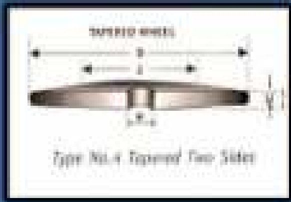
CARBORUNDUM GROUP

STANDARD PRODUCTS CATALOGUE



WWW.CARBORANDUMGROUP.COM
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A.N.S.I safety American Standard
EN 12413 Europe Standard

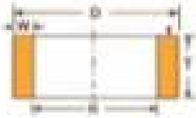
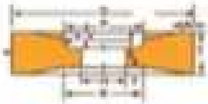
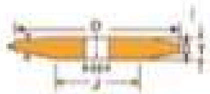
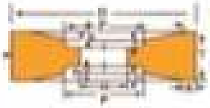
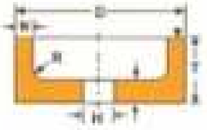
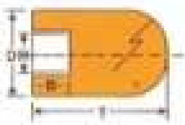
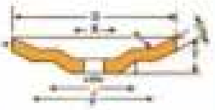
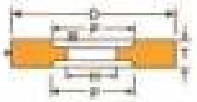
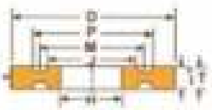
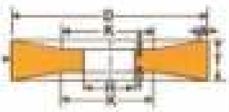
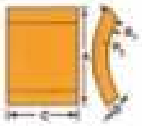
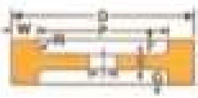
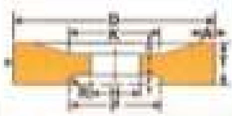
CARBORUNDUM Products are manufactured in several countries in EUROPE, AMIRICAN & ASIA in different trademarks.

CARBORANDUM GROUP trademark is well known for supper quality products that manufactured by modern equipment and advanced technology .

The main products of CARBORUNDUM GROUP are Bonded Abrasives include , cylindrical , crankshaft & camshaft , Roll grinding wheels , Rubber control and centerless wheels , F type wheels , cutting and grinding discs , Tool Room grinding wheel , Honing & sharpening stones , mounted points , coated abrasives , flap discs , Dressers include single & multi point , Blade dressers etc.

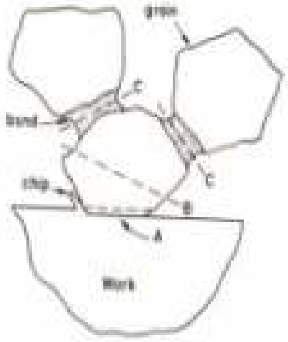
All the products in the catalog can be produced according to customers requirements in excellent quality and according of EN 12413 FPA Standard.

STANDARD SHAPES

Type No.	Shape	Type No.	Shape	Type No.	Shape
TYPE 1. STRAIGHT		TYPE 10. RAISED DOVETAIL		TYPE 23. REVIEVED & RECESSED SAME SIDE LI	
TYPE 2. CYLINDER		TYPE 11. FLARING CUP		TYPE 24. RELIEVED & RECESSED ONE SIDE RECESSED OTHER SIDE	
TYPE 3. TAPERED ONE SIDE		TYPE 12. DISH		TYPE 25. RELIEVED & REDESSED ONE SIDE RELIEVED OTHER SIDE	
TYPE 4. TAPERED TWO		TYPE 13. SAUCER		TYPE 26. RELIEVED & RECESSED BOTH SIDE	
TYPE 5. RECESSED ONE SIDE		TYPE14. DEPRESSED		TYPE 27. OFF-SET	
TYPE 6. STRAIGHT CUP		TYPE 16. CONES		TYPE 28. OFF-SET U	
TYPE 7. RECESSED BOTH SIDE		TYPE 20. RELIEVED ONE SIDE		TYPE 41. CUT-OFF	
TYPE 8. SAFETY		TYPE 21. RELIEVED TWO SIDE		TYPE 50. SEGMENTAL	
TYPE 9. DOUBLE DUP CU		TYPE 22. RELIEVED ONE SIDE & RECESSED OTHER SIDE		TYPE 60. RECTANGLE DRESSING STICKS & HONING STONE	

