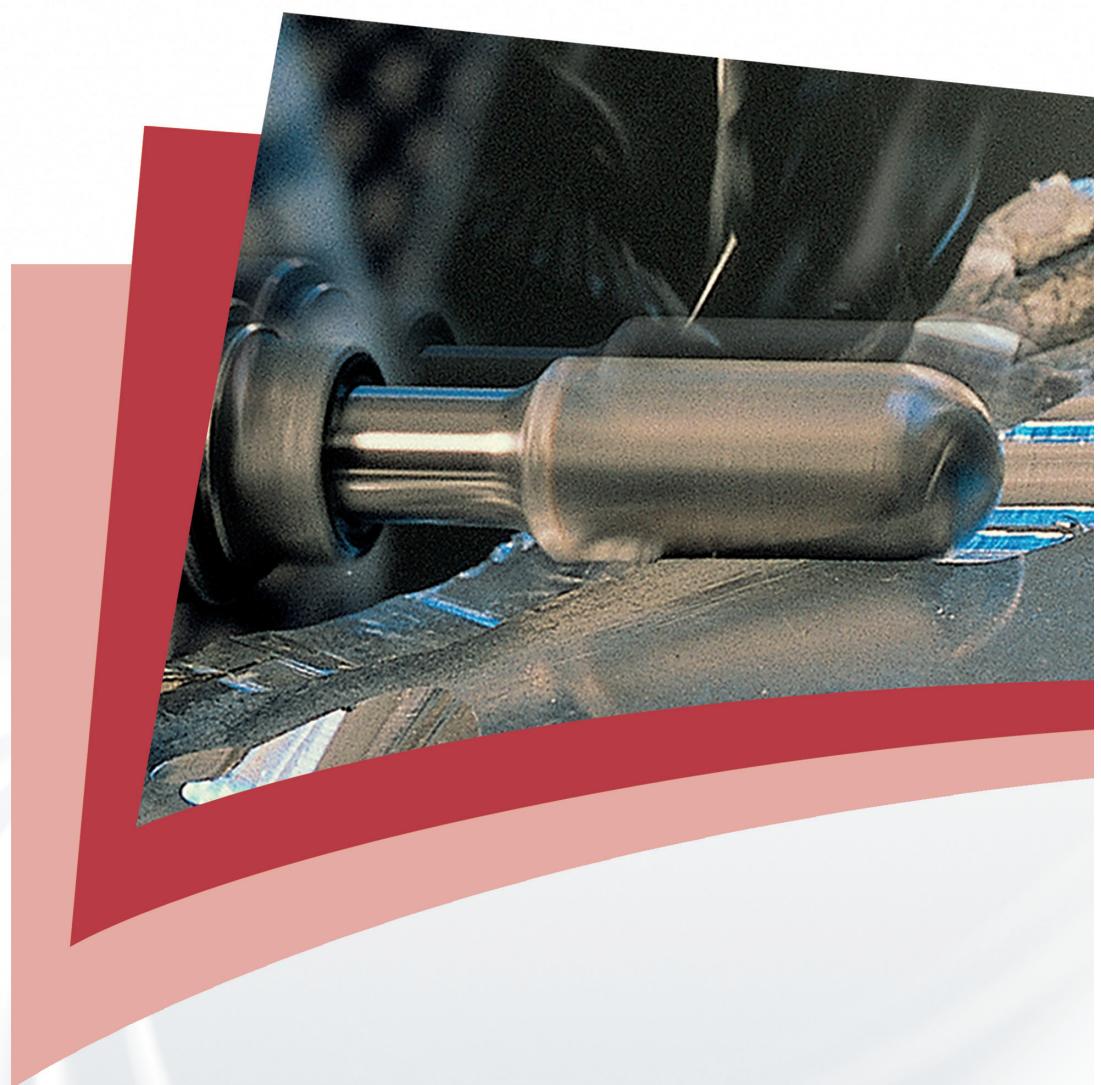


14

Tungsten Carbide Burrs

**Content**

Description	Page
• A summary of available shapes	15
• Technical Information	16
• Choosing the appropriate Burr	17
• Types of cut and their application	18
• Tungsten Carbide Burrs	20

High Performance marking

High Performance	
<i>Ordering example: A10010616608TIALN</i>	
Packing unit:	1 pc. per type
<p>The High Performance products are additionally marked on the table with the High Performance heading</p> <p><i>Further information on page 4.</i></p>	



A summary of available shapes

Shape	Type	Shape (DIN 8033)	Shape (LUKAS)	Page
	Cylindrical	ZYA	A	20
	Cylindrical round nose	WRC	C	23
	Spherical	KUD	D	24
	Oval	TRE	E	26
	Arch round nose	RBF	F	27
	Arch pointed nose	SPG	G	28
	Flame	—	H	29
	Internal	—	I	30
	Counter sink	KSJ	J	30
	Conical round nose	KEL	L	31
	Conical pointed nose	SKM	M	32
	Inverted cone	WKN	N	33
	Burrs for the machining of plastic	—	P	34
	Engraving Cutters	—	—	35
	Burrs for radius trimming (external)	—	R	36
	Burrs for radius trimming (internal)	—	S	36
	Miniature Burrs	—	—	37
	Small Burrs	—	—	38
	Tool-Set	—	—	40
	Burrs for machining of non-ferrous metals	—	—	42
	Burrs with extended shank length	—	—	43
	Some examples of our competitive performance	—	—	44
	Power Tools	—	—	271

16 Tungsten Carbide Burrs



Technical Information

Quality

LUKAS carbide burrs are manufactured using high quality types of carbide and modern CNC automatic grinding machines in order to guarantee precision and repeatability of angle, profile and twist. Carbide burrs manufactured to your drawings or details assist in solving your particular stock removal problem.

Application

The best results are obtained by selecting the recommended cut and speed. Please refer to the cutting speeds in the table on page 17 or according to the table illustrating the various cuts on page 18.

Power tools

Electric and pneumatic power tools are used; the bearings should be in good condition and the collets running true. Vibration and chatter will cause premature wear and tooth breakage. High pressure will reduce tool life and decreases tool efficiency.

Shanks

We recommend that the largest shank diameter possible is selected from the appropriate list; this provides maximum safety. Other shank diameters and lengths are available on request. A selection of burrs with extra long shanks appears on page 43.

Robot application

LUKAS tungsten carbide burrs are precision tools, and have produced excellent results when used in conjunction with industrial robots. We can also develop the optimal burr for your particular application.

Coated

The reasons for producing cutting tools with hard coatings such as TiN, TiCN, TiAlN and LTE are as follows:

- to increase tool life
- to reduce machining forces
- to improve chip removal

The increase in tool life is mainly the result of the considerably higher surface hardness of the coating in comparison to the base material of the tool itself. In addition, due to the high chemical stability, it minimizes the reaction between the cutting edge of the tool and the chip to be removed.

The reduction of machining forces and the improvement in chip removal are achieved through a reduction in the friction between the free cutting zone of the tool and workpiece on the one hand, and the cutting edge of the tool and the chip removed on the other. The reduction in friction depends on the coating improving the surface finish and as previously described by largely avoiding any chemical reaction.

Our technicians would be pleased to help you in the selection of the correct coating. Please note the different possibilities on page 19.

Special tools

Tungsten carbide burrs manufactured to your design or drawing guarantee the LUKAS high quality standard, and can therefore assist in solving your particular machining problem.

Packaging

We use plastics-packaging; please select the respective packing unit from our product lists.

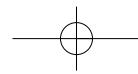
Recommendations for use

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; please refer to the adjoining table. 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.

