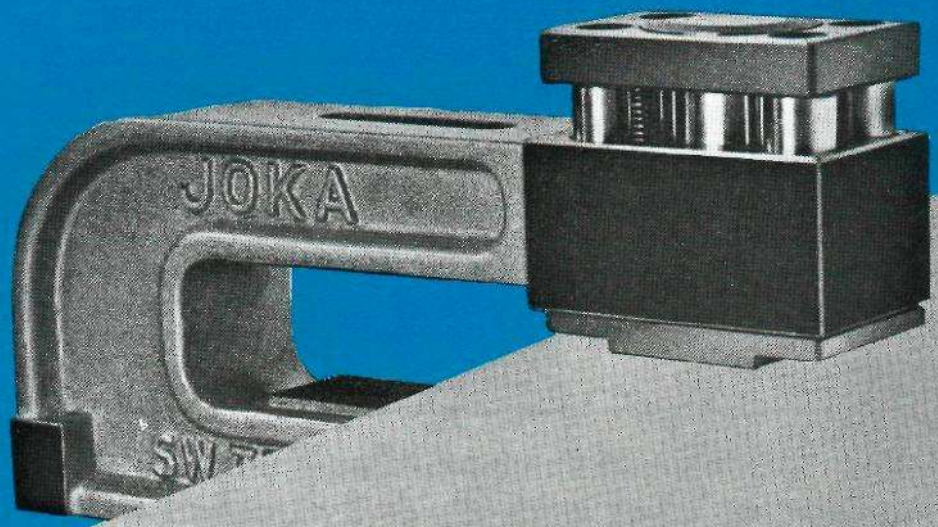
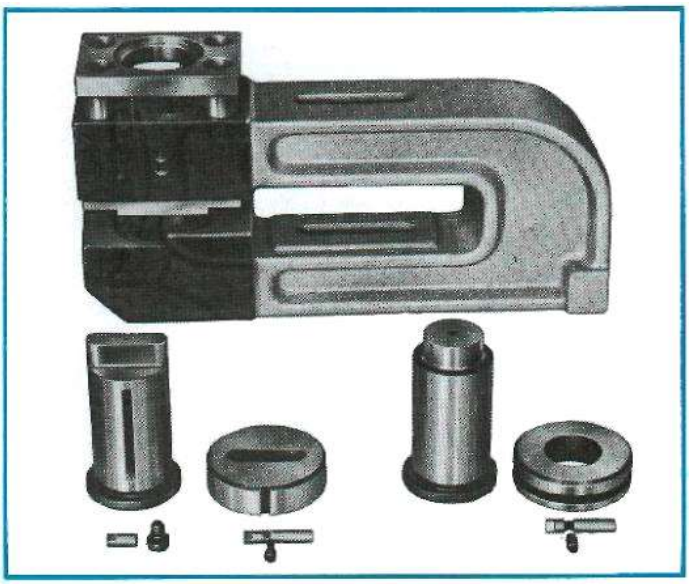
JOKA



Punching units

with exchangeable
cutting elements
for sheet steels and metals
and profiles up to a material
thickness of 25 mm
and a punched hole
diameter of 150 mm



boka-punching units consist of a column made of special cast iron housing punch and die and safeguarding the exact alignment between the cutting elements (punch and die). The column`s upper part accommodates a stripping system automatically stripping the material after punching. The stripping system includes two or more disk spring packages each guaranteeing perfect stripping even in marginal areas.
For this reason, a fixed connection of the tool with the crown of the press is not required. In order to obtain an exact positioning, each tool possesses a locating pin (in case of shaped holes two locating pins) exactly positioned in the same axial range as the cutting elements (hole center).

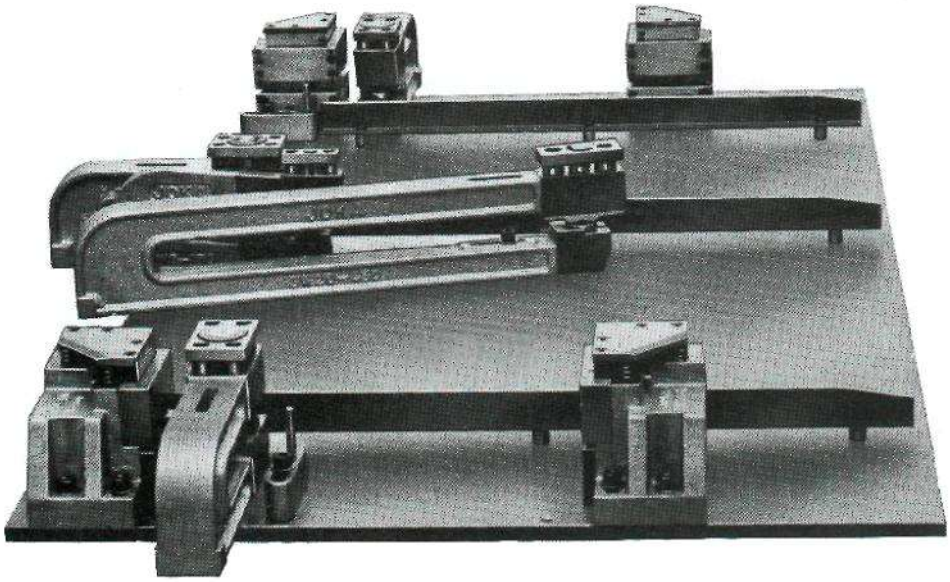
The above illustration shows a complete punching unit without cutting elements and one set of cutting tools each (punch and die) for round hole and shaped hole resp. These cutting elements with most varied shapes and diameters can be exchanged in the range of the available tool capacity. Exchange of cutting elements is limited to the stamps and die to be exchanged. The tool itself and in particular the stripping system remain completely assembled as shown above.

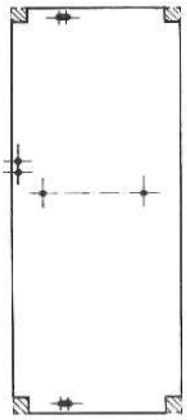
boka-punching units are used on presses of all designs and sizes. However, they also may be directly operated through hydraulic or pneumatic power elements.

boka offers you a building block system to solve your punching problems economically.

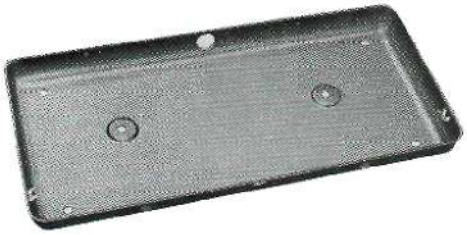
- Universal reusability of tools owing to exchangeable sets of cutting tools for all round and shaped holes in the range of the tool capacity.
- Only punch and die need to be exchanged with round and shaped holes.
- Exchanging the sets of cutting tools is extremely simple and accomplished with only few deft movements.
- If several tools are used simultaneously (complete cutting patterns), a more simple and exact positioning of the punching units towards each other is achieved through four positioning methods to be used alternatively. Each of these methods is particularly suited for certain working ranges.
- Short setting times – even with complicated cutting patterns. With appropriate measures of preparation, idle times can be kept at a minimum.
- Depending on the punching units´ mode of application (individual or multiple arrangement) the operator has to provide hand protecting devices according to the regulations for the prevention of accidents (presses).
- Only selected, high-quality tool steel is used for the manufacture or cutting tool sets and this fact contributes to a long service life.
- You can easily change the overall height of our tools and adapt them to standardise overall heights already existing in your workshop.
- All models of our range of product are available at short notice and – for the most part – immediately from stock.
- In contrast with some comparable systems, boka punching units are manufactured in Germany and directly sold by the manufacturer – this is particularly beneficial to you, if you have to place short-term orders!

Examples of some tool arrangements

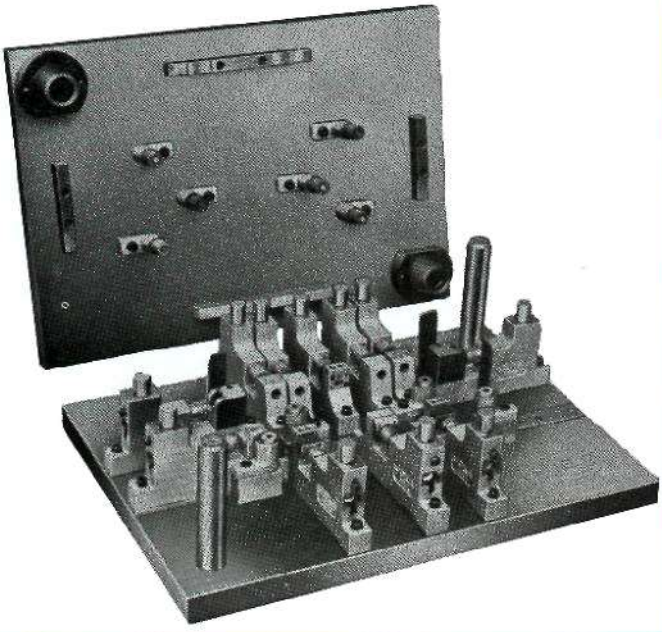


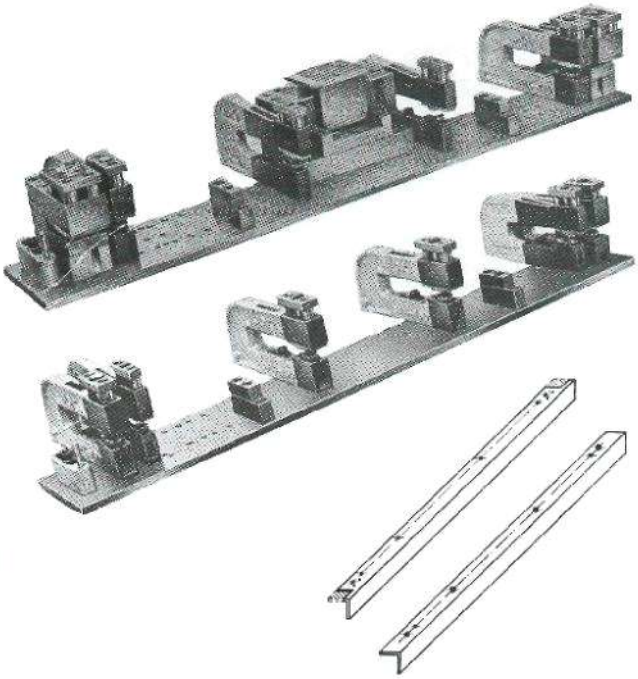


JOKA-punching units of series SW and AW mounted on a base plate – resettable to 4 workpiece sizes.



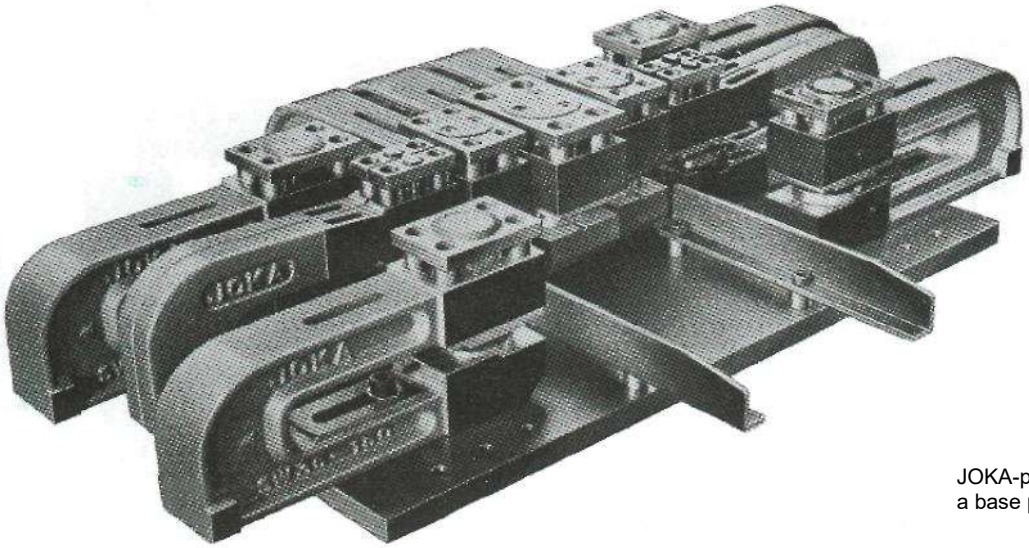
JOKA-punching units of series H and Z mounted in a die set-resettable to 2 workpiece sizes. These workpieces are pre-drawn covers and bottoms where the holes and cut-outs are punched into all four side faces (horizontally) and the bottom (vertically) within one stroke.

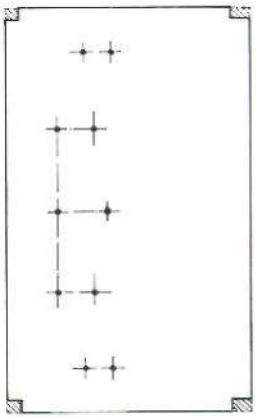




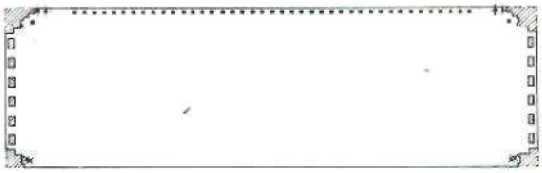
JOKA-punching units of series SW in connection with special units mounted on base plates – each resettable to 4 workpiece lengths. The workpieces to be punched are rolled corner sections (2.5 mm thick). 4 rapping drill holes, 2 through-holes and two adjacent welding projections each are punched into the upper corner. During the same operating cycle, the two ends of the corner section are notched. Two tapping drill holes and 4 through-holes are punched and simultaneously the holes for countersunk head screws are embossed.

from different standard design and special tools

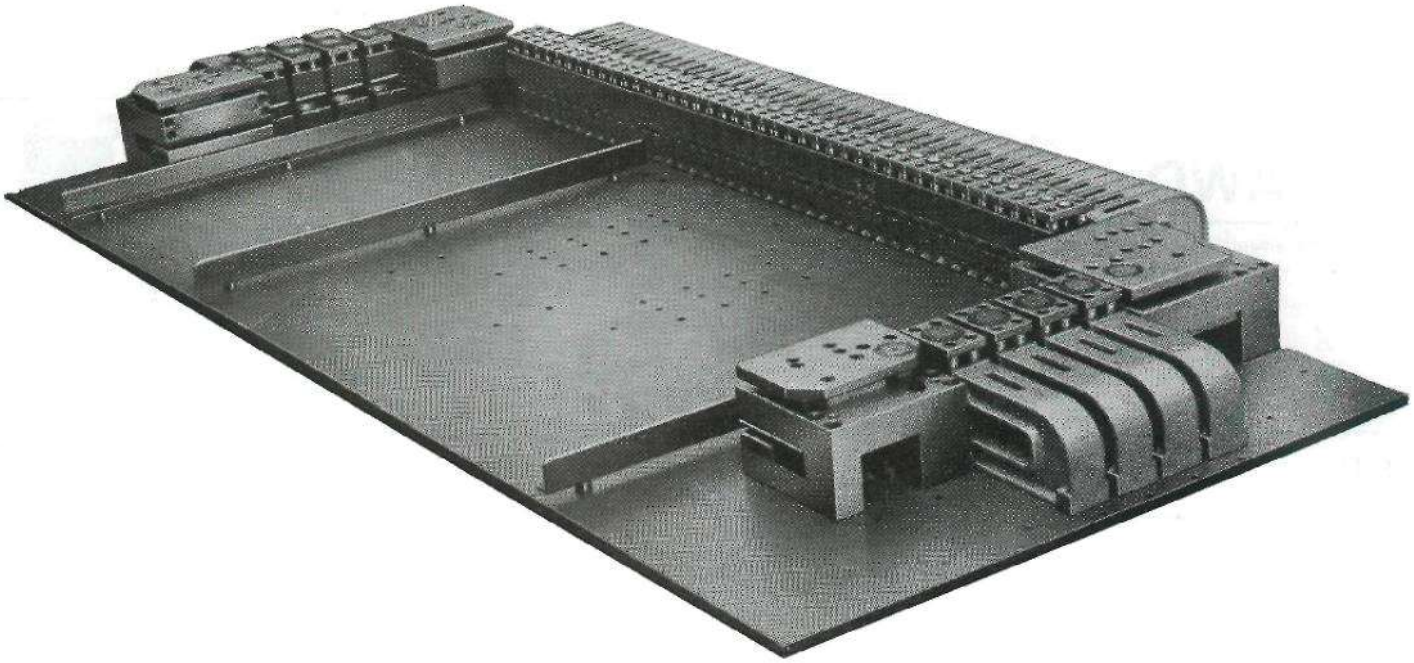




JOKA-punching units of series SW mounted on a base plate – resettable to 5 workpiece sizes.

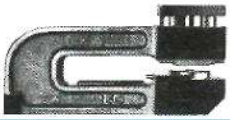


JOKA-punching units of series SW in connection with special tools mounted on ab base plate – resettable to 4 workpiece sizes (material: steel sheet, plastic-laminated on both sides).



Summarised representation of the scope of our series production and the application range of our tools.

SERIES SW



Punching units for round and shaped holes up to a material thickness of 4 mm and 60 kg/mm².

Type designation	Tool width		Punching range
SW 8	20	up to	8 mm Ø
SW 14	30	up to	14 mm Ø
SW 20	40	up to	20 mm Ø
SW 35	55	up to	35 mm Ø
SW 50	70	up to	50 mm Ø
SW 75	100	up to	75 mm Ø
SW 100	130	up to	100 mm Ø
SW 150	200	up to	150 mm Ø

Throat depths: 150 · 250/300 · 500 mm

SERIES SWD

Punching units for round and shaped holes up to a material thickness of 10 mm and 60 kg/mm².

Type designation	Tool width		Punching range
SWD 14	35	up to	14 mm Ø
SWD 20	50	up to	20 mm Ø
SWD 35	65	up to	35 mm Ø
SWD 50	80	up to	50 mm Ø
SWD 75	110	up to	75 mm Ø
SWD 100	150	up to	100 mm Ø
SWD 150	220	up to	150 mm Ø

Throat depths: 150 · 250/300 · 500 mm

SERIES D

Punching units for round and shaped holes up to a material thickness of 25 mm and 60 kg/mm².

Type designation	Tool width		Punching range
D 50	110	up to	50 mm Ø
D 100	175	up to	100 mm Ø

Throat depths: 250 · 500 mm

SERIES Z

Two-piece punching unit for round and shaped holes up to a material thickness of 4 mm and 60 kg/mm².

Type designation	Tool width		Punching range
Z 8	20	up to	8 mm Ø
Z 14	30	up to	14 mm Ø
Z 20	40	up to	20 mm Ø
Z 50	70	up to	50 mm Ø
Z 100	130	up to	100 mm Ø

SERIES ZD

Two-piece punching unit for round and shaped holes up to a material thickness of 10 mm and 60 kg/mm².

Type designation	Tool width		Punching range
ZD 20	50	up to	20 mm Ø
ZD 50	80	up to	50 mm Ø

SERIES M

Special tool design in modification of series SW and SWD resp. for punching round holes in U- or other profiles unless they can be punched with standard designs of units SW/SWD.

Type designation	Tool width	Punching range
SW 14-150 M	30	up to 14 mm Ø max. material thickness 4 mm
SWD 20-150 M	50	up to 20 mm Ø max. material thickness 10 mm

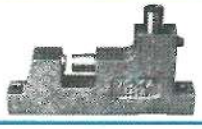
SERIES S

Special punching unit only for round holes up to a material thickness of 4 mm and 60 kg/mm².

Type designation	Tool width	Punching range
S 12	30	3 up to 12 mm Ø

Throat depths: 150 · 300 ·mm

SERIES H



Horizontal punching units for round and shaped holes up to a material thickness of 4 mm and 60 kg/mm².

Type designation	Tool widths	Punching range
H 14	35	up to 14 mm Ø

SERIES AW/AWD

Notching units for 90° notches up to a material thickness of 10 mm and 60 kg/mm².

Type designation	max. notching size	Material thickness.
AW 75	75 x 75	4 mm
AW 125	125 x 125	4 mm
AW 200	200 x 200	4 mm
AWD 125	125 x 125	10 mm

All notching units can be delivered in left-hand and in right-hand execution.

SERIES UW

U-shaped punching units suited both for installing cutting elements for notching work and for combined punching and notching (max. material thickness 4 mm).

Type designation	max. notching size
UW 60 x 40	40 x 60 x 40
UW 90 x 60	60 x 90 x 60
UW 120 x 90	90 x 120 x 90

AS 1

Simple stop
with pin positioning

ALS/ALS-A

ALS: Bearing rail 250 and 500 mm without stop.
ALS-A: Bearing rail 250 and 500 mm with stop.

AS 5

Simple, adjustable stop
for notching units AW/AWD

AS 6

Adjustable stop as angle table with integrated graduation and slewing jaws for notching units AW/AWD.

Punching problems that cannot be solved by our standard series tool will be solved be specially designed tools of the same constructional conception.

Moreover, we build punching tools of traditional design in all versions and sizes.

In accordance with your particular wishes and requirements we develop and build semi-automatic and fully automatic punching plants for automating your production.

Our speciality is “punching”. In this field we have long years of experience and are extremely versatile.

Should you have any punching problems to solve and/or important decisions to make please do not hesitate to contact us.
We would be glad to consult you in any respect.

Please, ask for our tool catalogue which will thoroughly inform you about all details of our series program.

