JOSEP MUNTAL

# UTILLAJE PARA PLEGADORAS

# INFORMACIÓN GENERAL

## Herramientas estándar TIPO "A"

**Material**

*C45, 40HM, 42CrMo4 and 1.2312*

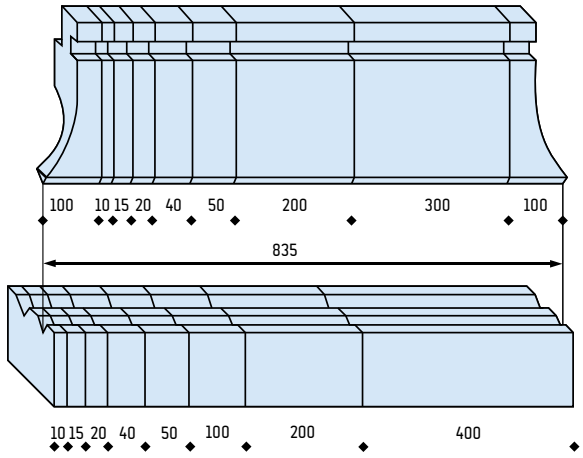
**Borde de trabajo endurecido**

*55 ±2 HRc*

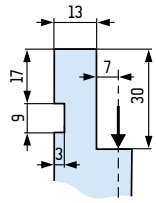
**Longitudes estándar**

*415 mm, 835 mm, 835 mm segmentado*

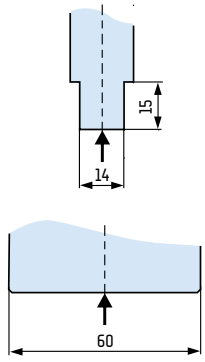
*Esquema de herramienta seccionada TIPO "A"*




*Borde de montaje del punzón.*




*Borde de montaje de la matriz*




## Herramientas estándar TIPO "T"

**Material**

*C45, 42CrMo4 or 1.2312*

**Mejora Tèrmica***

*30 ±2 HRc (950 – 1100 MPa)*

**Borde de trabajo endurecido**

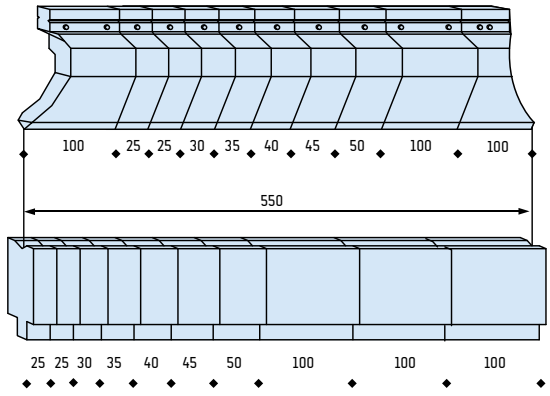
*55 ±2 HRc (1500 – 1600 MPa)*

**Longitud**

*500, 550 mm segmentado*

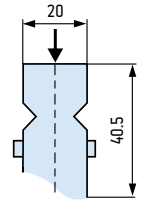
** Aplica a 1.2312*

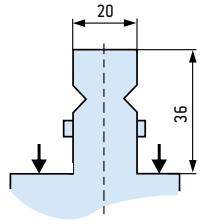
*Esquema de herramienta seccionada TIPO "T".*



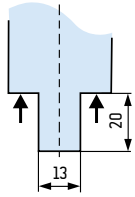

*Tamaño de la matriz "T" medido entre radios.*

*Borde de montaje del punzón*




*Borde de montaje de la matriz*



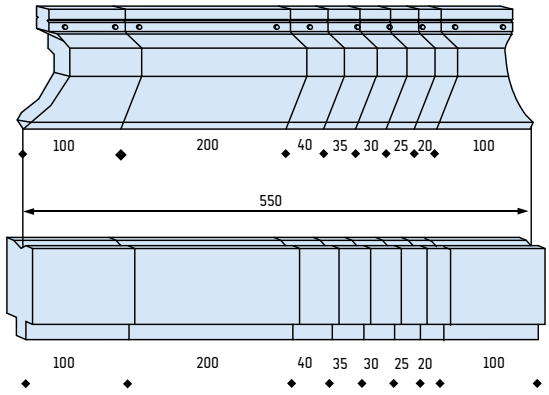
# INFORMACIÓN GENERAL

## Herramientas estándar TIPO "W"

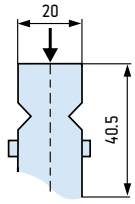
| **Material** |
|---|
| *42CrMo4 o 1.2312* |
| **Mejora térmica*** |
| *30 ±2 HRc (950 – 1100 MPa)* |
| **Borde de trabajo endurecido** |
| *55 ±2 HRc (1500 – 1600 MPa)* |
| **Longitud** |
| *515 mm, 550 mm segmentado* |

**Aplica a 1.2312*

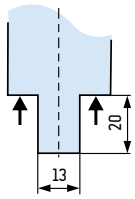
*Esquema de herramienta seccionada*
*TIPO "W"*




*Borde de montaje*
*del punzón*




*Borde de montaje de*
*la matriz*

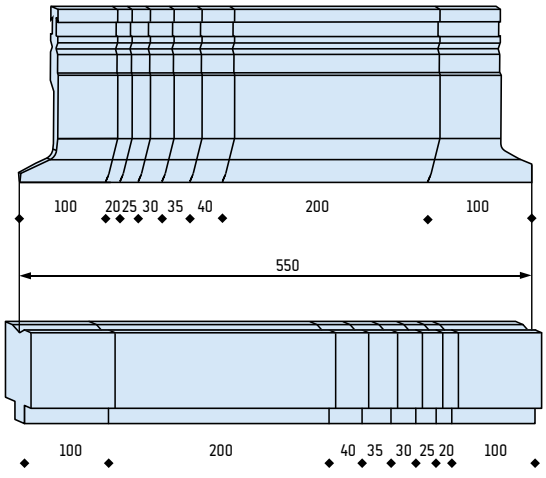



## Herramientas estándar TIPO "B"

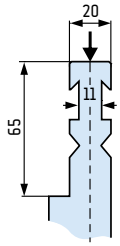
| **Material** |
|---|
| *42CrMo4 o 1.2312* |
| **Mejora térmica*** |
| *30 ±2 HRc (950 – 1100 MPa)* |
| **Borde de trabajo endurecido** |
| *55 ±2 HRc (1500 – 1600 MPa)* |
| **Longitud** |
| *515 i 550 mm segmentado* |

*Aplica a 1.2312*

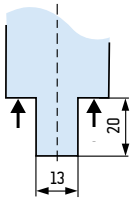
*Esquema de herramienta seccionada*
*TIPO "B"*




*Borde de montaje*
*del punzón*




*Borde de montaje*
*de la matriz*



# INFORMACIÓN GENERAL

## Herramientas estándar TIPO "L"

**Material**

*42CrMo4 o 1.2312*

**Mejora térmica***

*30 ±2 HRc (950 – 1100 MPa)*

**Borde de trabajo endurecido**

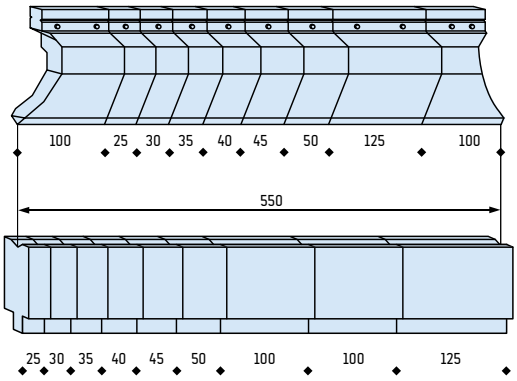
*55 ±2 HRc (1500 – 1600 MPa)*

**Longitud**

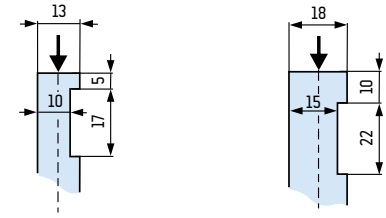
*508 mm, 550 mm segmentado*

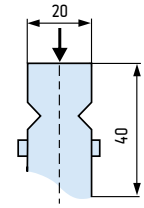
**Aplica a 1.2312*

*Esquema de herramienta seccionada TIPO "L"*

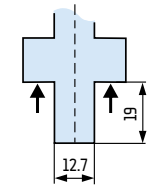



*Los punzones TIPO "L" tienen tres sujeciones diferentes*



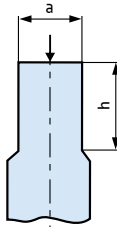




*Borde de montaje de la matriz*

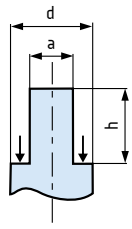



## Borde de montaje del punzón

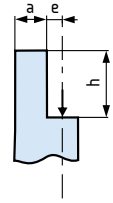
**A**



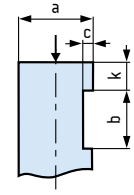

**B**



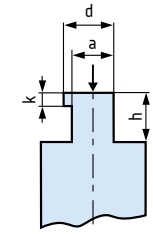

**C**



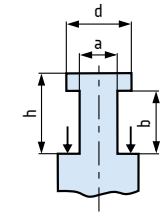

**D**



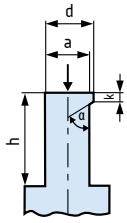

**E**



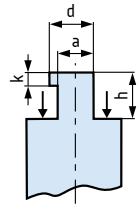

**F**



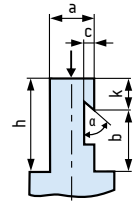

**G**




**H**




**I**

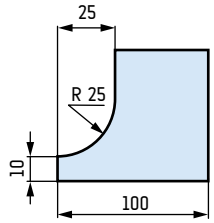



*Nosotros ofrecemos punzones con bordes de montaje como los que se muestran.*
*El cliente puede pedir un tipo a partir del dibujo especificando sus dimensiones.*
*El cliente puede pedir un borde de montaje según su propio diseño.*
*La fuerza máxima de las herramientas es válida sólo para el doblado por aire.*

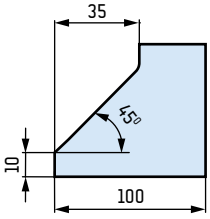
# INFORMACIÓN GENERAL

## Cuernos para punzones TIPO "A"

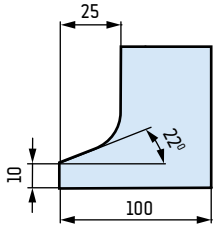
### AH1



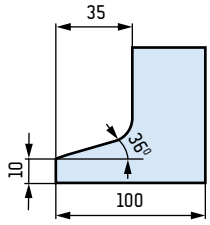

### AH2



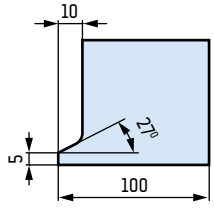

### AH3



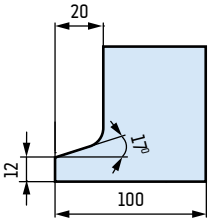

### AH4




### AH5

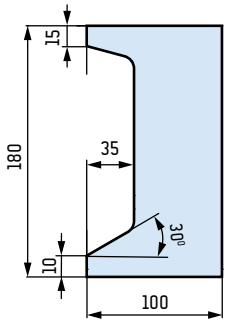



### AH6

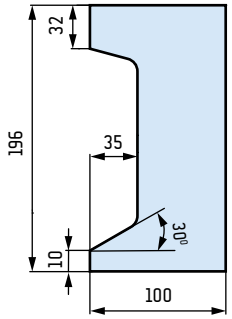



## Cuernos para punzones TIPO "L"

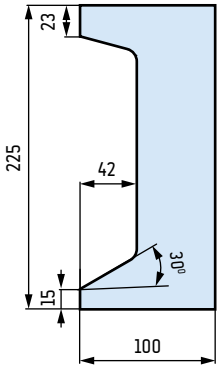
### LH1



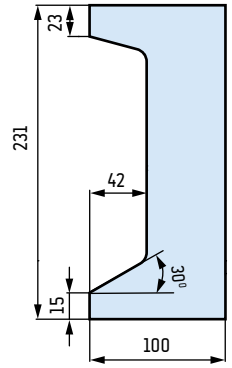

### LH2




### LH3

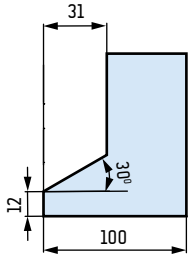



### LH4



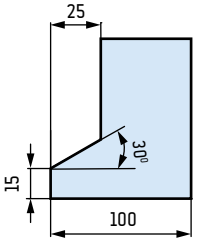

## Cuernos para punzones TIPO "T"

### TH



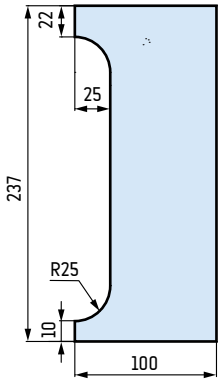

## Cuernos para punzones TIPO "B"

### BH




## Cuernos para punzones TIPO "W"

### WH



# INFORMACIÓN GENERAL

## Código de pedido de la herramienta

| **Punzones i.e S 2010/88/R0.0/835** |
|---|
| **S 2010**/88/R0.8/835 – *Número de catálogo* |
| S 2010/**88**/R0.8/835 – *Ángulo α= 30°, 35°, 60°, 75°, 80°, 88°, 90°* |
| S 2010/88/**R0.8**/835 – *Tipo de borde de trabajo: "F" o "R" y tamaño* |
| S 2010/88/R0.8/**835** – *Longitud de la herramienta - 835 mm, 415 mm, 835 mm seccionado* |

| **Matrices i.e M 6112/35/835** |
|---|
| **M 6112**/35/835 – *Número de catálgo* |
| M 6112/**35**/835 – *ángulo α= 30°, 35°, 60°, 85°, 88°, 90°* |
| M 6112/35/**835** – *Longitud de la herramienta– 835 mm, 415 mm, 835 mm seccionado* |

## Herramientas especiales

| **Material** |
|---|
| *C45, 42CrMo4 o 1.2312* |
| **Mejora térmica*** |
| *30 ± 2HRc (950 – 1100 MPa)* |
| **Borde de trabajo endurecido** |
| *55 ± 2HRc (1500 – 1600 MPa)* |
| **Longitud** |
| *Hasta 5000 mm* |

** Aplica a 1.2312*

## Información adicional

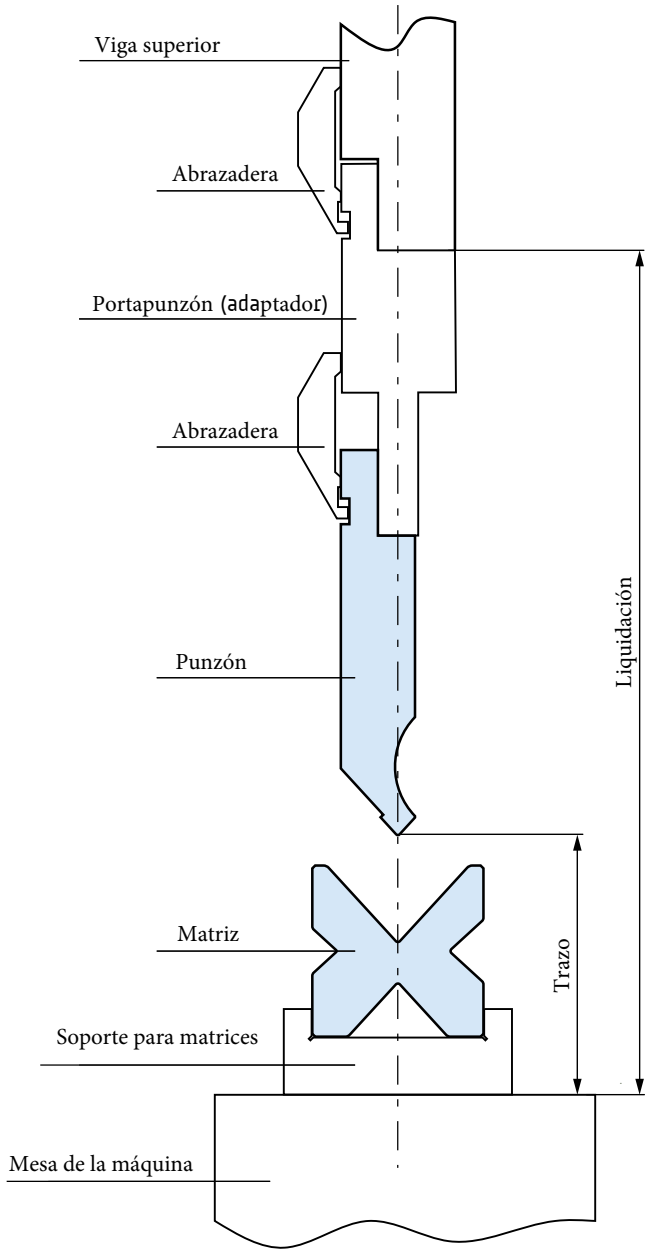
*En estoc*

*Possibilidad de entrega rápida*

*Por encargo*

42CrMo4 *Acero 42CrMo4 o 1.2312 como estándar*

*Vista desde el lado del operador.*




*Ejemplo de sección transversal de una prensa plegadora, incluidos los elementos de sujeción y los parámetros importantes de la máquina.*

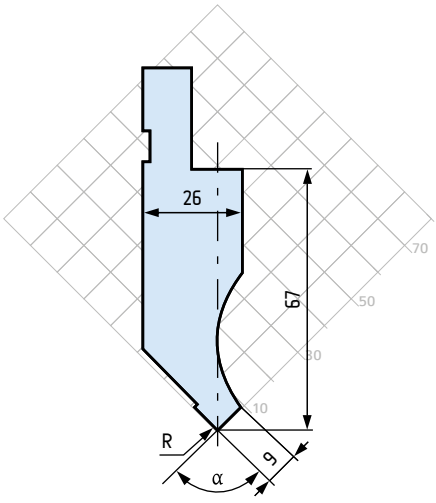
*El catálogo presentado no constituye una oferta en el sentido del Código Civil y sólo tiene carácter informativo.*

*Herramientas fabricadas específicamente con las calidades de acero indicadas u otros aceros de resistencia similar.*

# PUNZONES TIPO "A"

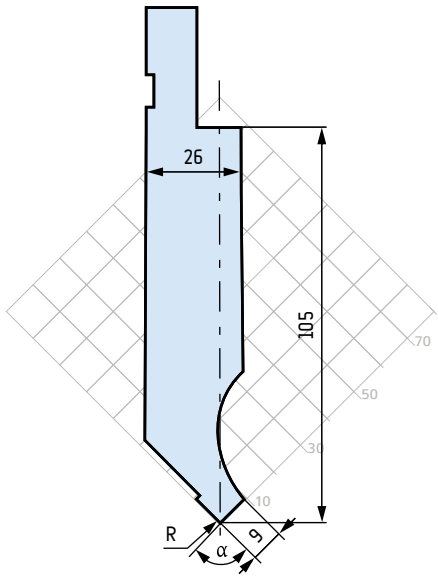
24h

| **S 2010** | 100 t/m |
|---|---|
| *α = 75°, R = 0.8 mm* | *AH2 = 25 t/m* |
| *α = 85°, R = 0.8 mm* | *AH2 = 25 t/m* |
| *α = 88°, R = 0.2 mm* | *AH2 = 18 t/m* |
| *α = 88°, R = 0.8 mm, 1.5 mm, 3 mm* | *AH2 = 25 t/m* |
| *α = 90°, R = 0.2 mm, 0.8 mm* | *AH2 = 15 t/m* |



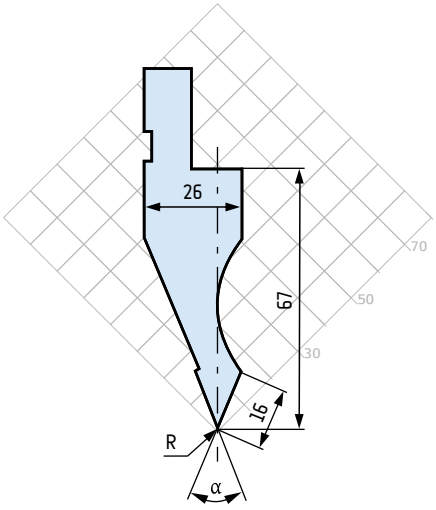

24h

| **S 2010/105** | 100 t/m |
|---|---|
| *α = 75°, 85°, 88°* | |
| *R = 0.8 mm* | *AH2 = 25 t/m* |



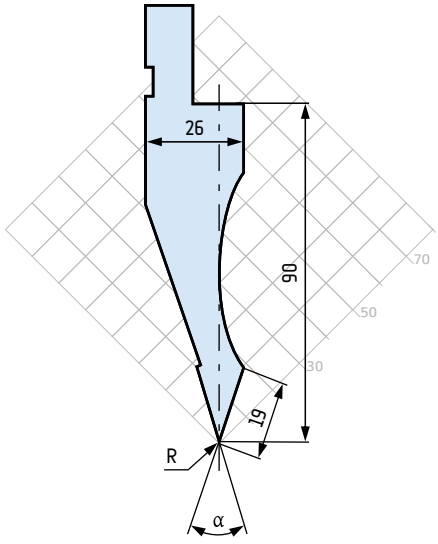

24h

| **S 2011** | 80 t/m |
|---|---|
| *α = 45°* | |
| *R = 0.4 mm, 0.8 mm* | *AH2 = 20 t/m* |
| *R = 1.5 mm* | *AH2 = 25 t/m* |




24h

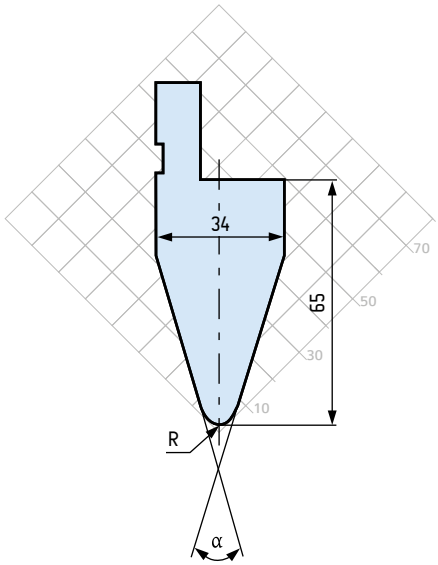
| **S 2012** | 70 t/m |
|---|---|
| *α = 30°, 35°* | |
| *R = 1 mm* | *AH2 = 20 t/m* |



# PUNZONES TIPO "A"

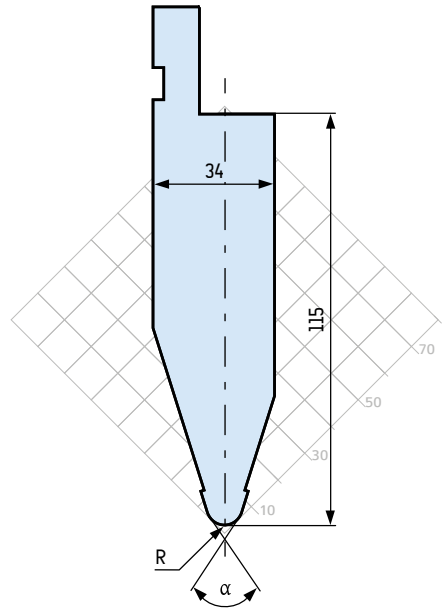
24h

| **S 2013** | 100 t/m |
|---|---|
| *α = 35°, R = 5 mm* | *AH2 = 65 t/m* |
| *α = 60°, R = 6 mm* | *AH2 = 65 t/m* |
| *α = 80°, R = 6 mm* | *AH2 = 65 t/m* |



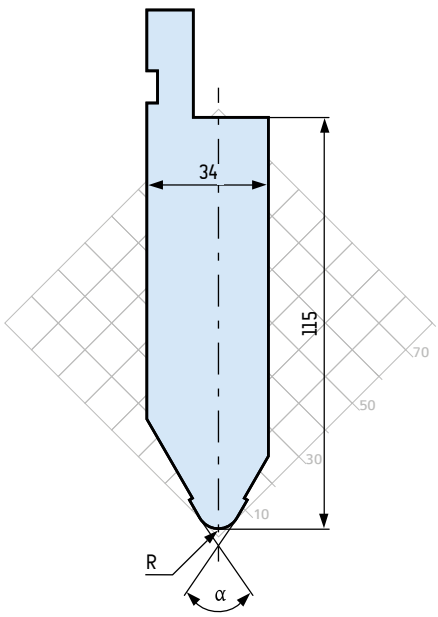

24h

| **S 2013/115** | 100 t/m |
|---|---|
| *α = 35°, R = 5 mm* | *AH2 = 65 t/m* |



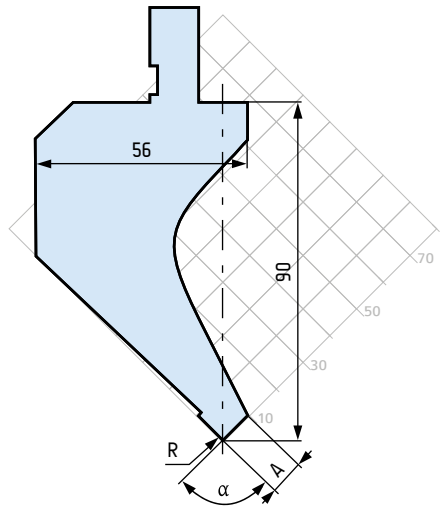

24h

| **S 2013/115** | 100 t/m |
|---|---|
| *α = 60°* | |
| *R = 6 mm, 10 mm* | *AH2 = 65 t/m* |



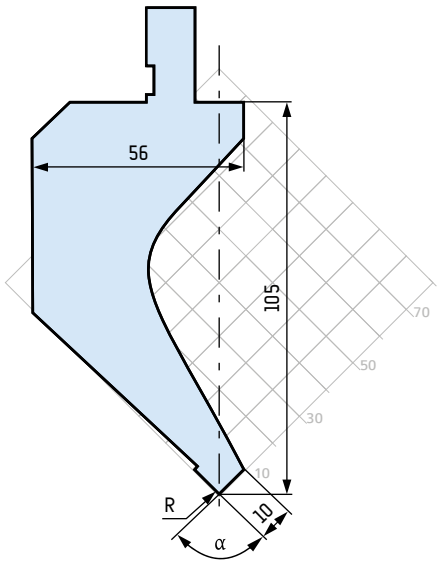

24h

| **S 2014** | 60 t/m* |
|---|---|
| *α = 75°, A = 9 mm, R = 0.8 mm, *20 t/m* | *AH2 = 7 t/m* |
| *α = 88°, A = 6 mm, R = 0.2 mm, 0.8 mm *50 t/m* | *AH2 = 15 t/m* |
| *α = 88°, A = 9 mm, R = 0.2 mm, 0.8 mm* | *AH2 = 15 t/m* |
| *α = 90°, A = 9 mm, R = 0.8 mm* | *AH2 = 15 t/m* |

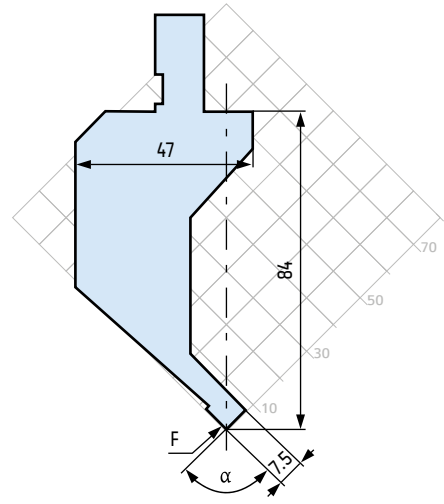


# PUNZONES TIPO"A"

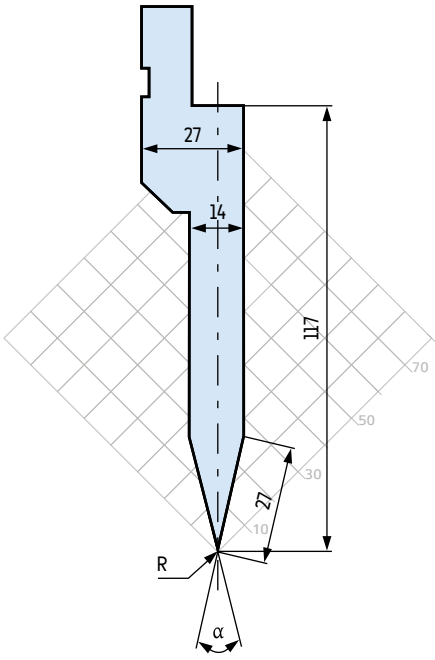
| **S 2015** | 50 t/m |
|---|---|
| *α = 85⁰, R = 0 8 mm* | *AH2 = 12 t/m* |
| *α = 88⁰, R = 0.2 mm, 0.8 mm* | *AH2 = 12 t/m* |
| *α = 90⁰, R = 0.8 mm* | *AH2 = 12 t/m* |



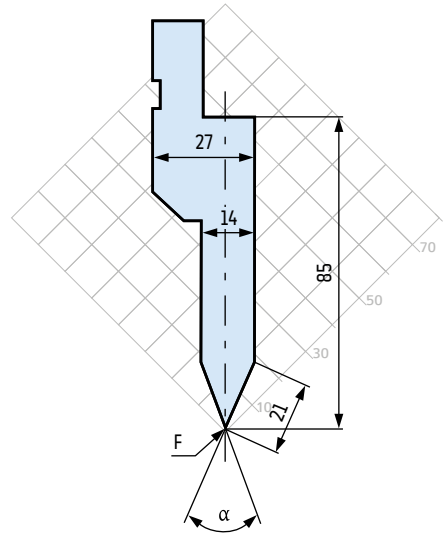

| **S 2016** | 15 t/m |
|---|---|
| *α = 88⁰, 90⁰* | |
| *F = 0.6 mm* | *AH1 = 6 t/m* |




| **S 2017/26** | 100 t/m |
|---|---|
| *α = 26⁰.* | |
| *R = 0.8 mm* | *AH3 = 17 t/m* |




| **S 2017/35** | 100 t/m |
|---|---|
| *α = 35⁰* | |
| *F = 0.8 mm* | *AH3 = 12 t/m* |

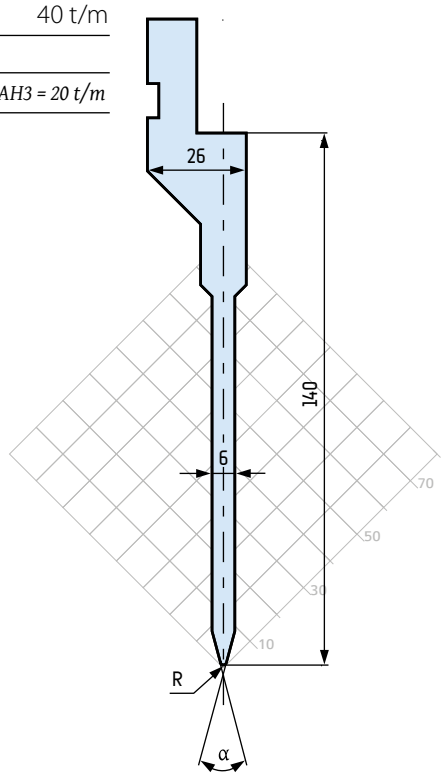


# PUNZONES TIPO "A"

24h 42CrMo4

## S 2017/30 — 40 t/m

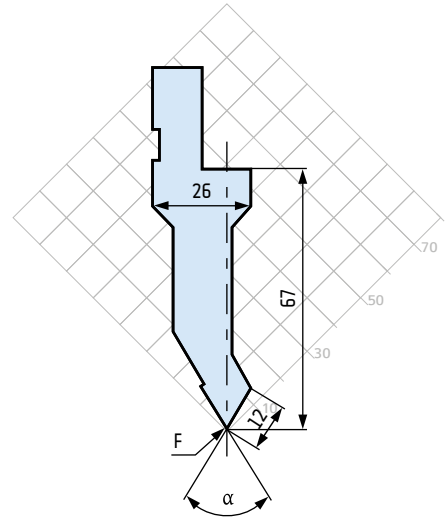
| | |
|---|---|
| $\alpha = 30^0$ | |
| $R = 0.8$ mm | $AH3 = 20$ t/m |




