

## All Carbide Burrs are braze tested to ensure optimum strength and the highest safety standards.

All Josco Carbide Burrs are produced on computerised, numerically controlled fluting machines. They have a specially developed tooth design providing a fast, clean cut right to the tip of the tool, with a more even tooth loading over the whole contour of the cutting head. They achieve a high rate of stock removal combined with a smooth finish on metal, plastics and other materials.

The pitch of tooth on a standard cut Burr will suffice for almost any operation on any material provided the running speeds are as those recommended. Pneumatic or high cycle electric grinding machines with a high standard of concentricity and torque will ensure the most effective service from a carbide burr.

Josco Carbide Burrs are ideally suited for freehand stock removal, weld preparation and the finishing of mnemonic alloy steel components. These applications are generally found in aircraft, shipbuilding and other specialised industries. Significant time and cost savings are achieved when dressing and fettling cast components in iron, steel and non-ferrous foundries.

### Cutting Styles

#### Cut 'S'

Standard Cut is recommended for general deburring and weld removal where a scratch free surface is paramount - available ex factory on request.

- Produces a fine finish
- Recommended for deburring, weld preparation and metal removal
- Steels, copper, cast iron, nickel alloys

#### Cut 'C'

Similar operating characteristics to standard cut.

- Shorter metal chip produced
- Smoother cutting action on high tensile steels

#### Cut 'D'

Diamond Cut is a universal cutting style offering smooth operation with a high cutting action, producing short chips and no clogging problems. Ideal on stainless steel, carbon steel, nickel alloys and other hard metals. This is the most popular burr because of its easy, smooth operation and a full range is carried in Australia.

#### 'D-Max'

D-Max TDX Burrs have an extra strong tooth formation, making them ideal for heavy duty, fast stock removal on most ferrous metals.

#### Cut 'A'

Aluminium Cut provides rapid stock removal on 'softer' materials and is ideal for use on aluminium, titanium, brass, and other aluminium alloys, soft non-ferrous metals, and thermoplastics. Produces easy chipflow and smooth operation. A full range is carried in Australia.

### Other Burrs Available

#### Metric Shanks

A limited range of standard burrs can be offered on 3mm and 6mm diameter shanks. Please discuss your requirements with our technical staff.

#### Extended Lengths

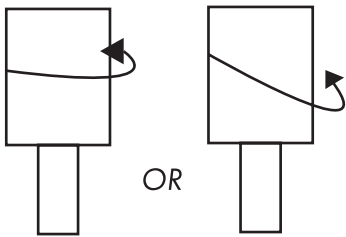
For special applications where standard burr lengths are inadequate, a range of extended shank burrs are available.

## Operating Instructions for the Best Results

Keep running speeds high - this will minimise tooth loading and therefore minimise chipping and maximise tooth life. A speed chart is listed on the next page. Burrs must be run in high speed die grinders. Pistol drills are far too slow and will cause the burr to chatter and chip.

Apply constant movement and light pressure in a clockwise direction. The burr should be in contact with the job moving right to left and free running on the return. Excessive pressure will cause impact damage or tooth loading. Light pressure will also prevent burr from overheating.

Only keep 30% of the circumference of the burr in contact with the job at any time. Over 30% can cause the burr to jam. Only one side of the burr must be in contact at the same time. If both sides of the burr contact the job at once (e.g. in a hole) the burr will immediately jam and chip. Burrs must not come into contact with hard materials when they are not running. Rolling around in a tool box without the plastic case will cause tooth damage. Dropping the burr onto concrete or a steel bench will cause them to chip.



## Signs of Misuse

### 1. If head has come off the shaft, it will generally be due to overheating, excessive pressure and/or no free running.

*Signs of this are:*

- Brazing has melted
- Tungsten head had changed colour to yellow/blue/black

### 2. Burr has been jammed in a corner or a hole.

*Signs of this are:*

- Collet/jaw score marks on the shank
- Radial/helical chipping of the tooth

### 3. Burr has a "chunk" of carbide chipped out, generally due to the burr being dropped (usually while still in the machine).

