

TTC

PUNZONES y MATRICES



Solutions for Metalworking

WWW.TCPUNZONES.COM



Trumpf® system

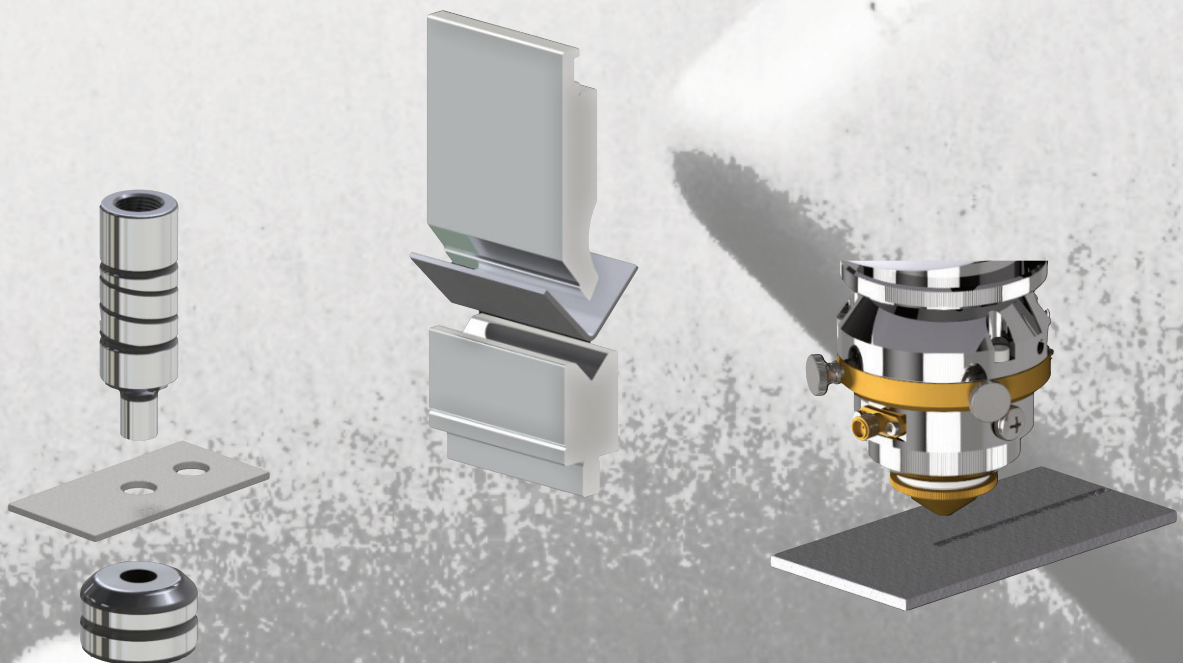
TC PUNZONES Y MATRICES
www.tcpunzones.com
Tlf. +34 934 228 023
info@tcpunzones.com

Trumpf® System

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LARGO TOTAL

TOTAL LENGTH

L = 74,5mm

L = 77,5mm

Porta Punzón
Punch Holder

Ø6 mm
Ø10,5 mm

Punzón
Insertable
Insertable
Punch

Ø6 mm
L = 59,5 mm
L = 63 mm

Punzón
Insertable
Formas y
Redondos
Insertable
Punch
Shapes &
Rounds

Ø10,5 mm
L = 59,5 mm
L = 63 mm

Pisador
de Uretano
Urethane
Stripper

Separador
Mini
Mini stripper

*GRUPO
GROUP
S

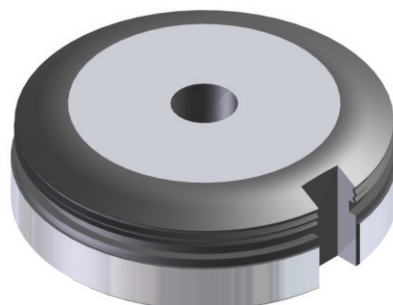
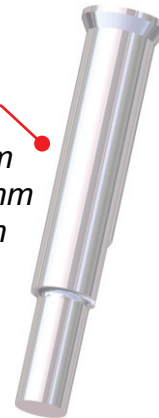
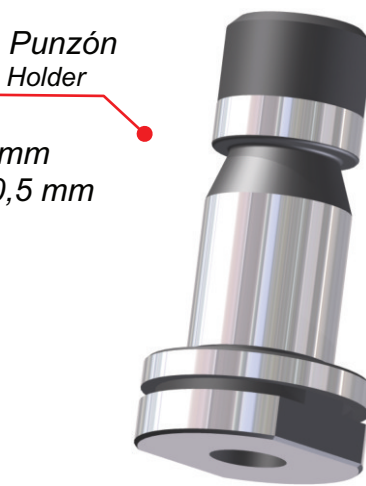
Separador
Tamaño II
Size II Stripper

*GRUPOS
GROUPS
A B C D E F G

Separador
Tamaño II
Size II Stripper

*GRUPOS
GROUPS
H I

Matriz
Tamaño I
Size I die



Punzón
Punch



Pisador
de Uretano
Urethane
Stripper



Separador
Mini
Mini stripper

*GRUPO
GROUP
S



Separador
Tamaño II
Size II Stripper

*GRUPOS
GROUPS
A B C D E F G

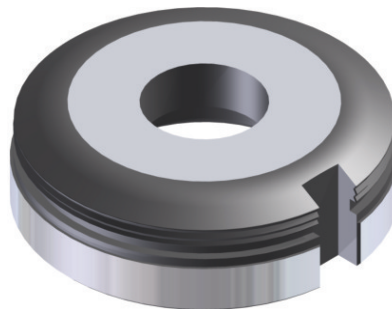


Separador
Tamaño II
Size II Stripper

*GRUPOS
GROUPS
H I



Matriz
Die



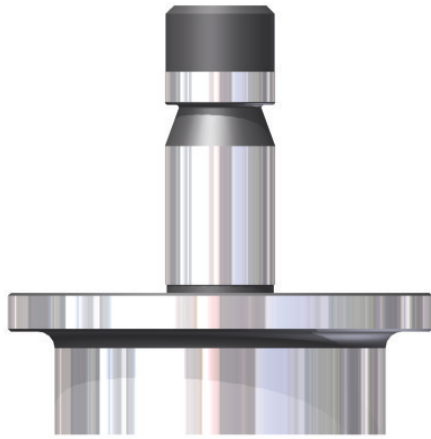
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- Maximum shape inscribed in Ø31mm

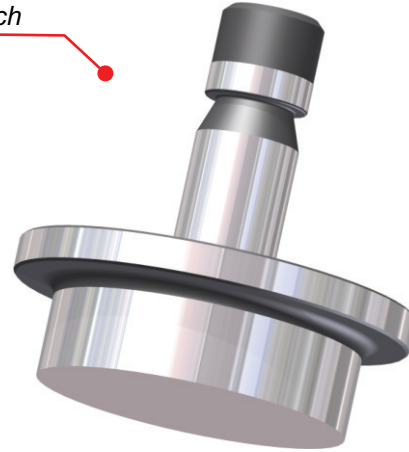
- **Suplementos de matriz de espesor**

- Die supplement Ring

0,3 - 0,5 mm



Punzón
Punch



Pisador
de Uretano
Urethane
Stripper



Separador
Tamaño II
Size II Stripper

*GRUPOS
GROUPS
A B C D E F G

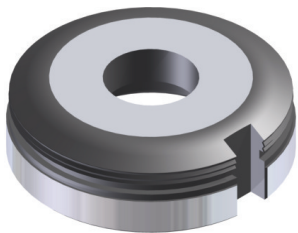


Separador
Tamaño II
Size II Stripper

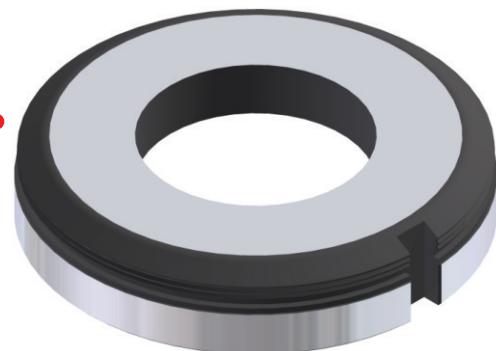
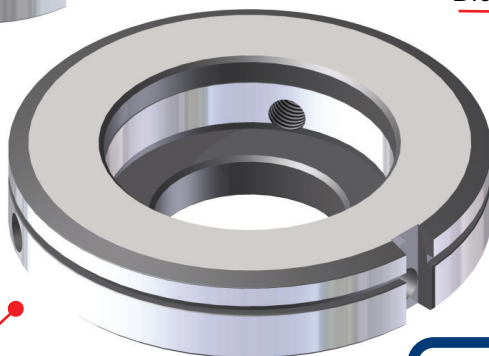
*GRUPOS
GROUPS
H I



