

Tungsten carbide burrs

TC burrs for work on edges



Tungsten carbide burrs for work on edges represent a new PFERD product line. They are mainly used in steel and aluminium construction and have been specifically designed for chamfering, deburring and rounding of edges.

PFERD offers tools for both flexible as well as for defined work on edges. For more information about tungsten carbide burrs with EDGE cut for defined work on edges, see page 57.

Flexible work on edges

Tungsten carbide burrs for flexible work on edges achieve almost exact chamfers or radii due to their special shapes. They can also be used flexibly in hard-to-reach areas.

Advantages:

- Freely guidable
- Extremely flexible for use in hard-to-reach areas
- Creates almost exact chamfers and radii

Recommendations for use:

- In exceptional cases, it is possible to work at less than 3,000 RPM. This is preferable for stationary use or when countersinking with 360° use of the burr surface.
- The rotational speed can be substantially increased up to 100 % for low stock removal (deburring, chamfering, surface finishing).
- In general, burrs are used counter-rotationally or with a swinging motion. Pass the tool rapidly over the workpiece in the direction of rotation to achieve fine finishes or to achieve very smooth chamfers.

Application examples:

- Producing/working on outer radii
- Rounding edges
- Sinking and chamfering
- Work on hard-to-reach, reverse side edges



Recommended rotational speed range

To determine the recommended cutting speed range [m/min], please proceed as follows:

- Select the material group to be machined
- Select the cut
- Establish the cutting speed range

To determine the recommended rotational speed range, please proceed as follows:

- Select the required burr diameter
- The cutting speed range and the burr diameter determine the recommended rotational speed range

1 Material group		Application	2 Cut	3 Cutting speed	
Steel, cast steel	Non-hardened, non-heat-treated steels up to 1,200 N/mm ² (< 38 HRC)	Construction steels, carbon steels, tool steels, non-alloyed steels, case-hardened steels, cast steel	3	450–600 m/min	
	Hardened, heat-treated steels over 1,200 N/mm ² (> 38 HRC)		SP		
Stainless steel (INOX)	Rust- and acid-resistant steels	Austenitic and ferritic stainless steels	3	250–350 m/min	
			SP		
Non-ferrous metals	Soft non-ferrous metals, non-ferrous metals	Brass, copper, zinc	5	350–450 m/min	
	Hard non-ferrous metals		3		600–900 m/min
			High-temperature-resistant materials		
Cast iron	Grey cast iron, white cast iron	Nickel-based and cobalt-based alloys (engine and turbine construction)	3	250–450 m/min	
			SP		
Cast iron	Grey cast iron, white cast iron	Cast iron with flake graphite EN-GJL (GG), with nodular graphite/nodular cast iron EN-GJS (GGG), white annealed cast iron EN-GJMW (GTW), black cast iron EN-GJMB (GTS)	5	350–600 m/min	
			SP		

Example:
TC burr,
Cut SP,
Burr dia. 12 mm.
Stock removal on non-hardened, non-heat-treated steels.
Cutting speed: 450–900 m/min
Rotational speed: 12,000–24,000 RPM

4 Burr dia. [mm]	5 Cutting speed [m/min]				
	250	350	450	600	900
	Rotational speed [RPM]				
3	27,000	37,000	48,000	64,000	95,000
6	13,000	19,000	24,000	32,000	48,000
8	10,000	14,000	18,000	24,000	36,000
10	8,000	11,000	14,000	19,000	29,000
12	7,000	9,000	12,000	16,000	24,000
13	6,000	9,000	11,000	15,000	22,000
16	5,000	7,000	9,000	12,000	18,000



Tungsten carbide burrs

TC burrs for work on edges

Defined work on edges

Tungsten carbide burrs with the EDGE cut have been developed specifically for defined work on edges. They are suitable for chamfering, deburring and edge breaking and rounding, and are mainly used in steel and aluminium construction.

The special design allows the burr to run directly along the edges, without damage to the workpiece. Thus, exact edge shapes can be created in a single-step operation – with either defined chamfers of 30° or 45°, or to a defined radius of 3.0 mm.

