

Best choice.

Bystronic Tools

Our Tools XPT

Laser | Bending | Waterjet
bystronic.com

Overview about the icons used in this catalogue



Material / Hardness



max. permitted load



method of tool loading



nature of load



bottom tool support



weight



reversible tool



clamping type

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Bystronic world wide

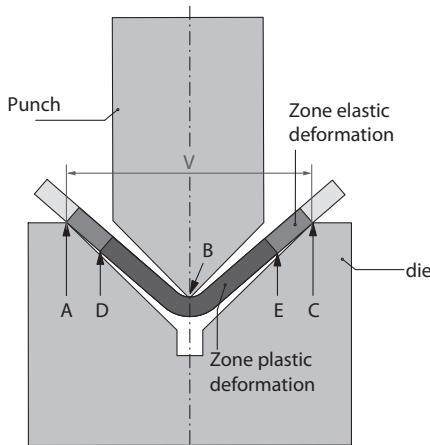
Bystronic world wide.....	86
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Bystronic bending methods

Principle of air bending

Basics

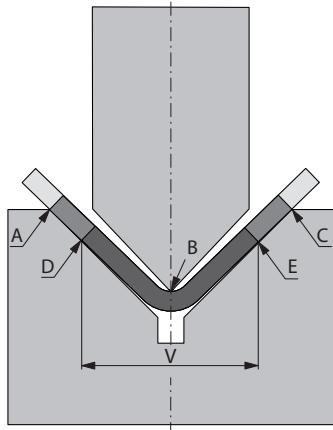
With the air bending method the bending angle is determined by the depth of penetration of the upper tool into the lower die. To that effect and amongst other factors the bending accuracy is mainly dependant upon the positional accuracy of the upper beam. Under load the material is stressed from A to C. After removal of the load the portions AD and EC spring back into their original positions. In the case of air bending without bottoming the vees of the bottom tool and the angle of the top tool must be smaller than 90°.



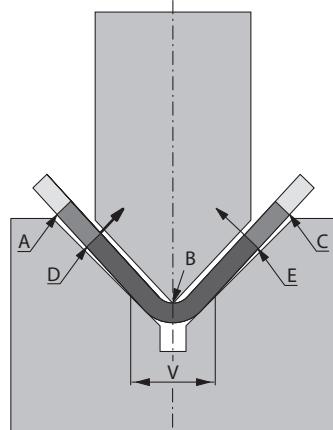
- M = bottom tool
- R = inner radius
- V = bottom tool opening
- S = upper tool

Bystronic bending methods

Principle of bottoming



As soon as the areas AD and CE touch the sides of the vee in air bending with bottoming they will spring back into their original position until the positions of contact have to move to D and E.



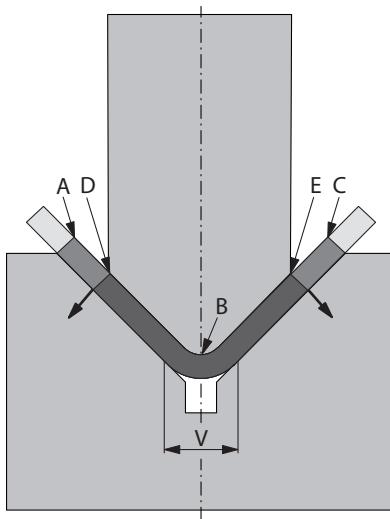
A still further penetration of the top tool will result in a disengagement of the points D and E from the lower die as the points of contact start to move in the overbending is larger than the spring back of the portion located underneath the points of contact the angle of the section after removal of the load will be smaller than the angle of the vee..

Bystronic bending methods

Principle of coining

A further penetration of the top tool will result in a reopening of the section D and E until the top tool completely bottoms out on to the material. (start of the coining process).

The variation of the forces versus the travel of the top tool is a function of the material. The bottoming or coining process corresponds to a continuous reduction of the die opening (V). The smaller the width of the vee during coining results in a corresponding reduction of spring back in comparison to airbending. The bending forces required are 4 to 8 times greater than those required for air bending.



Notes

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Calculation basics for air bending

Calculation formulas

Recommended bottom tool opening V for air bending

Material thickness	t	0.5–2.5 mm	3–8 mm	9–10 mm	> 12 mm
Bottom tool opening	V	$6 \times t$	$8 \times t$	$10 \times t$	$12 \times t$

Bending force for

Aluminium	$R_m = 300 \text{ N/mm}^2$	$F = F(\text{table}) \times 0.65$
Mild steel	$R_m = 420 \text{ N/mm}^2$	$F = F(\text{table})$
Stainless steel	$R_m = 700 \text{ N/mm}^2$	$F = F(\text{table}) \times 1.6$

Determination of the bending force for air bending (reference data)

$$F = \frac{R_m \times t^2}{V} \times \left(1 + \frac{4 \times t}{V}\right)$$

Conversion: $R_m = \text{tensile strength in } \text{N/mm}^2$

$10 \text{ N} \equiv 1 \text{ kg}$

$10 \text{ kN} \equiv 1 \text{ t}$

Conversion for minimal internal radii R

thickness t	1	2	3	4	5	6	8	10	12	16	18	20
min. R	1	2	3	5	6	8	12	16	20	28	36	40

Calculation basics for air bending

Tensile strength

Material		Tensile strength	
American	European	KPSI	N/mm ²
6061 Aluminum	Alu 50	42	290
5052 Aluminum	Alu 35	44	303
1010 Mild steel	DC01	53	366
A 536-80 G 60-40-18	GGG-40	58	400
A 351 G CF 8	G-X 6CrNi 18 9	65	450
A 572 G50	S 355 MC	80	550
Domex 80	S 420 MC	80	550
A 36	S 235 JR	80	552
304 Stainless	Inox V2A	85	586
316 Stainless	Inox V4A	87	600
A 572 G 65	S 460 MC	95	655
Domex 100	S 500 MC	102	700
Domex 550	S 550 MC	110	760
Domex 600	S 600 MC	119	820
Weldox 700	Weldox 700	123	850
Domex 650	S 650 MC	128	880
Domex 700	S 700 MC	138	950
4140 Low alloy	42 CrMo 4	145	1000
Weldox 900	Weldox 900	149	1030
Weldox 960	Weldox 960	154	1060
Hardox 400	Hardox 400	181	1250
Hardox 500	Hardox 500	225	1550

Calculation basics for air bending

Capacity chart for air bending

Bending force (F) in tons per foot is based on Mild Steel at 61 KPSI (420 N/mm^2).
For bends with 90° angle.

V - opening mm	6	8	10	12	16	20	24	32	40	50	60		
V - opening inches	0.236	0.315	0.394	0.472	0.630	0.787	0.945	1.260	1.575	1.969	2.362		
R - inside radius	0.04	0.05	0.06	0.08	0.10	0.13	0.15	0.20	0.26	0.32	0.38		
a - minimum flange	0.18	0.24	0.30	0.36	0.49	0.61	0.73	0.97	1.21	1.52	1.82		
t		F Bending force (F) in tons per foot.											
Metric	Gauge	Decimal											
0,6	24	0.023	1.1	0.8									
0,9	20	0.036	3.2	2.1	1.6								
1,2	18	0.048	6.3	4.2	3.1	2.5	1.7						
1,5	16	0.060		7.2	5.3	4.1	2.8	2.1					
1,9	14	0.075			9.0	7.0	4.7	3.5	2.8				
2,7	12	0.105				15.8	10.4	7.7	6.0	4.2			
3,0	11	0.120					14.4	10.5	8.2	5.6	4.3		
3,4	10	0.135						14.0	10.8	7.4	5.6	4.2	
4,8	7	0.188							24.0	16.0	11.9	8.9	
6,4	1/4	0.250								31.8	23.2	17.1	
8,0	5/16	0.313									39.9	29.1	
9,5	3/8	0.375										45.0	
12,7	1/2	0.500										34.8	
15,9	5/8	0.625											
19,1	3/4	0.750		Shaded areas is ideall V/t ratio									
25,4	1	1.000											
31,8	1,25	1.250											

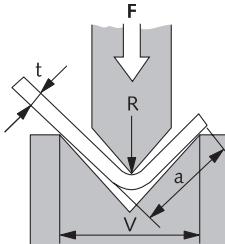
Bending force (F) in tons per foot for Aluminum (44 KPSI) is about $F \times 0.65$.

Bending force (F) in tons per foot for Stainless Steel (102 KPSI) is about $F \times 1.6$.

Calculation basics for air bending

Capacity chart for air bending

80	100	120	130	140	150	160	180	190	200	230	260	290	320
3.150	3.937	4.724	5.118	5.512	5.906	6.299	7.087	7.480	7.874	9.055	10.236	11.417	12.598
0.51	0.64	0.77	0.83	0.90	0.96	1.02	1.15	1.22	1.27	1.47	1.66	1.86	2.05
2.43	3.03	3.64	3.94	4.24	4.55	4.85	5.46	5.76	6.06	6.97	7.88	8.79	9.70
9.4													
15.5	11.7												
23.6	17.6	14.0	12.7										
46.4	34.3	26.9	24.3	22.1	20.3								
	58.0	45.2	40.6	36.8	33.7	31.0	26.7	24.9	23.4				
			62.4	56.4	54.4	47.2	40.4	37.7	35.3	29.6	25.4	22.3	
					56.4	92.8	79.0	73.4	68.5	59.6	48.6	42.3	37.4
							134.5	124.7	116.5	95.8	81.3	70.4	62.0



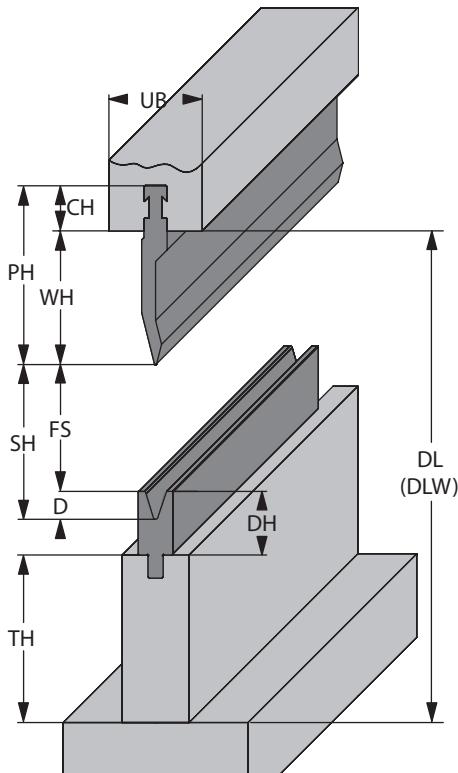
The internal radius R corresponds to approximately 16% of the die opening V.

Calculation basics for air bending

Calculation of free space

DLW is calculated with NSCL-II clamping

Basics



UB	upper beam
CH	clamping height
CS	height clamping unit
PH	punch height
WH	working height
SH	standard stroke
FS	free space
D	die depth
DH	die height
DL	day light
TH	table height

How to calculate the free space between punch and die if the upper beam is in upper position:

$$FS = DL - TH - DH - WH$$

Working space determination with XPT tools (Metric)

Tonnage	Day-light	Day-light	Stroke	Punch height	Working height	Clamping height	Box depth	Die height	Table height	Free space	Width upper beam
	DL mm	DLW mm	SH mm	PH mm	WH mm	CH mm	BH mm	DH mm	TH * mm	FS mm	UB mm
60t	500	420	215	200	163	37	130	55	115	87	80
				237	200	37	170	55	115	50	80
100t	500	420	215	200	163	37	130	55	115	87	70
				237	200	37	170	55	115	50	70
150t	500	420	215	200	163	37	130	55	115	87	70
				237	200	37	170	55	115	50	70
200t	500	420	215	200	163	37	130	55	115	87	80
				237	200	37	170	55	115	50	80
250t	550	470	265	200	163	37	130	55	115	137	80
				237	200	37	170	55	115	100	80
320t	550	470	265	200	163	37	130	55	115	137	80
				237	200	37	170	55	115	100	80

Standard table height. Not for machines with Hemming table or LAMS!