24h

## S 2018 — 60 t/m

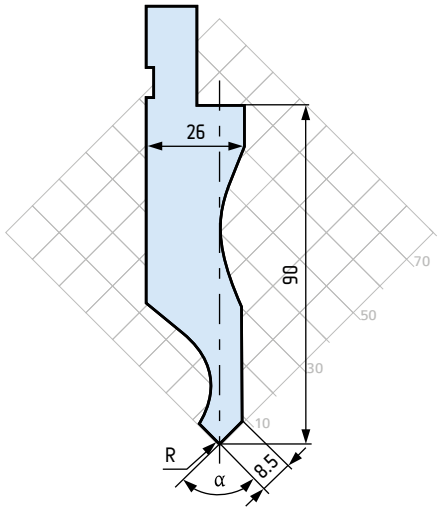
| | |
|---|---|
| $\alpha = 60^0$ | |
| $F = 0.8$ mm | $AH1 = 15$ t/m |




24h

## S 2019 — 70 t/m

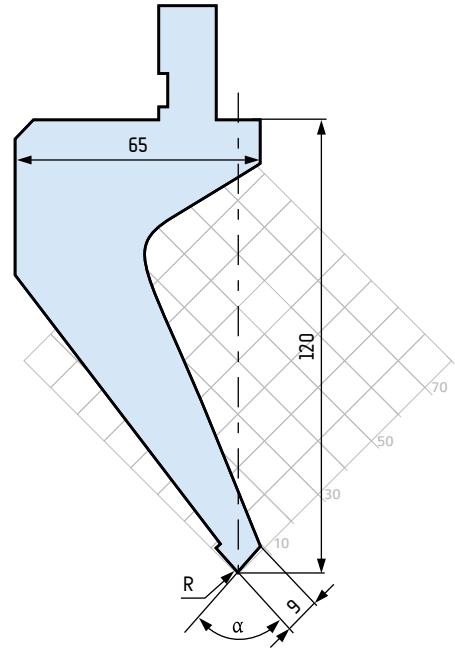
| | |
|---|---|
| $\alpha = 88^0$ | |
| $R = 0.8$ mm | $AH3 = 15$ t/m |




24h

## S 2020 — 50 t/m

| | |
|---|---|
| $\alpha = 75^0$, $R = 0.8$ mm | $AH2 = 15$ t/m |
| $\alpha = 85^0$, $R = 0.2$ mm, $R = 0.8$ mm | $AH2 = 12$ t/m |
| $\alpha = 88^0$, $R = 0.2$ mm, $R = 0.8$ mm | $AH2 = 12$ t/m |



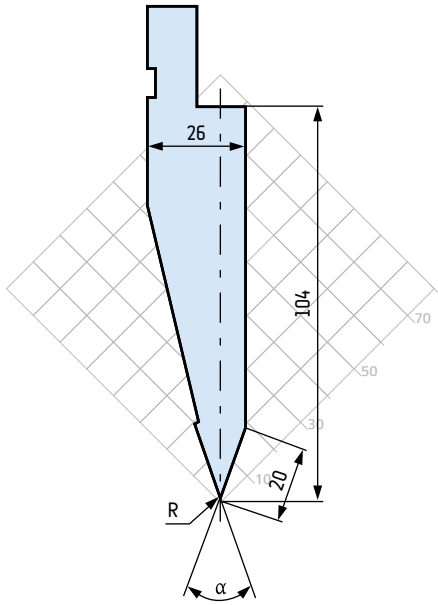
# PUNZONES TIPO "A"

24h

**S 2021** 100 t/m

*α = 30⁰*

*R = 0.8 mm* *AH2 = 30 t/m*

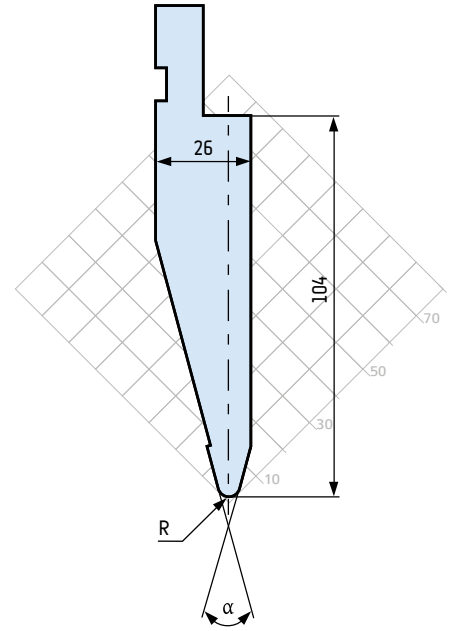



24h

**S 2021/R3** 100 t/m

*α = 30⁰*

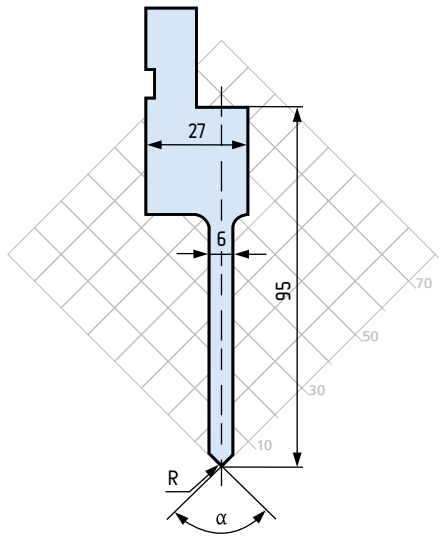
*R = 3 mm* *AH2 = 35 t/m*




24h

**S 2022** 50 t/m

| | |
|---|---|
| *α = 75⁰, R = 0.8 mm* | *AH3 = 14 t/m* |
| *α = 88⁰ , R = 0.2 mm* | *AH3 = 14 t/m* |
| *α = 90⁰, R = 0.2 mm* | *AH3 = 14 t/m* |

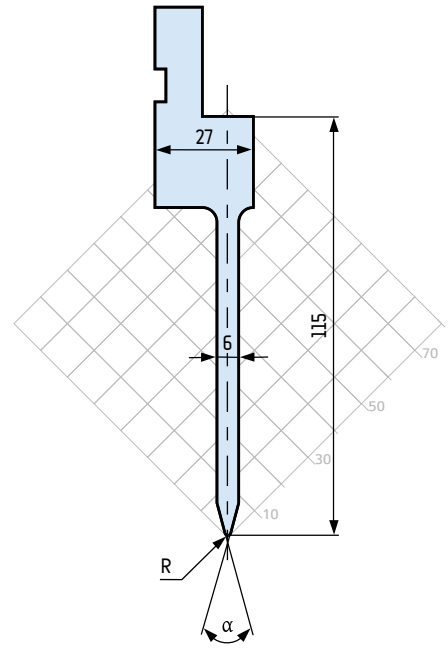



24h

**S 2022/115** 45 t/m

*α = 30⁰*

*R = 0.8 mm* *AH3 = 15 t/m*



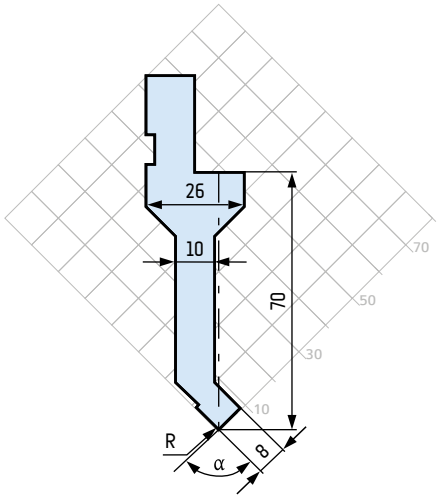
# PUNZONES TIPO "A"

24h

**S 2023** 30 t/m

*α = 85°, 88°, 90°*

*R = 0.2 mm* *AH3 = 8 t/m*

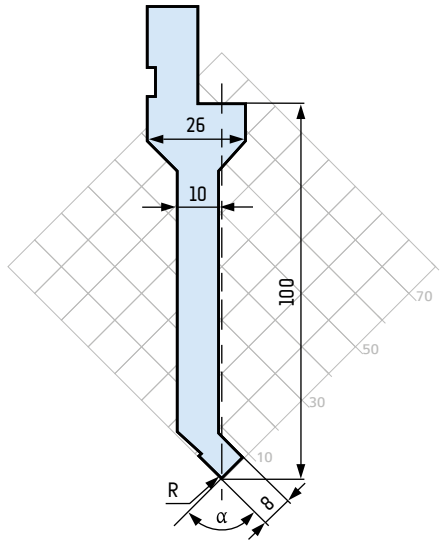



24h

**S 2024** 30 t/m

*α = 85°, 88°, 90°*

*R = 0.2 mm* *AH3 = 8 t/m*

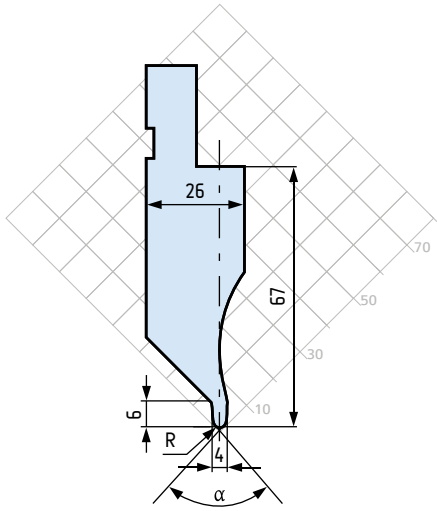



24h

**S 2025** 40 t/m

*α = 88°, 90°*

*R = 0.2 mm* *AH4 = 13 t/m*

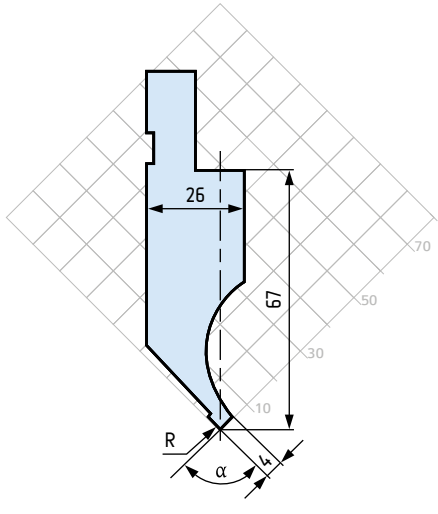



24h

**S 2026** 20 t/m

*α = 88°, 90°*

*R = 0.2 mm* *AH5 = 7.5 t/m*



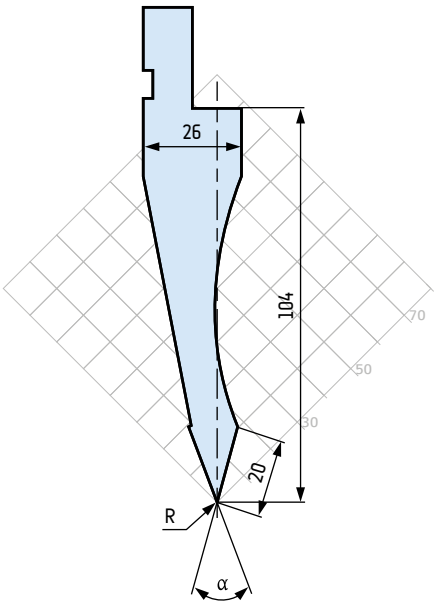
# PUNZONES TIPO "A"

24h

**S 2027** 70 t/m

*α = 30⁰*

*R = 0.8 mm* *AH6 = 20 t/m*

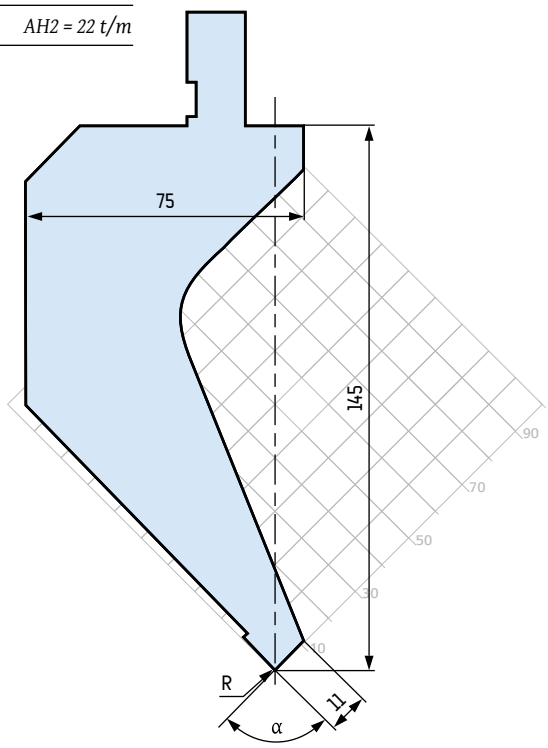



24h

**S 2028** 80 t/m

*α = 85⁰, 88⁰*

*R = 0.8 mm* *AH2 = 22 t/m*

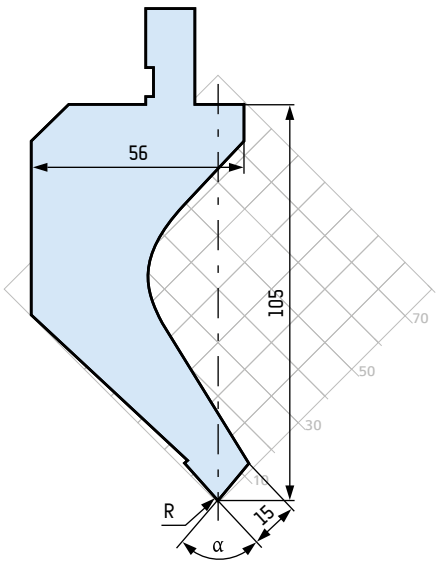



24h

**S 2029** 70 t/m

*α = 85⁰*

*R = 5 mm, 6.5 mm* *AH2 = 20 t/m*

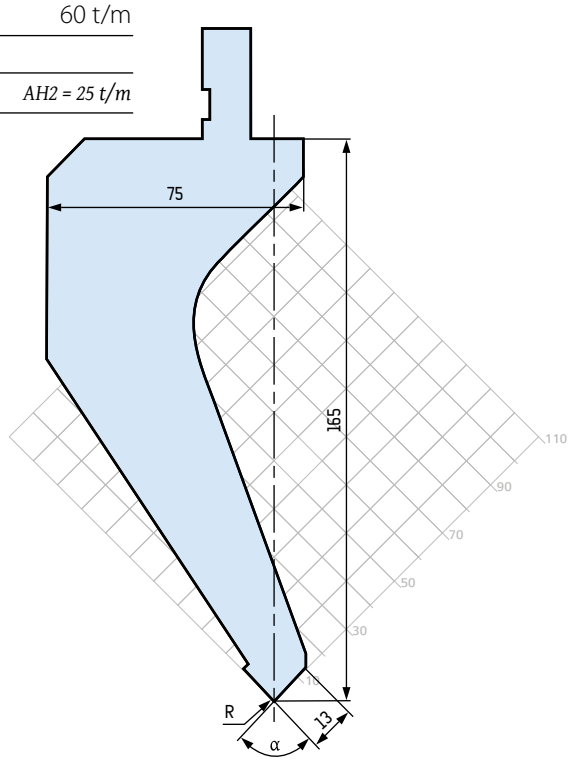



24h

**S 2030** 60 t/m

*α = 85⁰, 88⁰*

*R = 0.8 mm* *AH2 = 25 t/m*



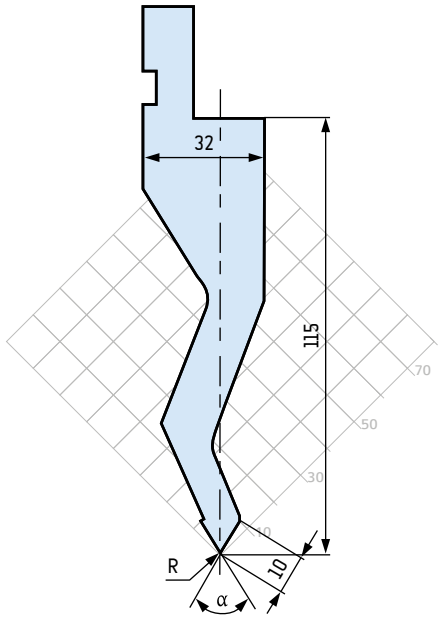
# PUNZONES TIPO "A"

24h

**S 2031** 55 t/m

*α = 60°*

*R = 0.8 mm* *AH3 = 10 t/m*

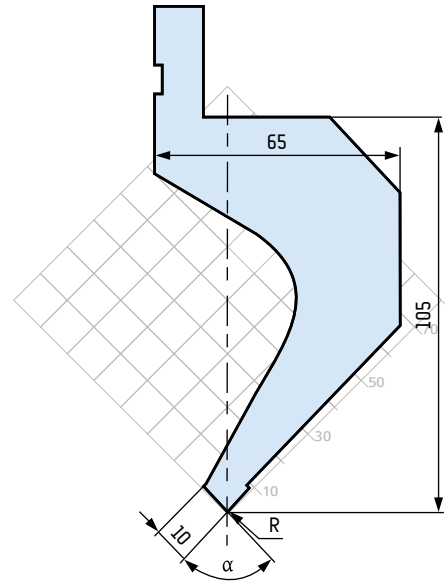



24h

**S 2032** 45 t/m

*α = 88°*

*R = 0.8 mm* *AH2 = 12 t/m*

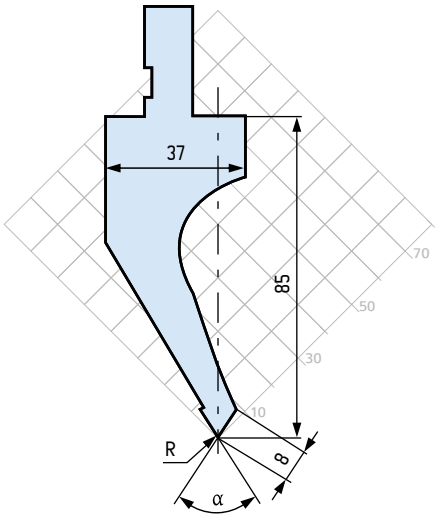



24h 42CrMo4

**S 2034** 35 t/m

*α = 60°*

*R = 0.8 mm* *AH3 = 10 t/m*

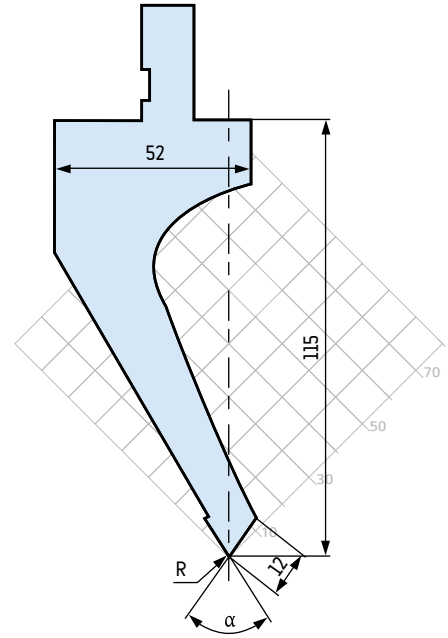



24h 42CrMo4

**S 2035** 35 t/m

*α = 60°*

*R = 0.8 mm* *AH3 = 25 t/m*



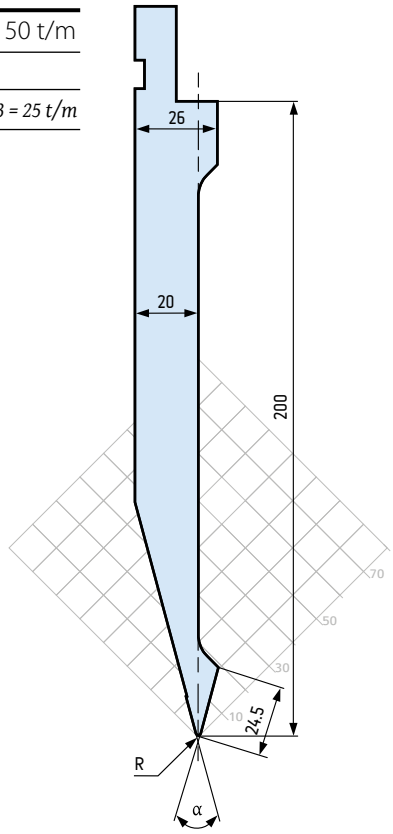
# PUNZONES TIPO "A"

42CrMo4

**S 2036** 50 t/m

*α = 30°*

*R = 0.8 mm* *AH3 = 25 t/m*

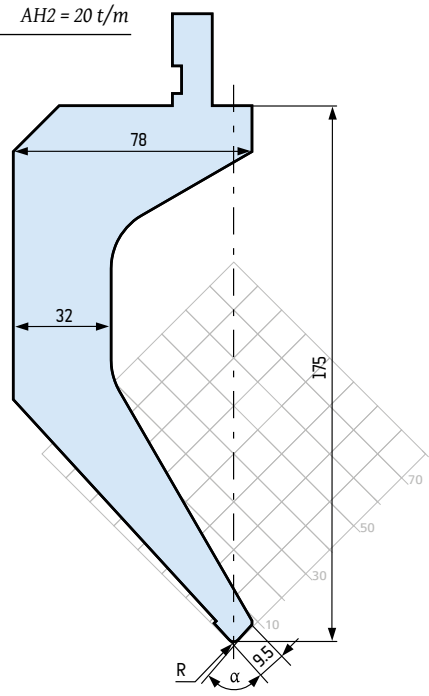



42CrMo4

**S 2037** 70 t/m

*α = 85°*

*R = 0.8 mm* *AH2 = 20 t/m*

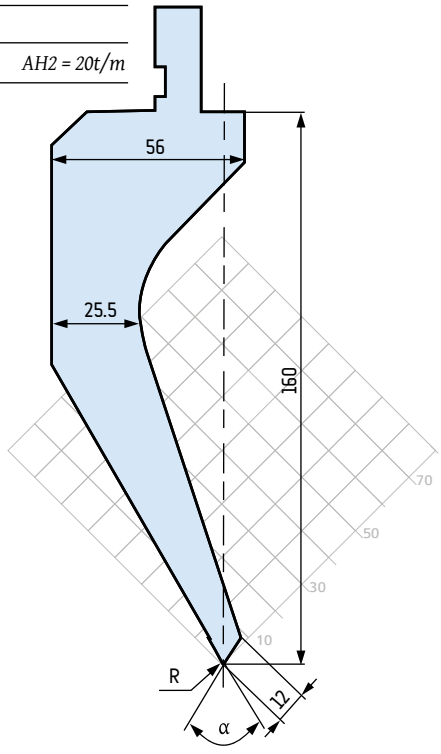



42CrMo4

**S 2038** 70 t/m

*α = 60°*

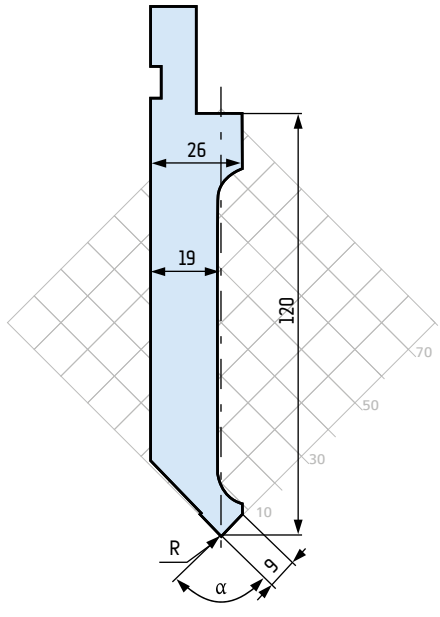
*R = 0.8 mm* *AH2 = 20t/m*




**S 2039** 100 t/m

*α = 88°*

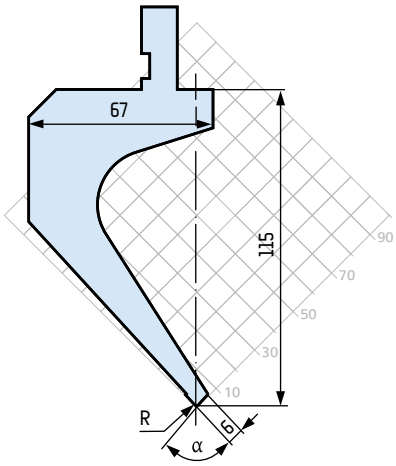
*R = 0.5 mm* *AH2 = 25 t/m*



# PUNZONES TIPO "A"

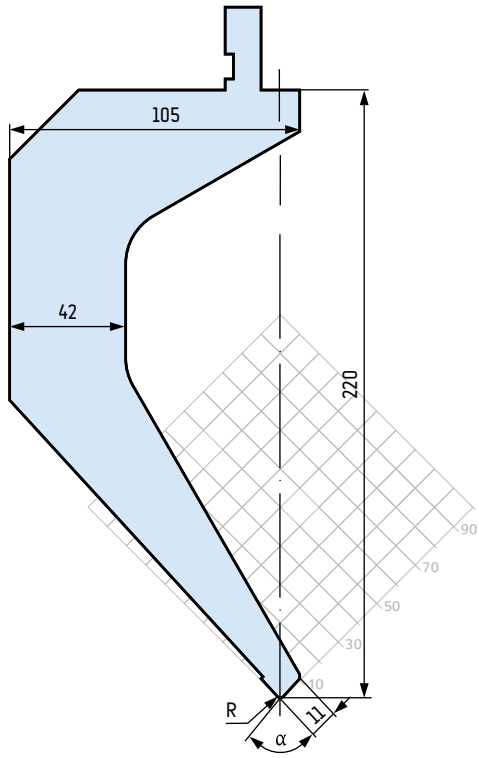
42CrMo4

| **S 2040** | 30 t/m |
|---|---|
| *α = 85⁰* | |
| *R = 0.8 mm* | *AH2 = 10 t/m* |




42CrMo4

| **S 2041** | 80 t/m |
|---|---|
| *α = 85⁰* | |
| *R = 1.5 mm* | *AH2 = 25 t/m* |




# BRAZO ESCUADRADOR MAGNÉTICO

*El brazo escuadrador magnético está disponible en las versiones izquierda y derecha.*

*Brazo escuadrador izquierdo*

*Brazo escuadrador derecho*

# PUNZONES TIPO"A"

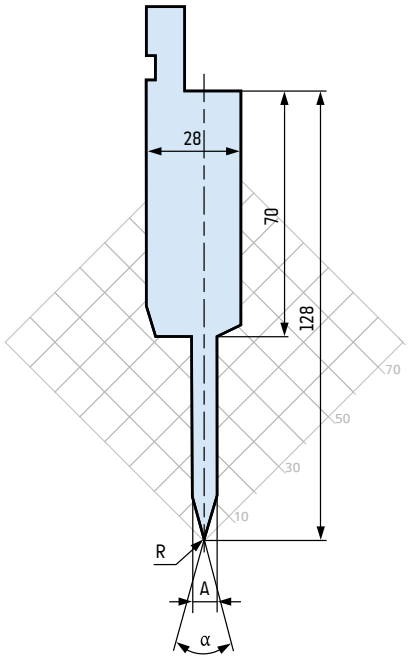
## Herramientas de aplanado

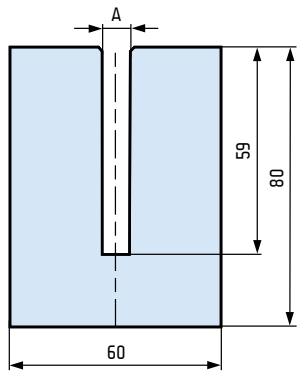
24h 42CrMo4

| **S 2033** | 70 t/m |
|---|---|
| *α = 28⁰* | |
| *R = 0.6 mm* | |
| *A = 6.5 mm, 8 mm, 10 mm, 12 mm* | |

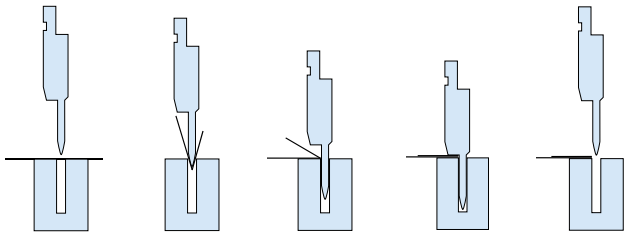
24h 42CrMo4

| **M 3000** | 70 t/m |
|---|---|
| *A = 6.5 mm, 8 mm, 10 mm, 12 mm* | |



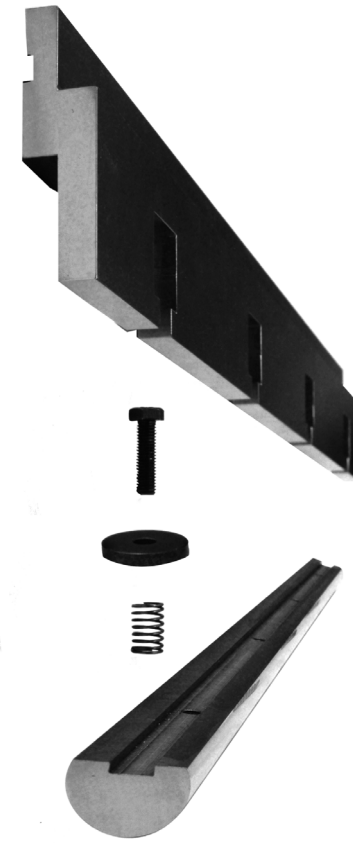



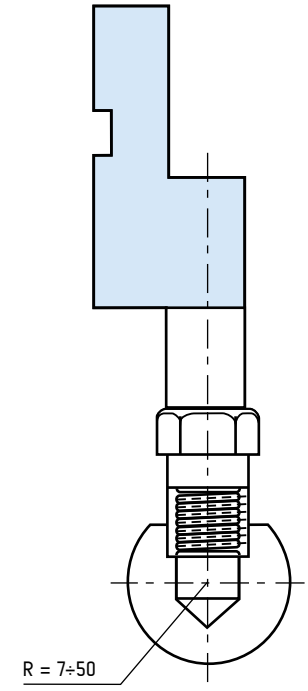

## Ejemplo de uso S 2033 i M 3000



# PUNZÓN RADIAL

## Montaje

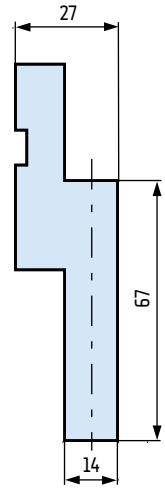




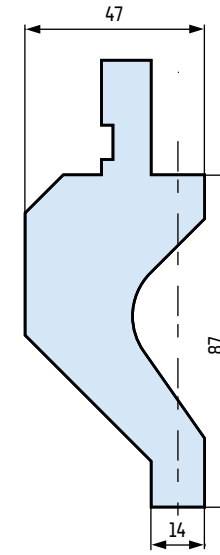
# PUNZÓN RADIAL

## Para insertos R 7 - R 50

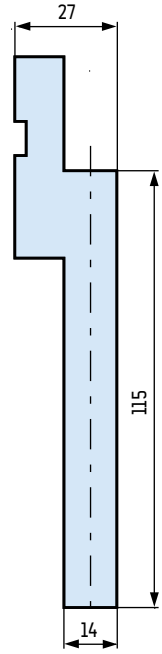
### PUNZÓN R — 80 t/m



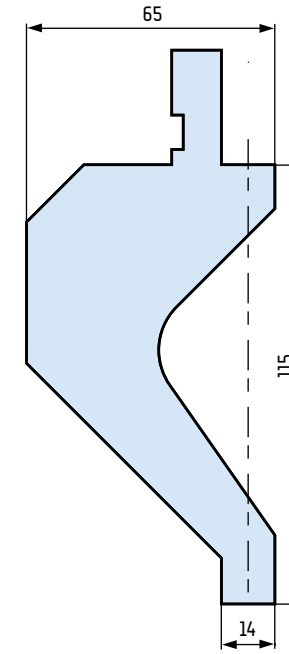

### PUNZÓN R 2 — 50 t/m




### PUNZÓN R/115 — 80 t/m



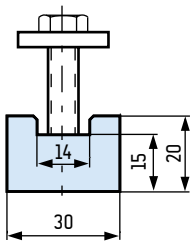

### PUNZÓN R 2/115 — 50 t/m



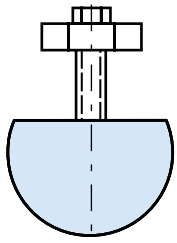
# PUNZONES RADIALES

## Insertos R 7 - R 50

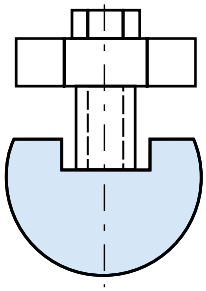
### iNSERTO DE APLANADO




### INSERTO R 7 - R 12



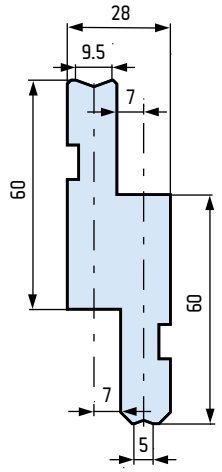
### INSERTO R 12.5 - R 50



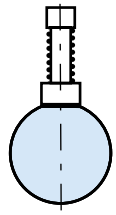
## Para insertos R 3 - R 6.5

### INSERTO R - R 80 t/m

*Punzón de doble radio*




### INSERTO R 3 - R 6.5

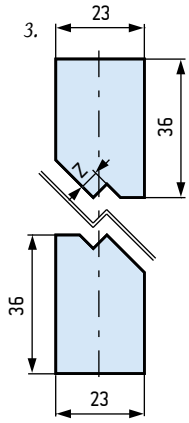


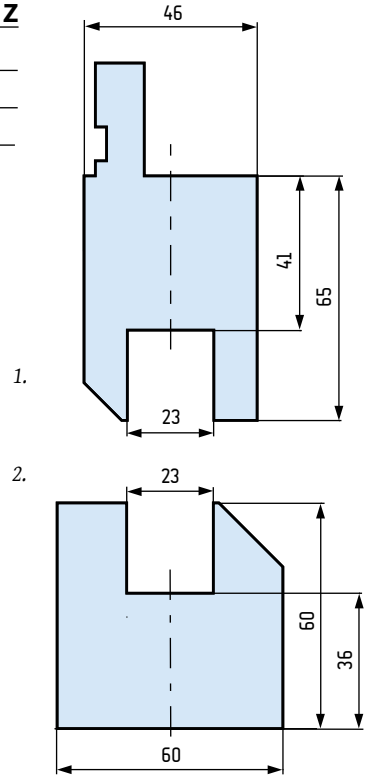
### HERRAMIENTA CON FORMA DE Z

*1. Punzón Z*

*2. Matriz Z*

*3. Inserto Z (set)*



# ADAPTADORES MECÁNICOS PARA PUNZONES

## Ensambladores

*Nota: La abrazadera no está incluida en el kit.*

24h

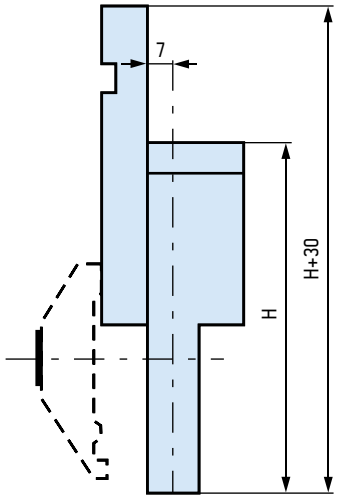
### TIPO "A"

