

MASTER[®]

Tungsten Carbide Rotary Burrs

SOLUTIONS FOR INDUSTRY



Introduction

Master Abrasives

The **MASTER®** brand is known internationally as a high-quality brand of abrasives, tools and consumables by Master Abrasives, accredited to ISO 9001 standards. As an independent UK owned company with over 50 years' experience in the abrasives market, we supply industry with high performance tungsten carbide burrs.

We aim to provide solutions for industry through both our products and professional service. Master burrs are manufactured with precision to provide high stock removal rates and long life. Our technical application team works with customers worldwide to find solutions for applications and help to achieve improved productivity with high quality, cost-effective products.

Our comprehensive range of burr shapes, sizes and fluting styles ensures we can offer a tool that meets the most demanding application.



Applications

Due to the nature of tungsten carbide and its extreme hardness, the range of applications and uses for carbide burrs is extensive.

The automotive, aircraft, precision engineering and foundry industries are typical users and applications include the machining of:

- Aluminium, plastic
- Brass, copper, cast iron, bronze
- Unhardened steel
- Hardened steels, stainless steels, nimonc alloys, titanium.



Cut Types

The Master range of cut styles has been developed over years of application experience, with single, double, coarse, diamond, and ripper (Aluminium) cut being offered. We can also develop specifically modified cuts to suit specific and tough applications.

Cut Selection Guide

Material	Cut Type				
	Single Cut	Double Cut	Coarse Cut	Diamond Cut	Ripper Cut
Aluminium, Plastic					X
Brass, Copper, Cast Iron, Bronze	X	X	X	X	
Unhardened Steel			X		
Hardened Steels, Stainless Steels, Nimonic Alloys, Titanium	X	X		X	
Fibreglass				X	

MASTER® Single Cut

General purpose cut suitable for use on stainless steel, hardened steel, cast iron and weld preparation.



MASTER® Double Cut

Allows fast stock removal and increases production rates. Effectively reduces chips as the material is removed, resulting in improved control and a smoother running burr. Recommended for working on materials which produce long chips, such as soft steels and cast iron welds.



MASTER® Coarse Cut

Available in double or single coarse cut. Suitable for stock removal and finishing on non-ferrous metals such as brass, copper and zinc.



MASTER® Diamond Cut

The staggered tooth geometry provides more cutting edges which result in greater material penetration of heat treated steels and tough alloy steels. Provides faster metal removal and smoother cutting action with improved control.



MASTER® Ripper Cut

Free and fast-cutting for rapid stock removal on non-ferrous materials, including aluminium, soft steels and reinforced plastics. Produces a good finish with minimum tooth loading.





Cylinder Without End Cut

Ref. No.	A0150603	A0251103	A031403	A041606	A061203	A061606	A081906	A102006	A122506	A162506
Head- Ø mm	1.5	2.5	3	4	6	6	8	10	12	16
Head- Length mm	6	11	14	16	12	16	19	20	25	25
Shank- Ø mm	3	3	3	6	3	6	6	6	6	6
Overall length mm	38	38	38	50	50	50	63	60	65	69



Cylinder With End Cut

Ref. No.	B0150603	B0251103	B031403	B041606	B060503	B061606	B081906	B102006	B122506	B162506
Head- Ø mm	1.5	2.5	3	4	6	6	8	10	12	16
Head- Length mm	6	11	14	16	5	16	19	20	25	25
Shank- Ø mm	3	3	3	6	3	6	6	6	6	6
Overall length mm	38	38	38	50	50	50	63	60	65	69



Cylindrical Ball Nose

Ref. No.	C0251103	C031403	C041203	C041606	C061203	C061606	C081906	C102006	C122506	C162506
Head- Ø mm	2.5	3	4	4	6	6	8	10	12	16
Head- Length mm	11	14	12	16	12	16	19	20	25	25
Shank- Ø mm	3	3	3	6	3	6	6	6	6	6
Overall length mm	38	38	38	50	50	50	63	60	65	69



Ball Nose

Ref. No.	D01501503	D030303	D040403	D050503	D060603	D060606	D080806	D101006	D121206	D161606
Head- Ø mm	1.5	3	4	5	6	6	8	10	12	16
Head- Length mm	1.5	2.8	3.4	4	5	4.7	6	9	11	14
Shank- Ø mm	3	3	3	3	3	6	6	6	6	6
Overall length mm	60	38	38	38	44	50	50	49	51	58



Oval

Ref. No.	E030603	E060903	E101606	E122206	E162506	E192506
Head- Ø mm	3	3	10	12	16	19
Head- Length mm	6	9	16	22	25	25
Shank- Ø mm	3	3	6	6	6	6
Overall length mm	38	47	60	66	69	69