INTRODUCTION OF GRINDING WHEELS

1. CONSTRUCTION OF GRINDING WHEELS



Abrasive	There are two kinds of abrasives namely natural and artificial. The wheels of U.A.P are made of artificial abrasives.	40-45%
Bond	Holds the abrasive grains together to provide standard operational speed upon the factor of safety.	13-18%
Filler	For reinforcing and increasing the grinding performance.	40-45%
Pore (or void)	To provide chip-clearance and grinding effort.	

2. TYPES OF ABRASIVES

Kind	Symbol	Color	Characteristic
Aluminum Oxide (Al_2O_3)	A	Regular Brown Color Abrasive	A tough abrasive and used for grinding high tensile material and free grinding operation.
	WA	White Color Abrasive	A hard abrasive and used for grinding very hard sensitive steels and various light grinding of all kinds.
	PA	Pink Color Abrasive	Most suited for the tool grinding and surface grinding and etc.
	SA	Single Crystal White Color Abrasive	Suitable for grinding such hard material that WA abrasive can not grind, or very hard alloy steels.
Silicon Carbide (SiC)	C	Black Color Abrasive	For grinding cast iron, non-ferrous metals, stones, etc.
	GC	Green Color Abrasive	For special alloy grindimg as tungsten carbide, cold-rolled steels, etc.

Above abrasives may be used in combination to utilize the character of the abrasives.

3. GRAIN SIZE

Coarse	Medium	Fine	Very Fine	Ultra Fine
10 12 14 16 20 24	30 36 46 54 60	70 80 90 100 120 150 180 220	240 280 320 400 500 600 700 800	1,000 1,500 2,000 2,500 3,000

4. GRADE

Very Soft	Soft	Medium	Hard	Very Hard
E. F. G.	H. I. J. K.	L. M. N. O.	P. Q. R. S.	T. U. V. W. X. Y. Z.

Grade indicate the relative strength of the bond which holds the abrasive grains in place the grace letter ranges from E to Z in the order of increasing "hardness"

5. STRUCTURE

Specify	Close			C	Medium			M	Wide		W		
Symbol	C1		C2		M1		M2		W1			W2	
Nos	O	1	2	3	4	5	6	7	8	9	10	11	12
Ratio	55.5	54	52.5	51	49.5	48	46.5	45	43.5	42	40.5	39	37.5

6. BOND TYPES: Vitrified bond (V) Resinoid bond (B) Rubber bond (R)

Vitrify (V) : Bond mix melts/partly wets the abrasive at 1280 deg.c

Vitrified bonds is the most popular abrasive grinding wheel and preferred choice for precision grinding application and high accuracy and tight tolerance such as surface , cylindrical , centerless , gear , thread and internal grinding

Properties: water & chemical resistance, no shelf life, very brittle, good form holding stability, poor bending strength.

Resin (B): Grain mixed with phenolic thermos-setting resins and baking at 150 to 200 deg.c

Properties : 2 years shelf life , ability to withstand shocks loads , low chemical & thermal resistance

Rubber Bond(R)

Properties : Better resiliency , absorbs shocks and produces good finish

'Reading a' Carbroundum Group grinding wheel

WHEEL MARKING SYMBOLS

Shape - Size (Diameter x Thickness x Bore) Max Of Speed

A		46						3	L	5	V10
I		II						III	IV	V	VI
Grain Type		Grain Size						Grain Comb	Grade Range	Wheel Structure	Bond Type
Aluminium Oxide	Silicon Carbide	A/ WA/A (DA)	WA/A AA	C	GC/ CGC	PA PA/WA	SA				
A	C	12	24	12	36	24	46	1	Soft	Dense	
WA	GC	14	30	16	46	30	54	3	G	"3"	
WA/A (DA)	CGC	16	36	20	54	36	60	5	H		
PA		20	46	24	60	46	80	7	I		
SA		24	54	30	80	54	100		J		V = Vitrified
PA/WA		30	60	36	100	60	120		*J+		
		36	80	46	120	80	150		K		
		46	100	54	150	100	180		L	Normal	
		54	120	60	180	120			M		B = Resinoid
		60	150	80	220	150			N	"5"	
		80	180	100	240	180			O		
		100	220	120	280	220			P		R = Rubber
		120	320	150	320				Q		
		150	400	180	400				R		
		180		220					S		
		220		240					T		
		280		FC280					U	Open	
		320		FC320					Hard	"18"	
				FC400							