*H = 100 mm, L = 150 mm*

*H = 120 mm, L = 150 mm*

*H = 140 mm, L = 150 mm*

*H = 150 mm, L = 150 mm*

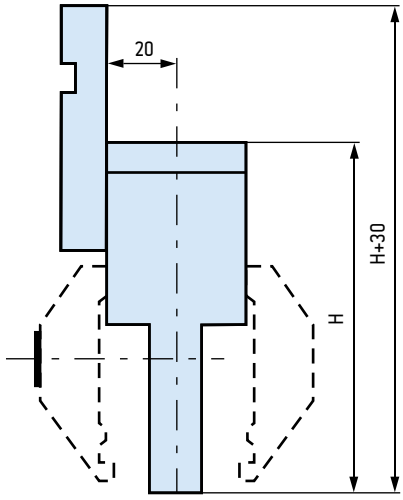



24h

### TIPO "B"

*H = 120 mm, L = 150 mm*

*H = 170 mm, L = 150 mm*

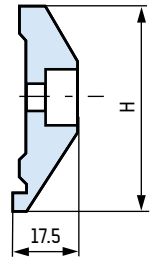



## Arandelas de sujeción

24h

### TIPO "S"

*H = 58 mm, L = 150 mm*

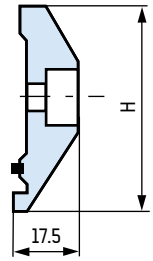



24h

### TIPO "P"

*Con inserto de plástico*

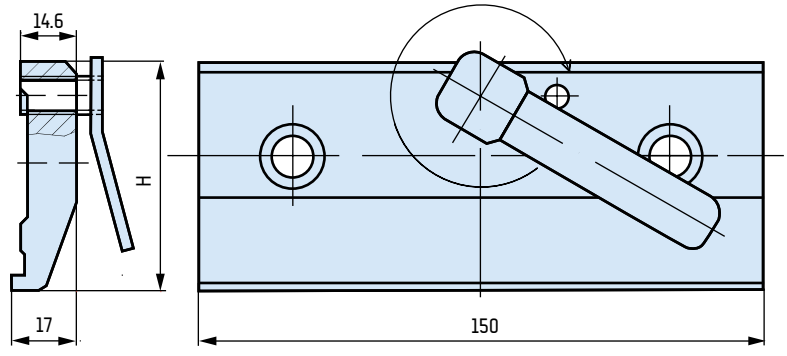
*H = 58 mm, L = 150 mm*




24h

### TIPO "QR"

*H = 60 mm, L = 150 mm*



# ADAPTADORES MECÁNICOS PARA PUNZONES

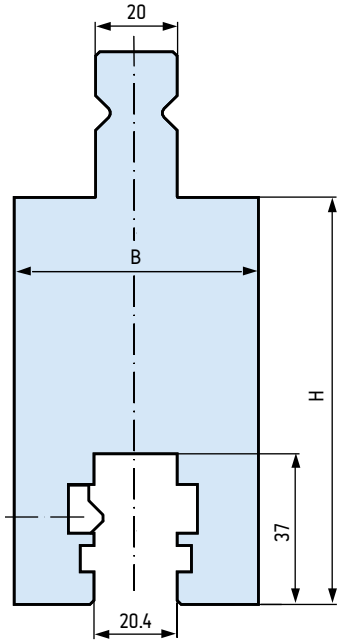
## Adaptador tipo "T"

42CrMo4

**TIPO "T/T"**

*H = 100 mm, L = 100 mm, B = 55 mm*

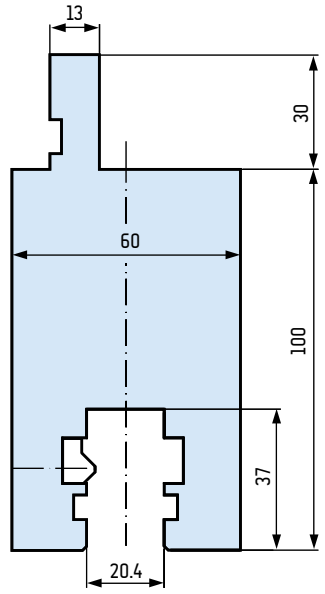
*H = 150 mm, L = 100 mm, B = 60 mm*




## Adaptadores de cambio de sistema

**TIPO "A/T"**

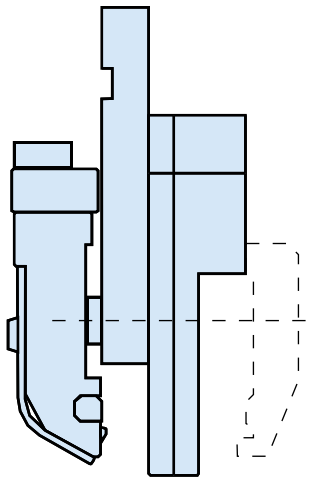
*H = 100 mm, L = 100 mm*



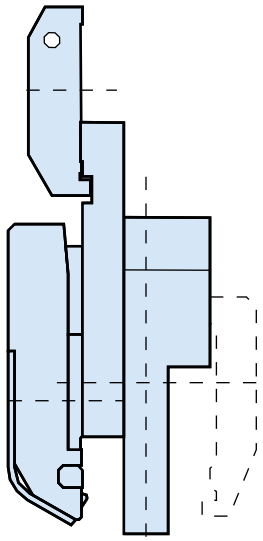

## Adaptadores TEDA para la rápida instalación de herramientas

*Más información en la página 75*

**SPEED GRIP 1300-M MANUAL**



**SPEED GRIP 13000-ST NEUMÁTICO**

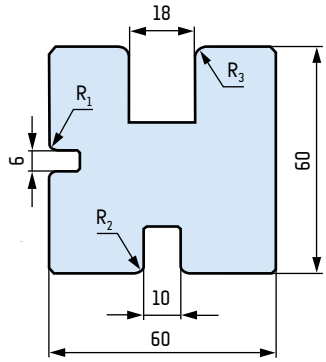


# MATRICES TIPO "A"

## Matrices en V múltiples

**MR** 100 t/m

$R_1$ = 1,5 mm, $R_2$ = 2 mm, $R_3$ = 3 mm




42CrMo4

**M 4** 80 t/m

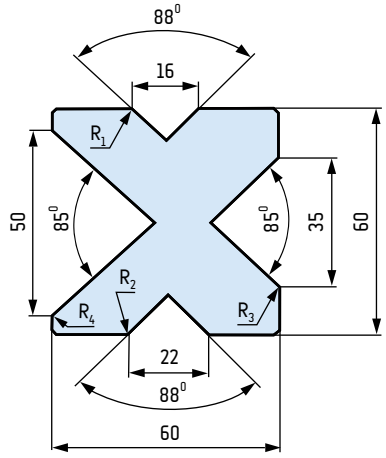
$\alpha = 85^0, 88^0$

$R_1$ = 2 mm, $R_2$ = 2 mm, $R_3$ = 2 mm, $R_4$ = 2,5 mm

**M 4** 80 t/m

$\alpha = 85^0, 88^0$

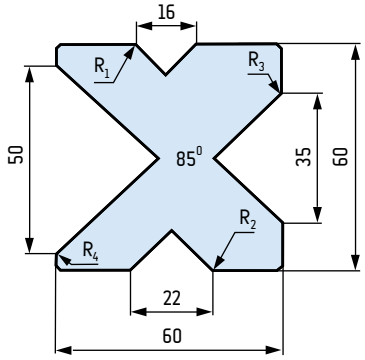
$R_1$ = 2 mm, $R_2$ = 2 mm, $R_3$ = 2 mm, $R_4$ = 2,5 mm




**M 4/85°** 80 t/m

$\alpha = 85^0$

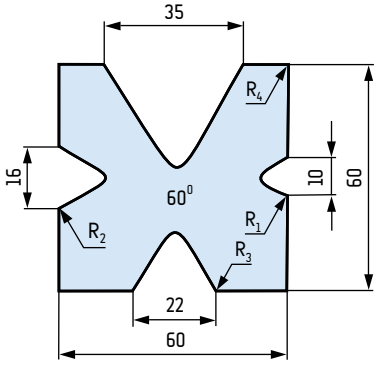
$R_1$ = 1.5 mm, $R_2$ = 1.5 mm, $R_3$ = 2 mm, $R_4$ = 2.5 mm




**M 4/60°** 60 t/m

$\alpha = 60^0$

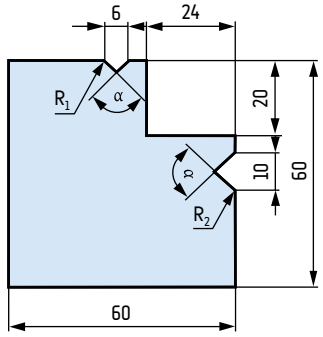
$R_1$ = 1 mm, $R_2$ = 2 mm, $R_3$ = 2 mm, $R_4$ = 3 mm




**M 2/6 – 10** 100 t/m

$\alpha = 90^0$

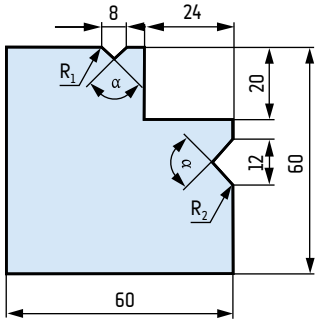
$R_1$ = 1 mm, $R_2$ = 1 mm




**M 2/8 –12** 80 t/m

$\alpha = 90^0$

$R_1$ = 1 mm, $R_2$ = 1 mm



# MATRICES TIPO "A"

*Matrices fijadas usando soportes A 20 o A –> p. 68*

## Con ranura

### M 6019 — 80 t/m

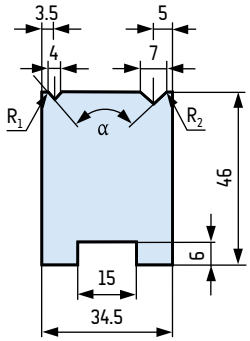
*α = 90°*

*$R_1$ = 0.3 mm, $R_2$ = 0.5 mm*

### M 6119 — 80 t/m

*α = 88°*

*$R_1$ = 0.3 mm, $R_2$ = 0.5 mm*




### M 6020 — 80 t/m

*α = 90°*

*$R_1$ = 0.4 mm, $R_2$ = 0.6 mm*

### M 6220 — 35 t/m*

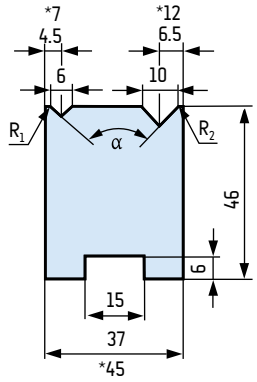
*α = 30°*

*$R_1$ = 0.8 mm, $R_2$ = 2 mm*

### M 6120 — 80 t/m

*α = 88°*

*$R_1$ = 0.4 mm, $R_2$ = 0.6 mm*




### M 6021 — 80 t/m

*α = 90°*

*$R_1$ = 0.5 mm, $R_2$ = 0.8 mm*

### M 6221 — 40 t/m *

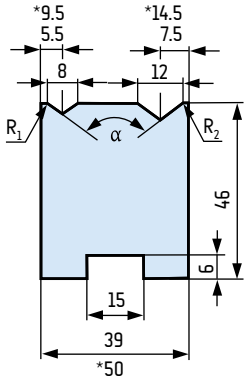
*α = 30°*

*$R_1$ = 1 mm, $R_2$ = 1.5 mm*

### M 6121 — 80 t/m

*α = 88°*

*$R_1$ = 0.5 mm, $R_2$ = 0.8 mm*




### M 6022 — 80 t/m

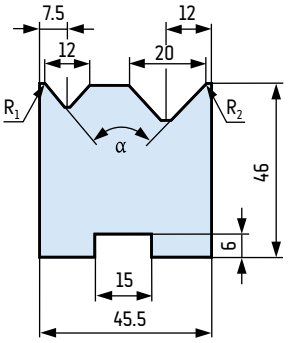
*α = 90°*

*$R_1$ = 0.8 mm, $R_2$ = 2 mm*

### M 6122 — 80 t/m

*α = 88°*

*$R_1$ = 1.6 mm, $R_2$ = 1.75 mm*




### M 6023 — 80 t/m

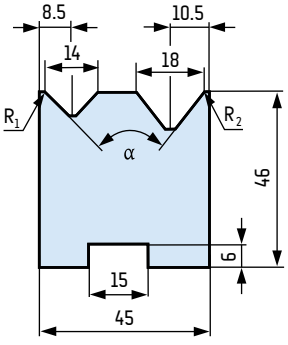
*α = 90°*

*$R_1$ = 1.25 mm, $R_2$ = 1.5 mm*

### M 6123 — 80 t/m

*α = 88°*

*$R_1$ = 1 mm, $R_2$ = 1.5 mm*




### M 6024 — 80 t/m

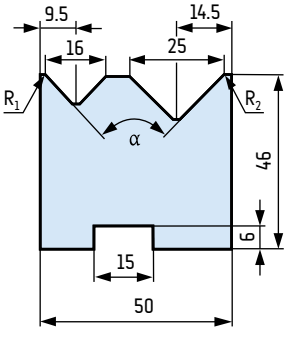
*α = 90°*

*$R_1$ = 2.5 mm, $R_2$ = 3 mm*

### M 6124 — 80 t/m

*α = 88°*

*$R_1$ = 2.5 mm, $R_2$ = 3 mm*



# MATRICES TIPO "A"

## Matrices 1V

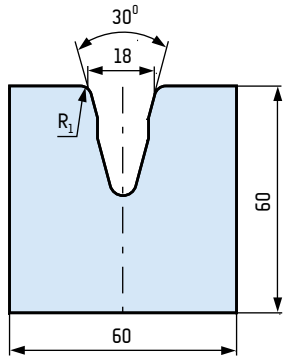
24h

**M 3330/18** 100 t/m

$\alpha = 30^0$

$V = 18\ mm$

$R_1 = 3\ mm$



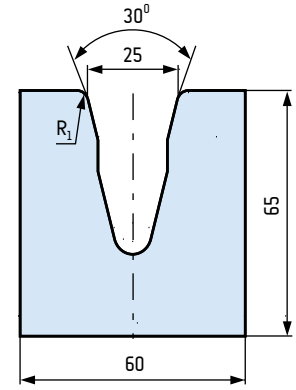

24h

**M 3330/25** 100 t/m

$\alpha = 30^0$

$V = 25\ mm$

$R_1 = 4\ mm$



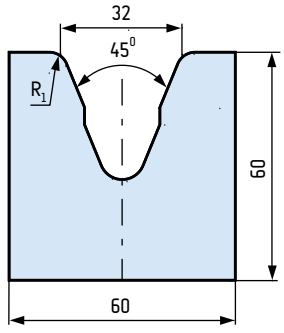

24h

**M 3345/32** 100 t/m

$\alpha = 45^0$

$V = 32\ mm$

$R_1 = 5\ mm$



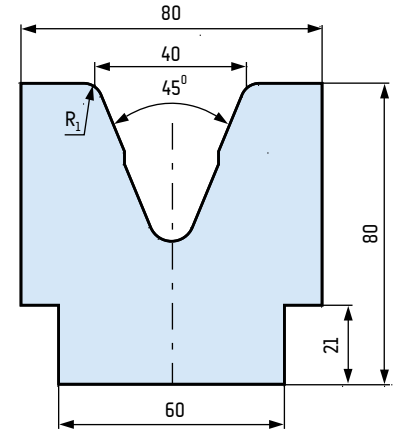

24h

**M 3345/40** 100 t/m

$\alpha = 45^0$

$V = 40\ mm$

$R_1 = 5\ mm$

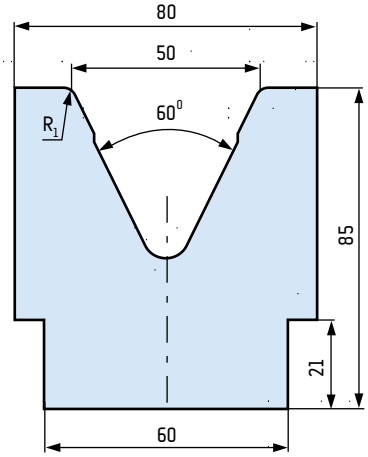


# MATRICES TIPO "A"

## Matrices 1V

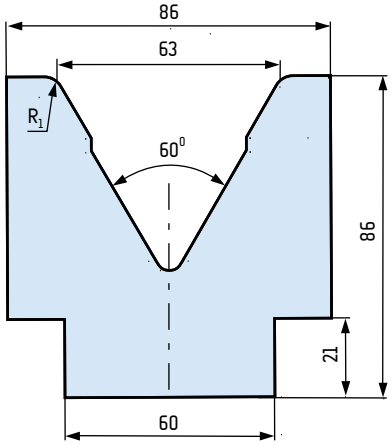
24h

| **M 3360/50** | 100 t/m |
|---|---|
| $\alpha = 60^0$ | |
| $V = 50$ mm | |
| $R_1 = 5$ mm | |



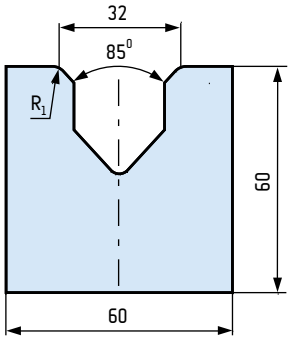

24h

| **M 3360/63** | 100 t/m |
|---|---|
| $\alpha = 60^0$ | |
| $V = 63$ mm | |
| $R_1 = 5$ mm | |



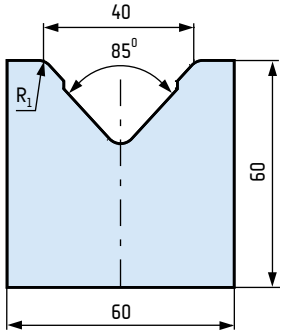

24h

| **M 3385/32** | 100 t/m |
|---|---|
| $\alpha = 85^0$ | |
| $V = 32$ mm | |
| $R_1 = 4$ mm | |




24h

| **M 3385/40** | 100 t/m |
|---|---|
| $\alpha = 85^0$ | |
| $V = 40$ mm | |
| $R_1 = 4$ mm | |



# MATRICES TIPO "A"

## Matrices 1V

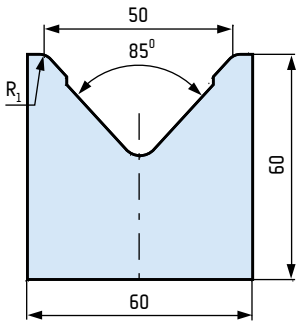
24h

**M 3385/50** 100 t/m

*α = 85⁰*

*V = 50 mm*

*$R_1$= 4 mm*



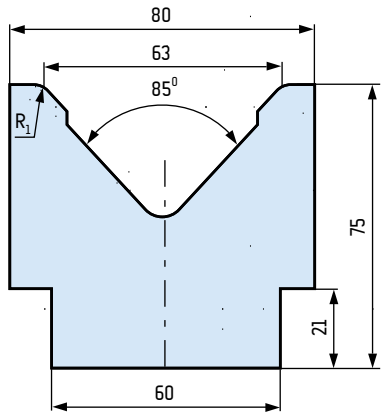

24h

**M 3385/63** 100 t/m

*α = 85⁰*

*V = 63 mm*

*$R_1$= 5 mm*




24h

**M 3385/80** 100 t/m

*α = 85⁰*

*V = 80 mm*

*H = 80 mm*

*na zamówienie H = 95 mm*

*$R_1$= 6 mm*

24h

**M 3385/100** 100 t/m

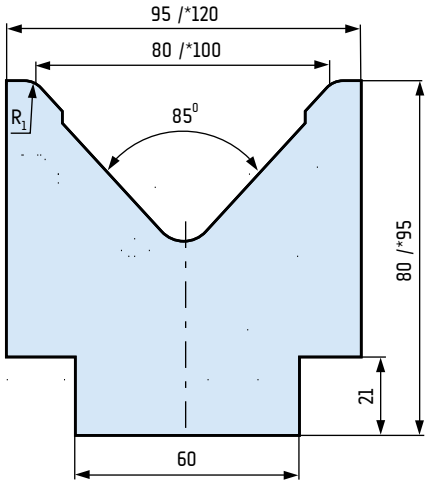
*α = 85⁰**

*V = 100 mm **

*H = 95 mm**

*na zamówienie H = 110 mm*

*$R_1$= 7 mm*




24h

**M 3380/125** 100 t/m

*α = 80⁰*

*V = 125 mm*

*H = 123 mm*

*$R_1$= 9 mm*

24h

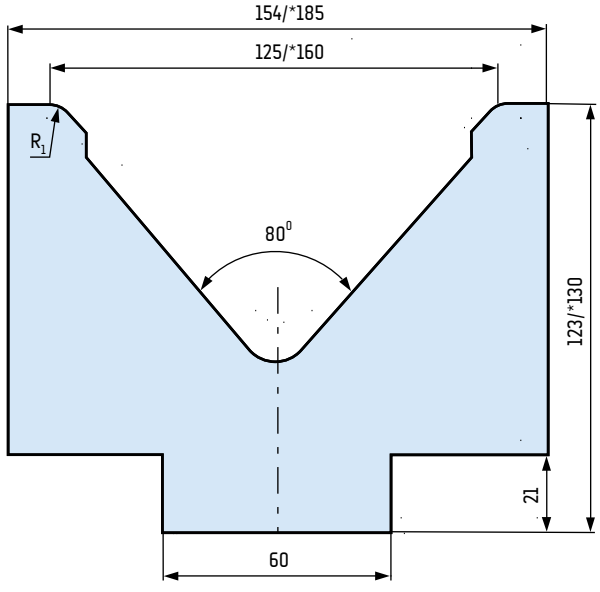
**M 3380/160** 100 t/m*

*α = 80⁰ **

*V = 160 mm**

*H = 130 mm **

*$R_1$= 10 mm*



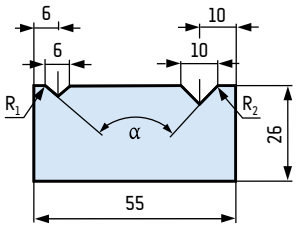
## Perno fijado

24h

**M 6112** 100 t/m

*α = 90°*

*$R_1$= 0.4 mm, $R_2$= 0.8 mm*




24h

**M 6212** 60 t/m

*α = 60°*

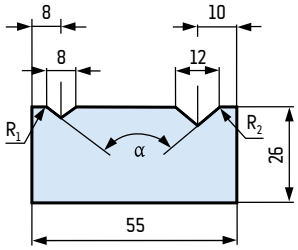
*$R_1$= 0.7 mm, $R_2$= 1 mm*

24h

**M 6113** 100 t/m

*α = 90°*

*$R_1$= 0.5 mm, $R_2$= 0.8 mm*




24h

**M 6213** 80 t/m

*α = 60°*

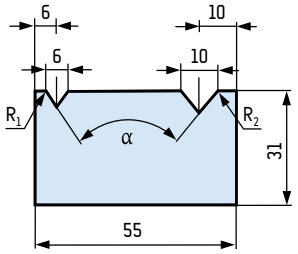
*$R_1$= 0.7 mm, $R_2$= 1 mm*

24h

**M 6312** 30 t/m

*α = 35°*

*$R_1$= 0.7 mm, $R_2$= 1 mm*

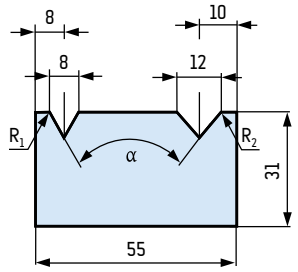



24h

**M 6313** 30 t/m

*α = 35°*

*$R_1$= 1.5 mm, $R_2$= 2 mm*

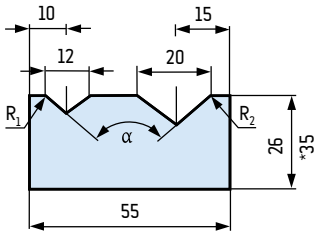



24h

**M 6114** 100 t/m

*α = 88°*

*$R_1$= 2.5 mm, $R_2$= 3 mm*




24h

**M 6214** 80 t/m *

*α = 60°*

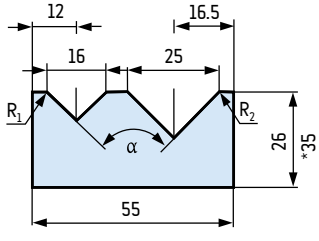
*$R_1$= 2.5 mm, $R_2$= 3 mm*

24h

**M 6115** 100 t/m

*α = 88°*

*$R_1$= 2.5 mm, $R_2$= 3 mm*




24h

**M 6215** 80 t/m *

*α = 60°*

*$R_1$= 2.5 mm, $R_2$= 3 mm*

# MATRICES TIPO "A"

## Matrices con base H = 80mm

| M 6130 | 30 t/m |
|---|---|
| *A = 8 mm, B = 16 mm* | |
| *$R_1$ = 1 mm, $R_2$ = 1 mm* | |

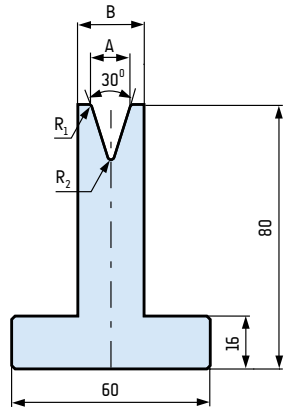
| M 6230 | 35 t/m |
|---|---|
| *A = 10 mm, B = 20 mm* | |
| *$R_1$ = 1 mm, $R_2$ = 1 mm* | |

| M 6330 | 35 t/m |
|---|---|
| *A = 12 mm, B = 22 mm* | |
| *$R_1$ = 1 mm, $R_2$ = 1 mm* | |

| M 6430 | 45 t/m |
|---|---|
| *A = 16 mm, B = 30 mm* | |
| *$R_1$ = 2 mm, $R_2$ = 2 mm* | |

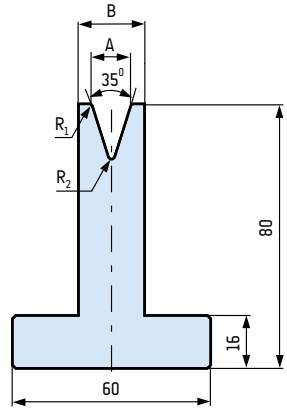
| M 6530 | 30 t/m |
|---|---|
| *A = 6 mm, B = 14 mm* | |
| *$R_1$ = 0.8 mm, $R_2$ = 0.8 mm* | |

| M 6630 | 50 t/m |
|---|---|
| *A = 20 mm, B = 35 mm* | |
| *$R_1$ = 4 mm, $R_2$ = 4 mm* | |



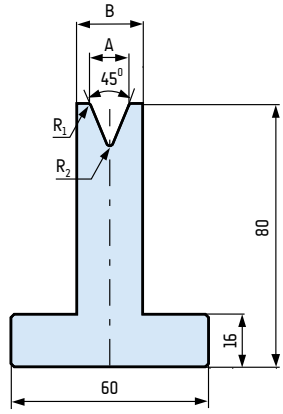

| M 6135 | 35 t/m |
|---|---|
| *A = 8 mm, B = 14 mm* | |
| *$R_1$ = 1.5 mm, $R_2$ = 0.8 mm* | |

| M 6235 | 40 t/m |
|---|---|
| *A = 12 mm, B = 18 mm* | |
| *$R_1$ = 2 mm, $R_2$ = 1 mm* | |




| M 6145 | 50 t/m |
|---|---|
| *A = 10 mm, B = 16 mm* | |
| *$R_1$ = 2 mm, $R_2$ = 1 mm* | |

| M 6245 | 50 t/m |
|---|---|
| *A = 12 mm, B = 18 mm* | |
| *$R_1$ = 2.5 mm, $R_2$ = 1 mm* | |



# MATRICES TIPO "A"

## Matrices con base H = 80 mm

**M 6160** 60 t/m
*A = 8 mm, B = 14 mm*
*$R_1$ = 1.5 mm, $R_2$ = 0.8 mm*

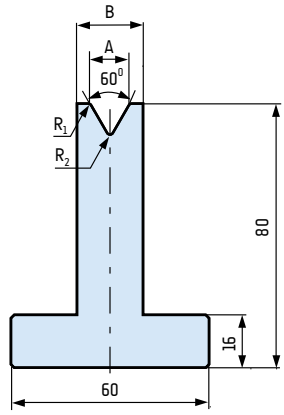
**M 6260** 60 t/m
*A = 10 mm, B = 16 mm*
*$R_1$ = 2 mm, $R_2$ = 1 mm*