Matriz
Tamaño I
Die size I



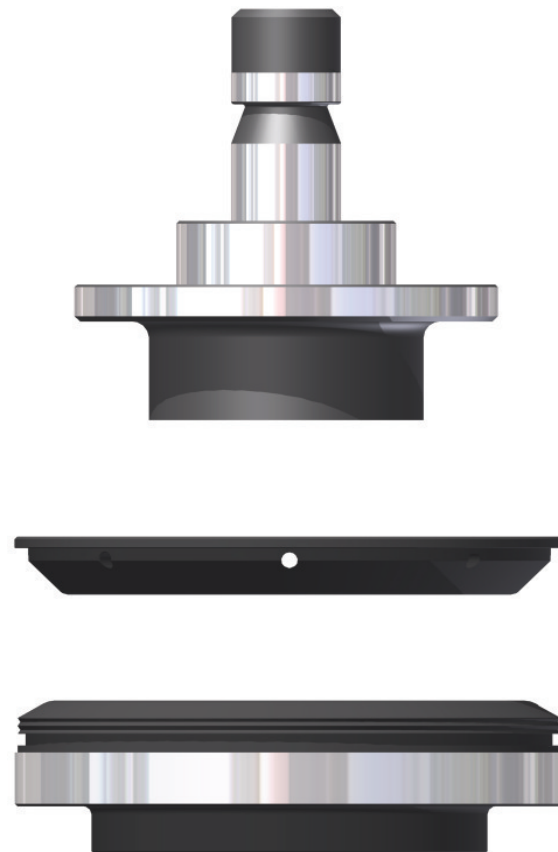
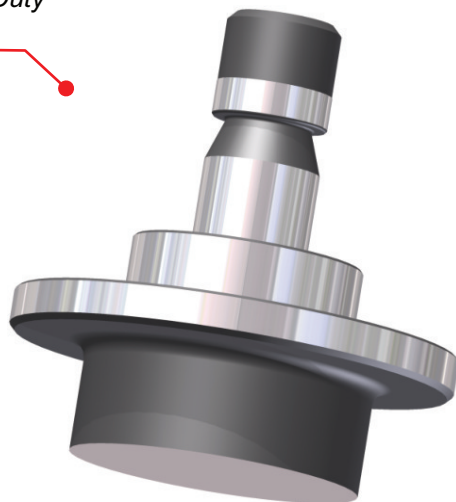
Matriz
Tamaño II
Die Size II



Reductora
Matriz 100/60
Die adapter 100/60

- Figura máxima inscrita en Ø77mm
- Maximum shape incirbed in Ø77mm
- Suplementos de matriz de espesor
- Die supplement Shims
- 0,3 - 0,5 mm

Punzón
Reforzado
Heavy Duty
Punch



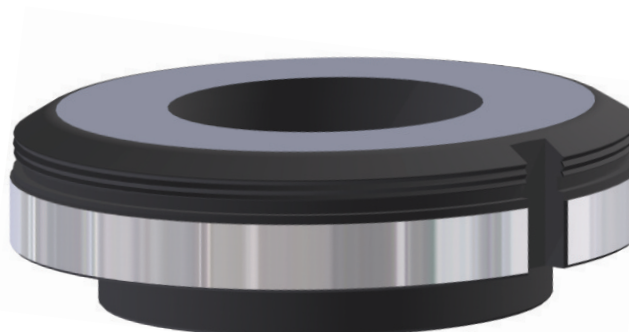
Separador
Tamaño II
Size II Stripper
*GRUPOS
GROUPS
A B C D E F G



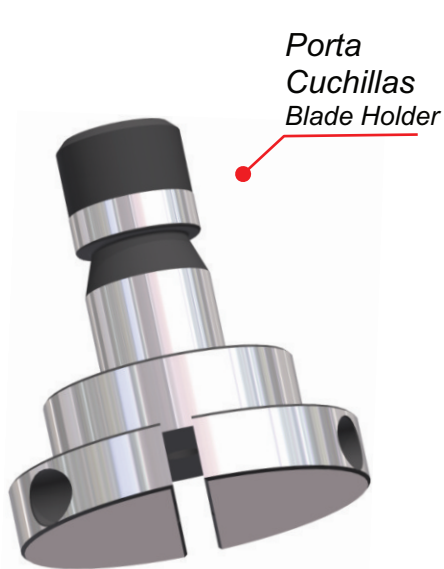
Separador
Tamaño II
Size II Stripper
*GRUPOS
GROUPS
H I



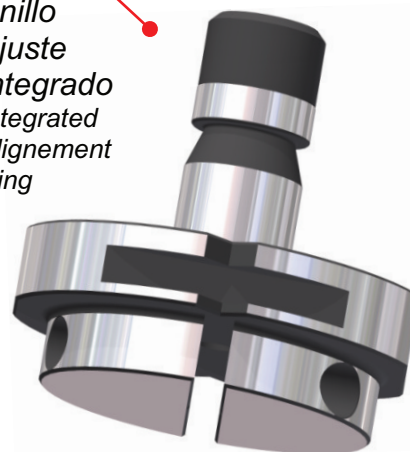
Matriz
Reforzada
Heavy Duty
Die



- **Figura máxima inscrita en Ø77mm**
- *Maximum shape inscribed in Ø77mm*
- **Suplementos de matriz de espesor**
- *Die supplement Ring*
0,3 - 0,5 mm



Porta Cuchillas
Blade Holder
Anillo Ajuste Integrado
Integrated Alignment Ring



Cuchillas
Blades
30x5 mm
56x5 mm
76,2x5 mm

Separador
Tamaño II
Size II Stripper
*GRUPOS
GROUPS
A B C D E F G



Separador
Tamaño II
Size II Stripper
*GRUPOS
GROUPS
H I



Inserto Matriz
Die Insert



30x5 mm
56x5 mm

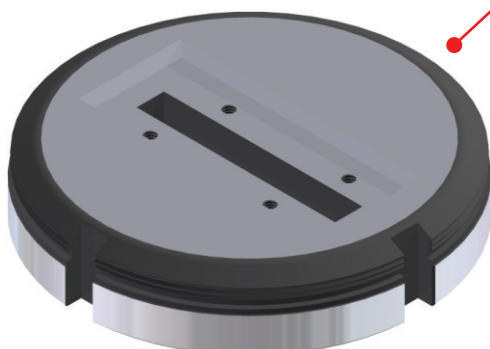
Inserto Matriz
Die Insert



76,2x5 mm

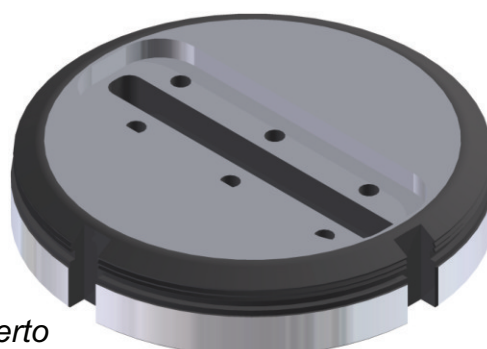
Porta Inserto
Insert Holder Die

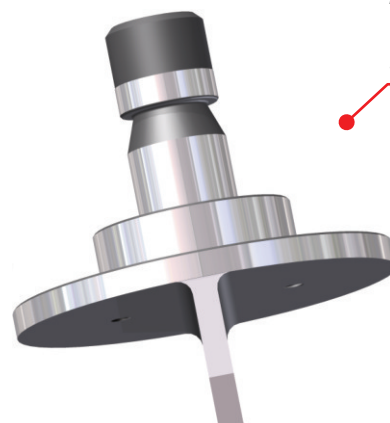
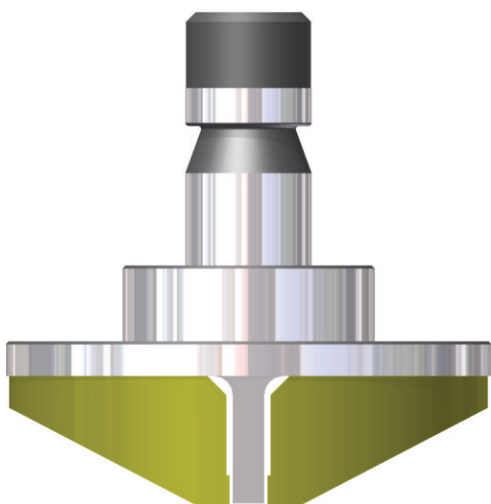
30x5 mm
56x5 mm



Porta Inserto
Insert Holder Die

76,2x5 mm





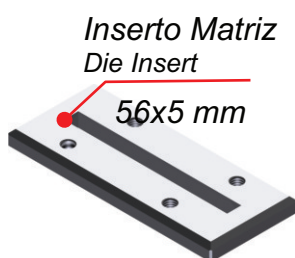
Punzón
Cortador
Slitting Punch
76,2x5 mm
56x5 mm



Pisadores
Poliuretano
Urethane Self
Stripper
76,2x5 mm
56x5 mm



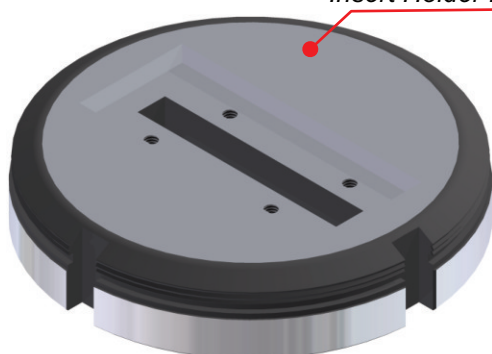
Matriz
Tamaño II
Size II Die
76,2x5 mm
56x5 mm