Among other things, rounding edges is a precautionary measure for anti-corrosion protection according to:

- ISO 12944-3
- ISO 8501-3
- SOLAS XII/6.3 (Ref. T4/3.01 MSC.1/Circ.1198)

Advantages:

- Special design for precise guidance
- Safe and comfortable to guide
- Create an exact edge shape with either defined chamfers of 30° or 45°, or a defined radius of 3.0 mm in a single-step operation

Application examples:

- Rounding edges in preparation for the application of anti-corrosion coatings in shipbuilding, on crane systems and other steel constructions which are exposed to corrosion loading
- Chamfering in weld seam preparation for V-shaped seams (60°, ISO 9692-1)
- Chamfering for edge breaking (45°)

Recommendations for use:

- Use the burrs counter-rotationally. In order to produce a fine surface, finally pass them over the edges in the direction of the rotation.
- If possible, use EDGE cut burrs with PFERD compressed-air straight grinder PG 3/210 with matching guide sleeve EFH PG 3/210. This will improve the guidability of the burrs even further and reduce the thermal load. For more information, see page 58 and Catalogue 209.



Recommended rotational speed range

To determine the recommended cutting speed range [m/min], please proceed as follows:

- Select the material group to be machined
- Establish the cutting speed range

To determine the recommended rotational speed range, please proceed as follows:

- Select the required burr diameter

- The cutting speed range and the burr diameter determine the recommended rotational speed range

1 Material group		Application	2 Cut	3 Cutting speed	
Steel, cast steel	Non-hardened, non-heat-treated steels up to 1,200 N/mm ² (< 38 HRC)	Construction steels, carbon steels, tool steels, non-alloyed steels, case-hardened steels, cast steel	EDGE	600–900 m/min	
	Hardened, heat-treated steels over 1,200 N/mm ² (> 38 HRC)				Tool steels, tempering steels, alloyed steel, cast steel
Stainless steel (INOX)	Rust- and acid-resistant steels	Austenitic and ferritic stainless steels	EDGE	250–450 m/min	
Non-ferrous metals	Soft non-ferrous metals, non-ferrous metals	Aluminium alloys, brass, copper, zinc	EDGE	600–900 m/min	
	Hard non-ferrous metals				Bronze, hard aluminium alloys (high Si content), titanium/titanium alloys
	High-temperature-resistant materials				Nickel-based and cobalt-based alloys (engine and turbine construction)
Cast iron	Grey cast iron, white cast iron	Cast iron with flake graphite EN-GJL (GG), with nodular graphite/nodular cast iron EN-GJS (GGG), white annealed cast iron EN-GJMW (GTW), black cast iron EN-GJMB (GTS)	EDGE	600–900 m/min	
Plastics, other materials	Fibre-reinforced plastics (GRP/CRP), thermoplastics		EDGE	750–1,100 m/min	

Example:
TC burr,
Cut EDGE,
Burr dia. 16 mm.
Stock removal on non-hardened, non-heat-treated steels up to 1,200 N/mm².
Cutting speed: 600–900 m/min
Rotational speed: 12,000–18,000 RPM

3 Burr dia. [mm]	4 Cutting speed [m/min]				
	250	450	600	750	900
	Rotational speed [RPM]				
16	5,000	9,000	12,000	16,000	18,000

PFERDVIDEO
You will receive more information here or at www.pferd.com



Tungsten carbide burrs

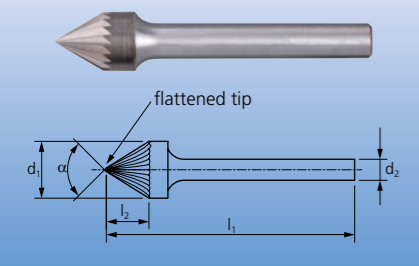
TC burrs for work on edges



Tungsten carbide burrs

TC burrs for work on edges

Conical counterbore shape KSJ

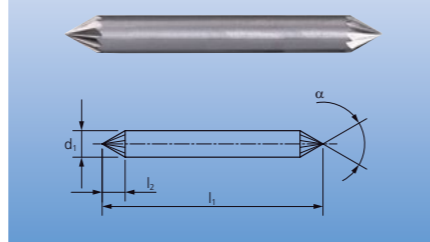


Conical counterbore burr according to DIN 8032 with cut conforming to DIN 8033, with point angle (60°). The KSJ 0605/6 (double-ended) design is cut and usable on both sides, see picture.