*J+ Grade for vitrified bond only.

Note: This gives a general range of Carbroundum Group wheel specifications

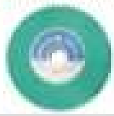
How to Specify a Wheel ?

To specify a grinding wheel requirement , it is important to Follow the following steps

1. Specify the dimensions in the order of Diameter x Thickness x bore
2. Mention the type of the wheel required
3. Indicate the recess size and depth for type 5 & 7 wheel (ROS & RBS)
4. Indicate the shape of the wheel face ,if it is applicable
5. If the Dimension has special tolerance of diameter , thickness or bor , this needs to be indicate .
6. Specify wheel grading
7. A detailed drawing of the wheel to be provided.

STANDARD SIZE GRINDING WHEELS

TYPE 1	SIZE D x T x H
SHAPE	125 x 20 x 20
	150 x 25 x 32
	175 x 25 x 32
QUALITY A24/36/46/60/Q	200 x 25 x 32
	250 x 25 x 32
	300 x 32 x 32
	300 x 40 x 40

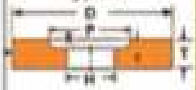


TYPE 1	SIZE D x T x H
SHAPE	125 x 20 x 20
	150 x 25 x 32
	175 x 25 x 32
QUALITY GC/46/60/80/100/L	200 x 25 x 32
	250 x 25 x 32
	300 x 32 x 32
	300 x 40 x 40

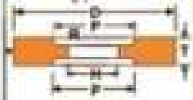
CYLINDERICAL / SURFACE / CENTER LESS / CRANK / CAM / ROLL GRINDING WHEELS

type 1

type 5

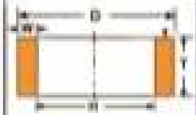


type 7



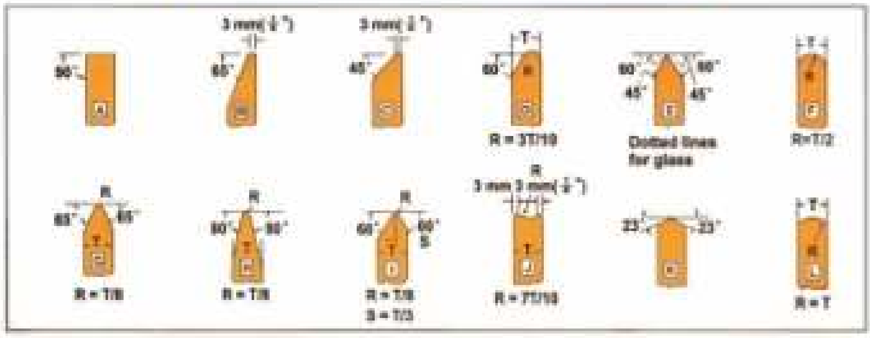


TYPE	SIZE D x T x H
SHAPE	250 x 25 to 40 x 76
type 1	300 x 20 to 100 x 76
	300 x 20 to 100 x 127
type 5	350 x 20 to 125 x 127
	400 x 20 to 200 x 203
	450 x 50 to 200 x 203
type 7	500 x 20 to 200 x 203
	500 x 20 to 200 x 305
	600 x 20 to 250 x 203
	600 x 20 to 250 x 305
	710 x 18 to 150 x 305
	750 x 18 to 150 x 305
	760 x 18 to 150 x 305
	810 x 18 to 150 x 305 900 x 18 to 150 x 305
	1060 x 18 to 100 x 305
	1100 x 40 to 125 x 305



TYPE 2	SIZE D x T x H
SHAPE	125 X 80 X 90
	150 X 80 X 110
	175 X 80 X 145
	200 X 100 X 160
	250 X 100 X 200
	300 X 100 X 250
	400 X 100 X 360

STANDARD FACES



(In different size & specification , we supply all of your requests.)