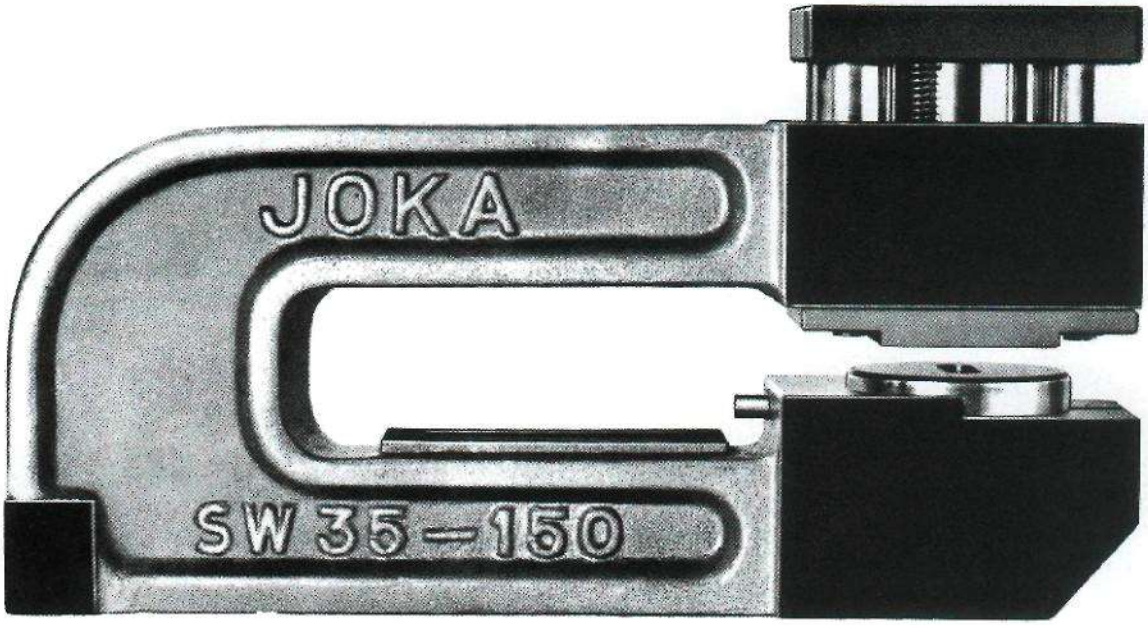
Werkzeug- und Maschinenbau GmbH & Co KG
Gütersloher Str. 64, 33161 Hövelhof, Ruf 0 52 57/20 51, Fax 0 52 57/20 53

Punching units

with interchangeable cutting elements for sheet metal and profiles

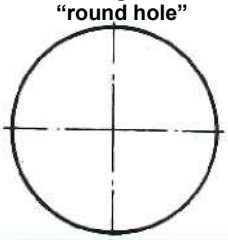
Series: SW

Type:
SW 8
SW 14
SW 20
SW 35
SW 50
SW 75
SW 100
SW 150



Material thickness: max. 4 mm
Strength: max. 60 kg/ mm²

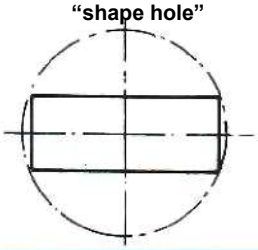
Punching contour "round hole"



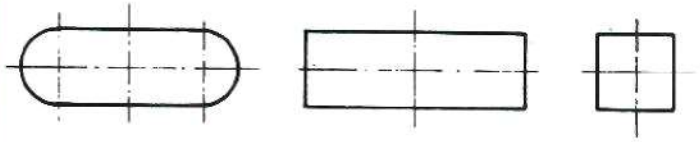
Type	Tool capacity	Type	Tool capacity
SW 8	from 1 to 8 mm Ø	SW 50	from 35 to 50 mm Ø
SW 14	from 1 to 14 mm Ø	SW 75	from 50 to 75 mm Ø
SW 20	from 14 to 20 mm Ø	SW 100	from 75 to 100 mm Ø
SW 35	from 20 to 35 mm Ø	SW 150	from 100 to 150 mm Ø

For all punching diameters of 3 mm and below, a compensating sleeve is required for the punch.
This also applies to the SW 14 units for diameters under 8 mm and SW 20 for diameters under 14 mm or under 8 mm.
Only round holes can be punched with tool SW 8.

Punching contour "shape hole"

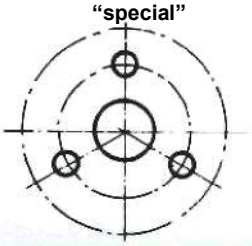


Elongated hole **Rectangle** **Square**

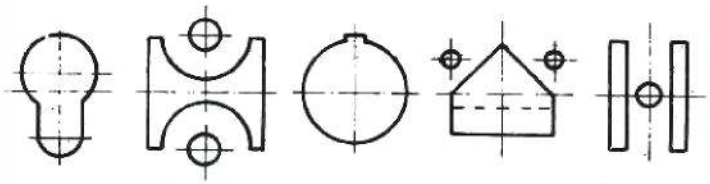


The "shape hole" punching contour can be used in the tool type whose maximum punching diameter defines the shape. All "shape hole" cutting sets are prepared for punching parallel to the tool throat or at right angles to it (rotated 90°).

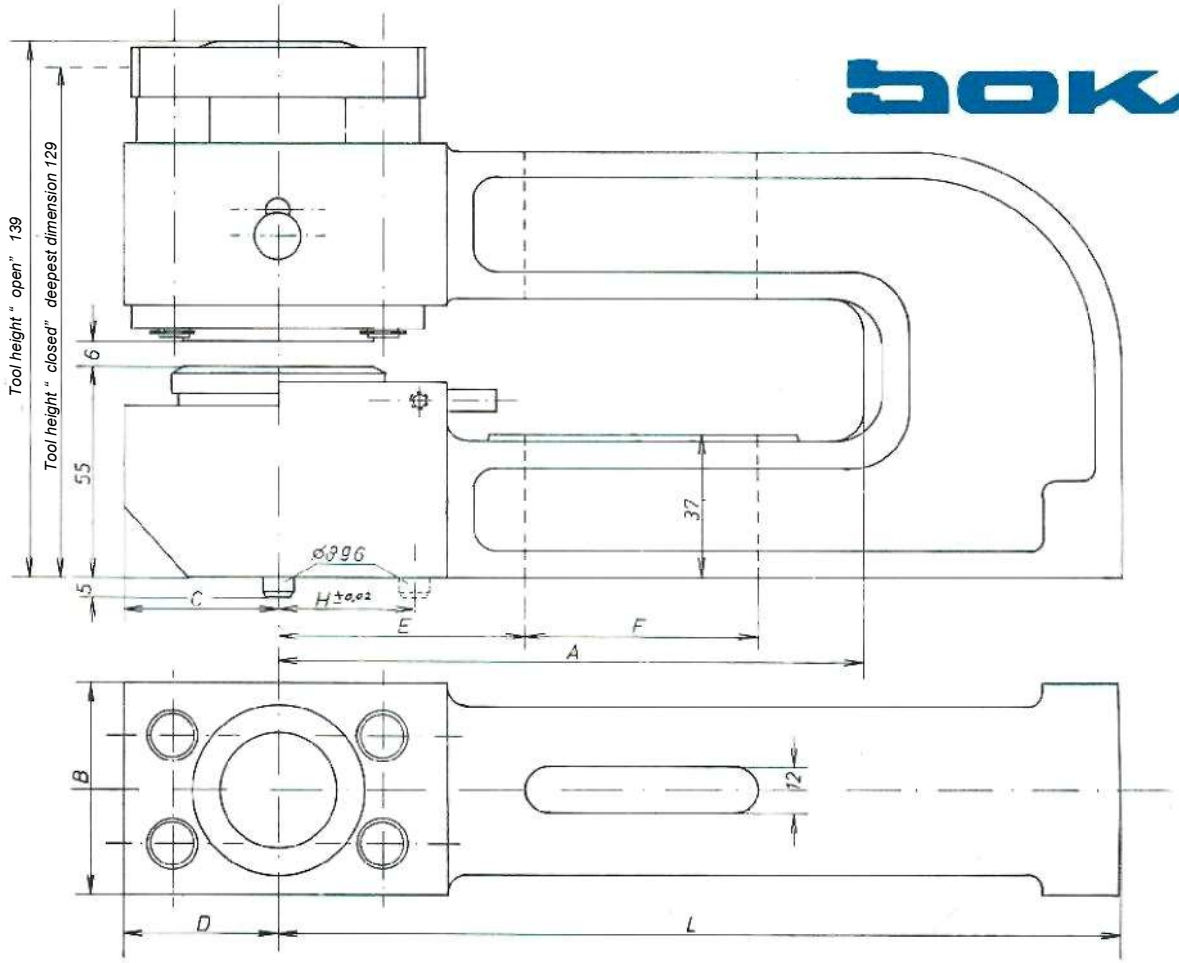
Punching contour "special"



Some more examples:



With the "special" punching contour, the utilization of the tool capacity depends on the effective hole pattern. Shapes that can be fully machined from the punch allow maximum tool capacity to be utilized. With combined hole patterns, utilization is 5 – 10 mm below the maximum tool capacity.



Type	A			B	C[1]	D	E	F	H	L at throat depths		
										150	300/250	500
SW 8	150	—	—	20	15	32	40	70	35	220	—	—
SW 14	150	300	—	30	15	34	60	60	35	220	370	—
SW 20	150	300	500	40	28	45	60	60	35	220	370	520
SW 35	150	300	500	55	40	40	65	60	35	220	370	570
SW 50	150	300	500	70	45	55	70	60	50	220	370	570
SW 75	100 [1]	250	500	100	72	72	85 1) 88	130 1) 12 ø	50	170	320	580
SW 100	125 [2]	250	500	130	85	85	100 2) 109	130 2) 12 ø	50	210	330	590
SW 150	—	250	500	200	120	120	135	90/300	Pos. of the pos. pins acc. to drawing	—	330	590

For punching work that requires a lower insertion depth than specified under "C" (e.g. when punching small profiles), the dimension "C" for the individual types can be reduced by a certain range depending on the size of the profile or not sufficient to equip the respective tool with a monobloc die. In such cases, we ask that you send us a sketch of the profile in question, which also shows the position of the hole to be punched.

Due to its small width, the SW 8 tool is only supplied with a throat depth of 150 mm. The SW 14 tool with a throat depth of 150 - 300 mm. If these throat depths are not sufficient for the hole range of 1 – 14 mm Ø, the cutting sets must be inserted into the SW 20 tool using compensation sleeves for the punch (largest throat depth SW 20 – 500 mm).

Important: When changing the cutting sets - regardless of whether round or shaped hole - only the punch and die have to be exchanged in a few simple steps.

When ordering please specify:

- The tool type
- The required throat depth
- The diameter or shape of the hole
- The quality and strength of the material

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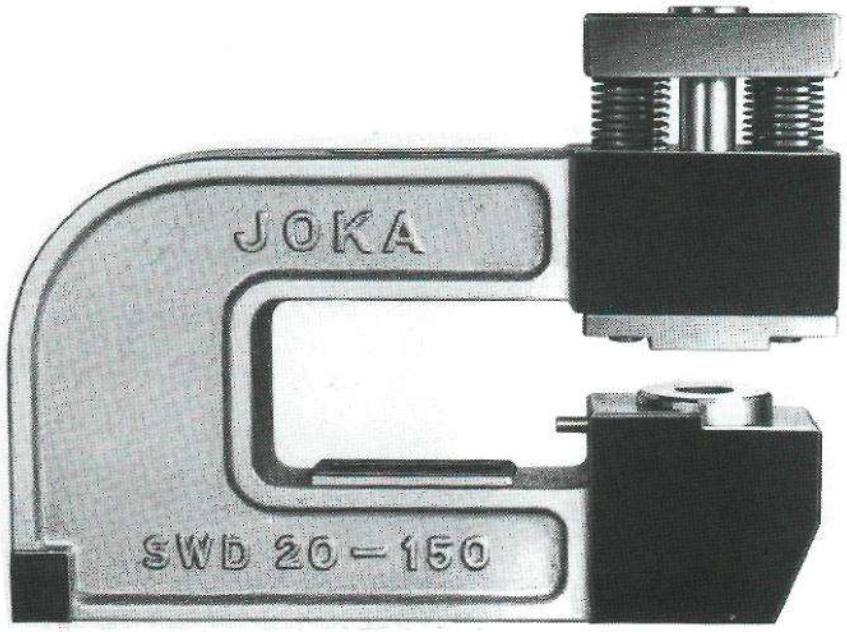
Punching units

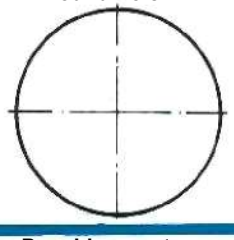
with interchangeable cutting elements for sheet metal and profiles

Series: SWD

Type: SWD 14
SWD 20
SWD 35
SWD 50
SWD 75
SWD100
SWD150



Punching contour "round hole"

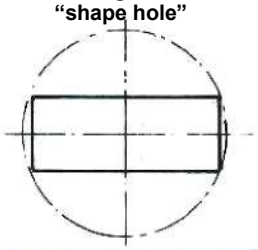


Type	Tool capacity	Type	Tool capacity
SWD 14	from 3 to 14 mm Ø	SWD	
20	from 5 to 20 mm Ø	75	from 50 to 75 mm Ø
35	from 20 to 35 mm Ø	100	from 75 to 100 mm Ø
50	from 35 to 50 mm Ø	150	from 100 to 150 mm Ø

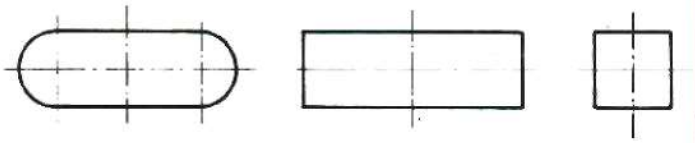
Material thickness:
max. 10 mm

Strength:
max. 60 kg/mm²

Punching contour "shape hole"

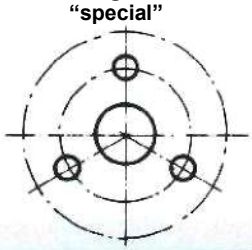


Elongated hole **Rectangle** **Square**

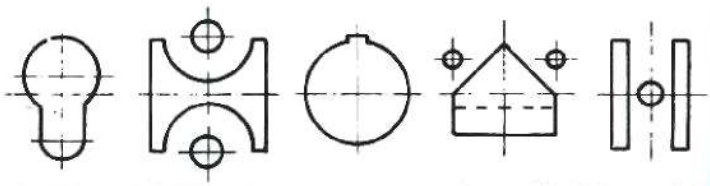


The "shape hole" punching contour can be used in the tool type whose maximum punching diameter defines the shape. All "shape hole" cutting sets are prepared for punching parallel to the tool throat or at right angles to it (rotated 90°).

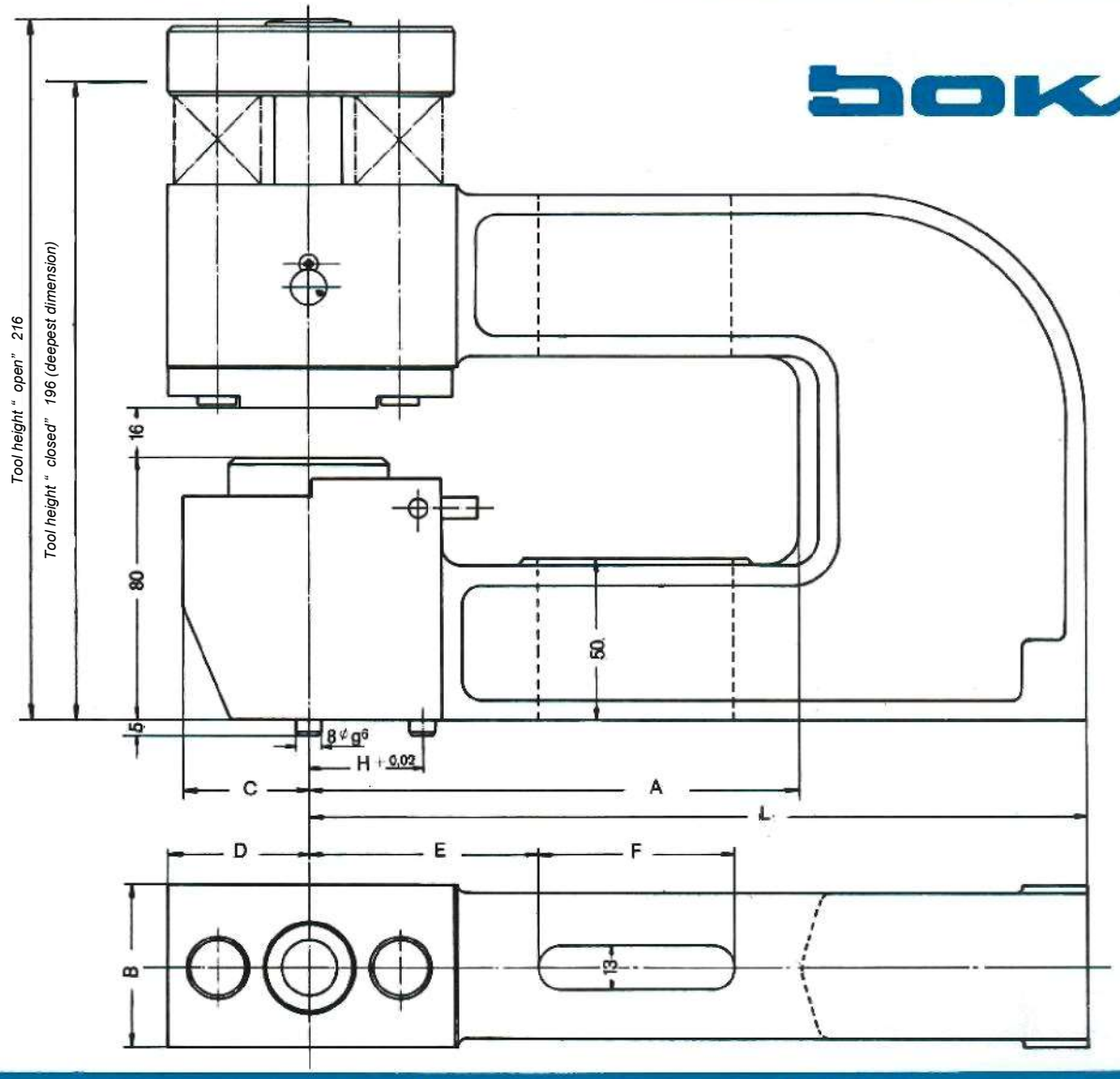
Punching contour "special"



Some more examples:



With the "special" punching contour, the utilization of the tool capacity depends on the effective hole pattern. Shapes that can be fully machined from the punch allow maximum tool capacity to be utilized. With combined hole patterns, utilization is 5 – 10 mm below the maximum tool capacity.



Type	Throat depths A				B	C[1]	D	E	F	H	L at throat depths 150	250/300	500	750
SWD 14	150	–	–	–	35	20	40	70	60	35	230	–	–	–
SWD 20	150	300	500	–	50	40	45	70	60	35	240	390	600	–
SWD 35	150	300	500	–	65	48	48	70	60	35	240	390	600	–
SWD 50	150	300	500	750	80	55	60	70	60/120	50	240	390	600	855
SWD 75	–	250	500	–	110	70	75	100	120	50	–	350	620	–
SWD 100	–	250	500	–	152	90	90	110	120	50	–	350	620	–
SWD 150	–	250	500	–	220	125	125	130	110	Pos. of the pos. pins acc. to drawing	–	350	620	–

[1] For punching work that requires a lower insertion depth than specified under "C" (e.g. when punching small profiles), the dimension "C" for the individual types can be reduced by a certain range depending on the size of the profile or not sufficient to equip the respective tool with a monobloc die. In such cases, we ask that you send us a sketch of the profile in question, which also shows the position of the hole to be punched.

Important: When changing the cutting sets - regardless of whether round or shaped hole - only the punch and die have to be exchanged in a few simple steps.

When ordering please specify:

- The tool type
- The required throat depth
- The diameter or shape of the hole
- The quality and strength of the material

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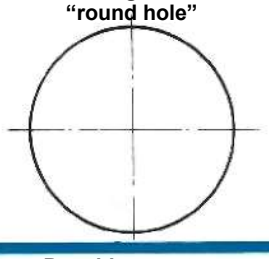
Punching units

with interchangeable cutting elements for sheet metal and profiles

Series: D

Type: D 25
D 50
D 100

Punching contour "round hole"

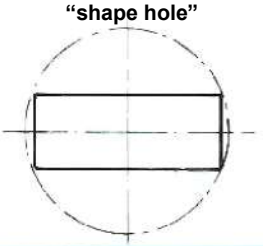


Type	Tool capacity
D 25	from 5 to 25 mm Ø
D 50	from 25 to 50 mm Ø
D 100	from 50 to 100 mm Ø

Material thickness:
max. 25 mm

Strength:
max. 60 kg/mm²

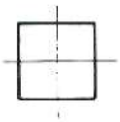
Punching contour "shape hole"



Elongated hole

Rectangle

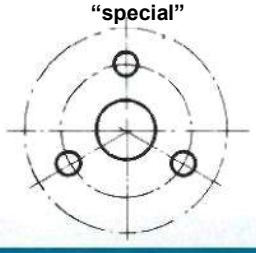
Square



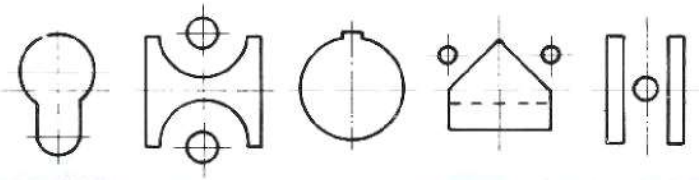
The "shape hole" punching contour can be used in the tool type whose maximum punching diameter defines the shape. All "shape hole" cutting sets are prepared for punching parallel to the tool throat or at right angles to it (rotated 90°).

.

