1.1/4HIP	164,38
UNC 1.3/8 - 6	3500-HIT26	79,39	-	-	3532-1.3/8HIM	39,39	-	-	3532-1.3/8HIP	167,29
UNC 1.1/2 - 6	3500-HIT27	79,51	-	-	3532-1.1/2HIM	39,39	-	-	3532-1.1/2HIP	169,62



Instale el inserto hilo y medio por debajo del ras de la pieza
Install the insert pitch and half deep at the workpiece
Posez le filet rapporté un filet et demi en-dessous du niveau de la pièce
Instale o inserto um fio e meio abaixo do nivel da peça



	FREE	FREE + LOCK	FREE	FREE + LOCK	FREE + LOCK
UNF					

UNF	Ref.	€	Ref.	€	Ref.	€	Ref.	€	Ref.	€
UNF Nº3 - 56	3500-HIT3	11,70	3534-3GHIP	104,77	-	-	-	-	-	-
UNF Nº4 - 48	3500-HIT4	11,70	3534-4GHIP	106,90	-	-	3534-4GMIT	71,31	-	-
UNF Nº6 - 40	3500-HIT5	11,70	3534-6GHIP	93,67	-	-	3534-6GMIT	65,61	-	-
UNF Nº8 - 36	3500-HIT6	11,70	3534-8GHIP	93,67	-	-	3534-8GMIT	65,61	-	-
UNF Nº10 - 32	3500-HIT8	11,70	3534-10GHIP	93,67	-	-	3534-10GMIT	65,61	-	-
UNF Nº12 - 28	3500-HIT8	11,70	3534-12GHIP	93,67	-	-	3534-12GMIT	65,60	-	-
UNF 1/4 - 28	3500-HIT9	11,70	3534-1/4HIP	63,67	-	-	3534-1/4MIT	65,61	-	-
UNF 5/16 - 24	3500-HIT11	13,41	3534-5/16HIP	63,72	-	-	3534-5/16MIT	65,61	-	-
UNF 3/8 - 24	3500-HIT13	13,41	3534-3/8HIP	73,98	-	-	3534-3/8MIT	71,31	-	-
UNF 7/16 - 20	3500-HIT14	16,81	3534-7/16HIP	73,98	-	-	3534-7/16MIT	71,31	-	-
UNF 1/2 - 20	3500-HIT15	16,81	3534-1/2HIP	85,53	-	-	3534-1/2MIT	76,07	-	-
UNF 9/16 - 18	3500-HIT16	20,22	-	-	-	-	-	-	3534-9/16HIP	77,31
UNF 5/8 - 18	3500-HIT18	22,34	-	-	-	-	-	-	3534-5/8HIP	81,22
UNF 3/4 - 16	3500-HIT21	22,34	-	-	-	-	-	-	3534-3/4HIP	91,37
UNF 7/8 - 14	3500-HIT22	28,08	-	-	-	-	-	-	3534-7/8HIP	98,40
UNF 1 - 12	3500-HIT23	28,08	-	-	-	-	-	-	3534-1HIP	112,44
UNF 1 - 14	3500-HIT23	28,08	-	-	-	-	-	-	3535-1HIP	112,44
UNF 1.1/8 - 12	3500-HIT25	50,42	-	-	3534-1.1/8HIM	33,76	-	-	3534-1.1/8HIP	421,65
UNF 1.1/4 - 12	3500-HIT26	79,39	-	-	3534-1.1/4HIM	33,76	-	-	3534-1.1/4HIP	491,93
UNF 1.3/8 - 12	3500-HIT27	79,51	-	-	3534-1.3/8HIM	39,39	-	-	3534-1.3/8HIP	562,21
UNF 1.1/2 - 12	3500-HIT28	79,51	-	-	3534-1.1/2HIM	39,39	-	-	3534-1.1/2HIP	632,48

FREE

FREE

FREE

BSW

BSP

BSW	Ref.	€
BSW 1/8 - 40	3500-HIT4	11,70
BSW 3/16 - 24	3500-HIT7	11,70
BSW 1/4 - 20	3500-HIT9	11,70
BSW 5/16 - 18	3500-HIT10	13,41
BSW 3/8 - 16	3500-HIT11	13,41
BSW 7/16 - 14	3500-HIT14	16,81
BSW 1/2 - 12	3500-HIT15	16,81
BSW 9/16 - 12	3500-HIT16	20,22
BSW 5/8 - 11	3500-HIT18	22,34
BSW 3/4 - 10	3500-HIT20	22,34
BSW 7/8 - 9	3500-HIT22	28,08
BSW 1 - 8	3500-HIT23	28,08

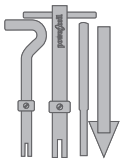
BSP	Ref.	€	Ref.	€
BSP 1/8 - 28	3500-HIT14	16,81	3546-1/8HIM	16,88
BSP 1/4 - 19	3500-HIT16	20,22	3546-1/4HIM	16,88
BSP 3/8 - 19	3500-HIT20	22,34	3546-3/8HIM	19,70
BSP 1/2 - 14	3500-HIT23	28,08	3546-1/2HIM	22,52
BSP 5/8 - 14	3500-HIT23	28,08	3546-5/8HIM	28,13
BSP 3/4 - 14	3500-HIT24	50,42	3546-3/4HIM	28,13
BSP 7/8 - 14	3500-HIT27	79,51	3546-7/8HIM	39,39
BSP 1 - 11	3500-HIT27	79,51	3546-1HIM	39,39

BSF

NPT

BSF	Ref.	€
BSF 3/16 - 32	3500-HIT8	11,70
BSF 1/4 - 26	3500-HIT9	11,70
BSF 5/16 - 22	3500-HIT11	13,41
BSF 3/8 - 20	3500-HIT13	13,41
BSF 7/16 - 18	3500-HIT14	16,81
BSF 1/2 - 16	3500-HIT15	16,81
BSF 9/16 - 16	3500-HIT16	20,22
BSF 5/8 - 14	3500-HIT18	22,34
BSF 3/4 - 12	3500-HIT20	22,34
BSF 7/8 - 11	3500-HIT22	28,08
BSF 1 - 10	3500-HIT23	28,08

NPT	Ref.	€
NPT 1/8 - 27	3500-HIT13	13,41
NPT 1/4 - 18	3500-HIT16	20,22
NPT 3/8 - 18	3500-HIT18	22,34
NPT 1/2 - 14	3500-HIT22	28,08
NPT 3/4 - 14	3500-HIT24	50,42
NPT 1 - 11.1/2	3500-HIT27	79,51



FREE

FREE

8-UN

8 - UN	Ref.	€	Ref.	€
UN 1.1/8 - 8	3500-HIT24	50,42	3570-1.1/8HIM	65,69
UN 1.1/4 - 8	3500-HIT25	50,42	3570-1.1/4HIM	65,69
UN 1.3/8 - 8	3500-HIT26	79,39	3570-1.3/8HIM	76,22
UN 1.1/2 - 8	3500-HIT27	79,51	3570-1.1/2HIM	76,22
UN 1.5/8 - 8	3500-HIT27	79,51	3570-1.5/8HIM	78,84
UN 1.3/4 - 8	3500-HIT28	79,51	3570-1.3/4HIM	84,10
UN 1.7/8 - 8	3500-HIT30	98,87	3570-1.7/8HIM	97,23
UN 2 - 8	3500-HIT30	98,87	3570-2HIM	97,23

FREE

BSB

BSB	Ref.	€
BSB 1/4 - 26	3500-HIT9	11,70
BSB 5/16 - 26	3500-HIT11	13,41
BSB 3/8 - 26	3500-HIT13	13,41
BSB 7/16 - 26	3500-HIT14	16,81
BSB 1/2 - 26	3500-HIT15	16,81

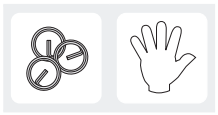
BA

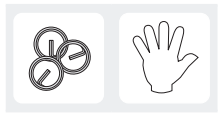
BA	Ref.	€
BA 0	3500-HIT9	11,70
BA 2	3500-HIT7	11,70
BA 4	3500-HIT5	11,70
BA 6	3500-HIT3	11,70

M/MF	Ref.	€
10x1.00	3500-HIT13	13,41
12x1.25	3500-HIT15	16,81
14x1.25	3500-HIT17	20,22
18x1.50	3500-HIT20	22,34

M14x1,25

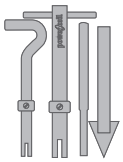
M12x1,25

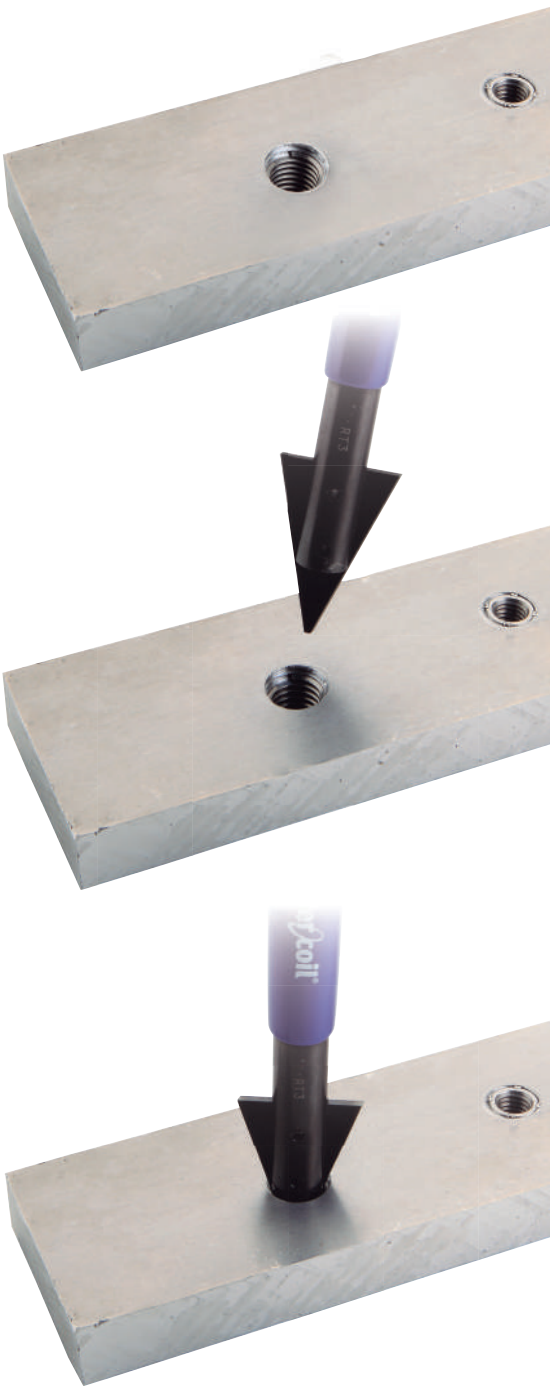




M/MF	Ref.	€
M 2 x 0.40	3500-TB2	5,02
M 2.20 x 0.45	3500-TB2	5,02
M 2.50 x 0.45	3500-TB3	5,02
M 3 x 0.50	3500-TB4	5,02
M 3.50 x 0.60	3500-TB5	5,02
M 4 x 0.70	3500-TB6	5,02
M 5 x 0.80	3500-TB8	5,02
M 6 x 1.00	3500-TB9	5,02
M 7 x 1.00	3500-TB11	5,55
M 8 x 1.00	3500-TB12	5,55
M 8 x 1.25	3500-TB12	5,55
M 9 x 1.25	3500-TB12	5,55
M 10 x 1.00	3500-TB13	5,55
M 10 x 1.25	3500-TB13	5,55
M 10 x 1.50	3500-TB13	5,55
M 11 x 1.00	3500-TB14	6,73
M 11 x 1.25	3500-TB14	6,73
M 11 x 1.50	3500-TB14	6,73
M 12 x 1.00	3500-TB15	6,73
M 12 x 1.25	3500-TB15	6,73
M 12 x 1.50	3500-TB15	6,73
M 12 x 1.75	3500-TB15	6,73
M 13 x 1.25	3500-HIT16	20,22
M 13 x 1.50	3500-TB15	6,73
M 13 x 1.75	3500-TB15	6,73
M 14 x 1.00	3500-HIT16	20,22
M 14 x 1.25	3500-HIT16	20,22
M 14 x 1.50	3500-HIT16	20,22
M 14 x 2.00	3500-HIT16	20,22

Ref.	€
3500-RT1	22,96
3500-RT1	22,96
3500-RT1	22,96
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34



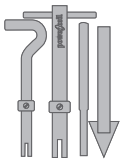


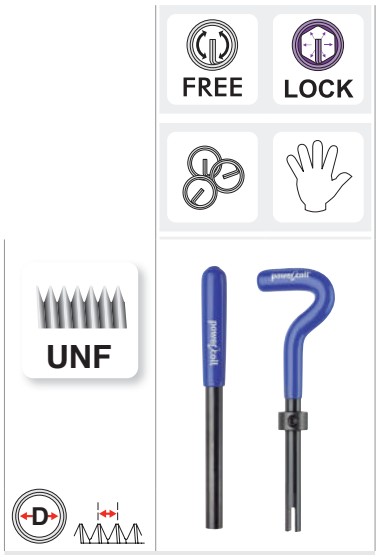
M/MF	Ref.	€
M 15 x 1.50	3500-HIT16	20,22
M 15 x 2.00	3500-HIT16	20,22
M 16 x 1.50	3500-HIT18	22,34
M 16 x 2.00	3500-HIT18	22,34
M 18 x 1.50	3500-HIT20	22,34
M 18 x 2.00	3500-HIT20	22,34
M 18 x 2.50	3500-HIT20	22,34
M 20 x 1.50	3500-HIT21	22,34
M 20 x 2.00	3500-HIT21	22,34
M 20 x 2.50	3500-HIT21	22,34
M 22 x 1.50	3500-HIT22	28,08
M 22 x 2.00	3500-HIT22	28,08
M 22 x 2.50	3500-HIT22	28,08
M 24 x 1.50	3500-HIT23	28,08
M 24 x 2.00	3500-HIT23	28,08
M 24 x 3.00	3500-HIT23	28,08
M 26 x 1.50	-	-
M 27 x 1.50	-	-
M 27 x 2.00	-	-
M 27 x 3.00	-	-
M 28 x 1.50	-	-
M 30 x 1.50	-	-
M 30 x 2.00	-	-
M 30 x 3.50	-	-
M 33 x 2.00	-	-
M 33 x 3.50	-	-
M 36 x 1.50	-	-
M 36 x 2.00	-	-
M 36 x 3.00	-	-
M 36 x 4.00	-	-

Ref.	€
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52

UNC	Ref.	€
UNC Nº2 - 56	3500-TB2	5,02
UNC Nº3 - 48	3500-TB3	5,02
UNC Nº4 - 40	3500-TB4	5,02
UNC Nº5 - 40	3500-TB4	5,02
UNC Nº6 - 32	3500-TB5	5,02
UNC Nº8 - 32	3500-TB6	5,02
UNC Nº10 - 24	3500-TB8	5,02
UNC Nº12 - 24	3500-TB8	5,02
UNC 1/4 - 20	3500-TB9	5,02
UNC 5/16 - 18	3500-TB12	5,55
UNC 3/8 - 16	3500-TB12	5,55
UNC 7/16 - 14	3500-TB14	6,73
UNC 1/2 - 13	3500-TB15	6,73
UNC 9/16 - 12	3500-HIT16	20,22
UNC 5/8 - 11	3500-HIT18	22,34
UNC 3/4 - 10	3500-HIT20	22,34
UNC 7/8 - 9	3500-HIT22	28,08
UNC 1 - 8	3500-HIT23	28,08
UNC 1.1/8 - 7	-	-
UNC 1.1/4 - 7	-	-
UNC 1.3/8 - 6	-	-
UNC 1.1/2 - 6	-	-

Ref.	€
3500-RT1	22,96
3500-RT1	22,96
3500-RT1	22,96
3500-RT1	22,96
3500-RT1	22,96
3500-RT1	22,96
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52
3500-RT4	55,52





UNF	Ref.	€
UNF Nº3 - 56	3500-TB3	5,02
UNF Nº4 - 48	3500-TB4	5,02
UNF Nº6 - 40	3500-TB5	5,02
UNF Nº8 - 36	3500-TB6	5,02
UNF Nº10 - 32	3500-TB8	5,02
UNF Nº12 - 28	3500-TB8	5,02
UNF 1/4 - 28	3500-TB9	5,02
UNF 5/16 - 24	3500-TB12	5,55
UNF 3/8 - 24	3500-TB13	5,55
UNF 7/16 - 20	3500-TB14	6,73
UNF 1/2 - 20	3500-TB15	6,73
UNF 9/16 - 18	3500-HIT16	20,22
UNF 5/8 - 18	3500-HIT18	22,34
UNF 3/4 - 16	3500-HIT21	22,34
UNF 7/8 - 14	3500-HIT22	28,08
UNF 1 - 12	3500-HIT23	28,08
UNF 1 - 14	3500-HIT23	28,08
UNF 1.1/8 - 12	-	-
UNF 1.1/4 - 12	-	-
UNF 1.3/8 - 12	-	-
UNF 1.1/2 - 12	-	-

Ref.	€
3500-RT1	22,96
3500-RT1	22,96
3500-RT1	22,96
3500-RT1	22,96
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
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3500-RT4	55,52
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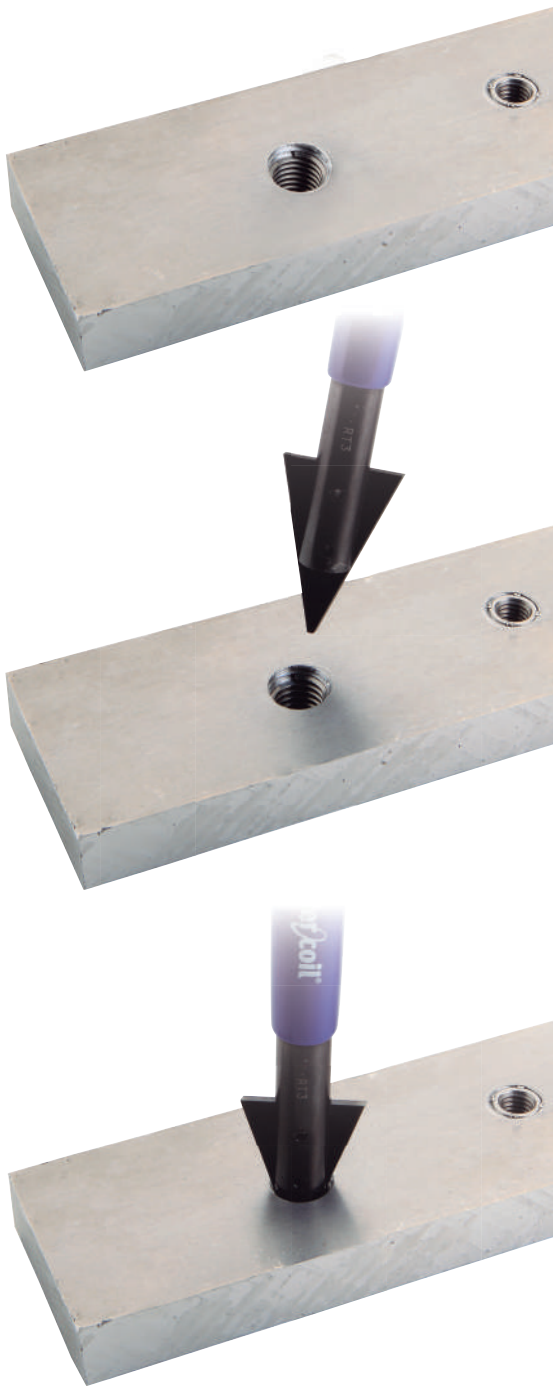
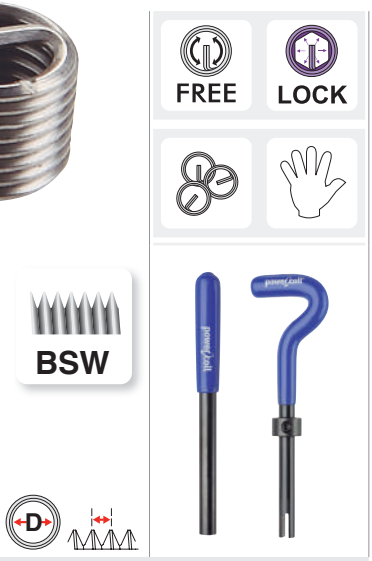
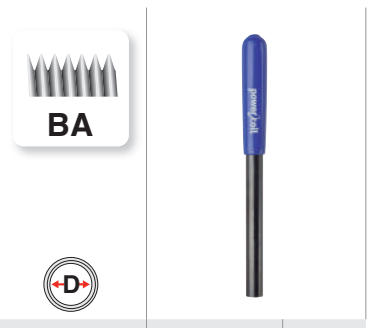
3500-RT4	55,52





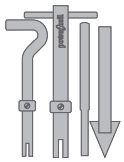
BSW	Ref.	€
BSW 1/8 - 40	3500-TB4	5,02
BSW 3/16 - 24	3500-TB8	5,02
BSW 1/4 - 20	3500-TB9	5,02
BSW 5/16 - 18	3500-TB11	5,55
BSW 3/8 - 16	3500-TB12	5,55
BSW 7/16 - 14	3500-TB14	6,73
BSW 1/2 - 12	3500-TB15	6,73
BSW 9/16 - 12	3500-HIT16	20,22
BSW 5/8 - 11	3500-HIT18	22,34
BSW 3/4 - 10	3500-HIT20	22,34
BSW 7/8 - 9	3500-HIT22	28,08
BSW 1 - 8	3500-HIT23	28,08

Ref.	€
3500-RT1	22,96
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34



BA	Ref.	€
BA 0	3500-TB11	5,55
BA 2	3500-TB8	5,02
BA 4	3500-TB5	5,02
BA 6	3500-TB3	5,02

Ref.	€
3500-RT2	24,79
3500-RT2	24,79
3500-RT1	22,96
3500-RT1	22,96



FREE LOCK

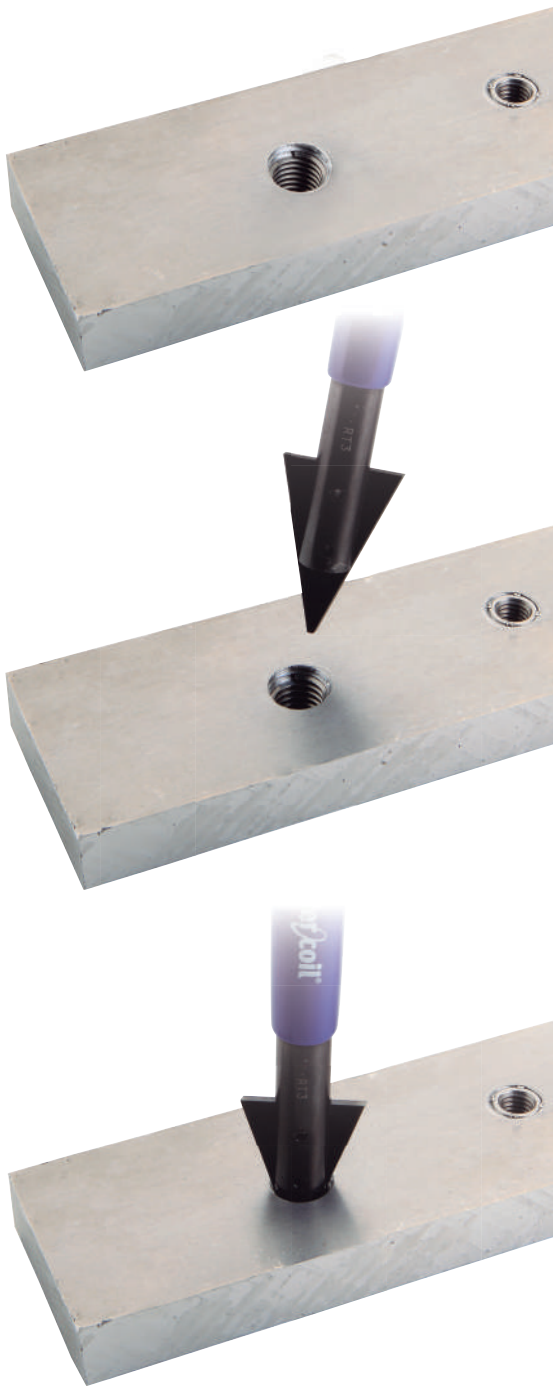
BSF	Ref.	€
BSF 3/16 - 32	3500-TB6	5,02
BSF 1/4 - 26	3500-TB9	5,02
BSF 5/16 - 22	3500-TB11	5,55
BSF 3/8 - 20	3500-TB12	5,55
BSF 7/16 - 18	3500-TB14	6,73
BSF 1/2 - 16	3500-TB15	6,73
BSF 9/16 - 16	3500-HIT16	20,22
BSF 5/8 - 14	3500-HIT18	22,34
BSF 3/4 - 12	3500-HIT20	22,34
BSF 7/8 - 11	3500-HIT22	28,08
BSF 1 - 10	3500-HIT23	28,08

FREE LOCK

Ref.	€
3500-RT2	24,79
3500-RT2	24,79
3500-RT2	24,79
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34

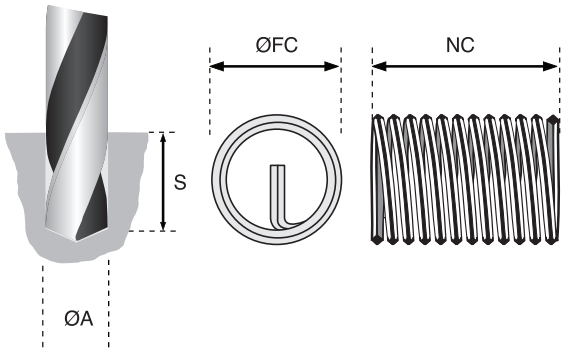
BSB	Ref.	€
BSB 1/4 - 26	3500-TB9	5,02
BSB 5/16 - 26	3500-TB12	5,55
BSB 3/8 - 26	3500-TB13	5,55
BSB 7/16 - 26	3500-TB14	6,73
BSB 1/2 - 26	3500-TB15	6,73

Ref.	€
3500-RT2	24,79
3500-RT2	24,79
3500-RT3	30,34
3500-RT3	30,34
3500-RT3	30,34



M/MF	
A	Ø de taladrado o interior de rosca previa.
B	Ø mayor de rosca previa (Mínima).
C	Ø de flancos de rosca previa.
D	Ø de flancos de inserto instalado.
E	Ø interior del inserto instalado (Mínimo).
FC	Ø exterior del inserto en estado libre.
S	Profundidad del taladrado (Mínima).
T	Profundidad "útil" de roscado (Mínima).
Q	Rosca "útil" del inserto.
NC	Número de filetes o hilos

M/MF	
A	Minor Diameter
B	Major Diameter
C	Pitch Diameter of Tapped Hole (Class 5H)
D	Pitch Diameter of Installed Insert (Class 4H)
E	Installed Insert Internal Diameter - min.
FC	Free Coil Diamater of Un-installed Insert
S	Drilling Length - minimum
T	Tapping Length - minimum
Q	Nominal Length
NC	Number of Coils in Un-installed Insert counted 90º from tang



IMPORTANTE: El éxito o fracaso de operaciones de taladrado y roscado dependen especialmente del material a trabajar. Las dimensiones detalladas son recomendaciones generales no específicas para un material concreto. Sin embargo, conviene que sean tenidas en cuenta ya que cumplen los requisitos marcados por los standards aplicables y los más reconocidos fabricantes. Para encontrar información relativa a diferentes standards, acuda a la Web www.bluemaster.es.

IMPORTANT The success of any drill and tapping operation is dependant upon many factors –type of material being cut, cutting speed, coolant, equipment being used – and it is not possible to give specific drill sizes for each material. Drill sizes shown are recommendations only and PowerCoil would strongly suggest that independent testing be performed for specific and critical applications. When using wire thread inserts it is important that the drilling and tapping diameters and lengths listed below are adhered to. The figures outlined in these tables encompass effective free coil tolerances for most globally recognized standards and manufacturers, including those of reduced diameter wire thread inserts. PowerCoil wire thread inserts can be manufactured to different standards upon request. Technical data on these standards can be obtained from our website – www.bluemaster.es

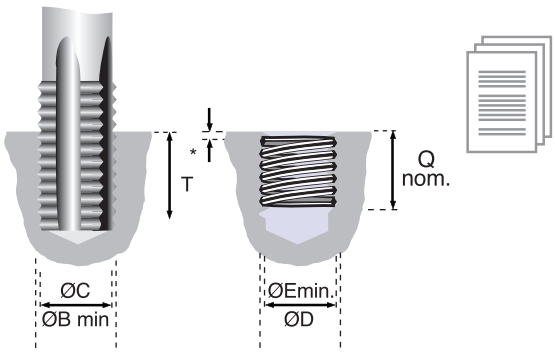
Para obtener el mayor rendimiento posible del inserto, debe ser introducido 0.5 ó 1 vez el paso por debajo de agujero roscado. Ello significa que la longitud real que ofrece el inserto es la dimensión "Q" restando 0.5 ó 1 vez el paso. La dimensión "S" representa la profundidad del agujero, mientras que la "T" representa la longitud roscada útil, que puede variar en función de la longitud del cono de entrada del macho empleado.

Optimum Thread performance with Wire Thread Inserts is achieved when the inserts are installed 1/2 to 1 pitch below the surface of the Tapped Hole. This means that the actual length of an installed insert is equal to dimension Q less 1/2 to 1 pitch. Dimensions S and T allow for tap end clearance of intermediate taps. When using Bottoming and Spiral Flute Taps these dimensions maybe reduced by an amount equal to 2 thread pitches. Any counterbore depths must be added to these dimensions.

MEDIDA /SIZE DIMENSION/ DIMENSÃO"	Broca / Drill/ Foret		A max/min	FC min/max	NC max/min				
	mm	"	mm	mm	1.0D	1.5D	2.0D	2.5D	3.0D
MÉTRICA/METRIC									
M2 X 0.40	2.10	#45	2.177 / 2.087	2.49 / 2.70	3.30 / 3.00	5.70 / 5.20	8.10 / 7.40	10.50 / 9.60	13.00 / 11.80
M2.2 X 0.45	2.30	3/32	2.397 / 2.297	2.76 / 3.00	3.20 / 2.90	5.50 / 5.00	7.90 / 7.10	10.30 / 9.30	12.60 / 11.40
M2.5 X 0.45	2.60	#37	2.697 / 2.597	3.05 / 3.70	3.80 / 3.10	6.50 / 5.20	9.20 / 7.40	11.90 / 9.50	14.60 / 11.70
M3 X 0.50	3.20	1/8	3.220 / 3.108	3.61 / 4.35	4.30 / 3.40	7.20 / 5.80	10.10 / 8.20	13.10 / 10.50	16.00 / 12.90
M3.5 X 0.60	3.70	#27	3.755 / 3.630	4.24 / 4.95	4.10 / 3.40	7.00 / 5.80	9.80 / 8.20	12.60 / 10.50	15.50 / 12.90
M4 x 0.70	4.20	-	4.292 / 4.152	4.86 / 5.60	4.00 / 3.40	6.80 / 5.70	9.60 / 8.10	12.30 / 10.50	15.10 / 12.80
M5 X 0.80	5.20	13/64	5.333 / 5.173	5.98 / 6.80	4.50 / 3.90	7.60 / 6.50	10.60 / 9.20	13.70 / 11.80	16.70 / 14.40
M6 X 1.00	6.30	1/4	6.406 / 6.216	7.23 / 7.95	4.30 / 3.80	7.20 / 6.40	10.10 / 9.10	13.10 / 11.70	16.00 / 14.30
M7 X 1.00	7.30	9/32	7.406 / 7.216	8.22 / 9.20	5.30 / 4.60	8.70 / 7.70	12.10 / 10.70	15.60 / 13.70	19.00 / 16.70
M8 X 1.25	8.30	21/64	8.483 / 8.271	9.53 / 10.35	4.70 / 4.20	7.80 / 7.10	10.90 / 9.90	14.10 / 12.80	17.20 / 15.60
M8 X 1.00	8.30	21/64	8.406 / 8.216	9.39 / 10.25	6.10 / 5.60	10.00 / 9.10	13.80 / 12.50	17.70 / 16.00	21.50 / 19.50
M9 X 1.25	9.40	3/8	9.483 / 9.271	10.52 / 11.16	5.50 / 5.10	9.00 / 8.40	12.50 / 11.70	16.10 / 15.00	19.60 / 18.30
M9 x 1.00	9.30	23/64	9.406 / 9.216	10.40 / 11.23	7.10 / 6.50	11.50 / 10.50	15.80 / 14.50	20.20 / 18.50	24.50 / 22.50
M10 X 1.50	10.40	-	10.561 / 10.325	11.83 / 12.50	4.90 / 4.60	8.20 / 7.70	11.50 / 10.80	14.70 / 13.80	18.00 / 16.90
M10 X 1.25	10.30	13/32	10.483 / 10.271	11.74 / 12.65	6.10 / 5.60	10.00 / 9.20	13.80 / 12.70	17.70 / 16.30	21.50 / 19.80
M10 x 1.00	10.30	13/32	10.406 / 10.216	11.41 / 12.50	8.10 / 7.30	12.90 / 11.70	17.80 / 16.10	22.60 / 20.50	27.50 / 24.90
M11 X 1.50	11.40	-	11.561 / 11.325	12.82 / 13.59	5.60 / 5.20	9.20 / 8.60	12.80 / 12.00	16.40 / 15.40	20.00 / 18.70
M11 X 1.25	11.30	-	11.483 / 11.271	12.75 / 13.76	6.90 / 6.40	11.20 / 10.30	15.40 / 14.20	19.70 / 18.10	23.90 / 22.00
M11 X 1.00	11.30	-	11.406 / 11.216	12.42 / 13.41	9.10 / 8.40	14.40 / 13.30	19.80 / 18.20	25.10 / 23.10	30.40 / 28.00
M12 X 1.75	12.50	-	12.644 / 12.379	14.13 / 15.00	5.10 / 4.80	8.50 / 7.90	11.90 / 11.10	15.20 / 14.20	18.60 / 17.30
M12 X 1.50	12.40	31/64	12.561 / 12.325	14.09 / 15.20	6.10 / 5.60	10.00 / 9.20	13.80 / 12.70	17.70 / 16.20	21.50 / 19.80
M12 X 1.25	12.30	-	12.483 / 12.271	13.76 / 15.00	7.70 / 7.00	12.40 / 11.20	17.00 / 15.50	21.60 / 19.70	26.30 / 23.90
M12 X 1.00	12.30	-	12.406 / 12.216	13.43 / 14.49	10.10 / 9.30	15.90 / 14.70	21.70 / 20.00	27.60 / 25.40	33.40 / 30.80
M13 X 1.75	13.50	-	13.644 / 13.379	15.12 / 16.04	5.70 / 5.30	9.40 / 8.70	13.00 / 12.20	16.70 / 15.60	20.30 / 19.00
M13 X 1.50	13.25	-	13.561 / 13.325	15.10 / 16.29	6.80 / 6.20	11.00 / 10.10	15.20 / 13.90	19.30 / 17.80	23.50 / 21.60
M13 X 1.25	13.25	-	13.483 / 13.271	14.77 / 15.94	8.50 / 7.80	13.50 / 12.50	18.60 / 17.10	23.60 / 21.70	28.70 / 26.40
M14 X 2.00	14.50	-	14.733 / 14.433	16.43 / 17.35	5.30 / 5.00	8.70 / 8.20	12.10 / 11.40	15.60 / 14.60	19.00 / 17.90
M14 X 1.50	14.50	-	14.561 / 14.325	16.11 / 17.25	7.50 / 6.90	12.00 / 11.10	16.50 / 15.30	21.00 / 19.40	25.50 / 23.60
M14 X 1.25	14.25	9/16	14.483 / 14.271	15.78 / 17.03	9.30 / 8.60	14.70 / 13.60	20.20 / 18.60	25.60 / 23.60	31.00 / 28.60
M14 X 1.00	14.25	9/16	14.406 / 14.216	15.45 / 16.68	12.10 / 11.10	18.90 / 17.40	25.70 / 23.70	32.50 / 30.00	39.30 / 36.20
M15 X 2.00	15.50	39/64	15.733 / 15.433	17.42 / 18.48	5.80 / 5.40	9.50 / 8.80	13.10 / 12.30	16.80 / 15.70	20.50 / 19.20
M15 X 1.50	15.25	-	15.561 / 15.325	17.12 / 18.47	8.10 / 7.50	12.90 / 11.90	17.80 / 16.40	22.60 / 20.80	27.50 / 25.30
M16 X 2.00	16.50	-	16.733 / 16.433	18.41 / 19.60	6.30 / 5.90	10.20 / 9.50	14.20 / 13.20	18.10 / 16.90	22.00 / 20.50
M16 X 1.50	16.50	-	16.561 / 16.325	18.13 / 19.60	8.80 / 8.00	13.90 / 12.80	19.10 / 17.50	24.30 / 22.30	29.40 / 27.00
M18 X 2.50	19.00	3/4	18.896 / 18.541	21.04 / 22.00	5.50 / 5.20	9.00 / 8.60	12.50 / 11.90	16.10 / 15.30	19.60 / 18.60
M18 X 2.00	18.50	23/32	18.733 / 18.433	20.80 / 21.85	7.10 / 6.70	11.50 / 10.90	15.80 / 15.00	20.20 / 19.10	24.50 / 23.20
M18 X 1.50	18.50	23/32	18.561 / 18.325	20.15 / 21.75	10.10 / 9.30	15.90 / 14.60	21.70 / 20.00	27.60 / 25.40	33.40 / 30.70
M20 X 2.50	20.75	-	20.896 / 20.541	23.02 / 24.40	6.30 / 5.90	10.20 / 9.60	14.20 / 13.30	18.10 / 16.90	22.00 / 20.60
M20 X 2.00	20.50	13/16	20.733 / 20.433	22.82 / 24.05	8.10 / 7.70	12.90 / 12.20	17.80 / 16.80	22.60 / 21.40	27.50 / 25.90
M20 X 1.50	20.50	13/16	20.561 / 20.325	22.17 / 24.00	11.40 / 10.50	17.90 / 16.40	24.40 / 22.40	30.90 / 28.30	37.40 / 34.30
M22 X 2.50	22.75	-	22.896 / 22.541	25.00 / 26.90	7.10 / 6.50	11.40 / 10.50	15.80 / 14.50	20.10 / 18.50	24.50 / 22.50
M22 X 2.00	22.50	57/64	22.733 / 22.433	24.84 / 26.50	9.10 / 8.50	14.40 / 13.40	19.80 / 18.40	25.10 / 23.40	30.40 / 28.40
M22 X 1.50	22.50	57/64	22.561 / 22.325	24.19 / 26.45	12.70 / 11.60	19.90 / 18.10	27.00 / 24.60	34.20 / 31.10	41.30 / 37.60
M24 X 3.00	25.00	-	25.050 / 24.650	27.62 / 29.00	6.30 / 5.90	10.20 / 9.70	14.20 / 13.40	18.10 / 17.10	22.00 / 20.90
M24 X 2.00	24.50	31/32	24.733 / 24.433	26.86 / 29.10	10.10 / 9.20	15.90 / 14.60	21.70 / 19.90	27.60 / 25.30	33.40 / 30.60
M24 X 1.50	24.50	31/32	24.561 / 24.325	26.21 / 28.28	14.00 / 12.90	21.80 / 20.10	29.70 / 27.30	37.50 / 34.50	45.30 / 41.70
M26 X 1.50	26.50	-	26.561 / 26.325	28.23 / 30.46	15.40 / 14.20	23.80 / 22.00	32.30 / 29.80	40.80 / 37.60	49.20 / 45.40
M27 X 3.00	28.00	1.3/32	28.050 / 27.650	30.59 / 32.40	7.30 / 6.80	11.70 / 11.00	16.20 / 15.20	20.60 / 19.30	25.10 / 23.50
M27 X 2.00	27.50	1.5/64	27.733 / 27.433	29.89 / 32.30	11.60 / 10.60	18.10 / 16.70	24.70 / 22.70	31.30 / 28.80	37.90 / 34.80
M30 X 3.50	31.00	1.7/32	31.208 / 30.758	34.20 / 35.81	6.90 / 6.50	11.10 / 10.50	15.30 / 14.50	19.50 / 18.60	23.80 / 22.60
M30 X 3.00	31.00	1.7/32	31.050 / 30.650	34.24 / 36.10	8.10 / 7.60	12.90 / 12.20	17.80 / 16.80	22.60 / 21.30	27.50 / 25.90
M30 X 2.00	30.50	1.3/16	30.733 / 30.433	32.92 / 35.70	13.00 / 12.00	20.40 / 18.70	27.70 / 25.40	35.00 / 32.10	42.30 / 38.80
M33 X 3.50	34.00	1.21/64	34.208 / 33.758	37.17 / 38.80	7.70 / 7.40	12.40 / 11.80	17.00 / 16.20	21.70 / 20.70	26.40 / 25.10
M33 X 3.00	33.50	1.5/16	34.050 / 33.650	37.27 / 39.50	9.10 / 8.50	14.40 / 13.50	19.80 / 18.50	25.10 / 23.60	30.40 / 28.60
M33 X 2.00	33.50	1.5/16	33.733 / 33.433	35.95 / 39.20	14.50 / 13.30	22.60 / 20.60	30.60 / 28.00	38.70 / 35.30	46.80 / 42.70
M36 X 4.00	37.00	1.29/64	37.341 / 36.866	40.78 / 42.67	7.30 / 6.90	11.70 / 11.20	16.20 / 15.40	20.60 / 19.60	25.10 / 23.80
M36 X 3.00	37.00	1.29/64	37.050 / 36.650	40.30 / 42.70	10.10 / 9.50	15.90 / 14.90	21.70 / 20.40	27.60 / 25.90	33.40 / 31.40
M39 X 4.00	40.00	1.9/16	40.341 / 39.866	43.75 / 45.75	8.00 / 7.70	12.90 / 12.20	17.70 / 16.80	22.50 / 21.40	27.30 / 26.00
M42 X 4.50	43.00	1.11/16	43.505 / 42.975	47.37 / 49.00	7.60 / 7.30	12.20 / 11.80	16.80 / 16.20	21.50 / 20.70	26.10 / 25.10
M42 X 3.00	42.50	1.43/64	43.050 / 42.650	46.36 / 49.00	12.10 / 11.40	18.90 / 17.80	25.70 / 24.20	32.50 / 30.60	39.30 / 37.10

M/MF	
A	Ø de perçage ou intérieur de l'avant-trou
B	Ø supérieur de l'avant-trou
C	Ø de flanc de l'avant-trou
D	Ø de flanc du filet rapporté posé
E	Ø intérieur du filet rapporté posé (mini.)
FC	Ø extérieur du filet rapporté à l'état libre
S	Profondeur de perçage (mini.)
T	Profondeur "utile" du taraudage (mini.)
Q	Filetage "utile" du filet rapporté
NC	Nombre de filets

M/MF	
A	Ø de perfuração ou interior da rosca prévia.
B	Ø maior da rosca prévia (Mínimo).
C	Ø dos flancos da rosca prévia.
D	Ø dos flancos do inserto instalado.
E	Ø interior do inserto instalado (Mínimo).
FC	Ø exterior do inserto em estado livre.
S	Profundidade de perfuração (Mínima).
T	Profundidade "útil" da roscagem (Mínima).
Q	Rosca "Útil" do inserto.
NC	Número de filetes ou fios



IMPORTANT: Le succès ou l'échec d'une opération de perçage et de taraudage dépend particulièrement du matériel à travailler. Les dimensions spécifiées sont des recommandations générales non spécifiques pour un matériel concret. Néanmoins, il convient de les prendre en compte étant donné qu'elles répondent aux exigences stipulées par les standards et les fabricants les plus reconnus. Pour retrouver l'information relative aux différents standards, rendez-vous sur la page web: www.bluemaster.es

IMPORTANTE: o sucesso ou a falha das operações de perfuração e roscagem dependem especialmente do material a ser trabalhado. As dimensões detalhadas são recomendações gerais não específicas para um material concreto. No entanto, eles devem ser levados em conta, uma vez que atendem aos requisitos estabelecidos pelos standards aplicáveis e a maioria dos fabricantes reconhecidos. Para encontrar informações relacionadas a diferentes standards, visite o nosso site www.bluemaster.es.