Applications:
 ■ Flexible sinking and chamfering

Ordering example:
 EAN 4007220**047552**
 KSJ 0605/6 Z3
 Please complete the description with the desired cut.

Conical counterbore shape KSJ (double-ended)

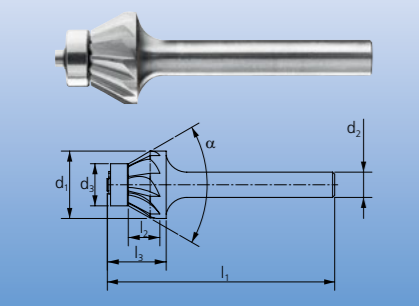


Description	Cut		Shank dia. d ₂ [mm]	Burr dia. x length d ₁ x l ₂ [mm]	Overall length l ₁ [mm]	Angle α	
	3	5					
	EAN 4007220						

Shank dia. 6 mm

KSJ 0605/6	047552	-	6	6 x 5	50	60°	1
KSJ 1008/6	047576	-	6	10 x 8	53	60°	1
KSJ 1613/6	047491	047507	6	16 x 13	56	60°	1

Conical counterbore shape KSJ (EDGE)



Conical counterbore burr for cutting precisely defined chamfers.

Applications:
 ■ Sinking and chamfering of defined 30° chamfer angles

Ordering example:
 EAN 4007220**952443**
 KSJ 1605/6 EDGE 30°



Description	Cut	Shank dia. d ₂ [mm]	Burr dia. x length d ₁ x l ₂ [mm]	Length l ₃ [mm]	Overall length l ₁ [mm]	Dia. d ₃ [mm]	Angle α	
	EDGE							
	EAN 4007220							

KSJ 1605/6 30°	952443	6	16 x 5	14	54	10	60°	1
----------------	--------	---	--------	----	----	----	-----	---



As far as possible, use EDGE cut burrs with PFERD compressed-air straight grinder PG 3/210.

Use guide sleeve EFH PG 3/210, which was specially designed for this drive. The additional contact surface of the guide sleeve further improves the guidability of the burrs.

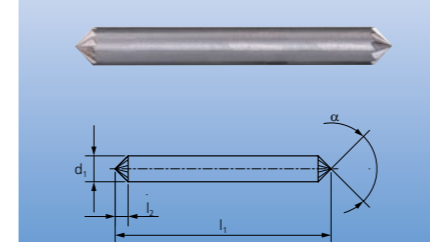
Additionally, the exhaust is deliberately discharged towards the front, so that chips are removed and the thermal load on the workpiece and the tool is reduced. This is a particular advantage when working with

materials which do not conduct heat well, such as stainless steel (INOX).

The use of guide sleeve EFH PG 3/210 also avoids the build-up of chip deposits when working on aluminium materials. Alternatively, you can use a grinding oil.

Ordering data for drive and guide sleeve can be found in Catalogue 209. Ordering data for PFERD grinding oil 412 can be found in Catalogue 204.

Conical counterbore shape KSK (double-ended)



Conical counterbore burr according to DIN 8032 with cut conforming to DIN 8033, with angle (90°). The KSK 0603/6 (double-ended) design is cut and usable on both sides, see picture.

Applications:
 ■ Flexible sinking and chamfering

Ordering example:
 EAN 4007220**047521**
 KSK 1608/6 Z3
 Please complete the description with the desired cut.