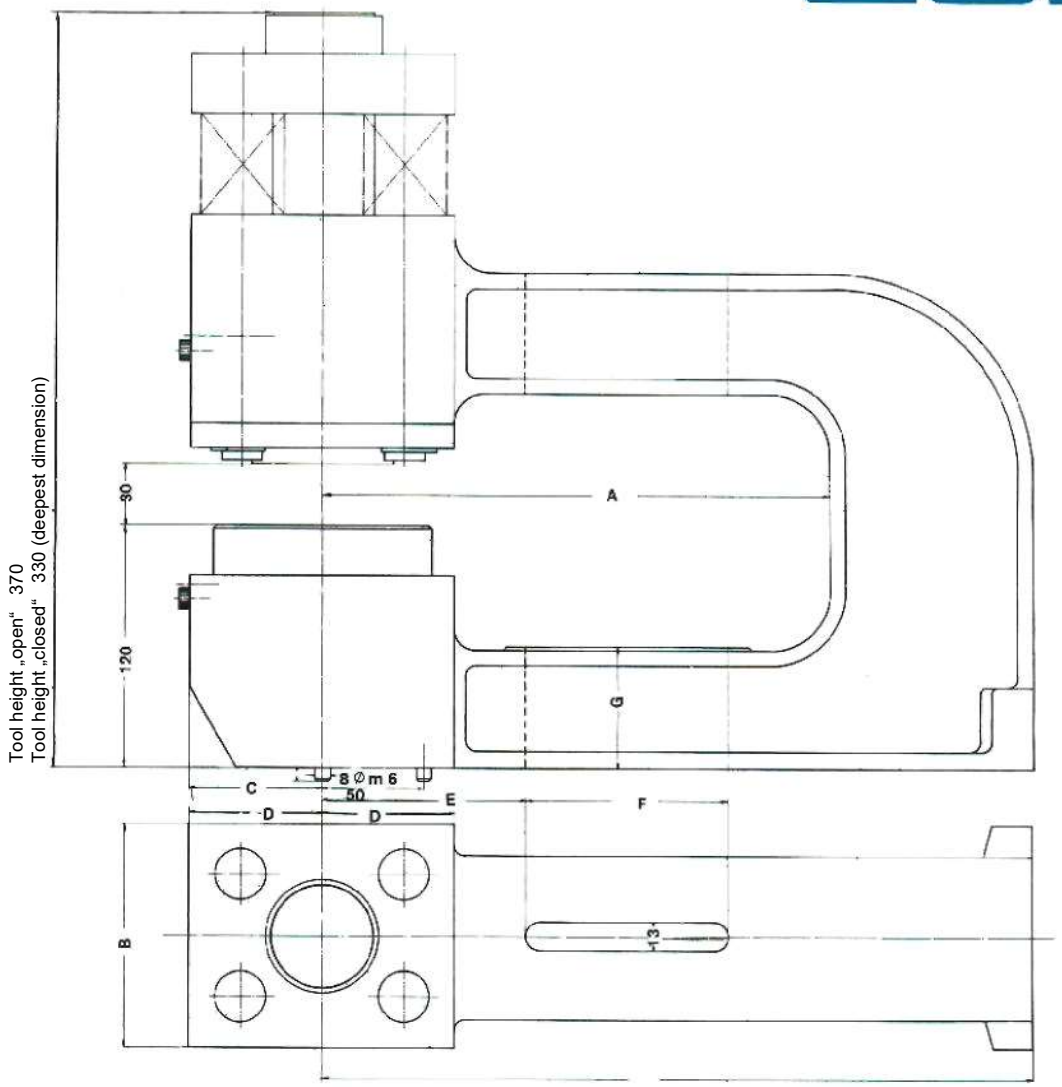
Punching contour "special"



Some more examples:



With the "special" punching contour, the utilization of the tool capacity depends on the effective hole pattern. Shapes that can be fully machined from the punch allow maximum tool capacity to be utilized. With combined hole patterns, utilization is 5 – 10 mm below the maximum tool capacity.



Type	A		B	C	D	E	F at A = 250	F at A = 500	G at A = 250	G at A = 500	L at throat depths 250	L at throat depths 500
D 25	250	–	70	40	60	90	100	–	70	–	355	–
D 50	250	500	110	65	65	100	100	300	70	75	355	610
D 100	250	500	180	100	100	110	100	300	80	90	355	610

[1] For punching work that requires a lower insertion depth than specified under "C" (e.g. when punching small profiles), the dimension "C" for the individual types can be reduced by a certain range depending on the size of the profile or not sufficient to equip the respective tool with a monobloc die. In such cases, we ask that you send us a sketch of the profile in question, if possible, which also shows the position of the hole to be punched.

Important: When changing the cutting sets - regardless of whether round or shaped hole - only the punch and die have to be exchanged in a few simple steps.

When ordering please specify:

- The tool type
- The required throat depths
- The diameter or shape of the hole
- The quality and strength of the material

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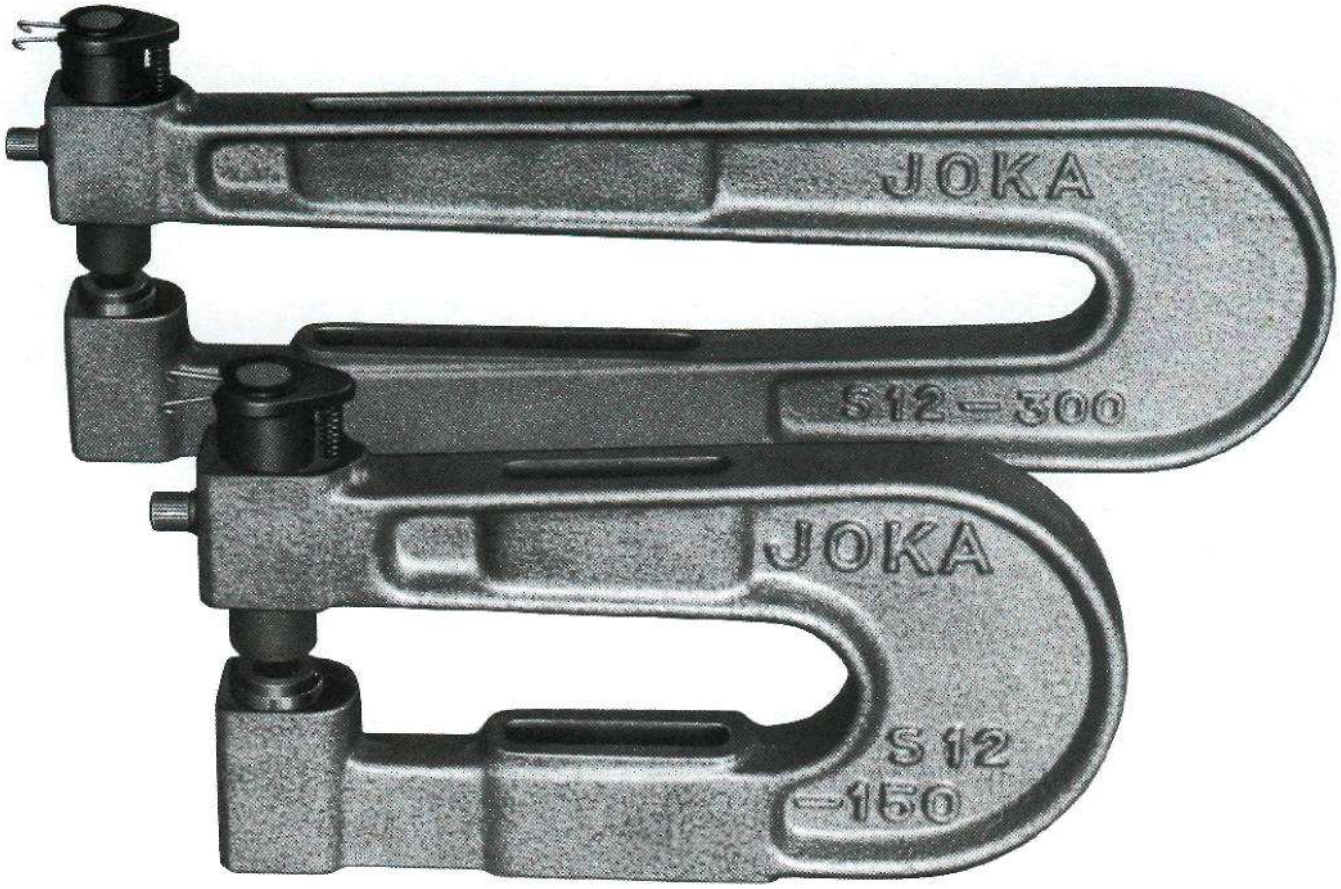
Series: S

Type: S 12

Punching units

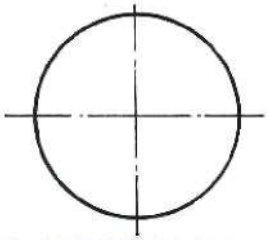
with interchangeable cutting elements for sheet metal and profiles



JOKA S12

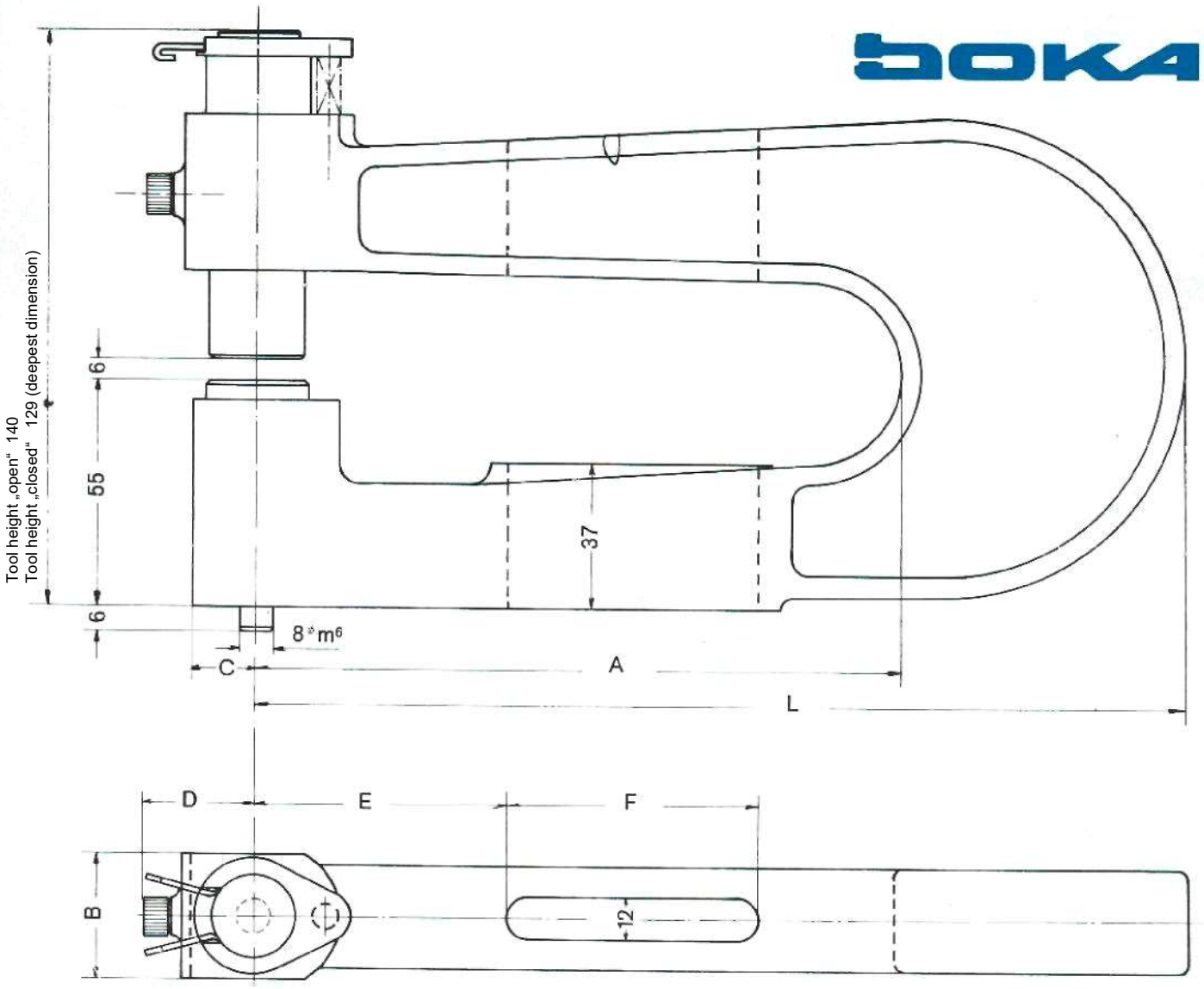
the particularly inexpensive punching unit for simple round holes up to Ø 12 mm and 4 mm material thickness.

Punching contour "round hole"

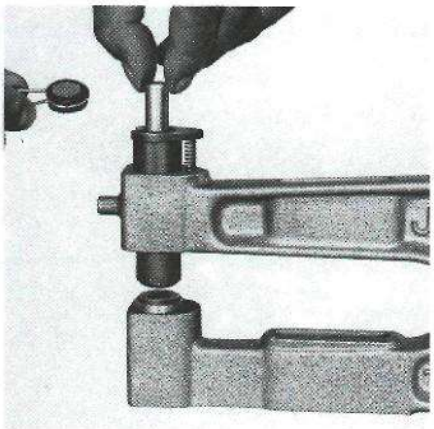


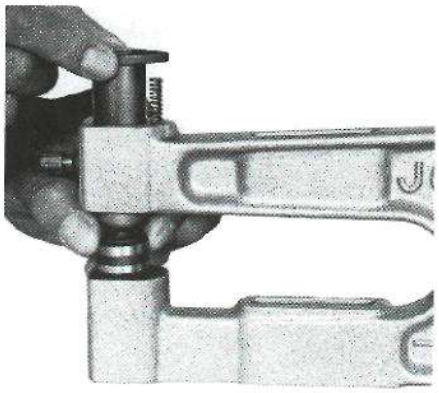
Replacement sets or complete tools with the following punching diameters can be delivered immediately from stock:
3.0, 3.25, 3.5, 4.0, 4.15, 4.5, 5.0, 5.2, 5.5, 6.0, 6.2, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0, 10.5, 11.0, 11.5, 12.0

Dies with the appropriate air gap are supplied with each punch diameter.
– Specify material thickness –



Type	A	B	C	D	E	F	L
S 12 - 150	150	30	15	28	60	60	225
S 12 - 300	300	30	15	28	60	120	375





Important: When changing the cutting sets, only the punch and die need to be replaced in just a few simple steps.

When ordering please specify:

- The tool type
- The required throat depths
- The diameter of the hole
- The quality and strength of the material

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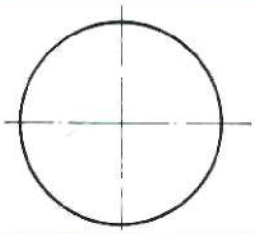
Punching units

with interchangeable cutting elements for sheet metal and profiles

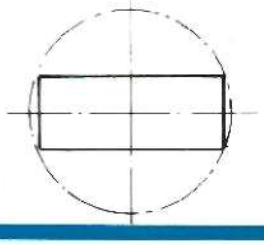
Series Z

Type Z 8
Z 14
Z 20
Z 50
Z 100
Z 150



Punching contour
„round hole“

Type	Tool capacity		
Z8	1 to	8 mm Ø	1)
Z14	8 to	14 mm Ø	
Z 20	14 to	20 mm Ø	
Z 50	20 to	50 mm Ø	
Z 100	50 to	100 mm Ø	
Z 150	100 to	150 mm Ø	

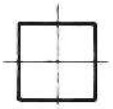


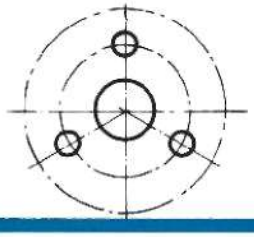
Punching contour
„shape hole“

Elongated hole

Rectangle

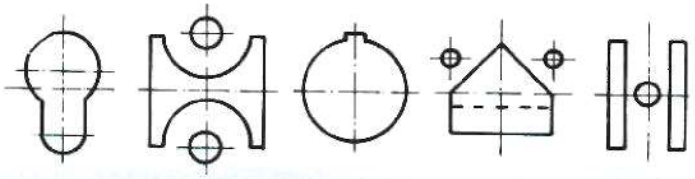
Square

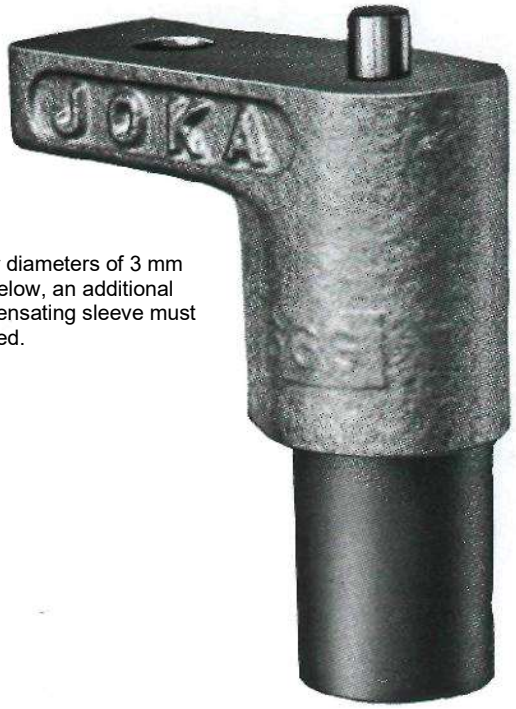




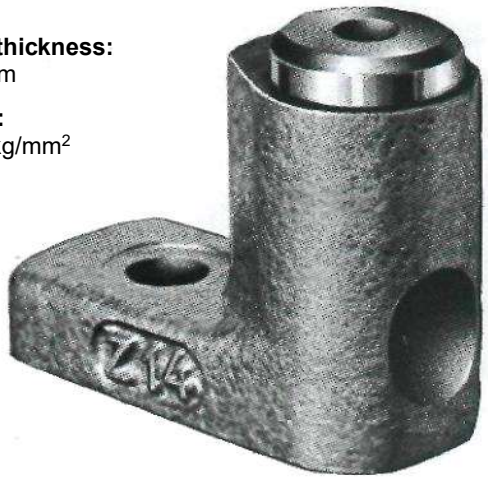
Punching contour
„special“

Some more examples:





1) For diameters of 3 mm and below, an additional compensating sleeve must be used.

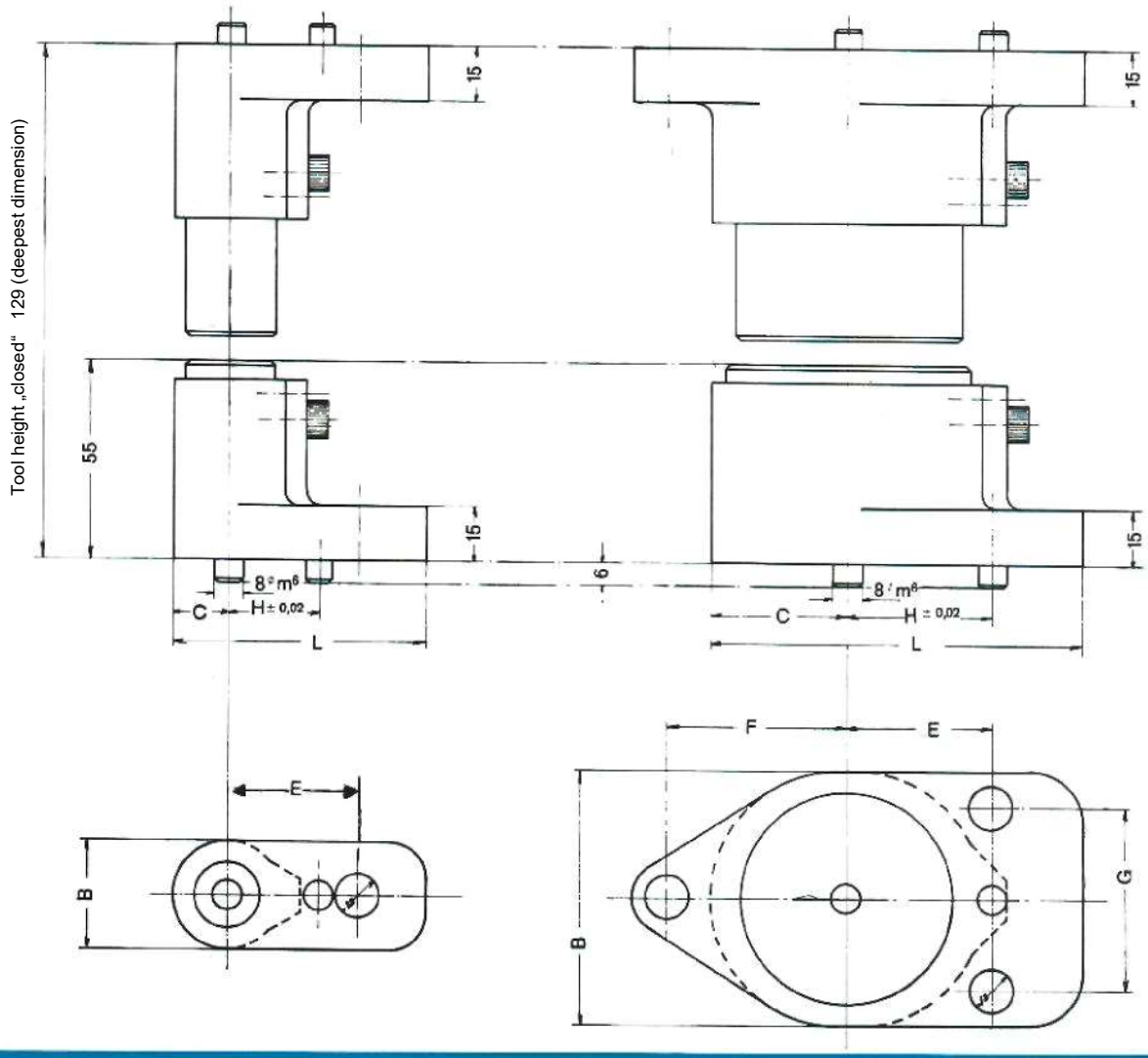


Material thickness:
max. 4 mm

Strength:
max. 60 kg/mm^2

The punching contour "shape hole" can be used in the tool type whose maximum punching diameter describes the shape. All “shape hole” cutting sets are prepared for punching parallel to the tool throat or at right angles to it (rotated 90°).

With the punching contour "special", the utilization of the tool capacity depends on the effective hole pattern. Shapes that can be fully machined from the punch allow maximum tool capacity to be utilized. With combined hole patterns, utilization is 5-10 mm below the maximum tool capacity.



Type	B	C	E	F	G	H	L
Z 8	20	10	23	-	-	-	50
Z 14	30	15	36	-	-	25	70
Z 20	40	20	36	-	-	25	80
Z 35/Z 50*				-			
Z 75/Z 100/ Z 150*							

* Request a separate dimension sheet for design and dimensions for Z 35 to Z 150!

Important: When changing the cutting sets - regardless of whether round or shaped hole - only the punch and die have to be exchanged in a few simple steps.

Please specify when ordering:

- The tool type
- The required throat depths
- The diameter or shape of the hole
- The quality and strength of the material

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Punching units

with interchangeable cutting elements for sheet metal and profiles

Series: PL/PLD
Series: C/CD

Type:		
	PL	8
	PL	12
	PLD	14
	PLD	35
	C	12
	CD	20/35

Series: PL/PLD

Punching units for punching angle iron, U-iron and profile steel.