**M 6360** 60 t/m
*A = 12 mm, B = 18 mm*
*$R_1$ = 2.5 mm, $R_2$ = 1 mm*

**M 6460** 60 t/m
*A = 16 mm, B = 24 mm*
*$R_1$ = 1.5 mm, $R_2$ = 1.5 mm*

**M 6560** 60 t/m
*A = 20 mm, B = 30 mm*
*$R_1$ = 2 mm, $R_2$ = 2 mm*

**M 6660** 60 t/m
*A = 25 mm, B = 40 mm*
*$R_1$ = 3 mm, $R_2$ = 3 mm*




**M 6085** 100 t/m
*A = 8 mm, B = 14 mm*
*$R_1$ = 1 mm, $R_2$ = 0.5 mm*

**M 6185** 100 t/m
*A = 12 mm, B = 18 mm*
*$R_1$ = 2.5 mm, $R_2$ = 1 mm*

**M 6285** 100 t/m
*A = 16 mm, B = 24 mm*
*$R_1$ = 2.5 mm, $R_2$ = 1 mm*

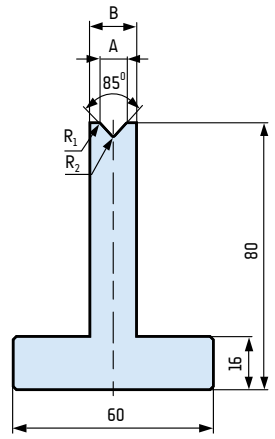
**M 6385** 100 t/m
*A = 20 mm, B = 30 mm*
*$R_1$ = 3 mm, $R_2$ = 1.5 mm*

**M 6485** 100 t/m
*A = 25 mm, B = 40 mm*
*$R_1$ = 3 mm, $R_2$ = 3 mm*

**M 6585** 100 t/m
*A = 10 mm, B = 18 mm*
*$R_1$ = 1 mm, $R_2$ = 1 mm*

**M 6685** 100 t/m
*A = 14 mm, B = 18 mm*
*$R_1$ = 2.6 mm, $R_2$ = 0.4 mm*

**M 6785** 100 t/m
*A = 6 mm, B = 14 mm*
*$R_1$ = 0.5 mm, $R_2$ = 0.5 mm*




**M 6088** 100 t/m
*A = 8 mm, B = 14 mm*
*$R_1$ = 1 mm, $R_2$ = 0.5 mm*

**M 6188** 100 t/m
*A = 12 mm, B = 18 mm*
*$R_1$ = 2.5 mm, $R_2$ = 1 mm*

**M 6288** 100 t/m
*A = 16 mm, B = 24 mm*
*$R_1$ = 2.5 mm, $R_2$ = 1 mm*

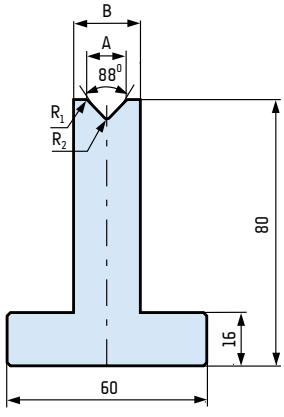
**M 6388** 100 t/m
*A = 20 mm, B = 30 mm*
*$R_1$ = 3 mm, $R_2$ = 1.5 mm*

**M 6488** 100 t/m
*A = 25 mm, B = 40 mm*
*$R_1$ = 3 mm, $R_2$ = 3 mm*

**M 6588** 100 t/m
*A = 10 mm, B = 18 mm*
*$R_1$ = 1 mm, $R_2$ = 1 mm*

**M 6688** 100 t/m
*A = 14 mm, B = 18 mm*
*$R_1$ = 2.6 mm, $R_2$ = 0.4 mm*

**M 6788** 100 t/m
*A = 6 mm, B = 14 mm*
*$R_1$ = 0.5 mm, $R_2$ = 0.5 mm*



# MATRICES TIPO "A"

## Matrices con base H = 80 mm

**M 6190** 100 t/m

*A = 6 mm, B = 12 mm*

*$R_1$ = 1.5 mm, $R_2$ = 0.5 mm*

**M 6290** 100 t/m

*A = 8 mm, B = 14 mm*

*$R_1$ = 1.5 mm, $R_2$ = 0.8 mm*

**M 6390** 100 t/m

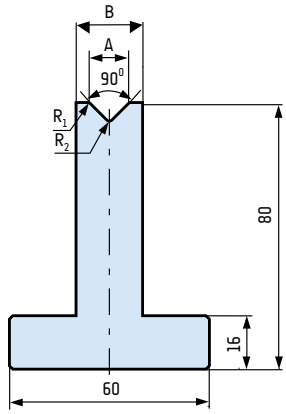
*A = 10 mm, B = 16 mm*

*$R_1$ = 2 mm, $R_2$ = 1 mm*

**M 6490** 100 t/m

*A = 12 mm, B = 18 mm*

*$R_1$ = 2.5 mm, $R_2$ = 1.5 mm*




## Matrices con base H = 120 mm

**M 9130** 30 t/m

*A = 8 mm, B = 18 mm*

*$R_1$ = 1 mm, $R_2$ = 1 mm*

**M 9230** 35 t/m

*A = 10 mm, B = 24 mm*

*$R_1$ = 1 mm, R = 1 mm*

**M 9330** 35 t/m

*A = 12 mm, B = 24 mm*

*$R_1$ = 1 mm, $R_2$ = 1 mm*

**M 9430** 45 t/m

*A = 16 mm, B = 30 mm*

*$R_1$ = 2 mm, $R_2$ = 2 mm*

**M 9530** 30 t/m

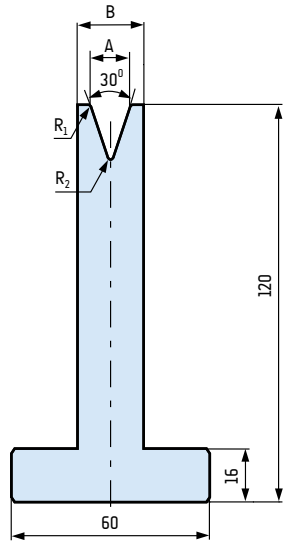
*A = 6 mm, B = 14 mm*

*$R_1$ = 0.8 mm, R = 0.8 mm*

**M 9630** 50 t/m

*A = 20 mm, B = 35 mm*

*$R_1$ = 4 mm, $R_2$ = 4 mm*




**M 9135** 35 t/m

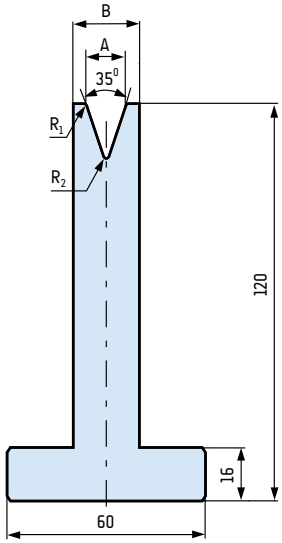
*A = 8 mm, B = 18 mm*

*$R_1$ = 1.5 mm, $R_2$ = 0.8 mm*

**M 9235** 40 t/m

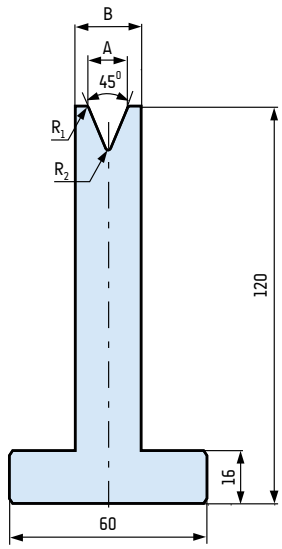
*A = 12 mm, B = 18 mm*

*$R_1$ = 2 mm, $R_2$ = 1 mm*



# MATRICES TIPO "A"

## Matrices con base H = 120 mm




**M 9145** 50 t/m

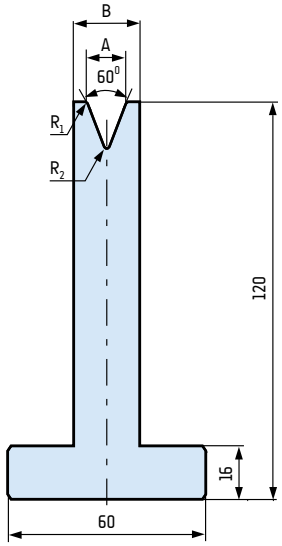
*A = 10 mm, B = 18 mm*

*$R_1$ = 2 mm, $R_2$ = 1 mm*

**M 9245** 50 t/m

*A = 12 mm, B = 18 mm*

*$R_1$ = 2.5 mm, $R_2$ = 1 mm*




**M 9160** 60 t/m

*A = 8 mm, B = 14 mm*

*$R_1$ = 1.5 mm, $R_2$ = 0.8 mm*

**M 9260** 60 t/m

*A = 10 mm, B = 18 mm*

*$R_1$ = 2 mm, $R_2$ = 1 mm*

**M 9360** 60 t/m

*A = 12 mm, B = 18 mm*

*$R_1$ = 2.5 mm, $R_2$ = 1 mm*

**M 9460** 60 t/m

*A = 16 mm, B = 24 mm*

*$R_1$ = 1.5 mm, $R_2$ = 1.5 mm*

**M 9560** 60 t/m

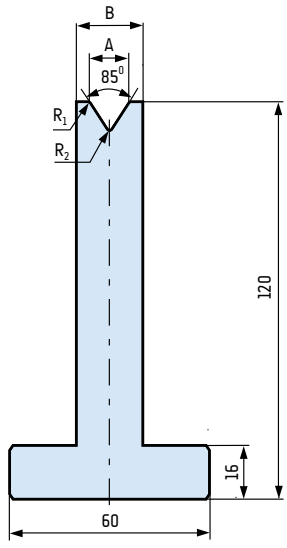
*A = 20 mm, B = 30 mm*

*$R_1$ = 2 mm, $R_2$ = 2 mm*

**M 9660** 60 t/m

*A = 25 mm, B = 40 mm*

*$R_1$ = 3 mm, $R_2$ = 3 mm*




**M 9085** 100 t/m

*A = 8 mm, B = 14 mm*

*$R_1$ = 1 mm, $R_2$ = 0.5 mm*

**M 9185** 100 t/m

*A = 12 mm, B = 18 mm*

*$R_1$ = 2.5 mm, $R_2$ = 1 mm*

**M 9285** 100 t/m

*A = 16 mm, B = 24 mm*

*$R_1$ = 2.5 mm, $R_2$ = 1 mm*

**M 9385** 100 t/m

*A = 20 mm, B = 30 mm*

*$R_1$ = 3 mm, $R_2$ = 1.5 mm*

**M 9485** 100 t/m

*A = 25 mm, B = 40 mm*

*$R_1$ = 3 mm, $R_2$ = 3 mm*

**M 9585** 100 t/m

*A = 10 mm, B = 18 mm*

*$R_1$ = 1 mm, $R_2$ = 1 mm*

**M 9685** 100 t/m

*A = 14 mm, B = 18 mm*

*$R_1$ = 2.6 mm, $R_2$ = 0.4 mm*

**M 9785** 100 t/m

*A = 6 mm, B = 14 mm*

*$R_1$ = 0.5 mm, $R_2$ = 0.5 mm*

# MATRICES TIPO "A"

## Matrices con base H = 120 mm

**M 9088** 100 t/m

*A = 8 mm, B = 14 mm*

*$R_1$ = 1 mm, $R_2$ = 0.5 mm*

**M 9188** 100 t/m

*A = 12 mm, B = 18 mm*

*$R_1$ = 2.5 mm, $R_2$ = 1 mm*

**M 9288** 100 t/m

*A = 16 mm, B = 24 mm*

*$R_1$ = 2.5 mm, $R_2$ = 1 mm*

**M 9388** 100 t/m

*A = 20 mm, B = 30 mm*

*$R_1$ = 3 mm, $R_2$ = 1.5 mm*

**M 9488** 100 t/m

*A = 25 mm, B = 40 mm*

*$R_1$ = 3 mm, $R_2$ = 3 mm*

**M 9588** 100 t/m

*A = 10 mm, B = 18 mm*

*$R_1$ = 1 mm, $R_2$ = 1 mm*

**M 9688** 100 t/m

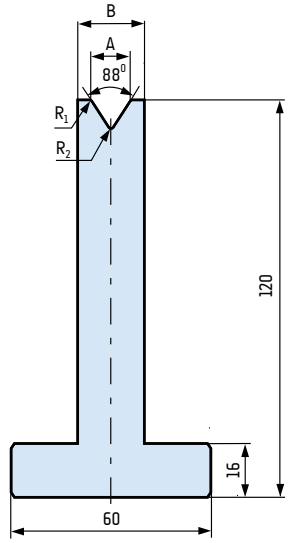
*A = 14 mm, B = 18 mm*

*$R_1$ = 2.6 mm, $R_2$ = 0.4 mm*

**M 9788** 100 t/m

*A = 6 mm, B = 14 mm*

*$R_1$ = 0.5 mm, $R_2$ = 0.5 mm*




**M 9190** 100 t/m

*A = 6 mm, B = 14 mm*

*$R_1$ = 1.5 mm, $R_2$ = 0.5 mm*

**M 9290** 100 t/m

*A = 8 mm, B = 14 mm*

*$R_1$ = 1.5 mm, $R_2$ = 0.8 mm*

**M 9390** 100 t/m

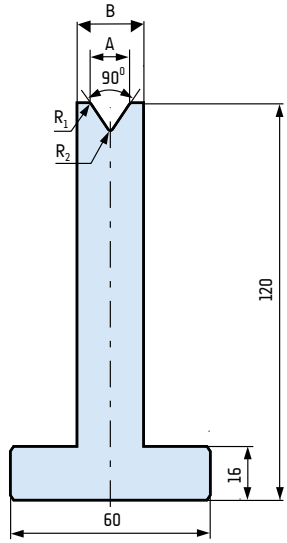
*A = 10 mm, B = 18 mm*

*$R_1$ = 2 mm, $R_2$ = 1 mm*

**M 9490** 100 t/m

*A = 12 mm, B = 18 mm*

*$R_1$ = 3 mm, $R_2$ = 0.8 mm*



# MATRICES TIPO "A"

*Matrices fijadas usando suoportes de matriz A 31 o A 61 –> p. 69*

## Matriz de inserción

24h 42CrMo4

**M 8130** 35 t/m

*α = 30°*

*A = 6 mm, B = 16 mm*

*$R_1$ = 1 mm*

24h 42CrMo4

**M 8230** 35 t/m

*α = 30°*

*A = 8 mm, B = 19 mm*

*$R_1$ = 1.5 mm*

24h 42CrMo4

**M 8330** 50 t/m

*α = 30°*

*A = 10 mm, B = 24 mm*

*$R_1$ =2 mm*

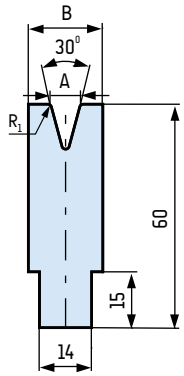
24h 42CrMo4

**M 8430** 40 t/m

*α = 30°*

*A = 12 mm, B = 25 mm*

*$R_1$ = 2.5 mm*




24h 42CrMo4

**M 8160** 60 t/m

*α = 60°*

*A = 6 mm, B = 14 mm*

*$R_1$ = 0.6 mm*

24h 42CrMo4

**M 8260** 60 t/m

*α = 60°*

*A = 8 mm, B = 15 mm*

*$R_1$ = 0.8 mm*

24h 42CrMo4

**M 8360** 60 t/m

*α = 60°*

*A = 10 mm, B = 18 mm*

*$R_1$ = 1 mm*

24h 42CrMo4

**M 8460** 60 t/m

*α = 60°*

*A = 12 mm, B = 18 mm*

*$R_1$ = 1.2 mm*

24h 42CrMo4

**M 8560** 60 t/m

*α = 60°*

*A = 16 mm, B = 24 mm*

*$R_1$ = 1.6 mm*

24h 42CrMo4

**M 8660** 60 t/m

*α = 60°*

*A = 20 mm, B = 30 mm*

*$R_1$ = 2 mm*

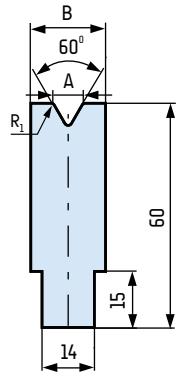
24h 42CrMo4

**M 8760** 60 t/m

*α = 60°*

*A = 25 mm, B = 33 mm*

*$R_1$ = 2.5 mm*



# MATRICES TIPO "A"

## Matrices de inserción

42CrMo4

**M 8188** 100 t/m

$\alpha = 88^0$

*A = 6 mm, B = 14 mm*

$R_1 = 1.5$ *mm*

42CrMo4

**M 8288** 100 t/m

$\alpha = 88^0$

*A = 8 mm, B = 14 mm*

$R_1 = 1.5$ *mm*

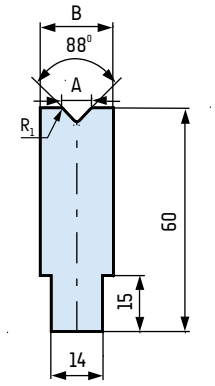
42CrMo4

**M 8388** 100 t/m

$\alpha = 88^0$

*A = 10 mm, B = 15 mm*

$R_1 = 2$ *mm*




42CrMo4

**M 8488** 100 t/m

$\alpha = 88^0$

*A = 12 mm, B = 17 mm*

$R_1 = 2.5$ *mm*

42CrMo4

**M 8588** 100 t/m

$\alpha = 88^0$

*A = 14 mm, B = 18 mm*

$R_1 = 2.5$ *mm*

42CrMo4

**M 8688** 100 t/m

$\alpha = 88^0$

*A = 16 mm, B = 21 mm*

$R_1 = 2.5$ *mm*

42CrMo4

**M 8788** 100 t/m

$\alpha = 88^0$

*A = 18 mm, B = 23 mm*

$R_1 = 2.5$ *mm*

42CrMo4

**M 8888** 100 t/m

$\alpha = 88^0$

*A = 20 mm, B = 25 mm*

$R_1 = 3$ *mm*

42CrMo4

**M 8988** 100 t/m

$\alpha = 88^0$

*A = 25 mm, B = 30 mm*

$R_1 = 3$ *mm*

42CrMo4

**M 8190** 100 t/m

$\alpha = 90^0$

*A = 6 mm, B = 14 mm*

$R_1 = 1.5$ *mm*

42CrMo4

**M 8290** 100 t/m

$\alpha = 90^0$

*A = 8 mm, B = 14 mm*

$R_1 = 1.5$ *mm*

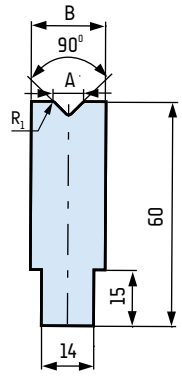
42CrMo4

**M 8390** 100 t/m

$\alpha = 90^0$

*A = 10 mm, B = 15 mm*

$R_1 = 2$ *mm*




42CrMo4

**M 8490** 100 t/m

$\alpha = 90^0$

*A = 12 mm, B = 17 mm*

$R_1 = 2.5$ *mm*

42CrMo4

**M 8590** 100 t/m

$\alpha = 90^0$

*A = 14 mm, B =18 mm*

$R_1 = 2.5$ *mm*

# MATRICES TIPO "A

*Matriz de plegado y curvado, la parte superior se mueve sobre muelles*

## Matrices aplanadoras

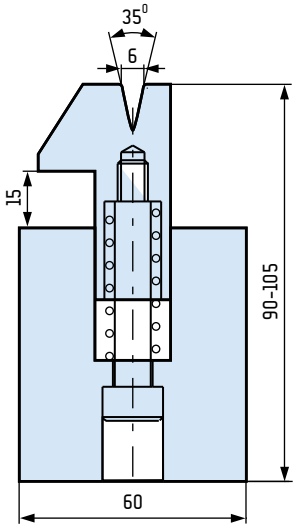
24h

**M 3033/6** 60 t/m

*α = 35⁰*

*V = 6 mm*

*$R_1$ = 1 mm*



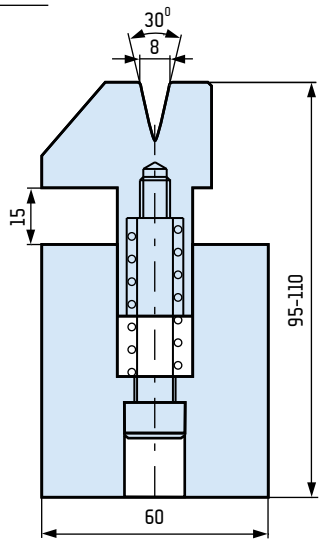

24h

**M 3033/8** 80 t/m

*α = 30⁰*

*V = 8 mm*

*$R_1$ = 1 mm*



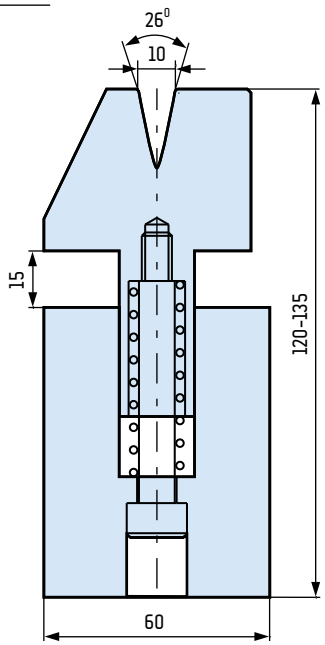

24h

**M 3033/10** 100 t/m

*α = 26⁰*

*V = 10 mm*

*$R_1$ = 1 mm*



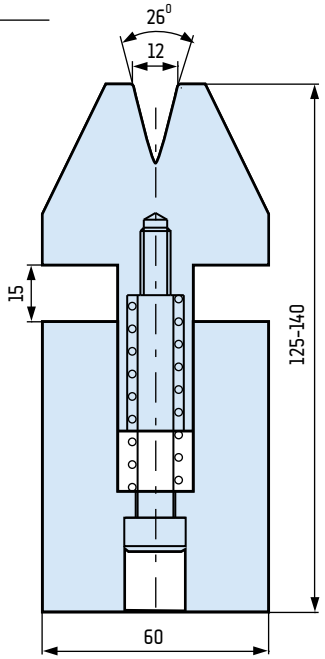

24h

**M 3033/12** 100 t/m

*α = 26⁰*

*V = 12 mm*

*$R_1$ = 1 mm*



# MATRICES TIPO "A"

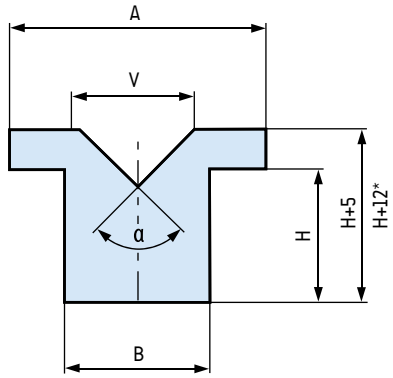
## Matrices con insertos de plástico

| INSERTOS W 24 | 20 t/m |
|---|---|
| *B = 14 mm, H = 15 mm, A = 24 mm* | |
| *α = 35⁰, V = 6 mm / 8 mm / 10 mm* | |
| *α = 45⁰, V = 6 mm / 8 mm / 10 mm / 12 mm* | |
| *α = 60⁰, V = 6 mm / 8 mm / 10 mm / 12 mm / 16 mm* | |
| *α = 88⁰, V = 6 mm / 8 mm / 10 mm / 12 mm / 16 mm* | |

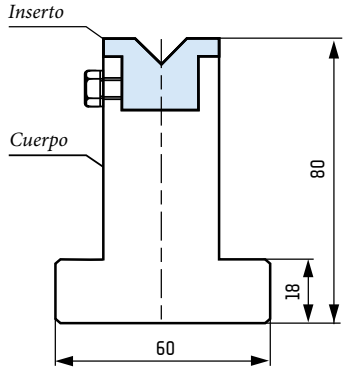
| INSERTO W 35 | 20 t/m |
|---|---|
| *B = 20 mm, H = 19 mm, A = 35 mm* | |
| *α = 35⁰, V = 6 mm / 8 mm / 10 mm* | |
| *α = 45⁰, V = 6 mm / 8 mm / 10 mm / 12 mm* | |
| *α = 60⁰, V = 6 mm / 8 mm / 10 mm / 12 mm / 16 mm / 20 mm* | |
| *α = 88⁰, V = 6 mm / 8 mm / 10 mm / 12 mm / 16 mm / 20 mm / 25 mm* | |

| INSERTO W 38 | 20 t/m |
|---|---|
| *B = 30 mm, H = 19 mm, A = 38 mm* | |
| *α = 30⁰, V = 6 mm / 8 mm / 10 mm / 12 mm / 16 mm* | |
| *α = 60⁰, V = 6 mm / 8 mm / 10 mm / 12 mm / 16 mm / 20 mm* | |
| *α = 88⁰, V = 6 mm / 8 mm / 10 mm / 12 mm / 16 mm / 20 mm / 25 mm* | |

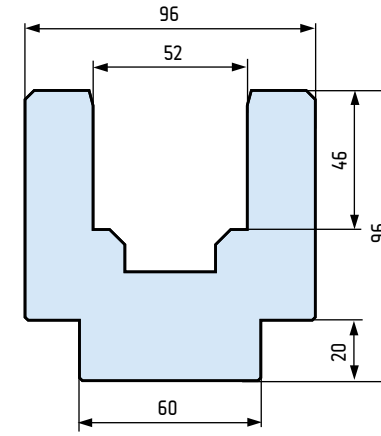
** Para W 38 / dla W 38*



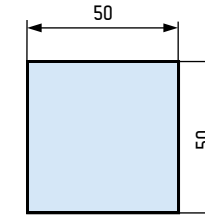

### CUERPO **W 24 / W 35 / W 38**



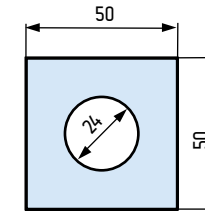

### CUERPO W 50




### INSERTO 50 COMPLETO



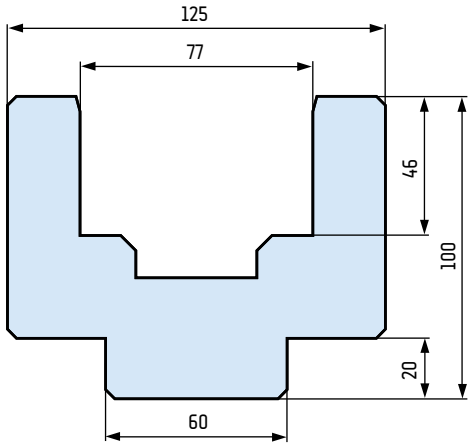

### INSERTO 50 CON AGUJERO



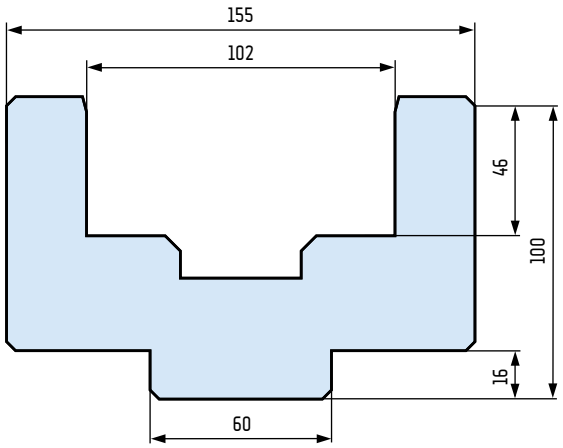

*Los insertos de poliamida permiten minimizar las marcas de flexión en acero revestido o acero inoxidable.*

# MATRICES TIPO "A"

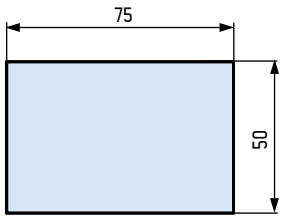
## CUERPO W 75



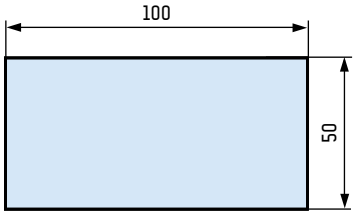

## CUERPO W 100



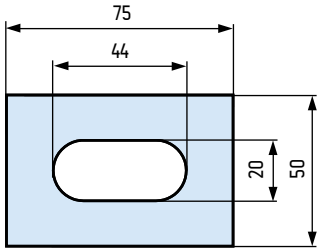

## INSERTO 75 COMPLETO



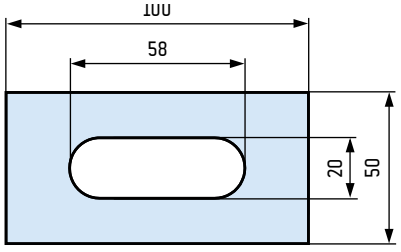

## INSERTO 100 COMPLETO




## INSERTO 75 CON AGUJERO




## INSERTO 100 CON AGUJERO




*Los insertos de goma permiten un doblado sin marcas.*
*Especialmente bueno con punzones de tipo "R".*

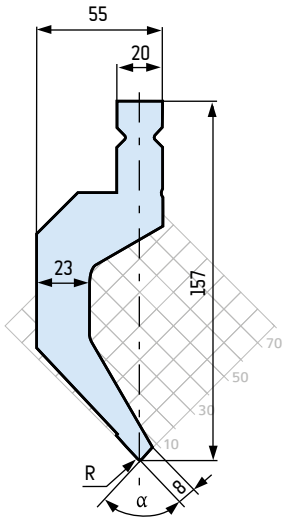
# PUNZONES TIPO "T"

42CrMo4

**S 2200** 80 t/m

$\alpha = 86^0$

*R = 1 mm* *TH = 16 t/m*

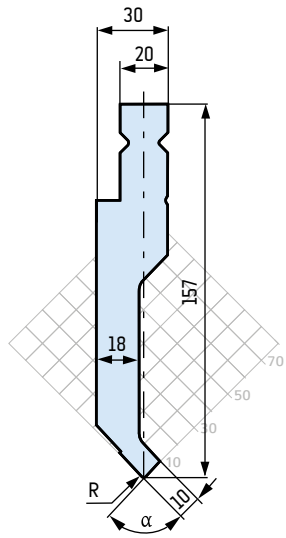



42CrMo4

**S 2201** 80 t/m

$\alpha = 86^0$

*R = 1 mm* *TH = 22 t/m*

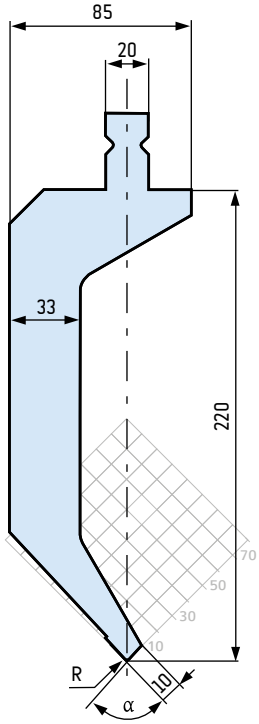



42CrMo4

**S 2200 W** 80 t/m

$\alpha = 86^0$

*R = 1 mm* *TH = 20 t/m*

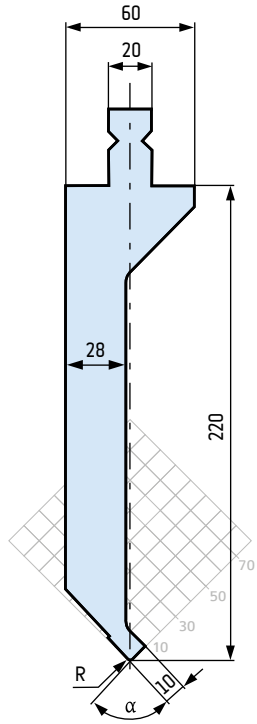



42CrMo4

**S 2201 W** 80 t/m

$\alpha = 86^0$

*R = 1 mm* *TH = 27 t/m*



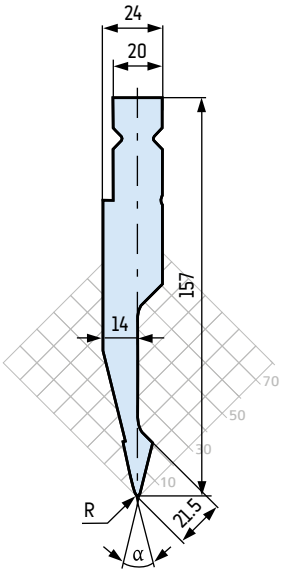
# PUNZONES TIPO "T"