Description	Cut		Shank dia. d ₂ [mm]	Burr dia. x length d ₁ x l ₂ [mm]	Overall length l ₁ [mm]	Angle α	
	3	5					
	EAN 4007220						

Shank dia. 6 mm

KSK 0603/6	047569	-	6	6 x 3	50	90°	1
KSK 1005/6	047583	-	6	10 x 5	50	90°	1
KSK 1608/6	047521	047545	6	16 x 8	53	90°	1

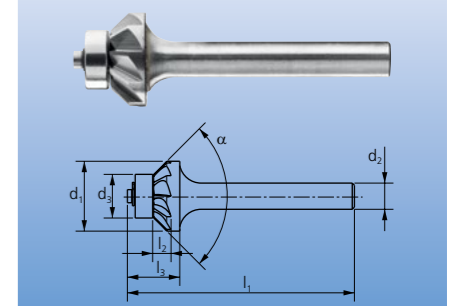


Conical counterbore burr for the production of precisely defined chamfers.

Applications:
 ■ Sinking and chamfering of defined 45° chamfer angles

Ordering example:
 EAN 4007220**952436**
 KSK 1603/6 EDGE 45°

Conical counterbore shape KSK (EDGE)



Description	Cut	Shank dia. d ₂ [mm]	Burr dia. x length d ₁ x l ₂ [mm]	Length l ₃ [mm]	Overall length l ₁ [mm]	Dia. d ₃ [mm]	Angle α	
	EDGE							
	EAN 4007220							

KSK 1603/6 45°	952436	6	16 x 3	12	52	10	90°	1
----------------	--------	---	--------	----	----	----	-----	---



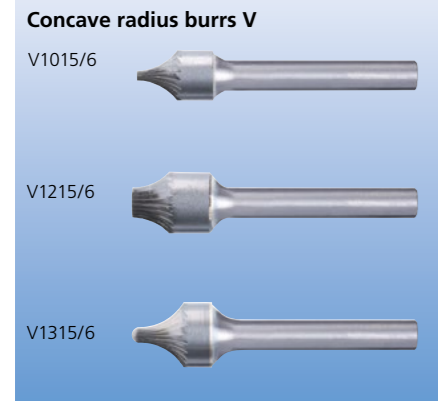
Tungsten carbide burrs

TC burrs for work on edges



Tungsten carbide burrs

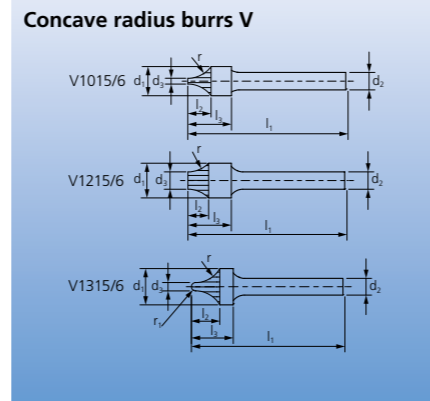
TC burrs for work on edges



Concave radius burrs V
Radius burr with concave end shape, cut conforming to DIN 8033. Concave radius burrs cannot be re-sharpened.

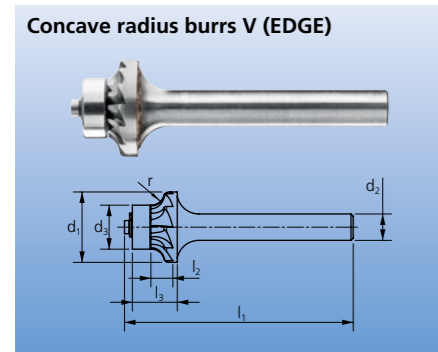
Applications:
■ Production and processing of outer radii and rounded edges

Ordering example:
EAN 4007220**049174**
V 1015/6 Z3



Description	Cut	Shank dia. d ₂ [mm]	Burr dia. x length d ₁ x l ₂ [mm]	Length l ₃ [mm]	Overall length l ₁ [mm]	Dia. d ₃ [mm]	Radius r [mm]	Radius r ₁ [mm]	Image
EAN 4007220									

Shank dia. 6 mm									
V 1015/6	049174	6	10 x 8	15	55	2	10.0	-	1
V 1215/6	049204	6	12 x 7	15	55	6	10.0	-	1
V 1315/6	049198	6	13 x 10	15	55	3	10.0	1.5	1



Concave radius burrs V (EDGE)
Radius burr for the production of precise radii. Concave radius burrs cannot be re-sharpened.

