



**Quality Tools and Machines**

# **PUNCHING BENDING CUTTING**



**revised  
Edition**

**21**  
**Part A**



NATURALLY ALSO ON THE INTERNET – WWW.ALFRA.DE



Made in Germany





## OUR PRODUCT RANGE

# A

PUNCHING – BENDING – CUTTING

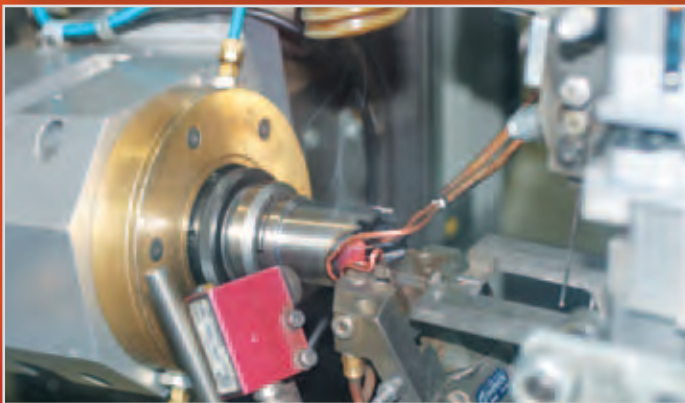


# B

DRILLING – PUNCHING – CUTTING – DEBURRING











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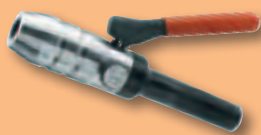
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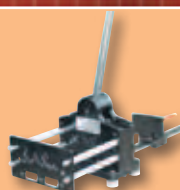
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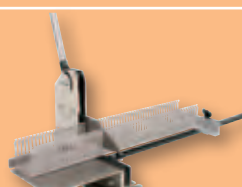
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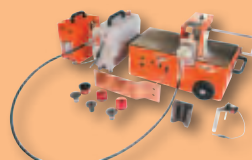
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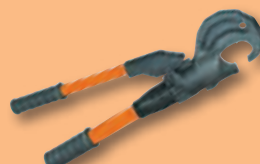
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# SPLITTER PUNCH - TRISTAR – METRIC M 12 - M 63 + PG 9 - PG 48

3-fold splitter punch and die • Made in Germany by ALFRA

Sheet metal punching system with splitter punch for mild steel  
( $F = 370 \text{ N/mm}^2$ ).

## Operation:

By means of spanner or by means of a hydraulic device.

Suitable for sheet metal thickness mild steel ( $F = 370 \text{ N/mm}^2$ ):

1.5 mm with screws Ø 6.0 mm

2.0 mm with screws Ø 9.5 mm

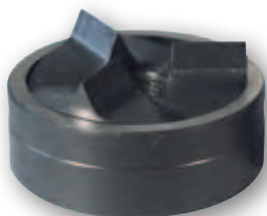
3.0 mm with screws Ø 19.0 mm

Pre-drilling: screws Ø 6.0 mm: Ø 6.2 - 6.5 mm

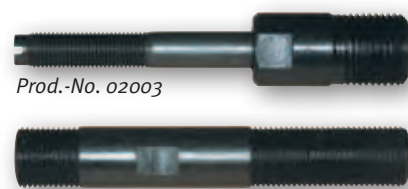
screws Ø 9.5 mm: Ø 9.7 - 10.0 mm

screws Ø 19.0 mm: Ø 19.5 - 20.0 mm

- Apply grease to tension screws! Metal lubricating paste protects from wear and seizure.
- For hand operation, tension screws with ball-bearings (BB) have to be used.
- Accessory (tension screws, pre-drill, ...).



Prod.-No. 01339



Prod.-No. 02003



Prod.-No. 02002

Ø in mm	Size Metric	Size PG	Prod.-No. (Punch and die)	Suitable tension screw with ball bearing Ø x l in mm	Prod.-No.	Suitable hydr. screw Ø in mm	Prod.-No.
12,5	M 12	-	01770	6,0 x 40,0	01334	19,0 x 6,0 ■	02022
15,2	-	9	01771	9,5 x 50,0	01339	19,0 x 9,5	02003
16,2	M 16	-	01772	9,5 x 50,0	01339	19,0 x 9,5	02003
18,6	-	11	01773	9,5 x 50,0	01339	19,0 x 9,5	02003
20,4	M 20	13	01774	9,5 x 50,0	01339	19,0 x 9,5	02003
22,5	-	16	01775	9,5 x 50,0	01339	19,0 x 9,5	02003
25,4	M 25	-	01776	9,5 x 50,0	01339	19,0 x 9,5	02003
28,3	-	21	01777	9,5 x 50,0	01339	19,0 x 9,5	02003
28,3	-	21	01778	19,0 x 55,0	01340	19,0	02002
30,5	-	-	01779	9,5 x 50,0	01339	19,0 x 9,5	02003
32,5	M 32	-	01780	19,0 x 55,0	01340	19,0	02002
37,0	-	29	01781	19,0 x 55,0	01340	19,0	02002
40,5	M 40	-	01782	19,0 x 75,0	01341	19,0	02002
47,0	-	36	01783	19,0 x 75,0	01341	19,0	02002
50,5	M 50	-	01784	19,0 x 75,0	01341	19,0	02002
54,0	-	42	01785	19,0 x 75,0	01341	19,0	02002
60,0	-	48	01786	19,0 x 75,0	01341	19,0	02002
63,5	M 63	-	01787	19,0 x 75,0	01341	19,0	02002

■ Only for Compact punch

**TIP:** Use hydraulic screws from high-alloy tool steel for heavy-duty purpose (made of one piece) – 19.0 x 9.5 mm Prod.-No. 02010





# SPLITTER PUNCH - TRISTAR – SETS

3-fold splitter punch and die • Made in Germany by ALFRA

- All sets are delivered in robust and practical plastic boxes.
- We gratefully accept your special equipment requirement.

## Metric Tristar Set

for mild steel ( $F = 370 \text{ N/mm}^2$ )

Prod.-No.

01754

Content: 6 Dimensions,  
each of 1 punch and die  
M 12/16/20/25/32/40  
1 BB-screw  $\varnothing 6.0 \times 40.0 \text{ mm}$   
1 BB-screw  $\varnothing 9.5 \times 50.0 \text{ mm}$   
1 BB-screw  $\varnothing 19.0 \times 55.0 \text{ mm}$   
1 Pre-drill HSS  $\varnothing 10.0 \text{ mm}$   
1 Tin of lubricating paste



Prod.-No. 01754

## Metric Tristar Set

for mild steel ( $F = 370 \text{ N/mm}^2$ )

Prod.-No.

01755

Content: 7 Dimensions,  
each of 1 punch and die  
M 16/20/25/32/40/50/63  
2 BB-screw  $\varnothing 9.5 \times 50.0 \text{ mm}$   
1 BB-screw  $\varnothing 19.0 \times 55.0 \text{ mm}$  and  $19.0 \times 75.0 \text{ mm}$   
1 Pre-drill HSS  $\varnothing 10.0 \text{ mm}$   
1 Tin of lubricating paste



Prod.-No. 01755

## Tristar Set PG

for mild steel ( $F = 370 \text{ N/mm}^2$ )

Prod.-No.

01750

Content: 6 Dimensions,  
each of 1 punch and die  
PG 9/11/13/16/21 and  $\varnothing 30.5$   
2 BB-screw  $\varnothing 9.5 \times 50.0 \text{ mm}$   
1 Pre-drill HSS  $\varnothing 10.0 \text{ mm}$   
1 Tube lubricating paste



Prod.-No. 01750

## Tristar Set PG

for mild steel ( $F = 370 \text{ N/mm}^2$ )

Prod.-No.

01751

Content: 10 Dimensions,  
each of 1 punch and die  
PG 9/11/13/16/21/29/36/42/48 and  $\varnothing 30.5$   
2 BB-screw  $\varnothing 9.5 \times 50.0 \text{ mm}$   
each 1 BB-screw  $\varnothing 19.0 \times 55.0 \text{ mm}$  and  $19.0 \times 75.0 \text{ mm}$   
1 Pre-drill HSS  $\varnothing 10.0 \text{ mm}$   
1 Tin of lubricating paste



Prod.-No. 01751





# SPLITTER PUNCH - TRISTAR PLUS – METRIC M 16 - M 63 + PG 9 - PG 48

3-fold splitter punch and die • Made in Germany by ALFRA

Punch system with splitter punch **for stainless steel** and mild steel  
( $F = 370 \text{ N/mm}^2$ ).

## Operation:

By means of a hydraulic device like Compact puncher, hand, foot or an electrohydraulic pump. Hand operation is partly possible.

Suitable for sheet metal thickness (stainless steel):

2.0 mm with screws Ø 11.1 mm

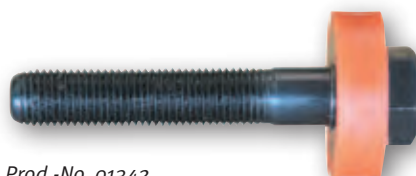
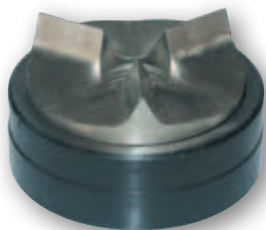
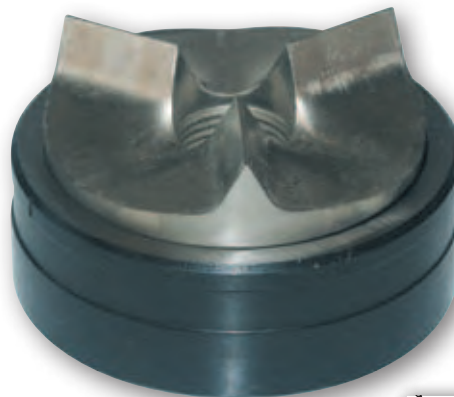
2.5 mm with screws Ø 19 mm.

Pre-drilling: Screws Ø 11.1 mm: Ø 11.3 - 11.5 mm

Screws Ø 19.0 mm: Ø 19.5 - 20.0 mm



- Apply grease to tension screws! Metal lubricating paste protects from wear and seizure.
- For hand operation, tension screws with ball-bearings (BB) have to be used > see below.
- Accessory (tension screws, pre-drill, ...).



Prod.-No. 01342



Prod.-No. 02007



Prod.-No. 02002

Ø in mm	Size Metric	Size PG	Prod.-No. (Punch and die)	Suitable tension screw with ball bearing Ø x l in mm	Prod.-No.	Suitable hydr. screw Ø in mm	Prod.-No.
15,2	-	9	01600	11,1 x 60,0	01342	19,0 x 11,1	02007
16,2	M 16	-	01656	11,1 x 60,0	01342	19,0 x 11,1	02007
18,6	-	11	01603	11,1 x 60,0	01342	19,0 x 11,1	02007
20,4	M 20	13	01606	11,1 x 60,0	01342	19,0 x 11,1	02007
22,5	-	16	01609	11,1 x 60,0	01342	19,0 x 11,1	02007
25,4	M 25	-	01659	11,1 x 60,0	01342	19,0 x 11,1	02007
28,3	-	21	01612	19,0 x 55,0	01340	19,0	02002
30,5	-	-	01615	19,0 x 55,0	01340	19,0	02002
32,5	M 32	-	01662	19,0 x 55,0	01340	19,0	02002
37,0	-	29	01621	19,0 x 55,0	01340	19,0	02002
40,5	M 40	-	01665	19,0 x 75,0	01341	19,0	02002
47,0	-	36	01627	19,0 x 75,0	01341	19,0	02002
50,5	M 50	-	01668	19,0 x 75,0	01341	19,0	02002
54,0	-	42	01633	19,0 x 75,0	01341	19,0	02002
60,0	-	48	01636	19,0 x 75,0	01341	19,0	02002
63,5	M 63	-	01671	19,0 x 75,0	01341	19,0	02002

**TIP:** Use hydraulic screws from high-alloy tool steel for heavy-duty purpose (made of one piece) – 19,0 x 11,1 mm Prod.-No. 02011



# SPLITTER PUNCH - TRISTAR PLUS – SETS

3-fold splitter punch and die • Made in Germany by ALFRA

■ All sets are delivered in robust and practical plastic boxes.

■ We gratefully accept your special equipment requirement.

## Metric Tristar Plus Set

for mild steel ( $F = 370 \text{ N/mm}^2$ ) **and stainless steel**

Prod.-No.

01654

Complete in transport boxes

Content: 1 Hydr. punch type Compact aluminium  
7 Dimensions -  
each 1 x punch and die M 16/20/25/32/40/50/63  
each 1 hydr. screw  $\varnothing 19.0 \times 11.1$  and  $\varnothing 19.0 \text{ mm}$   
1 Pre-drill HSS  $\varnothing 11.5 \text{ mm}$   
1 Set of distance bushes (3 pieces)



Prod.-No. 01654

## Tristar Plus Set PG

for mild steel ( $F = 370 \text{ N/mm}^2$ ) **and stainless steel**

Prod.-No.

01650

Complete in transport boxes

Content: 1 Hydr. punch type Compact aluminium  
8 Dimensions -  
each 1 x punch and die PG 9/11/13/16/21/29/36/42  
each 1 hydr. screw  $\varnothing 19.0 \times 11.1$  and  $\varnothing 19.0 \text{ mm}$   
1 Pre-drill HSS  $\varnothing 11.5 \text{ mm}$   
1 Set of distance bushes (3 pieces)



## Metric Tristar Plus Set

for mild steel ( $F = 370 \text{ N/mm}^2$ ) **and stainless steel**

Prod.-No.

01655

Prod.-No. 01650

Complete in transport boxes

Content: 1 Hydr. punch type Compact Combi aluminium  
7 Dimensions -  
each 1 x punch and die M 16/20/25/32/40/50/63  
each 1 hydr. screw  $\varnothing 19.0 \times 11.1$  and  $\varnothing 19.0 \text{ mm}$   
1 Pre-drill HSS  $\varnothing 11.5 \text{ mm}$   
1 Set of distance bushes (3 pieces)



Prod.-No. 01655

## Tristar Plus Set PG

for mild steel ( $F = 370 \text{ N/mm}^2$ ) **and stainless steel**

Prod.-No.

01651

Complete in transport boxes

Content: 1 Hydr. punch type Compact Combi aluminium  
8 Dimensions -  
each 1 x punch and die PG 9/11/13/16/21/29/36/42  
each 1 hydr. screw  $\varnothing 19.0 \times 11.1$  and  $\varnothing 19.0 \text{ mm}$   
1 Pre-drill HSS  $\varnothing 11.5 \text{ mm}$   
1 Set of distance bushes (3 pieces)



Prod.-No. 01651





# SPLITTER PUNCH - TRISTAR PLUS S—METRIC M 16 - M 63 + PG 7 - PG 48

2-fold splitter punch and die • Made in Germany by ALFRA

Punch system with splitter punch **for stainless steel and mild steel**  
( $F = 370 \text{ N/mm}^2$ ).

## Operation:

By means of spanner or by means of a hydraulic device like Compact puncher, hand, foot or electrohydraulic pump.

## Suitable for mild steel ( $F = 370 \text{ N/mm}^2$ ) sheets of thickness:

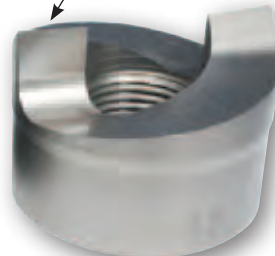
2.0 mm with Screws  $\varnothing$  9.5 mm  
2.5 mm with Screws  $\varnothing$  11.1 mm  
3.0 mm with Screws  $\varnothing$  19.0 mm

## Suitable for stainless steel sheets of thickness:

2.0 mm with Screws  $\varnothing$  9.5 mm  
2.5 mm with Screws  $\varnothing$  11.1 mm  
3.0 mm with Screws  $\varnothing$  19.0 mm



low pressure build up  
by 2-fold splitter punch



$\varnothing$ in mm	Size Metric	Size PG	Prod.-No. (Punch and die) $\varnothing \times l$ in mm	Suitable tension screw with ball bearing	Prod.-No.	Suitable hydr. screw $\varnothing$ in mm	Prod.-No.
12,7	M 12	7	01510	9,5 x 50	01339	19,0 x 9,5	02003
15,2		9	01513	9,5 x 50	01339	19,0 x 9,5	02003
16,2	M 16		01516	9,5 x 50	01339	19,0 x 9,5	02003
18,6		11	01519	9,5 x 50	01339	19,0 x 9,5	02003
20,4	M 20	13	01522	11,1 x 60	01342	19,0 x 11,1	02007
22,5		16	01525	11,1 x 60	01342	19,0 x 11,1	02007
25,4	M 25		01528	11,1 x 60	01342	19,0 x 11,1	02007
28,3		21	01531	19,0 x 55	01340	19,0	02002
30,5			01534	19,0 x 55	01340	19,0	02002
32,5	M 32		01537	19,0 x 55	01340	19,0	02002
37,0		29	01540	19,0 x 55	01340	19,0	02002
40,5	M 40		01543	19,0 x 75	01341	19,0	02002
47,0		36	01546	19,0 x 75	01341	19,0	02002
50,5	M 50		01549	19,0 x 75	01341	19,0	02002
54,0		42	01552	19,0 x 75	01341	19,0	02002
60,0		48	01555	19,0 x 75	01341	19,0	02002
63,5	M 63		01558	19,0 x 75	01341	19,0	02002

## Compact Hand Hydraulic Set Tristar Plus -S- Set – Metric

Prod.-No.

for mild steels ( $F = 370 \text{ N/mm}^2$ ) **and stainless steel**

01570

Complete in transport case

Content: 1 Hydraulic punch type Compact aluminium  
5 Tristar Plus -S- Punches and Dies M 16 - M 40  
 $\varnothing$  16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm  
1 Hydraulic Screw  $\varnothing$  19 mm  
1 Hydraulic Screw  $\varnothing$  19 x 9,5 mm  
1 Hydraulic Screw  $\varnothing$  19 x 11,1 mm  
1 HSS Pre-drill  $\varnothing$  11,5 mm  
1 Set of distance bushes (3 pieces)



Prod.-No. 01570

## Compact Combi Hand Hydraulic Set Tristar Plus -S- Set – Metric

Prod.-No.

for mild steels ( $F = 370 \text{ N/mm}^2$ ) **and stainless steel**

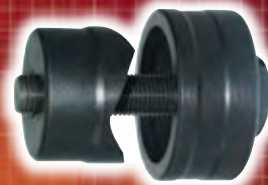
01575

Complete in transport case

Content: 1 Hydraulic punch type Compact Combi aluminium  
5 Tristar Plus -S- Punches and Dies M 16 - M 40  
 $\varnothing$  16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm  
1 Hydraulic Screw  $\varnothing$  19 mm  
1 Hydraulic Screw  $\varnothing$  19 x 9,5 mm  
1 Hydraulic Screw  $\varnothing$  19 x 11,1 mm  
1 HSS Pre-drill  $\varnothing$  11,5 mm  
1 Set of distance bushes (3 pieces)



Prod.-No. 01575



# STANDARD PUNCH – METRIC M 12 - M 75 + PG 7 - PG 48

with 3 cutting tips – punch, die and tension screw • Made in Germany by ALFRA

Punching steel sheets mild steel ( $F = 370 \text{ N/mm}^2$ ) and plastics – quickly, easily, cleanly and without burrs!

- Suitable for sheet metal mild steel ( $F = 370 \text{ N/mm}^2$ ) thickness:  
2.0 mm with screws  $\varnothing 9.5 \text{ mm}$  or  
3.0 mm with screws  $\varnothing 19.0 \text{ mm}$ .
- Exceeding these values can lead to damages on the tension screws.  
When operating with the spanner, make sure you grease the tension screws. (lubricating paste Prod.-No. 33005)
- Pre-drilling: Screws  $\varnothing 9.5 \text{ mm}$ :  $\varnothing 11.0 \text{ mm}$   
Screws  $\varnothing 19.0 \text{ mm}$ :  $\varnothing 20.5 \text{ mm}$
- Using tension screws with ball bearings > saves energy during hand operation, by reducing the friction between the punch and die.



Puncher cutting diagram



Prod.-No. 01336



Prod.-No. 01340

$\varnothing$ in mm	Size Metric	Size PG	Prod.-No. (punch, die +tension screw)	Suitable tension screw $\varnothing \times l$ in mm	Prod.-No.	Suitable tension screw with ball bearing $\varnothing \times l$ in mm	Prod.-No.
12,7	M 12	7	01001	9,5 x 40	01335	9,5 x 50	01339
15,2		9	01005	9,5 x 40	01335	9,5 x 50	01339
16,2	M 16		01009	9,5 x 40	01335	9,5 x 50	01339
18,6		11	01021	9,5 x 40	01335	9,5 x 50	01339
19,0			01025	9,5 x 40	01335	9,5 x 50	01339
20,0			01029	9,5 x 40	01335	9,5 x 50	01339
20,4	M 20	13	01033	9,5 x 40	01335	9,5 x 50	01339
22,0			01041	9,5 x 40	01335	9,5 x 50	01339
22,5		16	01045	9,5 x 40	01335	9,5 x 50	01339
25,0			01053	9,5 x 50	01336	9,5 x 50	01339
25,4	M 25		01057	9,5 x 50	01336	9,5 x 50	01339
28,3		21	01069	9,5 x 50	01336	9,5 x 50	01339
28,3		21	01073	19,0 x 55	01337	19,0 x 55	01340
30,1			01085	9,5 x 50	01336	9,5 x 50	01339
30,5			01093	9,5 x 50	01336	9,5 x 50	01339
31,7			01101	9,5 x 50	01336	9,5 x 50	01339
32,5	M 32		01105	9,5 x 50	01336	9,5 x 50	01339
35,0			01121	9,5 x 50	01336	9,5 x 50	01339
35,0			01125	19,0 x 55	01337	19,0 x 55	01340
37,0		29	01129	19,0 x 55	01337	19,0 x 55	01340
38,0			01133	19,0 x 55	01337	19,0 x 55	01340
40,5	M 40		01149	19,0 x 55	01337	19,0 x 55	01340
42,8			01157	19,0 x 55	01337	19,0 x 55	01340
47,0		36	01165	19,0 x 75	01338	19,0 x 75	01341
50,5	M 50		01177	19,0 x 75	01338	19,0 x 75	01341
54,0		42	01189	19,0 x 75	01338	19,0 x 75	01341
60,0		48	01201	19,0 x 75	01338	19,0 x 75	01341
63,5	M 63		01209	19,0 x 75	01338	19,0 x 75	01341
For 68.0 mm onwards the operation with a screw spanner is still possible, but we recommend the application of hydraulic devices.							
68,0			01241	19,0 x 75	01338	19,0 x 75	01341
70,0			01221	19,0 x 75	01338	19,0 x 75	01341
76,2			01229	19,0 x 75	01338	19,0 x 75	01341
75,5	M 75		01225	19,0 x 75	01338	19,0 x 75	01341
80,0			01237	19,0 x 75	01338	19,0 x 75	01341
82,0			01245	19,0 x 75	01338	19,0 x 75	01341
			Punch	Die			
89,0			01251	01252			
92,0			01253	01254			
100,5			01257	01258			
115,5			01265	01266			
120,0			01267	01268			

From 89.0 mm the application of hand, foot or electrohydraulic pumps is necessary.  
Necessary accessories:  
Hydraulic tension screw 28.3 x 155 mm Prod.-No. 01398 and  
lock nut No. 7. Prod.-No. 01419





## STANDARD PUNCH – METRIC + PG SETS

with 3 cutting tips • Made in Germany by ALFRA

- All sets are delivered in robust and practical plastic boxes.
- We gratefully accept your special equipment requirement.

### Metric punch set

**Prod.-No.**  
01290

Content: 5 **metric** dimensions  
each 1 x punch and die  
M 16/20/25/32/40

### Metric punch set

**Prod.-No.**  
01291

Content: 7 **metric** dimensions  
each 1 x punch and die  
M 16/20/25/32/40/50/63

### Punch set PG

**Prod.-No.**  
01451

Content: 5 **PG** dimensions  
each 1 x punch and die PG 9/11/13/16/21  
2 ball bearing screws Ø 9.5 x 50.0 mm  
1 Pre-drill HSS Ø 11.0 mm  
1 Tube lubricating paste

### Punch set PG

**Prod.-No.**  
01298

Content: 11 **PG** dimensions  
each 1 x punch and die PG 7/9/11/13/16/21/29/36/42/48  
and Ø 30.5 mm



*Prod.-No. 01290 – 5-metric dimensions*



*Prod.-No. 01291 – 7-metric dimensions*



*Prod.-No. 01451 – 5 PG-dimensions*



*Prod.-No. 01298 – 11 PG-dimensions*



## ALFRA PUNCHER – SANITARY

with 3 cutting tips • Made in Germany by ALFRA

- For punching holes in the dish-washing sink

Size mm	Designation	Screw size mm	Prod.-No.
Ø 28.3	Puncher, complete	M 10 x 1	01293
Ø 31.7	Puncher, complete	M 10 x 1	01294
Ø 35.0	Puncher, complete	M 10 x 1	01295
	Spare tension screw	M 10 x 1	01299



### Sanitary puncher set

Prod.-No.  
01450

With 3 dimensions compl. in storage box  
Content: 3 Punching sets 28.3 + 31.7 + 35.0 mm  
3 Tension screws M 10.0 x 1 mm  
1 HSS-Co pre-drill Ø 11.0 mm  
1 Metal lubricating paste



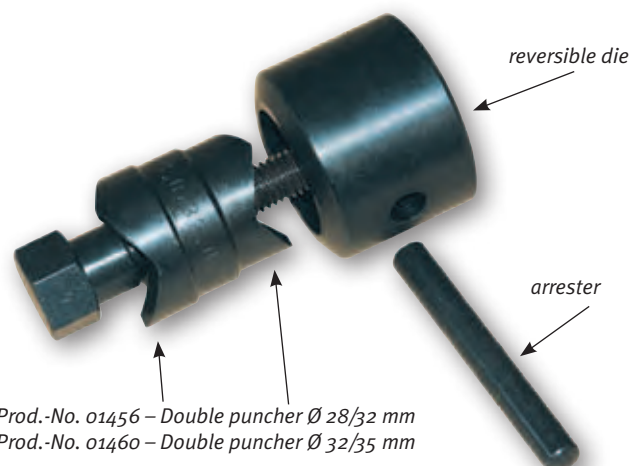
Prod.-No. 01450

## ALFRA DOUBLE PUNCHER – SANITARY

with 3 cutting tips

- For punching holes in the dish-washing sink
- Operating spanner SW 19

Size mm	Designation	Screw size mm	Prod.-No.
28 and 32	Puncher, compl.	10 x 55 special	01456
32 and 35	Puncher, compl.	10 x 55 special	01460
	Spare tension screw	10 x 55 special	01457







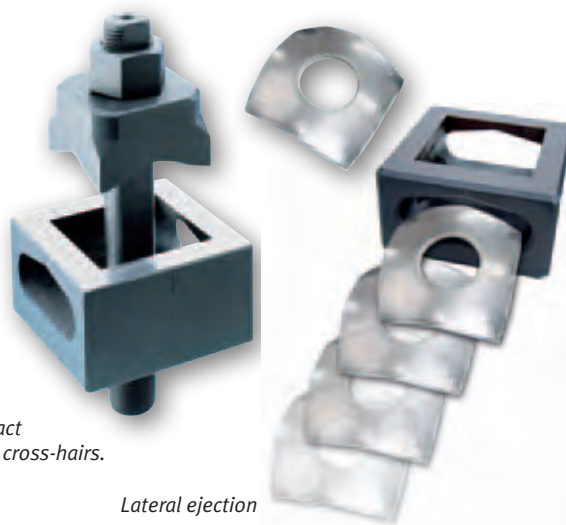
## PUNCHER – SQUARE

Made in Germany by ALFRA

- All punchers have a lateral ejection for the waste piece. No getting stuck inside the die.
- For mild steel ( $F = 370 \text{ N/mm}^2$ )
- Punchers are delivered in stable plastic boxes.
- When placing an order for hydraulic operation please specify the hydraulic model.



4 Markings for exact positioning in the cross-hairs.



Lateral ejection

Size mm	Max. material thickness mm / Mild Steel ( $F = 370 \text{ N/mm}^2$ )	For operation by		Prod.-No. Puncher complete	Prod.-No. Tie bolt	Spare parts			Pre-drilling Ø mm
						Prod.-No. Locking nut	Prod.-No. BB pressure nut	Prod.-No. Adapter for hydraulics	
12,7 x 12,7	1,75	■	■	01300	01348	01355	01352	01353	10
15,8 x 15,8	1,75	■	■	01301	01348	01355	01352	01353	10
19,0 x 19,0	2,0	■	■	01302	01347	01351	01352	01353	14
22,2 x 22,2	2,0	■	■	01303	01347	01351	01352	01353	14
24,0 x 24,0	2,0	■	■	01331	01347	01351	01352	01353	14
25,4 x 25,4	2,0	■	■	01304	01360	01354	01359	01361	17
45,5 x 45,5	3,0		■	01313	01345	01350			20
46,0 x 46,0	3,0		■	01305	01345	01350			20
50,8 x 50,8	3,0		■	01306	01344	01350			24
68,0 x 68,0	3,0		■	01308	01344	01349			24
92,0 x 92,0	3,0		■	01309	01343	01349			30
125,0 x 125,0	3,0		■	01431	01343	01356			30
138,0 x 138,0	3,0		■	01311	01343	01356			30

## PUNCHER FOR STAINLESS STEEL – SQUARE

Special version for stainless steel (and mild steel  $F = 370 \text{ N/mm}^2$ ). For the use with hydraulic units only



Size mm	Max. material thickness mm	For operation by		Prod.-No. Puncher complete	Prod.-No. Tie bolt	Spare parts			Pre-drilling Ø mm
						Prod.-No. Locking nut	Prod.-No. BB pressure nut	Prod.-No. Adapter for hydraulics	
46,0 x 46,0	2,0		■			01312	01345	01350	20
68,0 x 68,0	2,0		■			01315	01344	01349	24
92,0 x 92,0	2,0		■			01316	01343	01349	30

- Other sizes available upon request.





## PUNCHER – RECTANGULAR

Made in Germany by ALFRA

- All punchers have a lateral ejection for the waste piece. No getting stuck inside the die.
- For mild steel ( $F = 370 \text{ N/mm}^2$ ).
- Punchers are delivered in stable plastic boxes.
- When placing an order for hydraulic operation please specify the hydraulic model.



### Spare parts

Size mm	Max. material thickness mm / Mild Steel ( $F = 370 \text{ N/mm}^2$ )	For operation by  	Prod.-No. Puncher complete	Prod.-No. Tie bolt	Prod.-No. Locking nut or bridge	Prod.-No. BB pressure nut	Prod.-No. Adapter for hydraulics	Pre-drilling Ø mm
17,0 x 19,0	2,0	■ ■	01317	01347	01351	01352	01353	14
21,8 x 25,8	2,0	■ ■	01318	01360	01351	01359	01361	17
22,0 x 30,0	2,0	■ ■	01319	01360	01351	01359	01361	17
22,0 x 42,0	2,0	■ ■	01320	01360	01351	01359	01361	17
25,0 x 50,0	2,0	■ ■	01332	01360	01418	01359	01361	17
45,0 x 92,0	2,0	■	01314	01344	01349			24
46,0 x 92,0	2,0	■	01329	01344	01349			24
68,0 x 138,0	3,0	■	01330	01343	01358			30

## PUNCHER – RECTANGULAR FOR HEAVY CONNECTORS

Made in Germany by ALFRA

- For mild steel ( $F = 370 \text{ N/mm}^2$ ).




