



SANDUSKY - CHICAGO ABRASIVE WHEEL CO., INC.

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Sandusky - Chicago Abrasive Wheel Company traces its origin back to 1889 and has produced bonded abrasive products in the U.S.A. to meet the long term needs of our customers for over a century. Originally making grinding wheels for bench and cylindrical grinders we first produced mounted points for the Dental Trade in 1896 and a few years later were offering a variety of sizes and shapes to our industrial customers. Moving the two companies from multiple floor locations in Chicago and combining them into 50,000 sq. feet of a one story building in Michigan City, Indiana greatly improved the work flow and overall efficiency. Eliminating the need for elevators and stairs reduced delays and cut several days from our lead time.

During the past 60 years we have concentrated on small bonded abrasive products, primarily mounted points, internal grinding wheels and tool room products 8" in diameter or less. We are a small, tightly knit organization with office, factory and warehouse in one location. Decisions are made rapidly and services provided to customers on an individual basis that is impractical for larger companies or those with several locations. Each Company Officer has a window looking into and a door opening directly into the factory. All employees have direct access to the Factory Manager, Sales Department and the President's office.

"Courtesy" and "Service" are bywords in our dealings with our customers. We are committed to consistently providing our customers with high quality products and services at competitive prices. As we continue our second century we will continue to invest in new equipment and technology to maintain the excellence of our products. All our employees strive to live up to our reputation for quality, service and business integrity. We know our continued success depends on satisfying our customers ever changing requirements.

IT IS OUR CUSTOMERS WE THANK FOR OUR SUCCESS!!!!!!!

THE PRODUCTS WE MAKE INCLUDE:

**MOUNTED POINTS
CUT-OFF WHEELS
ABRASIVE STICKS
PLUGS AND CONES
SNAGGING WHEELS
VALVE SEAT WHEELS
THIN RUBBER WHEELS
MOUNTED WHEEL SETS
JIG GRINDING WHEELS**

**CENTERLAPS
BENCH WHEELS
PROFILE WHEELS
DRESSING WHEELS
TOOL AND CUTTER CUPS
SURFACE GRINDING WHEELS
INTERNAL GRINDING WHEELS
PRECISION SLOTTING WHEELS
AIR TOOLS AND ACCESSORIES**

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TERMS AND CONDITIONS OF SALE

MINIMUM ORDER

The minimum order charge is \$25.00 net. Minimum ordering quantity for made to order items is the "A" bracket for each item ordered, except for paid trial or production test orders.

SPLIT SHIPMENTS

Large quantity orders may be scheduled for two or more shipments with one or more destinations provided each shipment to each destination is for a minimum equal to the "A" quantity for the item.

SHIPPING QUANTITIES

We reserve the right to over or under ship items by 10%. If requested on the original order, we will try to ship the exact quantity.

INCREASES OR DECREASES

Order quantities may be increased or decreased provided the order has not reached the manufacturing process. Decreases or cancellations received after the order has reached the manufacturing stage will be charged a percentage of the net value based on the last completed operation. Order increases received after the original order has reached the manufacturing stage will be treated as a new order for pricing, production and delivery.

PRICES

Unless otherwise agreed to in writing the invoice price shall be the price in affect at time of shipment. Prices are subject to change without advance notice.

SPECIAL SHAPES AND QUOTES

Prices for special shapes, sizes and products will be furnished on request. Send a dimensioned sketch and brief description. Quoted prices are firm for 120 days only, if order is delayed please call to confirm prices.

FREIGHT

All shipments are FOB our Michigan City, IN factory. Freight is prepaid and added to the invoice or arrangements may be made for direct billing using your shipper ID number.

PAYMENT TERMS

With approved credit terms of net 30 days. All outstanding invoices are considered delinquent after 60 days and shipments will be held on accounts over 30 days late in paying.