Applications:
■ Production and processing of 3 mm outer radii

Ordering example:
EAN 4007220**952412**
V 1612/6 EDGE R3.0



Description	Cut	Shank dia. d ₂ [mm]	Burr dia. x length d ₁ x l ₂ [mm]	Length l ₃ [mm]	Overall length l ₁ [mm]	Dia. d ₃ [mm]	Radius r [mm]	Radius r ₁ [mm]	Image
EAN 4007220									

Shank dia. 6 mm									
V 1612/6 R3,0	952412	6	16 x 3	12	52	10	10.0	3.0	1

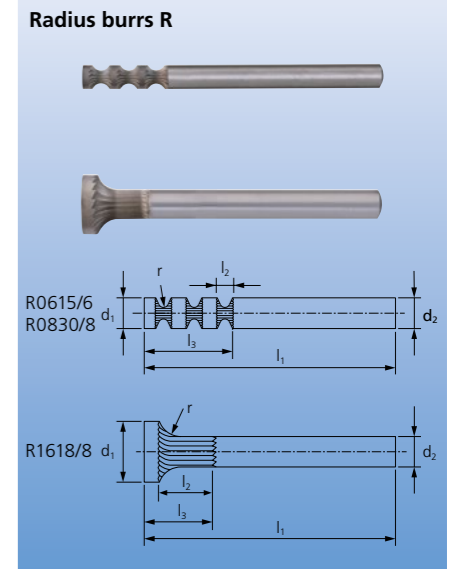


Radius burrs R
Radius burr with concave shape and special cut, available in two designs:
■ Cylindrical with triple concave contour
■ With concave shape, tapered towards shank
Radius burrs cannot be re-sharpened.

Applications:
■ Production and processing of outer radii and rounded edges

Recommendations for use:
The rotational speed recommendations for tungsten carbide burrs of cut 3 are valid for radius burrs with special cut.

Ordering example:
EAN 4007220**049150**
R 0830/8 SP



Description	Cut	Shank dia. d ₂ [mm]	Burr dia. x length d ₁ x l ₂ [mm]	Length l ₃ [mm]	Overall length l ₁ [mm]	Radius r [mm]	Image
EAN 4007220							

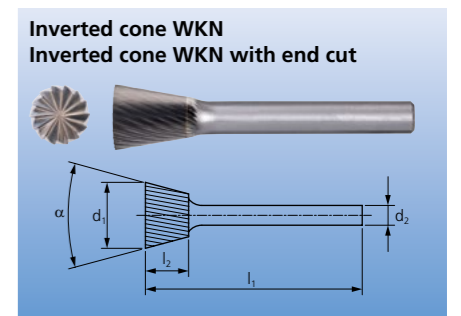
Shank dia. 6 mm							
R 0625/6	952016	6	6 x 5	25	65	3.0	1
Shank dia. 8 mm							
R 0830/8	049150	8	8 x 5	27	65	3.0	1
R 1618/8	049167	8	16 x 12	18	118	6.0	1



Inverted cone WKN
Inverted cone-shaped burr, tapered towards the shank according to DIN 8032 with cut conforming to DIN 8033. Shape WKNS with end cut.

Applications:
■ Work on hard-to-reach, reverse side edges

Ordering example:
EAN 4007220**049730**
WKNS 0607/3 Z3 PLUS
Please complete the description with the desired cut.



Description	Cut			Shank dia. d ₂ [mm]	Burr dia. x length d ₁ x l ₂ [mm]	Overall length l ₁ [mm]	Angle α	Image
	3	3 PLUS	5					
EAN 4007220								

Shank dia. 3 mm without end cut								
WKN 0307/3	-	233863	233870	3	3 x 7	37	4°	1
WKN 0607/3	-	233887	233894	3	6 x 7	37	10°	1
Shank dia. 3 mm with end cut								
WKNS 0307/3	-	049716	049709	3	3 x 7	37	4°	1
WKNS 0607/3	-	049730	049723	3	6 x 7	37	10°	1
Shank dia. 6 mm without end cut								
WKN 1013/6	049211	-	-	6	10 x 13	53	10°	1
WKN 1213/6	049235	-	-	6	12 x 13	53	20°	1
WKN 1613/6	049242	-	-	6	16 x 13	53	20°	1