42CrMo4

**S 2202** 60 t/m

*α = 28°*

*R = 1 mm* *TH = 10 t/m*

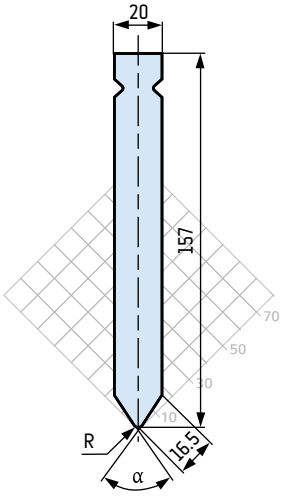



42CrMo4

**S 2203** 130 t/m

*α = 60°*

*R = 4 mm* *TH = 60 t/m*

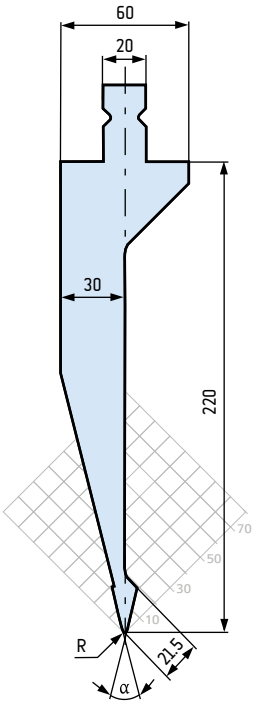



42CrMo4

**S 2202 W** 60 t/m

*α = 28°*

*R = 1 mm* *TH = 12 t/m*

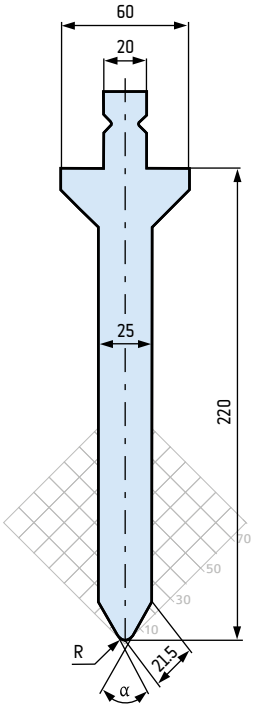



42CrMo4

**S 2203 W** 130 t/m

*α = 60°*

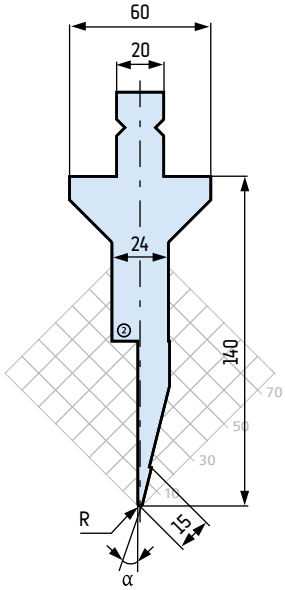
*R = 4 mm* *TH = 85 t/m*



# PUNZONES TIPO "T"

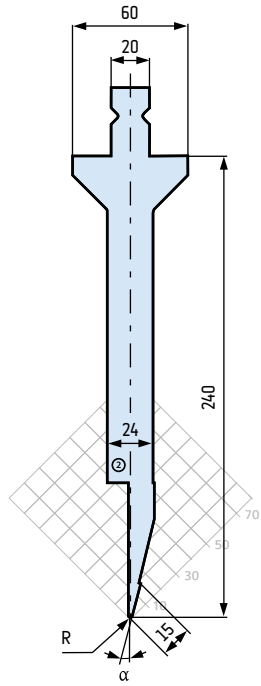
42CrMo4

| **S 2204** | 40 t/m |
|---|---|
| ② 130 t/m | |
| *α = 14⁰* | |
| *R = 1 mm* | *TH = 22 t/m* |



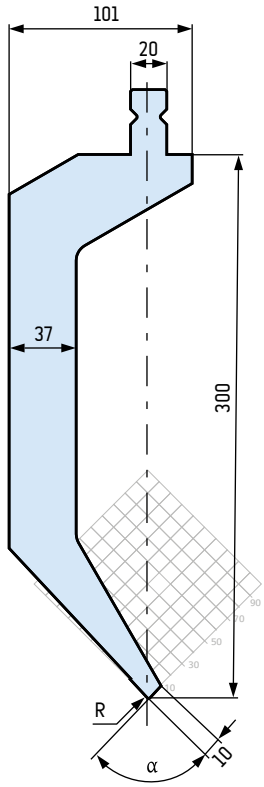

42CrMo4

| **S 2204 W** | 40 t/m |
|---|---|
| ② 130 t/m | |
| *α = 14⁰* | |
| *R = 1 mm* | *TH = 30 t/m* |



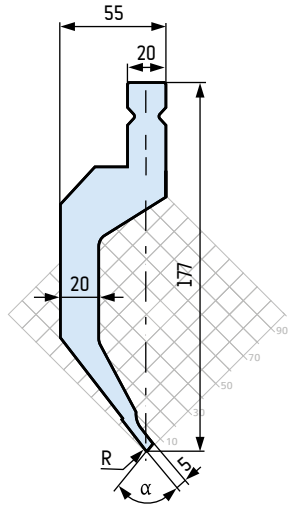

42CrMo4

| **S 2300 W** | 80 t/m |
|---|---|
| *α = 86⁰* | |
| *R = 1 mm* | *TH = 22 t/m* |




42CrMo4

| **S 2280** | 20 t/m |
|---|---|
| *α = 80⁰* | |
| *R = 0.5 mm* | *TH = 7 t/m* |

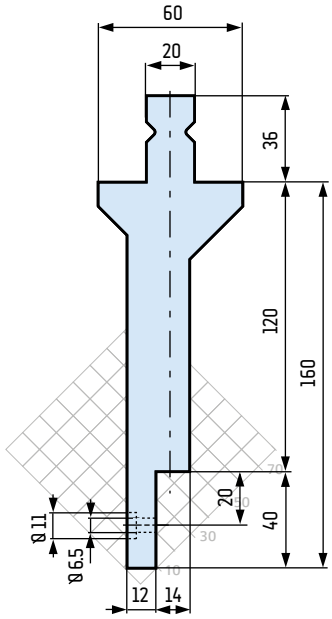


# PUNZONES TIPO "T"

## Inserto de punzón

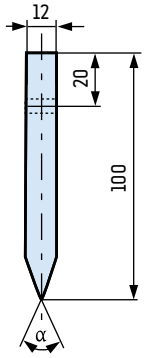
42CrMo4

**S 2206** 100 t/m



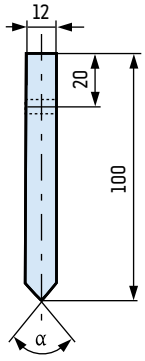

**INSERTO R 0.3 - R 6**

*α = 28⁰*




**INSERTO R 0.2 - R 1.5**

*α = 84⁰, 86⁰, 90⁰*

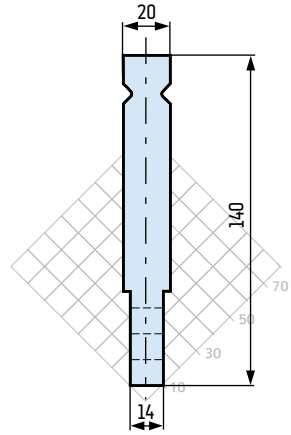



## Punzón radial

42CrMo4

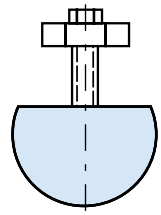
**S 2207** 80 t/m

*L = 415 mm, 835 mm*



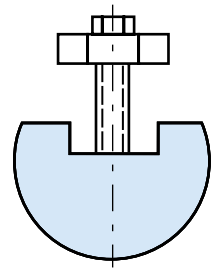

**INSERTO R 7 - R 12**

*L = 415 mm, 835 mm*



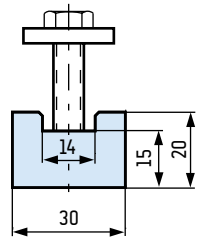
**INSERTO R 12,5 R 50**

*L = 415 mm, 835 mm*



**INSERTO DE APLANADO**

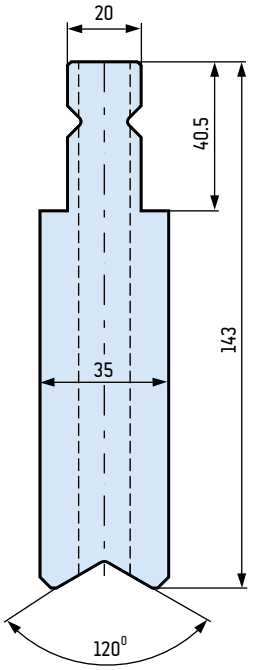
*L = 415 mm, 835 mm*



# PUNZONES TIPO "T"

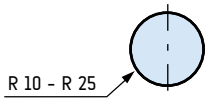
42CrMo4

**S 2208 R 10 – R 25** 100 t/m



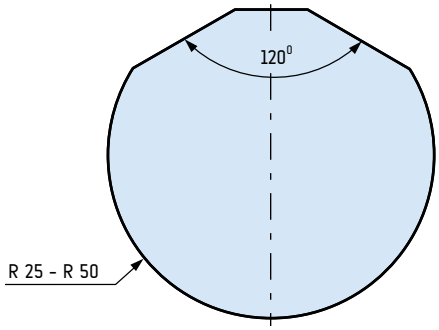

**R 10 – R 25**

** Para punzón S 2208*




**R 25 – R 50**

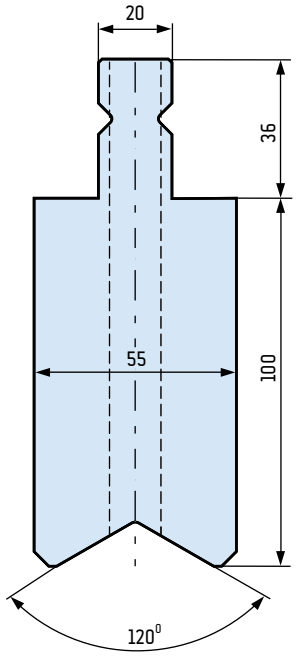
** Para punzón S 2208*




# INSERTO RADIAL

42CrMo4

**S 2208 W R 25 – R 50** 100 t/m




## Herramientas de aplanado

42CrMo4

**S 2205** 70 t/m

*α= 26°*

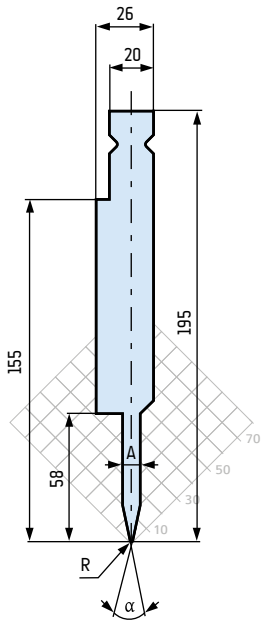
*A = 8 mm, 10 mm, 12 mm*

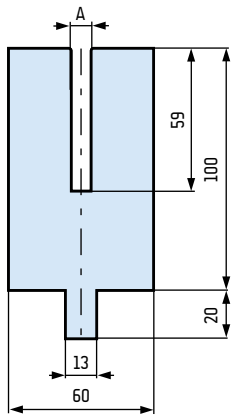
*R = 0.6 mm* *TH = 30 t/m*

42CrMo4

**M 2000** 70 t/m

*A = 8 mm, 10 mm, 12 mm*



# MATRICES TIPO "T" 100 MM

24h 42CrMo4

**M 7106** 100 t/m

*A = 6 mm, B = 20 mm*

*$R_1$ = 0.6 mm*

24h 42CrMo4

**M 7108** 100 t/m

*A = 8 mm, B = 20 mm*

*$R_1$ = 0.8 mm*

24h 42CrMo4

**M 7110** 100 t/m

*A = 10 mm, B = 20 mm*

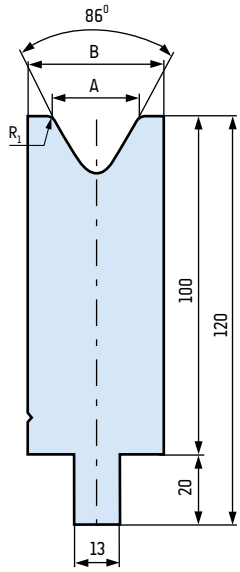
*$R_1$ = 1 mm*

24h 42CrMo4

**M 7112** 100 t/m

*A = 12 mm, B = 25 mm*

*$R_1$ = 1 mm*




24h 42CrMo4

**M 7116** 100 t/m

*A = 16 mm, B = 30 mm*

*$R_1$ = 1.6 mm*

24h 42CrMo4

**M 7120** 100 t/m

*A = 20 mm, B = 30 mm*

*$R_1$ = 2 mm*

24h 42CrMo4

**M 7124** 100 t/m

*A = 24 mm, B = 35 mm*

*$R_1$ = 2.5 mm*

24h 42CrMo4

**M 7130** 100 t/m

*A = 30 mm, B = 45 mm*

*$R_1$ = 3 mm*

24h 42CrMo4

**M 7140** 100 t/m

*A = 40 mm, B = 55 mm*

*$R_1$ = 3 mm*

24h 42CrMo4

**M 7150** 100 t/m

*A = 50 mm, B = 75 mm*

*$R_1$ = 3 mm*

24h 42CrMo4

**M 7224** 100 t/m

*A = 24 mm, B = 35 mm*

*$R_1$ = 2.5 mm*

24h 42CrMo4

**M 7230** 100 t/m

*A = 30 mm, B = 45 mm*

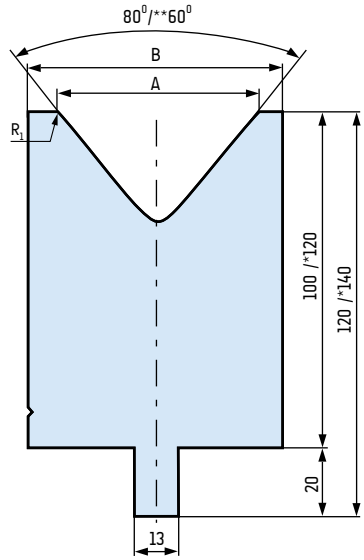
*$R_1$ = 5 mm*

24h 42CrMo4

**M 7240** 100 t/m

*A = 40 mm, B = 55 mm*

*$R_1$ = 5 mm*




24h 42CrMo4

**M 7250** 100 t/m

*A =50 mm, B = 65 mm*

*$R_1$ = 5 mm*

24h 42CrMo4

**M 7260** 100 t/m

*A = 60 mm, B = 75 mm*

*$R_1$ = 5 mm*

24h 42CrMo4

**M 7280** 100 t/m

*A = 80 mm, B = 100 mm*

*$R_1$ = 5 mm*

24h 42CrMo4

**M 7290** 100 t/m*

*A = 90 mm, B = 110 mm*

*$R_1$ = 8 mm*

24h 42CrMo4

**M 72100** 100 t/m*

*A = 100 mm, B = 120 mm*

*$R_1$ = 8 mm*

24h 42CrMo4

**M 72120** 100 t/m**

*A = 120 mm, B = 145 mm*

*H = 120 mm*

*$\alpha = 60^0$*

*$R_1$ = 8 mm*

24h 42CrMo4

**M 7306** 50 t/m

*A = 6 mm, B = 20 mm*

*$R_1$ = 0.6 mm*

24h 42CrMo4

**M 7308** 40 t/m

*A = 8 mm, B = 20 mm*

*$R_1$ = 1 mm*

24h 42CrMo4

**M 7310** 40 t/m

*A = 10 mm, B = 20 mm*

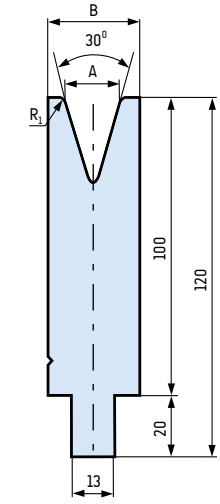
*$R_1$ = 1 mm*

24h 42CrMo4

**M 7312** 40 t/m

*A = 12 mm, B = 25 mm*

*$R_1$ = 1 mm*




24h 42CrMo4

**M 7316** 45 t/m

*A = 16 mm, B = 30 mm*

*$R_1$ = 1.6 mm*

24h 42CrMo4

**M 7320** 50 t/m

*A = 20 mm, B = 35 mm*

*$R_1$ = 2 mm*

24h 42CrMo4

**M 7324** 50 t/m

*A = 24 mm, B = 40 mm*

*$R_1$ = 2.5 mm*

24h 42CrMo4

**M 7330** 70 t/m

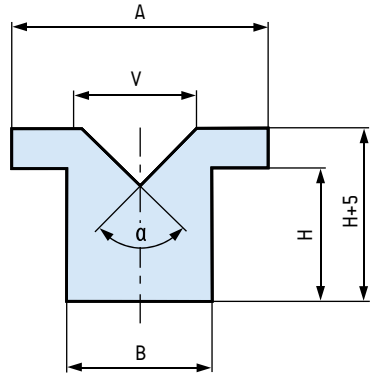
*A = 30 mm, B = 55 mm*

*$R_1$ = 3 mm*

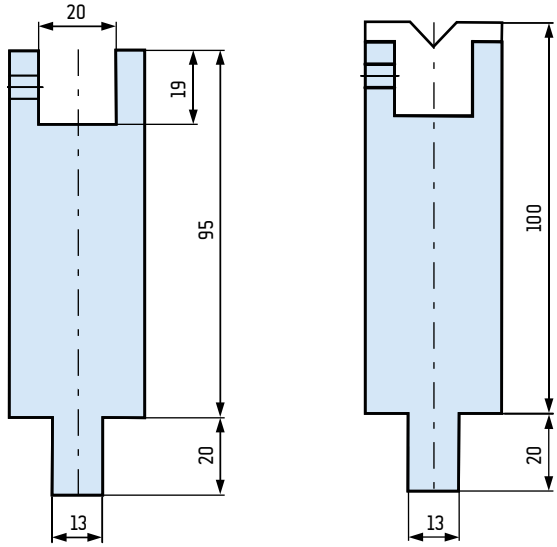
# MATRICES TIPO "T"

## Matrices con insertos de plástico

| INSERTO W 35-T | 20 t/m |
|---|---|
| *B = 20 mm, H = 19 mm, A = 35 mm* | |
| *α = 35⁰, V = 6 mm / 8 mm / 10 mm* | |
| *α = 45⁰, V = 6 mm / 8 mm / 10 mm / 12 mm* | |
| *α = 60⁰, V = 6 mm / 8 mm / 10 mm / 12 mm / 16 mm / 20 mm* | |
| *α = 88⁰, V = 6 mm / 8 mm / 10 mm / 12 mm / 16 mm / 20 mm / 25 mm* | |

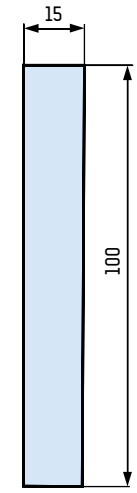



**CUERPO W 35-T**

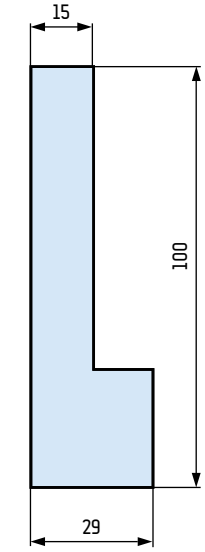



## Insertos de aplanado

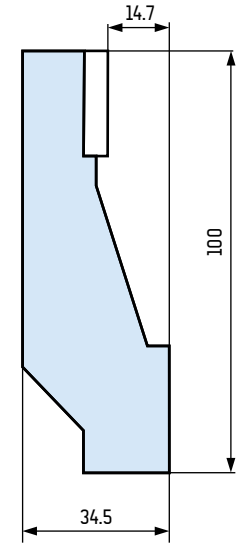
INSERTO T1



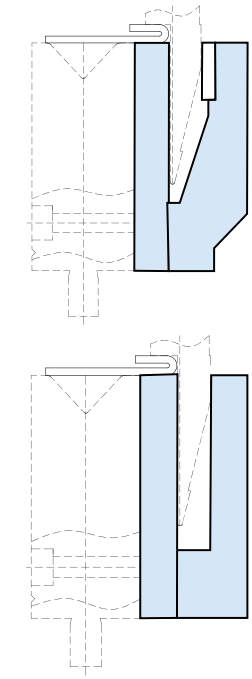

INSERTO T2




INSERTO T3




**MONTAJE**



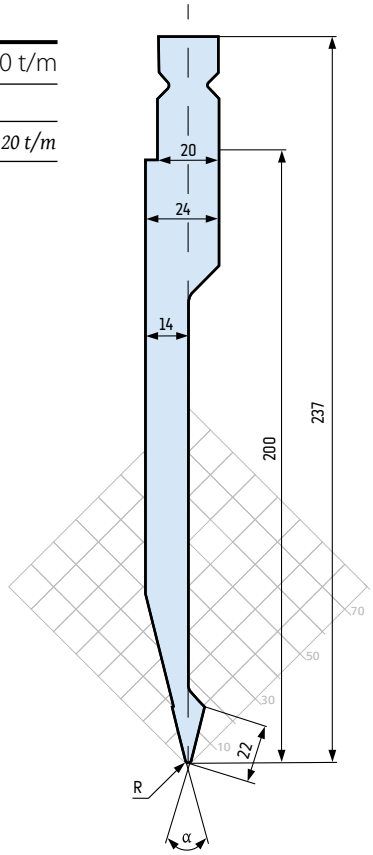
# PUNZONES TIPO "W"

24h 42CrMo4

**S 2231** 60 t/m

*α = 28°*

*R = 1 mm* *WH = 20 t/m*

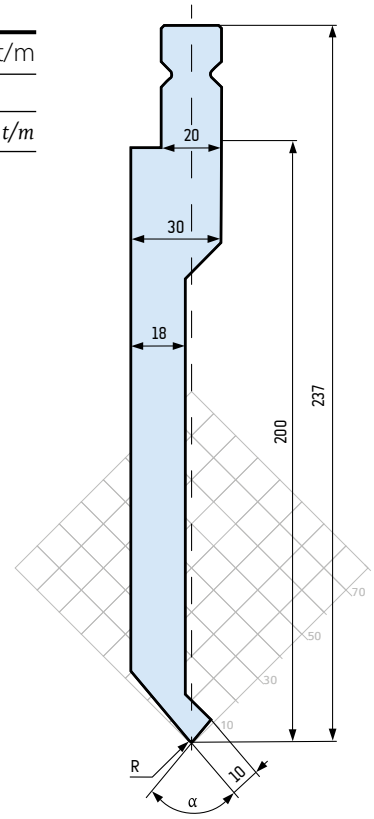



24h 42CrMo4

**S 2232** 70 t/m

*α = 80°*

*R = 1 mm* *WH = 15 t/m*

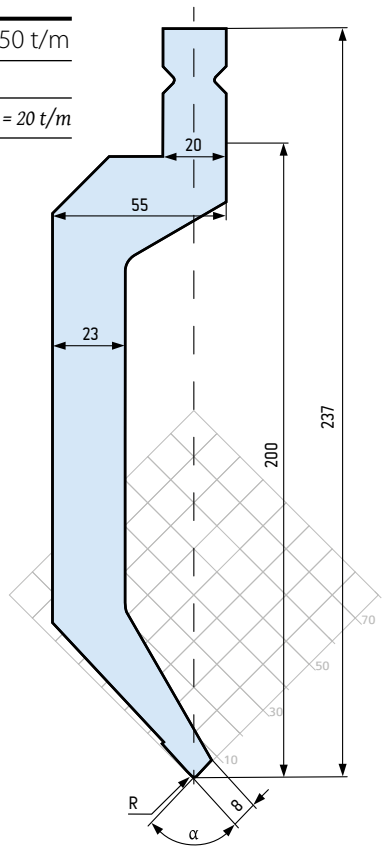



24h 42CrMo4

**S 2233** 50 t/m

*α = 86°*

*R = 1 mm* *WH = 20 t/m*

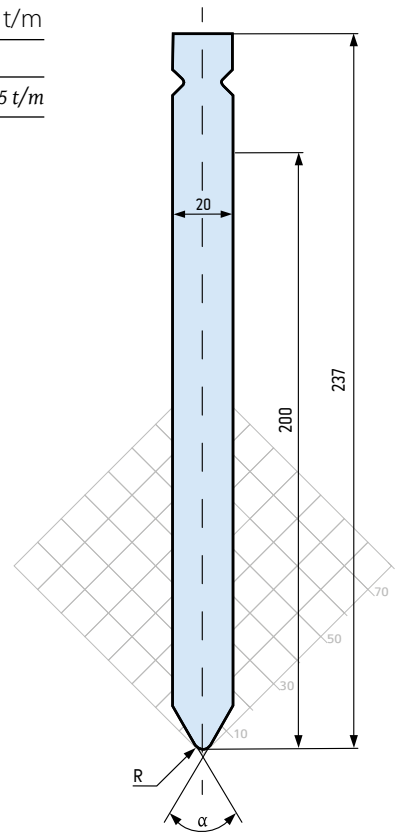



24h 42CrMo4

**S 2234** 160 t/m

*α = 60°*

*R = 3 mm* *WH = 55 t/m*



# MATRICES TIPO "W" 55 MM

42CrMo4

| **M 7406** | 100 t/m |
|---|---|
| $\alpha = 90^0$ | |
| *A = 6 mm, B = 15 mm, C = 20 mm* | |
| $R_1 = 0.6$ *mm* | |

42CrMo4

| **M 7408** | 100 t/m |
|---|---|
| $\alpha = 90^0$ | |
| *A = 8 mm, B = 15 mm, C = 20 mm* | |
| $R_1 = 1$ *mm* | |

42CrMo4

| **M 7410** | 100 t/m |
|---|---|
| $\alpha = 88^0$ | |
| *A = 10 mm, B = 20 mm, C = 20 mm* | |
| $R_1 = 1$ *mm* | |

42CrMo4

| **M 7412** | 100 t/m |
|---|---|
| $\alpha = 88^0$ | |
| *A = 12 mm, B = 20 mm, C = 20 mm* | |
| $R_1 = 1.5$ *mm* | |

42CrMo4

| **M 7416** | 100 t/m |
|---|---|
| $\alpha = 88^0$ | |
| *A = 16 mm, B = 30 mm, C = 30 mm* | |
| $R_1 = 1.5$ *mm* | |

42CrMo4

| **M 7420** | 100 t/m |
|---|---|
| $\alpha = 88^0$ | |
| *A = 20 mm, B = 30 mm, C = 30 mm* | |
| $R_1 = 2$ *mm* | |

42CrMo4

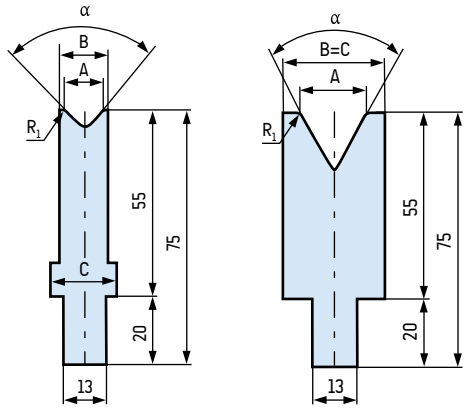
| **M 7424** | 100 t/m |
|---|---|
| $\alpha = 88^0$ | |
| *A = 24 mm, B = 40 mm, C = 40 mm* | |
| $R_1 = 2$ *mm* | |

42CrMo4

| **M 7432** | 100 t/m |
|---|---|
| $\alpha = 85^0$ | |
| *A = 32 mm, B = 50 mm, C = 50 mm* | |
| $R_1 = 4$ *mm* | |

42CrMo4

| **M 7440** | 100 t/m |
|---|---|
| $\alpha = 85^0$ | |
| *A = 40 mm, B = 55 mm, C = 55 mm* | |
| $R_1 = 4$ *mm* | |

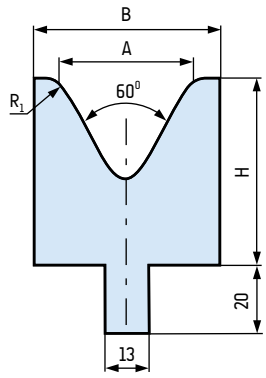



42CrMo4

| **M 7540** | 80 t/m |
|---|---|
| *A = 40 mm, B = 55 mm* | |
| *H = 55 mm* | |
| $R_1 = 4$ *mm* | |

42CrMo4

| **M 7560** | 60 t/m |
|---|---|
| *A = 60 mm, B = 80 mm* | |
| *H = 65 mm* | |
| $R_1 = 7$ *mm* | |



# MATRICES TIPO "W" 55 MM

42CrMo4

**M 7606** 35 t/m

*A = 6 mm, B = 15 mm, C = 20 mm*

*$R_1$ = 0.8 mm*

42CrMo4

**M 7608** 35 t/m

*A = 8 mm, B = 15 mm, C = 20 mm*

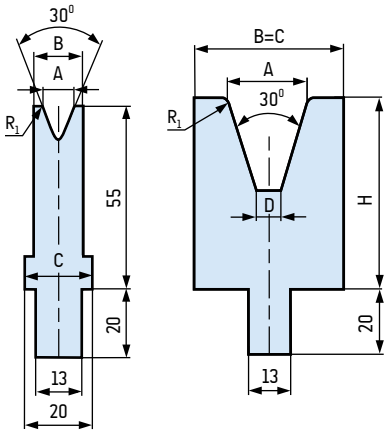
*$R_1$ = 2 mm*

42CrMo4

**M 7610** 40 t/m

*A = 10 mm, B = 20 mm, C = 20 mm*

*$R_1$ = 1 mm*




42CrMo4

**M 7612** 40 t/m

*A = 12 mm, B = 20 mm, C = 20 mm*

*$R_1$ = 1.5 mm*

42CrMo4

**M 7616** 45 t/m

*A = 16 mm, B = 30 mm, C = 30 mm*

*$R_1$ = 2 mm*

42CrMo4

**M 7620** 50 t/m

*A = 20 mm, B = 35 mm, C = 35 mm*

*$R_1$ = 2.5 mm*

42CrMo4

**M 7624** 50 t/m

*A = 24 mm, B = 40 mm, C = 40 mm*

*$R_1$ = 3 mm*

42CrMo4

**M 7632** 50 t/m

*A = 32 mm, B = 60 mm, C = 60 mm*

*H = 60 mm*

*$R_1$ = 2 mm*

42CrMo4

**M 7706** 100 t/m

*α = 86°*

*A = 6 mm, B = 16 mm, C = 25 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 7708** 100 t/m

*α = 86°*

*A = 8 mm, B = 16 mm, C = 25 mm*

*$R_1$ = 1 mm*

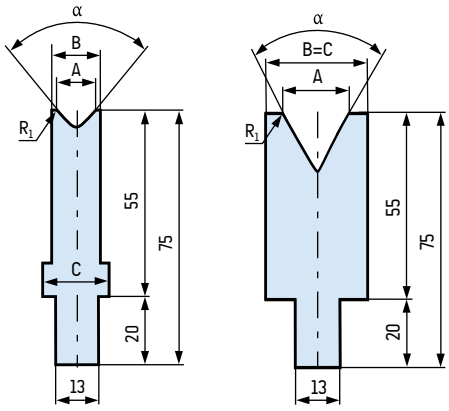
42CrMo4

**M 7710** 100 t/m

*α = 86°*

*A = 10 mm, B = 20 mm, C = 25 mm*

*$R_1$ = 1 mm*




42CrMo4

**M 7712** 100 t/m

*α = 86°*

*A = 12 mm, B = 20 mm, C = 25 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 7716** 100 t/m