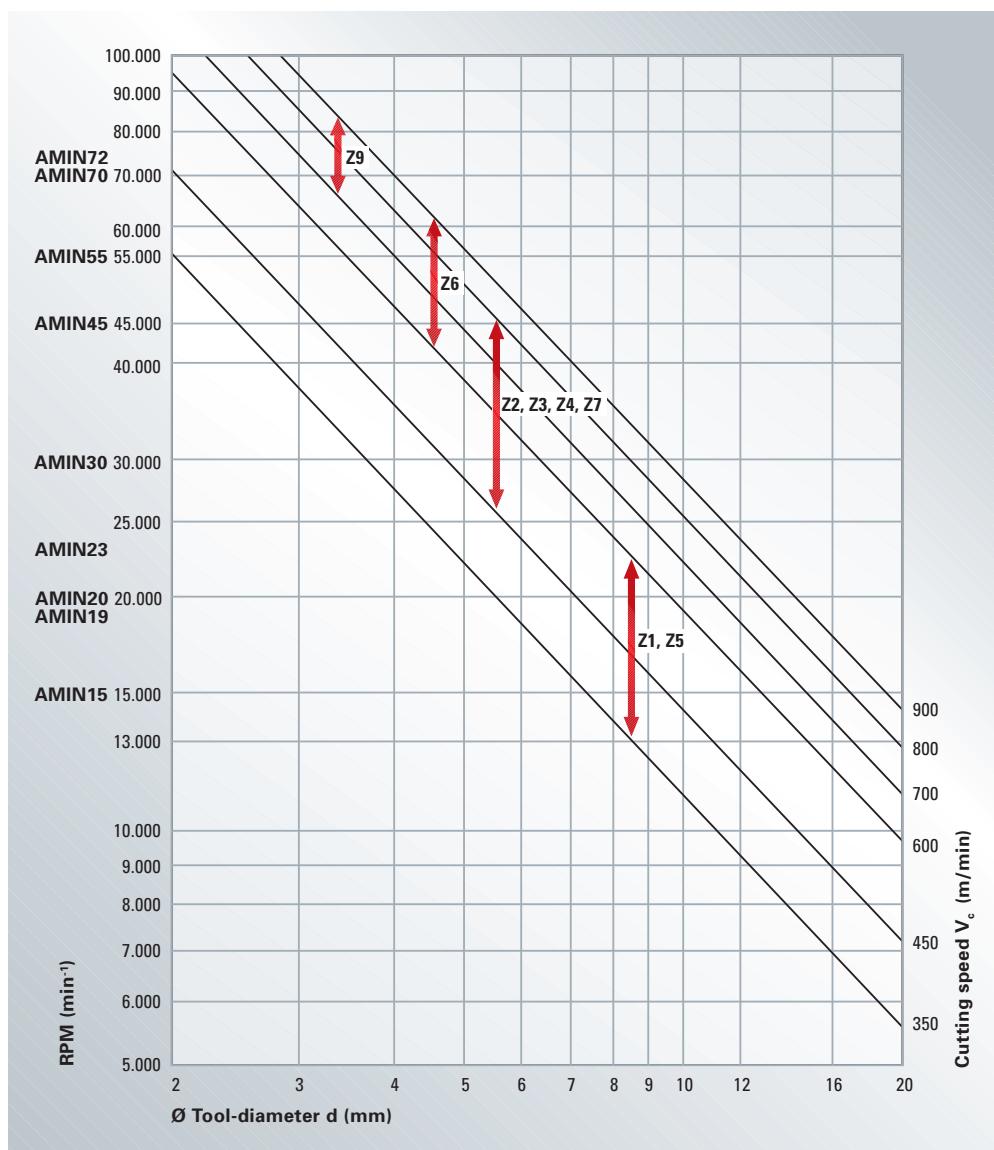
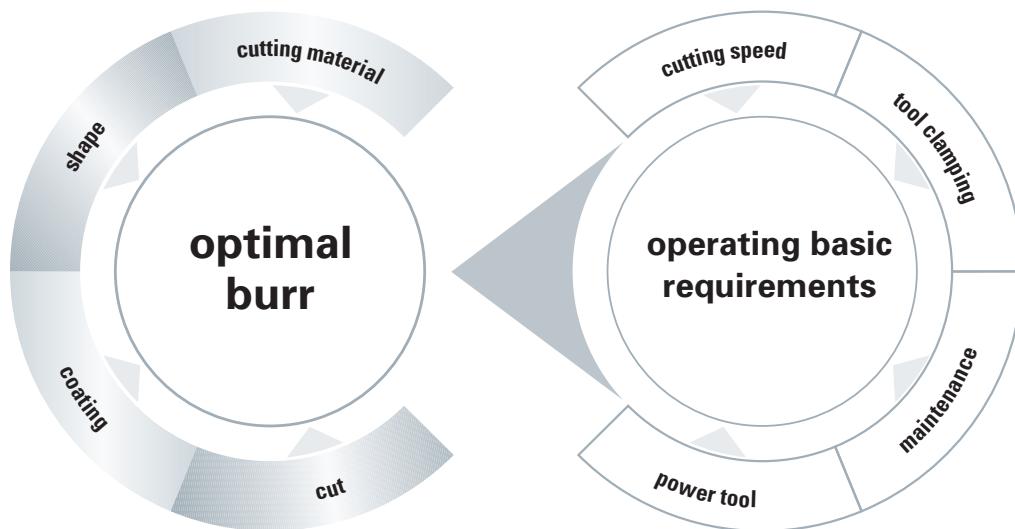
The power of your machine should be compatible with the machining process. A reduction in RPM due to lack of power – particularly common with pneumatic tools – should be avoided. Collets must run true. Run-out and vibration will result in chipping and premature wear.

For the same reasons, take care that the machine bearings are in perfect condition.

To avoid vibrations and shank breakage, select the shortest shank overhang as possible.



Choosing the appropriate Burr



18 Tungsten Carbide Burrs



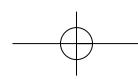
Types of cut and their application

The following types are available for specific applications	Specification (LUKAS)	Recommended application	Recommended cutting speed
Single cut			low high
	Z 1	Light metals, plastic, hard rubber, pressed and hard wood	v = 400 – 600 m/min v = 720 – 900 m/min
	Z 2	Cast iron, non-ferrous metals, tough materials, plastics	v = 450 – 800 m/min
	Z 3	Cast steel, welds, hardened and soft high tensile steels	v = 450 – 800 m/min
	Z 5	Application like Z 3, but to obtain finer surface finish	v = 350 – 600 m/min
	Z 9	Aluminium alloys, soft non-ferrous metals, plastics	v = 700 – 900 m/min

Burrs from head diameter 6 mm and larger, cut Z1, 2, 3 and 5 can be supplied with chip breaker to produce a short chip form.

The burrs can be TiN, TiCN, TiAlN or LTE coated on request (page 19).

Cross cuts	Specification (LUKAS)	Recommended application	Recommended cutting speed
			low high
produce higher cutting capacity on tough materials			
	Z 4	High alloy steels, stainless, acid and heat resistant castings, plastics	v = 450 – 800 m/min
	Z 6	Application like Z 4 but higher rate of stock removal	v = 540 – 900 m/min
	Z 7	Cast steel, welds, hardened and soft steels (universal higher performance cut)	v = 450 – 800 m/min





Coatings	Specification (LUKAS)	Properties	Friction on steel (dry)
	TiN (Titanium nitride)	general purpose coating for steel and cast iron, high toughness	0,65 – 0,70 µm
	TiCN (Titanium carbon nitride)	wear resisting coating for fine deburring process; suited to applications with higher thermal and shock loads	0,10 – 0,20 µm
	TiAlN (Titanium aluminium nitride) (see page 41)	high performance coating with a high degree of hardness and low heat conductivity; therefore suitable for high thermal and mechanical applications	0,30 – 0,35 µm
	LTE (hard coating carbon-based)	Special coating with lotus-effect for long chip and smearing non-ferrous metals, particularly aluminium alloys. Excellent sliding friction properties reducing loading on cutting edges.	0,10 – 0,20 µm

The reasons for producing cutting tools with hard coatings are as follows:

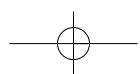
- to increase tool life
- to reduce machining forces
- to improve chip removal

Take advantage of our regrind service

LUKAS tungsten carbide burrs can be resharpened several times when blunted by normal working conditions. Burrs with severe damage to the cutting edges are priced accordingly. We can offer this service providing the tools are delivered to us carriage paid.



The symbol denotes burrs which can be reground against enquiry.



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Shape A, Cylindrical

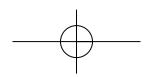
Ordering example: A10010210305

Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for				New burrs
								1	2	3	4	
HFA 0210.03	Z5	ZYA 0210	2	10	3	40	A10010210305	1	2	3	4	7
HFA 0313.03	Z3	ZYA 0313	3	13	3	40	A10010313303	1	2	3	4	7
HFA 0313.03	Z4	ZYA 0313	3	13	3	40	A10010313304		2	3	4	7 8
HFA 0313.03	Z5	ZYA 0313	3	13	3	40	A10010313305	1	2	3	4	7
HFA 0313.03	Z7	ZYA 0313	3	13	3	40	A10010313308	1	2	3		5 7
HFA 0413.06	Z3	ZYA 0413	4	13	6	50	A10010413603	1	2	3	4	7
HFA 0413.06	Z7	ZYA 0413	4	13	6	50	A10010413608	1	2	3		5 7
HFA 0607.03	Z5	ZYA 0607	6	7	3	37	A10010607305	1	2	3	4	7
HFA 0613.03	Z5	ZYA 0613	6	13	3	43	A10010613305	1	2	3	4	7
HFA 0613.03	Z7	ZYA 0613	6	13	3	43	A10010613308	1	2	3		5 7
HFA 0616.06	Z2	ZYA 0616	6	16	6	50	A10010616602	1				5 6 8
HFA 0616.06	Z3	ZYA 0616	6	16	6	50	A10010616603	1	2	3	4	7
HFA 0616.06	Z4	ZYA 0616	6	16	6	50	A10010616604		2	3	4	7 8
HFA 0616.06	Z5	ZYA 0616	6	16	6	50	A10010616605	1	2	3	4	7
HFA 0616.06	Z7	ZYA 0616	6	16	6	50	A10010616608	1	2	3		5 7
HFA 0616.06	Z9	ZYA 0616	6	16	6	50	A10010616609					6 8
HFA 0820.06	Z3	ZYA 0820	8	20	6	60	A10010820603	1	2	3	4	7
HFA 0820.06	Z4	ZYA 0820	8	20	6	60	A10010820604		2	3	4	7 8
HFA 0820.06	Z5	ZYA 0820	8	20	6	60	A10010820605	1	2	3	4	7
HFA 0820.06	Z7	ZYA 0820	8	20	6	60	A10010820608	1	2	3		5 7
HFA 1013.06	Z3	ZYA 1013	10	13	6	53	A10011013603	1	2	3	4	7
HFA 1013.06	Z7	ZYA 1013	10	13	6	53	A10011013608	1	2	3		5 7
HFA 1013.08	Z3	ZYA 1013	10	13	8	53	A10011013803	1	2	3	4	7
HFA 1020.06	Z3	ZYA 1020	10	20	6	60	A10011020603	1	2	3	4	7
HFA 1020.06	Z4	ZYA 1020	10	20	6	60	A10011020604		2	3	4	7 8
HFA 1020.06	Z7	ZYA 1020	10	20	6	60	A10011020608	1	2	3		5 7
HFA 1020.08	Z3	ZYA 1020	10	20	8	60	A10011020803	1	2	3	4	7
HFA 1025.06	Z4	ZYA 1025	10	25	6	65	A10011025604		2	3	4	7 8
HFA 1025.06	Z7	ZYA 1025	10	25	6	65	A10011025608	1	2	3		5 7
HFA 1025.08	Z3	ZYA 1025	10	25	8	65	A10011025803	1	2	3	4	7
HFA 1225.06	Z3	ZYA 1225	12	25	6	65	A10011225603	1	2	3	4	7
HFA 1225.06	Z4	ZYA 1225	12	25	6	65	A10011225604		2	3	4	7 8
HFA 1225.06	Z5	ZYA 1225	12	25	6	65	A10011225605	1	2	3	4	7
HFA 1225.06	Z7	ZYA 1225	12	25	6	65	A10011225608	1	2	3		5 7
HFA 1225.06	Z9	ZYA 1225	12	25	6	65	A10011225609					6 8
HFA 1225.08	Z3	ZYA 1225	12	25	8	65	A10011225803	1	2	3	4	7
HFA 1225.08	Z4	ZYA 1225	12	25	8	65	A10011225804		2	3	4	7 8