*Signs of this are:*

- No other damage to the burr
- Multiple minor chipping on or near the end of the burr
- Concrete residue in teeth of burr

### 4. Burr has been run slowly, i.e. in a pistol drill.

*Signs of this are:*

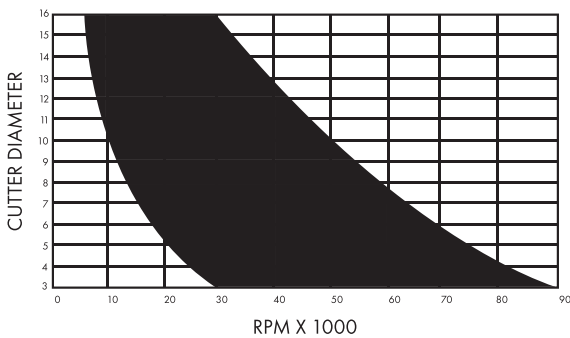
- Erratic chipping of burr
- Operator claims, '...it chipped as soon as I started using it.'

# Carbide Burrs

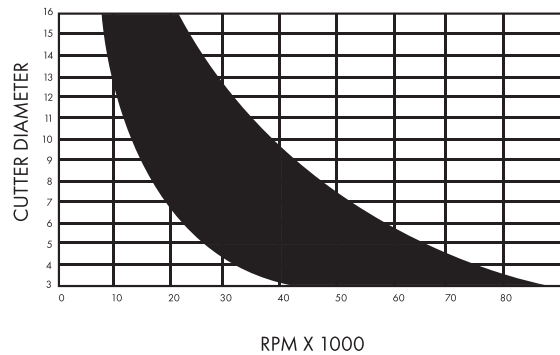
## Guide to Running Speeds

Size of Burr Material	0.125" / 3mm	0.250" / 6mm	0.375" / 10mm	0.500" / 13mm	0.625" / 16mm
Aluminium, alloys, plastics (including hard, industrial), zinc base alloys, glass fibre	30,000 to 90,000	15,000 to 17,000	10,000 to 50,000	7,000 to 38,000	6,000 to 30,000
Brass, cast iron, copper, bronze	45,000 to 90,000	22,500 to 60,000	15,000 to 40,000	11,000 to 30,000	9,000 to 24,000
Unhardened steel	60,000 to 90,000	45,000 to 60,000	30,000 to 40,000	22,500 to 30,000	18,000 to 24,000
Ceramics, hardened alloy steels, nimonic alloys, stainless steel, titanium	60,000 to 90,000	30,000 to 45,000	19,000 to 30,000	15,000 to 22,500	12,000 to 18,000

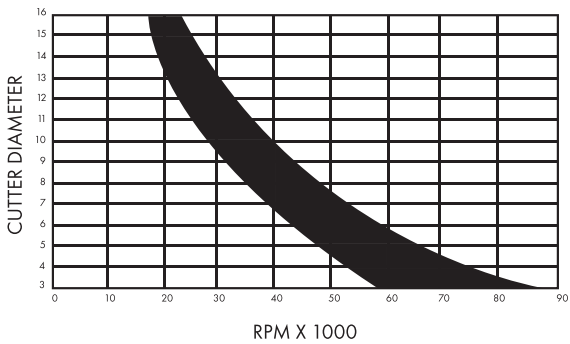
Soft materials, aluminium, plastics, zinc base alloys and glass fibres



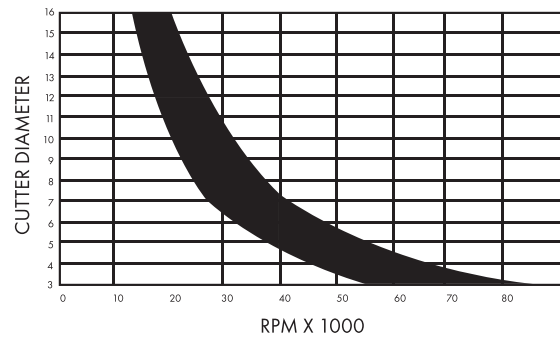
Brass, cast iron, copper, bronze



Unhardened steel



Ceramics, hardened steel, nimonic alloys, stainless steel and titanium



### General Notes On Use

It may be necessary to adjust the rates shown to achieve optimum performance in a particular application.