Working space determination with XPT tools (Inches)

Tonnage	Day-light	Day-light	Stroke	Punch height	Working height	Clamping height	Box depth	Die height	Table height	Free space	Width upper beam
	DL mm	DLW mm	SH mm	PH mm	WH mm	CH mm	BH mm	DH mm	TH * mm	FS mm	UB mm
66t	19.7	16.5	8.5	7.9	6.4	1.5	5.1	2.2	4.5	3.4	3.1
				9.3	7.9	1.5	6.7	2.2	4.5	1.9	3.1
110t	19.7	16.5	8.5	7.9	6.4	1.5	5.1	2.2	4.5	3.4	2.8
				9.3	7.9	1.5	6.7	2.2	4.5	1.9	2.8
165t	19.7	16.5	8.5	7.9	6.4	1.5	5.1	2.2	4.5	3.4	2.8
				9.3	7.9	1.5	6.7	2.2	4.5	1.9	2.8
220t	19.7	16.5	8.5	7.9	6.4	1.5	5.1	2.2	4.5	3.4	3.1
				9.3	7.9	1.5	6.7	2.2	4.5	1.9	3.1
275t	21.7	18.5	10.4	7.9	6.4	1.5	5.1	2.2	4.5	5.4	3.1
				9.3	7.9	1.5	6.7	2.2	4.5	3.9	3.1
352t	21.7	18.5	10.4	7.9	6.4	1.5	5.1	2.2	4.5	5.4	3.9
				9.3	7.9	1.5	6.7	2.2	4.5	3.9	3.9

Standard table height. Not for machines with Hemming table or LAMS!

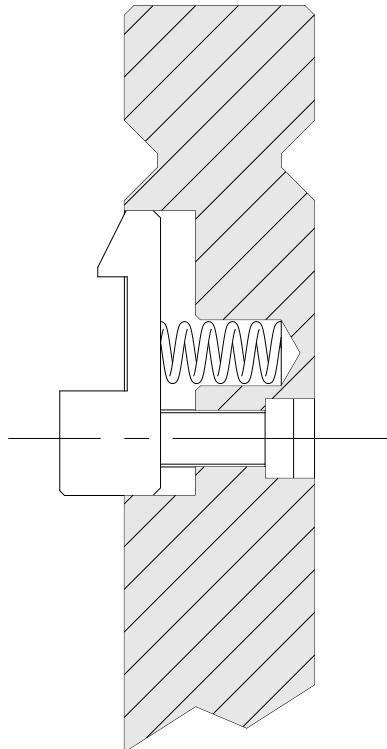
Upper tools

Principle of Safety-Click

Safety-Click (up to 12,5kg, 27.5 lbs)

XPT top tools weighing up to 12.5 kg and 27.5 lbs are equipped with a safety mechanism, known as Safety-Click. With this device, the tools can be vertically interchanged at any position in seconds.

XPT top tools 20mm to 100mm length have just one Safety-Click.
XPT top tools 200mm to 515mm in length have two Safety-Clicks.



XPT tools are compatible to WILA „BIU...“ tools

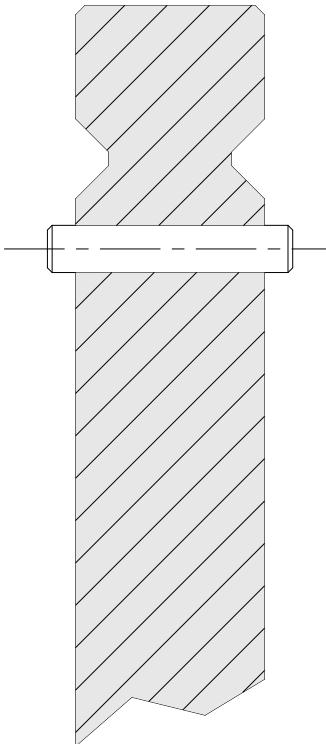
Principle of Safety-Click

Safety-Pin (between 12,5 kg, 27.5 lbs and 25 kg, 55.0 lbs)

XPT top tools weighing between 12.5 kg, 27.5 lbs and 25 kg, 55.0 lbs are equipped with a safety mechanism, known as Safety-Pin. With this device, the tools can be vertically interchanged at any position in seconds. The machine has to be equipped from the side.

XPT top tools 20mm to 100mm length have just one Safety-Pin.

XPT top tools 200mm to 515mm in length have two Safety-Pins.



XPT tools are compatible to WILA „BIU...“ tools

Principle of Safety-Click

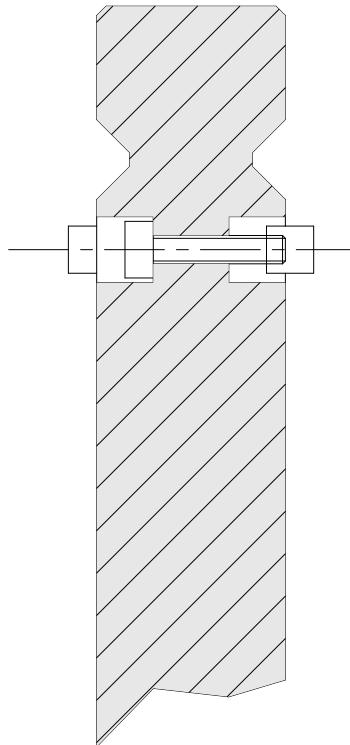
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Safety-Chock (over 25kg, 55.0 lbs)

XPT top tools weighing over 25 kg are equipped with a safety mechanism, known as Safety-Chock. With this device, the tools can be vertically interchanged at any position in seconds. The machine has to be equipped from the side.

XPT top tools 20mm to 100mm length have just one Safety-Chock.

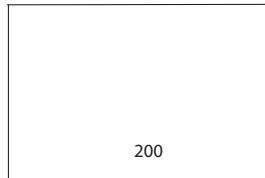
XPT top tools 200mm to 515mm in length have two Safety-Chocks.



XPT tools are compatible to WILA „BIU...“ tools

Overview about the several length

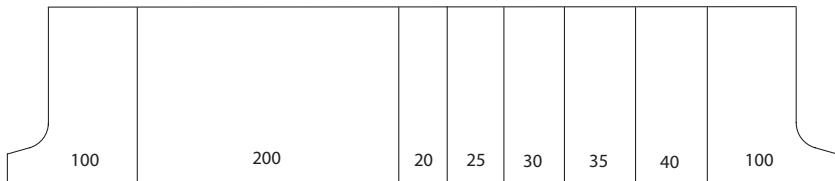
L = 200 mm / 7.874 Inches



L = 515 mm / 20.275 Inches



L = 550 mm / 21.653 Inches

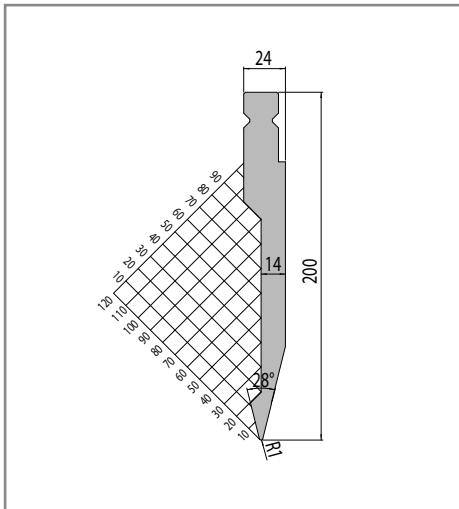


Notes

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Upper tools - XPT

XPT - 021



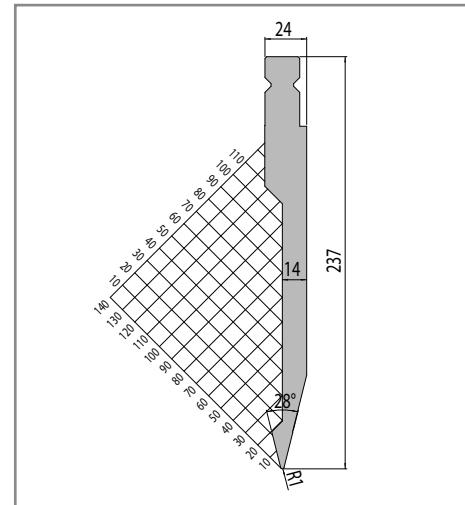
Dimensions are in mm

Radius (mm/inch)	1 / 0.039
Angle (°)	28
High (mm/inch)	200 / 7.87

- First class CrMo alloy
- 56 - 60 HRC
- Fmax = 700 kN/m
- Operator side
- Head supported
- 24.0 kg/m
- Hydraulic clamping

Length	Typ	Material number
515mm	XPT - 021/1	65300.0021.3001
550mm sect.	XPT - 021/2	65300.0021.3002
200mm	XPT - 021/6	65300.0021.3004

XPT - 031



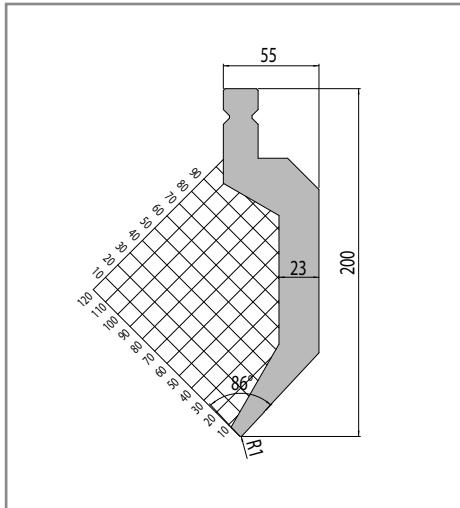
Dimensions are in mm

Radius (mm/inch)	1 / 0.039
Angle (°)	28
High (mm/inch)	237 / 9.33

* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - 031/1	65300.0031.3008
550mm sect.	XPT - 031/2	65300.0031.3012
200mm	XPT - 031/6	65300.0031.3009

XPT - 023



Dimensions are in mm

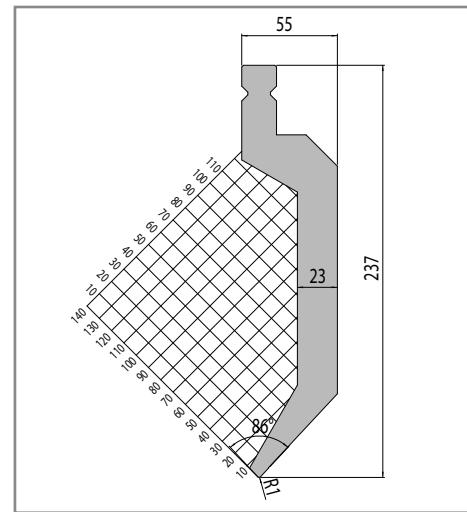
Radius (mm/inch)	1 / 0.039
Angle (°)	86
High (mm/inch)	200 / 7.87

- First class CrMo alloy
- 56 - 60 HRC
- Fmax = 650 kN/m
- Operator side
- Head supported
- 38.1 kg/m
- Hydraulic clamping

* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - 023/1	65300.0023.3001
550mm sect.	XPT - 023/2	65300.0023.3002
200mm	XPT - 023/6	65300.0023.3004

XPT - 033



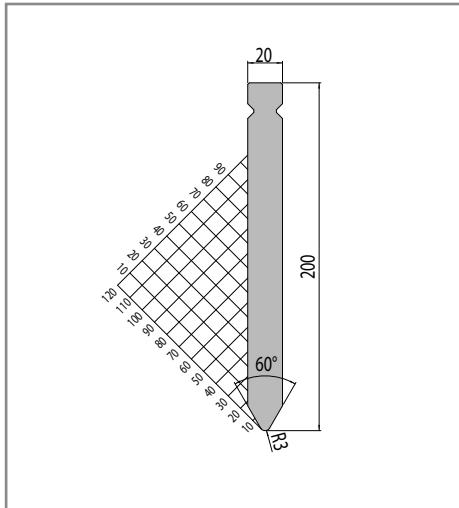
Dimensions are in mm

Radius (mm/inch)	1 / 0.039
Angle (°)	86
High (mm/inch)	237 / 9.33

* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - 033/1	65300.0033.3005
550mm sect.	XPT - 033/2	65300.0033.3009
200mm	XPT - 033/6	65300.0033.3006

