

# BARDON AGENCIES

## Linbide Precision Tungsten Carbide Saw Blades

The Linbide Circular Saw Blade range has been developed over three decades of research and development. The blades are manufactured to strict tolerances and specifications. Only the best quality materials are used in the manufacture of Linbide saw blades.

Linbide saw bodies are manufactured from **AISI 1080 Carbon Steel** heat-treated and tempered to 38 – 44 C Rockwell. Both sides of the body are precision ground and polished to a precise gauge. Linbide saw bodies are laser cut to produce a dimensionally accurate profile. The body is expertly hammered for exceptional running truth.

Specially selected **submicron grade tungsten carbide tips** are used for their high wear, resistance and micro grain structure producing the best possible edge. Each tip is brazed automatically into a precision ground tip seat on Tri-metal shim giving high tensile strength and impact resistance.

All **Linbide** saw blades have a carefully prepared **bore** conforming to the ISO Metric H7 tolerance system. This ensures that the saw blade will cut evenly on all tips around the diameter. Saw blade tension, runout and clearance angles are measured on specially designed inspection jigs on the H7 Bores.

## Guidelines for using Linbide Saw Blades

To achieve the best results when using Linbide Saw Blades, the following fundamental guidelines should be observed:

- The machine and machine spindle must have **no** vibration.
- The machine spindle-mounting diameter must have ISO metric H6 to G6 tolerance to ensure minimum runout.
- Machine collars must be clean and burr free.
- For best results the saw blades must be at least one-third the diameter of the saw blade.
- Saw blades must be cleaned regularly to eliminate the build-up of resins and sawdust.
- Resharpening should be carried out when tips show 0.2 to 0.3mm of wear on top edge or corners.
- The resharpening of the saw blade must be carried out on very accurate machinery using fine grain diamond wheels and to the original specification for optimum results
- When cutting aluminium or non-ferrous metals lubrication must be used and the work piece must be clamped securely on both sides of the cut.
- The correct saw blade should be selected taking into account the material being cut, the feed speed of the material and cutting speed produced by the machine. A positive cut must be made to reduce saw blade overrun.

The following table indicates the maximum revolutions within acceptable safety limits and without impairing the use of the saw blade, As a rule the optimum operating R.P.M. is 20% to 35% below the maximum operating revolutions. Generally saw benches, portable saws and cut-off saws have a peripheral cutting speed of 50 to 60 m/sec. These speeds are also included in the table below.

Diameter	Maximum	50 to 60m/sec
100 mm	18,000 rpm	9,500 to 11,50 rpm
150 mm	14,000 rpm	6,400 to 7,600 rpm
180 mm	11,000 rpm	5,300 to 6,400 rpm
200 mm	10,000 rpm	4,800 to 5,700 rpm
230 mm	9,000 rpm	4,200 to 5,000 rpm
250 mm	8,000 rpm	3,800 to 4,600 rpm
300 mm	7,000 rpm	3,200 to 3,800 rpm
350 mm	6,500 rpm	2,700 to 3,300 rpm
380 mm	5,500 rpm	2,500 to 3,000 rpm
400 mm	5,000 rpm	2,400 to 2,500 rpm
450 mm	4,500 rpm	2,100 to 2,500 rpm
500 mm	4,000 rpm	1,900 to 2,300 rpm

Detailed below are guidelines for cutting various types of materials

Material	Recommended peripheral cutting speed	Recommended material in feed per tip
Hardwood	50 to 90 m/sec	0.05 to 0.15 mm
Softwood, MDF	60 to 100 m/sec	0.10 to 0.20 mm crosscut / 0.20 to 0.90 rip
Plywood, Raw Particle Board	50 to 80 m/sec	0.10 to 0.25 mm
Hardboard	50 to 80 m/sec	0.05 to 0.15 mm
Blockboard	50 to 90 m/sec	0.05 to 0.15 mm
Boards veneered – both sides	60 to 90 m/sec	0.05 to 0.10 mm
Laminate covered particle board and MDF	60 to 80 m/sec	0.05 to 0.10 mm
Plastics	25 to 60 m/sec	0.02 to 0.5mm
Pure Aluminium	60 to 80 m/sec	
Al-Mg-Cu Alloy and Profiles	50 to 70 m/sec	0
Silicon Alloy	20 to 40 m/sec	

## Selection of Linbide Saw Blades

To select the correct type of saw blade consult the catalogue where the general uses of each type of saw blade are described. Detailed in the following links are 2 graphs, which will assist in the selection of the most suitable saw blade when certain parameters are known.

[Material Feed Rate Graph](#)

[Saw Blade Peripheral Speed Graph](#)

<b>Example</b>	
Diameter	300 mm
Spindle RPM	4,500 RPM
Material cut	Softwood
Material in feed per tip	0.1 to 0.2mm
<b>Resultant cutting speed and feed</b>	0
Peripheral speed	70 m/sec
Material feed rate	35 to 65 m/mi