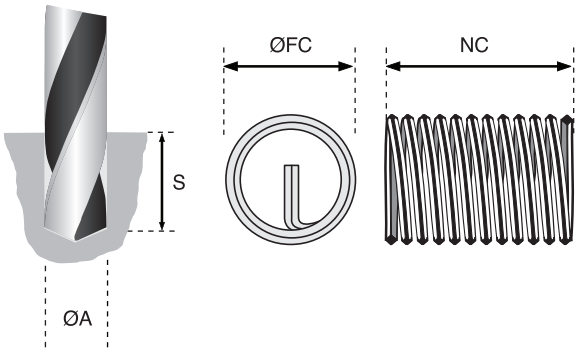
B	C (5H)	D (4H)	C (6H)	D (5H)	E	S					T					Q				
mm	mm	mm	mm	mm	mm	1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D
2.520	2.296 / 2.260	1.796 / 1.740	2.311 / 2.260	1.811 / 1.740	1.567	3.80	4.80	5.80	6.80	7.80	3.40	4.40	5.40	6.40	7.40	2.00	3.00	4.00	5.00	6.00
2.785	2.532 / 2.492	1.968 / 1.908	2.547 / 2.492	1.983 / 1.908	1.713	4.23	5.33	6.43	7.53	8.63	3.78	4.88	5.98	7.08	8.18	2.20	3.30	4.40	5.50	6.60
3.085	2.832 / 2.792	2.268 / 2.208	2.847 / 2.792	2.283 / 2.208	2.013	4.53	5.78	7.03	8.28	9.53	4.08	5.33	6.58	7.83	9.08	2.50	3.75	5.00	6.25	7.50
3.650	3.367 / 3.325	2.738 / 2.675	3.384 / 3.325	2.755 / 2.675	2.459	5.25	6.75	8.25	9.75	11.25	4.75	6.25	7.75	9.25	10.75	3.00	4.50	6.00	7.50	9.00
4.279	3.940 / 3.890	3.181 / 3.110	3.959 / 3.890	3.200 / 3.110	2.850	6.20	7.95	9.70	11.45	13.20	5.60	7.35	9.10	10.85	12.60	3.50	5.25	7.00	8.75	10.50
4.909	4.509 / 4.455	3.620 / 3.545	4.529 / 4.455	3.640 / 3.545	3.242	7.15	9.15	11.15	13.15	15.15	6.45	8.45	10.45	12.45	14.45	4.00	6.00	8.00	10.00	12.00
6.039	5.577 / 5.520	4.560 / 4.480	5.597 / 5.520	4.580 / 4.480	4.134	8.60	11.10	13.60	16.10	18.60	7.80	10.30	12.80	15.30	17.80	5.00	7.50	10.00	12.50	15.00
7.299	6.719 / 6.650	5.445 / 5.350	6.742 / 6.650	5.468 / 5.350	4.917	10.50	13.50	16.50	19.50	22.50	9.50	12.50	15.50	18.50	21.50	6.00	9.00	12.00	15.00	18.00
8.299	7.719 / 7.650	6.445 / 6.350	7.742 / 7.650	6.468 / 6.350	5.917	11.50	15.00	18.50	22.00	25.50	10.50	14.00	17.50	21.00	24.50	7.00	10.50	14.00	17.50	21.00
9.624	8.886 / 8.812	7.288 / 7.188	8.912 / 8.812	7.313/ 7.188	6.647	13.63	17.63	21.63	25.63	29.63	12.38	16.38	20.38	24.38	28.38	8.00	12.00	16.00	20.00	24.00
9.299	8.719 / 8.650	7.445 / 7.350	8.742 / 8.650	7.468 / 7.350	6.917	12.50	16.50	20.50	24.50	28.50	11.50	15.50	19.50	23.50	27.50	8.00	12.00	16.00	20.00	24.00
10.624	9.886 / 9.812	8.288 / 8.188	9.912 / 9.812	8.313 / 8.188	7.647	14.63	19.13	23.63	28.13	32.63	13.38	17.88	22.38	26.88	31.38	9.00	13.50	18.00	22.50	27.00
10.299	9.719 / 9.650	8.445 / 8.350	9.742 / 9.650	8.468 / 8.350	7.917	13.50	18.00	22.50	27.00	31.50	12.50	17.00	21.50	26.00	30.50	9.00	13.50	18.00	22.50	27.00
11.949	11.061 / 10.974	9.138 / 9.026	11.089 / 10.974	9.166 / 9.026	8.376	16.75	21.75	26.75	31.75	36.75	15.25	20.25	25.25	30.25	35.25	10.00	15.00	20.00	25.00	30.00
11.624	10.886 / 10.812	9.288 / 9.188	10.912 / 10.812	9.313 / 9.188	8.647	15.63	20.63	25.63	30.63	35.63	14.38	19.38	24.38	29.38	34.38	10.00	15.00	20.00	25.00	30.00
11.299	10.724 / 10.650	9.445 / 9.350	10.742 / 10.650	9.468 / 9.350	8.917	14.50	19.50	24.50	29.50	34.50	13.50	18.50	23.50	28.50	33.50	10.00	15.00	20.00	25.00	30.00
12.949	12.061 / 11.974	10.138 / 10.026	12.089 / 11.974	10.166 / 10.026	9.376	17.75	23.25	28.75	34.25	39.75	16.25	21.75	27.25	32.75	38.25	11.00	16.50	22.00	27.50	33.00
12.624	11.898 / 11.812	10.300 / 10.188	11.926 / 11.812	10.328 / 10.188	9.647	16.63	22.13	27.63	33.13	38.63	15.38	20.88	26.38	31.88	37.38	11.00	16.50	22.00	27.50	33.00
12.299	11.724 / 11.650	10.445 / 10.350	11.742 / 11.650	10.468 / 10.350	9.917	15.50	21.00	26.50	32.00	37.50	14.50	20.00	25.50	31.00	36.50	11.00	16.50	22.00	27.50	33.00
14.273	13.236 / 13.137	10.988 / 10.863	13.271 / 13.137	11.023 / 10.863	10.106	19.88	25.88	31.88	37.88	43.88	18.13	24.13	30.13	36.13	42.13	12.00	18.00	24.00	30.00	36.00
13.949	13.067 / 12.974	11.144 / 11.026	13.099 / 12.974	11.176 / 11.026	10.376	18.75	24.75	30.75	36.75	42.75	17.25	23.25	29.25	35.25	41.25	12.00	18.00	24.00	30.00	36.00
13.624	12.898 / 12.812	11.300 / 11.188	12.926 / 12.812	11.328 / 11.188	10.647	17.63	23.63	29.63	35.63	41.63	16.38	22.38	28.38	34.38	40.38	12.00	18.00	24.00	30.00	36.00
13.299	12.724 / 12.649	11.450 / 11.350	12.749 /12.649	11.475 / 11.350	10.917	16.50	22.50	28.50	34.50	40.50	15.50	21.50	27.50	33.50	39.50	12.00	18.00	24.00	30.00	36.00
15.273	14.236 / 14.137	11.988 / 11.863	14.271 / 14.137	12.023 / 11.863	11.106	20.88	27.38	33.88	40.38	46.88	19.13	25.63	32.13	38.63	45.13	13.00	19.50	26.00	32.50	39.00
14.949	14.067 / 13.974	12.144 / 12.026	14.099 / 13.974	12.176 / 12.026	11.376	19.75	26.25	32.75	39.25	45.75	18.25	24.75	31.25	37.75	44.25	13.00	19.50	26.00	32.50	39.00
14.624	13.898 / 13.812	12.300 / 12.188	13.926 / 13.812	12.328 / 12.188	11.647	18.63	25.13	31.63	38.13	44.63	17.38	23.88	30.38	36.88	43.38	13.00	19.50	26.00	32.50	39.00
16.598	15.406 / 15.299	12.833 / 12.701	15.444 / 15.299	12.871 / 12.701	11.835	23.00	30.00	37.00	44.00	51.00	21.00	28.00	35.00	42.00	49.00	14.00	21.00	28.00	35.00	42.00
15.949	15.067 / 14.974	13.144 / 13.026	15.099 / 14.974	13.176 / 13.026	12.376	20.75	27.75	34.75	41.75	48.75	19.25	26.25	33.25	40.25	47.25	14.00	21.00	28.00	35.00	42.00
15.624	14.898 / 14.812	13.300 / 13.188	14.926 / 14.812	13.328 / 13.188	12.674	19.63	26.63	33.63	40.63	47.63	18.38	25.38	32.38	39.38	46.38	14.00	21.00	28.00	35.00	42.00
15.299	14.724 / 14.649	13.450 / 13.350	14.749 /14.649	13.475 / 13.350	12.917	18.50	25.50	32.50	39.50	46.50	17.50	24.50	31.50	38.50	45.50	14.00	21.00	28.00	35.00	42.00
17.598	16.406 / 16.299	13.833 / 13.701	16.444 / 16.299	13.871 / 13.701	12.835	24.00	31.50	39.00	46.50	54.00	22.00	29.50	37.00	44.50	52.00	15.00	22.50	30.00	37.50	45.00
16.949	16.067 / 15.974	14.144 / 14.026	16.099 / 15.974	14.176 / 14.026	13.376	21.75	29.25	36.75	44.25	51.75	20.25	27.75	35.25	42.75	50.25	15.00	22.50	30.00	37.50	45.00
18.598	17.406 / 17.299	14.833 / 14.701	17.444 / 17.299	14.871 / 14.701	13.835	25.00	33.00	41.00	49.00	57.00	23.00	31.00	39.00	47.00	55.00	16.00	24.00	32.00	40.00	48.00
17.949	17.067 / 16.974	15.144 / 15.026	17.099 / 16.974	15.176 / 15.026	14.376	22.75	30.75	38.75	46.75	54.75	21.25	29.25	37.25	45.25	53.25	16.00	24.00	32.00	40.00	48.00
21.248	19.738 / 19.624	16.516 / 16.376	19.778 / 19.624	16.556 / 16.376	15.294	29.25	38.25	47.25	56.25	65.25	26.75	35.75	44.75	53.75	62.75	18.00	27.00	36.00	45.00	54.00
20.598	19.406 / 19.299	16.833 / 16.701	19.444 / 19.299	16.871 / 16.701	15.835	27.00	36.00	45.00	54.00	63.00	25.00	34.00	43.00	52.00	61.00	18.00	27.00	36.00	45.00	54.00
19.949	19.067 / 18.974	17.144 / 17.026	19.099 / 18.974	17.176 / 17.026	16.376	24.75	33.75	42.75	51.75	60.75	23.25	32.25	41.25	50.25	59.25	18.00	27.00	36.00	45.00	54.00
23.248	21.738 / 21.624	18.516 / 18.376	21.778 / 21.624	18.556 / 18.376	17.294	31.25	41.25	51.25	61.25	71.25	28.75	38.75	48.75	58.75	68.75	20.00	30.00	40.00	50.00	60.00
22.598	21.406 / 21.299	18.833 / 18.701	21.444 / 21.299	18.871 / 18.701	17.835	29.00	39.00	49.00	59.00	69.00	27.00	37.00	47.00	57.00	67.00	20.00	30.00	40.00	50.00	60.00
21.949	21.067 / 20.974	19.144 / 19.026	21.099 / 20.974	19.176 / 19.026	18.376	26.75	36.75	46.75	56.75	66.75	25.25	35.25	45.25	55.25	65.25	20.00	30.00	40.00	50.00	60.00
25.248	23.738 / 23.624	20.516 / 20.376	23.778 / 23.624	20.556 / 20.376	19.294	33.25	44.25	55.25	66.25	77.25	30.75	41.75	52.75	63.75	74.75	22.00	33.00	44.00	55.00	66.00
24.598	23.406 / 23.299	20.833 / 20.701	23.444 / 23.299	20.871 / 20.701	19.835	31.00	42.00	53.00	64.00	75.00	29.00	40.00	51.00	62.00	73.00	22.00	33.00	44.00	55.00	66.00
23.949	23.067 / 22.974	21.144 / 21.026	23.099 / 22.974	21.176 / 21.026	20.376	28.75	39.75	50.75	61.75	72.75	27.25	38.25	49.25	60.25	71.25	22.00	33.00	44.00	55.00	66.00
27.897	26.093 / 25.948	22.221 / 22.051	26.135 / 25.948	22.263 / 22.051	20.752	37.50	49.50	61.50	73.50	85.50	34.50	46.50	58.50	70.50	82.50	24.00	36.00	48.00	60.00	72.00
26.598	25.414 / 25.299	22.841 / 22.701	25.454 / 25.299	22.881 / 22.701	21.835	33.00	45.00	57.00	69.00	81.00	31.00	43.00	55.00	67.00	79.00	24.00	36.00	48.00	60.00	72.00
25.949	25.044 / 24.975	23.121 / 23.026	25.135 / 24.975	23.186 / 23.026	22.376	30.75	42.75	54.75	66.75	78.75	29.25	41.25	53.25	65.25	77.25	24.00	36.00	48.00	60.00	72.00
27.949	27.044 / 26.975	25.121 / 25.026	27.135 / 26.975	25.186 / 25.026	24.376	32.75	45.75	58.75	71.75	84.75	31.25	44.25	57.25	70.25	83.25	26.00	39.00	52.00	65.00	78.00
30.897	29.093 / 28.948	25.221 / 25.051	29.135 / 28.498	25.263 / 25.051	23.752	40.50	54.00	67.50	81.00	94.50	37.50	51.00	64.50	78.00	91.50	27.00	40.50	54.00	67.50	81.00
29.598	28.414 / 28.299	25.841 / 25.701	28.454 / 28.299	25.881 / 25.701	24.835	36.00	49.50	63.00	76.50	90.00	34.00	47.50	61.00	74.50	88.00	27.00	40.50	54.00	67.50	81.00
34.547	32.428 / 32.273	27.907 / 27.727	32.472 / 32.273	27.951 / 27.727	26.211	45.75	60.75	75.75	90.75	105.75	42.25	57.25	72.25	87.25	102.25	30.00	45.00	60.00	75.00	90.00
33.897	32.093 / 31.948	28.221 / 28.051	32.135 / 31.948	28.263 / 28.051	26.752	43.50	58.50	73.50	88.50	103.50	40.50	55.50	70.50	85.50	100.50	30.00	45.00	60.00	75.00	90.00
32.598	31.414 / 31.299	28.841 / 28.701	31.454 / 31.299	28.881 / 28.701	27.835	39.00	54.00	69.00	84.00	99.00	37.00	52.00	67.00	82.00	97.00	30.00	45.00	60.00	75.00	90.00
37.547	35.428 / 35.273	30.907 / 30.727	35.472 / 35.273	30.951 / 30.727	29.211	48.75	65.25	81.75	98.25	114.75	45.25	61.75	78.25	94.75	111.25	33.00	49.50	66.00	82.50	99.00
36.897	35.093 / 34.948	31.221 / 31.051	35.135 / 34.948	31.263 / 31.051	29.752	46.50	63.00	79.50	96.00	112.50	43.50	60.00	76.50	93.00	109.50	33.00	49.50	66.00	82.50	99.00
35.598	34.414 / 34.299	31.841 / 31.701	34.454 / 34.299	31.881 / 31.701	30.835	42.00	58.50	75.00	91.50	108.00	40.00	56.50	73.00	89.50	106.00	33.00	49.50	66.00	82.50	99.00
41.196	38.763 / 38.598	33.592 / 33.402	38.809 / 38.598	33.638 / 33.402	31.670	54.00	72.00	90.00	108.00	126.00	50.00	68.00	86.00	104.00	122.00	36.00	54.00	72.00	90.00	108.00
39.897	38.093 / 37.948	34.221 / 34.051	38.135 / 37.948	34.263 / 34.051	32.752	49.50	67.50	85.50	103.50	121.50	46.50	64.50	82.50	100.50	118.50	36.00	54.00	72.00	90.00	108.00
44.196	41.763 / 41.598	36.592 / 36.402	41.809 / 41.598	36.638 / 36.402	34.670	57.00	76.50	96.00	115.50	135.00	53.00	72.50	92.00	111.50	131.00	39.00	58.50	78.00	97.50	117.00
47.846	45.098 / 44.923	39.277 / 39.077	45.147 / 44.923	39.327 / 39.077	37.129	62.25	83.25	104.25	125.25	146.25	57.75	78.75	99.75	120.75	141.75	42.00	63.00	84.00	105.00	126.00
45.897	44.093 / 43.948	40.221 / 40.051	44.135 / 43.948	40.263 / 40.051	38.752	55.50	76.50	97.50	118.50	139.50	52.50	73.50	94.50	115.50	136.50	42.00	63.00	84.00	105.00	126.00

Pour obtenir les meilleures performances du filet rapporté, celui-ci doit être posé à une profondeur de 1/2 à 1 fois le pas en dessous de la surface du trou taraudé. Cela signifie que la longueur réelle qu'offre le filet rapporté est la dimension "Q" de laquelle on retire 0,5 ou 1 fois le pas. La dimension "S" représente la profondeur du trou tandis que le "T" représente la longueur taraudée utile, qui peut varier en fonction de la longueur du cône d'entrée du taraud utilisé.

Para obter o melhor desempenho possível do inserto, deve ser introduzido 0,5 ou 1 vez o passo por abaixo do furo roscado. Isso significa que o comprimento real que oferece o inserto é a dimensão "Q" subtraindo 0,5 ou 1 vez o passo. A dimensão "S" representa a profundidade do furo, enquanto a "T" representa o comprimento roscado útil, que pode variar dependendo do comprimento do cone de entrada do macho usado.

M/MF	
A	Ø de taladrado o interior de rosca previa.
B	Ø mayor de rosca previa (Mínima).
C	Ø de flancos de rosca previa.
D	Ø de flancos de inserto instalado.
E	Ø interior del inserto instalado (Mínimo).
FC	Ø exterior del inserto en estado libre.
S	Profundidad del taladrado (Mínima).
T	Profundidad "útil" de roscado (Mínima).
Q	Rosca "útil" del inserto.
NC	Número de filetes o hilos

M/MF	
A	Minor Diameter
B	Major Diameter
C	Pitch Diameter of Tapped Hole (Class 5H)
D	Pitch Diameter of Installed Insert (Class 4H)
E	Installed Insert Internal Diameter - min.
FC	Free Coil Diamater of Un-installed Insert
S	Drilling Length - minimum
T	Tapping Length - minimum
Q	Nominal Length
NC	Number of Coils in Un-installed Insert counted 90º from tang



IMPORTANTE: El éxito o fracaso de operaciones de taladrado y roscado dependen especialmente del material a trabajar. Las dimensiones detalladas son recomendaciones generales no específicas para un material concreto. Sin embargo, conviene que sean tenidas en cuenta ya que cumplen los requisitos marcados por los standards aplicables y los más reconocidos fabricantes. Para encontrar información relativa a diferentes standards, acuda a la Web www.bluemaster.es.

IMPORTANT The success of any drill and tapping operation is dependant upon many factors –type of material being cut, cutting speed, coolant, equipment being used – and it is not possible to give specific drill sizes for each material. Drill sizes shown are recommendations only and PowerCoil would strongly suggest that independent testing be performed for specific and critical applications. When using wire thread inserts it is important that the drilling and tapping diameters and lengths listed below are adhered to. The figures outlined in these tables encompass effective free coil tolerances for most globally recognized standards and manufacturers, including those of reduced diameter wire thread inserts. PowerCoil wire thread inserts can be manufactured to different standards upon request. Technical data on these standards can be obtained from our website – www.bluemaster.es

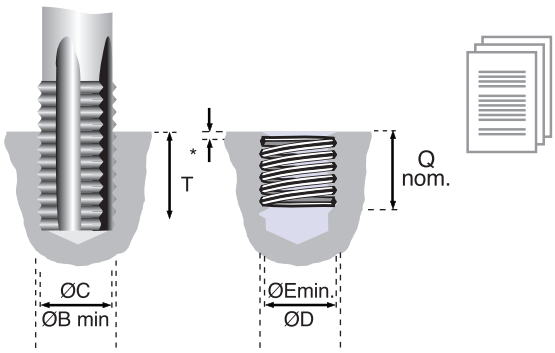
Para obtener el mayor rendimiento posible del inserto, debe ser introducido 0.5 ó 1 vez el paso por debajo de agujero roscado. Ello significa que la longitud real que ofrece el inserto es la dimensión "Q" restando 0.5 ó 1 vez el paso. La dimensión "S" representa la profundidad del agujero, mientras que la "T" representa la longitud roscada útil, que puede variar en función de la longitud del cono de entrada del macho empleado.

Optimum Thread performance with Wire Thread Inserts is achieved when the inserts are installed 1/2 to 1 pitch below the surface of the Tapped Hole. This means that the actual length of an installed insert is equal to dimension Q less 1/2 to 1 pitch. Dimensions S and T allow for tap end clearance of intermediate taps. When using Bottoming and Spiral Flute Taps these dimensions maybe reduced by an amount equal to 2 thread pitches. Any counterbore depths must be added to these dimensions.

MEDIDA /SIZE DIMENSION/ DIMENSÃO"	Broca / Drill/ Foret		A max/min	FC min/max	NC max/min				
	mm	"	mm	mm	1.0D	1.5D	2.0D	2.5D	3.0D
UNF									
Nº 2 - 64	2.30	3/32	2.36/2.27	2.79/3.05	3.70 / 3.40	6.30 / 5.80	8.90 / 8.20	11.60 / 10.50	14.20 / 12.90
Nº 3 - 56	2.70	#37	2.71/2.61	3.05/3.81	3.70 / 3.10	6.40 / 5.20	9.00 / 7.40	11.60 / 9.60	14.30 / 11.80
Nº 4 - 48	3.00	#31	3.07/2.96	3.56/4.06	3.70 / 3.20	6.40 / 5.40	9.00 / 7.60	11.60 / 9.80	14.20 / 12.10
Nº 5 - 44	3.40	#30	3.41/3.3	4.06/4.32	3.70 / 3.40	6.30 / 5.80	8.90 / 8.20	11.50 / 10.60	14.20 / 13.00
Nº 6 - 40	3.70	#27	3.75/3.64	4.32/4.83	3.70 / 3.20	6.30 / 5.50	9.00 / 7.80	11.60 / 10.10	14.20 / 12.40
Nº 8 - 36	4.40	11/64	4.43/4.32	5.08/5.59	4.10 / 3.60	6.90 / 6.10	9.70 / 8.60	12.50 / 11.10	15.30 / 13.60
Nº 10 - 32	5.10	-	5.12/5	5.84/6.6	4.30 / 3.80	7.20 / 6.40	10.10 / 9.00	13.00 / 11.60	15.90 / 14.20
1/4 X 28	6.60	-	6.72/6.55	7.62/8.38	5.20 / 4.70	8.50 / 7.70	11.90 / 10.80	15.20 / 13.80	18.60 / 16.90
5/16 X 24	8.20	-	8.35/8.17	9.4/10.16	5.60 / 5.10	9.20 / 8.50	12.80 / 11.70	16.40 / 15.00	20.00 / 18.30
3/8 X 24	9.80	-	9.93/9.75	10.92/11.94	7.10 / 6.50	11.40 / 10.50	15.80 / 14.50	20.10 / 18.50	24.50 / 22.50
7/16 X 20	11.50	29/64	11.58/11.39	12.95/13.97	6.90 / 6.30	11.10 / 10.20	15.30 / 14.00	19.50 / 17.90	23.70 / 21.70
1/2 X 20	13.00	33/64	13.16/12.97	14.48/15.75	8.10 / 7.40	12.90 / 11.90	17.80 / 16.30	22.60 / 20.80	27.50 / 25.20
9/16 X 18	14.75	-	14.79/14.59	16.26/17.53	8.30 / 7.60	13.30 / 12.20	18.20 / 16.80	23.10 / 21.30	28.10 / 25.90
5/8 X 18	16.50	-	16.38/16.18	17.78/19.3	9.40 / 8.70	14.90 / 13.80	20.50 / 18.90	26.00 / 24.00	31.50 / 29.10
3/4 X 16	19.50	49/64	19.6/19.39	21.34/22.86	10.10 / 9.30	15.90 / 14.70	21.70 / 20.10	27.60 / 25.50	33.40 / 30.90
7/8 X 14	22.50	57/64	22.84/22.62	24.89/26.67	10.30 / 9.60	16.30 / 15.10	22.20 / 20.60	28.20 / 26.10	34.20 / 31.60
1 X 12	26.00	-	26.11/25.86	28.45/30.48	10.10 / 9.40	16.00 / 14.80	21.80 / 20.30	27.70 / 25.70	33.50 / 31.10
1 X 14	26.00	-	26.02/25.79	27.94/30.23	12.10 / 11.20	18.90 / 17.50	25.70 / 23.80	32.50 / 30.10	39.40 / 36.40
1-1/8 X 12	29.50	1.5/32	29.32/29.03	31.75/33.78	11.60 / 10.80	18.20 / 16.90	24.80 / 23.00	31.40 / 29.20	38.00 / 35.30
1-1/4 X 12	32.50	1.9/32	32.49/32.21	34.8/37.34	13.10 / 12.20	20.40 / 19.00	27.80 / 25.80	35.10 / 32.70	42.50 / 39.50
1-3/8 X 12	35.50	1.13/32	35.67/35.38	38.1/40.89	14.60 / 13.50	22.70 / 21.00	30.80 / 28.50	38.80 / 36.00	46.90 / 43.50
1-1/2 X 12	38.50	-	38.84/38.56	41.15/44.45	16.10 / 14.90	24.90 / 23.10	33.70 / 31.30	42.60 / 39.50	51.40 / 47.70
UNC									
Nº 2 - 56	2.40	#41	2.39/2.28	2.79/3.05	3.10 / 2.80	5.40 / 4.80	7.80 / 6.90	10.10 / 9.00	12.50 / 11.10
Nº 3 - 48	2.70	#37	2.74/2.63	3.05/3.56	3.20 / 2.80	5.50 / 4.90	7.90 / 7.00	10.30 / 9.00	12.70 / 11.20
Nº 4 - 40	3.00	#31	3.11/2.98	3.56/4.06	2.80 / 2.40	4.90 / 4.30	7.10 / 6.20	9.20 / 8.10	11.40 / 10.00
Nº 5 - 40	3.40	#30	3.44/3.31	4.06/4.32	3.30 / 2.90	5.70 / 5.00	8.10 / 7.20	10.50 / 9.30	13.00 / 11.50
Nº 6 - 32	3.70	#27	3.82/3.68	4.57/4.83	2.70 / 2.40	4.80 / 4.30	7.00 / 6.20	9.10 / 8.20	11.20 / 10.10
Nº 8 - 32	4.40	11/64	4.47/4.34	5.08/5.59	3.50 / 3.20	6.10 / 5.50	8.60 / 7.80	11.20 / 10.10	13.70 / 12.40
Nº 10 - 24	5.10	-	5.21/5.05	6.1/6.6	2.80 / 2.60	5.00 / 4.60	7.20 / 6.70	9.40 / 8.70	11.60 / 10.70
Nº 12 - 24	5.70	15/64	5.86/5.72	6.86/7.11	3.50 / 3.20	6.00 / 5.60	8.50 / 7.90	11.00 / 10.30	13.50 / 12.60
1/4 X 20	6.70	17/64	6.87/6.62	7.87/8.38	3.30 / 3.10	5.70 / 5.30	8.10 / 7.60	10.50 / 9.90	13.00 / 12.10
5/16 X 18	8.30	21/64	8.49/8.24	9.65/10.16	3.90 / 3.70	6.70 / 6.30	9.50 / 8.90	12.20 / 11.50	15.00 / 14.10
3/8 X 16	9.90	25/64	10.12/9.87	11.43/11.94	4.30 / 4.10	7.20 / 6.80	10.10 / 9.60	13.10 / 12.40	16.00 / 15.20
7/16 X 14	11.60	-	11.78/11.51	13.21/13.97	4.40 / 4.10	7.40 / 7.00	10.40 / 9.80	13.40 / 12.60	16.30 / 15.50
1/2 X 13	13.00	33/64	13.4/13.12	14.99/15.75	4.80 / 4.50	8.00 / 7.50	11.10 / 10.60	14.30 / 13.60	17.50 / 16.60
9/16 X 12	15.00	19/32	15.03/14.74	16.76/17.53	5.00 / 4.80	8.40 / 7.90	11.70 / 11.10	15.00 / 14.20	18.30 / 17.40
5/8 X 11	16.50	-	16.68/16.38	18.8/19.56	5.10 / 4.90	8.50 / 8.10	11.90 / 11.30	15.20 / 14.50	18.60 / 17.70
3/4 X 10	20.00	-	19.91/19.6	22.1/23.11	5.80 / 5.50	9.50 / 9.00	13.10 / 12.60	16.80 / 16.10	20.50 / 19.60
7/8 X 9	23.00	29/32	23.17/22.84	25.65/26.67	6.20 / 5.90	10.00 / 9.60	13.90 / 13.30	17.80 / 17.00	21.70 / 20.70
1 X 8	26.25	-	26.47/26.09	29.21/30.48	6.30 / 6.00	10.20 / 9.80	14.20 / 13.60	18.10 / 17.30	22.00 / 21.10
1-1/8 X 7	29.50	1.5/32	29.74/29.36	33.02/34.54	6.20 / 5.90	10.10 / 9.60	14.00 / 13.30	17.90 / 17.00	21.80 / 20.70
1-1/4 X 7	32.50	1.9/32	32.92/32.53	36.07/37.59	7.10 / 6.70	11.40 / 10.90	15.80 / 15.00	20.10 / 19.20	24.40 / 23.30
1-3/8 X 6	36.00	-	36.35/35.84	40.13/41.66	6.50 / 6.20	10.60 / 10.10	14.60 / 14.00	18.70 / 17.80	22.70 / 21.70
1-1/2 X 6	39.50	1.35/64	39.52/39.02	43.18/44.96	7.30 / 6.90	11.70 / 11.20	16.10 / 15.40	20.60 / 19.60	25.00 / 23.90

M/MF	
A	Ø de perçage ou intérieur de l'avant-trou
B	Ø supérieur de l'avant-trou
C	Ø de flanc de l'avant-trou
D	Ø de flanc du filet rapporté posé
E	Ø intérieur du filet rapporté posé (mini.)
FC	Ø extérieur du filet rapporté à l'état libre
S	Profondeur de perçage (mini.)
T	Profondeur "utile" du taraudage (mini.)
Q	Filetage "utile" du filet rapporté
NC	Nombre de filets

M/MF	
A	Ø de perfuração ou interior da rosca prévia.
B	Ø maior da rosca prévia (Mínimo).
C	Ø dos flancos da rosca prévia.
D	Ø dos flancos do inserto instalado.
E	Ø interior do inserto instalado (Mínimo).
FC	Ø exterior do inserto em estado livre.
S	Profundidade de perfuração (Mínima).
T	Profundidade "útil" da roscagem (Mínima).
Q	Rosca "Útil" do inserto.
NC	Número de filetes ou fios



IMPORTANT: Le succès ou l'échec d'une opération de perçage et de taraudage dépend particulièrement du matériel à travailler. Les dimensions spécifiées sont des recommandations générales non spécifiques pour un matériel concret. Néanmoins, il convient de les prendre en compte étant donné qu'elles répondent aux exigences stipulées par les standards et les fabricants les plus reconnus. Pour retrouver l'information relative aux différents standards, rendez-vous sur la page web: www.bluemaster.es

IMPORTANTE: o sucesso ou a falha das operações de perfuração e roscagem dependem especialmente do material a ser trabalhado. As dimensões detalhadas são recomendações gerais não específicas para um material concreto. No entanto, eles devem ser levados em conta, uma vez que atendem aos requisitos estabelecidos pelos standards aplicáveis e a maioria dos fabricantes reconhecidos. Para encontrar informações relacionadas a diferentes standards, visite o nosso site www.bluemaster.es.