XPT - 024



Dimensions are in mm

Radius (mm/inch)	3 / 0.118
Angle (°)	60
High (mm/inch)	200 / 7.87



First class CrMo alloy



56 - 60 HRC



$$F_{max} = 1600 \text{ kN/m}$$



Operator side



Head supported



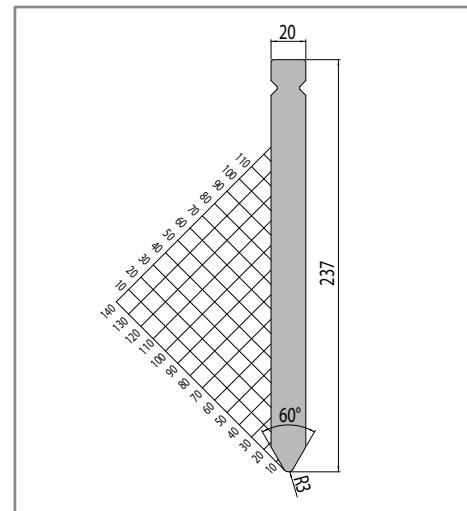
31.1 kg/m

Methodology

* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - 024/1	65300.0024.3001
550mm sect.	XPT - 024/2	65300.0024.3002
200mm	XPT - 024/6	65300.0024.3004

XPT - 034

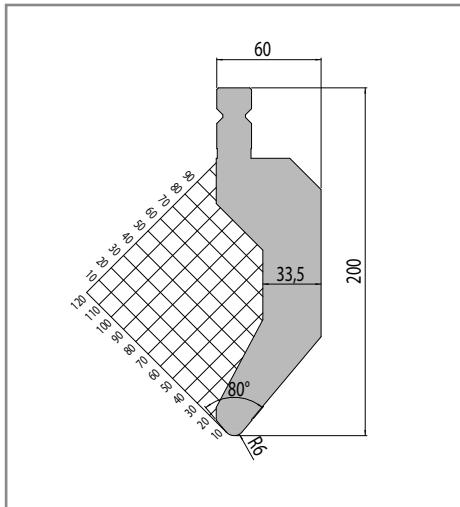


Dimensions are in mm

Radius (mm/inch)	3 / 0.118
Angle (°)	60
High (mm/inch)	237 / 9.33

* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - 034/1	65300.0034.3001
550mm sect.	XPT - 034/2	65300.0034.3005
200mm	XPT - 034/6	65300.0034.3002

XPT - 025

Dimensions are in mm

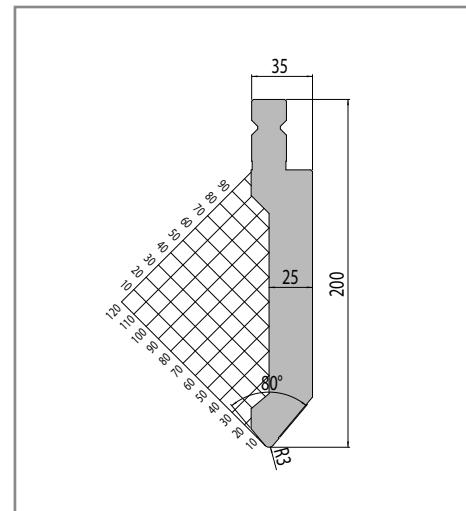
Radius (mm/inch)	6 / 0.236
Angle (°)	80
High (mm/inch)	200 / 7.87

- First class CrMo alloy
- 56 - 60 HRC
- $F_{max} = 1300 \text{ kN/m}$
- Operator side
- Head supported
- 53.8 kg/m
- Hydraulic clamping

* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - 025/1	65300.0025.3001
550mm sect.	XPT - 025/2	65300.0025.3002
200mm	XPT - 025/6	65300.0025.3004

XPT - 026

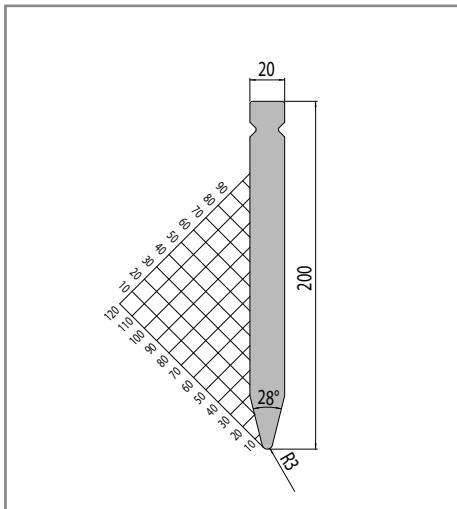


Dimensions are in mm

Radius (mm/inch)	3 / 0.118
Angle (°)	80
High (mm/inch)	200 / 7.87

* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - 026/1	65300.0026.3001
550mm sect.	XPT - 026/2	65300.0026.3002
200mm	XPT - 026/6	65300.0026.3004

XPT - 029

Dimensions are in mm

Radius (mm/inch)	3 / 0.118
Angle (°)	80
High (mm/inch)	200 / 7.87



First class CrMo alloy



56 - 60 HRC



Fmax = 1300 kN/m



Operator side



Head supported



30.2 kg/m



Hydraulic clamping

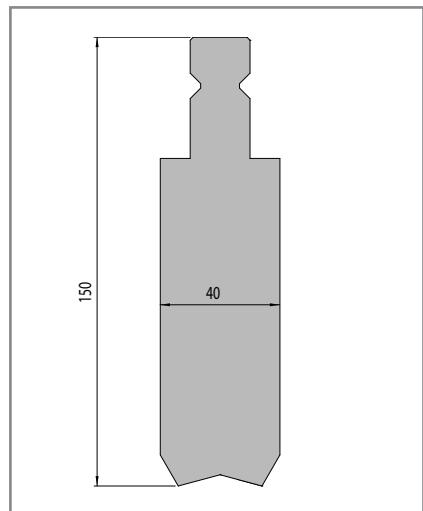
* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - 029/1	65300.0029.3001
550mm sect.	XPT - 029/2	65300.0029.3002
200mm	XPT - 029/6	65300.0029.3003

Notes



XPT - P10 - H=150 / 5.9"



Dimensions are in mm

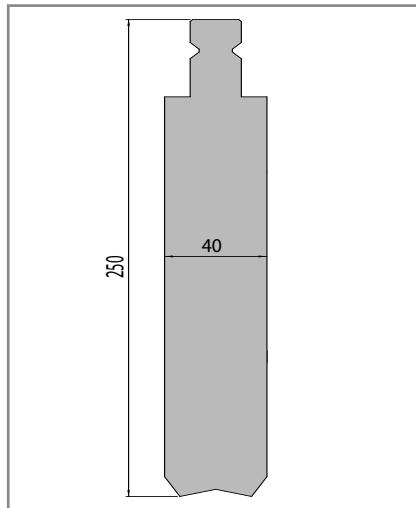
Radius (mm/inch)	variable
Angle (°)	-
High (mm/inch)	150 / 5.9"

	First class CrMo alloy
	-
	Fmax = 1600 kN/m
	Operator side
	Head supported
	39.0 kg/m
	Hydraulic clamping

* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - 10/1 - h=130	65300.0010.5001

XPT - P10 - H=250 / 9.84"



Dimensions are in mm

Radius (mm/inch)	variable
Angle (°)	-
High (mm/inch)	250 / 9.84

* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - 10/1 - h=250	65300.0010.5002

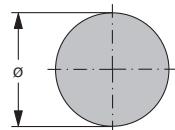
XPT - P10 Radius tools

42CrMo4 hardened

On request we offer this tools precision ground in C45

L	515	515	515	515	515	515
Type	PB 28	PB 30	PB 35	PB 40	PB 45	PB 50
Ø mm	28	30	35	40	45	50
kg/m	5	5.5	7.5	10	12.5	15.5

515/1030	515/1030	515/1030	515/1030	515/1030
PB 55	PB 60	PB 65	PB 70	PB 80
55	60	65	70	80
18.5	22	26	30	39.5

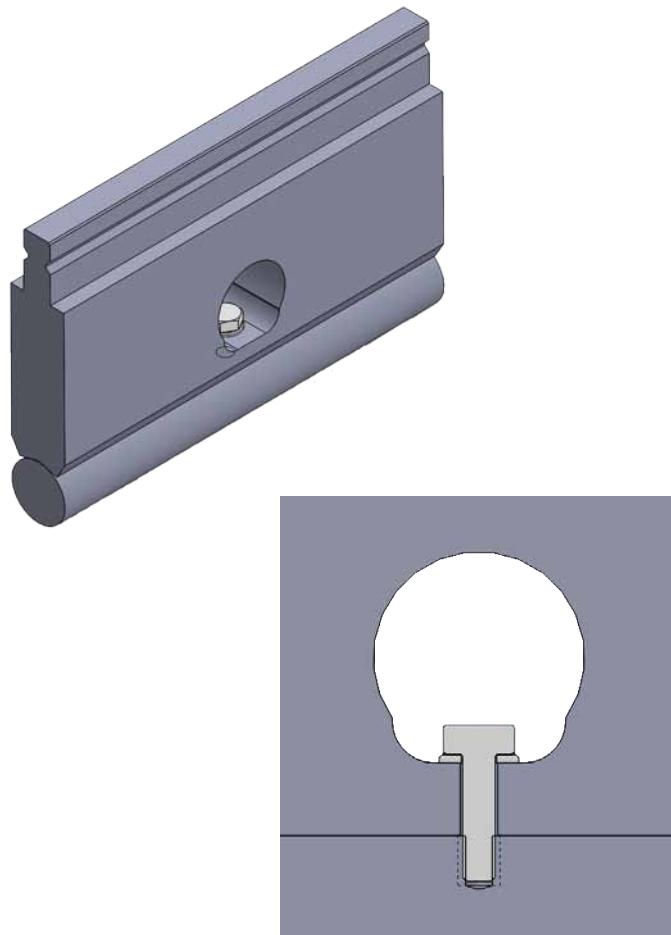


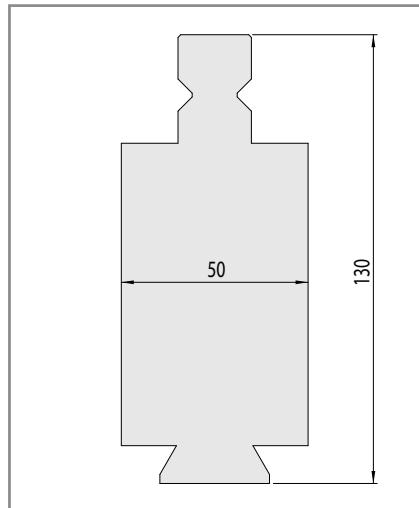
Length	Ø Round bars	Part number
515 mm	28 mm	65200.0028.5002
	30 mm	65200.0030.5007
	35 mm	65200.0035.5005
	40 mm	65200.0040.5005
	45 mm	65200.0045.5003
	50 mm	65200.0050.5009
	55 mm	65200.0055.5002
	60 mm	65200.0060.5004
	65 mm	65200.0065.5002
	70 mm	65200.0070.5001
	80 mm	65200.0080.5003

XPT - P10 Radius tools

Mounting detail

35



XPT - P12 - H=130 / 5.11"

Dimensions are in mm

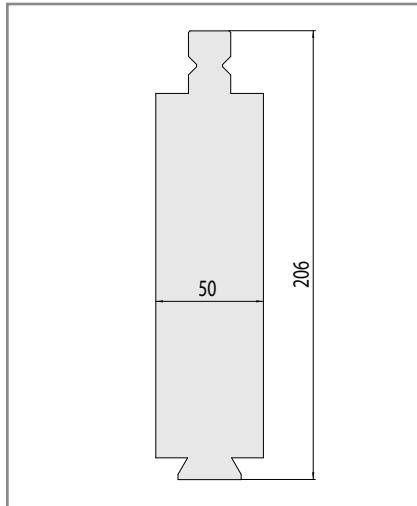
Radius (mm/inch)	variable
Angle (°)	-
High (mm/inch)	130 / 5.11

