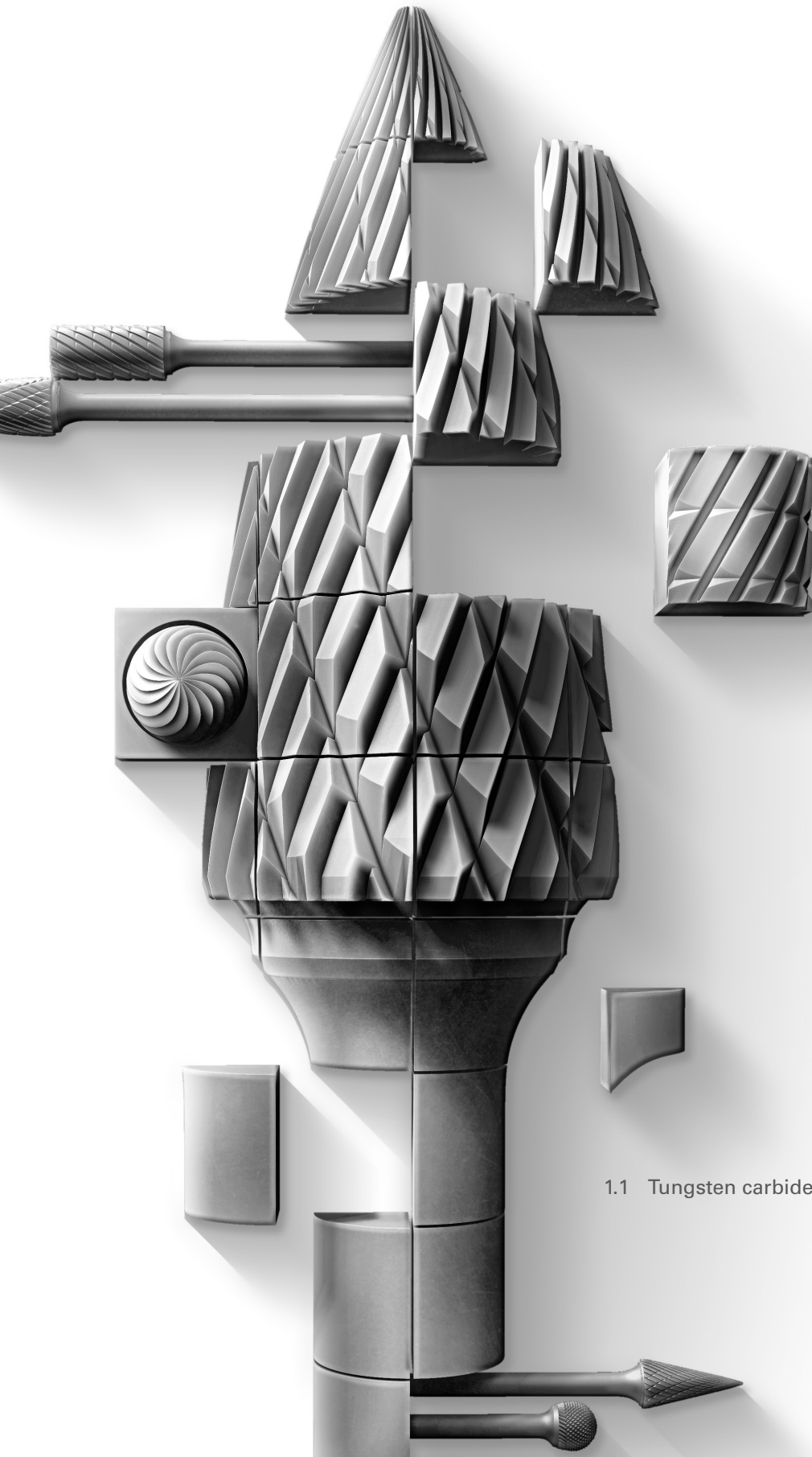




1.1 Tungsten carbide burrs

MILLING

1-16

TECHNICAL INFORMATION AND PRODUCT INFORMATION

LUKAS tungsten carbide burrs

QUALITY

LUKAS carbide burrs are manufactured using high-quality solid carbides on modern CNC automatic grinding machines in order to guarantee precision and repeatability of angle, profile and twist. **Our Head Office in Germany manufactures solid carbide burrs to your drawings and specifications to help you solve difficult stock removal problems.**

APPLICATION

Selecting the right cut and speed is key for achieving the best results when working with a variety of materials. Please refer to the tables for cut and cutting speed.

POWER TOOLS

Electrical or pneumatic tools, with bearings and collets that are in good condition and run true, are key to getting perfect results. Vibration and chatter will cause premature wear and tooth breakage. Excessive working pressure will increase wear but not increase performance.

SHANKS

For safety reasons, always choose the largest shank diameter available from the table. All burr shanks from LUKAS have a shank diameter tolerance of h9 to ensure safe and smooth assembly. Other shank lengths and diameters are available upon request.

ROBOT APPLICATION

LUKAS solid carbide burrs are precision tools that have proven themselves in deburring work with industrial robots. We can also develop the perfect tool to suit your application.