Ball Nose Tree

Ref. No.	F031203	F061203	F061606	F101906	F122506	F162506
Head- Ø mm	3	6	6	10	12	16
Head- Length mm	12	12	16	19	25	25
Shank- Ø mm	3	3	6	6	6	6
Overall length mm	38	56	50	63	65	69



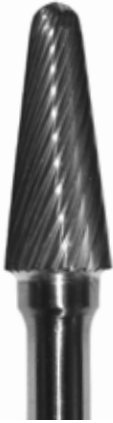
Pointed Tree

Ref. No.	G030603	G031203	G061203	G061606	G081906	G102006	G122006	G122506	G162506
Head- Ø mm	3	3	6	6	8	10	12	12	16
Head- Length mm	6	12	12	16	19	20	20	25	25
Shank- Ø mm	3	3	3	6	6	6	6	6	6
Overall length mm	38	38	50	50	63	60	63	65	69



Flame Shape

Ref. No.	H030603	H051003	H081906	H123206	H163606
Head- Ø mm	3	5	8	12	16
Head- Length mm	6	10	19	32	36
Shank- Ø mm	3	3	6	6	6
Overall length mm	38	38	63	76	80



Ball Nose Cone

Ref. No.	L031003	L031203	L061606	L082206	L102706	L122806	L163006
Head- Ø mm	3	3	6	8	10	12	16
Head- Length mm	10	12	16	22	27	28	30
Shank- Ø mm	3	3	6	6	6	6	6
Overall length mm	38	38	50	69	74	76	77



Cone Included Angle

12° 14° 7° 22° 14° 28° 28° 31°

Ref. No.	M030903	M031203	M031603	M061203	M061906	M101606	M122206	M162506
Head- Ø mm	3	3	3	6	6	10	12	16
Head- Length mm	9	12	16	12	19	16	22	25
Shank- Ø mm	3	3	3	3	6	6	6	6
Overall length mm	38	38	38	53	50	63	69	73

Cone 60°

Ref. No.	M121106-60	M161506-60	M191806-60
Head- Ø mm	12	16	19
Head- Length mm	11	15	18
Shank- Ø mm	6	6	6
Overall length mm	58	61	65

Cone 90°

Ref. No.	M120606-90	M160806-90	M191006-90
Head- Ø mm	12	16	19
Head- Length mm	6	8	10
Shank- Ø mm	6	6	6
Overall length mm	54	57	58



Inverted Cone

Ref. No.	N030403	N060603	N060806	N101006	N121206
Head- Ø mm	3	6	6	10	12
Head- Length mm	4	6	8	10	12
Shank- Ø mm	3	3	6	6	6
Overall length mm	38	44	50	53	57

Specials

At Master Abrasives we offer to work with you to find the solution to your application problems. Our team of technical representatives work with you to achieve improved productivity with high quality, cost-effective products. This can be through the application of one of our standard stock items or when required our team will work at developing a special design specifically to suit your application, for example a Chip Breaker Cut.

Our manufacturing team then set to work on developing the most cost-efficient production method on our state of the art machinery to produce your burrs, the result being the most productive and cost-efficient burr for your application.

Long and Double-Ended Shank Burrs

Within our extensive range we also offer a selection of Master burrs with long shanks to allow access to hard-to-reach areas and solve long reach application problems.

Master can also supply a comprehensive range of double ended burrs to further aid in productivity and cost savings for our customers.

Coatings

A range of wear coatings, such as titanium nitride, is available to improve burr life and to suit demanding applications.

Tungsten Carbide Burr Kits

Master carbide burr kits offer a selection of shapes for a variety of applications, including general purpose deburring. These kits are extremely popular with toolmakers, maintenance engineers and are an ideal addition to any comprehensive tool kit.

6mm shank kit

5 piece set of 6mm shank burrs in double cut
 B122506 DC, C122506 DC, D121206 DC, F122506 DC
 and L122806 DC.

3mm shank kit

10 piece set of 3mm shank burrs in double cut
 A031403 DC, B031403 DC, C031403 DC, D030303 DC,
 E030603 DC, F031203 DC, G031203 DC, H030603 DC,
 L031003 DC and M031203 DC.