**Shape A, Cylindrical**

Ordering example: A10011225809

Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for								New burrs
								1	2	3	4	5	6	7	8	
HFA 1225.08	Z9	ZYA 1225	12	25	8	65	A10011225809						6	8		■
HFA 1625.06	Z3	ZYA 1625	16	25	6	65	A10011625603	1	2	3	4			7		■ S
HFA 1625.06	Z7	ZYA 1625	16	25	6	65	A10011625608	1	2	3		5		7		■ S
HFA 1625.06	Z9	ZYA 1625	16	25	6	65	A10011625609						6	8		■ S
HFA 1625.08	Z9	ZYA 1625	16	25	8	65	A10011625809						6	8		■ S



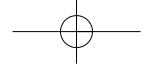
22 Tungsten Carbide Burrs



Shape A, Cylindrical, with end-cut

Ordering example: A100102103050001

Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for				New burrs
								1	2	3	4	
HFAS 0210.03	Z5	ZYA-S 0210	2	10	3	40	A100102103050001	1	2	3	4	■ \$
HFAS 0313.03	Z3	ZYA-S 0313	3	13	3	40	A100103133030001	1	2	3	4	■ \$
HFAS 0313.03	Z4	ZYA-S 0313	3	13	3	40	A100103133040001	2	3	4		■ \$
HFAS 0313.03	Z5	ZYA-S 0313	3	13	3	40	A100103133050001	1	2	3	4	■ \$
HFAS 0313.03	Z7	ZYA-S 0313	3	13	3	40	A100103133080001	1	2	3	5	■ \$
HFAS 0413.06	Z3	ZYA-S 0413	4	13	6	50	A100104136030001	1	2	3	4	■ \$
HFAS 0413.06	Z7	ZYA-S 0413	4	13	6	50	A100104136080001	1	2	3	5	■ \$
HFAS 0607.03	Z5	ZYA-S 0607	6	7	3	37	A100106073050001	1	2	3	4	■ \$
HFAS 0613.03	Z5	ZYA-S 0613	6	13	3	43	A100106133050001	1	2	3	4	■ \$
HFAS 0613.03	Z7	ZYA-S 0613	6	13	3	43	A100106133080001	1	2	3	5	■ \$
HFAS 0616.06	Z3	ZYA-S 0616	6	16	6	50	A100106166030001	1	2	3	4	■ \$
HFAS 0616.06	Z4	ZYA-S 0616	6	16	6	50	A100106166040001	2	3	4	7	■ \$
HFAS 0616.06	Z5	ZYA-S 0616	6	16	6	50	A100106166050001	1	2	3	4	■ \$
HFAS 0616.06	Z7	ZYA-S 0616	6	16	6	50	A100106166080001	1	2	3	5	■ \$
HFAS 0820.06	Z3	ZYA-S 0820	8	20	6	60	A100108206030001	1	2	3	4	■ \$
HFAS 0820.06	Z4	ZYA-S 0820	8	20	6	60	A100108206040001	2	3	4	7	■ \$
HFAS 0820.06	Z5	ZYA-S 0820	8	20	6	60	A100108206050001	1	2	3	4	■ \$
HFAS 0820.06	Z7	ZYA-S 0820	8	20	6	60	A100108206080001	1	2	3	5	■ \$
HFAS 1013.06	Z3	ZYA-S 1013	10	13	6	53	A100110136030001	1	2	3	4	■ \$
HFAS 1013.06	Z7	ZYA-S 1013	10	13	6	53	A100110136080001	1	2	3	5	■ \$
HFAS 1020.06	Z3	ZYA-S 1020	10	20	6	60	A100110206030001	1	2	3	4	■ \$
HFAS 1020.06	Z4	ZYA-S 1020	10	20	6	60	A100110206040001	2	3	4	7	■ \$
HFAS 1020.06	Z7	ZYA-S 1020	10	20	6	60	A100110206080001	1	2	3	5	■ \$
HFAS 1025.06	Z4	ZYA-S 1025	10	25	6	65	A100110256040001	2	3	4	7	■ \$
HFAS 1025.06	Z7	ZYA-S 1025	10	25	6	65	A100110256080001	1	2	3	5	■ \$
HFAS 1225.06	Z3	ZYA-S 1225	12	25	6	65	A100112256030001	1	2	3	4	■ \$
HFAS 1225.06	Z4	ZYA-S 1225	12	25	6	65	A100112256040001	2	3	4	7	■ \$
HFAS 1225.06	Z5	ZYA-S 1225	12	25	6	65	A100112256050001	1	2	3	4	■ \$
HFAS 1225.06	Z7	ZYA-S 1225	12	25	6	65	A100112256080001	1	2	3	5	■ \$
HFAS 1225.08	Z4	ZYA-S 1225	12	25	8	65	A100112258040001	2	3	4	7	■ \$
HFAS 1225.08	Z7	ZYA-S 1225	12	25	8	65	A100112258080001	1	2	3	5	■ \$
HFAS 1625.06	Z3	ZYA-S 1625	16	25	6	65	A100116256030001	1	2	3	4	■ \$
HFAS 1625.06	Z7	ZYA-S 1625	16	25	6	65	A100116256080001	1	2	3	5	■ \$

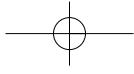




Shape C, Cylindrical Round nose

Ordering example: A10020210305

Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for								New burrs
								1	2	3	4	5	6	7	8	
HFC 0210.03	Z5	WRC 0210	2	10	3	40	A10020210305	1	2	3	4			7		■ \$
HFC 0210.03	Z7	WRC 0210	2	10	3	40	A10020210308	1	2	3		5		7		■
HFC 0313.03	Z2	WRC 0313	3	13	3	40	A10020313302	1				5	6	8		■ \$
HFC 0313.03	Z3	WRC 0313	3	13	3	40	A10020313303	1	2	3	4			7		■ \$
HFC 0313.03	Z4	WRC 0313	3	13	3	40	A10020313304		2	3	4			7	8	■ \$
HFC 0313.03	Z5	WRC 0313	3	13	3	40	A10020313305	1	2	3	4			7		■ \$
HFC 0313.03	Z7	WRC 0313	3	13	3	40	A10020313308	1	2	3		5		7		■ \$
HFC 0413.06	Z3	WRC 0413	4	13	6	50	A10020413603	1	2	3	4			7		■ \$
HFC 0413.06	Z4	WRC 0413	4	13	6	50	A10020413604		2	3	4			7	8	■ \$
HFC 0413.06	Z7	WRC 0413	4	13	6	50	A10020413608	1	2	3		5		7		■ \$
HFC 0613.03	Z5	WRC 0613	6	13	3	43	A10020613305	1	2	3	4			7		■ \$
HFC 0613.03	Z7	WRC 0613	6	13	3	43	A10020613308	1	2	3		5		7		■ \$
HFC 0616.06	Z1	WRC 0616	6	16	6	50	A10020616601					6	8			■ \$
HFC 0616.06	Z2	WRC 0616	6	16	6	50	A10020616602	1				5	6	8		■ \$
HFC 0616.06	Z3	WRC 0616	6	16	6	50	A10020616603	1	2	3	4			7		■ \$
HFC 0616.06	Z4	WRC 0616	6	16	6	50	A10020616604		2	3	4			7	8	■ \$
HFC 0616.06	Z5	WRC 0616	6	16	6	50	A10020616605	1	2	3	4			7		■ \$
HFC 0616.06	Z7	WRC 0616	6	16	6	50	A10020616608	1	2	3		5		7		■ \$
HFC 0616.06	Z9	WRC 0616	6	16	6	50	A10020616609					6		8		■
HFC 0820.06	Z3	WRC 0820	8	20	6	60	A10020820603	1	2	3	4			7		■ \$
HFC 0820.06	Z4	WRC 0820	8	20	6	60	A10020820604		2	3	4			7	8	■ \$
HFC 0820.06	Z5	WRC 0820	8	20	6	60	A10020820605	1	2	3	4			7		■ \$
HFC 0820.06	Z6	WRC 0820	8	20	6	60	A10020820606		2	3	4			7	8	■ \$
HFC 0820.06	Z7	WRC 0820	8	20	6	60	A10020820608	1	2	3		5		7		■ \$
HFC 1020.06	Z3	WRC 1020	10	20	6	60	A10021020603	1	2	3	4			7		■ \$
HFC 1020.06	Z4	WRC 1020	10	20	6	60	A10021020604		2	3	4			7	8	■ \$
HFC 1020.06	Z5	WRC 1020	10	20	6	60	A10021020605	1	2	3	4			7		■ \$
HFC 1020.06	Z6	WRC 1020	10	20	6	60	A10021020606		2	3	4			7	8	■ \$
HFC 1020.06	Z7	WRC 1020	10	20	6	60	A10021020608	1	2	3		5		7		■ \$
HFC 1020.08	Z4	WRC 1020	10	20	8	60	A10021020804		2	3	4			7	8	■ \$
HFC 1020.08	Z7	WRC 1020	10	20	8	60	A10021020808	1	2	3		5		7		■ \$
HFC 1025.06	Z7	WRC 1025	10	25	6	65	A10021025608	1	2	3		5		7		■ \$
HFC 1225.06	Z1	WRC 1225	12	25	6	65	A10021225601					6	8			■ \$
HFC 1225.06	Z2	WRC 1225	12	25	6	65	A10021225602	1				5	6	8		■ \$
HFC 1225.06	Z3	WRC 1225	12	25	6	65	A10021225603	1	2	3	4			7		■ \$
HFC 1225.06	Z4	WRC 1225	12	25	6	65	A10021225604		2	3	4			7	8	■ \$
HFC 1225.06	Z5	WRC 1225	12	25	6	65	A10021225605	1	2	3	4			7		■ \$
HFC 1225.06	Z6	WRC 1225	12	25	6	65	A10021225606		2	3	4			7	8	■ \$
HFC 1225.06	Z7	WRC 1225	12	25	6	65	A10021225608	1	2	3		5		7		■ \$
HFC 1225.06	Z9	WRC 1225	12	25	6	65	A10021225609					6		8		■



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Shape C, Cylindrical Round nose