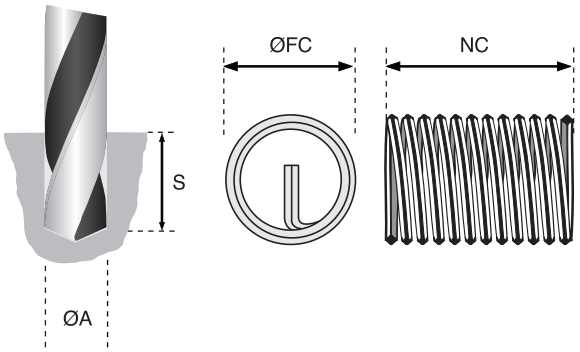
B	C (2B)	D (3B)	C (1B)	D (2B)	E	S					T					Q				
"	"	"	"	"	"	1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D
0.106	0.0974 / 0.0962	0.0779 / 0.0759	0.0980 / 0.0962	0.0786 / 0.0759	0.0691	0.156	0.199	0.242	0.285	0.328	0.141	0.184	0.227	0.270	0.313	0.086	0.129	0.172	0.215	0.258
0.122	0.1119 / 0.1106	0.0895 / 0.0874	0.1126 / 0.1106	0.0902 / 0.0874	0.0797	0.179	0.229	0.278	0.328	0.377	0.161	0.210	0.260	0.310	0.359	0.099	0.148	0.198	0.247	0.297
0.139	0.1270 / 0.1255	0.1008 / 0.0985	0.1278 / 0.1255	0.1016 / 0.0985	0.0894	0.206	0.262	0.318	0.374	0.430	0.185	0.241	0.297	0.353	0.409	0.112	0.168	0.224	0.280	0.336
0.155	0.1414 / 0.1398	0.1126 / 0.1102	0.1422 / 0.1398	0.1134 / 0.1102	0.1004	0.227	0.290	0.352	0.414	0.477	0.204	0.267	0.329	0.391	0.454	0.125	0.187	0.250	0.312	0.375
0.171	0.1559 / 0.1542	0.1243 / 0.1218	0.1568 / 0.1542	0.1252 / 0.1218	0.111	0.250	0.319	0.388	0.457	0.526	0.225	0.294	0.363	0.432	0.501	0.138	0.207	0.276	0.345	0.414
0.200	0.1839 / 0.1820	0.1487 / 0.1460	0.1848 / 0.1820	0.1496 / 0.1460	0.134	0.289	0.371	0.453	0.535	0.617	0.261	0.343	0.425	0.507	0.589	0.164	0.246	0.328	0.410	0.492
0.231	0.2123 / 0.2103	0.1726 / 0.1697	0.2133 / 0.2103	0.1736 / 0.1697	0.156	0.331	0.426	0.521	0.616	0.711	0.299	0.394	0.489	0.584	0.679	0.190	0.285	0.380	0.475	0.570
0.296	0.2754 / 0.2732	0.2300 / 0.2268	0.2765 / 0.2732	0.2311 / 0.2268	0.2113	0.411	0.536	0.661	0.786	0.911	0.375	0.500	0.625	0.750	0.875	0.250	0.375	0.500	0.625	0.750
0.367	0.3421 / 0.3395	0.2890 / 0.2854	0.3433 / 0.3395	0.2902 / 0.2854	0.2674	0.500	0.656	0.812	0.969	1.125	0.458	0.614	0.771	0.927	1.083	0.312	0.469	0.625	0.781	0.937
0.429	0.4047 / 0.4020	0.3516 / 0.3479	0.4059 / 0.4020	0.3528 / 0.3479	0.3299	0.562	0.750	0.937	1.124	1.312	0.521	0.708	0.896	1.083	1.271	0.375	0.562	0.750	0.937	1.125
0.503	0.4731 / 0.4700	0.4091 / 0.4050	0.4744 / 0.4700	0.4104 / 0.4050	0.3834	0.662	0.881	1.100	1.319	1.537	0.612	0.831	1.050	1.269	1.487	0.437	0.656	0.875	1.094	1.312
0.565	0.5357 / 0.5325	0.4717 / 0.4675	0.5371 / 0.5325	0.4731 / 0.4675	0.4459	0.725	0.975	1.225	1.475	1.725	0.675	0.925	1.175	1.425	1.675	0.500	0.750	1.000	1.250	1.500
0.635	0.6020 / 0.5986	0.5308 / 0.5264	0.6035 / 0.5986	0.5323 / 0.5264	0.5024	0.811	1.093	1.374	1.655	1.936	0.756	1.038	1.319	1.600	1.881	0.562	0.844	1.125	1.406	1.687
0.697	0.6646 / 0.6611	0.5934 / 0.5889	0.6661 / 0.6611	0.5949 / 0.5889	0.5649	0.874	1.187	1.500	1.812	2.124	0.819	1.132	1.444	1.757	2.069	0.625	0.937	1.250	1.562	1.875
0.831	0.7945 / 0.7906	0.7143 / 0.7094	0.7961 / 0.7906	0.7159 / 0.7094	0.6823	1.031	1.406	1.781	2.156	2.531	0.969	1.344	1.719	2.094	2.469	0.750	1.125	1.500	1.875	2.250
0.968	0.9257 / 0.9214	0.8339 / 0.8286	0.9274 / 0.9214	0.8356 / 0.8286	0.7977	1.196	1.634	2.071	2.509	2.946	1.125	1.562	2.000	2.437	2.875	0.875	1.312	1.750	2.187	2.625
1.108	1.0589 / 1.0542	0.9516 / 0.9459	1.0608 / 1.0542	0.9535 / 0.9459	0.9098	1.375	1.875	2.375	2.875	3.375	1.292	1.792	2.292	2.792	3.292	1.000	1.500	2.000	2.500	3.000
1.093	1.0508 / 1.0464	0.9590 / 0.9536	1.0527 / 1.0464	0.9609 / 0.9536	0.9277	1.32	1.82	2.32	2.82	3.32	1.25	1.75	2.25	2.75	3.25	1.000	1.500	2.000	2.500	3.000
1.233	1.1841 / 1.1792	1.0768 / 1.0709	1.1860 / 1.1792	1.0787 / 1.0709	1.0348	1.500	2.062	2.625	3.187	3.750	1.417	1.979	2.542	3.104	3.667	1.125	1.687	2.250	2.812	3.375
1.358	1.3092 / 1.3042	1.2019 / 1.9590	1.3112 / 1.3042	1.2039 / 1.1959	1.1598	1.625	2.250	2.875	3.500	4.125	1.542	2.167	2.792	3.417	4.042	1.250	1.875	2.500	3.125	3.750
1.483	1.4343 / 1.4292	1.3270 / 1.3209	1.4364 / 1.4292	1.3291 / 1.3209	1.2848	1.750	2.438	3.125	3.813	4.500	1.667	2.354	3.042	3.729	4.417	1.375	2.062	2.750	3.437	4.125
1.608	1.5595 / 1.5542	1.4522 / 1.4459	1.5615 / 1.5542	1.4542 / 1.4459	1.4098	1.875	2.625	3.375	4.125	4.875	1.792	2.542	3.292	4.042	4.792	1.500	2.250	3.000	3.750	4.500
0.109	0.0989 / 0.0976	0.0765 / 0.0744	0.0996 / 0.0976	0.0772 / 0.0744	0.0667	0.166	0.209	0.252	0.295	0.338	0.148	0.191	0.234	0.277	0.320	0.086	0.129	0.172	0.215	0.258
0.126	0.1139 / 0.1125	0.0877 / 0.0855	0.1147 / 0.1125	0.0885 / 0.0855	0.0764	0.193	0.242	0.292	0.341	0.391	0.172	0.221	0.271	0.320	0.370	0.099	0.148	0.198	0.247	0.297
0.145	0.1298 / 0.1282	0.0982 / 0.0958	0.1307 / 0.1282	0.0991 / 0.0958	0.0849	0.224	0.280	0.336	0.392	0.448	0.199	0.255	0.311	0.367	0.423	0.112	0.168	0.224	0.280	0.336
0.158	0.1429 / 0.1412	0.1113 / 0.1088	0.1437 / 0.1412	0.1121 / 0.1088	0.0979	0.237	0.300	0.362	0.425	0.487	0.212	0.275	0.337	0.400	0.462	0.125	0.187	0.250	0.312	0.375
0.179	0.1601 / 0.1583	0.1204 / 0.1177	0.1611 / 0.1583	0.1214 / 0.1177	0.1040	0.279	0.348	0.417	0.486	0.555	0.247	0.316	0.385	0.454	0.523	0.138	0.207	0.276	0.345	0.414
0.205	0.1862 / 0.1843	0.1465 / 0.1437	0.1872 / 0.1843	0.1475 / 0.1437	0.1300	0.305	0.387	0.469	0.551	0.633	0.273	0.355	0.437	0.519	0.601	0.164	0.246	0.328	0.410	0.492
0.244	0.2193 / 0.2171	0.1661 / 0.1629	0.2204 / 0.2171	0.1672 / 0.1629	0.1450	0.377	0.472	0.567	0.662	0.757	0.336	0.431	0.526	0.621	0.716	0.190	0.285	0.380	0.475	0.570
0.270	0.2454 / 0.2431	0.1922 / 0.1889	0.2465 / 0.2431	0.1933 / 0.1889	0.1710	0.403	0.511	0.619	0.727	0.835	0.362	0.470	0.578	0.686	0.794	0.216	0.324	0.432	0.540	0.648
0.315	0.2851 / 0.2825	0.2211 / 0.2175	0.2863 / 0.2825	0.2223 / 0.2175	0.1959	0.475	0.600	0.725	0.850	0.975	0.425	0.550	0.675	0.800	0.925	0.250	0.375	0.500	0.625	0.750
0.385	0.3515 / 0.3486	0.2803 / 0.2764	0.3529 / 0.3486	0.2817 / 0.2764	0.2524	0.562	0.718	0.875	1.031	1.187	0.507	0.663	0.819	0.975	1.132	0.312	0.469	0.625	0.781	0.937
0.456	0.4189 / 0.4156	0.3387 / 0.3344	0.4203 / 0.4156	0.3401 / 0.3344	0.3073	0.656	0.844	1.031	1.219	1.406	0.594	0.781	0.969	1.156	1.344	0.375	0.562	0.750	0.937	1.125
0.530	0.4875 / 0.4839	0.3957 / 0.3911	0.4890 / 0.4839	0.3972 / 0.3911	0.3602	0.758	0.977	1.196	1.415	1.633	0.687	0.906	1.125	1.344	1.562	0.437	0.656	0.875	1.094	1.312
0.600	0.5537 / 0.5499	0.4548 / 0.4500	0.5554 / 0.5499	0.4565 / 0.4500	0.4167	0.846	1.096	1.346	1.596	1.846	0.769	1.019	1.269	1.519	1.769	0.500	0.750	1.000	1.250	1.500
0.671	0.6208 / 0.6167	0.5135 / 0.5084	0.6225 / 0.6167	0.5152 / 0.5084	0.4723	0.937	1.219	1.500	1.781	2.062	0.854	1.135	1.417	1.698	1.979	0.562	0.844	1.125	1.406	1.687
0.743	0.6885 / 0.6841	0.5714 / 0.5660	0.6903 / 0.6841	0.5732 / 0.5660	0.5266	1.034	1.347	1.659	1.972	2.284	0.943	1.256	1.568	1.881	2.193	0.625	0.937	1.250	1.562	1.875
0.880	0.8196 / 0.8149	0.6907 / 0.6850	0.8216 / 0.8149	0.6927 / 0.6850	0.6417	1.200	1.575	1.950	2.325	2.700	1.100	1.475	1.850	2.225	2.600	0.750	1.125	1.500	1.875	2.250
1.019	0.9522 / 0.9471	0.8089 / 0.8028	0.9543 / 0.9471	0.8110 / 0.8028	0.7547	1.375	1.812	2.250	2.687	3.125	1.264	1.701	2.139	2.576	3.014	0.875	1.312	1.750	2.187	2.625
1.162	1.0868 / 1.0812	0.9254 / 0.9188	1.0890 / 1.0812	0.9276 / 0.9188	0.8647	1.562	2.062	2.562	3.062	3.562	1.437	1.937	2.437	2.937	3.437	1.000	1.500	2.000	2.500	3.000
1.311	1.2239 / 1.2178	1.0393 / 1.0322	1.2262 / 1.2178	1.0416 / 1.0322	0.9704	1.768	2.330	2.893	3.455	4.018	1.625	2.187	2.750	3.312	3.875	1.125	1.687	2.250	2.812	3.375
1.436	1.3490 / 1.3428	1.1644 / 1.1572	1.3514 / 1.3428	1.1668 / 1.1572	1.0954	1.893	2.518	3.143	3.768	4.393	1.750	2.375	3.000	3.625	4.250	1.250	1.875	2.500	3.125	3.750
1.591	1.4900 / 1.4832	1.2745 / 1.2667	1.4926 / 1.4832	1.2771 / 1.2667	1.1946	2.125	2.812	3.500	4.187	4.875	1.958	2.646	3.333	4.021	4.708	1.375	2.062	2.750	3.437	4.125
1.716	1.6151 / 1.6082	1.3996 / 1.3917	1.6177 / 1.6082	1.4022 / 1.3917	1.3196	2.250	3.000	3.750	4.500	5.250	2.083	2.833	3.583	4.333	5.083	1.500	2.250	3.000	3.750	4.500

Pour obtenir les meilleures performances du filet rapporté, celui-ci doit être posé à une profondeur de 1/2 à 1 fois le pas en dessous de la surface du trou taraudé. Cela signifie que la longueur réelle qu'offre le filet rapporté est la dimension "Q" de laquelle on retire 0,5 ou 1 fois le pas. La dimension "S" représente la profondeur du trou tandis que le "T" représente la longueur taraudée utile, qui peut varier en fonction de la longueur du cône d'entrée du taraud utilisé.

Para obter o melhor desempenho possível do inserto, deve ser introduzido 0,5 ou 1 vez o passo por abaixo do furo roscado. Isso significa que o comprimento real que oferece o inserto é a dimensão "Q" subtraindo 0,5 ou 1 vez o passo. A dimensão "S" representa a profundidade do furo, enquanto a "T" representa o comprimento roscado útil, que pode variar dependendo do comprimento do cone de entrada do macho usado.

M/MF	
A	Ø de taladrado o interior de rosca previa.
B	Ø mayor de rosca previa (Mínima).
C	Ø de flancos de rosca previa.
D	Ø de flancos de inserto instalado.
E	Ø interior del inserto instalado (Mínimo).
FC	Ø exterior del inserto en estado libre.
S	Profundidad del taladrado (Mínima).
T	Profundidad "útil" de roscado (Mínima).
Q	Rosca "útil" del inserto.
NC	Número de filetes o hilos

M/MF	
A	Minor Diameter
B	Major Diameter
C	Pitch Diameter of Tapped Hole (Class 5H)
D	Pitch Diameter of Installed Insert (Class 4H)
E	Installed Insert Internal Diameter - min.
FC	Free Coil Diamater of Un-installed Insert
S	Drilling Length - minimum
T	Tapping Length - minimum
Q	Nominal Length
NC	Number of Coils in Un-installed Insert counted 90º from tang



IMPORTANTE: El éxito o fracaso de operaciones de taladrado y roscado dependen especialmente del material a trabajar. Las dimensiones detalladas son recomendaciones generales no específicas para un material concreto. Sin embargo, conviene que sean tenidas en cuenta ya que cumplen los requisitos marcados por los standards aplicables y los más reconocidos fabricantes. Para encontrar información relativa a diferentes standards, acuda a la Web www.bluemaster.es.

IMPORTANT The success of any drill and tapping operation is dependant upon many factors –type of material being cut, cutting speed, coolant, equipment being used – and it is not possible to give specific drill sizes for each material. Drill sizes shown are recommendations only and PowerCoil would strongly suggest that independent testing be performed for specific and critical applications. When using wire thread inserts it is important that the drilling and tapping diameters and lengths listed below are adhered to. The figures outlined in these tables encompass effective free coil tolerances for most globally recognized standards and manufacturers, including those of reduced diameter wire thread inserts. PowerCoil wire thread inserts can be manufactured to different standards upon request. Technical data on these standards can be obtained from our website – www.bluemaster.es

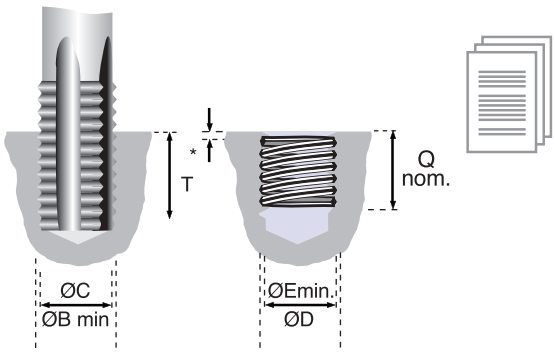
Para obtener el mayor rendimiento posible del inserto, debe ser introducido 0.5 ó 1 vez el paso por debajo de agujero roscado. Ello significa que la longitud real que ofrece el inserto es la dimensión "Q" restando 0.5 ó 1 vez el paso. La dimensión "S" representa la profundidad del agujero, mientras que la "T" representa la longitud roscada útil, que puede variar en función de la longitud del cono de entrada del macho empleado.

Optimum Thread performance with Wire Thread Inserts is achieved when the inserts are installed 1/2 to 1 pitch below the surface of the Tapped Hole. This means that the actual length of an installed insert is equal to dimension Q less 1/2 to 1 pitch. Dimensions S and T allow for tap end clearance of intermediate taps. When using Bottoming and Spiral Flute Taps these dimensions maybe reduced by an amount equal to 2 thread pitches. Any counterbore depths must be added to these dimensions.

MEDIDA /SIZE DIMENSION/ DIMENSÃO"	Broca / Drill/ Foret		A max/min	FC min/max	NC max/min				
	mm	"	mm	mm	1.0D	1.5D	2.0D	2.5D	3.0D
BSF									
3/16 X 32	5.00	-	5.03/4.88	5.84/6.35	4.30 / 3.90	7.20 / 6.50	10.20 / 9.20	13.10 / 11.90	16.00 / 14.50
1/4 X 26	6.60	-	6.71/6.53	7.62/8.38	4.80 / 4.30	7.90 / 7.10	11.20 / 9.90	14.40 / 12.70	17.50 / 15.60
5/16 X 22	8.30	21/64	8.38/8.2	9.4/10.16	5.20 / 4.70	8.50 / 7.70	11.90 / 10.70	15.30 / 13.80	18.70 / 16.80
3/8 X 20	9.80	-	9.96/9.78	11.18/12.19	5.80 / 5.30	9.40 / 8.60	13.20 / 12.00	16.90 / 15.30	20.50 / 18.70
7/16 X 18	11.60	-	11.63/11.43	12.95/14.22	6.20 / 5.60	10.00 / 9.10	13.90 / 12.60	17.80 / 16.10	21.60 / 19.60
1/2 X 16	13.25	-	13.26/13.03	14.73/16	6.30 / 5.70	10.20 / 9.30	14.20 / 12.90	18.10 / 16.50	22.00 / 20.00
9/16 X 16	14.75	-	14.88/14.66	16.26/17.78	7.30 / 6.60	11.70 / 10.60	16.10 / 14.70	20.60 / 18.70	25.00 / 22.70
5/8 X 14	16.30	41/64	16.48/16.26	18.29/19.56	7.10 / 6.50	11.30 / 10.40	15.70 / 14.30	20.00 / 18.30	24.30 / 22.20
3/4 X 12	19.50	49/64	19.69/19.43	21.84/23.37	7.30 / 6.70	11.70 / 10.80	16.20 / 14.90	20.70 / 19.00	25.10 / 23.00
7/8 X 11	22.75	-	22.86/22.61	25.15/27.18	7.90 / 7.20	12.60 / 11.60	17.40 / 15.90	22.10 / 20.30	26.90 / 24.60
1 X 10	26.25	-	26.52/26.19	28.7/30.99	8.30 / 7.60	13.20 / 12.10	18.10 / 16.60	23.10 / 21.20	28.00 / 25.70
1-1/8 X 9	29.50	1.5/32	29.72/29.36	32.26/34.8	8.40 / 7.80	13.30 / 12.30	18.40 / 17.00	23.40 / 21.50	28.40 / 26.10
1-1/4 X 9	32.50	1.9/32	32.89/32.54	35.31/38.1	9.50 / 8.80	15.00 / 13.90	20.60 / 19.00	26.20 / 24.20	31.70 / 29.30
1-3/8 X 8	36.00	-	36.07/35.71	39.12/42.16	9.30 / 8.50	14.60 / 13.50	20.10 / 18.50	25.50 / 23.50	31.00 / 28.50
1-1/2 X 8	39.00	1.17/32	39.24/38.89	42.16/45.97	10.30 / 9.40	16.10 / 14.80	22.10 / 20.10	28.00 / 25.50	33.90 / 30.90
BSW									
1/8 X 40	3.40	#30	3.43/3.28	3.81/4.32	3.40 / 3.00	5.80 / 5.10	8.40 / 7.30	10.90 / 9.40	13.40 / 11.60
3/16 X 24	5.00	-	5.13/4.98	5.84/6.6	2.90 / 2.60	5.10 / 4.60	7.40 / 6.60	9.70 / 8.70	11.90 / 10.70
1/4 X 20	6.70	17/64	6.78/6.63	7.87/8.38	3.40 / 3.10	5.90 / 5.40	8.50 / 7.70	11.00 / 9.90	13.50 / 12.20
5/16 X 18	8.30	21/64	8.48/8.33	9.4/10.16	4.10 / 3.80	6.90 / 6.40	9.80 / 9.00	12.60 / 11.60	15.50 / 14.20
3/8 X 16	10.00	-	10.11/9.91	11.18/11.94	4.40 / 4.10	7.40 / 6.90	10.50 / 9.70	13.50 / 12.50	16.50 / 15.30
7/16 X 14	11.60	-	11.76/11.51	13.21/13.97	4.60 / 4.20	7.60 / 7.10	10.70 / 9.90	13.80 / 12.80	16.90 / 15.60
1/12 X 12	13.00	33/64	13.34/13.08	14.99/16	4.50 / 4.10	7.40 / 7.00	10.50 / 9.80	13.60 / 12.60	16.60 / 15.40
9/16 X 12	14.75	-	14.94/14.68	16.51/17.53	5.20 / 4.90	8.60 / 8.00	12.00 / 11.20	15.40 / 14.40	18.80 / 17.60
5/8 X 11	16.50	-	16.84/16.59	18.29/19.56	5.30 / 5.00	8.70 / 8.20	12.20 / 11.50	15.70 / 14.70	19.20 / 17.90
3/4 X 10	20.00	-	20.09/19.84	21.84/22.86	6.00 / 5.60	9.70 / 9.20	13.50 / 12.70	17.30 / 16.30	21.10 / 19.80
7/8 X 9	23.25	-	23.27/23.01	25.15/26.67	6.30 / 6.00	10.20 / 9.70	14.30 / 13.40	18.20 / 17.10	22.20 / 20.90
1 X 8	26.50	-	26.52/26187.4	28.7/30.48	6.50 / 6.10	10.40 / 9.90	14.50 / 13.70	18.60 / 17.50	22.60 / 21.20
1-1/8 X 7	30.00	1.11/64	30.12/29743.4	32.51/34.29	6.30 / 5.90	10.20 / 9.60	14.30 / 13.40	18.20 / 17.10	22.20 / 20.80
1-1/4 X 7	33.00	1.19/64	33.3/32918.4	35.56/37.59	7.20 / 6.80	11.60 / 10.90	16.00 / 15.00	20.40 / 19.20	24.90 / 23.30
1-1/2 X 6	39.50	1.35/64	39.9/39268.4	42.67/45.21	7.50 / 7.00	11.90 / 11.30	16.50 / 15.50	21.10 / 19.80	25.60 / 24.00
BSP									
1/8 X 28	10.00	-	10.16/9.91	10.92/11.94	1.90 / 1.70	3.60 / 3.20	5.30 / 4.80	7.00 / 6.40	8.80 / 7.90
1/4 X 19	13.75	-	13.72/13.46	14.99/16.26	3.10 / 2.80	5.40 / 5.00	7.80 / 7.10	10.10 / 9.20	12.50 / 11.40
3/8 X 19	17.00	-	17.27/17.02	18.54/20.07	5.50 / 5.00	8.90 / 8.20	12.50 / 11.40	16.00 / 14.60	19.50 / 17.90
1/2 X 14	21.50	27/32	21.59/21.34	23.37/25.15	5.30 / 4.90	8.80 / 8.10	12.20 / 11.20	15.70 / 14.40	19.10 / 17.60
5/8 X 14	23.50	-	23.55/23.24	25.4/27.43	7.10 / 6.50	11.30 / 10.40	15.70 / 14.40	20.00 / 18.40	24.30 / 22.30
3/4 X 14	27.00	1.1/16	27.08/26.75	28.96/31.24	8.80 / 8.10	13.90 / 12.90	19.20 / 17.60	24.30 / 22.40	29.50 / 27.20
7/8 X 14	30.50	1.13/16	30.81/30.48	32.77/35.31	10.50 / 9.70	16.50 / 15.30	22.60 / 20.80	28.70 / 26.40	34.70 / 32.00
1 X 11	33.75	-	33.91/33.53	36.32/39.12	9.30 / 8.60	14.70 / 13.60	20.10 / 18.60	25.60 / 23.60	31.00 / 28.60
1-1/4 X 11	42.50	1.43/64	42.67/42.29	44.96/48.51	12.00 / 11.10	18.70 / 17.40	25.60 / 23.70	32.40 / 30.00	39.20 / 36.20
1-1/2 X 11	48.50	1.29/32	48.79/48.41	51.05/54.86	14.70 / 13.60	22.80 / 21.20	31.00 / 28.70	39.20 / 36.30	47.30 / 43.80

M/MF	
A	Ø de perçage ou intérieur de l'avant-trou
B	Ø supérieur de l'avant-trou
C	Ø de flanc de l'avant-trou
D	Ø de flanc du filet rapporté posé
E	Ø intérieur du filet rapporté posé (mini.)
FC	Ø extérieur du filet rapporté à l'état libre
S	Profondeur de perçage (mini.)
T	Profondeur "utile" du taraudage (mini.)
Q	Filetage "utile" du filet rapporté
NC	Nombre de filets

M/MF	
A	Ø de perfuração ou interior da rosca prévia.
B	Ø maior da rosca prévia (Mínimo).
C	Ø dos flancos da rosca prévia.
D	Ø dos flancos do inserto instalado.
E	Ø interior do inserto instalado (Mínimo).
FC	Ø exterior do inserto em estado livre.
S	Profundidade de perfuração (Mínima).
T	Profundidade "útil" da roscagem (Mínima).
Q	Rosca "Útil" do inserto.
NC	Número de filetes ou fios



IMPORTANT: Le succès ou l'échec d'une opération de perçage et de taraudage dépend particulièrement du matériel à travailler. Les dimensions spécifiées sont des recommandations générales non spécifiques pour un matériel concret. Néanmoins, il convient de les prendre en compte étant donné qu'elles répondent aux exigences stipulées par les standards et les fabricants les plus reconnus. Pour retrouver l'information relative aux différents standards, rendez-vous sur la page web: www.bluemaster.es

IMPORTANTE: o sucesso ou a falha das operações de perfuração e roscagem dependem especialmente do material a ser trabalhado. As dimensões detalhadas são recomendações gerais não específicas para um material concreto. No entanto, eles devem ser levados em conta, uma vez que atendem aos requisitos estabelecidos pelos standards aplicáveis e a maioria dos fabricantes reconhecidos. Para encontrar informações relacionadas a diferentes standards, visite o nosso site www.bluemaster.es.

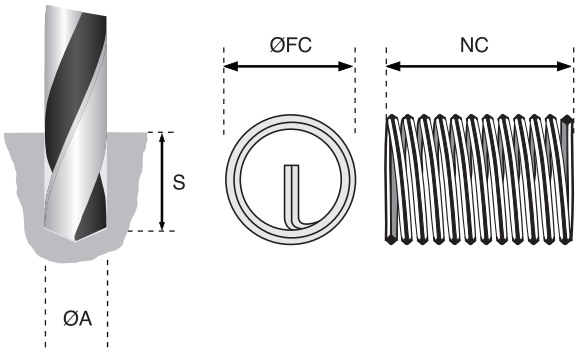
B	C (Close)	D (Close)	C (Medium)	D (Medium)	E	S					T					Q				
"	"	"	"	"	"	1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D
0.225	0.2087 / .2075	0.1697 / 0.1675	0.2098 / 0.2075	0.1708 / 0.1675	0.1475	0.328	0.422	0.515	0.609	0.703	0.297	0.390	0.484	0.578	0.672	0.187	0.281	0.375	0.469	0.562
0.296	0.2762 / 0.2747	0.2279 / 0.2254	0.2774 / 0.2747	0.2291 / 0.2254	0.2008	0.423	0.548	0.673	0.798	0.923	0.385	0.510	0.635	0.760	0.885	0.250	0.375	0.500	0.625	0.750
0.366	0.3433 / 0.3416	0.2861 / 0.2834	0.3447 / 0.3416	0.2875 / 0.2834	0.2543	0.517	0.673	0.829	0.986	1.142	0.472	0.628	0.784	0.940	1.096	0.312	0.469	0.625	0.781	0.937
0.434	0.4089 / 0.4070	0.3459 / 0.3430	0.4104 / 0.4070	0.3474 / 0.3430	0.3110	0.600	0.787	0.975	1.162	1.350	0.550	0.737	0.925	1.112	1.300	0.375	0.562	0.750	0.937	1.125
0.503	0.4751 / 0.4730	0.4050 / 0.4019	0.4767 / 0.4730	0.4066 / 0.4019	0.3663	0.687	0.906	1.124	1.343	1.562	0.632	0.851	1.069	1.288	1.507	0.437	0.656	0.875	1.094	1.312
0.574	0.5423 / 0.5400	0.4633 / 0.4600	0.5440 / 0.5400	0.4650 / 0.4600	0.4200	0.781	1.031	1.281	1.531	1.781	0.719	0.969	1.219	1.469	1.719	0.500	0.750	1.000	1.250	1.500
0.636	0.6049 / 0.6025	0.5259 / 0.5225	0.6067 / 0.6025	0.5277 / 0.5225	0.4825	0.844	1.125	1.406	1.687	1.969	0.781	1.062	1.344	1.625	1.906	0.562	0.844	1.125	1.406	1.687
0.709	0.6734 / 0.6708	0.5829 / 0.5793	0.6752 / 0.6708	0.5847 / 0.5793	0.5336	0.946	1.259	1.571	1.884	2.196	0.875	1.187	1.500	1.812	2.125	0.625	0.937	1.250	1.562	1.875
0.848	0.8062 / 0.8033	0.7005 / 0.6966	0.8082 / 0.8033	0.7025 / 0.6966	0.6432	1.125	1.500	1.875	2.250	2.625	1.042	1.417	1.792	2.167	2.542	0.750	1.125	1.500	1.875	2.250
0.982	0.9364 / 0.9332	0.8210 / 0.8168	0.9384 / 0.9332	0.8230 / 0.8168	0.7586	1.284	1.722	2.159	2.596	3.034	1.193	1.631	2.068	2.506	2.943	0.875	1.312	1.750	2.187	2.625
1.117	1.0675 / 1.0641	0.9404 / 0.9360	1.0697 / 1.0641	0.9426 / 0.9360	0.8720	1.450	1.950	2.450	2.950	3.450	1.350	1.850	2.350	2.850	3.350	1.000	1.500	2.000	2.500	3.000
1.255	1.1998 / 1.1962	1.0585 / 1.0539	1.2021 / 1.1962	1.0608 / 1.0539	0.9828	1.625	2.187	2.750	3.312	3.875	1.514	2.076	2.639	3.201	3.764	1.125	1.687	2.250	2.812	3.375
1.380	1.3250 / 1.3212	1.1837 / 1.1789	1.3274 / 1.3212	1.1861 / 1.1789	1.1078	1.750	2.375	3.000	3.625	4.250	1.639	2.264	2.889	3.514	4.139	1.250	1.875	2.500	3.125	3.750
1.521	1.4591 / 1.4551	1.3000 / 1.2950	1.4616 / 1.4551	1.3025 / 1.2950	1.2150	1.937	2.625	3.312	4.000	4.687	1.812	2.500	3.187	3.875	4.562	1.375	2.062	2.750	3.437	4.125
1.646	1.5843 / 1.5801	1.4252 / 1.4200	1.5868 / 1.5801	1.4277 / 1.4200	1.3400	2.062	2.812	3.562	4.312	5.062	1.937	2.687	3.437	4.187	4.937	1.500	2.250	3.000	3.750	4.500
0.155	0.1420 / 0.1410	0.1109 / 0.1090	0.1430 / 0.1410	0.1119 / 0.1090	0.0930	0.237	0.300	0.362	0.425	0.487	0.212	0.275	0.337	0.400	0.462	0.125	0.187	0.250	0.312	0.375
0.237	0.2154 / 0.2142	0.1631 / 0.1608	0.2166 / 0.2142	0.1643 / 0.1608	0.1341	0.375	0.469	0.562	0.656	0.750	0.333	0.427	0.521	0.614	0.708	0.187	0.281	0.375	0.469	0.562
0.309	0.2836 / 0.2820	0.2206 / 0.2180	0.2849 / 0.2820	0.2219 / 0.2180	0.1860	0.475	0.600	0.725	0.850	0.975	0.425	0.550	0.675	0.800	0.925	0.250	0.375	0.500	0.625	0.750
0.378	0.3498 / 0.3480	0.2797 / 0.2769	0.3512 / 0.3480	0.2811 / 0.2769	0.2413	0.562	0.718	0.875	1.031	1.187	0.507	0.663	0.819	0.975	1.132	0.312	0.469	0.625	0.781	0.937
0.448	0.4170 / 0.4150	0.3380 / 0.3350	0.4185 / 0.4150	0.3395 / 0.3350	0.2950	0.656	0.844	1.031	1.219	1.406	0.594	0.781	0.969	1.156	1.344	0.375	0.562	0.750	0.937	1.125
0.521	0.4855 / 0.4833	0.3950 / 0.3918	0.4871 / 0.4833	0.3966 / 0.3918	0.3461	0.758	0.977	1.196	1.415	1.633	0.687	0.906	1.125	1.344	1.562	0.437	0.656	0.875	1.094	1.312
0.597	0.5557 / 0.5533	0.4500 / 0.4466	0.5575 / 0.5533	0.4518 / 0.4466	0.3932	0.875	1.125	1.375	1.625	1.875	0.792	1.042	1.292	1.542	1.792	0.500	0.750	1.000	1.250	1.500
0.660	0.6184 / 0.6158	0.5127 / 0.5091	0.6201 / 0.6158	0.5144 / 0.5091	0.4557	0.937	1.219	1.500	1.781	2.062	0.854	1.135	1.417	1.698	1.979	0.562	0.844	1.125	1.406	1.687
0.731	0.6859 / 0.6832	0.5705 / 0.5668	0.6878 / 0.6832	0.5724 / 0.5668	0.5086	1.034	1.347	1.659	1.972	2.284	0.943	1.256	1.568	1.881	2.193	0.625	0.937	1.250	1.562	1.875
0.867	0.8171 / 0.8141	0.6900 / 0.6860	0.8191 / 0.8141	0.6920 / 0.6860	0.6220	1.200	1.575	1.950	2.325	2.700	1.100	1.475	1.850	2.225	2.600	0.750	1.125	1.500	1.875	2.250
1.005	0.9495 / 0.9462	0.8082 / 0.8039	0.9516 / 0.9462	0.8103 / 0.8039	0.7328	1.375	1.812	2.250	2.687	3.125	1.264	1.701	2.139	2.576	3.014	0.875	1.312	1.750	2.187	2.625
1.146	1.0836 / 1.0801	0.9245 / 0.9200	1.0859 / 1.0801	0.9268 / 0.9200	0.8400	1.562	2.062	2.562	3.062	3.562	1.437	1.937	2.437	2.937	3.437	1.000	1.500	2.000	2.500	3.000
1.291	1.2203 / 1.2165	1.0383 / 1.0335	1.2227 / 1.2165	1.0407 / 1.0335	0.9420	1.768	2.330	2.893	3.455	4.018	1.625	2.187	2.750	3.312	3.875	1.125	1.687	2.250	2.812	3.375
1.416	1.3454 / 1.3415	1.1634 / 1.1585	1.3479 / 1.3415	1.1659 / 1.1585	1.0670	1.893	2.518	3.143	3.768	4.393	1.750	2.375	3.000	3.625	4.250	1.250	1.875	2.500	3.125	3.750
1.694	1.6110 / 1.6067	1.3986 / 1.3933	1.6137 / 1.6067	1.4013 / 1.3933	1.2866	2.250	3.000	3.750	4.500	5.250	2.083	2.833	3.583	4.333	5.083	1.500	2.250	3.000	3.750	4.500
0.426	0.4076 / 0.4058	0.3629 / 0.3601	0.4090 / 0.4058	0.3643 / 0.3601	0.3372	0.286	0.348	0.411	0.437	0.536	0.250	0.312	0.375	0.437	0.500	0.125	0.187	0.250	0.312	0.375
0.580	0.5539 / 0.5517	0.4875 / 0.4843	0.5556 / 0.5517	0.4892 / 0.4843	0.4506	0.487	0.612	0.737	0.862	0.987	0.434	0.559	0.684	0.809	0.934	0.250	0.375	0.500	0.625	0.750
0.718	0.6920 / 0.6897	0.6256 / 0.6223	0.6937 / 0.6897	0.6273 / 0.6223	0.5886	0.612	0.799	0.987	1.174	1.362	0.559	0.747	0.934	1.122	1.309	0.375	0.562	0.750	0.937	1.125
0.909	0.8735 / 0.8708	0.7830 / 0.7793	0.8754 / 0.8708	0.7849 / 0.7793	0.7336	0.821	1.071	1.321	1.571	1.821	0.750	1.000	1.250	1.500	1.750	0.500	0.750	1.000	1.250	1.500
0.986	0.9506 / 0.9478	0.8601 / 0.8563	0.9524 / 0.9478	0.8619 / 0.8563	0.8106	0.946	1.258	1.571	1.883	2.196	0.875	1.187	1.500	1.812	2.125	0.625	0.937	1.250	1.562	1.875
1.126	1.0898 / 1.0868	0.9993 / 0.9953	1.0918 / 1.0868	1.0013 / 0.9953	0.9496	1.071	1.446	1.821	2.196	2.571	1.000	1.375	1.750	2.125	2.500	0.750	1.125	1.500	1.875	2.250
1.274	1.2378 / 1.2348	1.1473 / 1.1433	1.2399 / 1.2348	1.1494 / 1.1433	1.0976	1.196	1.634	2.071	2.509	2.946	1.125	1.562	2.000	2.437	2.875	0.875	1.312	1.750	2.187	2.625
1.416	1.3705 / 1.3673	1.2551 / 1.2508	1.3727 / 1.3673	1.2573 / 1.2508	1.1926	1.409	1.909	2.409	2.909	3.409	1.318	1.818	2.318	2.818	3.318	1.000	1.500	2.000	2.500	3.000
1.757	1.7118 / 1.7083	1.5964 / 1.5918	1.7141 / 1.7083	1.5987 / 1.5918	1.5336	1.660	2.284	2.909	3.534	4.159	1.568	2.193	2.818	3.443	4.068	1.250	1.875	2.500	3.125	3.750
1.989	1.9440 / 1.9403	1.8286 / 1.8238	1.9464 / 1.9403	1.8310 / 1.8238	1.7656	1.909	2.659	3.409	4.159	4.909	1.818	2.568	3.318	4.068	4.818	1.500	2.250	3.000	3.750	4.500

Pour obtenir les meilleures performances du filet rapporté, celui-ci doit être posé à une profondeur de 1/2 à 1 fois le pas en dessous de la surface du trou taraudé. Cela signifie que la longueur réelle qu'offre le filet rapporté est la dimension "Q" de laquelle on retire 0,5 ou 1 fois le pas. La dimension "S" représente la profondeur du trou tandis que le "T" représente la longueur taraudée utile, qui peut varier en fonction de la longueur du cône d'entrée du taraud utilisé.

Para obter o melhor desempenho possível do inserto, deve ser introduzido 0,5 ou 1 vez o passo por abaixo do furo roscado. Isso significa que o comprimento real que oferece o inserto é a dimensão "Q" subtraindo 0,5 ou 1 vez o passo. A dimensão "S" representa a profundidade do furo, enquanto a "T" representa o comprimento roscado útil, que pode variar dependendo do comprimento do cone de entrada do macho usado.

