

# Grinding Techniques (Pty) Ltd.

ON THE CUTTING EDGE OF TECHNOLOGY



  
ISO 9001:2000







Founded in 1981, Grinding Techniques (Pty) Ltd. is the largest privately owned abrasive manufacturer in Africa, operating under the principal business ethos of developing mutually beneficial business partnerships with our valued customers.



A wide spectrum of quality Bonded Abrasives are manufactured to ISO 9001:2000 standards; the company also converts Coated Abrasives, and markets Tungsten Carbide Burrs, diamond products and other ancillary items. In addition, Grinding Techniques (Pty) Ltd. is the Southern African agent for Tyrolit abrasives. The company distributes through a network of branches in South Africa, and exports extremely successfully on a worldwide basis.



Grinding Techniques (Pty) Ltd. is an equal opportunity employer, committed to environmental protection and constant product improvement through ongoing research.



# INDEX

FOREWORD	2
TECHNICAL INFORMATION	
BONDED ABRASIVES	3
1. Abrasive Type	4/5
2. Grit Size	5/6
3. Grade	6/7
4. Structure	7/8
5. Bond Types	8
6. Additional Components	8
WHEEL MARKINGS/FLANGE SIZES	9
DIMENSIONS AND SHAPES	10
ISO METRIC STANDARDS FOR GRINDING WHEELS	11
SAFETY IN GRINDING/STORAGE/MOUNTING/RING TEST	12/13
COATED ABRASIVES/SUPERABRASIVES	13
SURFACE GRINDING:	
Straight Wheels	14/15
Cup Wheels and Cylinders	16/17
Segments	18/19
EXTERNAL CYLINDRICAL GRINDING	20 - 23
INTERNAL CYLINDRICAL GRINDING	24/25
CENTRELESS GRINDING	26 /27
TOOL & CUTTER GRINDING	28 - 31
MINING WHEELS	32
SAW SHARPENING	33
THREAD GRINDING WITH MULTI-RIB WHEELS	34
THREAD GRINDING WITH SINGLE-RIB WHEELS	35
GEAR GRINDING	36/37
BENCH & FLOORSTAND GRINDING	38
SNAGGING: BENCH, FLOORSTAND AND SWINGFRAME GRINDING	39
GRINDING ON PORTABLE MACHINES	40/41
CONES & PLUG WHEELS WITH INSERTED NUTS	42
SLIMLINE CUTTING WHEELS	43
CUTTING & GRINDING ON PORTABLE MACHINES	44/45
CUTTING OFF ON STATIONARY MACHINES	46/47
MOUNTED POINTS & WHEELS	48 - 50
HI-GLO POLISHING POINTS	51
OILSTONES, BRICKS, STICKS & GRAIN	52
BONDED MISCELLANEOUS	53
AUTOMOTIVE ENGINE RECONDITIONING	54 - 58
DRESSING TOOLS	59/60
DIAMOND DRESSERS	61/63
TUNGSTEN CARBIDE BURRS	64/65
SANDPAPER GUIDE	66
ABRASIVE ROLLS	67
ABRASIVE DISCS	68
FLAP DISCS FOR PORTABLE MACHINES	69
ABRASIVE SHEETS: BULK PACKS	70
ABRASIVE SHEETS: PRE-PACKS	71
ABRASIVE BELTS	72 - 74
EVENRUN BANDS/SPIRABANDS/NO LAP SLEEVES	75
SPINDLE MOUNTED/ARBOR MOUNTED FLAP WHEELS	76
COATED MISCELLANEOUS	77
DIAMOND SAWS/DIAMOND WHEEL SHAPES	78/79
DIAMOND & CBN ABRASIVES	80/81
NON-WOVEN ABRASIVES	82
SPEED CONVERSION TABLE	83
ORDER FORM	84

## SPECIFICATIONS

### CHOICE OF CONCENTRATION

High concentration:	125	5,5 carats
	100	4,4 carats
Normal concentration:	75	3,3 carats
	50	2,2 carats
Low concentration:	25	1,1 carats

### CHOICE OF GRAIN/GRIT SIZES

Rough grinding	251 – 126 grit
Finish grinding	107 – 76 grit
Fine & precision grinding	46 – 35 grit
	30 – 15 $\mu\text{m}$
	10 – 2 $\mu\text{m}$
Polishing	10 – 2 $\mu\text{m}$