SPECIAL TOOLS

We manufacture solid carbide burrs to your drawings and specifications to help you solve difficult stock removal problems.

PACKAGING

We use plastic packaging. Please refer to the product tables for the respective packaging units.

RECOMMENDATIONS FOR USE

Select the cut according to the material to be machined. The rule of thumb is: **the harder the material, the finer the cut.**

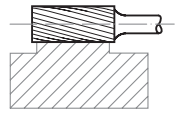
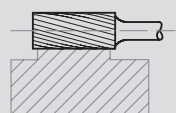
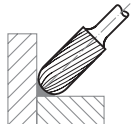
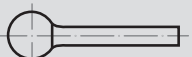
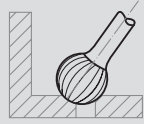
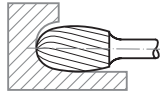
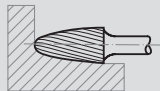
Selecting the right speed is key when it comes to achieving perfect working results and long tool life. The following pages contain information that can help you determine the right speed for your process.

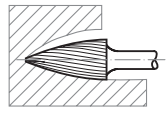
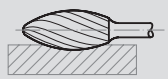
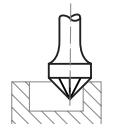
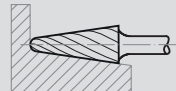
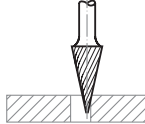
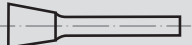
Use the highest speeds possible within the ranges listed. **Speeds that are too low cause vibration, chipping and premature wear!** Reduce the speed of the burrs only when working with large contact angles or materials with low heat conductivity. **Never allow blue discolouration to appear on the shank and head.** For safety reasons, the use of longer shanks requires lower speeds.

Always ensure the settings of your power tool are properly adjusted for the job and material at hand. Avoid a reduction in speed caused by insufficient drive power, especially when using pneumatic machines. Only use collets that run true. Run-out and vibration will result in chipping and premature wear. For the same reasons, make sure that the machine bearings are in perfect condition. To avoid vibrations and shank breakage, select the shortest shank overhang possible.

SHAPE

A summary of available shapes

Shape		Application
	Type A Cylindrical	
	Type B Cylindrical with End cut	
	Type C Cylindrical round nose	
	Type D Spherical	
	Type E Oval	
	Type F Arch round nose	

Shape		Application
	Type G Arch pointed nose	
	Type H Flame	
	Type M Counter sink	
	Type L Conical round nose	
	Type M Conical pointed nose	
	HFN Inverted cone	

RECOMMENDATIONS FOR USE

Select the cut to suit the material to be machined. Please kindly follow the principle: The harder the material, the finer the cut! The correct selection of speed is the basis of achieving optimum machining results and long tool-life.

Use the highest possible speed within the indicated area. Too low a speed results in vibration, chipping and premature wear! Reduce the speed of the burrs only when using in large arc angles or when used on low heat conducting materials. Never let the

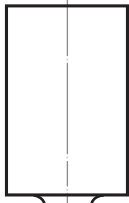
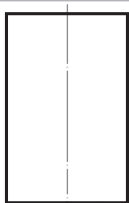
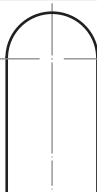
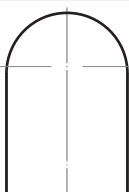
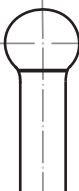
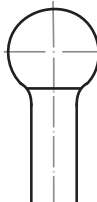
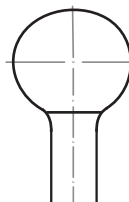
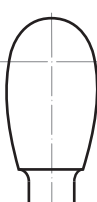
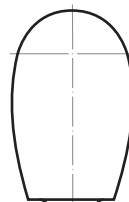
shank and head become discoloured blue. For safety reasons, extended shanks should also be run at low speed. The power of your machine should be compatible with the machining process. A reduction in RPM due to lack of power – is a very common problem

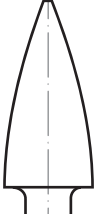
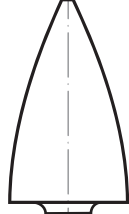
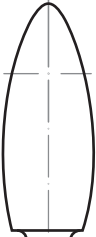
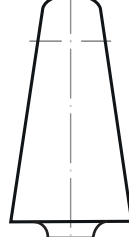
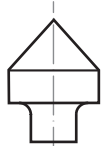
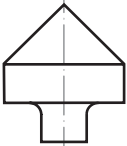
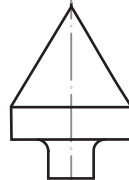
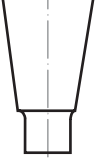
LUKAS BURR SETS

Have the right tool for any application. Choose from our assortment of burrs to test for your toolbox and much more on **page 16**. Recommendations for use

SHAPE

Actual shape sizes

Shape	Popular sizes				
  Type A Cylindrical	 A031203	 A061606	 A102006	 A122506	 A162508
  Type B Cylindrical with End cut	 B031203	 B061606	 B102006	 B122506	 B162506
 Type C Cylindrical round nose	 C031203	 C061606	 C102006	 C122506	 C162506
 Type D Spherical	 D030303	 D060606	 D101006	 D121206	 D161606
 Type E Oval	 E030603	 E061006	 E101606	 E122006	 E162506
 Type F Arch round nose	 F031203	 F061606	 F102006	 F122506	 F162506