(D=Diameter x T=Thickness x H=[illegible]

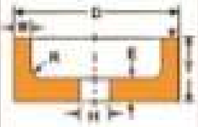
(Peripheral Speed [illegible]

BOND=V-B-R-Mg

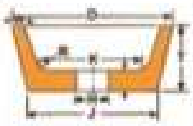
WHEELS FOR SHARPENING & SEGMENT & HONING

WHEELS FOR SHARPENING

TYPE 6	SIZE D x T x H - W x E
SHAPE	50 x 40 x 16 - ....
	63 x 40 x 20 - ...
	75 x 40 x 20 - ... x ...
	100 x 50 x 32 - ... x ...
	125 x 50 x 32 - ... x ...
	150 x 63 x 32 - ... x ...
	150 x 80 x 32 - ... x ...
	175 x 100 x 32 ... x ...
	200 x 100 x 32 - ... x ...



TYPE 11	SIZE D x T x H - W x E
SHAPE	75 x 40 x 20 - 8 x 10
	100 x 40 x 32 - 8 x 10
	125 x 40 x 32 - 8 x 10
	150 x 50 x 32 - 10 x 13

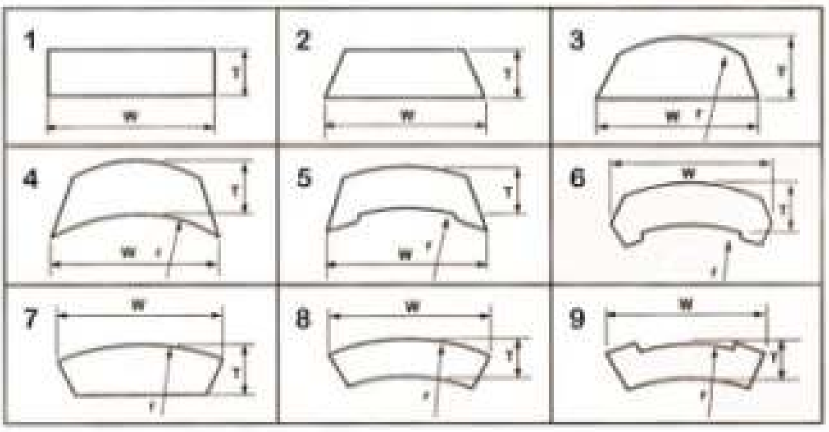


TYPE 12	SIZE D x T x H - J - K - U
SHAPE	75 x 13 x 20 - ...
	100 x 13 x 20 - ...
	125 x 13 x 20 - ...
	150 x 16 x 32 - ...
	175 x 20 x 32 - ...
	200 x 20 x 32 - ...

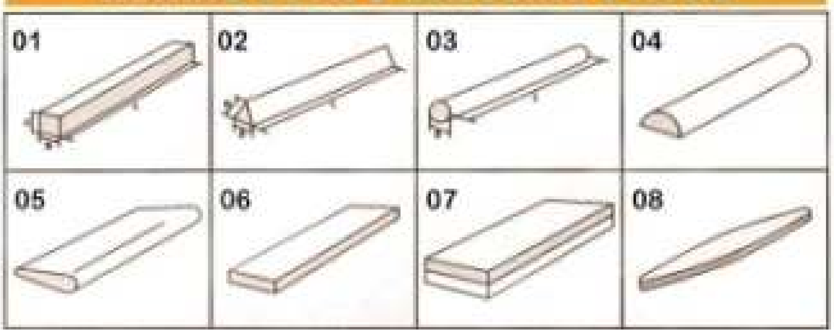
TYPE 1	SIZE D x T x H
SHAPE	100 x 2 to 10 x 20
	125 x 2 to 10 x 20
	150 x 2 to 13 x 32
	175 x 3 to 15 x 32
	200 x 4 to 16 x 32
	200 x 4 to 20 x 51
	225 x 4 to 20 x 51
	250 x 6 to 20 x 51
	300 x 6 to 20 x 32
	300 x 6 to 20 x 51
	350 x 5 to 10 x 127
	400 x 5 to 12 x 127

