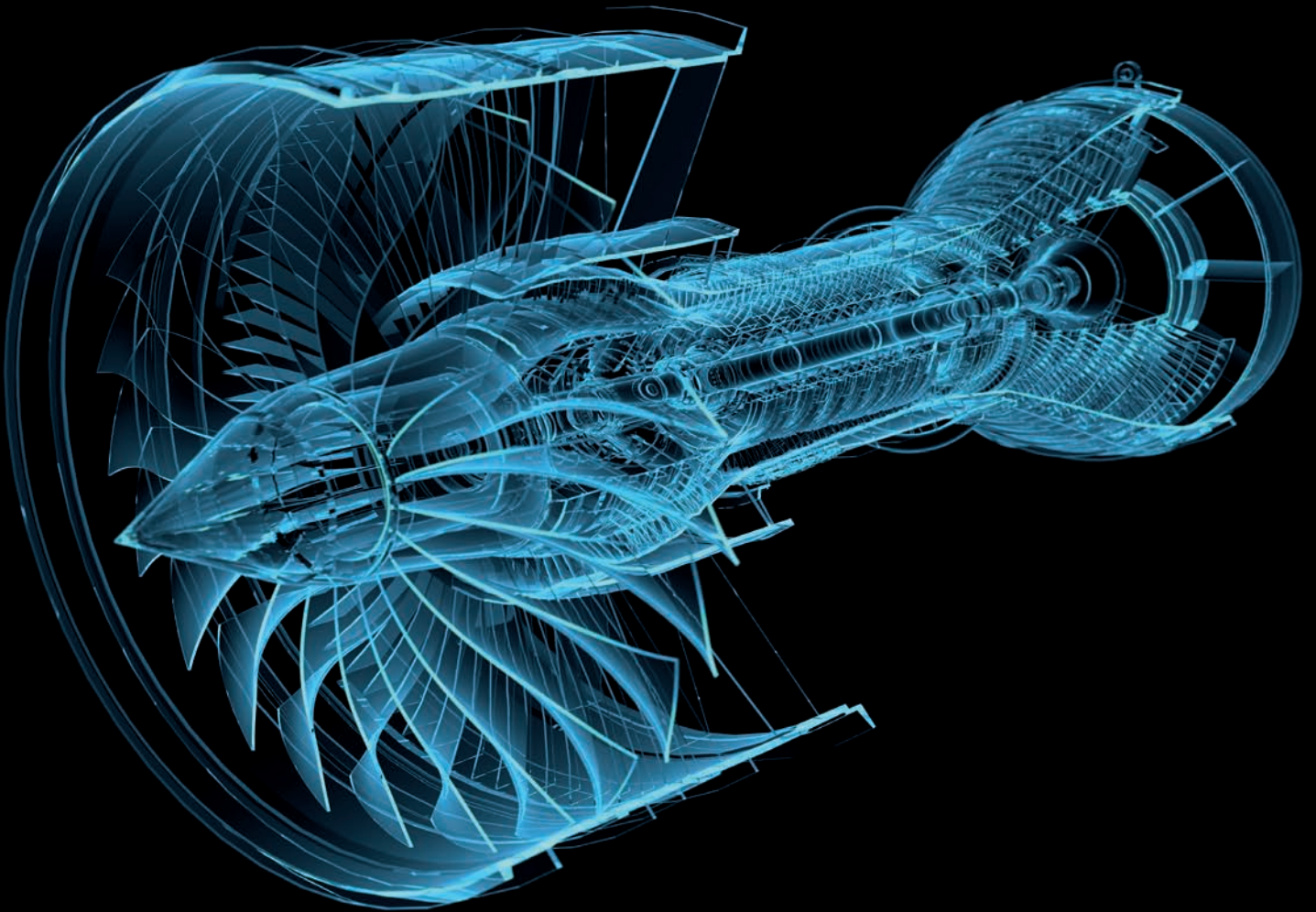


# PCD and Solid Carbide Solutions for Composite Materials

2023 edition.



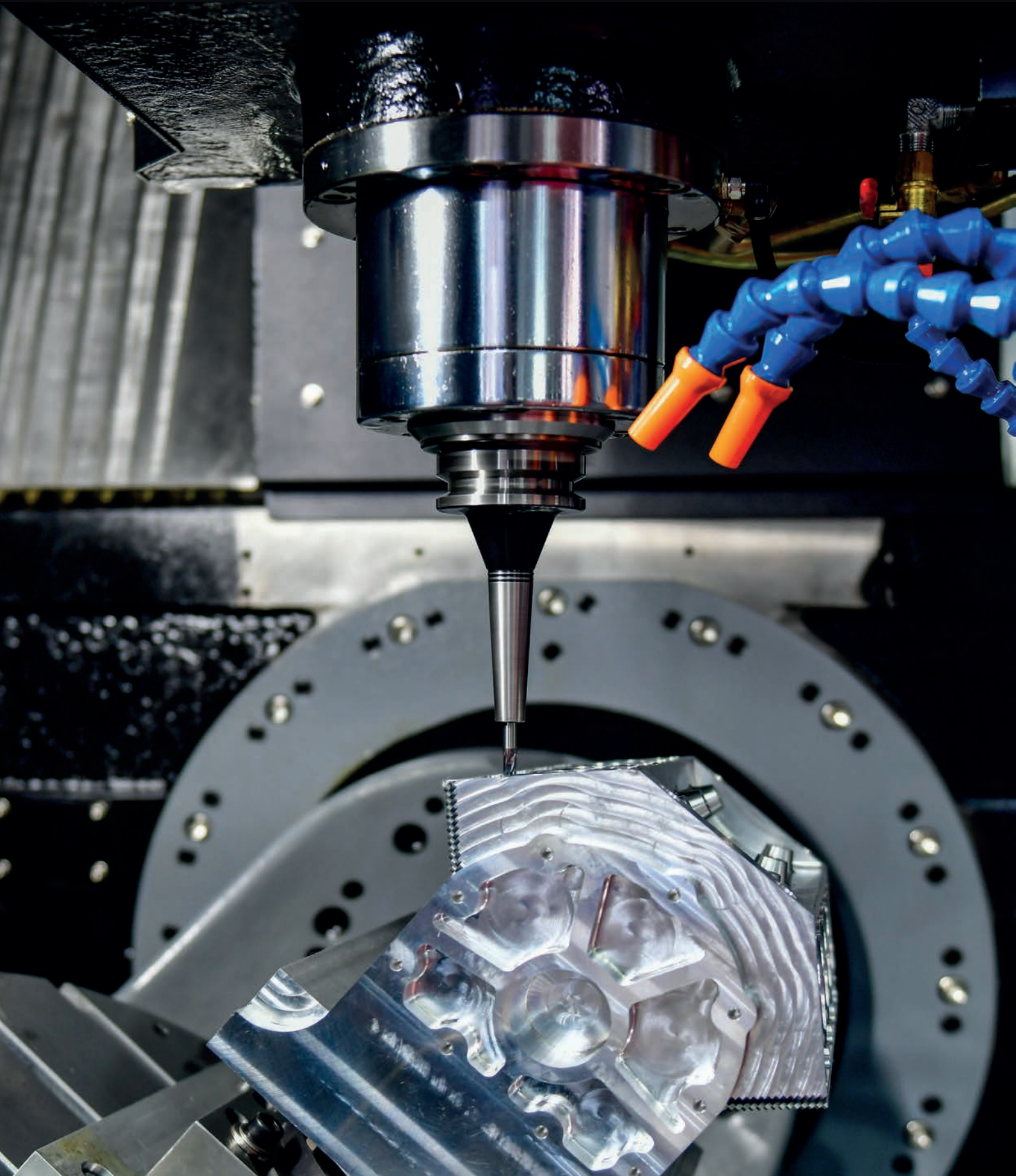
**ALLIED**

THE CUTTING EDGE

## Engineering

We will develop solutions for you in our technical centre

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AKE PCD Saw Blade

# C6 VHW Saw

## Straight & Curve



### Application

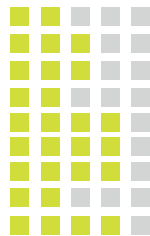
For processing materials with high and low fibre content:

- RTM
- Prepreg
- Thermosets
- Copper Mesh
- Elastic overlays
- Honeycomb
- SMC

The saw must only be operated in fully enclosed machines.

### Tool Info

- High resin content
- High fibre content
- 5-axis movements
- Thin components
- Component thickness > 3mm
- Cut quality
- Running smoothness
- Unstable stressed components
- Low cutting force



### Tool Design

- VHW saw for economical machining of composite components.
- Due to the new tooth design the highest feed rates can be achieved with the best cut quality.
- Narrow cutting widths produce low dust emissions.
- Arbors must be ordered separately.



D mm	Cutting Width mm	Max Material Thickness mm	Drill mm	Version mm	Pt.No.
40	1.2 + 0.2	5	10	Straight	60002250
70	1.2 + 0.2	10	16	Straight	60001930
70	3.0 + 0.2	10	16	Curve	60002411
125	1.2 + 0.2	20	22	Straight	60002310
125	3.0 + 0.2	20	22	Curve	60002430



# Milling Cutters

## Solid Carbide & PCD

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Our milling cutters have been developed and engineered with over 100 years experience. All our milling cutters are made from the finest grade of carbide and polycrystalline diamond.

- Manufactured in the UK and Germany.
- Large range of stock held in the UK and Germany for common sizes
- Years of development to achieve the perfect geometries.
- Used worldwide by blue-chip companies.
- A milling cutter for every material.
- Special geometries and diameters can be produced to order.



# PCD CPSE Endmill

## Composite & aluminium machining

### Application

All composite & aluminium materials.

### Machine

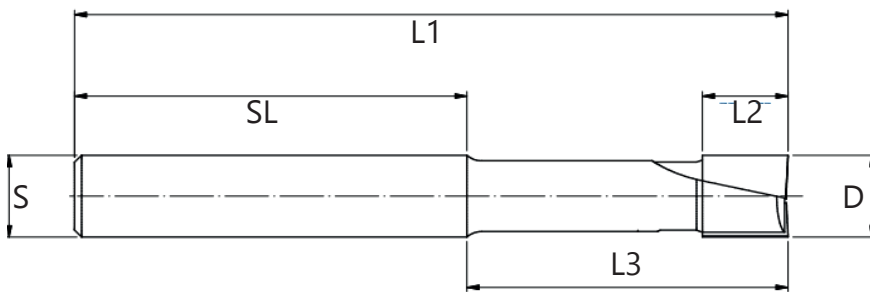
Mechanical.

### Design

2 cutting flutes with straight shear.  
Solid carbide body to reduce vibration.  
Reduced neck diameter to offer deeper machining.

### Radius

Endmills are stocked with a square end, we can apply any radius required to each tool.



D mm	L2 mm	L3 mm	SL mm	S mm	L1 mm	Z	Pt.No.
3	6	20	40	3	60	1	CPSE366031
4	6	20	40	4	60	2	CPSE466042
6	10	30	50	6	80	2	CPSE6108062
8	10	30	70	8	100	2	CPSE81010082
10	12	30	70	10	100	2	CPSE1012100102
12	12	45	55	12	100	2	CPSE1212100122
16	16	50	100	16	150	2	CPSE1616150162
20	20	60	90	20	150	2	CPSE2020150202
25	25	60	90	25	150	2	CPSE2525150252



# PCD CPSB Ballnose Endmill

## Composite & aluminium machining

### Application

All composite & aluminium materials.

### Machine

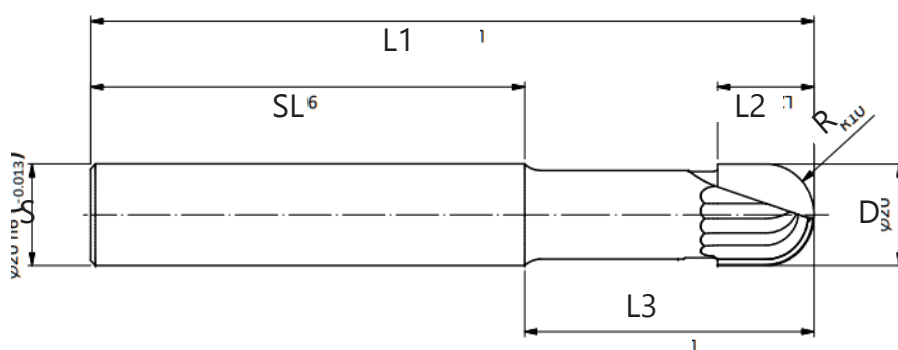
Mechanical.

