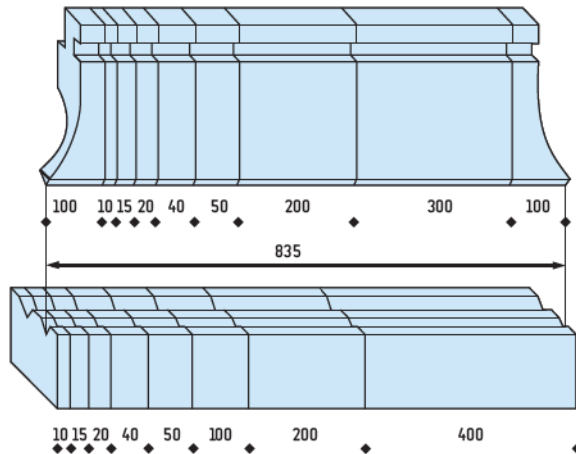


# GENERAL INFORMATION | INFORMACJE OGÓLNE

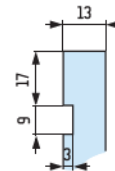
standard tools TYPE "A" | narzędzia standardowe TYPU „A”

<b>Material</b>
C45, C50, 41Cr4 or 42CrMo4
<b>Working edge hardened</b>
55 ±2 HRC
<b>Standard lengths</b>
835 and 415 mm
<b>Segment length</b>
as shown on drawing

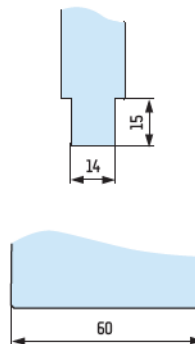
Sectionalized tool TYPE "A".  
Schemat narzędzia segmentowego TYPU „A”.



Punch mounting edge.  
Uchwyt stempla.



Die mounting edge.  
Uchwyt matrycy.

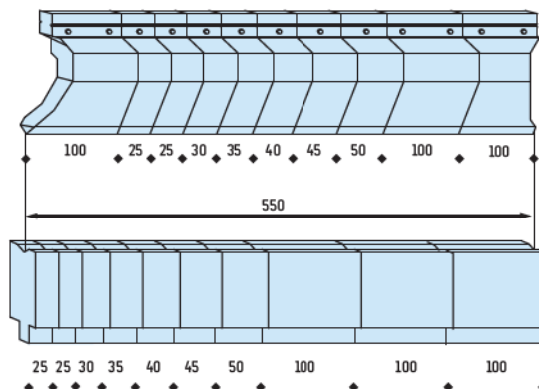


<b>Material</b>
C45, C50, 40H lub 40HM
<b>Część robocza hartowana</b>
55 ±2 HRC
<b>Długość standardowa</b>
835 i 415 mm
<b>Narzędzia segmentowe</b>
jak na rysunku

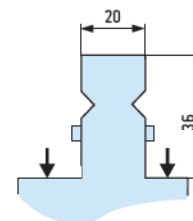
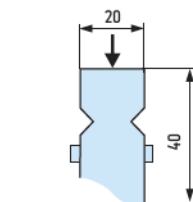
standard tools TYPE "T" | narzędzia standardowe TYPU „T”

<b>Material</b>
C45, 42CrMo4 or 1.2312
<b>Thermal enhancement to*</b>
30 ±2 HRC (950 - 1100 MPa)
<b>Working edge hardened</b>
55 ±2 HRC (1500 - 1600 MPa)
<b>Length</b>
TYPE "T" 835, 500, 550 mm segmented
* applies to 1.2312

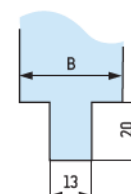
Sectionalized tool TYPE "T".  
Schemat narzędzia segmentowego TYPU „T”.



Punch mounting edge.  
Uchwyt stempla.



Die mounting edge.  
Uchwyt matrycy.



<b>Material</b>
C45, 40HM lub 1.2312
<b>Ulepszenie cieplne*</b>
30 ±2 HRC (950 - 1100 MPa)
<b>Część robocza hartowana</b>
55 ±2 HRC (1500 - 1600 MPa)
<b>Długość</b>
TYP "T" 835, 500, 550 mm segmentowa
* dotyczy 1.2312

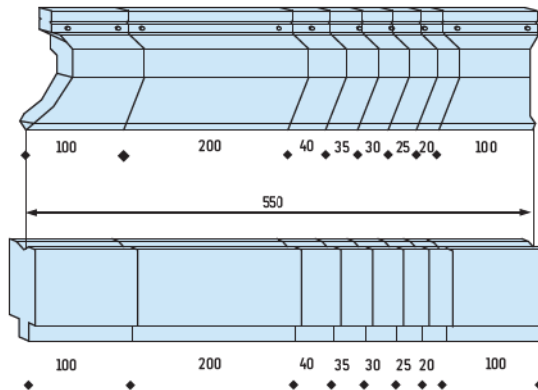
# GENERAL INFORMATION | INFORMACJE OGÓLNE

standard tools TYPE "W" | narzędzia standardowe TYPU „W”

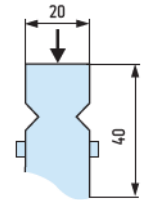
<b>Material</b>
C45, 42CrMo4 or 1.2312
<b>Thermal enhancement to*</b>
30 ±2 HRC (950 - 1100 MPa)
<b>Working edge hardened</b>
55 ±2 HRC (1500 - 1600 MPa)
<b>Length</b>
TYPE "W" 515, 550 mm segmented
* applies to 1.2312

<b>Material</b>
C45, 40HM lub 1.2312
<b>Ulepszenie cieplne*</b>
30 ±2 HRC (950 - 1100 MPa)
<b>Część robocza hartowana</b>
55 ±2 HRC (1500 - 1600 MPa)
<b>Długość</b>
TYP "W" 515, 550 mm segmentowa
* dotyczy 1.2312

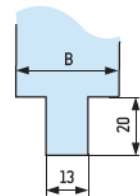
Sectionalized tool TYPE "W".  
Schemat narzędzia segmentowego TYPU „W”.



Punch mounting edge.  
Uchwyt stempla.



Die mounting edge.  
Uchwyt matrycy.

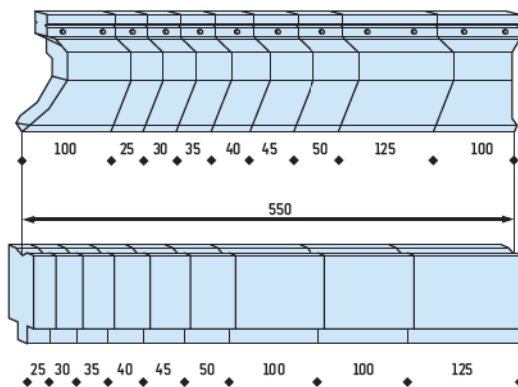


standard tools TYPE "L" | narzędzia standardowe TYPU „L”

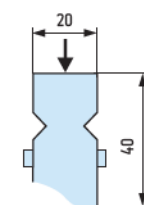
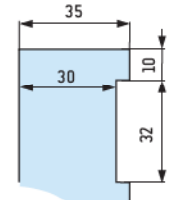
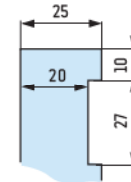
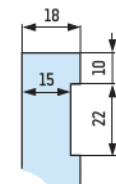
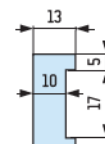
<b>Material</b>
C45, 42CrMo4 or 1.2312
<b>Thermal enhancement to*</b>
30 ±2 HRC (950 - 1100 MPa)
<b>Working edge hardened</b>
55 ±2 HRC (1500 - 1600 MPa)
<b>Length</b>
508 and 550 mm segmented
* applies to 1.2312

<b>Material</b>
C45, 40HM lub 1.2312
<b>Ulepszenie cieplne*</b>
30 ±2 HRC (950 - 1100 MPa)
<b>Część robocza hartowana</b>
55 ±2 HRC (1500 - 1600 MPa)
<b>Długość</b>
508 i 550 mm segmentowa
* dotyczy 1.2312

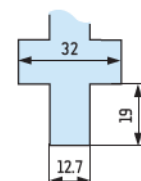
Sectionalized tool TYPE "L".  
Schemat narzędzia segmentowego TYPU „L”.



Punches type "L" have five different clampings.  
Stemple typu „L” występują z pięcioma typami mocowań.

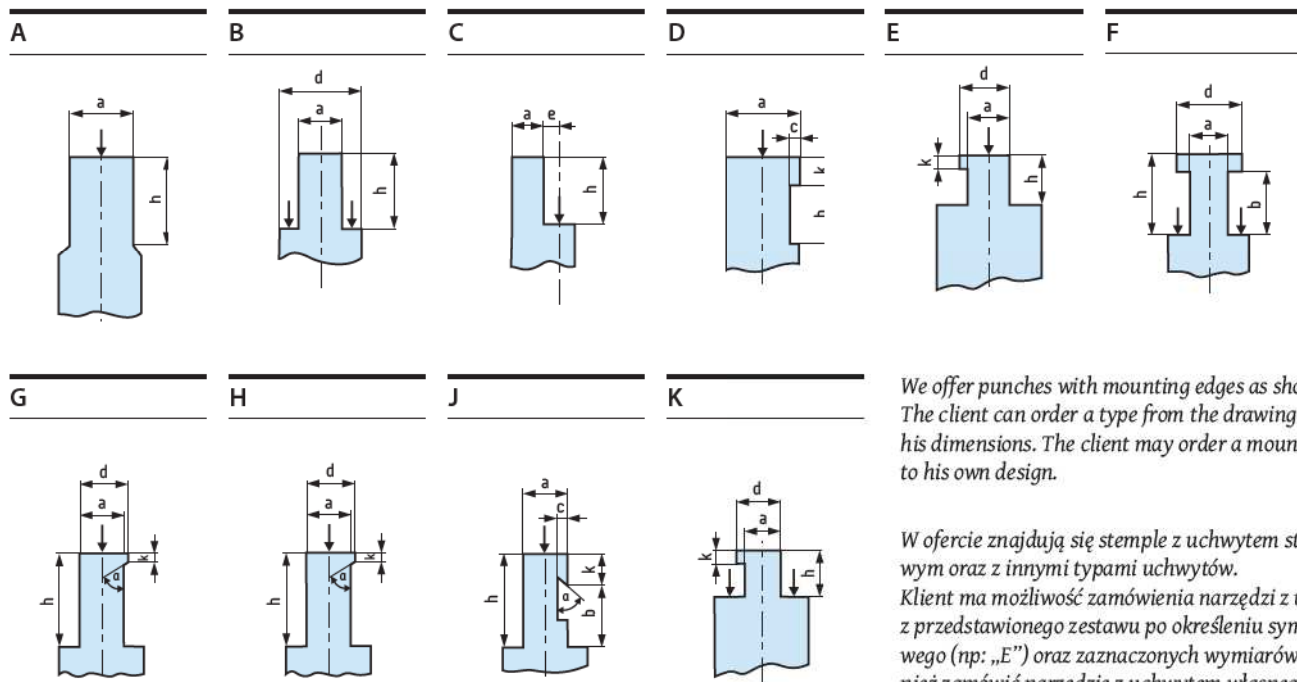


Die mounting edge.  
Uchwyt matrycy.



# GENERAL INFORMATION | INFORMACJE OGÓLNE

## punch mounting edge | rodzaje uchwytów stempli



We offer punches with mounting edges as shown. The client can order a type from the drawing specifying his dimensions. The client may order a mounting edge to his own design.

W ofercie znajdują się stemple z uchwytem standardowym oraz z innymi typami uchwytów. Klient ma możliwość zamówienia narzędzi z uchwytem z przedstawionego zestawu po określeniu symbolu literowego (np: „E”) oraz zaznaczonych wymiarów. Można również zamówić narzędzie z uchwytem własnego projektu.



## tool ordering code | sposób zamawiania

<b>Punches i.e 2010/88/R0.8/835</b>
2010/88/R0.8/835 - Catalogue number
2010/88/R0.8/835 - Angle $\alpha = 30^\circ, 35^\circ, 60^\circ, 75^\circ, 80^\circ, 88^\circ, 90^\circ$
2010/88/R0.8/835 - Working edge type - thus "F" or "R" and size
2010/88/R0.8/835 - Length of tool - thus 835 mm, 415 mm, 835 mm sectionalized
<b>Dies i.e 6112/35/835</b>
6112/35/835 - Catalogue number
6112/35/835 - Angle $\alpha = 30^\circ, 35^\circ, 60^\circ, 85^\circ, 88^\circ, 90^\circ$
6112/35/835 - Length of tool - thus 835 mm, 415 mm, 835 mm sectionalized
<b>Stemple np. 2010/88/R0.8/835</b>
2010/88/R0.8/835 - Numer katalogowy stempla
2010/88/R0.8/835 - Kąt $\alpha = 30^\circ, 35^\circ, 60^\circ, 75^\circ, 80^\circ, 88^\circ, 90^\circ$
2010/88/R0.8/835 - Część robocza stempla („F” lub „R” oraz wielkość)
2010/88/R0.8/835 - Długość elementu 835 mm, 415 mm, 835 mm segmentowy
<b>Matryce np. 6112/35/835</b>
6112/35/835 - Numer katalogowy matrycy
6112/35/835 - Kąt $\alpha = 30^\circ, 35^\circ, 60^\circ, 85^\circ, 88^\circ, 90^\circ$
6112/35/835 - Rodzaj elementu 835 mm, 415 mm, 835 mm segmentowy

## special tools | narzędzia specjalne

<b>Material</b>	<b>Material</b>
C45, 40HM lub 1.2312	C45, 42CrMo4 or 1.2312
<b>Ulepszenie cieplne*</b>	<b>Thermal enhancement to*</b>
30 ± 2HRC (950 - 1100 MPa)	30 ± 2HRC (950 - 1100 MPa)
<b>Część robocza hartowana</b>	<b>Working edge hardened</b>
55 ± 2HRC (1500 - 1600 MPa)	55 ± 2HRC (1500 - 1600 MPa)
<b>Długość</b>	<b>Length</b>
do 4100 mm	up to 4100 mm
* dotyczy 1.2312	* applies to 1.2312

## additional information | oznaczenia symboli

 in stock / dostępne z magazynu
 fast delivery possible / możliwość szybkiej dostawy
<b>42CrMo4</b> 42CrMo4 steel as standard / narzędzie wykonane ze stali 42CrMo4

Narzędzia wykonywane w szczególności z wymienionych gatunków stali lub z innej stali o podobnej wytrzymałości.

Prezentowany katalog nie stanowi oferty handlowej w rozumieniu Kodeksu Cywilnego, a ma jedynie charakter informacyjny.

# TYPE "A" PUNCHES | STEMPEL TYPU „A“



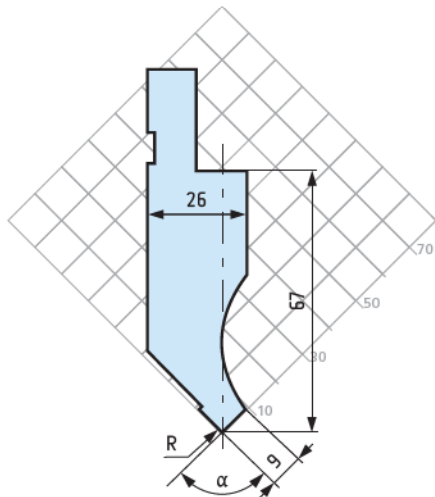
**S 2010** 100 t/m

$\alpha = 75^\circ$ ,  $R = 0.8 \text{ mm}$

$\alpha = 85^\circ$ ,  $R = 0.8 \text{ mm}$

$\alpha = 88^\circ$ ,  $R = 0.2 \text{ mm}, 0.8 \text{ mm}, 1.5 \text{ mm}, 3 \text{ mm}$

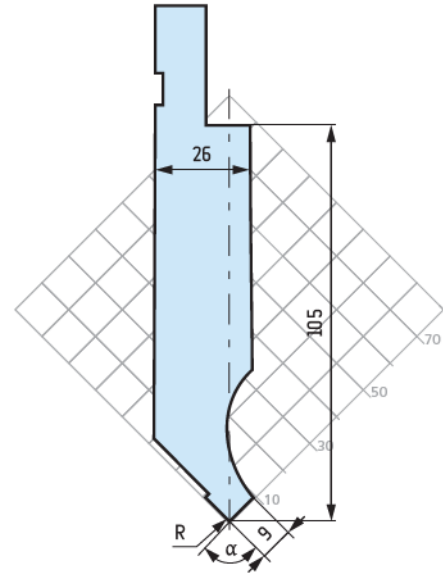
$\alpha = 90^\circ$ ,  $R = 0.2 \text{ mm}, 0.8 \text{ mm}$



**S 2010/105** 100 t/m

$\alpha = 75^\circ, 85^\circ, 88^\circ$

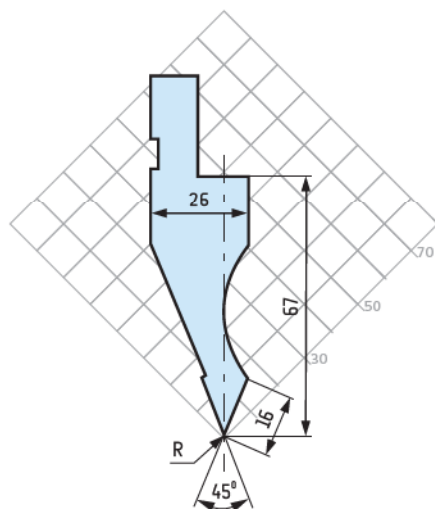
$R = 0.8 \text{ mm}$



**S 2011** 80 t/m

$\alpha = 45^\circ$

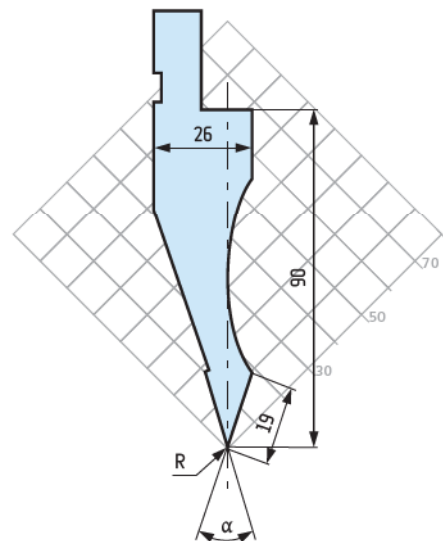
$R = 0.4 \text{ mm}, 0.8 \text{ mm}, 1.5 \text{ mm}$



**S 2012** 70 t/m

$\alpha = 30^\circ, 35^\circ$

$R = 1 \text{ mm}$



# TYPE "A" PUNCHES | STEMPLA TYPU „A“

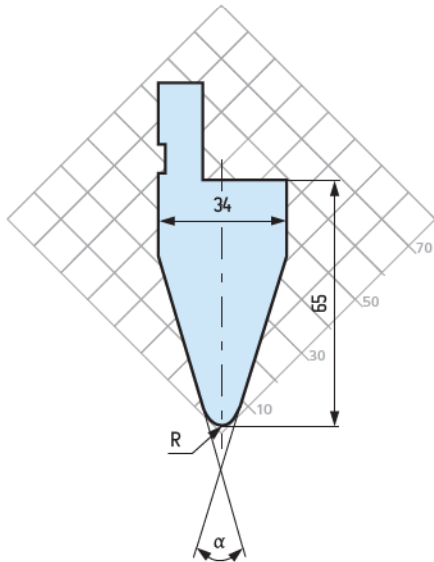


S 2013 100 t/m

$\alpha = 35^\circ$ ,  $R = 5 \text{ mm}$

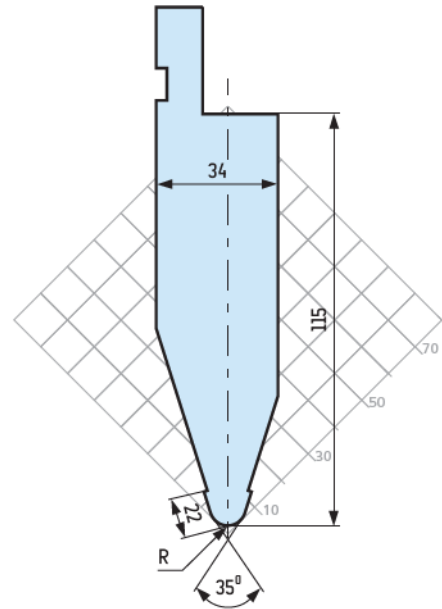
$\alpha = 60^\circ$ ,  $R = 6 \text{ mm}$

$\alpha = 80^\circ$ ,  $R = 6 \text{ mm}$



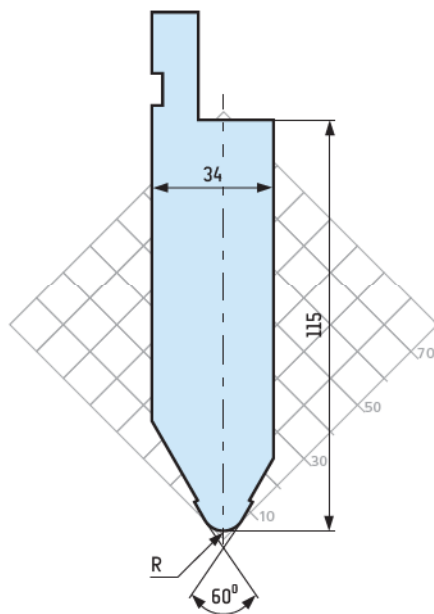
S 2013/115 100 t/m

$\alpha = 35^\circ$ ,  $R = 5 \text{ mm}$



S 2013/115 100 t/m

$\alpha = 60^\circ$ ,  $R = 6 \text{ mm}$



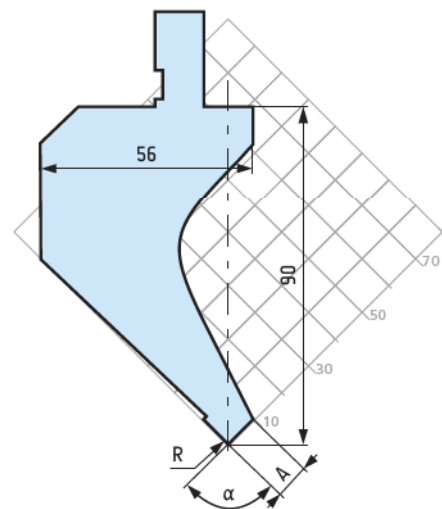
S 2014 60 t/m\*

$\alpha = 75^\circ$ ,  $A = 9 \text{ mm}$ ,  $R = 0.8 \text{ mm}$ , \*30 t/m

$\alpha = 88^\circ$ ,  $A = 6 \text{ mm}$ ,  $R = 0.2 \text{ mm}$ ,  $0.8 \text{ mm}$  \*50 t/m

$\alpha = 88^\circ$ ,  $A = 9 \text{ mm}$ ,  $R = 0.2 \text{ mm}$ ,  $0.8 \text{ mm}$