M/MF	
A	Ø de taladrado o interior de rosca previa.
B	Ø mayor de rosca previa (Mínima).
C	Ø de flancos de rosca previa.
D	Ø de flancos de inserto instalado.
E	Ø interior del inserto instalado (Mínimo).
FC	Ø exterior del inserto en estado libre.
S	Profundidad del taladrado (Mínima).
T	Profundidad "útil" de roscado (Mínima).
Q	Rosca "útil" del inserto.
NC	Número de filetes o hilos

M/MF	
A	Minor Diameter
B	Major Diameter
C	Pitch Diameter of Tapped Hole (Class 5H)
D	Pitch Diameter of Installed Insert (Class 4H)
E	Installed Insert Internal Diameter - min.
FC	Free Coil Diamater of Un-installed Insert
S	Drilling Length - minimum
T	Tapping Length - minimum
Q	Nominal Length
NC	Number of Coils in Un-installed Insert counted 90º from tang



IMPORTANTE: El éxito o fracaso de operaciones de taladrado y roscado dependen especialmente del material a trabajar. Las dimensiones detalladas son recomendaciones generales no específicas para un material concreto. Sin embargo, conviene que sean tenidas en cuenta ya que cumplen los requisitos marcados por los standards aplicables y los más reconocidos fabricantes. Para encontrar información relativa a diferentes standards, acuda a la Web www.bluemaster.es.

IMPORTANT The success of any drill and tapping operation is dependant upon many factors –type of material being cut, cutting speed, coolant, equipment being used – and it is not possible to give specific drill sizes for each material. Drill sizes shown are recommendations only and PowerCoil would strongly suggest that independent testing be performed for specific and critical applications. When using wire thread inserts it is important that the drilling and tapping diameters and lengths listed below are adhered to. The figures outlined in these tables encompass effective free coil tolerances for most globally recognized standards and manufacturers, including those of reduced diameter wire thread inserts. PowerCoil wire thread inserts can be manufactured to different standards upon request. Technical data on these standards can be obtained from our website – www.bluemaster.es

Para obtener el mayor rendimiento posible del inserto, debe ser introducido 0.5 ó 1 vez el paso por debajo de agujero roscado. Ello significa que la longitud real que ofrece el inserto es la dimensión "Q" restando 0.5 ó 1 vez el paso. La dimensión "S" representa la profundidad del agujero, mientras que la "T" representa la longitud roscada útil, que puede variar en función de la longitud del cono de entrada del macho empleado.

Optimum Thread performance with Wire Thread Inserts is achieved when the inserts are installed 1/2 to 1 pitch below the surface of the Tapped Hole. This means that the actual length of an installed insert is equal to dimension Q less 1/2 to 1 pitch. Dimensions S and T allow for tap end clearance of intermediate taps. When using Bottoming and Spiral Flute Taps these dimensions maybe reduced by an amount equal to 2 thread pitches. Any counterbore depths must be added to these dimensions.

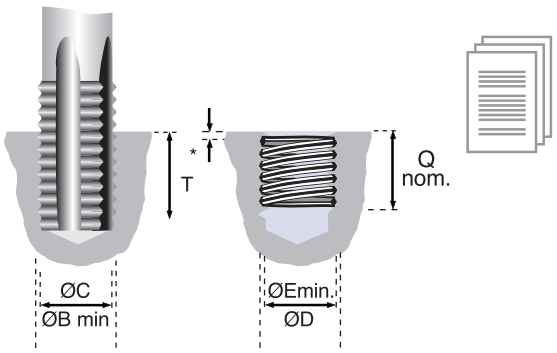
MEDIDA /SIZE DIMENSION/ DIMENSÃO"	Broca / Drill/ Foret mm	Broca / Drill/ Foret "	A max/min mm	FC min/max mm	NC max/min 1.0D	1.5D	2.0D	2.5D	3.0D
BA									
BA 6	2.90	#33	2.95/2.87	3.56/3.81	3.60 / 3.30	6.20 / 5.60	8.70 / 7.90	11.20 / 10.20	13.80 / 12.50
BA 5	3.40	#30	3.43/3.28	3.81/4.32	3.80 / 3.40	6.40 / 5.80	9.00 / 8.10	11.60 / 10.50	14.20 / 12.90
BA 4	3.80	#25	3.86/3.73	4.32/4.83	3.80 / 3.50	6.40 / 5.80	9.10 / 8.20	11.70 / 10.60	14.40 / 13.00
BA 3	4.30	-	4.34/4.22	5.08/5.33	3.90 / 3.60	6.70 / 6.00	9.40 / 8.50	12.10 / 10.90	14.80 / 13.40
BA 2	4.90	#10	4.98/4.85	5.59/6.1	4.20 / 3.80	6.90 / 6.30	9.80 / 8.80	12.60 / 11.40	15.40 / 13.90
BA 1	5.50	7/32	5.59/5.41	6.35/6.86	4.20 / 3.80	7.10 / 6.40	9.90 / 9.00	12.80 / 11.60	15.60 / 14.10
BA 0	6.20	C	6.25/6.12	7.11/7.87	4.30 / 3.90	7.20 / 6.60	10.10 / 9.20	13.00 / 11.80	16.00 / 14.50

MEDIDA /SIZE DIMENSION/ DIMENSÃO"	Broca / Drill/ Foret mm	Broca / Drill/ Foret "	A max/min mm	FC min/max mm	NC max/min 1.0D	1.5D	2.0D	2.5D	3.0D
BSB									
3/16 X 32	5.10	-	5.21/4.95	5.84/6.6	4.10/3.70	6.90/6.20	9.70/8.70	12.50/11.20	15.30/13.70
1/4 X 26	6.60	-	6.86/6.55	7.87/8.64	4.60/4.10	7.60/6.90	10.70/9.60	13.80/12.30	16.80/15.10
5/16 X 26	8.00	5/16	8.43/8.13	9.4/10.41	6.20/5.50	10.00/9.00	13.90/12.50	17.80/16.00	21.60/19.40
3/8 X 26	9.80	-	10.03/9.73	10.92/12.19	7.80/7.00	12.40/11.20	17.10/15.40	21.70/19.60	26.40/23.80
7/16 X 26	11.10	7/16	11.61/11.33	12.7/13.97	9.40/8.40	14.80/13.40	20.30/18.30	25.80/23.30	31.20/28.20
1/2 X 26	12.70	1/2	13.21/12.9	14.22/15.49	11.00/9.90	17.20/15.60	23.50/21.20	29.80/26.90	36.00/32.60
9/16 X 26	14.75	-	14.78/14.5	15.75/17.27	12.60/11.40	19.70/17.80	26.70/24.20	33.80/30.50	40.90/36.90
5/8 X 26	16.50	-	16.38/16.08	17.53/19.05	14.20/12.80	22.00/19.90	29.90/27.10	37.80/34.20	45.70/41.30
3/4 X 26	19.50	49/64	19.53/19.25	20.57/22.61	17.40/15.70	26.90/24.30	36.30/32.90	45.80/41.50	55.30/50.10
1 X 24	25.75	1.1/64	25.91/25.63	27.18/29.72	21.80/19.80	33.50/30.40	45.30/41.00	57.00/51.60	68.70/62.20

MEDIDA /SIZE DIMENSION/ DIMENSÃO"	Broca / Drill/ Foret mm	Broca / Drill/ Foret "	A max/min mm	FC min/max mm	NC max/min 1.0D	1.5D	2.0D	2.5D	3.0D
UN-8 PITCH									
1.1/8 X 8	28.50	1.1/8	29.34/28.7	31.75/33.02	7.50/7.10	12.00/11.50	16.60/15.80	21.10/20.10	25.60/24.50
1.1/4 X 8	32.00	1.1/4	32.51/31.88	35.31/36.32	8.30/8.10	13.30/12.90	18.30/17.70	23.30/22.60	28.20/27.40
1.3/8 X 8	35.00	1.3/8	35.69/35.05	38.61/39.88	9.30/9.00	14.80/14.30	20.20/19.60	25.70/24.90	31.20/30.20
1.1/2 X 8	38.00	1.1/2	38.86/38.23	41.91/42.93	10.30/10.00	16.20/15.80	22.20/21.50	28.10/27.30	34.10/33.10
1.5/8 X 8	41.00	1.5/8	42.04/41.4	45.21/48.26	11.20/10.50	17.70/16.40	24.10/22.40	30.50/28.40	37.00/34.30
1.3/4 X 8	44.50	1.3/4	45.21/44.58	48.26/51.82	12.20/11.40	19.20/17.80	26.10/24.20	33.00/30.70	39.90/37.10
1.7/8 X 8	47.50	1.7/8	48.39/47.75	51.56/54.86	13.20/12.40	20.60/19.30	28.10/26.20	35.50/33.20	42.90/40.10
2 X 8	51.00	2	51.56/50.93	54.86/57.91	14.20/13.40	22.10/20.90	30.00/28.40	38.00/35.90	45.90/43.30

M/MF	
A	Ø de perçage ou intérieur de l'avant-trou
B	Ø supérieur de l'avant-trou
C	Ø de flanc de l'avant-trou
D	Ø de flanc du filet rapporté posé
E	Ø intérieur du filet rapporté posé (mini.)
FC	Ø extérieur du filet rapporté à l'état libre
S	Profondeur de perçage (mini.)
T	Profondeur "utile" du taraudage (mini.)
Q	Filetage "utile" du filet rapporté
NC	Nombre de filets

M/MF	
A	Ø de perfuração ou interior da rosca prévia.
B	Ø maior da rosca prévia (Mínimo).
C	Ø dos flancos da rosca prévia.
D	Ø dos flancos do inserto instalado.
E	Ø interior do inserto instalado (Mínimo).
FC	Ø exterior do inserto em estado livre.
S	Profundidade de perfuração (Mínima).
T	Profundidade "útil" da roscagem (Mínima).
Q	Rosca "Útil" do inserto.
NC	Número de filetes ou fios



IMPORTANT: Le succès ou l'échec d'une opération de perçage et de taraudage dépend particulièrement du matériel à travailler. Les dimensions spécifiées sont des recommandations générales non spécifiques pour un matériel concret. Néanmoins, il convient de les prendre en compte étant donné qu'elles répondent aux exigences stipulées par les standards et les fabricants les plus reconnus. Pour retrouver l'information relative aux différents standards, rendez-vous sur la page web: www.bluemaster.es

IMPORTANTE: o sucesso ou a falha das operações de perfuração e roscagem dependem especialmente do material a ser trabalhado. As dimensões detalhadas são recomendações gerais não específicas para um material concreto. No entanto, eles devem ser levados em conta, uma vez que atendem aos requisitos estabelecidos pelos standards aplicáveis e a maioria dos fabricantes reconhecidos. Para encontrar informações relacionadas a diferentes standards, visite o nosso site www.bluemaster.es.

B	C (Normal)	D (Normal)			E	S					T					Q				
"	"	"			"	1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D
0.134	0.1252 / 0.1226	0.1014 / 0.0976			0.0850	0.204	0.259	0.314	0.369	0.424	0.183	0.238	0.293	0.348	0.404	0.110	0.165	0.220	0.275	0.331
0.152	0.1426 / 0.1399	0.1159 / 0.1120			0.0980	0.230	0.293	0.356	0.419	0.482	0.207	0.270	0.333	0.396	0.459	0.126	0.189	0.252	0.315	0.378
0.171	0.1605 / 0.1574	0.1305 / 0.1262			0.1106	0.259	0.329	0.400	0.471	0.542	0.233	0.303	0.374	0.445	0.516	0.142	0.212	0.283	0.354	0.425
0.194	0.1821 / 0.1786	0.1488 / 0.1441			0.1268	0.291	0.371	0.452	0.533	0.613	0.262	0.343	0.423	0.504	0.585	0.161	0.242	0.323	0.403	0.484
0.221	0.2079 / 0.2042	0.1709/ 0.1659			0.1468	0.328	0.421	0.513	0.606	0.698	0.297	0.389	0.482	0.574	0.667	0.185	0.277	0.370	0.462	0.555
0.249	0.2342 / 0.2299	0.1929 / 0.1874			0.1661	0.368	0.472	0.576	0.681	0.785	0.333	0.437	0.541	0.646	0.750	0.209	0.313	0.417	0.522	0.626
0.281	0.2645 / 0.2598	0.2185 / 0.2126			0.1890	0.413	0.531	0.649	0.768	0.886	0.374	0.492	0.610	0.728	0.846	0.236	0.354	0.472	0.590	0.709

B	C (Normal)	D (Medium)			E	S					T					Q				
"	"	"			"	1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D
0.232	0.2112 / 0.2136	0.1738 / 0.1709			0.1543	0.33	0.42	0.52	0.61	0.70	0.30	0.39	0.48	0.58	0.67	0.187	0.281	0.375	0.469	0.562
0.304	0.2790 / 0.2817	0.2328 / 0.2295			0.2090	0.42	0.55	0.67	0.80	0.92	0.38	0.51	0.63	0.76	0.88	0.250	0.375	0.500	0.625	0.750
0.367	0.3415 / 0.3444	0.2965 / 0.2920			0.2715	0.49	0.64	0.80	0.95	1.11	0.45	0.60	0.76	0.92	1.07	0.312	0.469	0.625	0.781	0.937
0.429	0.4040 / 0.4070	0.3583 / 0.3545			0.3340	0.55	0.74	0.92	1.11	1.30	0.51	0.70	0.88	1.07	1.26	0.375	0.562	0.750	0.937	1.125
0.492	0.4665 / 0.4697	0.4210 / 0.4170			0.3965	0.61	0.83	1.05	1.27	1.49	0.57	0.79	1.01	1.23	1.45	0.437	0.656	0.875	1.094	1.312
0.554	0.5290 / 0.5323	0.4837 / 0.4795			0.4590	0.67	0.92	1.17	1.42	1.67	0.63	0.88	1.13	1.38	1.63	0.500	0.750	1.000	1.250	1.500
0.617	0.5915 / 0.5945	0.5464 / 0.5420			0.5215	0.74	1.02	1.30	1.58	1.86	0.70	0.98	1.26	1.54	1.82	0.562	0.844	1.125	1.406	1.687
0.679	0.6540 / 0.6575	0.6090 / 0.6045			0.5840	0.80	1.11	1.42	1.74	2.05	0.76	1.07	1.38	1.70	2.01	0.625	0.937	1.250	1.562	1.875
0.804	0.7790 / 0.7827	0.7343 / 0.7295			0.7090	0.92	1.30	1.67	2.05	2.42	0.88	1.26	1.63	2.01	2.38	0.750	1.125	1.500	1.875	2.250
1.059	1.0314 / 1.0355	0.9828 / 0.9778			0.9556	1.19	1.69	2.19	2.69	3.19	1.15	1.65	2.15	2.65	3.15	1.000	1.500	2.000	2.500	3.000

B	C (3B)	tap (Std)	D(2B)			S					T					Q				
"	"	8 Pitch	"			1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D	1.0D	1.5D	2.0D	2.5D	3.0D
1.261	1.1757 / 1.1688	1.1/4	1.0528 / 1.0438			1.69	2.25	2.81	3.38	3.94	1.56	2.13	2.69	3.25	3.81	1.125	1.688	2.250	2.81	3.38
1.386	1.3008 / 1.2938	1.3/8	1.1780 / 1.1688			1.81	2.44	3.06	3.69	4.31	1.69	2.31	2.94	3.56	4.19	1.250	1.875	2.500	3.13	3.75
1.511	1.4259 / 1.4188	1.1/2	1.3031 / 1.2938			1.94	2.62	3.31	4.00	4.69	1.81	2.50	3.19	3.88	4.56	1.375	2.062	2.750	3.44	4.13
1.636	1.5510 / 1.5438	1.5/8	1.4283 / 1.4188			2.06	2.81	3.56	4.31	5.06	1.94	2.69	3.44	4.19	4.94	1.500	2.250	3.000	3.75	4.50
1.761	1.6762 / 1.6688	1.3/4	1.5535 / 1.5438			2.19	3.00	3.81	4.63	5.44	2.06	2.88	3.69	4.50	5.31	1.625	2.438	3.250	4.06	4.88
1.886	1.8013 / 1.7938	1.7/8	1.6786 / 1.6688			2.31	3.19	4.06	4.94	5.81	2.19	3.06	3.94	4.81	5.69	1.750	2.625	3.500	4.38	5.25
2.011	1.9264 / 1.9188	2	1.8038 / 1.7938			2.44	3.37	4.31	5.25	6.19	2.31	3.25	4.19	5.13	6.06	1.875	2.812	3.750	4.69	5.63
2.136	2.0515 / 2.0438	2.1/8	1.9289 / 1.9188			2.56	3.56	4.56	5.56	6.56	2.44	3.44	4.44	5.44	6.44	2.000	3.000	4.000	5.00	6.00

Pour obtenir les meilleures performances du filet rapporté, celui-ci doit être posé à une profondeur de 1/2 à 1 fois le pas en dessous de la surface du trou taraudé. Cela signifie que la longueur réelle qu'offre le filet rapporté est la dimension "Q" de laquelle on retire 0,5 ou 1 fois le pas. La dimension "S" représente la profondeur du trou tandis que le "T" représente la longueur taraudée utile, qui peut varier en fonction de la longueur du cône d'entrée du taraud utilisé.

Para obter o melhor desempenho possível do inserto, deve ser introduzido 0,5 ou 1 vez o passo por abaixo do furo roscado. Isso significa que o comprimento real que oferece o inserto é a dimensão "Q" subtraindo 0,5 ou 1 vez o passo. A dimensão "S" representa a profundidade do furo, enquanto a "T" representa o comprimento roscado útil, que pode variar dependendo do comprimento do cone de entrada do macho usado.

loksert® by celesa

Los insertos de seguridad Loksert son de fácil instalación, y su ensamblaje es ideal para reemplazar roscas dañadas o gastadas en, esencialmente, cualquier material – ferroso, no ferroso y no metálico. Están fabricados con la más alta calidad de acero al carbono o de acero inoxidable. Un inserto loksert se suministra con los arrastres pre-ensamblados. Los filetes de apriete posicionados estratégicamente colocan al inserto en la profundidad correcta de la superficie del material de alojamiento. Los lokserts están recomendados para reparación y creación de roscas en un amplio rango de aplicaciones incluyendo herrerías y fundiciones y se recomiendan especialmente para casos de gran desgaste de uso y vibración, tales como minería, construcción y equipo de gran movimiento.

Características y Ventajas

- Se instalan usando machos y brocas standard.
- Sólidos, constan de pestañas de apriete que proporcionan una alta seguridad mecánica contra la rotación.
- Instalación sencilla. Introduzca el inserto de manera manual en el agujero y una vez instalado, golpee las pestañas introduciéndolas en las ranuras del inserto.
- Recomendados para su uso en un amplio rango de materiales de alojamiento.
- Imposible de confundir las roscas durante la instalación.
- En caso de ser necesario, sencillo proceso de extracción.
- Sin arrastre que cortar y quitar.
- Disponibles en medidas métricas, pulgadas y para bujías.
- Disponibles en pared delgada y pared reforzada.

Loksert solid keylocking inserts are an easily installed thread assembly that is ideal for replacing damaged or worn threads in virtually any material – ferrous, non-ferrous and non-metallic. They are constructed from high quality carbon steel or extremely hardwaring stainless steel. One piece loksert inserts are supplied with the dove-tailed locking keys pre-assembled. The pre-positioned keys automatically position the insert at the correct depth below the surface of the parent material. Lokserts are suitable for repairing and creating threads in a wide range of applications including forgings and castings and are especially suited to situations that experience heavy wear and vibration - such as mining, construction and eathmoving equipment.

Features and Benefits

- Solid bushing utilising locking keys provides positive mechanical lock against rotation
- High strength and reliabilty provides maximum pullout strength
- Installed using standard drills and taps
- Simple installation - no special skills required
- Suitable for use in a wide range of parent materials
- Impossible to cross thread during installation
- Simple removal process if required
- No tang to break and remove
- Available in metric sizes, inch sizes and spark plug sizes
- Available in Thinwall and Heavy Duty

Les filets rapportés solides à frein Loksert sont faciles à poser, leur assemblage est idéal pour remplacer des filets endommagés ou usés, dans pratiquement tout type de matériel, ferreux, non ferreux et non métallique. Ils sont fabriqués à partir d'acier au carbone ou d'acier inoxydable de la plus haute qualité. Les filets rapportés Loksert sont fournis avec les tenons de blocage préassemblés. Les tenons pré-positionnés mettent automatiquement le filet rapporté en place à la profondeur correcte sous la surface du matériel récepteur. Les filets rapportés Loksert conviennent à la réparation et à la création de filetages pour une large gamme d'applications, y compris pour les forgeages et les coulages, et ils conviennent particulièrement aux situations qui subissent une forte usure et de fortes vibrations, tels que les équipements miniers, le matériel de construction et les équipements de BTP.

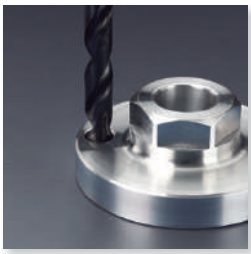
Caractéristiques et Avantages

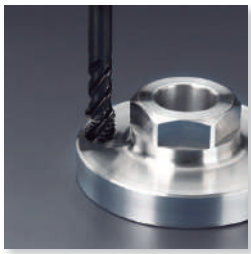
- Installation avec tarauds et forets standards
- Une douille solide utilisant des tenons de blocage fournissant une résistance mécanique élevée contre la rotation
- Pose simple: Introduisez le filet manuellement dans le trou et, une fois posé, introduire, en les frappant, les tenons à l'intérieur des rainures du filet.
- Ils sont appropriés à l'utilisation dans une gamme variée de matériaux récepteurs
- Impossible de se tromper de filetage durant l'installation
- Facile à retirer si nécessaire
- Aucun tenon à casser et à retirer
- Disponibles en dimensions métriques, en pouces et pour bougie
- Disponibles en paroi fine et renforcée

Os insertos de segurança Loksert são fáceis de instalar e a sua montagem é ideal para substituir as roscas danificadas ou gastas em, essencialmente, qualquer material - ferroso, não ferroso e não metálico.
Eles são fabricados com a mais alta qualidade de aço carbono ou de aço inoxidável.
O inserto Loksert fornece-se com os arrastos pré-montados.
Os filetes de aperto posicionados estrategicamente colocam o inserto na profundidade correta da superfície do material de alojamento.
Os Lokserts são recomendados para a reparação e criação de roscas numa ampla gama de aplicações incluindo ferrarias e fundições e são especialmente recomendados para os casos de alto desgaste pelo uso e a vibração, tais como a mineração, a construção e os equipamentos de grande movimento.

Características e Vantagens

- Eles são instalados usando machos e brocas standard.
- Sólidos, constam de guias de aperto que proporcionam alta segurança mecânica contra a rotação.
- Alta resistência e confiabilidade que oferece grande resistência contra deslocamento.
- Instalação simples. Não requer conhecimentos especiais.
- Recomendado para o seu uso numa ampla gama de materiais de alojamento.
- Impossível confundir as roscas durante a instalação.
- Se for necessário, processo de extração simples.
- Sem arrastos que cortar e remover.
- Disponível em tamanhos métricos, de polegadas e de velas de ignição.
- Disponível em parede fina e parede reforçada.





Insertos de Bloqueo con Llave
Key Lock Inserts
Filets de Blocage à Clé
Insertos de Bloqueio com Chave

M/MF
Métrica y métrica fina
Metric course and metric fine
Métrique à pas normaux et fins
Métrica e métrica fina

UNC
Rosca Americana UNC
Unified National Course
Pas normal américain UNC
Rosca americana UNC

UNF
Rosca American fina UNF
Unifi ed National Fine
Pas fin américain UNF
Rosca americana fina UNF

Inserto de seguridad
Keylocking insert
Filet à frein
Inserto de segurança

PD
Inserto de pared delgada
Thin wall insert
Filet à paroi mince
Inserto de parede fina

PR
Inserto de pared reforzada
Heavy duty insert
Filet à paroi renforcée
Inserto de parede reforçada

AC
Inserto de acero al carbono
Carbon steel insert
Filet en acier au carbone
Inserto de aço ao carbono

INOX
Inserto de acero inoxidable
stainless steel insert
Filet en acier inoxydable
Inserto de aço inoxidável

...X
Código de familia
Group Code
Code groupe
Código de família

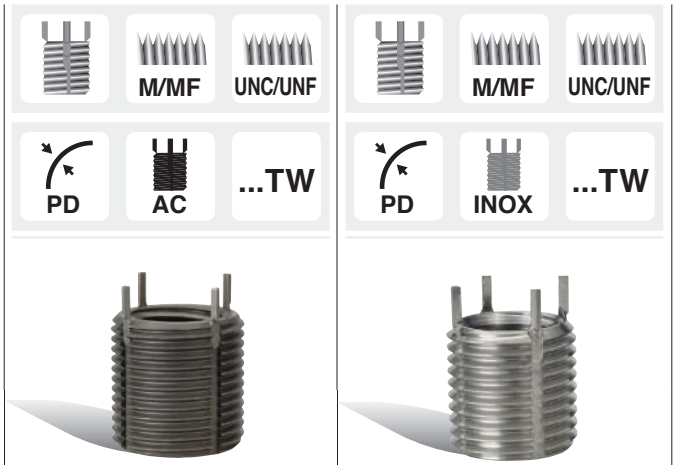
Rosca **interna** del inserto
Insert **internal** Thread
Filetage **interne** du filet
Rosca **Interna** do inserto

Rosca **externa** del inserto
Insert **externes** Thread
Filetage **externe** du filet
Rosca **Interna** do inserto

Paso en mm.
Pich (mm)
Pas (mm)
Passo em mm.

Longitud del inserto
Insert Length
Longeur du filet
Longitude do inserto

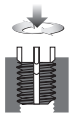
MS51831F, MILITARY SPECIFICATION



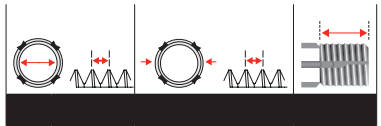
1 Taladrar
Drill / Perçage / Furar

2 Roscar
Tap / Taraudage / Roscar

3 Instalar
Insert / Installation / Instalar

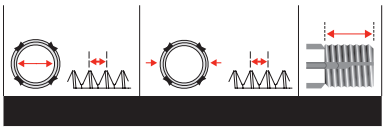


4 OcultarPestañas
Drive
Occulter Languettes
Ocultar as guias

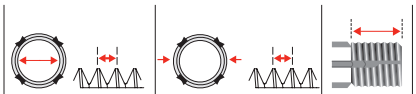


M/MF	Dim.	mm	ø	Loksert Ref.	€/ Unit	Loksert Ref.	€/ Unit
M 5 x 0.80	8 x 1.25	8.00	6.90	3620-5.00TW	5,44	3720-5.00TW	11,85
M 6 x 1.00	10 x 1.25	10.00	8.80	3620-6.00TW	5,79	3720-6.00TW	12,10
M 8 x 1.00	12 x 1.25	12.00	10.80	3621-8.00TW	7,74	3721-8.00TW	12,88
M 8 x 1.25	12 x 1.25	12.00	10.80	3620-8.00TW	6,51	3720-8.00TW	12,55
M 10 x 1.25	14 x 1.50	14.00	12.80	3621-10.00TW	9,57	3721-10.00TW	14,65
M 10 x 1.50	14 x 1.50	14.00	12.80	3620-10.00TW	9,57	3720-10.00TW	14,65
M 12 x 1.25	16 x 1.50	16.00	14.75	3620-12.00TW	11,75	3720-12.00TW	18,43
M 12 x 1.75	16 x 1.50	16.00	14.75	3621-12.00TW	11,95	3721-12.00TW	18,88

UNC	Dim.	mm	ø	Loksert Ref.	€/ Unit	Loksert Ref.	€/ Unit
UNC Nº10 - 24	5/16 x 18	7.87	6.90	3632-10GTW	4,08	3732-10GTW	10,25
UNC 1/4 - 20	3/8 x 16	9.40	8.40	3632-1/4TW	4,36	3732-1/4TW	11,25
UNC 5/16 - 18	7/16 x 14	10.92	10.10	3632-5/16TW	4,65	3732-5/16TW	12,52
UNC 3/8 - 16	1/2 x 13	12.70	11.50	3632-3/8TW	5,21	3732-3/8TW	12,88
UNC 7/16 - 14	9/16 x 12	14.22	13.00	3632-7/16TW	6,76	3732-7/16TW	15,66
UNC 1/2 - 13	5/8 x 11	15.75	14.75	3632-1/2TW	7,88	3732-1/2TW	18,07



UNF	Dim.	mm	ø	Loksert Ref.	€/ Unit	Loksert Ref.	€/ Unit
UNF Nº10 - 32	5/16 x 18	7.87	6.90	3634-10GTW	4,08	3734-10GTW	10,25
UNF 1/4 - 28	3/8 x 16	9.40	8.40	3634-1/4TW	4,36	3734-1/4TW	11,25
UNF 5/16 - 24	7/16 x 14	10.92	10.10	3634-5/16TW	4,65	3734-5/16TW	12,52
UNF 3/8 - 24	1/2 x 13	12.70	11.50	3634-3/8TW	5,21	3734-3/8TW	12,88
UNF 7/16 - 20	9/16 x 12	14.22	13.00	3634-7/16TW	6,76	3734-7/16TW	15,66
UNF 1/2 - 20	5/8 x 11	15.75	14.75	3634-1/2TW	7,88	3734-1/2TW	18,07



				Loksert		Loksert	
M/MF	**Dim.**	**mm**	ø	Ref.	**€/ Unit**	Ref.	**€/ Unit**
M 4 x 0.70	8 x 1.25	8.00	6.90	3620-4.00HD	**10,28**	3720-4.00HD	**13,47**
M 5 x 0.80	10 x 1.25	10.00	8.80	3620-5.00HD	**5,99**	3720-5.00HD	**14,50**
M 6 x 1.00	12 x 1.25	12.00	10.80	3620-6.00HD	**6,25**	3720-6.00HD	**14,63**
M 8 x 1.00	14 x 1.50	14.00	12.80	3621-8.00HD	**7,74**	3721-8.00HD	**15,33**
M 8 x 1.25	14 x 1.50	14.00	12.80	3620-8.00HD	**6,51**	3720-8.00HD	**15,33**
M 10 x 1.25	16 x 1.50	16.00	14.75	3621-10.00HD	**9,75**	3721-10.00HD	**17,75**
M 10 x 1.50	16 x 1.50	16.00	14.75	3620-10.00HD	**9,56**	3720-10.00HD	**17,44**
M 12 x 1.25	18 x 1.50	18.00	16.75	3621-12.00HD	**11,96**	3721-12.00HD	**19,25**
M 12 x 1.75	18 x 1.50	18.00	16.75	3620-12.00HD	**12,15**	3720-12.00HD	**19,25**
M 14 x 1.50	20 x 1.50	20.00	18.75	3621-14.00HD	**14,63**	3721-14.00HD	**22,02**
M 14 x 2.00	20 x 1.50	20.00	18.75	3620-14.00HD	**14,63**	3720-14.00HD	**22,02**
M 16 x 1.50	22 x 1.50	22.00	20.50	3621-16.00HD	**17,45**	3721-16.00HD	**24,86**
M 16 x 2.00	22 x 1.50	22.00	20.50	3620-16.00HD	**17,16**	3720-16.00HD	**24,27**
M 18 x 1.50	24 x 1.50	24.00	22.50	3621-18.00HD	**25,60**	3721-18.00HD	**38,40**
M 20 x 1.50	30 x 2.00	30.00	28.00	3620-20.00HD	**29,82**	3721-20.00HD	**45,55**
M 20 x 2.50	30 x 2.00	30.00	28.00	3621-20.00HD	**30,89**	3720-20.00HD	**44,73**
M 22 x 1.50	32 x 2.00	32.00	30.00	3621-22.00HD	**36,28**	3721-22.00HD	**54,42**
M 24 x 2.00	33 x 2.00	33.00	31.00	3621-24.00HD	**55,25**	3721-24.00HD	**82,88**
M 24 x 3.00	33 x 2.00	33.00	31.00	3620-24.00HD	**54,28**	3720-24.00HD	**81,42**

PD Inserto de pared delgada / Thin wall insert / Filet à paroi mince / Inserto de parede fina

PR Inserto de pared reforzada / Heavy duty insert / Filet à paroi renforcée / Inserto de parede reforçada

AC Inserto de acero al carbono / Carbon Steel insert / Filet en acier au carbone / Inserto de aço ao carbono

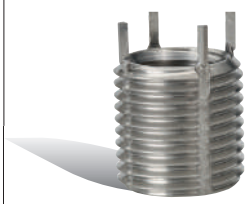
INOX Inserto de acero inoxidable / Stainless steel insert / Filet en acier inoxydable / Inserto de aço inoxidável

Instalación Manual
Hand Installation
Pose Manuelle
Instalação Manual

UNC/UNF

PR AC ...HD

PR INOX ...HD



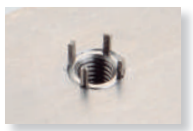
				Loksert		Loksert	
UNC	Dim.	mm	Ø	Ref.	€/ Unit	Ref.	€/ Unit
UNC Nº8 - 32	5/16x18	7.87	6.90	3632-8GHD	5,63	3732-8GHD	11,25
UNC Nº10 - 24	3/8x16	7.87	8.40	3632-10GHD	4,08	3732-10GHD	10,25
UNC 1/4 - 20	7/16x14	9.40	10.10	3632-1/4HD	4,36	3732-1/4HD	11,25
UNC 5/16 - 18	1/2x13	10.92	11.50	3632-5/16HD	4,64	3732-5/16HD	12,60
UNC 3/8 - 16	9/16x12	12.70	13.00	3632-3/8HD	5,20	3732-3/8HD	13,36
UNC 7/16 - 14	5/8x11	15.75	14.75	3632-7/16HD	6,75	3732-7/16HD	19,41
UNC 1/2 - 13	3/4x16	15.75	17.75	3632-1/2HD	7,88	3732-1/2HD	19,97
UNC 9/16 - 12	3/4x16	20.57	17.75	3632-9/16HD	10,83	3732-9/16HD	21,16
UNC 5/8 - 11	7/8x14	22.10	21.00	3632-5/8HD	12,52	3732-5/8HD	24,05
UNC 3/4 - 10	1-1/8x12	28.45	27.00	3632-3/4HD	17,86	3732-3/4HD	31,31
UNC 7/8 - 9	1-1/4x12	31.75	30.00	3632-7/8HD	23,20	3732-7/8HD	48,93
UNC 1 - 8	1-3/8x12	34.80	33.25	3632-1HD	46,97	3732-1HD	98,64
UNC 1.1/8 - 7	1-1/2x12	41.15	36.50	3632-1.1/8HD	225,26	3732-1.1/8HD	-
UNC 1.1/4 - 7	1-5/8x12	45.97	39.50	3632-1.1/4HD	280,25	3732-1.1/4HD	-
UNC 1.1/2 - 6	1-7/8x12	50.80	46.00	3632-1.1/2HD	486,33	3732-1.1/2HD	-

				Loksert		Loksert	
UNF	Dim.	mm	Ø	Ref.	€/ Unit	Ref.	€/ Unit
UNF Nº10 - 32	3/8x16	7.87	8.40	3634-10GHD	4,08	3734-10GHD	10,25
UNF 1/4 - 28	7/16x14	7.87	10.10	3634-1/4HD	4,36	3734-1/4HD	11,25
UNF 5/16 - 24	1/2x13	9.40	11.50	3634-5/16HD	4,64	3734-5/16HD	12,60
UNF 3/8 - 24	9/16x12	10.92	13.00	3634-3/8HD	5,20	3734-3/8HD	13,36
UNF 7/16 - 20	5/8x11	12.70	14.75	3634-7/16HD	6,75	3734-7/16HD	19,41
UNF 1/2 - 20	3/4x16	15.75	17.75	3634-1/2HD	7,88	3734-1/2HD	19,97
UNF 9/16 - 18	3/4x16	15.75	17.75	3634-9/16HD	10,83	3734-9/16HD	21,16
UNF 5/8 - 18	7/8x14	20.57	21.00	3634-5/8HD	12,52	3734-5/8HD	24,05
UNF 3/4 - 16	1-1/8x12	22.10	27.00	3634-3/4HD	17,86	3734-3/4HD	31,31
UNF 7/8 - 14	1-1/4x12	28.45	30.00	3634-7/8HD	23,20	3734-7/8HD	48,93
UNF 1 - 12	1-3/8x12	31.75	33.25	3634-1HD	46,97	3734-1HD	98,64
UNF 1 - 14	1-3/8x12	34.80	33.25	3635-1HD	85,25	3735-1HD	-
UNF 1.1/8 - 12	1-1/2x12	41.15	36.50	3634-1.1/8HD	225,26	3734-1.1/8HD	-
UNF 1.1/4 - 12	1-5/8x12	45.97	39.50	3634-1.1/4HD	280,25	3734-1.1/4HD	-
UNF 1.1/2 - 12	1-7/8x12	45.97	46.00	3634-1.1/2HD	486,33	3734-1.1/2HD	-

PD ...TT | PR ...HT | PD PR ...T

	Loksert		Loksert		Loksert	
M / MF	Ref.	**€**	Ref.	**€**	Ref.	**€**
M4	-	**-**	3600-4.00HT	**86,58**	-	**-**
M5	3600-5.00TT	**87,96**	3600-5.00HT	**87,96**	3600-190T	**49,15**
M6	3600-6.00TT	**90,49**	3600-6.00HT	**90,49**	3600-250T	**45,02**
M8	3600-8.00TT	**93,94**	3600-8.00HT	**93,94**	3600-312T	**53,98**
1M0	3600-10.00TT	**101,52**	3600-10.00HT	**101,52**	3600-375T	**53,98**
M12	3600-12.00TT	**108,86**	3600-12.00HT	**108,86**	3600-500T	**59,02**
M14	-	**-**	3600-14.00HT	**118,51**	-	**-**
M16	-	**-**	3600-16.00HT	**122,64**	3600-625T	**59,02**
M18	-	**-**	3600-18.00HT	**125,85**	-	**-**
M20	-	**-**	3600-20.00HT	**130,68**	3600-875T	**69,59**
M22	-	**-**	3600-22.00HT	**134,81**	-	**-**
M24	-	**-**	3600-24.00HT	**149,06**	-	**-**

	Loksert		Loksert		Loksert	
UNC/UNF	Ref.	**€**	Ref.	**€**	Ref.	**€**
8G	-	**-**	3600-8GHT	**103,38**	-	**-**
10G	3600-10GTT	**93,89**	3600-10GHT	**103,38**	3600-190T	**49,15**
1/4	3600-1/4TT	**97,22**	3600-1/4HT	**107,72**	3600-250T	**45,02**
5/16	3600-5/16TT	**107,72**	3600-5/16HT	**107,72**	3600-312T	**53,98**
3/8	3600-3/8TT	**122,71**	3600-3/8HT	**114,37**	3600-375T	**53,98**
7/16	3600-7/16TT	**113,35**	3600-7/16HT	**117,13**	3600-375T	**53,98**
1/2	3600-1/2TT	**117,13**	3600-1/2HT	**127,92**	3600-500T	**59,02**
9/16	-	**-**	3600-9/16HT	**127,92**	3600-500T	**59,02**
5/8	-	**-**	3600-5/8HT	**147,68**	3600-625T	**59,02**
3/4	-	**-**	3600-3/4HT	**170,87**	3600-875T	**69,59**
7/8	-	**-**	3600-7/8HT	**180,97**	3600-875T	**69,59**
1	-	**-**	3600-1HT	**179,61**	3600-100T	**69,59**
1-1/8	-	**-**	3600-1.1/8HT	**503,43**	-	**-**
1-1/4	-	**-**	3600-1.1/4HT	**544,31**	-	**-**
1-1/2	-	**-**	3600-1.1/2HT	**640,31**	-	**-**