### Design

2 cutting flutes with straight shear and full radius.  
 Ideally suited for 3D and 5 axis (+) machining.  
 Solid carbide body to reduce vibration.  
 Reduced neck diameter for deeper machining.

### Radius

Full radius - ballnose end.



D mm	L2 mm	L3 mm	SL mm	S mm	L1 mm	Z	Pt.No.
3	6	20	40	3	60	1	CPSB366031
4	6	20	40	4	60	2	CPSB466042
6	10	30	50	6	80	2	CPSB6108062
8	10	30	70	8	100	2	CPSB81010082
10	12	30	70	10	100	2	CPSB1012100102
12	12	45	55	12	100	2	CPSB1212100122
16	16	50	100	16	150	2	CPSB1616150162
20	20	60	90	20	150	2	CPSB20201520202
25	25	60	90	25	150	2	CPSB2525150252

# PCD CPAE Alternate Shear

## Finishing fibre composite materials

### Application

Finishing fibre based materials. Also suitable with: wood based materials (chipboard, MDF), thermoplastics, HPL, solid surface and solid wood.

### Design

Z2 = one flute up shear and one flute down shear. Z3 = one flute up shear and two flutes down shear.

### Machine

Mechanical.

### Radius

Corner radius applied on request.



### Z2

D mm	L2 mm	L3 mm	S mm	L1 mm	Z	Pt.No.
5	10	15	6	50	2	CPAE5105062
6	10	15	6	60	2	CPAE6106062
6	15	20	6	65	2	CPAE6106562
8	15	20	8	65	2	CPAE8156582
8	20	25	8	70	2	CPAE8207082
10	15	20	10	65	2	CPAE101565102
10	20	25	10	70	2	CPAE102070102
12	15	20	12	65	2	CPAE121565122
12	20	25	12	70	2	CPAE122070122
12	25	30	12	75	2	CPAE122575122
16	25	30	16	80	2	CPAE162580162
16	35	40	16	90	2	CPAE162590162
20	25	35	20	80	2	CPAE202580202
20	35	45	20	90	2	CPAE203590202
25	30	40	25	100	2	CPAE253590252
25	40	50	25	110	2	CPAE2540110252

### Z3

D mm	L2 mm	L3 mm	S mm	L1 mm	Z	Pt.No.
12	20	25	12	75	3	14253-9-12202-R
12	25	35	12	80	3	14253-9-12252-R
16	25	30	16	80	3	14253-9-16253-R
16	35	40	16	90	3	14253-9-16353-R
20	25	30	20	90	3	14253-9-20255-R
20	35	40	20	90	3	14253-9-20355-R
25	30	45	25	100	3	14253-9-25305-R
25	40	45	25	110	3	14253-9-25405-R





# PCD CPARE Alternate Shear

## Roughing fibre composite materials

### Application

Roughing fibre based materials. Also suitable with: wood based materials (chipboard, MDF), thermoplastics, HPL, solid surface and solid wood.

### Design

Two flutes down shear and one flute up shear to compress the material. Roughing knuckle form on the cutting edge to increase chip load.

### Machine

Mechanical.

### Radius

Corner radius applied on request.



Z3

D mm	L2 mm	L3 mm	S mm	L1 mm	Z	Pt.No.
12	10	19	12	70	3	14256-9-12102-R
12	15	24	12	70	3	14256-9-12152-R
12	20	29	12	75	3	14256-9-12202-R
12	25	34	12	80	3	14256-9-12252-R
14	15	23	14	70	3	14256-9-14151-R
14	20	28	14	75	3	14256-9-14201-R
14	25	33	14	80	3	14256-9-14251-R
16	10	25	16	80	3	14256-9-16103-R
16	15	30	16	80	3	14256-9-16153-R
16	20	30	16	80	3	14256-9-16203-R
16	25	30	16	80	3	14526-9-16253-R
16	30	35	16	85	3	14256-9-16303-R
16	35	40	16	90	3	14256-9-16353-R
20	10	15	20	85	3	14256-9-20105-R
20	15	20	20	85	3	14256-9-20155-R
20	20	25	20	85	3	14256-9-20205-R
20	25	30	20	90	3	14256-9-20255-R
20	30	35	20	95	3	14256-9-20305-R

# PCD Threaded Endmill

## Composite & aluminium machining

### Application

All composite & aluminium materials.

### Machine

Mechanical.

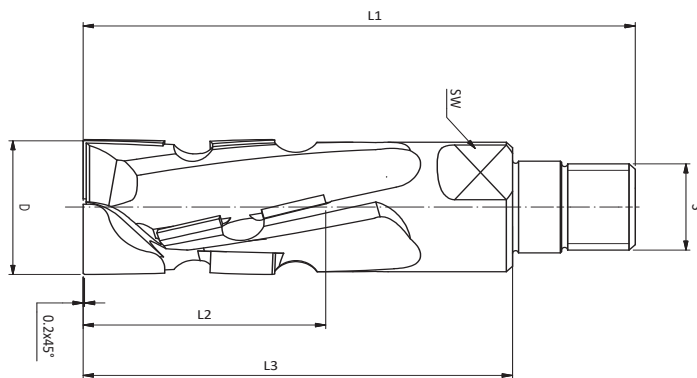
### Design

Z2 = two flutes with straight shear.

Z2+2 = staggered tooth with up shear.

### Radius

Corner radius applied on request.



D mm	L2 mm	L3 mm	L1 mm	Thread	Z mm	Pt.No.
20	20	40	60	M16	2	90203-9-202-R
20	40	70	90	M16	2+2	14310-9-204-R
20	80	120	140	M16	2+2	14310-9-208-R
25	25	50	70	M16	2	90203-9-221-R
25	40	70	90	M16	2+2	14310-9-219-R
25	80	120	140	M16	2+2	14310-9-258-R
32	32	60	80	M16	2	90203-9-323-R
32	40	70	90	M16	2+2	14310-9-324-R
32	80	120	140	M16	2+2	14310-9-328-R



# PCD Threaded Ballnose Endmill

## Composite & aluminium machining

### Application

All composite & aluminium materials.

### Machine

Mechanical.

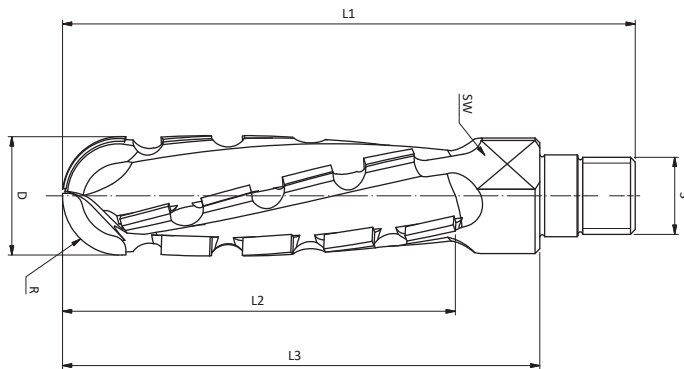
### Design

Z2 = two flutes with straight shear.

Z2+2 = staggered tooth with up shear.

### Radius

Full ballnose.



D mm	L2 mm	L3 mm	L1 mm	Thread	R mm	Z mm	Pt.No.
20	20	40	60	M16	10	2	90203-9-202B-R
20	40	70	90	M16	10	2+2	14310-9-204B-R
20	80	120	140	M16	10	2+2	14310-9-208B-R
25	25	50	70	M16	12.5	2	90203-9-220-R
25	40	70	90	M16	12.5	2+2	14310-9-216-R
25	80	120	140	M16	12.5	2+2	14310-9-217-R
32	32	60	80	M16	16	2	90203-9-323B-R
32	40	70	90	M16	16	2+2	14310-9-324B-R
32	80	120	140	M16	16	2+2	14310-9-328B-R

# PCD Diatec Pro Z2+2 Endmill

## Long reach machining tooling board

### Application

Milling all composite materials, especially suitable for tooling board and tooling paste.

### Machine

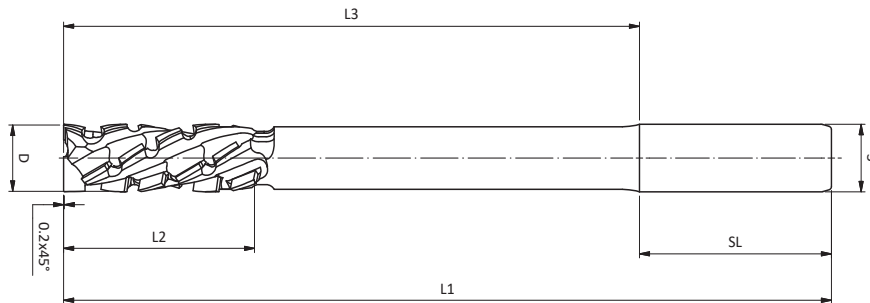
Mechanical.

### Design

Staggered tooth design with up shear. 20-30 degree helix for optimised chip evacuation.

### Radius

Corner radius applied on request.



D mm	L2 mm	L3 mm	SL mm	S mm	L1 mm	Z	Pt.No.
16	30	140	50	16	190	2+2	15600-9-1630-R
16	50	145	45	16	190	2+2	15600-9-1650-R
20	30	150	50	20	200	2+2	15600-9-2030-R
20	60	180	60	20	240	2+2	15600-9-202-R
25	80	180	60	25	240	2+2	15600-9-2580-R
25	120	190	50	25	240	2+2	15600-9-25120-R
25	160	175	60	25	235	2+2	15600-9-25160-R
30	80	180	60	25	240	2+2	15600-9-3080-R
30	160	175	60	25	235	2+2	15600-9-30160-R





# PCD Z4 Finishing Endmill

## Long reach machining tooling board

### Application

Milling all composite materials, especially suitable for tooling board and tooling paste.

### Machine

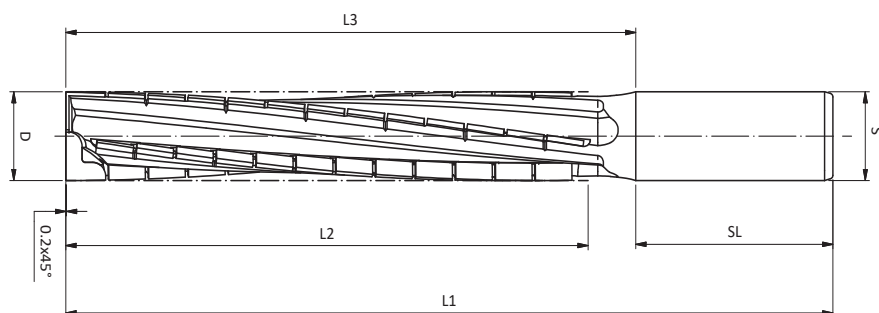
Mechanical.

### Design

Four flutes with up shear on a zero degree helix to provide a superior finish.

### Radius

Corner radius applied on request.



D mm	L2 mm	L3 mm	SL mm	S mm	L1 mm	Z	Pt.No.
16	50	143	32	16	175	4	16200-9-1650-R
20	50	160	50	20	210	4	16200-9-2050-R
25	80	180	60	25	240	4	16200-9-2580-R
25	160	175	60	25	235	4	16200-9-1022-R
30	80	180	60	25	240	4	16200-9-3080-R
30	160	175	60	25	235	4	16200-9-30160-R



# PCD Diatec Pro Z2+2 Ballnose

## Long reach machining tooling board

### Application

Milling all composite materials, especially suitable for tooling board and tooling paste.