SEGMENTAL

W = width T = thickness



HONING STON & DRESSING STICKS

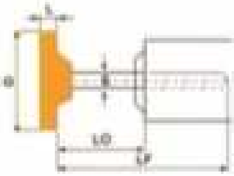


(In different size & specification, we supply all of your requests.)

MOUNTED POINTS

FORM A

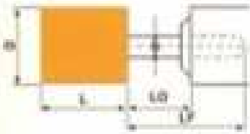
D:Diameter
L:Height
S:Axle diameter
Distance of the wheel atconnecting logs



FORM A	DxL Dimensions	Saft SxLF S.Dimensions
A-1	12x4	6x40
A-2	16x4	6x40
A-3	16x10	6x40
A-4	20x4	6x40
A-5	20x6	6x40
A-6	20x10	6x40
A-7	25x4	6x40
A-8	25x6	6x40
A-9	25x10	6x40
A-10	25x20	6x40
A-11	30x4	6x40
A-12	30x6	6x40
A-13	30x10	6x40
A-14	30x20	6x40
A-15	40x6	6x40
A-16	40x10	6x40
A-17	40x16	6x40
A-18	40x20	6x40
A-19	50x10	6x40
A-20	50x16	6x40
A-21	50x20	6x40
A-22	60x15	6x40
A-23	60x20	6x40

FORM B

D:Diameter
L:Height
S:Axle diameter
Distance of the wheel atconnecting logs



FORM B	DxL Dimensions	Saft SxLF S.Dimensions
B-1	3x6	6x40
B-2	4x6	6x40
B-3	5x10	6x40
B-4	6x12	6x40
B-5	6x16	6x40
B-6	8x12	6x40
B-7	8x16	6x40
B-8	10x10	6x40
B-9	10x15	6x40
B-10	10x20	6x40
B-11	10x25	6x40
B-12	12x12	6x40
B-13	12x20	6x40
B-14	12x30	6x40
B-15	16x16	6x40
B-16	16x20	6x40
B-17	16x30	6x40
B-18	16x40	6x40
B-19	20x20	6x40
B-20	20x30	6x40
B-21	20x40	6x40
B-22	25x25	6x40
B-23	25x32	6x40
B-24	25x40	6x40
B-25	25x50	6x40
B-26	30x30	6x40
B-27	30x40	6x40
B-28	30x50	6x40
B-29	40x40	6x40

FORM C

D:Diameter
L:Height
S:Axle diameter
Distance of the wheel atconnecting logs

FORM C	DxL Dimensions	Saft SxLF S.Dimensions
C-1	25x6	6x40
C-2	32x6	6x40
C-3	40x10	6x40
C-4	50x12	6x40

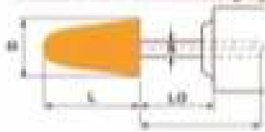
FORM D

D:Diameter
L:Height
S:Axle diameter
Distance of the wheel atconnecting logs

FORM D	DxL Dimensions	Saft SxLF S.Dimensions
D-1	8x20	6x40
D-2	10x25	6x40
D-3	1x20	6x40
D-4	16x25	6x40
D-5	20x35	6x40

FORM E

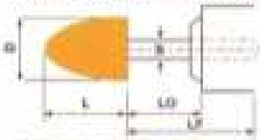
D:Diameter
L:Height
S:Axle diameter
Distance of the wheel atconnecting logs