Shape	Popular Sizes				
 Type G Pointed tree					
	G031203	G061606	G102006	G122506	G162506
 Type H Flame					
			H082006	H123006	
 Type L Ball Nose Cone 14° angle					
	L031203	L061606	L103006	L123006	L163006
 Type M Cone					
	M031203	M031603	M061606	M102006	M122506
 Type M Counter sink					
	M100806-90°	M121006-90°	M161206-90°	M101006-60°	M161606-60°
 Type N Inverted Cone-End					
		N060606	N121206		

RECOMMENDATIONS FOR USE AND CUTS

Three steps to your perfect tungsten carbide burr

STEP 1

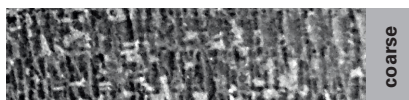
Begin by selecting the right **material** and **machining mode** (coarse to fine) from the table.

STEP 2

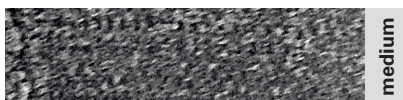
Read off the recommended **cut** and **cutting speed**.

Material	Strength (N/mm ²)	Machining	Cut	Recommended cutting speed v_c (m/min)
● Steel, cast steel	up to 800	coarse	Z3, Z Cross	500–700
		medium	Z42 Inox/Steel	300–500
		fine	-	-
	800 to 1,200	coarse	Z Cross	400–600
		medium	-	-
		fine	-	-
	from 1,200	coarse	Z Cross	300–500
		medium	-	-
		fine	-	-
● Stainless steel	up to 800	coarse	Z4	500–700
		medium	Z3, Z42 Inox/Steel	300–500
		fine	-	-
● Cast material	150 to 300	coarse	-	-
		medium	Z Cross	300–500
	300 to 450	coarse	Z Cross	300–500
		medium	-	-
		fine	-	-
● Aluminium	up to 450	coarse	Z9 Alu	600–1,000
		medium	-	-
● Brass and bronze	up to 450	coarse	Z9 Alu	400–800
	from 450	medium	-	-
		fine	-	-
● Titanium	up to 900	coarse	-	-
		medium	Z Cross	300–400
		fine	-	-
	900 to 1,500	coarse	Z4	300–400
		medium	-	-
		fine	-	-
Material	Strength (N/mm ²)	Machining	Cut	Recommended cutting speed v_c (m/min)
● Plastic and wood	20 to 400	coarse	Composite coarse/fine, Z1, Z9 Alu	600–1,000
		fine	Composite coarse/fine, Wood	500–900
	400 to 1,000	coarse	Composite coarse/fine, Z1	500–800
		fine	Composite coarse/fine, Z2, Wood	400–800

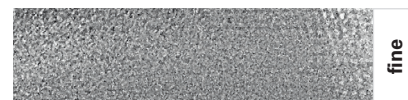
MACHINING



coarse



medium



fine

STEP 3

Determine the appropriate **speed** for your power tool in the second table, based on the tool diameter and cutting speed.

Recommended cutting speed v_c (m/min)									
		300	400	500	600	700	800	900	1,000
Tool diameter (mm)	2	48,000	64,000	80,000	95,000	111,000	127,000	143,000	159,000
	3	32,000	42,000	53,000	64,000	74,000	85,000	95,000	106,000
	4	24,000	32,000	40,000	48,000	56,000	64,000	72,000	80,000
	6	16,000	21,000	27,000	32,000	37,000	42,000	48,000	53,000
	8	12,000	16,000	20,000	24,000	28,000	32,000	36,000	40,000
	10	10,000	13,000	16,000	19,000	22,000	25,000	29,000	32,000
	12	8,000	11,000	13,000	16,000	19,000	21,000	24,000	27,000
	16	6,000	8,000	10,000	12,000	14,000	16,000	18,000	20,000
	20	5,000	6,000	8,000	10,000	11,000	13,000	14,000	16,000
Speed (rpm)									

TIP: You can find the full overview of shapes for your perfect burr on **page 3**.

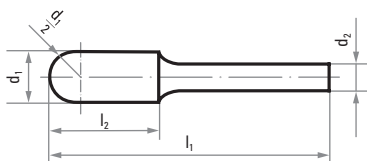


CUTS

Cut		Properties	Page
	Z3	medium single cut	8/9
	Z4	fine cross cut for hard materials	10/11
	Z42 Inox / Steel	robust faceted toothing for Inox and steel	12

Cut		Properties	Page
	Z9 Alu	very coarse single cut with faceting for soft materials	13
	Z cross	universal cross cut for almost all applications	14
	ZP	cross cut for machining plastic	15