### Machine

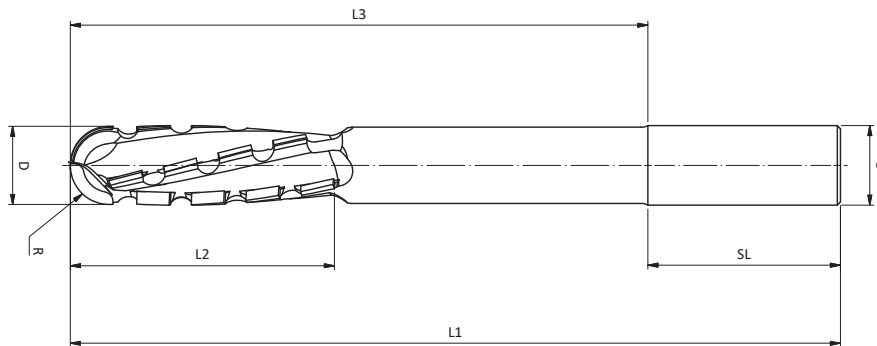
Mechanical.

### Design

Staggered tooth design with up shear.  
20-30 degree helix for optimised chip evacuation.

### Radius

Ballnose end.



D mm	L2 mm	L3 mm	SL mm	S mm	L1 mm	Z	Pt.No.
16	30	140	50	16	190	2+2	14310-9-1630B-R
16	50	145	45	16	190	2+2	14310-9-1650B-R
20	30	150	50	20	200	2+2	14310-9-2030B-R
20	60	180	60	20	240	2+2	14310-9-2060B-R
25	80	180	60	25	240	2+2	14310-9-218-R
25	120	190	50	25	240	2+2	14310-9-25120B-R
25	160	175	60	25	235	2+2	14310-9-25160B-R
30	80	180	60	25	240	2+2	14310-9-3080B-R
30	160	175	60	25	235	2+2	14310-9-30160B-R



# PCD Z4 Finishing Ballnose

## Long reach machining tooling board

### Application

Milling all composite materials, especially suitable for tooling board and tooling paste.

### Machine

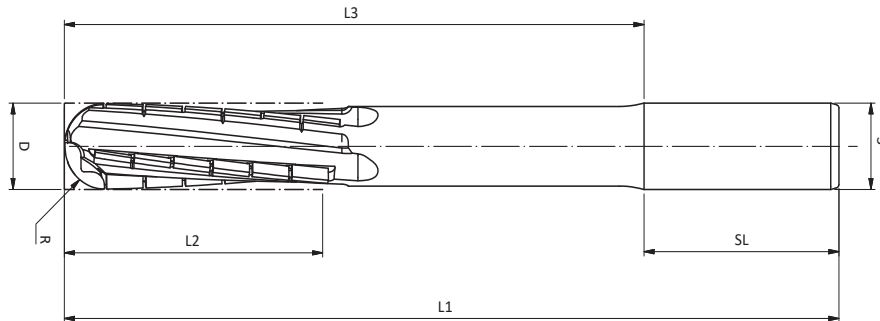
Mechanical.

### Design

Four flutes with up shear on a zero degree helix to provide a superior finish.

### Radius

Ballnose end.



D mm	L2 mm	L3 mm	SL mm	S mm	L1 mm	Z	Pt.No.
16	50	143	32	16	175	4	16030-9-1170-R
20	50	160	50	20	210	4	16030-9-1139-R
25	80	180	60	25	240	4	16030-9-1199-R
25	160	175	60	25	235	4	16030-9-25160-R
30	80	180	60	25	240	4	16030-9-3080-R
30	160	175	60	25	235	4	16030-9-30160-R



# PCD Quattro Facemill

For all composite and non-ferrous materials

## Application

Milling composite & non-ferrous materials.  
Suitable for roughing & flattening.  
Commonly used with tooling board & tooling paste.

## Machine

Mechanical.

## Design

All sizes provided with up shear for stock removal.  
Very fast feed rates achievable with four or five flutes.



D mm	L2 mm	Thread	L1 mm	R mm	Z mm	Pt.No.
20	10	M10	50	5	2	91400-9-223-R
26	15	M12	58	1	4	91400-9-224-R
42	15	M16	62.5	1	4	91400-9-203-R_A
63	16	M16	70	1	5	90009-9-137-R

Threaded tool holders are to be ordered upon request. Standard & special lengths can be supplied.





# PCD 4Cut Facemill

## For all composite materials

### Application

Milling composite & non-ferrous materials.  
Suitable for roughing & flattening.  
Commonly used with tooling board & tooling paste.

### Machine

Mechanical.

### Design

Z3 supplied with up shear, Z6 supplied with down shear.  
Extremely cost effective thanks to replaceable PCD tips. PCD Tips are also 4-sided.



Dia mm	CL mm	OAL mm	Shank mm	Z	Shear	Pt.No.
82/80	8	80	25	3	Positive	17525-9-80006-R
122/120	8	85	25	3	Positive	17525-9-12006-R
150	8	90	25	6	Negative	17525-9-15006-R

### Spare Parts

Description	Pt.No.
9.8mm x 9.8mm x 2.0mm x 4-Sided PCD Tips	72014-9-09800-0
M4 x 7 x T15 - Torx Screws	39081-0-04070-R
T15 - Torx Screw Driver	17525-9-15006-R

# WROU Solid Carbide Spirals

## Plastic & aluminium machining

### Application

Aluminium, wet or dry.  
Thermoplastic (PMMA, PCD, PE, PP, PS, ABS & PVC).

### Machine

Mechanical.

### Design

Single flute to provide good chip evacuation. Ideal for slow machining of aluminium.  
Also provides a very clean edge when machining plastics.  
Polished flutes prevents material bonding to the spiral.



Dia mm	CL mm	OAL mm	Shank mm	Pt.No.
2	5	50	6	WROU255061P
3	12	50	6	WROU3125061P
4	12	60	6	WROU4126061P
4	22	60	6	WROU4226061P
5	16	80	8	WROU5168081P
5	20	90	8	WROU5209081P
5	45	100	8	WROU54510081P
6	12	60	6	WROU6126061P
6	22	65	6	WROU6226561P
8	12	60	8	WROU8127081P
8	22	70	8	WROU8228081P
8	40	90	8	WROU8409081P
10	22	70	10	WROU102270101P
10	40	90	10	WROU104090101P
12	22	70	12	WROU122270121P
12	40	90	12	WROU124090121P



# AT100 Solid Carbide Spirals

Plastic & aluminium machining

## Application

Aluminium, wet or dry.  
Thermoplastic (PMMA, PCD, PE, PP, PS, ABS & PVC).

## Machine

Mechanical.

## Design

3 flutes. High helix. Straight shank (h6 tolerance) with centre cutting.  
Conditioned finish on cutting flutes and outside diameter.  
Special corner radius available upon request.  
Also available in ballnose end.



Dia mm	CL mm	OAL mm	Shank mm	Rad mm	Pt.No.
1	3	40	3	N/A	AT100.01
1.5	4	40	3	N/A	AT100.015
2	5	40	3	N/A	AT100.02
2.5	7	40	3	N/A	AT100.025
3	12	50	3	N/A	AT100.03
4	14	50	4	N/A	AT100.04
5	16	50	5	N/A	AT100.05
6	19	57	6	N/A	AT100.06
6	19	57	6	0.5	AT100.06R0.5
6	19	57	6	1.0	AT100.06R1.0
8	20	63	8	N/A	AT100.08
8	20	63	8	0.5	AT100.08R0.5
8	20	63	8	1.0	AT100.08R1.0
10	22	72	10	N/A	AT100.10
10	22	72	10	0.5	AT100.10R0.5
10	22	72	10	1.0	AT100.10R1.0
12	26	83	12	N/A	AT100.12
12	26	83	12	0.5	AT100.12R0.5
12	26	83	12	1.0	AT100.12R1.0
16	32	92	16	N/A	AT100.16
16	32	92	16	0.5	AT100.16R0.5
16	32	92	16	1.0	AT100.16R1.0
20	38	104	20	N/A	AT100.20
20	38	104	20	0.5	AT100.20R0.5
20	38	104	20	1.0	AT100.20R1.0

# ATL Solid Carbide Spirals

## Diamond coated endmills

### Application

Milling composite materials such as carbon fibre and CFRP.

### Machine

Mechanical.

### Design

Solid carbide with diamond coating to increase tool life and reduce heat during the cut. The special geometry provides zero delamination when machining. Up shear with a slow helix to help extract the chips from the cut.



Dia mm	CL mm	OAL mm	Shank mm	Z	Rad mm	Pt.No.
3	15	60	3	4	0.2	ATLSS03.0ER0.2
3	25	75	3	4	0.2	ATL03.0ER0.2
4	15	60	4	4	0.2	ATLSS04.0ER0.2
4	25	75	4	4	0.2	ATL04.0ER0.2
6	30	80	6	4	0.2	ATL06.0ER0.2
8	30	80	8	4	0.2	ATL08.0ER0.2
10	35	105	10	4	0.2	ATL10.0ER0.2
12	35	105	12	4	0.2	ATL12.0ER0.2



# ATLB Solid Carbide Spirals

## Diamond coated ballnose endmills

### Application

Milling composite materials such as carbon fibre and CFRP.

### Machine

Mechanical.

### Design

Solid carbide with diamond coating to increase tool life and reduce heat during the cut. The special geometry provides zero delamination when machining. Up shear with a slow helix to help extract the chips from the cut. Full radius end therefore applicable with multi-axis machining.



Dia mm	CL mm	OAL mm	Shank mm	Z	Rad mm	Pt.No.
1	2.5	50	3	2	0.5	ATLSS1.0B
2	2.2	60	3	2	1.0	ATLSS2.0B
3	25	75	3	4	1.5	ATL03.0B
4	25	75	4	4	2.0	ATL04.0B
6	30	80	6	4	3.0	ATL06.0B
8	30	80	8	4	4.0	ATL08.0B
10	35	105	10	4	5.0	ATL10.0B
12	35	105	12	4	6.0	ATL12.0B

# SMCE Solid Carbide Endmill

## High resin composite machining

### Application

Milling, trimming and sizing SMC components.

### Machine

Mechanical.

### Design

Up shear flutes for chip evacuation with down shear chip breaker to provide a superior application finish.  
Polished flutes and diameter to increase tool life and reduce cutting pressure.



Dia mm	CL mm	OAL mm	Shank mm	Z	Pt.No.
3	12	55	4	4	SMCE3125544P
4	16	65	6	4	SMCE4166564P
6	30	75	6	5	SMCE6307565P
8	30	75	8	5	SMCE8307585P
10	34	80	10	6	SMCE103480106P
12	38	85	12	6	SMCE123885126P
16	45	100	16	7	SMCE1645100167P



# CNR Solid Carbide Rasp Burr

## Finishing composite materials

### Application

Finishing all types of composite materials.  
Particularly suitable with 5-axis and robotic finishing.

### Machine

Mechanical.

### Design

Burr endmill for finishing composite materials.  
Burr geometry allows for easy programming when 5-axis or robotic machining.



Dia mm	CL mm	OAL mm	Shank mm	Z	Pt.No.
3	12	55	4	Multi	CNR312554
4	16	65	6	Multi	CNR416656
6	30	75	6	Multi	CNR630756
8	30	75	8	Multi	CNR830758
10	34	80	10	Multi	CNR10348010
12	38	85	12	Multi	CNR12388512
16	45	100	16	Multi	CNR164510016

# CRBL Solid Carbide Spirals

## Long reach ballnose spirals

### Application

Roughing and/or finishing composite materials.  
Long cut length and reach, so ideally suited for robotic arm milling.

### Machine

Mechanical.

### Design

Up shear flutes with a finishing edge.  
Full ballnose end so can be used for 3D and multi-axis machining.



Dia mm	CL mm	Reach mm	OAL mm	Shank mm	Z	Pt.No.
6	38	100	150	6	2	CRBL63815062
8	50	115	165	8	2	CRBL85016582
10	60	125	175	10	2	CRBL1060175102
12	75	150	200	12	2	CRBL1275200122
14	75	150	200	14	2	CRBL1475200142
16	75	150	200	16	2	CRBL1675200162
18	75	150	200	18	2	CRBL1875200182
20	75	150	200	20	2	CRBL2075200202
25	100	200	250	25	4	CRBL25100250254
32	125	200	250	32	4	CRBL32125250324





# CRUFL Solid Carbide Spirals

## Long reach endmills - square end

### Application

Roughing and/or finishing composite materials.  
Long cut length and reach, so ideally suited for robotic arm milling.