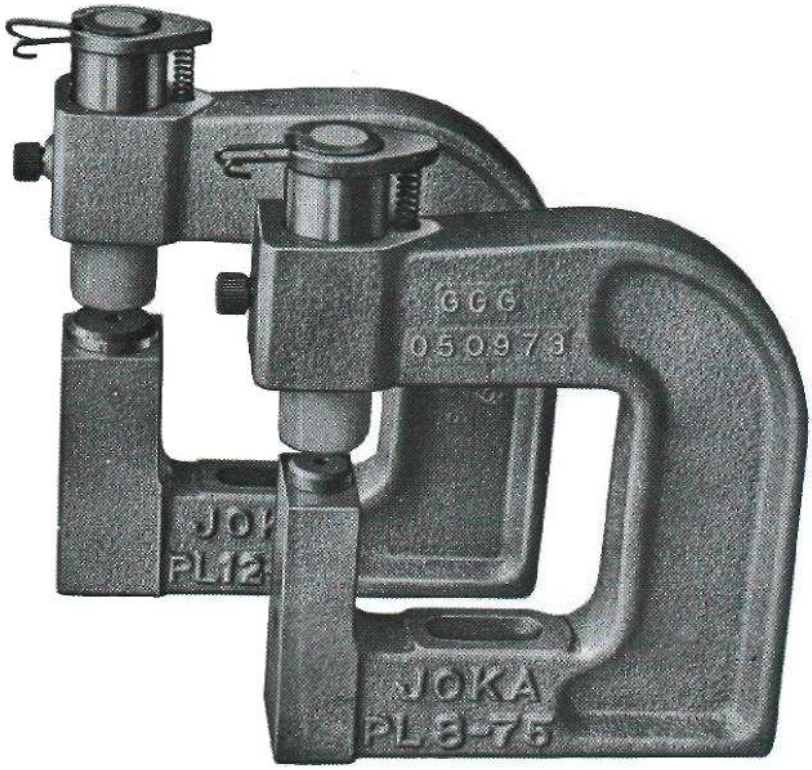
PL material thickness max. 4 mm

PL	**8**	**1.6 to 8 mm Ø**
PL	**12**	**1.6 to 8 mm Ø**

Bearing diameter
according to type brochure S 12

PLD material thickness max. 10 mm

PLD	**14**	**3.0 to 14 mm Ø**
PL	**35**	**14 to 35 mm Ø**



Series: C/CD

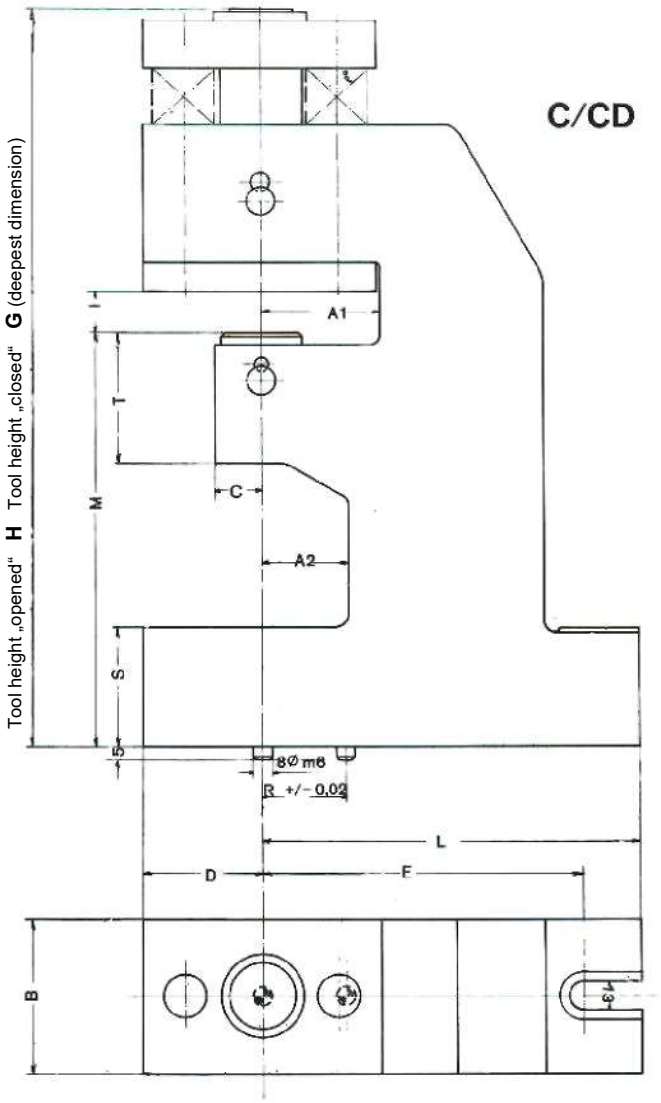
Special punching units for punching angle iron, U-iron and profile steel.

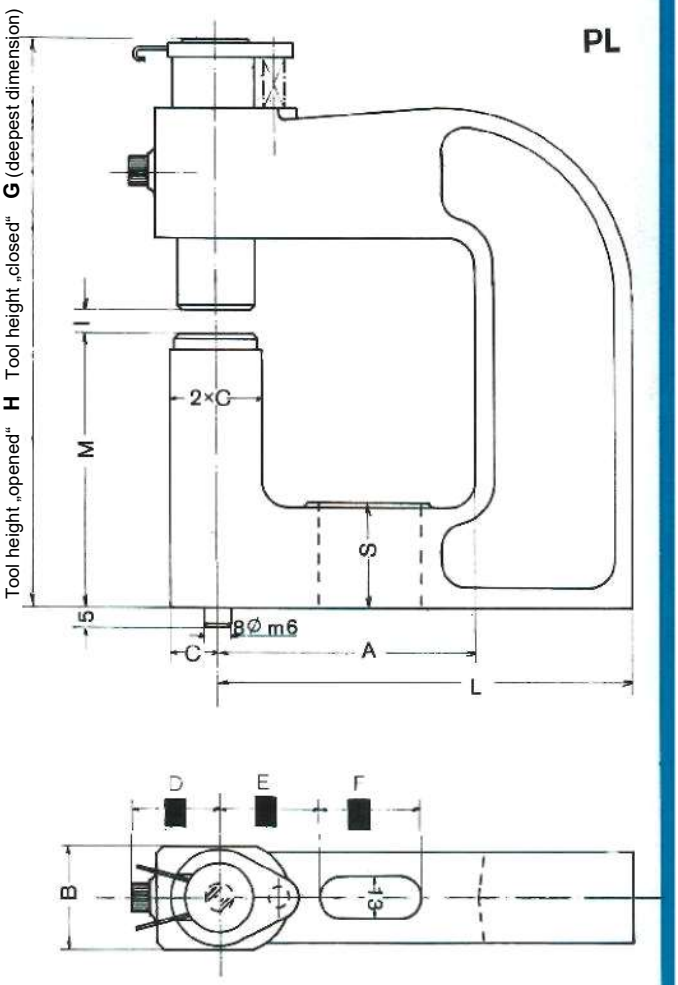
C 12 material thickness max. 4 mm

For punching round holes from 1.6 to 12 mm Ø

CD 20/35 material thickness max. 10 mm

For punching round and shaped holes from 3 to 20 mm Ø





Request a separate dimension sheet for PLD.

Table of dimensions C/CD

Type	A1	A2	B	C	D	E	G	H	I	L	M	R	S	T
C 12	35	35	35	13,5	25	115	215	225	6	135	140	–	40	40
CD 20/35	50	35	65	20	50	135	291	312	16	160	175	35	50	60

Table of dimensions PL/PLD

Type	A	B	C	D	E	F	G	H	I	M	L	S
PL 8	75	30	9	25	30	30	155	165	6	80	120	30
PL 12	75	30	13,5	25	30	30	155	165	6	80	120	30

Type	A	B	B_1	C	D	E	F	G	H	I	M	L	S
PLD14	150	42,5	40	17,5	40	70	60	236	256	16	120	230	35
PLD35	150	72,5	65	32,5	48	70	60	236	256	16	120	230	35

When ordering please specify:

- the tool type
- the required throat depths
- the diameter or shape of the hole
- the quality and strength of the material

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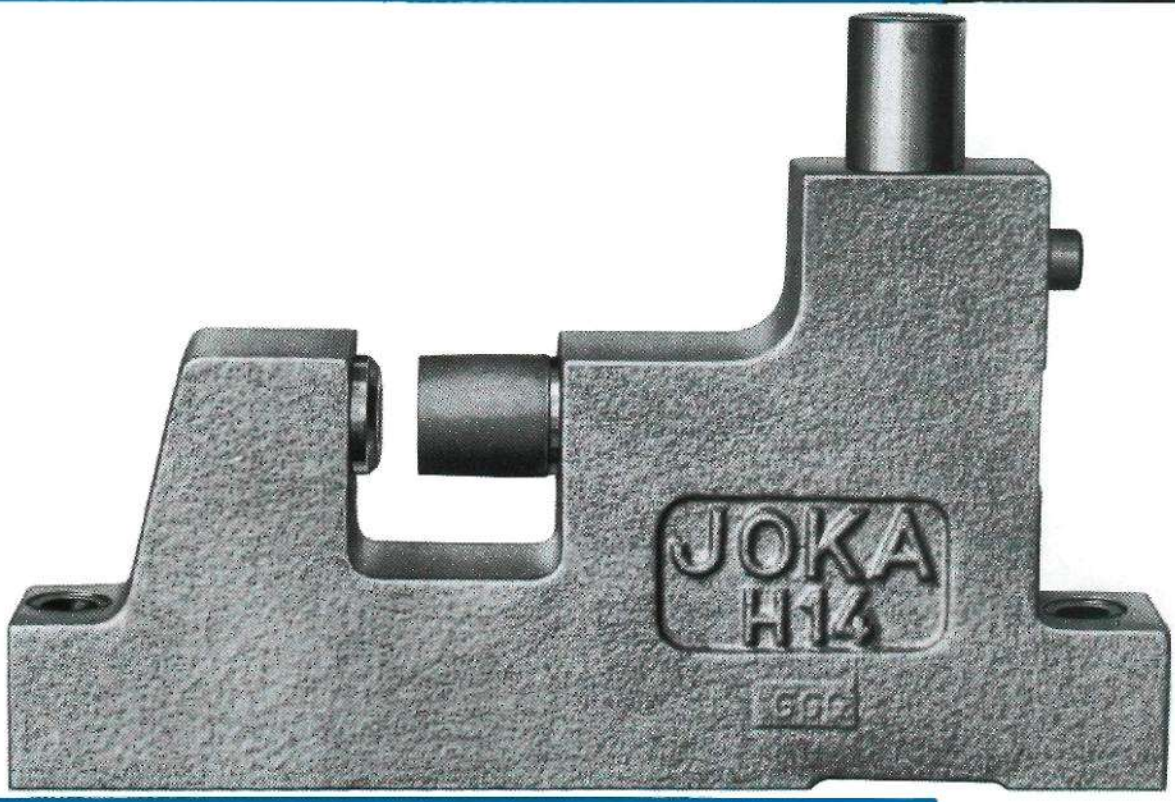
Punching units

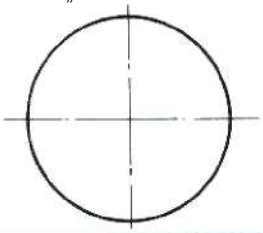
with interchangeable cutting elements for sheet metal and profiles

Series: H

Type: H 14



Punching contour „round hole“



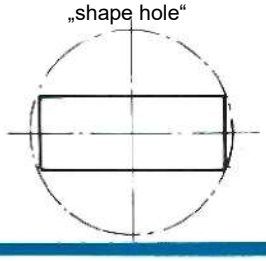
Tool capacity: 14 mm Ø[1)]

[1)] This diameter can be exceeded with the same basic unit in a special design.

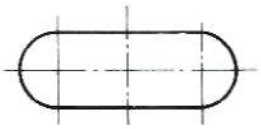
Material thickness: max. 4 mm

Strength: max. 60 kg/mm^2

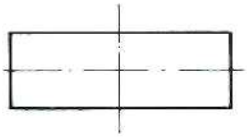
Punching contour „shape hole“



Elongated hole

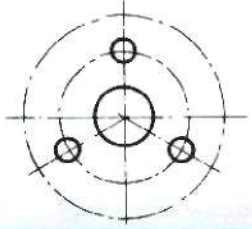


Rectangular

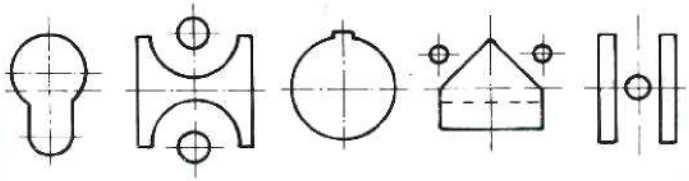


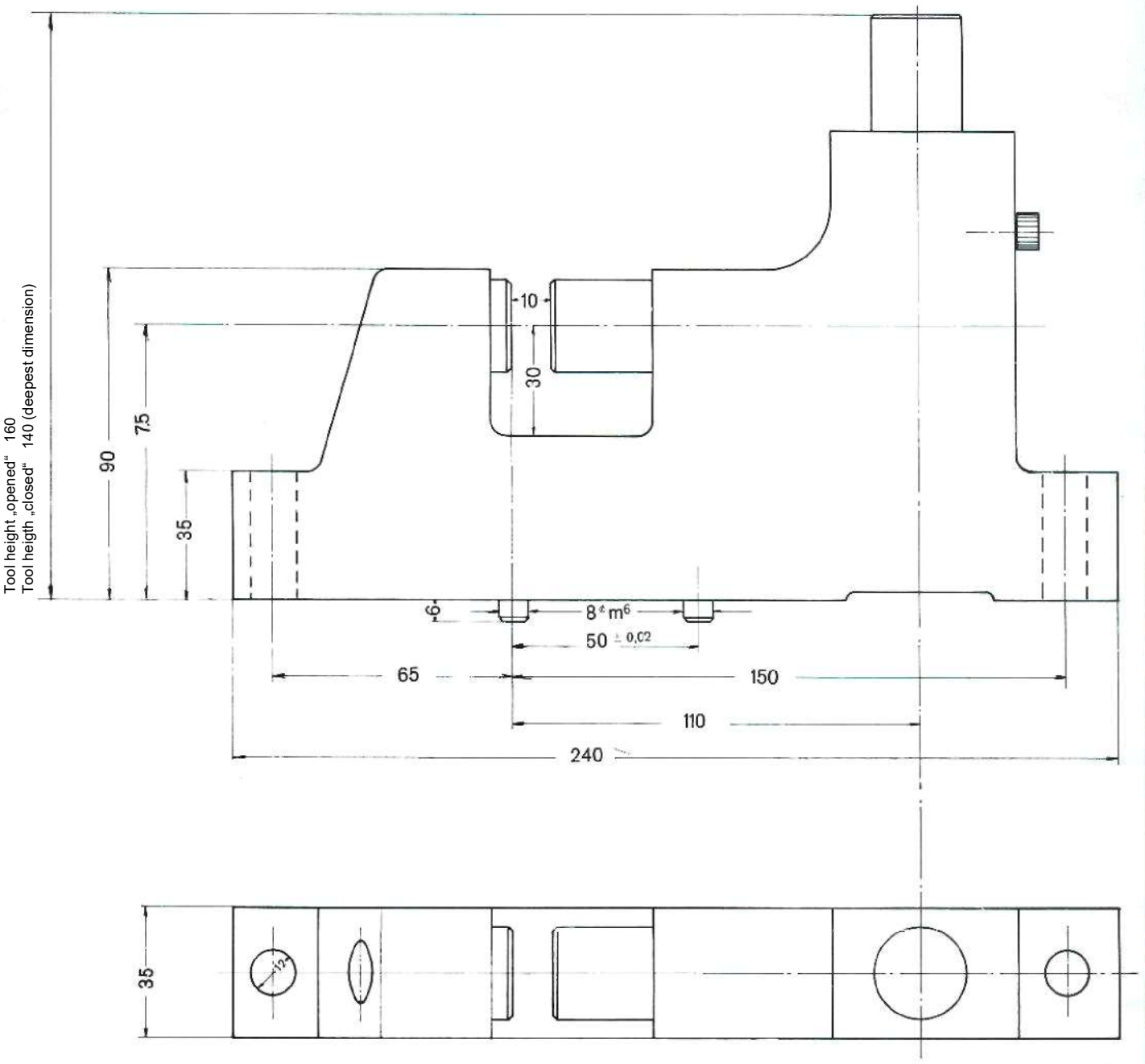
Square

Punching contour „special“



Some more examples:





Important: When changing the cutting sets - regardless of whether round or shaped hole - only the punch and die have to be exchanged in a few simple steps.

Please specify when ordering:

- The tool type
- The required throat depths
- The diameter or shape of the hole
- The quality and strength of the material

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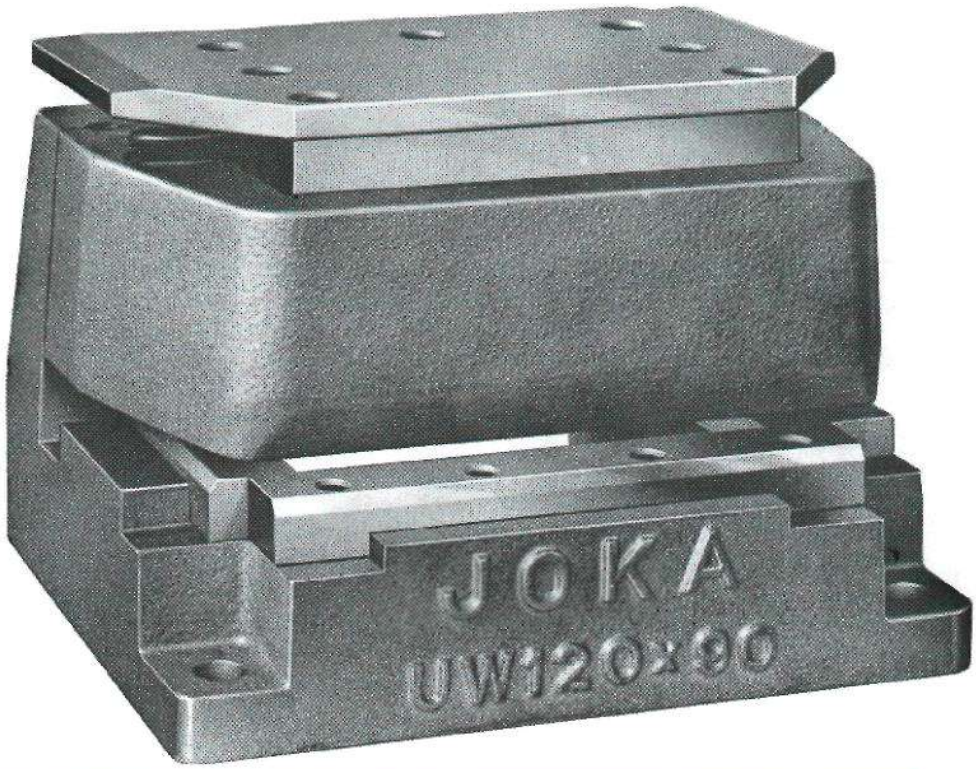
Punching and notching units

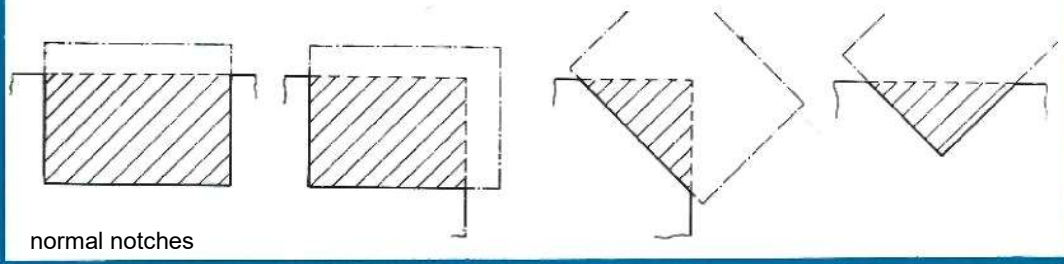
with exchangeable cutting elements.

Series: UW/UWD

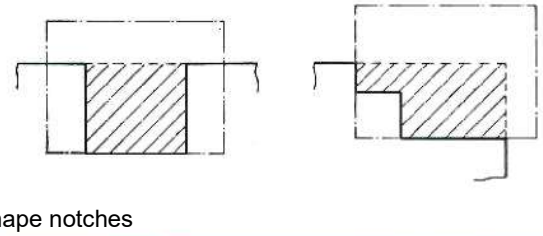
Type UW 60x 40
Type UW 90x 60
Type UW 120x 90

Type UWD 120x 90
Special design
in any required size

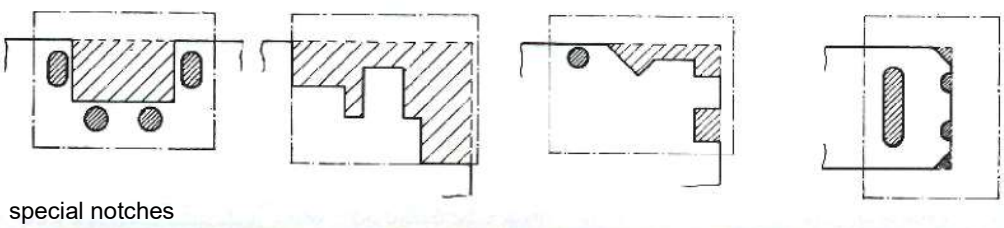




normal notches



shape notches



special notches

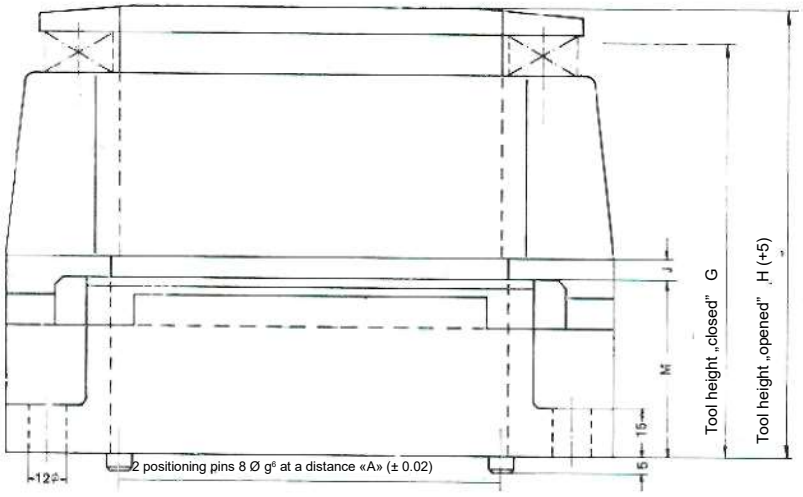
Material thickness:

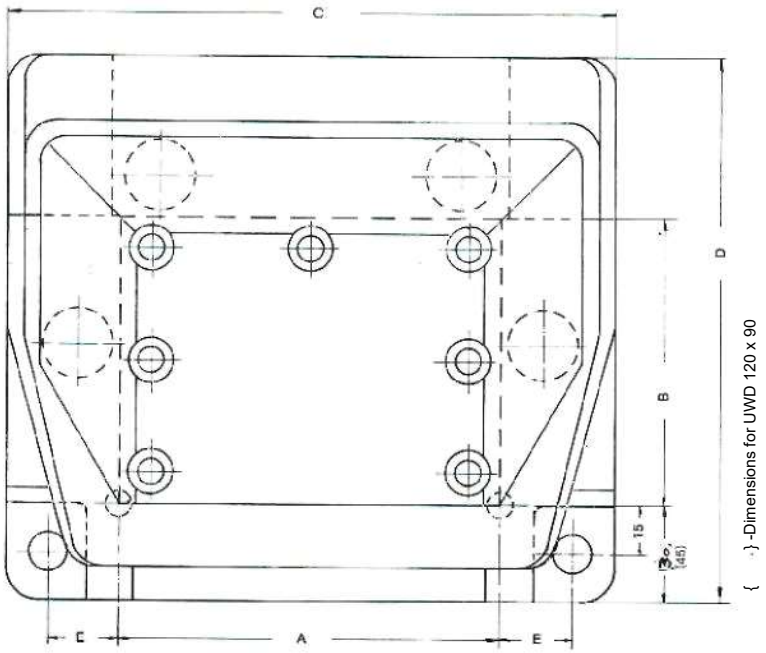
UW — max. 4 mm
UWD — max. 10 mm

Strength:

max. 60 kg/mm²

The form and special notches are built into the corresponding tool type depending on their size. For notching shapes that cannot be accommodated in the standard tools, we supply you with special tools based on the same design principle. In the case of tools for special notches, the carrier punch is also provided with a spring-loaded hold-down device and stripper.