### CORE MATERIAL

Core Material	Damping Property	Heat Dissipation	Static Strength	Designation
Aluminium	Poor	Very good	Very good	AL
Aluminium/ resinoid compound	Medium	Adequate	Good	BA
Filled synthetic resin	Very good	Adequate	Adequate	BK
Wear-away core	Very good	Adequate	Adequate	BG
Steel	Poor	Very good	Excellent	ST

### ECONOMICAL OPERATING SPEEDS (m/s)

	Diamond				CBN			
	Resin		Metal		Resin		Metal	
	WET	DRY	WET	DRY	WET	DRY	WET	DRY
Surface grinding	20-30		15-25		22-35		20-25	
Internal grinding	15-25	15-20	15-20	10-15	20-30	18-25	15-25	15-20
External cylindrical grinding	20-35		15-25		22-35		20-25	
Tool grinding	18-35	15-25	15-20	10-15	20-30	18-25	15-25	15-20

### ORDERING DATA:

Shape	Core Dimensions <small>Diam x Width x Bore</small>	Coating Dimensions <small>Diam x Width x Height</small>	Grain Type	Grain Size	Concentr.	Bond	Core Material
4A2	150 x 22 x 32	150 x 10 x 2	D Diamond	126	C50	B	52
14A1	400 x 30 x 127	400 x 10 x 4	B CBN	151	C75	B	54

## RECOMMENDATIONS FOR BOND SELECTION

<b>METAL BOND</b>	Produces finer surface finishes, but lower stock removal rates than Resin Bond. Used where a very rigid bonding is required, such as in offhand operations, for ceramics, glass and certain profile grinding.
<b>RESIN BOND</b>	Most popular bond, giving high stock removal rates and very cool grinding; used on carbides, welded alloys, alloyed structural and tool steels.
<b>HARD BOND</b>	Narrow abrasive coatings, long working life, long profile life required, wet grinding.
<b>SOFT BOND</b>	Wide abrasive coatings, workpieces sensitive to heat, dry grinding.

## DIAMOND GRINDING WHEELS

Grinding Process	Softer	Standard	Harder	Wet	Dry
<b>Surface Grinding</b>	B65	B52	B53	X	X
<b>External Cylindrical Grinding</b>		B52	B53	X	X
<b>Internal Cylindrical Grinding</b>	B78	B52	B53	X	X
<b>Tool Grinding - DRY:</b>					
Diamond width up to 3mm	B52	B73			X
Diamond width over 3mm		B52	B73		X
<b>Tool Grinding - WET:</b>					
Diamond width up to 3mm	B52	B74		X	
Diamond width over 3mm		B52	B74	X	
<b>Creep-feed Grinding - Carbide Metal Tools</b>					
Fluting operations		B42	B41	X	
Grinding open spaces		B74		X	
Relief grinding		B74	B42	X	
<b>Sharpening of Tungsten Carbide Tipped Saws</b>					
Face grinding		B74		X	
Clearance angle grinding (concentration)	B68/B68 100/75	B63/B65 100/75	B68/B68 120/90	X	
Tooth-flank grinding		B53	B42	X	
Groove with saw sharpening points		B41		X	
Polish grinding with fine grits		B61	B64	X	

## CBN GRINDING WHEELS

Grinding Process	Softer	Standard	Harder	Wet	Dry
<b>Surface Grinding</b>	B65	B54	B53	X	X
<b>External Cylindrical Grinding</b>		B54	B53	X	X
<b>Internal Cylindrical Grinding</b>	B65	B78	B54	X	X
<b>Tool Grinding - DRY:</b>					
CBN width up to 3mm		B85	B75		X
CBN width over 3mm		B54	B73		X
<b>Tool Grinding - WET:</b>					
CBN width up to 3mm		B74		X	
CBN width over 3mm		B54	B74	X	
<b>Creep-feed Grinding - Carbide Metal Tools</b>					
Fluting operations		B42	B41	X	
Grinding open spaces		B74		X	
Relief grinding		B74	B42	X	
Grinding Stellited saws		B74		X	
Polish grinding		B61	B64	X	