$\alpha = 90^\circ$ ,  $A = 9 \text{ mm}$ ,  $R = 0.8 \text{ mm}$



# TYPE "A" PUNCHES | STEMPLE TYPU „A”

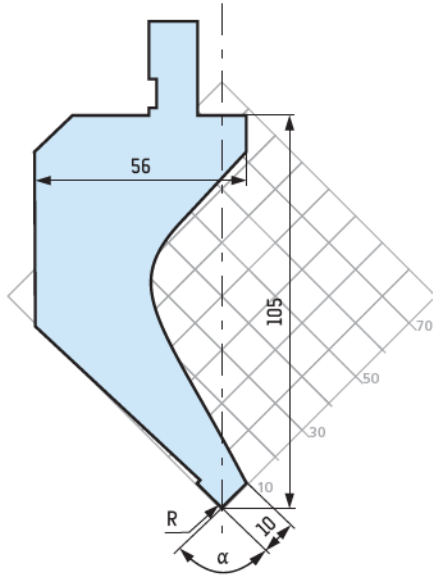


**S 2015** 50 t/m

$\alpha = 85^\circ$ ,  $R = 0.8 \text{ mm}$

$\alpha = 88^\circ$ ,  $R = 0.2 \text{ mm}, 0.8 \text{ mm}$ ,

$\alpha = 90^\circ$ ,  $R = 0.8 \text{ mm}$

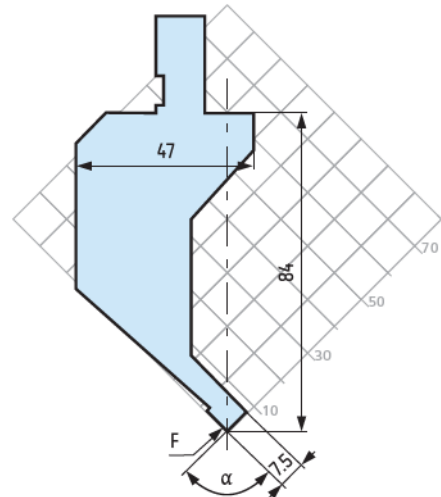


**42CrMo4**

**S 2016** 15 t/m

$\alpha = 88^\circ, 90^\circ$

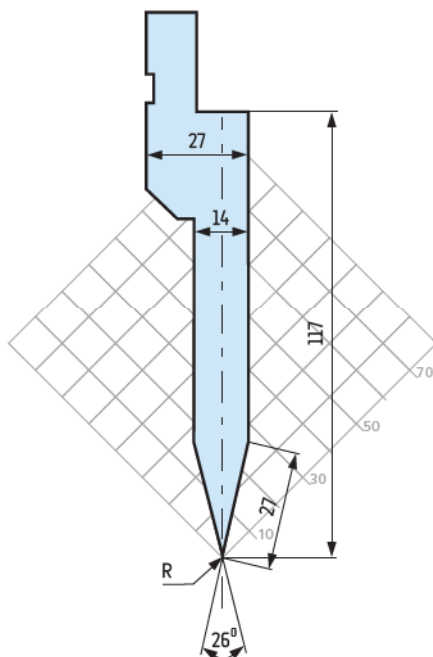
$F = 0.6 \text{ mm}$



**S 2017/26** 100 t/m

$\alpha = 26^\circ$

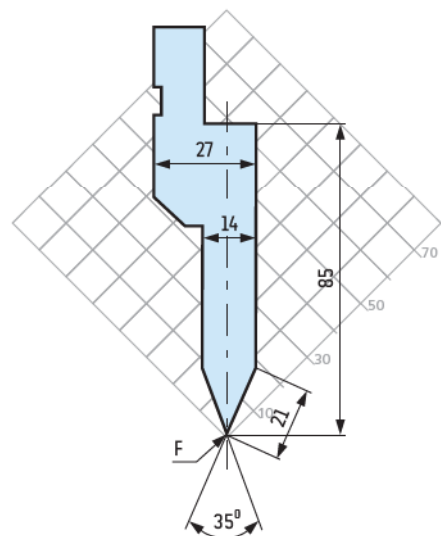
$R = 0.8 \text{ mm}$



**S 2017/35** 100 t/m

$\alpha = 35^\circ$

$F = 0.8 \text{ mm}$



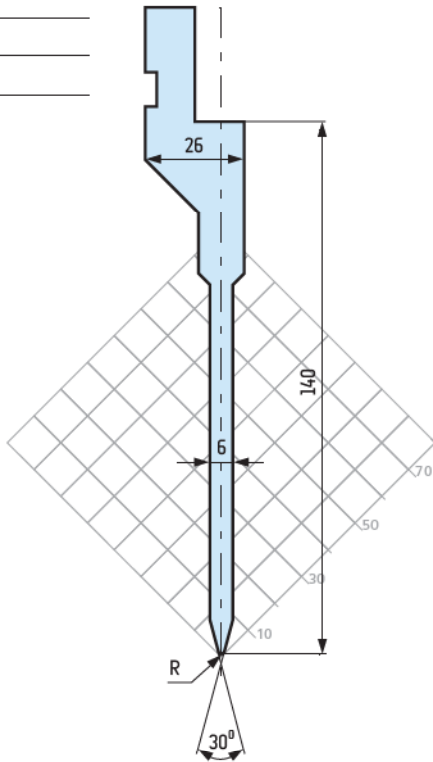
# TYPE "A" PUNCHES | STEMPLE TYPU „A”

24h 42CrMo4

S 2017/30 40 t/m

$\alpha = 30^\circ$

$R = 0.8 \text{ mm}$

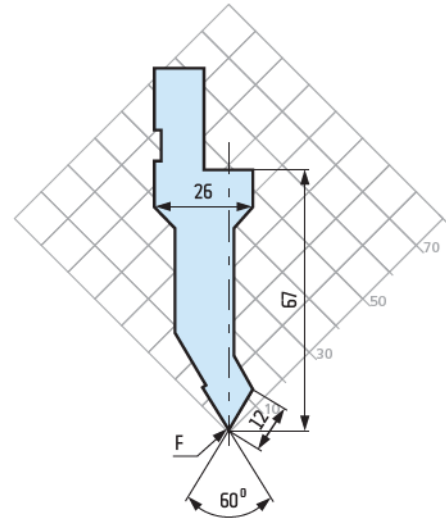


24h

S 2018 60 t/m

$\alpha = 60^\circ$

$F = 0.8 \text{ mm}$

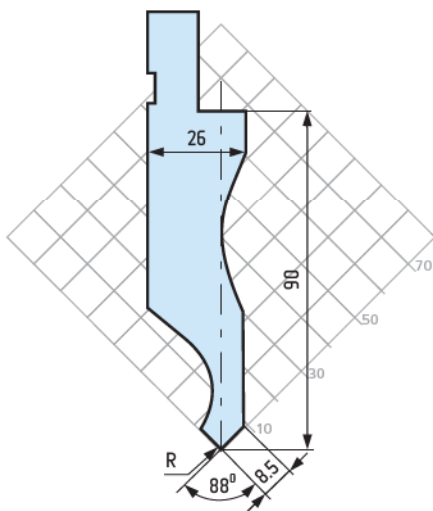


24h

S 2019 70 t/m

$\alpha = 88^\circ$

$R = 0.8 \text{ mm}$



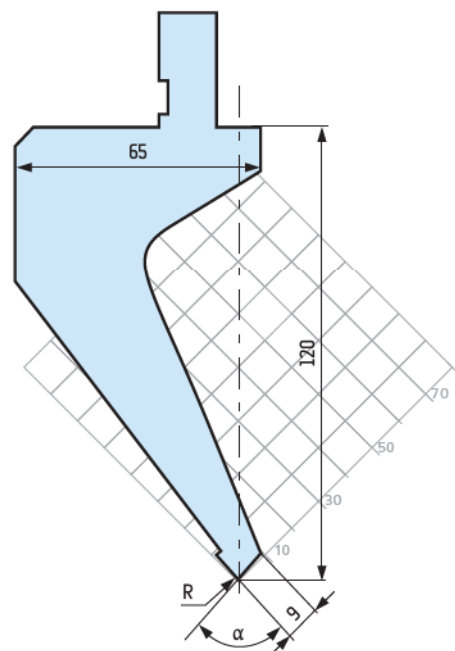
24h

S 2020 50 t/m

$\alpha = 75^\circ, R = 0.8 \text{ mm}$

$\alpha = 85^\circ, R = 0.8 \text{ mm}$

$\alpha = 88^\circ, R = 0.2 \text{ mm}, R = 0.8 \text{ mm}$





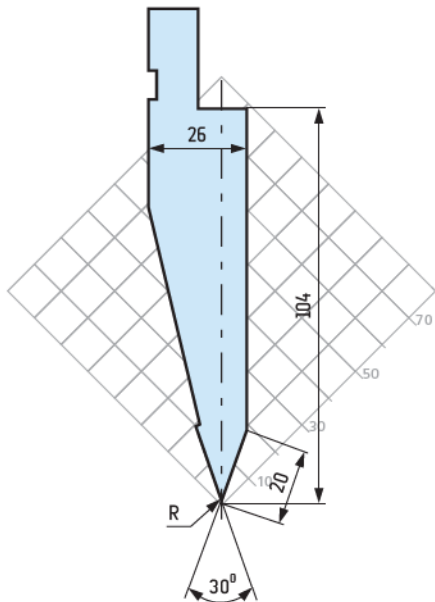
# TYPE "A" PUNCHES | STEMPLU TYPU „A”



**S 2021** 100 t/m

$\alpha = 30^\circ$

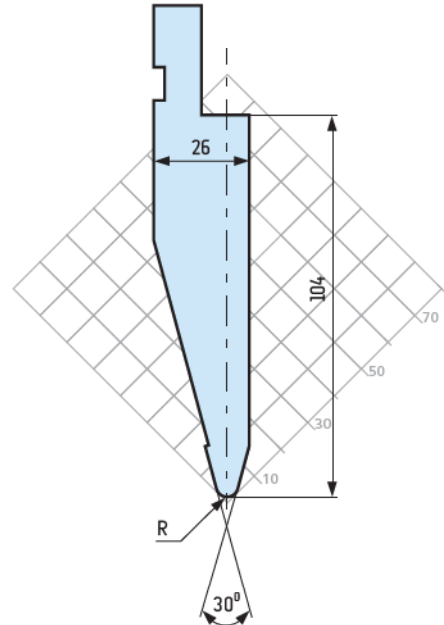
$R = 0.8 \text{ mm}$



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

$\alpha = 30^\circ$

$R = 3 \text{ mm}$

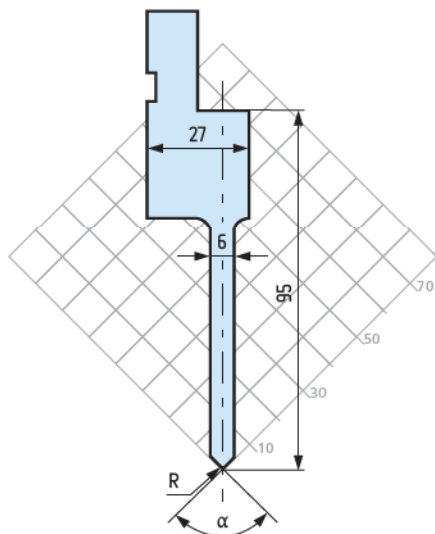


**S 2022** 50 t/m

$\alpha = 75^\circ, R = 0.8 \text{ mm}$

$\alpha = 88^\circ, R = 0.2 \text{ mm}$

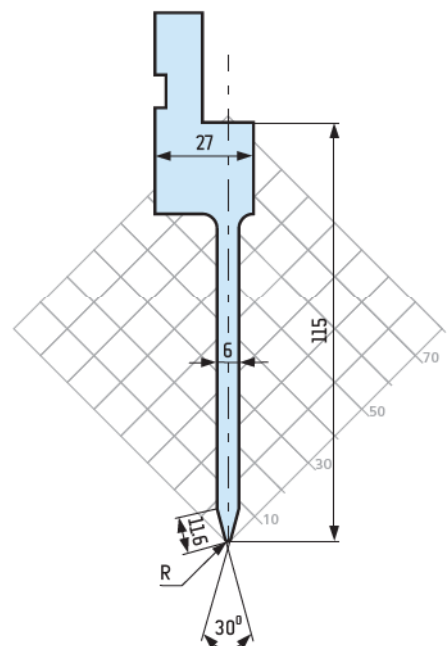
$\alpha = 90^\circ, R = 0.2 \text{ mm}$



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

$\alpha = 30^\circ$

$R = 0.8 \text{ mm}$





# TYPE "A" PUNCHES | STEMPLE TYPU „A”

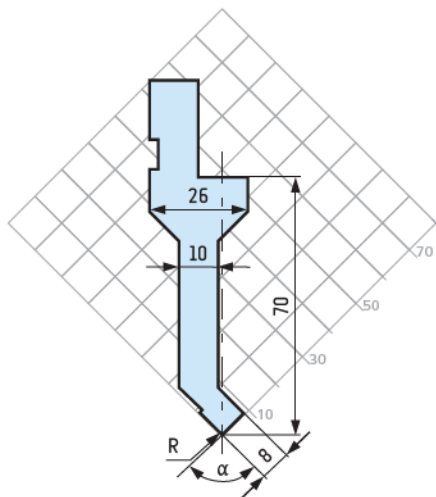


S 2023 30 t/m

$\alpha = 88^\circ, 85^\circ*, 90^\circ$

$R = 0.2 \text{ mm}$

\* na zamówienie

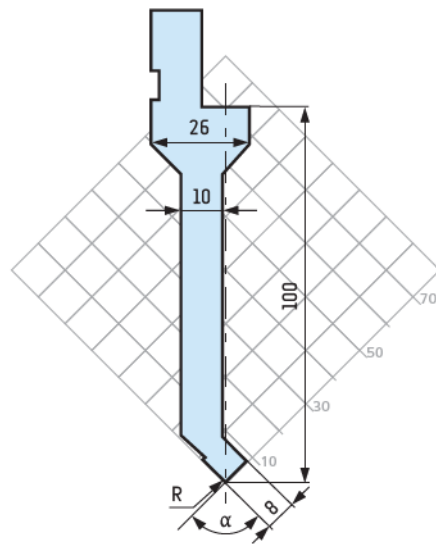


S 2024 30 t/m

$\alpha = 88^\circ, 85^\circ*, 90^\circ$

$R = 0.2 \text{ mm}$

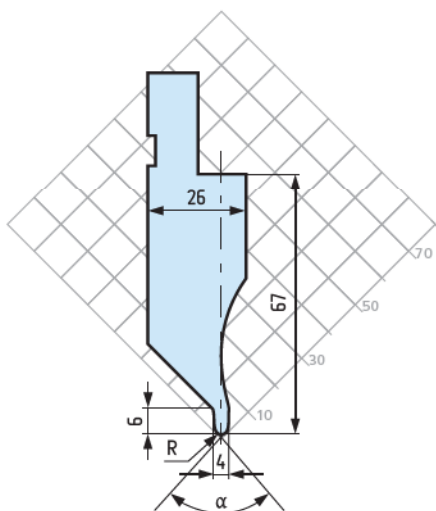
\* na zamówienie



S 2025 40 t/m

$\alpha = 88^\circ, 90^\circ$

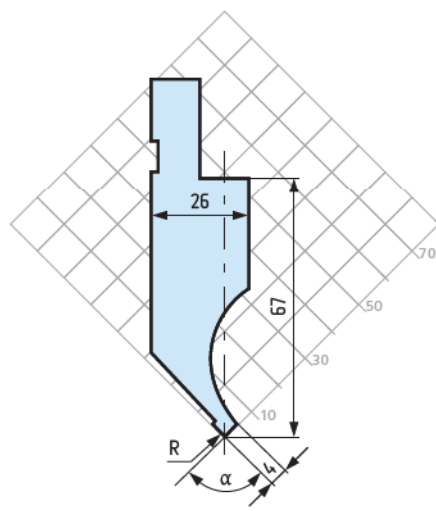
$R = 0.2 \text{ mm}$



S 2026 20 t/m

$\alpha = 88^\circ, 90^\circ$

$R = 0.2 \text{ mm}$



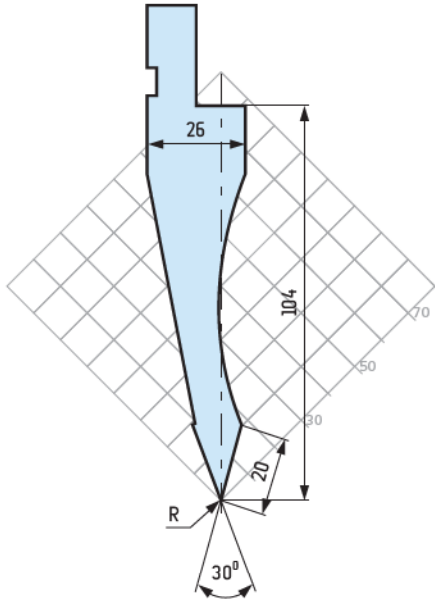
# TYPE "A" PUNCHES | STEMPLE TYPU „A”



**S 2027** 70 t/m

$\alpha = 30^\circ$

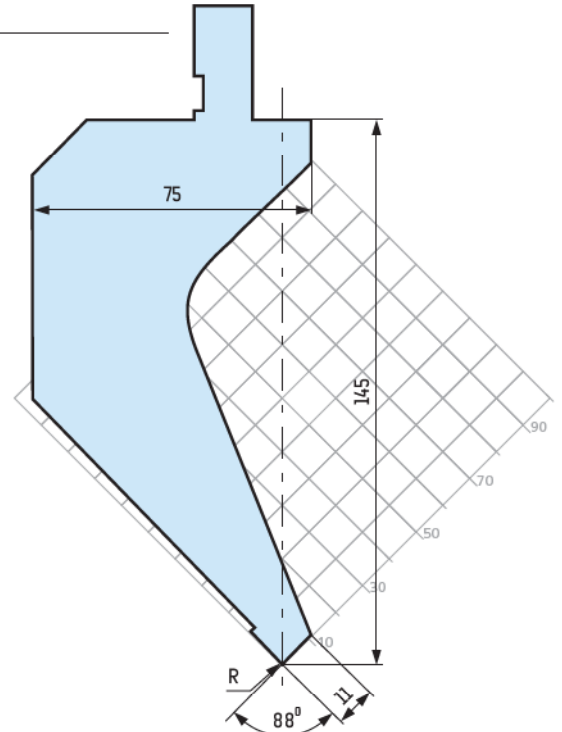
$R = 0.8 \text{ mm}$



**S 2028** 80 t/m

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

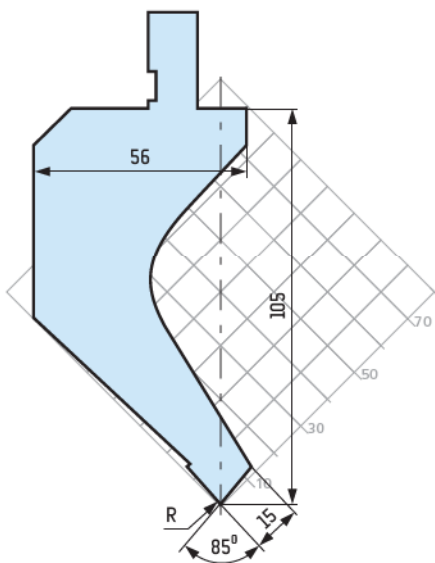
$R = 0.8 \text{ mm}$



**S 2029** 60 t/m

$\alpha = 85^\circ$

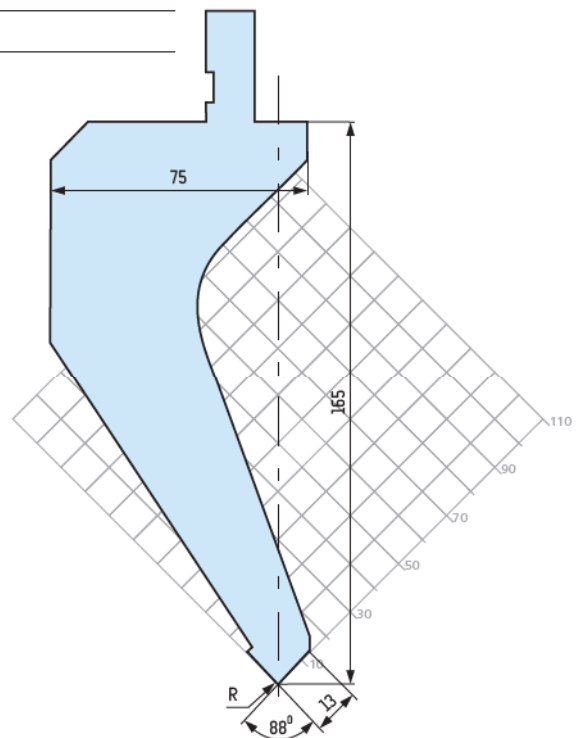
$R = 5 \text{ mm}, 6.5 \text{ mm}$



**S 2030** 60 t/m

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

$R = 0.8 \text{ mm}$



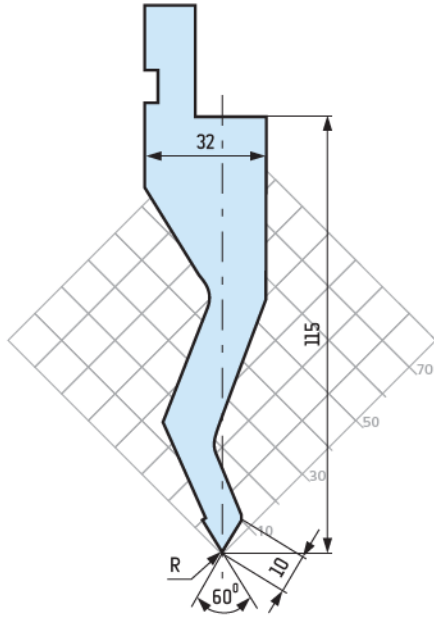
# TYPE "A" PUNCHES | STEMPLA TYPU „A”



S 2031 55 t/m

$\alpha = 60^\circ$

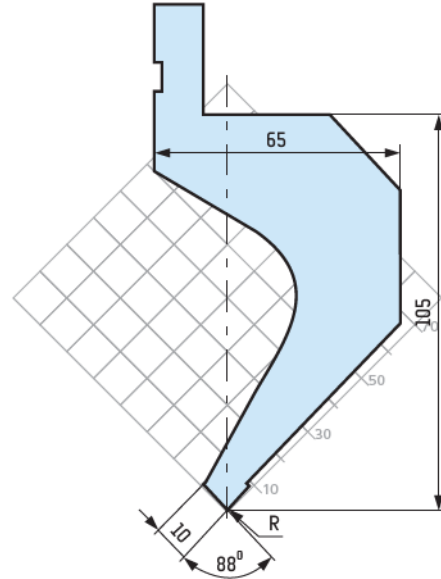
$R = 0.8 \text{ mm}$



S 2032 45 t/m

$\alpha = 88^\circ$

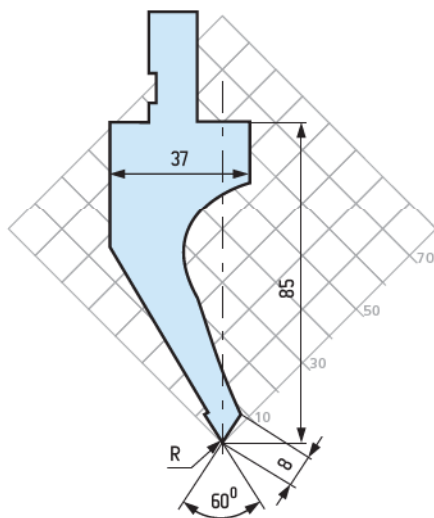
$R = 0.8 \text{ mm}$



S 2034 35 t/m

$\alpha = 60^\circ$

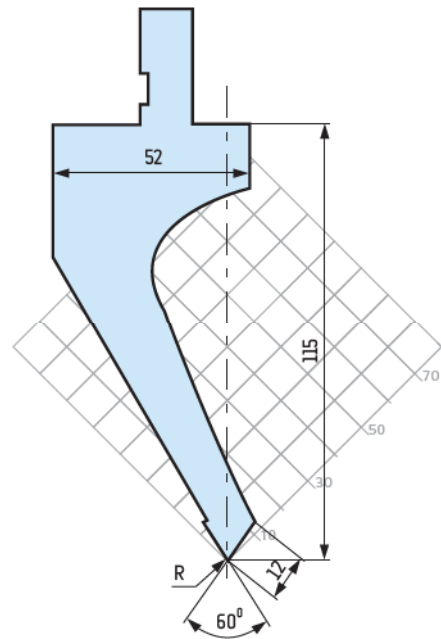
$R = 0.8 \text{ mm}$



S 2035 35 t/m

$\alpha = 60^\circ$

$R = 0.8 \text{ mm}$



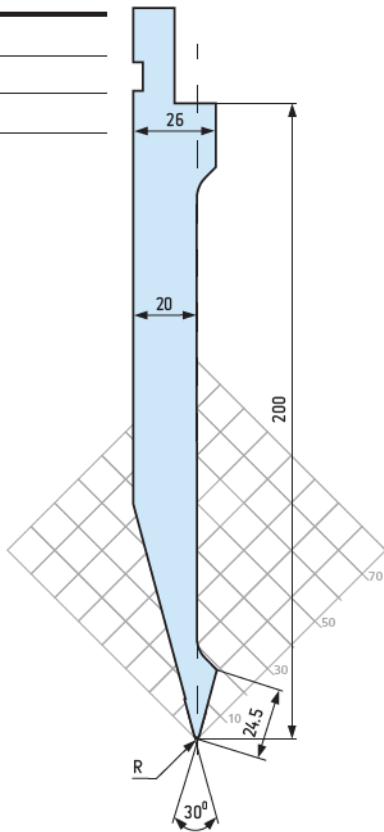
# TYPE "A" PUNCHES | STEMPLU TYPU „A“

42CrMo4

S 2036 50 t/m

$\alpha = 30^\circ$

R = 0.8 mm

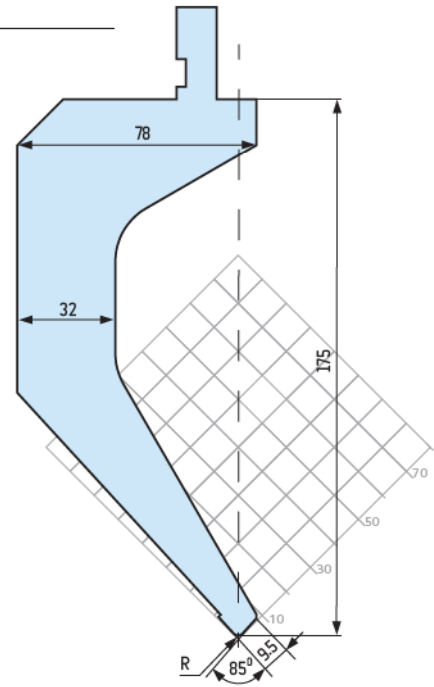


42CrMo4

S 2037 70 t/m

$\alpha = 85^\circ$

R = 0.8 mm

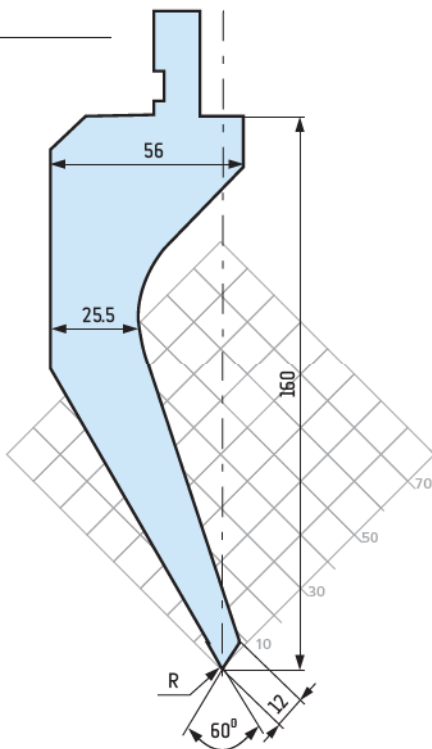


42CrMo4

S 2038 40 t/m

$\alpha = 60^\circ$

R = 0.8 mm

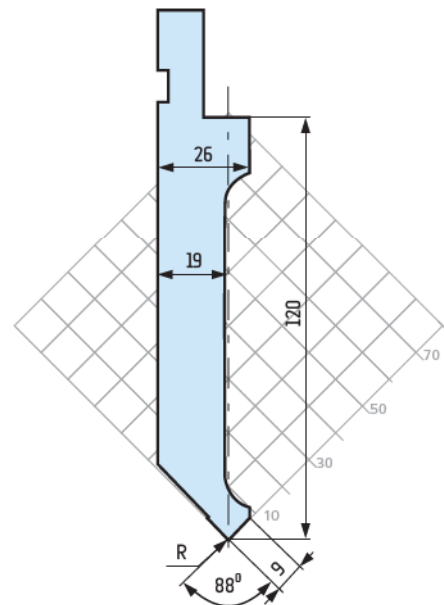


42CrMo4

S 2039 100 t/m

$\alpha = 88^\circ$

R = 0.5 mm



# TYPE "A" PUNCHES | STEMPLE TYPU „A”

flattening tools | zestaw do zagniatania

24h 42CrMo4

**S 2033** 70 t/m

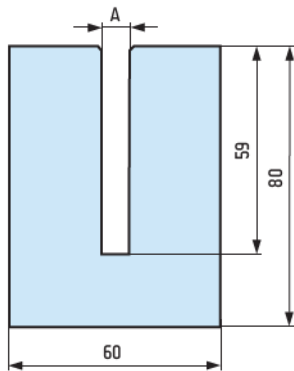
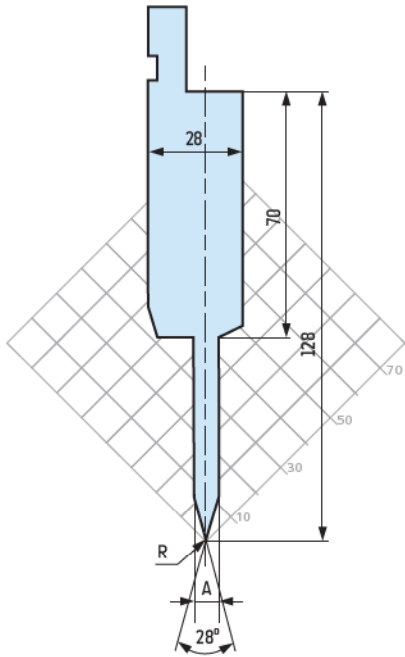
$\alpha = 28^\circ$