Ordering example: A10021225803

Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for								New burrs
								1	2	3	4	5	6	7	8	
HFC 1225.08	Z3	WRC 1225	12	25	8	65	A10021225803	1	2	3	4			7		■ 
HFC 1225.08	Z4	WRC 1225	12	25	8	65	A10021225804		2	3	4			7	8	■ 
HFC 1225.08	Z7	WRC 1225	12	25	8	65	A10021225808	1	2	3		5		7		■ 
HFC 1225.08	Z9	WRC 1225	12	25	8	65	A10021225809					6	8			■
HFC 1625.06	Z3	WRC 1625	16	25	6	65	A10021625603	1	2	3	4			7		■ 
HFC 1625.06	Z7	WRC 1625	16	25	6	65	A10021625608	1	2	3		5		7		■ 
HFC 1625.06	Z9	WRC 1625	16	25	6	65	A10021625609					6	8			■ 
HFC 1625.08	Z3	WRC 1625	16	25	8	65	A10021625803	1	2	3	4			7		■ 
HFC 1625.08	Z9	WRC 1625	16	25	8	65	A10021625809					6	8			■ 

Shape D, Spherical

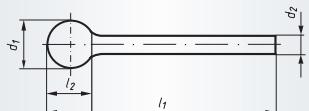
Ordering example: A10030303302

Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for								New burrs
								1	2	3	4	5	6	7	8	
HFD 0302.03	Z2	KUD 0302	3	2	3	40	A10030303302	1				5	6	8		■ 
HFD 0302.03	Z3	KUD 0302	3	2	3	40	A10030303303	1	2	3	4			7		■ 
HFD 0302.03	Z4	KUD 0302	3	2	3	40	A10030303304		2	3	4			7	8	■ 
HFD 0302.03	Z5	KUD 0302	3	2	3	40	A10030303305	1	2	3	4			7		■ 
HFD 0302.03	Z7	KUD 0302	3	2	3	40	A10030303308	1	2	3		5		7		■ 
HFD 0403.03	Z5	KUD 0403	4	3	3	34	A100304043050001	1	2	3	4			7		■ 
HFD 0403.03	Z7	KUD 0403	4	3	3	34	A100304043080001	1	2	3		5		7		■ 
HFD 0403.06	Z3	KUD 0403	4	3	6	50	A10030404603	1	2	3	4			7		■ 
HFD 0403.06	Z4	KUD 0403	4	3	6	50	A10030404604		2	3	4			7	8	■ 
HFD 0403.06	Z7	KUD 0403	4	3	6	50	A10030404608	1	2	3		5		7		■ 
HFD 0605.03	Z5	KUD 0605	6	5	3	35	A10030606305	1	2	3	4			7		■ 
HFD 0605.03	Z7	KUD 0605	6	5	3	35	A10030606308	1	2	3		5		7		■ 
HFD 0605.06	Z3	KUD 0605	6	5	6	50	A10030606603	1	2	3	4			7		■ 
HFD 0605.06	Z4	KUD 0605	6	5	6	50	A10030606604		2	3	4			7	8	■ 
HFD 0605.06	Z5	KUD 0605	6	5	6	50	A10030606605	1	2	3	4			7		■ 
HFD 0605.06	Z7	KUD 0605	6	5	6	50	A10030606608	1	2	3		5		7		■ 



Shape D, Spherical

Ordering example: A10030808603



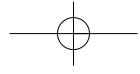
Packing unit:

1 pc. per type

Further dimensions, cuts and shank lengths on request.

⑤ regrind service, please enquire

Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for	New burrs
HFD 0807.06	Z3	KUD 0807	8	7	6	47	A10030808603	① ② ③ ④	⑦ ⑧
HFD 0807.06	Z4	KUD 0807	8	7	6	47	A10030808604	② ③ ④	⑦ ⑧
HFD 0807.06	Z5	KUD 0807	8	7	6	47	A10030808605	① ② ③ ④	⑦
HFD 0807.06	Z7	KUD 0807	8	7	6	47	A10030808608	① ② ③ ⑤	⑦
HFD 1009.06	Z3	KUD 1009	10	9	6	49	A10031010603	① ② ③ ④	⑦
HFD 1009.06	Z4	KUD 1009	10	9	6	49	A10031010604	② ③ ④	⑦ ⑧
HFD 1009.06	Z5	KUD 1009	10	9	6	49	A10031010605	① ② ③ ⑥	⑦
HFD 1009.06	Z7	KUD 1009	10	9	6	49	A10031010608	① ② ③ ⑤	⑦
HFD 1210.06	Z3	KUD 1210	12	10	6	51	A10031212603	① ② ③ ④	⑦
HFD 1210.06	Z4	KUD 1210	12	10	6	51	A10031212604	② ③ ④	⑦ ⑧
HFD 1210.06	Z5	KUD 1210	12	10	6	51	A10031212605	① ② ③ ④	⑦
HFD 1210.06	Z7	KUD 1210	12	10	6	51	A10031212608	① ② ③ ⑤	⑦
HFD 1210.06	Z9	KUD 1210	12	10	6	50	A10031212609	⑥ ⑧	■
HFD 1210.08	Z3	KUD 1210	12	10	8	51	A10031212803	① ② ③ ④	⑦
HFD 1210.08	Z4	KUD 1210	12	10	8	51	A10031212804	② ③ ④	⑦ ⑧
HFD 1210.08	Z9	KUD 1210	12	10	8	50	A10031212809	⑥ ⑧	■
HFD 1614.06	Z3	KUD 1614	16	14	6	54	A10031616603	① ② ③ ④	⑦
HFD 1614.06	Z4	KUD 1614	16	14	6	54	A10031616604	② ③ ④	⑦ ⑧
HFD 1614.06	Z7	KUD 1614	16	14	6	54	A10031616608	① ② ③ ⑤	⑦
HFD 1614.06	Z9	KUD 1614	16	14	6	54	A10031616609	⑥ ⑧	■
HFD 1614.08	Z3	KUD 1614	16	14	8	54	A10031616803	① ② ③ ④	⑦
HFD 1614.08	Z9	KUD 1614	16	14	8	54	A10031616809	⑥ ⑧	■
HFD 2018.06	Z3	KUD 2018	20	18	6	58	A10032020603	① ② ③ ④	⑦
HFD 2018.06	Z7	KUD 2018	20	18	6	58	A10032020608	① ② ③ ⑤	⑦
HFD 2018.08	Z3	KUD 2018	20	18	8	58	A10032020803	① ② ③ ④	⑦



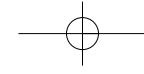
26 Tungsten Carbide Burrs



Shape E, Oval

Ordering example: A10060307303

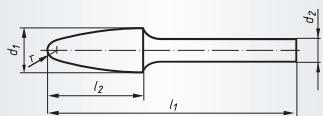
Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	r≈ mm	Product-Number	recommended for								New burrs
									1	2	3	4	5	6	7	8	
HFE 0307.03	Z3	TRE 0307	3	7	3	40	1,2	A10060307303	1	2	3	4			7		■ \$
HFE 0307.03	Z5	TRE 0307	3	7	3	40	1,2	A10060307305	1	2	3	4			7		■ \$
HFE 0307.03	Z7	TRE 0307	3	7	3	40	1,2	A10060307308	1	2	3		5		7		■ \$
HFE 0610.03	Z5	TRE 0610	6	10	3	40	2,8	A10060610305	1	2	3	4			7		■ \$
HFE 0610.03	Z7	TRE 0610	6	10	3	40	2,8	A10060610308	1	2	3		5		7		■ \$
HFE 0610.06	Z3	TRE 0610	6	10	6	50	2,8	A10060610603	1	2	3	4			7		■ \$
HFE 0610.06	Z4	TRE 0610	6	10	6	50	2,8	A10060610604		2	3	4			7	8	■ \$
HFE 0610.06	Z7	TRE 0610	6	10	6	50	2,8	A10060610608	1	2	3		5		7		■ \$
HFE 0813.06	Z3	TRE 0813	8	13	6	53	3,7	A10060813603	1	2	3	4			7		■ \$
HFE 0813.06	Z4	TRE 0813	8	13	6	53	3,7	A10060813604		2	3	4			7	8	■ \$
HFE 0813.06	Z7	TRE 0813	8	13	6	53	3,7	A10060813608	1	2	3		5		7		■ \$
HFE 1220.06	Z3	TRE 1220	12	20	6	60	5,0	A10061220603	1	2	3	4			7		■ \$
HFE 1220.06	Z4	TRE 1220	12	20	6	60	5,0	A10061220604		2	3	4			7	8	■ \$
HFE 1220.06	Z5	TRE 1220	12	20	6	60	5,0	A10061220605	1	2	3	4			7		■ \$
HFE 1220.06	Z7	TRE 1220	12	20	6	60	5,0	A10061220608	1	2	3		5		7		■ \$
HFE 1225.08	Z3	TRE 1225	12	25	8	65	5,0	A10061225803	1	2	3	4			7		■ \$
HFE 1225.08	Z9	TRE 1225	12	25	8	65	5,0	A10061225809							6	8	■
HFE 1625.06	Z7	TRE 1625	16	25	6	65	7,1	A10061625608	1	2	3		5		7		■ \$
HFE 1625.08	Z3	TRE 1625	16	25	8	65	7,1	A10061625803	1	2	3	4			7		■ \$
HFE 1625.08	Z9	TRE 1625	16	25	8	65	7,1	A10061625809							6	8	■
HFE 2035.08	Z3	TRE 2035	20	35	8	75	8,0	A10062035803	1	2	3	4			7		■ \$





Shape F, Arch round nose

Ordering example: A10100307303



Packing unit:

1 pc. per type

Further dimensions, cuts and shank lengths on request.