Z3 Universal burr

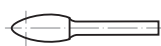


★★★

■ with single cut for universal applications

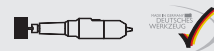
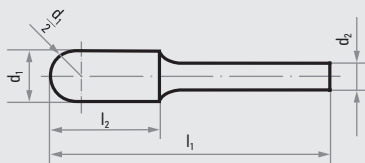
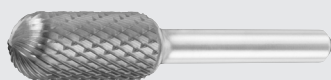
Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Pack contains
3FA020603150	A 0206.03 Z3		Z3	2	6	3	40	1
3FA031203150	A 0312.03 Z3		Z3	3	13	3	40	1
3FA041406150	A 0414.06 Z3		Z3	4	13	6	50	1
3FA061203150	A 0612.03 Z3		Z3	6	13	3	43	1
3FA061606150	A 0616.06 Z3		Z3	6	16	6	50	1
3FA082006150	A 0820.06 Z3		Z3	8	20	6	60	1
3FA102006150	A 1020.06 Z3		Z3	10	20	6	60	1
3FA120606150	A 1206.06 Z3		Z3	12	6	6	60	1
3FA122506150	A 1225.06 Z3		Z3	12	25	6	65	1
3FA162506150	A 1625.06 Z3		Z3	16	25	6	65	1
3FB031203150	B 0312.03 Z3		Z3	3	13	3	40	1
3FB061606150	B 0616.06 Z3		Z3	6	16	6	50	1
3FB082006150	B 0820.06 Z3		Z3	8	20	6	60	1
3FB102006150	B 1020.06 Z3		Z3	10	20	6	60	1
3FB122506150	B 1225.06 Z3		Z3	12	25	6	65	1
3FB162506150	B 1625.06 Z3		Z3	16	25	6	65	1
3FC020606150	C 0206.03 Z3		Z3	2	6	3	40	1
3FC031203150	C 0312.03 Z3		Z3	3	13	3	40	1
3FC041406150	C 0414.06 Z3		Z3	4	13	6	50	1
3FC061203150	C 0612.03 Z3		Z3	6	13	3	43	1
3FC061606150	C 0616.06 Z3		Z3	6	16	6	55	1
3FC082006150	C 0820.06 Z3		Z3	8	20	6	60	1
3FC102006150	C 1020.06 Z3		Z3	10	20	6	60	1
3FC122506150	C 1225.06 Z3		Z3	12	25	6	65	1
3FC162506150	C 1625.06 Z3		Z3	16	25	6	65	1
3FD030303150	D 0303.03 Z3		Z3	3	2	3	40	1
3FD040403150	D 0404.03 Z3		Z3	4	3	3	34	1
3FD060603150	D 0606.03 Z3		Z3	6	5	3	50	1
3FD060606150	D 0606.06 Z3		Z3	6	6	6	50	1
3FD080806150	D 0808.06 Z3		Z3	8	7	6	47	1
3FD101006150	D 1010.06 Z3		Z3	10	9	6	49	1
3FD121206150	D 1212.06 Z3		Z3	12	10	6	51	1
3FD161606150	D 1616.06 Z3		Z3	16	14	6	54	1
3FE030603150	E 0306.03 Z3		Z3	3	7	3	40	1
3FE061006150	E 0610.06 Z3		Z3	6	10	6	50	1
3FE101606150	E 1016.06 Z3		Z3	10	16	6	56	1
3FE122206150	E 1222.06 Z3		Z3	12	20	6	60	1
3FE162506150	E 1625.06 Z3		Z3	16	25	6	65	1

Recommended for: ● Steel ● Inox/Steel ● Titanium

Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Pack contains		
3FF031203150	F 0312.03 Z3		Z3	3	13	3	40	1		
3FF061203150	F 0612.03 Z3		Z3	6	13	6	43	1		
3FF061606150	F 0616.03 Z3		Z3	6	18	6	50	1		
3FF102006150	F 1020.06 Z3		Z3	10	20	6	60	1		
3FF122506150	F 1225.06 Z3		Z3	12	30	6	70	1		
3FF162506150	F 1625.06 Z3		Z3	16	30	6	70	1		
3FG031203150	G 0312.03 Z3		Z3	3	13	3	40	1		
3FG061606150	G 0616.06 Z3		Z3	6	18	6	50	1		
3FG082006150	G 0820.06 Z3		Z3	8	20	6	60	1		
3FG102006150	G 1020.06 Z3		Z3	10	20	6	60	1		
3FG122006150	G 1220.06 Z3		Z3	12	20	6	60	1		
3FG122506150	G 1225.06 Z3		Z3	12	25	6	65	1		
3FG162506150	G 1625.06 Z3		Z3	16	30	8	70	1		
3FH082006150	H 0820.06 Z3		Z3	8	20	6	60	1		
3FH123006150	H 1230.06 Z3		Z3	12	30	6	70	1		
Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	r mm	α	Pack contains
3FL031203150	L 0312.03 Z3		Z3	03	13	03	40	1.5	14°	1
3FL061606150	L 0616.06 Z3		Z3	6	18	6	58	2.9	14°	1
3FL103006150	L 1030.06 Z3		Z3	10	32	6	70	2.9	14°	1
3FL123006150	L 1230.06 Z3		Z3	12	30	6	70	2.6	14°	1
3FL163006150	L 1630.06 Z3		Z3	16	30	6	70	4.8	14°	1
Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	α	Pack contains	
3FM031203150	M 0312.03 Z3		Z3	3	12	3	40	14°	1	
3FM031603150	M 0316.03 Z3		Z3	3	11	3	50	11°	1	
3FM061606150	M 0616.06 Z3		Z3	6	20	6	50	21°	1	
3FM102006150	M 1020.06 Z3		Z3	10	20	6	60	28°	1	
3FM122506150	M 1225.06 Z3		Z3	12	25	6	65	27°	1	
Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	α	Pack contains	
3FN060606150	N 0606.06 Z3		Z3	6	7	6	50	10°	1	
3FN121206150	N 1212.06 Z3		Z3	12	13	6	53	20°	1	
Recommended for: ☐ Steel ☒ Inox/Steel ☐ Titanium										