$R = 0.6 \text{ mm}, A = 8 \text{ mm}, 10 \text{ mm}, 12 \text{ mm}$

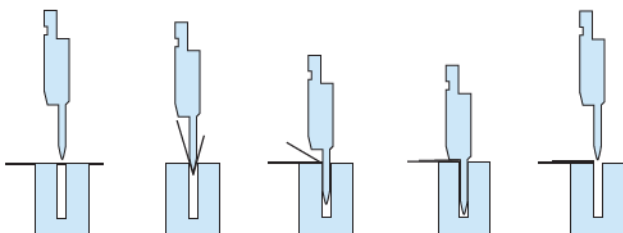
24h 42CrMo4

**M 3000** 70 t/m

$A = 8 \text{ mm}, 10 \text{ mm}, 12 \text{ mm}$

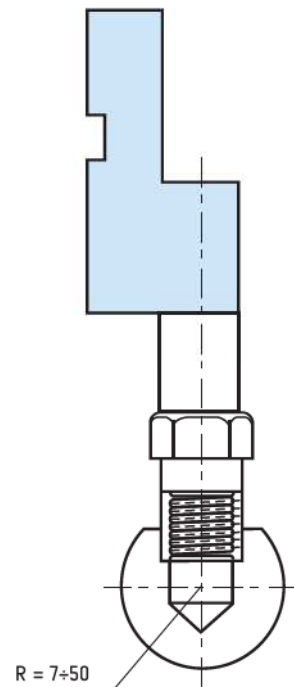


example of use S 2033 and M 3000 |  
przykład zastosowania S 2033 i M 3000



# RADIUS PUNCHES | STEMPLE PROMIENIOWE

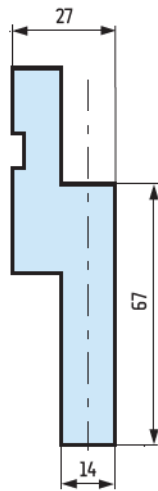
assembly | sposób mocowania



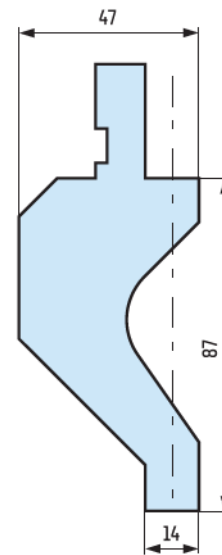
# RADIUS PUNCHES | STEMPEL PROMIENIOWE



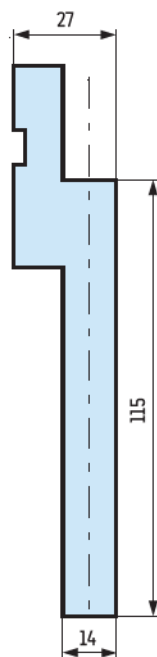
PUNCH R | **STEMPEL R** 80 t/m



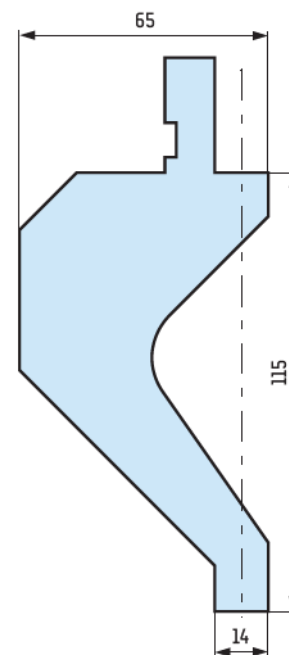
PUNCH R 2 | **STEMPEL R 2** 50 t/m



PUNCH R/115 | **STEMPEL R/115** 80 t/m



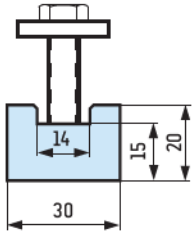
PUNCH R 2 /115 | **STEMPEL R 2/115** 50 t/m



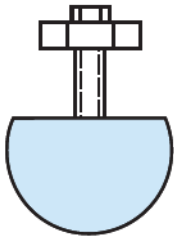
# RADIUS PUNCHES | STEMPLE PROMIENIOWE



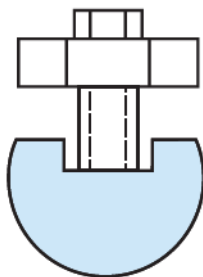
## FLATTENING INSERT | WKŁADKA PŁASKA



## WKŁADKA R 7 – R 12

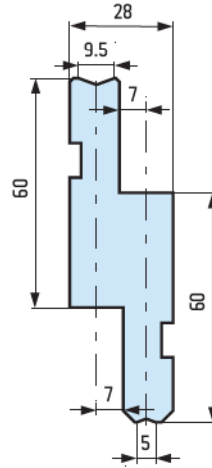


## WKŁADKA R 12.5 – R 50



## STEMPEL R – R 80 t/m

Double radius punch.  
Stempel podwójny promieniowy

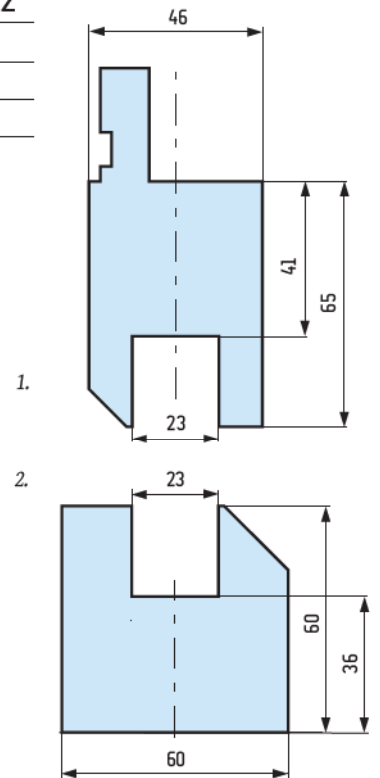
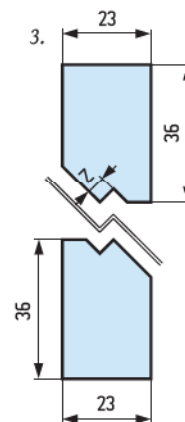


## WKŁADKA R 3 – R 6.5



## Z SHAPE TOOL | ZESTAW DO Z

1. Z Punch / Stempel Z
2. Z Die / Matryca Z
3. Z Insert (set) / Wkładka Z (kpl)





# MECHANICAL ADAPTORS FOR PUNCHES | ŁĄCZNIKI MECHANICZNE STEPLI

joiners | adaptersy



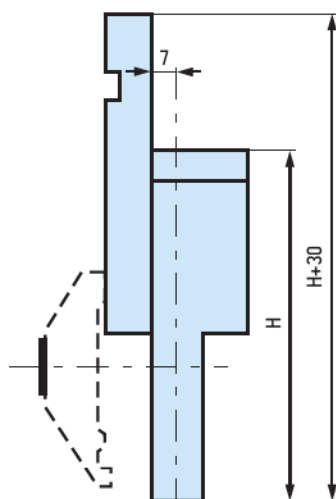
TYPE "A" | TYP „A”

$H = 100 \text{ mm}, L = 150 \text{ mm}$

$H = 120 \text{ mm}, L = 150 \text{ mm}$

$H = 140 \text{ mm}, L = 150 \text{ mm}$

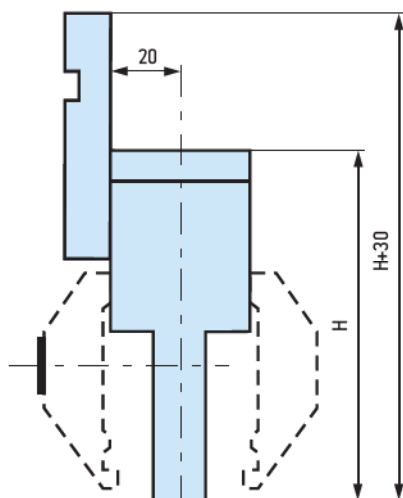
$H = 150 \text{ mm}, L = 150 \text{ mm}$



TYPE "B" | TYP „B”

$H = 120 \text{ mm}, L = 150 \text{ mm}$

$H = 170 \text{ mm}, L = 150 \text{ mm}$

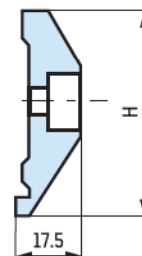


clamping washers | podkładki mocujące (klamry)



TYPE "S" | TYP „S”

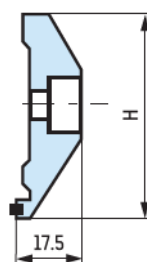
$H = 58 \text{ mm}, L = 150 \text{ mm}$



TYPE "P" | TYP „P”

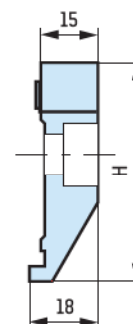
with plastic insert / z wkładką plastikową

$H = 58 \text{ mm}, L = 150 \text{ mm}$

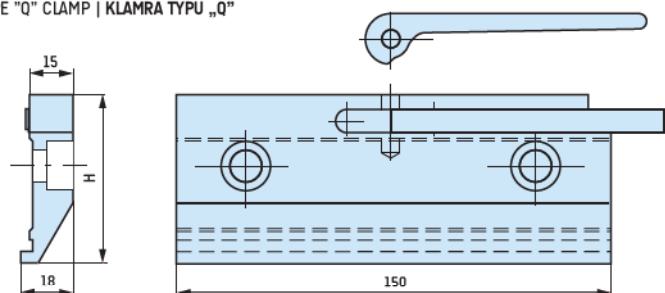


TYPE "Q" | TYP „Q”

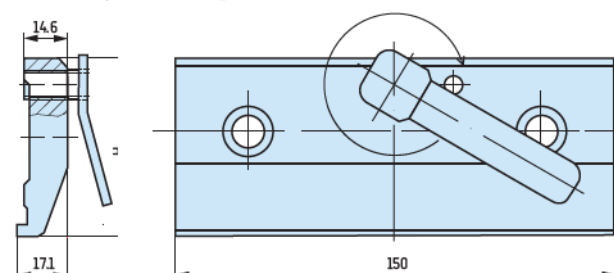
$H = 60 \text{ mm}, L = 150 \text{ mm}$



TYPE "Q" CLAMP | KLAMRA TYPU „Q”



TYPE "QR" CLAMP | KLAMRA TYPU „QR”



# MECHANICAL ADAPTORS FOR PUNCHES | ŁĄCZNIKI MECHANICZNE STEMPLI

type "T" adaptor | adapter typu „T”



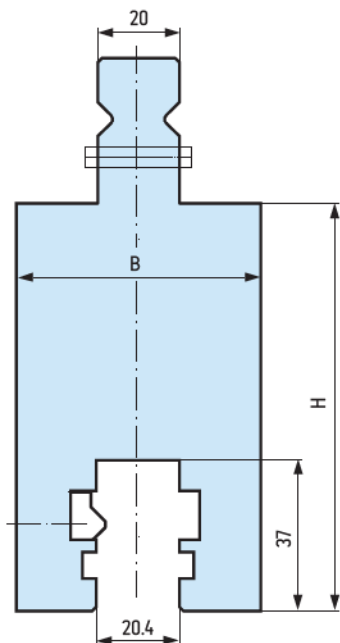
TYPE "T/T" | TYP „T/T”

*H = 60 mm, L = 100 mm, B = 55 mm*

*H = 80 mm, L = 100 mm, B = 55 mm*

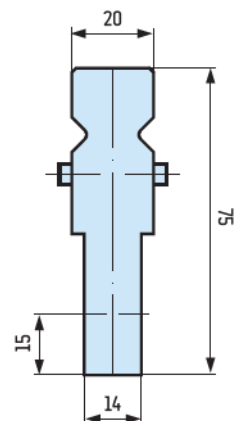
*H = 100 mm, L = 100 mm, B = 55 mm*

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



TYPE "T/A" 75 | TYP „T/A" 75

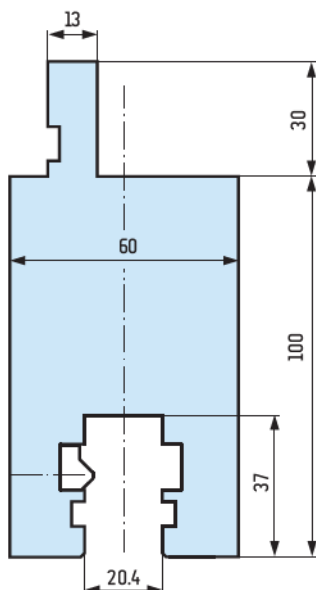
*H = 75 mm, L = 835 mm*



system changing adaptors |  
adapтеры międzysystemowe

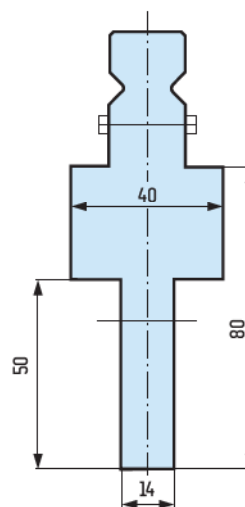
TYPE "A/T" | TYP „A/T”