- First class CrMo alloy
-
- Fmax = 1800 kN/m
- Operator side
- Head supported
- kg 39.4 kg/m
- Hydraulic clamping

* Because of his weight this punch is equipped with safety pins. (See page 17 - 19)

Length	Typ	Material number
515mm*	XPT - 12/1 - h130	65300.0012.5001

XPT - P12 - H=206 / 8.11"



Dimensions are in mm

Radius (mm/inch)	variable
Angle (°)	-
High (mm/inch)	206 / 8.11

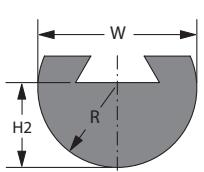
* Because of his weight this punch is equipped with safety pins. (See page 17 - 19)

Length	Typ	Material number
515mm*	XPT - 12/1 - h206	65300.0012.5002

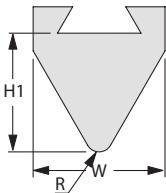
XPT - P12 Radius tools

42CrMo4 hardened

mm	Inches	Weight	L= (mm) / (Inches)	Part number
R= 5	0.197	Type A	6,6 kg 515 mm / 20.276	65200.0005.5002
R= 6	0.236	Type A	6,6 kg 515 mm / 20.276	65200.0006.5005
R= 8	0.315	Type A	6,6 kg 515 mm / 20.276	65200.0008.5003
R= 10	0.394	Type A	6,6 kg 515 mm / 20.276	65200.0010.5004
R= 12	0.472	Type A	6,6 kg 515 mm / 20.276	65200.0012.5005
R= 15	0.591	Type A	6,6 kg 515 mm / 20.276	65200.0015.5002
R= 20	0.787	Type A	6,6 kg 515 mm / 20.276	65200.0020.5004
R= 25	0.984	Type B	6,6 kg 515 mm / 20.276	65200.0025.5005
R= 30	1.181	Type B	6,6 kg 515 mm / 20.276	65200.0030.5004
R= 35	1.378	Type B	6,6 kg 515 mm / 20.276	65200.0035.5003



Typ B



Typ A

H1 = 44 mm
H2 = 35mm
(standard)

Dimension „W“ on Type A is always: 50 mm / 1.968 Inches

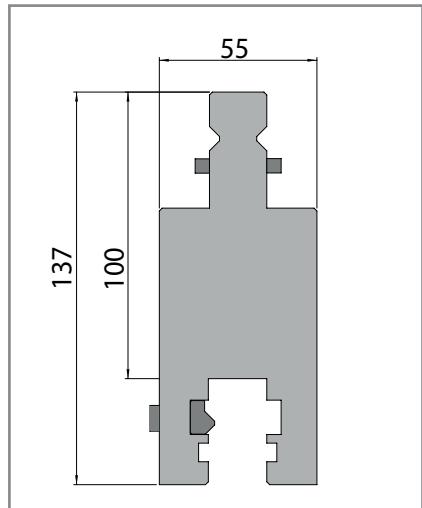
Dimension „W“ on Type B is always the dimension of the radius x 2

Notes

39

Upper tools - XPT

Adapter XPT - P30 - XPT/XPT H=100 / 3.93



Dimensions are in mm

- C45
-
-
- Operator side
- Head supported
- 6.5 kg/150 mm
- Hydraulic clamping

Radius (mm/inch)	-
Angle (°)	-
High (mm/inch)	100 / 3.93

Length	Typ	Material number
150mm	Adapter XPT/XPT	64600.0000.0110

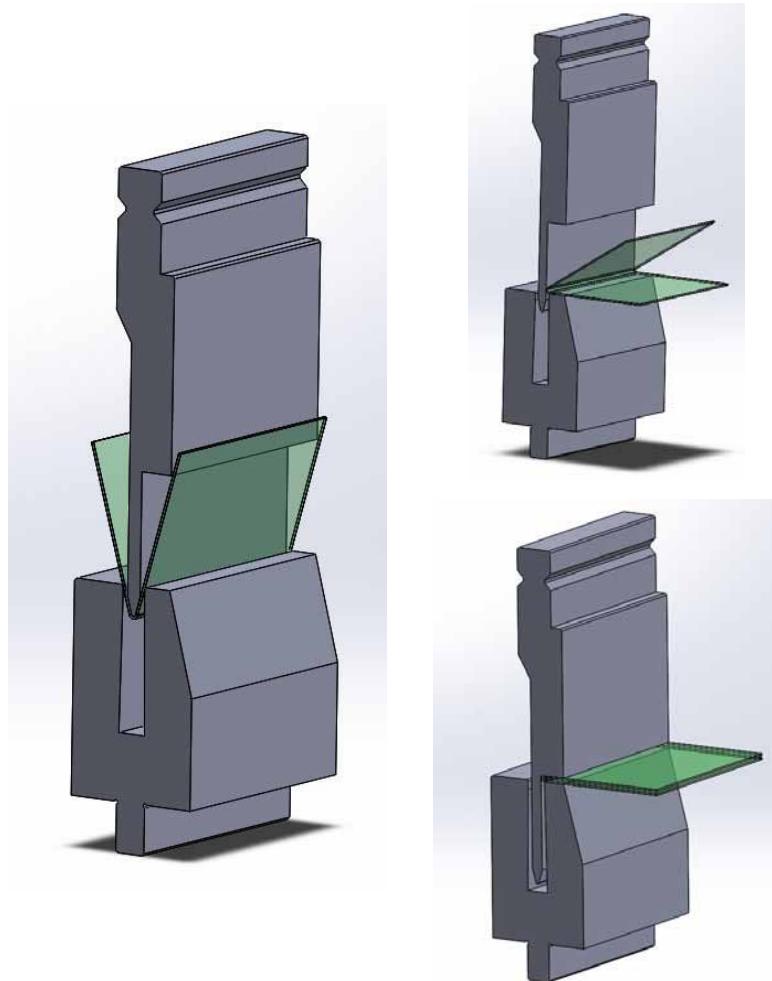
Notes

41

Upper tools - XPT

Hemming tools

Principle of the XPT hemming tools

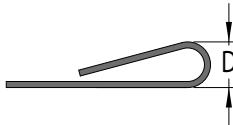


Hemming tools

Tonnage chart for flattening

Mild steel

Rm ~ 420 N/mm²
Rm ~ 55-60.000 PSI



Thickness		Tonnage		D	
mm	Inches	Ton/meter	US ton/ft	mm	Inches
0.6	.024	12	4.0	2.3	.091
0.8	.031	16	5.4	2.3	.091
1.0	.039	20	6.7	2.4	.095
1.2	.047	24	8.1	3.0	.118
1.5	.059	30	10.1	4.4	.173
2.0	.079	40	13.6	5.1	.201

Rm ~ 420 N/mm²
Rm ~ 55-60.000 PSI



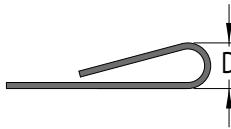
Thickness		Tonnage		D	
mm	Inches	Ton/meter	US ton/ft	mm	Inches
0.6	.024	20	6.7	1.3	.051
0.8	.031	30	10.1	1.7	.067
1.0	.039	30	10.1	2.2	.087
1.2	.047	40	13.4	2.5	.098
1.5	.059	50	16.8	3.5	.138
2.0	.079	60	20.2	4.2	.165

Hemming tools

Tonnage chart for flattening

Stainless steel

Rm ~ 700 N/mm²
Rm ~ 100.000 PSI



Thickness

mm	Inches	Ton/meter	US ton/ft
0.6	.024	20	6.7
0.8	.031	27	9.0
1.0	.039	34	11.4
1.2	.047	40	13.5
1.5	.059	50	16.8
2.0	.079	90	30.3

D

mm	Inches
2.3	.091
2.3	.091
2.4	.095
3.0	.118
4.4	.173
5.1	.201

Rm ~ 700 N/mm²
Rm ~ 100.000 PSI



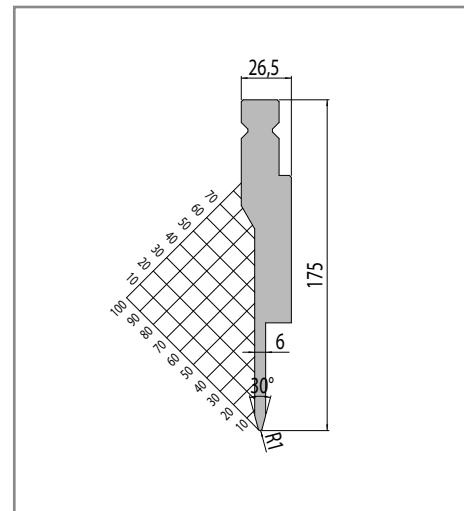
Thickness

mm	Inches	Ton/meter	US ton/ft
0.6	.024	35	11.8
0.8	.031	50	16.8
1.0	.039	50	16.8
1.2	.047	80	26.9
1.5	.059	85	28.6
2.0	.079	120	40.4

D

mm	Inches
1.3	.051
1.7	.067
2.2	.087
2.5	.098
3.5	.138
4.7	.185

XPT - P900/6



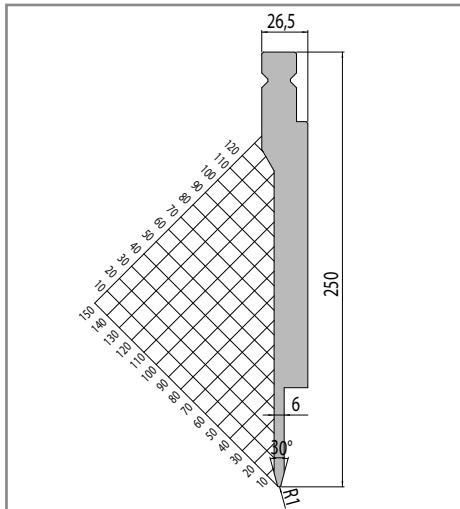
Dimensions are in mm

Radius (mm/inch)	1 / 0.039
Angle (°)	30
High (mm/inch)	175 / 6.88

- First class CrMo alloy
- 56 - 60 HRC
- Fmax = 1000 kN/m
- Operator side
- Head supported
- 21.6 kg/m
- Hydraulic clamping

Length	Typ	Material number
515mm	XPT - P900/1	65300.0900.5001
550mm sect.	XPT - P900/2	65300.0900.9001
200mm	XPT - P900/6	65300.0900.5002

XPT - P900/6



Dimensions are in mm

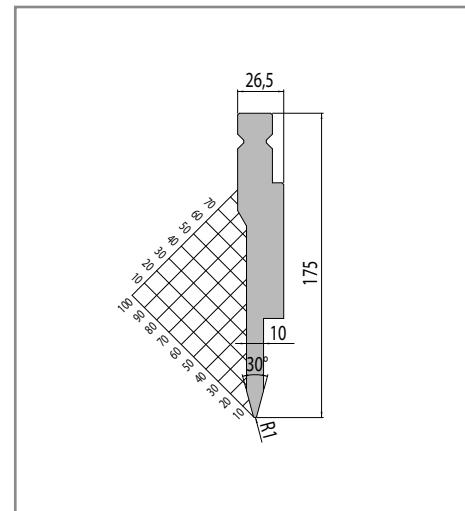
Radius (mm/inch)	1 / 0.039
Angle (°)	30
High (mm/inch)	250 / 9.84

- First class CrMo alloy
- 56 - 60 HRC
- Fmax = 1000 kN/m
- Operator side
- Head supported
- 33 kg/m
- Hydraulic clamping

* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - P900/1	65300.0900.5003
550mm sect.	XPT - P900/2	65300.0900.9002
200mm	XPT - P900/6	65300.0900.5004