4 centering mandrels are placed in the correct position at the die. When die and punch are pressed against each other, the drilling position gets marked on the interjacent work sheet.

These 4 marks can be used as a drilling template.

With help of the twist drill, the drilling assembly for connectors can be done easily.



### Spare parts

Size mm	Max. material thickness mm / Mild Steel ( $F = 370 \text{ N/mm}^2$ )	For operation by 	Number of pins	Prod.-No. Puncher complete	Prod.-No. Tie bolt	Prod.-No. Locking nut	Pre-drilling Ø mm
36,0 x 52,0	2,0	■	6-pin	01325	01344	01350	24
36,0 x 65,0	2,0	■	10-pin	01326	01344	01350	24
36,0 x 86,0	2,0	■	16-pin	01327	01344	01350	24
36,0 x 91,0	2,0	■		01323	01344	01349	24
36,0 x 112,0	2,0	■	24-pin	01328	01344	01357	24
46,0 x 86,0	2,0	■		01322	01344	01349	24
46,0 x 112,0	2,0	■		01324	01343	01349	30

- Other sizes available upon request.





## ALFRA PUNCHER – SPECIAL SHAPES







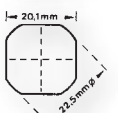


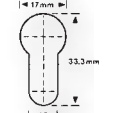


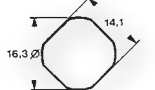


Made in Germany by ALFRA

- All punches have a lateral ejection for the waste piece. No getting stuck inside the die.
- Punchers are delivered in stable plastic boxes.
- When placing an order for hydraulic operation please specify the hydraulic model.



Prod.-No. 01423

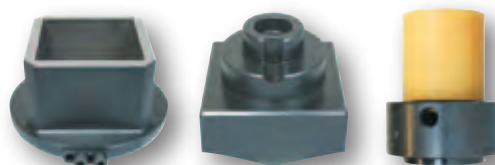
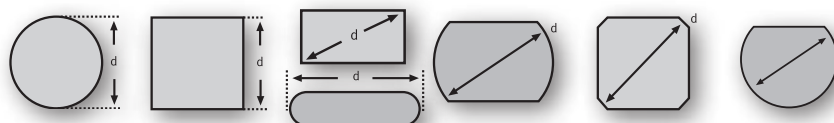
### Spare parts

Size mm	Max. Material thickness mm/Mild Steel ( $F = 370 \text{ N/mm}^2$ )	For operation by	Prod.-No. Puncher complete	Prod.-No. Tie bolt	Prod.-No. Locking nut	Prod.-No. BB pressure nut	Prod.-No. Adapter for hydraulics	Pre-drilling Ø mm
 Ø 22,5 with 3 mm nose	2,0	 	01420 anti-twist-protection	01333	01351	01352	01353	14
 Ø 22,5 2-side flattened to 18.5 mm	2,0	 	01421	01347	01351	01352	01353	14
 Ø 22,5 4-side flattened to 20.1 mm	2,0	 	01422	01347	01351	01352	01353	14
 33,3 x 17,0 x 10,0 for profile cylinder	2,0	 	01423	01347	01351	01352	01353	14
 Ø 16,3 4-side flattened to 14.1 mm	1,75	 	01427	01348	01355	01352	01353	11

## PUNCHER – SPECIAL FABRICATIONS

Single fabrications are possible!!! • Made in Germany by ALFRA


- We can fabricate all round, square, rectangular punches according to drawing at short notice.
- Please specify upon inquiry, whether for hand or hydraulic operation and the thickness and material number.
- Tools – punches – dies suitable for novopress e.g. HSTL 880/HTL 400 – are available for SUPPLY!!!
- Ask for our technical advice.





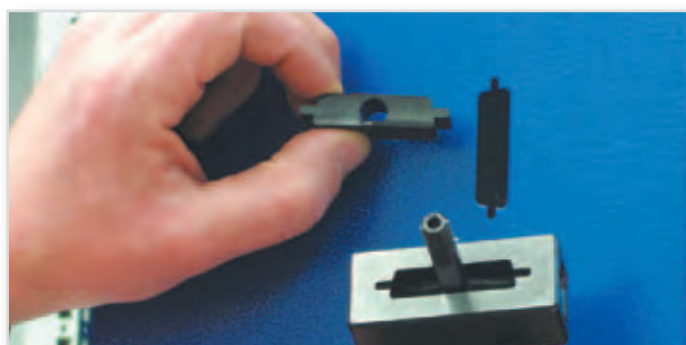
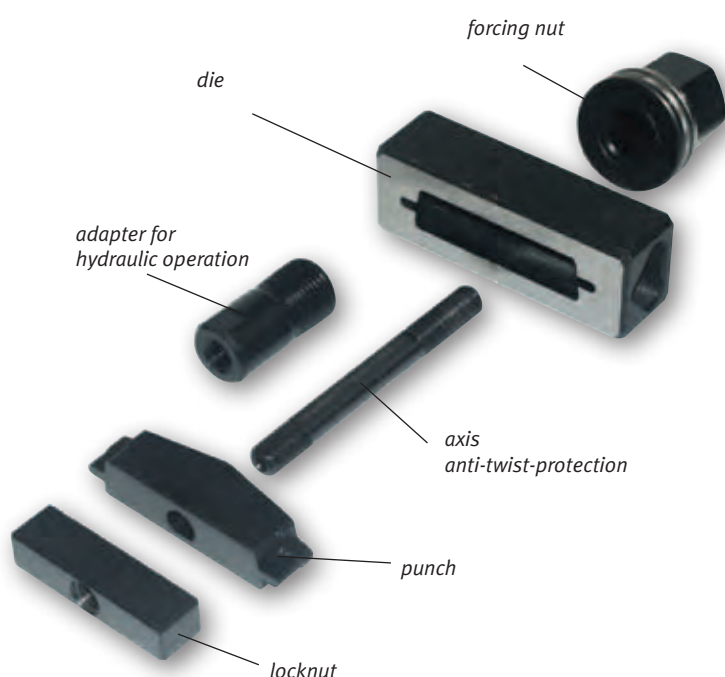
# ALFRA PUNCHER – SUB-MIN-D

Made in Germany by ALFRA



- For multiple connector “Sub-Min-D” 
- For punching the cut-outs for 9 - 50 pin connectors. Anti-twist-protected axes are used as tie bolts for punch and die.
- All punchers have a lateral ejection for the waste piece. No getting stuck inside the die.
- Punchers are delivered in stable plastic boxes.



Prod.-No. 01369



## Spare parts

Size mm	Max. material thickness mm/VA/Mild Steel (F = 370 N/mm²)	For operation by  	Prod.-No. Puncher complete	Prod.-No. Tie bolt	Prod.-No. Locking nut	Prod.-No. BB pressure nut	Prod.-No. Adapter for hydraulics	Pre-drilling Ø mm
9 pin 19,8 x 11,3	2,0/1,5	■ ■	01366	01438	01442	01352	01353	10
15 pin 28,2 x 11,3	2,0/1,5	■ ■	01367	01438	01443	01352	01353	10
25 pin 41,9 x 11,3	1,75/1,25	■ ■	01368	01438	01447	01352	01353	10
37 pin 58,4 x 11,3	1,75/1,25	■ ■	01369	01438	01444	01352	01353	10
50 pin 55,7 x 13,9	1,65/1,0	■ ■	01370	01438	01445	01352	01353	10





## ALFRA – SPECIAL NIBBLING TOOL ASN

Made in Germany by ALFRA

### Application:

- Pre-punched round holes can be expanded easily and in a cost-saving manner to make square and rectangular holes.
- What is especially recommended for manufacturing rare sizes, square and rectangular shapes (special shapes), for manufacturing special tools appear uneconomical.

### Operation:

- Use a puncher and Compact hand punch to pre-punch a pilot hole  $\varnothing 21.5$  mm or  $\varnothing 28.5$  mm.

Apply a nibbling tool with Compact punch and a round hole can be expanded to a square or rectangle of arbitrary size by multiple punching (nibbling) to the desired final dimension.

The final dimension should be pre-marked to avoid skew punches.

### Material thickness:

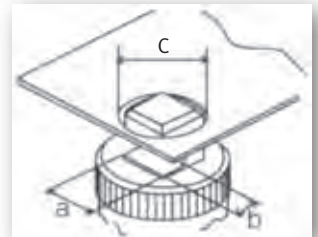
max. 2,0 mm mild steel ( $F = 370 \text{ N/mm}^2$ )

### Dimensions:

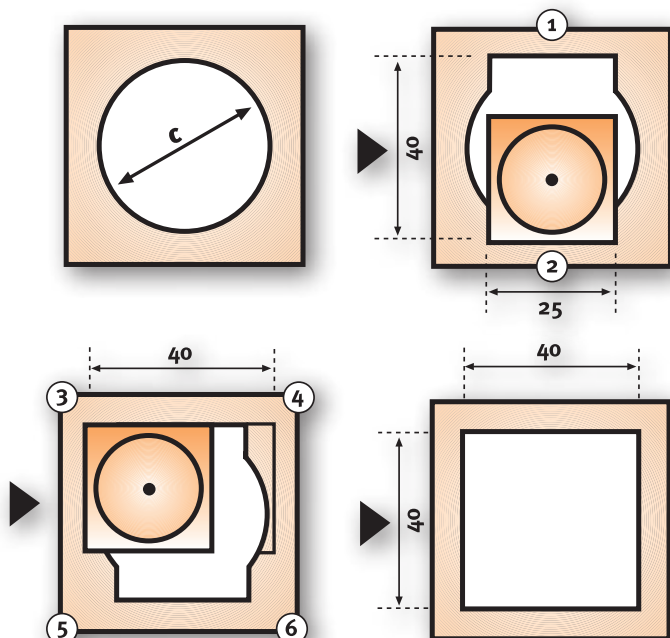
	a	b	c
ASN 15	15,0	6,5	21,5
ASN 20	20,0	9,0	28,5

### Prod.-No.

ASN 15	03016
ASN 20	03017
Spare punch ASN 15	03018
Spare punch ASN 20	03019



Prod.-No. 03016





# ALFRA - PUNCHER

## TIME-SAVING QUALITY TOOLS

- ① HYDRAULIC HAND PUNCHER MADE OUT OF HIGH-TENSILE ALUMINIUM (APPROX. 40% WEIGHT SAVING)
- ② ANGULAR HEAD, 360° ROTATABLE
- ③ PRESSURE-RELIEF VALVE – PROTECTS AGAINST OVERLOAD
- ④ ERGONOMIC HANDLE – SPRINGS BACK AUTOMATICALLY



- ⑤ 3-FOLD SPLITTER – NO JAMMING OF DROP-OFF PIECES
- ⑥ PUNCHES AND DIES OF EVERY PG AND METRIC SIZE



# A



## COMPACT HAND HYDRAULIC – SETS

In aluminium version – weight only 1.6 kg • Made in Germany by ALFRA

Practical hand punch without hose and cylinder.  
Ideal for workshop and assembly.

### Punching capacity

Round holes up to Ø 85 mm  
Ø 64 mm  
Square holes 68 x 68 mm  
Rectangular holes 36 x 112 mm

### Steel sheets

2.0 mm F = 370 N/mm<sup>2</sup>  
3.0 mm F = 370 N/mm<sup>2</sup>  
2.0 mm F = 370 N/mm<sup>2</sup>  
2.0 mm F = 370 N/mm<sup>2</sup>

### Stainless steel sheets

2.5 mm F = 600 N/mm<sup>2</sup>

Weight: 1.6 kg  
Punching force: 75 kN  
Operating pressure max: 650 bar



### Excess pressure valve

Extended tool life owing to a built-in pressure control valve.

"Automatic pressure switch off at 650 bar"



Prod.-No. 02001/02005

## Compact hand hydraulic

Prod.-No.  
02001

Complete in transport case

Content: 1 Aluminium compact hand hydraulic punch  
1 Hydraulic screw Ø 19 mm  
1 Hydraulic screw Ø 19 x 9.5 mm  
1 HSS pre-drill Ø 11 mm  
1 Set of distance bushes (3 pieces)



Prod.-No. 02006

## Compact hand hydraulic punch set PG

Prod.-No.  
02006

for mild steel (F = 370 N/mm<sup>2</sup>)

Complete in transport case

Content: 1 Aluminium compact hand hydraulic punch  
8 Standard punches and dies  
PG 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42  
1 Hydraulic screw Ø 19 mm  
1 Hydraulic screw Ø 19 x 9.5 mm  
1 HSS pre-drill Ø 11 mm  
1 Set of distance bushes (3 pieces)



Prod.-No. 01752

## Compact hand hydraulic punching set Tristar PG

Prod.-No.

for mild steel (F = 370 N/mm<sup>2</sup>)



Complete in transport case

Content: 1 Aluminium compact hand hydraulic punch  
9 Tristar punches and dies  
PG 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42 - 48  
1 Hydraulic screw Ø 19 mm  
1 Hydraulic screw Ø 19 x 9.5 mm  
1 HSS pre-drill Ø 10 mm  
1 Set of distance bushes (3 pieces)



Prod.-No. 01765

## Compact hand hydraulic punching set Tristar Set – Metric

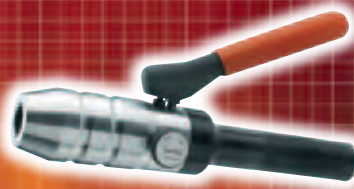
Prod.-No.

for mild steel (F = 370 N/mm<sup>2</sup>)



Complete in transport case

Content: 1 Hydraulic punch type Compact aluminium  
5 Tristar punches and dies M 16 - M 40  
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm  
1 Hydraulic screw Ø 19 mm  
1 Hydraulic screw Ø 19 x 9.5 mm  
1 HSS pre-drill Ø 10 mm  
1 Set of distance bushes (3 pieces)



## COMPACT HAND HYDRAULIC – SETS

In aluminium version – weight only 1.6 kg • Made in Germany by ALFRA

### Compact hand hydraulic punching set Tristar metric

for mild steel ( $F = 370 \text{ N/mm}^2$ )

Prod.-No.

01758

Complete in transport case

Content: 1 Aluminium compact hand hydraulic punch  
7 Tristar punches and dies M 16 - M 63  
 $\varnothing 16.2 - 20.4 - 25.4 - 32.5 - 40.5 - 50.5 - 63.5 \text{ mm}$   
1 Hydraulic screw  $\varnothing 19 \text{ mm}$   
1 Hydraulic screw  $\varnothing 19 \times 9.5 \text{ mm}$   
1 HSS pre-drill  $\varnothing 10 \text{ mm}$   
1 Set of distance bushes (3 pieces)



Prod.-No. 01758

### Compact hand hydraulic punching set Tristar Plus PG

for mild steel ( $F = 370 \text{ N/mm}^2$ ) **and stainless steel**

Prod.-No.

01650

Complete in transport case

Content: 1 Aluminium compact hand hydraulic punch  
8 Tristar Plus punches and dies  
PG 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42  
1 Hydraulic screw  $\varnothing 19 \text{ mm}$   
1 Hydraulic screw  $\varnothing 19 \times 11.1 \text{ mm}$   
1 HSS pre-drill  $\varnothing 11.5 \text{ mm}$   
1 Set of distance bushes (3 pieces)



Prod.-No. 01650

### Compact hand hydraulic punching set Tristar Plus Set – Metric

for mild steel ( $F = 370 \text{ N/mm}^2$ ) **and stainless steel**

Prod.-No.

01642

Complete in transport case

Inhalt: 1 Hydraulic punch type Compact aluminium  
5 Tristar Plus punches and dies M 16 - M 40  
 $\varnothing 16.2 - 20.4 - 25.4 - 32.5 - 40.5 \text{ mm}$   
1 Hydraulic screw  $\varnothing 19 \text{ mm}$   
1 Hydraulic screw  $\varnothing 19 \times 11.1 \text{ mm}$   
1 HSS pre-drill  $\varnothing 11.5 \text{ mm}$   
1 Set of distance bushes (3 pieces)



Prod.-No. 01642

### Compact hand hydraulic punching set Tristar Plus Metric

for mild steel ( $F = 370 \text{ N/mm}^2$ ) **and stainless steel**

Prod.-No.

01654

Complete in transport case

Inhalt: 1 Aluminium compact hand hydraulic punch  
7 Tristar Plus punches and dies M 16 - M 63  
 $\varnothing 16.2 - 20.4 - 25.4 - 32.5 - 40.5 - 50.5 - 63.5 \text{ mm}$   
1 Hydraulic screw  $\varnothing 19 \text{ mm}$   
1 Hydraulic screw  $\varnothing 19 \times 11.1 \text{ mm}$   
1 HSS pre-drill  $\varnothing 11.5 \text{ mm}$   
1 Set of distance bushes (3 pieces)



Prod.-No. 01654



# A



## COMPACT COMBI HAND HYDRAULIC – SETS MADE IN GERMANY BY ALFRA

With 90° bent and 360° rotatable cylinder head. In aluminium version – weight only 1.9 kg

Especially suitable for congested spatial conditions.  
Easy positioning of the die on the cross hairs due to single-handed operation.

### Punching capacity

Round holes up to Ø 85 mm  
Ø 64 mm  
Square holes 68 x 68 mm  
Rectangular holes 36 x 112 mm

### Steel sheets

2.0 mm F = 370 N/mm<sup>2</sup>  
3.0 mm F = 370 N/mm<sup>2</sup>  
2.0 mm F = 370 N/mm<sup>2</sup>  
2.0 mm F = 370 N/mm<sup>2</sup>

### Stainless steel sheets

2.5 mm F = 600 N/mm<sup>2</sup>

Weight: 1.9 kg  
Punching force: 75 kN  
Operating pressure max: 650 bar



### Excess pressure valve

Extended tool life owing to a built-in pressure control valve.  
"Automatic pressure switch off at 650 bar"



Prod.-No. 02050/02055  
90° angled and 360° rotate-able

## Compact Combi hand hydraulic

Prod.-No.  
02050

Complete in transport case

Content: 1 Compact Combi hand hydraulic punches  
1 Hydraulic screw Ø 19 mm  
1 Hydraulic screw Ø 19 x 9,5 mm  
1 HSS pre-drill Ø 11 mm  
1 Set of distance bushes (3 pieces)

## Compact Combi Hand hydraulic punching set PG

Prod.-No.  
02052

for mild steel (F = 370 N/mm<sup>2</sup>)

Complete in transport case

Content: 1 Compact Combi hand hydraulic punches  
10 Standard punches and dies  
PG 7 - 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42 - 48  
1 Hydraulic screw Ø 19 mm  
1 Hydraulic screw Ø 19 x 9,5 mm  
1 HSS pre-drill Ø 11 mm  
1 Set of distance bushes (3 pieces)



Prod.-No. 02052

## Compact Combi hand hydraulic Tristar PG punching set

Prod.-No.  
01753

for mild steel (F = 370 N/mm<sup>2</sup>)

Complete in transport case

Content: 1 Compact Combi hand hydraulic punches  
9 Tristar punches and dies  
PG 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42 - 48  
1 Hydraulic screw Ø 19 mm  
1 Hydraulic screw Ø 19 x 9,5 mm  
1 HSS pre-drill Ø 10 mm  
1 Set of distance bushes (3 pieces)



Prod.-No. 01753

## Compact Combi hand hydraulic set Tristar Set – Metric

Prod.-No.  
01766

for mild steel (F = 370 N/mm<sup>2</sup>)

Complete in transport case

Inhalt: 1 Hydraulic punch type Compact Combi aluminium  
5 Tristar punches and dies M 16 - M 40  
Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm  
1 Hydraulic screw Ø 19 mm  
1 Hydraulic screw Ø 19 x 9,5 mm  
1 HSS pre-drill Ø 10 mm  
1 Set of distance bushes (3 pieces)



Prod.-No. 01766



# COMPACT COMBI HAND HYDRAULIC – SETS MADE IN GERMANY BY ALFRA

With 90° bent and 360° rotatable cylinder head. In aluminium version – weight only 1.9 kg

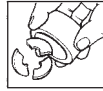
## Compact Combi hand hydraulic Tristar metric punching set

for mild steel (F = 370 N/mm<sup>2</sup>)

Prod.-No.  
01759

Complete in transport case

- Inhalt:
- 1 Compact Combi hand hydraulic punches
  - 7 Tristar punches and dies M 16 - M 63
  - Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 - 50,5 - 63,5 mm
  - 1 Hydraulic screw Ø 19 mm
  - 1 Hydraulic screw Ø 19 x 9,5 mm
  - 1 HSS pre-drill Ø 10 mm
  - 1 Set of distance bushes (3 pieces)



Prod.-No. 01759

## Compact Combi hand hydraulic Tristar Plus PG punching set

for mild steel (F = 370 N/mm<sup>2</sup>) **and stainless steel**

Prod.-No.  
01651

Complete in transport case

- Content:
- 1 Compact Combi hand hydraulic puncher
  - 8 Tristar punches and dies
  - PG 9 - 11 - 13 - 16 - 21 - 29 - 36 - 42
  - 1 Hydraulic screw Ø 19 mm
  - 1 Hydraulic screw Ø 19 x 11,1 mm
  - 1 HSS pre-drill Ø 11,5 mm
  - 1 Set of distance bushes (3 pieces)



## Compact-Combi hand hydraulic set Tristar Plus Set – Metric

for mild steel (F = 370 N/mm<sup>2</sup>) **and stainless steel**

Prod.-No.  
01643

Prod.-No. 01651

Complete in transport case

- Content:
- 1 Hydraulic punch type Compact Combi aluminium
  - 5 Tristar Plus punches and dies M 16 - M 40
  - Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 mm
  - 1 Hydraulic screw Ø 19 mm
  - 1 Hydraulic screw Ø 19 x 11,1 mm
  - 1 HSS pre-drill Ø 11,5 mm
  - 1 Set of distance bushes (3 pieces)



## Compact Combi hand hydraulic Tristar Plus Metric punching set

for mild steel (F = 370 N/mm<sup>2</sup>) **and stainless steel**

Prod.-No.  
01655

Complete in transport case

- Content:
- 1 Compact Combi hand hydraulic puncher
  - 7 Tristar Plus punches and dies M 16 - M 63
  - Ø 16,2 - 20,4 - 25,4 - 32,5 - 40,5 - 50,5 - 63,5 mm
  - 1 Hydraulic screw Ø 19 mm
  - 1 Hydraulic screw Ø 19 x 11,1 mm
  - 1 HSS pre-drill Ø 11,5 mm
  - 1 Set of distance bushes (3 pieces)



Prod.-No. 01643



Prod.-No. 01655

For further supplementary sets see Page 24





## Supplementary sets

### Puncher set Tristar metric

Prod.-No.

for mild steel ( $F = 370 \text{ N/mm}^2$ )  
(without illustration)

01762

Complete in transport case

Content: 5 Tristar punches and dies M 16 - M 40  
 $\varnothing 16.2 - 20.4 - 25.4 - 32.5 - 40.5 \text{ mm}$



Prod.-No. 01762



### Puncher set Tristar Plus Set – Metric

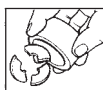
Prod.-No.

for mild steel ( $F = 370 \text{ N/mm}^2$ ) **and stainless steel**

01652

Complete in transport case

Inhalt: 5 Tristar Plus punches and dies M 16 - M 40  
 $\varnothing 16.2 - 20.4 - 25.4 - 32.5 - 40.5 \text{ mm}$



Prod.-No. 01652



## Supplementary sets

### Puncher set Tristar metric

Prod.-No.

for mild steel ( $F = 370 \text{ N/mm}^2$ )  
(without illustration)

01757

Complete in transport case

Content: 7 Tristar punch and dies M 16 - M 63  
 $\varnothing 16.2 - 20.4 - 25.4 - 32.5 - 40.5 - 50.5 - 63.5 \text{ mm}$



Prod.-No. 01757



### Puncher set Tristar Plus Metric

Prod.-No.

for mild steel ( $F = 370 \text{ N/mm}^2$ ) **and stainless steel**

01653

Complete in transport case

Content: 7 Tristar Plus punch and dies M 16 - M 63  
 $\varnothing 16.2 - 20.4 - 25.4 - 32.5 - 40.5 - 50.5 - 63.5 \text{ mm}$



Prod.-No. 01653



## Spare parts

Compact hand hydraulic punches, units	02005
Combi-Combi hand hydraulic punches, units	02055
Hydraulic screw $\varnothing 19.0 \text{ mm}$	02002
Hydraulic screw $\varnothing 19.0 \times 9.5 \text{ mm}$	02003
Hydraulic screw $\varnothing 19.0 \times 6.0 \text{ mm}$	02022
Hydraulic screw $\varnothing 19.0 \times 11.1 \text{ mm}$	02007
Hydraulic screw $\varnothing 19.0 \times 9.5 \text{ mm}^*$	02010
Hydraulic screw $\varnothing 19.0 \times 11.1 \text{ mm}^*$	02011
Distance bushes (3 pieces)	02004
Pre-drill $\varnothing 10.0 \text{ mm}$	08036
Pre-drill $\varnothing 11.0 \text{ mm}$	08023
Pre-drill $\varnothing 11.5 \text{ mm}$	08035

\* Hydraulic screw made out of high-alloy tool steel for heavy duty application.





# **ALFRA**

## **BATTERY PACKED COMPACT HYDRAULIC PUNCH**



**FOR ROUND, SQUARE  
AND RECTANGULAR  
HOLE PUNCHING**







## ALFRA BATTERY PACKED COMPACT HYDRAULIC PUNCH

Made in Germany by ALFRA

Practical handling with high performance rechargeable battery of 18 V for round, square and rectangular punches for builders of control cabinets, panels and electrical system.

Extremely manageable and light, due to high guaranteeing tensile strength aluminum head.

- Light and handy, only 3.7 kg incl. the rechargeable battery.
- With pressure control valve
- High performance motor with ergonomic form designed hand grip „Soft-touch“
- The high performance rechargeable batteries can be inserted in two ways so you can obtain a weight counterbalance.

### Technical Data:

#### Punching

Round holes

up to Ø 80mm diam.  
(3.0 mm mild steel (F = 370 N/mm<sup>2</sup>),  
2.0 mm Chrome-Nickel-Steel)

Square /rectangular:

68 x 68 mm  
(3.0 mm mild steel (F = 370 N/mm<sup>2</sup>),  
2.0 mm Chrome-Nickel-Steel)  
92 x 92 mm only with special screw\* and  
distance bush\*. (2.0 mm mild steel F =  
370 N/mm<sup>2</sup>, 1.5 mm Chrome-Nickel-Steel)

#### Motor/Drive

Punch pressure

80 kN, with pressure control valve

#### Rechargeable battery

Battery charge

18 V, 3.0 Ah NiMH

Charge cycles

45 min. after complete discharge

Working temperature

~ 500 under normal circumstances  
0° to +40°C, Capacity loss below 0°C

#### Universal battery charger

Charging all batteries 18 to 28 V, for Li-Ion, Ni-MH and Ni-Cd Batteries.  
Automatic temperature control. The change from quick-charge to trickle  
charge avoids overcharging of the rechargeable batteries.

Charge of battery indicated by LED indicator

PCB completely encapsulated.

#### Punching time/ Punching capacity

Ø 22.5 mm diam. mild steel (F = 370 N/mm<sup>2</sup>)  
2 mm 5 sec. 190 holes per battery charge  
Ø 63.5 mm diam. mild steel (F = 370 N/mm<sup>2</sup>)  
2 mm 7 sec. 100 holes per battery charge  
■ 68 x 68 mm mild steel (F = 370 N/mm<sup>2</sup>)  
2 mm 7 sec. 70 holes per battery charge

#### Weight

3.7 kg with rechargeable battery.

2.7 kg without rechargeable battery.

7.8 kg complete set in transport case, without cutting tools.

#### Scope of supply:

ALFRA battery packed compact hydraulic punch  
with 2 rechargeable batteries 18V, Battery charger 18 - 28 V  
Hydraulic screw - 9.5 x 19 mm – Prod.-No: 02003  
Hydraulic screw - 19 x 120 mm – Prod.-No: 02002  
Distance bush, 3 pieces – Prod.-No: 02004  
Pre-drill Ø 11 mm diam. – Prod.-No: 08023

Packed in solid transport case. User's Manual.

#### Spare parts:

Extra battery  
Battery charger 220 V - 240 V  
ALFRA Compact Hydraulic Punch, without battery  
\* Special screw for the square ■ 92 x 92 mm punch  
\* Special distance bush for the square ■ 92 x 92 mm

#### Prod.-No.

02070

#### Prod.-No.

02071

02072

02074

01395

01396



Prod.-No. 02070



Prod.-No. 02072


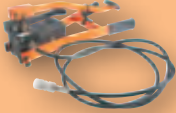




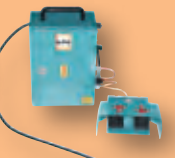














































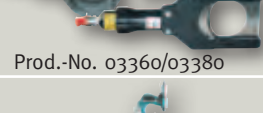











Prod.-No. 02071



# A



## PUMP OVERVIEW

<b>Recommended combination</b> 	 <b>AEP-1 Foot pump</b> Prod.-No. 02121	 <b>AHP 03-01</b> Prod.-No. 03853	 <b>SC-05 III B</b> Prod.-No. 03852	 <b>DSP-120</b> Prod.-No. 02027	 <b>LHP 700</b> Prod.-No. 02140	 <b>ALH 600</b> Prod.-No. 03190
<b>Possible combination</b> 						
 Prod.-No. 02012/02013						
 Prod.-No. 03200						
 Prod.-No. 03250						
 Prod.-No. 03256						
 Prod.-No. 03258						
 Prod.-No. 03253						
 Prod.-No. 03750						
 Prod.-No. 03260						
 Prod.-No. 03300						
 Prod.-No. 03360/03380						
 AP 250						
 AP 400						



# A



## ALFRA HYDRAULIC PUNCH – COMPACT FLEX HAND HYDRAULIC

Handy hand punch with hydraulic hose and cylinder. Aluminum design – weight only 2.0 kg • Made in Germany

- The perfect device if space is limited.

### Capacity

Round holes up to	Ø 85 mm	sheet metal	2,0 mm F = 370 N/mm <sup>2</sup>
	Ø 64 mm		3,0 mm F = 370 N/mm <sup>2</sup>
Square holes	68 x 68 mm		2,0 mm F = 370 N/mm <sup>2</sup>
Rectangular holes	36 x 112 mm		2,0 mm F = 370 N/mm <sup>2</sup>
		<b>Stainless steel</b>	
Round holes up to	Ø 64 mm		2,5 mm F = 600 N/mm <sup>2</sup>
Rectangular holes	68 x 68 mm		2,0 mm F = 600 N/mm <sup>2</sup>

Weight:	2,0 kg
Punch pressure:	75 kN
Operating pressure:	650 bar
Hydraulic hose length:	600 mm

Scope of supply:	1 Compact Flex Hand Hydraulic Punch
	1 Hydraulic screw Ø 19,0 mm
	1 Hydraulic screw Ø 19,0 x 9,5 mm
	1 HSS-pre-drill Ø 11,0 mm
	1 distance bush, 3-pieces

### Prod.-No.

Compact Flex Hand Hydraulic complete with transport case 02065

Compact Flex Hand Hydraulic Puncher, (unit) 02066



Prod.-No. 02065



Prod.-No. 02066

## ALFRA HYDRAULIC PUNCHER – AEP-1 WITH FOOT PUMP

Made in Germany

- Max. operating pressure 700 bar.
- Built-in pressure control valve.
- For all round, square, rectangular and special-shape punchers.
- The foot pump leaves both hands free for exact positioning and punching on a switchgear cabinet. The foot pump carrier frame is spread. Safe standing, stability against tilting is therefore guaranteed.