*H = 100 mm, L = 100 mm*



TYPE "T/A" 80 | TYP „T/A" 80

*H = 80 mm, L = 150 mm*

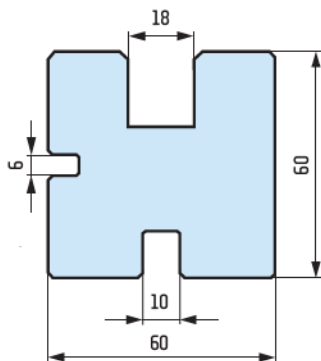


# TYPE "A" DIES | MATRYCE TYPU „A”

multiple vee dies | matryce wielorowkowe



MR 100 t/m



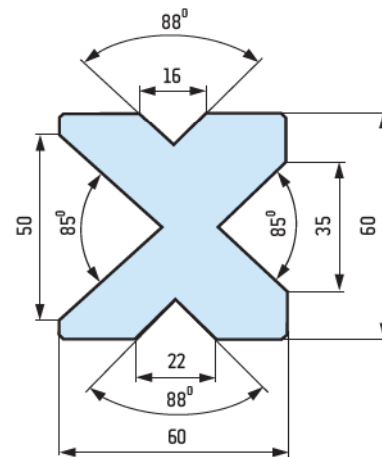
42CrMo4

M 4 80 t/m

M 4 80 t/m

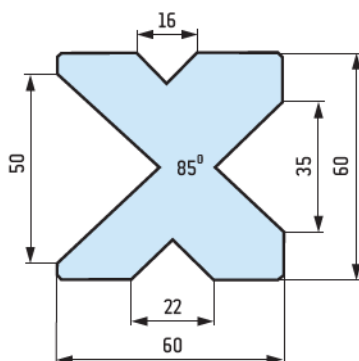
$\alpha = 85^\circ, 88^\circ$

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



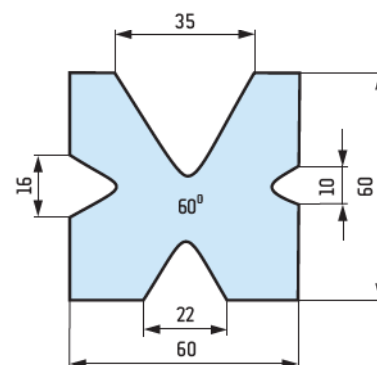
M 4/85° 80 t/m

$\alpha = 85^\circ$



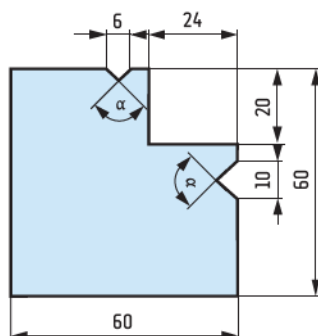
M 4/60° 60 t/m

$\alpha = 60^\circ$



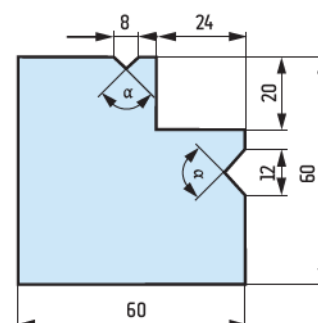
M 2/6 - 10 100 t/m

$\alpha = 90^\circ$



M 2/8 - 12 80 t/m

$\alpha = 90^\circ$



# TYPE "A" DIES | MATRYCE TYPU „A”

Dies fixed using die supports A 20 or A -> p. 60

Matryce montowane przy pomocy podpór A 20 lub prowadnicy A -> str 60

with groove | rowkowe



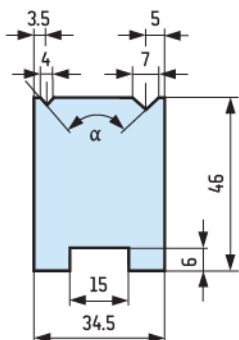
**M 6019** 80 t/m

$\alpha = 90^\circ$



**M 6119** 80 t/m

$\alpha = 88^\circ$



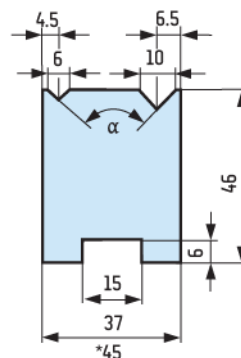
**M 6020** 80 t/m

$\alpha = 90^\circ$



**M 6120** 80 t/m

$\alpha = 88^\circ$



**M 6220** 35 t/m\*

$\alpha = 30^\circ$



**M 6021** 80 t/m

$\alpha = 90^\circ$



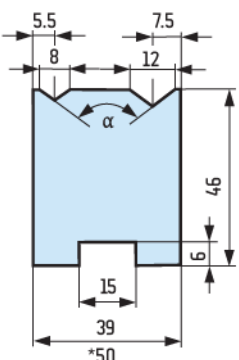
**M 6121** 80 t/m

$\alpha = 88^\circ$



**M 6221** 40 t/m \*

$\alpha = 30^\circ$



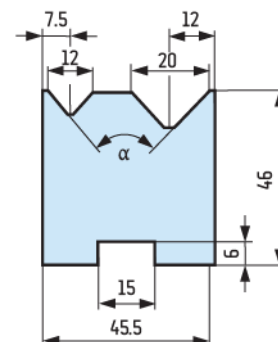
**M 6022** 80 t/m

$\alpha = 90^\circ$



**M 6122** 80 t/m

$\alpha = 88^\circ$



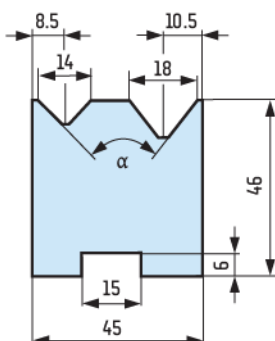
**M 6023** 80 t/m

$\alpha = 90^\circ$



**M 6123** 80 t/m

$\alpha = 88^\circ$



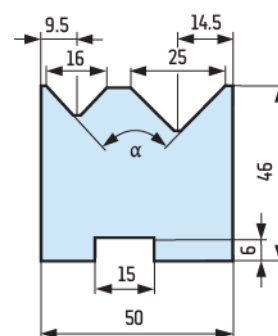
**M 6024** 80 t/m

$\alpha = 90^\circ$



**M 6124** 80 t/m

$\alpha = 88^\circ$



# TYPE "A" DIES | MATRYCE TYPU „A“

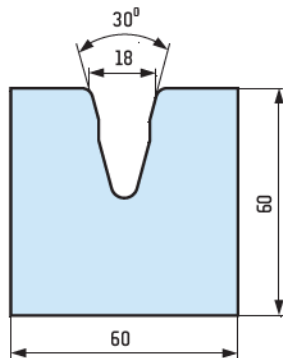
## 1V dies | matryce 1V



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

$\alpha = 30^\circ$

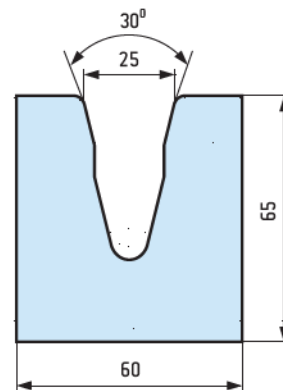
$V = 18 \text{ mm}$



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

$\alpha = 30^\circ$

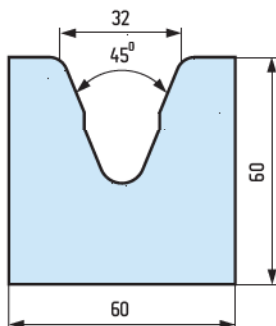
$V = 25 \text{ mm}$



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

$\alpha = 45^\circ$

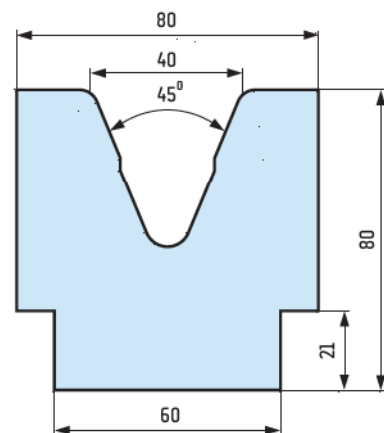
$V = 32 \text{ mm}$



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

$\alpha = 45^\circ$

$V = 40 \text{ mm}$



# TYPE "A" DIES | MATRYCE TYPU „A“

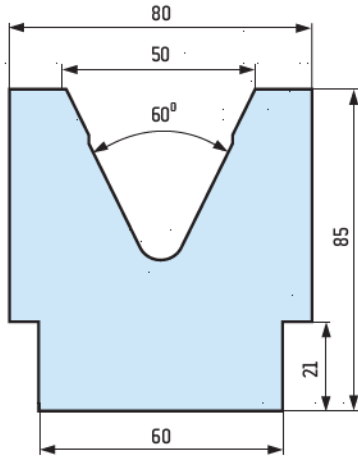
## 1V dies | matryce 1V



M 3360/50 100 t/m

$\alpha = 60^\circ$

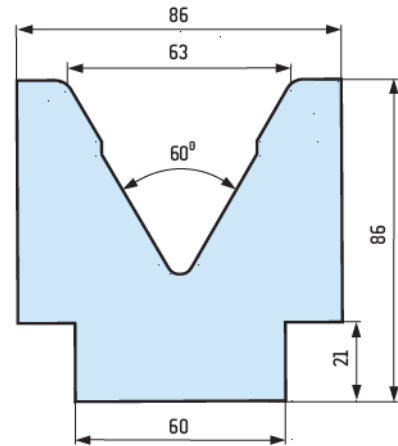
$V = 50 \text{ mm}$



M 3360/63 100 t/m

$\alpha = 60^\circ$

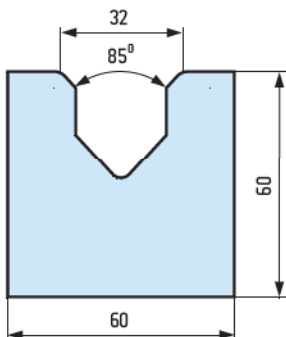
$V = 63 \text{ mm}$



M 3385/32 100 t/m

$\alpha = 85^\circ$

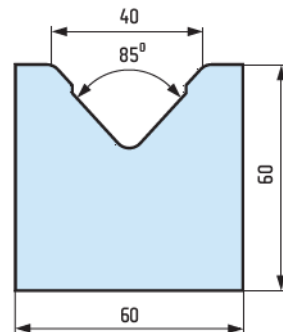
$V = 32 \text{ mm}$



M 3385/40 100 t/m

$\alpha = 85^\circ$

$V = 40 \text{ mm}$



# TYPE "A" DIES | MATRYCE TYPU „A“

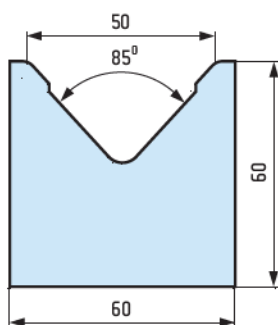
## 1V dies | matryce 1V



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

$\alpha = 85^\circ$

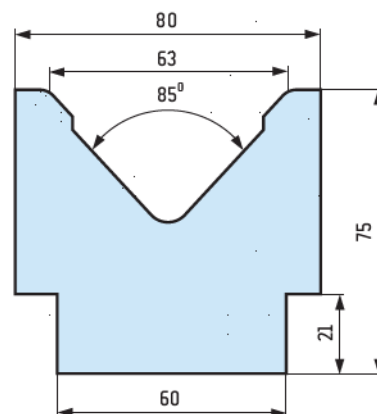
$V = 50 \text{ mm}$



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

$\alpha = 85^\circ$

$V = 63 \text{ mm}$



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

$\alpha = 85^\circ$

$V = 80 \text{ mm}$

$H = 80 \text{ mm}$

na zamówienie  $H = 95 \text{ mm}$



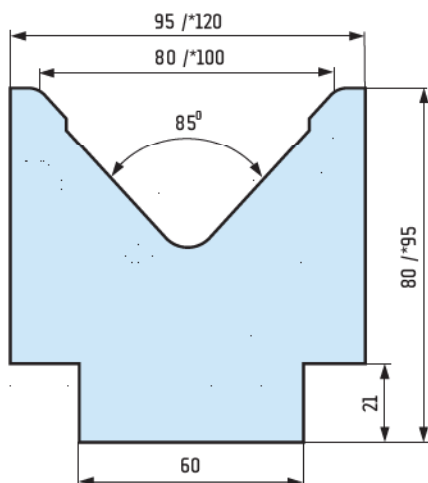
**M 3385/100** \* 100 t/m

$\alpha = 85^\circ$  \*

$V = 100 \text{ mm}$  \*

$H = 95 \text{ mm}$  \*

na zamówienie  $H = 110 \text{ mm}$



**M 3380/125** 70 t/m

$\alpha = 80^\circ$

$V = 125 \text{ mm}$

$H = 123 \text{ mm}$

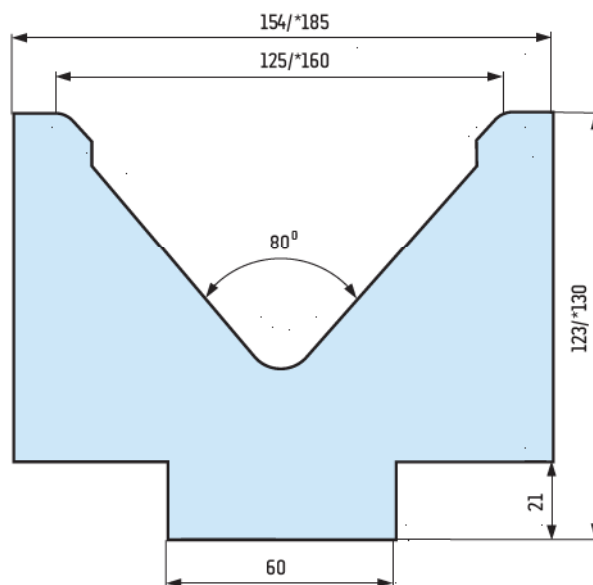


**M 3380/160** 70 t/m\*

$\alpha = 80^\circ$  \*

$V = 160 \text{ mm}$  \*

$H = 130 \text{ mm}$  \*





# TYPE "A" DIES | MATRYCE TYPU „A“

Dies fixed using die supports A 34, A 39, A 55 or A 75 -> p. 60

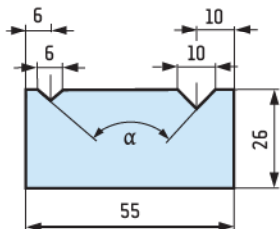
Matryce montowane przy pomocy podpór A 34, A 39, A 55 lub A 75 -> str 60

bolt fastened | mocowane śrubami



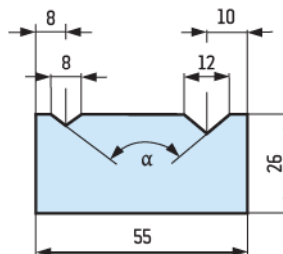
**M 6112** 100 t/m

$\alpha = 90^\circ$



**M 6212** 60 t/m

$\alpha = 60^\circ$



**M 6113** 100 t/m

$\alpha = 90^\circ$



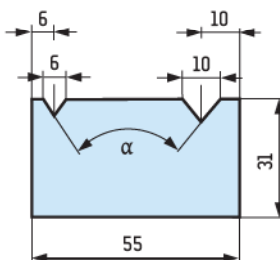
**M 6213** 80 t/m

$\alpha = 60^\circ$



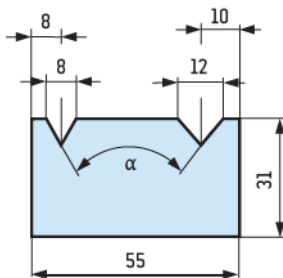
**M 6312** 30 t/m

$\alpha = 35^\circ$



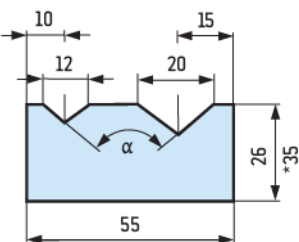
**M 6313** 30 t/m

$\alpha = 35^\circ$



**M 6114** 100 t/m

$\alpha = 88^\circ$



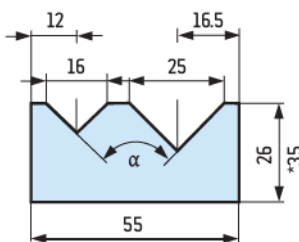
**M 6214** 80 t/m \*

$\alpha = 60^\circ$



**M 6115** 100 t/m

$\alpha = 88^\circ$



**M 6215** 80 t/m \*

$\alpha = 60^\circ$

# TYPE "A" DIES | MATRYCE TYPU „A“

dies with base H = 80 mm | matryce z podstawą H = 80 mm



**M 6130** 30 t/m

A = 8 mm, B = 16 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 1 mm



**M 6230** 35 t/m

A = 10 mm, B = 20 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 1 mm



**M 6330** 35 t/m

A = 12 mm, B = 22 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 1 mm



**M 6430** 45 t/m

A = 16 mm, B = 30 mm

R<sub>1</sub> = 2 mm, R<sub>2</sub> = 2 mm



**M 6530** 30 t/m

A = 6 mm, B = 14 mm

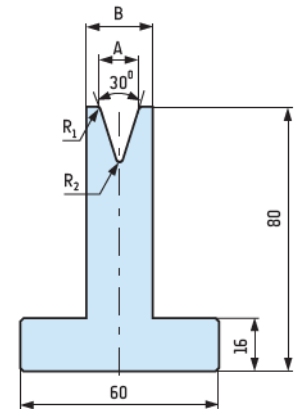
R<sub>1</sub> = 0.8 mm, R<sub>2</sub> = 0.8 mm



**M 6630** 50 t/m

A = 20 mm, B = 35 mm

R<sub>1</sub> = 4 mm, R<sub>2</sub> = 4 mm



**M 6135** 35 t/m

A = 8 mm, B = 14 mm

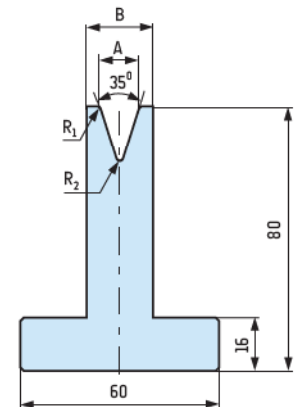
R<sub>1</sub> = 1.5 mm, R<sub>2</sub> = 0.8 mm



**M 6235** 40 t/m

A = 12 mm, B = 18 mm

R<sub>1</sub> = 2 mm, R<sub>2</sub> = 1 mm



**M 6145** 50 t/m

A = 10 mm, B = 16 mm

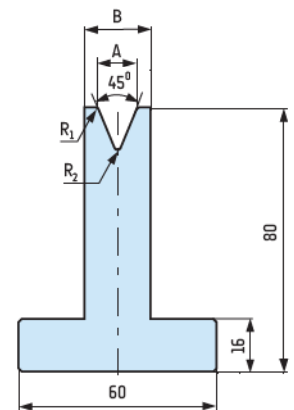
R<sub>1</sub> = 2 mm, R<sub>2</sub> = 1 mm



**M 6245** 50 t/m

A = 12 mm, B = 18 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm



# TYPE "A" DIES | MATRYCE TYPU „A“

dies with base H = 80 mm | matryce z podstawą H = 80 mm



**M 6160** 60 t/m

A = 8 mm, B = 14 mm

R<sub>1</sub> = 1.5 mm, R<sub>2</sub> = 0.8 mm



**M 6260** 60 t/m

A = 10 mm, B = 16 mm

R<sub>1</sub> = 2 mm, R<sub>2</sub> = 1 mm



**M 6360** 60 t/m

A = 12 mm, B = 18 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm



**M 6460** 60 t/m

A = 16 mm, B = 24 mm

R<sub>1</sub> = 1.5 mm, R<sub>2</sub> = 1.5 mm



**M 6560** 60 t/m

A = 20 mm, B = 30 mm

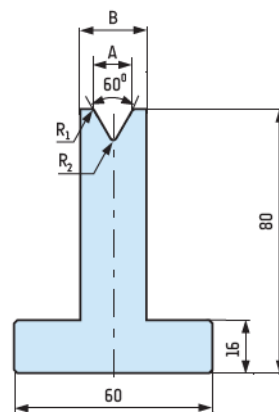
R<sub>1</sub> = 2 mm, R<sub>2</sub> = 2 mm



**M 6660** 60 t/m

A = 25 mm, B = 40 mm

R<sub>1</sub> = 3 mm, R<sub>2</sub> = 3 mm



**M 6085** 100 t/m

A = 8 mm, B = 14 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 0.5 mm



**M 6185** 100 t/m

A = 12 mm, B = 18 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm



**M 6285** 100 t/m

A = 16 mm, B = 24 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm



**M 6385** 100 t/m

A = 20 mm, B = 30 mm

R<sub>1</sub> = 3 mm, R<sub>2</sub> = 1.5 mm



**M 6485** 100 t/m

A = 25 mm, B = 40 mm

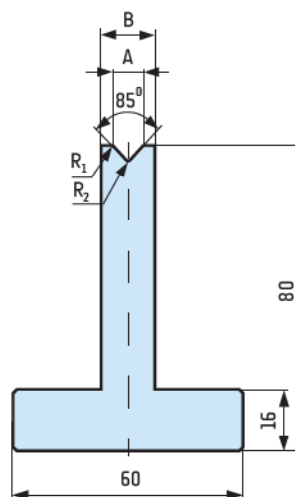
R<sub>1</sub> = 3 mm, R<sub>2</sub> = 3 mm



**M 6585** 100 t/m

A = 10 mm, B = 18 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 1 mm



**M 6685** 100 t/m

A = 14 mm, B = 18 mm

R<sub>1</sub> = 2.6 mm, R<sub>2</sub> = 0.4 mm



**M 6785** 100 t/m

A = 6 mm, B = 14 mm

R<sub>1</sub> = 0.5 mm, R<sub>2</sub> = 0.5 mm



**M 6088** 100 t/m

A = 8 mm, B = 14 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 0.5 mm



**M 6188** 100 t/m

A = 12 mm, B = 18 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm



**M 6288** 100 t/m

A = 16 mm, B = 24 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm



**M 6388** 100 t/m

A = 20 mm, B = 30 mm

R<sub>1</sub> = 3 mm, R<sub>2</sub> = 1.5 mm



**M 6488** 100 t/m

A = 25 mm, B = 40 mm

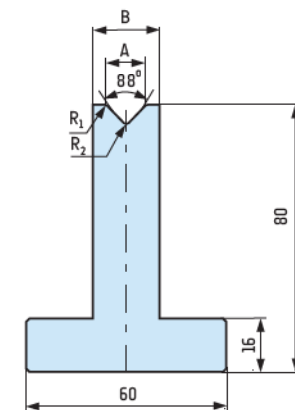
R<sub>1</sub> = 3 mm, R<sub>2</sub> = 3 mm



**M 6588** 100 t/m

A = 10 mm, B = 18 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 1 mm



**M 6688** 100 t/m

A = 14 mm, B = 18 mm

R<sub>1</sub> = 2.6 mm, R<sub>2</sub> = 0.4 mm



**M 6788** 100 t/m

A = 6 mm, B = 14 mm

R<sub>1</sub> = 0.5 mm, R<sub>2</sub> = 0.5 mm

## TYPE "A" DIES | MATRYCE TYPU „A“

dies with base H = 80 mm | matryce z podstawą H = 80 mm



**M 6190** 100 t/m

A = 6 mm, B = 12 mm

R<sub>1</sub> = 1.5 mm, R<sub>2</sub> = 0.5 mm



**M 6290** 100 t/m

A = 8 mm, B = 14 mm

R<sub>1</sub> = 1.5 mm, R<sub>2</sub> = 0.8 mm



**M 6390** 100 t/m

A = 10 mm, B = 16 mm

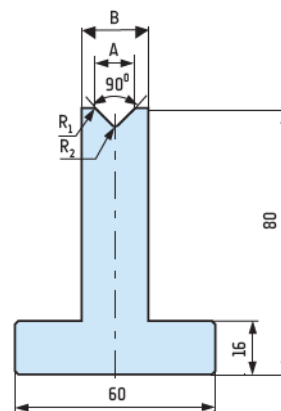
R<sub>1</sub> = 2 mm, R<sub>2</sub> = 1 mm



**M 6490** 100 t/m

A = 12 mm, B = 18 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1.5 mm



dies with base H = 120 mm | matryce z podstawą H = 120 mm



**M 9130** 30 t/m

A = 8 mm, B = 18 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 1 mm



**M 9230** 35 t/m

A = 10 mm, B = 24 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 1 mm



**M 9330** 35 t/m

A = 12 mm, B = 24 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 1 mm



**M 9430** 45 t/m

A = 16 mm, B = 30 mm

R<sub>1</sub> = 2 mm, R<sub>2</sub> = 2 mm



**M 9530** 30 t/m

A = 6 mm, B = 14 mm

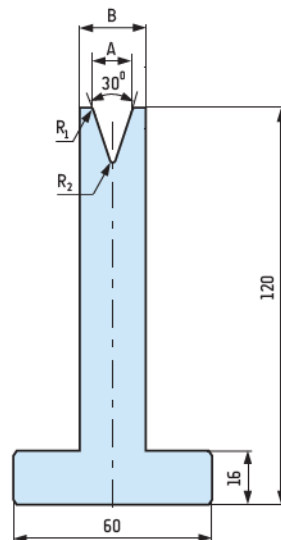
R<sub>1</sub> = 0.8 mm, R<sub>2</sub> = 0.8 mm



**M 9630** 50 t/m

A = 20 mm, B = 35 mm

R<sub>1</sub> = 4 mm, R<sub>2</sub> = 4 mm



**M 9135** 35 t/m

A = 8 mm, B = 18 mm

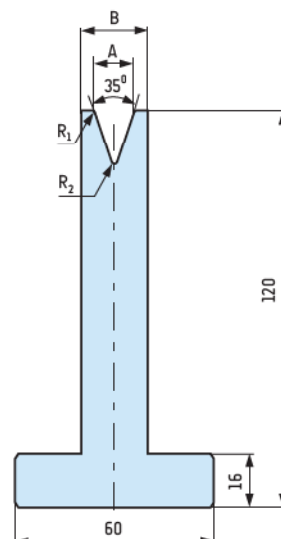
R<sub>1</sub> = 1.5 mm, R<sub>2</sub> = 0.8 mm



**M 9235** 40 t/m

A = 12 mm, B = 18 mm

R<sub>1</sub> = 2 mm, R<sub>2</sub> = 1 mm



# TYPE "A" DIES | MATRYCE TYPU „A“

dies with base H = 120 mm | matryce z podstawą H = 120 mm



**M 9145** 50 t/m

A = 10 mm, B = 18 mm

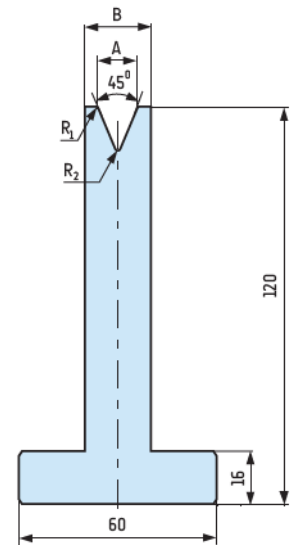
R<sub>1</sub> = 2 mm, R<sub>2</sub> = 1 mm



**M 9245** 50 t/m

A = 12 mm, B = 18 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm



**M 9160** 60 t/m

A = 8 mm, B = 14 mm

R<sub>1</sub> = 1.5 mm, R<sub>2</sub> = 0.8 mm



**M 9260** 60 t/m

A = 10 mm, B = 18 mm

R<sub>1</sub> = 2 mm, R<sub>2</sub> = 1 mm



**M 9360** 60 t/m

A = 12 mm, B = 18 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm



**M 9460** 60 t/m

A = 16 mm, B = 24 mm

R<sub>1</sub> = 1.5 mm, R<sub>2</sub> = 1.5 mm



**M 9560** 60 t/m

A = 20 mm, B = 30 mm

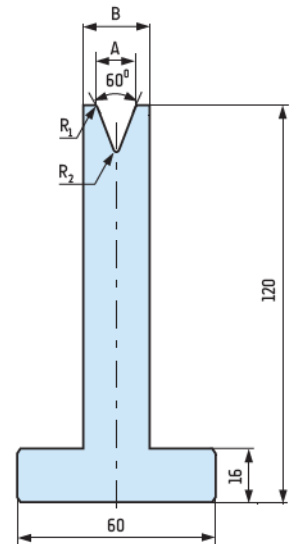
R<sub>1</sub> = 2 mm, R<sub>2</sub> = 2 mm



**M 9660** 60 t/m

A = 25 mm, B = 40 mm

R<sub>1</sub> = 3 mm, R<sub>2</sub> = 3 mm



**M 9085** 100 t/m

A = 8 mm, B = 14 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 0.5 mm

**M 9185** 100 t/m

A = 12 mm, B = 18 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm

**M 9285** 100 t/m

A = 16 mm, B = 24 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm

**M 9385** 100 t/m

A = 20 mm, B = 30 mm

R<sub>1</sub> = 3 mm, R<sub>2</sub> = 1.5 mm

**M 9485** 100 t/m

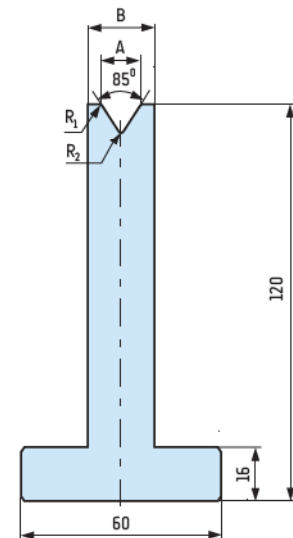
A = 25 mm, B = 40 mm

R<sub>1</sub> = 3 mm, R<sub>2</sub> = 3 mm

**M 9585** 100 t/m

A = 10 mm, B = 18 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 1 mm



**M 9685** 100 t/m

A = 14 mm, B = 18 mm

R<sub>1</sub> = 2.6 mm, R<sub>2</sub> = 0.4 mm

**M 9785** 100 t/m

A = 6 mm, B = 14 mm

R<sub>1</sub> = 0.5 mm, R<sub>2</sub> = 0.5 mm

## TYPE "A" DIES | MATRYCE TYPU „A”

dies with base H = 120 mm | matryce z podstawą H = 120 mm



**M 9088** 100 t/m

A = 8 mm, B = 14 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 0.5 mm



**M 9188** 100 t/m

A = 12 mm, B = 18 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm



**M 9288** 100 t/m

A = 16 mm, B = 24 mm

R<sub>1</sub> = 2.5 mm, R<sub>2</sub> = 1 mm



**M 9388** 100 t/m

A = 20 mm, B = 30 mm

R<sub>1</sub> = 3 mm, R<sub>2</sub> = 1.5 mm



**M 9488** 100 t/m

A = 25 mm, B = 40 mm

R<sub>1</sub> = 3 mm, R<sub>2</sub> = 3 mm



**M 9588** 100 t/m

A = 10 mm, B = 18 mm

R<sub>1</sub> = 1 mm, R<sub>2</sub> = 1 mm



**M 9688** 100 t/m

A = 14 mm, B = 18 mm

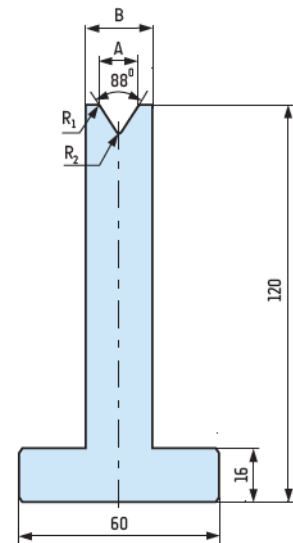
R<sub>1</sub> = 2.6 mm, R<sub>2</sub> = 0.4 mm



**M 9788** 100 t/m

A = 6 mm, B = 14 mm

R<sub>1</sub> = 0.5 mm, R<sub>2</sub> = 0.5 mm



**M 9190** 100 t/m

A = 6 mm, B = 14 mm

R<sub>1</sub> = 1.5 mm, R<sub>2</sub> = 0.5 mm

**M 9290** 100 t/m

A = 8 mm, B = 14 mm

R<sub>1</sub> = 1.5 mm, R<sub>2</sub> = 0.8 mm

**M 9390** 100 t/m

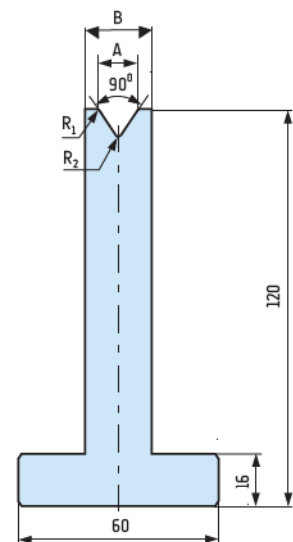
A = 10 mm, B = 18 mm

R<sub>1</sub> = 2 mm, R<sub>2</sub> = 1 mm

**M 9490** 100 t/m

A = 12 mm, B = 18 mm





R<sub>1</sub> = 3 mm, R<sub>2</sub> = 0.8 mm











# TYPE "A" DIES | MATRYCE TYPU „A“





Dies fixed using die supports A 31 or A 61 -> p. 61  
 Matryce montowane przy pomocy podpór A 31 lub A 61 -> str 61