### Machine

Mechanical.

### Design

Up shear flutes with a finishing edge.  
20 degree helix provides a clean cut and good swarf evacuation.  
Stocked in square end and corner radius can be applied upon request.



Dia mm	CL mm	Reach mm	OAL mm	Shank mm	Z	Pt.No.
6	38	100	150	6	2	CRUFL63815062
8	50	115	165	8	2	CRUFL85016582
10	60	125	175	10	2	CRUFL1060175102
12	75	150	200	12	3	CRUFL1275200123
14	75	150	200	14	3	CRUFL1475200143
16	75	150	200	16	3	CRUFL1675200163
18	75	150	200	18	3	CRUFL1875200183
20	75	150	200	20	3	CRUFL2075200203
25	100	200	250	25	3	CRUFL25100250253
32	125	200	250	32	3	CRUFL32125250323

# CRBE Burr Endmill

## Milling & finishing fibre based material

### Application

Milling, trimming and sizing all composite material. Particularly suitable for providing a finish cut in one pass on carbon.

### Machine

Mechanical.

### Design

Special flute design with up shear and down shear chip breaker. All tools come standard with diamond coating for increased tool life.



Dia mm	CL mm	OAL mm	Shank mm	Z	Pt.No.
3	12	55	6	Multi	CRBE312556D
4	16	65	6	Multi	CRBE416656D
6	20	70	6	Multi	CRBE620706D
8	30	75	8	Multi	CRBE830758D
10	35	80	10	Multi	CRBE10358010D
12	35	90	12	Multi	CRBE12359012D
16	45	100	16	Multi	CRBE164510016D



# CRBB Burr Ballnose

## Milling & finishing fibre based material

### Application

Milling, trimming and sizing all composite material. Particularly suitable for providing a finish cut in one pass on carbon.

### Machine

Mechanical.

### Design

Special flute design with up shear and down shear chip breaker. All tools come standard with diamond coating for increased tool life. Ballnose end therefore suitable for 3D machining.



Dia mm	CL mm	OAL mm	Shank mm	Z	Pt.No.
3	12	55	6	Multi	CRBB312556D
4	16	65	6	Multi	CRBB416656D
6	20	70	6	Multi	CRBB620706D
8	30	75	8	Multi	CRBB830758D
10	35	80	10	Multi	CRBB10358010D
12	35	90	12	Multi	CRBB12359012D
16	45	100	16	Multi	CRBB164510016D

## CNC Aggregates

Tailor-made complete solutions

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## Automotive Partner

Our aggregate solutions for machining carbon and SMC components offer great potential for savings.





# CNC Aggregates

## ATEMAG

### ATEMAG Angle Unit WA

Angle head for drilling and milling fibre composites, aluminium or hybrid material composites.

The sophisticated design allows working with high continuous torque.

#### Application

- Drilling and milling of components made of various materials.
- Individual connection of the unit to your tool spindle.
- Automated changeover of the unit via tool changer.
- Drilling and milling tools adapted to your application.



### ATEMAG Angle Saw Unit WSA

Oil bath lubricated workhorse consisting of angle head and saw blade for working with high continuous torque.

#### Application

- Milling of components made of fibre composites, aluminium or hybrid material composites.
- Cross-industry machining of aluminium profiles.
- Individual connection of the unit to your tool spindle.
- Automated changeover of the unit via tool changer.
- Milling tool and feeler bell adapted to your application.
- Customised construction of the tool clamping system: TRIBOS polygonal chucks, ER collets, heat shrink chucks etc.

# CNC Aggregates

## ATEMAG

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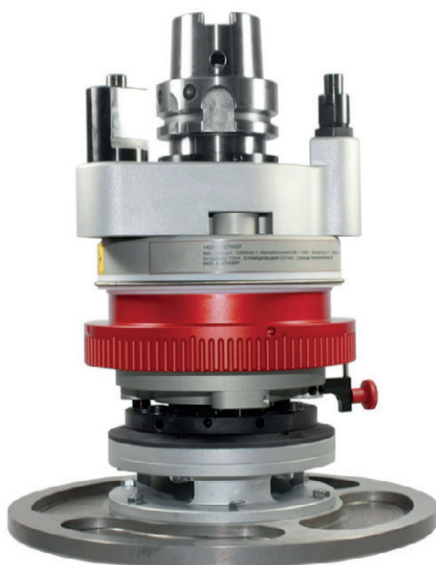
### ATEMAG Key-Lower Unit TSA

Complete solution consisting of sensing unit and drilling tool for process-reliable insertion of one-shot drill countersinks or countersinks in components with material-related thickness fluctuations or shape deviations.

#### Application

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- Drill countersinking of components made of fibre composites, aluminium or hybrid material composites.
- Individual connection to your tool spindle.
- Automated tool change via tool changer.
- Drilling tool and touch bell adapted to your application.
- Customised construction of the tool clamping system: TRIBOS polygonal chucks, ER collets, heat shrink chucks, etc.
- Highest performance in continuous operation



### ATEMAG Tactile Milling Unit TFA

Complete solution consisting of sensing unit and milling tool for reliable machining of grooves, chamfers or edge radii in components with material related thickness fluctuations or shape deviations.

#### Application

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- Milling of components made of fibre composites, aluminium or hybrid material composites.
- Cross-industry machining of aluminium profiles.
- Individual connection of the unit to your tool spindle.
- Automated changeover of the unit via tool changer.
- Milling tool and feeler bell adapted to your application.
- Customised construction of the tool clamping system: TRIBOS polygonal chucks, ER collets, heat shrink chucks, etc.



# CNC Aggregates

## ATEMAG

### ATEMAG Honeycomb-Soft-Cutter HSK

Complete solution consisting of cutting unit and oscillating carbide blade for fast and clean machining of honeycomb core structures, foams or other pressure sensitive products.

#### Application

- Cutting of honeycomb cores for aerospace, yacht construction and interior fittings for rail vehicles.
- Individual connection of the unit to your tool spindle.
- Automated changeover of the unit via tool changer.
- Cutting blades adapted to your application.
- Choice of mechanical or compressed air operated design.

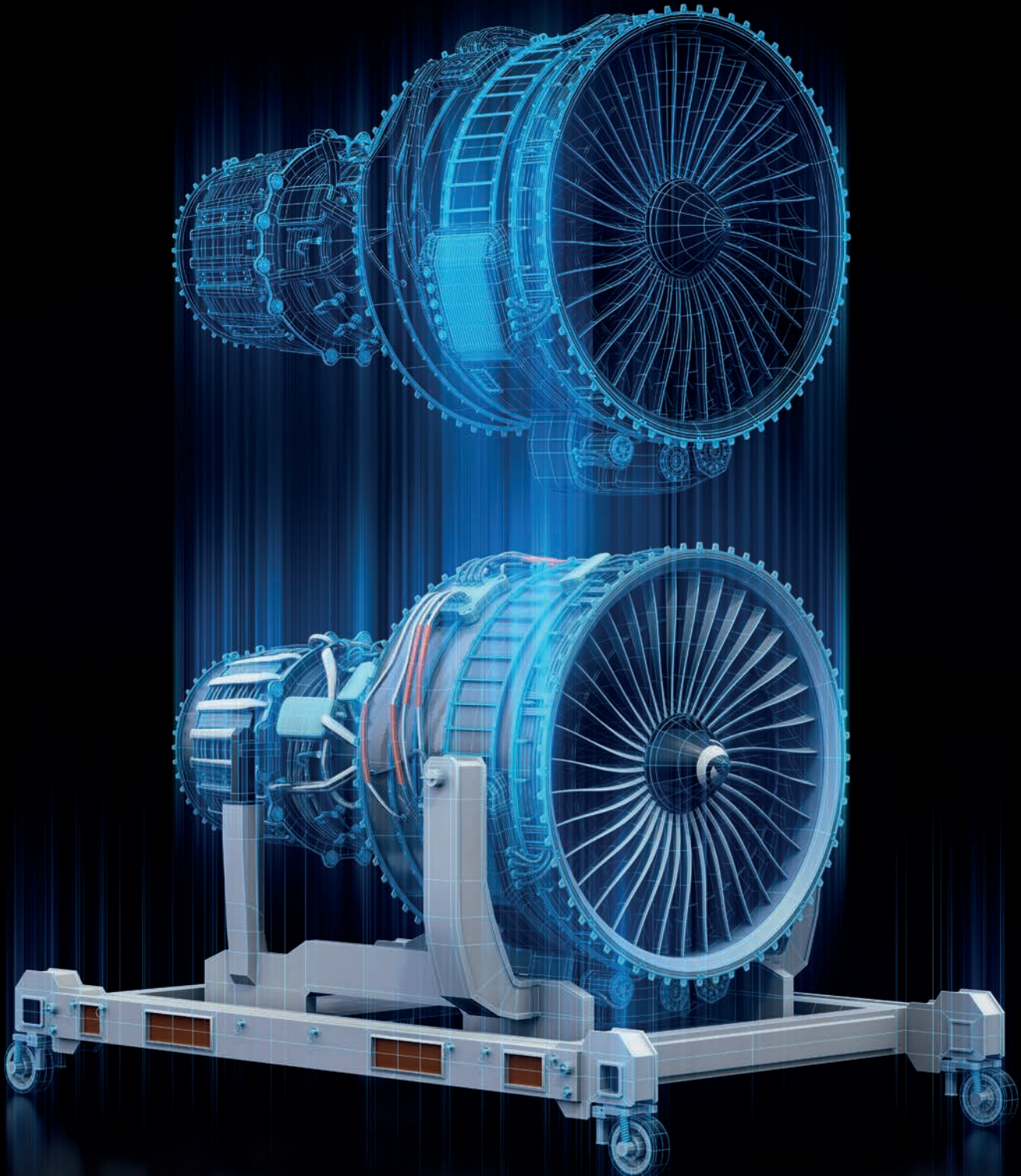


## Industry Solutions

Aviation and space travel

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Thanks to our partnership with ATEMAG, we can offer milling, tracing and countersinking aggregate units, as well as our angle head to the aerospace industry. Our solutions are found worldwide.







## Drilling Tools

### Solid carbide and PCD

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Our drills have been specifically designed for each application accordingly. The geometry of each drill is to provide consistent holes with zero delamination and fibre pull outs. We have designed these drills to provide a perfect finish with a long life time.

- Drills for all layered material (including CFRP).
- Drills for composite materials with aluminium.
- Drills for honeycomb in the aerospace industry.
- Drills for mechanical and manual machines.
- Solid carbide (with or without coating) and PCD tipped drills available.
- Large stock in the UK and in Germany.



# Solid Carbide DrillTEC-1

## For mechanical machines

### Application

Drilling all composite materials with a tear free finish.  
Suitable for peck and one-shot drilling.

### Machine

Mechanical.

### Design

Up shear provides swarf evacuation providing superior results for deep drilling.  
Leading edge geometry allows for locating and precise drilling.  
Available with and without diamond coating.



Dia mm	CL mm	OAL mm	Shank mm	Z	Shear	Machine	Pt.No.
2	7	50	2	2	Up shear	Mechanical	CRDT275022-1
2.5	10	55	3	2	Up shear	Mechanical	CRDT25105532-1
3	12	60	3	4	Up shear	Mechanical	CRDT3126034-1
3.5	14	65	4	4	Up shear	Mechanical	CRDT35156544-1
4	16	65	4	4	Up shear	Mechanical	CRDT4166544-1
4.5	18	65	6	4	Up shear	Mechanical	CRDT45186564-1
5	20	65	6	4	Up shear	Mechanical	CRDT5206564-1
5.5	22	65	6	4	Up shear	Mechanical	CRDT55226564-1
6	24	70	6	4	Up shear	Mechanical	CRDT6247064-1
6.5	26	70	8	4	Up shear	Mechanical	CRDT65267084-1
7	28	75	8	4	Up shear	Mechanical	CRDT7287584-1
7.5	30	75	8	4	Up shear	Mechanical	CRDT75307584-1
8	32	80	8	4	Up shear	Mechanical	CRDT8328084-1
8.5	34	80	10	4	Up shear	Mechanical	CRDT853480104-1
9	36	80	10	4	Up shear	Mechanical	CRDT93680104-1
9.5	38	85	10	4	Up shear	Mechanical	CRDT953885104-1
10	40	90	10	4	Up shear	Mechanical	CRDT104090104-1
10.5	42	90	12	4	Up shear	Mechanical	CRDT1054290124-1
11	44	95	12	4	Up shear	Mechanical	CRDT11449512-1
11.5	46	95	12	4	Up shear	Mechanical	CRDT1154595124-1
12	48	100	12	4	Up shear	Mechanical	CRDT1248100124-1



# Solid Carbide DrillTEC-2

## For manual machines

### Application

Drilling all composite materials with a tear free finish.  
Suitable for peck and one-shot drilling.