Tank volume	270 cm <sup>3</sup>
Useful oil volume	210 cm <sup>3</sup>
Pump capacity	1.7 cm <sup>3</sup> per piston stroke

Content:	1 Hydraulic cylinder with quick-action clutch
	1 Hydraulic hose 2.8 m
	1 Hydraulic screw Ø 19.0 and 19.0 x 9.5 mm
	1 Set of distance bushes (5 pieces)
	1 Pre-drill Ø 11.0 mm
	without punches and dies

### Prod.-No.

Complete in sheet steel transport boxes 02120

Individual foot pump, with 2.8 m hydraulic hose and quick coupling 02121



Prod.-No. 02120





# A



## ALFRA ELECTRO HYDRAULIC PUMP – AHP 03-01

### Technical Data:

Motor tension:	230V / 50Hz (110V / 50/60Hz on request)
Motor capacity:	0.55 KW at 2.720 rpm.
Max. operating pressure:	700 bar (unpressurised circulation)
Flow rate:	0.62 l/min. at 60Hz 0.52 l/min. at 50Hz
Tank volume:	2.5 L (useable: 1.5 liter)
Temperature switch:	80°C +/- 5°
Weight:	17 kg
Dimension L x W x H:	330 x 180 x 350 mm

### Prod.-No.

Electro hydraulic pump AHP 03-01, complete with hand-switch  
2,0 m hydraulic hose and quick coupling

03853

### Optional available:

Foot switch with 2-pedals; start-stop function

03866



Prod.-No. 03853

## For all single-action hydraulic cylinders







## ALFRA HYDRAULIC PUNCHER – DSP-120

### With electrohydraulic pump

Compact electric pump, two-stage operation with holding function for single-acting hydraulic cylinder.

### Technical Data

Operating voltage:	230 V / 50 Hz
Motor power:	0.4 kW
Max. operating pressure:	700 bar
Pump capacity 0 - 20 bar:	2.0 l/min
Pump capacity 20 - 700 bar:	0.2 l/min
Tank volume:	1.2 l
Useful oil volume:	0.8 l
Weight approx:	7.5 kg

### Prod.-No.

Electrohydraulic pump, complete with accessory

02025

Content: ① 1x Hydraulic cylinder with quick coupling  
 ② 1x Hydraulic hose 1.8 m  
 ③ 1x Hydraulic screw Ø 19.0 and 19.0 x 9.5 mm  
 ④ 1x Distance bushes set multiple piece  
 ⑤ 1x Pre-drill Ø 11.0 mm  
 ⑥ 1x Hand switch  
 without punches and dies

Electrohydraulic pump, units, 220 V, with 1.8 m hydraulic hose, quick coupling and hand switch, without hydraulic cylinder

02027

Foot switch 2-pedals

02029

Hand switch with 2 buttons

02030



Prod.-No. 02025

## ALFRA AIR HYDRAULIC PUMP – LHP 700

### Air-hydraulic pump up to 700 bar

### Good-value alternative for existing air supply (min 2.8 bar)

for operating single-acting hydraulic cylinders for punchers, cable pliers, pressing devices or similar applications. Also suitable as drive for ALFRA PRESS 250 and 400.

- Robust tank
- Tank ventilation filter
- Reduced noise level
- Oil level indicator on the tank
- Precise starting under load is possible
- Exact control – the relief operated via pedestal valve allows an exact lowering of load
- Hydraulic hose 2.0 m with quick coupling

### Technical Data:

Max. operating pressure:	700 bar
(for a feed pressure of 7 bar)	
Feed line pressure/working range	2.8 - 10 bar
Air connection:	1/4" G
Pump capacity, pressureless:	1.0 l/min
Pump capacity p max. (with 7 bar air):	0.1 l/min
Tank volume:	2.4 l
Useful oil volume:	2.1 l
Weight:	6.3 kg

### Prod.-No.

Air-hydraulic pump, complete

02140



Prod.-No. 02140



## ACCESSORIES – TIE BOLTS FOR HYDRAULIC OPERATION

Made in Germany by ALFRA

		Prod.-No.
Hydraulic screw	6.0 x 46 mm	02024
Adapter	19.0 x 6.0 mm	02023
Hydraulic screw compl.	19.0 x 6.0 mm	02022
Hydraulic screw	9.5 x 75 mm	02009
Adapter	19.0 x 9.5 mm	01353
Hydraulic screw compl.	19.0 x 9.5 mm	02003
Hydraulic screw compl.	19.0 x 9.5 mm *	02010
Hydraulic screw	11.1 x 75 mm	01424
Adapter	19.0 x 11.1 mm	01425
Hydraulic screw compl.	19.0 x 11.1 mm	02007
Hydraulic screw compl.	19.0 x 11.1 mm *	02011

\* Hydraulic screw made out of high-alloy tool steel for heavier duty application



Prod.-No. 02003 – complete



Prod.-No. 02007 – complete



Prod.-No. 02002 – complete

## ACCESSORIES – FOR HYDRAULIC PUMPS

		Prod.-No.
Hydraulic hose for AEP-1 foot pump	2.80 m	02122
Hydraulic hose for LHP 700	2.00 m	02112
Hydraulic hose for DSP 120	2.50 m	02026
Hydraulic hose for AHP 03-01	2.00 m	02116
Hydraulic hose for Compact Flex	0.60 m	02117

Prod.-No. 02112



## ACCESSORIES – FOR HYDRAULIC CYLINDER

	Prod.-No.
Hydraulic cylinder SKP-1 with quick coupling (up to 11 t) Weight 2,5 kg	02012
Hydraulic cylinder SKP-1 Mini with quick coupling (up to 7 t) Weight 0,86 kg only, Square holes up tp 68 x 68 mm	02013
Distance bushes set (5 pieces)	02014
Pre-drill Ø 10.0 mm	08036
Pre-drill Ø 11.0 mm	08023
Pre-drill Ø 11.5 mm	08035
Pre-drill SVB with 5 drill Ø 8.5/11.5/12.5/16.5/21.0 mm	08016



Prod.-No. 02012



Prod.-No. 02013



Prod.-No. 08023



Prod.-No. 02014



Prod.-No. 08016



# A



## QUICK CONNECTION COUPLINGS – FOR ALFRA HYDRAULIC DEVICES

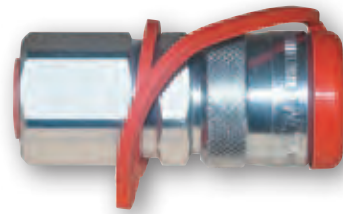
- non-drip coupling and decoupling
- handy operability
- dust protection cap
- operating pressure up to 1000 bar

### Prod.-No.

Locking coupling with internal threads 1/4" (mounted on hose end)	01452
Closing nipple with internal threads 1/4" (mounted on cylinder)	01453
Adapter R 1/4" outside thread	01454



Prod.-No. 01453



Prod.-No. 01452

## HYDRAULIC OIL – FOR ALFRA HYDRAULIC PUMPS

For refilling all hydraulic pumps

### Prod.-No.

1 Litre hydraulic oil HLP 46	01455
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**Caution:**  
Observe extreme cleanliness when refilling hydraulic units!



Prod.-No. 01455

## ALFRA – SPECIAL METAL LUBRICATING PASTE

Against seizure and wear

### Fields of application:

- Prevents seizure, wear, cold-welding, fusing and fretting corrosion of the threads of screws, nuts, bolts, pipe threads and fittings.
- ALFRA special metal lubricating paste is excellently suitable for lubricating the cutting tips for punching tools and heavy-duty stress on bearing and sliding surfaces.
- Active separation and silicon-free.
- Content: 120 g

### Prod.-No.

ALFRA special metal lubricating paste	33005
---------------------------------------	-------

**Certainly recommendable for application of punchers by means of screw spanners.**



Prod.-No. 33005



## ALFRA – NOTCH PLIERS

- Easily and quickly punches notches in sheet metals of up to 2.5 mm thickness.
- Saves one from the time-consuming filing of grooves for anti-twist protection of push buttons, switches and instruments.
- Notch sizes in 3.2 mm and 4.8 mm possible.
- Long tool life because punch and die are made out of hardened tool steel.
- Easy punching due to large leverage.
- Handgrips are plastic coated.
- Weight 1.3 kg

The notch puncher is inserted into the pre-punched opening, aligned to the cross-hairs marking and then the pliers is actuated. A clean notch is ready!

*Prod.-No. 03015*



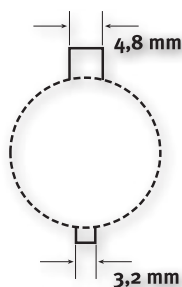
ALFRA Notch pliers

**Prod.-No.**  
03015

### Spare parts

Notch puncher with rivet pin

**Prod.-No.**  
030151





# ALFRA

## DIN RAIL CUTTING DEVICES

NO MORE METAL CHIPS AND NO MORE DEBURRING!





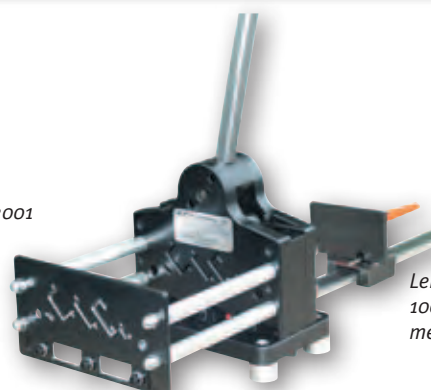
# ALFRA – UNIVERSAL CUTTING AND PUNCHING EQUIPMENT

Made in Germany by ALFRA

For DIN carrier rails, for hand lever operation for cutting pieces to length and punching the depicted carrier rails longitudinally and transversely.

- with reinforced eccentric that lies directly over the shearing blade
- less use of force due to better force transfer
- burr-free cutting without loss
- maintenance free
- with 1000 mm length stop limit and guide apparatus for accurate angular cuttings.
- resharpening of shearing blade, exchangeable punch
- special fabrications are also possible  
(Please send in sample rails of approx. 1000 mm length).

Prod.-No. 03001



Length stop  
1000 mm  
metric and inch

Guide apparatus for exactly cutting a 90°-angle

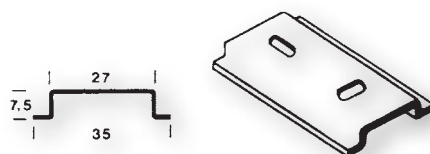
## Scope of delivery of standard version

	Prod.-No.
Cpl. with transverse and longitudinal punch 12 x 6,4 mm, 1000 mm length stop and guiding device	03001*
Cpl. with transverse and longitudinal punch 12 x 6,4 mm, 1000 mm length stop and guiding device	03001G*
as above, but with <b>round</b> punches 5.5 or 6.0 mm Ø	03002
as 03001. but with hydraulic cylinder (without drive)	03003

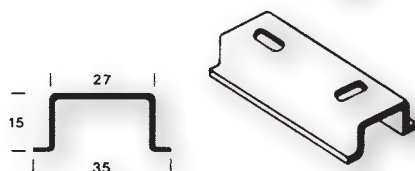
\*Please indicate if you need C or G Profil.

## Standard version

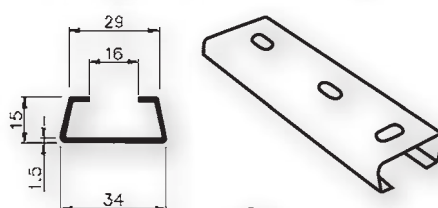
Carrier rail 35 mm/7.5  
accord. to EN 60715



Carrier rail 35 mm/15  
accord. to EN 60715



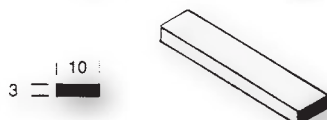
**NEW**  
C. Profile 3415



Carrier rail 15 mm/5.5  
accord. to EN 60715

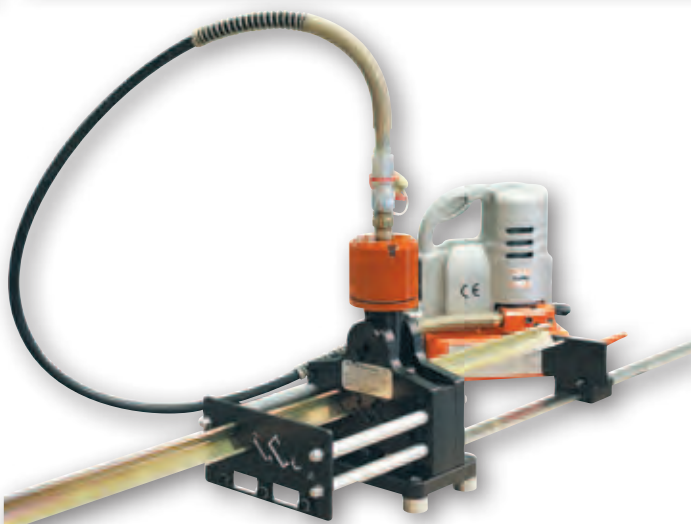


Copper earthing rail  
10 mm x 3 mm



## Spare parts for Universal Cutting and Punching Equipment

	Prod.-No.
Spare punch + die 12 x 6.4 mm for oblong hole	03005
Spare punch + die 12 x 6.4 mm for cross hole	03006
Spare punch + die 5.5 mm for round hole	03007
Spare punch + die 6.0 mm for round hole	03008
Guiding apparatus, units	03012
Special versions for carrier rails or flat rails, also made of stainless steel or aluminium as well as plastic, upon request	03011



Prod.-No. 03003 (without pump)

We recommend our electrohydraulic pump as drive DSP 120 (Prod.-No. 02027) or AHP 03-01 (Prod.-No. 03853).

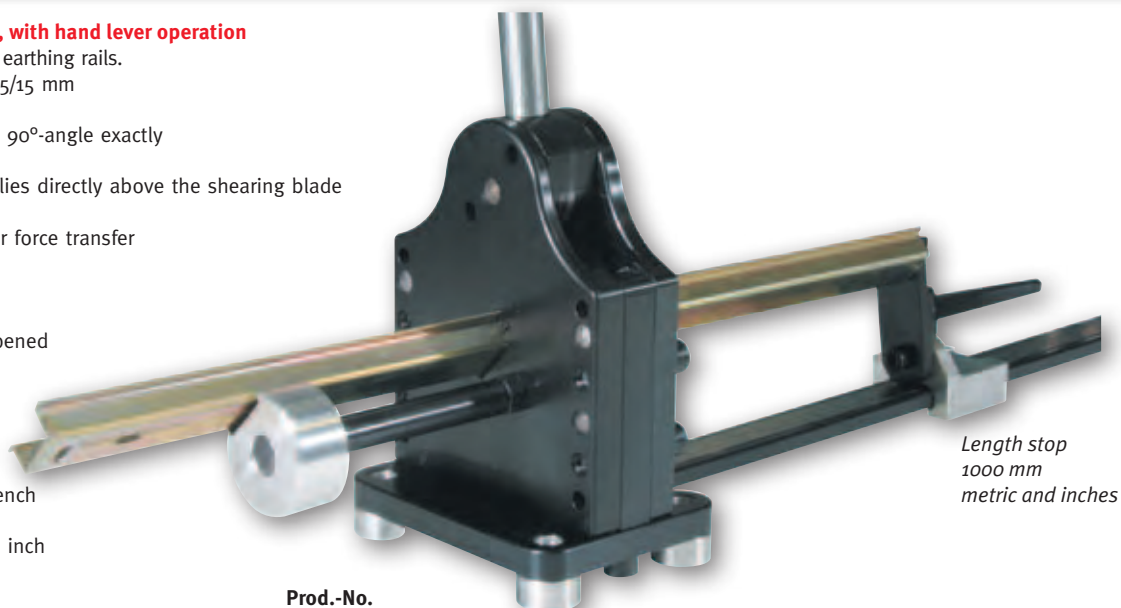


**For the most popular carrier rails, with hand lever operation**

Exactly and easily cuts profile and earthing rails.

Standard version for TS 35/7,5 + 35/15 mm

- Guide apparatus for cutting a 90°-angle exactly
- With reinforced eccentric that lies directly above the shearing blade
- Less use of force due to better force transfer
- Maintenance free
- Shearing blade can be resharpened
- Burr-free cutting without loss
- Length stop 1000 mm
- Easy assembly on the work bench
- Measure alignment metric and inch



Length stop  
1000 mm  
metric and inches

Prod.-No.

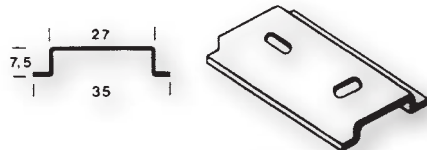
03199

Prod.-No. 03199

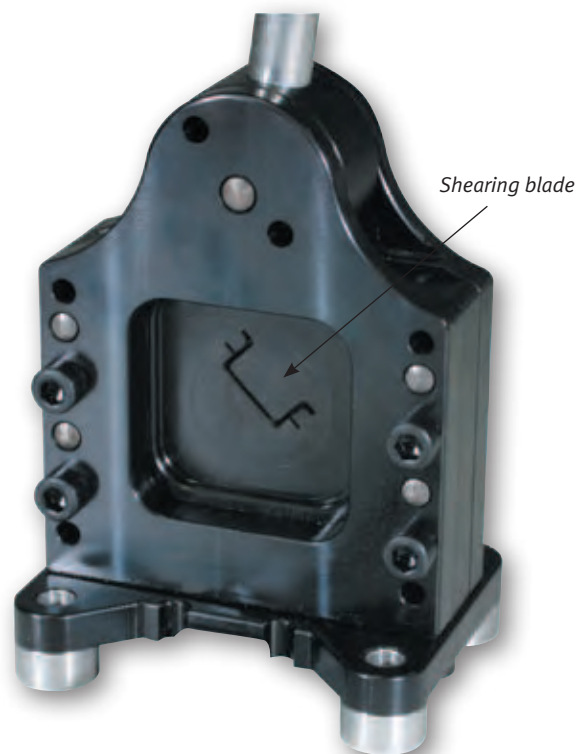
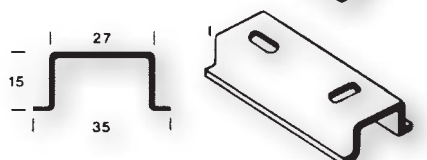
Standard version, complete with Length stop  
and guiding apparatus

**Carrier rails**

Carrier rail 35 mm/7,5  
Acc. to EN 60715



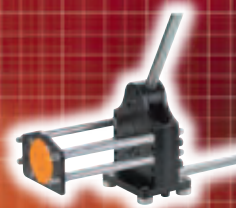
Carrier rail 35 mm/15  
Acc. to EN 60715



Shearing blade

Reinforced  
eccentric

Guide apparatus  
for cutting a 90°-angle exactly



# ALFRA DIN RAIL CUTTING UNIT – ALC-02

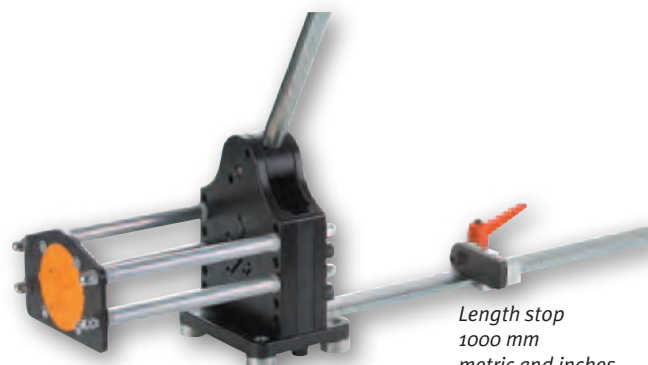
MADE IN GERMANY BY ALFRA

## For DIN carrier rails with hand lever operation

Exactly and easily cuts profile and earthing rails.

Standard version for TS 35/7.5 - 35/15 - 15/5.5 - Cu 10.0 x 3.0 mm

- With reinforced eccentric that lies directly above the shearing blade
- Less use of force due to better force transfer
- Burr-free cutting without loss
- Maintenance free
- Length stop 1000 mm
- Shearing blade can be resharpened
- Guide apparatus for exactly cutting a 90°-angle
- Easy assembly on the work bench
- Also special fabrications are possible  
(Please send in sample rails of approx. 1000 mm length).



Length stop  
1000 mm  
metric and inches

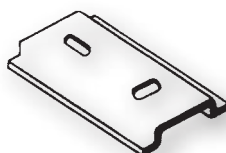
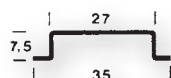
Prod.-No.  
03004

Guide apparatus  
for exactly cutting 90°-angles

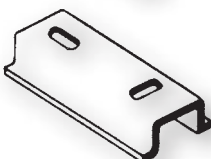
Standard version, complete with length stop  
and guiding apparatus

## Standard version

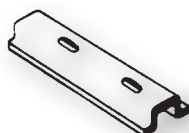
Carrier rail 35 mm/7.5  
accord. to EN 60715



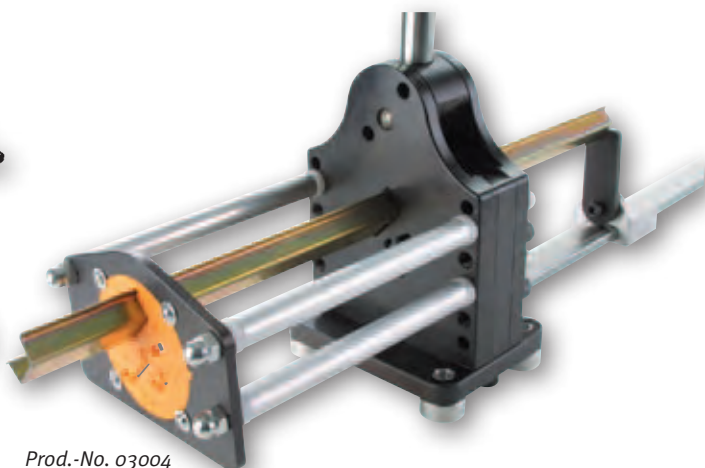
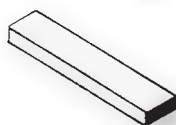
Carrier rail 35 mm/15  
accord. to EN 60715



Carrier rail 15 mm/5.5  
accord. to EN 60715

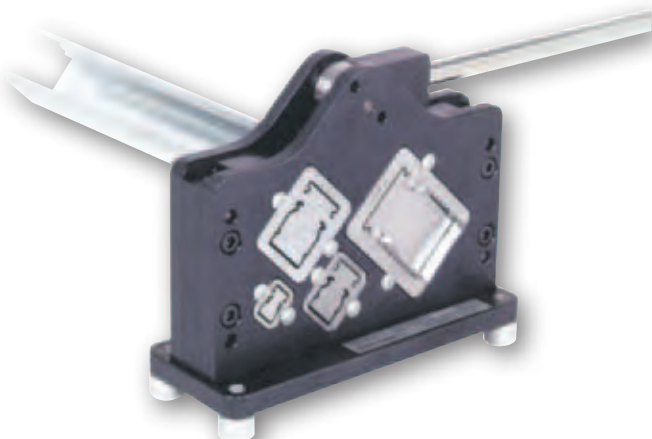


Copper earthing rail  
10 mm x 3 mm



Prod.-No. 03004

**Special fabrication for special profiles like  
e.g. cable ducts upon request!**





# ALFRA

## WIRING DUCT CUTTING TOOL

NO MORE NOISE — NO MORE PLASTIC CHIPS —

REDUCED ACCIDENT DANGER!



▶ ERGONOMIC HAND LEVER  
FOR OPTIMUM FORCE TRANSMISSION

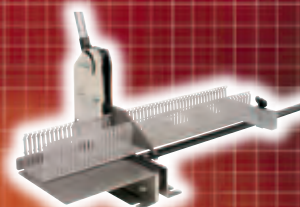


▶ HARDENED CUTTING  
OF SPECIAL STEEL

▶ LENGTH-STOP  
(METRIC/INCHES —  
LASER ENGRAVED)

▶ FOLDABLE, SPRING-LOADED KNIFE  
PROTECTION





# ALFRA WIRING DUCT CUTTING DEVICE – VKS 125

MADE IN GERMANY BY ALFRA

**Cuts wiring ducts exactly and easily and covers up to 125 mm width in seconds.**

Fastening tabs are on the tool as well as on the length stop for easy assembly on the work bench.

The VKS 125 is provided with a spring knife protection, which covers the knife when not in use.

- hand lever operation
- burr-free cutting without loss
- exact 90°-angle cutting
- less force applied when cutting
- length stop 1000 mm, metric and inches
- knife can be resharpened
- maintenance free
- easy assembly on the work bench

**„...never again plastic chips and never again deburring!“**

	Prod.-No.
Standard version, complete with length stop	03191
Spare knife for VKS 125	03192

## Amortisation calculation for machine type ALC-2 and VKS 125

### Assumption:

Daily at least 10 cuts of profile rails or wiring ducts

#### 1. Conventional machining:

a1)	Number of cuts per day	=	10 pieces
b1)	Working time per cut	=	2.00 min
	(includes providing the auxiliary tools, measuring, marking, cutting to size, deburring etc.)		
c1)	Cost of labour per minute	=	€ 0.70

#### Result:

The cost incurred daily is € 14.00 (10 x 2.00 x 0.70)

#### 2. Machining with DIN rails cutting tool or wiring duct cutting tool

a2)	Number of cuts per day	=	10 pieces
b2)	Working time per cut	=	0.3 min
c2)	Cost of labour per minute	=	€ 0.70

#### Result:

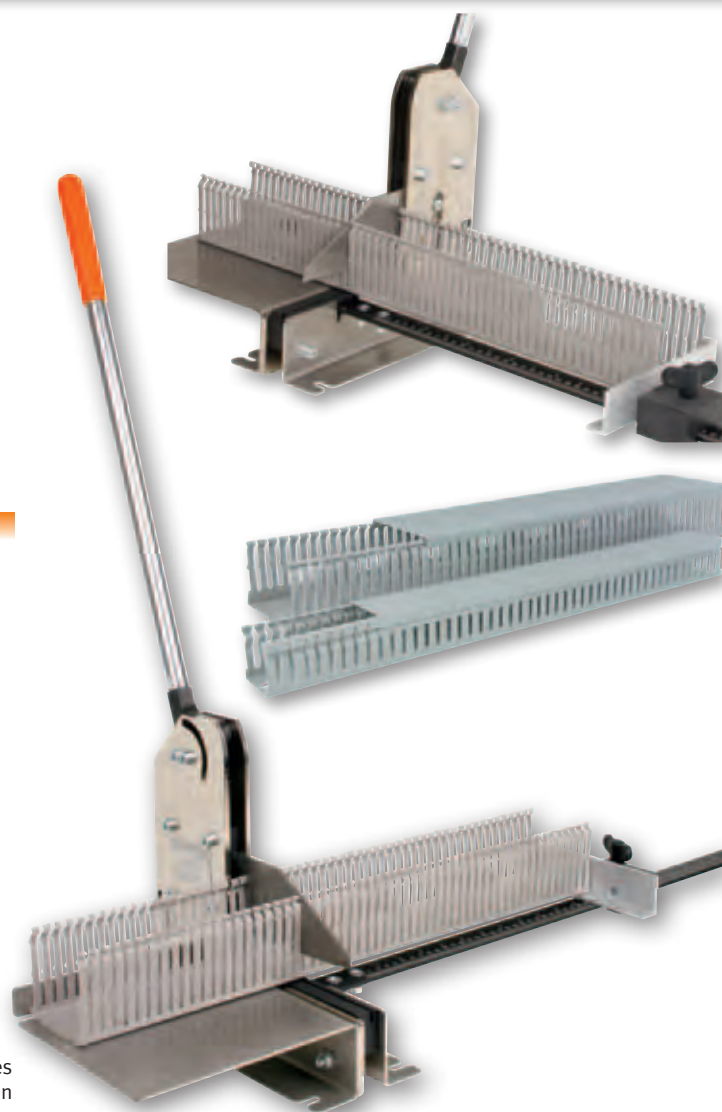
Cost incurred daily is € 2.10 (10 x 0.3 x 0.70)

**Difference between 1 and 2 = € 11.90 per work day**

Cutting tool Prod.-No. 03004 VK = € 995.00 : 11.90 = **84 days**

Cutting tool Prod.-No. 03191 VK = € 785.00 : 11.90 = **66 days**

**For 250 work days per annum the amount saved is approx. € 2 975.00.**



Prod.-No. 03191





# ALFRA

## BUSBAR MACHINING

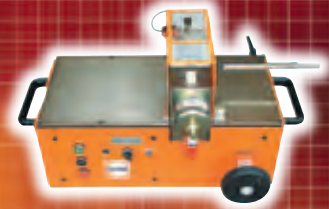
BENDING 120 x 12 MM  
PUNCHING Ø 6,6 - 21,5 MM  
CUTTING 125 x 12 MM

Prod.-No. 03853

Prod.-No. 03852







# ALFRA BUSBAR BENDING AND PUNCHING MACHINE

FOR BUSBARS 120 x 12 mm • MADE IN GERMANY BY ALFRA

With a universal working cylinder, busbars 120 x 12 mm (160 x 10 mm upon request) can be easily bent and by simple insertion of punches, holes of Ø 6.6 up to 21.5 mm and oblong holes can be punched.

## Bending busbars

### Switch position on „bending“.

When bending, the bending die is inserted in the hydraulic piston and the electric angle reader is set in the round guide nut of the counter block. The contact cable is connected with the electric motor.

The desired angle is fixed on the angle scale with a set screw. We recommend, depending upon material thickness, to set 1° - 3° above the desired angle because copper springs back.

The first bending angle should be tested. This bending angle can be reproduced as often as desired because the bending process is automatically interrupted by the electric contact switch upon attaining the angle.



## Punching the busbars

### Switch position on „punching“.

The punch with neoprene stripper and the corresponding die are inserted in the mounting hole.

The punch is laterally fixed by means of a set screw. The machining block can be lifted or lowered in an infinitely variable manner with the hand wheel hydraulically in correspondence with busbar width and desired arrangement of holes. A counter fixed on the hand wheel shows the height of hole centre.

We recommend centre-punching the busbar with subsequent alignment of the canting tip of the punch on this point – this ensures that an exact hole pattern is attained.

The neoprene stripper and a built-in electric sensor cater for an automatic punch relief.