## insert dies | matryce wkładkowe


 42CrMo4	 42CrMo4	 42CrMo4	 42CrMo4
<b>M 8130</b> 35 t/m	<b>M 8230</b> 35 t/m	<b>M 8330</b> 50 t/m	<b>M 8430</b> 40 t/m
$\alpha = 30^\circ$	$\alpha = 30^\circ$	$\alpha = 30^\circ$	$\alpha = 30^\circ$
A = 6 mm, B = 16 mm	A = 8 mm, B = 19 mm	A = 10 mm, B = 24 mm	A = 12 mm, B = 25 mm





 42CrMo4	 42CrMo4	 42CrMo4	 42CrMo4
<b>M 8160</b> 60 t/m	<b>M 8260</b> 60 t/m	<b>M 8360</b> 60 t/m	<b>M 8460</b> 60 t/m
$\alpha = 60^\circ$	$\alpha = 60^\circ$	$\alpha = 60^\circ$	$\alpha = 60^\circ$
A = 6 mm, B = 14 mm	A = 8 mm, B = 15 mm	A = 10 mm, B = 18 mm	A = 12 mm, B = 18 mm


 42CrMo4	 42CrMo4	 42CrMo4	 42CrMo4
<b>M 8560</b> 60 t/m	<b>M 8660</b> 60 t/m	<b>M 8760</b> 60 t/m	
$\alpha = 60^\circ$	$\alpha = 60^\circ$	$\alpha = 60^\circ$	
A = 16 mm, B = 24 mm	A = 20 mm, B = 30 mm	A = 25 mm, B = 33 mm	

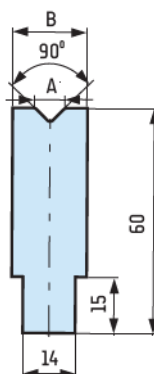
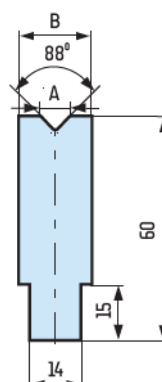
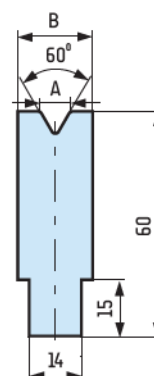
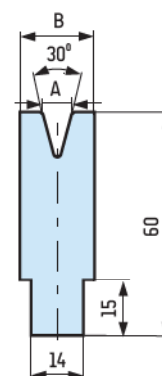
 42CrMo4	 42CrMo4	 42CrMo4	 42CrMo4
<b>M 8188</b> 100 t/m	<b>M 8288</b> 100 t/m	<b>M 8388</b> 100 t/m	<b>M 8488</b> 100 t/m
$\alpha = 88^\circ$	$\alpha = 88^\circ$	$\alpha = 88^\circ$	$\alpha = 88^\circ$
A = 6 mm, B = 14 mm	A = 8 mm, B = 14 mm	A = 10 mm, B = 15 mm	A = 12 mm, B = 17 mm

 42CrMo4	 42CrMo4	 42CrMo4	 42CrMo4
<b>M 8588</b> 100 t/m	<b>M 8688</b> 100 t/m	<b>M 8788</b> 100 t/m	<b>M 8888</b> 100 t/m
$\alpha = 88^\circ$	$\alpha = 88^\circ$	$\alpha = 88^\circ$	$\alpha = 88^\circ$
A = 14 mm, B = 18 mm	A = 16 mm, B = 21 mm	A = 18 mm, B = 23 mm	A = 20 mm, B = 25 mm

 42CrMo4
<b>M 8988</b> 100 t/m
$\alpha = 88^\circ$
A = 25 mm, B = 30 mm

 42CrMo4	 42CrMo4	 42CrMo4	 42CrMo4
<b>M 8190</b> 100 t/m	<b>M 8290</b> 100 t/m	<b>M 8390</b> 100 t/m	<b>M 8490</b> 100 t/m
$\alpha = 90^\circ$	$\alpha = 90^\circ$	$\alpha = 90^\circ$	$\alpha = 90^\circ$
A = 6 mm, B = 14 mm	A = 8 mm, B = 14 mm	A = 10 mm, B = 15 mm	A = 12 mm, B = 17 mm

 42CrMo4
<b>M 8590</b> 100 t/m
$\alpha = 90^\circ$
A = 14 mm, B = 18 mm





## TYPE "A" DIES | MATRYCE TYPU „A“

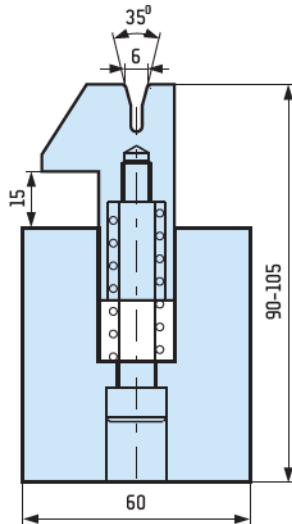
flattening dies | matryce do zagniatania



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

$\alpha = 35^\circ$

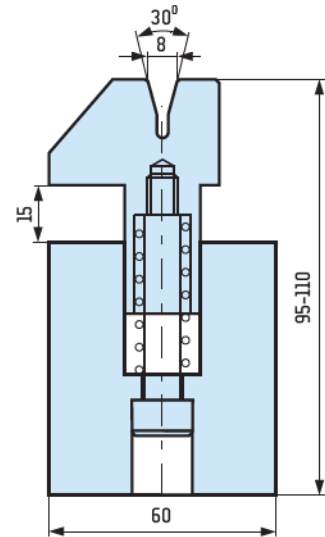
$V = 6 \text{ mm}$



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

$\alpha = 30^\circ$

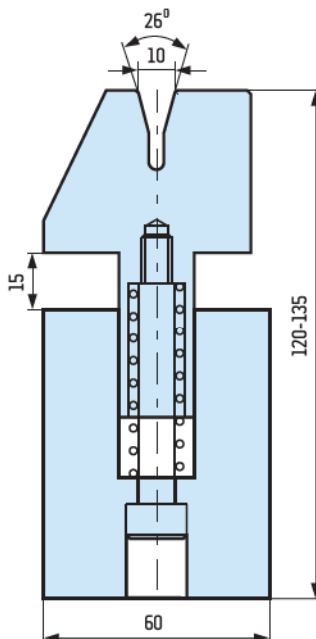
$V = 8 \text{ mm}$



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

$\alpha = 26^\circ$

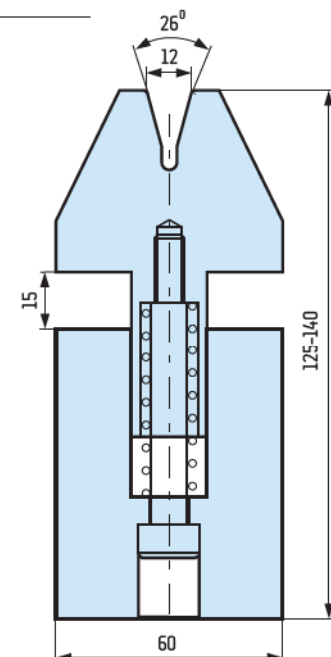
$V = 10 \text{ mm}$



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

$\alpha = 26^\circ$

$V = 12 \text{ mm}$



Bending and folding die, upper part moves on springs.  
Matryce dwufunkcyjne do gięcia i zagniatania.  
Górna część porusza się na sprężynach.

## TYPE "A" DIES | MATRYCE TYPU „A“

dies with plastic inserts | matryce z wkładkami plastikowymi



### INSERT W 24 | WKŁADKA W 24 20 t/m

$B = 14 \text{ mm}$ ,  $H = 15 \text{ mm}$ ,  $A = 24 \text{ mm}$

$\alpha = 35^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm}$

$\alpha = 45^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm}$

$\alpha = 60^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm} / 16 \text{ mm}$

$\alpha = 88^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm} / 16 \text{ mm}$



### INSERT W 35 | WKŁADKA W 35 20 t/m

$B = 20 \text{ mm}$ ,  $H = 19 \text{ mm}$ ,  $A = 35 \text{ mm}$

$\alpha = 35^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm}$

$\alpha = 45^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm}$

$\alpha = 60^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm} / 16 \text{ mm} / 20 \text{ mm}$

$\alpha = 88^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm} / 16 \text{ mm} / 20 \text{ mm} / 25 \text{ mm}$



### INSERT W 35 | WKŁADKA W 38 20 t/m

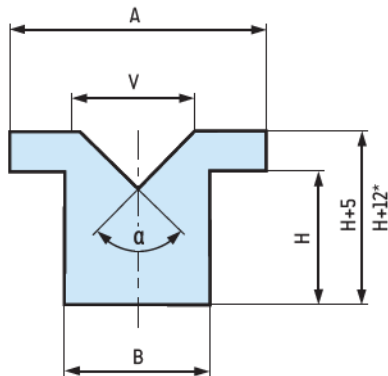
$B = 30 \text{ mm}$ ,  $H = 19 \text{ mm}$ ,  $A = 38 \text{ mm}$

$\alpha = 30^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm} / 16 \text{ mm}$

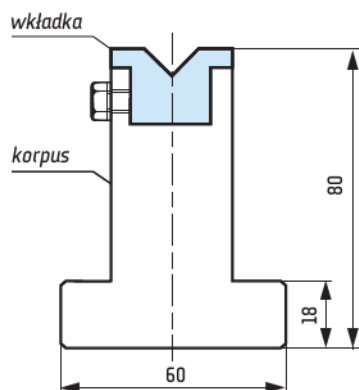
$\alpha = 60^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm} / 16 \text{ mm} / 20 \text{ mm}$

$\alpha = 88^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm} / 16 \text{ mm} / 20 \text{ mm} / 25 \text{ mm}$

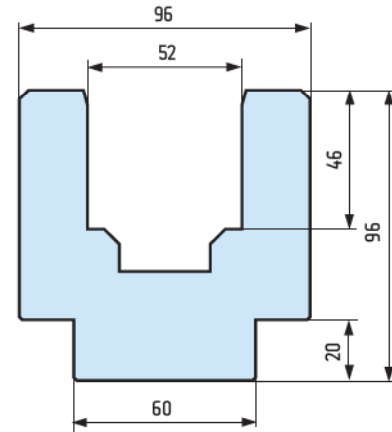
\* for W 38 / dla W 38



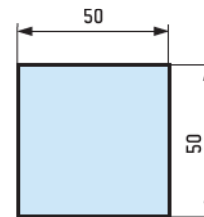
### BODY | KORPUS W 24 / W 35 / W 38



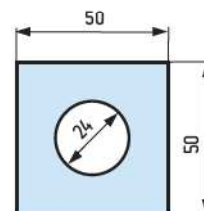
### BODY W 50 | KORPUS W 50



### INSERT 50 FULL | WKŁADKA 50 PEŁNA



### INSERT 50 WITH HOLE | WKŁADKA 50 Z OTWOREM



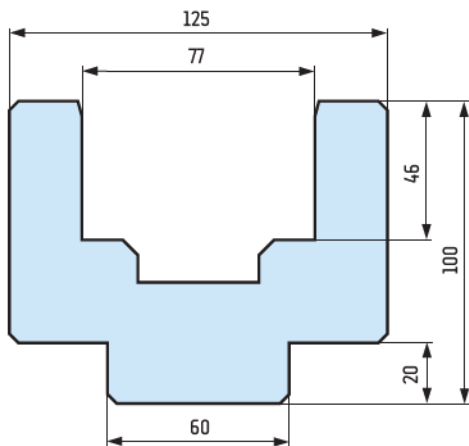
Polyamid inserts allow to minimize bending marks on coated or stainless steel.

Wkładki poliamidowe pozwalają zminimalizować ślady przy gięciu cienkich blach pokrywanych lub nierdzewnych.

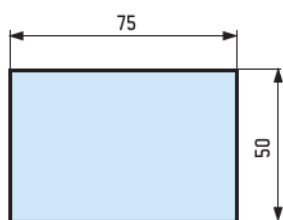
## TYPE "A" DIES | MATRYCE TYPU „A“



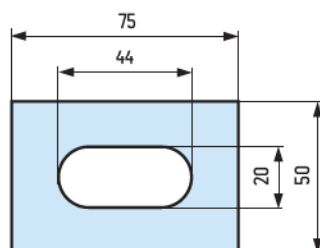
BODY W 75 | KORPUS W 75



INSERT 75 FULL | WKŁADKA 75 PEŁNA



INSERT 75 WITH HOLE | WKŁADKA 75 Z OTWOREM

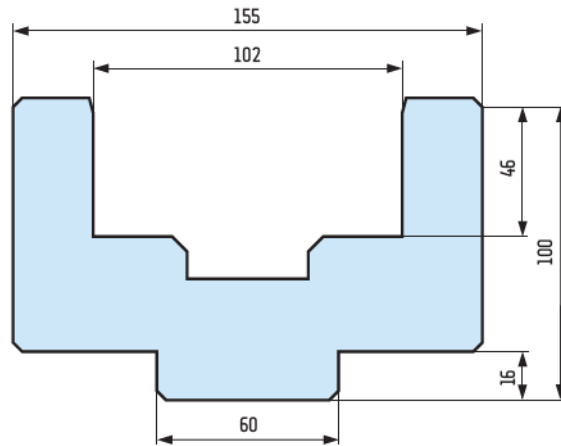


Rubber inserts allow mark free bending. Especially good with type "R" punches.

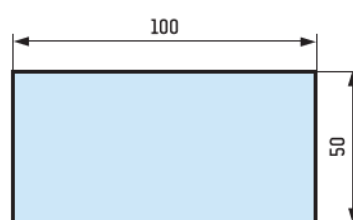
Wkładki gumowe pozwalają na gięcie bez uszkodzeń blachy. Szczególnie polecane ze stemplami „R”.



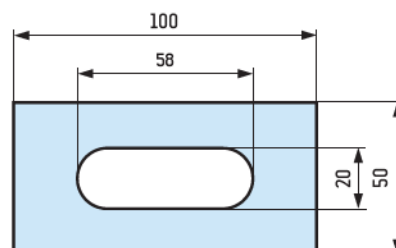
BODY W 100 | KORPUS W 100



INSERT 100 FULL | WKŁADKA 100 PEŁNA

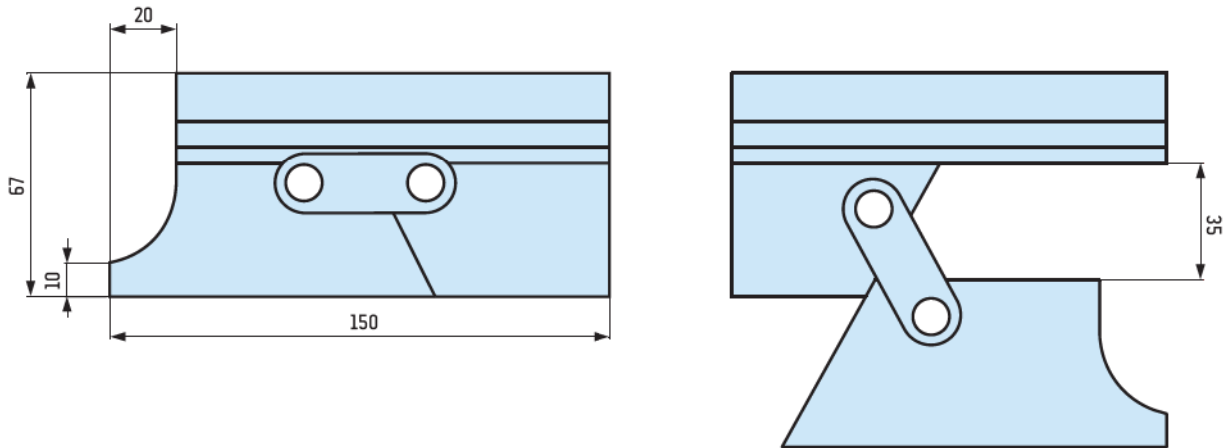


INSERT 100 WITH HOLE | WKŁADKA 100 Z OTWOREM



## BOX – CLOSING PUNCH | STEMPEL DO ZAMYKANIA PUDEŁEK

Punch with dimensions as S2010/88/R0.8 used for closing boxes.  
Stempel o geometrii jak S2010/88/R0.8 służący do zamykania pudełek.



Assembly with S2010.  
Złożenie z S2010.



## PROTECTIVE TAPE | TAŚMA OCHRONNA



### Tape size

thickness = 0.4 mm, width = 100 mm

thickness = 0.5 mm, width = 105 mm

thickness = 0.8 mm, width = 95 mm

### Wymiary taśmy

grubość = 0.4 mm, szerokość = 100mm

grubość = 0.5 mm, szerokość = 105 mm

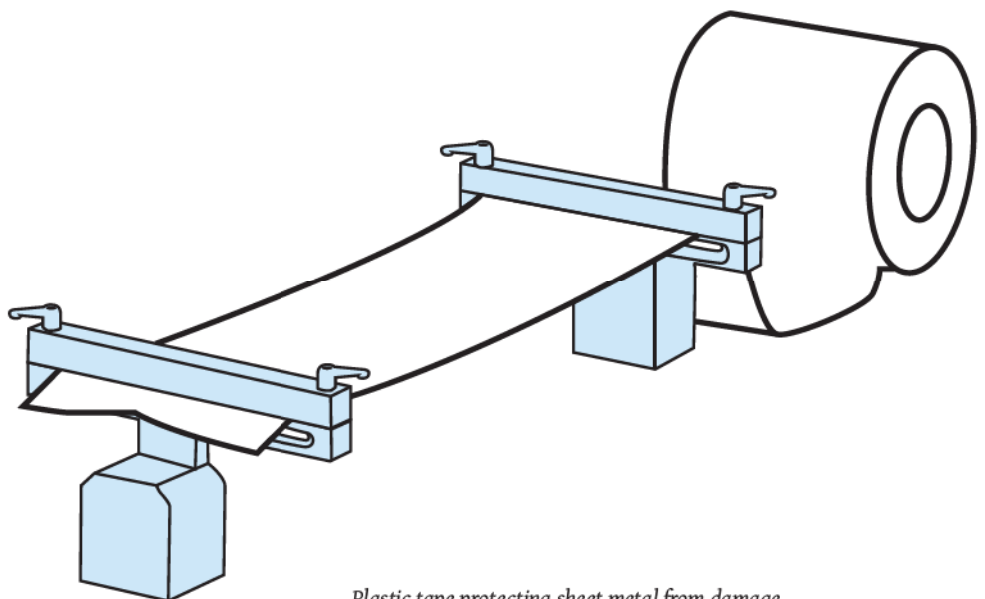
grubość = 0.8 mm, szerokość = 95 mm

### Holder for protective tape

suitable for dies size 13 mm to 60 mm

### Uchwyt do folii ochronnej

mocowanie do matryc od 13 do 60 mm



Plastic tape protecting sheet metal from damage.  
Plastikowa taśma zabezpieczająca gięty materiał przed zarysowaniem.

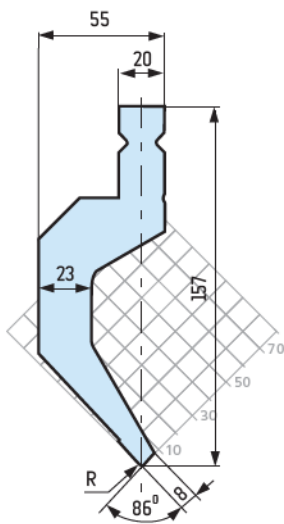
# TYPE "T" PUNCHES | STEMPELE TYPU „T“

24h 42CrMo4

S 2200 80 t/m

$\alpha = 86^\circ$

R = 1 mm

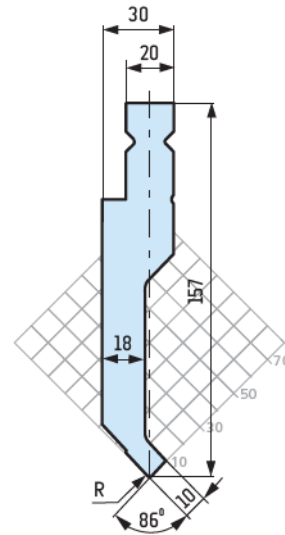


24h 42CrMo4

S 2201 80 t/m

$\alpha = 86^\circ$

R = 1 mm

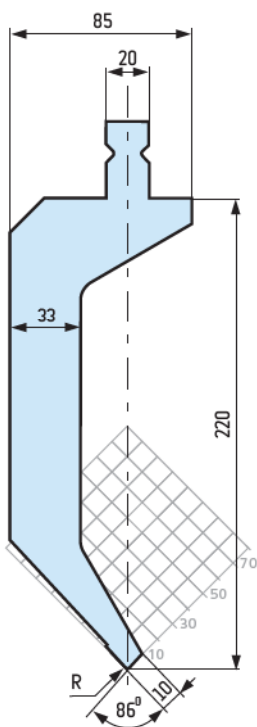


24h 42CrMo4

S 2200 W 80 t/m

$\alpha = 86^\circ$

R = 1 mm

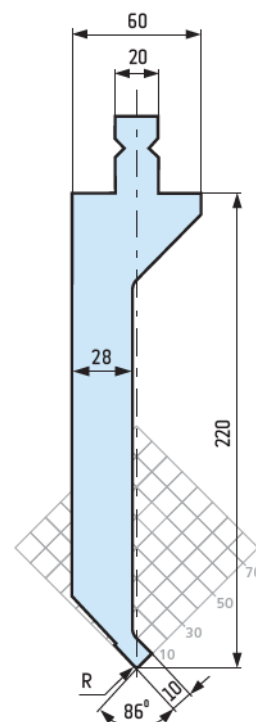


24h 42CrMo4

S 2201 W 80 t/m

$\alpha = 86^\circ$

R = 1 mm



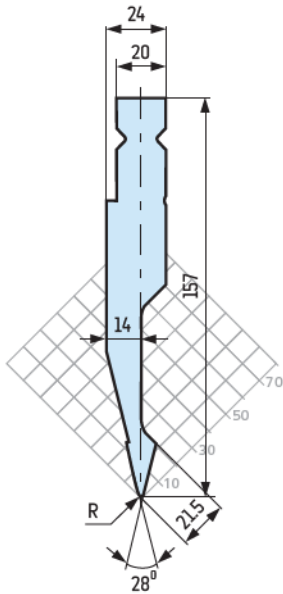
# TYPE "T" PUNCHES | STEMPLU TYPU „T“

24h 42CrMo4

S 2202 60 t/m

$\alpha = 28^\circ$

R = 1 mm

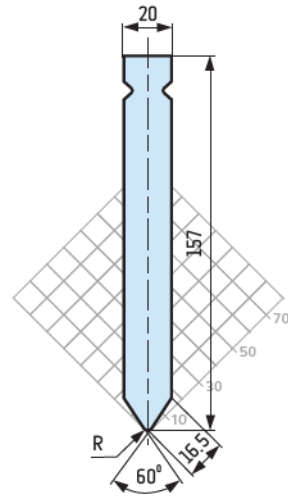


24h 42CrMo4

S 2203 130 t/m

$\alpha = 60^\circ$

R = 4 mm

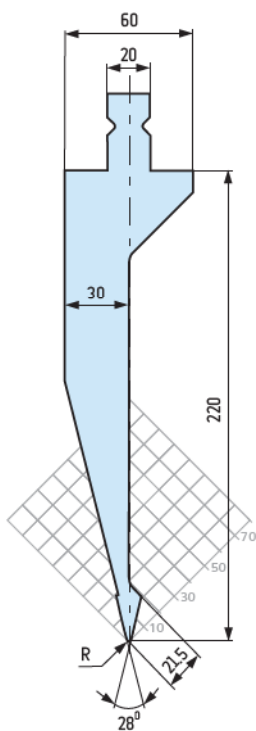


24h 42CrMo4

S 2202 W 60 t/m

$\alpha = 28^\circ$

R = 1 mm

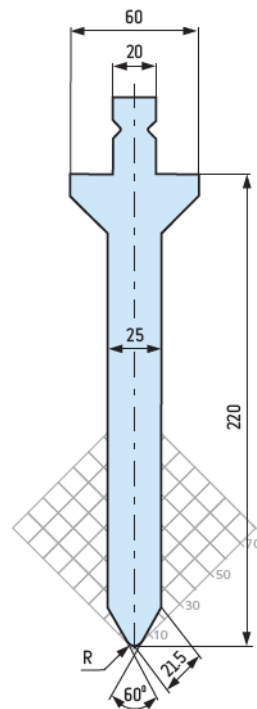


24h 42CrMo4

S 2203 W 130 t/m

$\alpha = 60^\circ$

R = 4 mm



# TYPE "T" PUNCHES | STEMPLE TYPU „T”

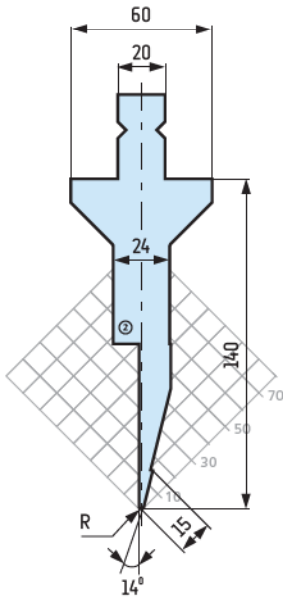
24h 42CrMo4

S 2204 40 t/m

② 130 t/m

$\alpha = 14^\circ$

R = 1 mm



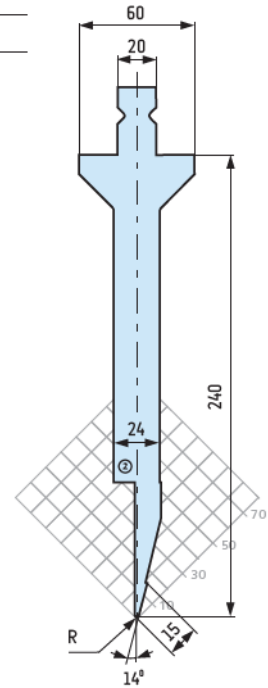
24h 42CrMo4

S 2204 W 40 t/m

② 130 t/m

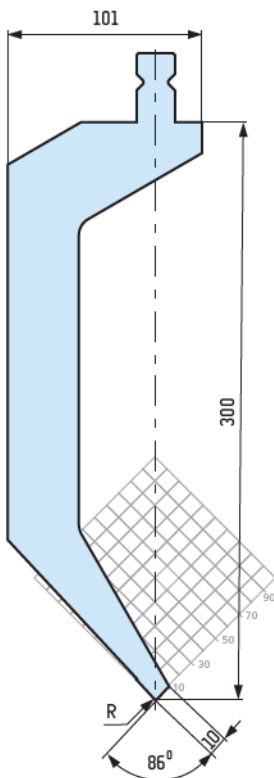
$\alpha = 14^\circ$

R = 1 mm



42CrMo4

S 2300 W 80 t/m



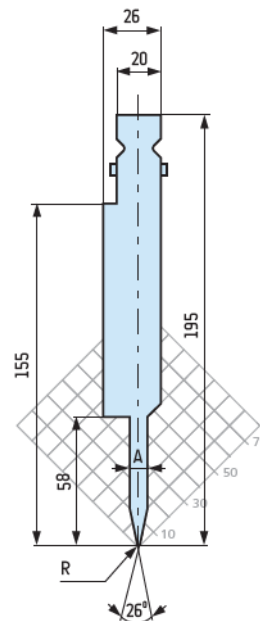
## flattening tools | zestaw do zagniatania