S regrind service, please enquire

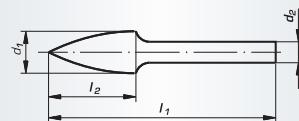
Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	r≈ mm	Product-Number	recommended for	New burrs
HFF 0307.03	Z3	RBF 0307	3	7	3	40	0,75	A10100307303	1 2 3 4	7 8
HFF 0307.03	Z4	RBF 0307	3	7	3	40	0,75	A10100307304	2 3 4	7 8
HFF 0307.03	Z5	RBF 0307	3	7	3	40	0,75	A10100307305	1 2 3 4	7
HFF 0313.03	Z5	RBF 0313	3	13	3	40	0,75	A10100313305	1 2 3 4	7
HFF 0313.03	Z7	RBF 0313	3	13	3	40	0,75	A10100313308	1 2 3 5	7
HFF 0613.03	Z5	RBF 0613	6	13	3	43	1,4	A10100613305	1 2 3 4	7
HFF 0613.03	Z7	RBF 0613	6	13	3	43	1,4	A10100613308	1 2 3 5	7
HFF 0618.06	Z3	RBF 0618	6	18	6	50	1,5	A10100618603	1 2 3 4	7
HFF 0618.06	Z4	RBF 0618	6	18	6	50	1,5	A10100618604	2 3 4	7 8
HFF 0618.06	Z5	RBF 0618	6	18	6	50	1,5	A10100618605	1 2 3 4	7
HFF 0618.06	Z7	RBF 0618	6	18	6	50	1,5	A10100618608	1 2 3 5	7
HFF 0820.06	Z3	---	8	20	6	60	1,8	A10100820603	1 2 3 4	7
HFF 0820.06	Z7	---	8	20	6	60	1,8	A10100820608	1 2 3 5	7
HFF 1020.06	Z3	RBF 1020	10	20	6	60	2,5	A10101020603	1 2 3 4	7
HFF 1020.06	Z4	RBF 1020	10	20	6	60	2,5	A10101020604	2 3 4	7 8
HFF 1020.06	Z6	RBF 1020	10	20	6	60	2,5	A10101020606	2 3 4	7 8
HFF 1020.06	Z7	RBF 1020	10	20	6	60	2,5	A10101020608	1 2 3 5	7
HFF 1225.06	Z1	RBF 1225	12	25	6	65	2,5	A10101225601		6 8
HFF 1225.06	Z3	RBF 1225	12	25	6	65	2,5	A10101225603	1 2 3 4	7
HFF 1225.06	Z4	RBF 1225	12	25	6	65	2,5	A10101225604	2 3 4	7 8
HFF 1225.06	Z7	RBF 1225	12	25	6	65	2,5	A10101225608	1 2 3 5	7
HFF 1225.06	Z9	RBF 1225	12	25	6	65	2,5	A10101225609		6 8
HFF 1225.08	Z3	RBF 1225	12	25	8	65	2,5	A10101225803	1 2 3 4	7
HFF 1225.08	Z7	RBF 1225	12	25	8	65	2,5	A10101225808	1 2 3 5	7
HFF 1225.08	Z9	RBF 1225	12	25	8	65	2,5	A10101225809		6 8
HFF 1230.06	Z3	RBF 1230	12	30	6	70	2,7	A10101230603	1 2 3 4	7
HFF 1230.06	Z7	RBF 1230	12	30	6	70	2,7	A10101230608	1 2 3 5	7
HFF 1230.08	Z3	RBF 1230	12	30	8	70	2,7	A10101230803	1 2 3 4	7
HFF 1630.06	Z7	RBF 1630	16	30	6	70	3,6	A10101630608	1 2 3 5	7
HFF 1630.06	Z9	RBF 1630	16	30	6	70	3,6	A10101630609		6 8
HFF 1630.08	Z3	RBF 1630	16	30	8	70	3,6	A10101630803	1 2 3 4	7
HFF 1630.08	Z9	RBF 1630	16	30	8	70	3,6	A10101630809		6 8

28 Tungsten Carbide Burrs



Shape G, Arch pointed nose

Ordering example: A10040307305



Packing unit:

1 pc. per type

Further dimensions, cuts and shank lengths on request.

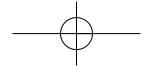
regrind service, please enquire

Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for	New burrs
HFG 0307.03	Z5	SPG 0307	3	7	3	40	A10040307305		
HFG 0307.03	Z7	SPG 0307	3	7	3	40	A10040307308		
HFG 0313.03	Z3	SPG 0313	3	13	3	40	A10040313303		
HFG 0313.03	Z4	SPG 0313	3	13	3	40	A10040313304		
HFG 0313.03	Z5	SPG 0313	3	13	3	40	A10040313305		
HFG 0313.03	Z7	SPG 0313	3	13	3	40	A10040313308		
HFG 0613.03	Z5	SPG 0613	6	13	3	43	A10040613305		
HFG 0613.03	Z7	SPG 0613	6	13	3	43	A10040613308		
HFG 0618.06	Z1	SPG 0618	6	18	6	50	A10040618601		
HFG 0618.06	Z2	SPG 0618	6	18	6	50	A10040618602		
HFG 0618.06	Z3	SPG 0618	6	18	6	50	A10040618603		
HFG 0618.06	Z4	SPG 0618	6	18	6	50	A10040618604		
HFG 0618.06	Z5	SPG 0618	6	18	6	50	A10040618605		
HFG 0618.06	Z7	SPG 0618	6	18	6	50	A10040618608		
HFG 0820.06	Z3	---	8	20	6	60	A10040820603		
HFG 0820.06	Z7	---	8	20	6	60	A10040820608		
HFG 1020.06	Z3	SPG 1020	10	20	6	60	A10041020603		
HFG 1020.06	Z4	SPG 1020	10	20	6	60	A10041020604		
HFG 1020.06	Z5	SPG 1020	10	20	6	60	A10041020605		
HFG 1020.06	Z7	SPG 1020	10	20	6	60	A10041020608		
HFG 1220.06	Z3	SPG 1220	12	20	6	60	A10041220603		
HFG 1220.06	Z7	SPG 1220	12	20	6	60	A10041220608		
HFG 1225.06	Z2	SPG 1225	12	25	6	65	A10041225602		
HFG 1225.06	Z3	SPG 1225	12	25	6	65	A10041225603		
HFG 1225.06	Z4	SPG 1225	12	25	6	65	A10041225604		
HFG 1225.06	Z7	SPG 1225	12	25	6	65	A10041225608		
HFG 1225.08	Z3	SPG 1225	12	25	8	65	A10041225803		
HFG 1230.06	Z2	SPG 1230	12	30	6	70	A10041230602		
HFG 1230.06	Z3	SPG 1230	12	30	6	70	A10041230603		
HFG 1230.06	Z4	SPG 1230	12	30	6	70	A10041230604		
HFG 1230.06	Z5	SPG 1230	12	30	6	70	A10041230605		
HFG 1230.06	Z7	SPG 1230	12	30	6	70	A10041230608		
HFG 1230.08	Z3	SPG 1230	12	30	8	70	A10041230803		
HFG 1630.06	Z3	SPG 1630	16	30	6	70	A10041630603		
HFG 1630.06	Z4	SPG 1630	16	30	6	70	A10041630604		
HFG 1630.06	Z7	SPG 1630	16	30	6	70	A10041630608		
HFG 1630.08	Z3	SPG 1630	16	30	8	70	A10041630803		

**Shape H, Flame**

Ordering example: A10090307305

Description	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	r ≈ mm	Product-Number	recommended for								New burrs
								1	2	3	4	5	6	7	8	
HFH 0307.03	Z5	3	7	3	40	0,8	A10090307305	1	2	3	4			7		■
HFH 0613.03	Z1	6	13	3	43	1,0	A10090613301					6	8			■
HFH 0613.03	Z2	6	13	3	43	1,0	A10090613302	1				5	6	8		■
HFH 0613.03	Z3	6	13	3	43	1,0	A10090613303	1	2	3	4			7		■
HFH 0613.03	Z4	6	13	3	43	1,0	A10090613304		2	3	4			7	8	■
HFH 0613.03	Z5	6	13	3	43	1,0	A10090613305	1	2	3	4			7		■
HFH 0613.03	Z6	6	13	3	43	1,0	A10090613306		2	3	4			7	8	■
HFH 0613.03	Z7	6	13	3	43	1,0	A10090613308	1	2	3		5		7		■
HFH 0820.06	Z3	8	20	6	60	1,6	A10090820603	1	2	3	4			7		■
HFH 0820.06	Z4	8	20	6	60	1,6	A10090820604		2	3	4			7	8	■
HFH 0820.06	Z7	8	20	6	60	1,6	A10090820608	1	2	3		5		7		■
HFH 1230.06	Z3	12	30	6	70	2,0	A10091230603	1	2	3	4			7		■
HFH 1230.06	Z4	12	30	6	70	2,0	A10091230604		2	3	4			7	8	■
HFH 1230.06	Z7	12	30	6	70	2,0	A10091230608	1	2	3		5		7		■
HFH 1230.08	Z3	12	30	8	70	2,0	A10091230803	1	2	3	4			7		■
HFH 1635.06	Z7	16	35	6	75	2,5	A10091635608	1	2	3		5		7		■
HFH 1635.08	Z3	16	35	8	75	2,5	A10091635803	1	2	3	4			7		■



30 Tungsten Carbide Burrs



Shape I, Internal burr with multi purpose cut

Ordering example: A10010204300

Description	d_1 mm	l_2 mm	d_2 mm	l_1 mm	Product-Number	recommended for				New burrs
HFI 0204.03	2,5	4	3	40	A10010204300					
HFI 0408.03	4	8	3	50	A10010408300					
HFI 0610.06	6	10	6	65	A10010610600					
HFI 0810.06	8	10	6	65	A10010810600					

Shape J, Pointed nose

Ordering example: A10080660603

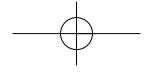
Description	Cut	similar DIN 8033	d_1 mm	l_2 mm	l_3 mm	d_2 mm	l_1 mm	α	Product-Number	recommended for				New burrs
HFJ 0605.06	Z3	KSJ 0605	6	5	-	6	50	60°	A10080660603					
HFJ 1010.06	Z3	KSJ 1005	10	5	10	6	50	90°	A10081090603					
HFJ 1013.06	Z3	KSJ 1008	10	9	13	6	53	60°	A10081060603					
HFJ 1613.06	Z3	KSJ 1608	16	8	13	6	53	90°	A10081690603					
HFJ 1613.08	Z3	KSJ 1608	16	8	13	8	53	90°	A10081690803					
HFJ 1616.06	Z3	KSJ 1613	16	14	16	6	56	60°	A10081660603					
HFJ 1616.08	Z3	KSJ 1613	16	14	16	8	56	60°	A10081660803					