XPT - P900/10



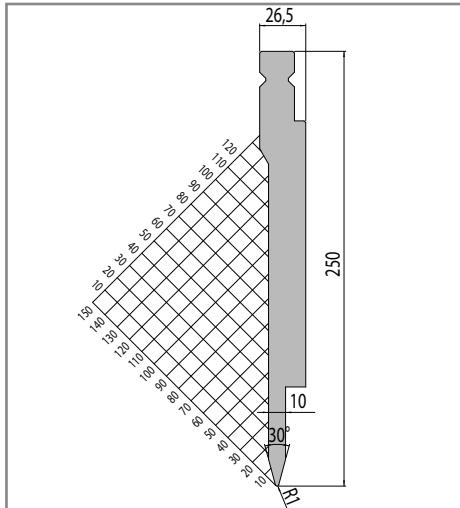
Dimensions are in mm

Radius (mm/inch)	1 / 0.039
Angle (°)	30
High (mm/inch)	175 / 6.88

- First class CrMo alloy
- 56 - 60 HRC
- Fmax = 1000 kN/m
- Operator side
- Head supported
- 23.8 kg/m
- Hydraulic clamping

Length	Typ	Material number
515mm	XPT - P900/1	65300.0900.5005
550mm sect.	XPT - P900/2	65300.0900.9003
200mm	XPT - P900/6	65300.0900.5006

XPT - P900/10



Dimensions are in mm

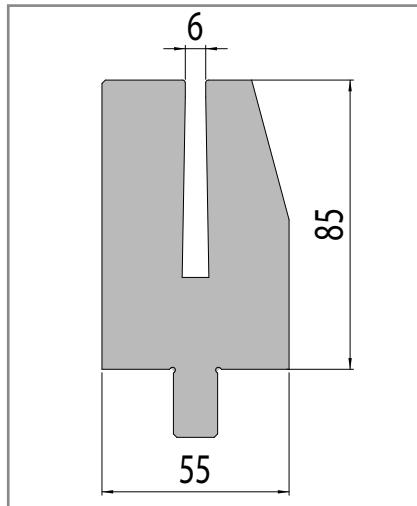
Radius (mm/inch)	1 / 0.039
Angle (°)	30
High (mm/inch)	250 / 9.84

- First class CrMo alloy
- 56 - 60 HRC
- Fmax = 1000 kN/m
- Operator side
- Head supported
- 36.4 kg/m
- Hydraulic clamping

* Because of its weight this punch is equipped with safety pins. (See pages 17 - 19)

Length	Typ	Material number
515mm*	XPT - P900/1	65300.0900.5007
550mm sect.	XPT - P900/2	65300.0900.9004
200mm	XPT - P900/6	65300.0900.5008

V900/6 H=85 (H=3.34)



Dimensions are in mm

Radius (mm/inch)	0.8 / 0.03
Angle (°)	30
High (mm/inch)	85 / 3.34
[B] Width (mm/inch)	55 / 2.16
[D] Depth (mm/inch)	58 / 2.28

Length	Material number
515mm	64201.0900.5010
550mm sect.	64201.0900.9001
200mm	64201.0900.5016



First class CrMo alloy



56 - 60 HRC



250 kN/m



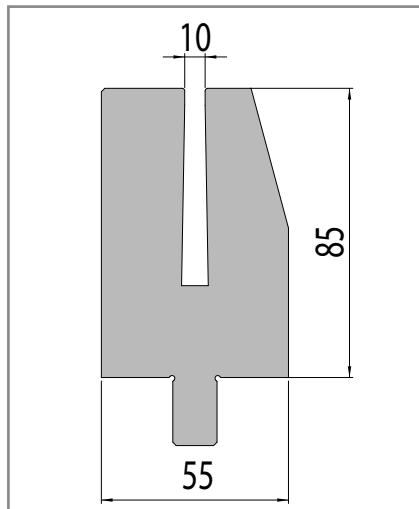
Die insert 13mm



18.0 kg/m



Hydraulic clamping

V900/10 H=85 (H=3.34)

- First class CrMo alloy
- 56 - 60 HRC
- 500 kN/m
- Die insert 13mm
- 32.0 kg/m
- Hydraulic clamping

Radius (mm/inch)	0.8 / 0.03
Angle (°)	30
High (mm/inch)	85 / 3.34
[B] Width (mm/inch)	55 / 2.16
[D] Depth (mm/inch)	58 / 2.28

Length	Material number
515mm	64201.0900.5004
550mm sect.	64201.0900.9002
200mm	64201.0900.5017

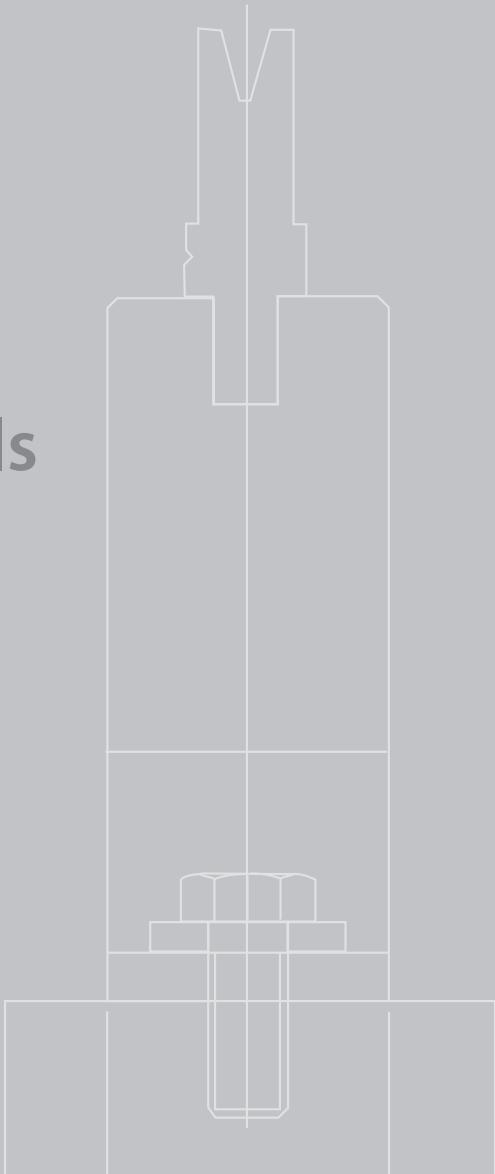
Notes

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XPT - Hemming tools

Bottom tools

Bottom tools

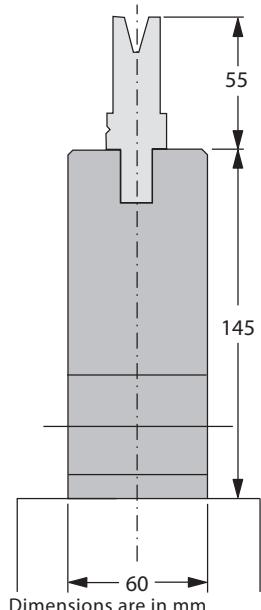


Lower table options

53

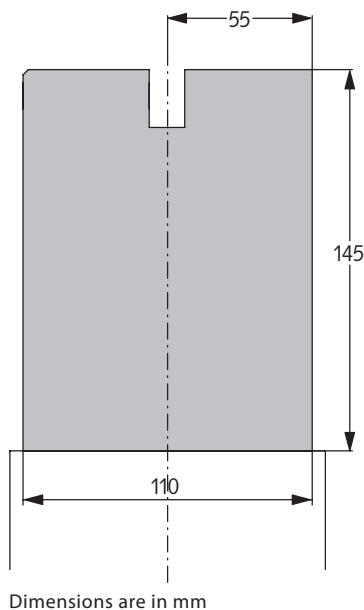
Tables with mechanical tool clamping

T5
(Standard Xpert 60 – 320)



Fitting bottom tools
up to V80.

T55
(Standard Xpert 250 – 1000)



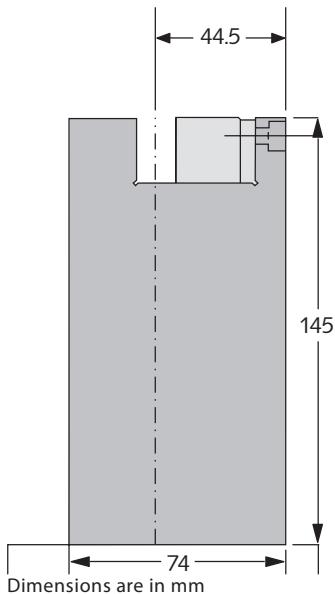
Fitting bottom tools
up to V150.

Lower table options

Table with hydraulic tool clamping

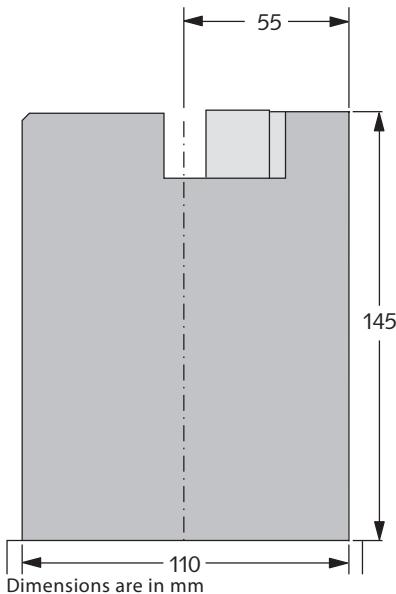
T12

(Optional Xpert 60 - 320 and
Xpert 250 - 1000)



T13

(Optional Xpert 60 - 320 and
Xpert 250 - 1000)



Fitting bottom tools
up to V80.

Fitting bottom tools
up to V150.

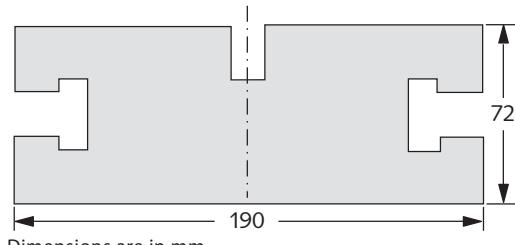
Lower table options

55

Tables for larger bottom tools

T2

(Standard Xpert MAMMUT and
Optional Xpert 250 - 1000)*



Dimensions are in mm

Fitting button tools
up to V250.

* this table is ideal to use adapter's (for example S1),
large bottom tools or with V bottom tools.

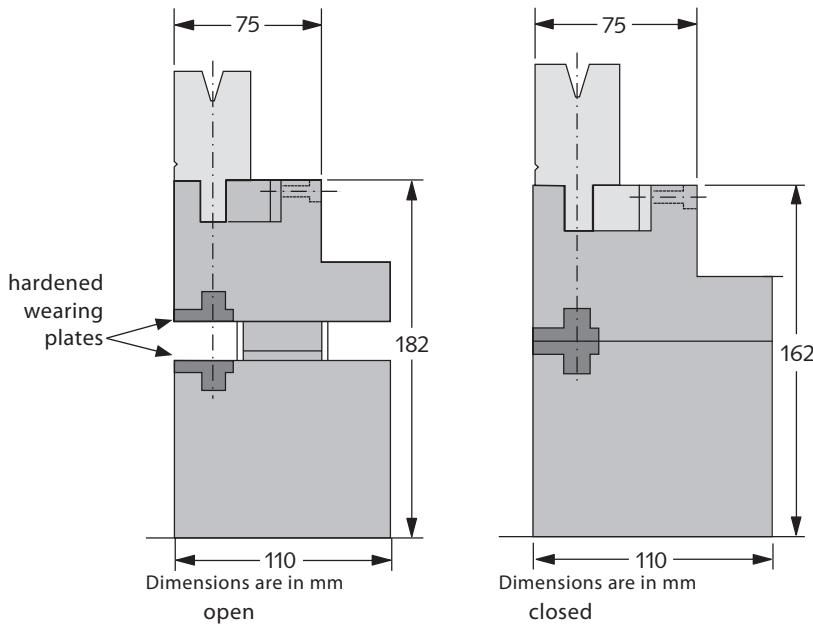
Lower table options

Hydraulic dutch bending table with hydraulic die clamping

T9

(Optional for Xpert 60 - 320)

up to 2mm mild steel thickness



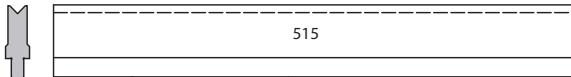
This table combines the high productivity of the hydraulic tool clamping with the flexibility of dutch bending.