PD

M
MF
UNC
UNF

M	Dim.	mm	Loksert Ref	€	Loksert INOX Ref	€	#	mm	Ref	Ref
M 5 x 0.80	8.00 x 1.25	8.00	3620-5.00TWK	135,37	3720-5.00TWK	163,60	5	6.9	M03M08X1,25	3600-190T
M 6 x 1.00	10.00 x 1.25	10.00	3620-6.00TWK	171,51	3720-6.00TWK	199,28	5	8.8	M03M10X1,25	3600-250T
M 8 x 1.25	12.00 x 1.25	12.00	3620-8.00TWK	217,27	3720-8.00TWK	243,13	5	10.8	M03M12X1,25	3600-312T
M 10 x 1.50	14.00 x 1.50	14.00	3620-10.00TWK	270,13	3720-10.00TWK	288,18	5	12.8	M03M14X1,50	3600-375T
M 12 x 1.75	16.00 x 1.50	16.00	3620-12.00TWK	287,62	3720-12.00TWK	309,24	5	14.75	M03M16X1,50	3600-500T

MF	Dim.	mm	Loksert Ref	€	Loksert INOX Ref	€	#	mm	Ref	Ref
MF 8 x 1.00	12.00 x 1.25	12.00	3621-8.00TWK	217,27	3721-8.00TWK	243,13	5	10.8	M03M12X1,25	3600-312T
MF 10 x 1.25	14.00 x 1.50	14.00	3621-10.00TWK	270,13	3721-10.00TWK	288,18	5	12.8	M03M14X1,50	3600-375T
MF 12 x 1.25	16.00 x 1.50	16.00	3621-12.00TWK	293,59	3721-12.00TWK	315,21	5	14.75	M03M16X1,50	3600-500T

UNC	Dim.	mm	Loksert Ref	€	Loksert INOX Ref	€	#	mm	Ref	Ref
UNC Nº10x 24	UNC 5/16 x 18	7,87	3632-10GTWK	140,45	3732-10GTWK	181,94	5	6.90	M03NC5/16X18	3600-190T
UNC 1/4 x 20	UNC 3/8 x 16	9,40	3632-1/4TWK	160,59	3732-1/4TWK	203,07	5	8.40	M03NC3/8X16	3600-250T
UNC 5/16 x 18	UNC 7/16 x 14	10,92	3632-5/16TWK	212,00	3732-5/16TWK	255,50	5	10.10	M03NC7/16X14	3600-312T
UNC 3/8 x 16	UNC 1/2 x 13	12,70	3632-3/8TWK	184,37	3732-3/8TWK	227,45	5	11.50	M03NC1/2X13	3600-375T
UNC 7/16 x 14	UNC 9/16 x 12	14,22	3632-7/16TWK	239,39	3732-7/16TWK	280,66	5	13.00	M03NC9/16X12	3600-375T
UNC 1/2 x 13	UNC 5/8 x 11	15,75	3632-1/2TWK	265,89	3732-1/2TWK	311,04	5	14.75	M03NC5/8X11	3600-500T

UNF	Dim.	mm	Loksert Ref	€	Loksert INOX Ref	€	#	mm	Ref	Ref
UNF Nº10x 32	UNC 5/16 x 18	7,87	3634-10GTWK	140,45	3734-10GTWK	181,94	5	6.90	M03NC5/16X18	3600-190T
UNF 1/4 x 28	UNC 3/8 x 16	9,40	3634-1/4TWK	160,59	3734-1/4TWK	203,07	5	8.40	M03NC3/8X16	3600-250T
UNF 5/16 x 24	UNC 7/16 x 14	10,92	3634-5/16TWK	215,11	3734-5/16TWK	258,61	5	10.10	M03NC7/16X14	3600-312T
UNF 3/8 x 24	UNC 1/2 x 13	12,70	3634-3/8TWK	184,37	3734-3/8TWK	227,45	5	11.50	M03NC1/2X13	3600-375T
UNF 7/16 x 20	UNC 9/16 x 12	14,22	3634-7/16TWK	239,39	3734-7/16TWK	280,66	5	13.00	M03NC9/16X12	3600-375T
UNF 1/2 x 20	UNC 5/8 x 11	15,75	3634-1/2TWK	265,89	3734-1/2TWK	311,04	5	14.75	M03NC5/8X11	3600-500T

PR

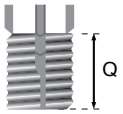
			AC		INOX					
			Loksert		Loksert		#	mm		
M	Dim.	mm	Ref	€	Ref	€			Ref	Ref
M 5 x 0.80	10.00 x 1.25	10.00	3620-5.00HDK	178,30	3720-5.00HDK	219,57	5	8.80	M03M10X1,25	3600-190T
M 6 x 1.00	12.00 x 1.25	12.00	3620-6.00HDK	210,91	3720-6.00HDK	254,65	5	10.80	M03M12X1,25	3600-250T
M 8 x 1.25	14.00 x 1.50	14.00	3620-8.00HDK	265,68	3720-8.00HDK	310,41	5	12.80	M03M14X1,25	3600-312T
M 10 x 1.50	16.00 x 1.50	16.00	3620-10.00HDK	290,55	3720-10.00HDK	330,34	5	14.75	M03M16X1,50	3600-375T
M 12 x 1.75	18.00 x 1.50	18.00	3620-12.00HDK	429,02	3720-12.00HDK	460,33	5	16.75	M03M18X1,50	3600-500T
M 16 x 2.00	22.00 x 1.50	22.00	3620-16.00HDK	576,33	3720-16.00HDK	602,37	5	20.50	M03M22X1,50	3600-625T

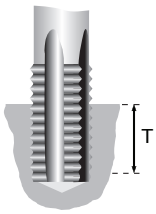
MC
MF
UNC
UNF

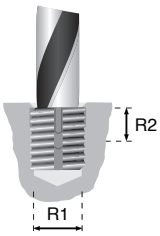
			AC		INOX					
			Loksert		Loksert		#	mm		
MF	Dim.	mm	Ref	€	Ref	€			Ref	Ref
M 8 x 1.00	14.00 x 1.50	14.00	3621-8.00HDK	265,68	3721-8.00HDK	310,41	5	12.80	M03M14X1,50	3600-312T
M 10 x 1.25	16.00 x 1.50	16.00	3621-10.00HDK	290,55	3721-10.00HDK	330,34	5	14.75	M03M16X1,50	3600-375T
M 12 x 1.25	18.00 x 1.50	18.00	3621-12.00HDK	429,02	3721-12.00HDK	460,33	5	16.75	M03M18X1,50	3600-500T
M 16 x 1.50	22.00 x 1.50	22.00	3621-16.00HDK	576,33	3721-16.00HDK	602,37	5	20.50	M03M22X1,50	3600-625T

			AC		INOX					
			Loksert		Loksert		#	mm		
UNC	Dim.	mm	Ref	€	Ref	€			Ref	Ref
UNC Nº10 x 24	UNC 3/8 x 16	7.87	3632-10GHDK	168,83	3732-10GHDK	223,35	5	8.40	M03NC3/8X16	3600-190T
UNC 1/4 x 20	UNC 7/16 x 14	9.40	3632-1/4HDK	208,54	3732-1/4HDK	266,98	5	10.10	M03NC7/16X14	3600-250T
UNC 5/16 x 18	UNC 1/2 x 13	10.92	3632-5/16HDK	187,31	3732-5/16HDK	249,67	5	11.50	M03NC1/2X13	3600-312T
UNC 3/8 x 16	UNC 9/16 x 12	12.70	3632-3/8HDK	242,21	3732-3/8HDK	307,02	5	13.00	M03NC9/16X12	3600-375T
UNC 7/16x14	UNC 5/8 x 11	14.22	3632-7/16HDK	231,97	3732-7/16HDK	249,47	5	14.75	M03NC5/8X11	3600-375T
UNC 1/2x13	UNF 3/4 x 16	15.75	3632-1/2HDK	352,91	3732-1/2HDK	379,55	5	17.75	M03NF3/4X16	3600-500T
UNC 9/16x12	UNF 3/4 x 16	20.57	3632-9/16HDK	352,91	3732-9/16HDK	379,55	5	17.75	M03NF3/4X16	3600-500T
UNC 5/8x11	UNF 7/8 x 14	22.10	3632-5/8HDK	477,25	3732-5/8HDK	529,79	5	21.00	M03NF7/8X14	3600-625T

			AC		INOX					
			Loksert		Loksert		#	mm		
UNF	Dim.	mm	Ref	€	Ref	€			Ref	Ref
UNF Nº10 x 32	UNC 3/8 x 16	7.87	3634-10GHDK	168,83	3734-10GHDK	223,35	5	8.40	M03NC3/8X16	3600-190T
UNF 1/4 x 28	UNC 7/16 x 14	9.40	3634-1/4HDK	208,54	3734-1/4HDK	266,98	5	10.10	M03NC7/16X14	3600-250T
UNF 5/16 x 24	UNC 1/2 x 13	10.92	3634-5/16HDK	187,31	3734-5/16HDK	249,67	5	11.50	M03NC1/2X13	3600-312T
UNF 3/8 x 24	UNC 9/16 x 12	12.70	3634-3/8HDK	242,21	3734-3/8HDK	307,02	5	13.00	M03NC9/16X12	3600-375T
UNF 7/16 x 20	UNC 5/8 x 11	14.22	3634-7/16HDK	270,20	3734-7/16HDK	329,74	5	14.75	M03NC5/8X11	3600-375T
UNF 1/2 x 20	UNF 3/4 x 16	15.75	3634-1/2HDK	398,49	3734-1/2HDK	453,37	5	17.75	M03NF3/4X16	3600-500T
UNF 19/16 x 18	UNF 3/4 x 16	20.57	3634-9/16HDK	414,68	3734-9/16HDK	465,91	5	17.75	M03NF3/4X16	3600-500T
UNF 5/8 x 18	UNF 7/8 x 14	22.10	3634-5/8HDK	477,25	3734-5/8HDK	529,79	5	21.00	M03NF7/8X14	3600-625T



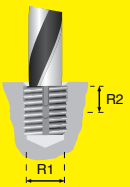




Rosca Interna Internal Thread Filetage Interne Rosca Interna Tol 6H mm	Rosca Externa External Thread Filetage Externe Rosca Externa Tol 6G mm	Q mm	Hta de Instalación Installation Tool Outil Installation Ferramenta de instalação	A mm	Macho Tap Taraud Macho Tol 6H mm	T Min. mm	R1 mm	R2 mm
PARED DELGADA / THIN WALL / PAROI MINCE / PAREDE FINA								
M 5 X 0.8	M8 X 1.25	8.0	3600-190T	6.9	M8 X 1.25	9.5	5.50	4.00
M 6 X 1.0	M10 X 1.25	10.0	3600-250T	8.8	M10 x 1.25	11.5	7.50	4.75
M 8 X 1.25	M12 x 1.25	12.0	3600-312T	10.8	M12 x 1.25	13.5	9.50	4.75
M 8 X 1.0	M12 x 1.25	12.0	3600-312T	10.8	M12 x 1.25	13.5	9.50	4.75
M 10 X 1.5	M14 x 1.5	14.0	3600-375T	12.8	M14 x 1.5	15.5	11.50	4.75
M 10 X 1.25	M14 x 1.5	14.0	3600-375T	12.8	M14 x 1.5	15.5	11.50	4.75
M 12 X 1.75	M16 x 1.5	16.0	3600-500T	14.75	M16 x 1.5	17.5	13.50	4.75
M 12 X 1.25	M16 x 1.5	16.0	3600-500T	14.75	M16 x 1.5	17.5	13.50	4.75
PARED REFORZADA / HEAVY DUTY / PAROI RENFORCÉE / PAREDE REFORÇADA								
M 4 X 0.7	M8 X 1.25	8.0	3600-4.00HT	6.9	M8 X 1.25	9.5	5.50	4.00
M 5 X 0.8	M10 X 1.25	10.0	3600-190T	8.8	M10 x 1.25	12.5	7.50	4.75
M 6 X 1.0	M12 x 1.25	12.0	3600-250T	10.8	M12 x 1.25	14.5	9.50	4.75
M 8 X 1.25	M14 x 1.5	14.0	3600-312T	12.8	M14 x 1.5	16.5	11.50	4.75
M 8 X 1.0	M14 x 1.5	14.0	3600-312T	12.8	M14 x 1.5	16.5	11.50	4.75
M 10 X 1.5	M16 x 1.5	16.0	3600-375T	14.75	M16 x 1.5	18.5	13.50	4.75
M 10 X 1.25	M16 x 1.5	16.0	3600-375T	14.75	M16 x 1.5	18.5	13.50	4.75
M 12 X 1.75	M18 X 1.5	18.0	3600-500T	16.75	M18 X 1.5	20.5	15.50	4.75
M 12 X 1.25	M18 X 1.5	18.0	3600-500T	16.75	M18 X 1.5	20.5	15.50	4.75
M 14 X 2.0	M20 X 1.5	20.0	3600-14.00HT	18.75	M20 X 1.5	22.5	17.50	4.75
M 14 X 1.5	M20 X 1.5	20.0	3600-14.00HT	18.75	M20 X 1.5	22.5	17.50	4.75
M 16 X 2.0	M22 X 1.5	22.0	3600-625T	20.5	M22 X 1.5	24.5	17.75	6.35
M 16 X 1.5	M22 X 1.5	22.0	3600-625T	20.5	M22 X 1.5	24.5	17.75	6.35
M 18 X 1.5	M24 X 1.5	24.0	3600-18.00HT	22.5	M24 X 1.5	26.5	19.75	6.35
M 20 X 2.5	M30 X 2.0	30.0	3600-875T	28.0	M30 X 2.0	34.5	25.75	6.35
M 20 X 1.5	M30 X 2.0	30.0	3600-875T	28.0	M30 X 2.0	34.5	25.75	6.35
M 22 X 1.5	M32 X 2.0	32.0	3600-22.00HT	30.0	M32 X 2.0	36.5	27.75	6.35
M 24 X 3.0	M33 X 2.0	33.0	3600-24.00HT	31.0	M33 X 2.0	37.5	28.75	6.35
M 24 X 2.0	M33 X 2.0	33.0	3600-24.00HT	31.0	M33 X 2.0	37.5	28.75	6.35

EXTRACCIÓN / REMOVAL / EXTRACTION / EXTRAÇÃO

1 Taladrar
Drilling / Percer / Furar



Taladre el material entre las pestañas y la rosca interior en la profundidad especificada. Consulte información técnica.

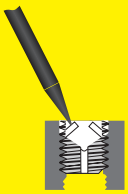
Drill out the material between the locking keys and the internal thread to the specified depth.

Note: Drill size and drilling depth are shown in the loksert technical tables.

Percer le matériel entre les tenons et le filetage intérieur à la profondeur spécifiée. Consultez l'information technique

Fure o material entre as guias e a rosca interior na profundidade especificada. Consulte pela informação técnica.

2 Doblar
Deflect / Plier / Dobrar



Doble las pestañas hacia adentro y rómpalas.

Deflect locking keys inward and break off

Plier les tenons vers l'intérieur et cassez-les

Dobre as guias para dentro e quebre-las.

3 Extraer
Remove / Extraire / Extrair

Saque el inserto mediante un extractor de tornillos.

Remove the insert from the hole by winding it out using a screw extractor or similar type tool.

Enlever le filet rapporté avec un extracteur de vis

Tire o inserto com um extrator de parafusos.

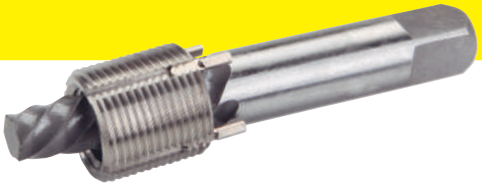
4 Instalar
Instal / Installer / Instalar

Mediante el procedimiento habitual, coloque un nuevo inserto Loksert

A new loksert insert of exactly the same size can be installed in the original hole.

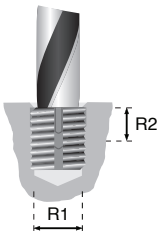
Poser un nouvel insert, avec la technique habituelle

Pelo procedimento habitual, coloque um novo inserto Locksert.



PARED DELGADA Y PARED REFORZADA / THIN WALL & HEAVY DUTY / PAROI FINE ET PAROI RENFORCÉE / PAREDE FINA E REFORÇADA

Material del inserto Insert Material Matériel du filet rapporté Material do inserto	Acero al carbono - C1215. Acero inoxidable - AISI 303 Carbon Steel – C1215. Stainless Steel – AISI 303 Acier au Carbone-C1215. Acier Inoxydable-AISI 303 Aço ao carbono - C1215. Aço inoxidável - AISI 303	Nº pestañas Nº Keys	4 pestañas en insertos con rosca interna M7 o mayores 2 pestañas en insertos con rosca interna inferior a M7 Inserts with internal thread of 5/16" (M7) or larger have 4 locking keys. Smaller sizes have 2 keys.
Pestañas / Keys Tenons / Guias	AISI 302	Nº Tenons Nº Guias	4 tenons pour les filets rapportés en filet interne de M7 ou supérieure 2 tenons pour les filets rapportés à filet interne inférieur à M7 4 guias nos insertos com a rosca interna M7 ou maior 2 guias nos insertos com a rosca interna inferior à M7
Tolerancias / Tolerances Tolérances / Tolerâncias	Acero al carbono - Zincado fosfatado; Acero inoxidable - Pasivizado Carbon Steel - Zinc Phosphate; Stainless Steel – Passivated Acier au Carbone - Zinc Phosphaté; Acier Inoxydable-Passivé Aço ao carbono - Zincado fosfatado; Aço inoxidável - Pasiviçado	Tolerancia del agujero previo Tap Drill Hole Tolerance-Metric Tolérance de l'avant-trou Tolerancia do furo prévio	6.90 - 10.80 = +0.100 / -0.025 +12.80 = +0.130 / -0.025



Rosca Interna Internal Thread Filetage Interne Rosca Interna Tol 6H mm	Rosca Externa External Thread Filetage Externe Rosca Externa Tol 6G mm	Q mm	Hta de Instalación Installation Tool Outil Installation Ferramenta de instalação	A mm	Macho Tap Taraud Macho Tol 2B "	T Min. mm	R1 mm	R2 mm
PARED DELGADA / THIN WALL / PAROI MINCE / PAREDE FINA								
Nº10 X 24	5/16 X 18	7.87	3600-190T	6.90	UNC 5/16X18	9.40	5.56	3.20
Nº10 X 32	5/16 X 18	7.87	3600-190T	6.90	UNC 5/16X18	9.40	5.56	3.20
1/4 X 20	3/8 X 16	9.40	3600-250T	8.40	UNC 3/8X16	10.92	7.14	4.75
1/4 X 28	3/8 X 16	9.40	3600-250T	8.40	UNC 3/8X16	10.92	7.14	4.75
5/16 X 18	7/16 X 14	10.92	3600-312T	10.10	UNC 7/16X14	12.70	8.73	4.75
5/16 X 24	7/16 X 14	10.92	3600-312T	10.10	UNC 7/16X14	12.70	8.73	4.75
3/8 X 16	1/2 X 13	12.70	3600-375T	11.50	UNC 1/2X13	14.22	10.32	4.75
3/8 X 24	1/2 X 13	12.70	3600-375T	11.50	UNC 1/2X13	14.22	10.32	4.75
7/16 X 14	9/16 X 12	14.22	3600-375T	13.10	UNC 9/16X12	15.75	11.91	4.75
7/16 X 20	9/16 X 12	14.22	3600-375T	13.10	UNC 9/16X12	15.75	11.91	4.75
1/2 X 13	5/8 X 11	15.75	3600-500T	14.75	UNC 5/8X11	17.27	13.49	4.75
1/2 X 20	5/8 X 11	15.75	3600-500T	14.75	UNC 5/8X11	17.27	13.49	4.75
PARED REFORZADA / HEAVY DUTY / PAROI RENFORCÉE / PAREDE REFORÇADA								
Nº8 X 32	5/16 X 18	7.87	3600-8GHT	6.90	UNC 5/16X18	9.40	5.56	3.20
Nº10 X 24	3/8 X 16	7.87	3600-190T	8.40	UNC 3/8X16	9.40	7.14	3.20
Nº10 X 32	3/8 X 16	7.87	3600-190T	8.40	UNC 3/8X16	9.40	7.14	3.20
1/4 X 20	7/16 X 14	9.40	3600-250T	10.10	UNC 7/16X14	10.92	8.73	4.75
1/4 X 28	7/16 X 14	9.40	3600-250T	10.10	UNC 7/16X14	10.92	8.73	4.75
5/16 X 18	1/2 X 13	10.92	3600-312T	11.50	UNC 1/2X13	12.70	10.32	4.75
5/16 X 24	1/2 X 13	10.92	3600-312T	11.50	UNC 1/2X13	12.70	10.32	4.75
3/8 X 16	9/16 X 12	12.70	3600-375T	13.10	UNC 9/16X12	14.22	11.91	4.75
3/8 X 24	9/16 X 12	12.70	3600-375T	13.10	UNC 9/16X12	14.22	11.91	4.75
7/16 X 14	5/8 X 11	15.75	3600-375T	14.75	UNC 5/8X11	17.27	13.49	4.75
7/16 X 20	5/8 X 11	15.75	3600-375T	14.75	UNC 5/8X11	17.27	13.49	4.75
1/2 X 13	3/4 X 16	15.75	3600-500T	17.50	UNF 3/4X16	17.27	16.67	4.75
1/2 X 20	3/4 X 16	15.75	3600-500T	17.50	UNF 3/4X16	17.27	16.67	4.75
9/16 X 12	3/4 X 16	20.57	3600-500T	17.50	UNF 3/4X16	23.88	16.67	4.75
9/16 X 18	3/4 X 16	20.57	3600-500T	17.50	UNF 3/4X16	23.88	16.67	4.75
5/8 X 11	7/8 X 14	22.10	3600-625T	21.00	UNF 7/8X14	25.40	19.84	7.90
5/8 X 18	7/8 X 14	22.10	3600-625T	21.00	UNF 7/8X14	25.40	19.84	7.90
3/4 X 10	1-1/8 X 12	28.45	3600-875T	27.00	UNF 1-1/8X12	33.27	24.61	7.90
3/4 X 16	1-1/8 X 12	28.45	3600-875T	27.00	UNF 1-1/8X12	33.27	24.61	7.90
7/8 X 9	1-1/4 X 12	31.75	3600-875T	30.00	UNF 1-1/4X12	36.58	27.75	7.90
7/8 X 14	1-1/4 X 12	31.75	3600-875T	30.00	UNF 1-1/4X12	36.58	27.75	7.90
1 X 8	1-3/8 X 12	34.80	3600-100T	33.25	UNF 1-3/8X12	39.62	31	7.90
1 X 12	1-3/8 X 12	34.80	3600-100T	33.25	UNF 1-3/8X12	39.62	31	7.90
1 X 14	1-3/8 X 12	34.80	3600-100T	33.25	UNF 1-3/8X12	39.62	31	7.90
1-1/8 X 7	1-1/2 X 12	41.15	3600-1.1/8HT	36.50	UNF 1-1/2X12	46.74	34	7.90
1-1/8 X 12	1-1/2 X 12	41.15	3600-1.1/8HT	36.50	UNF 1-1/2X12	46.74	34	7.90
1-1/4 X 7	1-5/8 X 12	45.97	3600-1.1/4HT	39.75	UNF 1-5/8X12	52.32	37.25	7.90
1-1/4 X 12	1-5/8 X 12	45.97	3600-1.1/4HT	39.75	UNF 1-5/8X12	52.32	37.25	7.90
1-1/2 X 6	1-7/8 X 12	50.80	3600-1.1/2HT	46.00	UNF 1-7/8X12	57.91	43.50	7.90
1-1/2 X 12	1-7/8 X 12	50.80	3600-1.1/2HT	46.00	UNF 1-7/8X12	57.91	43.50	7.90

tapsert® by celesa

Los insertos TAPSERT son insertos autorroscantes con rosca tanto interna como externa. Deben ser instalados en un agujero previamente practicado a la medida indicada en el catálogo. La parte frontal del inserto TAPSERT consta de un cono de entrada que hace de macho y rosca el agujero previo. La ranura del inserto permite alojar la viruta generada en la operación. Los insertos TAPSERT son perfectos para generar roscas muy fuertes en materiales de baja capacidad de resistencia donde las roscas se deterioran fácilmente.

Características y Ventajas

- Fácil de instalar sobre agujeros previos practicados con brocas de medida estándar. Como colocador, se usa un tornillo de medida igual a la rosca interior.
- No es necesario usar machos en su instalación. El propio inserto hace la rosca.
- El inserto soporta cargas de compresión y tracción muy elevadas
- Permite apretar a pares extremadamente altos en materiales blandos como plástico, aluminio, madera, etc…
- La tolerancia de la rosca se conserva a pesar de múltiples usos de la rosca. Bajo desgaste.

TAPSERTS are self cutting threaded inserts that feature both external and internal threads. They are driven into a pre-formed or pre-drilled retaining hole and the cutting slots (or cutting bores) effectively tap the hole as the insert is wound into the parent material. TAPSERTS are ideal for use in low shear strength materials (such as alloys, plastics and castings) which require threaded seats with high load capacity and wear resistance.

Features and Advantages

- Easy to install by using a bolt in prior hole made by standard drill. Thread the insert on to the bolt ensuring the slot side is down.
- No need any tap as the insert creates the thread.
- High pull-out strength and High loading capacity in low shear strength materials
- Suitable for high tightening in Soft materials as Aluminium, Plastic, Wood, etc…
- Tolerances of the finished thread at totally accurate despite of intensive use.

Les Douilles Tapsert sont des douilles auto-taraudeuses avec filetage intérieur et extérieur. Elles doivent être installées dans un avant-trou préalablement réalisé à la dimension indiquée dans le catalogue. La partie frontale de la douille Tapsert possède un cône d'entrée qui fait office de taraud et réalise le filetage de l'avant-trou. La rainure de la douille permet d'accueillir les copeaux générés durant l'opération. Les douilles Tapsert sont parfaites pour réaliser des filetages très résistants dans des matériaux à faible capacité de résistance où les filetages se détériorent facilement.

Caractéristiques et Avantages

- Installation facile dans des avant-trous réalisés avec des forets de dimension standard. Comme outil de pose est utilisée une vis de dimension égale au filetage intérieur.
- Il n'est pas nécessaire d'utiliser un taraud pour leur installation. La propre douille réalise le filetage.
- La douille est capable de supporter des charges de compression et de traction très élevées.
- Elle permet de serrer à des niveaux de couple extrêmement élevés dans des matières comme le plastique, l'aluminium, le bois…
- La tolérance du filetage se maintient même si le filetage est soumis à de nombreuses utilisations. Usure très faible.

Os insertos TAPSERT são insertos auto-roscantes com roscas internas e externas. Eles devem ser instalados num furo previamente feito com o tamanho indicado no catálogo. A parte frontal do inserto TAPSERT consiste num cone de entrada que faz de macho e rosca o furo prévio. A ranhura do inserto permite alojar a limanha gerada na operação. Os insertos TAPSERT são perfeitos para gerar roscas muito fortes em materiais com baixa capacidade de resistência, onde as roscas deterioram-se facilmente.

Características e Vantagens

- Instalação simples nos furos prévios feitos com brocas de tamanho standard. Como colocador, é usado um parafuso igual à rosca interna.
- Não é necessário usar machos na sua instalação. O próprio inserto faz a rosca.
- O inserto suporta cargas de compressão e tração muito altas.
- Permite apertar em pares extremamente altos em materiais macios como plástico, alumínio, madeira, etc.
- A tolerância da rosca mantém-se apesar de múltiplos usos da rosca. Baixo desgaste.

Rosque el Tapsert en el tornillo con la ranuras en la parte inferior. Ajuste la tuerca a la longitud del inserto hasta que el tornillo se encuentre a ras de inserto.
Thread the Tapsert on to the bolt ensuring the slot side is down. Thread the nut down the bolt until it sits firmly against the top of the Tapsert.
Vissez le Tapsert sur la vis, la rainure orientée vers le bas, faisant coincider la partie basse de la douille avec la partie basse de la vis. Déplacer le boulon vers le bas jusqu'à ce qu'il soit placé contre le haut de la douille.
Aparafuse o Tapsert no parafuso com as ranhuras na parte inferior. Ajuste a porca ao comprimento do inserto até que o parafuso esteja nivelado com o inserto.

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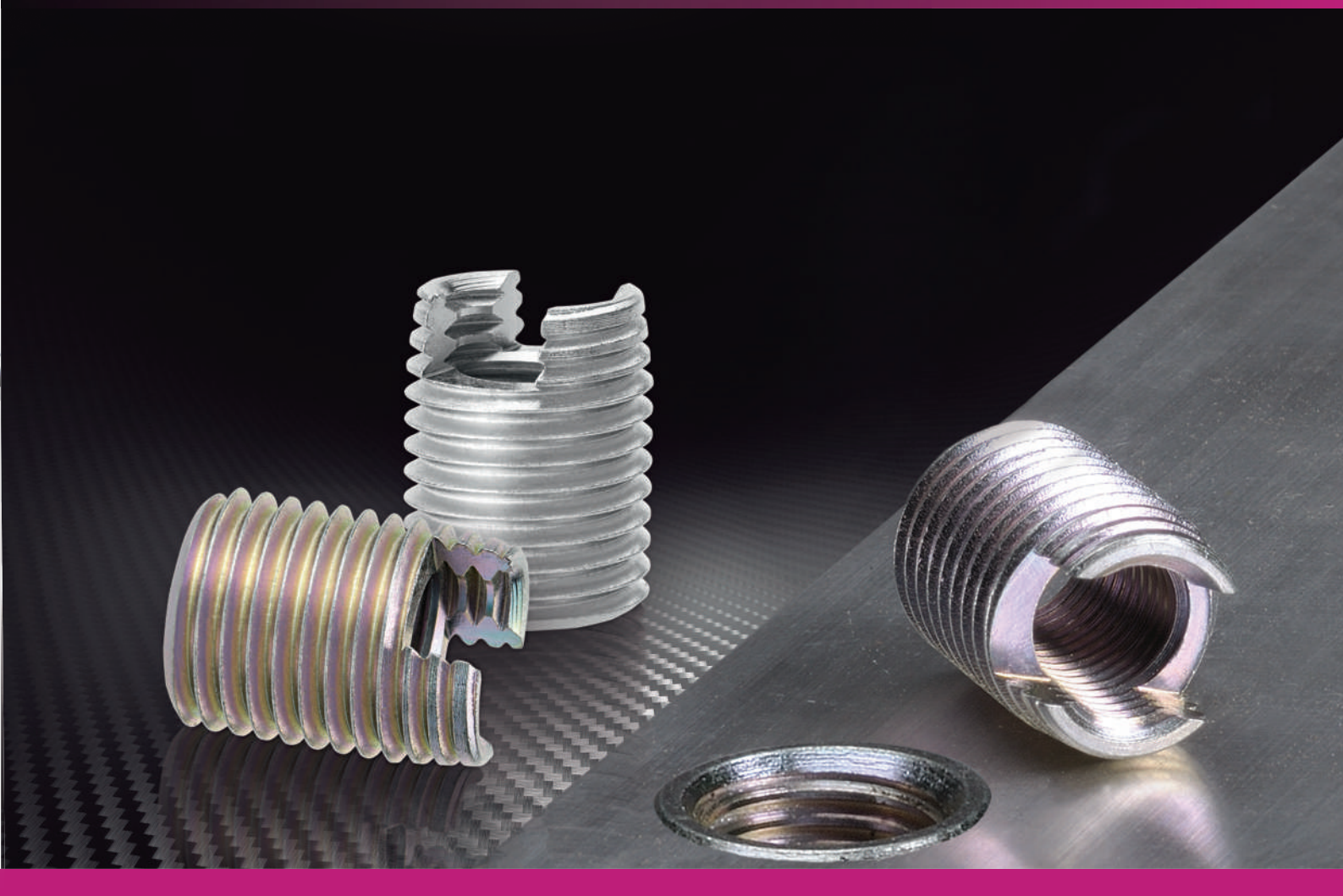
Insertos Autorroscantes
Self Tapping Inserts
Douilles Auto-Taraudeuses
Insertos Auto-Roscantes



INSERTOS AUTORROSCANTES CON RANURA
SELF TAPPING INSERTS WITH CUTTING SLOT
DOUILLES AUTO-TARAUDEUSES À RAINURE
INSERTOS AUTO-ROSCANTES COM RANHURA

mm					AC				INOX			
					Tapsert	€			Tapsert	€		
M	Dim.	mm			Ref	100-499	499-1999	2000-…	Ref	100-499	499-1999	2000-…
M 2.50 x 0.45	M 4.50 x 0.50	6.00	4.30	8.00	3920-2.5X6	0,36	0,34	0,30	3920-2.5X6SS	0,71	0,67	0,61
M 3 x 0.50	M 5 x 0.50	6.00	4.80	8.00	3920-3X6	0,39	0,37	0,34	3920-3X6SS	0,72	0,67	0,61
M 4 x 0.70	M 6.50 x 0.75	8.00	6.20	10.00	3920-4X8	0,44	0,42	0,38	3920-4X8SS	0,96	0,91	0,82
M 5 x 0.80	M 8 x 1.00	10.00	7.60	13.00	3920-5X10	0,55	0,52	0,48	3920-5X10SS	1,25	1,18	1,06
M 6 x 1.00	M 10 x 1.50	14.00	9.40	17.00	3920-6X14	0,70	0,66	0,60	3920-6X14SS	1,55	1,46	1,32
M 8 x 1.25	M 12 x 1.50	15.00	11.40	18.00	3920-8X15	0,86	0,81	0,74	3920-8X15SS	1,95	1,84	1,65
M 10 x 1.50	M 14 x 1.50	18.00	13.50	22.00	3920-10X18	1,24	1,17	1,07	3920-10X18SS	2,85	2,68	2,42
M 12 x 1.75	M 16 x 1.50	22.00	15.50	26.00	3920-12X22	1,95	1,84	1,67	3920-12X22SS	3,85	3,62	3,26
M 14 x 2.00	M 18 x 1.50	24.00	17.50	28.00	3920-14X24	2,65	2,50	2,27	3920-14X24SS	5,05	4,75	4,28
M 16 x 2.00	M 20 x 1.50	22.00	19.50	26.00	3920-16X22	3,56	3,24	2,95	3920-16X22SS	5,66	5,15	4,64
M 18 x 2.50	M 22 x 1.50	24.00	21.50	29.00	3920-18X24	5,35	4,87	4,44	3920-18X24SS	6,79	6,18	5,56
M 20 x 2.50	M 26 x 1.50	27.00	25.50	32.00	3920-20X26	5,50	5,01	4,56	3920-20X26SS	7,83	7,13	6,42
M 22 x 2.50	M 26 x 1.50	30.00	25.50	36.00	3920-22X30	6,78	6,17	5,62	3920-22X30SS	8,70	7,92	7,13
M 24 x 3.00	M 30 x 1.50	30.00	29.50	36.00	3920-24X30	8,10	7,38	6,71	3920-24X30SS	9,95	9,06	8,15

mm						AC
					Tapsert	
M	Dim.	mm			Ref	€	#
M 2.50 x 0.45	M 4.50 x 0.50	6.00	4.30*	8.00	3920-2.5X6P	10,32	2
M 3 x 0.50	M 5 x 0.50	6.00	4.80*	8.00	3920-3X6P	10,32	2
M 4 x 0.70	M 6.50 x 0.75	8.00	6.20*	10.00	3920-4X8P	9,38	2
M 5 x 0.80	M 8 x 1.00	10.00	7.60*	13.00	3920-5X10P	9,38	2
M 6 x 1.00	M 10 x 1.50	14.00	9.40*	17.00	3920-6X14P	9,38	2
M 8 x 1.25	M 12 x 1.50	15.00	11.40*	18.00	3920-8X15P	10,32	2
M 10 x 1.50	M 14 x 1.50	18.00	13.50*	22.00	3920-10X18P	11,25	2
M 12 x 1.75	M 16 x 1.50	22.00	15.50*	26.00	3920-12X22P	13,12	2
M 14 x 2.00	M 18 x 1.50	24.00	17.50*	28.00	3920-14X24P	13,72	2
M 16 x 2.00	M 20 x 1.50	22.00	19.50*	26.00	3920-16X22P	19,69	2

* Broca previa no incluida / Prior drill not included in kit. / Foret non inclus / Broca previa não incliuida.