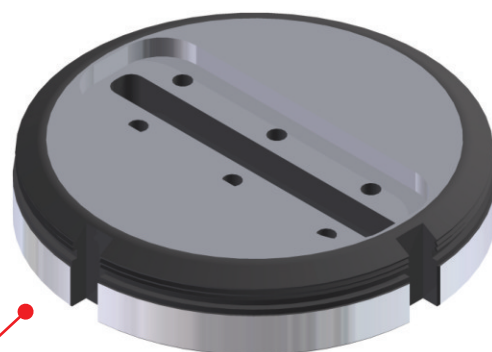
Inserto Matriz
Die Insert
56x5 mm



Inserto Matriz
Die Insert
76,2x5 mm



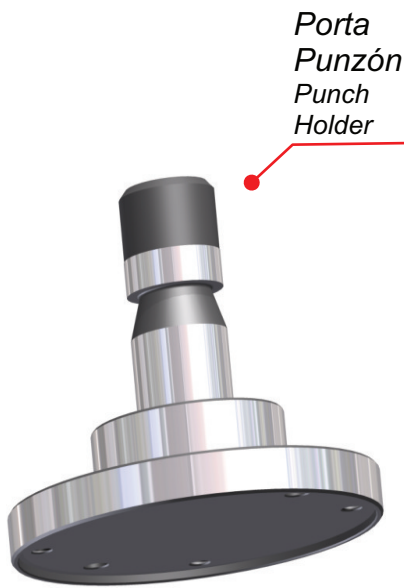
Porta Inserto
Insert Holder Die
56x5 mm



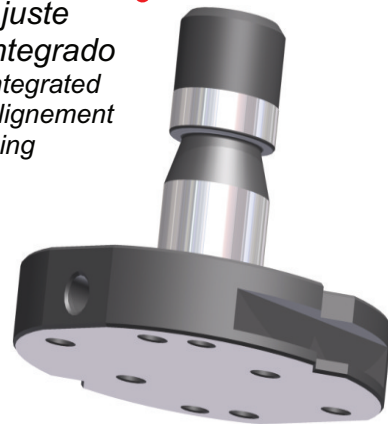
Porta Inserto
Insert Holder Die
76,2x5 mm

Tamaño II Múltiples / Size II Clusters

TRUMPF®



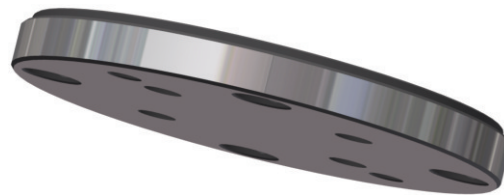
Porta
Punzón
Punch
Holder
Anillo
Ajuste
Integrado
Integrated
Alignment
Ring



Punzón
Intercambiable
Insert Punch



Tapeta
Porta punzones
Punch Holder Top



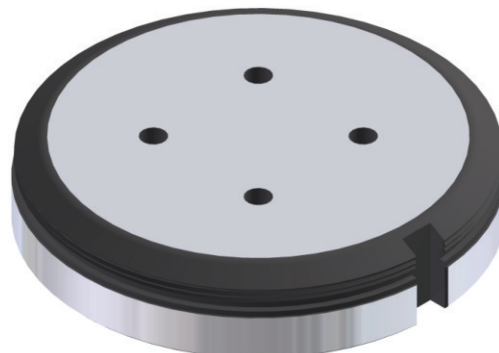
Separador
Tamaño II
Size II Stripper
*GRUPOS
GROUPS
A B C D E F G



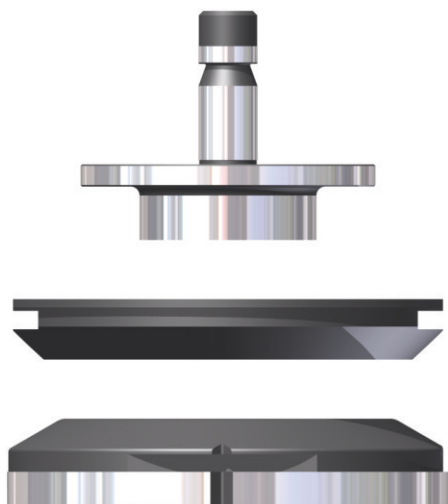
Separador
Tamaño II
Size II Stripper
*GRUPOS
GROUPS
H I



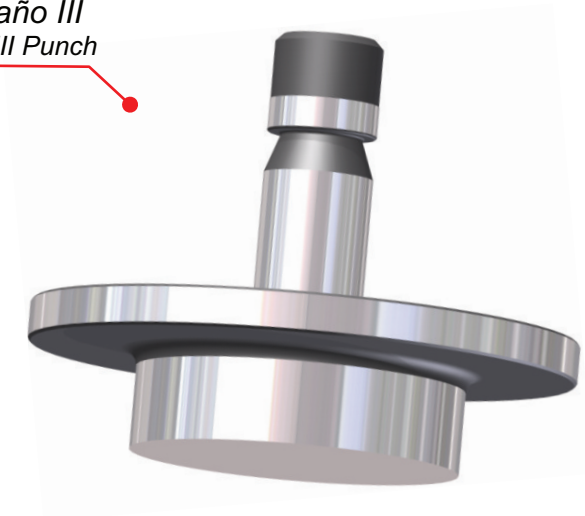
Matriz
Tamaño II
Size II Die



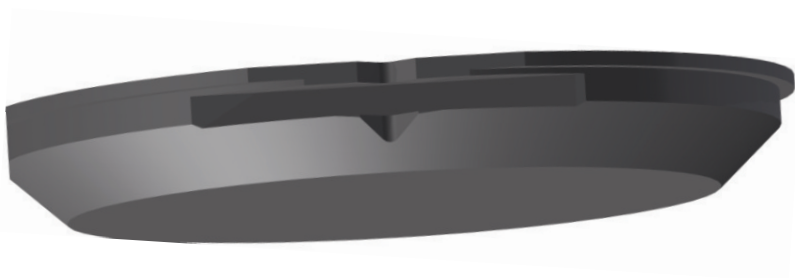
Todos los múltiples requieren un estudio previo.
All clusters needs previus study.