Overview about several length

57

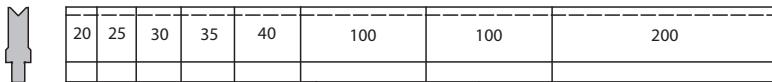
Bottom tool segmentation

Length 515mm / 20.27



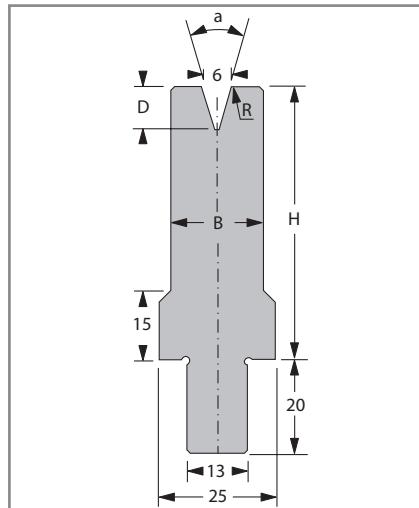
Length 550mm sect. / 21.65

(1x200; 2x100; 1x40; 1x35; 1x30; 1x25; 1x20)



Length 200mm / 7.87



V6/30° H=55 (V/0.236/30° H=2.16)

Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 800 kN/m
- F_{max} 30° = 400 kN/m
- Die insert 13 mm
- 10.9 kg/m
- Hydraulic clamping

[R] Radius (mm/inch) 0.75 / 0.03

[a] Angle (°) 30

[H] High (mm/inch) 55 / 2.16

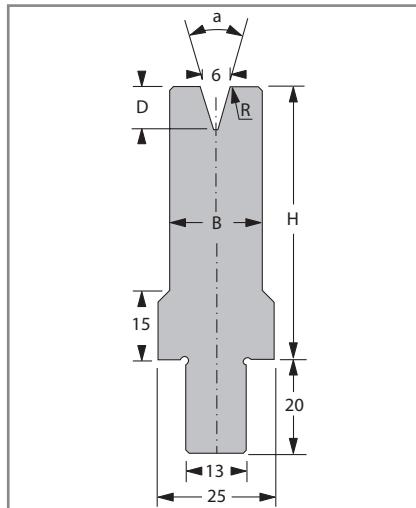
[B] Width (mm/inch) 20 / 0.78

[D] Depth (mm/inch) 9.8 / 0.39

Length	Material number
515mm	64201.0006.5004
550mm sect.	64201.0006.9001
200mm	64201.0006.5023

V6/30° H=100 (V/0.236/30° H=3.93)

59



Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- $F_{max} \ 90^\circ = 800 \text{ kN/m}$
- $F_{max} \ 30^\circ = 400 \text{ kN/m}$
- Die insert 13 mm
- 18.0 kg/m
- Hydraulic clamping

[R] Radius (mm/inch) 0.75 / 0.03

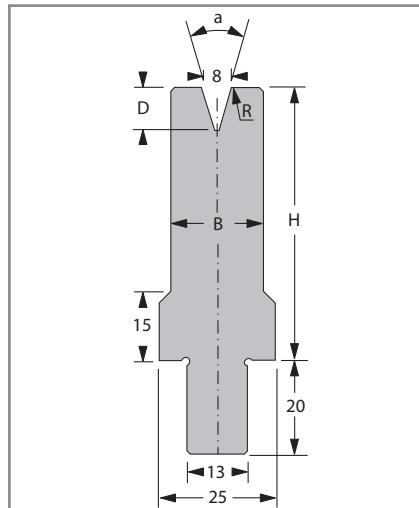
[a] Angle (°) 30

[H] High (mm/inch) 100 / 3.93

[B] Width (mm/inch) 20 / 0.78

[D] Depth (mm/inch) 9.8 / 0.3

Length	Material number
515mm	64201.0006.5013
550mm sect.	64201.0006.9002
200mm	64201.0006.5024

V8/30° H=55 (V/0.314/30° H=2.16)

Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- Fmax 90° = 1000 kN/m
- Fmax 30° = 300 kN/m
- Die insert 13 mm
- 10.9 kg/m
- Hydraulic clamping

[R] Radius (mm/inch) 0.75 / 0.03

[a] Angle (°) 30

[H] High (mm/inch) 55 / 2.16

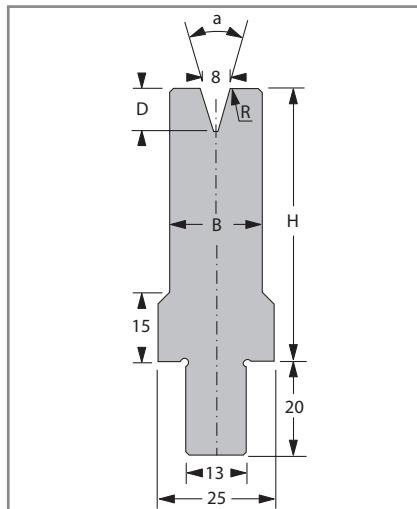
[B] Width (mm/inch) 20 / 0.78

[D] Depth (mm/inch) 11.2 / 0.44

Length	Material number
515mm	64201.0008.5012
550mm sect.	64201.0008.9001
200mm	64201.0008.5032

V8/30° H=100 (V/0.314/30° H=3.93)

61

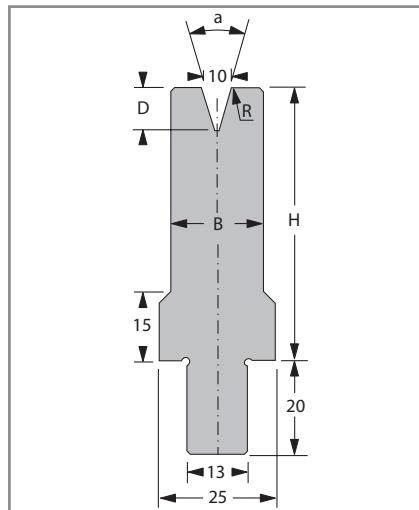


Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- $F_{max} \ 90^\circ = 1000 \text{ kN/m}$
- $F_{max} \ 30^\circ = 300 \text{ kN/m}$
- Die insert 13 mm
- 17.8 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	0.75 / 0.03
[a] Angle (°)	30
[H] High (mm/inch)	100 / 3.93
[B] Width (mm/inch)	20 / 0.78
[D] Depth (mm/inch)	11.2 / 0.44

Length	Material number
515mm	64201.0008.5020
550mm sect.	64201.0008.9002
200mm	64201.0008.5033

V10/30° H=55 (V/0.393/30° H=2.16)

Dimensions are in mm

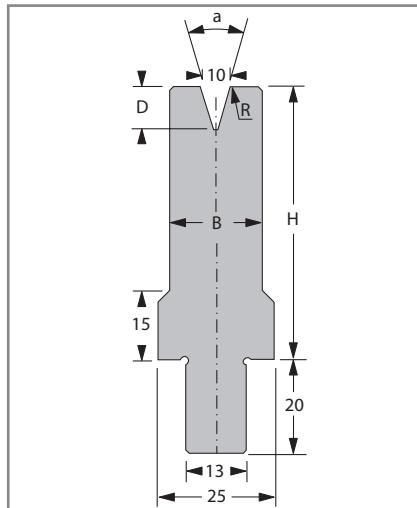
- | | |
|--|---------------------------------------|
| | First class CrMo alloy |
| | 56 - 60 HRC |
| | $F_{max} 90^\circ = 700 \text{ kN/m}$ |
| | $F_{max} 30^\circ = 200 \text{ kN/m}$ |
| | Die insert 13 mm |
| | 10.6 kg/m |
| | Hydraulic clamping |

[R] Radius (mm/inch)	1 / 0.04
[a] Angle (°)	30
[H] High (mm/inch)	55 / 2.16
[B] Width (mm/inch)	20 / 0.78
[D] Depth (mm/inch)	14.9 / 0.58

Length	Material number
515mm	64201.0010.5016
550mm sect.	64201.0010.9001
200mm	64201.0010.5043

V10/30° H=100 (V/0.393/30° H=3.93)

63

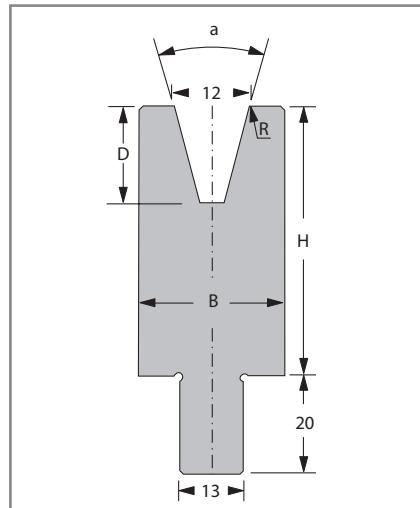


Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 800 kN/m
- F_{max} 30° = 200 kN/m
- Die insert 13 mm
- 17.6 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	1 / 0.04
[a] Angle (°)	30
[H] High (mm/inch)	100 / 3.93
[B] Width (mm/inch)	20 / 0.78
[D] Depth (mm/inch)	14.9 / 0.58

Length	Material number
515mm	64201.0010.5022
550mm sect.	64201.0010.9002
200mm	64201.0010.5044

V12/30° H=55 (V/0.472/30° H=2.16)

Dimensions are in mm

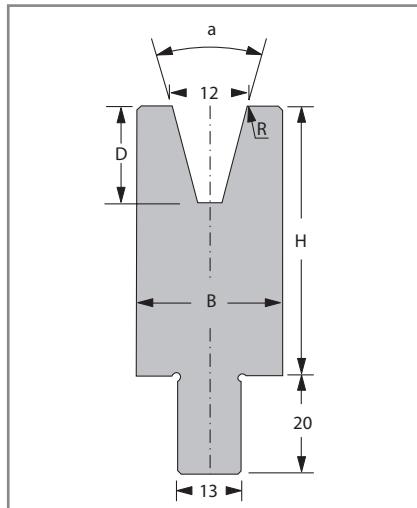
	First class CrMo alloy
	56 - 60 HRC
	$F_{max} \ 90^\circ = 900 \text{ kN/m}$
	$F_{max} \ 30^\circ = 250 \text{ kN/m}$
	Die insert 13 mm
	11.8 kg/m
	Hydraulic clamping

[R] Radius (mm/inch)	1.5 / 0.05
[a] Angle (°)	30
[H] High (mm/inch)	55 / 2.16
[B] Width (mm/inch)	25 / 0.98
[D] Depth (mm/inch)	18.6 / 0.73

Length	Material number
515mm	64201.0012.5007
550mm sect.	64201.0012.9001
200mm	64201.0012.5043

V12/30° H=100 (V/0.472/30° H=3.93)

65

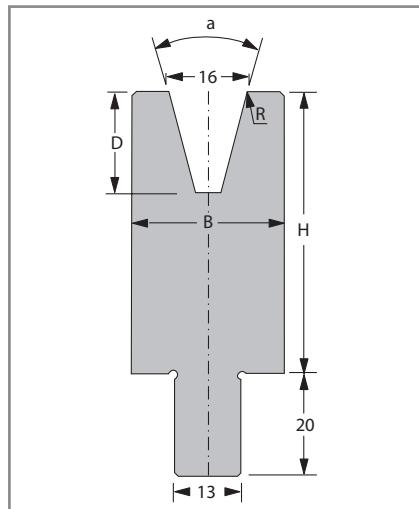


Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 900 kN/m
- F_{max} 30° = 250 kN/m
- Die insert 13 mm
- 20.6 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	1.5 / 0.05
[a] Angle (°)	30
[H] High (mm/inch)	100 / 3.93
[B] Width (mm/inch)	25 / 0.98
[D] Depth (mm/inch)	18.6 / 0.73