Recommended for: ● Steel ● Inox/Steel ● Titanium

Z4 burr



★★☆

■ fine cross cut for hard materials

Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Pack contains
3FA031203850	A 0312.03 Z4		Z4	3	13	3	40	1
3FA041406850	A 0414.06 Z4		Z4	4	13	6	50	1
3FA061203850	A 0612.06 Z4		Z4	6	13	6	60	1
3FA061606850	A 0616.06 Z4		Z4	6	16	6	60	1
3FA082006850	A 0820.06 Z4		Z4	8	20	6	60	1
3FA102006850	A 1020.06 Z4		Z4	10	20	6	60	1
3FA122506850	A 1225.06 Z4		Z4	12	25	6	65	1
3FB031203850	B 0312.03 Z4		Z4	3	13	3	40	1
3FB061606850	B 0616.06 Z4		Z4	6	16	6	50	1
3FB082006850	B 0820.06 Z4		Z4	8	20	6	60	1
3FB102006850	B 1020.06 Z4		Z4	10	20	6	60	1
3FB122506850	B 1225.06 Z4		Z4	12	25	6	65	1
3FB162506850	B 1625.06 Z4		Z4	16	25	6	65	1
3FC031203850	C 0312.03 Z4		Z4	3	13	3	40	1
3FC031206850	C 0312.06 Z4		Z4	4	13	6	50	1
3FC061606850	C 0616.06 Z4		Z4	6	16	6	50	1
3FC082006850	C 0820.06 Z4		Z4	8	20	6	60	1
3FC102006850	C 1020.06 Z4		Z4	10	20	6	60	1
3FC122506850	C 1225.06 Z4		Z4	12	25	6	60	1
3FC162506850	C 1625.06 Z4		Z4	16	25	6	65	1
3FD060603850	D 0606.03 Z4		Z4	6	5	3	50	1
3FD060606850	D 0606.06 Z4		Z4	6	5	6	47	1
3FD080806850	D 0808.06 Z4		Z4	8	7	6	49	1
3FD101006850	D 1010.06 Z4		Z4	10	9	6	51	1
3FD121206850	D 1212.06 Z4		Z4	12	10	6	51	1
3FD161606850	D 1616.06 Z4		Z4	16	14	6	54	1
3FE061006850	E 0610.06 Z4		Z4	6	10	6	50	1
3FE101606850	E 1016.06 Z4		Z4	10	16	6	56	1
3FE122206850	E 1222.06 Z4		Z4	12	20	6	60	1
3FE162506850	E 1625.06 Z4		Z4	16	25	6	65	1
3FF031203850	F 0312.03 Z4		Z4	3	13	3	40	1
3FF061203850	F 0612.03 Z4		Z4	6	13	3	43	1
3FF061606850	F 0616.06 Z4		Z4	6	18	6	50	1
3FF102006850	F 1020.06 Z4		Z4	10	20	6	60	1
3FF122506850	F 1225.06 Z4		Z4	12	25	6	65	1
3FF162506850	F 1625.06 Z4		Z4	16	25	6	65	1
3FG061606850	G 0616.06 Z4		Z4	6	18	6	50	1
3FG082006850	G 0820.06 Z4		Z4	8	20	6	60	1
3FG102006850	G 1020.06 Z4		Z4	10	20	6	60	1
3FG122506850	G 1225.06 Z4		Z4	12	25	6	65	1
3FG162506850	G 1625.06 Z4		Z4	16	30	6	70	1

Recommended for: Inox/Steel Steel Titanium Plastic/Wood

Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Pack contains		
3FH082006850	H 0820.06 Z4		Z4	8	20	6	60	1		
3FH123006850	H 1230.06 Z4		Z4	12	30	6	70	1		
Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	r mm	α	Pack contains
3FL031203850	L 0312.03 Z4		Z4	3	12	3	50	2.6	10°	1
3FL061606850	L 0616.06 Z4		Z4	6	18	6	50	3.3	12°	1
3FL103006850	L 1030.06 Z4		Z4	10	30	6	70	2.9	14°	1
3FL123006850	L 1230.06 Z4		Z4	12	30	6	70	2.6	14°	1
3FL163006850	L 1630.06 Z4		Z4	16	30	6	70	4.8	14°	1
Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Pack contains		
3FM031203850	M 031203 Z4		Z4	3	13	3	40	1		
3FM031603850	M 0316.03 Z4		Z4	3	11	3	40	1		
3FM061606850	M 0616.06 Z4		Z4	6	20	6	50	1		
3FM102006850	M 1020.06 Z4		Z4	10	20	6	60	1		
3FM122506850	M 1225.06 Z4		Z4	12	25	6	65	1		