Shape L, Conical Round nose

Ordering example: A10070820603

Description	Cut	similar DIN 8033	Product-Number								recommended for	New burrs
			d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	r ≈ mm	α				
HFL 0820.06	Z3	---	8	20	6	60	1,5	14 °	A10070820603	1 2 3 4	7	■ \$
HFL 0820.06	Z7	---	8	20	6	60	1,5	14 °	A10070820608	1 2 3 5	7	■ \$
HFL 0820.06	Z9	---	8	20	6	60	1,5	14 °	A10070820609		6 8	■
HFL 1015.06	Z3	---	10	15	6	55	3,6	14 °	A10071015603	1 2 3 4	7	■ \$
HFL 1020.06	Z3	KEL 1020	10	20	6	60	2,9	14 °	A10071020603	1 2 3 4	7	■ \$
HFL 1020.06	Z7	KEL 1020	10	20	6	60	2,9	14 °	A10071020608	1 2 3 5	7	■ \$
HFL 1020.06	Z9	KEL 1020	10	20	6	60	2,9	14 °	A10071020609		6 8	■
HFL 1225.06	Z3	KEL 1225	12	25	6	65	3,3	14 °	A10071225603	1 2 3 4	7	■ \$
HFL 1225.06	Z4	KEL 1225	12	25	6	65	3,3	14 °	A10071225604	2 3 4	7 8	■ \$
HFL 1225.06	Z7	KEL 1225	12	25	6	65	3,3	14 °	A10071225608	1 2 3 5	7	■ \$
HFL 1225.06	Z9	KEL 1225	12	25	6	65	3,3	14 °	A10071225609		6 8	■
HFL 1225.08	Z3	KEL 1225	12	25	8	65	3,3	14 °	A10071225803	1 2 3 4	7	■ \$
HFL 1225.08	Z7	KEL 1225	12	25	8	65	3,3	14 °	A10071225808	1 2 3 5	7	■ \$
HFL 1230.06	Z3	KEL 1230	12	30	6	70	2,6	14 °	A10071230603	1 2 3 4	7	■ \$
HFL 1230.06	Z4	KEL 1230	12	30	6	70	2,6	14 °	A10071230604	2 3 4	7 8	■ \$
HFL 1230.06	Z5	KEL 1230	12	30	6	70	2,6	14 °	A10071230605	1 2 3 4	7	■ \$
HFL 1230.06	Z7	KEL 1230	12	30	6	70	2,6	14 °	A10071230608	1 2 3 5	7	■ \$
HFL 1230.06	Z9	KEL 1230	12	30	6	70	2,6	14 °	A10071230609		6 8	■
HFL 1230.08	Z4	KEL 1230	12	30	8	70	2,6	14 °	A10071230804	2 3 4	7 8	■ \$
HFL 1230.08	Z9	KEL 1230	12	30	8	70	2,6	14 °	A10071230809		6 8	■ \$
HFL 1630.06	Z3	KEL 1630	16	30	6	70	4,8	14 °	A10071630603	1 2 3 4	7	■ \$
HFL 1630.06	Z7	KEL 1630	16	30	6	70	4,8	14 °	A10071630608	1 2 3 5	7	■ \$
HFL 1630.08	Z3	KEL 1630	16	30	8	70	4,8	14 °	A10071630803	1 2 3 4	7	■ \$
HFL 1630.08	Z9	KEL 1630	16	30	8	70	4,8	14 °	A10071630809		6 8	■ \$
HFL 2040.08	Z3	KEL 2040	20	40	8	80	5,5	14 °	A10072040803	1 2 3 4	7	■ \$
HFL 2040.08	Z9	KEL 2040	20	40	8	80	5,5	14 °	A10072040809		6 8	■ \$

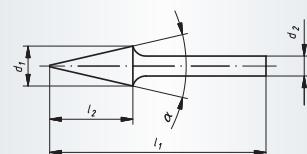


32 Tungsten Carbide Burrs



Shape M, Conical Pointed nose

Ordering example: A10050307303



Packing unit:

1 pc. per type

Further dimensions, cuts and shank lengths on request.

regrind service, please enquire

Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	α	Product-Number	recommended for	New burrs
HFM 0307.03	Z3	SKM 0307	3	7	3	40	22°	A10050307303		
HFM 0307.03	Z5	SKM 0307	3	7	3	40	22°	A10050307305		
HFM 0307.03	Z7	SKM 0307	3	7	3	40	22°	A10050307308		
HFM 0311.03	Z5	SKM 0311	3	11	3	40	14°	A10050311305		
HFM 0311.03	Z7	SKM 0311	3	11	3	40	14°	A10050311308		
HFM 0613.03	Z5	SKM 0613	6	13	3	43	25°	A10050613305		
HFM 0613.03	Z7	SKM 0613	6	13	3	43	25°	A10050613308		
HFM 0618.06	Z3	SKM 0618	6	18	6	50	16°	A10050618603		
HFM 0618.06	Z4	SKM 0618	6	18	6	50	16°	A10050618604		
HFM 0618.06	Z5	SKM 0618	6	18	6	50	16°	A10050618605		
HFM 0618.06	Z7	SKM 0618	6	18	6	50	16°	A10050618608		
HFM 0820.06	Z3	---	8	20	6	60	21°	A10050820603		
HFM 0820.06	Z7	---	8	20	6	60	21°	A10050820608		
HFM 1020.06	Z3	SKM 1020	10	20	6	60	27°	A10051020603		
HFM 1020.06	Z4	SKM 1020	10	20	6	60	27°	A10051020604		
HFM 1020.06	Z7	SKM 1020	10	20	6	60	27°	A10051020608		
HFM 1020.08	Z3	---	10	20	8	60	27°	A10051020803		
HFM 1225.06	Z3	SKM 1225	12	25	6	65	26°	A10051225603		
HFM 1225.06	Z4	SKM 1225	12	25	6	65	26°	A10051225604		
HFM 1225.06	Z7	SKM 1225	12	25	6	65	26°	A10051225608		
HFM 1225.08	Z3	SKM 1225	12	25	8	65	26°	A10051225803		

**Shape N, Inverted cone**

Ordering example: A10120307305

Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	α	Product-Number	recommended for								New burrs
									1	2	3	4	5	6	7	8	
HFN 0307.03	Z5	WKN 0307	3	7	3	40	10°	A10120307305	1	2	3	4			7		■ \$
HFN 0307.03	Z7	WKN 0307	3	7	3	40	10°	A10120307308	1	2	3	5			7		■ \$
HFN 0607.03	Z5	WKN 0607	6	7	3	37	10°	A10120607305	1	2	3	4			7		■ \$
HFN 0607.06	Z3	WKN 0607	6	7	6	50	10°	A10120607603	1	2	3	4			7		■ \$
HFN 0607.06	Z4	WKN 0607	6	7	6	50	10°	A10120607604		2	3	4			7	8	■ \$
HFN 0607.06	Z5	WKN 0607	6	7	6	50	10°	A10120607605	1	2	3	4			7		■ \$
HFN 1013.06	Z3	WKN 1013	10	13	6	53	10°	A10121013603	1	2	3	4			7		■ \$
HFN 1013.06	Z4	WKN 1013	10	13	6	53	10°	A10121013604		2	3	4			7	8	■ \$
HFN 1213.06	Z3	WKN 1213	12	13	6	53	20°	A10121213603	1	2	3	4			7		■ \$
HFN 1213.06	Z4	WKN 1213	12	13	6	53	20°	A10121213604		2	3	4			7	8	■ \$
HFN 1613.08	Z3	WKN 1613	16	13	8	53	20°	A10121613803	1	2	3	4			7		■ \$
HFN 2013.06	Z4	---	20	13	6	53	30°	A10122013604		2	3	4			7	8	■ \$

Shape N, Inverted cone with end-cut

Ordering example: A101203073050001

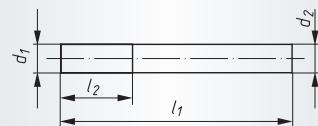
Description	Cut	similar DIN 8033	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	α	Product-Number	recommended for								New burrs
									1	2	3	4	5	6	7	8	
HFNS 0307.03	Z5	WKN-S 0307	3	7	3	40	10°	A101203073050001	1	2	3	4			7		■ \$
HFNS 0307.03	Z7	WKN-S 0307	3	7	3	40	10°	A101203073080001	1	2	3	5			7		■ \$
HFNS 0607.03	Z5	WKN-S 0607	6	7	3	37	10°	A101206073050001	1	2	3	4			7		■ \$
HFNS 0607.06	Z3	WKN-S 0607	6	7	6	50	10°	A101206076030001	1	2	3	4			7		■ \$
HFNS 1013.06	Z3	WKN-S 1013	10	13	6	53	10°	A101210136030001	1	2	3	4			7		■ \$
HFNS 1013.06	Z4	WKN-S 1013	10	13	6	53	10°	A101210136040001		2	3	4			7	8	■ \$
HFNS 1213.06	Z3	WKN-S 1213	12	13	6	53	20°	A101212136030001	1	2	3	4			7		■ \$
HFNS 1213.06	Z4	WKN-S 1213	12	13	6	53	20°	A101212136040001		2	3	4			7	8	■ \$
HFNS 1613.06	Z4	WKN-S 1613	16	13	6	53	20°	A101216136040001		2	3	4			7	8	■ \$
HFNS 1613.08	Z3	WKN-S 1613	16	13	8	53	20°	A101216138030001	1	2	3	4			7		■ \$

34 Tungsten Carbide Burrs



Shape P, Burrs for machining plastics

Ordering example: A101603133001



Packing unit:

1 pc. per type

Further dimensions, cuts and shank lengths on request.

Description	end cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for	New burrs
HFP 0313.03	01	3	13	3	40	A101603133001		■
HFP 0313.03	02	3	13	3	40	A101603133002		■
HFP 0313.03	03	3	13	3	40	A101603133003		■
HFP 0313.03	04	3	13	3	40	A101603133004		■
HFP 0416.04	02	4	16	4	50	A101604164002		■
HFP 0620.06	01	6	20	6	50	A101606206001		■
HFP 0620.06	02	6	20	6	50	A101606206002		■
HFP 0620.06	04	6	20	6	50	A101606206004		■
HFP 0825.08	01	8	25	8	80	A101608258001		■
HFP 0825.08	02	8	25	8	80	A101608258002		■
HFP 0825.08	04	8	25	8	80	A101608258004		■
HFP 1025.10	02	10	25	10	80	A101610251002		■
HFP 1025.10	04	10	25	10	80	A101610251004		■
HFP 1230.12	02	12	30	12	80	A101612301202		■

Type of end cut:



01 = no end cut



03 = double-flute



02 = multi-flute

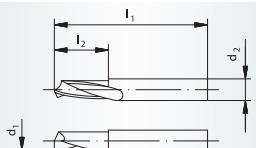


04 = drill type, 120° tip angle



Engraving cutters of solid carbide single flute type

Ordering example: A13150030337102

**Packing unit:**

1 pc. per type

Further dimensions, cuts and shank lengths on request.