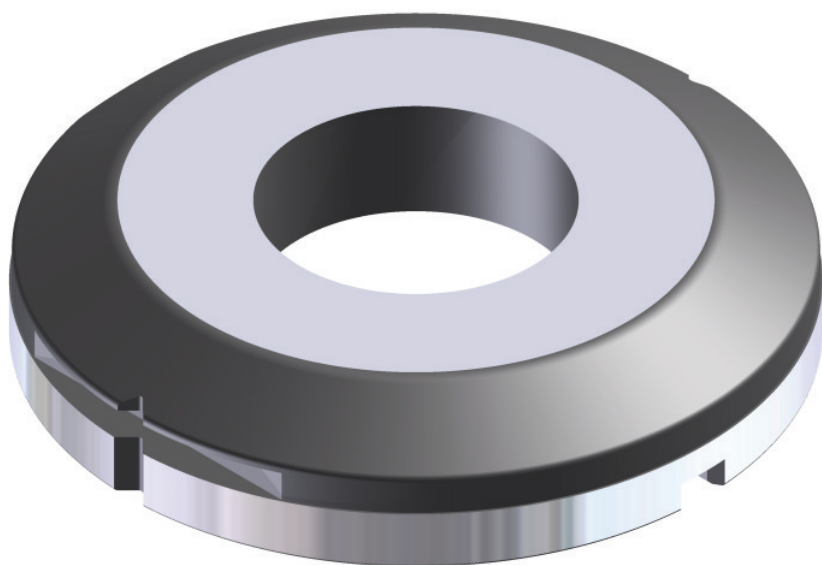
Punzón
Tamaño III
Size III Punch



Separador
Tamaño III
Size III Stripper



Matriz
Tamaño III
Size III Die



- Figura máxima inscrita en Ø100mm
- Maximum shape incirbed in Ø100mm



Punzón
Punch
MT-4

Max.
Ø16mm



Matriz
Die
MT-4



Punzón
Punch
MT-3 & 6

Max.
Ø10,5mm

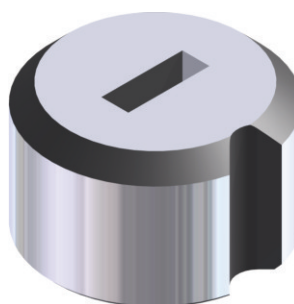


Matriz
Die
MT-3 & 6



Punzón
Punch
MT-5

Max.
Ø16mm

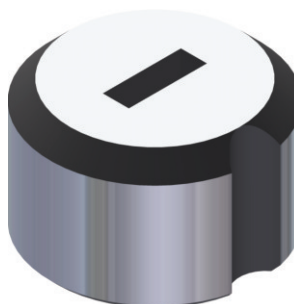


Matriz
Die
MT-5



Punzón
Punch
MT-10

Max.
Ø10,5mm



Matriz
Die
MT-10



Bola
Expulsora
Ejector Ball

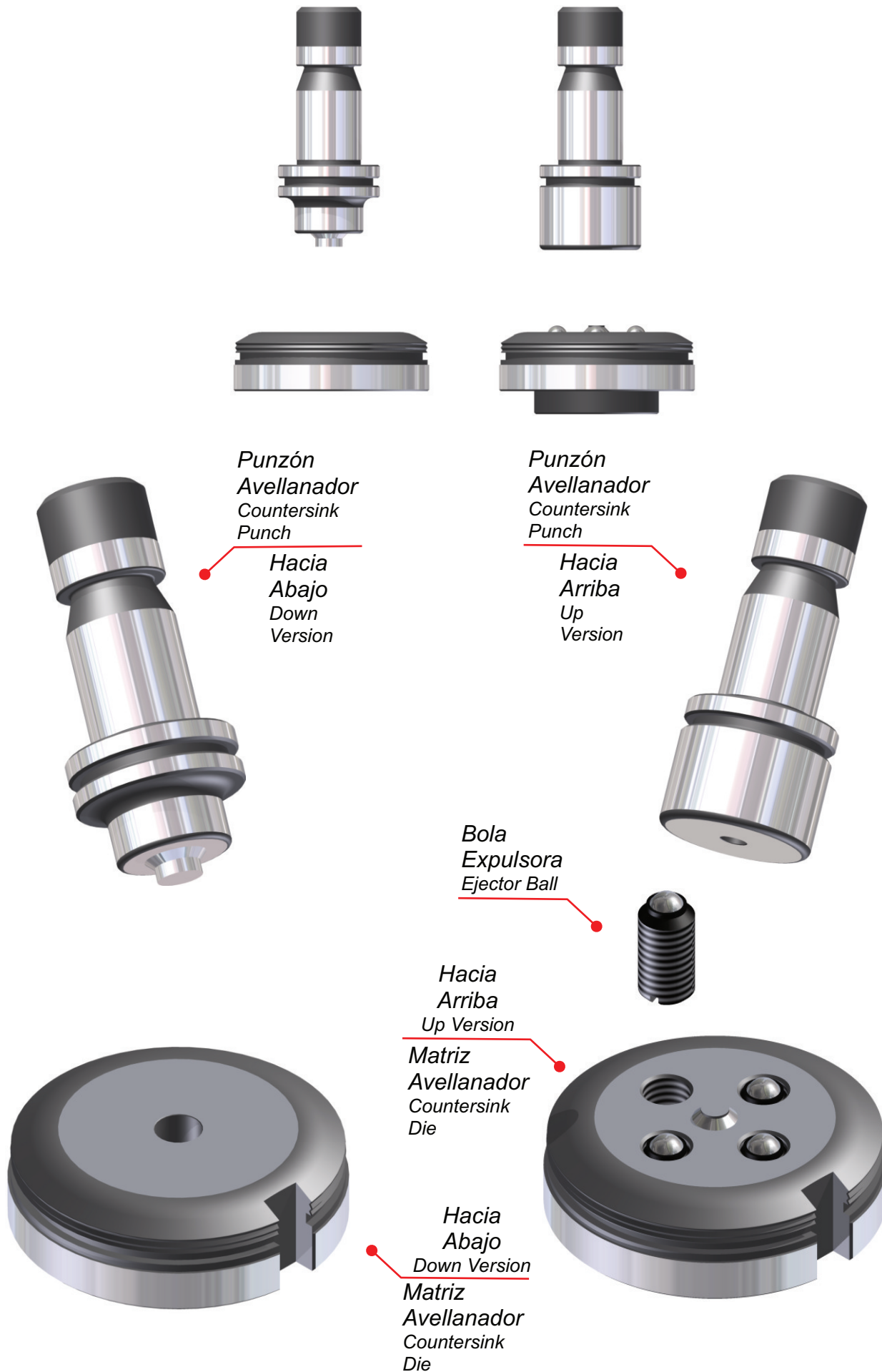


Punzón
Punch



Matriz
Die

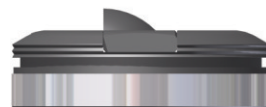




Todos los avellanadores requieren un estudio previo.
All countersink tools needs previus study.



Punzón
Ventilación
Louver Punch
L=32



Punzón
Ventilación
Louver Punch
Sin Fin
Continuous



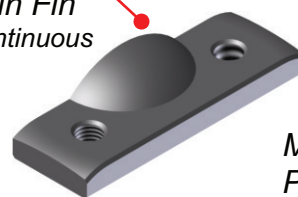
Inserto
Ventilación
Louver Insert
L=32



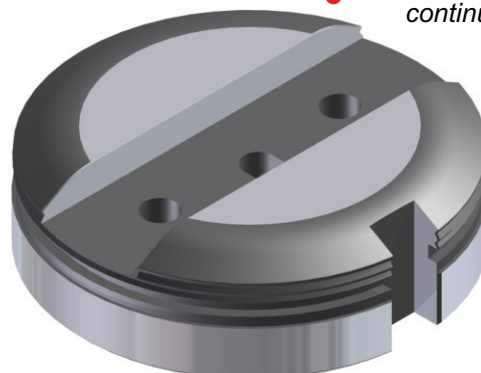
Inserto
Ventilación
Louver Insert
Sin Fin
Continuous



Matriz
Porta Insertos
Insert Holder Die
L=32



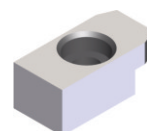
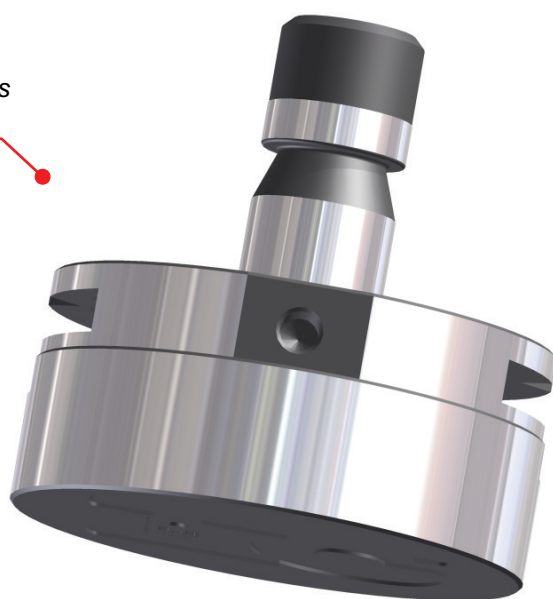
Matriz
Porta Insertos
Insert Holder Die
Sin Fin
continuous





Punzón
Embutidor
Logos
Logo Emboss
Punch

Anillo de
Ajuste
Integrado
Integrated
Alignment
Ring



Chaveta
Anillo de
Ajuste
Key of
Alignemet
Ring

Matriz
Embutidor
Logos
Logo Emboss
Die

Reforzada
Reinforced

Bola
Expulsora
Ejector Ball



TRUMPF®



- Todos los embutidores requieren un estudio previo.
- All form tools needs previous study.
- Figuras embutidas estándar ver pág. 22-23.
- Standard forms look at page 22-23.
- La imagen mostrada es un ejemplo de embutidor.
- The image show is an example of form tool.

Roller Nervio

Rib Roller

Roller Incisor

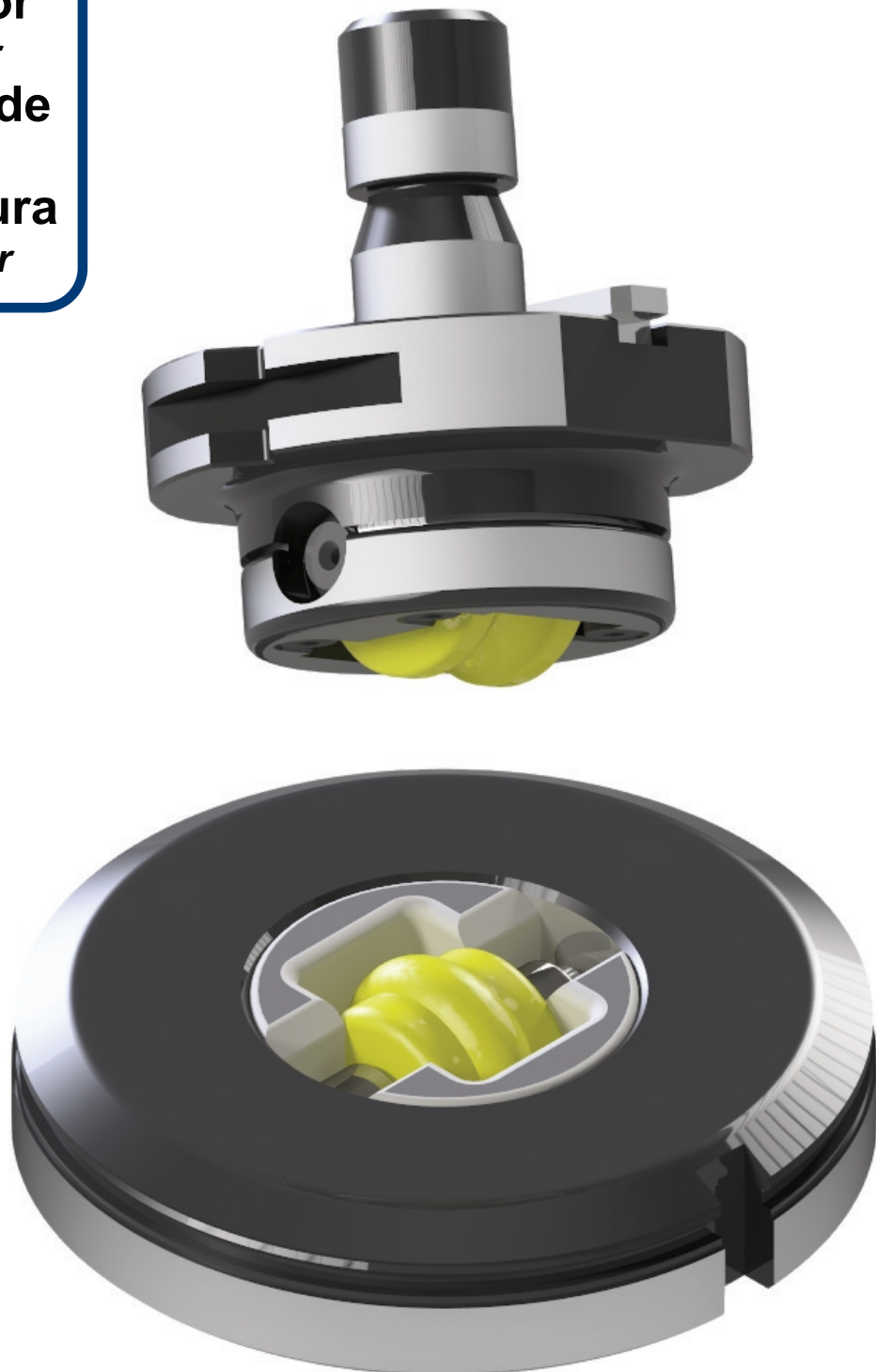
Incisor Roller

Roller Reborde

Offset Roller

Roller Escritura

Marking Roller



TRUMPF®

- Todos los embutidores requieren un estudio previo.
- All form tools needs previous study.
- La imagen mostrada es un ejemplo de embutidor.
- The image show is an example of form tool.