42CrMo4

S 2205 80 t/m

A = 8 mm, 10 mm, 12 mm

R = 0.6 mm

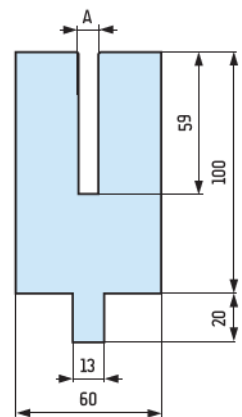


42CrMo4

M 2000 50 t/m

A = 8 mm, 10 mm, 12 mm

R = 0.6 mm



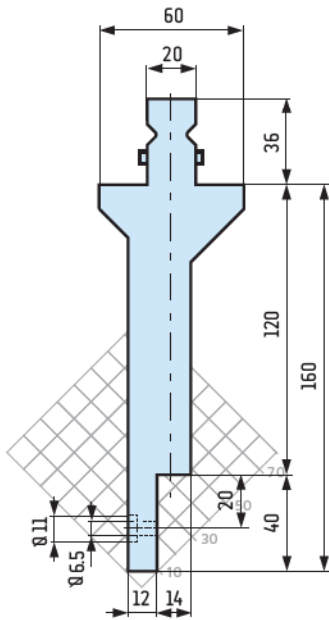


# TYPE "T" PUNCHES | STEMPLE TYPU „T”

insert punch | stempel z wkładką

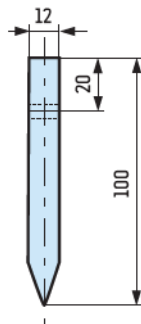
24h 42CrMo4

S 2206 100 t/m



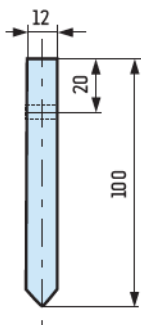
WKŁADKA R 0.3 – R 6

$\alpha = 28^\circ$



WKŁADKA R 0.2 – R 1.5

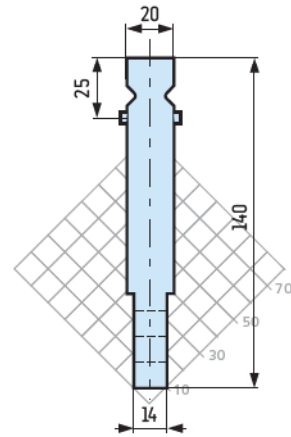
$\alpha = 84^\circ, 86^\circ, 90^\circ$



radius punch | stempel promieniowy

24h 42CrMo4

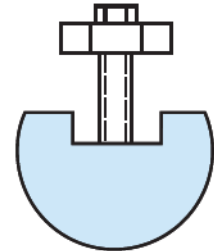
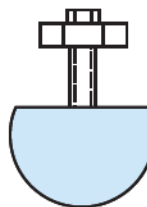
S 2207 80 t/m



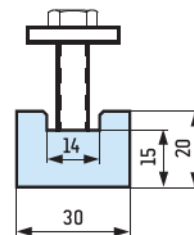
WKŁADKA R 7 – R 12



WKŁADKA R 12.5 – R 50



FLATTENING INSERT | WKŁADKA PŁASKA

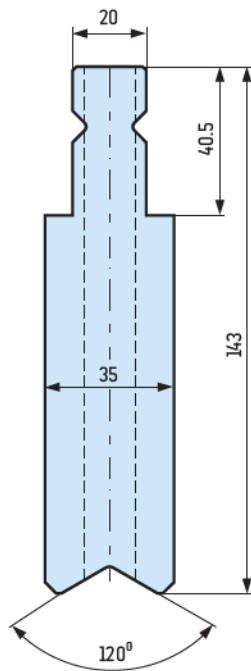


TYPE "T" PUNCHES | STEMPLE TYPU „T”

RADIUS INSERTS | WKŁADKI PROMIENIOWE

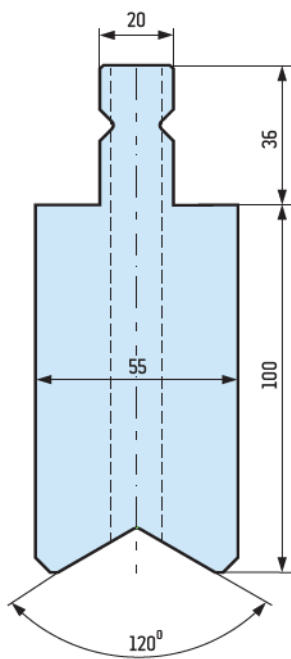
24h 42CrMo4

S 2208 R 10 – R 25 100 t/m



24h 42CrMo4

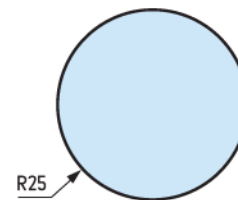
S 2208 W R 25 – R 75 100 t/m



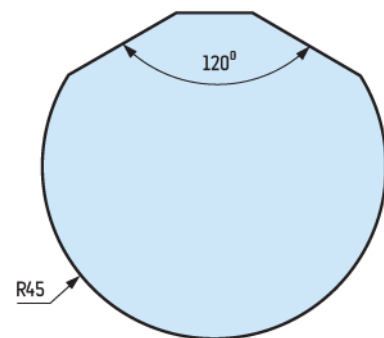
R 10



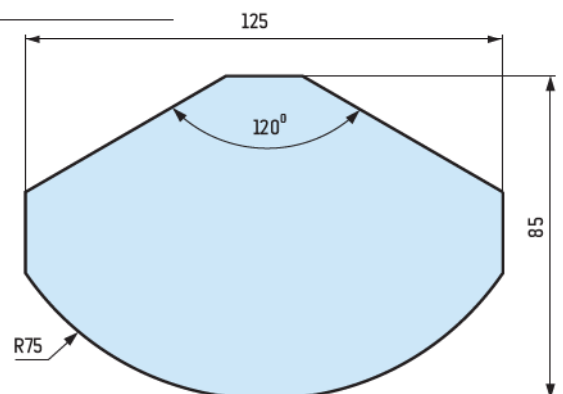
R 25



R 45



R 75



# TYPE "T" DIES 100 MM | MATRYCE TYPU „T” 100 MM

24h 42CrMo4

**M 7106** 100 t/m

A = 6 mm, B = 20 mm

24h 42CrMo4

**M 7108** 100 t/m

A = 8 mm, B = 20 mm

24h 42CrMo4

**M 7110** 100 t/m

A = 10 mm, B = 20 mm

24h 42CrMo4

**M 7112** 100 t/m

A = 12 mm, B = 25 mm

24h 42CrMo4

**M 7116** 100 t/m

A = 16 mm, B = 30 mm

24h 42CrMo4

**M 7120** 100 t/m

A = 20 mm, B = 30 mm

24h 42CrMo4

**M 7124** 100 t/m

A = 24 mm, B = 35 mm

24h 42CrMo4

**M 7130** 100 t/m

A = 30 mm, B = 45 mm

24h 42CrMo4

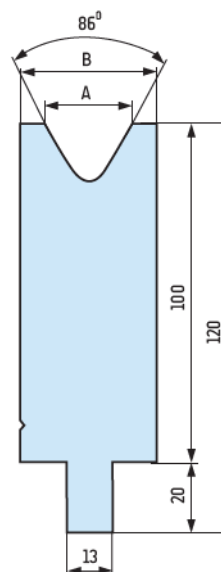
**M 7140** 100 t/m

A = 40 mm, B = 55 mm

24h 42CrMo4

**M 7150** 100 t/m

A = 50 mm, B = 75 mm



24h 42CrMo4

**M 7224** 100 t/m

A = 24 mm, B = 35 mm

24h 42CrMo4

**M 7230** 100 t/m

A = 30 mm, B = 45 mm

24h 42CrMo4

**M 7240** 100 t/m

A = 40 mm, B = 55 mm

24h 42CrMo4

**M 7250** 100 t/m

A = 50 mm, B = 65 mm

24h 42CrMo4

**M 7260** 100 t/m

A = 60 mm, B = 75 mm

24h 42CrMo4

**M 7280** 100 t/m

A = 80 mm, B = 100 mm

24h 42CrMo4

**M 72100** 100 t/m\*

A = 100 mm, B = 120 mm

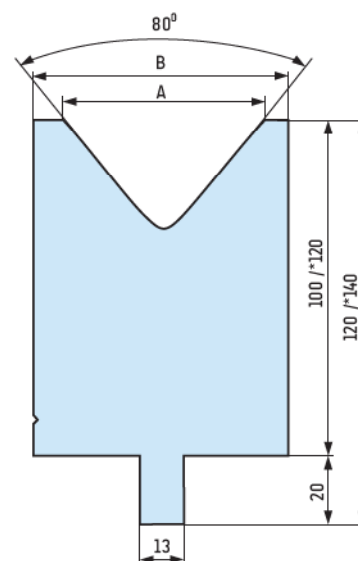
H = 120 mm

24h 42CrMo4

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

A = 120 mm, B = 145 mm

H = 120 mm



24h 42CrMo4

**M 7306** 50 t/m

A = 6 mm, B = 20 mm

24h 42CrMo4

**M 7308** 40 t/m

A = 8 mm, B = 20 mm

24h 42CrMo4

**M 7310** 40 t/m

A = 10 mm, B = 20 mm

24h 42CrMo4

**M 7312** 40 t/m

A = 12 mm, B = 25 mm

24h 42CrMo4

**M 7316** 45 t/m

A = 16 mm, B = 30 mm

24h 42CrMo4

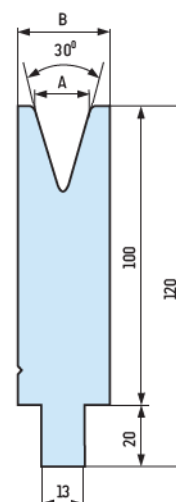
**M 7320** 50 t/m

A = 20 mm, B = 35 mm

24h 42CrMo4

**M 7324** 50 t/m

A = 24 mm, B = 40 mm



# TYPE "T" DIES 55 MM | MATRYCE TYPU „T” 55 MM

42CrMo4

**M 7406** 100 t/m

$\alpha = 90^\circ$

A = 6 mm, B = 15 mm

42CrMo4

**M 7408** 100 t/m

$\alpha = 90^\circ$

A = 8 mm, B = 15 mm

42CrMo4

**M 7410** 100 t/m

$\alpha = 88^\circ$

A = 10 mm, B = 20 mm

42CrMo4

**M 7412** 100 t/m

$\alpha = 88^\circ$

A = 12 mm, B = 20 mm

42CrMo4

**M 7416** 100 t/m

$\alpha = 88^\circ$

A = 16 mm, B = 30 mm

42CrMo4

**M 7420** 100 t/m

$\alpha = 88^\circ$

A = 20 mm, B = 30 mm

42CrMo4

**M 7424** 100 t/m

$\alpha = 88^\circ$

A = 24 mm, B = 40 mm

42CrMo4

**M 7432** 100 t/m

$\alpha = 85^\circ$

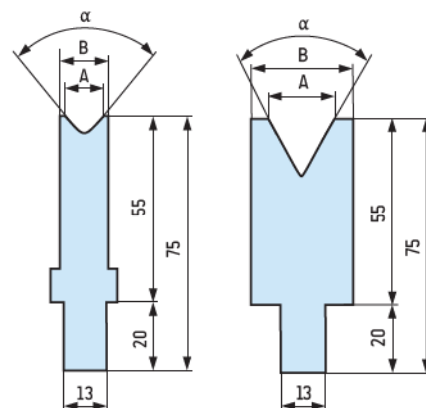
A = 32 mm, B = 50 mm

42CrMo4

**M 7440** 100 t/m

$\alpha = 85^\circ$

A = 40 mm, B = 55 mm



42CrMo4

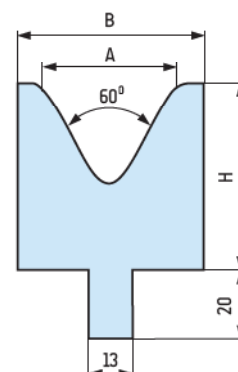
**M 7540** 80 t/m

A = 40 mm, B = 55 mm, H = 55 mm

42CrMo4

**M 7560** 60 t/m

A = 60 mm, B = 80 mm, H = 65 mm



42CrMo4

**M 7606** 35 t/m

A = 6 mm, B = 15 mm

42CrMo4

**M 7608** 35 t/m

A = 8 mm, B = 15 mm

42CrMo4

**M 7610** 40 t/m

A = 10 mm, B = 20 mm

42CrMo4

**M 7612** 40 t/m

A = 12 mm, B = 20 mm

42CrMo4

**M 7616** 45 t/m

A = 16 mm, B = 30 mm, H = 55 mm

42CrMo4

**M 7620** 50 t/m

A = 20 mm, B = 35 mm, H = 55 mm

42CrMo4

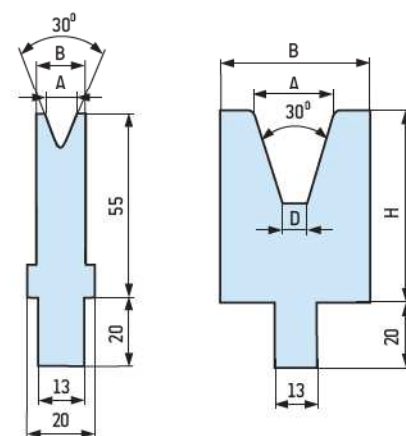
**M 7624** 50 t/m

A = 24 mm, B = 40 mm, H = 55 mm

42CrMo4

**M 7632** 50 t/m

A = 32 mm, B = 60 mm, H = 60 mm



## TYPE "T" DIES | MATRYCE TYPU „T”

dies with plastic inserts |  
matryce z wkładkami poliamidowymi



INSERT W 35-T | WKŁADKA W 35-T 20 t/m

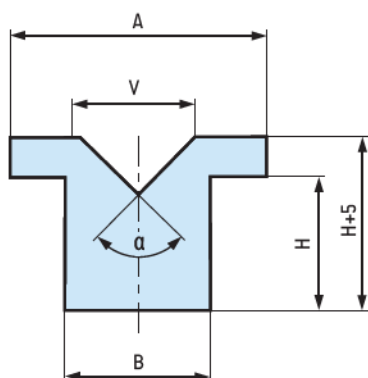
$B = 20 \text{ mm}$ ,  $H = 19 \text{ mm}$ ,  $A = 35 \text{ mm}$

$\alpha = 35^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm}$

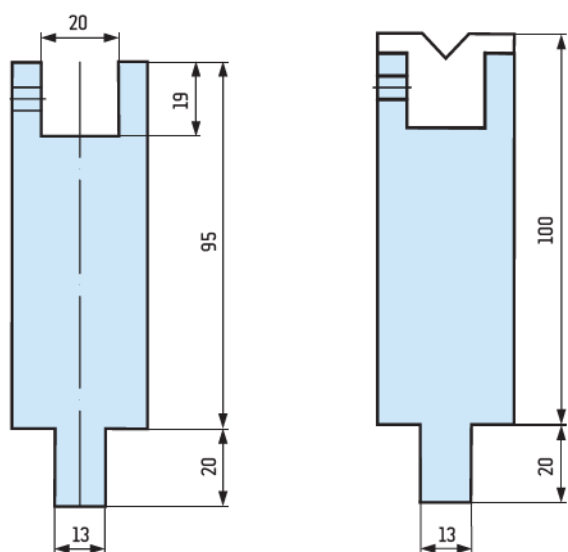
$\alpha = 45^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm}$

$\alpha = 60^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm} / 16 \text{ mm} / 20 \text{ mm}$

$\alpha = 88^\circ$ ,  $V = 6 \text{ mm} / 8 \text{ mm} / 10 \text{ mm} / 12 \text{ mm} / 16 \text{ mm} / 20 \text{ mm} / 25 \text{ mm}$



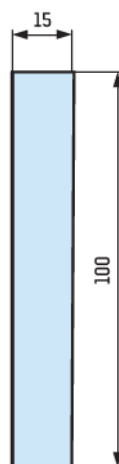
BODY | KORPUS W 35-T



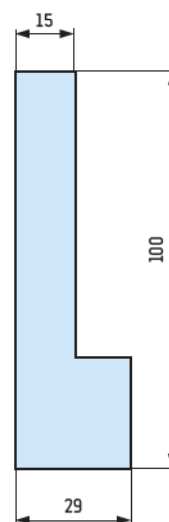
flattening inserts |  
wkładki do zapłaszczania