### Technical Data:

#### Bending

Bending Cu + Al max:	120 x 12 mm
Bending angle up to:	over 90°
Smallest length of leg:	50 mm
Smallest U-bending:	100 mm
Smallest Z-bending:	72 mm (material thickness dependent)

The specified values are based on a Cu rail 120 x 10 mm

#### Punching

Punching Cu + Al:	6.6 - 21.5 mm
	also oblong hole up to max. L = 21 mm
Material thickness Cu + Al max:	12 mm
Material width up to:	110 mm centric
L x W x H:	700 x 410 x 410 mm
Weight:	60 kg



**Special version for machining busbars of up to 160 x 10 mm available upon request.**







## ALFRA BUSBAR BENDING AND PUNCHING MACHINE

FOR BUSBARS 120 x 12 mm • MADE IN GERMANY BY ALFRA

### Prod.-No.

Basic machine with safety protective cover and control cable	03200
Electric angle reader R10 with connection cable	03201
Bending die R10	03202
Other bending radii available upon request!	
Length stop with fine adjustment	03203
Bending die with movable jaws (120 x 10 mm Cu)	03228
Digital measuring system of the bending angle	03229
Upper floor bending tool with 2 pairs of pressure plates for 5 - and 10 mm steps (max. range: 100 x 5 mm/60 x 10 mm Cu)	03246



Prod.-No. 03200 with accessories

### Electrohydraulic pump SC-05 III B

#### Technical Data:

Motor voltage:	230 V / 50 Hz (110V / 50 or 60Hz on request)
Motor capacity:	0.55 kW
Max. operating pressure:	700 bar
Presetting:	620 bar
Flow rate:	0.9 l/min.
Tank volume:	5.0 l
Weight approx:	29 kg
Dimension L x W x H:	500 x 230 x 370 mm

### Prod.-No.

Electrohydraulic pump SC-05 III B with 2.0 m high-pressure hose + quick connector	03852
<b>Optional available:</b>	
Foot switch for start function, 1 pedal	03861
Foot switch for start-stop-off function, 3 pedals	03865



Freely programmable digital measuring system for the bending angle up to above 90°

Applicable for the machines Prod.-No. 03200 and 03980

← R10

Prod.-No. 03229

Prod.-No. 03201

### Electrohydraulic pump AHP 03-1

#### Technical Data:

Motor voltage:	230V / 50Hz (110V / 50 or 60Hz on request)
Motor capacity:	0.55 kW
Max. operating pressure:	700 bar
Flow rate:	0.62 l/min. at 60Hz 0.52 l/min. at 50Hz
Tank volume:	2.5 l
Temperature switch:	80°C +/- 5°
Weight:	17 kg
Dimension L x W x H:	330 x 180 x 350 mm

### Prod.-No.

Electro hydraulic pump AHP 03-01 complete, with handswitch, With 2.0 meter hydraulic hose + quick connector	03853
<b>Optional available:</b>	
Foot switch with 2-pedals; start-off function	03866



Prod.-No. 03228



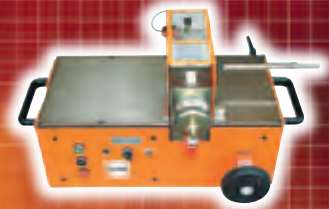
Prod.-No. 03202



Prod.-No. 03852



Prod.-No. 03853



# ALFRA BUSBAR BENDING AND PUNCHING MACHINE

FOR BUSBARS 120 X 12 MM • MADE IN GERMANY BY ALFRA



## Complete Set 1:

Prod. no.: 03200

Basic machine with safety protective cover and control cable

Prod. no.: 03201 Electrical angle reader R10 with connection cable.

Prod. no.: 03202 Bending Die R10

Prod. no.: 03203 Length stop with fine adjustment

Prod. no.: 03852 Electro-Hydraulic Pump **SCos III B**

Prod.-No.

03910



Prod.-No. 03910

## Complete Set 2:

Prod. no.: 03200

Basic machine with safety protective cover and control cable

Prod. no.: 03201 Electrical angle reader R10 with connection cable.

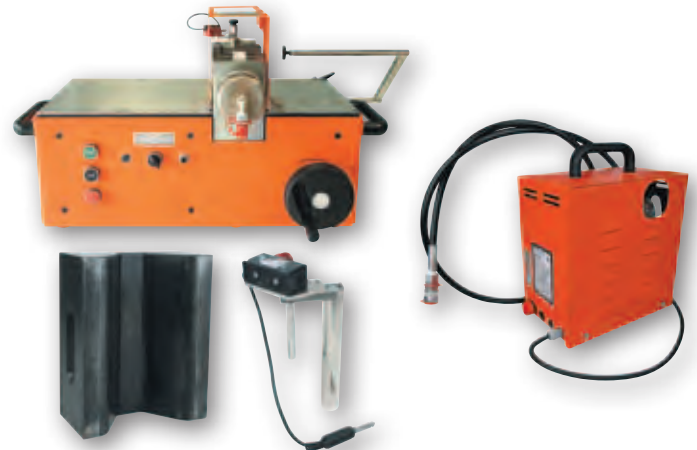
Prod. no.: 03202 Bending Die R10

Prod. no.: 03203 Length stop with fine adjustment

Prod. no.: 03853 Electro-Hydraulic Pump **AHP 03-1**

Prod.-No.

03920



Prod.-No. 03920

## Accessories

Available punches and dies

Punch Ø mm		Metric screw connection	Prod.-No.
6,6	x	6,0 up to 5 mm material thickness	03204
9,0	x	8,0 up to 6 mm material thickness	03205
9,5	x	8,0 up to 6 mm material thickness	03206
11,0	x	10,0 up to 12 mm material thickness	03207
11,5	x	10,0 up to 12 mm material thickness	03208
13,5	x	12,0 up to 12 mm material thickness	03209
14,0	x	12,0 up to 12 mm material thickness	03210
17,5	o	16,0 up to 12 mm material thickness	03211
18,0	o	16,0 up to 12 mm material thickness	03212
21,0	o	20,0 up to 12 mm material thickness	03213
21,5	o	20,0 up to 12 mm material thickness	03214

x with neoprene stripper and pressure plate  
o with neoprene stripper without pressure plate

Dies -S-	Prod.-No.	Dies -L-	Prod.-No.
max. mat. thickness		max. mat. thickness	
6,6	5	6,6	5
9,0	5	9,0	6
9,5	5	9,5	6
11,0	5	11,0	12
11,5	5	11,5	12
13,5	5	13,5	12
14,0	5	14,0	12
17,5	5	17,5	12
18,0	5	18,0	12
21,0	5	21,0	12
21,5	5	21,5	12

Punch and dies for long holes up to max. L = 21 mm

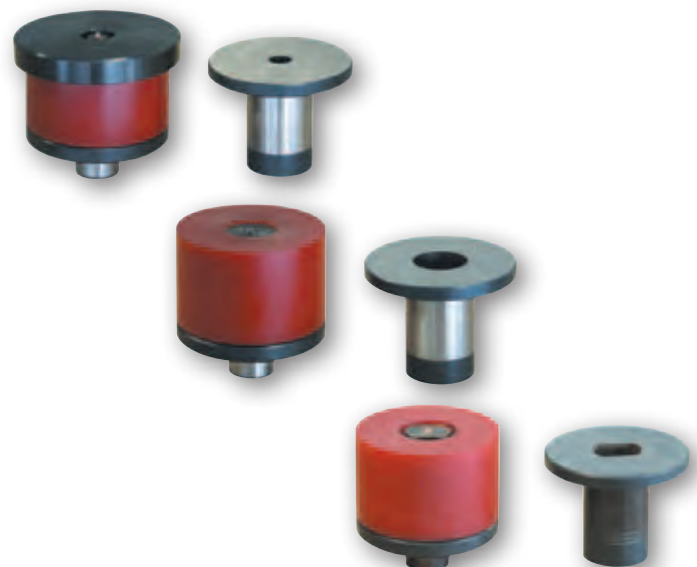
up to 5 mm material thickness

up to 12 mm material thickness

Prod.-No.

03226

03241



Oblong hole punch and die





## ALFRA BUSBAR CUTTING MACHINE – S 125

MADE IN GERMANY BY ALFRA

**For clean and burr-free cutting of copper and aluminium busbars  
125 x 12 mm.**

- Ideal supplementary machine for busbar bending and punching machine.
- Cutting time with electrohydraulic pump depending upon rail width 5 - 15 sec.
- Down-holder and guiding device for centring and accurate cutting.
- Top knife can be exchanged and retrofitted.
- Weight: 16 kg

### Prod.-No.

Basic machine cpl. with quick coupling, vice with centring jaws and down-holder

03250

Spare top knife

03251

**When using the electrohydraulic pump SC-05 III B in direct connection with the cutting machine, we recommend the application of a foot switch with START – STOP – OFF function.**

Foot switch with START – STOP – OFF

(Connection directly to the basic machine 03200)

03865

Foot switch with START – STOP – OFF

(Connection directly to the hydraulic pump 03852)

03863

### We selectively recommend as drive:

Electrohydraulic pump AHP 03-01

Electrohydraulic pump DSP 120

03853

02027



Prod.-No. 03250

*When using customer's own drives up to 700 bar, please specify coupling size when placing an order.*

## ALFRA – WORKSHOP CART

Made in Germany by ALFRA

**For busbar bending and punching machine 03200 as well as the busbar cutting machine 03250**

**Ideal for transporting – also in vans with shelving equipment**

Specially developed workshop cart, in order to accommodate both machines whilst saving space. Inside the vehicle the electrohydraulic pump can be connected to an already existing 2-way valve. The machines are amongst themselves coupled with hydraulic hoses. 2 Laterally mounted bearing rollers on the table facilitate bending and cutting of longer rails. The cart additionally has a drawer with tools compartments for keeping all punches and dies. The cart moves on 4 running rollers, 2 of which are provided with catches.

The equipment includes a single and a double socket outlet and a self recoiling 230 V connection line in 3 metres length.

Table size:

1050 x 700 mm

Dimensions:

L=1150. W=700. H=900 mm

Weight:

100 kg without machines

### Prod.-No.

Workshop cart, ready for connection, with 2-way valve, Coupling, drawer with tools compartments  
(without machines and drive)

03950



Prod.-No. 03950 (delivery without machine)



# ALFRA COMBI MACHINING CART – 4-STATIONS

FOR COPPER AND ALUMINIUM RAILS ► MADE IN GERMANY BY ALFRA

- For**
- Bending busbars 120 x 12 mm,
  - Punching busbars Ø 6.6 - 21.5 mm,
  - Cutting busbars 125 x 12 mm,
  - Cable shoe pressing from 10 - 300 mm²,
  - Punching all PG-sizes as well as square and specially shaped holes.

- The machining stations for bending busbars and punching as well as cutting are sunk in the table. They facilitate quick and clean working.
  - The universal working cylinder can be raised and lowered by means of a hand-wheel in an infinitely variable manner by hydraulic means according to the hole pattern to be punched.
  - The machining units are coupled to an hydraulic central unit located inside the cart.
  - A laterally extractable extension is provided as support pad for longer rails.
  - To the 2 additional laterally attached hydraulic hoses, pressing heads (e.g. pressing head 10 - 300 mm² Prod.-No. 03360) and the hydraulic cylinder Prod.-No. 02012 for punching holes are connected.
  - 1 foot switch belongs to the scope of delivery. Up to 3 **additional** foot switches can be connected to different stations.
  - In the cart there are 4 tools drawers with compartments for punches and dies.
- It is movable on 4 running rollers, of which 2 are provided with locks.**

## Technical Data:

Motor voltage:	400 V / 50 Hz
Motor power:	1.1 kW
Max. operating pressure:	700 bar
Presetting:	600 bar
Pump capacity:	0.88 l/min.
Tank volume:	17.0 l
Useful oil volume:	13.0 l
Weight approx:	240 kg
Table size:	1150 x 700 mm
Dimension L x W x H:	1250 x 760 x 1.210 mm

**Prod.-No.**  
03980

Machining cart ready for operation

## Required extra accessory

Punch and dies Ø 6.6 - 21.5 mm

Prod.-No. 03204 - 03225

Prod.-No. 03204 - 03225

Hydraulic press head 10 - 300 mm² 03360

Hydraulic cylinder 02012

Hydraulic screw 19.0 mm 02002

Hydraulic screw Ø 19.0 x 9.5 mm 02003

Distance bushes set (5 pieces) 02014

Foot switch with connection cable 3-pole 03861

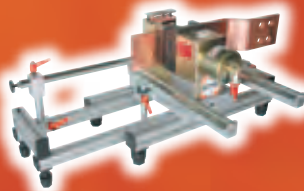


Prod.-No. 03980 (delivery without additional machines)



Inside the cart there are 4 tools drawers with compartments for punches and dies.





# ALFRA BUSBAR BENDING AND PUNCHING MACHINE – LPV

FOR COPPER AND ALUMINIUM RAILS ► MADE IN GERMANY BY ALFRA

**Busbar bending up to 120 x 12 mm**  
**Busbar punching Ø 6.6 up to 21.5 mm**

The machine comprises a main frame made of a box aluminium profile with the receptacle for basic body. For bending and punching there are corresponding adjustable height supports with rollers which can be exchanged easily. For the adjustment of hole pattern a length stop is provided besides the adjustable height. To facilitate working with longer copper rails, one can extend the retractable frames with support bracket to approx. 700 mm. All stops and support brackets can be fixed very quickly and easily by means of clamping levers.

## Technical Data:

### Bending:

Bending Cu max: 120 x 12 mm  
 Bending angle up to: over 90°  
 Smallest length of leg: 50 mm  
 Smallest U-bending: 100 mm  
 Smallest Z-bending: 72 mm (material thickness dependent)  
 The specified values are based on a Cu rail 120 x 10 mm

### Punching:

Punching Cu: Ø 6.6 - 21.5 mm  
 also long hole up to max. L = 21 mm  
 Material thickness Cu max: 12 mm  
 Material width up to: 110 mm centric  
 Dimension L x W x H: 615 x 370 x 315 mm  
 Weight: 44 kg

### Prod.-No.

Basic machine compl. with bending die and angle display (without drive)

03256

## Accessories

Available punches and dies

Punch Ø mm	Metric screw connection	Prod.-No.
6,6 x	6,0 up to 5 mm material thickness	03204
9,0 x	8,0 up to 6 mm material thickness	03205
9,5 x	8,0 up to 6 mm material thickness	03206
11,0 x	10,0 up to 12 mm material thickness	03207
11,5 x	10,0 up to 12 mm material thickness	03208
13,5 x	12,0 up to 12 mm material thickness	03209
14,0 x	12,0 up to 12 mm material thickness	03210
17,5 o	16,0 up to 12 mm material thickness	03211
18,0 o	16,0 up to 12 mm material thickness	03212
21,0 o	20,0 up to 12 mm material thickness	03213
21,5 o	20,0 up to 12 mm material thickness	03214

x with neoprene stripper and pressure plate  
 o with neoprene stripper without pressure plate

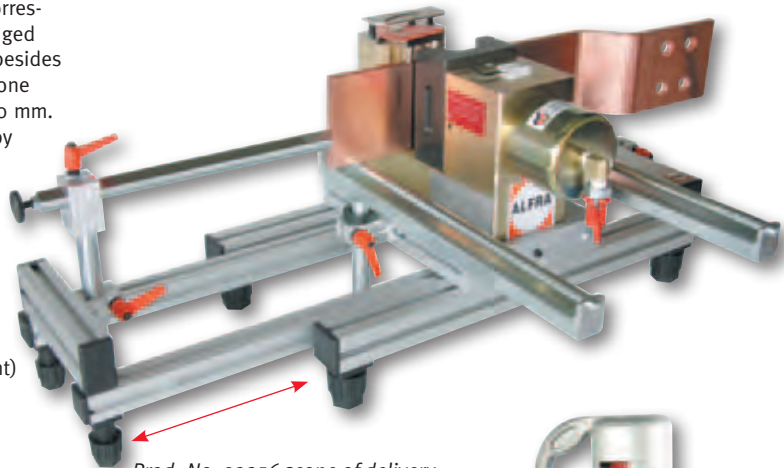
Dies -S- max. mat. thickness	Prod.-No.	Dies -L- max. mat. thickness	Prod.-No.
6,6 5	03215	6,6 5	03230
9,0 5	03216	9,0 6	03231
9,5 5	03217	9,5 6	03232
11,0 5	03218	11,0 12	03233
11,5 5	03219	11,5 12	03234
13,5 5	03220	13,5 12	03235
14,0 5	03221	14,0 12	03236
17,5 5	03222	17,5 12	03237
18,0 5	03223	18,0 12	03238
21,0 5	03224	21,0 12	03239
21,5 5	03225	21,5 12	03240

### Punch and dies for long holes up to max. L = 21 mm

up to 5 mm material thickness  
 up to 12 mm material thickness

### Prod.-No.

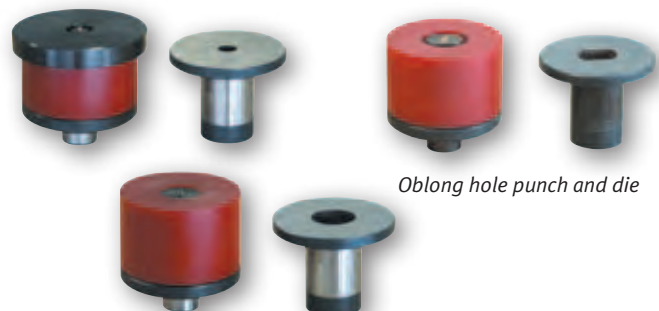
03226  
 03241



Prod.-No. 03256 scope of delivery without punches and dies

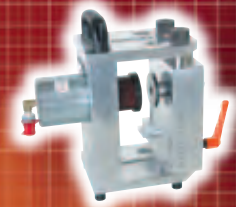


We recommend our hydraulic pump as drive DSP 120. Prod.-No. 02027 or Prod.-No. 03853



Oblong hole punch and die

Round punches and dies



# ALFRA BUSBAR BENDING AND PUNCHING DEVICE – BS 160 COMBI

MADE IN GERMANY BY ALFRA

- This device comprises of a base frame made of a special aluminium and a hydraulic cylinder up to 600 bar.
- By means of a bending die R=11 mm and R=5 mm and a height adjustment, all busbars up to max. 160 mm can be bent different angles.
- The angle allocation is engraved at the upper part.
- The conversion from bending to punching is simple and easy.

**Busbar Bending up to 160 x 12 mm**  
**Busbar Punching Ø 6,6 - 21,5 mm**

## Technical Data:

### Bending

Bending Cu/Alu max.:	160 x 12 mm
Bending angle up to:	92°
Smallest Length of leg:	50 mm inside dimension
Smallest U-bending:	160 mm inside dimension
Smallest Z-bending:	55 mm (material thickness dependent)

### Punching

Punching Cu/Alu max.:	Ø 6,6 - 21,5 mm
	also oblong hole up to max. L = 21 mm
Material thickness Cu max.:	12 mm
Material width up to:	160 mm centric
Dimension L x W x H:	390 x 150 x 330 mm
Weight:	20 kg

### Recommended mode of drive

Electro-hydraulic pump	DSP-120	Prod.-No. 02027
	AHP 03-1	Prod.-No. 03853
	ALH 600	Prod.-No. 03190
Air-hydraulic pump	LHP 700	Prod.-No. 02140
Budget-priced version:		
Foot hydraulic pump AEP-1 in 2 stage version		Prod.-No. 02020



Prod.-No. 03258  
Position „Punching“

Prod.-No.
Basic device BS 160 Combi complete with bending die and bending punch R=11 mm for busbars from 9-12 mm (without drive, without punching tools)
03258

### Accessories

Bending Punch R=5 mm for busbars from 3-8 mm	03259
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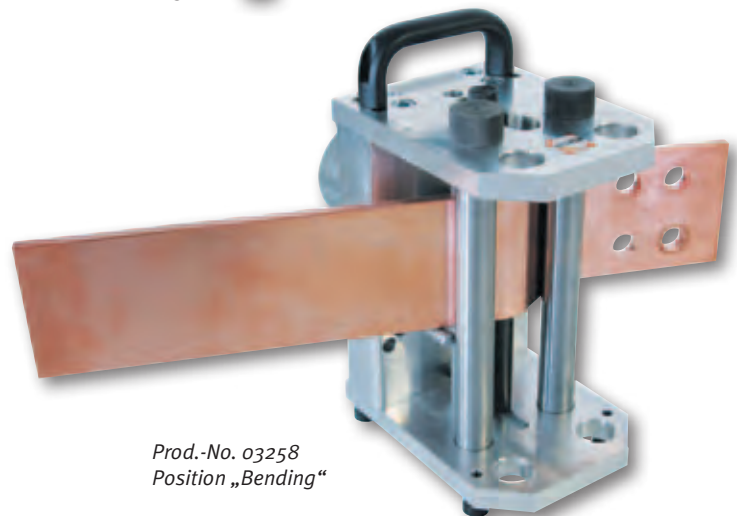
### Available punches and dies

Punch Ø mm	Metric screw connection	Prod.-No.
6,6 x	6,0 up to 5 mm material thickness	03204
9,0 x	8,0 up to 6 mm material thickness	03205
9,5 x	8,0 up to 6 mm material thickness	03206
11,0 x	10,0 up to 12 mm material thickness	03207
11,5 x	10,0 up to 12 mm material thickness	03208
13,5 x	12,0 up to 12 mm material thickness	03209
14,0 x	12,0 up to 12 mm material thickness	03210
17,5 o	16,0 up to 12 mm material thickness	03211
18,0 o	16,0 up to 12 mm material thickness	03212
21,0 o	20,0 up to 12 mm material thickness	03213
21,5 o	20,0 up to 12 mm material thickness	03214

x with neoprene stripper and pressure plate  
o with neoprene stripper without pressure plate

Dies -S- max. mat. thickness	Prod.-No.	Dies -L- max. mat. thickness	Prod.-No.
6,6 5	03215	6,6 5	03230
9,0 5	03216	9,0 6	03231
9,5 5	03217	9,5 6	03232
11,0 5	03218	11,0 12	03233
11,5 5	03219	11,5 12	03234
13,5 5	03220	13,5 12	03235
14,0 5	03221	14,0 12	03236
17,5 5	03222	17,5 12	03237
18,0 5	03223	18,0 12	03238
21,0 5	03224	21,0 12	03239
21,5 5	03225	21,5 12	03240

Punch and dies for long holes up to max. L = 21 mm	Prod.-No.
up to 5 mm material thickness	03226
up to 12 mm material thickness	03241



Prod.-No. 03258  
Position „Bending“



Prod.-No. 03258  
complete (without punches and dies)





## ALFRA BUSBAR CUTTING MACHINE – S 160

MADE IN GERMANY BY ALFRA

**For clean cutting of copper and aluminium busbars up to 160 x 15 mm max.**

- Cutting time depends on width/thickness of the busbar: 10 -15 sec.
- Down-holder and guiding device for central and accurate cutting.
- Top knife guided sidewise; exchangeable and resharpenable.
- After cutting operation automatic shutdown via micro switch.

### Technical Data:

Copper and aluminium busbars	160 x 15 mm (max.)
Cutting width	10 mm
Hydraulic cylinder	Single-acting
Knife retraction	Spring
Operation pressure max.	0 - 500 bar
Dimension L x W x H:	335 x 268 x 465 mm
Weight	38 kg

### Scope of supply:

Basic machine cpl. with quick coupling, guiding device, down holder, 2 carry handles

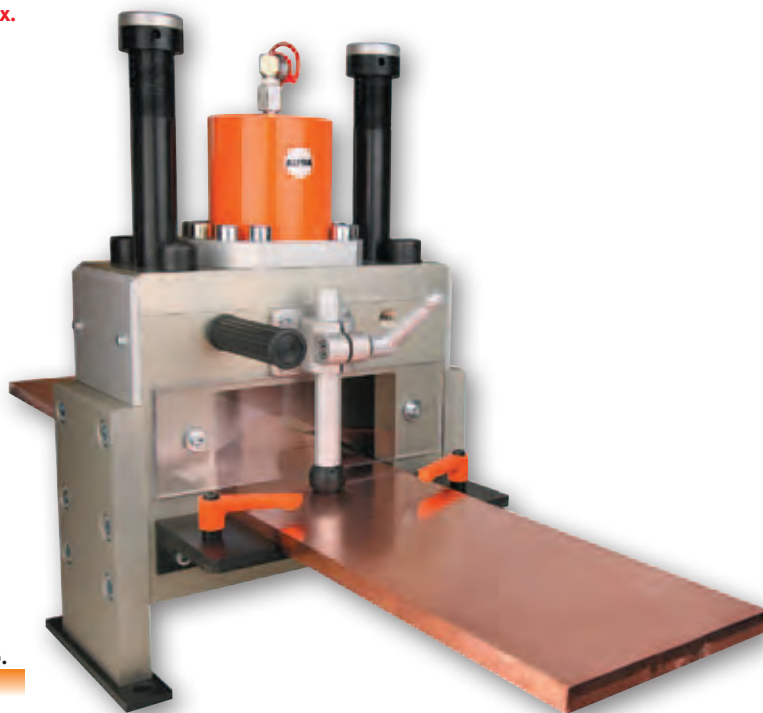
	Prod.-No.
Busbar cutting machine S 160	03253
Spare top knife S 160/08	03254
Foot switch with START – STOP – OFF function	03865
As drive we recommend our ALFRA hydraulic pump SC 05 III B with adjusted safety shutdown	03852
<b>or</b>	
Electro hydraulic pump AHP 03-01	03853
<b>Optional available:</b>	
Foot switch with 2-pedals; start-off function	03866



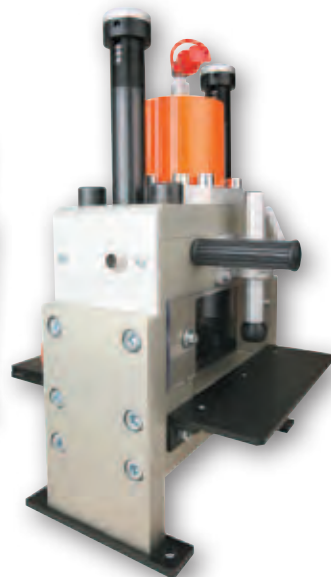
*Image surface cross section; reworking (regrinding) by the customer recommended*



*Cutting waste*



*Prod.-No. 03253*



*Prod.-No. 03852  
Cutting-time ca. 10 - 15 sec.*



*Prod.-No. 03853  
Cutting-time ca. 50 sec.*



# ALFRA HYDRAULIC BUSBAR BENDING MACHINE – B 200

FOR COPPER AND ALUMINIUM RAILS

**For quick and exact bending up to 200 x 16 mm.**

- The light weight amongst the bending machines.
- Safety by using a specially developed aluminium alloy for the main body.
- Easy exchange of the dies.

## Technical Data:

### Copper rails

Width	200 mm
Material thickness	up to 10 mm
Bending radius	8 mm x 12 mm
Bending angle	max. 90°

### Aluminium rails

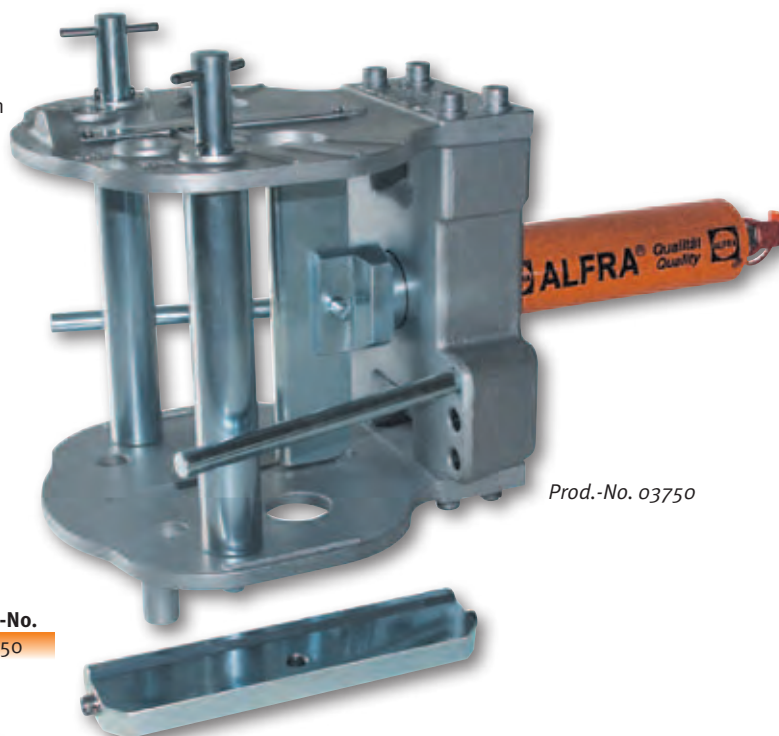
Width	200 mm
Material thickness	up to 16 mm
Pressing force	110 kN
Cylinder stroke	120 mm

Weight	20 kg
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**Prod.-No.**

**03750**

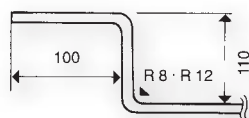
Hydraulic busbar bending machine – B200  
without drive – incl. bending punch for radius 8 and 12 mm



Prod.-No. 03750

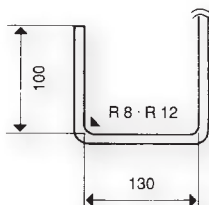
### Smallest Z-bending work

Copper



### Smallest U-bending work

Copper



Prod.-No. 02027



Prod.-No. 03853

We recommend our hydraulic pump as drive  
DSP 120 Prod.-No. 02027 or AHP 03-1 Prod.-No. 03853







## ALFRA HYDRAULIC PUNCHER – AP-65

- Specially developed for assembly application. Compact and strong design. Easily portable – flexible in application.
- For punching steel and copper
- **Application area:** punching busbars, general punching tasks in structural and bridge construction, scaffolding i.a.

### Technical Data:

Piston stroke: 18 mm  
Punching force: 270 kN

### Outreach:

Working pressure max: 700 bar  
Punching range: Punch Ø 5,5 - 21,0 mm  
Weight: 16 kg  
Dimension: 220 x 110 x 335 mm

### Prod.-No.

03260

Hydraulic puncher ALFRA-PRESS 65  
Delivery in steel sheet boxes with quick coupling and operating instructions

### Tools for copper, aluminium and steel

Ø mm	Max. material thickness mm	Prod.-No. Punch	Prod.-No. Die
5,5	5	03265	03275
6,6	6	03266	03276
8,0	6	03285	03290
9,0	8	03267	03277
11,0	10	03268	03278
14,0	10	03269	03279
18,0	10	03270	03280
21,0	10	03271	03281

other Ø upon request



Prod.-No. 02027



Prod.-No. 03853

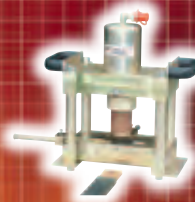
We recommend our hydraulic pump as drive  
DSP 120 Prod.-No. 02027 or AHP 03-1 Prod.-No. 03853



Prod.-No. 03260



Punch and die for AP-65



# ALFRA – LAMINATED BUSBARS MACHINING UNIT

MADE IN GERMANY BY ALFRA

**For punching M6 – M14 (without insulation) and cutting flexible laminated rails**

**Thickness up to 10 mm (without insulation)**

**Width up to 100 mm (without insulation)**

## Application area:

- Separation and punching holes on finned Cu and Al rails
- Separation thickness: max. 10 mm
- Hole area: Through holes for M6 – M14 screws
- Dimension H x W x D: 400 x 250 x 150 mm (without Length stop)
- Weight: 32 kg

## Main machine

- Serves for holding: Cutting block and hole punching tools
- The pressure unit comprising hydraulic piston and cylinder including punch holder in the top part are permanently integrated in the main unit.
- The centric holder hole for dies and cutting block insert are located in the lower part. Foldable stops in front and on the sides for punching are additionally mounted in the machine .