FORM E	DxL Dimensions	Saft SxLF S.Dimensions
E-1	5x5	6x40
E-2	5x10	6x40
E-3	8x16	6x40
E-4	8x20	6x40
E-5	10x20	6x40
E-6	10x30	6x40
E-7	12x25	6x40
E-8	12x30	6x40
E-9	12x40	6x40
E-10	16x15	6x40
E-11	16x32	6x40
E-12	16x40	6x40
E-13	20x20	6x40
E-14	20x30	6x40
E-15	20x40	6x40
E-16	25x25	6x40
E-17	25x32	6x40
E-18	25x40	6x40
E-19	32x32	6x40
E-20	32x40	6x40
E-21	32x50	6x40

FORM F

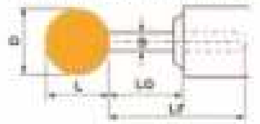
D:Diameter
L:Height
S:Axle diameter
Distance of the wheel atconnecting logs



FORM F	DxL Dimensions	Saft SxLF S.Dimensions
F-1	8x16	6x40
F-2	13x20	6x40
F-3	20x32	6x40
F-4	20x40	6x40

FORM H

D:Diameter
L:Height
S:Axle diameter
Distance of the wheel atconnecting logs



FORM H	DxL Dimensions	Saft SxLF S.Dimensions
H-1	10	6x40
H-2	10	6x40
H-3	12	6x40
H-4	15	6x40
H-5	20	6x40
H-6	25	6x40
H-7	30	6x40
H-8	32	6x40

FORM G

D:Diameter
L:Height
S:Axle diameter
Distance of the wheel atconnecting logs

FORM G	DxL Dimensions	Saft SxLF S.Dimensions
G-1	20x16 12x20	6x40
G-2	25x20 15x12	6x40
G-3	32x25 20x15	6x40
G-4	40x32 24x20	6x40

FORM K

D:Diameter
L:Height
S:Axle diameter
Distance of the wheel atconnecting logs

FORM K	DxL Dimensions	Saft SxLF S.Dimensions
K-1	20x16 12x20	6x40
K-2	25x20 15x12	6x40
K-3	32x25 20x15	6x40
K-4	40x32 24x20	6x40

CARBORUNDUM FLEX
Depressed Centre Grinding Wheels - Type 42

Universal high performance depressed centre cutting wheel suitable for all metal working.

Steel / Stainless Steel / Inox / Stone

Type 42

Dimensions (D T H)		Specifications	Speed	Pack size
mm	Inch		RPM	Unit
100 2 16	4 5/64 5/8	A36TBF	15280	100
100 3.2 16	4 1/8 5/8	A36TBF	15280	100
115 3.2 22.23	4 1/2 1/8 7/8	A36TBF	13260	100
125 3.2 22.23	5 1/8 7/8	A36TBF	12200	100
180 3.2 22.23	7 1/8 7/8	A24TBF	8500	50
230 3.2 22.23	9 1/8 7/8	A24TBF	6500	50

CARBORUNDUM FLEX
Depressed Centre Grinding Wheels - Type 27

Universal grinding wheel for all metal working; High performance wheels suited for weld and edge grinding

Steel / Stainless Steel / Inox / Stone

Type 27

Dimensions (D T H)		Specifications	Speed	Pack size
mm	Inch		RPM	Unit
100 4 16	4 5/32 5/8	A36TBF	15280	100
100 6.3 16	4 1/4 5/8	A36TBF	15280	100
115 4 22.23	4 1/2 5/32 7/8	A36TBF	13260	100
115 6.3 22.23	4 1/2 1/4 7/8	A36TBF	13260	100
125 6.3 22.23	5 1/4 7/8	A36TBF	12200	100
150 6.3 22.23	6 1/4 7/8	A24TBF	10200	100
180 4 22.23	7 5/32 7/8	A24TBF	8500	25
180 6.3 22.23	7 1/4 7/8	A24TBF	8500	25
230 6.3 22.23	9 1/4 7/8	A24TBF	6500	25