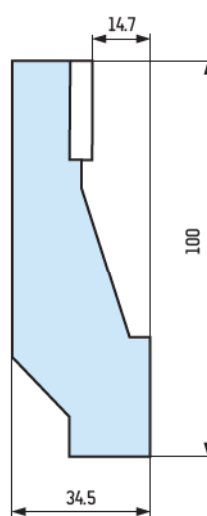
INSERT T 1 | WKŁADKA T 1



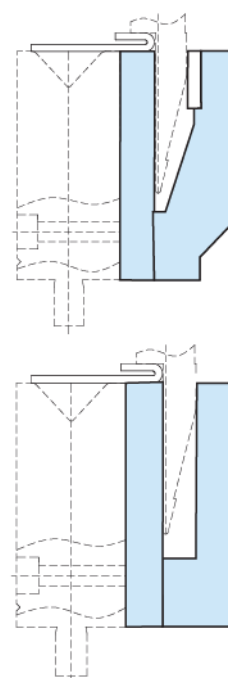
INSERT T 2 | WKŁADKA T 2



INSERT T 3 | WKŁADKA T 3



ASSAMBLE | PRZYKŁAD MONTAŻU



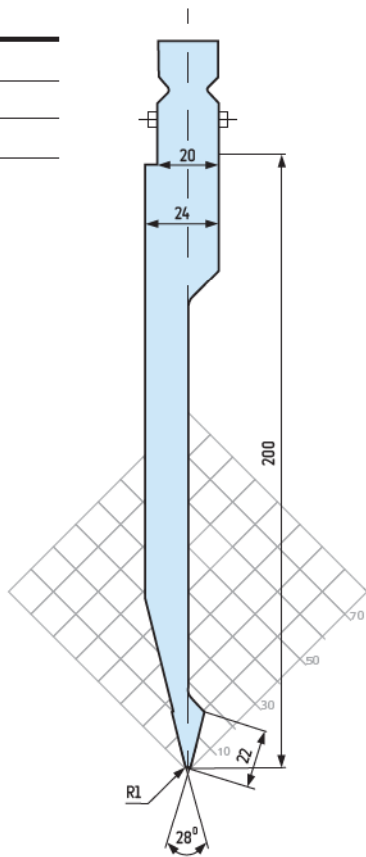
# TYPE "W" PUNCHES | STEMPEL TYPU „W“

24h 42CrMo4

S 2231 60 t/m

$\alpha = 28^\circ$

R = 1 mm

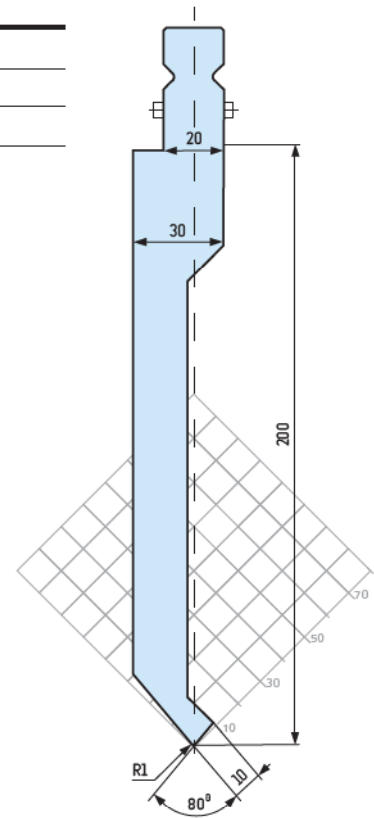


24h 42CrMo4

S 2232 70 t/m

$\alpha = 80^\circ$

R = 1 mm

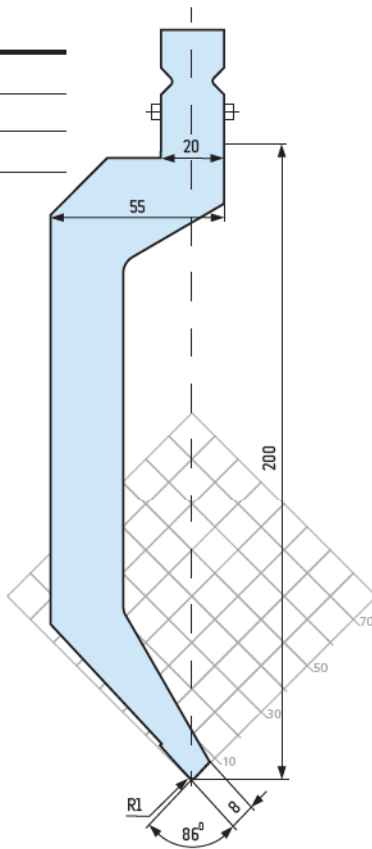


24h 42CrMo4

S 2233 50 t/m

$\alpha = 86^\circ$

R = 1 mm

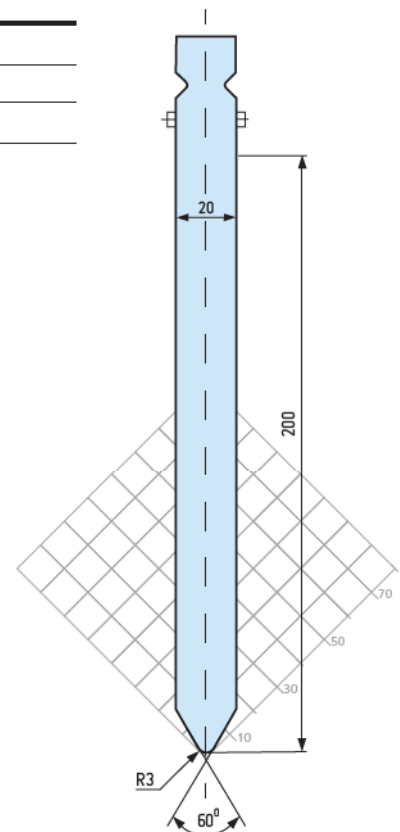


24h 42CrMo4

S 2234 160 t/m

$\alpha = 60^\circ$

R = 3 mm



## TYPE "W" DIES 55 MM | MATRYCE TYPU „W” 55 MM

42CrMo4

**M 7706** 100 t/m

$\alpha = 86^\circ$

A = 6 mm, B = 16 mm

42CrMo4

**M 7708** 100 t/m

$\alpha = 86^\circ$

A = 8 mm, B = 16 mm

42CrMo4

**M 7710** 100 t/m

$\alpha = 86^\circ$

A = 10 mm, B = 20 mm

42CrMo4

**M 7712** 100 t/m

$\alpha = 86^\circ$

A = 12 mm, B = 20 mm

42CrMo4

**M 7716** 100 t/m

$\alpha = 86^\circ$

A = 16 mm, B = 25 mm

42CrMo4

**M 7720** 100 t/m

$\alpha = 86^\circ$

A = 20 mm, B = 30 mm

42CrMo4

**M 7824** 100 t/m

$\alpha = 80^\circ$

A = 24 mm, B = 35 mm

42CrMo4

**M 7830** 100 t/m

$\alpha = 80^\circ$

A = 30 mm, B = 40 mm

42CrMo4

**M 7840** 100 t/m

$\alpha = 80^\circ$

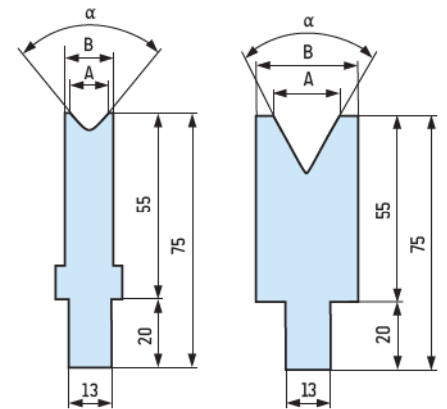
A = 40 mm, B = 50 mm

42CrMo4

**M 7850** 100 t/m

$\alpha = 80^\circ$

A = 50 mm, B = 75 mm



## TYPE "T" DIES 55 MM | MATRYCE TYPU „T” 55 MM

42CrMo4

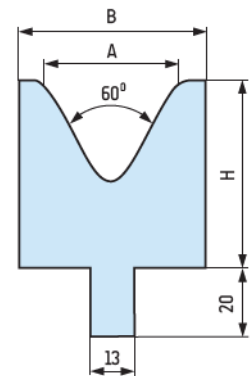
**M 7540** 80 t/m

A = 40 mm, B = 55 mm, H = 55 mm

42CrMo4

**M 7560** 60 t/m

A = 60 mm, B = 80 mm, H = 65 mm



42CrMo4

**M 7606** 35 t/m

A = 6 mm, B = 15 mm

42CrMo4

**M 7608** 35 t/m

A = 8 mm, B = 15 mm

42CrMo4

**M 7610** 40 t/m

A = 10 mm, B = 20 mm

42CrMo4

**M 7612** 40 t/m

A = 12 mm, B = 20 mm

42CrMo4

**M 7616** 45 t/m

A = 16 mm, B = 30 mm, H = 55 mm

42CrMo4

**M 7620** 50 t/m

A = 20 mm, B = 35 mm, H = 55 mm

42CrMo4

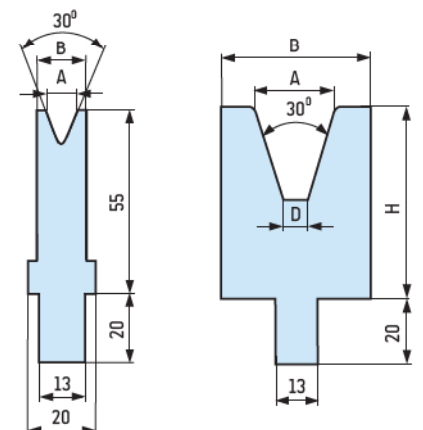
**M 7624** 50 t/m

A = 24 mm, B = 40 mm, H = 55 mm

42CrMo4

**M 7632** 50 t/m

A = 32 mm, B = 60 mm, H = 60 mm



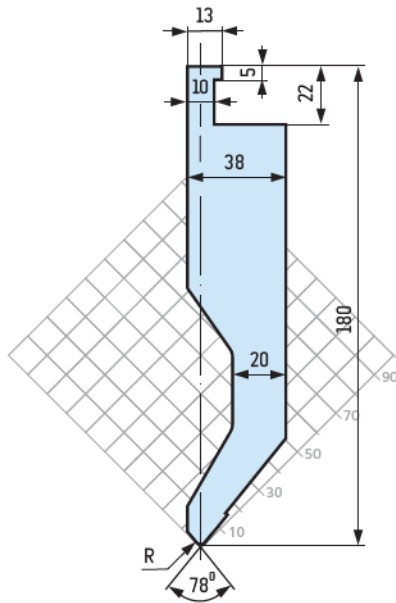
# TYPE "L" PUNCHES | STEMPE TYPU „L"

42CrMo4

S 2510 C 70 t/m

$\alpha = 78^\circ$

$R = 2 \text{ mm}$

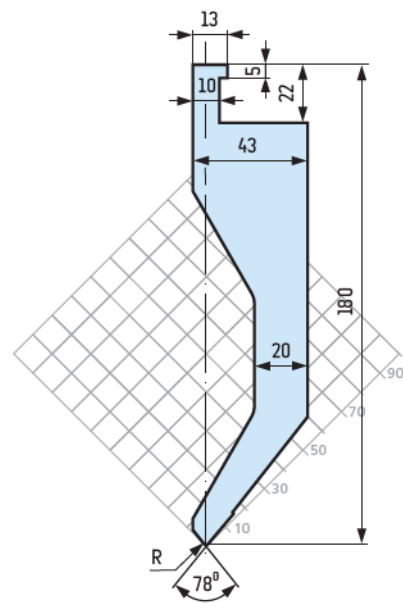


24h 42CrMo4

S 2510 D 40 t/m

$\alpha = 78^\circ$

$R = 1 \text{ mm}$

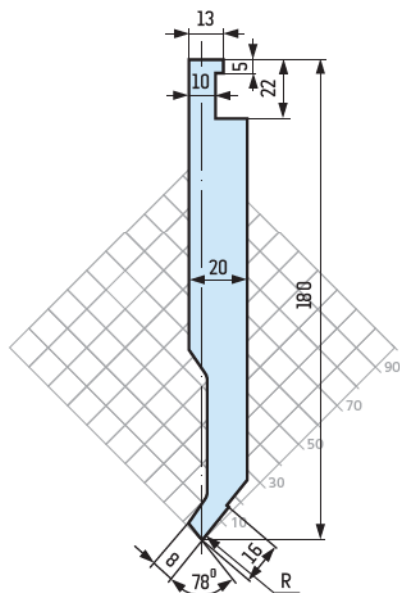


24h 42CrMo4

S 2510 E 40 t/m

$\alpha = 78^\circ$

$R = 1 \text{ mm}$

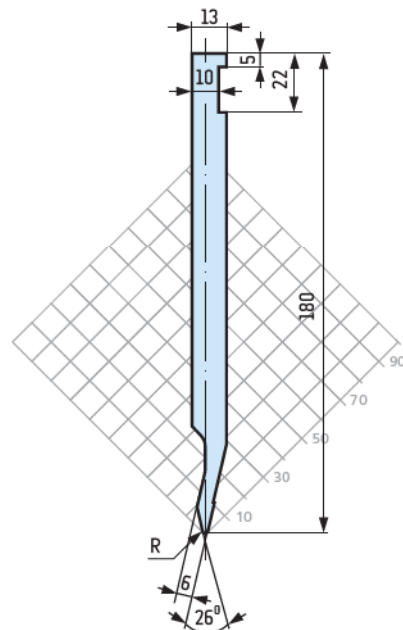


24h 42CrMo4

S 2510 F 40 t/m

$\alpha = 26^\circ$

$R = 1 \text{ mm}$







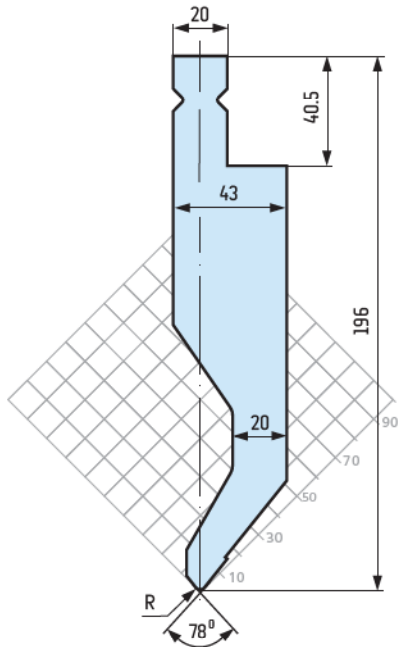
# TYPE "L" PUNCHES | STEMPE TYPU „L"

42CrMo4

S 2610 C 70 t/m

$\alpha = 78^\circ$

R = 2 mm

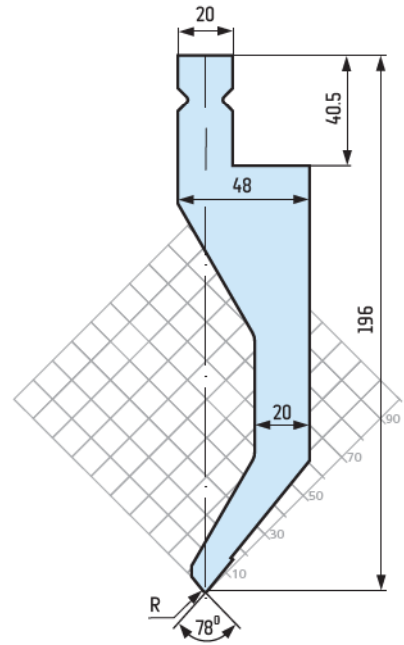


24h 42CrMo4

S 2610 D 40 t/m

$\alpha = 78^\circ$

R = 1 mm

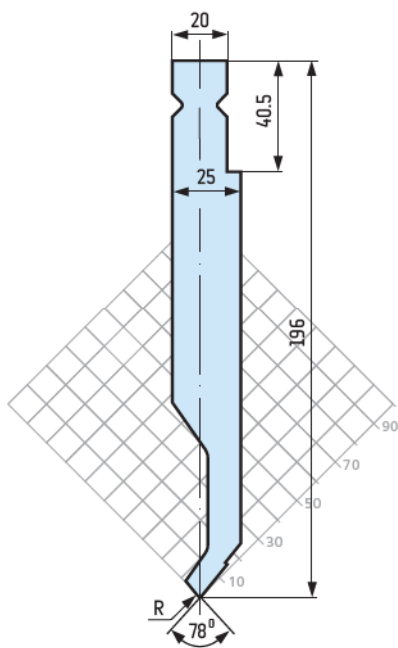


24h 42CrMo4

S 2610 E 40 t/m

$\alpha = 78^\circ$

R = 1 mm

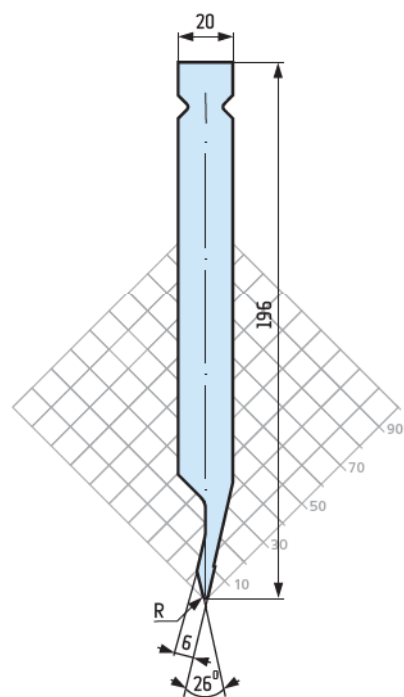


24h 42CrMo4

S 2610 F 40 t/m

$\alpha = 26^\circ$

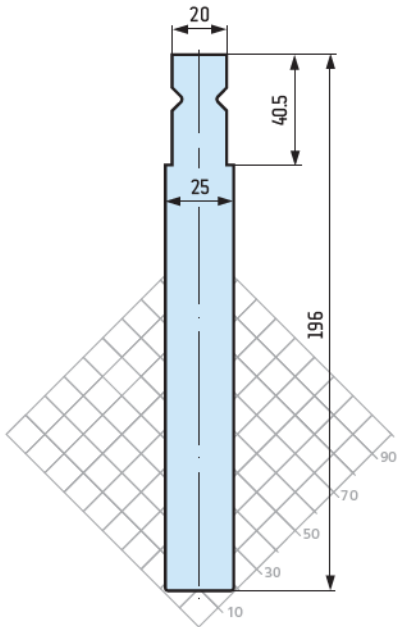
R = 1 mm



# TYPE "L" PUNCHES | STEMPE TYPU „L"

42CrMo4

S 2610 H 160 t/m

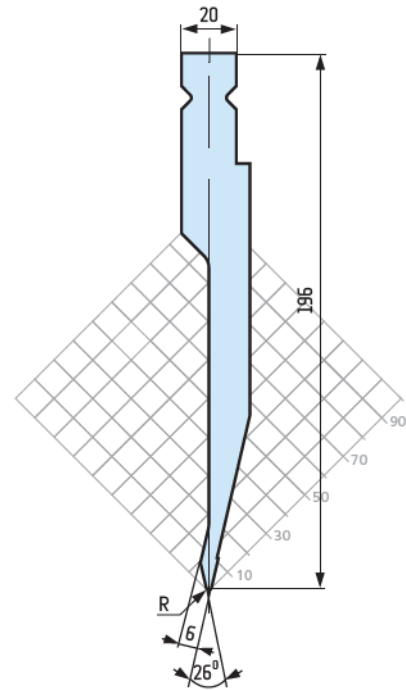


42CrMo4

S 2610 J 40 t/m

$\alpha = 26^\circ$

$R = 1 \text{ mm}$



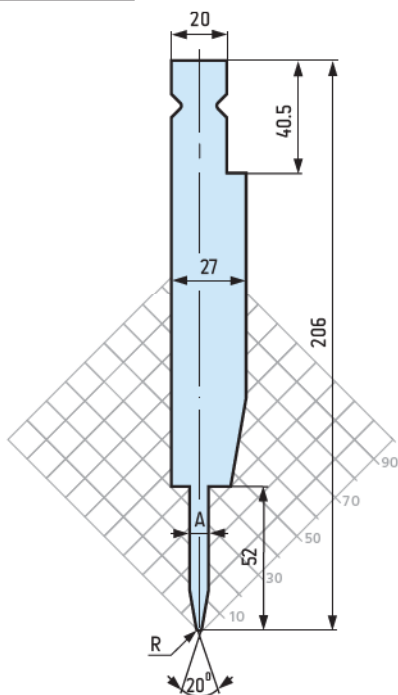
42CrMo4

S 2610 P 40 t/m

$\alpha = 20^\circ$

$R = 1 \text{ mm}$

$A = 8 \text{ mm}, 10 \text{ mm}, 12 \text{ mm}$

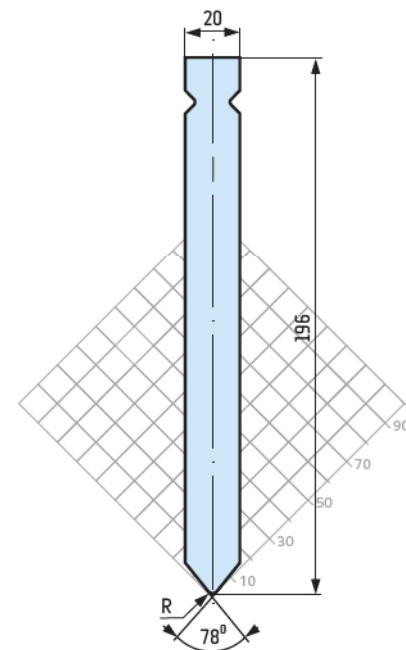


42CrMo4

S 2610 R 80 t/m

$\alpha = 78^\circ$

$R = 2 \text{ mm}$



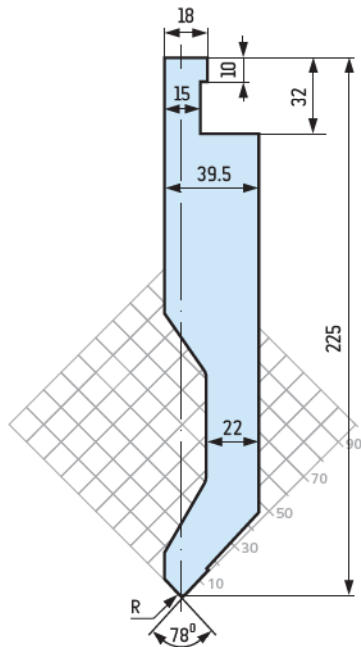
# TYPE "L" PUNCHES | STEMPE TYPU „L"

42CrMo4

S 2515 C 80 t/m

$\alpha = 78^\circ$

$R = 2 \text{ mm}$

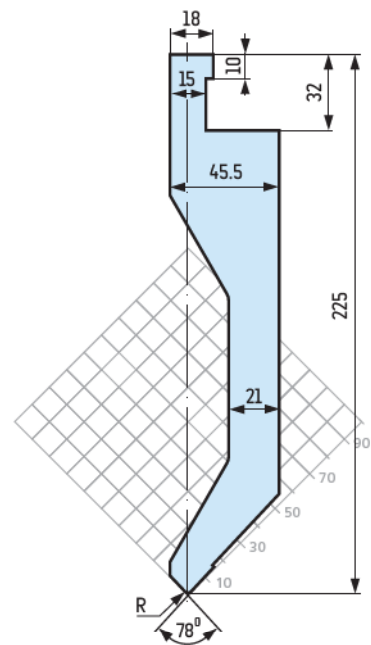


42CrMo4

S 2515 D 75 t/m

$\alpha = 78^\circ$

$R = 2 \text{ mm}$

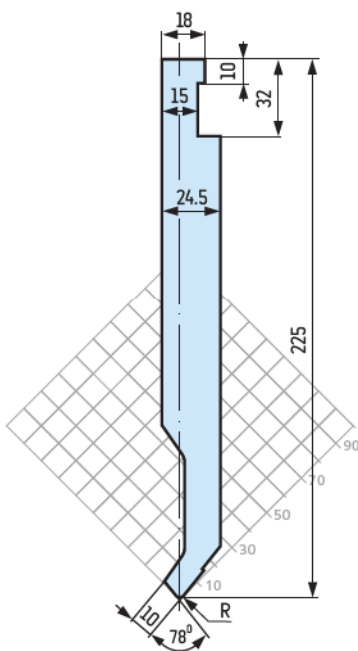


42CrMo4

S 2515 E 50 t/m

$\alpha = 78^\circ$

$R = 2 \text{ mm}$

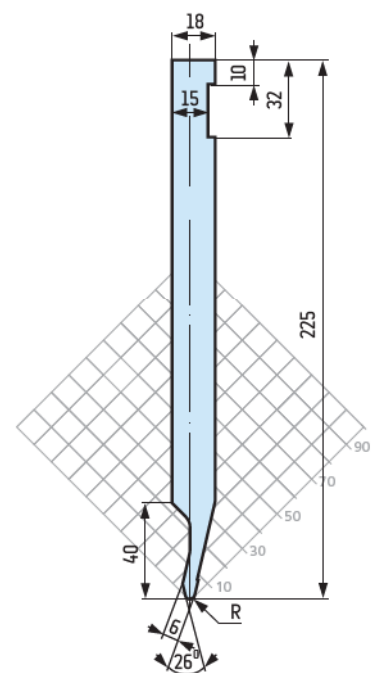


42CrMo4

S 2515 F 50 t/m

$\alpha = 26^\circ$

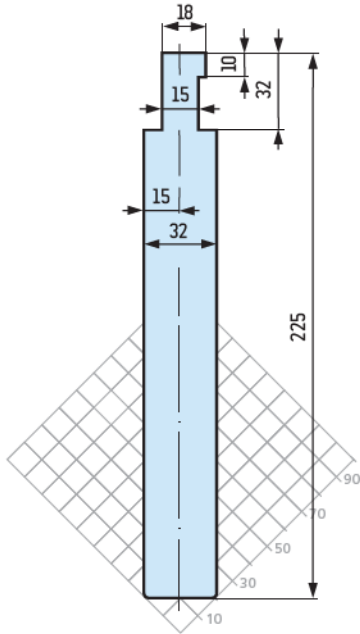
$R = 2 \text{ mm}$



# TYPE "L" PUNCHES | STEMPE TYPU „L"

42CrMo4

S 2515 H 150 t/m

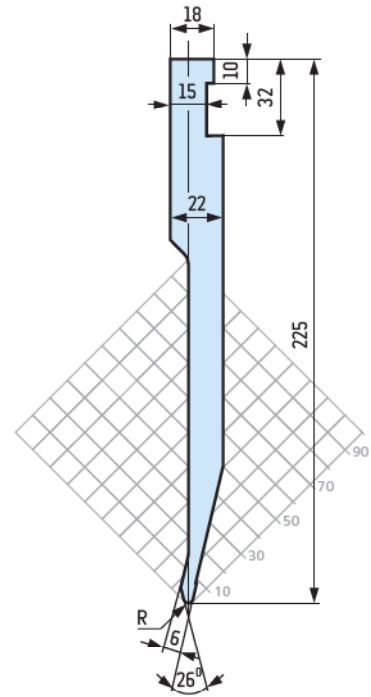


42CrMo4

S 2515 J 50 t/m

$\alpha = 26^\circ$

$R = 2 \text{ mm}$



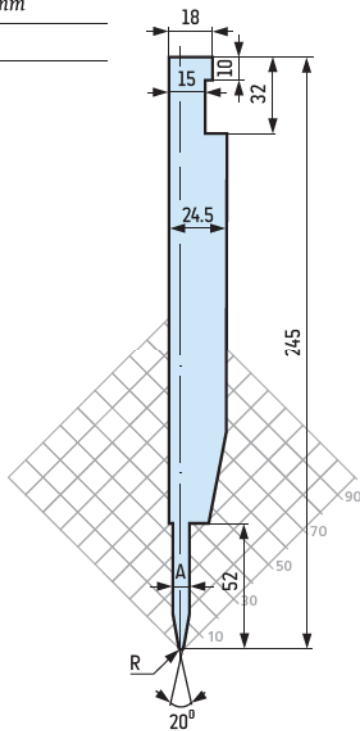
42CrMo4

S 2515 P 40 t/m

$\alpha = 20^\circ$

$A = 8 \text{ mm}, 10 \text{ mm}, 12 \text{ mm}$

$R = 1 \text{ mm}$

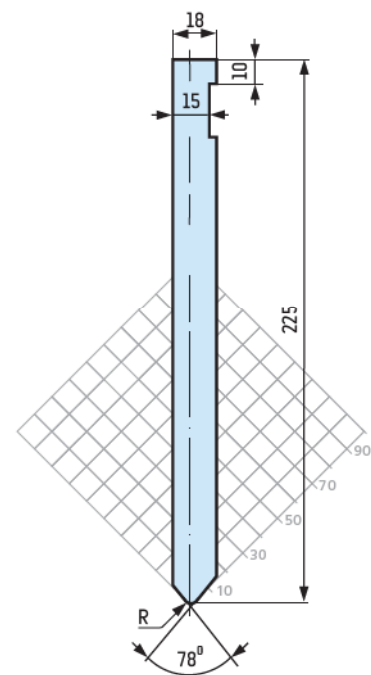


42CrMo4

S 2515 R 120 t/m

$\alpha = 78^\circ$

$R = 2 \text{ mm}$



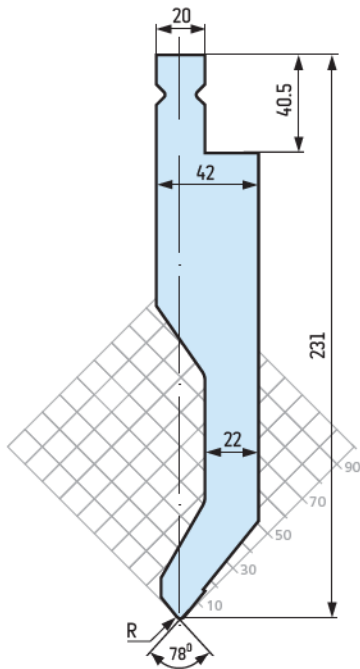
# TYPE "L" PUNCHES | STEMPE TYPU „L"