INSERTOS AUTORROSCANTES CON RANURA
SELF TAPPING INSERTS WITH CUTTING SLOT
DOUILLES AUTO-TARAUDEUSES À RAINURE
INSERTOS AUTO-ROSCANTES COM RANHURA

mm			ø	L	AC		INOX	
					Tapsert		Tapsert	
SPARK	Dim.	mm			Ref	€	Ref	€
M 14 x 1.25	17.70 x 1.25	9.00	17.40	11.00	3922-14X9	3,14	3922-14X9SS	5,12
M 14 x 1.25	17.70 x 1.25	15.00	17.40	18.00	3922-14X15	3,70	3922-14X15SS	5,89

M14x1,25

"			ø	L	AC		INOX	
					Tapsert		Tapsert	
UNC	Dim.	mm			Ref	€	Ref	€
UNC Nº4 x 40	M 5 x 0.50	6.00	4.80	8.00	3932-4GX6	0,49	3932-4GX6SS	1,07
UNC Nº6 x 32	M 6 x 0.75	8.00	5.70	10.00	3932-6GX8	0,51	3932-6GX8SS	1,18
UNC Nº8 x 32	M 6.50 x 0.75	8.00	6.20	10.00	3932-8GX8	0,62	3932-8GX8SS	1,45
UNC Nº10 x 24	M 8 x 1.00	10.00	7.60	13.00	3932-10GX10	0,77	3932-10GX10SS	1,78
UNC 1/4 x 20	M 10 x 1.50	14.00	9.40	17.00	3932-1/4X14	0,94	3932-1/4X14SS	1,98
UNC 5/16 x 18	M 12 x 1.50	15.00	11.40	18.00	3932-5/16X15	1,25	3932-5/16X15SS	2,30
UNC 3/8 x 16	M 14 x 1.50	18.00	13.50	22.00	3932-3/8X18	1,75	3932-3/8X18SS	3,15
UNC 7/16 x 14	M 16 x 1.50	22.00	15.50	26.00	3932-7/16X22	2,15	3932-7/16X22SS	3,45
UNC 1/2 x 13	M 18 x 1.50	22.00	17.50	26.00	3932-1/2X22	2,70	3932-1/2X22SS	5,35
UNC 5/8 x 11	M 20 x 1.50	22.00	19.50	26.00	3932-5/8X22	4,15	3932-5/8X22SS	7,16

"			ø	L	AC		INOX	
					Tapsert		Tapsert	
UNF	Dim.	mm			Ref	€	Ref	€
UNF Nº10 x 32	M 8 x 1.00	10.00	7.60	13.00	3934-10GX10	0,77	3934-10GX10SS	1,78
UNF 1/4 x 28	M 10 x 1.50	14.00	9.40	17.00	3934-1/4X14	0,94	3934-1/4X14SS	1,98
UNF 5/16 x 24	M 12 x 1.50	15.00	11.40	18.00	3934-5/16X15	1,25	3934-5/16X15SS	2,30
UNF 3/8 x 24	M 14 x 1.50	18.00	13.50	22.00	3934-3/8X18	1,75	3934-3/8X18SS	3,15
UNF 7/16 x 20	M 16 x 1.50	22.00	15.50	26.00	3934-7/16X22	2,15	3934-7/16X22SS	3,45
UNF 1/2 x 20	M 18 x 1.50	22.00	17.50	26.00	3934-1/2X22	2,70	3934-1/2X22SS	5,35
UNF 5/8 x 18	M 20 x 1.50	22.00	19.50	26.00	3934-5/8X22	4,15	3934-5/8X22SS	7,16

INSERTOS AUTORROSCANTES CON RANURA
SELF TAPPING INSERTS WITH CUTTING SLOT
DOUILLES AUTO-TARAUDEUSES À RAINURE
INSERTOS AUTO-ROSCANTES COM RANHURA

mm					Tapsert		AC
SPARK	Dim.	mm			Ref	€	#
M 14 x 1.25	17.70 x 1.25	9.00	17.40*	11.00	3922-14X9P	**23,78**	2
M 14 x 1.25	17.70 x 1.25	15.00	17.40*	18.00	3922-14X15P	**25,14**	2
M 14 x 1.25	17.70 x 1.25	9.00 & 15.00	17.40*	11.00-18.00	3922-14CP	**25,14**	1+1

M/UNC UNF

"					Tapsert		AC
UNC	Dim.	mm			Ref	€	#
UNC N°4 x 40	M 5 x 0.50	6.00	4.80*	8.00	3932-4GX6P	**12,02**	2
UNC N°6 x 32	M 6 x 0.75	8.00	5.70*	10.00	3932-6GX8P	**12,02**	2
UNC N°8 x 32	M 6.50 x 0.75	8.00	6.20*	10.00	3932-8GX8P	**12,02**	2
UNC N°10 x 24	M 8 x 1.00	10.00	7.60*	13.00	3932-10GX10P	**12,02**	2
UNC 1/4 x 20	M 10 x 1.50	14.00	9.40*	17.00	3932-1/4X14P	**13,60**	2
UNC 5/16 x 18	M 12 x 1.50	15.00	11.40*	18.00	3932-5/16X15P	**14,96**	2
UNC 3/8 x 16	M 14 x 1.50	18.00	13.50*	22.00	3932-3/8X18P	**16,31**	2
UNC 7/16 x 14	M 16 x 1.50	22.00	15.50*	26.00	3932-7/16X22P	**17,66**	2
UNC 1/2 x 13	M 18 x 1.50	24.00	17.50*	26.00	3932-1/2X22P	**19,02**	2
UNC 5/8 x 11	M 20 x 1.50	22.00	19.50*	26.00	3932-5/8X22P	**21,21**	2

"					Tapsert		AC
UNF	Dim.	mm			Ref	€	#
UNF N°10 x 32	M 8 x 1.00	10.00	7.60*	13.00	3934-10GX10P	**12,02**	2
UNF 1/4 x 28	M 10 x 1.50	14.00	9.40*	17.00	3934-1/4X14P	**13,60**	2
UNF 5/16 x 24	M 12 x 1.50	15.00	11.40*	18.00	3934-5/16X15P	**14,96**	2
UNF 3/8 x 24	M 14 x 1.50	18.00	13.50*	22.00	3934-3/8X18P	**16,31**	2
UNF 7/16 x 20	M 16 x 1.50	22.00	15.50*	26.00	3934-7/16X22P	**17,66**	2
UNF 1/2 x 20	M 18 x 1.50	22.00	17.50*	26.00	3934-1/2X22P	**19,02**	2
UNF 5/8 x 18	M 20 x 1.50	22.00	19.50*	26.00	3934-5/8X22P	**21,21**	2

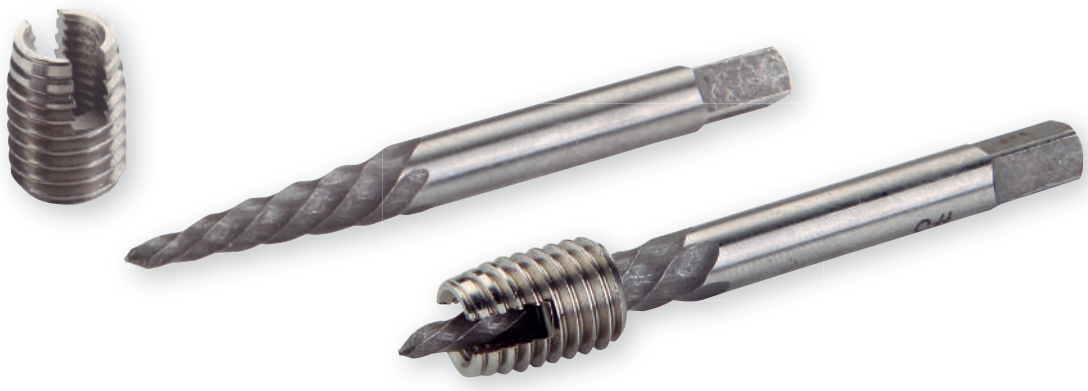
* Broca previa no incluida / Prior drill not included in kit. / Foret non inclus / Broca previa não incliuida.

INSERTOS AUTORROSCANTES CON 3 AGUJEROS
SELF TAPPING INSERTS WITH 3 CUTTING BORES
DOUILLES AUTO-TARAUDEUSES À 3 TROUS
INSERTO AUTO-ROSCANTES COM 3 FUROS

					AC				INOX				
mm						€				€			
M	Dim.	mm			Ref	100-499	499-1999	2000-…	Ref	100-499	499-1999	2000-…
M 4 x 0.70	M 6.50 x 0.80	6.00	6.00-6.10	8.00	3333-M4X6	0,53	0,50	0,46	3333-M4X6SS	1,08	1,02	0,93
M 5 x 0.80	M 8 x 1.00	7.00	7.40-7.50	9.00	3333-M5X7	0,70	0,66	0,60	3333-M5X7SS	1,33	1,25	1,14
M 6 x 1.00	M 10 x 1.25	8.00	9.30-9.40	10.00	3333-M6X8	0,88	0,83	0,76	3333-M6X8SS	1,66	1,56	1,42
M 8 x 1.25	M 12 x 1.50	9.00	11.10-11.20	11.00	3333-M8X9	1,05	0,99	0,90	3333-M8X9SS	2,12	2,00	1,82
M 10 x 1.50	M 14 x 1.50	10.00	13.10-13.20	13.00	3333-M10X10	1,56	1,47	1,34	3333-M10X10SS	3,18	2,99	2,72
M 12 x 1.75	M 16 x 1.75	12.00	15.00-15.10	15.00	3333-M12X12	2,45	2,31	2,10	3333-M12X12SS	5,10	4,80	4,37
M 14 x 2.00	M 18 x 2.00	14.00	17.00-17.10	17.00	3333-M14X14	3,20	3,01	2,74	3333-M14X14SS	5,85	5,50	5,01
M 16 x 2.00	M 20 x 2.00	14.00	19.00-19.10	17.00	3333-M16X16	4,35	4,09	3,73	3333-M16X16SS	7,89	7,42	6,75

					AC				INOX				
mm						€				€			
M	Dim.	mm			Ref	100-499	499-1999	2000-…	Ref	100-499	499-1999	2000-…
M 4 x 0.70	M 6.50 x 0.80	8.00	6.10-6.20	10.00	3333-M4X8	0,65	0,62	0,56	3333-M4X8SS	1,21	1,14	1,04
M 5 x 0.80	M 8 x 1.00	10.00	7.60-7.70	13.00	3333-M5X10	0,83	0,79	0,71	3333-M5X10SS	1,53	1,44	1,31
M 6 x 1.00	M 10 x 1.25	12.00	9.50-9.60	15.00	3333-M6X12	1,05	0,99	0,90	3333-M6X12SS	1,83	1,72	1,57
M 8 x 1.25	M 12 x 1.50	14.00	11.30-11.15	17.00	3333-M8X14	1,36	1,28	1,17	3333-M8X14SS	2,39	2,25	2,05
M 10 x 1.50	M 14 x 1.50	18.00	13.30-13.50	22.00	3333-M10X18	1,95	1,84	1,67	3333-M10X18SS	3,63	3,42	3,11
M 12 x 1.75	M 16 x 1.75	22.00	15.20-15.40	26.00	3333-M12X22	2,96	2,79	2,54	3333-M12X22SS	7,81	7,35	6,69
M 14 x 2.00	M 18 x 2.00	24.00	17.20-17.40	28.00	3333-M14X24	4,25	4,00	3,64	3333-M14X24SS	9,25	8,70	7,92
M 16 x 2.00	M 20 x 2.00	24.00	19.20-19.10	28.00	3333-M16X24	4,95	4,66	4,24	3333-M16X24SS	10,95	10,30	9,37

EXTRACCIÓN /REMOVAL / EXTRACTION / EXTRAÇÃO



e-z sert® by celesa

Características y Ventajas

- Fácil instalación del inserto EZ Sert mediante tornillo de rosca igual a la interna o, también mediante un destornillador o herramienta eléctrica.
- Se instalan usando machos y brocas Standard.
- El adhesivo microencapsulado reacciona en 3-5 minutos y evita que el inserto se salga de su alojamiento por vibraciones externas. El inserto queda adherido generando una rosca estanca ante líquidos y gases con resistencia hasta 400 bares de presión cuando se estabiliza la reacción (72 horas)
- Recomendados para su uso en un amplio rango de materiales de alojamiento.
- Imposible de confundir las roscas durante la instalación.
- Disponibles en medidas métricas, pulgadas y para bujías.
- Disponibles en pared delgada y pared reforzada.

Features and Benefits

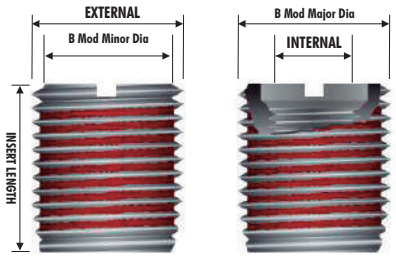
- E-Z SERTs can be installed with a screwdriver, bolt/jam nut, or optional power drive tool.
- Installed using standard drills and taps
- E-Z SERTs will not back out or vibrate loose. Immediately upon installation, microencapsulated adhesive begins to set and the newly installed inserts are fastener-ready in 3-5 minutes. The adhesive seals against liquids and gases to 6,000 psi when fully cured (72 hours).
- Suitable for use in a wide range of parent materials
- Impossible to cross thread during installation.
- Available in metric sizes, inch sizes and spark plug sizes
- Available in Thinwall and Heavy Duty

Caractéristiques et Avantages

- Les E-Z SERTS peuvent être installés avec un tournevis, contre-écrou ou outil de pose optionnel
- Installation en utilisant des tarauds et forets standards
- Le produit adhésif réagit en 3-5 minutes et permet d'éviter que l'insert ne ressorte de son emplacement à cause des vibrations. L'insert ainsi collé produit un filetage étanche aux liquides et gaz supportant des pressions jusque 400 bars, une fois la réaction chimique stabilisée (72 heures)
- Recommandés pour une utilisation dans un large éventail de matières
- Il est impossible de confondre les filetages durant l'installation
- Disponibles en dimensions métriques, pouces et spécifiques pour les bougies
- Disponibles en paroi fine et épaisse

Características e Vantagens

- Fácil instalação do inserto EZ Sert com um parafuso de rosca igual à interna ou também por meio duma chave de fenda ou ferramenta elétrica.
- Eles são instalados usando machos e brocas Standard.
- O adesivo microencapsulado reage em 3-5 minutos e evita que o inserto deixe o seu alojamento devido às vibrações externas. O inserto fica aderido gerando uma rosca estanque para líquidos e gases com resistência até 400 bar de pressão quando a reação se estabiliza (72 horas)
- Recomendado para uso numa ampla gama de materiais de alojamento.
- Impossível confundir as roscas durante a instalação.
- Disponível em tamanhos métricos, de polegadas e de velas de ignição.
- Disponível em parede fina e parede reforçada.



EXTRACCIÓN
REMOVAL / EXTRACTION / EXTRAÇÃO

- NOTA: El inserto EZ SERT requiere una rosca exterior algo diferente a la marcada por la DIN 13. El diámetro externo es estándar pero el diámetro interior es algo superior al normal por lo que hay que añadir una décima a la medida de broca habitual. Ejemplo: inserto de rosca Externa M6X1, se usará una broca de 5.1mm en lugar de 5mm, que sería lo habitual

- NOTE: The EZ SERT design requires a modified external thread. While the external thread pitch is standard, the minor diameter is larger than normal. So standard drill/tap combination does not apply. Preparing the hole for installation requires an oversize drill. For example, if a Thin Wall with a 5/8-11 external thread is being installed, a standard 37/64 drill is used as opposed to the typical 17/32, and tapped with a standard 5/8-11 tap.

- NB: L'insert EZ-SERT nécessite un filetage extérieur légèrement différent à ce qu'indique la norme DIN 13. Dû à la présence de l'adhésif, tandis que le pas est standard, le diamètre est lègèrement supérieur à l'habituel ce pour quoi il faudra ajouter un dixième au diamètre du foret pour percer l'avant-trou. Exemple: pour un insert de filetage extérieur M6x1.00, on utilisera un foret de 5,1mm au lieu de 5mm, qui serait le diamètre normal, et nous tarauderons avec un taraud de M6x1.00

- NOTA: O inserto EZ SERT requer uma rosca externa ligeiramente diferente da marcada pela norma DIN 13. O diâmetro externo é standard, mas o diâmetro interno é um pouco maior que o normal, então deve adicionar um décimo ao tamanho usual da broca. Exemplo: inserto de rosca externa M6X1, será usada uma broca de 5,1mm em vez de 5mm, o que seria o habitual.

e-z sert® by celesa

Insertos Sólidos con Sellador Anaeróbico
Solid Inserts with Anaerobic Threadlocker
Douilles Rigides à Scellant Anaérobie
Insertos Sólidos com Vedante Anaeróbico

INSERTOS SÓLIDOS CON SELLADOR ANAERÓBICO
SOLID INSERTS WITH ANAEROBIC THREADLOCKER / DOUILLES RIGIDES À SCELLANT ANAÉROBIE
INSERTOS SÓLIDOS COM VEDANTE ANAERÓBICO

PARED DELGADA
THIN WALL / PAROI MINCE / PAREDE FINA

M/MF	Dim.	mm	ø	L	e-zsert Ref.	e-zsert €/ Unit
M 4 x 0.70	UNC 5/16 x 18h	7.92	6,90	9.52	3320-4.00TWF	4,64
M 5 x 0.80	UNC 5/16 x 18h	7.92	6,90	9.52	3320-5.00TWF	4,64
M 6 x 1.00	UNC 3/8 x 16h	9.52	8,40	11.10	3320-6.00TWF	5,84
M 8 x 1.25	UNC 7/16 x 14h	11.10	10,10	12.70	3320-8.00TWF	6,64
M 10 x 1.50	UNC 1/2 x 13h	12.70	11,50	14.22	3320-10.00TWF	9,38
M 12 x 1.75	UNC 5/8 x 11h	15.75	14,50	17.27	3320-12.00TWF	10,53

PARED REFORZADA
HEAVY WALL / PAROI RENFORCÉE / PAREDE REFORÇADA

M	Dim.	mm	ø	L	e-zsert Ref	e-zsert €/ Unit	e-zsert Ref	e-zsert €/ Unit
M 3 x 0.50	M6 x 1.00	6.50	5.10	7.80	3320-3.00HWM	2,86	3320-3.00HWSS	6,29
M 4 x 0.70	M8 x 1.25	7.50	6.90	9.00	3320-4.00HWM	3,05	3320-4.00HWSS	7,64
M 5 x 0.80	M8 x 1.25	7.50	6.90	9.00	3320-5.00HWM	3,44	3320-5.00HWSS	8,33
M 6 x 1.00	M10 x 1.50	10.50	8.60	12.00	3320-6.00HWM	3,87	3320-6.00HWSS	6,50
M 8 x 1.25	M12 x 1.75	12.50	10.40	14.50	3320-8.00HWM	4,36	3320-8.00HWSS	10,33
M 10 x 1.50	M16 x 2.00	17.00	14.00	19.00	3320-10.00HWM	6,72	3320-10.00HWSS	10,30
M 12 x 1.75	M16 x 2.00	17.00	14.00	19.00	3320-12.00HWM	7,55	3320-12.00HWSS	11,75
M 16 x 2.00	M24 x 3.00	20.00	21.00	24.00	3320-16.00HWM	9,10	3320-16.00HWSS	19,66
M 20 x 2.50	M36 x 4.00	30.00	33.00	35.00	3320-20.00HWM	26,84		

PARED REFORZADA
HEAVY WALL / PAROI RENFORCÉE / PAREDE REFORÇADA

M	Dim.	mm	ø	L	e-zsert Ref	e-zsert €/ Unit	e-zsert Ref	e-zsert €/ Unit
M 6 x 1.00	UNC 3/8 x 16h	10.31	8.00	11.90	3320-6.00HWF	2,18	3320-6.00HWSSF	9,03
M 8 x 1.25	UNC 1/2 x 13h	12.29	10.70	14.29	3320-8.00HWF	2,67	3320-8.00HWSSF	10,38
M 10 x 1.50	UNC 9/16 x 12h	13.08	12.30	15.08	3320-10.00HWF	3,05	3320-10.00HWSSF	11,87
M 10 x 1.25	UNC 9/16 x 12h	13.08	12.30	15.08	3321-10.00HWF	4,49	3321-10.00HWSSF	-
M 12 x 1.75	UNC 3/4 x 10h	16.66	16.60	19.05	3320-12.00HWF	3,92	3320-12.00HWSSF	16,91
M 14 x 2.00	UNC 7/8 x 9h	17.45	19.50	20.64	3320-14.00HWF	7,89	3320-14.00HWSSF	20,85
M 16 x 2.00	UNC 1 x 8h	19.84	22.00	22.25	3320-16.00HWF	7,86	3320-16.00HWSSF	-

* Ficha de datos de seguridad disponible / Material safety data sheet available / Feuille de sécurité disponible / ficha de dados de segurança disponível

INSERTOS SÓLIDOS CON SELLADOR ANAERÓBICO
SOLID INSERTS WITH ANAEROBIC THREADLOCKER / DOUILLES RIGIDES À SCELLANT ANAÉROBIE
INSERTOS SÓLIDOS COM VEDANTE ANAERÓBICO

INSERTOS PARA BUJIAS
AUTOMOTIVE SPARK PLUG / DOUILLES POUR BOUGIES / INSERTOS PARA VELAS DE IGNIÇÃO

				e-zsert	
M/MF	Dim.	mm	ø	Ref.	€/ Unit
M 10 x 1.00	UNF 9/16-18h	11.50	13,10	3322-10.00 x 1/2	**3,80**
M 12 x 1.25	UNF 5/8-18h	11.50	14.70	3322-12.00 x 1/2	**4,68**
M 12 x 1.25	UNF 5/8-18h	17.86	14.70	3322-12.00 x 3/4	**4,68**
M 14 x 1.25	M18 x 1.5	11.50	16.50	3322-14.00 x 1/2M	**8,68**
M 14 x 1.25	UNF 3/4 x 16h	8.33	17.50	3322-14.00 x 3/8	**8,69**
M 14 x 1.25	UNF 3/4 x 16h	11.50	17.50	3322-14.00 x 1/2	**8,89**
M 14 x 1.25	UNF 3/4 x 16h	17.85	17.50	3322-14.00 x 3/4	**9,56**
M 18 x 1.50	UNF 1 x 12	11.50	23.50	3322-18.00 x 1/2	**11,69**

EXTRACCIÓN
REMOVAL / EXTRACTION / EXTRAÇÃO

JUEGOS
KITS

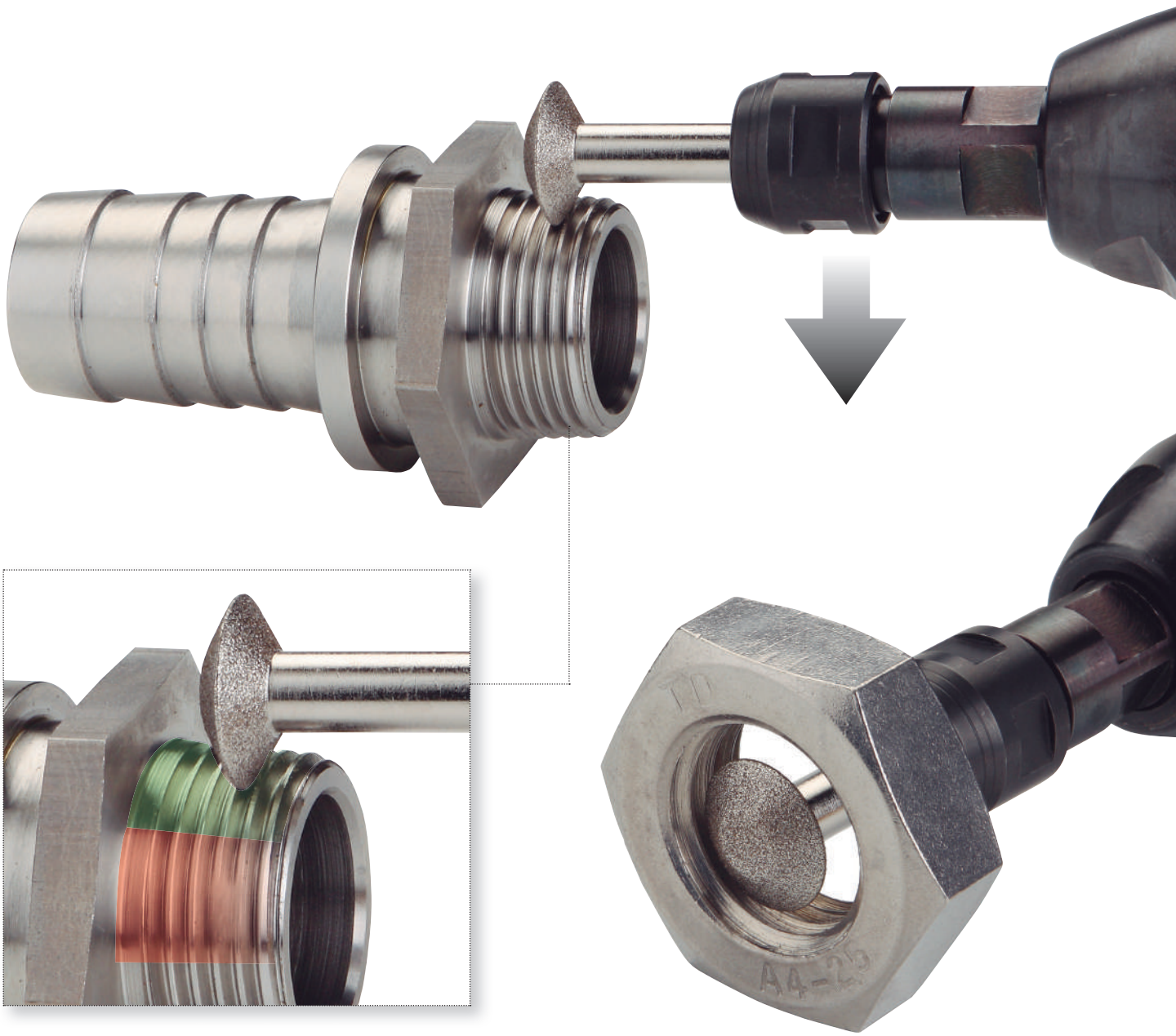
AC

M	Unit	Ref			
	Contenido / Content / Contenu /Conteúdo				
M3 - M8	10	3320-3.00HW	M3 x 0.50	M6 x 1.00	
	10	3320-4.00HW	M4 x 0.70	M8 x 1.25	
	10	3320-5.00HW	M5 x 0.80	M8 x 1.25	
	10	3320-6.00HW	M6 x 1.00	M10 x 1.50	**Ref. 3320-WK0**
	10	3320-8.00HW	M8 x 1.25	M12 x 1.75	**276,10 €**
M8 - M16	10	3320-8.00HW	M8 x 1.25	M12 x 1.75	
	10	3320-10.00HW	M10 x 1.50	M16 x 2.00	
	8	3320-12.00HW	M12 x 1.75	M16 x 2.00	**Ref. 3320-WK1**
	5	3320-16.00HW	M16 x 2.00	M24 x 3.00	**316,20 €**
M6 - M12	10	3320-6.00HWF	M6 x 1.00	UNC 3/8 x 16h	
	10	3320-8.00HWF	M8 x 1.25	UNC 1/2 x 13h	
	10	3320-10.00HWF	M10 x 1.50	UNC 9/16 x 12h	**Ref. 3320-FWK0**
	6	3320-12.00HWF	M12 x 1.75	UNC 3/4 x 10h	**200,41 €**

AISI 303

M	Unit	Ref			
	Contenido / Content / Contenu /Conteúdo				
M3 - M8	10	3320-3.00HWSS	M3 x 0.50	M6.00 x 1.00	
	10	3320-4.00HWSS	M4 x 0.70	M8.00 x 1.25	
303 Stainless	10	3320-5.00HWSS	M5 x 0.80	M8.00 x 1.25	
	10	3320-6.00HWSS	M6 x 1.00	M10.00 x 1.50	**Ref. 3320-SSWK0**
	10	3320-8.00HWSS	M8 x 1.25	M12.00 x 1.75	**516,59 €**
M8 - M16	10	3320-8.00HWSS	M8 x 1.25	M12.00 x 1.75	
	10	3320-10.00HWSS	M10 x 1.50	M16.00 x 2.00	
303 Stainless	8	3320-12.00HWSS	M12 x 1.75	M16.00 x 2.00	**Ref. 3320-SSWK1**
	5	3320-16.00HWSS	M16 x 2.00	M24.00 x 3.00	**516,59 €**
M6 - M12	10	3320-6.00HWSSF	M6 x 1.00	UNC 3/8 x 16h	
	10	3320-8.00HWSSF	M8 x 1.25	UNC 1/2 x 13h	
303 Stainless	10	3320-10.00HWSSF	M10 x 1.50	UNC 9/16 x 12h	**Ref. 3320-SSWK2**
	6	3320-12.00HWSSF	M12 x 1.75	UNC 3/4 x 10h	**516,59 €**

* Ficha de datos de seguridad disponible / Material safety data sheet available / Feuille de sécurité disponible / ficha de dados de segurança disponível



1 – Comience en los hilos en buen estado (Zona verde) y trabaje en la zona dañada (Zona Roja). Oscile la herramienta sin presionar en exceso atrás y adelante para repasar los hilos dañados. Deje que la herramienta haga el trabajo.
2 – Mantenga la herramienta limpia y utilice aceite de corte para incrementar la vida y rendimiento de la herramienta.
3 – Repita el paso uno en todas las zonas dañadas.

1 - Start tool in good thread area (GREEN) and work into damaged area (RED). Moving back and forth over damaged area (RED) staying in thread path with light tool pressure. Let the tool do the Work!
2 - Keep tool clean & use cutting oil in order to improve performance and tool life.
3 - Repeat steps on needed areas.

1 - Commencez dans les filets en bon état (zone verte) et travaillez ensuite dans la zone abîmée (zone rouge). Effectuez un mouvement oscillant vers l'avant et vers l'arrière sans exercer une pression excessive pour réparer les filets endommagés. Laissez travailler l'outil.
2 - L'outil doit être propre et l'utilisation d'huile de coupe permettra d'augmenter la vie utile et le rendement de l'outil.
3 - Renouvelez l'operation sur toutes les zones concernées.

1 -Comece com os fios em boas condições (Zona Verde) e trabalhe na área danificada (Zona Vermelha). Balance a ferramenta sem sobre-pressionar para frente e para trás para repassar os fios danificados. Deixe a ferramenta fazer o trabalho.
2 - Mantenha a ferramenta limpa e use óleo de corte para aumentar a vida e o desempenho da ferramenta.
3 - Repita o passo 1 em todas as áreas danificadas.

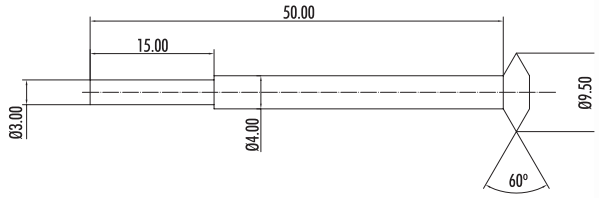
ROTA THREAD®

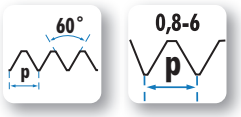
by celesa

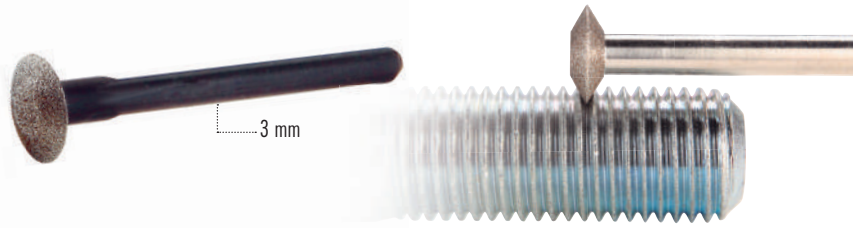
Fresas Rotativas CBN para Reparación de Roscas
Thread Restoring CBN Rotary Burrs
Limes Rotatives CBN pour Réparation de Filetage
Fresas Rotativas CBN para Reparação de Roscas

FRESAS ROTATIVAS CBN PARA REPARACIÓN DE ROSCAS

THREAD RESTORING CBN ROTARY BURRS / LIMES ROTATIVES CBN POUR RÉPARATION DE FILETAGE / FRESAS ROTATIVAS CBN PARA REPARAÇÃO DE ROSCAS.



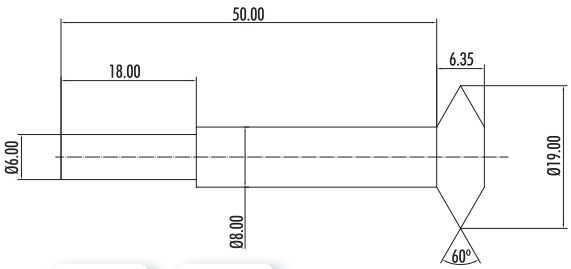


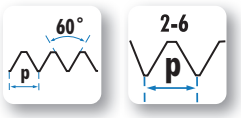


Ref. LRR1
50,67 €

- Repara roscas tanto internas como externas de manera precisa.
- **Limitaciones:** Paso mínimo de 0.80mm ó 28tpi.
  En las roscas internas, la medida minima es M12 ó 1/2".
- This Tool restores both internal and external threads precisely.
- **Limitation:** Minimal pitch 0.80mm or 28tpi.
  In case of internal threads, minimal size to be restored is M12 or 1/2".

- Cet outil répare les filetages intérieurs et extérieurs avec précision.
- **Limitation:** Pas minimum: 0.80mm ou 28tpi.
  Pour des filetages intérieurs, la dimension minimale pouvant être réparée est M12 ou 1/2".
- Repara com precisão tanto as roscas internas como as externas.
- **Limitações:** passo mínimo de 0,80mm ou 28tpi.
  Nas roscas internas, o tamanho mínimo é de M12 ou 1/2".

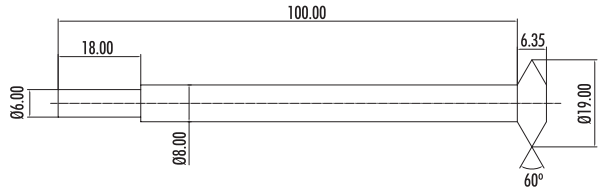


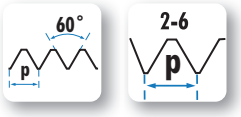


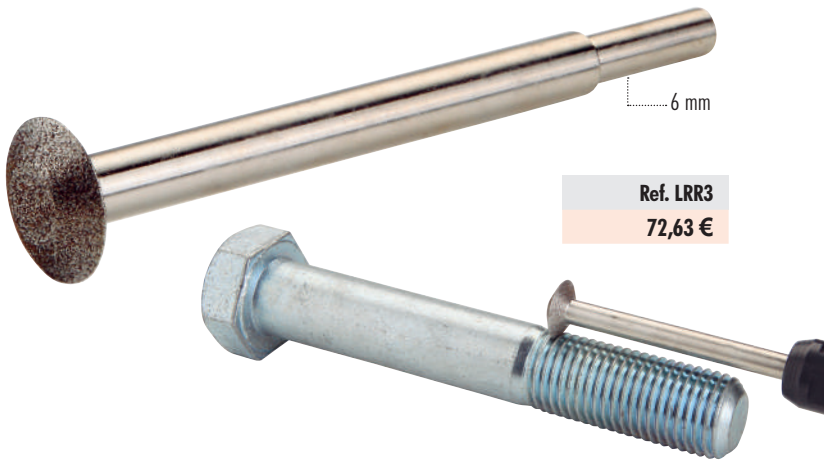
Ref. LRR2
64,18 €

- Repara roscas tanto internas como externas de manera precisa, en especial pasos gruesos.
- **Limitaciones:** Paso mínimo de 2mm ó 12hilos. En las roscas internas, la medida minima es M22 ó 7/8.
- This Tool restores both internal and external threads precisely. Specially designed for large pitches
- **Limitation:** Minimal pitch 2mm or 12tpi. In case of internal threads, minimal size to be restored is M22 or 7/8.

- Cet outil répare les filetages intérieurs et extérieurs avec précision. Spécialement conçu pour les pas gros
- **Limitation:** Pas minimum 2mm ou 12 filets. Pour des filetages intérieurs, la dimension minimale pouvant être réparée est M22 ou 7/8.
- Repara com precisão tanto as roscas internas como as externas, especialmente passos grossos.
- **Limitações:** passo mínimo de 2mm ou 12 fios. Nas roscas internas, o tamanho mínimo é de M22 ou 7/8.



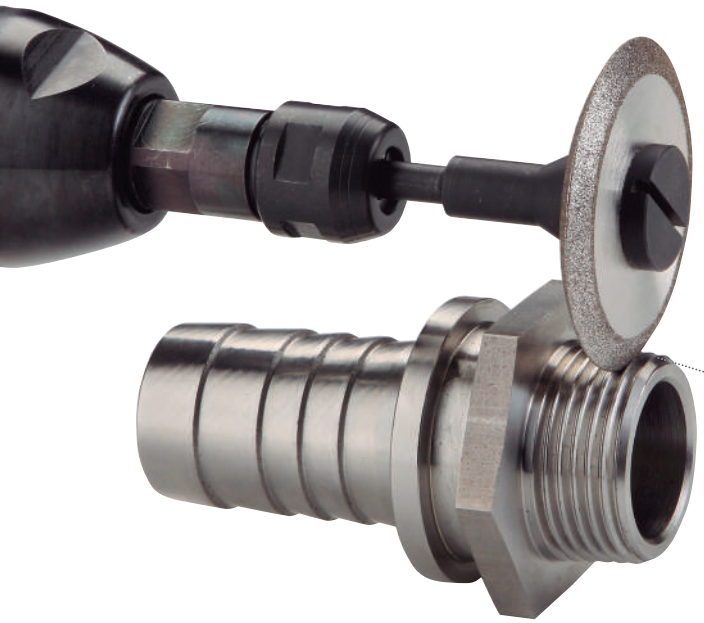




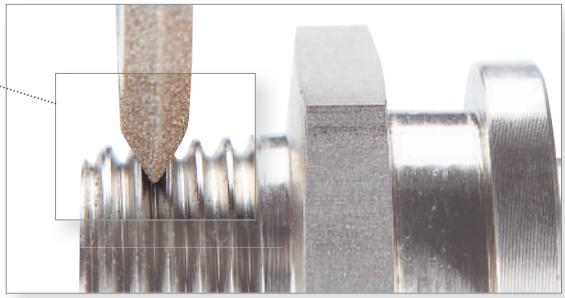
Ref. LRR3
72,63 €

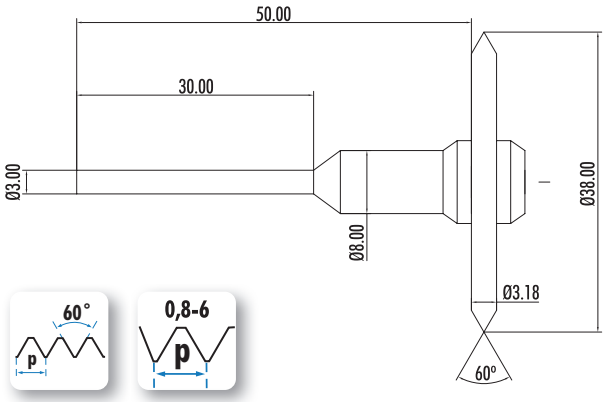
- Repara roscas tanto internas como externas de manera precisa, en especial pasos gruesos. SERIE LARGA.
- **Limitaciones:** Paso mínimo de 2mm ó 12hilos. En las roscas internas, la medida minima es M22 ó 7/8.
- This Tool restores both internal and external threads precisely. Specially designed for large pitches. LONG REACH TOOL.
- **Limitation:** Minimal pitch 2mm or 12tpi. In case of internal threads, minimal size to be restored is M22 or 7/8.

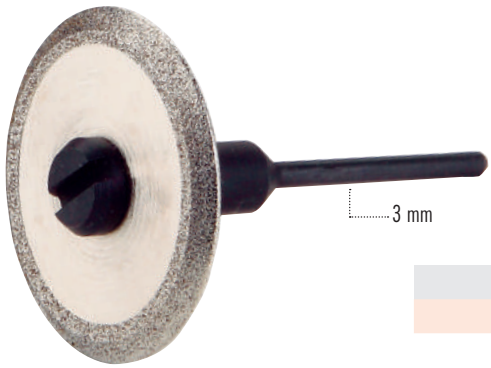
- Cet outil répare les filetages intérieurs et extérieurs avec précision. Spécialement conçu pour les pas gros. SÉRIE LONGUE.
- **Limitation:** Pas minimum 2mm ou 12 filets. Pour des filetages intérieurs, la dimension minimale pouvant être réparée est M22 ou 7/8.
- Repara com precisão tanto as roscas internas como as externas, especialmente passos grossos.
- **Limitações:** passo mínimo de 2mm ou 12 fios. Nas roscas internas, o tamanho mínimo é de M22 ou 7/8.