Tool type	max. notch size B x A x B	A	B	C	D	E	G	H	I	M
UW 60 x 40	40 x 60 x 40	60	40	120	120	17,5	129	139	6	55
UW 90 x 60	60 x 90 x 60	90	60	150	140	17,5	129	139	6	55
UW 120 x 90	90 x 120 x 90	120	90	190	170	22,5	129	139	6	55
UW 160 x 120	120 x 160 x 120	160	120	240	200	27,5	129	139	6	55
UWD 120 × 90	90 × 120 × 90	120	90	210	205	30	196	216	16	80

The cutting elements for all notching forms are interchangeable within a tool type.
In the case of shaped and special notches, depending on the type of notch (sectional view) and material thickness, it is necessary to support the largely self-supporting matrix. In such cases, the tool body must be sent back to us for installation of the new cutting elements on request.

When ordering we ask you to specify:

- The tool type
- The desired punching or notching shape (in the case of shaped or special notching – please send in a drawing)
- The quality and thickness of the sheet metal to be stamped

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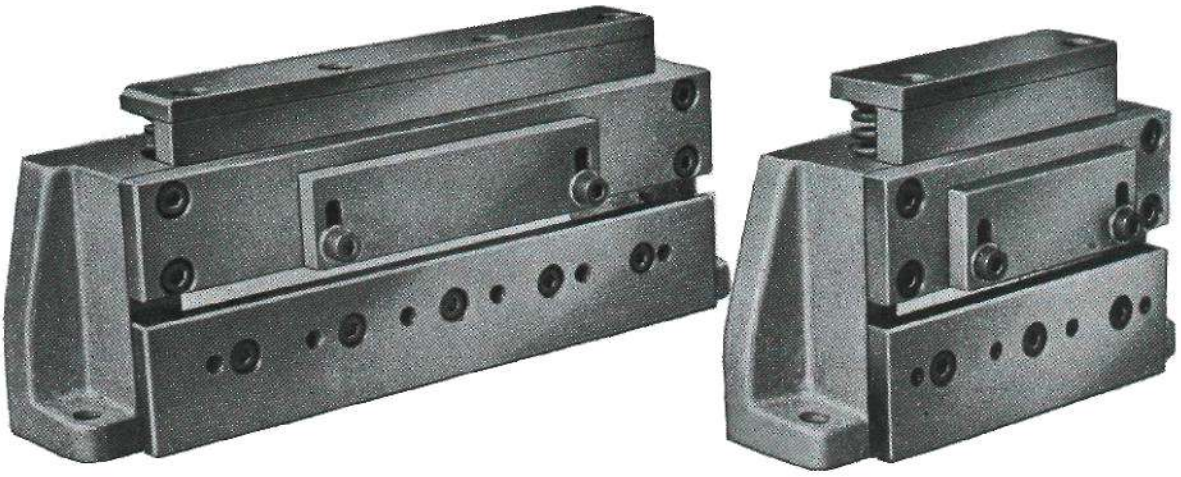
Cutting tools

Series: T/TD

Type:		
	T	125
	T	250
	TD	150
	TD	300

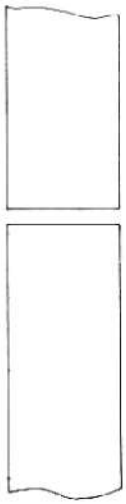


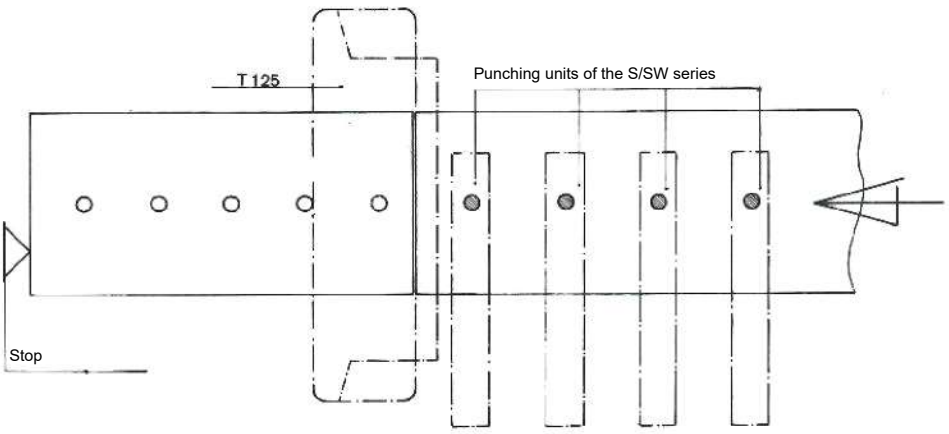
Material thickness: **T max. 4 mm**
TD max. 10 mm

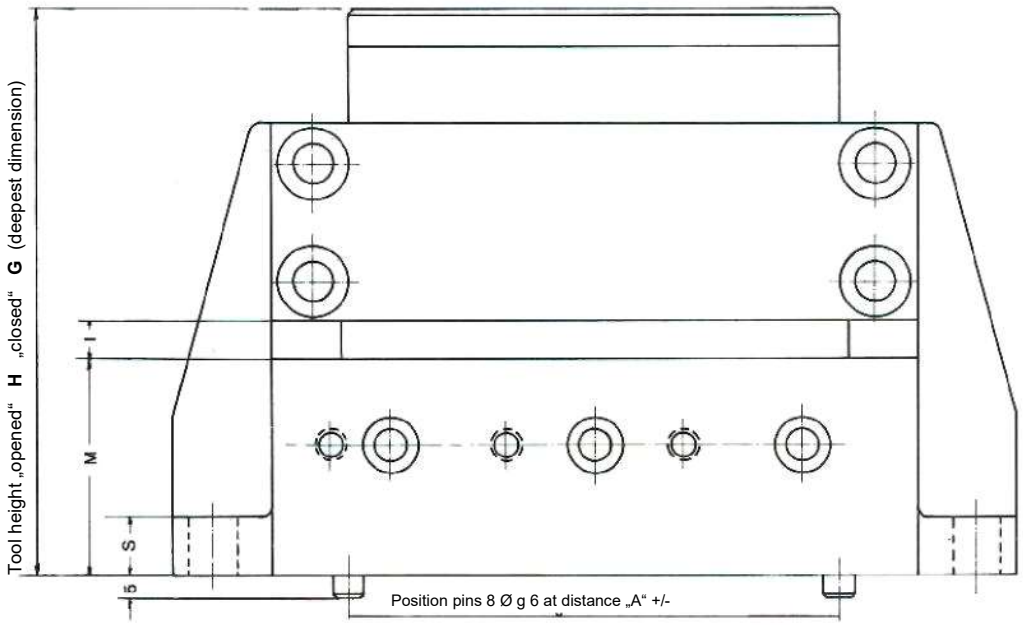
Strength: **max. 60 kg/mm²**

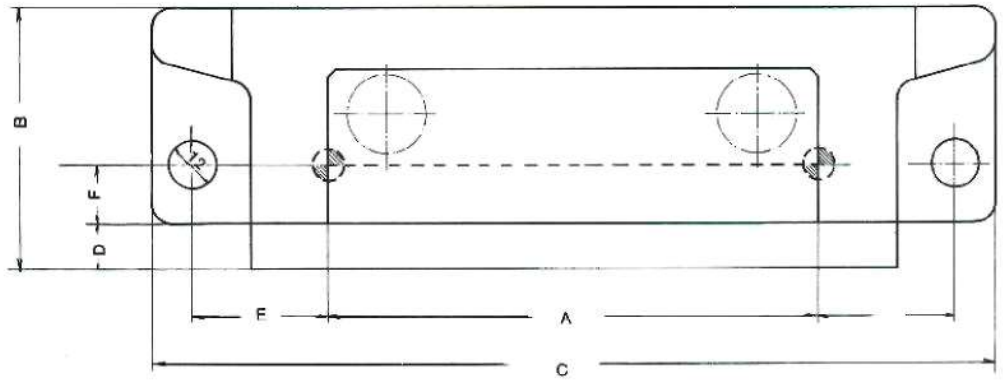
Separation cut Wasteless

Example of a tool arrangement for simultaneous punching and cutting.









Type	A	B	C	D	E	F	G	H	I	M	S
T 125	125	67	215	12	35	15	129	140	8	55	15
T 250	250	77	350	12	40	15	129	140	8	55	15
TD 150	150	85	260	20	45	20	196	220	15	80	20
TD 300	300	100	430	20	55	25	196	220	15	80	20

The cutting tools are delivered without stops.

We can supply a length stop adjustable from 25 to 500 mm as standard.

The stop type AS 5 is intended to be screwed onto the tool for lateral strip guidance. In addition, the AS 1 can be set as a permanently positioned stop.

When ordering we ask you to specify:

- The tool type
- The quality and thickness of the sheet metal to be stamped

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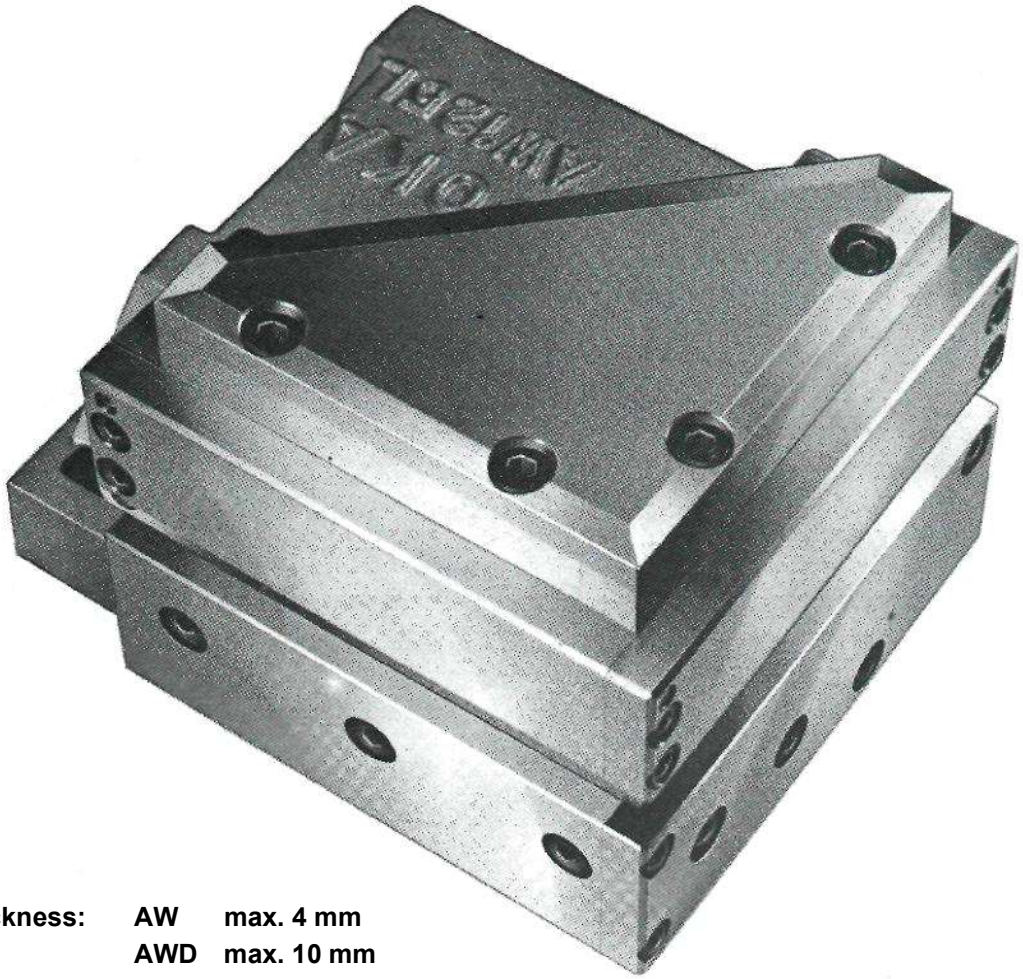
Notching units

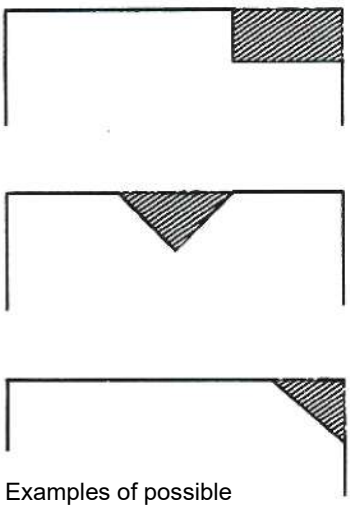
Series: AW/AWD

Type: AW 75
AW 125
AWD 125

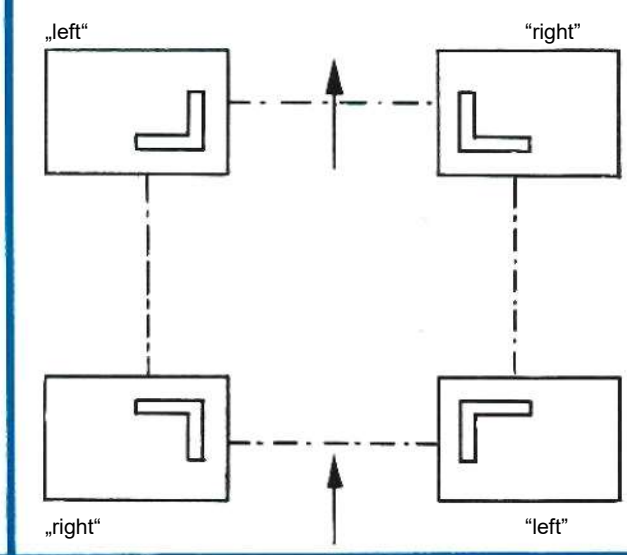


Material thickness: AW max. 4 mm
AWD max. 10 mm

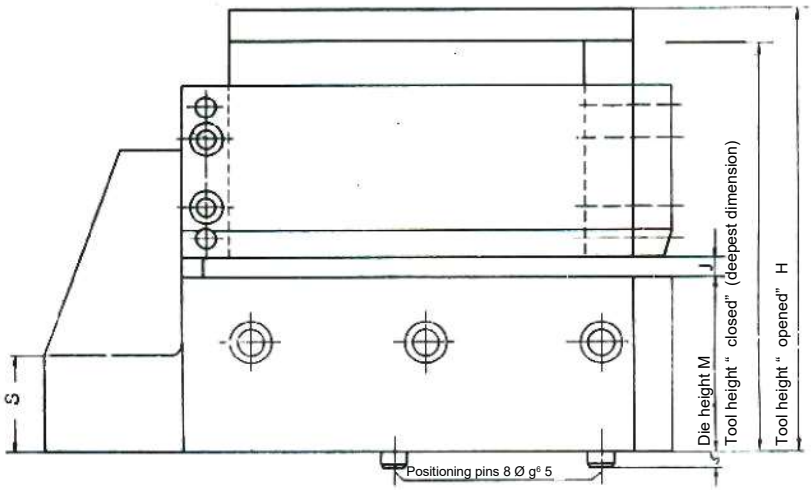
Strength: max. 60 kg/mm²

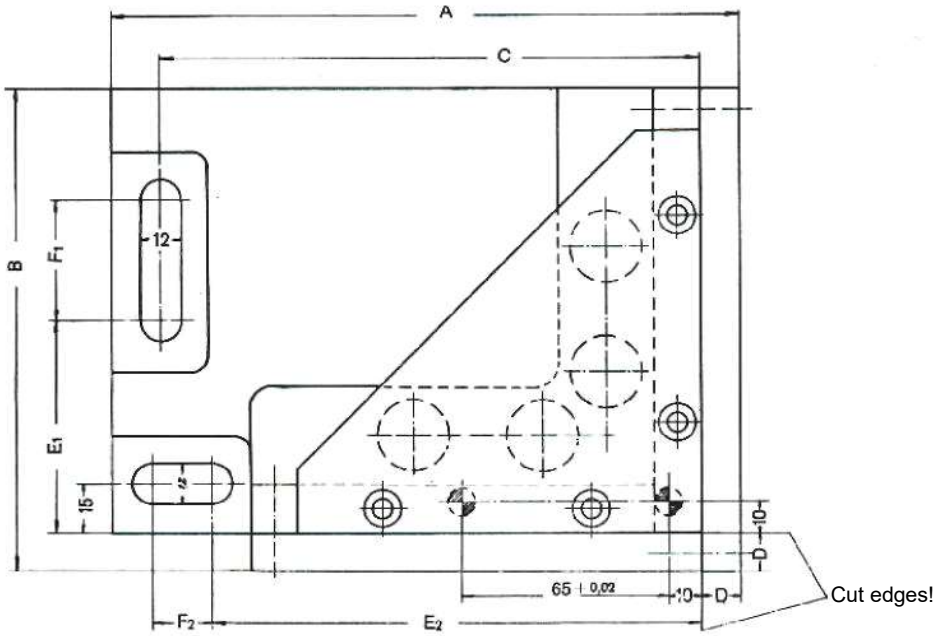


Examples of possible notch forms



The AW and AWD notching tools are supplied in left-hand and right-hand versions.
The two versions are mirror images of each other in the tool body.
This difference is necessary in order to be able to insert the blank into the tool complex when, for example, four notching units are being set up at the same time or to allow sheet metal blanks to run through the notching complex.
The two versions are marked "left" and "right" in the tool body.





Available as a special size: AW 200 und AWD 200 (Different dimensions, please request a separate dimension sheet)

Type	A	B	C	D	E_1	F_1	E_2	F_2	G	H	I	M	S
AW 75	148	103	120	12	60	12Ø	104	18	129	139	6	55	30
AW 125	198	153	170	12	66	38	154	18	129	139	6	55	30
AWD 125	231	171	195	20	71	38	165	30	196	216	16	80	50

All notching tools are normally supplied without stops.

The tools are prepared for attaching 2 stop types:

a) simple stop, Type AS 5
b) complete angle table with inserted measuring scale and movable jaws, Type AS 6

When ordering we ask you to specify:

- The tool type
- The tool design (left or right)
- The quality and thickness of the sheet metal to be stamped

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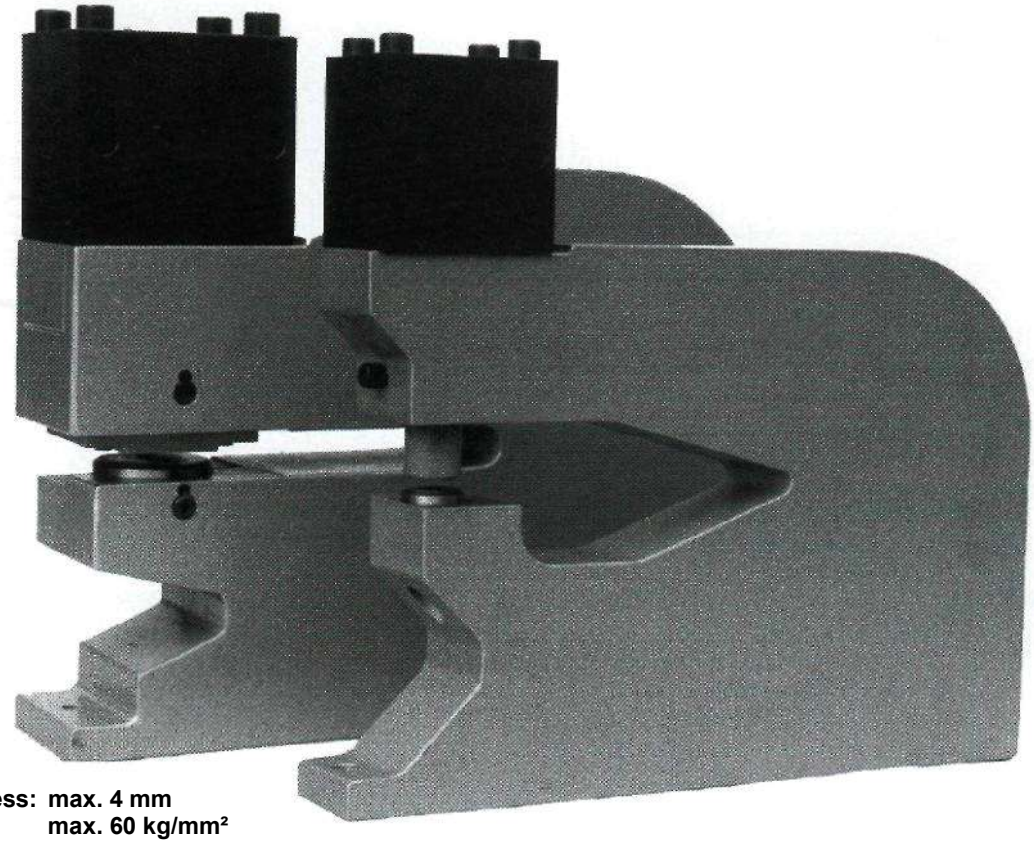
Series: HW

Type: HW 12
HW 20
HW 35
HW 50

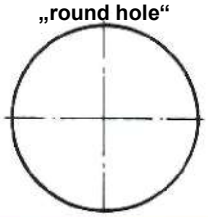
Hydro punching tools

with interchangeable cutting elements for sheet metal and profiles



Material thickness: max. 4 mm
Strength: max. 60 kg/mm²

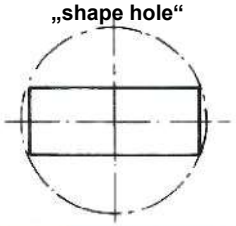
Punching contour „round hole“



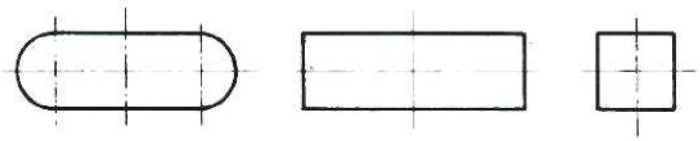
Type	Tool capacity	Type	Tool capacity
HW 12	from 1 to 12 mm Ø	HW 35	from 20 to 35 mm Ø
HW 20	from 12 to 20 mm Ø	HW 50	from 35 to 50 mm Ø

For all punching diameters of 3 mm and below, a compensating sleeve is required for the punch. This applies to the HW 12 units for diameters under 3 mm and HW 20 for diameters under 14 or 8 mm. Only round holes can be punched with the HW 12 tool.