CARBORUNDUM FLEX
Depressed Centre Grinding Wheels - Type 42

Steel /Stone

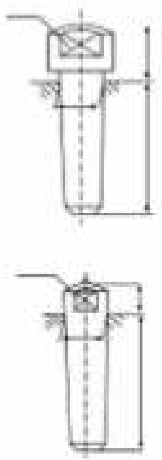
Type 41

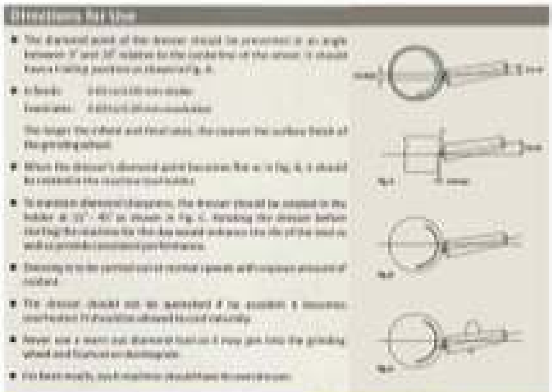
Cumi Code	Dimensions (D T H)		Specifications	Speed	Pack size
	mm	Inch		RPM	Unit
41HCT30032T	300 3.2 25.4	12 1/8 1	A24TBF41	5090	25
41HCT35032T	350 3.2 25.4	14 1/8 1	A24TBF41	4360	25
41HCT40032T	400 3.2 25.4	16 1/8 1	A24TBF41	3810	25

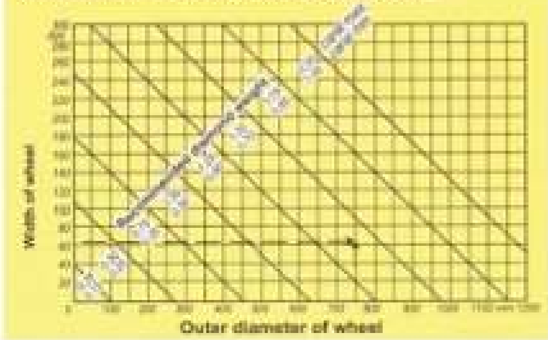
Recommended Application / Machine	Wheel Diameter	Recommended Dresser
Aloxide / Sic. Wheels for Internal, Tool & Cutter and Surface Grinding	Up to 100 mm and width up to 30 mm	Natural Point Dressers up to 0.35 carat or A Grade Dressers up to 1 carat
Aloxide / Sic. Wheels for Surface Grinding and Tool & Cutter Grinding	Up to 250mm and width up to 40mm	Natural Point Dressers of 0.5 and 1.0 carat or A Grade Dressers above 1.0 up to 2.0 carats
Aloxide / Sic. Wheels for Cylindrical and Centreless Grinding	Up to 400mm and width up to 75mm	Natural Point Dressers of 1 carat or A Grade Dressers 3.0 to 5.0 carats
Angle Grinding / Centreless Grinding Wheels	Above 300mm and width above 75mm	Blade Type Dressers as per machine feasibility or Multi-Point Dressers or Single Point A Grade Dressers above 4 carats

Note:
NDP = NATURAL Diamond

STOCK ITEMS

TYPE	CUB	NDP
MK1 	0.25 CT	0.10 CT
	0.30 CT	0.25 CT
	0.50 Ct	0.30 CT
	0.75 CT	0.50 Ct
	1 CT	0.75 CT
	1.5 CT	1 CT
	2 CT	1.5 CT
	2.5 CT	2 CT
	3 CT	2.5 CT
	4 CT	3 CT
	5 CT	
	6 CT	