### Machine

Manual.

### Design

Down shear protects the top edge.  
Leading edge geometry allows for locating and precise drilling.  
Available with and without diamond coating.



Dia mm	CL mm	OAL mm	Shank mm	Z	Shear	Machine	Pt.No.
2	7	50	2	2	Down shear	Manual	CRDT275022-2
2.5	10	55	3	2	Down shear	Manual	CRDT25105532-2
3	12	60	3	4	Down shear	Manual	CRDT3126034-2
3.5	14	65	4	4	Down shear	Manual	CRDT35156544-2
4	16	65	4	4	Down shear	Manual	CRDT4166544-2
4.5	18	65	6	4	Down shear	Manual	CRDT45186564-2
5	20	65	6	4	Down shear	Manual	CRDT5206564-2
5.5	22	65	6	4	Down shear	Manual	CRDT55226564-2
6	24	70	6	4	Down shear	Manual	CRDT6247064-2
6.5	26	70	8	4	Down shear	Manual	CRDT65267084-2
7	28	75	8	4	Down shear	Manual	CRDT7287584-2
7.5	30	75	8	4	Down shear	Manual	CRDT75307584-2
8	32	80	8	4	Down shear	Manual	CRDT8328084-2
8.5	34	80	10	4	Down shear	Manual	CRDT853480104-2
9	36	80	10	4	Down shear	Manual	CRDT93680104-2
9.5	38	85	10	4	Down shear	Manual	CRDT953885104-2
10	40	90	10	4	Down shear	Manual	CRDT104090104-2
10.5	42	90	12	4	Down shear	Manual	CRDT1054290124-2
11	44	95	12	4	Down shear	Manual	CRDT11449512-2
11.5	46	95	12	4	Down shear	Manual	CRDT1154595124-2
12	48	100	12	4	Down shear	Manual	CRDT1248100124-2

# Solid Carbide CBD Drills

## Through & blind hole drilling

### Application

Drilling all composite materials with a tear free finish.  
Suitable for pec and one-shot drilling.

### Machine

Mechanical.

### Design

Special geometry provides a clean finish on the entry and exit of the hole.  
Available with and without diamond coating.



Dia mm	CL mm	OAL mm	Shank mm	Z	Pt.No.
2	7	50	2	2	CBD275022
2.5	10	55	3	2	CBD25105532
3	12	60	3	2	CBD3126032
3.5	14	65	4	2	CBD35146542
4	16	65	4	2	CBD4166542
4.5	18	65	6	2	CBD4518652
5	20	65	6	2	CBD5206562
5.5	22	65	6	2	CBD55226562
6	24	70	6	2	CBD6247062
6.5	26	70	8	2	CBD65267082
7	28	75	8	2	CBD7287582
7.5	30	75	8	2	CBD75307582
8	32	80	8	2	CBD8328082
8.5	34	80	10	2	CBD853480102
9	36	80	10	2	CBD93680102
9.5	38	85	10	2	CBD953885102
10	40	90	10	2	CBD104090102
10.5	42	90	12	2	CBD1054290122
11	44	95	12	2	CBD114495122
11.5	46	95	12	2	CBD1154695122
12	48	100	12	2	CBD1248100122
12.5	50	100	12	2	CBD12550100122
13	52	100	14	2	CBD1352100142
13.5	54	105	14	2	CBD13554105142
14	56	105	14	2	CBD1459105142



# Solid Carbide CBD Drills

## Through & blind hole drilling

Dia mm	CL mm	OAL mm	Shank mm	Z	Pt.No.
14.5	58	110	16	2	CBD14558110162
15	60	110	16	2	CBD1560110162
15.5	62	110	16	2	CBD15562110162
16	64	110	16	2	CBD1664110162
16.5	66	120	18	2	CBD16566120182
17	68	120	18	2	CBD1768120182
17.5	70	120	18	2	CBD17570120182
18	72	120	18	2	CBD1872120182
18.5	74	130	20	2	CBD18574130202
19	76	130	20	2	CBD1976130202
19.5	78	130	20	2	CBD19578130202
20	80	130	20	2	CBD2080130202
20.5	82	140	25	2	CBD20582140252
21	84	140	25	2	CBD2184140252
21.5	86	140	25	2	CBD21586140252
22	88	140	25	2	CBD2288140252
22.5	90	150	25	2	CBD22590150252
23	92	155	25	2	CBD2392155252
23.5	94	160	25	2	CBD23594160252
24	96	160	25	2	CBD2496160252
24.5	98	160	25	2	CBD24598160252
25	100	160	25	2	CBD25100160252

# Solid Carbide TiDUR Step Drill

## Cfk-Ti

### Application

- For drilling thermosets and thermoplastics or fibre composites from different compositions (stacks).
- Depending on the machine type (CNC-controlled or robot or hand-guided machine) which is connected to the cutting process, the cutting edge geometry is designed accordingly.
- Also suitable for the production of pilot holes.

### Tool Design

- VHW drilling tools in Z2 made of UFK tungsten carbide for long tool life when machining titanium-CfK stacks.
- Special drill geometry, designed for delamination-free, crack-free and burr-free operation.
- On request also available with cooling channels and in diamond-coated version.



D mm	Rivet Joint	Spiral Length mm	Shank mm	Shank Length mm	OAL mm	Z	Pt.No.
2	-	10	3	35	50	2	60002576
2.49	3/32"	12	3	33	50	2	60002577
2.75	-	14	3	41	60	2	60002578
3	-	15	3	40	60	2	60002579
3.175	-	15	3.175	50	70	2	60002580
3.25	1/8"	16	4	49	70	2	60002581
3.3	-	17	4	49	70	2	60002582
4	-	20	4	45	70	2	60002583
4.04	5/32"	20	5	45	70	2	60002584
4.1	-	21	5	45	70	2	60002585
4.17	-	21	5	54	80	2	60002586
4.5	-	23	5	53	80	2	60002587
4.763	-	23	4.763	52	80	2	60002588
4.85	3/16"	24	5	51	80	2	60002589
4.9	-	25	5	51	80	2	60002590
5	-	25	5	50	80	2	60002591
5.05	-	25	6	50	80	2	60002592
5.3	-	27	6	49	80	2	60002593
5.5	-	28	6	48	80	2	60002594
6	-	30	6	55	90	2	60002595
6.35	-	30	6.35	55	90	2	60002596
6.53	1/4"	33	8	52	90	2	60002597
7	-	35	8	50	90	2	60002598
7.5	-	38	8	52	90	2	60002599



# Solid Carbide TiDUR Step Drill

## Cfk-Ti

D mm	Rivet Joint	Spiral Length mm	Shank mm	Shank Length mm	OAL mm	Z	Pt.No.
7.938	-	38	7.938	47	90	2	60002600
8	-	40	8	55	100	2	60002601
8.03	5/16"	40	10	55	100	2	60002602
8.5	-	43	10	53	100	2	60002603
9	-	45	10	50	100	2	60002604
9.5	-	48	10	48	100	2	60002605
9.525	-	48	9.525	48	100	2	60002606
9.58	3/8"	48	10	47	100	2	60002607
10	-	50	10	45	100	2	60002608
10.5	-	53	12	63	120	2	60002609
11	-	55	12	60	120	2	60002610
11.11	-	55	11.11	60	120	2	60002611
11.5	-	58	12	58	120	2	60002612
12	-	60	12	55	120	2	60002613

# PCD Double Chamfer Drill

## MEC feed unit

### Application

- For drilling thermosets and thermoplastics or fibre composites from different compositions (CfK, GfK, SMC, ...).
- Depending on the type of machine (CNC-controlled or robot) which is connected to the cutting process, the cutting geometry is designed accordingly.

### Tool Design

- DP equipped drilling tools with VHW basic body for long tool life when machining CfK components.
- Special drill geometry, designed for delamination-free, crack-free and burr-free operation.



D mm	Spiral Length mm	Shank mm	Shank Length mm	OAL mm	Z	Pt.No.
3	15	3	40	60	2	60002614
3.175	15	3.175	50	70	2	60002615
3.25	16	4	49	70	2	60002616
3.3	17	4	49	70	2	60002617
4	20	4	45	70	2	60002618
4.04	20	5	45	70	2	60002619
4.1	21	5	45	70	2	60002620
4.17	21	5	54	80	2	60002621
4.5	23	5	53	80	2	60002622
4.763	23	4.763	52	80	2	60002623
4.85	24	5	51	80	2	60002624
4.9	25	5	51	80	2	60002625
5	25	5	50	80	2	60002626
5.05	25	6	50	80	2	60002627
5.3	27	6	49	80	2	60002628
5.5	28	6	48	80	2	60002629
6	30	6	55	90	2	60002630
6.35	30	6.35	55	90	2	60002631
6.53	33	8	52	90	2	60002632
7	35	8	50	90	2	60002633
7.5	38	8	48	90	2	60002634
7.938	38	7.938	47	90	2	60002635
8	40	8	55	100	2	60002636
8.03	40	10	55	100	2	60002637





# PCD Double Chamfer Drill

MEC feed unit

D mm	Spiral Length mm	Shank mm	Shank Length mm	OAL mm	Z	Pt.No.
8.5	43	10	53	100	2	60002638
9	45	10	50	100	2	60002639
9.5	48	10	48	100	2	60002640
9.525	48	9.525	47	100	2	60002641
9.58	48	10	47	100	2	60002642
10	50	10	45	100	2	60002643
10.5	53	12	63	120	2	60002644
11	55	12	60	120	2	60002645
11.11	55	11.11	60	120	2	60002646
11.5	58	12	58	120	2	60002647
12	60	12	55	120	2	60002648
12.7	65	12.7	45	115	2	60002649
13	65	16	45	115	2	60002650
13.5	65	16	45	115	2	60002651
14	65	16	45	115	2	60002652
15	70	16	45	120	2	60002653
15.88	70	15.88	45	120	2	60002654
16	80	16	45	130	2	60002655
18	80	20	55	140	2	60002656
20	80	20	55	140	2	60002657
21	80	25	60	145	2	60002658
22	80	25	60	145	2	60002659
23	100	25	60	165	2	60002660
24	100	25	60	165	2	60002661
25	100	25	60	165	2	60002662
25.4	100	25.4	60	165	2	60002663

# Solid Carbide TriDUR Countersink

## MEC feed unit

### Application

- For drilling and countersinking of thermosets and thermoplastics or fibre composites of different compositions (CfK, GfK, SMC etc.)
- Especially suitable for "one shot" riveted joints. Simultaneous precise insertion of rivet setups.
- Depending on the type of machine (CNC-controlled or robot), the cutting edge geometry is designed accordingly.



Version: Diamond coated

### Tool Design

- VHW drilling and countersinking tools with VHW basic body for long tool life when machining CfK components.
- Special drill geometry, designed for delamination-free, crack-free and burr-free operation.
- Also available with cooling channels and coating on request.