Recommended for:

Inox/Steel

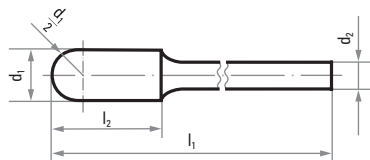
Steel

Titanium

Plastic /Wood

Recommended for: ● Inox/Steel ● Steel ● Titanium ● Plastic /Wood

Z3 and Z4 burrs with extra-long shank



- shank length: 100, 150, 200 mm
- with Z3 or Z7 cut for universal applications



Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	n _{max} rpm	Pack contains
3FC061606100850	C 0616.06 x 100 Long Z7		Z7	6	16	6	116	7,500	1
3FC061606150850	C 0616.06 x 150 Long Z7		Z7	6	16	6	166	5,500	1
3FC061606200850	C 0616.06 x 200 Long Z7		Z7	6	16	6	216	2,300	1
3FC082006100050	C 0820.06 x 100 Long Z3		Z3	8	20	6	120	8,600	1
3FC082006150050	C 0820.06 x 150 Long Z3		Z3	8	20	6	170	6,600	1
3FC082006200050	C 0820.06 x 200 Long Z3		Z3	8	20	6	220	3,400	1
3FC082006100850	C 0820.06 x 100 Long Z7		Z7	8	20	6	120	8,600	1
3FC102006100850	C 1020.06 x 100 Long Z7		Z7	10	20	6	120	8,400	1
3FC102006150850	C 1020.06 x 150 Long Z7		Z7	10	20	6	170	6,400	1
3FC102006200850	C 1020.06 x 200 Long Z7		Z7	10	20	6	220	4,200	1
3FC122506100850	C 1225.06 x 100 Long Z7		Z7	12	25	6	125	8,600	1
3FC122506150850	C 1225.06 x 150 Long Z7		Z7	12	25	6	175	6,600	1
3FC122506200850	C 1225.06 x 200 Long Z7		Z7	12	25	6	225	3,400	1
3FF102006100050	F 1020.06 x 100 Long Z3		Z3	10	20	6	120	8,300	1
3FF102006150050	F 1020.06 x 150 Long Z3		Z3	10	20	6	170	6,300	1
3FG102006100850	G 1020.06 x 100 Long Z7		Z7	10	20	6	120	8,100	1
3FG102006150850	G 1020.06 x 150 Long Z7		Z7	10	20	6	170	6,100	1
3FG102006200850	G 1020.06 x 200 Long Z7		Z7	10	20	6	220	2,900	1

Recommended for: ● Steel ● Inox/Steel ● Titanium

SAFETY ADVICE

To prevent shank breakage, never exceed the maximum permitted speed when there is no tool contact (see product table). You may work at twice the maximum permitted speed only if the burr is in contact

with the workpiece or inserted into a channel or borehole before the power tool is switched on, and remains there until the power tool comes

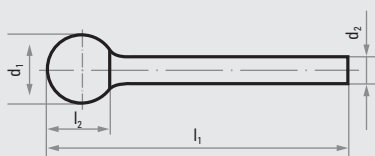
TWO MATERIALS – ONE BURR

PERFECTLY PROCESS STEEL AND STAINLESS STEEL WITH JUST A SINGLE BURR

The new cut profile of the Z42 Inox/Steel burr cuts the two most important materials steel and inox quickly and reliably. The robust tooth geometry with faceting prevents chipping and guarantees high removal rates. This helps you save time and equipment costs. The improved chip breaker allows you to work even more ergonomically while achieving the best surface yet.



Z42 Inox/Steel burr



- high chip volume thanks to coarse cut for quick working
- faceted toothing for perfect surface results
- smoothly running, low-vibration tool without chatter thanks to improved cutting angle

★★☆

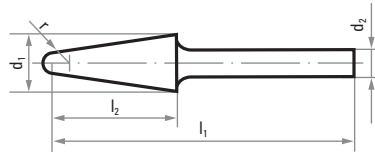
Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Pack contains
3FA122506250	A 1225.06 Z42		Z42 Inox/Steel	12	25	6	65	1
3FC061606250	C 0616.06 Z42		Z42 Inox/Steel	6	16	6	50	1
3FC102006250	C 1020.06 Z42		Z42 Inox/Steel	10	20	6	60	1
3FC122506250	C 1225.06 Z42		Z42 Inox/Steel	12	25	6	65	1
3FF102006250	F 1020.06 Z42		Z42 Inox/Steel	10	20	6	60	1
3FG102006250	G 1020.06 Z42		Z42 Inox/Steel	10	20	6	60	1
3FG122506250	G 1225.06 Z42		Z42 Inox/Steel	12	25	6	65	1

Recommended for: ● Inox/Steel ● Steel ● Cast material

Z9 Alu burr



- the burr for aluminium and non-ferrous metals
- ideal for cutting, chamfering and deburring
- high removal speed
- no clogging
- long tool life