*α = 86°*

*A = 16 mm, B = 25 mm, C = 25 mm*

*$R_1$ = 1.5 mm*

42CrMo4

**M 7720** 100 t/m

*α = 86°*

*A = 20 mm, B = 30 mm, C = 30 mm*

*$R_1$ = 2 mm*

42CrMo4

**M 7824** 100 t/m

*α = 80°*

*A = 24 mm, B = 35 mm, C = 35 mm*

*$R_1$ = 2.5 mm*

42CrMo4

**M 7830** 100 t/m

*α = 80°*

*A = 30 mm, B = 40 mm, C = 40 mm*

*$R_1$ = 3 mm*

42CrMo4

**M 7840** 100 t/m

*α = 80°*

*A = 40 mm, B = 50 mm, C = 50 mm*

*$R_1$ = 4 mm*

42CrMo4

**M 7850** 100 t/m

*α = 80°*

*A = 50 mm, B = 75 mm, C = 75 mm*

*$R_1$ = 5 mm*

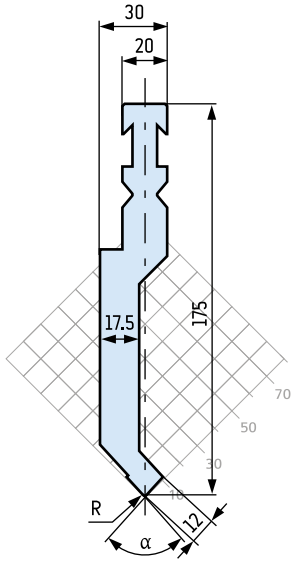
# PUNZONES TIPO "B"

42CrMo4

**S 2403** 80 t/m

$\alpha = 85^0$

$R = 1$ mm $BH = 27$ t/m

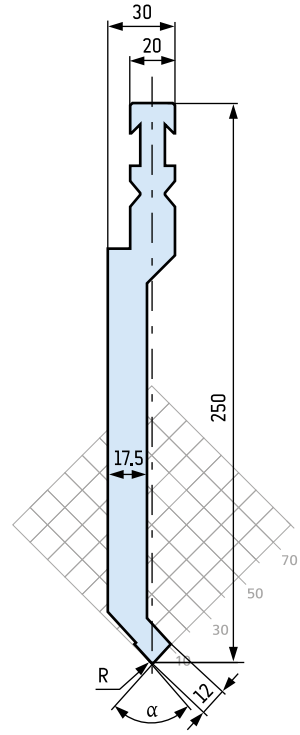



42CrMo4

**S 2403 W** 70 t/m

$\alpha = 85^0$

$R = 1$ mm $BH = 30$ t/m

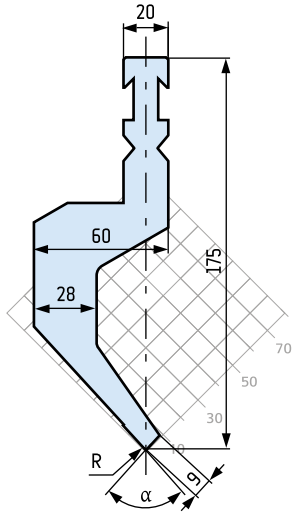



42CrMo4

**S 2404** 40 t/m

$\alpha = 85^0$

$R = 1$ mm $BH = 15$ t/m

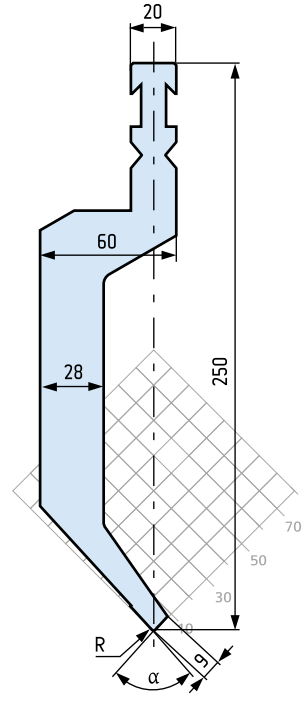



42CrMo4

**S 2404 W** 40 t/m

$\alpha = 85^0$

$R = 1$ mm $BH = 15$ t/m



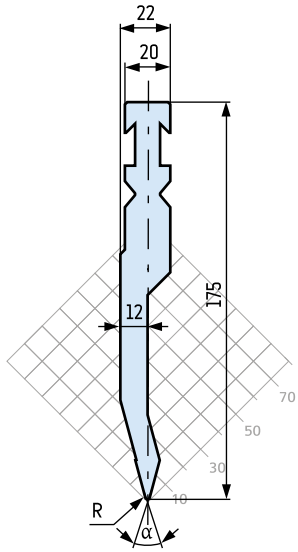
# PUNZONES TIPO"B"

42CrMo4

**S 2405** 100 t/m

$\alpha = 30^0$

$R = 1$ mm $BH = 30$ t/m

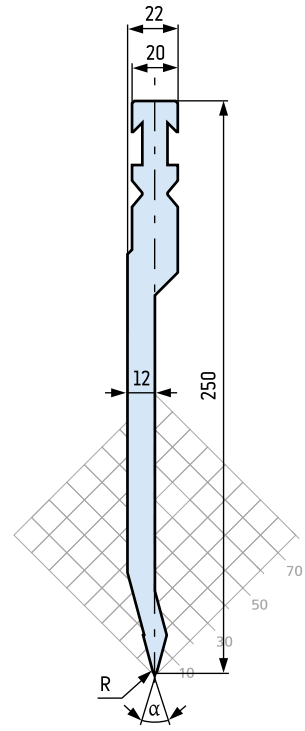



42CrMo4

**S 2405 W** 75 t/m

$\alpha = 30^0$

$R = 1$ mm $BH = 30$ t/m

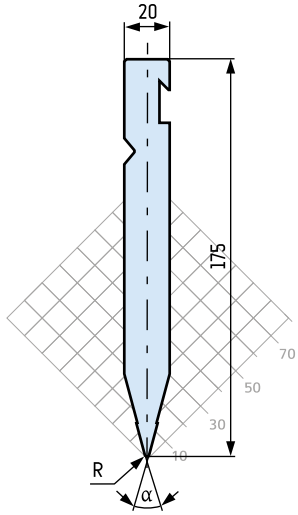



42CrMo4

**S 2406** 160 t/m

$\alpha = 30^0$

$R = 1$ mm $BH = 45$ t/m

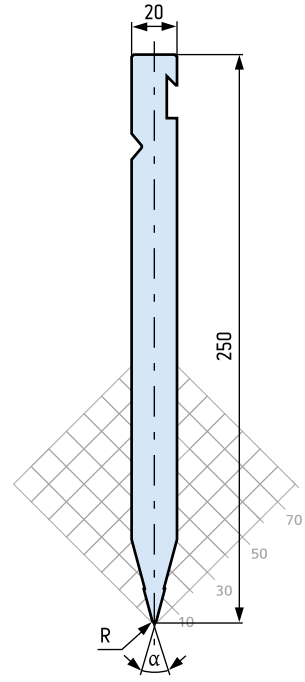



42CrMo4

**S 2406 W** 140 t/m

$\alpha = 30^0$

$R = 1$ mm $BH = 50$ t/m



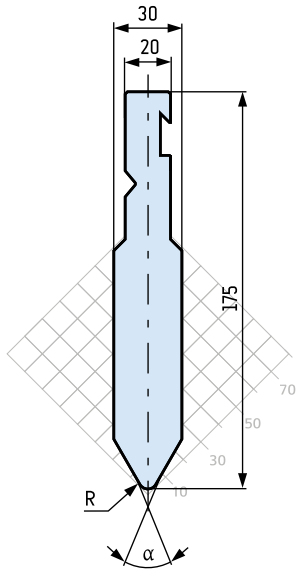
# PUNZONES TIPO "B"

42CrMo4

**S 2409** 160 t/m

*α = 60°*

*R = 4 mm* *BH = 60 t/m*

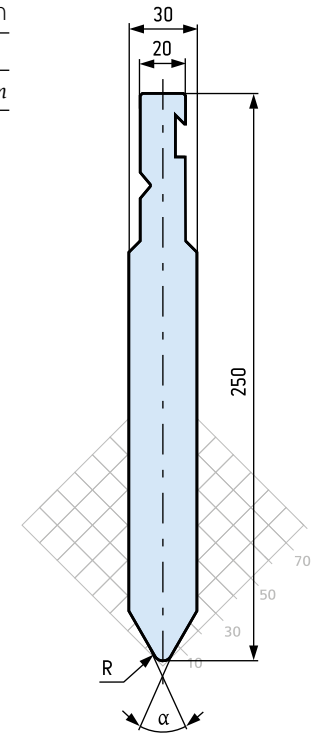



42CrMo4

**S 2409 W** 160 t/m

*α = 60°*

*R = 4 mm* *BH = 60 t/m*




42CrMo4

**S 2433** 70 t/m

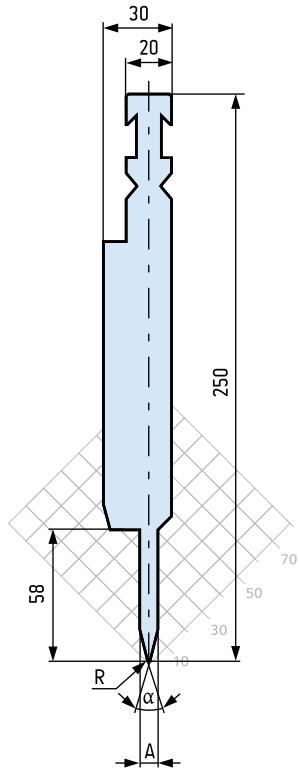
*α = 28°*

*A = 8 mm, 10 mm, 12 mm*

*R = 0.6 mm*

*L = 500 mm*

* *Do użycia w zestawie z matrycą M 2000*

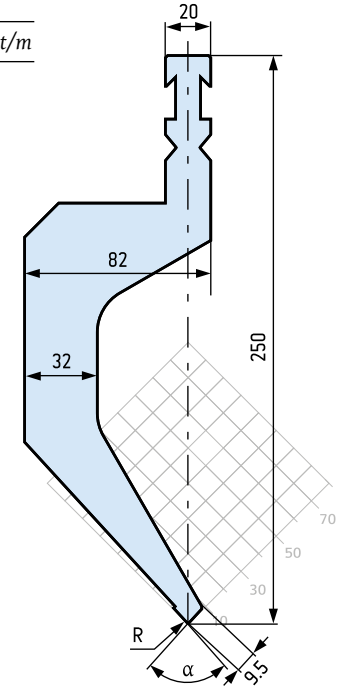



42CrMo4

**S 2437** 70 t/m

*α = 85°*

*R = 0.8 mm* *BH = 20 t/m*



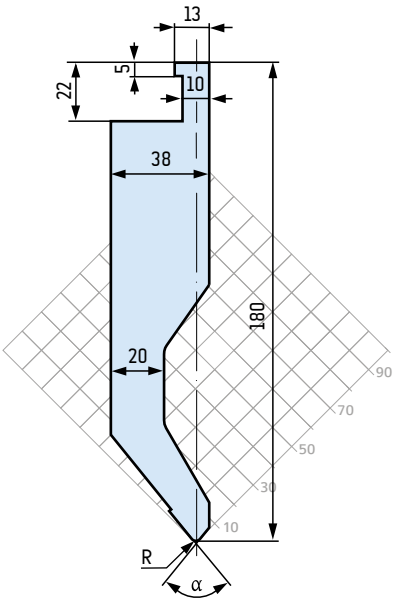
# PUNZONES TIPO "L"

42CrMo4

**S 2510 C** 70 t/m

*α = 78°*

*R = 2 mm* *LH1 = 18 t/m*

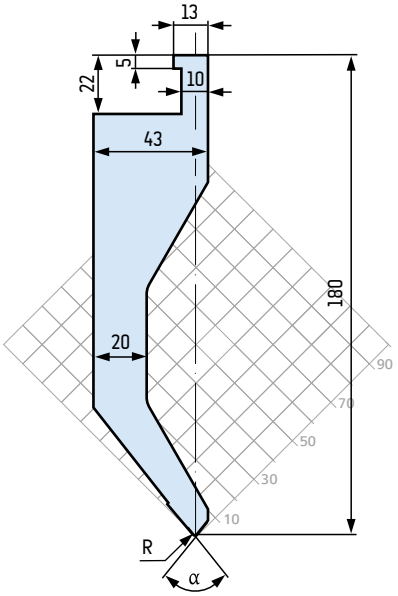



42CrMo4

**S 2510 D** 40 t/m

*α = 78°*

*R = 1 mm* *LH1 = 15 t/m*

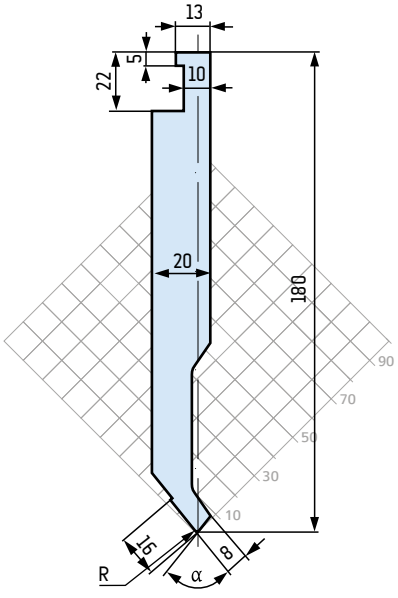



42CrMo4

**S 2510 E** 40 t/m

*α = 78°*

*R = 1 mm* *LH1 = 13 t/m*

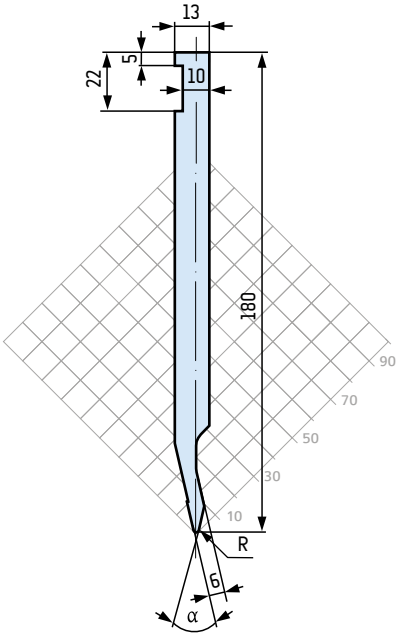



42CrMo4

**S 2510 F** 40 t/m

*α = 26°*

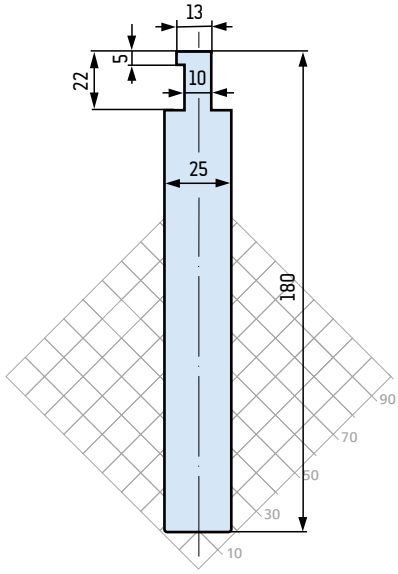
*R = 1 mm* *LH1 = 10 t/m*



# PUNZONES TIPO "L"

42CrMo4

**S 2510 H** 150 t/m

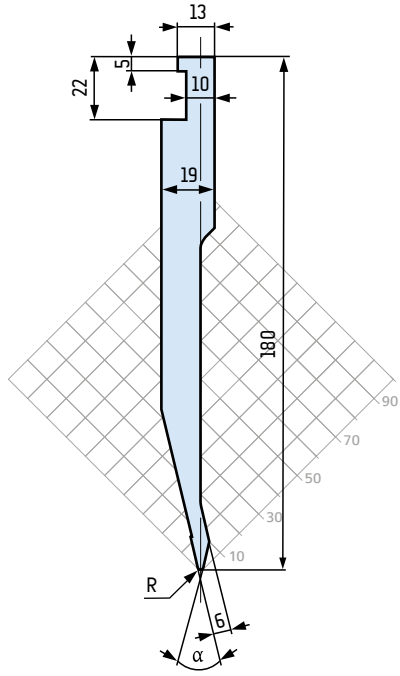



42CrMo4

**S 2510 J** 40 t/m

*α = 26⁰*

*R = 1 mm* *LH1 = 11 t/m*




42CrMo4

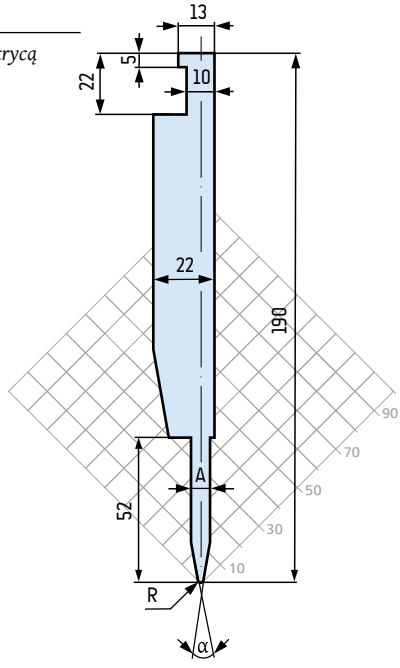
**S 2510 P** 40 t/m

*α = 20⁰*

*R = 1 mm*

*A = 8 mm, 10 mm, 12 mm*

* *Do użycia w zestawie z matrycą M 5000*

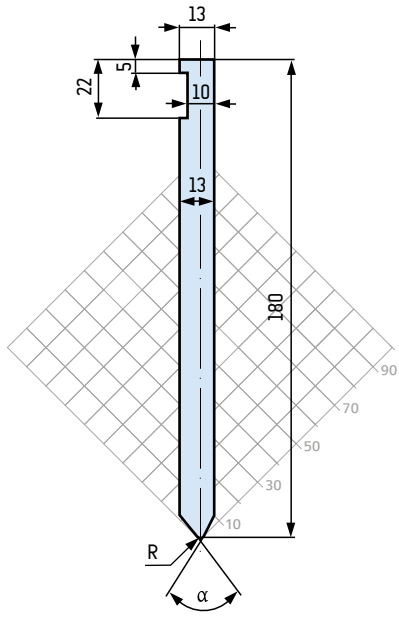



42CrMo4

**S 2510 R** 80 t/m

*α = 78⁰*

*R = 2 mm* *LH1 = 30 t/m*



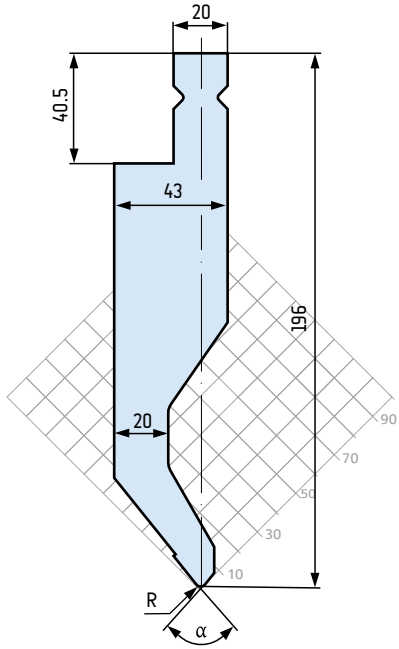
# PUNZONES TIPO "L"

42CrMo4

**S 2610 C** 70 t/m

*α = 78°*

*R = 2 mm* *LH2 = 20 t/m*

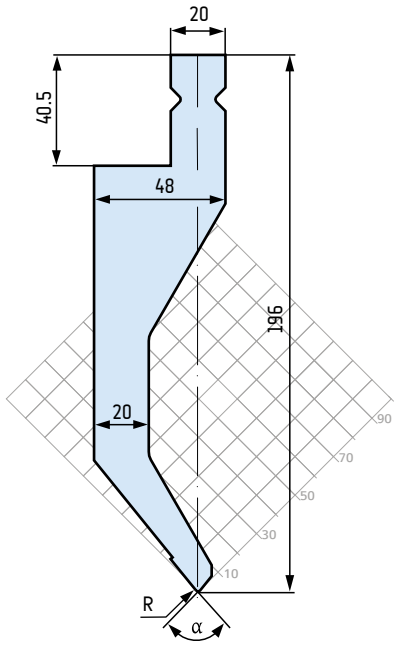



42CrMo4

**S 2610 D** 50 t/m

*α = 78°*

*R = 1 mm* *LH2 = 15 t/m*

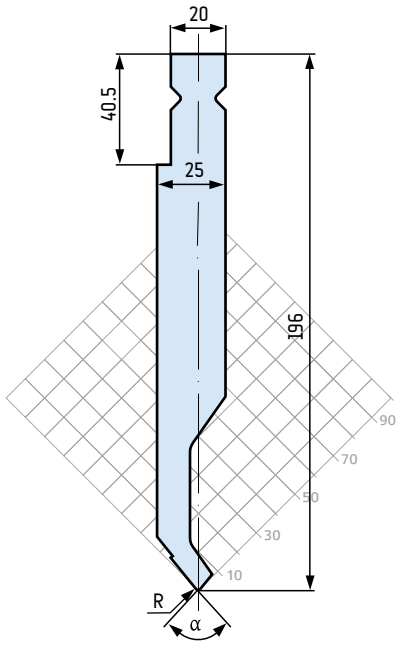



42CrMo4

**S 2610 E** 40 t/m

*α = 78°*

*R = 1 mm* *LH2 = 13 t/m*

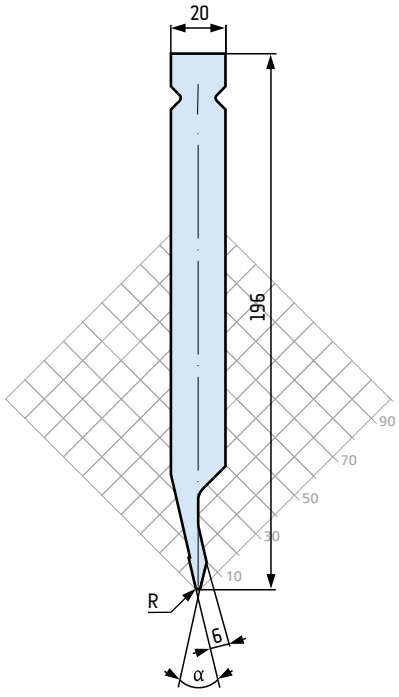



42CrMo4

**S 2610 F** 40 t/m

*α = 26°*

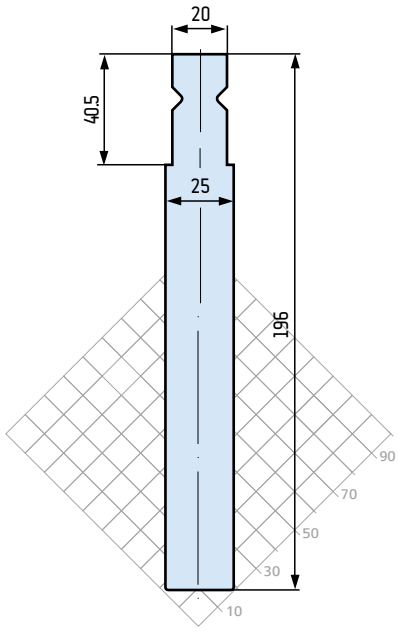
*R = 1 mm* *LH2 = 10 t/m*



# PUNZONES TIPO "L"

42CrMo4

**S 2610 H** 160 t/m

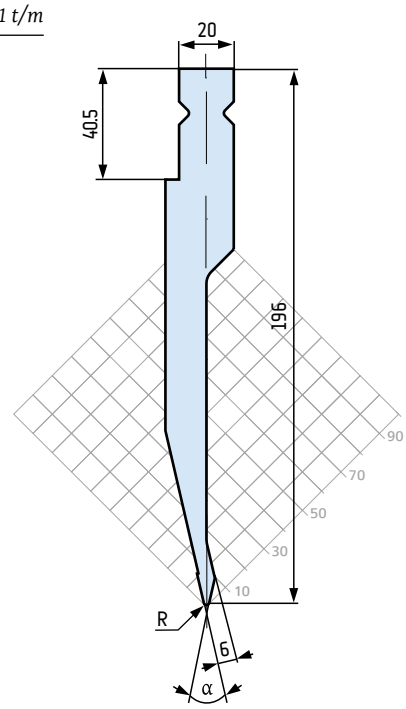



42CrMo4

**S 2610 J** 40 t/m

*α = 26⁰*

*R = 1 mm* *LH2 = 11 t/m*




42CrMo4

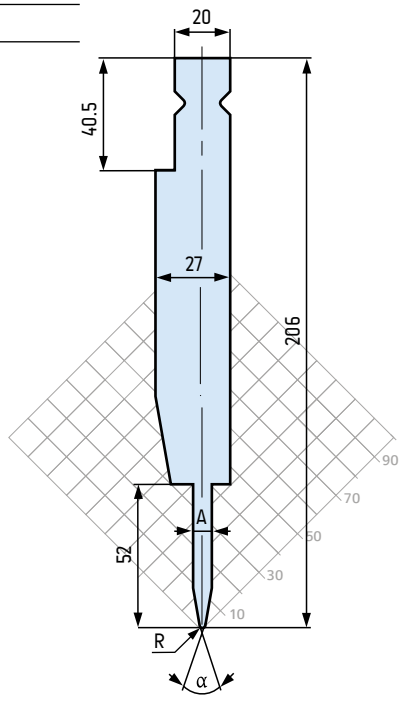
**S 2610 P** 40 t/m

*α = 20⁰*

*R = 1 mm*

*A = 8 mm, 10 mm, 12 mm*

** Para utilizar con matriz M 5000*

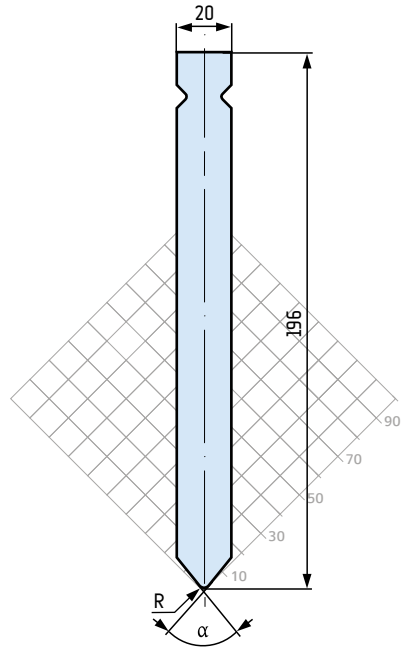



42CrMo4

**S 2610 R** 120 t/m

*α = 78⁰*

*R = 2 mm* *LH2 = 50 t/m*



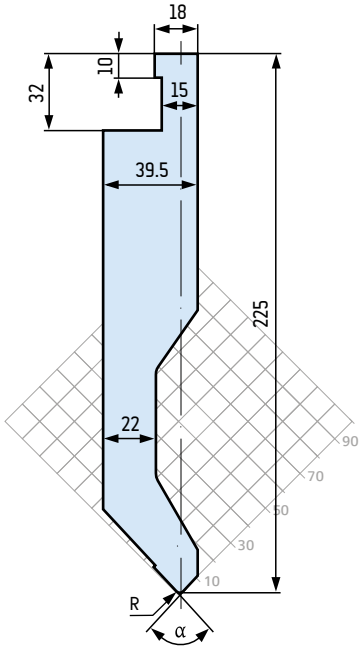
# PUNZONES TIPO "L"

42CrMo4

**S 2515 C** 80 t/m

$\alpha = 78^0$

*R = 2 mm* *LH3 = 22 t/m*

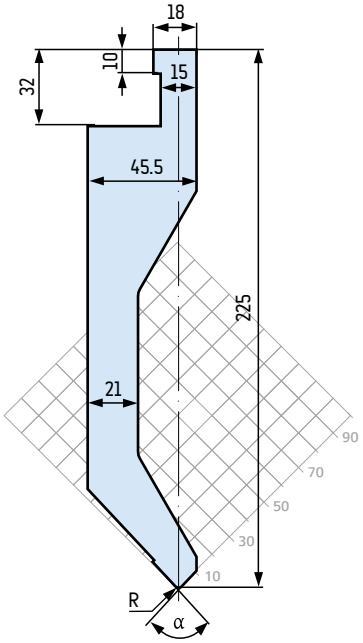



42CrMo4

**S 2515 D** 75 t/m

$\alpha = 78^0$

*R = 2 mm* *LH3 = 20 t/m*

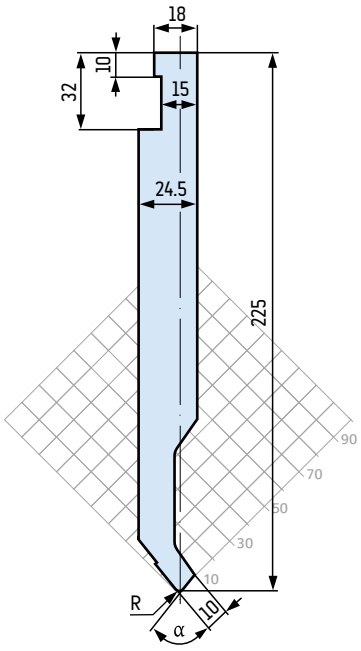



42CrMo4

**S 2515 E** 50 t/m

$\alpha = 78^0$

*R = 2 mm* *LH3 = 19 t/m*

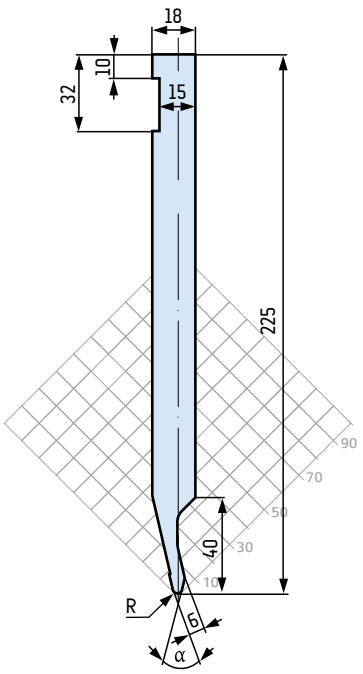



42CrMo4

**S 2515 F** 50 t/m

$\alpha = 26^0$

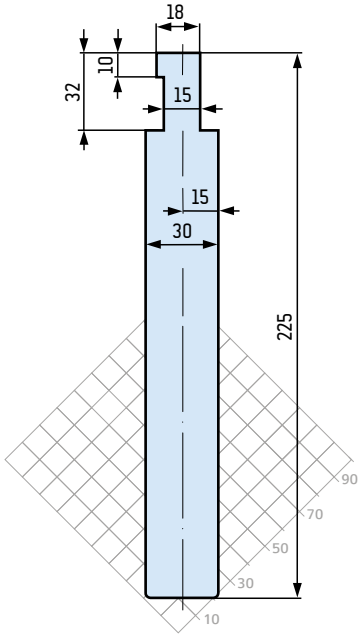
*R = 2 mm* *LH3 = 17 t/m*



# PUNZONES TIPO "L"

42CrMo4

**S 2515 H** 150 t/m

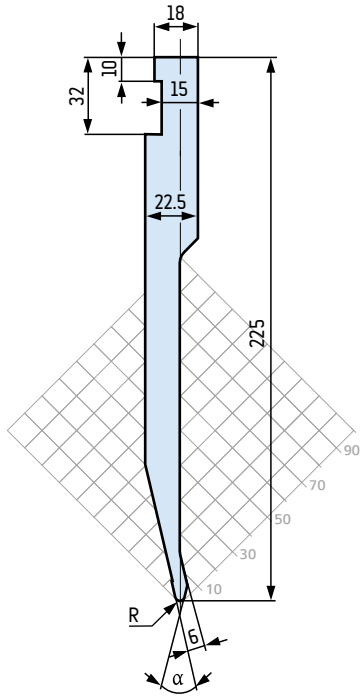



42CrMo4

**S 2515 J** 50 t/m

*α = 26⁰*

*R = 2 mm* *LH3 = 15 t/m*




42CrMo4

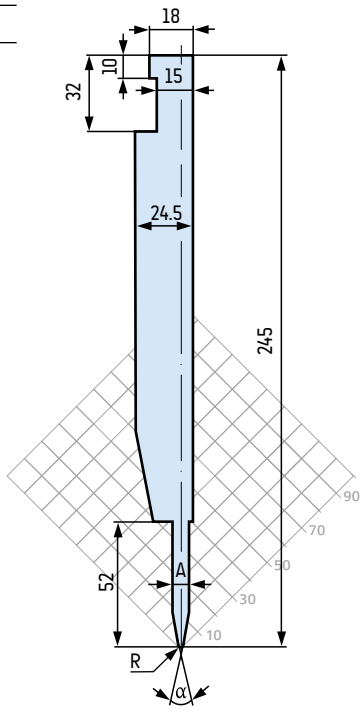
**S 2515 P** 40 t/m

*α = 20⁰*

*A = 8 mm, 10 mm, 12 mm*

*R = 1 mm*

* *Do użycia w zestawie z matrycą M 5000*

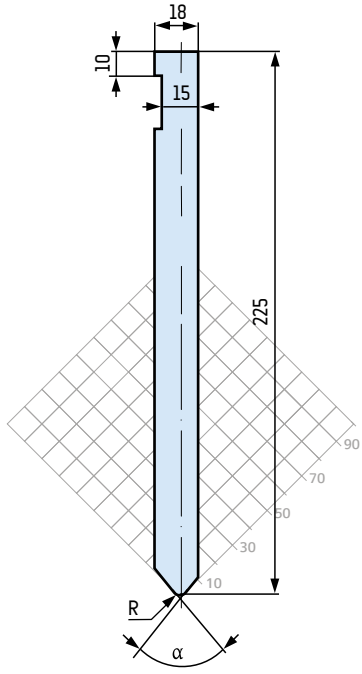



42CrMo4

**S 2515 R** 120 t/m

*α = 78⁰*

*R = 2 mm* *LH3 = 40 t/m*



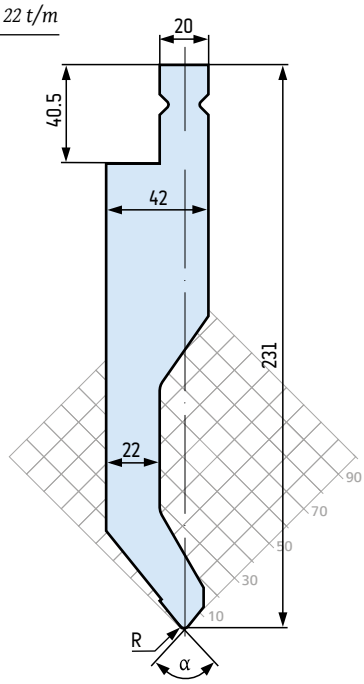
# PUNZONES TIPO "L"