Hard materials use slower speeds.

Smaller burrs use a faster speed.

Apply constant movement and light pressure when in use.

Running below the optimum speed will encourage chipping.

Using tools and collets that have become worn will also encourage chipping.

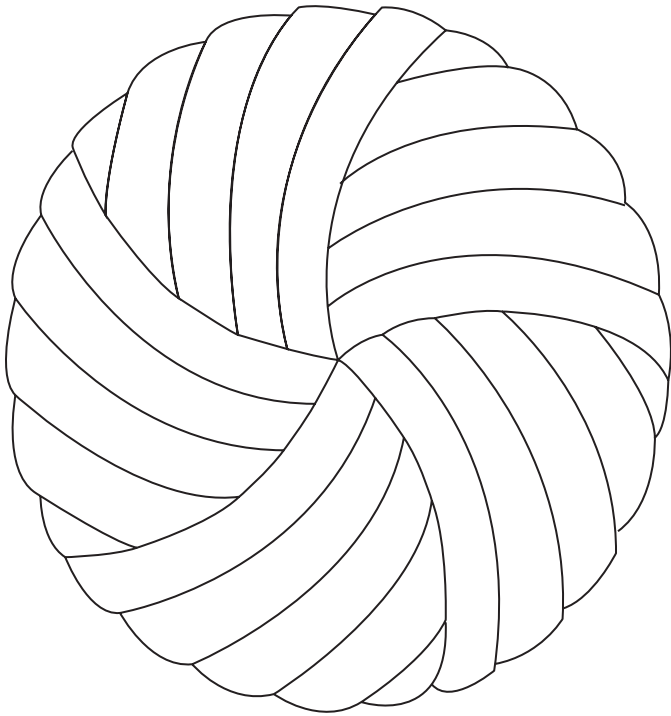
Do not sink the burr for more than one third of its periphery.

Running too fast will result in worn teeth.

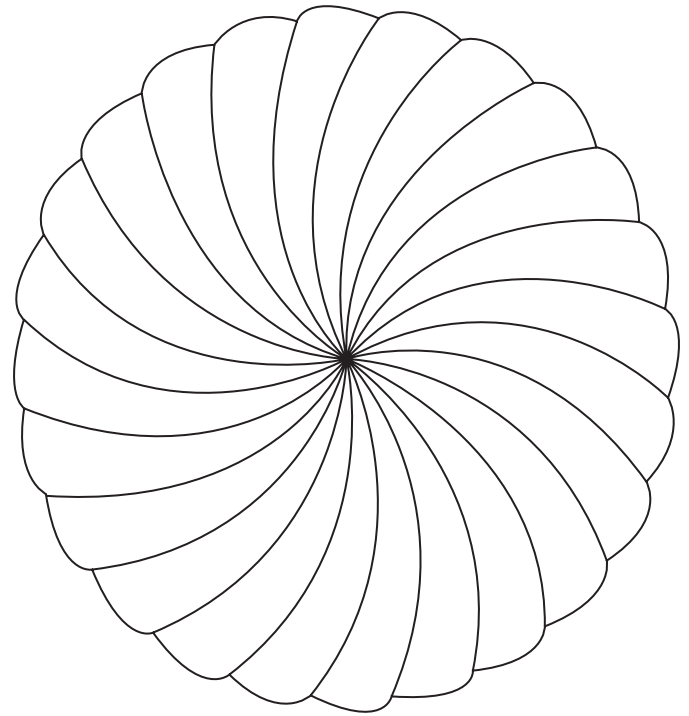
**Note: Maximum speed for all long series (150mm) burrs is 18,000 RPM**

# Carbide Burrs

All Josco radius end cutting burrs are produced with *skip-flute* design, giving improved cutting action at the tool end.



**Skip-flute**



**Teeth-to-centre**