Version: Uncoated

D mm	Rivet Joint	Spiral Length mm	Shank mm	Shank Length mm	OAL mm	Z	Pt.No.
2	-	6	3	25	60	2	60002664
2.49	3/32"	6	3	25	60	2	60002665
2.75	-	6	3	25	60	2	60002666
3	-	6	3	25	60	2	60002667
3.175	-	6	3.175	25	60	2	60002668
3.25	1/8"	8	4	25	60	2	60002669
3.3	-	8	4	25	60	2	60002670
4	-	12	4	25	60	2	60002671
4.04	5/32"	12	5	30	70	3	60002672
4.1	-	12	5	30	70	3	60002673
4.17	-	12	5	30	70	3	60002674
4.5	-	12	5	30	70	3	60002675
4.763	-	12	4.763	30	70	3	60002676
4.85	3/16"	12	5	30	70	3	60002677
4.9	-	12	5	30	70	3	60002678
5	-	12	5	30	70	3	60002679
5.05	-	12	6	30	70	3	60002680
5.3	-	12	6	30	70	3	60002681
5.5	-	12	6	30	70	3	60002682
6	-	12	6	30	70	3	60002683
6.35	-	15	6.35	30	70	3	60002684
6.53	1/4"	15	8	30	70	3	60002685
7	-	15	8	30	70	3	60002686
7.5	-	15	8	30	70	3	60002687



# Solid Carbide TriDUR Countersink

## MEC feed unit

D mm	Rivet Joint	Spiral Length mm	Shank mm	Shank Length mm	OAL mm	Z	Pt.No.
7.938	-	15	7.938	40	70	3	60002688
8	-	15	8	40	80	3	60002689
8.03	5/16"	15	10	40	80	3	60002690
8.5	-	15	10	40	80	3	60002691
9	-	15	10	40	80	3	60002692
9.5	-	15	10	40	80	3	60002693
9.525	-	15	9.525	40	80	3	60002694
9.58	3/8"	15	10	40	80	3	60002695
10	-	20	10	40	90	3	60002696
10.5	-	20	12	40	100	3	60002697
11	-	20	12	40	100	3	60002698
11.11	-	20	11.11	40	100	3	60002699
11.5	-	20	12	40	100	3	60002700
12	-	20	12	40	100	3	60002701
12.7	-	20	12.7	40	100	3	60002702

# Solid Carbide AluDUR Countersink

## MEC feed unit

### Application

- For drilling and countersinking of thermosets and thermoplastics or fibre composites of different compositions (CfK, GfK, SMC, etc.).
- Especially for riveted joints in connection with aluminium components "one shot" can be used. Simultaneous precise insertion of rivet countersinks.
- Depending on the type of machine, the cutting edge geometry is designed accordingly.

### Tool Design

- VHW drilling and countersinking tools with VHW basic body for long tool life when machining CfK aluminium stacks.
- Special drill geometry, designed for delamination-free, crack-free and burr-free operation.
- Also available with cooling channels and coating on request.



D mm	Rivet Joint	Spiral Length mm	Shank mm	Shank Length mm	OAL mm	Z	Pt.No.
2	-	6	3	25	60	2	60002703
2.49	3/32"	6	3	25	60	2	60002704
2.75	-	6	3	25	60	2	60002705
3	-	6	3	25	60	2	60002706
3.175	-	6	3.175	25	60	2	60002707
3.25	1/8"	8	4	25	60	2	60002708
3.3	-	8	4	25	60	2	60002709
4	-	12	4	25	60	2	60002710
4.04	5/32"	12	5	30	70	2	60002711
4.1	-	12	5	30	70	2	60002712
4.17	-	12	5	30	70	2	60002713
4.5	-	12	5	30	70	2	60002714
4.763	-	12	4.763	30	70	2	60002715
4.85	3/16"	12	5	30	70	2	60002716
4.9	-	12	5	30	70	2	60002717
5	-	12	5	30	70	2	60002718
5.05	-	12	6	30	70	2	60002719
5.3	-	12	6	30	70	2	60002720
5.5	-	12	6	30	70	2	60002721
6	-	12	6	30	70	2	60002722
6.35	-	15	6.35	30	70	2	60002723
6.53	1/4"	15	8	30	70	2	60002724
7	-	15	8	30	70	2	60002725
7.5	-	15	8	30	70	2	60002726



# Solid Carbide AluDUR Countersink

## MEC feed unit

D mm	Rivet Joint	Spiral Length mm	Shank mm	Shank Length mm	OAL mm	Z	Pt.No.
7.938	-	15	7.938	40	70	2	60002727
8	-	15	8	40	80	2	60002728
8.03	5/16"	15	10	40	80	2	60002729
8.5	-	15	10	40	80	2	60002730
9	-	15	10	40	80	2	60002731
9.5	-	15	10	40	80	2	60002732
9.525	-	15	9.525	40	80	2	60002733
9.58	3/8"	15	10	40	80	2	60002734
10	-	20	10	40	90	2	60002735
10.5	-	20	12	40	100	2	60002736
11	-	20	12	40	100	2	60002737
11.11	-	20	11.11	40	100	2	60002738
11.5	-	20	12	40	100	2	60002739
12	-	20	12	40	100	2	60002740
12.7	-	20	12.7	40	100	2	60002741

# Industry Solutions

## Rail Transport

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By using our scanning units and angle heads, the machining processes can be carried out much more economically. The focus is on the drastic reduction of measuring times as well as manual reworking, or the complete elimination of these activities.





## PCD Countersinking Tools

In partnership with JSO

Whether designed as a single drill and counterbore or as a combined drill and counterbore solution in one tool, we have an economical solution for all your applications in the field of modern materials.

Our aim is to integrate drilling and countersinking operations in one shot i.e. in one production step, without reworking.

- Drilling / countersinking of CfK (carbon fibre reinforced plastic) components in series production with long service life due to special Diamond Coatings.
- Drilling / countersinking of stacks (CfK-Al or Al-CfK or CfK-Al-CfK or Al-CfK-Al).
- Drilling / countersinking of SMC (Sheet Molding Compound) components in series production without reworking the milled edge (no manual grinding process required).
- Drilling / countersinking of CSMC (Carbon Sheet Molding Compound) components in series production.
- Drilling / countersinking honeycombs in the aerospace industry.
- Drilling / countersinking of aluminium profiles in rail traffic.

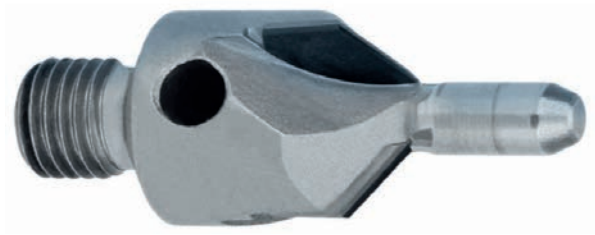


# PCD Countersink

## Manual or semi-automatic

### Application

- Use in manual or semi-automatic guided drill feed units (BVE). For countersinking rivet holes.
- The application spectrum covers a wide range of different material compositions.
- This countersinking tool meets the following requirements when machining aluminium, titanium, Cfk, GRP or other fibre composite materials.



### Tool Design

- DP-equipped countersinking tools in usual Z = 3 or multi-bladed design.
- Special cutting edge geometries and shapes for long tool life with hardened guide pins to minimise constriction and surface wear.
- Also available in VHW, HS-massiv and HW-equipped versions.

D mm	D Pin mm	Angle	Shank mm	Z	Total Length	Pt.No.
10	2.38	100°	M6 x 1	3	33	60002771
10	2.4	100°	M6 x 1	3	33	60002772
10	2.5	100°	M6 x 1	3	33	60002773
10	3.0	100°	M6 x 1	3	33	60002774
10	3.18	100°	M6 x 1	3	33	60002775
10	3.36	100°	M6 x 1	3	33	60002776
10	3.5	100°	M6 x 1	3	33	60002777
10	3.6	100°	M6 x 1	3	33	60002778
10	3.7	100°	M6 x 1	3	33	60002779
10	4.0	100°	M6 x 1	3	33	60002780
14	4.15	100°	M8 x 1	3	36	60002781
14	4.76	100°	M8 x 1	3	36	60002782
14	4.8	100°	M8 x 1	3	36	60002873
14	4.81	100°	M8 x 1	3	36	60002874
14	4.83	100°	M8 x 1	3	36	60002875
14	5.0	100°	M8 x 1	3	36	60002876
14	5.2	100°	M8 x 1	3	36	60002877
14	5.6	100°	M8 x 1	3	36	60002878
14	5.8	100°	M8 x 1	3	36	60002879
14	6.0	100°	M8 x 1	3	36	60002790
14	6.35	100°	M8 x 1	3	36	60002791
14	7.0	100°	M8 x 1	3	36	60002792
14	7.5	100°	M8 x 1	3	36	60002793
22	7.9	100°	M8 x 1	3	36	60002794





# PCD Countersink

## Manual or semi-automatic

D mm	D Pin mm	Angle	Shank mm	Z	Total Length	Pt.No.
22	7.94	100°	M8 x 1	3	36	60002795
22	8.0	100°	M8 x 1	3	36	60002796
22	8.5	100°	M8 x 1	3	36	60002797
22	9.0	100°	M8 x 1	3	36	60002798
22	9.52	100°	M8 x 1	3	36	60002799
22	10.0	100°	M8 x 1	3	36	60002800
22	11.12	100°	M8 x 1	3	36	60002801
22	12.0	100°	M8 x 1	3	36	60002802
22	12.7	100°	M8 x 1	3	36	60002803
10	2.38	100° + Bevel	M6 x 1	3	33	60002804
10	2.4	100° + Bevel	M6 x 1	3	33	60002805
10	2.5	100° + Bevel	M6 x 1	3	33	60002806
10	3.0	100° + Bevel	M6 x 1	3	33	60002807
10	3.18	100° + Bevel	M6 x 1	3	33	60002808
10	3.36	100° + Bevel	M6 x 1	3	33	60002809
10	3.5	100° + Bevel	M6 x 1	3	33	60002810
10	3.6	100° + Bevel	M6 x 1	3	33	60002811
10	3.7	100° + Bevel	M6 x 1	3	33	60002812
10	4.0	100° + Bevel	M6 x 1	3	33	60002813
14	4.15	100° + Bevel	M8 x 1	3	36	60002814
14	4.76	100° + Bevel	M8 x 1	3	36	60002815
14	4.8	100° + Bevel	M8 x 1	3	36	60002816
14	4.81	100° + Bevel	M8 x 1	3	36	60002817
14	4.83	100° + Bevel	M8 x 1	3	36	60002818
14	5.0	100° + Bevel	M8 x 1	3	36	60002819
14	5.2	100° + Bevel	M8 x 1	3	36	60002820
14	5.6	100° + Bevel	M8 x 1	3	36	60002821
14	5.8	100° + Bevel	M8 x 1	3	36	60002822
14	6.0	100° + Bevel	M8 x 1	3	36	60002823
14	6.35	100° + Bevel	M8 x 1	3	36	60002824
14	7.0	100° + Bevel	M8 x 1	3	36	60002825
14	7.5	100° + Bevel	M8 x 1	3	36	60002826
22	7.9	100° + Bevel	M8 x 1	3	36	60002827
22	7.94	100° + Bevel	M8 x 1	3	36	60002828
22	8.0	100° + Bevel	M8 x 1	3	36	60002829
22	8.5	100° + Bevel	M8 x 1	3	36	60002830
22	9.0	100° + Bevel	M8 x 1	3	36	60002831
22	9.52	100° + Bevel	M8 x 1	3	36	60002832
22	10.0	100° + Bevel	M8 x 1	3	36	60002833
22	11.12	100° + Bevel	M8 x 1	3	36	60002834
22	12.0	100° + Bevel	M8 x 1	3	36	60002835
22	12.7	100° + Bevel	M8 x 1	3	36	60002836