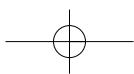
Unless otherwise specified, the tolerances are as DIN 7468

Description	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for	New burrs
HGE 0207.03	2	7	3	40	A13150030337102		■
HGE 0307.03	3	7	3	40	A13150030337103		■

Application: Very well suited for the machining of light metals, non-ferrous metals, plastics and for high-speed-machining of aluminium parts. Cutters with mirror finished flute to allow ideal chip removal and to avoid clogging.

Recommended cutting speeds

Main group of materials	Sub-group	Hardness (HB)	Strength (N/mm ²)	Optimal cutting speed (m/min)
Aluminium, Magnesium	Al, Mg non alloyed Al alloyed Si < 0,5% Al alloyed Si ≥ 0,5 < 10% Al alloyed Si ≥ 10%, Mg-all., Al-Whisker	≤ 100 ≤ 150 ≤ 120 ≤ 120	≤ 350 ≤ 500 ≤ 400 ≤ 400	≤ 400 ≤ 400 ≤ 100 ≤ 70
Plastics	Thermoplastics Thermo-setting plastics	— —	— —	≤ 150 —



36 Tungsten Carbide Burrs



Shape R, Trimming burr (external)

Ordering example: A10140812603

Description	Cut	d_1 mm	d_3 mm	l_2 mm	d_2 mm	l_1 mm	$r \approx$ mm	Product-Number	recommended for				New burrs
									1	2	3	4	
HFR 0812.06	Z3	8	3	12	6	52	2,5	A10140812603	1	2	3	4	■
HFR 1015.06	Z3	10	2	15	6	55	8	A10141015603	1	2	3	4	■
HFR 1215.06	Z3	12	6	15	6	55	8	A10141215603	1	2	3	4	■
HFR 1215.08	Z3	12	6	15	8	55	8	A10141215803	1	2	3	4	■
HFR 1315.06	Z3	13	3	15	6	55	10	A10141315603	1	2	3	4	■
HFR 1315.06	Z5	13	3	15	6	55	10	A10141315605	1	2	3	4	■
HFR 1315.08	Z3	13	3	15	8	55	10	A10141315803	1	2	3	4	■

Shape S, Trimming burr (internal)

Ordering example: A10131618803

Description	Cut	d_1 mm	l_2 mm	d_2 mm	l_1 mm	$r \approx$ mm	Product-Number	recommended for				New burrs
								1	2	3	4	
HFS 1618.08	Z3	16	18	8	120	6	A10131618803	1	2	3	4	■
HFS 1818.08	Z3	18	18	8	120	8	A10131818803	1	2	3	4	■
HFS 2218.08	Z3	22	18	8	120	10	A10132218803	1	2	3	4	■



Miniature burrs with multi-purpose cut

Ordering example: A10010104312

Description	Shape	d_1 mm	l_2 mm	d_2 mm	l_1 mm	Product-Number	recommended for			New burrs
		1	4	3	40		2	3	4	
HFA 01004.03		1	4	3	40	A10010104312	2	3	4	■
HFA 01504.03		1,5	4	3	40	A100101043120001	2	3	4	■
HFA 02004.03		2	4	3	40	A10010204312	2	3	4	■
HFC 01004.03		1	4	3	40	A10020104312	2	3	4	■
HFC 01504.03		1,5	4	3	40	A100201043120001	2	3	4	■
HFC 02004.03		2	4	3	40	A10020204312	2	3	4	■
HFD 01001.03		1	0,9	3	40	A10030101312	2	3	4	■
HFD 01501.03		1,5	1,35	3	40	A100301013120001	2	3	4	■
HFD 02002.03		2	1,8	3	40	A10030202312	2	3	4	■
HFE 01504.03		1,5	4	3	40	A10060104312	2	3	4	■
HFF 01504.03		1,5	4	3	40	A10100104312	2	3	4	■
HFG 01504.03		1,5	4	3	40	A10040104312	2	3	4	■
HFM 01504.03		1,5	4	3	40	A10050104312	2	3	4	■

Application:

- tool manufacture
- precision engineering
- jewellery industry
- turbine manufacture

Materials to be processed:

- stainless steel
- CrNi alloys
- non-ferrous metals
- zinc diecasting
- soft ceramics
- titanium alloys

Power Tool:

- We recommend our pneumatic grinder AMIN 72-013 GD.

Useful hints:

- choose shortest overhang
- concentric running of the collett chuck is very important
- recommended speed: 70.000 rpm

Advantages:

- high dimensional accuracy
- minimal runout
- multi-purpose cut
- micro grain carbide
- precision ground cutting edges

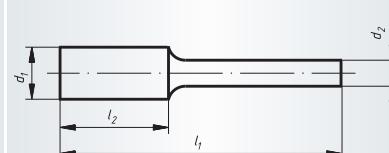


38 Tungsten Carbide Burrs



Miniature burrs in cut 5, shank 3 mm

Ordering example: A10010210305



Packing unit:

1 pc. per type

Further dimensions, cuts and shank lengths on request.

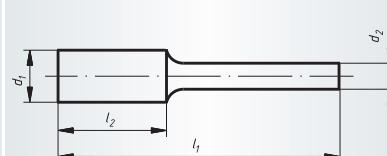
regrind service, please enquire

Description	Cut	Shape	similar DIN 8033	Shank H=solid carbide S=Steel	l_2 mm	d_2 mm	l_1 mm	Product-Number	recommended for				New burrs
HFA 0210.03	Z5		ZYA 0210	H	2	10	40	A10010210305					
HFAS 0210.03	Z5		ZYA-S 0210	H	2	10	40	A100102103050001					
HFA 0313.03	Z5		ZYA 0313	H	3	13	40	A10010313305					
HFAS 0313.03	Z5		ZYA-S 0313	H	3	13	40	A100103133050001					
HFA 0607.03	Z5		ZYA 0607	S	6	7	37	A10010607305					
HFAS 0607.03	Z5		ZYA-S 0607	S	6	7	37	A100106073050001					
HFA 0613.03	Z5		ZYA 0613	S	6	13	43	A10010613305					
HFAS 0613.03	Z5		ZYA-S 0613	S	6	13	43	A100106133050001					
HFC 0210.03	Z5		WRC 0210	H	2	10	40	A10020210305					
HFC 0313.03	Z5		WRC 0313	H	3	13	40	A10020313305					
HFC 0613.03	Z5		WRC 0613	S	6	13	43	A10020613305					
HFD 0302.03	Z5		KUD 0302	H	3	2	40	A10030303305					
HFD 0403.03	Z5		KUD 0403	H	4	3	34	A100304043050001					
HFD 0605.03	Z5		KUD 0605	S	6	5	35	A10030606305					
HFE 0307.03	Z5		TRE 0307	H	3	7	40	A10060307305					
HFE 0610.03	Z5		TRE 0610	S	6	10	40	A10060610305					
HFF 0307.03	Z5		RBF 0307	H	3	7	40	A10100307305					
HFF 0313.03	Z5		RBF 0313	H	3	13	40	A10100313305					
HFF 0613.03	Z5		RBF 0613	S	6	13	43	A10100613305					
HFG 0307.03	Z5		SPG 0307	H	3	7	40	A10040307305					
HFG 0313.03	Z5		SPG 0313	H	3	13	40	A10040313305					
HFG 0613.03	Z5		SPG 0613	S	6	13	43	A10040613305					
HFH 0307.03	Z5		---	H	3	70	40	A10090307305					



Miniature burrs in cut 5, shank 3 mm

Ordering example: A10090613305



Packing unit:

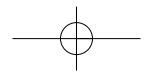
1 pc. per type

Further dimensions, cuts and shank lengths on request.

* available only with fine cross-cut

(S) regrind service, please enquire

Description	Cut	Shape	similar DIN 8033	Shank H=solid carbide S=Steel	l_2 mm	d_2 mm	l_1 mm	Product-Number	recommended for	New burrs
HFH 0613.03	Z5		---	S	6	13	43	A10090613305	① ② ③ ④	■ (S)
HFI 0204.03	*		---	H	2,5	4	40	A10010204300	① ② ③ ④	■ (S)
HFI 0408.03	*		---	H	4	6	50	A10010408300	① ② ③ ④	■ (S)
HFM 0307.03	Z5		SKM 0307	H	3	7	40	A10050307305	① ② ③ ④	■ (S)
HFM 0311.03	Z5		SKM 0311	H	3	11	40	A10050311305	① ② ③ ④	■ (S)
HFM 0613.03	Z5		SKM 0613	S	6	13	43	A10050613305	① ② ③ ④	■ (S)
HFN 0307.03	Z5		WKN 0307	H	3	7	40	A10120307305	① ② ③ ④	■ (S)
HFNS 0307.03	Z5		WKN-S 0307	H	3	7	40	A101203073050001	① ② ③ ④	■ (S)
HFN 0607.03	Z5		WKN 0607	S	6	7	37	A10120607305	① ② ③ ④	■ (S)
HFNS 0607.03	Z5		WKN-S 0607	S	6	7	37	A101206073050001	① ② ③ ④	■ (S)



40 Tungsten Carbide Burrs



Tool-sets, cut 7, shank 3 mm

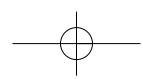
Ordering example: A10390010

							Packing unit: 1 pc. per type							
Description	Shank Ø mm	Cut	Contents	1 pc. each	Product-Number	recommended for								
F10 S3	3	Z7	10 pieces	HFA 0313, HFA 0613, HFC 0313, HFC 0613, HFD 0302, HFD 0605, HFG 0313, HFG 0613, HFM 0613, HFF 0313	A10390010	1	2	3	5	7			■	

Tool-sets, cut 7, shank 6 mm

Ordering example: A1039001006

							Packing unit: 1 pc. per type							
Description	Shank Ø mm	Cut	Contents	1 pc. each	Product-Number	recommended for								
F10 S6	6	Z7	10 pieces	HFAS 0616, HFAS 1225, HFC 0616, HFC 1225, HFD 0605, HFD 1210, HFG 0618, HFG 1225, HFF 0820, HFF 1225	A1039001006	1	2	3	5	7			■	

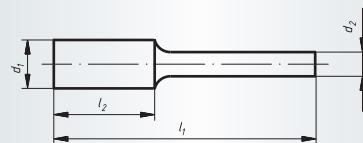




High Performance

Tungsten Carbide Burrs with TiAlN-coating*

Ordering example:A10010616608TIALN



Packing unit:

1 pc. per type

Further dimensions, cuts and shank lengths on request.