RETURNED GOODS

Non-stock and special made to order products cannot be returned for credit. Standard items in resellable condition may be returned for credit less a restocking charge of 15%. A returned goods number may be obtained from our Customer Service Department and must be clearly marked on the outside of the carton. Returned goods must be from the original purchaser, in standard package quantities and be returned within six months of original invoice date. Returned items must be properly packaged to avoid damage in transit and must be shipped prepaid.

ALTERATIONS AND REPACKAGING OF PRODUCT

In the event a customer alters a product in any way, including repackaging, the customers assumes full responsibility and liability for the product from the date and time of alteration and/or repacking and agrees to indemnify and hold harmless Sandusky - Chicago Abrasive Wheel Co. for any claim arising out of the of the sale or use of the product whether or not the claim is directly related to the alteration or repackaging.

BREAKAGE OR PERSONAL INJURY

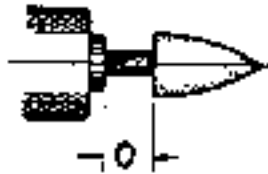
Immediately notify us of any wheel breakage or personal injury. Do not dispose of or reuse any product or equipment involved in an injury. Collect all pieces of the product and file a report of the accident with photographs of the work area if possible.

SAFE OPERATING SPEEDS FOR MOUNTED WHEELS

We supply a Safety Guide with each box of mounted wheels. The maximum operating speed tables for A, B and W shapes with various overhangs are from the ANSI B7.1 Safety Guide for the Use, Care and Protection of Abrasive Wheels. Copies of ANSI B7.1 may be ordered from the Unified Abrasive Manufacturers' Association, 30200 Detroit Road, Cleveland, Ohio 44145-1967. Operating mounted wheels higher than the maximum safe operating speed is very apt to result in failure of the mandrel through bending or fracture. Every mandrel - mounted wheel - overhang combination has a certain speed at which vibration due to deflection or whip tends to become excessive. This speed varies with the following conditions;

- A. Dimensions of the wheel.**
- B. Diameter of the mandrel.**
- C. Distance from support to base of wheel (Overhang)**

Overhang, illustrated below, is the distance between the mounted wheel and the power tool chuck or collet.



Reducing the size of the wheel (diameter or thickness) will generally raise the maximum speed.
Increasing the diameter of the mandrel will raise the maximum speed.
Reducing the overhang will raise the maximum speed.

The maximum speed is not measurably affected by the type or style of machine used. The condition of the machine spindle and bearings may modify the maximum speed. Worn chucks and lack of care in mounting may result in run-out and cause mandrel failure or wheel breakage. Check the collet or chuck and replace if necessary. Run-out and out-of-balance of the wheel will decrease the maximum safe speed.

The maximum speed for the common wheel-overhang combination can be read directly from the tables in ANSI B7.1 or the Safety Guide we supply with each box of mounted wheels. The speed for intermediate wheel-mandrel-overhang combinations not shown can be estimated accurately enough by interpolation.

Excessive work pressure may cause bending or fracture of the mandrel even at speeds below the maximum. If the mounted wheel runs smoothly without load but not under load excessive pressure may be the cause. With reduced pressure a softer wheel grading may be necessary. If the problem persists a heavier mandrel may be necessary.