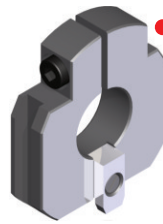
Chavetas y Anillos de Ajuste / Keys & Alignment Rings

Anillo de Ajuste
Alignment Ring



Cambio Manual
Manual Change
GRUPOS / GROUPS
A B C D

Anillo de Ajuste
Alignment Ring



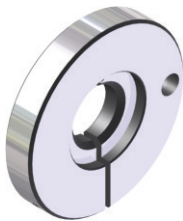
Mini
Mini
GRUPO S
GROUP S

Anillo de Ajuste
Alignment Ring



Máquinas Automáticas
Automatic Machines
GRUPOS / GROUPS
E F G H I

Anillo de Ajuste
Tamaño 0 y I
Alignment Ring
Size 0 & I



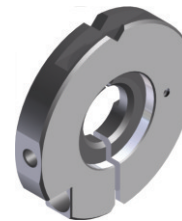
Cambio Manual
Manual Change
GRUPOS / GROUPS
A B C D

Anillo de Ajuste
Tamaño 0 y I
Alignment Ring
Size 0 & I



Mini
Mini
GRUPO S
GROUP S

Anillo de Ajuste
Tamaño 0 y I
Alignment Ring
Size 0 & I

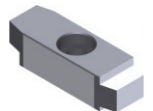


Máquinas Automáticas
Automatic Machines
GRUPOS / GROUPS
E F G H I

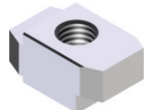
Anillo de Ajuste
Alignment Ring



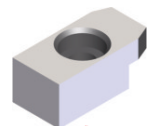
Punzón Reforzado
Reinforced Punch
GRUPOS / GROUPS
E F G H I



Chaveta Anillo de Ajuste
Alignment Ring Key



Chaveta Anillo de Ajuste
Punzón Reforzado
Alignment Ring Key Reinforced Punch

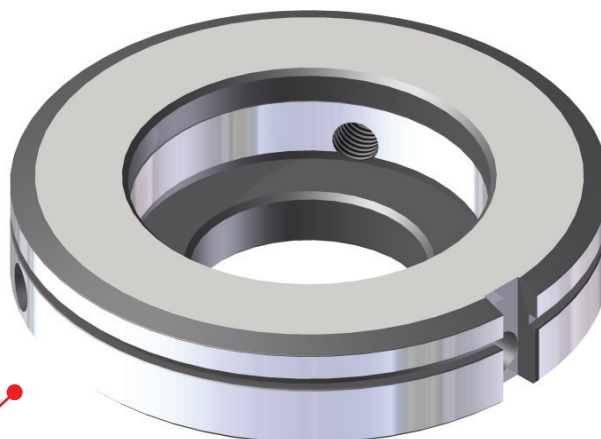


Chaveta Anillo de Ajuste
Mini Alignment Ring Key Mini

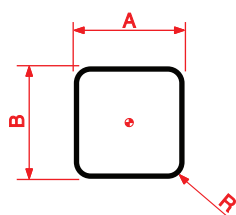
A	B	C	D	E	
CN 700	CN 901E	CN 1200S	TRUMATIC	SUMINAT 400	
CN 900	CN 902	CN 1200A	20	TRUMATIC	TRUMATIC
CN 701	CS 75	CS 15	20A	150K	202K
CN 901	CS 75.2	CS 20	202M	151K	225K
		CS 20A		152K	235K
		MP 25		180K	300K
		MP 25D		180.2K	300LK
				180KD	300PK
				180LK	400K
				180.2LK	
F	G	H	I	S	
TRUMATIC	TRUMATIC	TRUMATIC	TRUMATIC	MINIMATIC	
150W	20AW	190R	1000R	100	
152W	202W	200R	2000R	TRUMATIC	
180W	300W	500R	2010R	120R	
180.2W	300LW	600L	2020R	160R	
180R	300PW		3000-3000R		
180LW	300TOP		3000-6000R		
180.2LW	400W		5000R		
ELX/SWIF			6000R		
T 185					
240					
240R					
250					
260R					



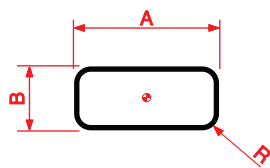
Reductora
Matriz Tamaño II a I
Die adapter Size II to I



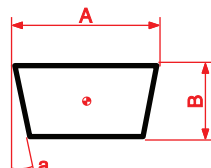
TRUMPF®



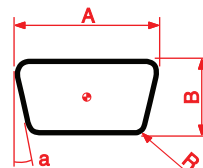
B1



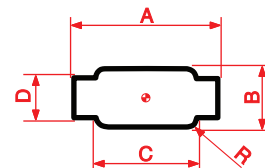
B2



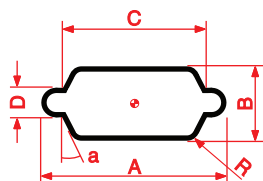
B3



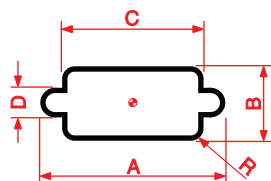
B4



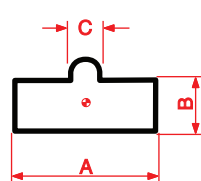
B5



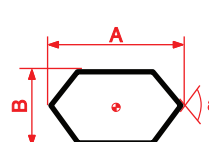
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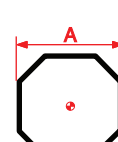
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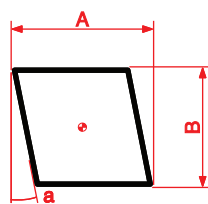
B8



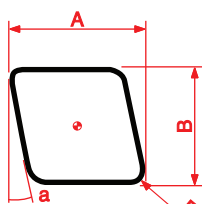
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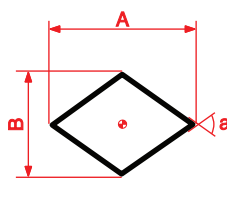
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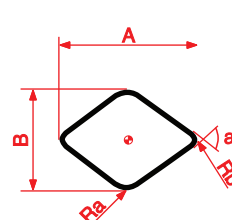
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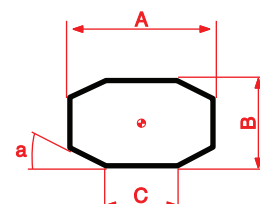
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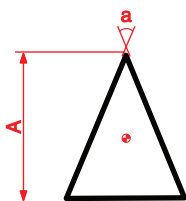
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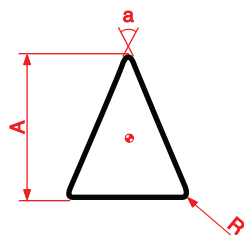
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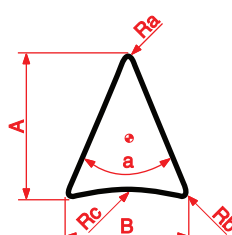
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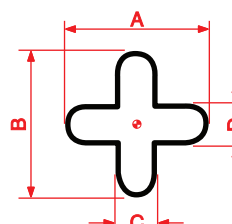
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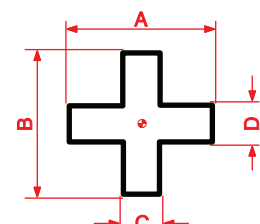
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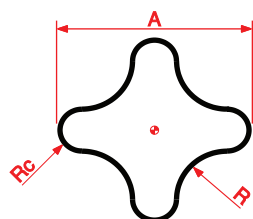
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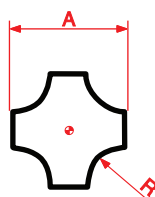
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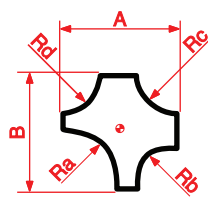
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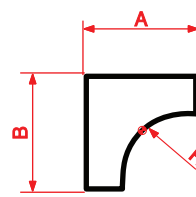
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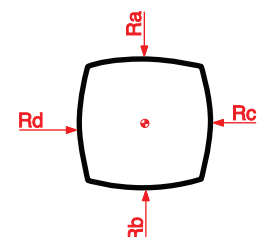
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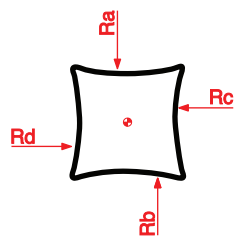
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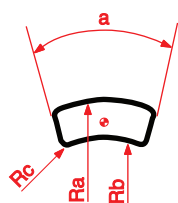
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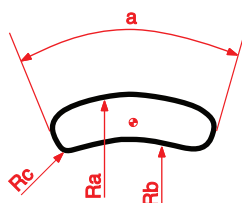
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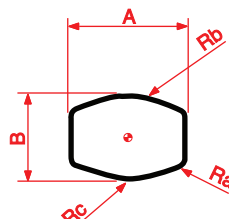
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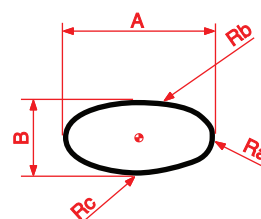
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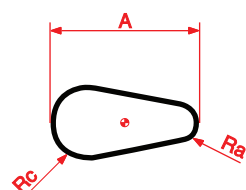
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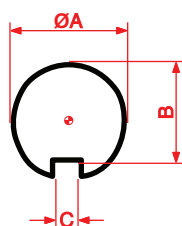
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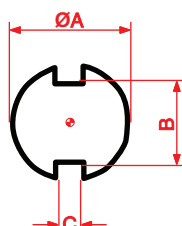
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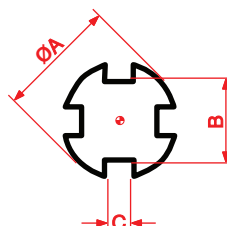
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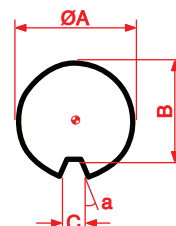
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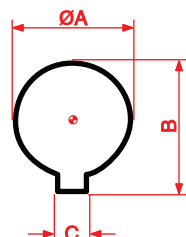
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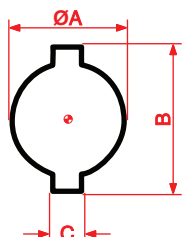
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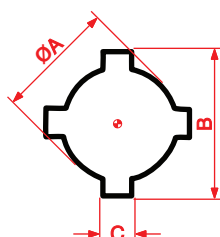
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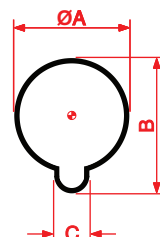
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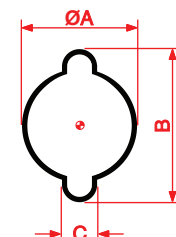
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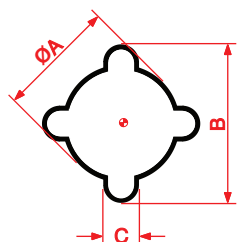
B38