Description	Shape	Cut	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for				New burrs
HFA 0616.06 Z7 TIALN		Z7	6	16	6	50	A10010616608TIALN	1	2	3	5	7
HFA 0820.06 ZZ TIALN		Z7	8	20	6	60	A10010820608TIALN	1	2	3	5	7
HFAS 0616.06 Z7 TIALN		Z7	6	16	6	50	A10010616608TIAL1	1	2	3	5	7
HFAS 0820.06 Z7 TIALN		Z7	8	20	6	60	A10010820608TIAL1	1	2	3	5	7
HFC 0616.06 Z7 TIALN		Z7	6	16	6	50	A10020616608TIALN	1	2	3	5	7
HFC 0820.06 Z7 TIALN		Z7	8	20	6	60	A10020820608TIALN	1	2	3	5	7
HFC 1020.06 Z7 TIALN		Z7	10	20	6	60	A10021020608TIALN	1	2	3	5	7
HFC 1225.06 Z7 TIALN		Z7	12	25	6	65	A10021225608TIALN	1	2	3	5	7
HFD 0605.06 Z7 TIALN		Z7	6	5	6	50	A10030606608TIALN	1	2	3	5	7
HFD 0807.06 Z7 TIALN		Z7	8	7	6	47	A10030808608TIALN	1	2	3	5	7
HFD 1009.06 Z7 TIALN		Z7	10	9	6	49	A10031010608TIALN	1	2	3	5	7
HFF 1225.06 Z7 TIALN		Z7	12	25	6	65	A10101225608TIALN	1	2	3	5	7
HFG 0618.06 Z7 TIALN		Z7	6	18	6	50	A10040618608TIALN	1	2	3	5	7
HFG 1020.06 Z7 TIALN		Z7	10	20	6	60	A10041020608TIALN	1	2	3	5	7
HFG 1225.06 Z7 TIALN		Z7	12	25	6	65	A10041225608TIALN	1	2	3	5	7
HFH 0820.06 Z7 TIALN		Z7	8	20	6	60	A10090820608TIALN	1	2	3	5	7
HFH 1230.06 Z7 TIALN		Z7	12	30	6	70	A10091230608TIALN	1	2	3	5	7
HFL 1020.06 Z7 TIALN		Z7	10	20	6	60	A10071020608TIALN	1	2	3	5	7

*High performance coating with a high degree of hardness and flow heat conductivity; therefore suitable for high thermal and mechanical applications; very low friction value

The reasons for producing Tungsten Carbide Burrs with TiAlN-coating are as follows:

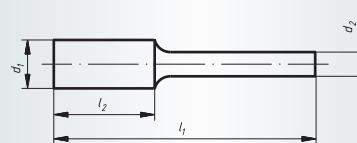
- to increase tool life
- to reduce machining forces
- to improve chip removal

42 Tungsten Carbide Burrs



Burrs for machining non-ferrous metals, cut 9

Ordering example: A10010616609



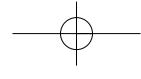
Packing unit:

1 pc. per type

Further dimensions, cuts and shank lengths on request.

regrind service, please enquire

Description	Cut	Shape	d ₁ mm	l ₂ mm	d ₂ mm	l ₁ mm	Product-Number	recommended for			New burrs
HFA 0616.06	Z9		6	16	6	50	A10010616609			6	8
HFA 1225.06	Z9		12	25	6	65	A10011225609			6	8
HFA 1225.08	Z9		12	25	8	65	A10011225809			6	8
HFA 1625.06	Z9		16	25	6	65	A10011625609			6	8
HFA 1625.08	Z9		16	25	8	65	A10011625809			6	8
HFC 0616.06	Z9		6	16	6	50	A10020616609			6	8
HFC 1225.06	Z9		12	25	6	65	A10021225609			6	8
HFC 1225.08	Z9		12	25	8	65	A10021225809			6	8
HFC 1625.06	Z9		16	25	6	65	A10021625609			6	8
HFC 1625.08	Z9		16	25	8	65	A10021625809			6	8
HFD 1210.06	Z9		12	10	6	50	A10031212609			6	8
HFD 1210.08	Z9		12	10	8	50	A10031212809			6	8
HFD 1614.06	Z9		16	14	6	54	A10031616609			6	8
HFD 1614.08	Z9		16	14	8	54	A10031616809			6	8
HFE 1225.08	Z9		12	25	8	65	A10061225809			6	8
HFE 1625.08	Z9		16	25	8	65	A10061625809			6	8
HFF 1225.06	Z9		12	25	6	65	A10101225609			6	8
HFF 1225.08	Z9		12	25	8	65	A10101225809			6	8
HFF 1630.06	Z9		16	30	6	70	A10101630609			6	8
HFF 1630.08	Z9		16	30	8	70	A10101630809			6	8
HFL 0820.06	Z9		8	20	6	60	A10070820609			6	8
HFL 1020.06	Z9		10	20	6	60	A10071020609			6	8
HFL 1225.06	Z9		12	25	6	65	A10071225609			6	8
HFL 1230.06	Z9		12	30	6	70	A10071230609			6	8
HFL 1230.08	Z9		12	30	8	70	A10071230809			6	8
HFL 1630.08	Z9		16	30	8	70	A10071630809			6	8
HFL 2040.08	Z9		20	40	8	80	A10072040809			6	8





Burr with extended shank length (shank length 200 mm)

Ordering example: A10011225603200

Description	Shape	Cut	d_1	l_2	d_2	l_1	Product-Number	recommended for				New burrs
			mm	mm	mm	mm		1	2	3	4	
HFA 1225.06 L		Z3	12	25	6	225	A10011225603200	1	2	3	4	
HFA 1225.06 L		Z7	12	25	6	225	A10011225608200	1	2	3	5	
HFC 0616.06 L		Z3	6	16	6	216	A10020616603200	1	2	3	4	
HFC 0616.06 L		Z7	6	16	6	216	A10020616608200	1	2	3	5	
HFC 0820.06 L		Z3	8	20	6	220	A10020820603200	1	2	3	4	
HFC 0820.06 L		Z7	8	20	6	220	A10020820608200	1	2	3	5	
HFC 1225.06 L		Z7	12	25	6	225	A10021225608200	1	2	3	5	
HFD 0605.06 L		Z3	6	5	6	205	A10030605603200	1	2	3	4	
HFD 0605.06 L		Z7	6	5	6	205	A10030605608200	1	2	3	5	
HFD 0807.06 L		Z3	8	7	6	207	A10030807603200	1	2	3	4	
HFD 0807.06 L		Z7	8	7	6	207	A10030807608200	1	2	3	5	
HFD 1009.06 L		Z3	10	9	6	209	A10031009603200	1	2	3	4	
HFD 1009.06 L		Z7	10	9	6	209	A10031009608200	1	2	3	5	
HFD 1210.06 L		Z3	12	10	6	210	A10031210603200	1	2	3	4	
HFD 1210.06 L		Z7	12	10	6	210	A10031210608200	1	2	3	5	
HFD 1210.08 L		Z3	12	10	8	210	A10031210803200	1	2	3	4	
HFD 1210.08 L		Z7	12	10	8	210	A10031210808200	1	2	3	5	
HFE 1220.06 L		Z3	12	20	6	220	A10061220603200	1	2	3	4	
HFE 1220.06 L		Z7	12	20	6	220	A10061220608200	1	2	3	5	
HFE 1220.08 L		Z3	12	20	8	220	A10061220803200	1	2	3	4	
HFE 1220.08 L		Z7	12	20	8	220	A10061220808200	1	2	3	5	
HFF 0618.06 L		Z3	6	18	6	218	A10100618603200	1	2	3	4	
HFF 0618.06 L		Z7	6	18	6	218	A10100618608200	1	2	3	5	
HFF 1230.08 L		Z3	12	30	8	230	A10101230803200	1	2	3	4	
HFF 1230.08 L		Z7	12	30	8	230	A10101230808200	1	2	3	5	
HFG 0618.06 L		Z3	6	18	6	218	A10040618603200	1	2	3	4	
HFG 0618.06 L		Z7	6	18	6	218	A10040618608200	1	2	3	5	
HFG 1230.08 L		Z3	12	30	8	230	A10041230803200	1	2	3	4	
HFG 1230.08 L		Z7	12	30	8	230	A10041230808200	1	2	3	5	
HFH 1020.06 L		Z3	10	20	6	220	A10091020603200	1	2	3	4	
HFH 1020.06 L		Z7	10	20	6	220	A10091020608200	1	2	3	5	
HFH 1230.08 L		Z3	12	30	8	230	A10091230803200	1	2	3	4	
HFH 1230.08 L		Z7	12	30	8	230	A10091230808200	1	2	3	5	

44 Some examples of our competitive performance

Tools for stationary use



Range of application:

- Tool construction
- Turbine construction
- Aircraft and space industry
- general machine tool construction

In addition to rotary burrs, we also produce tungsten carbide milling tools in special shapes and sizes for stationary application.

We supply these milling cutters with a diameter **of 12 mm** maximum diameter and with a maximum length **of 250 mm**; they differ from our extensive standard range by the shape, tool material and geometry (rake, relief and helix angles).

Differential drill, radius mill, shank-end mill,
die mill, profile mill

delivery on request

Tools for hand-held and floor-stand application



Range of application:

- general machine tool construction
- shipbuilding

Trimming burr

delivery on request