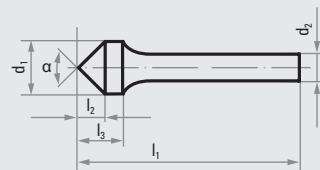
★★☆

Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Pack contains
3FA102006450	A 1020.06 Z9		Z9 Alu	10	20	6	60	1
3FA122506450	A 1225.06 Z9		Z9 Alu	12	25	6	65	1
3FC061606450	C 0616.06 Z9		Z9 Alu	6	16	6	50	1
3FC082006450	C 0820.06 Z9		Z9 Alu	8	20	6	60	1
3FC122506450	C 1225.06 Z9		Z9 Alu	12	25	6	65	1
3FC162506450	C 1625.06 Z9		Z9 Alu	16	25	6	65	1
3FD121206450	D 1210.06 Z9		Z9 Alu	12	10	6	50	1
3FE122206450	E 1222.06 Z9		Z9 Alu	12	25	6	60	1
3FF061606450	F 0616.06 Z9		Z9 Alu	6	18	6	50	1
3FF122506450	F 1225.06 Z9		Z9 Alu	12	25	6	65	1
3FG061606450	G 0616.06 Z9		Z9 Alu	6	16	6	55	1
3FG122506450	G 1225.06 Z9		Z9 Alu	12	25	6	65	1
3FL103006450	L 1030.06 Z9		Z9 Alu	10	20	6	60	1
3FL123006450	L 1230.06 Z9		Z9 Alu	12	32	6	72	1
3FL163006450	L 1630.06 Z9		Z9 Alu	16	32	6	73	1
3FM122506450	M 1225.06 Z9		Z9 Alu	12	25	6	65	1

Recommended for: ● Aluminium ● Plastic/Wood

Z3 Universal burr for deburring

- remove burrs quickly and easily with the Z3 Universal burr in shape J for perfect deburring.
- for different bore diameters
- with single cut for universal applications



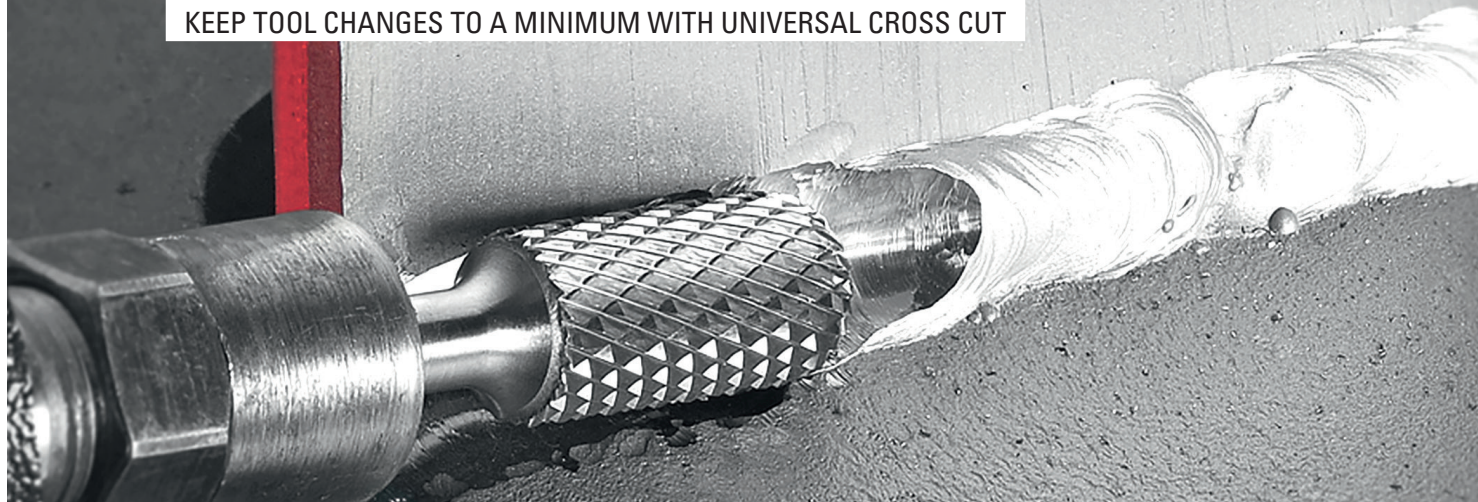
★★☆

Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	α	Pack contains
3FM100806150	M 1008.06 Z3		Z3	10	6	6	50	90°	1
3FM121006150	M 1210.06 Z3		Z3	12	8	6	50	90°	1
3FM161206150	M 1612.06 Z3		Z3	16	10	6	53	90°	1
3FM101006150	M 1010.06 Z3		Z3	10	10	6	53	60°	1
3FM161606150	M 1616.06 Z3		Z3	16	16	6	56	60°	1

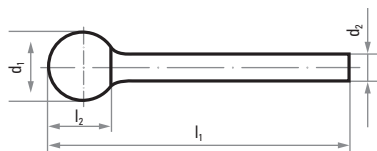
Recommended for: ● Steel ● Inox/Steel ● Aluminium ● Cast material ● Titanium