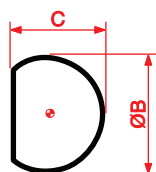
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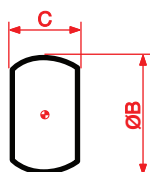
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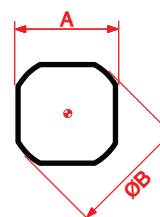
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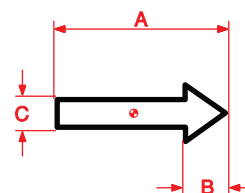
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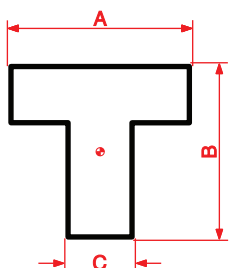
B43



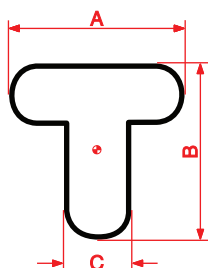
B44



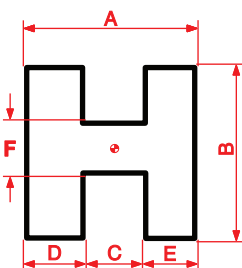
B45



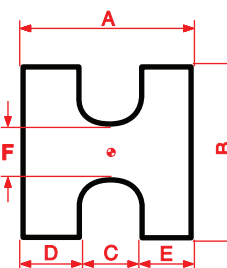
B46



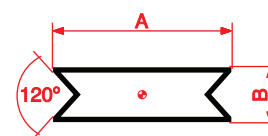
B47



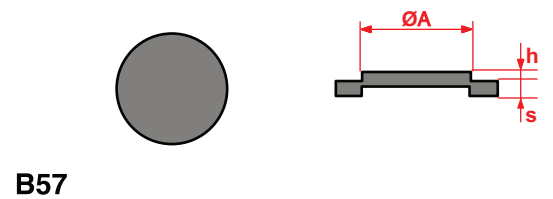
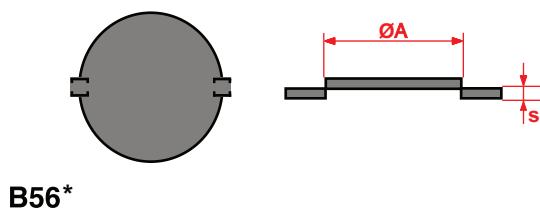
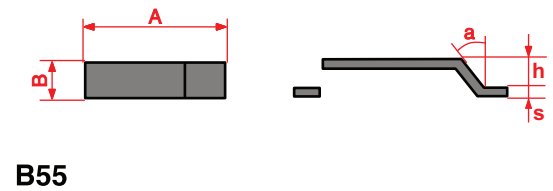
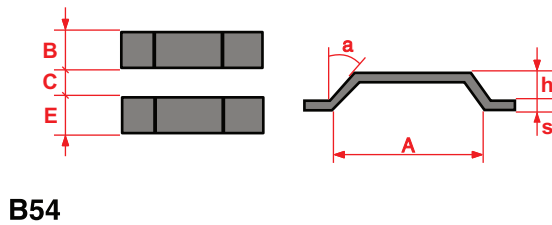
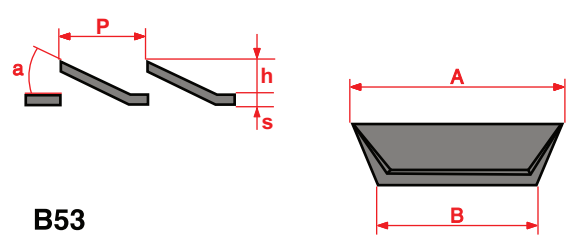
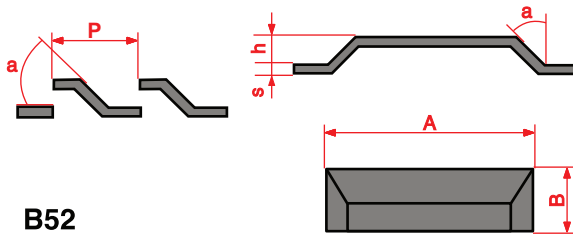
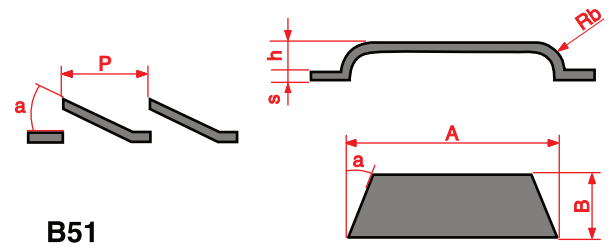
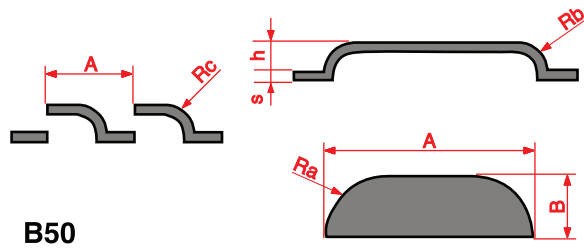
B48



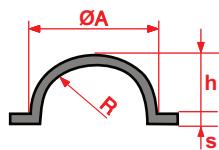
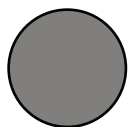
B49



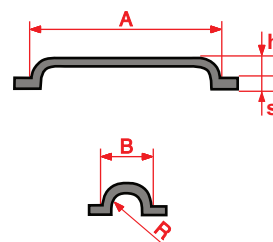
B49-A



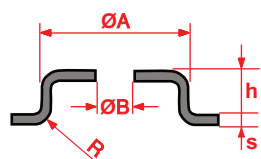
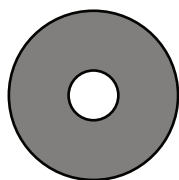
***Simple o Doble**
*Single or double



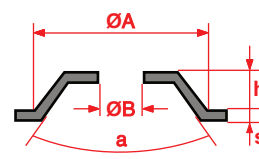
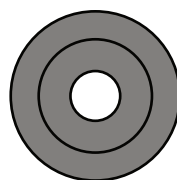
B58



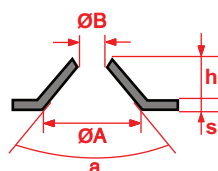
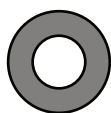
B59



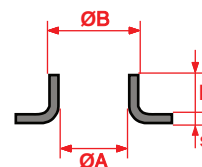
B60



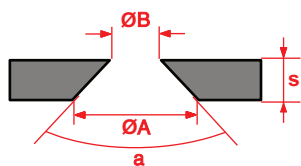
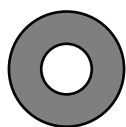
B61



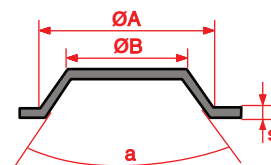
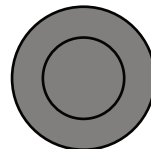
B62