Punching contour „shape hole“



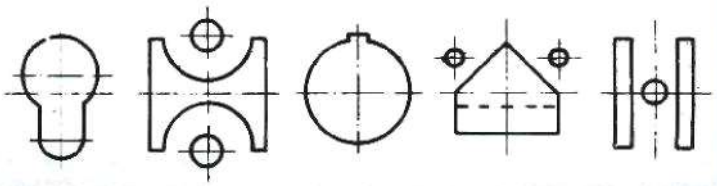
Elongated hole **Rectangular** **Square**



The punching contour "shape hole" can be used in the tool type whose maximum punching diameter describes the shape. All “shape hole” cutting sets are prepared for punching parallel to the tool throat or at right angles to it (rotated 90°).

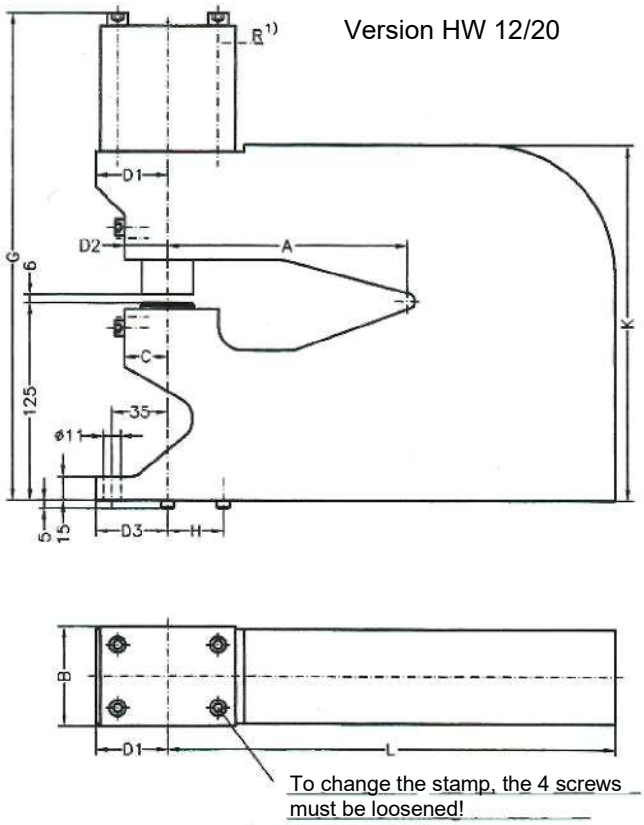
Punching contour „special“

Some more examples:



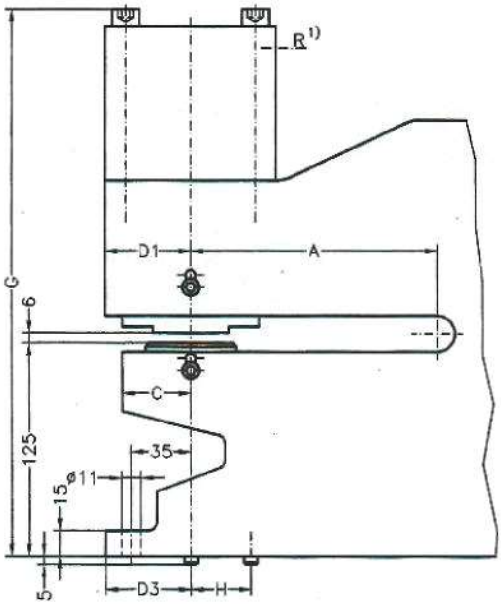
With the punching contour "special", the utilization of the tool capacity depends on the effective hole pattern. Shapes that can be fully machined from the punch allow maximum tool capacity to be utilized. With combined hole patterns, utilization is 5-10 mm below the maximum tool capacity.

Version HW 12/20



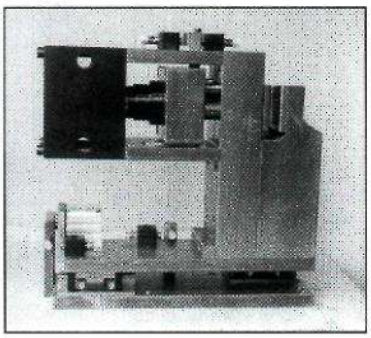
To change the stamp, the 4 screws must be loosened!

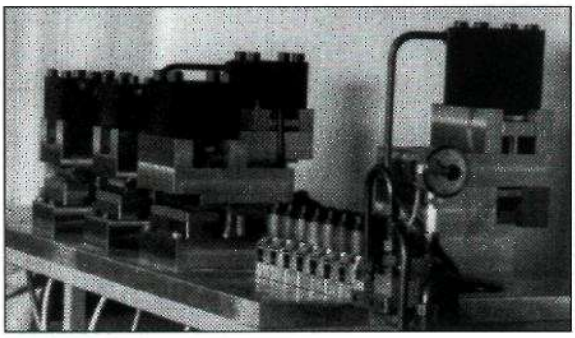
Version HW 35/50

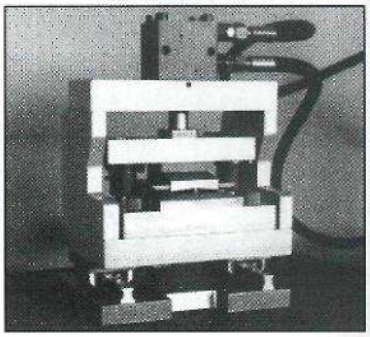


1) Standard version is "single acting"
On request,
"double-acting" can also be supplied.

	Connection R	A	B	C	D1	D2	D3	G	H	K	L	Force [kN] (at 400 bar)	Cutting set from
HW 12	1/4"	150	55	15	40	20	45	303	—	224	280	30	S 12
HW 20	1/4"	150	65	27	45	27	45	307	35	224	280	50	SW 20
HW 35	1/4"	150	80	40	50	—	50	321	35	256	300	80	SW 35
HW 50	1/2"	150	100	45	65	—	50	339	50	261	300	120	SW 50







In addition to the standard hydro tools,
special designs are also developed and built for every purpose.

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Hydro presses

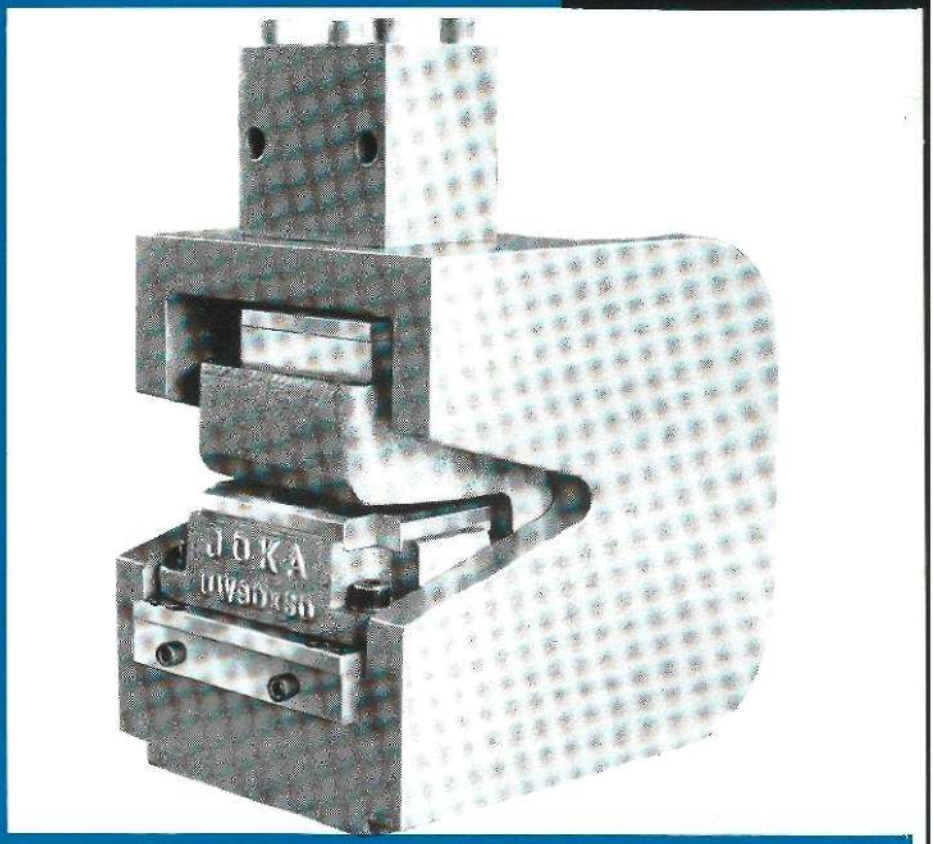
Series:
HP-S
HP-U

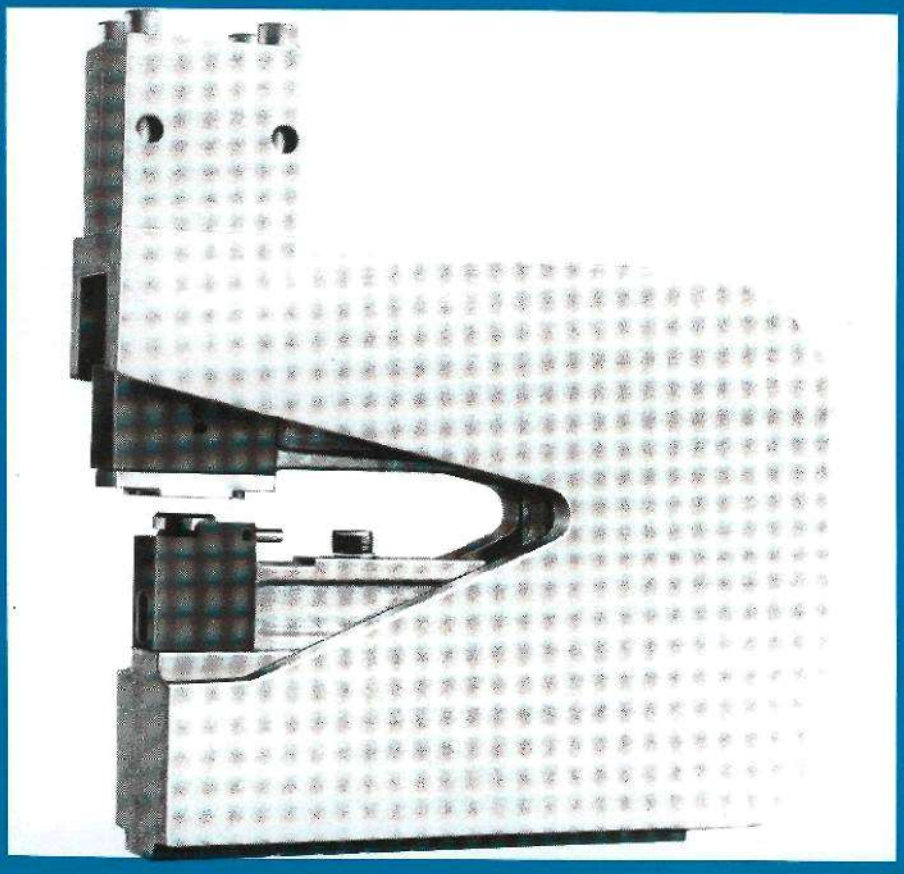
Series: HP-U

Hydraulic presses for holding notching tools from the UW and AW series

Types:

HP-U-12
HP-U-20





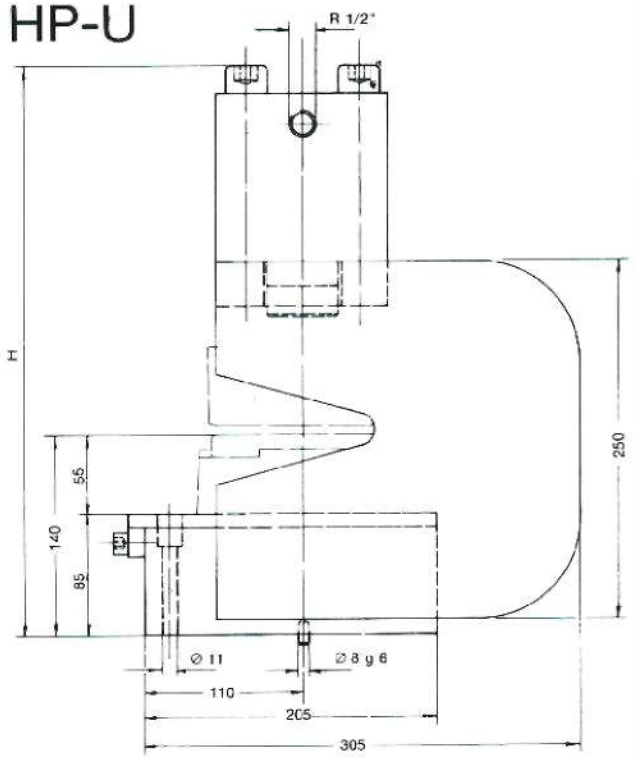
Series HP-S

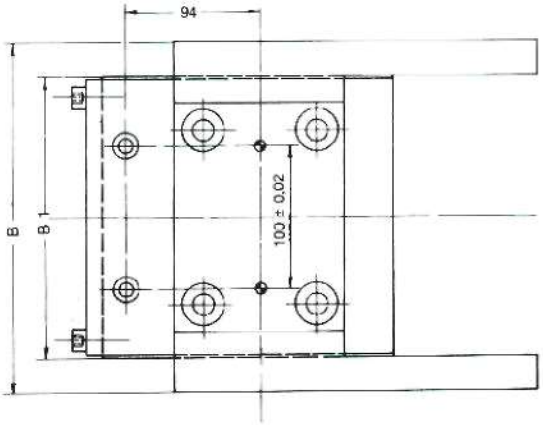
Hydraulic presses for accommodating punching units from the SW series

Types:

HP-S- 3
HP-S- 5
HP-S- 8
HP-S-12
HP-S-20

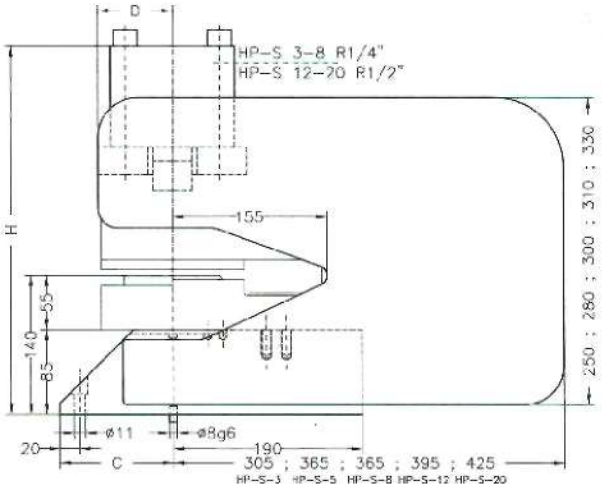
HP-U

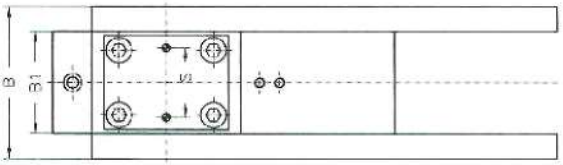




Type	B	B 1	H	Punching force KN 1)	maximum tool size
HP-U-12	205	155	380	124,8	UW 90 x 60
HP-U-20	245	195	400	201,6	UW 120 x 90

HP-S





Type	B	B1	C	D	H	S	Punching force KN	maximum tool size
HP-S-3	63	33	70	40	335	20	32	SW 14
HP-S-5	88	58	70	45	349	40	50,4	SW 35
HP-S-8	113	73	70	55	360	50	78	SW 50
HP-S-12	153	103	114	75	372	70	124,8	SW 75
HP-S-20	203	133	114	90	387	100	201,6	SW 100

- The specified punching force is achieved at 400 bar!
- In addition to the press sizes mentioned here, press sizes for larger pressures or other tool types can be manufactured.

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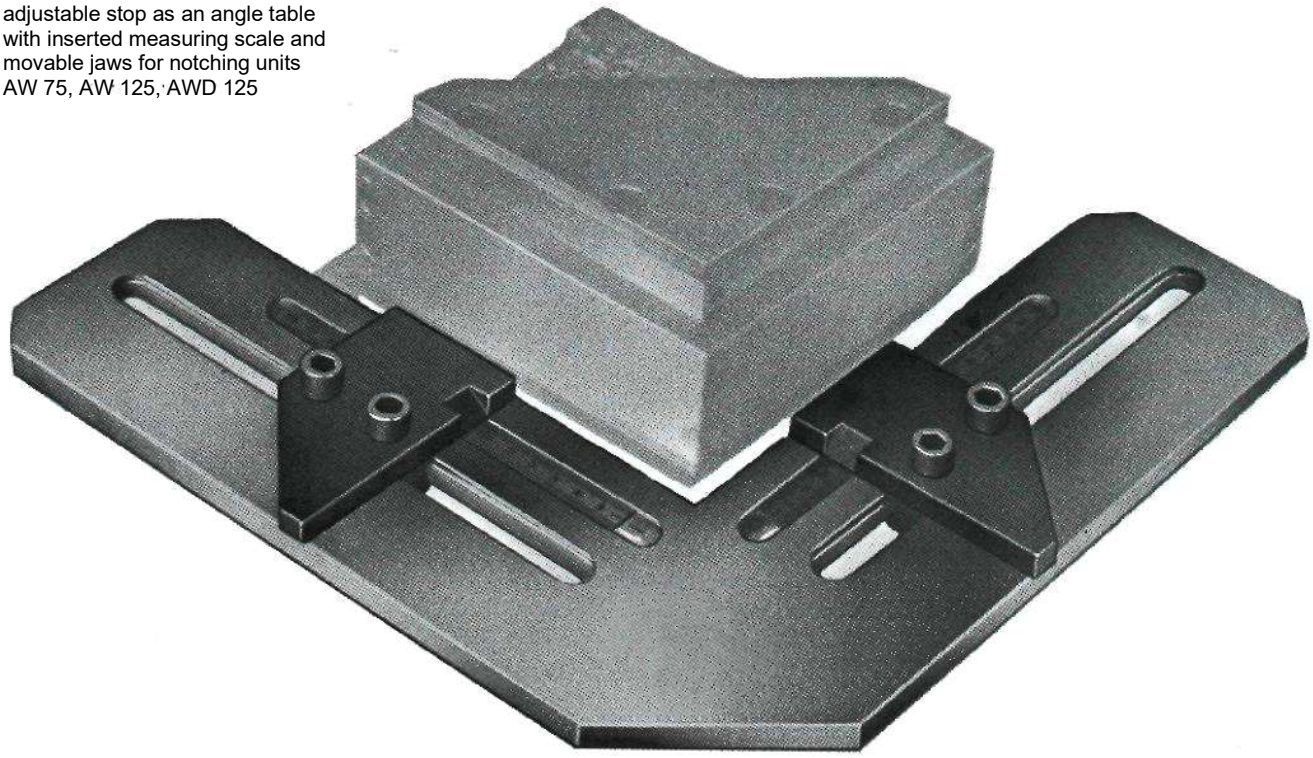
Punching units

with interchangeable cutting elements for sheet metal and profiles

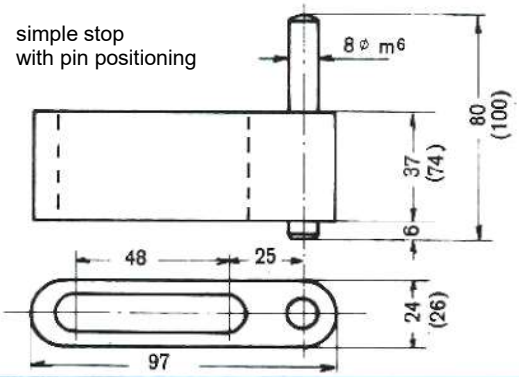
AS 6

adjustable stop as an angle table with inserted measuring scale and movable jaws for notching units AW 75, AW 125, AWD 125