DIAMOND DRESSERS

SPEED TABLE

Wheel Dia		Revolutions per minute										
		Peripheral Speed m/s. S.F.P.M.										
inch	mm	12	25	30	35	43	45	50	60	63	80	100
		2362	4922	5906	6890	8465	8859	9843	11812	12402	15749	19686
		Revolutions per minute										
1/8	3	76390	159160	190990	222820	273750	286480	318310	381970	401070	509300	436620
1/4	6	38200	79580	95490	11410	136870	143240	159160	190900	200540	254650	318310
5/16	8	28650	59680	71620	83560	102660	107430	119370	143240	150400	190990	238730
3/8	10	22920	47750	57300	66850	82120	85940	95490	114590	120320	152790	190990
1/2	13	17630	36730	44070	51420	63170	66110	73460	88150	92560	117530	146910
5/8	16	14320	29840	35810	41780	51330	53720	59680	71620	75200	95490	119370
3/4	20	11460	23870	28650	33420	41060	42970	47750	57300	60160	76390	95490
1	25	9170	19100	22920	26740	32850	34380	38200	45840	48130	61120	76390
1¼	32	7160	14920	17910	20890	25660	26860	29840	35180	37600	47750	59680
1½	40	5730	11940	14320	16710	20530	21490	23870	28650	30080	38200	47750
2	50	4580	9550	11460	13370	16430	17190	19100	22920	24060	30560	38200
2½	63	3640	7580	9100	10610	13040	13640	15160	18190	19100	24250	30320
3	80	2870	5970	7160	8360	10270	10740	11940	14320	15040	19100	23870
4	100	2290	4780	5730	6680	8210	8590	9550	11460	12030	15280	19100
5	125	1830	3820	4580	5350	6570	6880	7640	9170	9630	12220	15280
6	150	1530	3180	3820	4460	5480	5730	6370	7640	8020	10190	12730
7	180	1270	2650	3180	3710	4560	4780	5310	6370	6680	8490	10610
8	200	1150	2390	2870	3340	4110	4300	4780	5730	6020	7640	9550
9	230	1000	2080	2490	2910	3570	3740	4150	4980	5230	6640	8300
10	250	920	1910	2290	2670	3290	3440	3820	4580	4810	6110	7640
12	300	760	1590	1910	2230	2740	2870	3180	3820	4010	5090	6370
14	350	660	1360	1640	1910	2350	2460	2730	3270	3440	4370	5460
16	400	570	1190	1430	1670	2050	2150	2390	2870	3010	3820	4780
18	450	510	1060	1270	1490	1830	1910	2120	2550	2670	3400	4240
20	500	460	960	1150	1340	1640	1720	1910	2290	2410	3060	3820
22	550	420	870	1040	1220	1490	1560	1740	2080	2190	2780	3470
24	600	380	800	960	1110	1370	1430	1590	1910	2010	2550	3180
26	650	350	740	880	1030	1260	1320	1470	1760	1850	2350	2940
28	700	330	680	820	960	1170	1230	1360	1640	1720	2180	2730
30	750	310	640	760	890	1100	1150	1270	1530	1600	2040	2550
32	800	290	600	720	840	1030	1070	1190	1430	1500	1910	2390
34	850	270	560	670	790	970	1010	1120	1350	1420	1800	2250
36	900	260	530	640	740	910	960	1060	1270	1340	1700	2120
38	950	240	500	600	700	860	910	1010	1210	1270	1610	2010
40	1000	230	480	570	670	820	860	960	1150	1200	1530	1910
42	1050	220	460	550	640	780	820	910	1090	1150	1460	1820
44	1100	210	430	520	610	750	780	870	1040	1090	1390	1740

$$n\ (\text{r/min.}) = \frac{60 \times V\ (\text{m/s})}{3.14 \times \text{dia}}$$

Crankshaft Grinding Wheels

Cylindrical Grinding Wheels

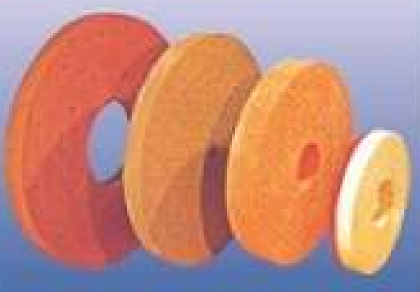
Vitrified Centreless Grinding Wheels

Rubber Control Wheels and Centreless Wheels

Tools Room Grinding Wheels

Internal Grinding Wheels

F - Type Wheels



Roll Grinding Wheels

CARBORUNDUM GROUP