Z CROSS-SUCCESSFUL ON EVERY MATERIAL

KEEP TOOL CHANGES TO A MINIMUM WITH UNIVERSAL CROSS CUT



Z Cross Universal burr



- the all-rounder for universal applications
- with cross cut for high performance

Product number	Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Pack contains
3FA102006750	A 1020.06 Zcross		Z Cross	10	20	6	60	1
3FA122506750	A 1225.06 Zcross		Z Cross	12	25	6	65	1
3FC082006750	C 0820.06 Zcross		Z Cross	8	20	6	60	1
3FC102006750	C 1020.06 Zcross		Z Cross	10	20	6	60	1
3FC122506750	C 1225.06 Zcross		Z Cross	12	25	6	65	1
3FD121206750	D 1210.06 Zcross		Z Cross	12	10	6	51	1
3FF102006750	F 1020.06 Zcross		Z Cross	10	20	6	60	1
3FF122506750	F 1225.06 Zcross		Z Cross	12	25	6	65	1
3FG102006750	G 1020.06 Zcross		Z Cross	10	20	6	60	1
3FG122506750	G 1225.06 Zcross		Z Cross	12	25	6	65	1
3FL123006750	L 1230.06 Zcross		Z Cross	12	30	6	72	1

Recommended for: Steel Cast material Inox/Steel Titan



SAFETY ADVICE

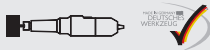
To prevent shank breakage, never exceed the maximum permitted speed when there is no tool contact (see product table). You may work at twice the maximum permitted speed only if the burr is in contact

with the workpiece or inserted into a channel or borehole before the power tool is switched on, and remains there until the power tool comes to a complete standstill.

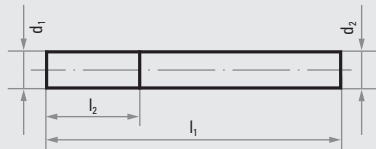
MANUAL OR MECHANICAL PROCESSING OF FIBRE-REINFORCED MATERIALS

MILL, DRILL AND SAW WITH JUST ONE TOOL

The Composite burr is designed for processing fibre-reinforced material, and is incredibly versatile in this area. It can be used in similar variants for both machine and for manual applications. In addition to milling, the extra-long cutting edge is also suitable for sawing. The fishtail tip is suitable for drilling and end milling of workpieces. This makes the Composite burr an all-rounder that makes multiple tool changes unnecessary and it is perfectly suited as a robot tool due to its long tool life.



- perfect for drilling, milling and sawing
- extra-long cutting section
- long tool life
- highly economic
- the coarse cut (Coarse) is excellent for stationary use.



ZP Composite Coarse burr



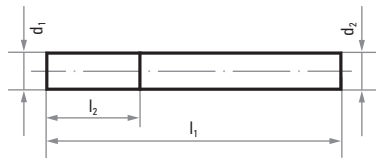
★★☆

Product number	Description	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Pack contains
3FP063006424	HFP 0630.06 Composite coarse	Composite Coarse	6	30	6	65	1

Recommended for: ● Plastic/Wood



- Used as a rasp to drill and gouge rubber
- for different bore diameters
- with single cut for universal applications



Tyre burr

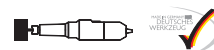


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Product number	Description	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Pack contains
3FT0690061024	GSL 0690.06 Tyre	RUBBER	5.65	50	6	90	1
3FT08100081024	GSL 08100.08 Tyre	RUBBER	7.5	50	8	100	1
3FT09110061024	GSL 09110.06 Tyre	RUBBER	9.45	42	10	110	1
3FT10110061024	GSL 10110.06 Tyre	RUBBER	11.3	50	10	110	1

Recommended for: ● Plastic/rubber

Carbide burrs assortments



Set 3FS05050



Set 3FS15150



Set 3FS15050



Set 3FS28050

- Always the right tool at hand. With our practical tool assortments, you can always have exactly what you need.
- perfectly suited for testing different tools
- just as suitable for use in the home, hobby workshop or in industry

★★☆

Product number	Description	Cut	Shank Ø mm	Content 1 per pack					Pack contains
3FS05050	5 PIECE SET	Z3	6	5 parts: A122506 C122506 E122206 F122506 G122506					1
3FS15150	15 PIECE SET	Z3	3	15 parts: A031203 B031203 C031203 D030303 E030603 F031203 G031203 L031203 M031203 C061203 D060603 F061203 C061203 M061203					1
3FS15050	15 PIECE SET	Z3	6	15 parts: B122506 C122506 G122506 A102006 C102006 F102006 D080806 H082006 G082006 B061606 C061606 L061606 D030303 C031203 L031203					1
3FS28050	28 PIECE SET	Z3	3/6	28 parts: A122506 C122506 E122506 F122506 G122506 L123006 M122506 A102006 C102006 D101006 F102006 G102006 L103006 M102006 A061606 C061606 D060606 F061606 G061606 L061606 M061606 A031203 C031203 D030303 F031203 G031203 L031203 M031203					1
Recommended for:  Ir x/Steel  Steel  Titanium									