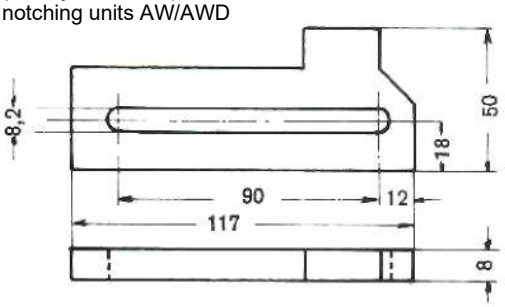
AS 1

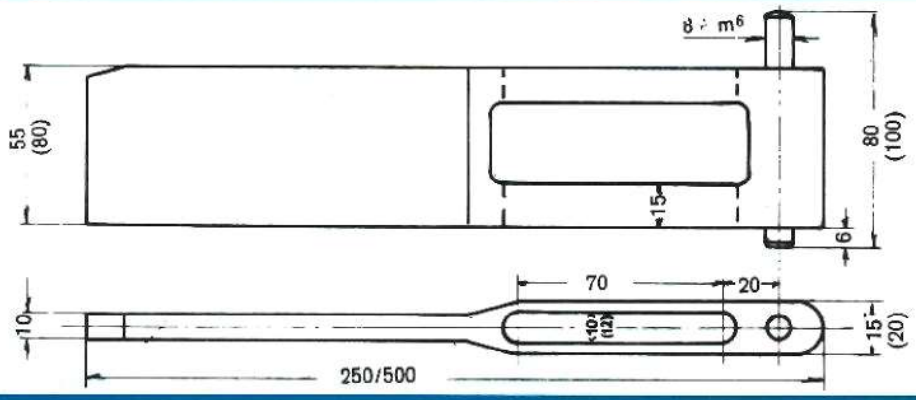
simple stop with pin positioning



AS 5

simple adjustable stop for notching units AW/AWD





ALS / ALS-A

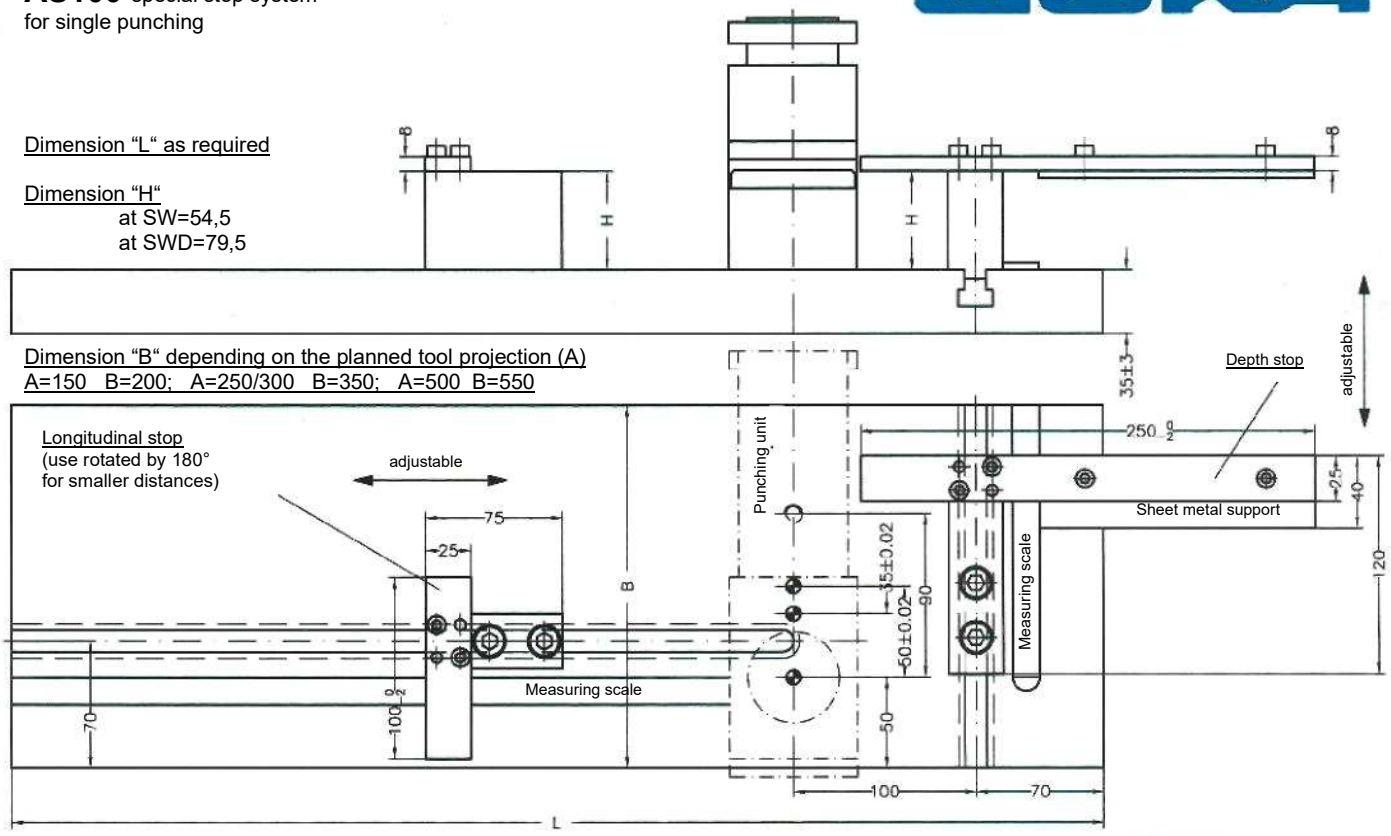
ALS: support rail without stop in lengths of 250 and 500 mm
ALS-A: Support rail with stop in lengths of 250 and 500 mm
The support rails are supplied with a height of 55 mm to match the S, SW, Z, AW and UW series or 80 mm to match the SWD, ZD, AWD and UWD series.
The picture shows ALS-A 250

AS100 special stop system
for single punching

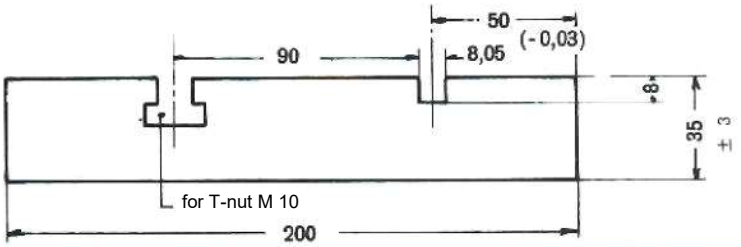
Dimension “L“ as required

Dimension “H“
at SW=54,5
at SWD=79,5

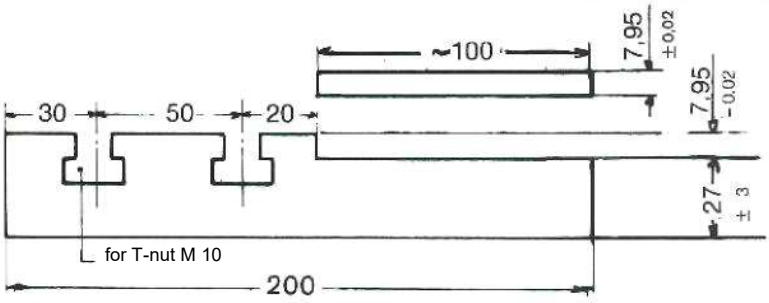
Dimension “B“ depending on the planned tool projection (A)
A=150 B=200; A=250/300 B=350; A=500 B=550



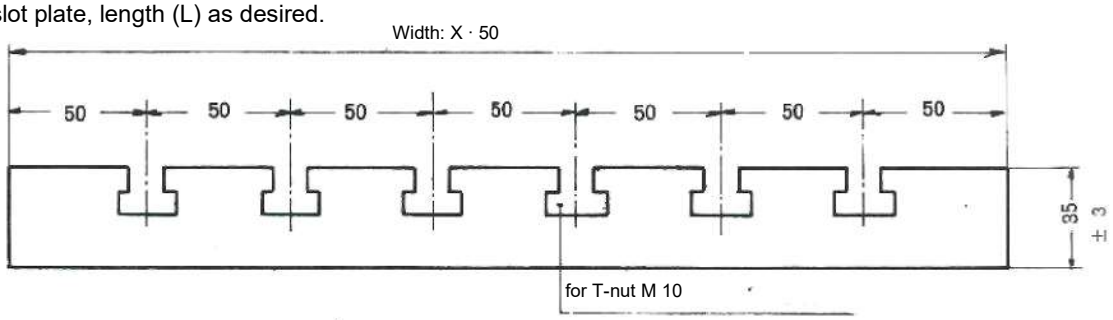
AP 1 Clamping plate with T and pin groove, length (L) as required.



AP 2 Clamping plate with interchangeable template, length (L) as desired.



AP 3 Universal T-slot plate, length (L) as desired.



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OPERATING INSTRUCTIONS for the JOKA Punching units and spare parts list for series SW and SWD models

General:

1. **Installation:** When installing the tools it is to be ensured that the tool is not positioned below the specified „tool height – closed“. The tool height is 129 mm for the tools of the S/SW, AW and UW series (see information in the respective brochures) and 196 mm for the tools of the SWD and AWD series. If the tools are positioned below these heights, this will result in an risk of tool damage. On presses which do not possess a precise stroke setting facility (end limit) it is recommendable to install spacers with the above-stated minimum height dimensions as supports. The hardened punch which runs into the body of the tool (nodular cast iron) with an H7 fit must be lubricated so as to provide a permanent oil film on the punch.

Changing the cutting elements (on SW – SWD models)
Punch and die are normally always replaced together for all punching shapes, whether with round holes, shaped holes or special punch patterns. The entire stripping system remains unaffected by punch changes (for exceptions, see „C“).

A. **Punch replacement:** In the case of round holes, the punch (no.1) is simply pulled out in upward direction. In the case of punches with shaped holes, the guide pine, no. 13 (held by screw no.14), is first of all to be unscrewed, after which the punch can again be pulled up out of the tool. On punching units SW 8, SW 14 and SW 20, the top plate, no. 11, which is held by the Seeger circle-clip ring, no. 12, is first of all to be removed with Seeger ring pliers, both for round holes and shaped holes.

B. **Die replacement:** The die (no. 2) is held by pin no. 16 (for round holes) or pin no. 15 (shaped holes). To remove the die, screw no. 17 is to be unscrewed and the pin (no. 16 or no. 17) pulled back several centimetres. The die is then to be lifted slightly and removed towards the front. Ensure that the appropriate holding pin (for the die) is employed when changing from round to shaped holes or vice-versa.

C. **Changing the stripper:** When special punch patterns are employed or special conditions apply to the materials concerned, it may also be necessary to change the stripper. In all cases in which this is necessary, we expressly point this out in our offers and confirmations of order.

To remove the stripper, the retaining washers, no. 8, are first of all removed with a small screwdriver (or similar). The stripper can then be pulled off in the direction of the die.

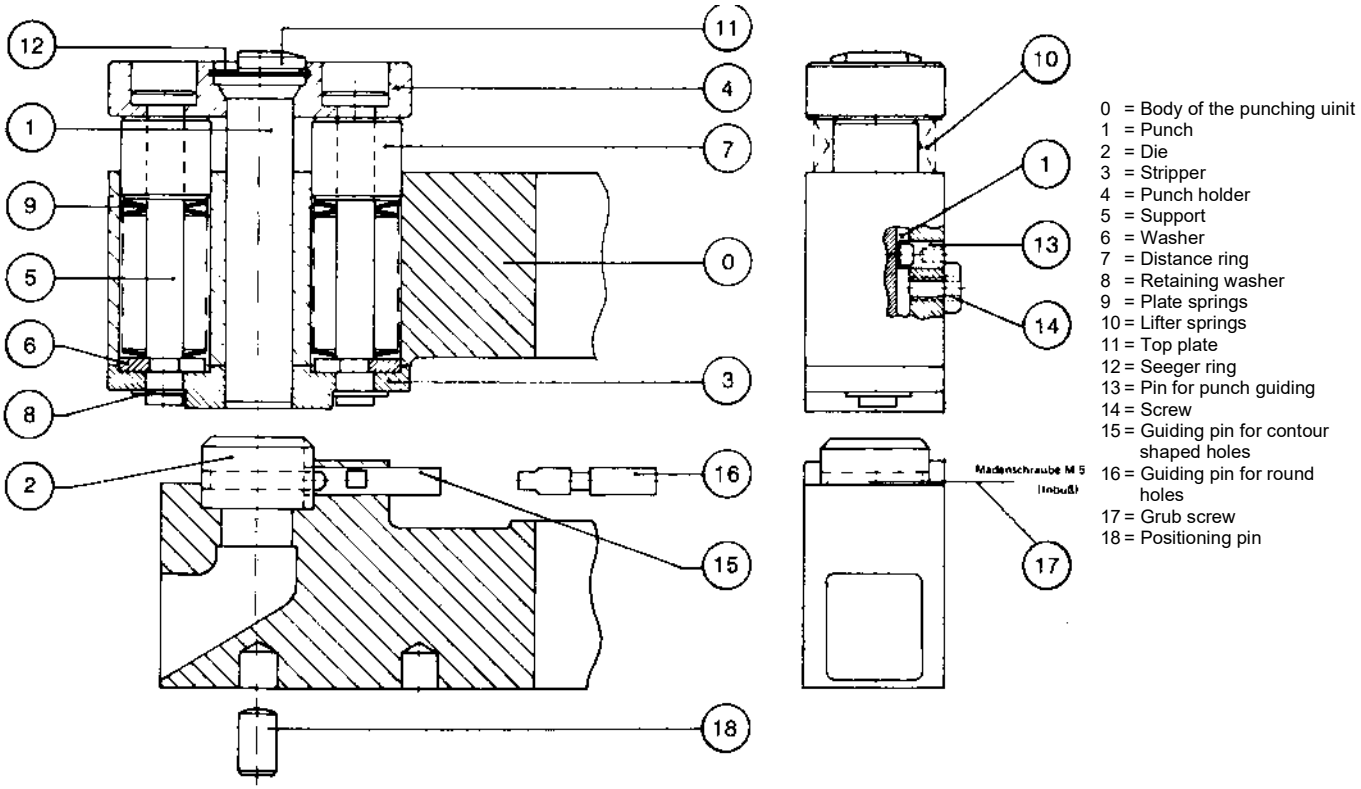
2. **Installation** is carried out by means of the reverse procedure.

3. **Die clearance:**
To ensure smooth operation, it is essential that the correct cutting clearance be provided for the metal thickness concerned. On average, this clearance is around 10% of the metal thickness to be punched. We provide the dies with the appropriate mean clearance on the basis of your information concerning material quality and thickness. For some material qualities the necessary effective die clearance may differ substantially from the mean values.

5. **Sharpening:** Punch and die should be sharpened when the cutting edges reveal the first signs of wear. If sharpening is left too late, this will result in a substantially higher degree of wear to the cutting edges.

6. **Waste disposal:** After punching, the waste falls onto a „waste chute“ inside the tool. The waste is only able to fall out of the tool. The waste is only able to fall out of the tool on his own when the smaller (o) tool types are in use. To avoid waste congestion – which will definitely result in destruction of the die – the waste must be carefully and regularly removed.

Positioning: Depending on the type of application, various effective methods are available for composing cutting patterns. The boreholes for positioning pins which are incorporated into every tool provide an important basis for precise, repeatable cutting patterns.



0 = Body of the punching uinit
1 = Punch
2 = Die
3 = Stripper
4 = Punch holder
5 = Support
6 = Washer
7 = Distance ring
8 = Retaining washer
9 = Plate springs
10 = Lifter springs
11 = Top plate
12 = Seeger ring
13 = Pin for punch guiding
14 = Screw
15 = Guiding pin for contour shaped holes
16 = Guiding pin for round holes
17 = Grub screw
18 = Positioning pin

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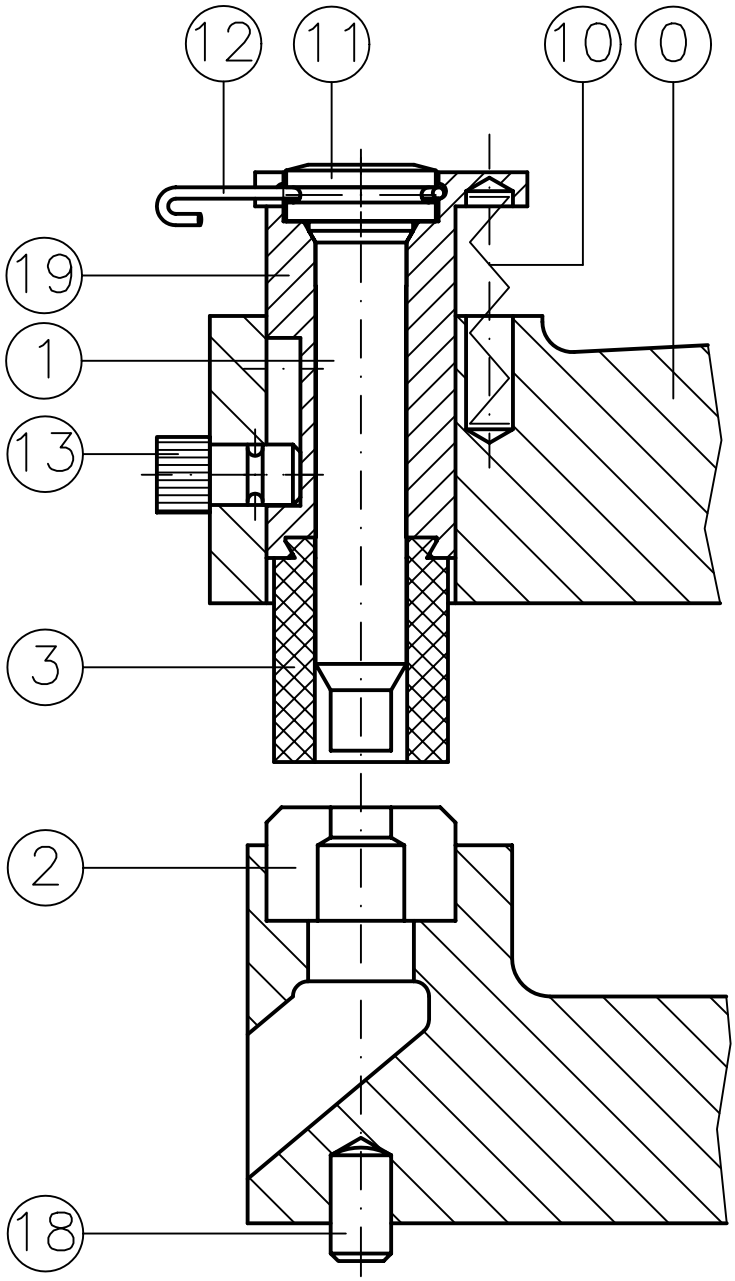
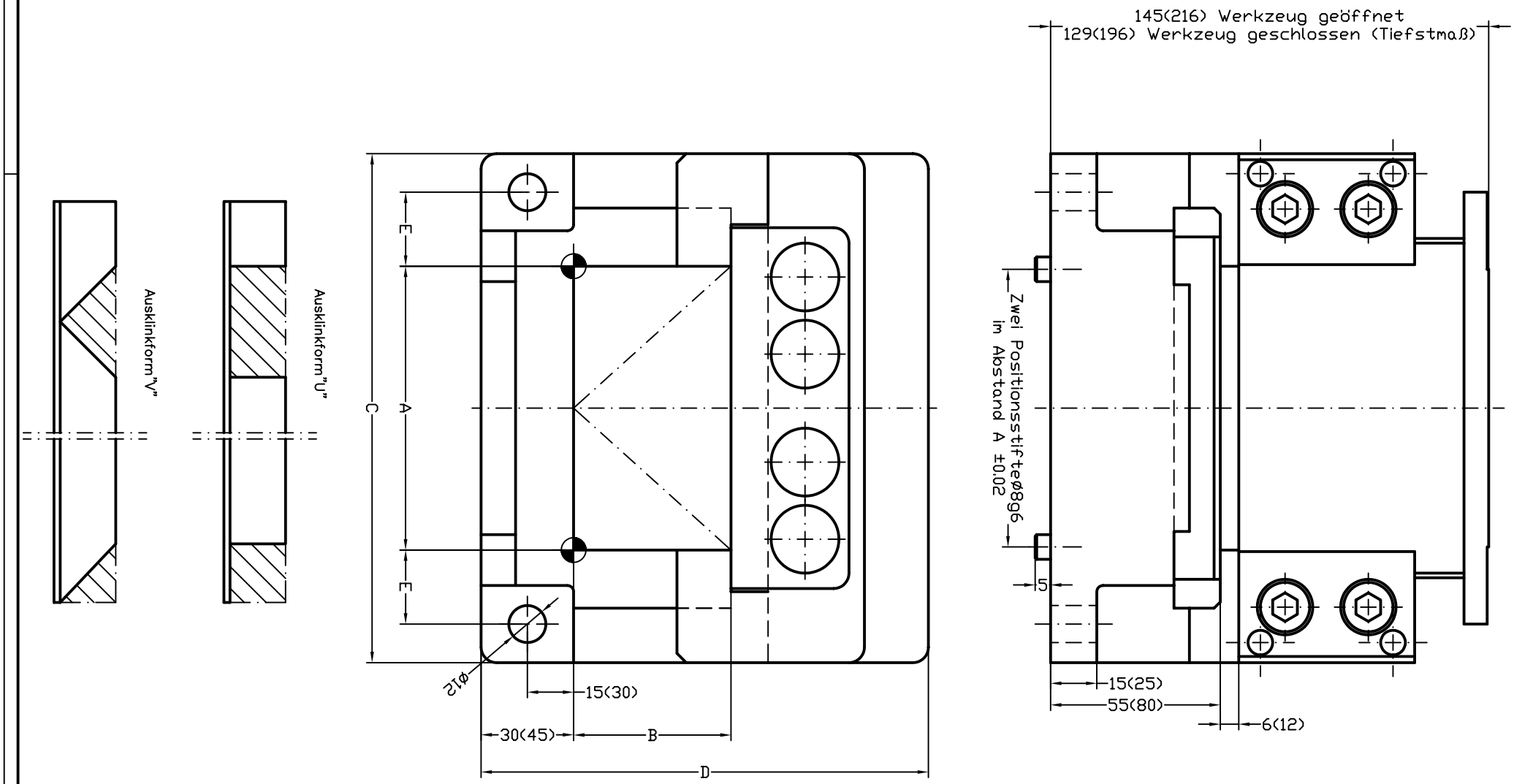


0: Werkzeugkörper	11: Kopfplatte
1: Stempel	12: Feder für Kopfplatte
2: Matrize	13: Anschlagstift
3: Abstreifer	18: Positionsstift
10: Hubfeder	19: Stempelhalter

1:1

Prinzip– und Schnittdarstellung für
Stanzeinheit S12/PL8/PL12/C12



( ) Maße gelten für WKD

Typ	A	B	C	D	E
WK 90x45	90	45	165	140	25
WKD 120x60	120	60	210	205	30

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	Gezeichnet	Geprüft
Tag:	26.03.2001	
Name:	PB	
Datei:	C:\CAD\	

Benennung: Ausklinkeinheit WK/WKD

Blattz. . Blatt .