Length	Material number
515mm	64201.0012.5020
550mm sect.	64201.0012.9002
200mm	64201.0012.5044

V16/30° H=55 (V/0.629/30° H=2.16)

Dimensions are in mm

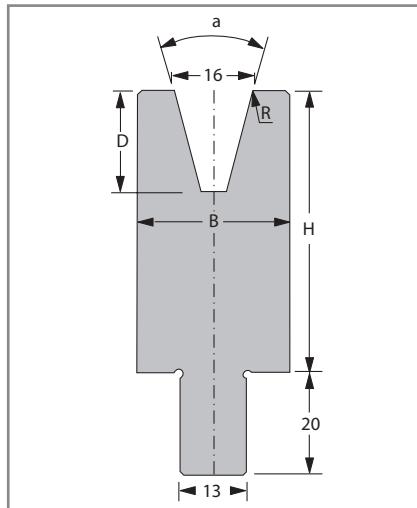
- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 1000 kN/m
- F_{max} 30° = 250 kN/m
- Die insert 13 mm
- 13.3 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	2 / 0.078
[a] Angle (°)	30
[H] High (mm/inch)	55 / 2.16
[B] Width (mm/inch)	30 / 1.18
[D] Depth (mm/inch)	20.5 / 0.8

Length	Material number
515mm	64201.0016.5011
550mm sect.	64201.0016.9001
200mm	64201.0016.5038

V16/30° H=100 (V/0.629/30° H=3.93)

67



Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- $F_{max} \ 90^\circ = 1000 \text{ kN/m}$
- $F_{max} \ 30^\circ = 250 \text{ kN/m}$
- Die insert 13 mm
- 23.9 kg/m
- Hydraulic clamping

[R] Radius (mm/inch) 2 / 0.078

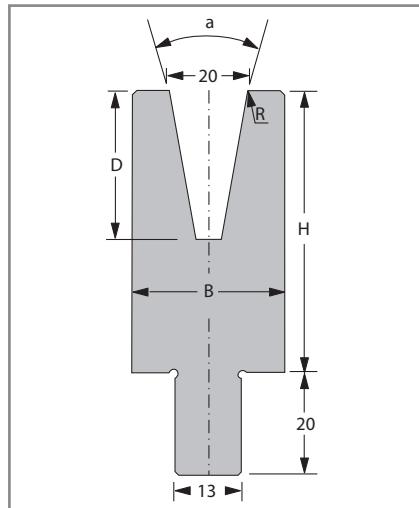
[a] Angle (°) 30

[H] High (mm/inch) 100 / 3.93

[B] Width (mm/inch) 30 / 1.18

[D] Depth (mm/inch) 20.5 / 0.8

Length	Material number
515mm	64201.0016.5014
550mm sect.	64201.0016.9002
200mm	64201.0016.5039

V20/30° H=55 (V/0.787 H=2.16)

Dimensions are in mm

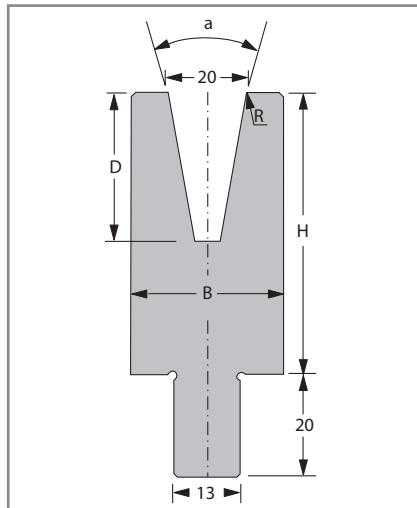
	First class CrMo alloy
	56 - 60 HRC
	Fmax 90° = 600 kN/m
	Fmax 30° = 150 kN/m
	Die insert 13 mm
	12.2 kg/m
	Hydraulic clamping

[R] Radius (mm/inch)	2.5 / 0.09
[a] Angle (°)	30
[H] High (mm/inch)	55 / 2.16
[B] Width (mm/inch)	30 / 1.18
[D] Depth (mm/inch)	28 / 1.1

Length	Material number
515mm	64201.0020.5002
550mm sect.	64201.0020.9001
200mm	64201.0020.5025

V20/30° H=100 (V/0.787 H=3.93)

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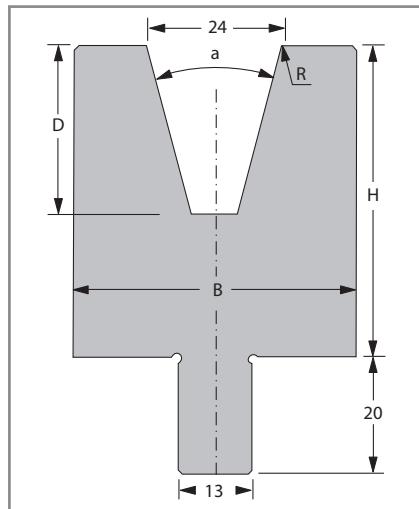
Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 600 kN/m
- F_{max} 30° = 150 kN/m
- Die insert 13 mm
- 22.8 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	2.5 / 0.09
[a] Angle (°)	30
[H] High (mm/inch)	100 / 3.93
[B] Width (mm/inch)	30 / 1.18
[D] Depth (mm/inch)	28 / 1.1

Length	Material number
515mm	64201.0020.5006
550mm sect.	64201.0020.9002
200mm	64201.0020.5026

V24/30° H=55 (V/0.944 H=2.16)



Dimensions are in mm

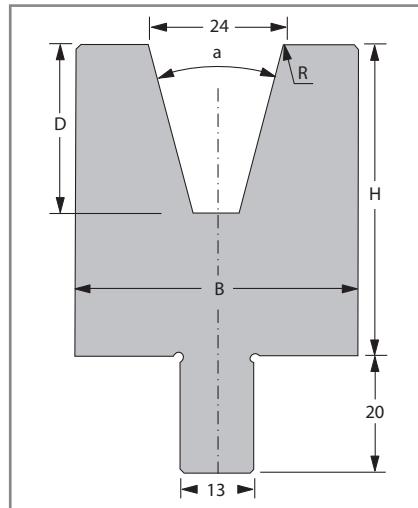
	First class CrMo alloy
	56 - 60 HRC
	$F_{max} \ 90^\circ = 1100 \text{ kN/m}$
	$F_{max} \ 30^\circ = 300 \text{ kN/m}$
	Die insert 13 mm
	15.5 kg/m
	Hydraulic clamping

[R] Radius (mm/inch)	3.0 / 0.11
[a] Angle (°)	30
[H] High (mm/inch)	55 / 2.16
[B] Width (mm/inch)	40 / 1.57
[D] Depth (mm/inch)	29.8 / 1.17

Length	Material number
515mm	64201.0024.5010
550mm sect.	64201.0024.9001
200mm	64201.0024.5030

V24/30° H=100 (V/0.944 H=3.93)

71

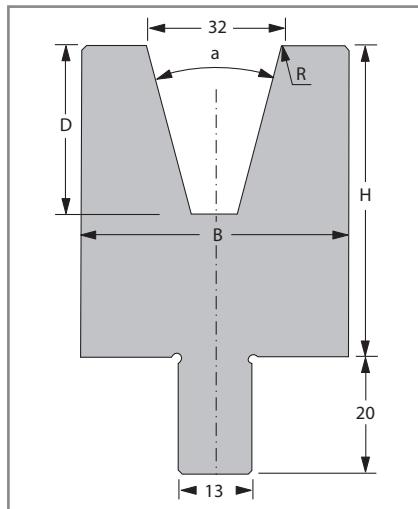


Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 1100 kN/m
- F_{max} 30° = 300 kN/m
- Die insert 13 mm
- 29.6 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	3.0 / 0.11
[a] Angle (°)	30
[H] High (mm/inch)	100 / 3.93
[B] Width (mm/inch)	40 / 1.57
[D] Depth (mm/inch)	29.8 / 1.17

Length	Material number
515mm	64201.0024.5016
550mm sect.	64201.0024.9002
200mm	64201.0024.5031

V32/30° H=55* (V/1.259 H=2.16)

Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 1100 kN/m
- F_{max} 30° = 300 kN/m
- Die insert 13 mm
- 16.7 kg/m
- Hydraulic clamping

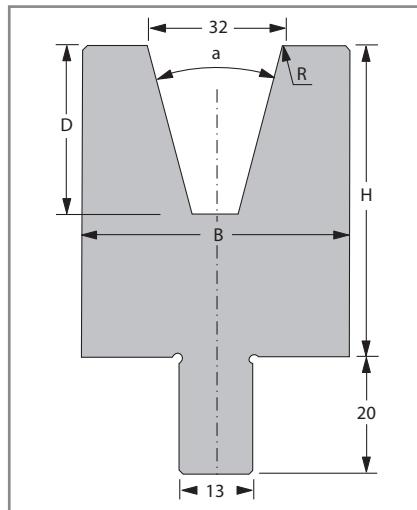
[R] Radius (mm/inch)	4 / 0.15
[a] Angle (°)	30
[H] High (mm/inch)	55 / 2.16
[B] Width (mm/inch)	48 / 1.88
[D] Depth (mm/inch)	33.6 / 1.32

Length	Material number
515mm	64201.0032.5010
550mm sect.	64201.0032.9001
200mm	64201.0032.5039

* Also available with rollers

V32/30° H=100* (V/1.259 H=3.93)

73



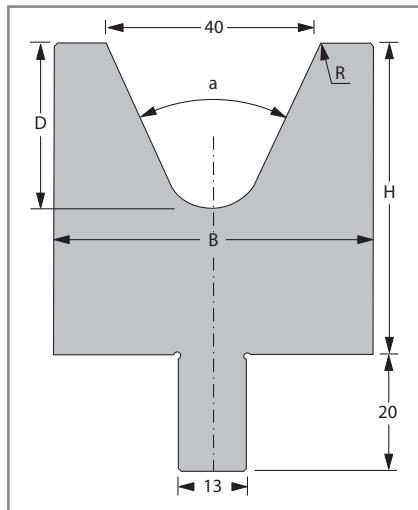
Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 1100 kN/m
- F_{max} 30° = 300 kN/m
- Die insert 13 mm
- 33.7 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	4 / 0.15
[a] Angle (°)	30
[H] High (mm/inch)	100 / 3.93
[B] Width (mm/inch)	48 / 1.88
[D] Depth (mm/inch)	33.6 / 1.32

Length	Material number
515mm	64201.0032.5017
550mm sect.	64201.0032.9002
200mm	64201.0032.5040

* Also available with rollers

V40/60° H=55* (V/1.574 H=2.16)

Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 1800 kN/m
- F_{max} 60° = 1000 kN/m
- Die insert 13 mm
- 20.5 kg/m
- Hydraulic clamping

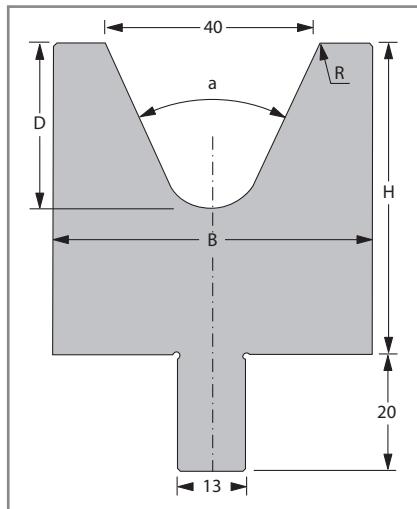
[R] Radius (mm/inch)	5 / 0.19
[a] Angle (°)	60
[H] High (mm/inch)	55 / 2.16
[B] Width (mm/inch)	55 / 2.16
[D] Depth (mm/inch)	29.6 / 1.16

Length	Material number
515mm	64201.0040.5003
550mm sect.	64201.0040.9001
200mm	64201.0040.5022

*Also available with rollers

V40/60° H=100* (V/1.574 H=3.93)