## Prod.-No.

Basic unit for laminated rails, with length and side stops,  
Cylinder and quick coupling  
Cutting block

03300

03301

## Accessories:

### Punch with neoprene and pressure plates:

Ø 6,0 mm

03304

Ø 9,0 mm

03305

Ø 11,0 mm

03306

Ø 14,0 mm

03307

### Dies:

Ø 6,0 mm

03309

Ø 9,0 mm

03310

Ø 11,0 mm

03311

Ø 14,0 mm

03312

Other Ø upon request.

Prod.-No. 03300 basic unit

Prod.-No. 03301 cutting block with Length stop. Can easily be inserted in the basic unit.



Prod.-No. 02121



Prod.-No. 02027



Prod.-No. 03853

As drive we recommend our foot pump Prod.-No. 02121 or our electro-hydraulic pump DSP 120 Prod.-No. 02027 or AHP 03-1 Prod.-No. 03853.





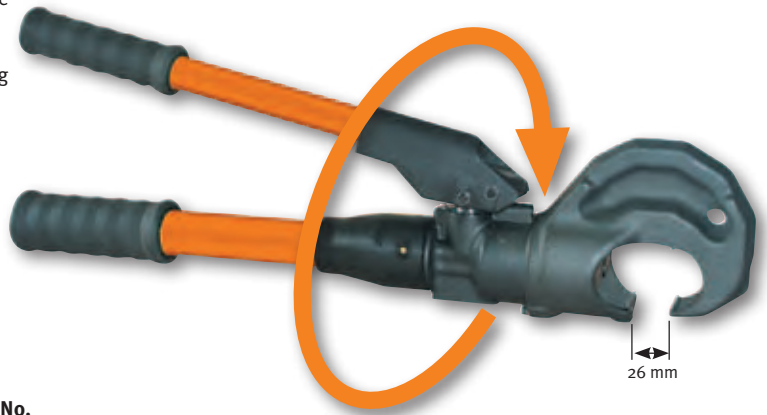
## ALFRA HYDRAULIC HAND PRESSING UNIT – 10 - 300 mm<sup>2</sup>

### C-Form for easy handling

- C-form, pressing head **320° rotatable**, hydraulics is integrated in the hand grip. Automatic switch over from quick feed to pressing feed.
- Built-in pressure control valve. For exchangeable hexagonal pressing inserts, half-bearing according to DIN 48083.
- Delivery in plastic boxes.

### Technical Data:

Pressing force:	130 kN
Pressure:	700 bar
Weight:	5.4 kg
Opening width:	26 mm
Length:	545 mm



Prod.-No.

ALFRA Hydraulic hand pressing unit

03361

Prod.-No. 03361 *Head can be rotated through 320°*

### Hexagonal pressing inserts/Cross-sections in mm<sup>2</sup>

Pressing form half-bearing form, for cable shoe and connectors accord. to DIN 48083

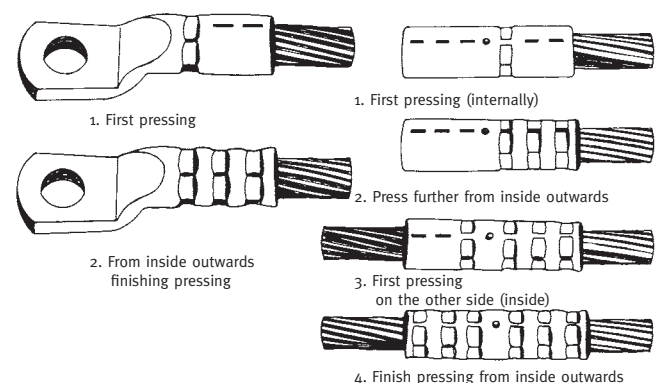
Suitable for pressing units 03360/03380/03361

Tool identic.	Pressing width	Copper	Aluminium	Prod.-No.
8	14	16	-	03365
10	14	25	-	03366
12	12	35	25	03367
14	12	50	35	03368
16	12	70	50	03369
18	12	95	70	03370
20	12	120	-	03371
22	14	150	95 + 120	03372
25	14	185	150	03373
28	14	240	185	03374
32	5	300	240	03376
34	5	-	300	03377



Hexagonal pressing inserts

### Hints for hexagonal pressings





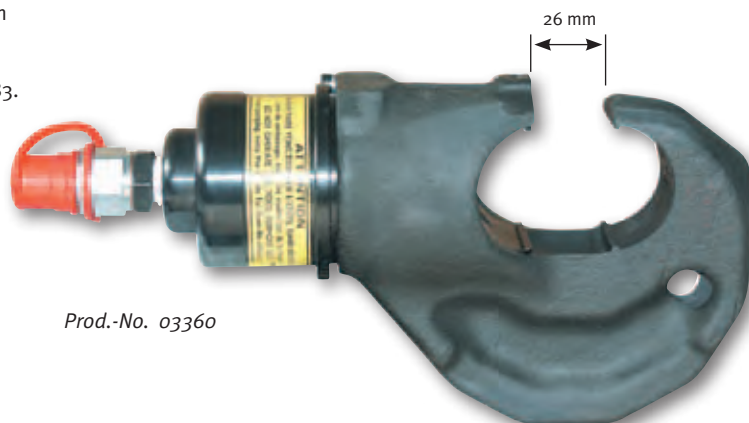
# ALFRA HYDRAULIC PRESSING HEADS – 10 - 300 mm<sup>2</sup>

## C-Form for easy handling

- Pressing cable shoes and connectors made of copper and aluminium from 10 – 300 mm<sup>2</sup>.
- Hexagonal pressing inserts, half-bearing form according to DIN 48083.
- Delivery in steel sheet transport boxes.
- The electrohydraulic pump Prod.-No. 02027 or the foot pump 02121 can be used for actuation of both pressing heads.

## Technical Data:

Pressing force:	130 kN
Pressure:	700 bar
Weight:	3.9 kg
Opening width:	26 mm
Length:	245 mm



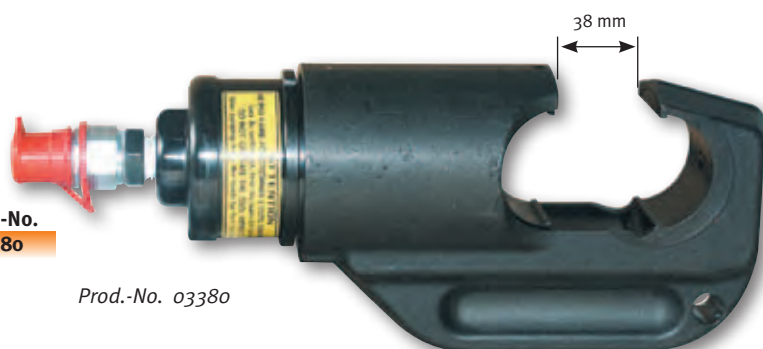
Prod.-No. 03360

Hydraulic pressing head  
Delivery in steel sheet boxes incl. quick coupling

Prod.-No.  
03360

## Technical Data:

Pressing force:	130 kN
Pressure:	700 bar
Weight:	4.6 kg
Opening width:	<b>38 mm</b>
Length:	275 mm



Prod.-No. 03380

Hydraulic pressing head  
like Prod.-No. 03360 however **with lateral opening up to 38 mm**

Prod.-No.  
03380

## Hexagonal pressing inserts/Cross-sections in mm<sup>2</sup>

Pressing form half-bearing form, for cable shoe and connectors accord. to DIN 48083

## Suitable for pressing units 03360/03380/03361

Tool identic.	Pressing width	Copper	Aluminium	Prod.-No.
<b>8</b>	14	16	-	03365
<b>10</b>	14	25	-	03366
<b>12</b>	12	35	25	03367
<b>14</b>	12	50	35	03368
<b>16</b>	12	70	50	03369
<b>18</b>	12	95	70	03370
<b>20</b>	12	120	-	03371
<b>22</b>	14	150	95 + 120	03372
<b>25</b>	14	185	150	03373
<b>28</b>	14	240	185	03374
<b>32</b>	5	300	240	03376
<b>34</b>	5	-	300	03377



Hexagonal pressing inserts





## ALFRA HYDRAULIC CABLE CUTTER – AKS 85

**Ideal for cutting cables up to Ø 85 mm**

### Advantages

- Guided cutting knife.
- Independently applicable in every position.
- Clean cuts with minimum deformation.
- The cable cutter AKS 85 can be operated with the electrohydraulic pump Prod.-No. 02027 or with the foot pump Prod.-No. 02121.

### Application areas:

Energy companies, power distributor construction, communication technology, telecommunications, municipal works and their service providers, crane construction, mining, shipbuilding, maintenance or repair etc.

### Technical Data:

Cutting force:	55 kN
Cutting pressure:	700 bar
Weight:	6.3 kg
Length:	450 mm

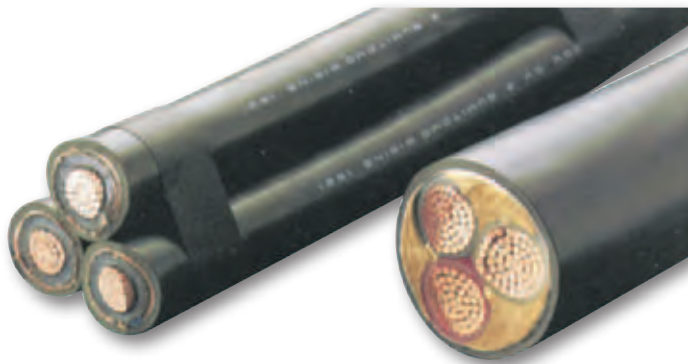
### Cutting power:

Telephone cable:	up to Ø 85 mm
Electric cable with armour:	up to Ø 85 mm
Insulated aluminium cable:	3 x 240 mm <sup>2</sup>
(Earthing cable)	
Insulated aluminium cable:	630 mm <sup>2</sup>
(Single conductor)	
Aluminium rope:	up to Ø 46 mm
Copper rope:	up to Ø 28 mm

**Please name us your exact cable type (fine wire, solid, insulated...) – then we can check the cutting power.**



Prod.-No. 04002



### Prod.-No.

04002

Hydraulic cable cutter AKS 85

Delivery in canvas bag incl. quick coupling

## ALFRA HYDRAULIC HAND CABLE CUTTER – HKS 85

**With integrated hand hydraulics for cutting cables up to Ø 85 mm**

The most convenient working position can be selected through the hydraulics integrated in the rotateable handle.

The cable cutter can be used, independent of hydraulic pumps, on scaffolds, high-voltage poles or in shafts etc.

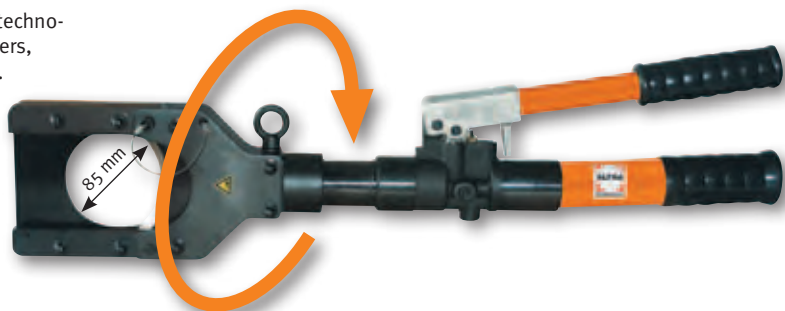
### Application areas:

Energy companies, power distributor construction, communication technology, telecommunications, municipal works and their service providers, crane construction, mining, shipbuilding, maintenance or repair etc.

### Technical Data:

Cutting force:	55 kN
Cutting pressure:	700 bar
Weight:	6.6 kg
Length:	740 mm

**The cutting power data correspond to type AKS 85.**



### Prod.-No.

04015

Prod.-No. 04015 **Head can be rotated through 320°**

Hydraulic hand cable cutter HKS 85

Delivery in canvas bags



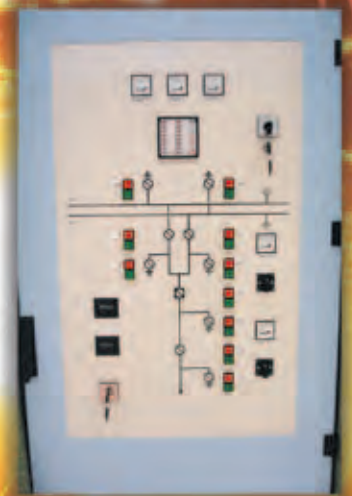
# ALFRA-PRESS

## PUNCHING WITHOUT PILOT HOLE

... SOLUTIONS FOR HOUSINGS, SWITCH BOXES AND MANY MORE!



Please ask for our detailed offer regarding this stationary punching machine.  
A detailed description is moreover found on our homepage [www.alfra.de](http://www.alfra.de) "Stationary punching products".





# A

ALFRA

*Punching without pilot drilling*

# ALFRA PRESS

# AP 250

Outreach 250 mm



*Option: movable support  
available*





Please ask for our detailed offer regarding this stationary punching machine.  
A detailed description is moreover found on our homepage [www.alfra.de](http://www.alfra.de)



# STATIONARY PUNCHER – ALFRA PRESS 250

MADE IN GERMANY BY ALFRA

For quick punching out of round, square, rectangular or special forms without pilot drilling in control cabinet doors, terminal boxes, cable ducts, housings, cable guiding plates etc. up to the edge area. Easily executable tool exchange, in a matter of seconds.

## Description:

- Flexibly applicable – on movable frame (optional) or stationary - mounted on the work bank.
- Quick tool exchange helps in case of problems with many through-hole variants.
- Different die holders are available – also for punching in an extreme boundary area.
- Punching in rows is not a problem by means of attachable folding stops.
- Tip: Laser pointer used as option – no scribing, no centre punching, a simple cross-hair with a pen is enough.
- As a “starting solution” even actuation by means of a manual pump is sufficient – so that punching without pilot drilling” is cost-effectively possible.

## Technical Data:

Outreach with stop:	250 mm
Outreach without stop:	265 mm
Punching stroke:	50 mm
Punching force F:	46 kN at 600 bar
Hydraulic connection:	R 1/4"
Weight without frame:	50 kg
Weight with frame:	120 kg
Space needed with frame approx:	Ø 1000 mm

## Punching capacity:

Round from	Ø 3.2 - 40.5 mm
Square up to	28.0 x 28.0 mm
Rectangle up to	22.0 x 30.0 mm
Special forms up to a Max. diagonal of	40.0 mm

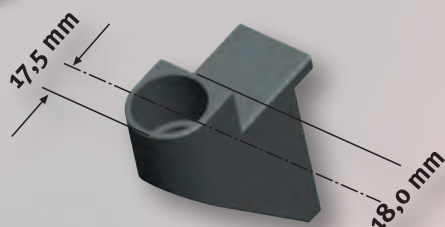
## Material thickness:

Steel sheets $F = 370 \text{ N/mm}^2$ up to	2.5 mm
Stainless sheets $F = 600 \text{ N/mm}^2$ up to	2.0 mm
Aluminium $F = 22$ up to	4.0 mm
Plastics can be punched up to	4.0 mm

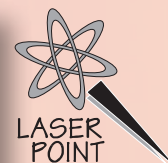
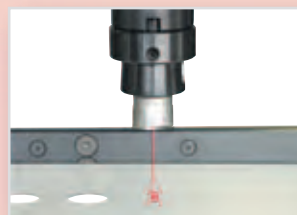
## Hint:

- All round tools for ALFRA PRESS punches AP 250 - AP 800 are made of special tool steel and are provided with a special cutting geometry developed by ALFRA.  
With these tools one can machine sheets made of steel, stainless steel and aluminium.
- Special tools can be made in our own workshop at short notice.

## Performance characteristics when punching in boundary area with dies holder Type I



Smallest possible axis dimension (edge distance) under application of die holder Type I



Laser pointer for optical indication of tool centre



Cylinder prepared for installing a laser pointer



End switch for stroke limit (optional)



Tool tray, can be swivelled



Length- and depth fence with fold-away limit stops



Swivelled support arms, adjustable height with each 2 rubber supports (optional)



As drive, we recommend our electrohydraulic pumps Prod.-No. 03190 or Prod.-No. 03853.

When using other drives, the piston velocity in punching direction may not exceed 10 mm per second.

Prod.-No. 03190



# A



***Punching without pilot drilling***

# **ALFRA PRESS**

# **AP 400**

**Outreach 400 mm**



*Solid, movable  
sub-construction  
incl. in standard scope  
of supply*



Please ask for our detailed offer regarding this stationary punching machine.  
A detailed description is moreover found on our homepage [www.alfra.de](http://www.alfra.de)



# A



## STATIONARY PUNCHER – ALFRA PRESS 400

MADE IN GERMANY BY ALFRA

For quick punching out of round, square, rectangular or special forms without pilot drilling in control cabinet doors, terminal boxes, cable ducts, housings, cable guiding plates etc. up to the edge area. Easily executable tool exchange, in a matter of seconds.

### Description:

- Flexibly applicable – on movable frame.
- Quick tool exchange helps in case of problems with many through-hole variants.
- Different die holders are available – also for punching in an extreme boundary area.
- Punching in rows is not a problem by means of attachable folding stops.
- Tip: Laser pointer used as option – no scribing, no centre punching, a simple cross-hair with a pen is enough.
- As a “starting solution” even actuation by means of a manual pump is sufficient – so that punching without pilot drilling” is cost-effectively possible.

### Technical Data:

Outreach with stop:	400 mm
Outreach without stop:	430 mm
Punching stroke:	50 mm
Punching force F:	46 kN at 600 bar
Hydraulic connection:	R 1/4"
Weight:	220 kg
Space needed with frame approx:	1200 x 800 mm

### Punching capacity:

Round from	Ø 3.2 - 40.5 mm
Square up to	28.0 x 28.0 mm
Rectangle up to	22.0 x 30.0 mm
Special forms up to a max. diagonal of	40.0 mm

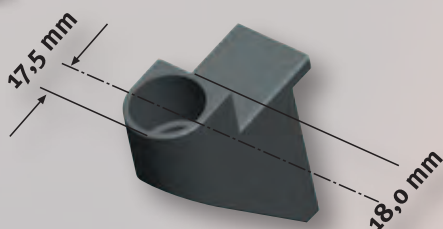
### Material thickness:

Steel sheets $F = 370 \text{ N/mm}^2$ up to	2.5 mm
stainless sheets $F = 600 \text{ N/mm}^2$ up to	2.0 mm
Aluminium $F = 22$ up to	4.0 mm
Plastics can be punched up to	4.0 mm

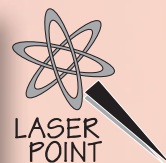
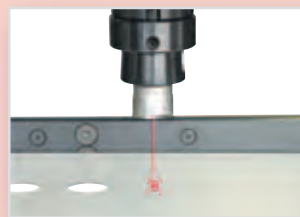
### Hint:

- All round tools for ALFRA PRESS punches AP 250 - AP 800 are made of special tool steel and are provided with a special cutting geometry developed by ALFRA.  
With these tools one can machine sheets made of steel, stainless steel and aluminium.
- Special tools can be made in our own workshop at short notice.

### Performance characteristics when punching in boundary area with dies holder Type I



Smallest possible axis dimension (edge distance) under application of die holder Type I



Laser pointer for optical indication of tool centre



Cylinder prepared for installing a laser pointer



Die holder Type II



Tool tray, can be swivelled



Length and depth stop with foldable follow-up stops (optional)



Swivelled support arms, adjustable height with each 3 rubber supports (optional)



As drive, we recommend our electrohydraulic pumps Prod.-No. 03190 or Prod.-No. 03853.

When using other drives, the piston velocity in punching direction may not exceed 10 mm per second.

Prod.-No. 03190



# A



***Punching without pilot drilling***

# **ALFRA PRESS**

# **AP 500 LPV**

**Outreach 500 mm**



*Front standing legs can be moved 150 mm backwards for more working space on the front side.*



Please ask for our detailed offer regarding this stationary punching machine.  
A detailed description is moreover found on our homepage [www.alfra.de](http://www.alfra.de)



# STATIONARY PUNCHER – ALFRA PRESS 500 LPV

MADE IN GERMANY BY ALFRA

## Outreach 500 mm

The stationary punching machine has been developed for control cabinet and switchgear manufacturers, for quick punching of round, square, rectangular or special forms in sheets and control cabinet doors up to 2000 mm x 1000 mm and 30 mm folding height. Punching is possible up to the edge area. Easily executable tool exchange, quickly in a matter of seconds. Even control cabinets/housing from 300 mm depth onwards can be machined.

## Description:

- Stable pressing body with adjustable standing feet.
- Double-acting hydraulic cylinder, flanged on machine body via force and positive connection.
- Non-rotationally arranged piston rod Ø 55 mm, made of hardened and tempered stainless steel with tool holder.
- Die seat, frictionally connected with the pressing body.
- Quick tool exchange helps in case of problems with many through-hole variants.
- Down-holder with protective function, fastened with electric safety locking for accident prevention.
- Adjustable height of length and depth stop – available in 2 variants.
- Measuring tape indication of length and depth stop.
- Two-circuit hydraulic unit with electric pump, oil container and magnetic valves (very quiet).
- Safety foot switch with double pedal for infinitely variable operation of the punching and return stroke.
- Tip: Laser pointer used as option – no scribing, no centre punching, a simple cross-hair with a pen is enough.

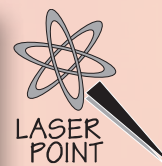
## Technical Data:

Outreach with stop:	500 mm
Outreach without stop:	540 mm
Punching stroke:	66 mm
Punching force F:	48 kN at 130 bar
Motor power:	0.37 kW
Operating voltage:	220 V
Weight approx:	200 kg
Overall height:	1.500 mm
Working height:	1.000 mm
Width of punching head:	130 mm
Depth of punching body:	950 mm
Length of the stop rail:	1.500 mm
Space needed approx:	1500 x 1500 mm
Punching capacity:	
Round from	Ø 3.2 - 63.5 mm
Square up to	46.0 x 46.0 mm
Special forms up to a max. diagonal of	60.0 mm
Material thickness:	
Steel sheets F = 370 N/mm² up to	3.0 mm
stainless sheets F = 600 N/mm² up to	2.0 mm
Aluminium F = 22 up to	4.0 mm
Plastics can be punched up to	4.0 mm

## Notes:

- All round tools for ALFRA PRESS punches AP 250 - AP 800 are made of special tool steel and are provided with a special cutting geometry developed by ALFRA.
- With these tools one can machine sheets made of steel, stainless steel and aluminium.

**Special tools can be made at short notice in our own tool-making department!**



Laser pointer for optical indication of tool centre



Electric safety locking for accident prevention.



Stop system movable in Y-direction, 2 guiding shafts in pressing body.



Die seat holder



Measuring tape indicator for Y axis



Two-circuit hydraulic unit



# A



*Punching without pilot drilling*

# ALFRA PRESS

# AP 600-2

Outreach 600 mm



*Digital measuring indicator  
(optional)*



Please ask for our detailed offer regarding this stationary punching machine.  
A detailed description is moreover found on our homepage [www.alfra.de](http://www.alfra.de)



# STATIONARY PUNCHER – ALFRA PRESS 600-2

MADE IN GERMANY BY ALFRA

## Outreach 600 mm

The stationary punching machine has been developed for control cabinet and switchgear manufacturers, for quick punching of round, square, rectangular or special forms in sheets and control cabinet doors up to 2.200 mm x 1000 mm and 30 mm folding height. Punching is possible up to the edge area. Easily executable tool exchange, quickly in a matter of seconds even with a mounted door. Stop system movable in X and Y-direction.

## Description:

- Stable pressing body in robust, deformation-rigid welding construction.
- Double-acting hydraulic cylinder, flanged on machine body via force and positive connection.
- Non-rotationally arranged piston rod Ø 55 mm, made of hardened and tempered stainless steel with tool holder.
- Die seat, frictionally connected with the pressing body.
- Quick tool exchange helps in case of problems with many through-hole variants.
- Down-holder with protective function, fastened with electric safety locking for accident prevention.
- Length and depth stop movable in X- and Y direction, supported in hardened double spherical guides, for smooth motion.
- Measuring tape indication of length and depth setting.
- Digital measuring indicator for X- and Y axis optionally available.
- Two-circuit hydraulic unit with electric pump, oil container and magnetic valves (very quiet).
- Safety foot switch with double pedal for infinitely variable operation of the punching and return stroke.
- Tip: Laser pointer used as option – no scribing, no centre punching, a simple cross-hair with a pen is enough.

## Technical Data:

Outreach with stop:	600 mm
Punching stroke:	66 mm
Punching force F:	60 kN at 165 bar
Motor power:	0.75 KW
Operating voltage:	400 V
Weight approx:	360 kg
Overall height:	1.600 mm
Working height:	1.000 mm
Width of punching head:	310 mm
Depth of punching body:	1.150 mm
Length of the stop rail:	1.500 mm
Space needed approx:	2000 x 3.000 mm

## Punching capacity:

Round from	Ø 3.2 - 70.0 mm
Square up to	68.0 x 68.0 mm
Special forms up to a max. diagonal of	90.0 mm

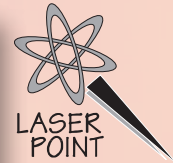
## Material thickness:

Steel sheets F = 370 N/mm² up to	3.0 mm
Stainless sheets F = 600 N/mm² up to	2.0 mm
Aluminium F = 22 up to	4.0 mm
Plastics can be punched up to	4.0 mm

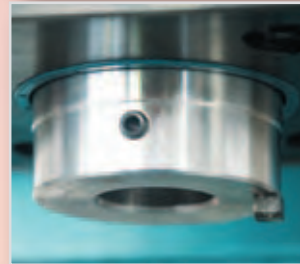
## Hint:

- All round tools for ALFRA PRESS punches AP 250 - AP 800 are made of special tool steel and are provided with a special cutting geometry developed by ALFRA.
- With these tools one can machine sheets made of steel, stainless steel and aluminium.

**Special tools can be made at short notice in our own tool-making department!**



Laser pointer for optical indication of tool centre



Stable piston rod (Ø 55 mm) with anti-twist tool protection



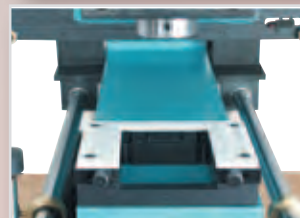
Tool drawers with compartment



Two circuit hydraulic unit in cabinet base



Mutual quick clamping system for selective folding up or down



Die seat holder. Tool exchange even with a mounted control cabinet door.



Length and depth stop on both sides in double spherical guides.  
2 Adjustable stops on the right and left side of the Y-axis.



# A

ALFRA

*Punching without pilot drilling*

# ALFRA PRESS

# AP 800

Outreach 800 mm



Quick clamping system



Please ask for our detailed offer regarding this stationary punching machine.  
A detailed description is moreover found on our homepage [www.alfra.de](http://www.alfra.de)



# STATIONARY PUNCHER – ALFRA PRESS 800

MADE IN GERMANY BY ALFRA

## Outreach 800 mm

The stationary punching machine has been developed for control cabinet and switchgear manufacturers, for quick punching of round, square, rectangular or special forms in sheets and control cabinet doors up to 2200 mm x 1000 mm and 40 mm folding height. Punching is possible up to the edge area. Easily executable tool exchange, quickly in a matter of seconds even with a mounted door. Stop system movable in X and Y-direction.

## Description:

- Stable pressing body in robust, deformation-rigid welding construction mounted on stationary frame with rubber-bonded metal feet.
- Swivel control desk with digital display, emergency off button, electric operating buttons and two-hand operation.
- Double-acting hydraulic cylinder, flanged on machine body via force and positive connection.
- Non-rotationally arranged piston rod Ø 63 mm, made of hardened and tempered stainless steel with tool holder.
- Die seat, frictionally connected with the pressing body.
- Time relay for the return of the piston spares working time.
- Down-holder/stripper combination with finger protection.
- X-Y stop system, easily movable in robust and precise profile roller guides.
- Positive and frictional workpiece support and clamping device.
- Swivelling workpiece support on the left of pressing body for easy lifting of the workpiece.
- Stop system locking via electrically operated hydraulic brakes.
- Digital distance measurement and display of the X- and Y-traverse paths with a display accuracy of 0.1 mm and a measuring accuracy of 1 ‰.
- Quick tool exchange helps in case of problems with many through-hole variants.
- Two-circuit hydraulic unit with electric pump, oil container and magnetic valves, very quiet.
- Tip: Using laser pointer as option for optical indication of tool centre.

## Technical Data:

Outreach with stop:	800 mm
Punching stroke:	72 mm
Punching force F:	135 kN at 190 bar
Motor power:	1.5 kW
Operating voltage:	400 V
Weight approx:	850 kg
Overall height:	1.700 mm
Working height:	1.000 mm
Width of punching head:	280 mm
Depth of punching body:	1.700 mm
Space needed approx:	2360 x 4.440 mm

## Stop system:

Length of the stop rail:	2.500 mm
Traverse path of X-axis:	2.000 mm
Workpiece clamping length X-axis:	2.200 mm
Y-axis:	1030 mm

Upon desire, stop rail available in special length.

## Punching capacity:

Round from	Ø 3.2 -120.0 mm
Square up to	110.0 x 110.0 mm
Special forms up to a	
Max. diagonal of	140.0 mm

## Material thickness:

Steel sheets F = 370 N/mm² up to	3.0 mm
Stainless sheets F = 600 N/mm² up to	2.0 mm
Aluminium F = 22 up to	4.0 mm
Plastics can be punched up to	4.0 mm

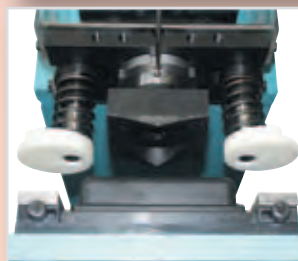
**Special tools can be made at short notice in our own tool-making department!**



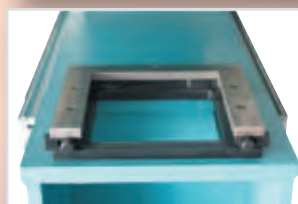
Control panel with two-hand operation



Positive and frictional workpiece support with quick-clamping system



Tool holder, anti-twist protected in the piston rod, down-holder/stripper combination



Die holder, tool exchange possible even with a mounted control cabinet door



Distance measurement of X and Y-traverse paths



Two-circuit hydraulic unit



Down-holder/stripper combination



# ALFRA HSS-Bi-

## Features:

- M42
- High concentricity
- With solid base plate, thus more threads and higher stability as well as concentric running exactness.
- For material from 2 mm – with positive chipping and cutting angles as well as combi-toothing 4/6 tpi. This variable spacing provides a more even cut, for a minor generation of vibrations and heat. Lower expenditure of energy when cutting.
- Cutting Depth: 38 mm (1 1/2").
- Lateral slots help to remove the core.
- Suitable for unalloyed steel (up to 700 N/mm<sup>2</sup>), nonferrous metals, light metals, plastics, gypsum, pulp wood- and plywood boards, lightweight building boards and general wood processing.
- Drill bit exchangeable with other commercially available arbors.





# METAL HOLE SAWS

► WITH COBALT-ALLOYED TEETH (M42)



*Also steel/stainless steel up to approx. 3 mm, can be worked easily (for frequent use, we recommend our TCT Hole Saws).*



*... tailored to work on softwoods.*





## ALFRA – HSS-BI-METAL HOLE SAWS

ALFRA HSS-Bi-Metal Hole Saws are applicable in portable and pillar drilling machines. When using pillar drilling machines, use manual feed only.