42CrMo4

**S 2615 C** 80 t/m

$\alpha = 78^0$

*R = 2 mm* *LH4 = 22 t/m*

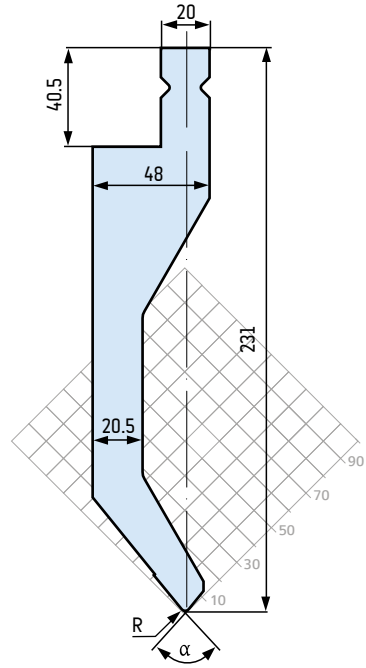



42CrMo4

**S 2615 D** 75 t/m

$\alpha = 78^0$

*R = 2 mm* *LH4 = 20 t/m*

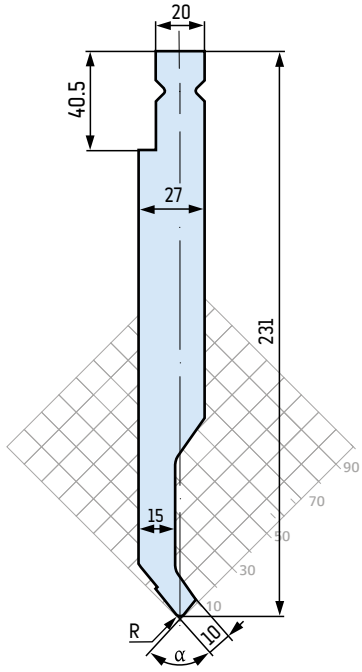



42CrMo4

**S 2615 E** 50 t/m

$\alpha = 26^0$

*R = 2 mm* *LH4 = 19 t/m*

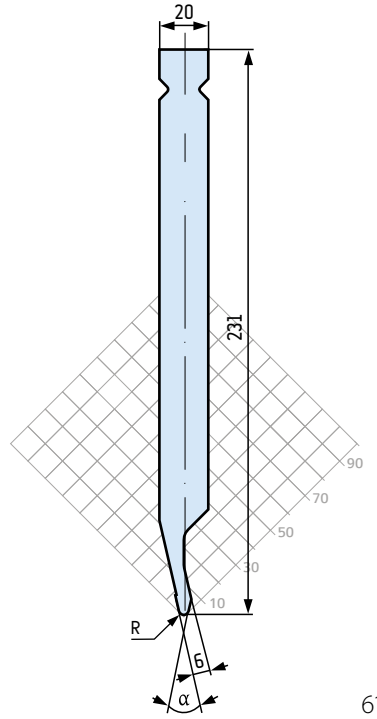



42CrMo4

**S 2615 F** 50 t/m

$\alpha = 26^0$

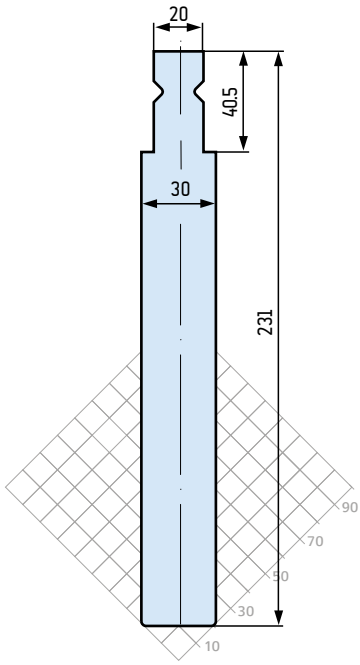
*R = 2 mm* *LH4 = 17t/m*



# PUNZONES TIPO "L"

42CrMo4

**S 2615 H** 150 t/m

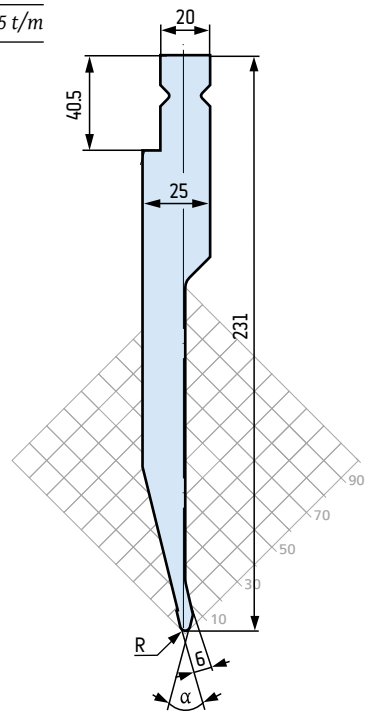



42CrMo4

**S 2615 J** 50 t/m

*α = 26°*

*R = 2 mm* *LH4 = 15 t/m*



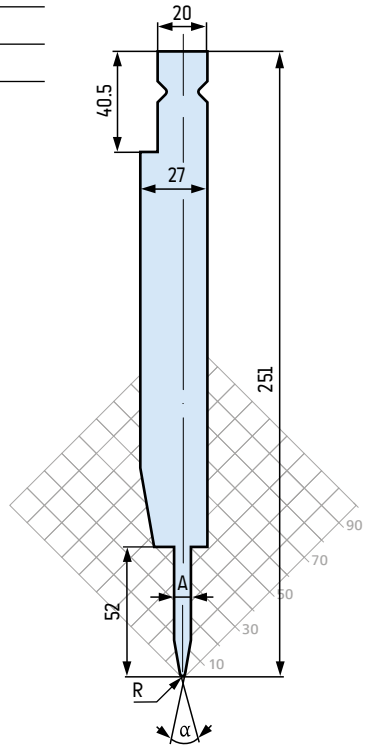

42CrMo4

**S 2615 P** 40 t/m

*α = 20°*

*A = 8 mm, 10 mm, 12 mm*

*R = 1 mm*

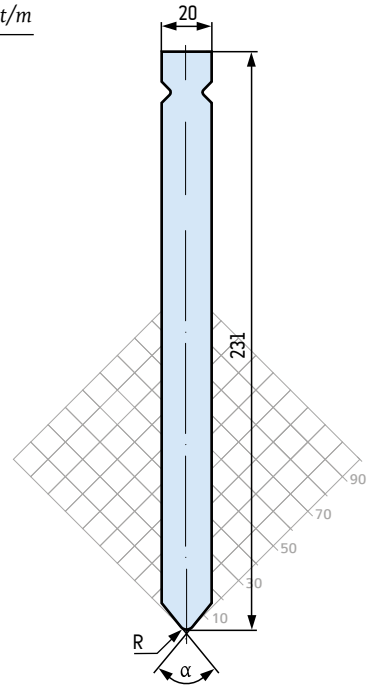



42CrMo4

**S 2615 R** 120 t/m

*α = 78°*

*R = 3 mm* *LH4 = 40 t/m*



# MATRICES TIPO "L" 90 MM

42CrMo4

**M 5106** 20 t/m

*A = 6 mm, B = 16 mm, C = 32 mm*

*$R_1$ = 0.8 mm*

42CrMo4

**M 5108** 20 t/m

*A = 8 mm, B = 18 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5110** 30 t/m

*A = 10 mm, B = 25 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5112** 35 t/m

*A = 12 mm, B = 25 mm, C = 32 mm*

*$R_1$ = 1.5 mm*

42CrMo4

**M 5116** 35 t/m

*A = 16 mm, B = 32 mm, C = 32 mm*

*$R_1$ = 2 mm*

42CrMo4

**M 5120** 35 t/m

*A = 20 mm, B = 40 mm, C = 40 mm*

*$R_1$ = 2 mm*

42CrMo4

**M 5124** 55 t/m

*A = 24 mm, B = 45 mm, C = 45 mm*

*$R_1$ = 3 mm*

42CrMo4

**M 5130** 60 t/m

*A = 30 mm, B = 70 mm, C = 70 mm*

*$R_1$ = 3 mm*

42CrMo4

**M 5140** 60 t/m

*A = 40 mm, B = 75 mm, C = 75 mm*

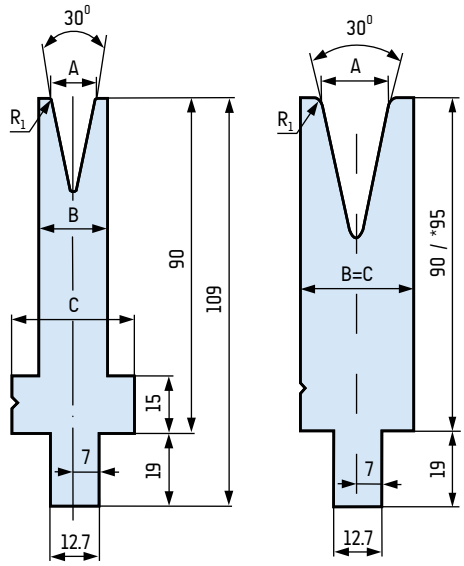
*$R_1$ = 4 mm*

42CrMo4

**M 5150*** 80 t/m

*A = 50 mm, B = 95 mm, C = 95 mm*

*$R_1$ = 5 mm*




42CrMo4

**M 5206** 40 t/m

*A = 6 mm, B = 12 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5208** 40 t/m

*A = 8 mm, B = 12 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5210** 50 t/m

*A = 10 mm, B = 14 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5212** 60 t/m

*A = 12 mm, B = 18 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5216** 80 t/m

*A = 16 mm, B = 25 mm, C = 32 mm*

*$R_1$ = 1.5 mm*

42CrMo4

**M 5220** 100 t/m

*A = 20 mm, B = 32 mm, C = 32 mm*

*$R_1$ = 2 mm*

42CrMo4

**M 5224** 100 t/m

*A = 24 mm, B = 32 mm, C = 32 mm*

*$R_1$ = 2.5 mm*

42CrMo4

**M 5230** 110 t/m

*A = 30 mm, B = 40 mm, C = 40 mm*

*$R_1$ = 3 mm*

42CrMo4

**M 5240** 130 t/m

*A = 40 mm, B = 50 mm, C = 50 mm*

*$R_1$ = 3 mm*

42CrMo4

**M 5250** 150 t/m

*A = 50 mm, B = 70 mm, C = 70 mm*

*$R_1$ = 4 mm*

42CrMo4

**M 5260** 150 t/m

*A = 60 mm, B = 70 mm, C = 70 mm*

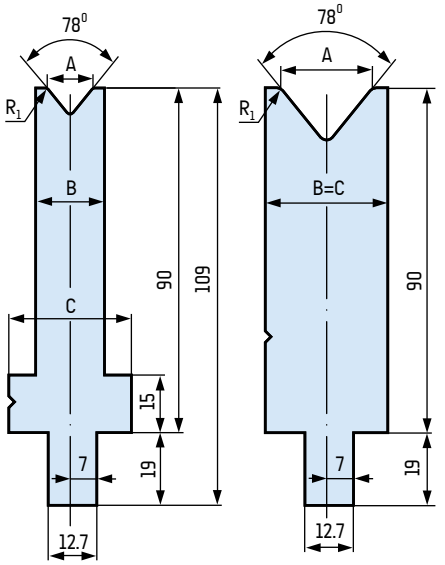
*$R_1$ = 4 mm*

42CrMo4

**M 5280** 150 t/m

*A = 80 mm, B = 95 mm, C = 95 mm*

*$R_1$ = 6 mm*



# MATRICES TIPO "L" 130 MM

42CrMo4

**M 5306** 20 t/m

*A = 6 mm, B = 16 mm, C = 32 mm*

*$R_1$ = 0.8 mm*

42CrMo4

**M 5308** 20 t/m

*A = 8 mm, B = 18 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5310** 30 t/m

*A = 10 mm, B = 25 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5312** 35 t/m

*A = 12 mm, B = 25 mm, C = 32 mm*

*$R_1$ = 1.5 mm*

42CrMo4

**M 5316** 35 t/m

*A = 16 mm, B = 32 mm, C = 32 mm*

*$R_1$ = 2 mm*

42CrMo4

**M 5320** 35 t/m

*A = 20 mm, B = 40 mm, C = 40 mm*

*$R_1$ = 2 mm*

42CrMo4

**M 5324** 55 t/m

*A = 24 mm, B = 45 mm, C = 45 mm*

*$R_1$ = 3 mm*

42CrMo4

**M 5330** 60 t/m

*A = 30 mm, B = 70 mm, C = 70 mm*

*$R_1$ = 3 mm*

42CrMo4

**M 5340** 60 t/m

*A = 40 mm, B = 75 mm, C = 75 mm*

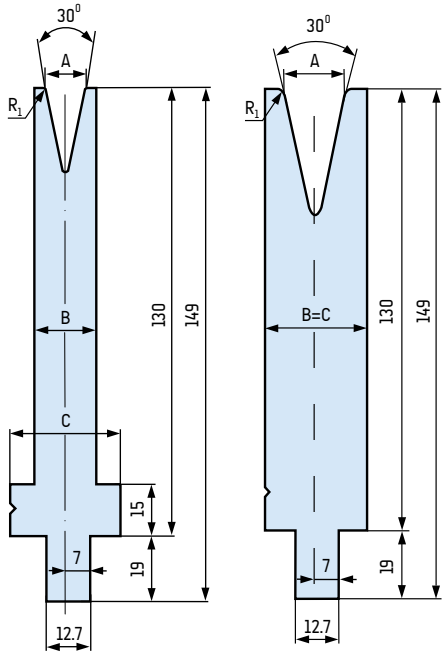
*$R_1$ = 4 mm*

42CrMo4

**M 5350** 70 t/m

*A = 50 mm, B = 95 mm, C = 95 mm*

*$R_1$ = 5 mm*




42CrMo4

**M 5406** 40 t/m

*A = 6 mm, B = 12 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5408** 40 t/m

*A = 8 mm, B = 12 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5410** 50 t/m

*A = 10 mm, B = 14 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5412** 60 t/m

*A = 12 mm, B = 18 mm, C = 32 mm*

*$R_1$ = 1 mm*

42CrMo4

**M 5416** 80 t/m

*A = 16 mm, B = 25 mm, C = 32 mm*

*$R_1$ = 1.5 mm*

42CrMo4

**M 5420** 100 t/m

*A = 20 mm, B = 32 mm, C = 32 mm*

*$R_1$ = 2 mm*

42CrMo4

**M 5424** 100 t/m

*A = 24 mm, B = 32 mm, C = 32 mm*

*$R_1$ = 2.5 mm*

42CrMo4

**M 5430** 110 t/m

*A = 30 mm, B = 40 mm, C = 40 mm*

*$R_1$ = 3 mm*

42CrMo4

**M 5440** 130 t/m

*A = 40 mm, B = 50 mm, C = 50 mm*

*$R_1$ = 3 mm*

42CrMo4

**M 5450** 150 t/m

*A = 50 mm, B = 70 mm, C = 70 mm*

*$R_1$ = 4 mm*

42CrMo4

**M 5460** 150 t/m

*A = 60 mm, B = 70 mm, C = 70 mm*

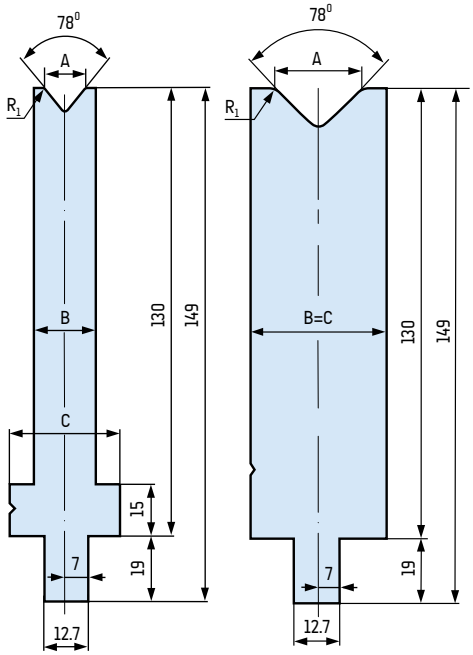
*$R_1$ = 4 mm*

42CrMo4

**M 5480** 150 t/m

*A = 80 mm, B = 95 mm, C = 95 mm*

*$R_1$ = 6 mm*




42CrMo4

**M 54100** 150 t/m

*A = 100 mm, B = 120 mm, C = 120 mm*

*$R_1$ = 6 mm*

42CrMo4

**M 54120** 150 t/m

*A = 120 mm, B = 140 mm, C = 140 mm*

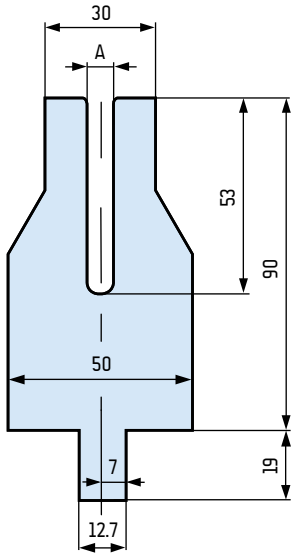
*$R_1$ = 12 mm*

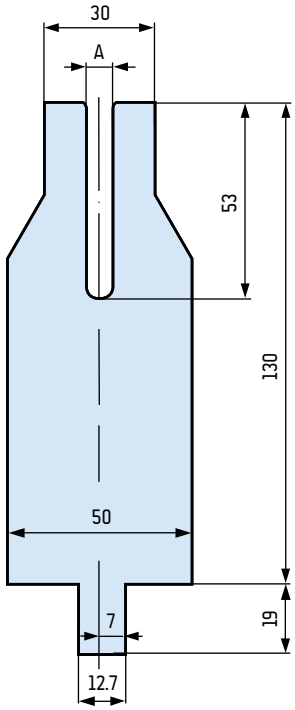
# MATRICES TIPO "L"

## Matrices aplanadoras

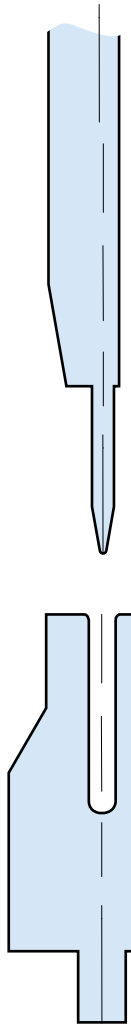
42CrMo4

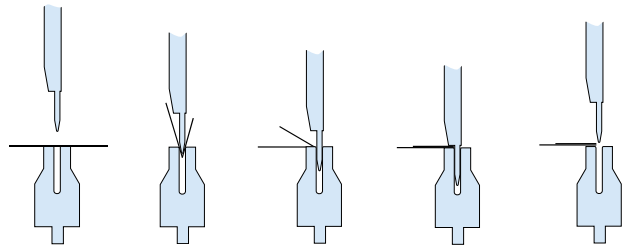
| **M 5000** | 50 t/m |
|---|---|
| *A = 8 mm, 10 mm, 12 mm* | |
| *H = 90 mm, 130 mm* | |




## Ejemplo de uso





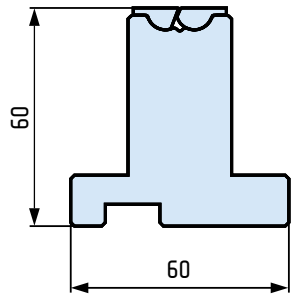
Las Matrices M5000 se utilizan juntamente con los punzones S 2510 P, S2610 P, S2515 P o S2615 P.

# MATRICES ROLLA-V

## Matrices con insertos móviles

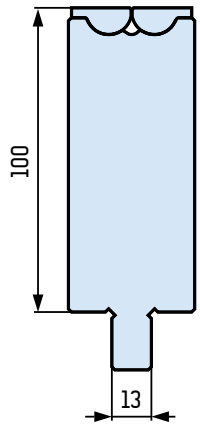
### RVP 60-1

*L = 100 mm, 440 mm, 500 mm*



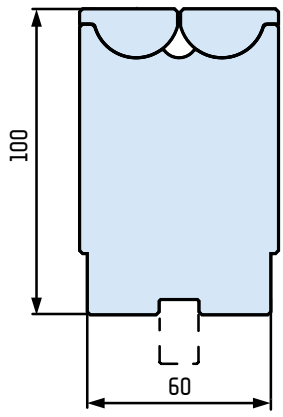

### RVT 100-2

*L = 100 mm, 450 mm, 500 mm*




### RVM 2.5

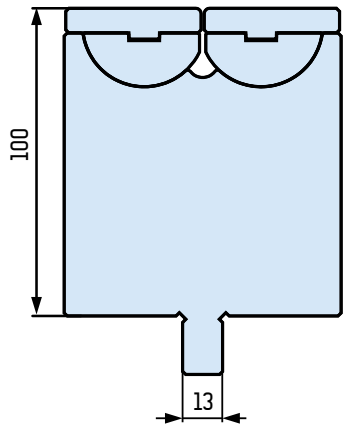
*L = 100 mm, 470 mm, 500 mm*




*Las matrices de soporte reducen las marcas de doblado en acero inoxidable y acero revestido. Gracias a su soporte continuo, permiten su uso en brazos de plegado cortos y junto a orificios.*

### RVT 100-3

*L = 100 mm, 455 mm, 500 mm*




*Troqueles de diferentes tamaños disponibles. Los troqueles se pueden ofrecer con:*
*60 mm - con sujeciónn tipo A, 13 mm - con sujeción tipo T y W y 12,7 mm - con sujeción tipo L.*

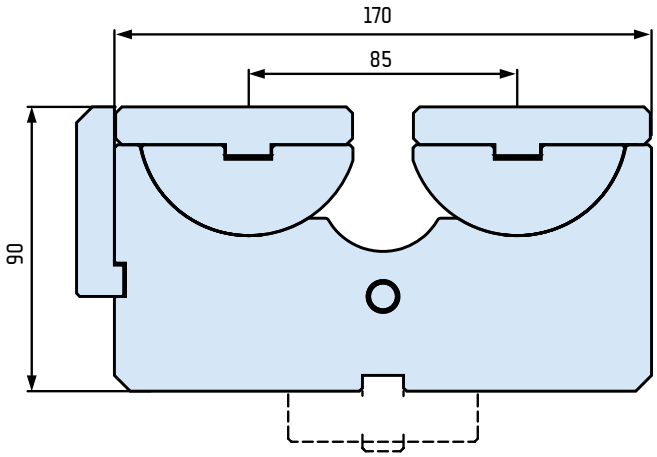
*Longitud de una sola sección - hasta 500 mm.*

# MATRICES ROLLA-V

## Matrices con insertos móviles

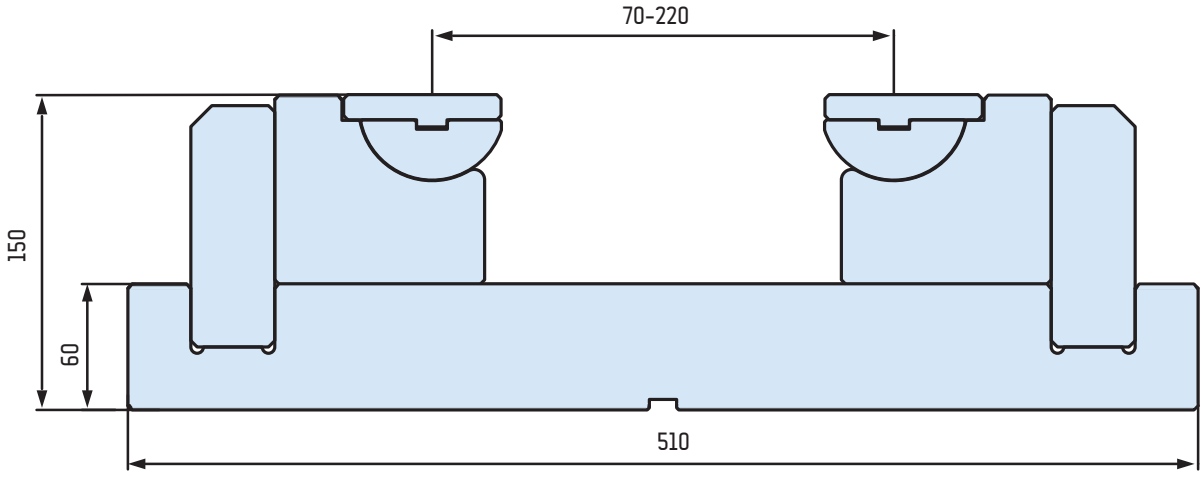
### RVM 90-4

*L = 250 mm, 500 mm*



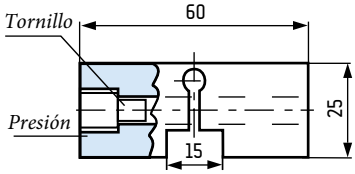

### RVHD 4

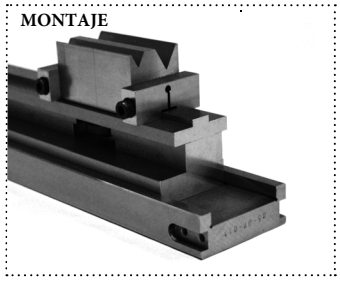
*L = 200 mm, 500 mm*



# PORTAMATRICES

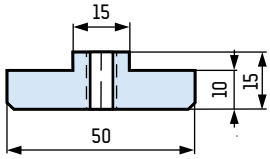
## 2 V



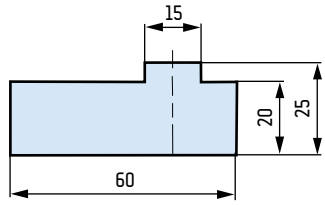

## A

*L = 415 mm, 835 mm*



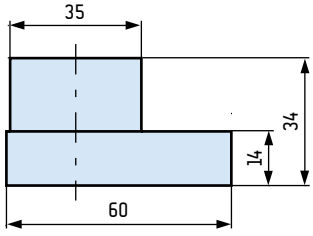

## A 20

*L = 415 mm, 835 mm*



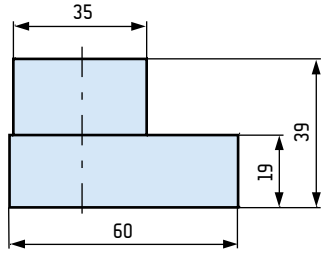

## A 34

*L = 412 mm, 830 mm*



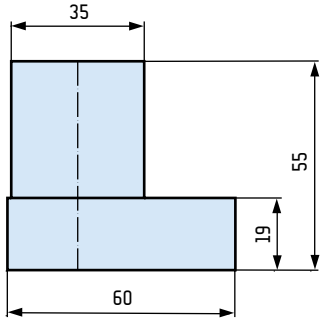

## A 39

*L = 412 mm, 830 mm*



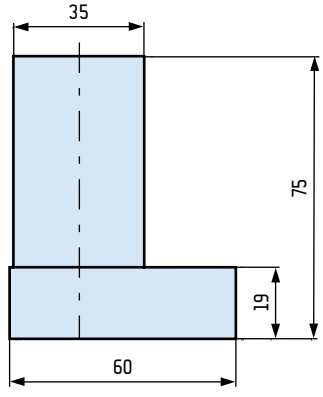

## A 55

*L = 412 mm, 830 mm*




## A 75

*L = 412 mm, 830 mm*

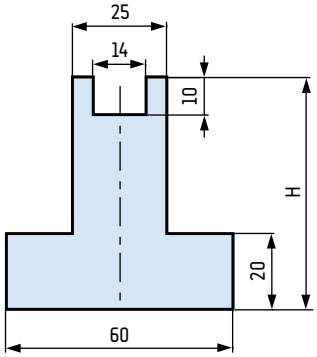


# PORTAMATRICES

## A 31

*L = 415 mm, 835 mm*

*H = 31 mm*



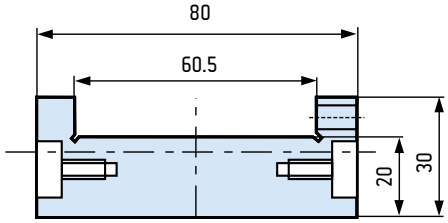

## A 61

*L = 415 mm, 835 mm*

*H = 61.5 mm*

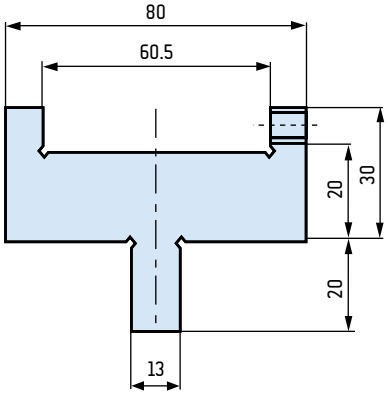
## B 60

*L = 1050 mm*



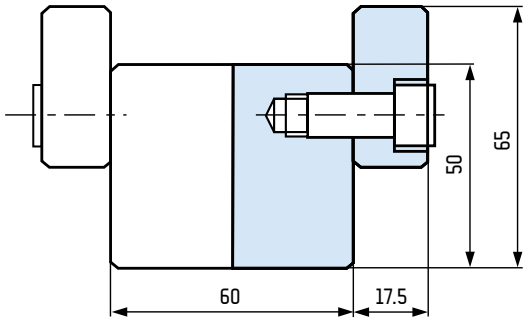

## B 60 / T-A

*L = 1050 mm*



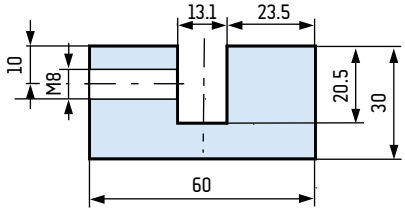

## C 60

*L = 835 mm*



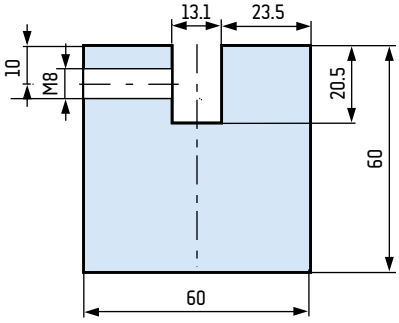

## D 30

*L = 1000 mm*

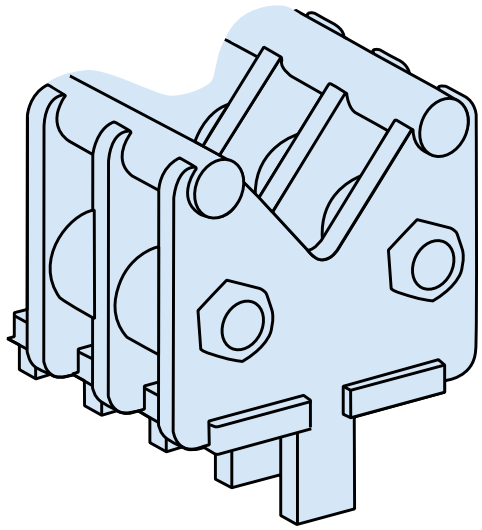



## D 60

*L = 1000 mm*

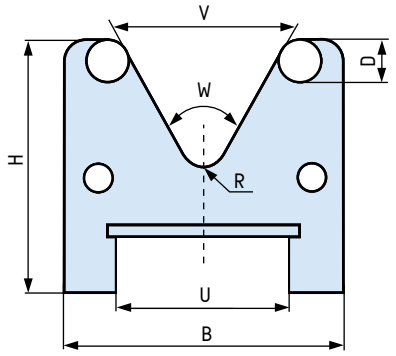


# MATRICES COMPUESTAS



*Las matrices compuestas satisfacen las elevadas exigencias de los clientes que necesitan una mejora continua de sus productos. Mediante el uso de nuevas técnicas de producción, se ha desarrollado un nuevo producto de utillaje que ofrece una excelente relación calidad-precio. Puede utilizarse para casi cualquier aplicación y supondrá una gran ventaja para su uso en la industria de la chapa media y pesada.*