# PCD Countersink

## Manual or semi-automatic

D mm	D Pin mm	Angle	Shank mm	Z	Total Length	Pt.No.
10	2.38	130°	M6 x 1	3	33	60002837
10	2.4	130°	M6 x 1	3	33	60002838
10	2.5	130°	M6 x 1	3	33	60002839
10	3.0	130°	M6 x 1	3	33	60002840
10	3.18	130°	M6 x 1	3	33	60002841
10	3.36	130°	M6 x 1	3	33	60002842
10	3.5	130°	M6 x 1	3	33	60002843
10	3.6	130°	M6 x 1	3	33	60002844
10	3.7	130°	M6 x 1	3	33	60002845
10	4.0	130°	M6 x 1	3	33	60002846
14	4.15	130°	M8 x 1	3	36	60002847
14	4.76	130°	M8 x 1	3	36	60002848
14	4.8	130°	M8 x 1	3	36	60002849
14	4.81	130°	M8 x 1	3	36	60002850
14	4.83	130°	M8 x 1	3	36	60002851
14	5.0	130°	M8 x 1	3	36	60002852
14	5.2	130°	M8 x 1	3	36	60002853
14	5.6	130°	M8 x 1	3	36	60002854
14	5.8	130°	M8 x 1	3	36	60002855
14	6.0	130°	M8 x 1	3	36	60002856
14	6.35	130°	M8 x 1	3	36	60002857
14	7.0	130°	M8 x 1	3	36	60002858
14	7.5	130°	M8 x 1	3	36	60002859
22	7.9	130°	M8 x 1	3	36	60002860
22	7.94	130°	M8 x 1	3	36	60002861
22	8.0	130°	M8 x 1	3	36	60002862
22	8.5	130°	M8 x 1	3	36	60002863
22	9.0	130°	M8 x 1	3	36	60002864
22	9.52	130°	M8 x 1	3	36	60002865
22	10.00	130°	M8 x 1	3	36	60002866
22	11.12	130°	M8 x 1	3	36	60002867
22	12.0	130°	M8 x 1	3	36	60002868
22	12.7	130°	M8 x 1	3	36	60002869
10	2.38	130° + Bevel	M6 x 1	3	33	60002870
10	2.4	130° + Bevel	M6 x 1	3	33	60002871
10	2.5	130° + Bevel	M6 x 1	3	33	60002872
10	3.0	130° + Bevel	M6 x 1	3	33	60002873
10	3.18	130° + Bevel	M6 x 1	3	33	60002874
10	3.36	130° + Bevel	M6 x 1	3	33	60002875
10	3.5	130° + Bevel	M6 x 1	3	33	60002876
10	3.6	130° + Bevel	M6 x 1	3	33	60002877
10	3.7	130° + Bevel	M6 x 1	3	33	60002878



# PCD Countersink

## Manual or semi-automatic

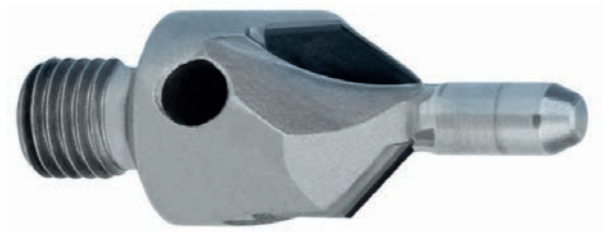
D mm	D Pin mm	Angle	Shank mm	Z	Total Length	Pt.No.
10	4.0	130° + Bevel	M6 x 1	3	33	60002879
14	4.15	130° + Bevel	M8 x 1	3	36	60002880
14	4.76	130° + Bevel	M8 x 1	3	36	60002881
14	4.8	130° + Bevel	M8 x 1	3	36	60002882
14	4.81	130° + Bevel	M8 x 1	3	36	60002883
14	4.83	130° + Bevel	M8 x 1	3	36	60002884
14	5.0	130° + Bevel	M8 x 1	3	36	60002885
14	5.2	130° + Bevel	M8 x 1	3	36	60002886
14	5.6	130° + Bevel	M8 x 1	3	36	60002887
14	5.8	130° + Bevel	M8 x 1	3	36	60002888
14	6.0	130° + Bevel	M8 x 1	3	36	60002889
14	6.35	130° + Bevel	M8 x 1	3	36	60002890
14	7.0	130° + Bevel	M8 x 1	3	36	60002891
14	7.5	130° + Bevel	M8 x 1	3	36	60002892
22	7.9	130° + Bevel	M8 x 1	3	36	60002893
22	7.94	130° + Bevel	M8 x 1	3	36	60002894
22	8.0	130° + Bevel	M8 x 1	3	36	60002895
22	8.5	130° + Bevel	M8 x 1	3	36	60002896
22	9.0	130° + Bevel	M8 x 1	3	36	60002897
22	9.52	130° + Bevel	M8 x 1	3	36	60002898
22	10.0	130° + Bevel	M8 x 1	3	36	60002899
22	11.12	130° + Bevel	M8 x 1	3	36	60002900
22	12.0	130° + Bevel	M8 x 1	3	36	60002901
22	12.7	130° + Bevel	M8 x 1	3	36	60002902

# PCD Countersink

## With exchangeable guide pins

### Application

- Use in manual or semi-automatic guided drill feed units (BVE). For countersinking rivet holes.
- The application spectrum covers a wide range of different material compositions.
- This countersinking tool meets the following requirements when machining aluminium, titanium, Cfk, GRP or other fibre composite materials.



### Tool Design

- DP-equipped countersinking tools in usual Z = 3 or multi-bladed design.
- Special cutting edge geometries and shapes for long tool life with hardened guide pins to minimise constriction and surface wear.
- The repair set includes all 8 basic body versions with the matching guide pins.

D mm	D Pin mm	Angle	Shank mm	Z	Total Length	Pt.No.
10	2.38 - 4.0	100°	M6 x 1	3	33	60002903
10	4.0 - 5.0	100°	M6 x 1	3	33	60002904
14	2.38 - 4.0	100°	M8 x 1	3	36	60002905
14	4.0 - 5.0	100°	M8 x 1	3	36	60002906
14	5.0 - 6.0	100°	M8 x 1	3	36	60002907
14	6.0 - 10.0	100°	M8 x 1	3	36	60002908
22	5.0 - 6.0	100°	M8 x 1	3	36	60002909
22	6.0 - 10.0	100°	M8 x 1	3	36	60002910
10	2.38 - 4.0	130°	M6 x 1	3	33	60002911
10	4.0 - 5.0	130°	M6 x 1	3	33	60002912
14	2.38 - 4.0	130°	M8 x 1	3	36	60002913
14	4.0 - 5.0	130°	M8 x 1	3	36	60002914
14	5.0 - 6.0	130°	M8 x 1	3	36	60002915
14	6.0 - 10.0	130°	M8 x 1	3	36	60002916
22	5.0 - 6.0	130°	M8 x 1	3	36	60002917
22	6.0 - 10.0	130°	M8 x 1	3	36	60002918



# PCD Countersink

## With exchangeable guide pins

### GK1 + GK4

D Pin mm	Pt.No.
2.38	60003020
2.4	60002919
2.5	60002920
3.0	60002921
3.18	60002922
3.36	60002923
3.5	60002924
3.6	60002925
3.7	60002926
4.0	60002927
4.15	60002928
4.76	60002929
4.8	60002930
4.81	60002931
4.83	60002932
5.0	60002933

### GK2 + GK5

D Pin mm	Pt.No.
2.38	60002934
2.4	60002935
2.5	60002936
3.0	60002937
3.18	60002938
3.36	60002939
3.5	60002940
3.6	60002941
3.7	60002942
4.0	60002943
4.15	60002944
4.76	60002945
4.8	60002946
4.81	60002947
4.83	60002948
5.0	60002949
5.2	60002950
5.6	60002951
5.8	60002952
6.0	60002953
6.35	60002954
7.0	60002955
7.5	60002956
7.9	60002957
7.94	60002958
8.0	60002959
8.5	60002960
9.0	60002961
9.52	60002962
10.0	60002963

### GK3 + GK6

D Pin mm	Pt.No.
3.18	60002964
3.36	60002965
3.5	60002966
3.6	60002967
3.7	60002968
4.0	60002969
4.15	60002970
4.76	60002971
4.8	60002972
4.81	60002973
4.83	60002974
5.0	60002975
5.2	60002976
5.6	60002977
5.8	60002978
6.0	60002979
6.35	60002980
7.0	60002981
7.5	60002982
7.9	60002983
7.94	60002984
8.0	60002985
8.5	60002986
9.0	60002987
9.52	60002988
10.0	60002989

# Industry Solutions

Automotive

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# Clamping Systems

In partnership with Haimer, AKE & JSO

Our clamping systems for milling, drilling and sawing have been developed by a group of companies; Haimer, AKE & JSO. With this, we have a solution for every application. Please contact us for all requirements.

- All designs available; HSK-A, HSK-F, HSK-E, BT-30, BT-40, SK-30, SK-40.
- Large stock available in the UK and Germany.
- Clamping devices for all type of cutting tools.
- All tool holders are within G2.5 x 25,000 RPM tolerance.

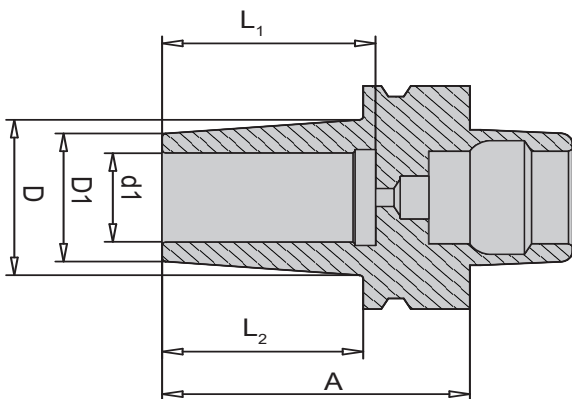


# HSK-F63 Shrink Fit Tool Holder

Manufactured by Haimer

## Tool Design

- High precision tool holder with thermal clamping technology.
- Finely balanced; G2.5 x 25,000 RPM.
- Accuracy of 0.003mm at 3 x D.
- Comes complete with balancing screw holes.
- Available in standard and long version.
- Recommended to reduce vibration, thus leading to improved tool life and application finish.
- For clamping Solid Carbide, HSS, Densimetal and Steel shanks.



d1 mm	D1 mm	D mm	L mm	A mm	Pt.No.
3	10	-	9	80	F63.140.03
4	10	-	12	80	F63.140.04
5	10	-	15	80	F63.140.05
6	21	27	36	80	F63.140.06
8	21	27	36	80	F63.140.08
10	24	32	42	85	F63.140.10
12	24	32	47	90	F63.140.12
16	27	34	50	95	F63.140.16
20	33	42	52	100	F63.140.20
25	44	53	58	115	F63.140.25
6	21	27	36	130	F63.144.06
8	21	27	36	130	F63.144.08
10	24	32	42	130	F63.144.10
12	24	32	47	130	F63.144.12
16	27	34	50	130	F63.144.16
20	33	42	52	130	F63.144.20
25	44	53	58	130	F63.144.25



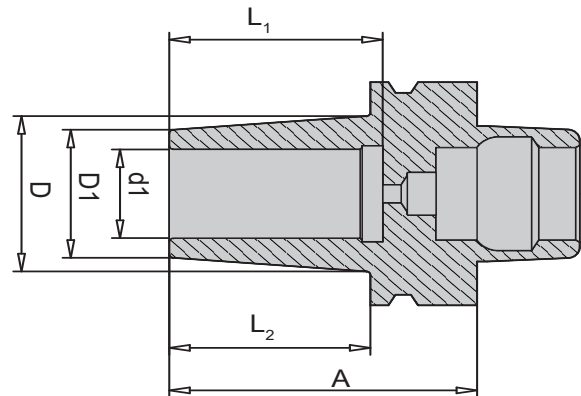


# HSK-A63 Shrink Fit Tool Holder

Manufactured by Haimer

## Tool Design

- High precision tool holder with thermal clamping technology.
- Finely balanced; G2.5 x 25,000 RPM.
- Accuracy of 0.003mm at 3 x D.
- Comes complete with balancing screw holes.
- Available in standard and long version.
- Recommended to reduce vibration, thus leading to improved tool life and application finish.
- For clamping Solid Carbide, HSS, Densimetal and Steel shanks.