### Features:

- M42
- High concentricity.
- With solid base plate, thus more threads and higher stability as well as concentric running exactness.
- With positive chipping and cutting angles as well as combi-toothting 4/6 tpi. This variable spacing provides a more even cut, for a minor generation of vibrations and heat. Lower expenditure of energy when cutting.
- Cutting Depth: 38 mm (1 1/2").
- Lateral slots help to remove the core.
- Suitable for unalloyed steel (up to 700 N/mm<sup>2</sup>), nonferrous metals, light metals, plastics, gypsum, pulp wood- and plywood boards, lightweight building boards and general wood processing.
- Drill bit exchangeable with other commercially available arbors.

### Tip:

Start drilling operation with light pressure. Continue with light and steady pressure, avoid pendulum motion, follow the speed chart, use coolant. When cutting wood or wood substitutes, remove drill dust in time.



*Combi toothting 4/6 tpi*



*Ø from 14.0 to 210 mm available*

Saw-Ø mm	Inch	Prod.-No.
14.0	9/16	0500014
16.0	5/8	0500016
17.0	11/16	0500017
19.0	3/4	0500019
20.0	15/16	0500020
21.0	13/16	0500021
22.0	7/8	0500022
24.0	15/16	0500024
25.0	1	0500025
27.0	1 1/16	0500027
29.0	1 1/8	0500029
30.0	1 3/16	0500030
32.0	1 1/4	0500032
33.0	1 5/16	0500033
35.0	1 3/8	0500035
37.0	1 7/16	0500037
38.0	1 1/2	0500038
40.0	1 9/16	0500040
41.0	1 5/8	0500041
43.0	1 11/16	0500043
44.0	1 3/4	0500044
46.0	1 13/16	0500046
48.0	1 7/8	0500048
51.0	2	0500051
52.0	2 1/16	0500052
54.0	2 1/8	0500054
57.0	2 1/4	0500057
59.0	2 3/16	0500059
60.0	2 3/8	0500060
64.0	2 1/2	0500064
65.0	2 9/16	0500065
67.0	2 5/8	0500067
68.0	2 11/16	0500068
70.0	2 3/4	0500070
73.0	2 7/8	0500073



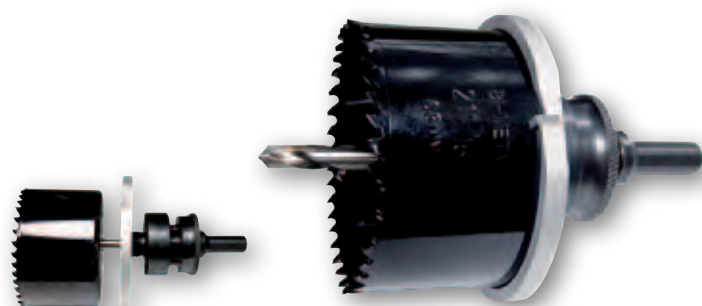


# ALFRA – HSS-BI-METAL HOLE SAWS

Saw-Ø mm	Inch	Prod.-No.
74.0	2 <sup>11</sup> / <sub>12</sub>	0500074
76.0	3	0500076
79.0	3 <sup>1</sup> / <sub>8</sub>	0500079
83.0	3 <sup>3</sup> / <sub>8</sub>	0500083
86.0	3 <sup>3</sup> / <sub>8</sub>	0500086
89.0	3 <sup>1</sup> / <sub>2</sub>	0500089
92.0	3 <sup>5</sup> / <sub>8</sub>	0500092
95.0	3 <sup>3</sup> / <sub>4</sub>	0500095
98.0	3 <sup>7</sup> / <sub>8</sub>	0500098
102.0	4	0500102
105.0	4 <sup>1</sup> / <sub>8</sub>	0500105
108.0	4 <sup>1</sup> / <sub>4</sub>	0500108
111.0	4 <sup>3</sup> / <sub>8</sub>	0500111
114.0	4 <sup>1</sup> / <sub>2</sub>	0500114
121.0	4 <sup>3</sup> / <sub>4</sub>	0500121
127.0	5	0500127
140.0	5 <sup>1</sup> / <sub>2</sub>	0500140
152.0	6	0500152

From Ø 160.0 mm only suitable for wood and wood substitutes.

160.0	6 <sup>5</sup> / <sub>16</sub>	0500160
168.0	6 <sup>10</sup> / <sub>16</sub>	0500168
177.0	7	0500177
210.0	8 <sup>5</sup> / <sub>16</sub>	0500210



Prod.-No. 0501013 with bi-metal hole saw Ø 68 mm + A2-SS

## Arbors

with guiding drill bit

Saw-Ø mm	Saw-Ø inch	Type	Shank-Ø	Prod.-No.
14 - 30	9/ <sub>16</sub> - 1 <sup>3</sup> / <sub>16</sub>	A 6-SS	9.5 hexagon	0501001
14 - 30	9/ <sub>16</sub> - 1 <sup>3</sup> / <sub>16</sub>	A 6-SDS	SDS	0501002
32 - 152	1 <sup>1</sup> / <sub>4</sub> - 6	A 2-SS	9.5 hexagon	0501003
32 - 152	1 <sup>1</sup> / <sub>4</sub> - 6	A 2-SDS	SDS	0501005
32 - 210	1 <sup>1</sup> / <sub>4</sub> - 8 <sup>5</sup> / <sub>16</sub>	A 3-SS	11.11 hexagon	0501006
32 - 210	1 <sup>1</sup> / <sub>4</sub> - 8 <sup>5</sup> / <sub>16</sub>	A 5-SS	16.0 hexagon	0501008

## Accessories:

Rim countersink for Ø 68 mm (with TCT-teeth)	0501013
Extension shaft 300 mm x 9.5 mm for A 6-SS + A 2-SS, A3-SS	0501010
Spare Center Drill HSS Ø 6,35 mm x 80 mm for A 6-SS + A 6-SDS + A 2-SS + A 2-SDS + A 3-SS + A 5-SS	0502001
Ejector Spring	0502004

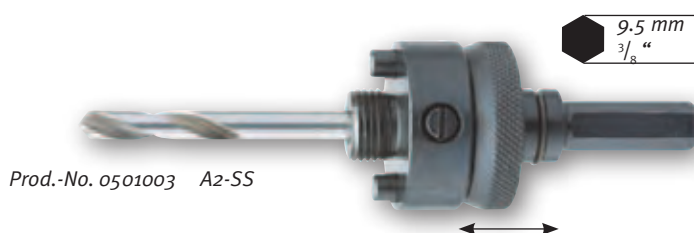
**Important: Disable impact drill when using SDS-shanks!**



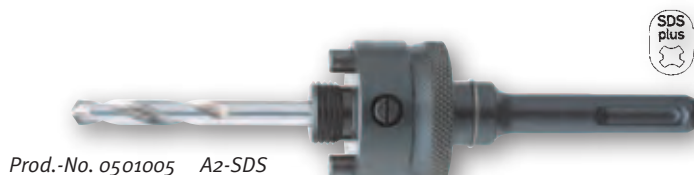
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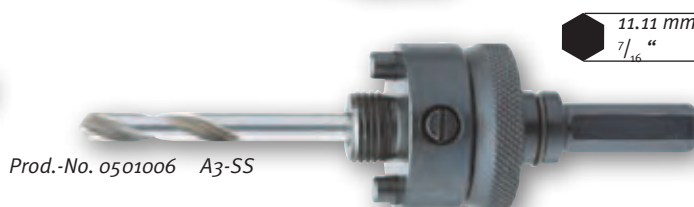
Prod.-No. 0501002 A6-SDS



Prod.-No. 0501003 A2-SS



Prod.-No. 0501005 A2-SDS



Prod.-No. 0501006 A3-SS



Prod.-No. 0501013



Prod.-No. 0501010



Prod.-No. 0502001

Prod.-No. 0502004





The following HSS-Bi-Metal Hole Saw Sets enlarge our range. These sets were especially compiled for electricians, mechanics, plumbers and for general, universal applications. These sets improve the presentation. Storage in solid tool cases.

### Hole Saw Set Standard

Prod.-No.

0503006

#### Contents:

Ø 16 mm ( $\frac{5}{8}$ "")  
 Ø 19 mm ( $\frac{3}{4}$ "")  
 Ø 22 mm ( $\frac{7}{8}$ "")  
 Ø 29 mm ( $1 \frac{1}{8}$ "")  
 Ø 35 mm ( $1 \frac{3}{8}$ "")  
 Ø 44 mm ( $1 \frac{3}{4}$ "")  
 Ø 52 mm ( $2 \frac{1}{16}$ "")  
 Ø 57 mm ( $2 \frac{1}{4}$ "")  
 Ø 67 mm ( $2 \frac{5}{8}$ "")

Arbor A6-SS, Arbor A2-SS, Spare Twist Drill



Prod.-No. 0503006

### Hole Saw Set Professional

Prod.-No.

0503007

#### Contents:

Ø 16 mm ( $\frac{5}{8}$ "")  
 Ø 19 mm ( $\frac{3}{4}$ "")  
 Ø 22 mm ( $\frac{7}{8}$ "")  
 Ø 25 mm (1")  
 Ø 29 mm ( $1 \frac{1}{8}$ "")  
 Ø 32 mm ( $1 \frac{1}{4}$ "")  
 Ø 35 mm ( $1 \frac{3}{8}$ "")  
 Ø 38 mm ( $1 \frac{1}{2}$ "")  
 Ø 44 mm ( $1 \frac{3}{4}$ "")  
 Ø 51 mm (2")  
 Ø 64 mm ( $2 \frac{1}{2}$ "")  
 Ø 76 mm (3")

Arbor A6-SS, Arbor A2-SS, Spare Twist Drill



Prod.-No. 0503007

### Hole Saw Set Electro

Prod.-No.

0503008

#### Contents:

Ø 22 mm ( $\frac{7}{8}$ "")  
 Ø 29 mm ( $1 \frac{1}{8}$ "")  
 Ø 35 mm ( $1 \frac{3}{8}$ "")  
 Ø 44 mm ( $1 \frac{3}{4}$ "")  
 Ø 51 mm (2")  
 Ø 64 mm ( $2 \frac{1}{2}$ "")  
 Ø 68 mm ( $2 \frac{11}{16}$ "")

Arbor A6-SS, Arbor A2-SS, Spare Twist Drill



Prod.-No. 0503008

### Hole Saw Set Sanitary

Prod.-No.

0503009

#### Contents:

Ø 16 mm ( $\frac{5}{8}$ "")  
 Ø 19 mm ( $\frac{3}{4}$ "")  
 Ø 24 mm ( $\frac{15}{16}$ "")  
 Ø 29 mm ( $1 \frac{1}{8}$ "")  
 Ø 38 mm ( $1 \frac{1}{2}$ "")  
 Ø 44 mm ( $1 \frac{3}{4}$ "")  
 Ø 57 mm ( $2 \frac{1}{4}$ "")  
 Ø 67 mm ( $2 \frac{5}{8}$ "")

Arbor A6-SS, Arbor A2-SS, Spare Twist Drill



Prod.-No. 0503009

**Sales Display on request!**

# ALFRA - HOLE SAWS

## THE QUALITY IS IN THE DETAIL

- 1 FIXATION ARBOR-SHANK
- 2 FIXING SCREW FOR CENTER DRILL
- 3 EJECTOR HOLES
- 4 THE EJECTOR SPRING EJECTS THE WASTE AND PROTECTS THE TCT-THEETH WHEN CENTER DRILLING
- 5 TAPERED CENTER DRILL, CENTERING WITHOUT RUNNING OFF (CENTER PUNCHING NOT NECESSARY)





# ***TCT-Hole Saws in use***



*TCT-Hole Saws – short-/long type*



*Stainless steel*



*Plastic*



*Poroton stone*



*TCT-Hole Saws – FRP type*





*TCT-Hole Saws – MBS type*



*Sanitary pipes – type SML*



**MBS Pro**  
Use on Rotabest Magnetic Drilling Machine  
with MT3 – Arbor Prod.-No.: 0734003



*Checker plate (VA)*



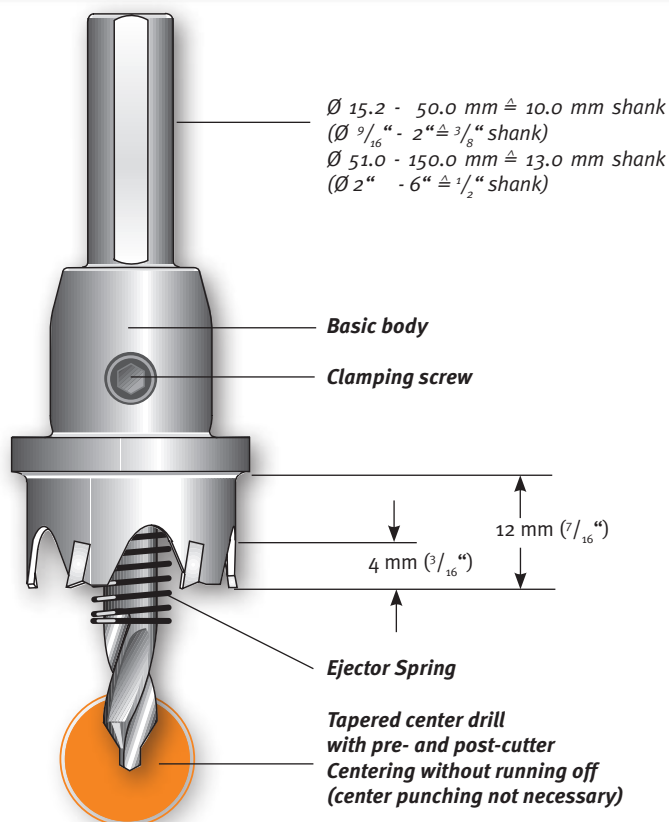
*Sanitary pipes – type SML*





## ALFRA TCT-HOLE SAWS – SHORT TYPE

Made in Germany by ALFRA



The application area of TCT Hole Saws differs from HSS-Bi-Metal Hole Saws. With ALFRA TCT Hole Saws, suitable to economically process stainless steel up to 2 mm ( $\frac{1}{16}''$ ), unalloyed steels up to 4 mm ( $\frac{3}{16}''$ ), plastics, PVC, aluminium, zinc, gypsum plaster boards and lightweight building boards, as well as asbestos. Do not use automatic feed, when working with pillar drilling machines. For the use on portable- and pillar drilling machines. Do not use automatic feed, when working with pillar drilling machines.

### Features:

- High concentric running exactness through solid construction.
- CAD-optimized cutting angles with specially ground section ensures high cutting capacity and long tool life.
- Quick removal of drilled core through ejector spring for all hole saws up to 150 mm ( $5 \frac{29}{32}''$ )  $\varnothing$ .
- Carbide tipping enables repeated re-grinding.
- ALFRA hole saws are repairable. In the event of a tooth breaking, it can easily be replaced and resharpened.
- Exchangeable center pin.
- Use of MT tool holders from  $\varnothing 31 \text{ mm}$  ( $1 \frac{7}{32}''$ ).
- For use on hand drilling machines (recommended up to max.  $\varnothing 40 \text{ mm}$ ;  $1 \frac{9}{16}''$ ) or stationary machines.

### Tips:

- At thicker materials: cut 2-3 mm per cutting process, remove chips afterwards.
- When cutting metals, a high- grade cutting oil should be used. Exception: Do not use cutting oil when using cast iron, use paraffin instead of oil when cutting aluminium.
- **Keep in mind: Always wear safety goggles.**



### Another special technical feature:

From  $\varnothing 15.2 \text{ mm}$  ( $\frac{3}{16}''$ ) to  $30.0 \text{ mm}$  ( $1 \frac{1}{8}''$ ), the hole saw is made of one piece.

From  $\varnothing 31.0 \text{ mm}$  ( $1 \frac{3}{16}''$ ) we use specially hardened tool holders to compensate for the torsional power in case of heavy operation, which avoids early shearing off of the tool holder shank.

In terms of construction not comparable with any other make.



# ALFRA TCT-HOLE SAWS – SHORT TYPE

Made in Germany by ALFRA



Ø mm	Ø Inch	No. of teeth	Prod.-No. mm	Inch
Ø 15.2			0600152	
Ø 16.0	5/8"	4	0600160	0630160
Ø 17.0		4	0600170	
Ø 18.0	11/16"	4	0600180	0630180
Ø 18.6		4	0600186	
Ø 19.0	3/4"	4	0600190	0630190
Ø 20.0		5	0600200	
Ø 20.4		5	0600204	
Ø 21.0	13/16"	5	0600210	0630210
Ø 22.0		5	0600220	
Ø 22.5		5	0600225	
Ø 23.0	7/8"	5	0600230	0630230
Ø 24.0	15/16"	5	0600240	0630240
Ø 25.0		5	0600250	
Ø 26.0	1"	5	0600260	0630260
Ø 27.0	1-1/16"	5	0600270	0630270
Ø 28.0		5	0600280	
Ø 28.3		5	0600283	
Ø 29.0	1-1/8"	5	0600290	0630290
Ø 30.0	1-3/16"	5	0600300	0630300
Ø 31.0		6	0600310	
Ø 32.0	1-1/4"	6	0600320	0630320
Ø 33.0		6	0600330	
Ø 34.0	1-5/16"	6	0600340	0630340
Ø 35.0	1-3/8"	6	0600350	0630350
Ø 36.0		6	0600360	
Ø 37.0	1-7/16"	7	0600370	0630370
Ø 38.0		7	0600380	
Ø 39.0	1-1/2"	7	0600390	0630390
Ø 40.0	1-9/16"	7	0600400	0630400
Ø 41.0		8	0600410	
Ø 42.0	1-5/8"	8	0600420	0630420
Ø 43.0	1-11/16"	8	0600430	0630430
Ø 44.0		8	0600440	
Ø 45.0	1-3/4"	8	0600450	0630450
Ø 46.0		8	0600460	
Ø 47.0	1-13/16"	9	0600470	0630470
Ø 48.0	1-7/8"	9	0600480	0630480
Ø 49.0		9	0600490	
Ø 50.0	1-15/16"	9	0600500	0630500
Ø 51.0	2"	9	0600510	0630510
Ø 52.0		10	0600520	
Ø 53.0	2-1/16"	10	0600530	0630530
Ø 54.0	2-1/8"	10	0600540	0630540
Ø 55.0		10	0600550	
Ø 56.0	2-3/16"	10	0600560	0630560
Ø 57.0	2-1/4"	10	0600570	0630570
Ø 58.0		10	0600580	
Ø 59.0	2-5/16"	10	0600590	0630590
Ø 60.0	2-3/8"	10	0600600	0630630
Ø 61.0		11	0600610	
Ø 62.0	2-7/16"	11	0600620	0630620
Ø 63.0		11	0600630	
Ø 64.0	2-1/2"	11	0600640	0630640
Ø 65.0		11	0600650	
Ø 66.0	2-9/16"	12	0600660	0630660
Ø 67.0	2-5/8"	12	0600670	0630670
Ø 68.0		12	0600680	
Ø 69.0	2-11/16"	12	0600690	0630690
Ø 70.0	2-3/4"	12	0600700	0630700
Ø 71.0		12	0600710	
Ø 72.0	2-13/16"	13	0600720	0630720
Ø 73.0	2-7/8"	13	0600730	0630730
Ø 74.0	2-15/16"	13	0600740	0630740
Ø 75.0		13	0600750	
Ø 76.0	3"	13	0600760	0630760

Ø mm	Ø Inch	No. of teeth	Prod.-No. mm	Inch
Ø 77.0		13	0600770	
Ø 78.0	3-1/16"	14	0600780	0630780
Ø 79.0	3-1/8"	14	0600790	0630790
Ø 80.0		14	0600800	
Ø 81.0	3-3/16"	14	0600810	0630810
Ø 82.0		14	0600820	
Ø 83.0	3-1/4"	14	0600830	0630830
Ø 84.0	3-5/16"	15	0600840	0630840
Ø 85.0		15	0600850	
Ø 86.0	3-3/8"	15	0600860	0630860
Ø 87.0	3-7/16"	15	0600870	0630870
Ø 88.0		15	0600880	
Ø 89.0	3-1/2"	16	0600890	0630890
Ø 90.0	3-9/16"	16	0600900	0630900
Ø 91.0		16	0600910	
Ø 92.0	3-5/8"	16	0600920	0630920
Ø 93.0		16	0600930	
Ø 94.0	3-11/16"	16	0600940	0630940
Ø 95.0	3-3/4"	17	0600950	0630950
Ø 96.0		17	0600960	
Ø 97.0	3-13/16"	17	0600970	0630970
Ø 98.0	3-7/8"	17	0600980	0630980
Ø 99.0		17	0600990	
Ø 100.0	3-15/16"	17	0601000	0631000
Ø 105.0	4"	18	0601050	0631050
Ø 110.0		18	0601100	
Ø 115.0	4-1/2"	20	0601150	0631150
Ø 120.0		20	0601200	
Ø 125.0		20	0601250	
Ø 130.0	5"	20	0601300	0631300
Ø 135.0		24	0601350	
Ø 140.0	5-1/2"	24	0601400	0631400
Ø 145.0		24	0601450	
Ø 150.0		24	0601500	



Prod.-No. 0600001

## Set Metric

Prod.-No.

Set Metric

0600001

Contents:

1 each of Ø 16/20/25/32/40 mm  
2 Allen Keys



## HSS-Spare Drill

with tapered center tip

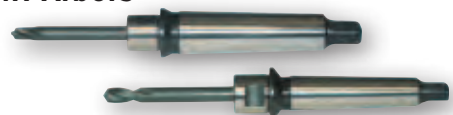


from Ø 15.2 - 150.0 Ø 6x50 mm 0602650

from Ø 101.0 - 150.0 Ø 8x50 mm 0602850

(old design)

## MT Arbors



MT-2 (Ø 31.0 - 100.0 mm) 0734002

MT-3 (Ø 31.0 - 150.0 mm) 0734003

## SDS Arbor

SDS arbor shank  
(for use with Ø 31 - 100 mm) 060sds6

## Spare Ejector

from Ø 15.2 - 150.0 Ø 6 mm 0602006

## Coolant ALFRA

### ALFRA BIO 2000

For mild steel (F = 370 N/mm²), 405 ml 21010

### ALFRA 3000

For stainless steel, 520 ml 21030

Prod. No. 21010/21030



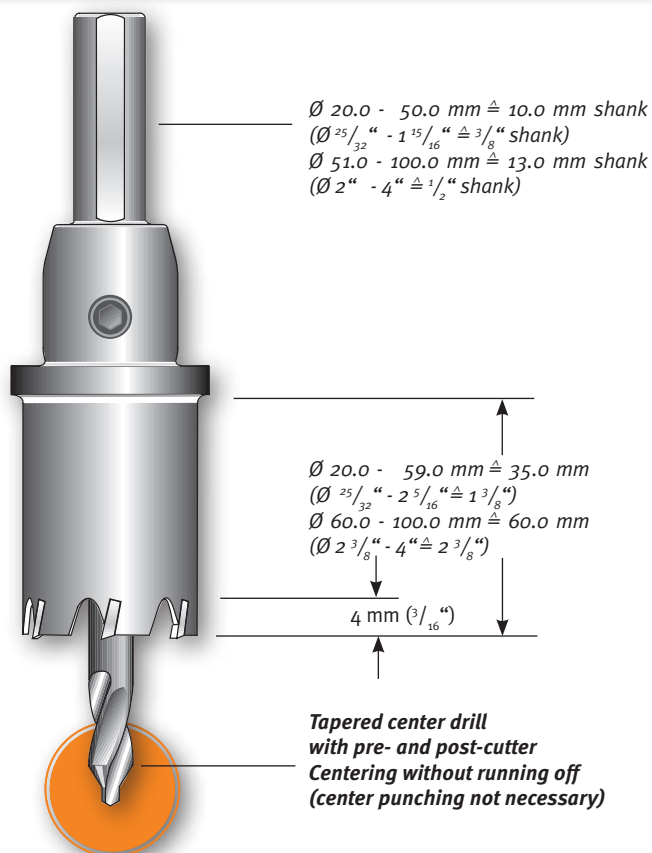


# A



## ALFRA TCT-HOLE SAWS – LONG TYPE

Made in Germany by ALFRA



### Features:

- Especially developed for the use on pipes, vaulted materials, for unalloyed and alloyed steels, nonferrous metals, plastics as well as glass fibre reinforced plastic.
- For material thickness up to 4 mm ( $\frac{3}{16}''$ ), 2 mm ( $\frac{1}{16}''$ ) stainless steel.
- For use on hand drilling machines, recommended up to max.  $\varnothing 40 \text{ mm}$  ( $1 \frac{9}{16}''$ ) or stationary machines.

### Tips:

- Start drilling operation with light pressure, when drilling pipes. Avoid pendulum motions.
- Keep in mind: Always wear safety goggles.



**Special tools for special applications on request!**



Special tool for insulant



Special tool for Macrolon



# ALFRA TCT-HOLE SAWS – LONG TYPE

Made in Germany by ALFRA

Ø mm	Ø Inch	No. of teeth	Prod.-No. mm Inch
Ø 20.0		5	0700200
Ø 20.4			
Ø 21.0	13/16"	5	0700210 0710210
Ø 22.0		5	0700220
Ø 22.5			
Ø 23.0	7/8"	5	0700230 0710230
Ø 24.0	15/16"	6	0700240 0710240
Ø 25.0		6	0700250
Ø 26.0	1"	6	0700260 0710260
Ø 27.0	1-1/16"	6	0700270 0710270
Ø 28.0		6	0700280
Ø 28.3			
Ø 29.0	1-1/8"	6	0700290 0710290
Ø 30.0	1-3/16"	6	0700300 0710300
Ø 31.0		8	0700310
Ø 32.0	1-1/4"	8	0700320 0710320
Ø 33.0		8	0700330
Ø 34.0	1-5/16"	8	0700340 0710340
Ø 35.0	1-3/8"	8	0700350 0710350
Ø 36.0		8	0700360
Ø 37.0	1-7/16"	8	0700370 0710370
Ø 38.0		8	0700380
Ø 39.0	1-1/2"	8	0700390 0710390
Ø 40.0	1-9/16"	10	0700400 0710400
Ø 41.0		10	0700410
Ø 42.0	1-5/8"	10	0700420 0710420
Ø 43.0	1-11/16"	10	0700430 0710430
Ø 44.0		10	0700440
Ø 45.0	1-3/4"	10	0700450 0710450
Ø 46.0		10	0700460
Ø 47.0	1-13/16"	10	0700470 0710470
Ø 48.0	1-7/8"	10	0700480 0710480
Ø 49.0		10	0700490
Ø 50.0	1-15/16"	12	0700500 0710500
Ø 51.0	2"	12	0700510 0710510
Ø 52.0		12	0700520
Ø 53.0	2-1/16"	12	0700530 0710530
Ø 54.0	2-1/8"	12	0700540 0710540

Ø mm	Ø Inch	No. of teeth	Prod.-No. mm Inch
Ø 55.0		12	0700550
Ø 56.0	2-3/16"	12	0700560 0710560
Ø 57.0	2-1/4"	12	0700570 0710570
Ø 58.0		12	0700580
Ø 59.0	2-5/16"	12	0700590 0710590
Ø 60.0	2-3/8"	14	0700600 0710600
Ø 61.0		14	0700610
Ø 62.0	2-7/16"	14	0700620 0710620
Ø 63.0		14	0700630
Ø 64.0	2-1/2"	14	0700640 0710640
Ø 65.0		14	0700650
Ø 66.0	2-9/16"	14	0700660 0710660
Ø 67.0	2-5/8"	16	0700670 0710670
Ø 68.0		16	0700680
Ø 69.0	2-11/16"	16	0700690 0710690
Ø 70.0	2-3/4"	16	0700700 0710700
Ø 71.0		16	0700710
Ø 72.0	2-13/16"	16	0700720 0710720
Ø 73.0	2-7/8"	16	0700730 0710730
Ø 74.0	2-15/16"	16	0700740 0710740
Ø 75.0		16	0700750
Ø 76.0	3"	18	0700760 0710760
Ø 77.0		18	0700770
Ø 78.0	3-1/16"	18	0700780 0710780
Ø 79.0	3-1/8"	18	0700790 0710790
Ø 80.0		18	0700800
Ø 81.0	3-3/16"	18	0700810 0710810
Ø 82.0		18	0700820
Ø 83.0	3-1/4"	18	0700830 0710830
Ø 84.0	3-5/16"	20	0700840 0710840
Ø 85.0		20	0700850
Ø 86.0	3-3/8"	20	0700860 0710860
Ø 87.0	3-7/16"	20	0700870 0710870
Ø 88.0		20	0700880
Ø 89.0	3-1/2"	20	0700890 0710890
Ø 90.0	3-9/16"	20	0700900 0710900
Ø 91.0		20	0700910
Ø 92.0	3-5/8"	20	0700920 0710920

Ø mm	Ø Inch	No. of teeth	Prod.-No. mm Inch
Ø 93.0		20	0700930
Ø 94.0	3-11/16"	22	0700940 0710940
Ø 95.0	3-3/4"	22	0700950 0710950
Ø 96.0		22	0700960
Ø 97.0	3-13/16"	22	0700970 0710970
Ø 98.0	3-7/8"	22	0700980 0710980
Ø 99.0		22	0700990
Ø 100.0	3-15/16"	22	0701000 0711000
Ø 105.0	4"	22	0701050 0711050

## HSS-Spare Drill

with tapered center tip

von Ø 20.0 - 59.0	Ø 6x80 mm	0702680
von Ø 60.0 - 100.0	Ø 8x100 mm	0702800

## MT Arbors

MT-2 (ab Ø 31.0)	0734002
MT-3 (ab Ø 31.0)	0734003

## SDS Arbor

SDS arbor shank (for use with Ø 31 - 59 mm)	060sds6
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## HIGHLY RECOMMENDED ACCESSORIES – COOLANT AND LUBRICANT!

### ALFRA BIO 2000

is a fully synthetic cutting oil, developed for high-quality cutting, threading and drilling of metals of any degree of hardness, ferrous metal, steel alloys, stainless steel, copper, aluminium and their alloys.