75



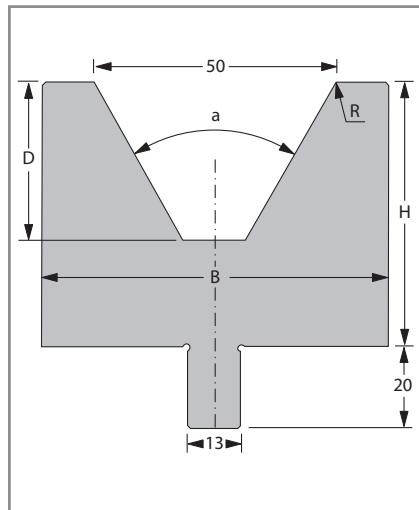
Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 2000 kN/m
- F_{max} 60° = 1000 kN/m
- Die insert 13 mm
- 39.9 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	5 / 0.19
[a] Angle (°)	60
[H] High (mm/inch)	100 / 3.93
[B] Width (mm/inch)	55 / 2.16
[D] Depth (mm/inch)	29.6 / 1.16

Length	Material number
515mm	64201.0040.5007
550mm sect.	64201.0040.9002
200mm	64201.0040.5023

* Also available with rollers

V50/60° H=55* (V/1.968 H=2.16)

Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 1800 kN/m
- F_{max} 60° = 1000 kN/m
- Die insert 13 mm
- 24.5 kg/m
- Hydraulic clamping

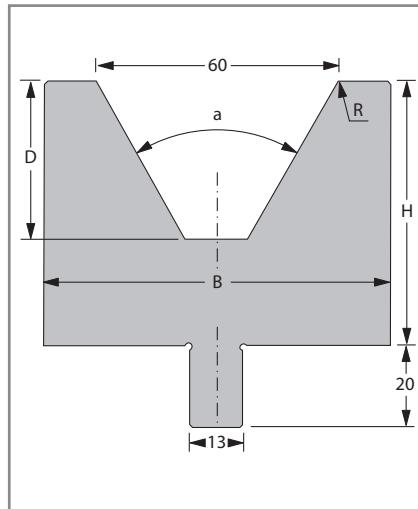
[R] Radius (mm/inch)	5 / 0.19
[a] Angle (°)	60
[H] High (mm/inch)	55 / 2.16
[B] Width (mm/inch)	70 / 2.75
[D] Depth (mm/inch)	30.3 / 1.19

Length	Material number
515mm	64201.0050.5003
550mm sect.	64201.0050.9001
200mm	64201.0050.5016

*Also available with rollers

V60/60° H=65* (V/2.362 H=2.55)

77



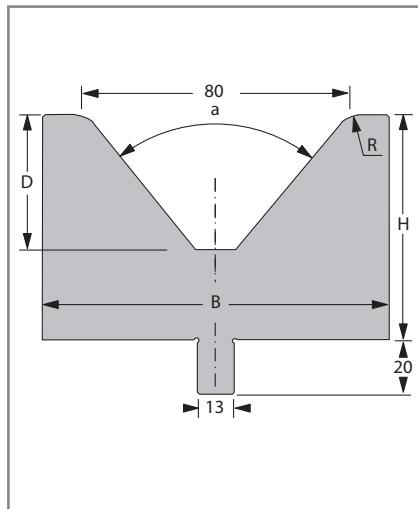
Dimensions are in mm

- First class CrMo alloy
- 56 - 60 HRC
- Fmax 90° = 1600 kN/m
- Fmax 60° = 800 kN/m
- Die insert 13 mm
- 31.4 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	7 / 0.27
[a] Angle (°)	60
[H] High (mm/inch)	65 / 2.55
[B] Width (mm/inch)	80 / 315
[D] Depth (mm/inch)	39 / 1.53

Length	Material number
515mm	64201.0060.5005
550mm sect.	64201.0060.9001
200mm	64201.0060.5029

* Also available with rollers

V80/80° H=65* (V/3.149 H=2.55)

Dimensions are in mm

[R] Radius (mm/inch)	10 / 0.39
[a] Angle (°)	80
[H] High (mm/inch)	65 / 2.55
[B] Width (mm/inch)	100 / 3.93
[D] Depth (mm/inch)	38.7 / 1.52

Length	Material number
515mm	64201.0080.5002
550mm sect.	64201.0080.9001
200mm	64201.0080.5025

*Also available with rollers



First class CrMo alloy



56 - 60 HRC

 F_{max} 90° = 1600 kN/m F_{max} 80° = 1400 kN/m

Die insert 13 mm



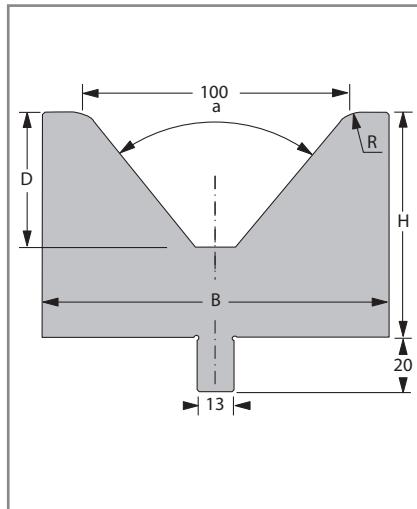
38.6 kg/m



Hydraulic clamping

V100/80° H=85* (V/3.937 H= 3.34)

79



Dimensions are in mm

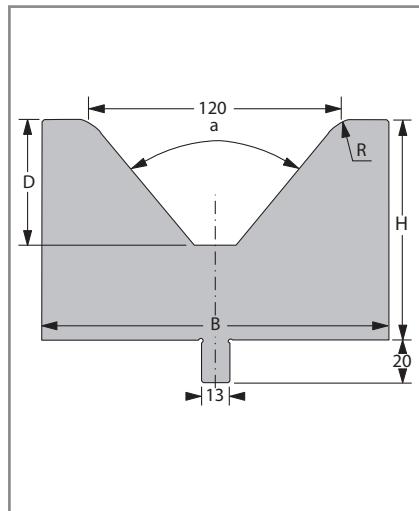
- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 2000 kN/m
- F_{max} 80° = 1800 kN/m
- Die insert 13 mm
- 62.5 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	12 / 0.47
[a] Angle (°)	80
[H] High (mm/inch)	85 / 3.34
[B] Width (mm/inch)	125 / 4.92
[D] Depth (mm/inch)	50.5 / 1.98

Length	Material number
515mm	64201.0100.5004
550mm sect.	64201.0100.9001
200mm	64201.0100.5018

* Also available with rollers

V120/80° H=105* (V/4.724 H=4.13)



- First class CrMo alloy
- 56 - 60 HRC
- F_{max} 90° = 2400 kN/m
- F_{max} 80° = 2000 kN/m
- Die insert 13 mm
- 101 kg/m
- Hydraulic clamping

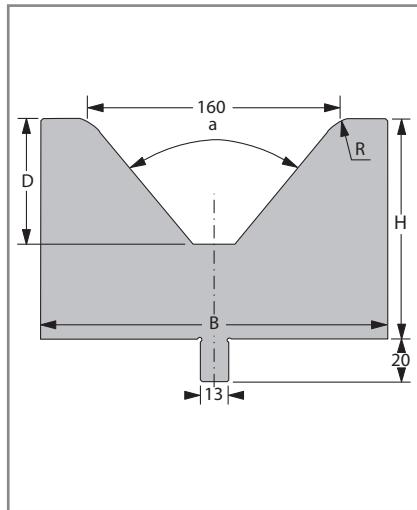
[R] Radius (mm/inch)	15 / 0.59
[a] Angle (°)	80
[H] High (mm/inch)	105 / 4.13
[B] Width (mm/inch)	160 / 6.29
[D] Depth (mm/inch)	59.5 / 2.34

Length	Material number
515mm	64201.0120.5002
550mm sect.	64201.0120.9001
200mm	64201.0120.5011

* Also available with rollers

V160/70° H=140* (V/6.299 H=5.51)

81



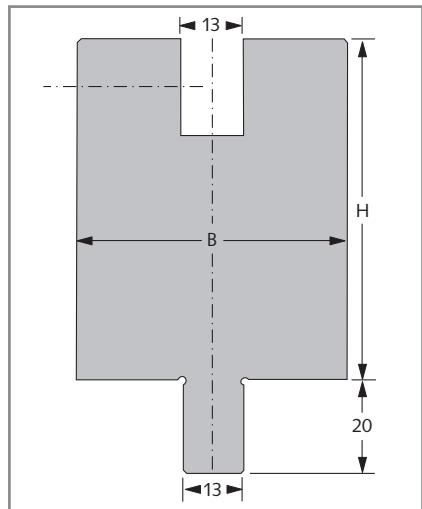
Dimensions are in mm

[R] Radius (mm/inch)	16 / 0.62
[a] Angle (°)	70
[H] High (mm/inch)	140 / 5.51
[B] Width (mm/inch)	200 / 7.87
[D] Depth (mm/inch)	87.4 / 3.44

	First class CrMo alloy
	56 - 60 HRC
	Fmax 90° = 2400 kN/m
	Fmax 80° = 2000 kN/m
	Die insert 13 mm
	152 kg/m
	Hydraulic clamping

* Also available with rollers

S1/73



Dimensions are in mm

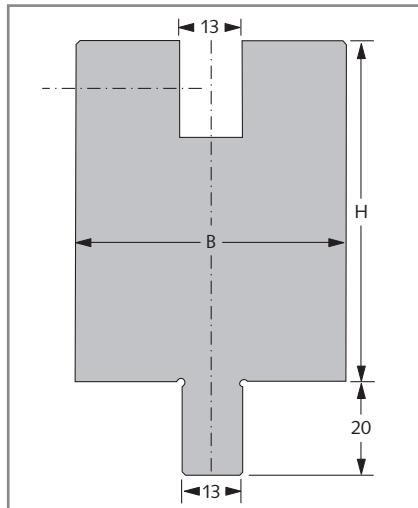
- C45
-
- F_{max} = 5000 kN/m
- Die insert 13 mm
- 33 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	-
[a] Angle (°)	-
[H] High (mm/inch)	73 / 2.87
[B] Width (mm/inch)	58 / 2.28
[D] Depth (mm/inch)	-

Length	Material number
515mm	64201.0001.5008
550mm sect.	64201.0001.9001
200mm	64201.0001.5020
1030mm	64201.0001.3003

S1/100

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Dimensions are in mm

- C45
-
- F_{max} = 5000 kN/m
- Die insert 13 mm
- 45.3 kg/m
- Hydraulic clamping

[R] Radius (mm/inch)	-
[a] Angle (°)	-
[H] High (mm/inch)	100 / 3.93
[B] Width (mm/inch)	58 / 2.28
[D] Depth (mm/inch)	

Length	Material number
515mm	64201.0001.5006
550mm sect.	64201.0001.9002
200mm	64201.0001.5021
1030mm	64201.0001.3004

Special tools



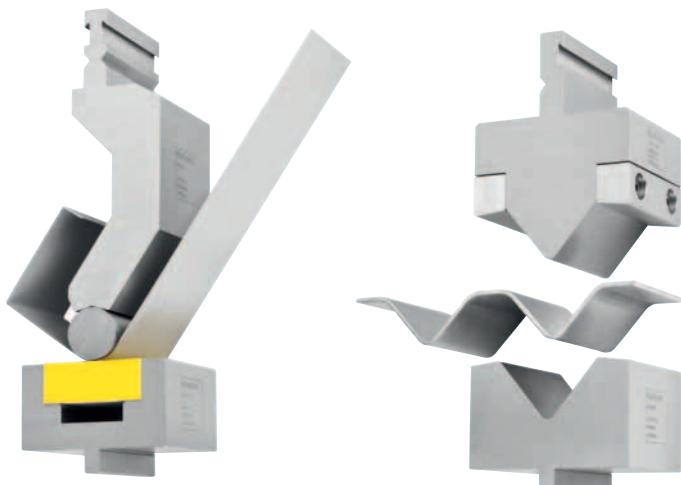
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all contact information are located at the end of the catalog.

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Special tools

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Notes



Notes