### Short Series

d1 mm	D1 mm	D mm	L mm	A mm	Pt.No.
3	10	-	9	80	A63.140.03.1
4	10	-	12	80	A63.140.04.1
5	10	-	15	80	A63.140.05.1
6	21	27	36	80	A63.140.06
8	21	27	36	80	A63.140.08
10	24	32	42	85	A63.140.10
12	24	32	47	90	A63.140.12
14	27	34	47	90	A63.140.14
16	27	34	50	95	A63.140.16
18	33	42	50	95	A63.140.18
20	33	42	52	100	A63.140.20
25	44	53	58	115	A63.140.25
32	44	53	58	120	A63.140.32

### Middle Series

d1 mm	D1 mm	D mm	L mm	A mm	Pt.No.
3	10	-	9	120	A63.147.03.1
4	10	-	12	120	A63.147.04.1
5	10	-	15	120	A63.147.05.1
6	21	27	36	120	A63.147.06
8	21	27	36	120	A63.147.08
10	24	32	42	120	A63.147.10
12	24	32	47	120	A63.147.12
14	27	34	47	120	A63.147.14
16	27	34	50	120	A63.147.16
18	33	42	50	120	A63.147.18
20	33	42	52	120	A63.147.20



# HSK-A63 Shrink Fit Tool Holder

Manufactured by Haimer

## Long Series

d1 mm	D1 mm	D mm	L mm	A mm	Pt.No.
3	10	-	9	130	A63.144.03.1
4	10	-	12	130	A63.144.04.1
5	10	-	15	130	A63.144.05.1
6	21	27	36	130	A63.144.06
8	21	27	36	130	A63.144.08
10	24	32	42	130	A63.144.10
12	24	32	47	130	A63.144.12
14	27	34	47	130	A63.144.14
16	27	34	50	130	A63.144.16
18	33	42	50	130	A63.144.18
20	33	42	52	130	A63.144.20
25	44	53	58	130	A63.144.25

## XL Series

d1 mm	D1 mm	D mm	L mm	A mm	Pt.No.
6	21	27	36	160	A63.142.06
8	21	27	36	160	A63.142.08
10	24	32	42	160	A63.142.10
12	24	32	47	160	A63.142.12
14	27	34	47	160	A63.142.14
16	27	34	50	160	A63.142.16
18	33	42	50	160	A63.142.18
20	33	42	52	160	A63.142.20
25	44	53	58	160	A63.142.25
32	44	53	58	160	A63.142.32

## XXL Series

d1 mm	D1 mm	D mm	L mm	A mm	Pt.No.
6	21	27	36	200	A63.146.06
8	21	27	36	200	A63.146.08
10	24	32	42	200	A63.146.10
12	24	32	47	200	A63.146.12
14	27	34	47	200	A63.146.14
16	27	34	50	200	A63.146.16
18	33	42	50	200	A63.146.18
20	33	42	52	200	A63.146.20
25	44	53	58	200	A63.146.25
32	44	53	58	200	A63.146.32

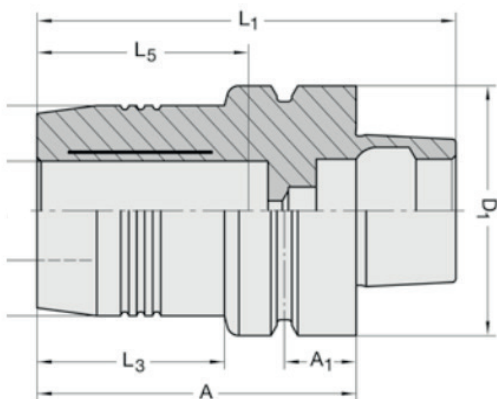


# HSK-F63 Hydraulic Tool Holder

Manufactured by JSO

## Tool Design

- High precision tool holder with hydraulic clamping technology.
- Finely balanced; G2.5 x 25,000 RPM.
- Available in limited shank diameters.
- Recommended to reduce vibration, thus leading to improved tool life and application finish.
- For clamping Solid Carbide, HSS, Densimetal and Steel shanks.
- Quick and easy tool changes due to no collet.



ID mm	L3 mm	A mm	L1 mm	Pt.No.
10	34	80	105	21016-0-10063-0
12	34	80	105	21016-0-12063-0
16	34	80	105	21016-0-16063-0
20	54	80	105	21016-0-20063-0
25	64	90	115	21016-0-25063-0

# HSK-F63 Collet Chuck Tool Holder

Manufactured by AKE

## Tool Design

- High precision collet chuck tool holder.
- Finely balanced; G2.5 x 25,000 RPM.
- Offers tighter clamping tolerance than all other collet chucks.
- New nut system prevents dust penetrating the collet.
- For clamping Solid Carbide, HSS, Densimetal and Steel shanks.



L3 mm	A mm	nm	Suitable Collets	Pt.No.
76	53	180	462e	10185756

462e collets to suit

D mm	ID mm	L1 mm	Clamping Tolerance	Pt.No.
32.9	3.0	52	2.5 - 3.0	40003064
32.9	4.0	52	3.5 - 4.0	40002435
32.9	5.0	52	4.5 - 5.0	40002305
32.9	6.0	52	5.5 - 6.0	10002432
32.9	6.5	52	6.0 - 6.5	10002433
32.9	8.0	52	7.5 - 8.0	40002306
32.9	9.5	52	9.0 - 9.5	10002434
32.9	10.0	52	9.5 - 10.0	10002435
32.9	12.0	52	11.5 - 12.0	10002436
32.9	13.0	52	12.5 - 13.0	10002437
32.9	14.0	52	13.5 - 14.0	40002308
32.9	16.0	52	15.5 - 16.0	10002438
32.9	18.0	52	17.5 - 18.0	40002311
32.9	20.0	52	19.5 - 20.0	10013431
32.9	25.0	52	24.5 - 25.0	40002313
32.9	25.4	52	25.0 - 25.4	10002440



# Shrink Machines

## Manufactured by Haimer



### Haimer Shrink Fit SE

- Shrinking the tooling in and out of the shrink tool holders.
- Tool holders are heated by the coil which expands the bore. The cutting tool can be inserted and once cooled, the tool is gripped with extremely high clamping forces and accuracy.
- The tool holder is cooled by a cooling body after shrinking. This process takes less than 60 seconds.
- The machine utilising a single coil for the induction heating. Stop discs are provided for each diameter range and are inserted in the top of the coil.
- Clamping range 3-32mm shank diameter.

### Haimer Shrink Fit Economic Plus NG

- Shrinking the tooling in and out of the shrink tool holders.
- Tool holders are heated by the coil which expands the bore. The cutting tool can be inserted and once cooled, the tool is gripped with extremely high clamping forces and accuracy.
- The tool holder is cooled by a cooling body after shrinking. This process takes less than 60 seconds.
- The machine utilising a single coil for the induction heating. No stop discs are required.
- Clamping range 3-32mm shank diameter.



# Circular Saw Blades

## Manufactured by AKE

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Our saw blades have been developed and manufactured in collaboration with AKE, known worldwide for their solutions and quality.

- Standard and special solutions.
- Large stock available in the UK and Germany.
- Tooth geometry available for all applications.
- All PCD saw blades can be serviced in the UK.





# 7014 PCD Saw Blades

## Manufactured by AKE

### Application

Sizing all composite materials.

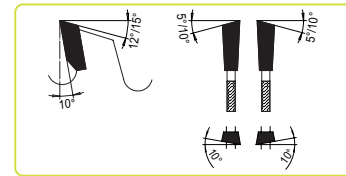
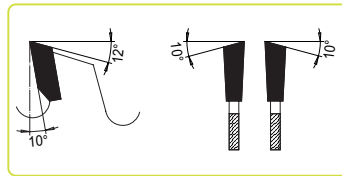
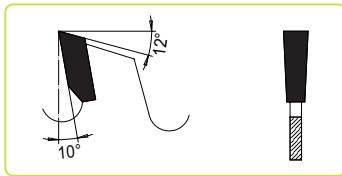
### Machine

Mechanical.



### Design

Flat tooth (F), Alternate top bevel tooth (W), Alternate top bevel tooth with axial angle (W, AW), PCD tipped.



D mm	B mm	b mm	d mm	NL mm	BH mm	Z	Tooth shape	Pt.No.
180	3,20	2,20	30		5,0	36	F	7015.180.31
180	3,20	2,20	30		5,0	36	W	7015.180.30
180	3,20	2,20	30		5,0	54	F	7015.180.36
180	3,20	2,20	30		5,0	54	W	7015.180.35
250	3,20	2,20	30		5,0	48	W	7014.250.30
250	3,20	2,20	30	NLK	5,0	60	W, AW	7014.250.007
250	3,20	2,20	30		4,0	72	W	7015.250.31
303	3,20	2,20	30	NLK	5,0	48	W	7014.303.25
303	3,20	2,20	30	NLK	5,0	60	W	7014.303.33
303	3,20	2,20	30	NLK	4,0	72	W, AW	7014.303.31
303	3,20	2,20	30	NLK	5,0	72	W	7014.303.34
303	3,20	2,20	30	NLK	4,0	96	W, AW	7015.303.30
350	3,50	2,40	30	NLK	4,0	72	W	7014.350.31
350	3,50	2,40	30	NLK	4,0	108	W	7015.350.30

# 7021 PCD Saw Blades

## Manufactured by AKE

### Application

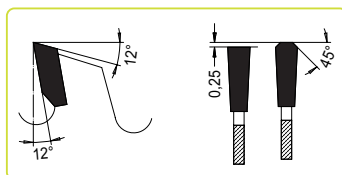
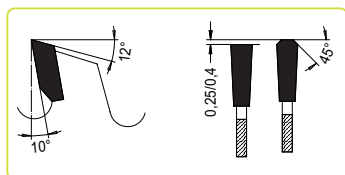
Sizing all composite materials.

### Machine

Mechanical.

### Design

Triple chip flat tooth, PCD tipped. Rigid saw body with copper plugs.



D mm	B mm	b mm	d mm	NL mm	BH mm	Z	Tooth shape	Pt.No.
250	3,20	2,20	30	NLK	5,0	48	FT	7021.250.30
250	3,20	2,20	30	NLK	5,0	60	FT	7021.250.31
300	3,20	2,20	30	NLK	4,0	96	FT	7021.300.30
303	3,20	2,20	30	NLK	5,0	48	FT	7021.303.25
303	3,20	2,20	30	NLK	5,0	60	FT	7021.303.31
303	3,20	2,20	30	NLK	5,0	72	FT	7021.304.38
350	3,50	2,40	30	NLK	4,0	96	FT	7021.350.30





# 7024 PCD Saw Blades

Manufactured by AKE

## Application

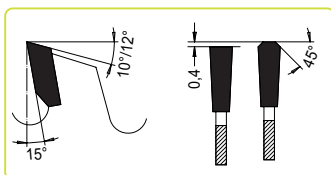
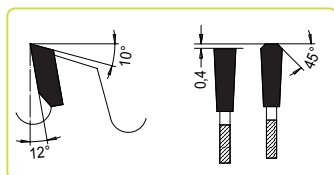
Sizing all composite materials, singles or packs.

## Machine

Mechanical.

## Design

Triple chip flat tooth, PCD tipped. Rigid saw body with copper plugs and laser slots.



D mm	B mm	b mm	d mm	NL mm	BH mm	Z	Tooth shape	Pt.No.
305	4,40	3,00	30		5,0	60	FT	7024.305.37
350	4,40	3,00	30	2/10/60	5,0	72	FT	7024.350.05
350	4,40	3,20	30		5,0	84	FT	7024.350.30
380	4,40	3,20	30		5,0	72	FT	7024.380.30
380	4,40	3,20	60	2/14/100	5,0	72	FT	7024.380.13
380	4,80	3,50	60	2/14/100	5,0	72	FT	7024.380.66
400	4,40	3,20	30		5,0	72	FT	7024.400.08
430	4,40	3,20	80	4/19/120 2/9/130	5,0	72	FT	7024.430.05
450	4,80	3,50	30		5,0	72	FT	7024.450.30
450	4,80	3,50	60	2/19/120 2/14/125	5,0	72	FT	7024.450.62
480	4,80	3,50	60	2/11/115 2/19/120	5,0	72	FT	7124.480.60
500	4,80	3,50	30		5,0	72	FT	7024.500.30
600	5,80	4,00	60	2/11/115 2/19/120	6,5	60	FT	7024.600.60
620	6,20	4,00	40	2/13/114 2/13/140	6,5	60	FT	7024.620.40
680	5,80	4,00	40	2/13/114 2/13/140	6,5	60	FT	7024.680.42
680	6,20	4,00	40	2/13/114 2/13/140	6,5	60	FT	7024.680.41



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