**ALFRA BIO 2000 is free of hydrocarbon, sulphur and chlorine.**



### ALFRA 3000

Universal metal working oil free of chlorine. High-performance drilling, broaching and cutting fluid, petroleum-based, for moderately difficult and difficult to cut steels. With a high proportion of active ingredients to ensure optimum cutting performance and significantly reduced tool wear. It meets occupational health and safety requirements. **We recommend to use ALFRA 3000 especially for the drilling and threading of high-alloy steel and chrome nickel steel.**



Aerosol can 405 ml

21010

Aerosol can 520 ml

21030

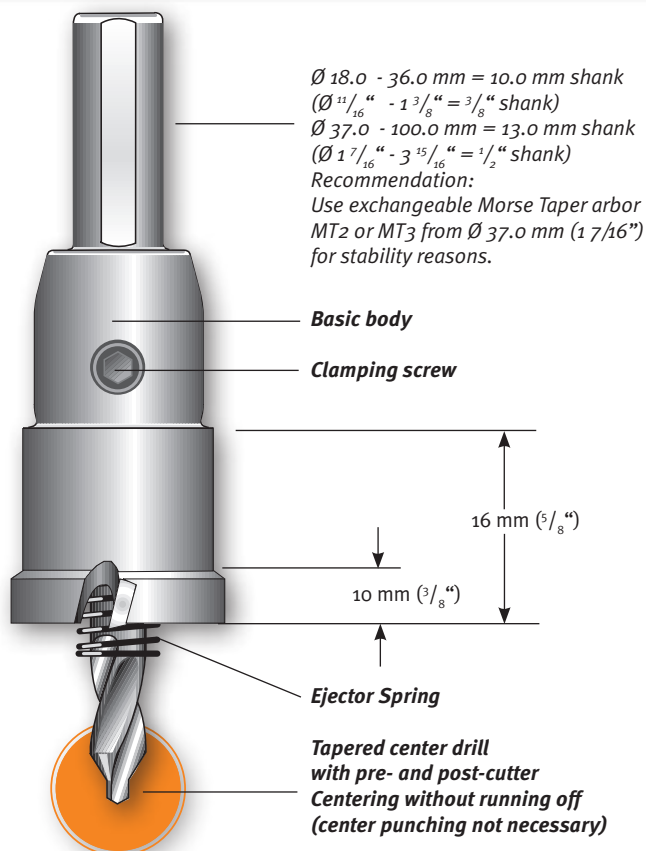


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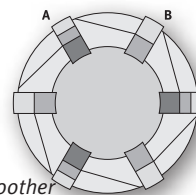
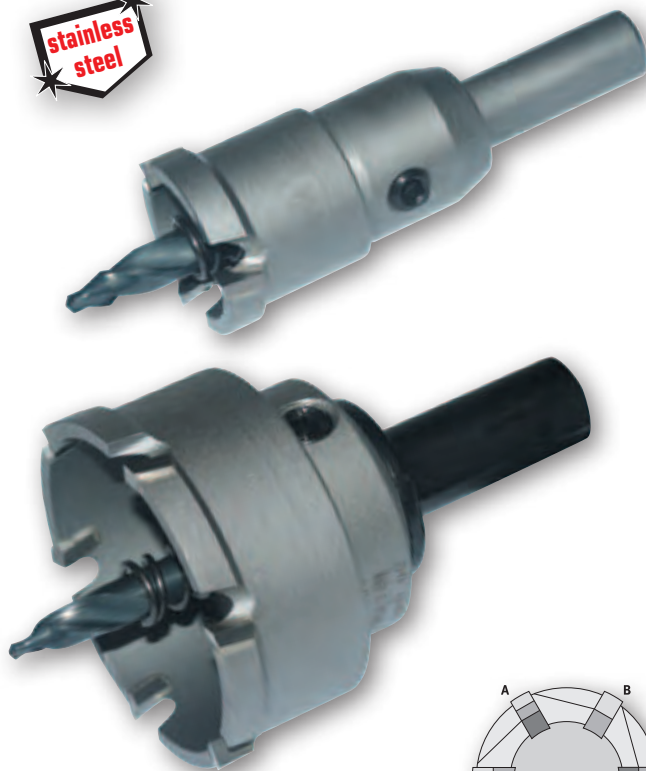


## ALFRA TCT-HOLE SAWS – MBS-LIGHT

The TCT Multirange Hole Saw • Registered Utility Model No. 202 03 232 9



stainless steel



### Cutting geometries

Variable teeth, less  
Vibration, longer tool life, smoother  
cutting.

This TCT Hole Saw is a multi-range Hole Saw for the universal use up to a material thickness of max. 10 mm ( $3/8"$ ) (without ejector spring). Through its solid construction and an enhanced cutting geometry (Registered Utility Model No. 202 03 232 9), an improved cutting behaviour combined with a high cutting capacity and tool life, is achieved.

For the use on flat steel, as well as on pipes and vaulted materials. Cutting of overlapping holes is possible.

For use on stationary and hand drilling machines (recommended up to max.  $\varnothing 40 \text{ mm}$ ;  $1 9/16"$ ).

- **Portable drilling Machines:** up to 4 mm ( $1/8"$ ) material thickness
- **Stationary drilling Machines:** up to 10 mm ( $3/8"$ ) material thickness (for material thickness over 6 mm ( $15/64"$ ), it is necessary to settle and empty the chips several times).

In case of heavy operation, we recommend Morse Taper Tool Holders, which are suitable from  $\varnothing 37 \text{ mm}$  ( $1 7/16"$ ).

**Advantage:** All MBS-Light type TCT Hole Saws are equipped with an ejector spring.

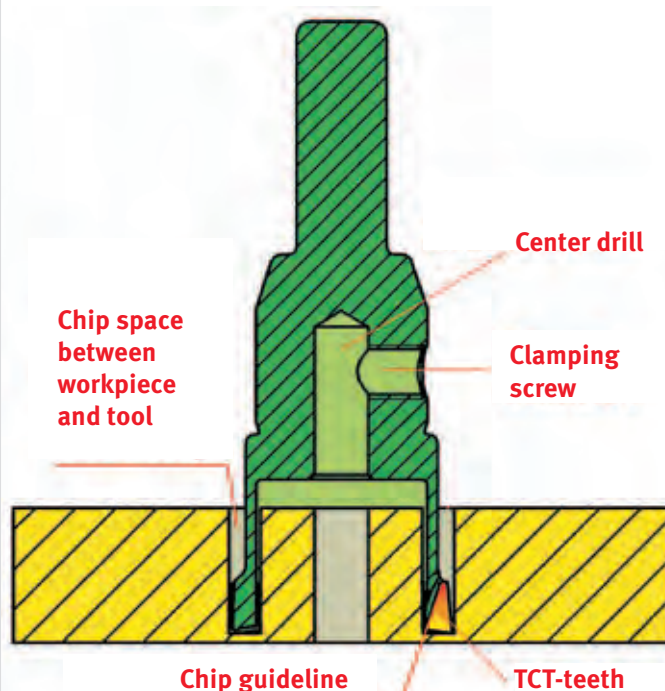
The cut material is self-ejecting. The cut material is self-ejecting.

### Another special technical feature:

From  $\varnothing 37 \text{ mm}$  ( $1 7/16"$ ), specially hardened tool holders are used to compensate for the torsional power in case of heavy operation which avoids early shearing off of the tool holder shank.

In terms of construction not comparable with any other make.

## MBS – for almost limitless use





# ALFRA TCT-HOLE SAWS – MBS-LIGHT

The TCT Multirange Hole Saw • Registered Utility Model No. 202 03 232 9

Ø mm	Ø Inch	No. of teeth	Prod.-No. mm	Prod.-No. Inch
Ø 18.0	11/16"	6	0730018	0731018
Ø 18.6				
Ø 19.0	3/4"	6	0730019	0731019
Ø 20.0		6	0730020	
Ø 20.4				
Ø 21.0	13/16"	6	0730021	0731021
Ø 22.0		6	0730022	
Ø 22.5				
Ø 23.0	7/8"	6	0730023	0731023
Ø 24.0	15/16"	6	0730024	0731024
Ø 25.0		6	0730025	
Ø 26.0	1"	6	0730026	0731026
Ø 27.0	1-1/16"	6	0730027	0731027
Ø 28.0		6	0730028	
Ø 28.3				
Ø 29.0	1-1/8"	6	0730029	0731029
Ø 30.0	1-3/16"	6	0730030	0731030
Ø 31.0		6	0730031	
Ø 32.0	1-1/4"	6	0730032	0731032
Ø 33.0		6	0730033	
Ø 34.0	1-5/16"	6	0730034	0731034
Ø 35.0	1-3/8"	6	0730035	0731035
Ø 36.0		6	0730036	
<b>From Ø 37.0 mm (1 7/16") we recommend the use of MT arbors</b>				
Ø 37.0	1-7/16"	6	0730037	0731037
Ø 38.0		6	0730038	
Ø 39.0	1-1/2"	6	0730039	0731039
Ø 40.0	1-9/16"	6	0730040	0731040
Ø 41.0		6	0730041	
Ø 42.0	1-5/8"	6	0730042	0731042
Ø 43.0	1-11/16"	6	0730043	0731043
Ø 44.0		6	0730044	
Ø 45.0	1-3/4"	6	0730045	0731045
Ø 46.0		6	0730046	
Ø 47.0	1-13/16"	6	0730047	0731047
Ø 48.0	1-7/8"	6	0730048	0731048
Ø 49.0		6	0730049	
Ø 50.0	1-15/16"	6	0730050	0731050
Ø 51.0	2"	6	0730051	0731051
Ø 52.0		6	0730052	
Ø 53.0	2-1/16"	6	0730053	0731053
Ø 54.0	2-1/8"	6	0730054	0731054
Ø 55.0		6	0730055	
Ø 56.0	2-3/16"	6	0730056	0731056
Ø 57.0	2-1/4"	6	0730057	0731057
Ø 58.0		6	0730058	
Ø 59.0	2-5/16"	6	0730059	0731059
Ø 60.0	2-3/8"	8	0730060	0731060
Ø 61.0		8	0730061	
Ø 62.0	2-7/16"	8	0730062	0731062
Ø 63.0		8	0730063	
Ø 64.0	2-1/2"	8	0730064	0731064
Ø 65.0		8	0730065	
Ø 66.0	2-9/16"	8	0730066	0731066
Ø 67.0	2-5/8"	8	0730067	0731067
Ø 68.0		8	0730068	
Ø 69.0	2-11/16"	8	0730069	0731069
Ø 70.0	2-3/4"	8	0730070	0731070
Ø 71.0		10	0730071	
Ø 72.0	2-13/16"	10	0730072	0731072
Ø 73.0	2-7/8"	10	0730073	0731073
Ø 74.0	2-15/16"	10	0730074	0731074
Ø 75.0		10	0730075	
Ø 76.0	3"	10	0730076	0731076
Ø 77.0		12	0730077	

Ø mm	Ø Inch	No. of teeth	Prod.-No. mm	Prod.-No. Inch
Ø 78.0	3-1/16"	12	0730078	0731078
Ø 79.0	3-1/8"	12	0730079	0731079
Ø 80.0		12	0730080	
Ø 81.0	3-3/16"	12	0730081	0731081
Ø 82.0		12	0730082	
Ø 83.0	3-1/4"	12	0730083	0731083
Ø 84.0	3-5/16"	12	0730084	0731084
Ø 85.0		12	0730085	
Ø 86.0	3-3/8"	14	0730086	0731086
Ø 87.0	3-7/16"	14	0730087	0731087
Ø 88.0		14	0730088	
Ø 89.0	3-1/2"	14	0730089	0731089
Ø 90.0	3-9/16"	14	0730090	0731090
Ø 91.0		14	0730091	
Ø 92.0	3-5/8"	14	0730092	0731092
Ø 93.0		14	0730093	
Ø 94.0	3-11/16"	14	0730094	0731094
Ø 95.0	3-3/4"	14	0730095	0731095
Ø 96.0		14	0730096	
Ø 97.0	3-13/16"	14	0730097	0731097
Ø 98.0	3-7/8"	14	0730098	0731098
Ø 99.0		14	0730099	
Ø 100.0	3-15/16"	14	0730100	0731100
Ø 105.0	4"	14	0730105	0731105



Drilling structured sheet metals



Drilling rectangular tubes



Drilling flat steels



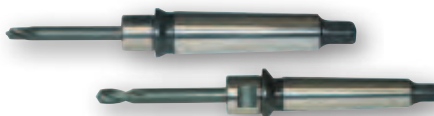
Drilling tubes

## HSS-Spare Drill with tapered center tip



from Ø 18.0 - 100.0	Ø 6x50 mm	0602650
from Ø 61.0 - 100.0	Ø 8x50 mm	0602850
(old design)		

## MT Arbors



MT-2 (from Ø 37.0 mm)	0734002
MT-3 (from Ø 37.0 mm)	0734003

## Weldon adaptor



from Ø 18.0 - 100.0 mm	060WD
(inc. ejector pin Prod. No. 1950500)	

## Spare Ejector For tapered center drill



from Ø 18.0 - 100.0 mm	Ø 6 mm	0732006
from Ø 61.0 - 100.0 mm	Ø 8 mm	0732008

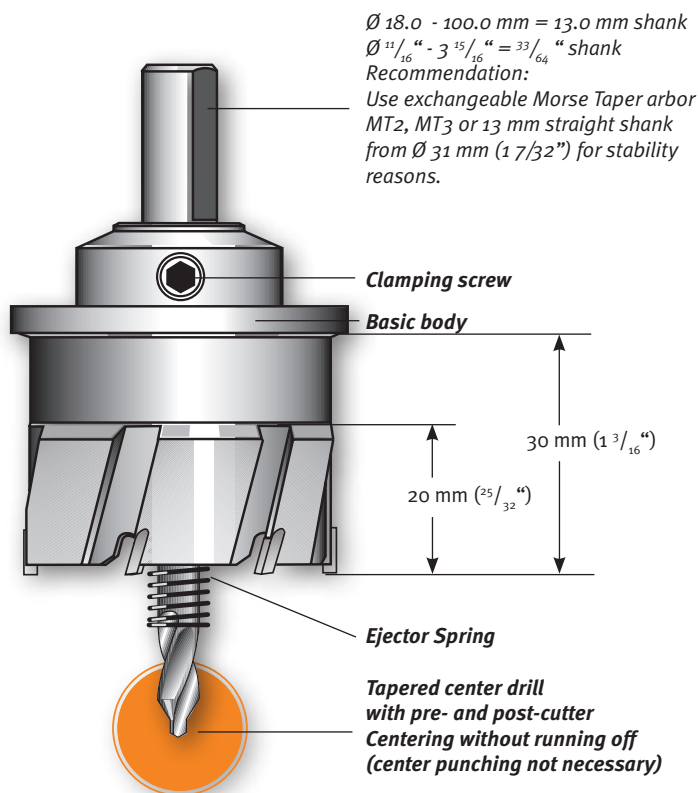


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## ALFRA TCT-HOLE SAWS – MBS-Pro

The TCT Multi-Range Hole Saw • Made in Germany by ALFRA



### Cutting geometries

Variable teeth, less  
Vibration, longer tool life, smoother  
cutting.

MBS-Multirange Hole Saws for universal use. **Max. cutting depth 20 mm**  
( $\frac{25}{32}$ " )

Suitable for flat materials but also for pipes and curved surfaces. Cutting  
of overlapping holes is possible. CAD optimized precision tools with high  
cutting performance and durability.

For use on stationary and portable drilling machines  
(recommended up to max. Ø 40 mm;  $1 \frac{9}{16}$ " )

- **Portable drilling Machines:** up to 6 mm ( $\frac{15}{64}$ " ) material thickness
- **Stationary drilling Machines:** up to 20 mm ( $\frac{25}{32}$ " ) material thickness  
at cutting depths from 6 mm ( $\frac{15}{64}$ " )  
we recommend clearing the chips.

MBS hole saws can be resharpened, and it is possible to replace broken  
out teeth depending on the condition of the hole saw.

**Advantages:** All Alfra TCT Hole Saws MBS-Pro type are equipped with an  
ejector spring.

The cut material is self-ejecting. The cut material is self-ejecting.

## MBS – for almost limitless use

e.g., on Rotabest Magnetic Drilling Machine (with MT2 or MT3 – arbors)  
and Weldon adaptor Prod.-No. o6oWD on Machines with Weldon Shank.



### Another special technical feature:

From Ø 31 mm ( $1 \frac{7}{32}$ " ), we use specially hardened tool holders to  
compensate for the torsional power in case of heavy operation, which  
avoids early shearing off of the tool holder shank.

In terms of construction not comparable with any other make.



# ALFRA TCT-HOLE SAWS – MBS-PRO

The TCT Multi-Range Hole Saw • Made in Germany by ALFRA

Ø mm	Ø Inch	No. of teeth	Prod.-No. mm	Prod.-No. Inch
Ø 18.0	11/16"	6	0760018	0761018
Ø 18.6				
Ø 19.0	3/4"	6	0760019	0761019
Ø 20.0		6	0760020	
Ø 20.4				
Ø 21.0	13/16"	6	0760021	0761021
Ø 22.0		6	0760022	
Ø 22.5				
Ø 23.0	7/8"	6	0760023	0761023
Ø 24.0	15/16"	6	0760024	0761024
Ø 25.0		6	0760025	
Ø 26.0	1"	6	0760026	0761026
Ø 27.0	1-1/16"	6	0760027	0761027
Ø 28.0		6	0760028	
Ø 28.3				
Ø 29.0	1-1/8"	6	0760029	0761029
Ø 30.0	1-3/16"	6	0760030	0761030
As from Ø 31.0 mm (1 7/32") we recommend the use of MT arbors				
Ø 31.0		6	0760031	
Ø 32.0	1-1/4"	6	0760032	0761032
Ø 33.0		6	0760033	
Ø 34.0	1-5/16"	6	0760034	0761034
Ø 35.0	1-3/8"	6	0760035	0761035
Ø 36.0		6	0760036	
Ø 37.0	1-7/16"	6	0760037	0761037
Ø 38.0		6	0760038	
Ø 39.0	1-1/2"	6	0760039	0761039
Ø 40.0	1-9/16"	6	0760040	0761040
Ø 41.0		6	0760041	
Ø 42.0	1-5/8"	6	0760042	0761042
Ø 43.0	1-11/16"	6	0760043	0761043
Ø 44.0		6	0760044	
Ø 45.0	1-3/4"	6	0760045	0761045
Ø 46.0		6	0760046	
Ø 47.0	1-13/16"	6	0760047	0761047
Ø 48.0	1-7/8"	6	0760048	0761048
Ø 49.0		6	0760049	
Ø 50.0	1-15/16"	6	0760050	0761050
Ø 51.0	2"	6	0760051	0761051
Ø 52.0		6	0760052	
Ø 53.0	2-1/16"	6	0760053	0761053
Ø 54.0	2-1/8"	6	0760054	0761054
Ø 55.0		6	0760055	
Ø 56.0	2-3/16"	6	0760056	0761056
Ø 57.0	2-1/4"	6	0760057	0761057
Ø 58.0		6	0760058	
Ø 59.0	2-5/16"	6	0760059	0761059
Ø 60.0	2-3/8"	8	0760060	0761060
Ø 61.0		8	0760061	
Ø 62.0	2-7/16"	8	0760062	0761062
Ø 63.0		8	0760063	
Ø 64.0	2-1/2"	8	0760064	0761064
Ø 65.0		8	0760065	
Ø 66.0	2-9/16"	8	0760066	0761066
Ø 67.0	2-5/8"	8	0760067	0761067
Ø 68.0		8	0760068	
Ø 69.0	2-11/16"	8	0760069	0761069
Ø 70.0	2-3/4"	8	0760070	0761070
Ø 71.0		10	0760071	
Ø 72.0	2-13/16"	10	0760072	0761072
Ø 73.0	2-7/8"	10	0760076	0761073
Ø 74.0	2-15/16"	10	0760074	0761074
Ø 75.0		10	0760075	

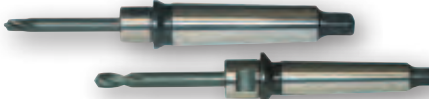
For drilling stainless steel from Ø 76.0 mm we recommend using Rotabest AL cutters (Prod.-No. 200205....)

Ø 76.0	3"	10	0760076	0761076
Ø 77.0		12	0760077	
Ø 78.0	3-1/16"	12	0760078	0761078
Ø 79.0	3-1/8"	12	0760079	0761079
Ø 80.0		12	0760080	
Ø 81.0	3-3/16"	12	0760081	0761081
Ø 82.0		12	0760082	
Ø 83.0	3-1/4"	12	0760083	0761083
Ø 84.0	3-5/16"	12	0760084	0761084
Ø 85.0		12	0760085	
Ø 86.0	3-3/8"	14	0760086	0761086
Ø 87.0	3-7/16"	14	0760087	0761087
Ø 88.0		14	0760088	
Ø 89.0	3-1/2"	14	0760089	0761089
Ø 90.0	3-9/16"	14	0760090	0761090
Ø 91.0		14	0760091	
Ø 92.0	3-5/8"	14	0760092	0761092
Ø 93.0		14	0760093	
Ø 94.0	3-11/16"	14	0760094	0761094
Ø 95.0	3-3/4"	14	0760095	0761095
Ø 96.0		14	0760096	
Ø 97.0	3-13/16"	14	0760097	0761097
Ø 98.0	3-7/8"	14	0760098	0761098
Ø 99.0		14	0760099	
Ø 100.0	3-15/16"	14	0760100	0761100
Ø 105.0	4"	14	0760105	0761105

## HSS-Spare Drill with tapered center tip

from Ø 18.0 - 100.0	Ø 6x80 mm	0732680
from Ø 61.0 - 100.0	Ø 8x80 mm	0732880
(old design)		

## MT Arbors



MT-2 (Ø 31.0 - 100.0 mm)	0734002
MT-3 (Ø 31.0 - 100.0 mm)	0734003

## Weldon adaptor



from Ø 18.0 - 100.0 mm	060WD
(incl. ejector pin Prod. No. 1950500)	

## Spare Ejector

For tapered center drill

from Ø 15.2 - 100.0	Ø 6 mm	0762006
suitable for spare drill Ø 6 mm		



Drilling structured sheet metals



Drilling tubes



Drilling flat steels



Free-hand drilling up to Ø 30 mm

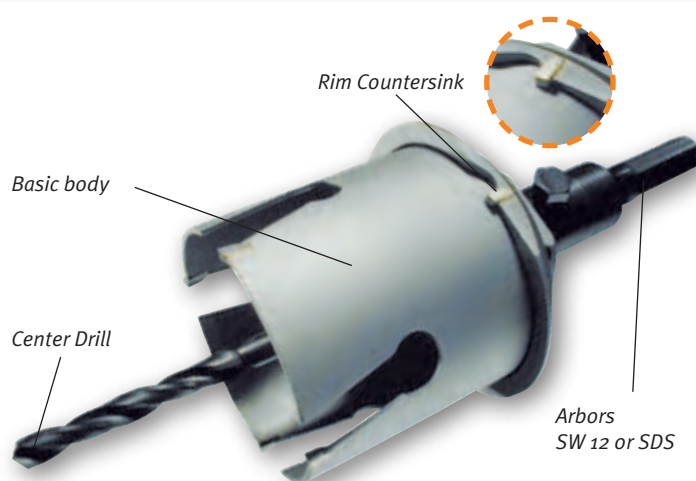
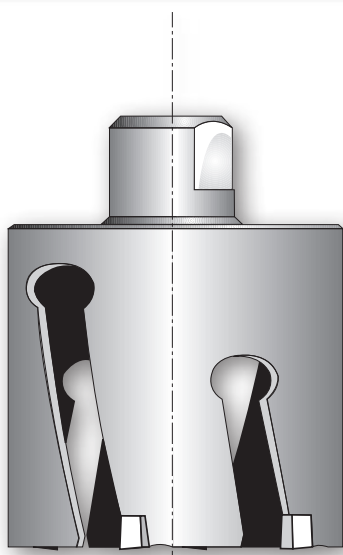


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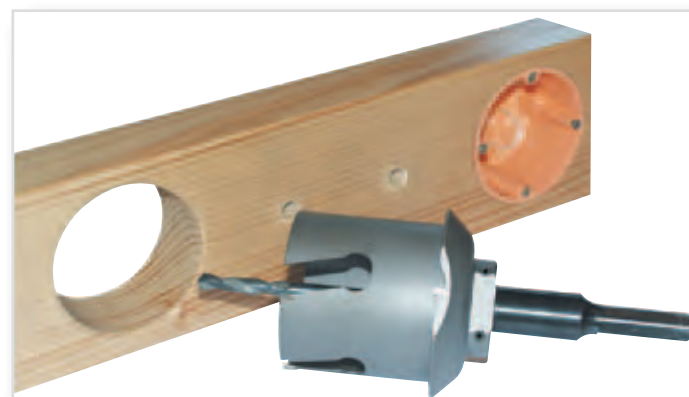


## ALFRA TCT-HOLE SAWS – FRP TYPE

The TCT Multi-Range Hole Saw • Made in Germany by ALFRA



Prod.-No. 0740068060 – FRP Ø 68 mm with tool holder and rim countersink

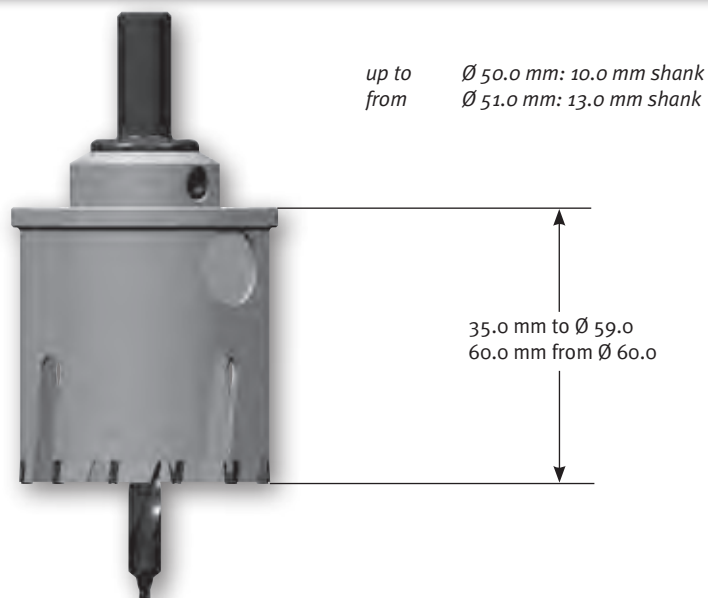


Perfect assembly of sockets in e.g. wood, gypsum plaster board,...

### Cutting depth 60 mm (2 3/8")

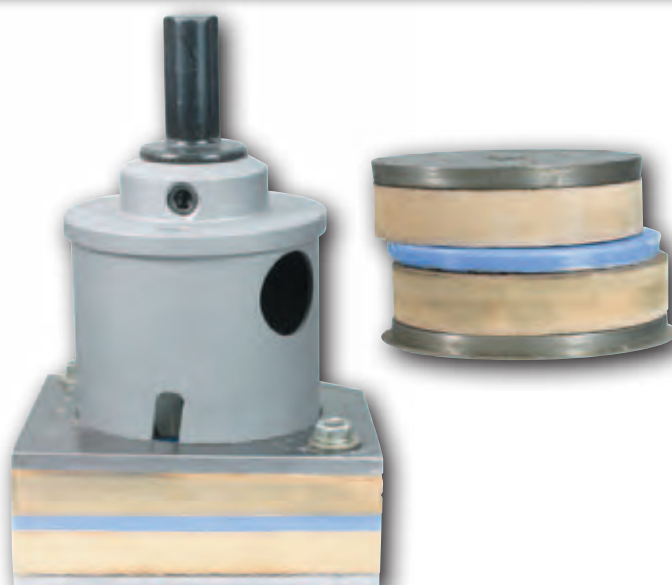
- Specially designed for wood, plain, laminated and coated chip board, plywood, paper-base laminate, PVC, glass fibre reinforced plastic, gas concrete, Ytong stone, plasterboard, hollow gauged brick/stones.
- No blocking due to optimal cutting geometry.
- Simple drill core removal based on new chip space design.
- In the event of a tooth breaking, it can easily be replaced and re-sharpened.
- Only use when rotating, switch off hammer action.
- Ideal for electricians, plumbers and heating engineers, carpenters and cabinet makers, stair construction and kitchen furniture fitters.

## ALFRA TCT-HOLE SAWS – FRP MULTI-TOOTH



### with arbor shank

- Cutting depth 35.0/60.0 for sandwich-composite material, wood and chipboard coated with insulation and sheet metal (also stainless), e.g., counters and refrigerators.



**Please indicate material and thickness!**



## ALFRA TCT-HOLE SAWS – FRP TYPE

The TCT Multi-Range Hole Saw • Made in Germany by ALFRA



TCT-Hole Saws FRP			Prod.-No.	TCT-Hole Saws FRP Multi-tooth			Prod.-No.
mm	inch	single drill bit, cutting depth 60 mm		mm	No series production. Delivery on request. with arbor, cutting depth 35/60 mm.		
25.0		Sanitary and heating pipes	0740025060	40.0	Sanitary drain pipes		0750040040
25.0		Sanitary and heating pipes	0740025060	40.0	Water and heating pipes		0750045040
35.0	1 3/8"	Sanitary and heating pipes	0740035060	50.0	with insulation		0750050040
		Cavity wall branch box, halogen reflector lamp		55.0			0750055040
40.0		Sanitary drain pipes	0740040060	60.0			0750060060
45.0		Water and heating pipes	0740045060	63.0	Switch boxes, diameter 60 mm		0750063060
50.0		with insulation	0740050060	65.0			0750065060
55.0		Recessed lights Ø 55 mm	0740055060	68.0	socket drill		0750068060
58.0		Recessed lights Ø 58 mm	0740058060	70.0			0750070060
60.0		Recessed lights Ø 60 mm	0740060060	74.0	Junction boxes, diameter 70 + 74 mm		0750074060
63.0		Switch box Ø 60 mm	0740063060	75.0			0750075060
65.0		Cavity wall box Ø 65 mm	0740065060	80.0	Junction boxes		0750080060
68.0		Cavity wall box Ø 68 mm	0740068060	85.0			0750085060
70.0		Cavity wall branch boxes Ø 70 mm	0740070060	90.0			0750090060
74.0		Cavity wall branch box Ø 74 mm	0740074060	95.0			0750095060
				100.0			0750100060
80.0		Junction boxes, cable gland covers, Recessed lights Ø 80 mm	0740080060	105.0	Discharge air pipes		0750105060
85.0		Recessed lights Ø 85 mm	0740085060	Intermediate sizes and other cutting depths on request			0759 ... ..
90.0		Recessed lights Ø 90 mm	0740090060				
105.0		Discharge air pipes	0740105060				

### HSS spare drill for FRP Multi-tooth

Ø 30.0 - 59.0 mm = 8 x 80

0752880

Ø 61.0 - 105.0 mm = 8 x 100

0752800



Rim countersink for Ø 68 mm

0741068000



Tool Holder wrench size 12

0742000001



Tool Holder SDS

0742000002



Spare center drill HSS 7.2 mm

0742000003

### FRP Hole Saw Set **Electrician**

Content:

0743000001

1 each of Ø 35/ 68/74

1 Tool Holder wrench size 12

1 HSS drill

### FRP Hole Saw Set **Lighting**

Content:

0743000002

1 each of Ø 35/60/68/80/85 mm

1 Tool Holder wrench size 12

1 HSS drill



Prod.-No. 0743000001



Prod.-No. 0743000002



# ALFRA-PRECISION MULTI-STEP DRILLS

- ▶ SPIRAL GROOVED, EACH STEP WITH AXIAL AND RADIAL RELIEF GRINDING ACCORDING TO ITS DIAMETER
- ▶ LASER-ETCHED SCALE IN THE CHIP SPACE
- ▶ SPECIAL DRILL TIP ENABLES CENTERING AND DRILLING EVEN THROUGH THIN-WALLED MATERIALS
- ▶ BURR-FREE DRILLING WITH NO DEFORMATION OF THE SHEET
- ▶ REGRINDABLE
- ▶ AVAILABLE IN HSS AND HSS WITH TiAlN COATING







# MULTI-STEP DRILLS – HSS DM O5

More precise hole diameter through cylindrical steps. Hole deburring through the next step.

## Application area:

The ideal tool for sheet metal forming, for the electrical industry, HVAC or the common engineering or the switchboard industry.

Suitable for all materials such as nonferrous metals, stainless steel sheets, thermoplastic and thermosetting plastics, as well as for steel sheets up to a max. material thickness of 6 mm.