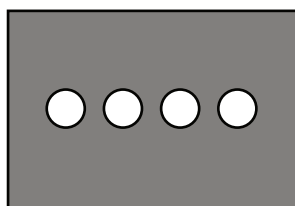
B63



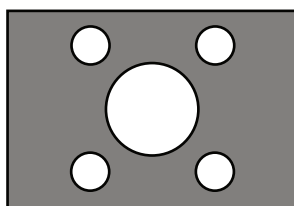
B64



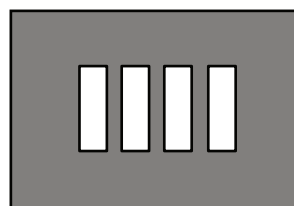
B65



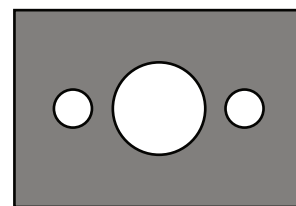
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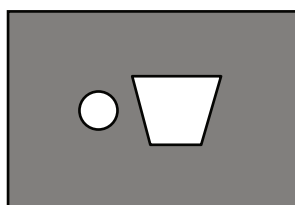
B101



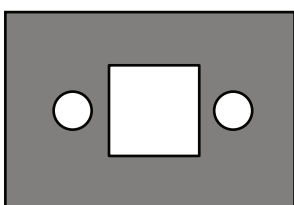
B102



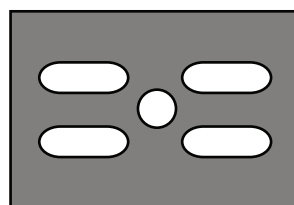
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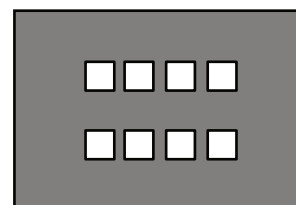
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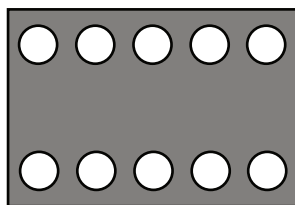
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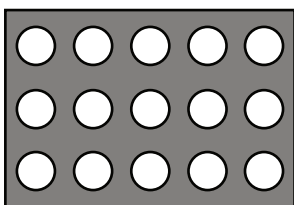
B106



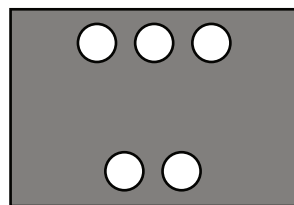
B107



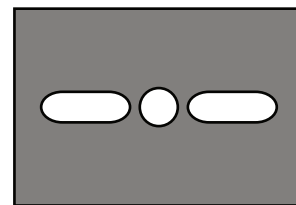
B108



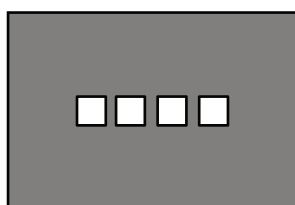
B109



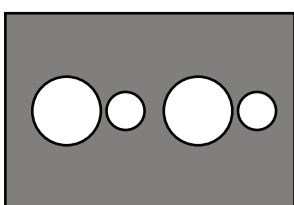
B110



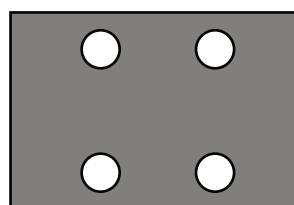
B111



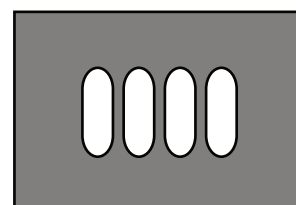
B112



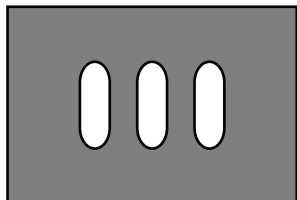
B113



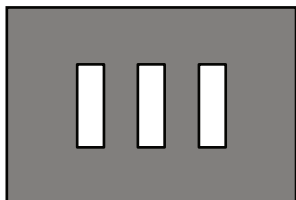
B114



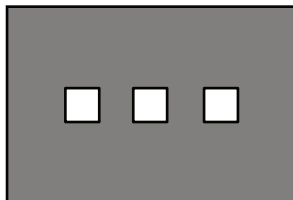
B115



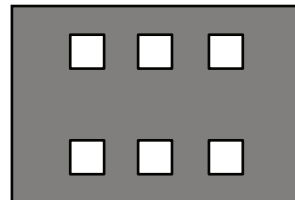
B116



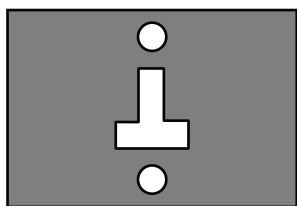
B117



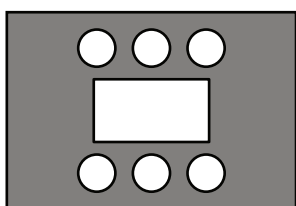
B118



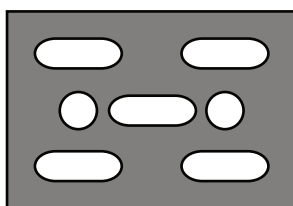
B119



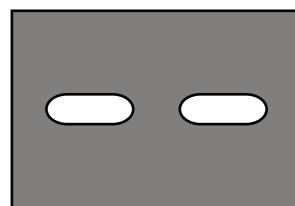
B120



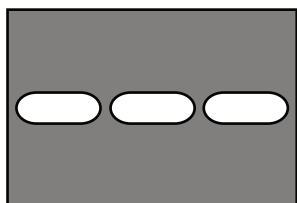
B121



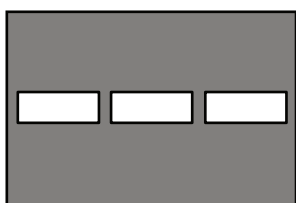
B122



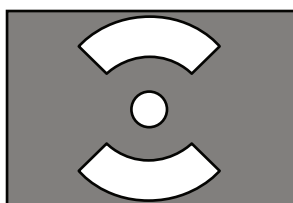
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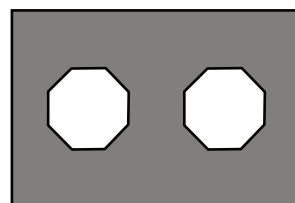
B124



B125



B126



B127

TOLERANCIAS (mm) entre PUNZÓN y MATRIZ

CLEARANCE (mm) between PUNCH & DIE

Espesores en mm. Thickness in mm	Hierro / Fe Mild Steel Tolerancia Clearance R	Ac. Inox Stainless Steel Tolerancia Clearance R	Aluminio Aluminium Tolerancia Clearance R	Cobre / Latón Copper / Brass Tolerancia Clearance R
0,5 - 0,6	0,08 - 0,10 0,10	0,10 - 0,12 0,12	0,06 - 0,08 0,08	0,05 - 0,06 0,06
0,8	0,14 - 0,15 0,15	0,15 - 0,20 0,20	0,10 - 0,14 0,10	0,08 - 0,10 0,08
1,0	0,16 - 0,20 0,20	0,18 - 0,24 0,24	0,12 - 0,16 0,14	0,10 - 0,14 0,12
1,2	0,20 - 0,24 0,24	0,25 - 0,30 0,26	0,15 - 0,20 0,16	0,12 - 0,15 0,14
1,5	0,25 - 0,30 0,30	0,27 - 0,35 0,34	0,18 - 0,24 0,22	0,15 - 0,20 0,18
2,0	0,34 - 0,40 0,40	0,36 - 0,45 0,45	0,24 - 0,30 0,26	0,20 - 0,25 0,24
2,5	0,45 - 0,50 0,50	0,46 - 0,55 0,55	0,32 - 0,35 0,35	0,25 - 0,30 0,28
3,0	0,50 - 0,60 0,60	0,60 - 0,70 0,65	0,35 - 0,45 0,40	0,30 - 0,40 0,36
4,0	0,65 - 0,80 0,80	0,70 - 0,95 0,90	0,45 - 0,60 0,55	0,40 - 0,50 0,48
5,0	0,85 - 1,00 1,00	0,90 - 1,15 1,10	0,60 - 0,80 0,70	0,55 - 0,65 0,60
6,0	0,95 - 1,20 1,20	1,10 - 1,40 1,35	0,75 - 0,95 0,85	0,70 - 0,85 0,72

R Recomendable
Recommended

RESISTENCIA AL CORTE TENSILE STRENGTH

Kg x mm²

Hierro Fe Mild Steel	Hierro Fe Mild Steel	Acero Inox. Stainless Steel	Aluminio Aluminium	Cobre Copper	Latón Brass
40 (0,1 % C)	50 (0,2 % C)	70	20	32	40

FÓRMULA PARA EL CÁLCULO DE TONELAJE (T) TONNAGE CALCULATION FORMULA (T)

$$\frac{P \cdot n \cdot t \cdot Rc}{1000}$$

P = Perímetro (mm)
Perimeter (mm)

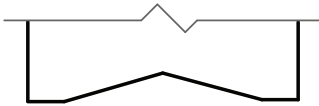
n = Número de punzones
Number of punches

t = Espesor de chapa (mm)
Sheet Thickness (mm)

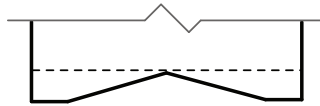
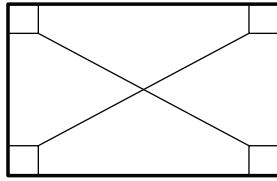
Rc = Resistencia al Corte (Kg/mm²)
Tensile strength (Kg/mm²)