Running Speed Guide - approx. R.P.M. in 1000s

Head Dia.	1/8"	5/32"	1/4"	5/16"	3/8"	1/2"	5/8"	1"
Materials	3mm	4mm	6mm	8mm	10mm	13mm	16mm	25mm
Alum, Zinc Base, Plastics	20-90	10-60	10-50	10-50	10-40	10-30	8-20	
Cast Iron, Brass, Copper	40-90	20-50	20-50	15-40	10-30	10-25	10-20	
Glass Fibre	40-90	30-50	20-30	15-20	15-20	10-15	8-10	5-8
Mild Steel, Bronze	60-90	50-80	30-40	25-40	20-30	15-20	10-15	8-10
Nimonic, Titanium, Stainless Hardened Steels, Ceramics	40-80	30-60	25-50	20-40	15-30	10-20	8-15	

Note: Coarse teeth burrs should be run faster than fine teeth burrs.
Long shank burrs should be used at lower running speeds.

How to Order



C 12 25 06 DC

Shape Cylindrical Ball Nose C	Head Diameter (mm) 12	Head Length (mm) 25	Shank Diameter (mm) 06	Cut Style Double Cut DC	Optional Features e.g., Long Shank, Double Ended
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The right tool for the job

At Master Abrasives, we recommend that you use the right tool to get the most efficient use from your carbide burrs, reducing production costs and minimising risks from Hand Arm Vibration. As distributors for a range of high quality pneumatic and electric tool brands, we are happy to advise in the selection of the best tool for your application.



Pencil Grinder Miniature Precision Tool

ZPD212 Micro Air Die Grinder 0.12HP
Rear exhaust, 60,000 RPM high speed for fine deburring
For use with 3mm or 1/8" accessories



Right Angle Grinder

ZDG-236 Mini Air Angle Die Grinder 20,000 RPM for general purpose stock removal
ZP319..... Air Angle Die Grinder 18,000 RPM for general purpose stock removal
ZDG-302 Air Angle Die Grinder 18,000 RPM 0.9HP
ZDG-3226 Air Angle Die Grinder (115°)



Extension Grinder

ZP315..... 5" Extended Air Die Grinder 22,000 RPM
ZP314..... 3" Extended Air Die Grinder 22,000 RPM
ZDG-301AL.. 3 1/2" Extended Air Die Grinder 22,000 RPM 1HP
ZDG-301L 5 1/2" Extended Air Die Grinder 22,000 RPM 1HP



Inline Grinder

ZP313..... Air Die Grinder 22,000 RPM
ZDG-231 Mini Air Die Grinder 25,000 RPM
ZDG-301 Air Die Grinder 23,000 RPM 0.9HP
ZDG-S216.... Air Die Grinder 15,000 RPM
ZDG-376A.... Air Die Grinder 3,600 RPM

Information

Operator

- The standard tooth pitch on a Master tungsten carbide burr will suit almost all operations on any material as long as the burr is run at the correct speed.
- Apply constant movement and light pressure when in use. Remove high spots first and then traverse the work. Excessive pressure should not be applied as this can cause impact damage to the burr especially on very hard materials or irregular shapes.
- A cutter should never be allowed to lock, or wedge, in the workpiece profiles or cavities since this will certainly result in shattered teeth and/or a broken shank.
- Check that the collet is the correct size and not worn or eccentric. The cutter must run true. Rotational eccentricity produces a type of hammering that will affect the finish of the work and jeopardise the life of the teeth and the shank.
- The workpiece should be securely held in either a vice, or a jig, so that it cannot move whilst cutting.
- If the teeth of a cutter tend to get clogged (i.e. when cutting aluminium, brass etc.) they should be cleared periodically by cutting into a spare piece of soft cast iron. Also the occasional application of tallow is helpful.

Safety

- Always wear ear, eye and face protection as well as protective safety gloves.
- Follow the running speed guide on page 8
- Long shank burrs should be used at lower running speeds.
- Select the correct shape, size and cut for the job.
- Use the appropriate tool and ensure that it is regularly maintained.
- Insert the shank well down in the collet, but not as far as the radiused shoulder below the head.
- Don't use low running speeds for burrs, this can cause tooth loading and chipping.



Enquiry form

Company:

Address:

Contact name:

Contact info:

APPLICATION	
Application type	
Stock removal (light or heavy)	
Component type	
Component material	
PRODUCT	
Current product/brand	
Master product details	
Master product code	
POWER TOOL	
Tool brand and model	
Condition	
Date of last service	
Speed RPM	
Suitable power/air supply	
OPERATOR	
Name	
Experience	

Send us a copy of the above form completed to arrange your Master carbide burr trial.



Aerospace

Tooling

Fabrication

Power
Generation

Medical

Heavy
Engineering

Automotive

Bearing

Oil & Gas

Woodwork

SOLUTIONS FOR INDUSTRY

For further information on Master products and services or technical applications support, please contact us

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