With the Multi-Step Drills, sheet metals can be centered, drilled and subsequently deburred in one work step.

- A break of the drill tip mostly occurs through high feed forces at the start of the drilling operation. Multi-step drills with fixed drill tips are worthless then. A broken center drill in an ALFRA multi-step drill can be easily replaced. This more than compensates for the higher price.
- Each stage is equipped with a radially adjusted relief grinding corresponding to its diameter.
- Each stage is provided with an axial relief grinding and a relief angle on its cutting edge.
- All step diameters are laser marked on the tool.

## Benefits of multi-step drills with keyway and 3 cutting edges:

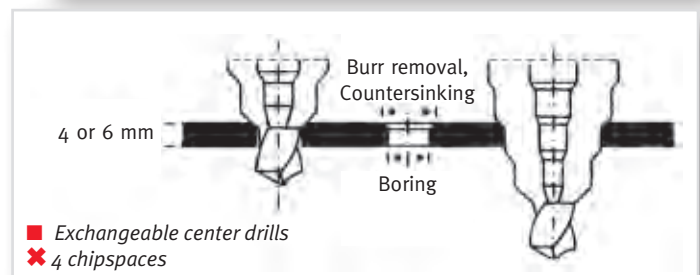
- The keyway allows the drill to make a chipping cut during drilling for better chip removal.
- The special keyway geometry, arranged around the drill, makes for a longer cutting edge compared to the usual straight groove and noticeably easier cutting.
- Spiral cut chip spaces guarantee an absolute running smoothness and a high cutting capacity.

## Tip:

The tool life can be considerably prolonged by using of ALFRA Cutting Spray or ALFRA Coolant Stick.

## Advantages of TiAlN hard coating:

- Suitable for use on very hard materials (VA).
- Offers optimal tool life with the same use at the highest cutting speeds.
- Very high microhardness HV 0.05 of 3200 – so that the blue-black hard coating is more than 20% harder than conventional gold-yellow TIN coating.
- Maximum working temperature: 800°C.



Description	Shank Ø	Prod.-No.
AMS	10.0	o8o8o

For general machine construction, drills circular holes in metals up to 4 mm thick, through application with hand drills, indispensable on the work-site.  
3 chip spaces, spiral grooved, replaceable center drill  
**Steps Ø 9 - 12 - 15 - 18 - 21 - 24 - 27 - 30 - 33 - 36 mm**  
(Step "40" is for deburring)

AMS – TiAlN coated	10.0	o8o81
--------------------	------	-------

3 chip spaces, spiral grooved, replaceable center drill  
TiAlN coated  
**Steps Ø 9 - 12 - 15 - 18 - 21 - 24 - 27 - 30 - 33 - 36 mm**  
(Step "40" is for deburring)

AM 1	12.0	o8o02
------	------	-------

**Steps Ø 25 - 28 - 31 - 34 - 37 - 40 - 43 - 46 - 49 - 52 - 55 - 58 mm**

PVD	10.0	o8o03
-----	------	-------

For the electrical industry, matched to holes for armoured conduit thread clearance holes, saves considerable time when producing borings for PG  
**Steps Ø PG 7 - PG 9 - PG 11 - PG 13 - PG 16 - PG 21 - 33 mm - PG 29 - 40 mm**



Prod.-No. o8o8o ■



Prod.-No. o8o81 ■



Prod.-No. o8o02 ■ ✖



Prod.-No. o8o03 ■ ✖





## MULTI-STEP DRILLS – HSS DM O5

More precise hole diameter through cylindrical steps. Hole deburring through the next step.

Description	Shank Ø	Prod.-No.
<b>PVD-TiN-coated</b>	10.0	08004
<b>PVK</b> Like PVD, but for armoured conduit thread <b>core hole PG</b> <b>Steps Ø PG 7 - PG 9 - PG 11 - PG 13 - PG 16 - PG 21</b>	10.0	08005
<b>SVB</b> Pre-drill specifically for punches & dies <b>Steps Ø 8.5 - 11.5 - 12.5 - 16.5 - 21.0</b>	10.0	08016
<b>DKS 32</b> 3 chip spaces, spiral grooved, replaceable center drill <b>Clearance holes Ø 12.5 - 16.5 - 20.5 - 25.5 - 32.5</b> <b>Core holes Ø 10.5 - 14.5 - 18.5 - 23.5 - M12 - M16 - M20 - M25 - M32</b>	12.0	08082
<b>DKS 32 TiAlN coated</b> 3 chip spaces, spiral grooved, replaceable center drill <b>Clearance holes Ø 12.5 - 16.5 - 20.5 - 25.5 - 32.5</b> <b>Core holes Ø 10.5 - 14.5 - 18.5 - 23.5 - M12 - M16 - M20 - M25 - M32</b>	12.0	08083
<b>DKS 40</b> 3 chip spaces, spiral grooved, replaceable center drill, for metric borings acc. to EN, <b>Core - and clearance holes M 10 - M 40</b> <b>Steps Ø 10.5 - 12.5 - 14.5 - 16.5 - 18.5 - 20.5 - 25.5 - 32.5 - 38.5 - 40.5</b>	10.0	08084
<b>DKS 40 – TiAlN coated</b> 3 chip spaces, spiral grooved, replaceable center drill For metric borings acc. to EN 50262 <b>Core - and clearance holes M 10 - M 40</b> <b>Steps Ø 10.5 - 12.5 - 14.5 - 16.5 - 18.5 - 20.5 - 23.5 - 25.5 - 32.5 - 38.5 - 40.5</b>	10.0	08085
<b>DKI-VA</b> 4 chip spaces, replaceable center drill of HSS-Co 5 steel. For stainless steel to 3 mm thick <b>Core - and clearance holes M 10 - M 40</b> <b>Steps Ø 10.5 - 12.5 - 14.5 - 16.5 - 18.5 - 20.5 - 23.5 - 25.5 - 32.5 - 38.5 - 40.5</b>	10.0	08032
<b>Spare center drill</b> suitable for AMS – PVD – PVK – DKI – DKS		08007
<b>Spare center drill TiAlN</b> suitable for AMS – PVD – PVK – DKI – DKS		08008



Prod.-No. 08004 ■ ✗



Prod.-No. 08005 ■ ✗



Prod.-No. 08016

Pre-drill specifically  
for punches & dies



Prod.-No. 08082 ■



Prod.-No. 08083 ■



Prod.-No. 08084 ■



Prod.-No. 08085 ■



Prod.-No. 08032 ■ ✗



Prod.-No. 08007



Prod.-No. 08008

■ Replaceable center drill ✗ 6 With 4 chip spaces



# MULTI-STEP DRILLS – HSS DM O5

More precise hole diameter through cylindrical steps. Hole deburring through the next step.

## Standard execution with 2 chip spaces, spiral grooved.

- More precise hole diameter through cylindrical steps.
- Immediate deburring through the next step
- Drilling of sheet metals as thin as 4 mm possible.
- Use coolant stick!
- The keyway allows the drill to make a chipping cut during drilling for better chip removal.
- Longer cutting edge compared to the usual straight groove and noticeably easier cutting.
- Laser-etched scale in the chip space to indicate the bore diameter achieved.

Description	Bore range	Shank Ø	Length	Prod.-No.
AM-12	4 - 12 mm x 1 mm	6.0	70 mm	08070
AM-20	4 - 20 mm x 2 mm	9.0	77 mm	08071
AM-30	6 - 30 mm x 2 mm	10.0	98 mm	08072

**Set in plastic case** 08073

Contents:

1 of each Type AM-12/AM-20/AM-30

High-performance coolant stick 09011



Prod.-No. 08072

Prod.-No. 09011

## Standard values for the use of ALFRA Multi-step drills

This drill was developed to bore perfectly round and deburred holes in sheet metal from 4 - 6 mm thick. The transition forms a radius which serves to deburr or bevel the hole at the same time. While conical one-lip bits drill a slightly tapered hole, our ALFRA multi-step drill achieves a cylindrical hole. The tools have axial-radial relief grindings and can be lightly reground on the breast of the cutting tooth.

We recommend the use of pillar drilling machines, however, the small ALFRA Multi-step drills can be used on adjustable hand drilling machines. Sufficient cooling using ALFRA coolant stick or a bore emulsion is imperative.

## Speed chart rpm

Type		sheet steel St37	stainless steel sheets	non-ferrous metals	plastics (soft)
AM	drill	800	360	1000	1000
	countersink	500 - 180	50 - 70	800 - 400	1000 - 400
AM-1	drill	800	360	1000	1000
	countersink	200 - 100	100 - 50	500 - 200	600 - 250
PVD+PVK+DKI	drill	800	360	1000	1000
	countersink	400 - 200	200 - 100	800 - 500	1000 - 600



Prod.-No. 08073





## PRECISION CONICAL ONE-LIP BITS – HSS DM 05

With laser-marking

ALFRA Precision Conical One-Lip Bits are the ideal tools for general sheet metal working. Fields of applications include HVAC, electronic industries, engineering and panel building.

To be used on non-ferrous metals, stainless steels, thermo- and duroplastic plastics, as well as on all common sheet steels up to a material thickness of max. 4 mm. With ALFRA Conical One-Lip Bits, you can center, spot drill and bore up in one work step.

If treated carefully, can be reground many times.

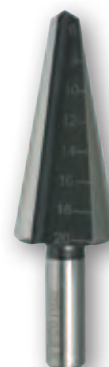
The tool life can considerably be prolonged by using ALFRA Cutting Oil or Coolant Stick.

**Packing: separately in plastic box with operation manual.**

Size	Range	Shank-Ø	Prod.-No.
1	3.0 - 14.0	6.0	09001
2	6.0 - 20.0	8.0	09002
3	16.0 - 30.5	10.0	09003
4	26.0 - 40.0	12.0	09004
5	35.0 - 50.0	12.0	09005
6	46.0 - 60.0	13.0	09006
7 L	4.0 - 30.5	10.0	09007
8*	6.0 - 22.5	8.0	09008
Set 1	Size. 1 + 2 + 3 + Stift		09009
Coolant stick, separately			09011



Prod.-No. 09001



Prod.-No. 09002



Prod.-No. 09003



Prod.-No. 09004



Prod.-No. 09005



Prod.-No. 09006



Prod.-No. 09007



Prod.-No. 09008\*

### \*Special Antenna-Bit

- Conical one-lip bit with cylindrical end section to drill holes for car antennas.
- Burr-free, no deformation, no countersinking, dimensional accuracy
- Size 6.0 - 22.5 mm.

### Precision Conical One-Lip Bit Set

Tin box **Prod.-No. 09009**

Contents:

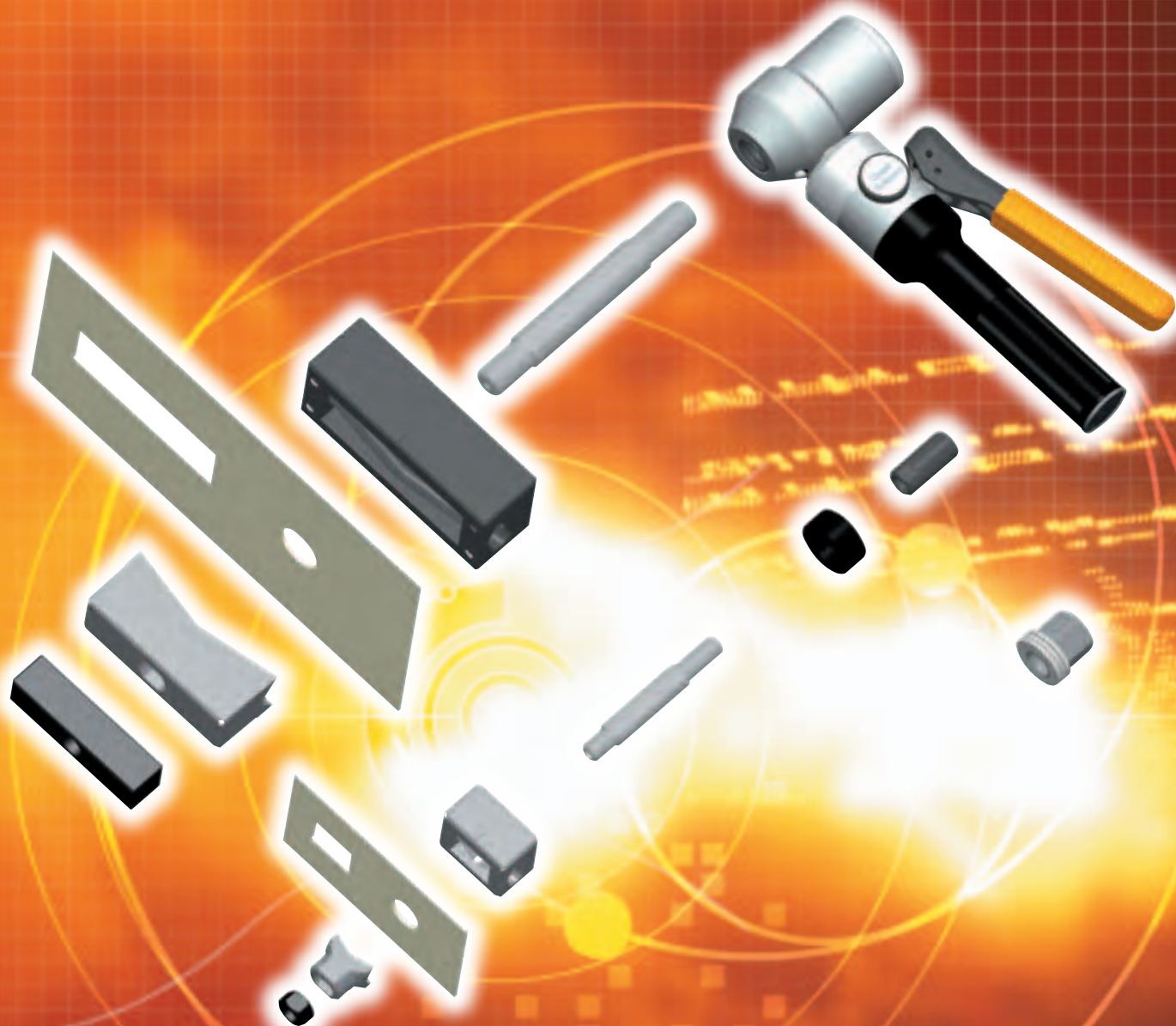
- 1 x Size 1
- 1 x Size 2
- 1 x Size 3



Prod.-No. 09009



# TECHNICAL INFORMATION + PROMOTION SUPPORT





Punch and die	Field of application					for use with			Recommendation
Dimensions (mm)	sheet metal thickness up to mm	Stainless steel up to mm	Aluminium up to mm	Copper up to mm	Plastic up to mm	Compact hand hydraulik puncher	Akku-Compact, foot or electro- hydraulic pump	Wrench	
<b>round</b> 12,7 - 31,7 28,3 - 60,0 60,5 - 82,0 88,5 - 150,0	2,0 3,0 3,0 3,0	- - - -	2,0 3,5 3,5 3,5	2,0 3,5 3,5 3,5	2,0 3,5 3,5 3,5	X X	X X X X	X X X	hydr. puncher or ball bearing screw hydr. puncher or ball bearing screw hydr. puncher or ball bearing screw hydraulic puncher
<b>square</b> 12,7 x 12,7 to 19,0 - 19,0 22,2 x 22,2 to 25,4 x 25,4 46 x 46 to 138 x 138	1,75 2,0 3,0	- - -	2,0 2,0 3,5	2,0 2,0 3,5	2,0 2,0 3,5	X X	X X X	X X	hydr. puncher or tension screw hydr. puncher or tension screw hydraulic puncher
<b>rectangular</b> 17 x 19 and 27,2 x 19,7 21,8 x 25,8 to 22 x 40 36 x 52 to 36 x 112 68 x 138	1,75 2,0 2,0 3,0	- - - -	2,0 2,0 2,5 3,5	2,0 2,0 2,5 3,5	2,0 2,0 2,5 3,5	X X X	X X X X	X X	hydr. puncher or tension screw hydr. puncher or tension screw hydraulic puncher hydraulic puncher
<b>stainless steel round</b> 15,2 - 18,6 20,4 - 60,0	- -	1,5 2,0	- -	- -	- -	X X	X X		hydr. puncher or ball bearing screw hydr. puncher or ball bearing screw
<b>stainless steel square</b> 46 x 46 to 68 x 68 92 x 92	- -	2,0 2,0	- -	- -	- -	X	X X		hydraulic puncher hydraulic puncher
<b>Special punches and dies for multiple connectors „Mini D“</b> 9 - 50 pole	2,0	-	2,5	2,5	3,0	X	X	X	hydr. puncher or tension screw
<b>Special shapes</b> round 22,5 with notch square 22,5 flattened on four sides 18,5 x 22,5 flattened on two sides for BKS profile cylinders	2,0 1,75 2,0	- - 1,5	2,5 2,0 2,0	2,5 2,0 2,0	3,0 2,0 2,0			X	hydr. puncher or tension screw hydr. puncher or tension screw hydr. puncher or tension screw hydr. puncher or tension screw

# PUNCHER – FOR MANUAL AND HYDRAULIC OPERATION

Square, rectangular and special shapes

1. Screw draw bolt ③ with thread fully into the hydraulic cylinder ⑧.
2. Die ④ must not be canted when placed on draw bolt ③.  
Use distance bushes ⑤ if necessary.
3. Insert draw bolt ③ through pre-drilled hole in the control cabinet door.
4. Set the punch ② squarely on the hydraulic draw bolt from the rear and tighten the lock nut ①.
5. Align the puncher ② on the cross-hair with the four markings.

## Operating the hydraulic pump

- Draw the punch fully through the metal.
- Do not use force.
- Dump the pressure on the hydraulic cylinder after the punching operation by opening the valve wheel on the pump.
- Disassemble the puncher and remove the waste from the die.

## Caution:

- Only operate the puncher until the metal is cut. Avoid the punch acting against the inside of the die.
- Staggered punching (nibbling) is not possible.
- Never use force.

## Important!

- Draw bolt, cutter and guides should always be oiled or greased, punch and die then move more easily.
- Sharpen the punch in good time, depending on degree of bluntness.

- |             |                                   |                                    |
|-------------|-----------------------------------|------------------------------------|
| ① lock nut  | ④ die                             | ⑦ forcing nut for manual operation |
| ② punch     | ⑤ distance bush                   | ⑧ hydraulic cylinder               |
| ③ draw bolt | ⑥ adapter for hydraulic operation |                                    |



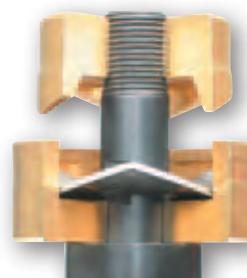
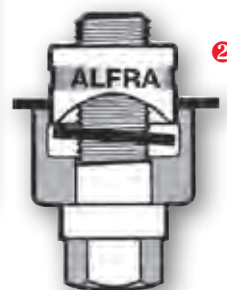
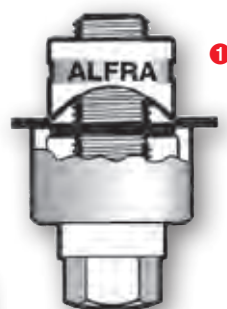
When operated with wrench, use forcing nut ⑦ instead of adapter ⑥

# PUNCHER – DID YOU KNOW?

Punchers with three cutting tips as standard

The waste drops easily out of the die, if you turn the punch 2-3 turns further into the die using a spanner after the punching operation. ①

This pushes the waste piece over the edge of the die and so falls freely out of the die if you have predrilled 11 or 21 mm. ②



Puncher cutting diagram



## HSS BI METAL HOLE SAWS – SPEED CHART

Recommended Speed for various materials (RPM)

Diameter mm	Mild Steel	Cast Iron	Tool steel + stainless steels	Brass	Aluminium	Wood
14	580	400	300	790	900	3000
16	550	365	275	730	825	3000
17	500	330	250	665	750	3000
19	460	300	230	600	690	3000
20	440	290	220	580	660	3000
21	425	280	210	560	635	3000
22	390	260	195	520	585	3000
24	370	245	185	495	555	3000
25	350	235	175	470	525	2700
27	325	215	160	435	480	2700
29	300	200	150	400	450	2700
30	285	190	145	380	425	2400
32	275	180	140	380	410	2400
33	260	175	135	345	390	2400
35	250	165	125	330	375	2400
37	240	160	120	315	360	2400
38	230	150	115	300	345	2400
40	220	145	110	290	330	2100
41	210	140	105	280	315	2100
43	205	135	100	270	305	2100
44	195	130	95	260	295	2100
46	190	125	95	250	285	2100
48	180	120	90	240	270	2100
51	170	115	85	230	255	2000
52	165	110	80	220	245	2000
54	160	105	80	210	240	2000
57	150	100	75	200	225	2000
59	145	100	75	195	225	2000
60	140	95	70	190	220	2000
64	135	90	65	180	205	1800
65	130	85	65	175	200	1800
67	130	85	65	170	195	1800
70	125	80	60	160	185	1800
73	120	80	60	160	180	1800
76	115	75	55	150	170	1500
79	110	70	55	140	165	1500
83	105	70	50	140	155	1500
86	100	65	50	130	150	1200
89	95	65	45	130	145	1200
92	95	60	45	120	140	1200
95	90	60	45	120	135	1200
98	90	60	45	120	135	1200
102	85	55	40	110	130	1000
105	80	55	40	110	120	1000
108	80	55	40	110	120	900
111	80	50	40	100	120	900
114	75	50	35	100	105	900
121	75	50	35	95	95	900
127	65	45	30	90	90	800
133	60	40	25	86	85	800
140	60	40	25	85	85	800
146	55	35	25	75	75	800
152	55	35	25	75	75	800

These speeds are benchmarks. The speed can be higher or lower, this depends on the material type and the cutting behaviour.

Attention: Do not use cutting oil, if you are cutting cast iron. If you are cutting aluminium use paraffin wax or paraffin.

### Calculation of the Cutting Speed

n = Speed (1/min)

v<sub>c</sub> = Cutting speed (m/min)

d = Tool diameter (mm)

$$v_c = \frac{\pi \times d \times n}{1000}$$





# TCT-HOLE SAWS – SPEED CHART

## Speed calculation

n = Speed (1/min)

$v_c$  = Cutting Speed (m/min)

d = Tool diameter (mm)

$$n = \frac{v_c \times 1000}{d \cdot \pi}$$

## Worked sample:

d = 20 mm

$v_c$  = 50 m/min

$$n = \frac{50000}{20 \cdot \pi} = 795,77 \text{ 1/min}$$

Tool Ø	Cutting speed (m/min)													
	Stainless steel material							Metal steel - ST material						
	20	25	30	35	40	45	50	55	60	65	70	75	80	
16	398	498	597	697	796	895	995	1095	1194	1294	1393	1493	1592	
18	354	442	531	619	708	796	885	973	1062	1150	1238	1327	1415	
20	318	398	478	557	637	717	796	876	955	1035	1115	1194	1274	
22	290	362	434	507	579	651	724	796	868	941	1013	1086	1158	
24	265	332	398	464	531	597	663	729	796	863	929	995	1062	
26	245	306	367	429	490	551	612	673	734	796	857	919	980	
28	227	284	341	398	455	512	569	626	682	739	796	853	910	
30	212	265	318	372	425	478	531	584	637	690	743	796	849	
32	199	249	299	348	398	448	498	547	597	647	697	746	796	
34	187	234	281	328	375	423	469	515	562	609	656	703	749	
36	177	221	265	310	354	398	442	487	531	575	619	663	708	
38	168	210	251	293	335	377	419	461	503	545	587	629	670	
40	159	199	239	279	318	358	398	438	478	518	557	597	637	
42	152	190	227	265	303	341	379	417	455	493	531	569	607	
44	145	181	217	253	290	326	362	398	434	470	507	543	579	
46	138	173	208	242	277	312	346	381	415	450	485	519	554	
48	133	166	199	232	265	298	332	365	398	431	464	498	531	
50	127	159	191	223	255	287	319	351	383	414	446	478	510	
52	122	153	184	214	245	276	306	337	367	398	429	459	490	
54	118	147	177	206	236	266	296	324	354	383	413	442	472	
56	114	142	171	199	227	256	284	313	341	370	398	427	455	
58	110	137	165	192	220	247	275	302	329	357	384	412	439	
60	106	133	159	186	212	239	266	292	318	345	372	398	425	
62	103	128	154	180	205	231	257	283	308	334	360	385	411	
64	100	124	149	174	199	224	248	274	299	323	348	373	398	
66	97	121	145	169	193	217	241	265	289	314	338	362	386	
68	94	117	141	164	187	211	234	258	281	304	328	351	375	
70	91	114	136	159	182	205	227	250	273	296	318	341	364	
72	88	111	133	155	177	199	221	243	265	288	310	332	354	
74	86	108	129	151	172	194	215	237	258	280	301	323	344	
76	84	105	126	147	168	189	210	231	251	272	293	314	335	
78	82	102	122	143	163	184	204	225	245	265	286	306	327	
80	80	100	119	139	159	179	199	219	239	259	279	299	318	
82	78	97	117	136	155	175	194	214	233	252	272	291	311	
84	76	95	114	133	152	171	190	209	227	246	265	284	303	
86	74	93	111	130	148	167	185	204	222	241	259	278	296	
88	72	90	109	127	145	163	181	199	217	235	253	271	290	
90	71	88	106	124	142	159	177	195	212	230	248	265	283	
92	69	87	104	121	138	156	173	190	208	225	242	260	277	
94	68	85	102	119	136	153	169	186	203	220	237	254	271	
96	66	83	100	116	133	149	166	183	199	216	232	249	265	
98	65	81	97	114	130	146	162	178	193	211	227	244	260	
100	64	80	96	111	127	143	159	175	191	207	223	239	255	

## FRP Hole Saws

Ø mm	Timber Chipboard	Plastics	Masonry	Wall tiles*
25/30/35	1000	800	800	500
40/45/50	800	600	700	400
58 to 74	600	400	600	400
80/105	400	300	300	300

\* Drilling in tiles only up to a scratch hardness of 6, mark centre, set the centre drill and drill through the glaze with at a low speed, allow the saw teeth to penetrate the glazing uniformly, running as smoothly and level as possible, so that the edge of the hole is made without chipping. Continue drilling at a normal drilling speed. Tiles with a scratch hardness greater than 6 may only be cut with diamond or carbide hole saws.

### Notes on use

- Use rotation only. Switch off impact or hammer drill.
- Impact and shock on the sharp, ground carbide cutters can lead to small carbide splinters and thus to a severe loss of performance.
- Do not tilt the hole saw in the hole.
- Remove the drill core after each operation. Remove the sawdust when drilling timber and timber products.

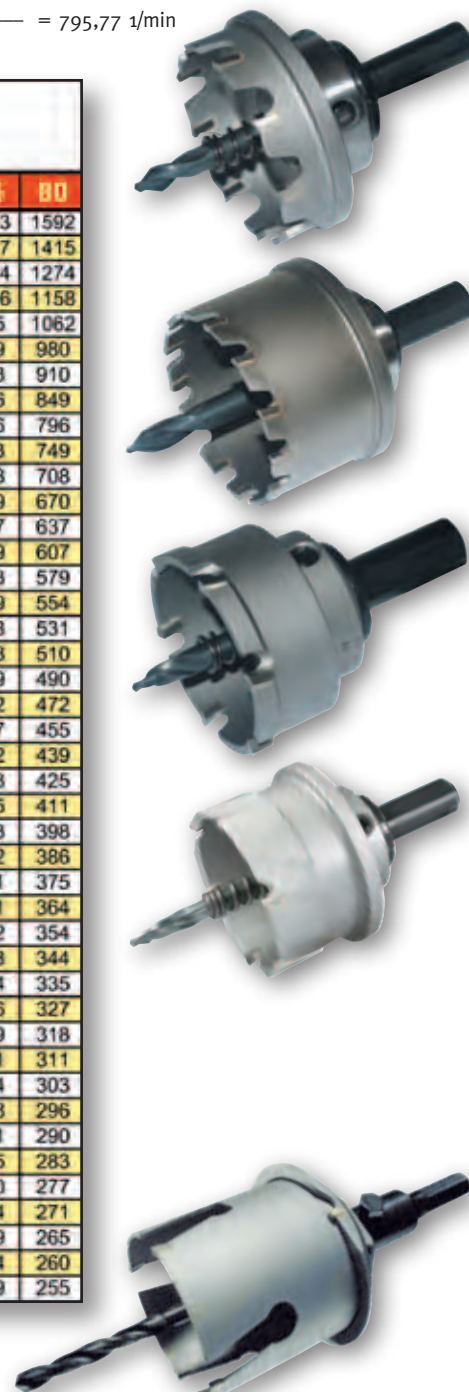
### Notes on use

For multipurpose hole saw with rim countersink

- The rim countersink is placed between hole saw and adapter and the carbide cutter is used to make a countersink in timber and timber substitutes. This makes it possible to fit sockets flush.

### Important notes on use

- The hole saw with rim countersink may not be stopped before it is removed.
- Advance with care, to prevent the cut edges tearing.







## PROMOTION SUPPORT

Depending on the size in your sales office, you can order the Displays/Banners in two different sizes.

When ordering, please indicate the Product number and the design to avoid mix-up and mistakes.

Roll up Display	Size	Prod.-No.
Banner Deburring technology	1600 x 600 mm	991
Banner Deburring technology	2000 x 800 mm	992
Banner General view	1600 x 600 mm	993
Banner General view	2000 x 800 mm	994
Banner Rotabest®	1600 x 600 mm	995
Banner Rotabest®	2000 x 800 mm	996
Banner Cutters	1600 x 600 mm	997
Banner Cutters	2000 x 800 mm	998
Banner El-cabinett builders	1600 x 600 mm	999
Banner El-cabinett builders	2000 x 800 mm	9910

Flags	Size	Prod.-No.
Flag General view	2000 x 500 mm	9911
Flag El-cabinett builders	2000 x 500 mm	9912
Flag Rotabest®	2000 x 500 mm	9913
Flag Deburring technology	2000 x 500 mm	9914
Flag Cutters	2000 x 500 mm	9915



Prod.-No. 9911



Prod.-No. 9913



Prod.-No. 9914



Prod.-No. 9915



Prod.-No. 9912



Prod.-No. 991



Prod.-No. 995



Prod.-No. 999

Prod.-No. 992



Prod.-No. 993



Prod.-No. 997

Prod.-No. 994

Prod.-No. 998

Prod.-No. 996

Prod.-No. 9910

## PROMOTION SUPPORT

Give-Away-Presents for your customer or for your own exhibition stand.

Give-Away-Presents		Size	Prod.-No.
Wintertime	Working coat/vest	S	9950
Wintertime	Working coat/vest	M	9951
Wintertime	Working coat/vest	L	9952
Wintertime	Working coat/vest	XL	9953
Summertime	Working coat/vest	S	9960
Summertime	Working coat/vest	M	9961
Summertime	Working coat/vest	L	9962
Summertime	Working coat/vest	XL	9963
Polo shirt		S	9920
Polo shirt		M	9921
Polo shirt		L	9922
Polo shirt		XL	9923
Tie-pin			9970
Baseball cap			9971
Pocketknife			9972
Annular cutter			9973
Folding rule			9974



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# A

PUNCHING – BENDING – CUTTING



# B

DRILLING – PUNCHING – CUTTING – DEBURRING