42CrMo4

S 2615 C 80 t/m

$\alpha = 78^\circ$

R = 2 mm

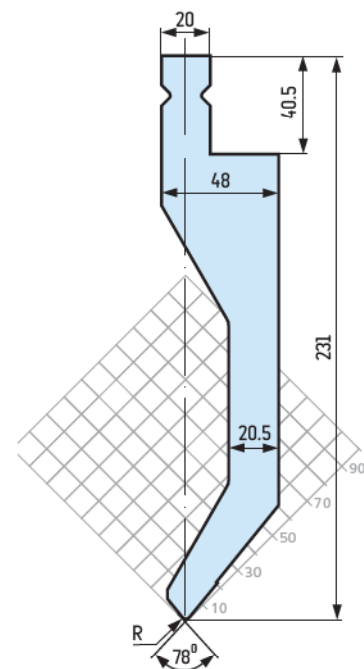


42CrMo4

S 2615 D 75 t/m

$\alpha = 78^\circ$

R = 2 mm

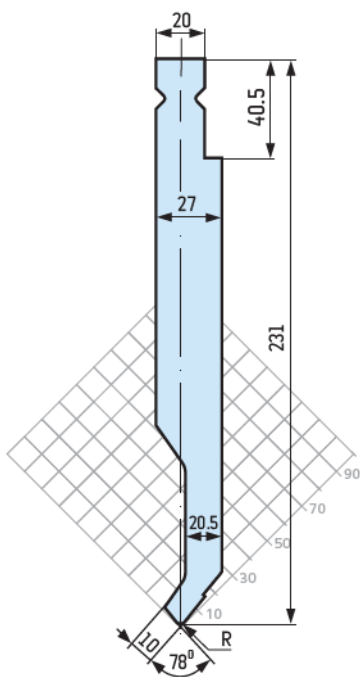


42CrMo4

S 2615 E 50 t/m

$\alpha = 78^\circ$

R = 2 mm

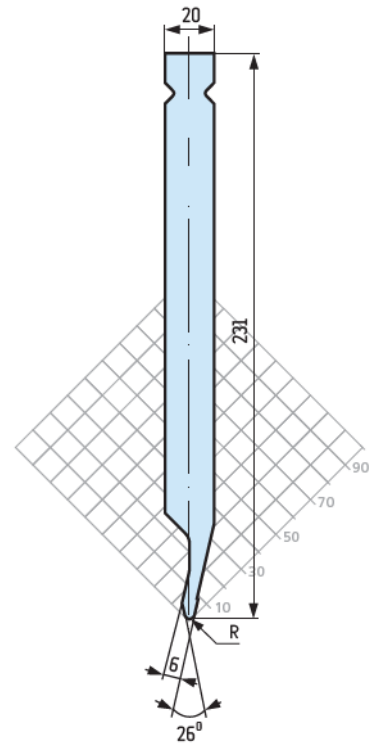


42CrMo4

S 2615 F 50 t/m

$\alpha = 26^\circ$

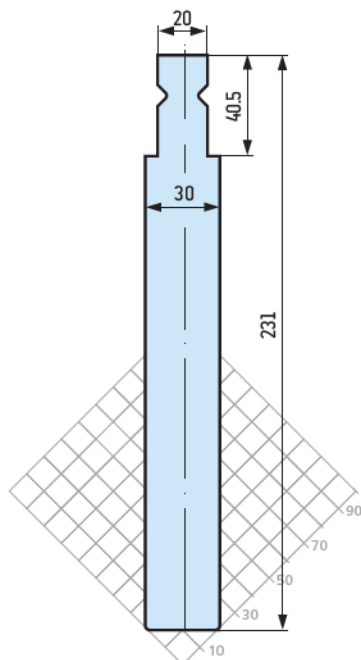
R = 2 mm



# TYPE "L" PUNCHES | STEMPLA TYPU „L”

42CrMo4

S 2615 H 150 t/m

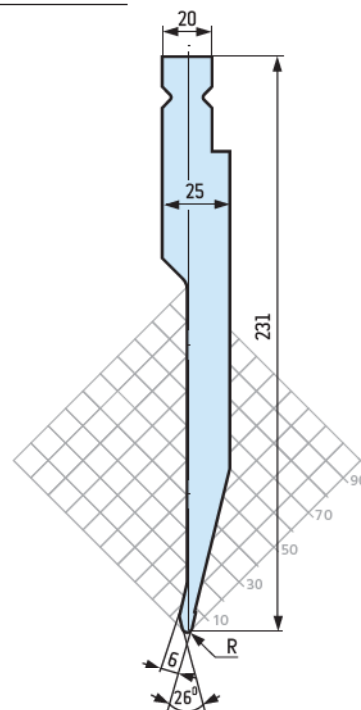


42CrMo4

S 2615 J 50 t/m

$\alpha = 26^\circ$

$R = 2 \text{ mm}$



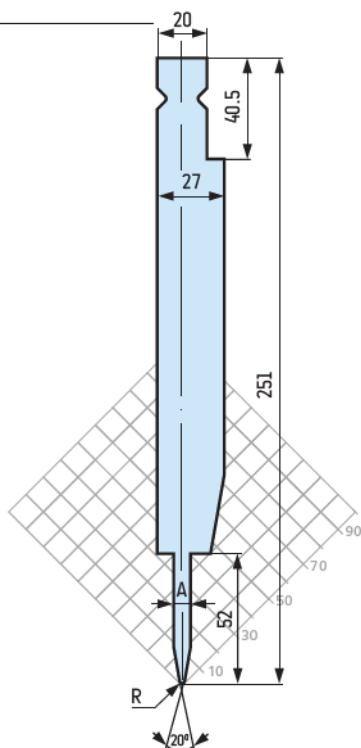
42CrMo4

S 2615 P 40 t/m

$\alpha = 20^\circ$

$A = 8 \text{ mm}, 10 \text{ mm}, 12 \text{ mm}$

$R = 1 \text{ mm}$

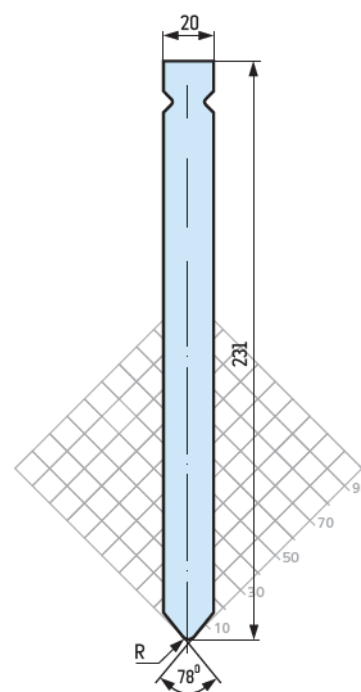


42CrMo4

S 2615 R 120 t/m

$\alpha = 78^\circ$

$R = 3 \text{ mm}$



# TYPE "L" DIES 90 MM | MATRYCE TYPU „L” 90 MM

24h 42CrMo4

**M 5106** 20 t/m

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

24h 42CrMo4

**M 5108** 20 t/m

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

24h 42CrMo4

**M 5110** 30 t/m

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

24h 42CrMo4

**M 5112** 35 t/m

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

24h 42CrMo4

**M 5116** 35 t/m

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

24h 42CrMo4

**M 5120** 35 t/m

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

24h 42CrMo4

**M 5124** 55 t/m

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

24h 42CrMo4

**M 5130** 60 t/m

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

24h 42CrMo4

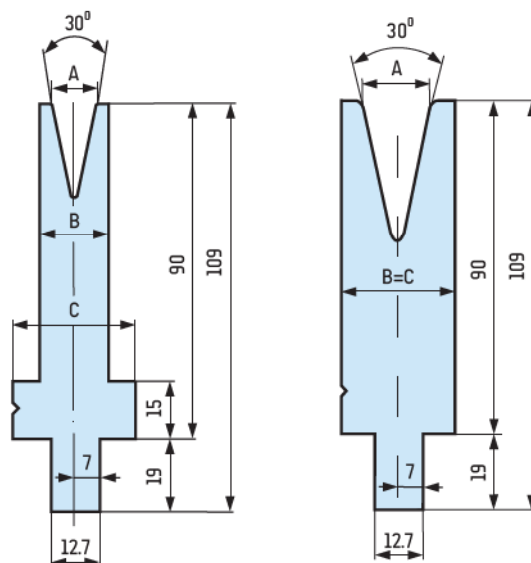
**M 5140** 60 t/m

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

24h 42CrMo4

**M 5150** 80 t/m

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



42CrMo4

**M 5206** 40 t/m

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

42CrMo4

**M 5208** 40 t/m

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

42CrMo4

**M 5210** 50 t/m

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

42CrMo4

**M 5212** 60 t/m

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

42CrMo4

**M 5216** 80 t/m

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

42CrMo4

**M 5220** 100 t/m

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

42CrMo4

**M 5224** 100 t/m

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

42CrMo4

**M 5230** 110 t/m

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

42CrMo4

**M 5240** 130 t/m

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

42CrMo4

**M 5250** 150 t/m

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

42CrMo4

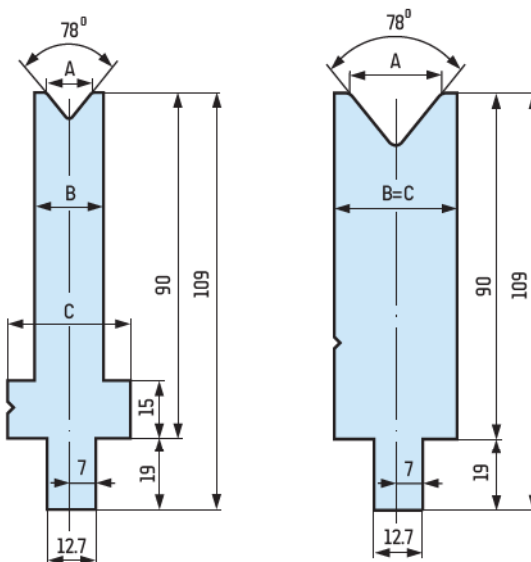
**M 5260** 150 t/m

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

42CrMo4

**M 5280** 150 t/m

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





# TYPE "L" DIES 130 MM | MATRYCE TYPU „L” 130 MM

24h 42CrMo4

**M 5306** 20 t/m

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

24h 42CrMo4

**M 5308** 20 t/m

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

24h 42CrMo4

**M 5310** 30 t/m

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

24h 42CrMo4

**M 5312** 35 t/m

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

24h 42CrMo4

**M 5316** 35 t/m

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

24h 42CrMo4

**M 5320** 35 t/m

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

24h 42CrMo4

**M 5324** 55 t/m

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

24h 42CrMo4

**M 5330** 60 t/m

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

24h 42CrMo4

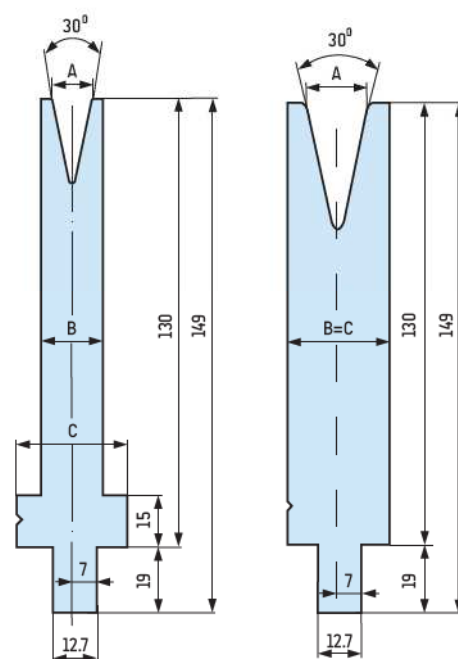
**M 5340** 60 t/m

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

24h 42CrMo4

**M 5350** 70 t/m

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



42CrMo4

**M 5406** 40 t/m

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

42CrMo4

**M 5408** 40 t/m

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

42CrMo4

**M 5410** 50 t/m

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

42CrMo4

**M 5412** 60 t/m

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

42CrMo4

**M 5416** 80 t/m

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

42CrMo4

**M 5420** 100 t/m

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

42CrMo4

**M 5424** 100 t/m

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

42CrMo4

**M 5430** 110 t/m

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

42CrMo4

**M 5440** 130 t/m

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

42CrMo4

**M 5450** 150 t/m

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

42CrMo4

**M 5460** 150 t/m

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

42CrMo4

**M 5480** 150 t/m

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

42CrMo4

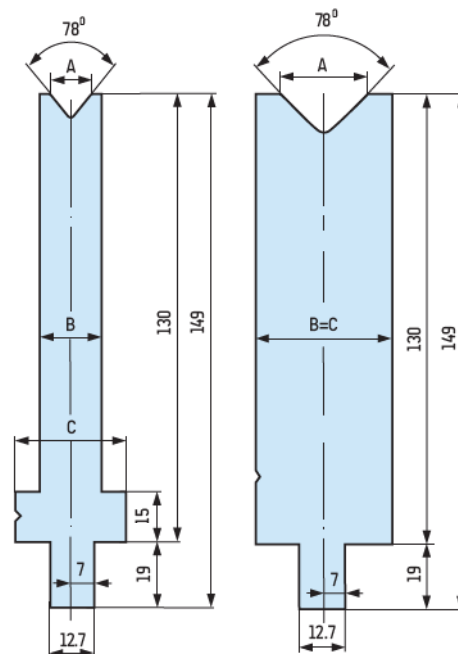
**M 54100** 150 t/m

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

42CrMo4

**M 54120** 150 t/m

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



## TYPE "L" DIES | MATRYCE TYPU „L”

flattening dies | matryce do zagniatania

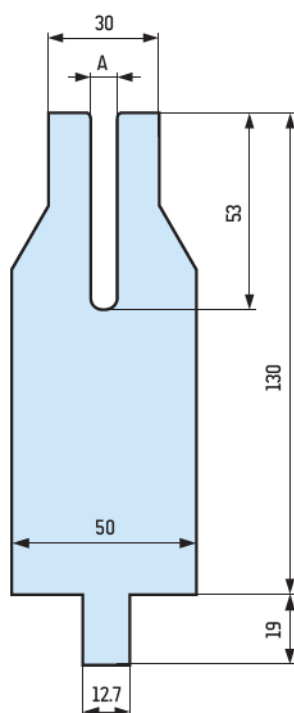
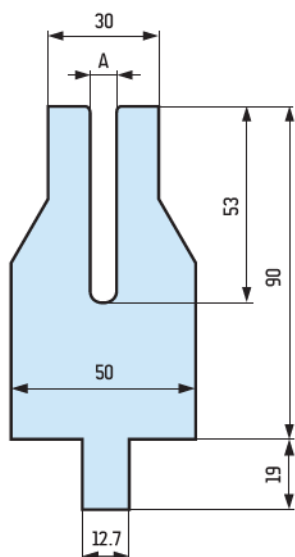
42CrMo4

**M 5000** 50 t/m

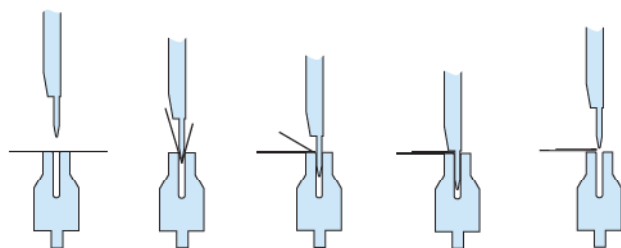
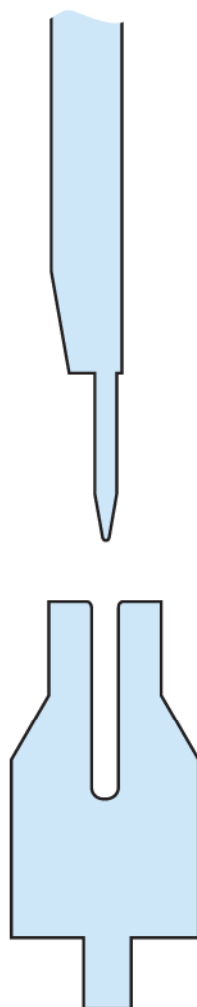
A = 8 mm, 10 mm, 12 mm

R = 1 mm

H = 90 mm, 130 mm



example of use | przykład zastosowania



Dies M5000 are used together with punches S2510 P, S2610 P, S2515 P or S2615 P.

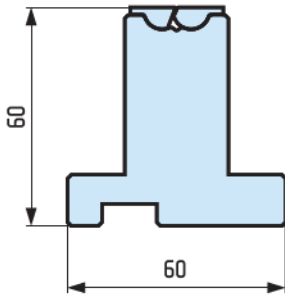
Do matryc M5000 stosujemy stemple S2510 P, S2610 P, S2515 P lub S2615 P.

## ROLLA-V DIES | MATRYCE ROLLA-V

dies with movable inserts |  
matryce z ruchomymi wkładkami

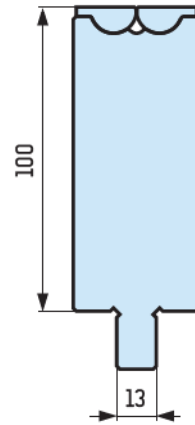
### RVP 60-1

L = 100 mm, 440 mm, 500 mm



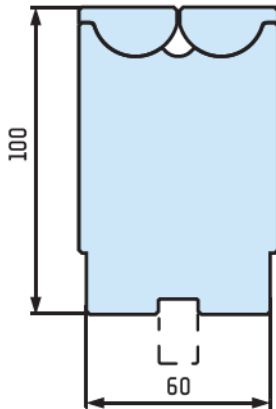
### RVT 100-2

L = 100 mm, 440 mm, 500 mm



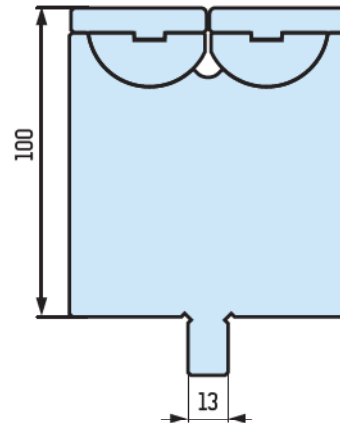
### RVM 2.5

L = 100 mm, 470 mm, 500 mm



### RVT 100-3

L = 100 mm, 455 mm, 500 mm



Dies created for mark-free bending of stainless and coated steel. Thanks to continuous support they allow use on short bending arms, and next to holes.

Matryce przeznaczone do gięcia bezśladowego blachy nierdzewnej i powlekanej. Dzięki stałemu podparciu umożliwiają gięcie blach o krótkich ramionach, i w sąsiedztwie otworów.

Different sizes of dies available. Dies can be offered with: 60 mm - type A, 13 mm - type T and W and 12.7 mm - type L holding type. Length of a single section - up to 500 mm.

Możliwość wykonania różnej wielkości matryc. Dostępne uchwyty matryc: 60 mm - typ A, 13 mm - typy T i W oraz 12.7 mm - typ L. Długość pojedynczego segmentu do 500 mm.

## ROLLA-V DIES | MATRYCE ROLLA-V

dies with movable inserts |  
matryce z ruchomymi wkładkami

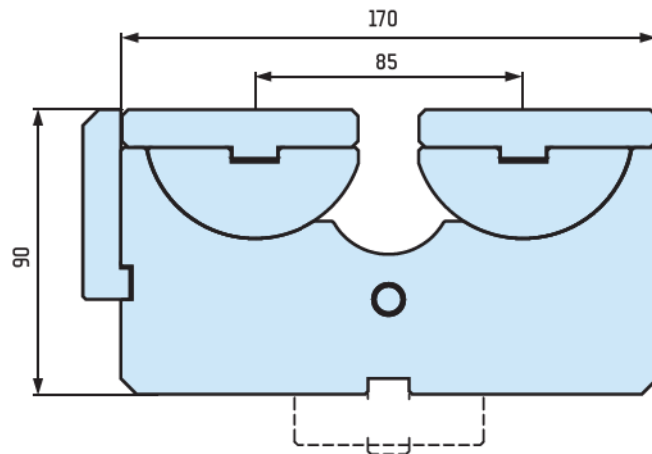
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### RVM 4

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*L = 200 mm, 500 mm*

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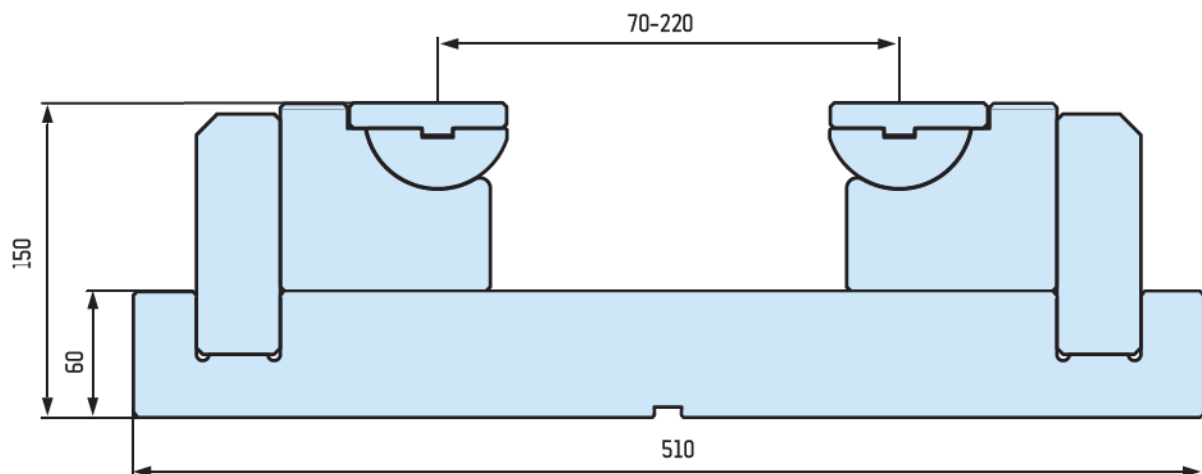
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### RVHD 4

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*L = 200 mm, 500 mm*

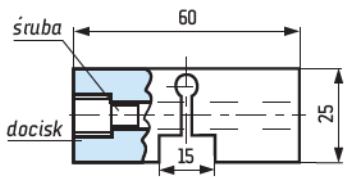
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# DIE HOLDERS | MOCOWANIA MATRYC

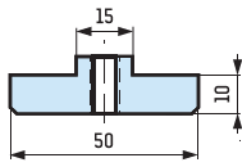
24h

2 V



24h

A

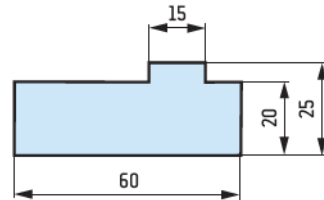


ASSEMBLY | PRZYKŁAD MONTAŻU



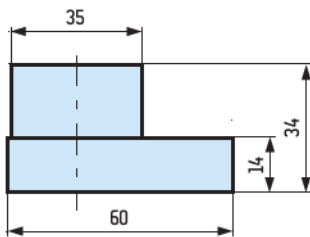
24h

A 20



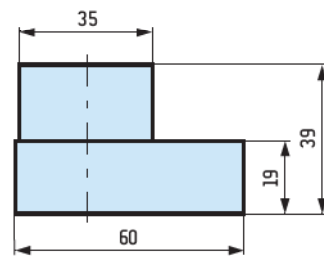
24h

A 34



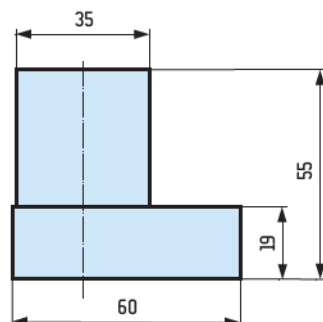
24h

A 39



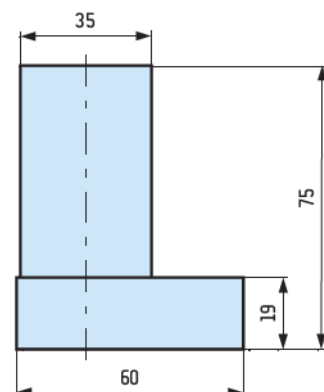
24h

A 55



24h

A 75

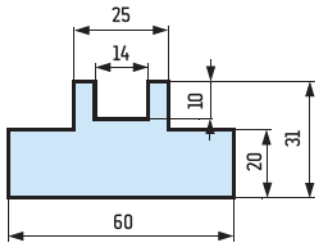


# DIE HOLDERS | MOCOWANIA MATRYC



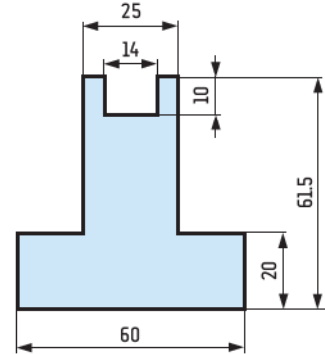
**A 31**

*L = 835 mm*



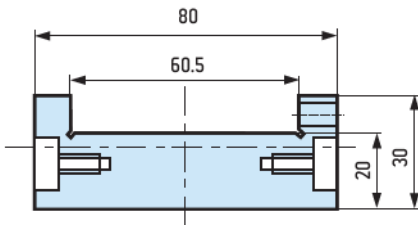
**A 61**

*L = 835 mm*



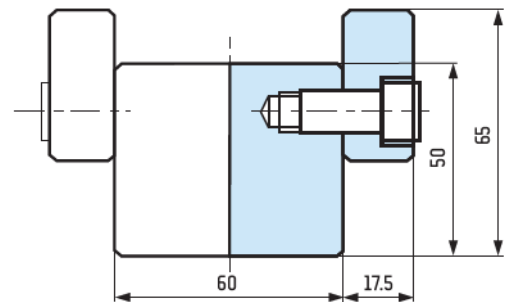
**B 60**

*L = 1050 mm*



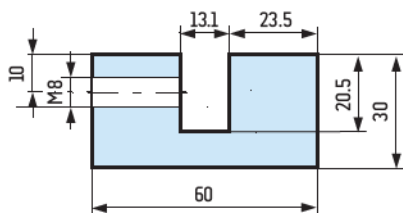
**C 60**

*L = 835 mm*



**D 30**

*L = 1000 mm*



**D 60**

*L = 1000 mm*