Rectificado de Punzón

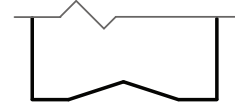
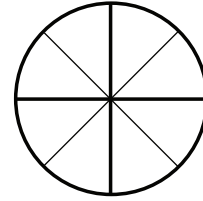
A



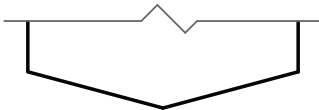
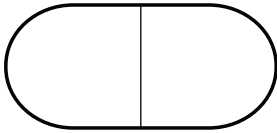
B



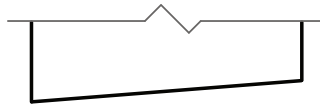
C



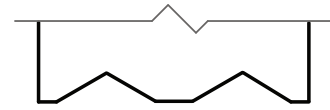
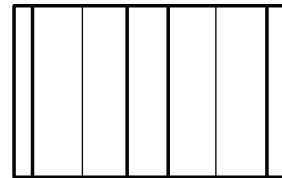
D



E

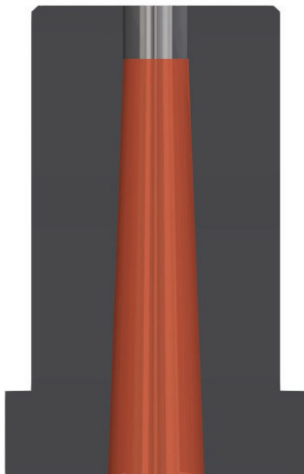


F



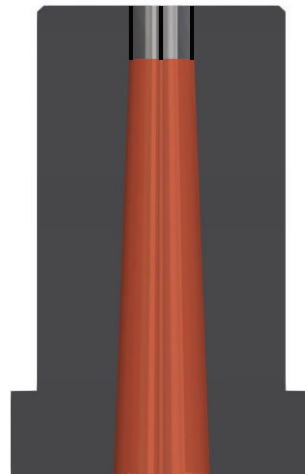
Tipo de Matriz

RR

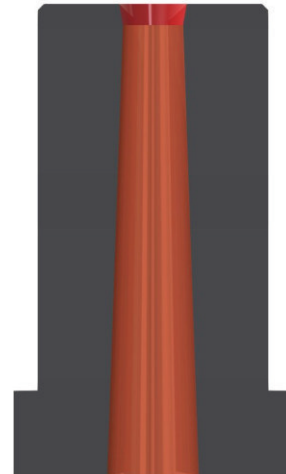


Matriz Estándar

R2C



Matriz de Retención
por Filamentos



Matriz de Retención
por Dos Conos

DUR-TiN

- COLOR / COLOR: Amarillo oro / Yellow gold
- APLICACIONES / APPLICATIONS: General / General
- PROPIEDADES / PROPERTIES: Reduce el desgaste por abrasión y adhesión.
Reduces wear by abrasion and accession.



DUR-ALUM

- COLOR / COLOUR: Gris negro / Black grey
- APLICACIONES / APPLICATIONS: Aluminios, latón y derivados / Aluminium, brass and derivative
- PROPIEDADES / PROPERTIES: Reduce el desgaste por adhesión.
Reduces wear by accession.
Bajo coeficiente de fricción.
Low coefficient of friction.
Buenas propiedades de deslizamiento.
Good slip properties.

DUR-INOX

- COLOR / COLOUR: Gris violeta / Purple grey
- APLICACIONES / APPLICATIONS: Fe, galvanizados, Ac. inoxidables / Fe, Fe. galvanized and stainless steel
- PROPIEDADES / PROPERTIES: Relación optimizada entre dureza y tensión residual compresiva.
Optimized ratio between hardness and compressive residual stress.
Desgaste uniforme.
Uniform wear.
Buenas propiedades de deslizamiento.
Good slip properties.

DUR-EXTREM

- COLOR / COLOUR: Gris azulado / Bluish grey
- APLICACIONES / APPLICATIONS: General; recomendado para Ac. Inoxidable.
General; recommended to stainless steel.
- PROPIEDADES / PROPERTIES: Resistencia al desgaste muy elevada y excelente dureza en caliente.
Very high wear resistance and excellent hot hardness.
Muy buena estabilidad al choque térmico.
Very good stability to thermal shock.
Velocidad de corte notablemente más altas.
Higher cutting speed.

DUR-EXTREM PLUS

- COLOR / COLOUR: Cromo / Chrome
- APLICACIONES / APPLICATIONS: General; especialmente indicado para Ac. Inoxidable.
General; especially suitable to stainless steel.
- PROPIEDADES / PROPERTIES: La mayor dureza superficial.
The higher surface hardness.
Menor tendencia al calor.
Less heat tendency.
Mayor protección especialmente en los bordes contra el inicio y propagación de grietas.
Increased protection especially in the edges against the beginning and propagation of cracks.
Puede prolongar la vida útil del punzón hasta un 100%.
Can explode punch life up to 100%.

AFILADO DE LOS PUNZONES

Como norma general, no se debería permitir que los punzones llegasen a necesitar un afilado mayor de 0,10 mm. Y sería óptimo rectificar en pasadas suaves (Z) de entre 0,01 y 0,02 mm. Estos parámetros indicarían un correcto mantenimiento de los punzones.

Para punzones con recubrimientos especiales: DUR-TiN, DUR-ALUM, DUR-INOX, DUR-EXTREM y DUR-EXTREM PLUS emplear los mismos indicadores; y dependiendo de la máquina que se utilice, rectificar con las más altas revoluciones de muela posibles y con avances entre 2.500 y 4.000 mm/min.

Una vez hecho el afilado del punzón, comprobar que la zona perimetral del corte ha quedado completamente limpia y no presenta gripado por adhesión de partículas del material punzonado, en caso de estas, limpiar esa zona con papel de lija fino hasta dejarla pulida.

SHARPENED OF PUNCHES

As general norm, it's not recommended sharpening punches more than 0,10mm. The correct form to sharp is doing it with smooth feeds (z) about 0,01 and 0,02mm. It will be the correct maintenance of the punches.

For punches with special coatings: DUR-TiN, DUR-ALUM, DUR-INOX, DUR-EXTREM and DUR-EXTREM PLUS, use the same indicators; using the highest revolutions of the grinding wheel for shapening, with feed rates between 2.500 and 4.000 mm/min.

Once realised the sharpened of the punch, verify that the peripheral zone of the cut is completely clean and if it's necessary polish the surface with a lightly stone.

Important: to avoid the heating of the pieces during the sharpening, always use a suitable coolant.

AFILADO DE MATRICES

Manteniendo las matrices en corte vivo, alargará la vida de los punzones, pues éstos no tendrán que embutir la chapa antes de ser cortada, se evitarán rebabas, ruido excesivo y se dejará una calidad correcta en el corte.

Sirven los mismos parámetros de muela, avances y pasadas tanto en el punzón como en la matriz; y antes de dar por bueno el afilado de la matriz, comprobar que en la parte interior del perímetro de corte, no han quedado restos de partículas de chapa adheridas, que vayan a friccionar con el puzón al iniciar de nuevo el trabajo.

Evitar el calentamiento de las piezas, usando siempre un refrigerante adecuado o taladras.

La energía producida por la fricción de la muela con los aceros, hará que estos hayan quedado ligeramente imantados; desmagnetizar las herramientas antes de iniciar el trabajo.

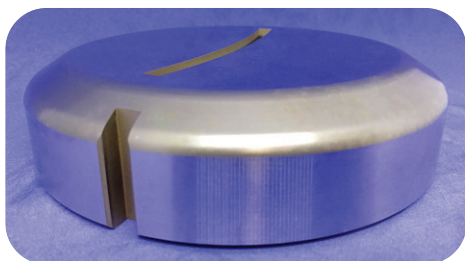
SHARPENED OF DIES

The correct maintenance of the dies will extend the life of punches, because these will not emboss the sheet before being cut, it will avoid burrs and excessive noise, and it give a correct quality of the cut.

For sharpening dies used the same procedures that with punches, feed rates and griding wheel, verify that the cut zone is completely clean of burrs and if it is necessary polish it to assure the correct work of the punch.

To avoid the heating of the pieces, always use a suitable coolant.

Demagnetize the resharpened tools before to start works.



Servicio y Reparación

El servicio de reparación y ajuste de TC consiste en la comprobación, reparación, ajuste o modificación de cualquier componente fijo, móvil y/o accesorios de todo tipo de grupos de punzonado, matricería e incluso componentes de máquina sin importar marca y modelo.

Comprobación

Revisión de todos los elementos, comprobación de los mismos (medidas, chavetas, tornillo, etc.)

Reparación

Sustitución de cualquier elemento que interfiera en el buen funcionamiento del grupo, tanto por desgaste como por rotura.

Ajuste

Ajustamos los grupos para su correcto funcionamiento modificando alturas, recorridos, etc.

Modificación

Estudiamos la posibilidad de modificaciones y cambios en grupos de punzonado y matricería, realizando elementos nuevos y/o modificando los ya existentes.

Service & Repair

Tc's adjustment and repair consist of checking, repairing, adjusting, or modifying any fixed and mobile component and / or accessories of all types of punch groups, dies and even machine components of all brands.

Verification

Review all elements, checking them (measurements, keys, screws, ...).

Repair

Replacement of any element that interferes with the proper fuction of group for breakage and / or attrition.

Adjustement

We adjust the groups for their correct operation by modifying heights, courses, ...

Modification

We study the possibility of modifications and changes of punch groups and tooling, making new elements and / or modifying existing ones.





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