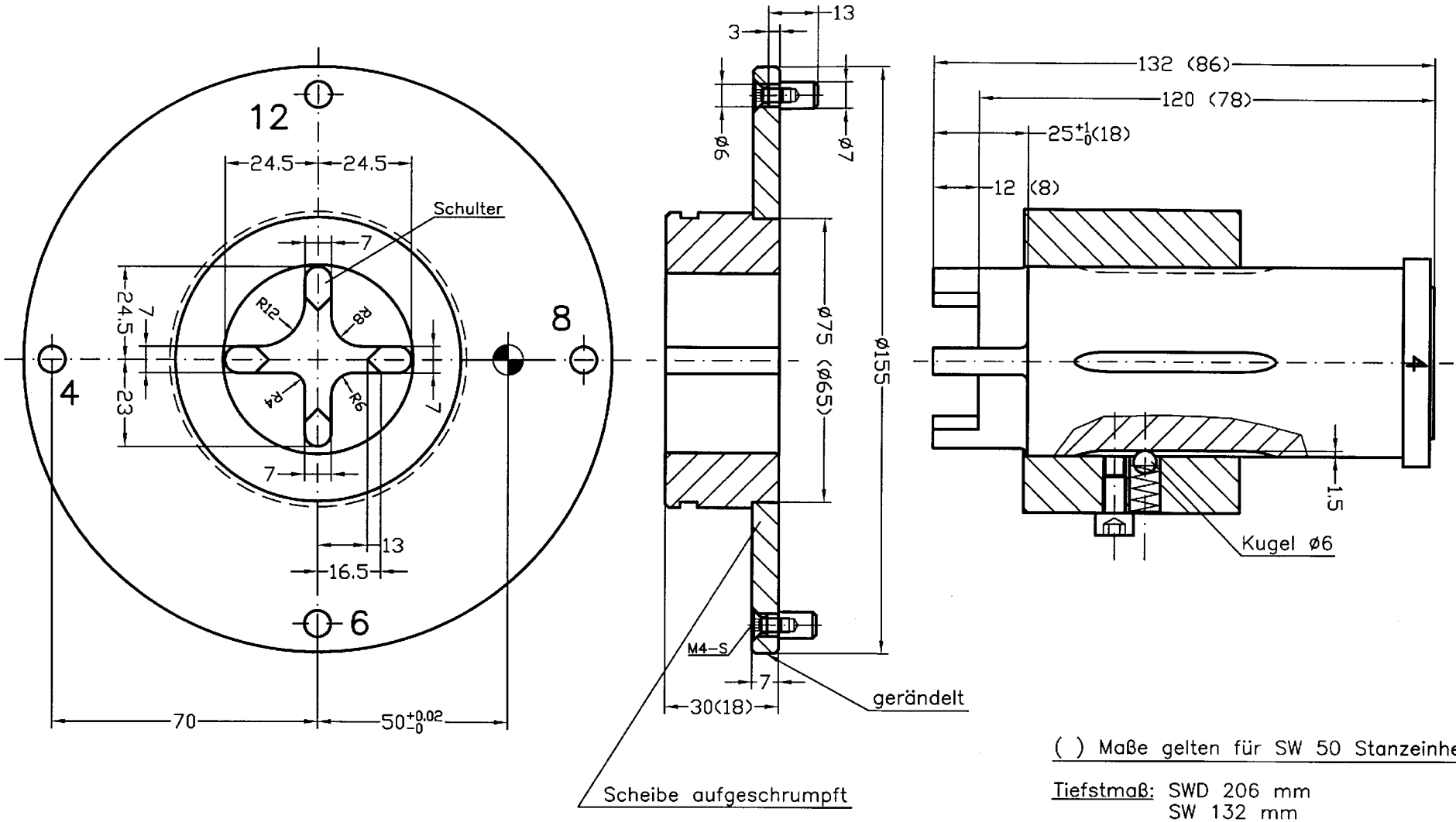
A2

Buchst.	Änder.-Nr.	Datum	Name

Werkstoff: . .

Maßstab: .

Zeichnungs-Nr.: .



( ) Maße gelten für SW 50 Stanzeinheit

Tiefstmaß: SWD 206 mm
SW 132 mm

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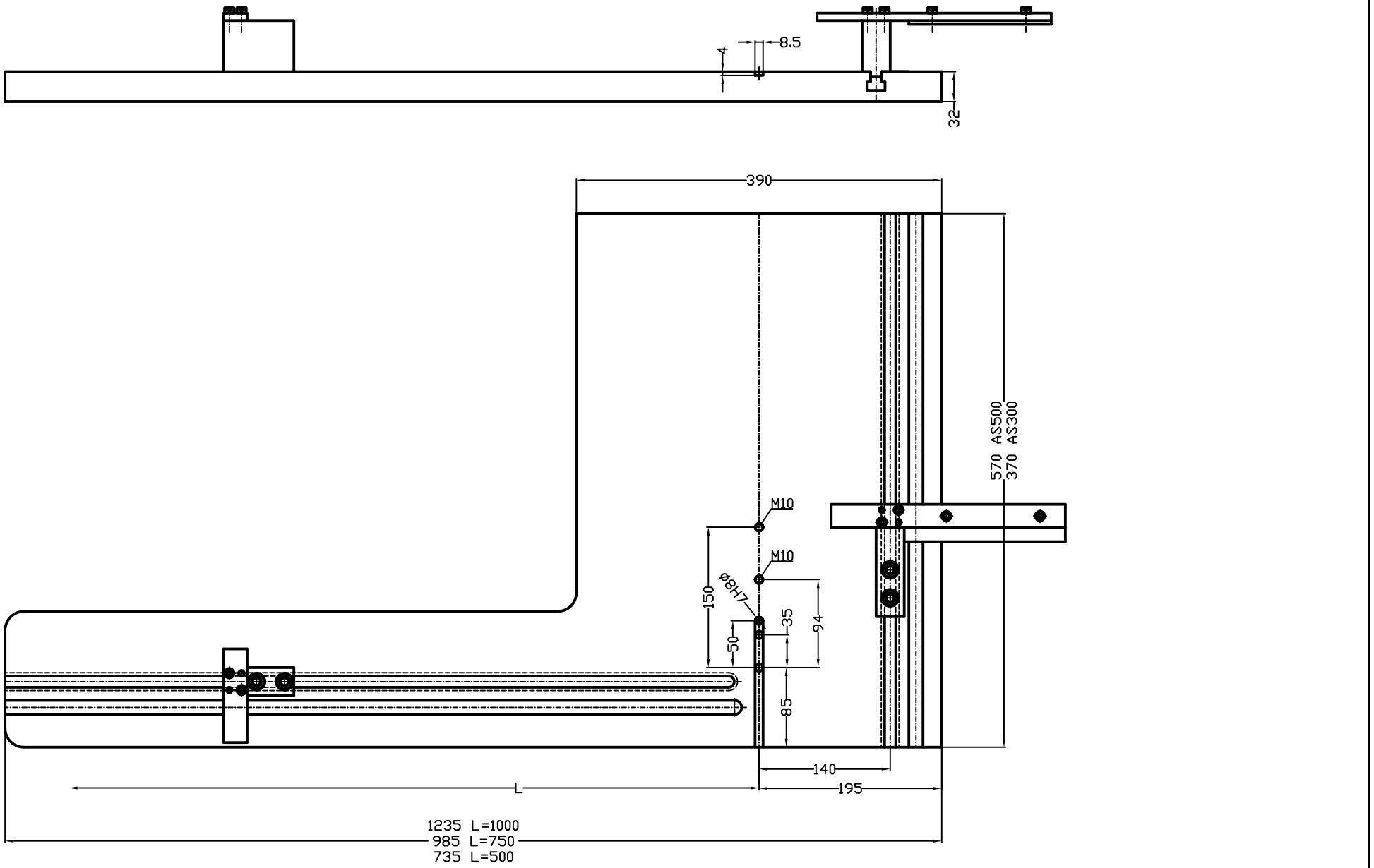
	Gezeichnet	Geprüft				A3
Tag:	26.03.2001		Buchst.	Änder.-Nr.	Datum	Name
Name:	PB		Werkstoff:		Maßstab:	
Datei:	C:\CAD\		.		•	

Benennung: Radienschneidsatz für R4 R6 R8 R12 für SWD 50 (SW 50)

Blattz. .
Blatt .

Zeichnungs-Nr.: •



	Gezeichnet	Geprüft				A3
Tag:	26.03.2001		Buchst.	Änder.–Nr.	Datum	Name
Name:	PB		Werkstoff: . .		Maßstab: •	
Datei: C:\CAD\						

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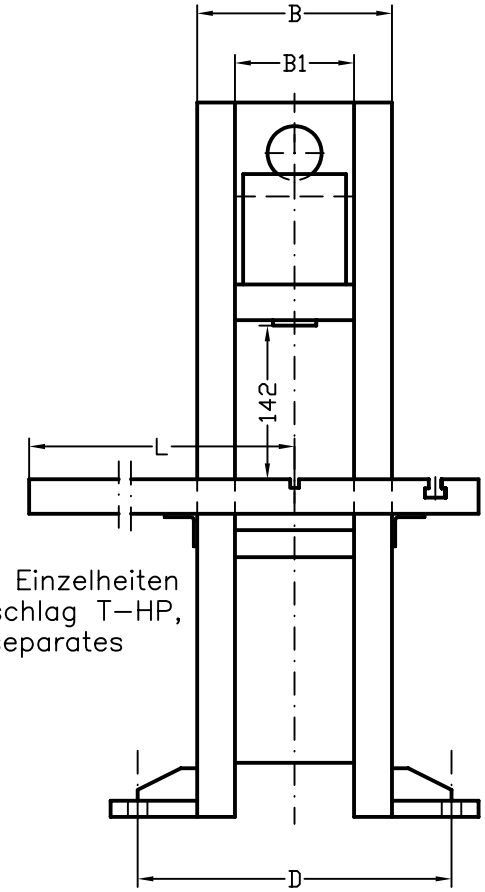
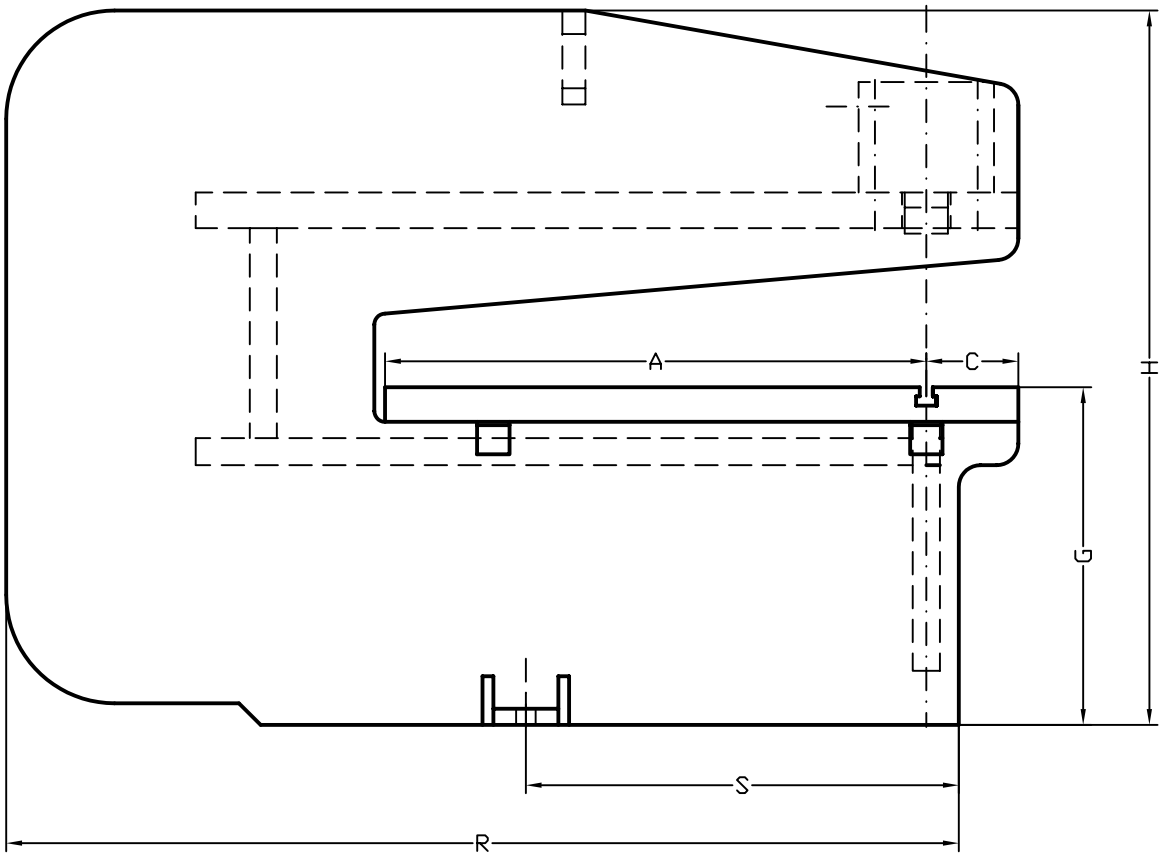
Benennung: Anschlag für T–HP AS500/300 .

Blattz. .
Blatt .

Zeichnungs–Nr.: •



Weitere Einzelheiten für Anschlag T–HP, siehe separates Blatt!



Betriebsdruck 400bar

	A	Hub	Kraft	R	S	G	H	C	D	B	B1	L		
T–HP12	300	12	120KN	670	200	235	500	70	280	170	130	500	750	1000
T–HP20	300	12	200KN	750	200	325	705	70	320	210	140	500	750	1000
T–HP12	500	12	120KN	935	400	315	660	85	290	180	130	500	750	1000
T–HP20	500	12	200KN	1010	400	390	790	85	330	220	140	500	750	1000

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Tag:	26.03.2001	
Name:	PB	
Datei:	C:\CAD\	

Buchst.	Änder.–Nr.	Datum	Name

A3

Werkstoff: .

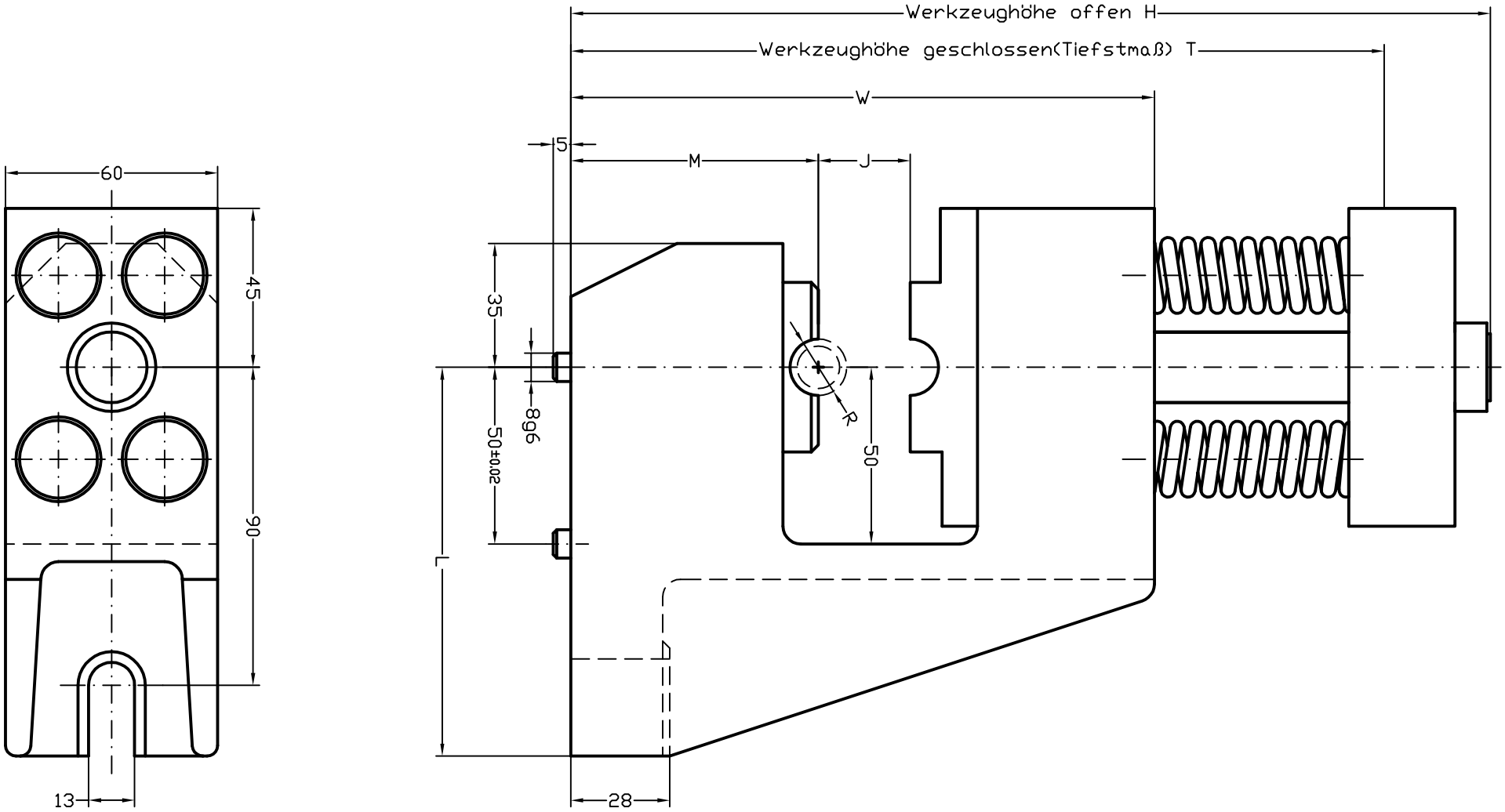
Maßstab: .

Benennung: T–HP–12/20 AS500 L=500/750/1000

Blattz. .

Blatt .

Zeichnungs–Nr.: .



	H	T	W	J	M	Rø max	L
RL20	260	231	165	25	70	20	110
RL35	370	268	225	40	60	35	120

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	Gezeichnet	Geprüft
Tag:	26.03.2001	
Name:	PB	

Datei: C:\CAD\

Benennung: Rohrlocher RL20/RL35

Blattz. .
Blatt .

Buchst.	Änder.–Nr.	Datum	Name

A3

Werkstoff: .
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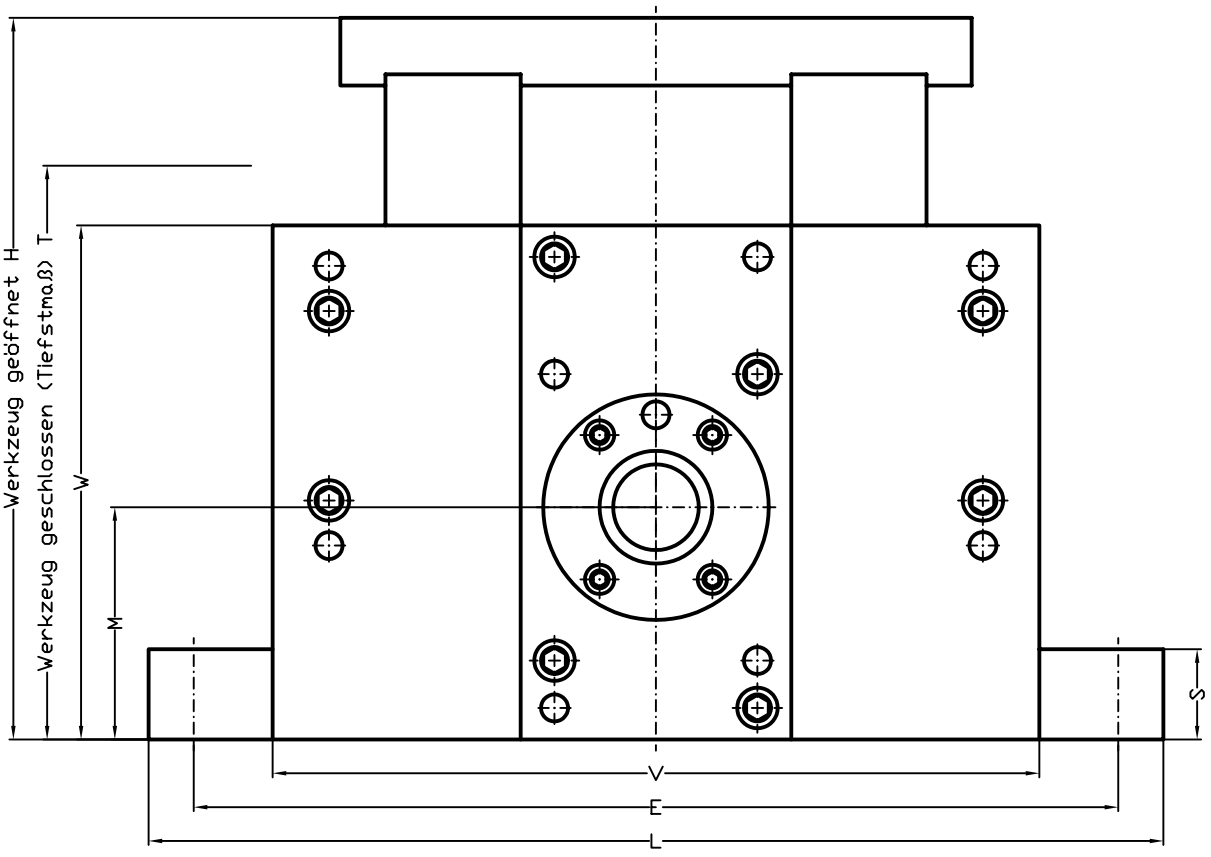
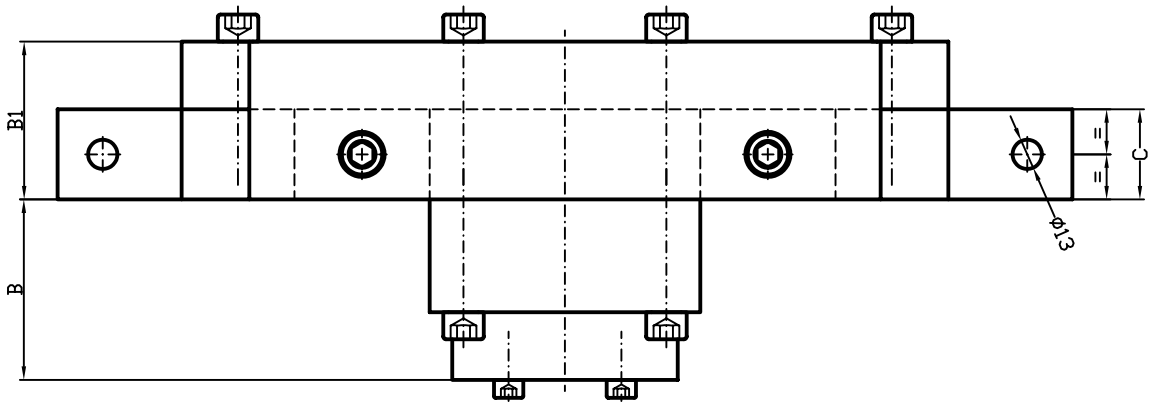
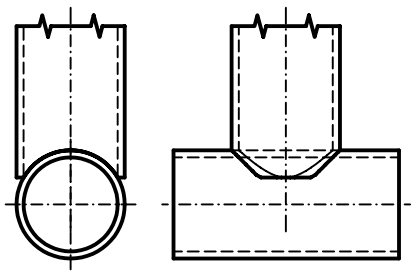
Maßstab: .

Zeichnungs–Nr.: .







	B	B1	C	E	H	L	M	Rø max.	S	T	V	W
RK35	50	55	25	250	223	290	70	35	30	178	190	152
RK50	80	58	40	410	320	450	103	50	40	255	340	228

			A3	
			Datum	Name
		Buchst.	Änder.-Nr.	Maßstab:
		Werkstoff:		
	Gezeichnet	Geprüft		Zeichnungs-Nr.:
Tag:	26.03.2001			
Name:	PB			Blattz.
Datei:	C:\CAD\			Blatt

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Benennung: Rohrklinker RK35/RK50