ROTA THREAD® by relesa







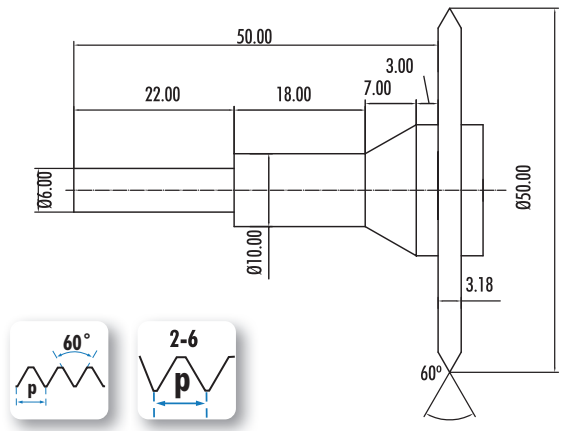
Ref. LRR4
77,69 €

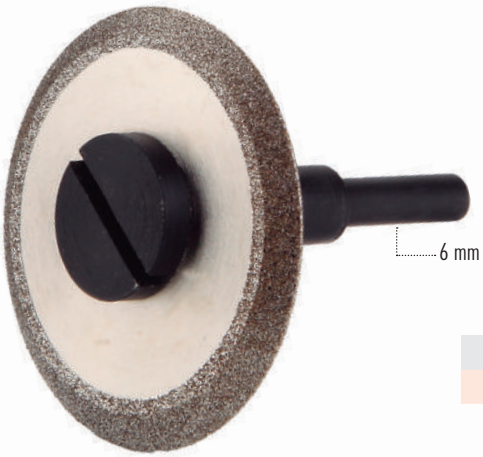
- Repara roscas externas de manera precisa. Diámetro de 38mm para actuar en zonas de difícil acceso, como hilos cercanos a la cabeza del tornillo.
- **Limitaciones:** Paso mínimo de 0.80mm ó 28hilos.

- This Tool restores both internal and external threads precisely. The 38mm diameter offers clearance when working on the threads that are damaged closer to the head of the fasteners.
- **Limitation:** Minimal pitch 0.80mm or 28tpi

- Cet outil répare les filetages intérieurs et extérieurs avec précision. Le diamètre de 38mm permet de réparer les filets abîmés situés près de la tête des vis.
- **Limitation:** Pas minimum 0.80mm ou 28 filets

- Repara as roscas externas com precisão. Diâmetro de 38 milímetros para atuar em áreas inacessíveis, como os fios pertos da cabeça do parafuso.
- **Limitações:** passo mínimo de 0,8mm ou 28 fios.





Ref. LRR5
92,89 €

- Repara roscas externas de manera precisa. Diámetro de 50mm para actuar en zonas de difícil acceso, como hilos cercanos a la cabeza del tornillo.
- **Limitaciones:** Paso mínimo de 2mm ó 12 hilos

- This Tool restores both internal and external threads precisely. The 50mm diameter offers clearance when working on the threads that are damaged closer to the head of the fasteners.
- **Limitation:** Minimal pitch 2mm or 12tpi

- Cet outil répare les filetages intérieurs et extérieurs avec précision. Le diamètre de 50mm permet de réparer les filets abîmés situés près de la tête des vis.
- **Limitation:** Pas minimum 2mm ou 12 filets

- Repara as roscas externas com precisão. Diâmetro de 50 milímetros para atuar em áreas inacessíveis, como os fios pertos da cabeça do parafuso.
- **Limitações:** passo mínimo de 2mm ou 12 fios.

No compre, repare.

Fácil de usar

Identificación de paso

Si ignora el paso de la rosca que hay que reparar, introduzca la lima en los hilos sanos de la rosca hasta comprobar que las crestas y valles casen perfectamente, cubriendo todo el perfil mirando a contraluz. Es importante dar con el paso exacto dado que hay pasos que parecen similares y pueden llevar a error. Si nos confundimos, estropearemos la pieza definitivamente.

Reparación

Una vez identificado el paso, lime la rosca dañada con suavidad, haciendo coincidir el perfil de la lima con el de la rosca dañada. Sin brusquedad pero haciendo que la lima trabaje. No se preocupe por profundizar demasiado, la propia lima limita la profundidad de hilo. Conviene empezar por los hilos sanos para guiar la lima correctamente. Use aceite de corte CUT MAGIC, que facilitará el rebabado. Compruebe la bondad de la rosca con una tuerca y si no entra con holgura, no la fuerce y repase la rosca nuevamente.

Do not buy, just repare.

Easy to Use

Pitch identification

If you are not sure of the thread size, match up the bolt thread to one of the file sides. Some of the thread sizes may appear similar, so I double-check with the file firmly engaged with the section of good threads placed in front of a bright light to highlight that the file is correct for the thread.

Reparation

Once you're convinced that you have the correct side, gently stoke the threads just like doing a finish filing job on a piece of metal. Not too hard and not too soft. Don't worry about cutting too deep or flattening the cylindrical bolt shape, the file limits the cut depth. Start with the good section of thread just next to the buggered part and start filing around the bolt toward the known bad section. After one file pass, spritz some CUT MAGIC fluid and try the nut for smooth spin-on. If it binds don't force it, make another pass instead.

N'achetez pas, réparez.

Utilisation facile

Identification du pas

Si vous ignorez le pas du filetage à réparer, insérez la lime dans les filets en bon état jusqu'à ce que vous puissiez vérifier que les sommets et fonds s'adaptent parfaitement, couvrant tout le profil, en regardant à contre-jour. Il est important de reconnaître le pas exact étant donné que certains pas se ressemblent et peuvent conduire à des erreurs. Si nous nous trompons, la pièce sera endommagée de manière irréversible.

Réparation

Une fois identifié le pas, limez doucement le filetage endommagé, en faisant coïncider le profil de la lime avec celui du filetage abîmé. Sans mouvements brusques mais en faisant travailler la lime. Ne vous souciez pas d'enlever trop de matière, la propre lime limite la profondeur du filet. Il convient de commencer avec les filets en bon état afin de guider la lime correctement. Utilisez l'huile de coupe CUT MAGIC qui facilitera l'ébavurage. Vérifiez la qualité du filetage avec un écrou et s'il n'entre pas facilement, ne forcez pas et travaillez à nouveau le filetage.

Não compre, repare.

Fácil de usar.

Identificação do passo

Se você ignora o passo da rosca a ser reparado, insira a lima nos fios saudáveis da rosca até verificar se as cristas e os vales se encaixam perfeitamente, cobrindo todo o perfil olhando a contraluz. É importante dar com o passo exato, pois existem passos que parecem semelhantes e podem causar erros. Se ficarmos confusos, definitivamente vamos estragar a peça.

Reparação

Uma vez que o passo é identificado, lime a rosca danificada suavemente, combinando o perfil da lima com o da rosca danificada. Sem abrupto, mas fazendo trabalhar a lima. Não se preocupe em aprofundar muito, a própria lima limita a profundidade do fio. É conveniente começar com os fios saudáveis para guiar a lima corretamente. Use o óleo de corte CUT MAGIC, que facilitará a rebarbação. Verifique a bondade da rosca com uma porca e, se não encaixar confortavelmente, não a force e repasse novamente a rosca.

LIMAS PARA REPARACIÓN DE ROSCAS

THREAD RESTORING FILES / LIMES POUR RÉPARATION DE FILETAGES / LIMAS PARA REPARAÇÃO DE ROSCAS

- Para roscas externas / Pour filetages extérieurs
  For external threads / Para roscas externas
- Pasos métricos / Pas métriques /Metric pitches / Passos métricos:
  0,75 - 1,00 - 1,25 - 1,50 - 1,75 - 2,00 - 2,50 - 3,00

Ref. LR1
36,36 €

- Para roscas externas e internas / Pour filetages Extérieurs et Intérieurs
  For external and internal threads / Para roscas externas e internas
- Pasos métricos / Pas métriques /Metric pitches / Passos métricos:
  0,80 - 1,00 - 1,25 - 1,50 - 1,75 - 2,00 - 2,50 - 3,00

Ref. LR2
54,60 €

Avellanador Externo

Los avellanadores externos sirven para corregir los hilos iniciales de un tornillo o varilla roscada. Estos hilos han podido ser golpeados o cortados mediante radial, por lo que la rebaba generada no permite introducir una tuerca en el mismo. El avellanador limpia esos hilos y genera un chaflán 60º que facilita el embocamiento de la tuerca.

- No genera calor ni chispas.
- El avellanador debe ser usado a vueltas bajas (Máx 500RPM).
- El aceite de corte CUT MAGIC facilita la operación.
- Se usa habitualmente con taladros de mano, y especialmente, de batería.

External Countersink

These external countersinks quickly repair starting damaged thread of screws and threaded rods. Those starting threads are usually hit or cut off with a die grinder so burr generated in those threads do not let the nut start. These countersinks shear off those threads and chamfer the thread 60º in order to make a smooth start of the nut.

- This tool does not over heat or spark
- This tool must be used in low cutting speed. (Max 500RPM).
- Cut magic metalworking fluid makes operation easier.
- Use hand power Tools, especially battery mode ones.

Alésoir Extérieur

Les alésoirs extérieurs servent à rectifier les filets initiaux d'une vis ou d'une tige filetée. Ces filets ont pu être frappés ou coupés, de sorte que les copeaux générés ne permettent pas d'y introduire un écrou. L'alésoir nettoie ces filets et produit un chanfrein à 60 ° qui facilite l'entrée de l'écrou.

- ne génère pas de chaleur ou d'étincelles.
- L'alésoir doit être utilisé à des vitesses réduites (Max. 500 tr/min).
- L'huile de coupe CUT MAGIC facilite l'opération.
- utilisé habituellement avec des perceuses à main, principalement à batterie.

Escareador Externo

Os escareadores externos servem para corrigir os fios iniciais dum parafuso ou uma vareta roscada. Istos fios puderam ser batidos ou cortados por radial, de modo que a rebarba gerada não permite introduzir uma porca nele. O escareador limpa esses fios e gera um chanfro de 60 ° que facilita a entrada da porca.

- Não gera calor ou faíscas.
- O escareador deve ser usado em voltas baixas (Max 500RPM).
- O óleo de corte CUT MAGIC facilita a operação.
- É comumente usado com berbequins de mão, e especialmente de bateria.

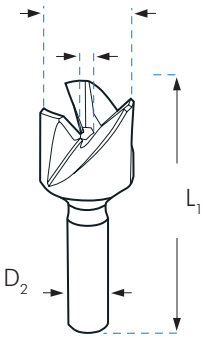
AVELLANADOR EXTERNO PARA REPARACIÓN DE HILOS DE ENTRADA

EXTERNAL COUNTERSINKS FOR RESTORING STARTING THREADS
ALÉSOIR EXTÉRIEUR POUR RÉPARATION DE FILETS D'ENTRÉE
ESCAREADOR EXTERNO PARA REPARAÇÃO DE FIOS DE ENTRADA

HSS

60°

				AVX-60
MAX.-MIN.	D_2 mm	L_1 mm	Ref.	€
M3-M8	8,0	55	AV03-08	**56,79**
M4-M14	10,0	60	AV04-15	**106,54**
M10-M27	13,0	80	AV10-28	**159,68**



silbertool®

THE THREAD REPAIR TOOL.

Reparación no Invasiva / Non-invasive restoring / Réparation Non Invasive / Reparação não invasiva

- Los reparadores de roscas silbertool son la solución perfecta para roscas dañadas en extremo, que no pueden ser repasadas por cojinetes ni otros reparadores de roscas externas dado que una extracción de material de los hilos de rosca supondría debilitarla de manera irreparable, e inutilizar el perno o tornillo. La amplia gama de rodillos con diferentes pasos ofrece versatilidad ya que cambiando únicamente los rodillos, se pueden reparar roscas de pasos muy dispares. Una vez fijado el paso, es posible reparar pernos de igual paso, por ejemplo: M6X1, M8X1, M10X1, M12X1, M14X1, etc. . . versátil, fácil . . . muy útil.

- Silbertool repairing tool is perfect solution for extremely damaged threads where removal of material (like happens with threading dies or other external repairing tools) becomes the thread irreversibly weak and render it useless right away. A wide range of rollers offers versatility because just replacing rollers plenty of different sizes could be repaired. Installing one pitch, many threads in that pitch are workable. For Example M6X1, M8X1, M10X1, M12X1, M14X1,etc… versatile, easy… very useful.

- Les réparateurs de filetages Silbertool sont la solution idéale pour les filetages extrêmement abîmés, qui ne peuvent être repris par des filières ou d'autres réparateurs de filetages extérieurs étant donné qu'une extraction de matière des filets supposerait leur affaiblissement irréversible et l'impossibilité d'utiliser la vis ou le boulon. La large gamme de rouleaux et de pas offre une grande polyvalence étant donné qu'en changeant uniquement les rouleaux il est possible de réparer des filetages de pas différents. Une fois fixé le pas, il est possible de réparer des filetages de pas identique, par exemple: M6x1, M8x1, M10x1, M12x1, M14x1, etc… Polyvalent, facile…extrêmement utile.

- Os reparadores de roscas Silbertool são a solução perfeita para as roscas extremamente danificadas, que não podem ser repassadas por caçonetes ou outros reparadores de roscas externas, pois uma extração do material dos fios suporia enfraquecê-la irremediavelmente e inutilizar o parafuso. A ampla gama de rolos com diferentes passos oferece versatilidade já que só com a mudança dos rolos, as roscas de passos muito diferentes podem ser reparadas. Uma vez fixado o passo, é possível reparar parafusos do mesmo passo, por exemplo: M6X1, M8X1, M10X1, M12X1, M14X1, etc ... versátil, fácil ... muito útil.

Ventajas

- La rosca se repara mediante conformado en frío por lo que no se debilita la rosca reparada sino que se refuerza.
- Se reparan todos los pasos con una misma herramienta. Cada rodillo tiene su paso.
- Ha sido probado que una rosca reparada con Silbertool®, soporta las mismas cargas dinámicas y estáticas que la rosca original. Además, se prueba que ofrece una mayor resistencia a la fatiga.
- Durante el proceso de reparación, la superficie de la rosca queda perfectamente limpia; libre de rebabas
- Use el fluido de corte Cut Magic para reducir el esfuerzo en la reparación, en especial en tornillos templados y pasos gruesos.

Avantages

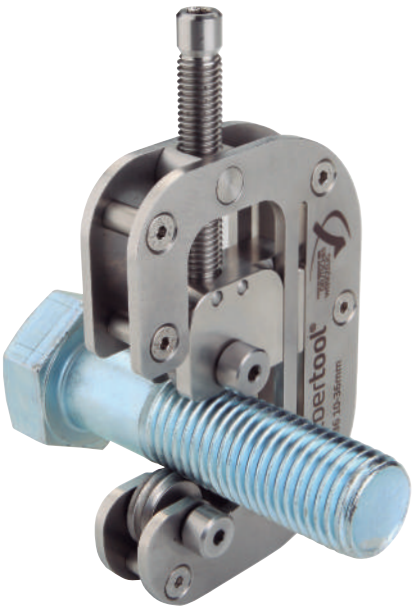
- Les filetages extérieurs sont réparés sans enlèvement de matière et donc sans les affaiblir.
- Un seul réparateur de filetage Silbertool® est nécessaire pour tous les pas: chaque rouleau répare un pas.
- Il est démontré qu'un filetage réparé par Silbertool® supporte les mêmes charges statiques et dynamiques que le filetage original. Il est également prouvé qu'il offre une plus grande résistance à la fatigue.
- Après le processus de réparation, la surface du filetage est parfaitement propre, sans bavures.
- Utilisez l'huile de coupe Cut Magic pour réduire l'effort lors de la réparation, et spécialement pour des vis trempées et des pas gros

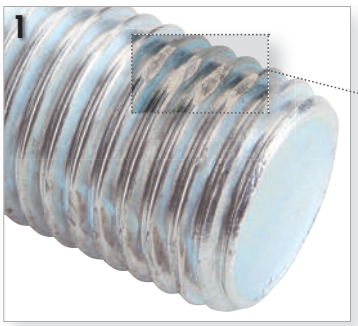
Advantages

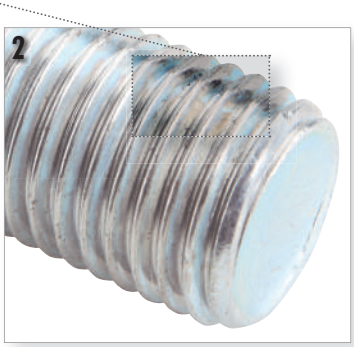
- External threads are repaired without removal of material so the thread does not become weaker.
- Only one Silbertool® Thread - Repair Tools needed to repair any pitch. Each roller repair one pitch.
- It has been proven that a thread repaired with Silbertool® withstands the same static and dynamic loads as a new undamaged thread. Moreover, they showed a higher fatigue endurance limit.
- During repairing process the surface of the thread becomes perfectly clean; without any burr.
- Use Cut Magic metalworking fluid in order to reduce repairing effort, specially on hardened bolts and coarse pitches.

Vantagens

- A rosca é reparada por conformação a frio para que a rosca reparada não seja enfraquecida, mas reforçada.
- Todos os passos são reparados com a mesma ferramenta. Cada rolo tem o seu passo.
- Foi comprovado que uma rosca reparada com Silbertool®, suporta as mesmas cargas dinâmicas e estáticas que a rosca original. Além disso, está provado que oferece maior resistência à fadiga.
- Durante o processo de reparação, a superfície da rosca fica perfeitamente limpa; sem rebites.
- Use o fluido de corte para reduzir o esforço na reparação, especialmente nos parafusos endurecidos e os passos grossos.



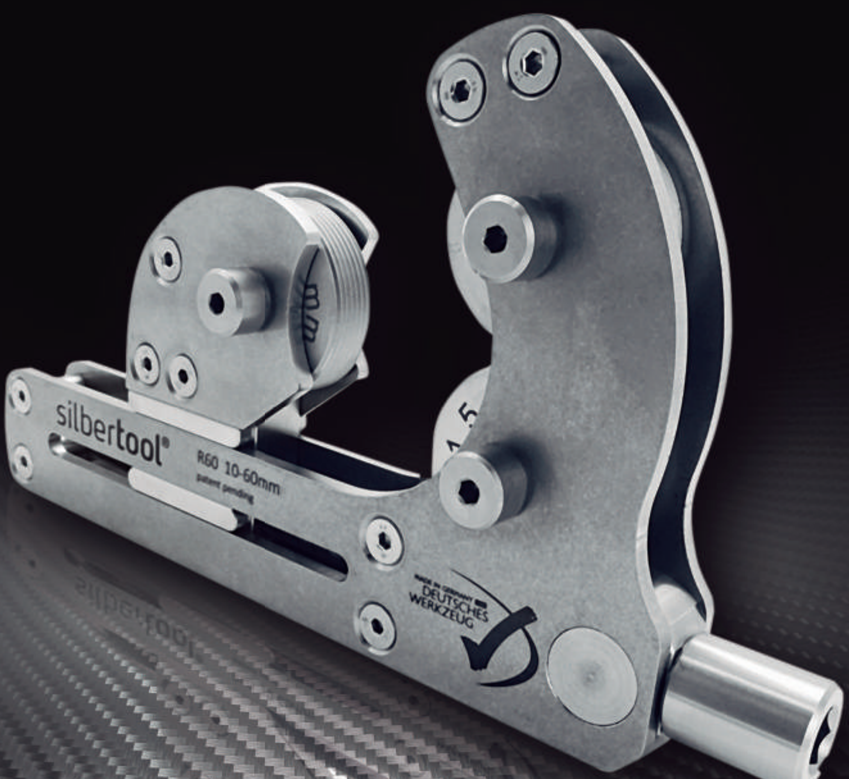




silbertool®

THE THREAD REPAIR TOOL.

Reparador de Roscas Externas por Laminación
External Thread Repair Rolling Tool
Restaurateur de Filetages Extérieurs par Refoulement
Reparador de Roscas Externas por Laminação



silbertool®

R16 REPARADOR DE ROSCAS EXTERNAS POR LAMINACIÓN

EXTERNAL THREAD REPAIR ROLLING TOOL. / RESTAURATEUR DE FILETAGES EXTÉRIEURS PAR REFOULEMENT / REPARADOR DE ROSCAS EXTERNAS POR LAMINAÇÃO.

Ref. R16

	mm	SILBERTOOL	€/ Unit
M/MF		Ref.	
M5 - M16	0.50-2.00	R16	357,53

No incluye rodillos / Rollers not included / Rouleaux non inclus / Não inclui os rolos

Ref. R160175

Ref. R160125

JUEGOS DE RODILLOS / SET OF ROLLERS / JEU DE ROULEAUX / JOGOS DE ROLOS

	mm	SILBERTOOL			
M/MF		Ref.	€/ Unit	Ref.	€/ Unit
M5 - M16	0.50	R160050	76,42	R16I0050	101,97
M5 - M16	0.75	R160075	76,42	R16I0075	101,97
M5 - M16	0.80	R160100	76,42	R16I0080	101,97
M5 - M16	1.00	R160080	76,42	R16I0100	101,97
M5 - M16	1.25	R160125	76,42	R16I0125	101,97
M5 - M16	1.50	R160150	76,42	R16I0150	101,97
M5 - M16	1.75	R160175	76,42	R16I0175	101,97
M5 - M16	2.00	R160200	76,42	R16I0200	101,97

R36 REPARADOR DE ROSCAS EXTERNAS POR LAMINACIÓN

EXTERNAL THREAD REPAIR ROLLING TOOL. / RESTAURATEUR DE FILETAGES EXTÉRIEURS PAR REFOULEMENT / REPARADOR DE ROSCAS EXTERNAS POR LAMINAÇÃO.

Ref. R360250

JUEGOS DE RODILLOS / SET OF ROLLERS / JEU DE ROULEAUX / JOGOS DE ROLOS

	mm	SILBERTOOL			
M/MF		Ref.	€/ Unit	Ref.	€/ Unit
M10 - M36	0.50	R360050	116,44	R36I0050	139,77
M10 - M36	0.75	R360075	116,44	R36I0075	139,77
M10 - M36	1.00	R360100	116,44	R36I0100	139,77
M10 - M36	1.25	R360125	116,44	R36I0125	139,77
M10 - M36	1.50	R360150	116,44	R36I0150	139,77
M10 - M36	1.75	R360175	116,44	R36I0175	139,77
M10 - M36	2.00	R360200	116,44	R36I0200	139,77
M10 - M36	2.50	R360250	116,44	R36I0250	139,77
M10 - M36	3.00	R360300	116,44	R36I0300	139,77
M10 - M36	3.50	R360350	116,44	R36I0350	139,77
M10 - M36	4.00	R360400	116,44	R36I0400	139,77

Ref. R36

	mm	SILBERTOOL	€/ Unit
M/MF		Ref.	
M10 - M36	0.50 - 4.00	R36	816,44

No incluye rodillos / Rollers not included / Rouleaux non inclus / Não inclui os rolos

R60/110 REPARADOR DE ROSCAS EXTERNAS POR LAMINACIÓN

EXTERNAL THREAD REPAIR ROLLING TOOL. / RESTAURATEUR DE FILETAGES EXTÉRIEURS PAR REFOULEMENT
REPARADOR DE ROSCAS EXTERNAS POR LAMINAÇÃO.

Ref. R600050

JUEGOS DE RODILLOS / SET OF ROLLERS / JEU DE ROULEAUX / JOGOS DE ROLOS

	mm	SILBERTOOL			
M/MF		Ref.	€/ Unit	Ref.	€/ Unit
M10 - M60 - M110	0.50	R600050	209,77	R60I0050	233,10
M10 - M60 - M110	0.80	R600080	209,77	R60I0080	233,10
M10 - M60 - M110	1.00	R600100	209,77	R60I0100	233,10
M10 - M60 - M110	1.25	R600125	209,77	R60I0125	233,10
M10 - M60 - M110	1.50	R600150	209,77	R60I0150	233,10
M10 - M60 - M110	1.75	R600175	209,77	R60I0175	233,10
M10 - M60 - M110	2.00	R600200	209,77	R60I0200	233,10
M10 - M60 - M110	2.50	R600250	209,77	R60I0250	233,10
M10 - M60 -M110	3.00	R600300	209,77	R60I0300	233,10

Ref. R60

	mm	SILBERTOOL	€/ Unit
M/MF		Ref.	
M10 - M60	0.50 - 3.00	R60	1.049,77
M50 - M110	0.50 - 3.00	R110	1.633,10

No incluye rodillos / Rollers not included / Rouleaux non inclus / Não inclui os rolos

Adhesivos anaeróbicos para roscas

Este producto ha sido concebido para fijar y sellar uniones roscadas en el ámbito industrial obteniendo un mayor resistencia mecánica en la misma.

Ventajas

1. La característica destacada de los adhesivos anaeróbicos es el endurecimiento de la unión tras el contacto de metal con metal bajo ausencia de aire.
2. Así se obtiene una fijación resistente a la vibración, a los impactos y extremadamente resistente a productos químicos y disolventes.
3. Gracias al estado líquido de POWERLOCK es posible rellenar completamente los huecos de la unión, sellar fugas y proteger contra la corrosión ocasionada por agentes externos permitiendo una mayor durabilidad de la unión roscada. Además, POWERLOCK se aplica muy a menudo en el campo de sellado de bridas.
4. La aplicación de POWERLOCK es simple y rápida; el adhesivo alcanza su endurecimiento inicial en pocos minutos y su endurecimiento final en pocas horas a temperatura ambiente.
5. POWERLOCK es apto especialmente para todos los metales y para determinados plásticos.

Principales aplicaciones

- Uniones atornilladas de M5 hasta M36
- Permite fijar fuertemente cojinetes, casquillos, pernos, ejes y otras piezas ensambladas
- Sellan uniones hidráulicas y neumáticas.

Materiales activos y pasivos

Materiales Activos (Endurecimiento rápido)
- Bronce
- Hierro
- Cobre
- Latón
- Acero

Materiales Pasivos (Endurecimiento lento)
- Acero de alta aleación
- Aluminio, níquel, cinc, oro
- Capas de óxido
- Capas de cromato
- Revestimientos anódicos
- Plásticos y cerámica

Anaerobic adhesives and sealants. Threadlocking

This product has been specially designed for Industrial threadlocking, retaining and sealing of threaded connections in order to get higher mechanical resistance.

Advantages

1. The characteristic feature of POWERLOCK is the curing in contact with metal while deprived of air.
2. It provides a shock- and vibration resistant joint with an excellent resistance to chemicals and solvents.
3. Due to its liquid consistency POWERLOCK completely fills the gaps, thus giving protection against leakage and fretting corrosion.
4. POWERLOCK is simple, easy to use and very economical. Handling strength is reached within a few minutes and final strength within a few hours at room temperature.
5. POWERLOCK is suitable for all metals and certain plastics.

Main applications

- For locking, fastening and sealing of screw connections from M5 to M36.
- For reliable retaining of bearings, bushings, bolts and other press or slip fitted connections.
- For sealing and locking hydraulic and pneumatic pipe connections.

Active and passive materials

Active Materials (Fast curing)
- Bronze
- Iron
- Cooper
- Brass
- Steel

Passive Materials (Slower curing)
- High-alloyed steel
- Aluminium, nickel, zinc, gold
- Oxid layers
- Chromate layers
- Anodic coatings
- Plastics and ceramics

Adhésifs anaérobies pour les filetages

Ce produit a été conçu pour fixer et sceller des assemblages filetés dans le domaine industriel en obtenant une plus grande résistance mécanique.

Advantages

1. La caractéristique remarquable des adhésifs anaérobies est le durcissement de l'assemblage après le contact métal/métal en l'absence d'air.
2. De cette façon, on obtient une fixation résistante aux vibrations, aux impacts et extrêmement résistante aux produits chimiques et aux solvants.
3. Grâce à l'état liquide de POWERLOCK, il est possible de remplir complètement les trous de l'union, de colmater les fuites et de protéger contre la corrosion causée par des agents externes, permettant une plus grande durabilité de l'union filetée. En outre, POWERLOCK est très souvent appliqué dans le domaine de l'étanchéité des brides.
4. L'application POWERLOCK est simple et rapide; l'adhésif atteint son durcissement initial en quelques minutes et son durcissement final en quelques heures à température ambiante.
5. POWERLOCK convient particulièrement à tous les métaux et à certains plastiques.

Principales applications

- Assemblages vissés de M5 à M36
- Permet de fixer solidement les filières, bagues, boulons, axes et autres pièces assemblées
- Scellement d'unions hydrauliques et pneumatiques

Matières actives et passives

Matières actives (Durcissement rapide)
- Bronze
- Fer
- Cuivre
- Laiton
- Acier

Matières passives (Durcissement lent)
- Acier hautement allié
- Aluminium, Nikel, Zinc, Or
- Couches d'oxydation
- Couche de chromate
- Revêtements anodiques
- Plastiques et céramiques

Aderentes anaeróbicos para roscas

Este produto foi concebido para fixar e selar juntas roscadas no campo industrial, obtendo uma maior resistência mecânica na mesma.

Vantagens

1. A característica destacada dos aderentes anaeróbicos é o endurecimento da ligação após do contato de metal com metal sob ausência de ar.
2. Desta forma, obtém-se uma fixação resistente as vibrações, aos impactos e extremamente resistente aos produtos químicos e solventes.
3. Graças ao estado líquido do POWERLOCK, é possível preencher completamente os ocos do acoplamento, selar os vazamentos e proteger contra a corrosão causada por agentes externos, permitindo uma maior durabilidade do acoplamento roscado. Além disso, o POWERLOCK é muitas vezes aplicado no campo da vedação das flanges.
4. A aplicação do POWERLOCK é simples e rápida; o aderente consege o endurecimento inicial em poucos minutos e o endurecimento final em poucas horas a temperatura ambiente.
5. POWERLOCK é adequado especialmente para todos os metais e para certos plásticos.

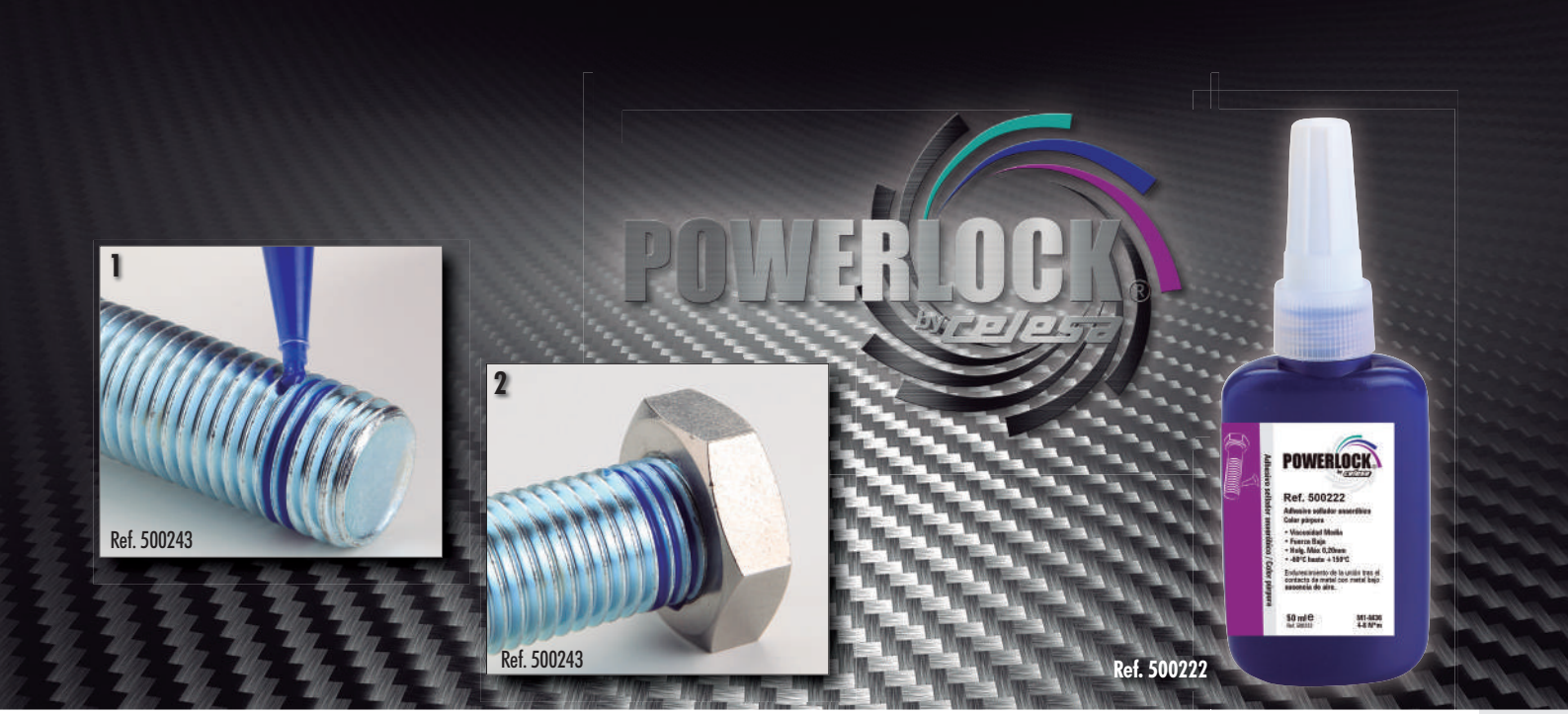
Principais aplicações

- Conexões aparafusadas de M5 a M36.
- Permite fixar de forma segura caxonetes, buchas, parafusos, eixos e outras peças montadas.
- Sela conexões hidráulicas e pneumáticas.

Materiais ativos e passivos

Materiais ativos (secagem rápida)
- Bronze
- Ferro
- Cobre
- Latão
- Aço

Materiais passivos (secagem lenta)
- Aço de alta liga
- Aluminío, níquel, zinco, ouro
- Camadas de óxido
- Camadas de cromato
- Revestimentos anódicos
- Plásticos e cerâmica



1	2	3	4	5	6	7	8	9	10	11	€
500222 *		M1-M36	1.000 mPa-s	0,20 mm	4-8 Nm	2-4 Nm	3-5 N/mm² (435-725 psi)	10-20 min.	3-6 h.	-60 - +150ºC (-76 - +302ºF)	38,99
500243 * *		M1-M36	2.000 - 7.000 mPa-s	0,25 mm	17-22 Nm	8-12 Nm	9-13 N/mm² (1.305-1.885 psi)	10-20 min.	1-3 h.	-60 - +150ºC (-76 - +302ºF)	38,99
500270 * * *		M1-M20	500 mPa-s	0,15 mm	28-35 Nm	50-65 Nm	15-20 N/mm² (2.175-2.900 psi)	10-20 min.	3-6 h.	-60 - +150ºC (-76 - +302ºF)	38,99

TZW

* Fuerza baja (desmontaje fácil) / Low Strength (easy disassembling) / Freinage Faible (démontage facile) / Força baixa (desmontagem fácil)
* * Fuerza media (desmontaje con herramienta) / Medium Strength (disassembling with regular tools) / Freinage moyen (démontage avec un outil) / Força meia (desmontagem com ferramenta)
* * * Fuerza alta (desmontaje con calor) / High strength (disassembling only with heat) / Freinage fort (démontage avec de la chaleur) / Força alta (desmontagem com calor)

1- Artículo
2- Color
3- Rango de aplicación
4- Viscosidad a +25ºC
5- Holgura máx.
6- Resistencia a la rotura
7- Fuerza residual
8- Resistencia al cizallamiento (N/mm2)
9- Tiempo de cura fase inicial a temperatura ambiental.
10- Tiempo de cura total a temperatura ambiente.
11- Temperatura de trabajo.

1- Part number
2- Colour
3- Application range
4- Viscosity at +25ºc
5- Max. gap filling
6- Breakaway strength
7- Prevailing strength
8- Shear Strength (N/mm2)
9- Handling strength at room temperature
10- Final strength at room temperature.
11- Operation temperature.

1- Article
2- Couleur
3- Rang d'application
4- Viscosité à 25ºC
5- Jeu Max.
6- Résistance à la rupture
7- Force résiduelle
8- Résistance au cisaillement
9- Temps de séchage initial à température ambiante
10-Temps de séchage complet à température ambiante
11-Température de travail

1- Artigo
2- Cor
3- Faixa de aplicação
4- Viscosidade a +25
5- Folga max.
6- Resistência à ruptura
7- Força residual
8- Resistência ao cisalhamento (N/mm2)
9- Tempo de cura fase inicial a temperatura ambiente
10- Tempo de cura total a temperatura ambiente
11- Temperatura de trabalho

* Ficha de datos de seguridad disponible / Material safety data sheet available / Feuille de sécurité disponible / Ficha de dados de segurança disponível

Limpieza previa al uso de adhesivos y selladores

El Limpiador de Superficies se utiliza para limpiar y desengrasar las superficies que deben pegarse o sellarse con adhesivos y selladores POWERLOCK. Limpia y se evapora sin dejar rastro.

Cleaning of bonding surfaces before using adhesives and sealants

Surface Cleaner is used for cleaning and degreasing of surfaces to be joined or sealed with POWELOCK adhesives and sealants. It cleans and evaporates leaving no residue.

Nettoyage préalable à l'utilisation d'adhésifs et de scellants

Le nettoyeur de surface est utilisé pour nettoyer et dégraisser les surfaces à coller ou sceller avec des adhésifs et scellants POWERLOCK. Nettoie et s'évapore sans laisser de trace.

Limpeza previa à utilização de adesivos e vedantes.

O limpador de superficies utiliza-se para limpar e desengordurar as superficies que devem ser coladas ou seladas com os adesivos e os vedantes POWERLOCK.. Limpa e evapora-se sem deixar rasto.

Ref. 500001
14,52 €

Selladores de roscas para tuberías en sistemas hidráulicos y neumáticos

Los selladores de tuberías roscadas POWERLOCK evitan fugas de cualquier fluido gaseoso y líquido usado en la industria, que sean conducidos a muy altas presiones.

Ventajas

1. Son resistentes a la mayoría de los fluidos aplicados en la industria y evitan obstrucciones de piezas de conexión (Codos, etc..) en sistemas hidráulicos y neumáticos (como pasaría empleando cáñamo o cintas de teflón).
2. La unión roscada queda protegida frente a la corrosión de tales fluidos y las diferentes resistencias disponibles permiten un desmontaje incluso después de varios años de unión estable.
3. Los selladores POWERLOCK son la mejor opción para crear una unión roscada ESTANCA y evitar el riesgo de fugas.

Recomendaciones de Uso

Pretratamiento de superficies:

No es obligatorio ningún tratamiento específico previo a la aplicación del POWERLOCK pero para obtener resultados óptimos conviene desengrasar y limpiar previamente las superficies a unir. Cuanto más limpias las superficies, tanto mejor son los resultados.