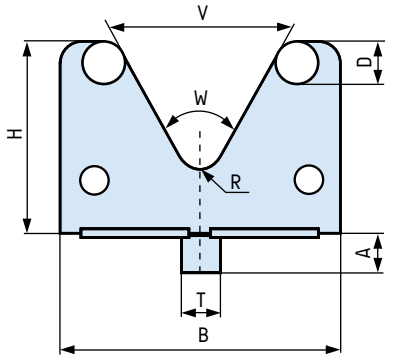
## S



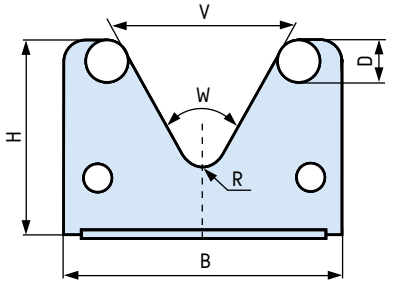

| **V** | D | **W°** | B | **H** | R | **t/m** |
|---|---|---|---|---|---|---|
| **16** | 6 | **28** | 30 | **55** | 2 | **30** |
| **20** | 6 | **28** | 34 | **55** | 2 | **35** |
| **24** | 8 | **28** | 40 | **55** | 3 | **40** |
| **32** | 10 | **28** | 53 | **55** | 5 | **45** |
| **32** | 10 | **85** | 53 | **55** | 5 | **60** |
| **40** | 10 | **85** | 62 | **55** | 5 | **60** |
| **48** | 10 | **85** | 70 | **55** | 5 | **60** |
| **mm** | mm | **°** | mm | **mm** | mm | |

| **V** | D | **W°** | B | **H** | R | **t/m** |
|---|---|---|---|---|---|---|
| **50** | 15 | **14** | 88 | **90** | 7 | **100** |
| **60** | 15 | **40** | 98 | **110** | 10 | **120** |
| **80** | 20 | **50** | 130 | **130** | 10 | **160** |
| **100** | 20 | **60** | 150 | **140** | 18 | **200** |
| **120** | 25 | **60** | 180 | **160** | 18 | **250** |
| **150** | 25 | **60** | 212 | **180** | 25 | **300** |
| **200** | 30 | **80** | 270 | **220** | 30 | **350** |
| **250** | 30 | **80** | 325 | **300** | 40 | **400** |
| **300** | 40 | **80** | 400 | **360** | 40 | **500** |
| **400** | 50 | **80** | 524 | **400** | 50 | **600** |
| **mm** | mm | **°** | mm | **mm** | mm | |

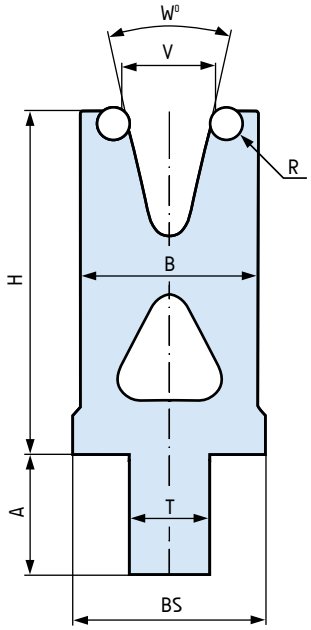
## T




## U



# MATRICES COMPUESTAS

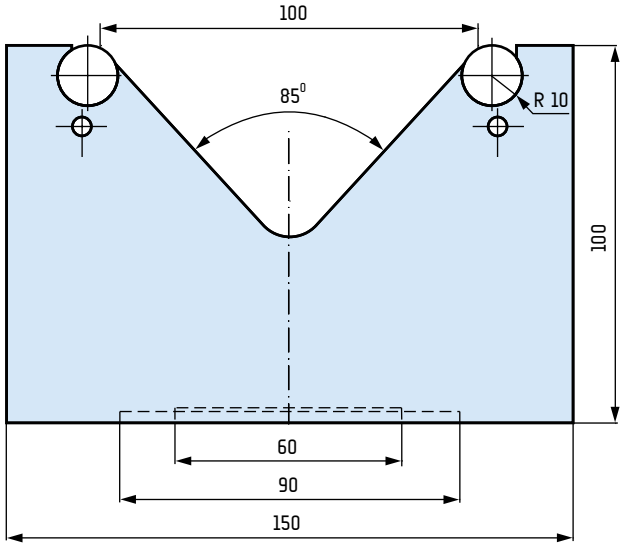


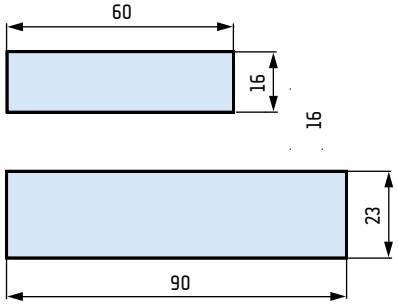

*Las matrices compuestas son matrices de plegadora para "plegado por aire" únicamente. El cuerpo de la matriz de aluminio de alta precisión, de alta calidad, endurecido y anodizado, contiene las dos barras de la matriz endurecidas y rectificadas. Las barras son intercambiables en caso de desgaste.*

| **V** | R | **W** | B | **BS** | H | **T/m** | T | **A** |
|---|---|---|---|---|---|---|---|---|
| **8** | 1.5 | **30** | 20 | **30** | 55 | **20** | 13 | **20** |
| **12** | 2 | **30** | 24 | **30** | 55 | **30** | 13 | **20** |
| **16** | 2.5 | **30** | 28 | **28** | 55 | **40** | 13 | **20** |
| **20** | 2.5 | **30** | 32 | **32** | 55 | **45** | 13 | **20** |
| **24** | 3 | **30** | 40 | **40** | 55 | **50** | 13 | **20** |
| **32** | 4 | **60** | 52 | **52** | 55 | **60** | 13 | **20** |

# MATRICES DE RODILLOS

## Ejemplo



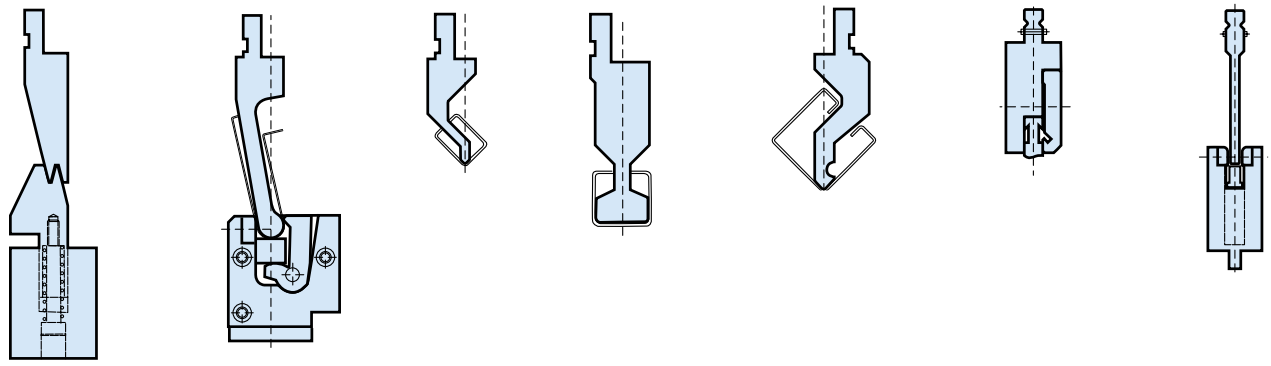

*Insertos redondos endurecidos hasta 60HRc.*

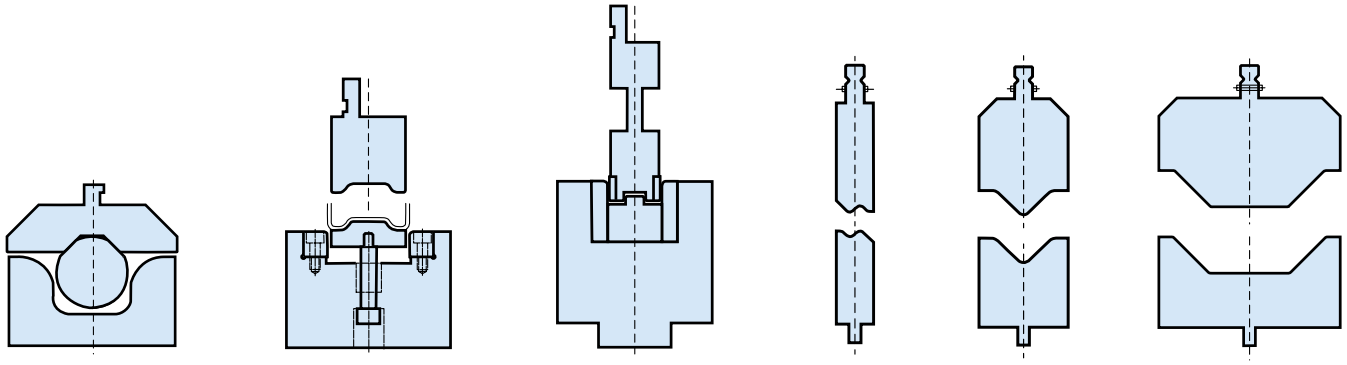
*Los insertos rectangulares de 60 mm o 90 mm de ancho permiten a la matriz ser fijada en vigas de maquinas más pequeñas.*

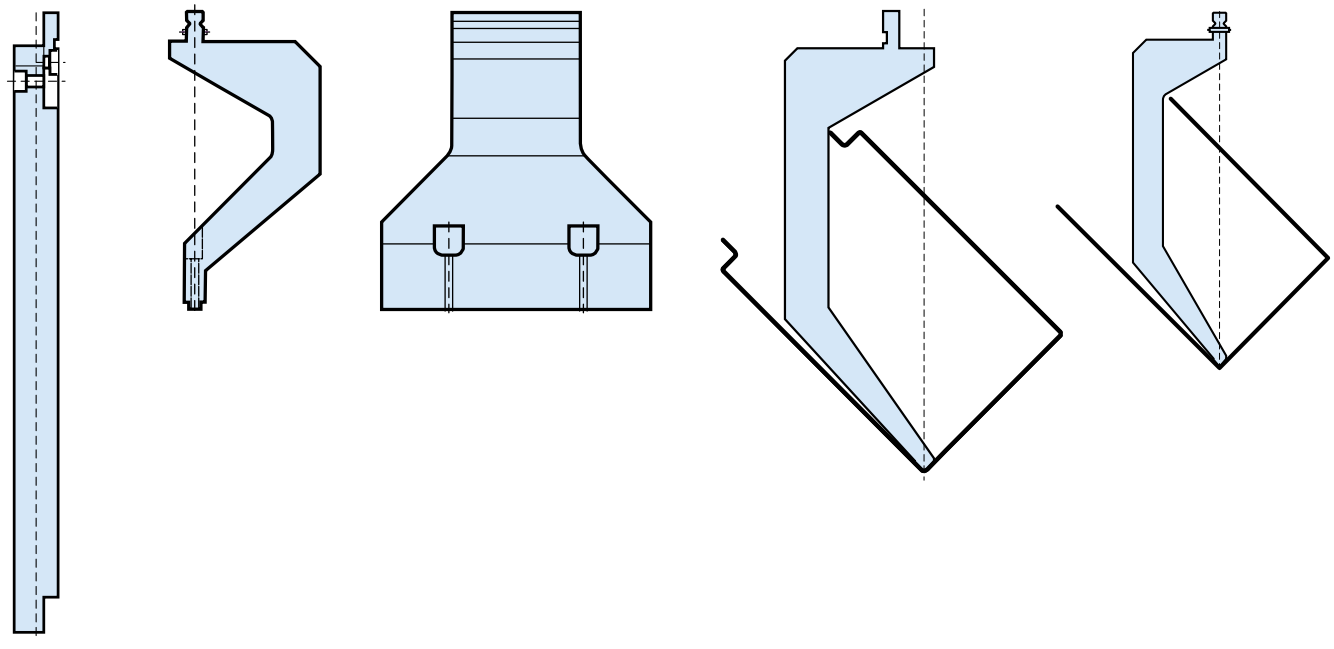
# UTILLAJE ESPECIAL

## Ejemplos de utillaje especial

*Podemos ofrecer muchos tipos de punzones y matrices para aplicaciones especiales, así como soportes no estándar.*

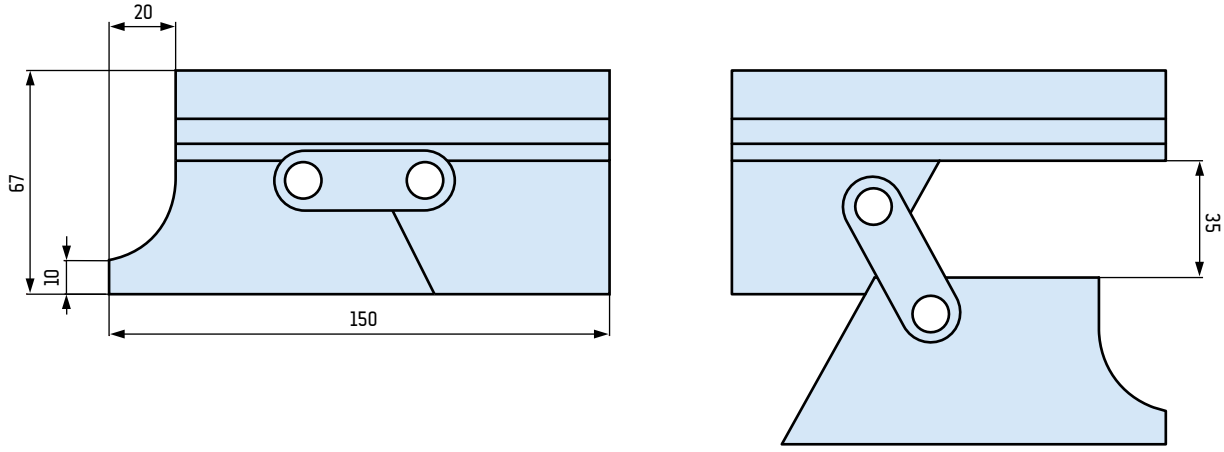




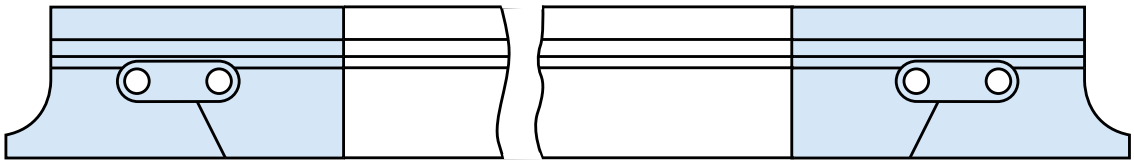


# PUNZONES PARA CIERRE DE CAJAS

*Punzones con dimensiones como S2010/88/R0.8 se utilizan para cerrar cajas.*




*Montaje con S2010.*

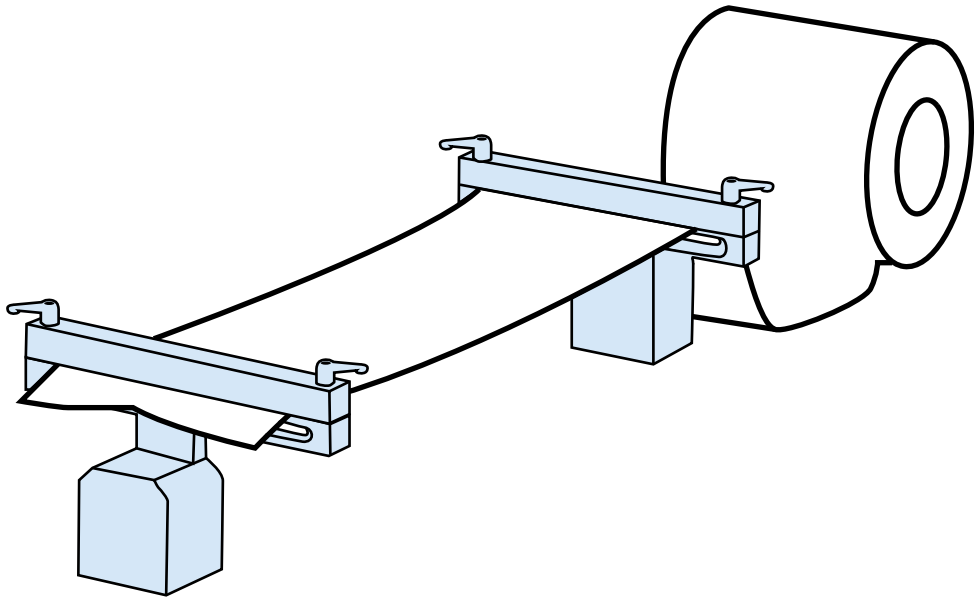


# CINTA PROTECTORA

24h

| Tamaño de la cinta |
|---|
| *Grosor = 0.4 mm, Ancho = 100 mm* |
| *Grosor = 0.5 mm, Ancho = 100 mm* |
| *Grosor = 0.8 mm, Ancho = 100 mm* |

| Soporte para cinta protectora |
|---|
| *Adecuado para troqueles de 13 mm a 60 mm* |

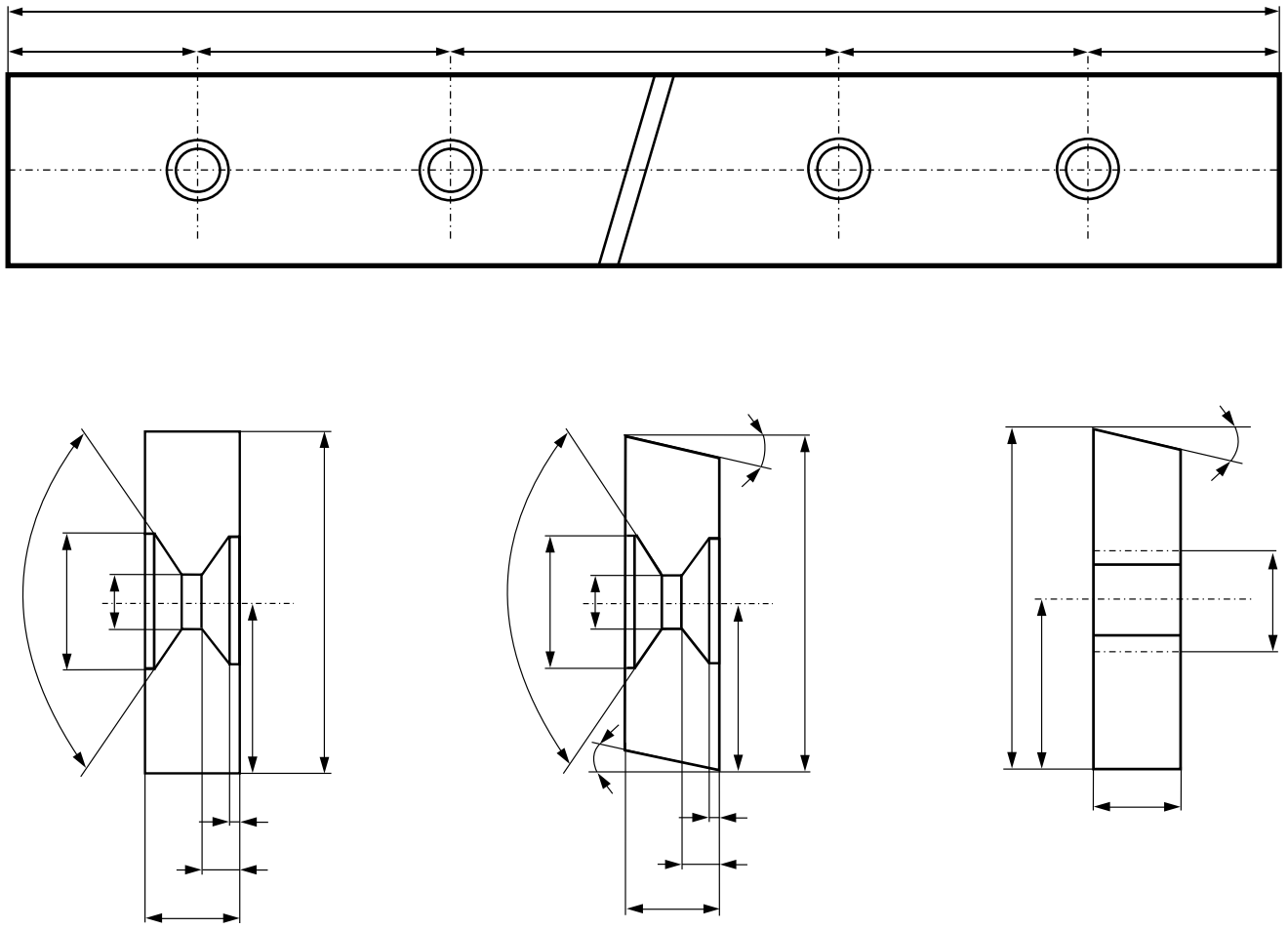


*Cinta de plástico que protege las chapas metálicas de posibles daños.*

# OTROS PRODUCTOS

## Cuchillas de cizalla

*Complete las dimensiones al realizar el pedido.*



Disponemos de cuchillas de cizalla para la mayoría de los tipos de cizallas, típicas o según los planos del cliente. Rectificamos las cuchillas y las templamos a 55 ±2 HRc. Tenemos en stock todo tipo de cuchillas de cizalla polacas y checas de los tipos NG 3-13, NTE, CNTA 6.3-25. También podemos ofrecer muchos otros tipos de cuchillas según los planos y especificaciones del cliente, de longitud hasta 4100 mm. Podemos reafilar y reparar cuchillas usadas de hasta 4100 mm de longitud.

# OTROS PRODUCTOS

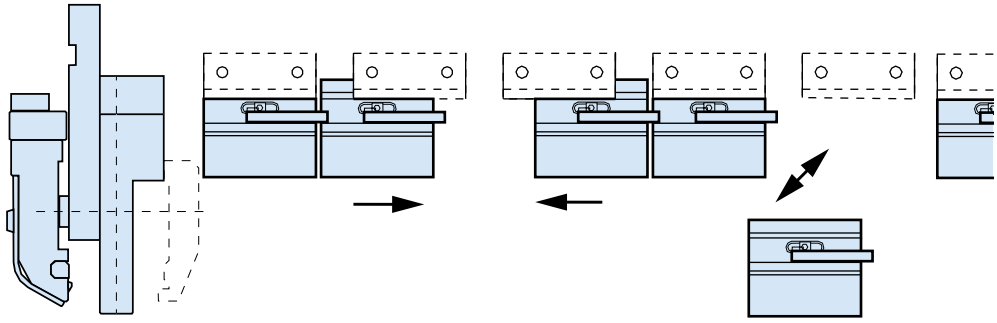
## Adaptadores TEDA - modelos principales

*Beneficios principales:*

*- - Herramienta estándar de tipo A.*
*- Sin modificación de la herramienta.*
*- Inserción / extracción frontal de la herramienta.*
*- Fácil montaje en cualquier prensa plegadora (nueva o ya en uso).*
*- No es necesario modificar la prensa*

### SPEED GRIP 13000-M MANUAL

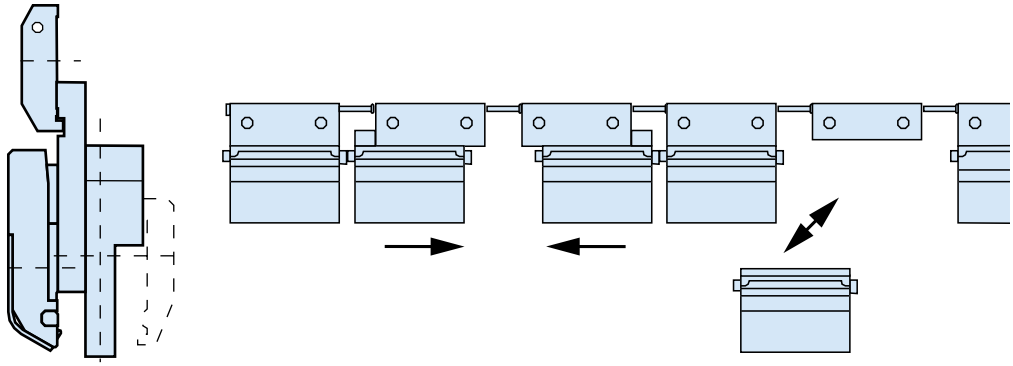
*Una palanca ergonómica (una para cada unidad) bloquea/desbloquea las herramientas.*



### SPEED GRIP 13000-ST NEUMÁTICO

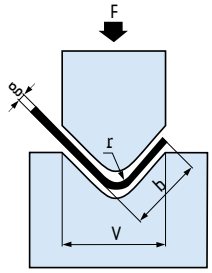
*Un solo selector para toda la línea. Transmisión de aire mediante "STAR SYSTEM" patentado por TEDA.*

*Nota: dependiendo de la configuración del cilindro de la plegadora (eje de plegado a 7 mm o a 20 mm, altura de las unidades diferentes - 100 / 120 /150 mm - cuña o no, etc.).Para cada modelo de SPEED GRIP existen varias soluciones diferentes.*



También ofrecemos portamatrices neumáticos y portapunzones y adaptadores especiales. En comparación con las fijaciones manuales tradicionales con tornillos, SPEED GRIP garantiza un ahorro de tiempo del 80%.

# TABLA DE PRESIONES




*La tabla muestra la presión de plegado para chapas con plegado por aire.*

*F [t] - presión a 1 m*
*V - Tamaño de la V*
*b - Longitud mínima del brazo de flexión*
*r -Radio interior en acero*

**RM = 45 kg/mm²**

| g | V | 4 | 6 | 7 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 140 | 160 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | b | 2.8 | 4 | 5 | 5.5 | 7 | 8.5 | 10 | 11 | 13.5 | 14 | 17.5 | 22 | 28 | 35 | 45 | 55 | 71 | 89 | 100 | 113 | 140 | 180 |
| | r | 0.7 | 1 | 1.1 | 1.3 | 1.6 | 2 | 2.3 | 2.6 | 3 | 3.3 | 4 | 5 | 6.5 | 8 | 10 | 13 | 16 | 20 | 23 | 26 | 33 | 40 |
| **0.5** | | 4 | **3** | | | | | | | | | | | | | | | | | | | | |
| **0.6** | | 6 | **4** | 3 | **3** | | | | | | | | | | | | | | | | | | |
| **0.8** | | | **7** | 6 | **5** | 4 | | | | | | | | | | | | | | | | | |
| **1.0** | | | **13** | 10 | **8** | 6 | **5** | | | | | | | | | | | | | | | | |
| **1.2** | | | | | **13** | 10 | **8** | 6 | **5** | | | | | | | | | | | | | | |
| **1.5** | | | | | | | **13** | 10 | **9** | 8 | **7** | | | | | | | | | | | | |
| **2.0** | | | | | | | **25** | 20 | **17** | 14 | **13** | 10 | | | | | | | | | | | |
| **2.5** | | | | | | | | | **29** | 24 | **21** | 16 | **12** | | | | | | | | | | |
| **3.0** | | | | | | | | | | 38 | **32** | 24 | **17** | 13 | | | | | | | | | |
| **4.0** | | | | | | | | | | | | 47 | **34** | 25 | **19** | 14 | | | | | | | |
| **5.0** | | | | | | | | | | | | | **57** | 42 | **32** | 24 | **18** | | | | | | |
| **6.0** | | | | | | | | | | | | | | 65 | **48** | 36 | **26** | 20 | | | | | |
| **8.0** | | | | | | | | | | | | | | | **94** | 69 | **50** | 38 | **29** | 25 | | | |
| **10.0** | | | | | | | | | | | | | | | | | **84** | 63 | **48** | 41 | **35** | | |
| **12.0** | | | | | | | | | | | | | | | | | **130** | 96 | **72** | 62 | **53** | 40 | **31** |
| **16.0** | | | | | | | | | | | | | | | | | | | **139** | 120 | **101** | 76 | **58** |
| **20.0** | | | | | | | | | | | | | | | | | | | | | | 126 | **95** |

**RM = 70 kg/mm²**

| g | V | 4 | 6 | 7 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 140 | 160 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | b | 2.8 | 4 | 5 | 5.5 | 7 | 8.5 | 10 | 11 | 13.5 | 14 | 17.5 | 22 | 28 | 35 | 45 | 55 | 71 | 89 | 100 | 113 | 140 | 180 |
| | r | 0.7 | 1 | 1.1 | 1.3 | 1.6 | 2 | 2.3 | 2.6 | 3 | 3.3 | 4 | 5 | 6.5 | 8 | 10 | 13 | 16 | 20 | 23 | 26 | 33 | 40 |
| **0.5** | | 7 | **4** | | | | | | | | | | | | | | | | | | | | |
| **0.6** | | 10 | **6** | 5 | **4** | | | | | | | | | | | | | | | | | | |
| **0.8** | | | **11** | 9 | **8** | 6 | | | | | | | | | | | | | | | | | |
| **1.0** | | | **19** | 16 | **13** | 10 | **8** | | | | | | | | | | | | | | | | |
| **1.2** | | | | | **20** | 15 | **12** | 10 | **8** | | | | | | | | | | | | | | |
| **1.5** | | | | | | | **20** | 16 | **14** | 12 | **10** | | | | | | | | | | | | |
| **2.0** | | | | | | | **39** | 31 | **26** | 22 | **20** | 15 | | | | | | | | | | | |
| **2.5** | | | | | | | | | **44** | 38 | **33** | 25 | **18** | | | | | | | | | | |
| **3.0** | | | | | | | | | | 58 | **50** | 37 | **27** | 20 | | | | | | | | | |
| **4.0** | | | | | | | | | | | | 73 | **53** | 39 | **30** | 22 | | | | | | | |
| **5.0** | | | | | | | | | | | | | **89** | 66 | **49** | 37 | **27** | | | | | | |
| **6.0** | | | | | | | | | | | | | | 101 | **75** | 55 | **41** | 31 | | | | | |
| **8.0** | | | | | | | | | | | | | | | **147** | 107 | **78** | 59 | **45** | 39 | | | |
| **10.0** | | | | | | | | | | | | | | | | | **131** | 98 | **74** | 64 | **55** | | |
| **12.0** | | | | | | | | | | | | | | | | | **202** | 149 | **112** | 97 | **82** | 62 | **48** |
| **16.0** | | | | | | | | | | | | | | | | | | | **217** | 187 | **157** | 118 | **90** |
| **20.0** | | | | | | | | | | | | | | | | | | | | | | 196 | **148** |

*Tamaño de V recomendado.*

En el caso de que requiera
cualquier otro tipo de utillaje que
no figure en nuestro catálogo,
póngase en contacto con nosotros.

JOSEP MUNTAL

Structure