Aplicación directa

POWERLOCK se aplica directamente con su punta dosificadora evitando el contacto directo de la punta dosificadora con el metal. Si se trata de uniones prensadas y de elementos de unión de medida grande, aplicar sobre ambas superficies formando una capa fina y uniforme. Si se trata de roscas en agujeros ciegos, aplicar una cantidad suficiente de POWERLOCK en el agujero. Si se trata de tornillos y pernos, aplicar el adhesivo en forma anular. No verter de retorno a la botella el liquido POWERLOCK que ya ha estado en contacto con el metal. Hasta las partículas más finas conducen al endurecimiento en la botella.

Hydraulic and pneumatic threaded pipe systems sealant

POWERLOCK pipe and thread sealing types have especially been formulated to prevent the escape of gaseous and liquid substances and they seal up to burst point and resist almost all substances used in industry

Advantages

1. The use of POWERLOCK prevents clogging and contamination of fittings as well as the blockage of hydraulic and pneumatic valves as may occur with conventional sealing methods (e.g. hemp or Teflon tape).
2. Connections sealed with POWERLOCK are protected against seizing and fretting corrosion. The available different strength grades allow dismantling even after years. POWERLOCK Pipe
3. POWERLOCK Pipe and thread sealing is the best solution to create fully sealed threaded connections which totally avoid any leakage.

Recommendations for User

Pre-treatment of surface:

In general, POWERLOCK does not require special pretreatment as slightly oily surfaces (e.g. on 'as received' parts) will be tolerated. However, best results will be achieved on cleaned, degreased parts (use POWER Cleaner S). If required, the parts should be slightly roughened.

Application

POWERLOCK is ready for use and should be applied evenly direct from the bottle/tube with the dispensing tip (avoid direct contact of dispensing tip with metal). On press fitted parts and larger cylindrical assemblies a thin and uniform layer should be applied on both surfaces. In the case of threaded blind holes fill sufficient quantity in the bore hole. On screws and bolts, apply POWERLOCK around the thread. Do not pour back into the bottle any POWERLOCK fluid which had contact with metal; even smallest metal particles will cause the content of the bottle to cure.

Scellants de filetages pour tuyaux de systèmes hydrauliques et pneumatiques

Les scellants de tuyaux filetés POWERLOCK évitent les fuites de tout fluide gazeux et liquide utilisé dans l'industrie à très haute pression.

Avantages

1. Ils résistent à la plupart des fluides utilisés dans l'industrie et évitent les obstructions des pièces de connexion (coudes, etc ...) dans les systèmes hydrauliques et pneumatiques (comme cela se passerait avec des bandes de chanvre ou de téflon).
2. La connexion filetée est protégée contre la corrosion de tels fluides et les différentes résistances disponibles permettent un démontage même après plusieurs années d'assemblage stable.
3. Les scellants POWERLOCK sont la meilleure option pour créer une union filetée étanche et éviter les risques de fuite.

Recommandations d'utilisation

Prétraitement des surfaces:

Aucun traitement spécifique n'est nécessaire avant l'application du POWERLOCK, mais afin d'obtenir des résultats optimaux il est conseillé de dégraisser et de nettoyer préalablement les surfaces à assembler. Plus les surfaces sont propres, meilleurs sont les résultats.

Application directe

POWERLOCK s'applique directement avec son embout de dosage en évitant le contact direct de l'embout de dosage avec le métal. S'il s'agit d'assemblages pressés et d'éléments d'union de grande taille, appliquer sur les deux surfaces en formant une couche mince et uniforme. Si vous manipulez des filetages dans des trous borgnes, appliquez une quantité suffisante de POWERLOCK dans le trou. S'il s'agit de vis et de boulons, appliquez l'adhésif en forme d'anneau. Ne pas reverser dans la bouteille le POWERLOCK qui a été en contact avec le métal: même les particules les plus fines entraînent un durcissement de la bouteille.

Vedantes de roscas para tubulação em sistemas hidráulicos e pneumáticos

Os vedantes de tubulações roscadas POWERLOCK impedem vazamentos de qualquer fluido gasoso e líquido usado na indústria, que são conduzidos a altas pressões.

Vantagens

1. São resistentes à maioria dos fluidos aplicados na indústria e evitam as obstruções das peças de conexão (cotovelos, etc.) em sistemas hidráulicos e pneumáticos (como aconteceria usando cânhamo ou fitas de teflon).
2. A conexão roscada fica protegida contra a corrosão de tais fluidos e as diferentes resistências disponíveis permitem uma desmontagem mesmo após vários anos de conexão estável.
3. Os selantes POWERLOCK são a melhor opção para criar uma união roscada ESTANQUE e evitar o risco de vazamento.

Recomendações de Uso

Pretratamento de superfícies:

Nenhum tratamento específico é obrigatorio antes da aplicação do POWERLOCK, mas para obter resultados ótimos, é aconselhável desengordurar e limpar previamente as superfícies a juntar. Quanto mais limpas as superfícies, melhores são os resultados.

Aplicação direta

POWERLOCK aplica-se diretamente desde a sua ponta dosadora evitando o contato direto da ponta dosadora com o metal. Se é uma questão de uniões prensadas e elementos de união de grande medida, molhe ambas as superfícies formando uma camada fina e uniforme. No caso de roscas em furos cegos, aplique uma quantidade suficiente do POWERLOCK no furo. No caso de parafusos e pernos, aplique o aderente em forma anular. Não verter novamente à garrafa o POWERLOCK que já tenha estado em contato com o metal. Mesmo as partículas mais finas levam ao endurecimento na garrafa.

1	2	3	4	5	6	7	8	9	10	11	€
500542 DIN DVGW		G 1/8"-3/4"	500 mPa-s	0,15 mm	12-15 Nm	18-22 Nm	8-12 N/mm² (1.160-1.740 psi)	10-20 min.	2-4 h.	-60 hasta +150ºC (-76 hasta +302ºF)	38,99
500572 ** DIN DVGW		G 1/8"-3"	17.000-50.000 mPa-s	0,40 mm	7-10 Nm	2-4 Nm	4-6 N/mm² (580-870 psi)	20-40 min.	5-10 h.	-60 hasta +150ºC (-76 hasta +302ºF)	23,44

Ref. 500542

** PTFE líquido / PTFE / PTFE liquide / PTFE líquido

1- Artículo
2- Color
3- Rango de aplicación
4- Viscosidad a +25ºC
5- Holgura máx.
6- Resistencia a la rotura
7- Fuerza residual
8- Resistencia al cizallamiento (N/mm2)
9- Sólido a mano a temperatura ambiental
10- Dureza final a temperatura ambiental
11- Resistencia a la temperatura

1- Part number
2- Colour
3- Application range
4- Viscosity at +25ºc
5- Max. gap filling
6- Breakaway strength
7- Prevailing strength
8- Shear Strength (N/mm2)
9- Handling strength at room temperature
10- Final strength at room temperature.
11- Operation temperature.

1- Article
2- Couleur
3- Rang d'application
4- Viscosité à 25ºC
5- Jeu Max.
6- Résistance à la rupture
7- Force résiduelle
8- Résistance au cisaillement
9- Temps de séchage initial à température ambiante
10-Temps de séchage complet à température ambiante
11-Température de travail

1- Artigo
2- Cor
3- Faixa de aplicação
4- Viscosidade a +25
5- Folga max.
6- Resistência à ruptura
7- Força residual
8- Resistência ao cisalhamento (N/mm2)
9- Tempo de cura fase inicial a temperatura ambiente
10- Tempo de cura total a temperatura ambiente
11- Temperatura de trabalho

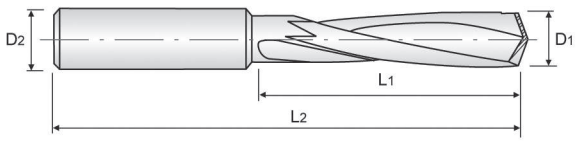
* Ficha de datos de seguridad disponible / Material safety data sheet available / Feuille de sécurité disponible / ficha de dados de segurança disponível

BROCA DE METAL DURO PARA TALADRADO DE MACHOS Y TORNILLOS ROTOS

SOLID CARBIDE ARMOUR DRILL FOR BROKEN TAPS AND BOLTS
FORET CARBURE INTÉGRAL POUR LE PERÇAGE DE TARAUDS ET VIS CASSÉS
PARA PERFURAÇÃO DE MACHOS E PARAFUSOS QUEBRADOS

Ref. BC85

70 HRc | CARBIDE | TOL D1 h7 | TOL D2 h6 | 140° | 15° "H" | TiAlN | HARDOX 600 | HIGH PERFORMANCE

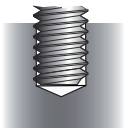


	D1 mm	D2 mm	L1 mm	L2 mm	
BC850300	3,0	3	46	16	
BC850330	3,3	4	48	18	M4
BC850340	3,4	4	50	20	
BC850350	3,5	4	50	20	
BC850400	4,0	4	52	22	
BC850420	4,2	6	65	25	M5
BC850430	4,3	6	68	28	
BC850440	4,4	6	68	28	
BC850450	4,5	6	68	28	
BC850500	5,0	6	72	32	M6
BC850510	5,1	6	72	32	
BC850520	5,2	6	72	32	
BC850550	5,5	6	75	35	
BC850600	6,0	6	75	35	
BC850650	6,5	8	80	40	
BC850680	6,8	8	85	45	M8
BC850690	6,9	8	85	45	
BC850700	7,0	8	85	45	
BC850750	7,5	8	85	45	
BC850800	8,0	8	98	50	
BC850850	8,5	10	98	50	M10
BC850860	8,6	10	105	57	
BC850880	8,8	10	105	57	
BC850900	9,0	10	105	57	
BC850950	9,5	10	105	57	
BC851000	10,0	10	111	63	
BC851020	10,2	12	111	63	M12
BC851030	10,3	12	111	63	
BC851050	10,5	12	111	63	
BC851080	10,8	12	119	71	
BC851100	11,0	12	119	71	
BC851150	11,5	12	119	71	
BC851200	12,0	12	119	71	M14
BC851400	14,0	14	125	77	M16

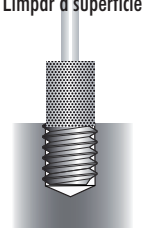
TALADRADO DE TORNILLOS Y MACHOS ROTOS

DRILLING THROUGH BROKEN SCREWS / PERÇAGE DE TARAUDS/VIS CASSÉS
FURAÇÃO DE PARAFUSOS E MACHOS QUEBRADOS

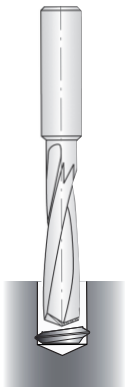
Tornillo roto / Broken bolt
Vis cassée / Parafuso quebrado



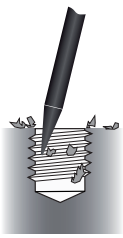
Limpiar la superficie
Clean surface up
Nettoyer la surface
Limpar a superfície



Taladrado / Drilling
Perçage / Perfuração

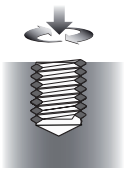


Retirar los restos
Remove leftover residues
Enlever les résidus
Remover os restos



Reparar la rosca con insertos
Restore the thread with inserts
Réparer le filetage avec un filet rapporté
Reparar a rosca com os insertos

powercoil by celesa



CONDICIONES DE CORTE / CUTTING CONDITIONS CHART / CONDITIONS DE COUPE / CONDIÇÕES DE CORTE

HRc	50-55		55-60		60-70	
VC	14-22 m/min		10-16 m/min		8-13 m/min	
Ø	(R.P.M.)	FEED (mm/rev)	(R.P.M.)	FEED (mm/rev)	(R.P.M.)	FEED (mm/rev)
3	1900	0.04	1330	0.04	1000	0.04
4	1430	0.04	1000	0.04	750	0.04
5	1150	0.04	800	0.04	600	0.04
6	960	0.04	670	0.04	500	0.04
8	720	0.04	500	0.04	370	0.04
10	570	0.04	400	0.04	300	0.04
12	480	0.04	330	0.04	250	0.04
14	438	0.04	282	0.04	210	0.04

TABLA PARA LA CONSULTA DE HERRAMIENTAS DE INSTALACION DE INSERTOS

QUICK SEARCHING CHART FOR INSERTS INSTALLATION TOOLS
TABLEAU POUR LA RECHERCHE D'OUTILS DE POSE DE FILETS RAPPORTÉS
A CONSULTA DE FERRAMENTAS DE INSTALAÇÃO DE INSERTOS

MC	MF	SPARK	UNC	UNF	BSW	BSF	BA	BSC	NPT	BSP	UN-8	Ref.	Ref.	Ref.
2X0.40	–	–	–	–	–	–	–	–	–	–	–	3500-HIT2	3500-TB1	3500-RT1
2.20X0.45	–	–	2GX56	–	–	–	–	–	–	–	–	3500-HIT2	3500-TB2	3500-RT1
2.50X0.45	–	–	3GX48	3GX56	–	–	#6	–	–	–	–	3500-HIT3	3500-TB3	3500-RT1
–	–	–	4GX40	4GX48	1/8X40	–	–	–	–	–	–	3500-HIT4	3500-TB4	3500-RT1
3X0.50	–	–	4GX40	4GX48	1/8X40	–	–	–	–	–	–	3500-HIT4	3500-TB4	3500-RT2
–	–	–	5GX40	–	–	–	–	–	–	–	–	3500-HIT4	3500-TB4	3500-RT1
3.50X0.60	–	–	–	–	–	–	–	–	–	–	–	3500-HIT5	3500-TB5	3500-RT2
–	–	–	6GX32	6GX40	–	–	#4	–	–	–	–	3500-HIT5	3500-TB5	3500-RT1
4X0.70	–	–	8GX32	8GX36	–	3/16X32	–	–	–	–	–	3500-HIT6	3500-TB6	3500-RT2
–	–	–	8GX32	8GX36	–	–	–	–	–	–	–	3500-HIT6	3500-TB6	3500-RT1
5X0.80	–	–	12GX24	10GX32	3/16X24	3/16X32	#1	–	–	–	–	3500-HIT8	3500-TB8	3500-RT2
–	–	–	12GX24	12GX28	–	–	–	–	–	–	–	3500-HIT8	3500-TB8	3500-RT2
6X1.00	–	–	1/4X20	1/4X28	1/4X20	1/4X26	#0	1/4X26	–	–	–	3500-HIT9	3500-TB9	3500-RT2
7X1.00	–	–	5/16X18	–	5/16X18	5/16X22	#0	–	1/16X27	–	–	3500-HIT10	3500-TB11	3500-RT2
8X1.25	8X1.00	–	5/16X18	5/16X24	3/8X16	5/16X22	–	5/16X26	–	–	–	3500-HIT11	3500-TB12	3500-RT2
9X1.25	9X1.00	10X1.00	3/8X16	3/8X24	–	3/8X20	–	3/8X26	–	–	–	3500-HIT13	3500-TB12	3500-RT2
–	10X1.00	–	3/8X16	–	3/8X16	3/8X20	–	–	–	–	–	3500-HIT13	3500-TB12	3500-RT3
10X1.50	10X1.25	–	–	–	–	–	–	–	1/8X27	–	–	3500-HIT13	3500-TB13	3500-RT2
–	–	–	–	3/8X24	–	–	–	3/8X26	–	–	–	3500-HIT13	3500-TB13	3500-RT3
–	10X1.00	–	–	–	–	–	–	–	–	–	–	3500-HIT13	3500-TB13	3500-RT2
11X1.50	11X1.25	–	7/16X14	7/16X20	7/16X14	7/16X18	–	7/16X26	–	1/8X28	–	3500-HIT14	3500-TB14	3500-RT3
–	11X1.00	–	–	–	–	–	–	–	–	–	–	3500-HIT14	3500-TB14	3500-RT3
12X1.75	12X1.50	10X1.25	1/2X13	1/2X20	1/2X12	1/2X16	–	1/2X26	–	–	–	3500-HIT15	3500-TB15	3500-RT3
–	12X1.25	–	–	–	–	–	–	–	–	–	–	3500-HIT15	–	–
–	12X1.00	12X1.25	–	–	–	–	–	–	–	–	–	3500-HIT15	3500-TB15	3500-RT3
13X1.75	13X1.50	–	–	–	–	–	–	–	–	–	–	3500-HIT15	3500-TB15	3500-RT3
–	13X1.25	–	–	–	–	–	–	–	–	–	–	3500-HIT16	–	3500-RT3
14X2.00	14X1.50	14X1.25	9/16X12	9/16X18	9/16X12	9/16X16	–	–	–	1/4X18	–	3500-HIT16	–	3500-RT3
–	14X1.00	–	–	–	–	–	–	–	–	–	–	3500-HIT16	–	3500-RT3
15X2.00	15X1.50	–	–	–	–	–	–	–	1/4X18	–	–	3500-HIT16	–	3500-RT3
–	–	14X1.25	–	–	–	–	–	–	–	–	–	3500-HIT17	–	–
16X2.00	16X1.50	–	5/8X11	5/8X18	5/8X11	5/8X14	–	–	3/8X18	–	–	3500-HIT18	–	3500-RT3
18X2.50	18X2.00	18X1.50	3/4X10	–	3/4X10	3/4X12	–	–	–	3/8X19	–	3500-HIT20	–	3500-RT3
–	18X1.50	–	–	–	–	–	–	–	–	–	–	3500-HIT20	–	–
20X2.50	20X2.00	–	–	3/4X16	–	–	–	–	–	–	–	3500-HIT21	–	3500-RT3
–	20X1.50	–	–	–	–	–	–	–	–	–	–	3500-HIT21	–	3500-RT3
22X2.50	22X2.00	–	7/8X9	7/8X14	7/8X9	7/8X11	–	–	1/2X14	–	–	3500-HIT22	–	3500-RT3
–	22X1.50	–	–	–	–	–	–	–	–	–	–	3500-HIT22	–	3500-RT3
24X3.00	24X2.00	–	1X8	1X12	1X8	1X10	–	–	–	1/2X14	–	3500-HIT23	–	3500-RT3
–	24X1.50	–	–	1X14	–	–	–	–	–	5/8X14	–	3500-HIT23	–	3500-RT3
–	26X1.50	–	–	–	–	–	–	–	–	–	–	3500-HIT24	–	3500-RT4
27X3.00	27X2.00	–	–	–	–	–	–	–	–	–	–	3500-HIT24	–	3500-RT4
–	27X1.50	–	–	–	–	–	–	–	–	–	–	3500-HIT24	–	3500-RT4
–	28X1.50	–	–	–	–	–	–	–	–	–	–	3500-HIT24	–	3500-RT4
30X3.50	30X2.00	–	1.1/8X7	1.1/8X12	–	–	–	–	–	–	–	3500-HIT25	–	3500-RT4
–	30X3.00	–	1.1/8-7	1.1/8-12	–	–	–	–	–	–	1.1/8X8	3500-HIT25	–	–
–	30X1.50	–	1.1/4X7	1.1/4X12	–	–	–	–	–	–	–	3500-HIT26	–	3500-RT4
33X3.50	33X2.00	–	1.3/8X6	1.3/8X12	–	–	–	–	–	3/4X14	1.1/4X8	3500-HIT26	–	3500-RT4
–	–	–	1.3/8-6	1.3/8-12	–	–	–	–	1X11.5	7/8X14	1.3/8X8	3500-HIT27	–	–
–	–	–	–	–	–	–	–	–	–	1X11	–	3500-HIT27	–	–
36X4.00	36X3.00	–	1.1/2X6	1.1/2X12	–	–	–	–	–	–	1.1/2X8	3500-HIT28	–	3500-RT4
39X4.00	36X2.00	–	–	–	–	–	–	–	–	–	–	3500-HIT28	–	3500-RT4
–	36X1.50	–	–	–	–	–	–	–	–	–	–	3500-HIT28	–	3500-RT4
42X4.50	–	–	–	–	–	–	–	–	–	–	1.5/8X8	3500-HIT28	–	–
–	44X3.00	–	–	–	–	–	–	–	–	–	1.3/4X8	3500-HIT28	–	–
48X5.00	–	–	–	–	–	–	–	–	–	–	1.7/8X8	3500-HIT30	–	–
–	50X2.00	–	–	–	–	–	–	–	–	–	2X8	3500-HIT30	–	–

CONDICIONES GENERALES

Introducción

Las presentes condiciones generales de venta estarán en vigor desde el 1 de Abril de 2018 y vendrán a sustituir y dejar sin efecto a todas las condiciones generales anteriormente aplicadas, entendiéndose que todas las ventas y entregas efectuadas por CELESA; S.A. desde el 1 de Abril de 2018 estarán sometidas a las presentes Condiciones Generales, salvo pacto expreso por escrito firmado por las partes contratantes, en cuyo caso, dichos pactos particulares prevalecerán. Cualquier otro documento que no sean las presentes condiciones generales de venta, especialmente folletos, anuncios, avisos, tiene únicamente valor informativo y orientativo, pero no valor contractual.

Condiciones de pago

- La forma de pago será acordada individualmente con cada cliente, previa autorización del Departamento Administrativo-Financiero de CELESA, S.A., y adecuándose como máximo a los límites establecidos en la Ley 15/2010 del 5 de Julio de 2010.
- El incumplimiento de las condiciones de pago acordadas supondrá el corte del suministro de forma inmediata.

Vencimientos fijos

En caso de fechas fijas de pago que rebasen los plazos previamente estipulados, giraremos a la fecha fijada inmediatamente anterior, según corresponda, no pudiendo superarse en ningún caso los límites establecidos en la Ley 15/2010 del 5 de Julio de 2010.

Seguro

Las mercancías viajarán siempre por exclusiva cuenta y riesgo del comprador, siendo siempre a cargo del mismo la prima del seguro que se realice, en los casos que el cliente desee asegurarla.

Reclamaciones

Los clientes tienen la obligación de examinar los productos servidos a su recepción, a fin de comprobar su conformidad con el pedido en cuanto a la referencia o referencias servidas, y el número de unidades entregadas. En discrepancias por diferencias observadas en la recepción del material, se atenderán y evaluaran todas aquellas reclamaciones que se planteen dentro de los 8 días siguientes a su recepción, no aceptándose ninguna devolución sin la debida comunicación a CELESA, S.A. en el plazo establecido.

Devoluciones

Cualquier devolución de producto debe ser parte de un acuerdo formal y previo entre CELESA, S.A. y el comprador. Únicamente se aceptaran devoluciones por defecto de fabricación o error directamente atribuible a CELESA, S.A., y previa autorización del Departamento de Calidad de CELESA, S.A. Las devoluciones serán a portes pagados, deberán acompañar la factura y albarán original, y el envió se deberá realizar siempre por nuestros medios de transporte habituales.

Cualquier devolución de material deberá ser comunicada de forma inmediata a CELESA, S.A. directamente o por mediación del Representante, corriendo los gastos de transporte por cuenta del cliente. Una vez recibida la herramienta devuelta, nuestro Departamento de Calidad realizará las comprobaciones e inspecciones pertinentes, emitiendo el correspondiente informe. En el caso de que la herramienta no presente ningún defecto atribuible a la calidad de la misma, y no existan errores atribuibles a CELESA, S.A., se deducirá un 15% del valor de compra en concepto de manipulación e inspección de calidad.

Garantías

CELESA, S.A., garantiza todas las herramientas que componen su programa de ventas, contra cualquier defecto de fabricación y materiales, sin responsabilizarse bajo ningún concepto de la utilización inadecuada de las mismas. En cualquier caso, la responsabilidad de CELESA, S.A. estará limitada única y exclusivamente a la reparación o sustitución de la herramienta defectuosa con el límite máximo del valor de la herramienta suministrada, no comprometiendo abonos ni penalizaciones por ningún otro concepto.

CELESA, S.A., se reserva el derecho de modificar, sin previo aviso, las dimensiones, calidades de acero y en general cualquier característica técnica de sus productos, siempre que el Departamento Técnico considere que dicha variación supone una mejora técnica del producto.

CELESA, S.A. no sustituirá ninguna herramienta sin el informe técnico favorable de nuestro Departamento de Calidad, y respetando en todo momento las condiciones de funcionamiento expuestas en el apartado de Devoluciones.

CELESA, S.A. no admitirá reclamaciones o penalizaciones de ninguna naturaleza en caso de que se produjeran eventuales retrasos en la entrega de un pedido.

Portes

Envíos a Península y Baleares:

- Se suministrarán a portes pagados aquellas expediciones cuyo importe sea superior a 150 € netos.
- Para pedidos inferiores a 150 € netos por expedición los portes irán por cuenta del cliente (portes debidos o cargados en factura según acuerdo con el cliente, y siempre utilizando los medios de transporte con los que CELESA, S.A. mantiene algún tipo de convenio).
- CELESA, S.A. se reserva el derecho a utilizar el medio de transporte mas adecuado según los acuerdos que pueda mantener con características, destino, peso y volumen del envío.

Envíos a Canarias, Ceuta, Melilla y Andorra

- Se suministrarán a portes pagados aquellas expediciones cuyo importe sea superior a 300 € netos.
- Para pedidos inferiores a 300 € netos por expedición los portes irán por cuenta del cliente (portes debidos o cargados en factura según acuerdo con el cliente, y siempre utilizando los medios de transporte con los que CELESA, S.A. mantiene algún tipo de convenio).
- CELESA, S.A. se reserva el derecho a utilizar el medio de transporte mas adecuado según los acuerdos que pueda mantener con características, destino, peso y volumen del envío.
- En caso de solicitarse en el envío por la Autoridad Aduanera Documento Único Administrativo (DUA) este documento correrá siempre a cargo del cliente.

Importe mínimo por pedido

Queda establecido como pedido mínimo la cantidad de 40 € netos.

Tarifa en vigor

CELESA, S.A. aplicará condiciones y precios estipulados en la tarifa en vigor existente en cada momento, no responsabilizándose de interpretaciones ajenas al contenido de la misma.

Condicionalidad

La aceptación de las mercancías suministradas por CELESA, S.A., sin el rechazo inmediato por parte del comprador, supone la aprobación de estas condiciones generales de venta, y su modificación sólo tendrá validez sin consta por escrito la conformidad de CELESA, S.A.

I.V.A.

Los precios están sujetos al Impuesto Sobre el Valor Añadido que esté en vigor en cada momento, siendo éste por cuenta del cliente.

Reserva de dominio

Nuestras ventas se consideran siempre bajo la condición de Reserva de Dominio, según el artículo 1.506 de C.C., hasta que no se haya hecho efectivo íntegramente el pago de todo lo adecuado.

Jurisdicción competente

Para cualquier discrepancia acerca de la interpretación de estas condiciones, o litigio por razón de incumplimiento por cualquiera de las partes, se someten ambas al fuero de los Juzgados Tribunales de Bilbao, con renuncia al que pudiera corresponderles.

COMMERCIAL TERMS

Introduction

Present commercial terms will apply from the 1st of April of 2018. That means that previously applied terms will not be in effect any more,unless permanence of any specific agreement is strictly allowed.

Payment terms

- According to permission of Account Department.
- Breach of payment terms means cutting off following shipments dispatch.

Insurance

In case customer requires any insurance, correspondent premium must be paid by him.

Claims

Customers must check receiving goods once they get them in order to ensure that shipment has been correctly completed. Any claim placed from customers within 8 days will be analyzed, evaluated and explained and CELESA will not accept any returning goods without previous communication.

Returning goods

CELESA will accept returning goods just in case they are considered defective or in cases that mistaken shipment are on fault by CELESA. Goods must be always returned under freight cost paid by sender, with original invoice or packing list.

CELESA must be immediately informed about any returning good, directly or through our sales network. Quality Department will check goods and shortly, a technical or quality report will be completed. If no mistake would be found, CELESA will deduct 15% from the correspondent credit note in concept of handle cost. If customer would be right, goods will be immediately replaced or a credit note would be immediately submitted.

Guarantee

CELESA guarantees that all goods available in the range fulfil all technical requirements regarding Geometrical parameters and Material Treatment without any responsibility in bad using cases.

In any case, our responsibility will be limited up to repair or replacement of goods, without any further compensation o punishment. CELESA reserves the right to modify any good without any previous warning in case of Technical Department considers it an improvement in cutting tool life.

CELESA will never proceed with replacement of any tools without favourable report from Quality Department.

CELESA will never admit any punishment from customers for delays in any shipment.

Minimum order total amount

Minimum order total amount is 60 € Net.

Price list in force

CELESA will apply current price list without any responsibility for customers misunderstanding beyond our content of BLUEMASTER catalogue.

Conditional terms

Acceptance of goods shipped by CELESA without immediate rejection from customer, means approval of above mentioned Commercial terms and any modification will be allowed just in case of written authorization from CELESA.

Taxes

Orders are not subject to VAT.

Retention of title

CELESA sales are subject to retention of title according to Art. 1506 of CC, until any invoice pending payment is completed.

Competent jurisdiction

In case of any misunderstanding in interpretation of these Commercial terms or non-fulfilment from any side may be appealed to the Bilbao Court.

CONDITIONS GÉNÉRALES DE VENTE

Introduction

Les conditions générales de vente sont en vigueur à partir du 1 Avril 2018 et remplacent et annulent toutes les conditions appliquées antérieurement. Il s'entend que toutes les ventes et livraisons effectuées par CELESA, S.A. à partir du 1 Avril 2018 sont soumises à ces conditions générales, sauf disposition expresse contraire écrite et signée par les parties contractantes, qui prévaudraient sur les conditions générales.
Tout document autre que les conditions générales de vente présentes, et en particulier, les dépliants, publicité, promotions n'a qu'une valeur informative et orientative et en aucun cas contractuelle.

Modalités de règlement

- Les conditions de règlement seront établies en accord avec la loi en vigueur et après acceptation de la part du département financier de CELESA S.A.
- Le défaut de paiement impliquera l'arrêt immédiat des livraisons.

Assurance

Les marchandises voyagent toujours au seul risque de l'acheteur, étant toujours à sa charge la prime à payer si le client souhaite assurer la marchandise.

Réclamations

Les clients sont tenus d'examiner les produits livrés à leur réception, pour vérifier la conformité avec la commande quant à la ou les références, et le nombre d'unités livrées. En cas de non-conformité ou de différences constatées à la réception du matériel, seront acceptées les réclamations effectuées sous 8 jours après réception.
Aucun retour ne sera accepté sans cette communication à CELESA, S.A. dans les délais indiqués.

Retours

Seront acceptés uniquement les retours pour défaut de fabrication ou erreurs directement attribuables à CELESA, S.A., et après approbation du Département Qualité de CELESA, S.A. Les retours seront effectués à ports payés et seront accompagnés de la facture originale et du bon de livraison. L'expédition sera effectuée par nos moyens habituels de transport.

Tout retour doit faire l'objet d'un accord formel et préalable entre CELESA, S.A. et l'acheteur.

Tout retour de matériel doit être immédiatement communiqué à CELESA S.A. directement ou par l'intermédiaire du Représentant, les frais de port étant à la charge du client. A la réception de l'outil, notre Département Qualité effectuera les contrôles nécessaires et pertinents, et émettra un rapport. Dans le cas où l'outil ne présenterait aucun défaut imputable à sa qualité, et s'il n'y avait pas d'erreurs imputables à CELESA, S.A. 15% du prix d'achat seront déduits en concepts de manipulation et d'inspection.

Garanties

CELESA, S.A. garantit tous les outils de son programme de vente contre tout défaut de matière et de fabrication, sans se rendre en aucune manière responsable de l'utilisation inadéquate des dits outils. Dans tous les cas, la responsabilité de CELESA, S.A. se limite exclusivement à la réparation ou au remplacement de l'outil défectueux à hauteur de la valeur maximale de l'outil fourni, ceci n'engageant aucun avoir ni pénalité pour aucun autre concept.

CELESA, S.A. se réserve le droit de modifier, sans préavis, les dimensions, nuances d'acier, et en général toute caractéristique technique de ses produits, dès que le Service Technique estime que ce changement suppose une amélioration technique du produit.

CELESA, S.A. ne remplacera aucun outil sans un rapport favorable de son Département Qualité, et dans tous les cas en respectant les conditions de fonctionnement décrites dans la section Retours.

CELESA, S.A. ne pourra accepter aucune réclamation ou pénalité de quelque nature en cas de retards éventuels dans la livraison d'une commande.

Transport

- Les commandes seront envoyées Franco de port en France Métropolitaine à partir d'un montant de 250 € nets.
- Pour les commandes inférieures à 250 € nets, les frais d'envoi seront à la charge du client (ils seront ajoutés au montant des outils envoyés, en fonction de ce qui aura été accordé avec le client, et en utilisant toujours les moyens de transports pour lesquels il existe un accord avec CELESA, S.A.).
- CELESA, S.A. se réserve le droit d'utiliser le moyen de transport le plus adéquat en fonction des caractéristiques, de la destination, du poids et du volume de l'envoi.

Minimum de commande

Le montant minimum de commande est de 60 € net.

Tarif en vigueur

CELESA, SA appliquera les conditions et prix indiqués dans le tarif en vigueur, ne pouvant être rendue responsable d'interprétations externes à son contenu.

Conditionnalité

L'acceptation de la marchandise livrée par CELESA, S.A. sans refus immédiat par l'acheteur, implique l'acceptation de ces conditions générales de vente. Leur modification sera valide seulement s'il existe un accord écrit de la part de CELESA, S.A.

T.V.A.

Les commandes ne sont pas sujettes à la TVA.

Reserve de propriété

Les produits vendus par CELESA, S.A. restent de sa propriété tant que le règlement intégral des factures correspondant n'a pas été effectué.

Juridiction compétente

Pour tout litige concernant l'interprétation de ces conditions, ou relatif à leur non respect par l'une des parties, celles-ci se soumettent à la juridiction des tribunaux de Bilbao, renonçant à celle qui pourrait être d'éventuelle application, même dans le cas où le contraire serait stipulé dans des lettres ou communiqués du client.

Condições Gerais de Venda

Introdução

Estas condições gerais de venda estão em vigor desde o 1 Abril de 2018. Todas as vendas e fornecimentos feitos pela CELESA,S.A. desde o 1 Abril de 2018 estarão sujeitos a estas condições gerais de venda, exceto acordo por escrito e assinado pelas partes contratantes. Nesse caso, esses acordos específicos prevalecerão.

Condições de pagamento

- O pagamento será combinado individualmente com cada cliente, com autorização prévia do Departamento de Administração e Financeiro da CELESA, S.A., e adaptando-se aos limites máximos estabelecidos na Lei 15/2010 de 5 de Julho de 2010.
- O não cumprimento das condições de pagamento combinadas significará a interrupção imediata do fornecimento.

Datas de expiração fixas

Se as datas de pagamento fixas ultrapassam os limites anteriormente dispostos, nos faremos transferência electrónica na data fixada imediatamente anterior, conforme adecuado, não pudendo superar em nenhum caso os limites estabelecidos na Lei 15/2010 de 5 de Julho de 2010.

Seguro

A mercadoria será fornecida sempre a conta e risco do comprador, sendo sempre a conta do mesmo o prémio do seguro que se realize, nos casos que o cliente quera assegurar-la.

Reclamações

Os clientes têm a obrigação de examinar os produtos fornecidos no recebimento, para verificar o cumprimento das referências e quantidades encomendadas. Se houvesse discrepâncias observadas na recepção da mercadoria, serão atendidas todas as reclamações feitas no prazo de 8 dias desde a recepção da mercadoria. Não será aceita devolução nenhuma sem aviso prévio à CELESA, S.A. no prazo fixado.

Devoluções

As devoluções serão aceitas só por defeito de fabricação ou erro diretamente atribuível à CELESA, S.A., e prévia autorização do Departamento de Qualidade da CELESA, S.A. As devoluções serão com o porte pago, a nota de entrega e fatura deberão acompanhar á mercodoria, e o envío será feito pelos meios de transporte habituais da CELESA. S.A.

Qualquer outra devolução da mercadoria deberá ser comunicada de imediato à CELESA, S.A., diretamente ou através do representante, sendo neste caso o porte pela conta do cliente. Uma vez recebida a mercadoria em devolução, o nosso Departamendo de Qualidade realizará as inspecções e verificações pertinentes e emitirá um relatório. No caso em que a ferramenta não tenha defeito atribuível à qualidade da mesma ou erro da CELESA, S.A., será deduzido o 15% do valor de compra em conceito de manipulação e inspecção.

Garantias

CELESA, S.A. garante todas as ferramentas que fazem parte do seu programa de vendas contra defeitos de fabrico e materiais, sem ser responsável em qualquer circunstância da utilização inadequada das mesmas. Em qualquer caso, a responsabilidade da CELESA, S.A. estará limitada exclusivamente para a reparação ou substituição da ferramenta com defeito com o limite máximo de valor da ferramenta fornecida, não comprometendo penalizações por qualquer outro conceito.

CELESA, S.A. reserva-se o direito de modificar, sem prévio aviso, dimensões, qualidades dos materiais e, geralmente, qualquer característica técnica dos seus produtos, desde que o Departamento Técnico considere que esta variação é um aperfeiçoamento técnico do produto.

CELESA, S.A. não vai substituir qualquer ferramenta sem o relatório técnico favorável do nosso Departamento de Qualidade, respeitando sempre as condições de funcionamento estabelecido na seção de Devoluções.

CELESA, S.A. não vai admitir reclamações de qualquer tipo, no caso de eventuais atrasos no fornecimento duma encomenda.

Portes

Envios para PORTUGAL:

Os envios serão com porte pago para encomendas de importe de 200 € líquidos ou superior.

Para encomendas de importe inferior aos 200 € líquidos o porte será pela conta do cliente. (Porte devido ou debitado na fatura coforme ao acordo com o cliente e sempre pelos meios de transporte habituais da CELESA, S.A.)

CELESA, S.A. reserva-se o direito de utilizar os meios de transporte mais adequados de acordo com as características do envio: destino, peso e volume.

Importe mínimo de encomenda

Fica establecido como importe mínimo de encomenda a quantidade de 40 € líquidos.

Tabela em vigor

CELESA, S.A. aplicará as condições e preços estipulados na tabela em vigor em todos os momentos e exime-se das responsabilidades pelas interpretações fora do conteúdo da mesma. Todos os preços indicados na tabela são unitarios, salvo indicação contrária.

Condicionalidade

A aceitação dos produtos fornecidos pela CELESA, S.A., sem a rejeição imediata por parte do comprador, assume a aprovação destas condições gerais de venda, e a modificação das mesmas só poderá ter efeito com a conformidade por escrito da CELESA, S.A.

I.V.A.

As vendas a Portugal ficam exentas do I.V.A.

Reserva de propiedade

As vendas feitas pela CELESA, S.A. são sempre consideradas na condição de Reserva de Propiedade, conforme ao artigo 1506 de C.C., até que o pagamento integral de tudo o devido não seja feito.

Jurisdição competente

Qualquer discrepância relativa à interpretação destas condições, ou litígio por incumprimento por qualquer das partes, estão sujeitos à jurisdição dos Tribunais da cidade de Bilbao, com renúncia ao que poderia corresponder.

2018

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