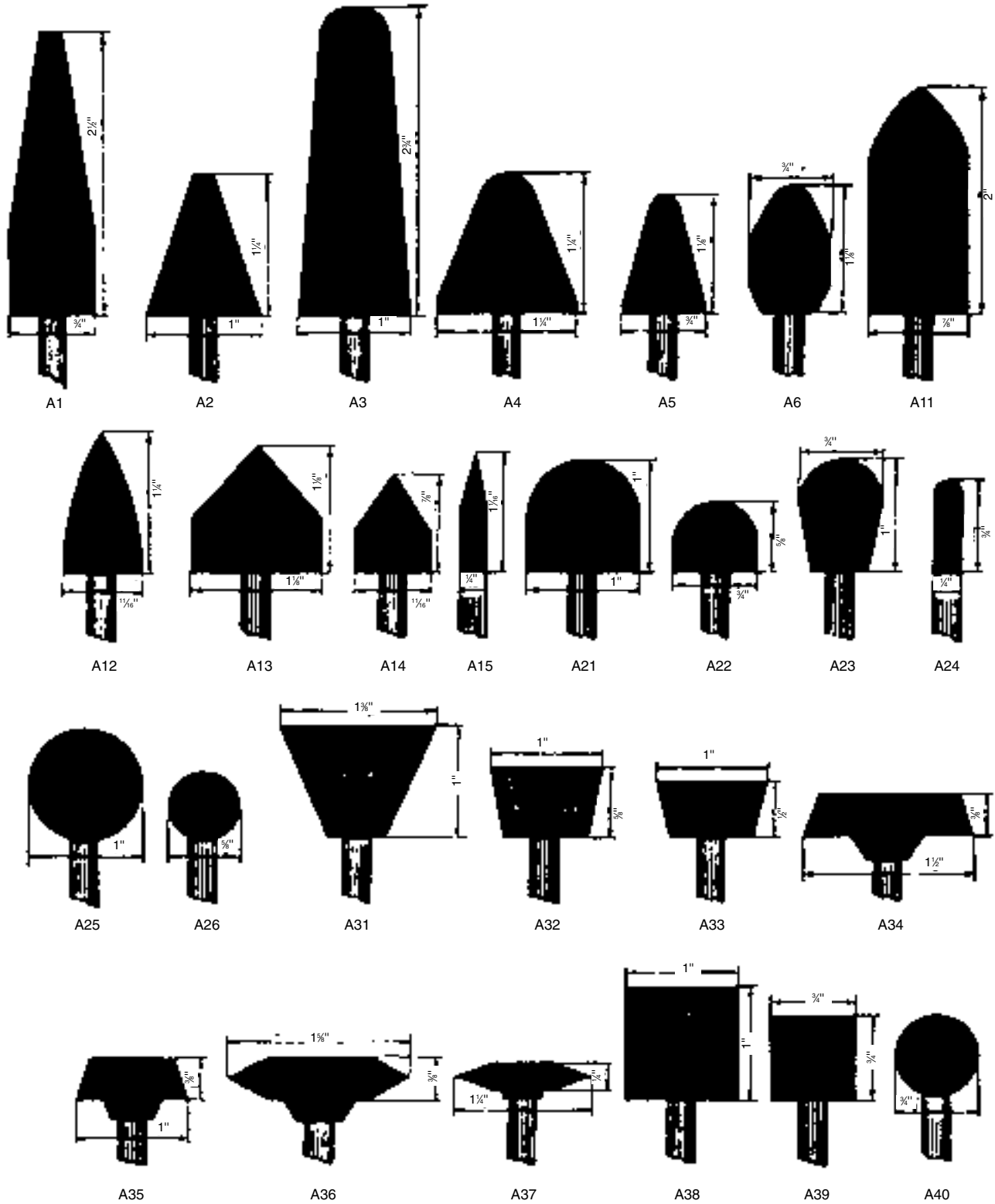
Mounted wheels on threaded mandrels usually have no overhang and the maximum speed is the same as for 1/2 inch overhang unthreaded mandrels of the same diameter.

TO INSURE RAPID, ACCURATE HANDLING OF YOUR ORDER PLEASE SUPPLY THE FOLLOWING INFORMATION:

1. QUANTITY
2. SHAPE & SIZE: A, B or W number, diameter & height, or a sketch.
3. MANDREL: Code number, diameter & length, or a dimensioned sketch.
WE STOCK A LARGE VARIETY OF MANDRELS INCLUDING THREADED
4. GRADING: Abrasive type, grain size, grade and bond or describe your application including a description of the product you are now using and any problem you may be having obtaining the results you want to achieve.

INSPECT THE MOUNTED POINT AND THE TOOL BEFORE YOU TURN ON THE POWER.

GRINDING WHEEL INDUSTRY STANDARD "A" SHAPES



BE SAFE NOT SORRY - Always wear approved safety glasses.

“A” SHAPES GRADE SPECIFIED

SHAPE	SIZE DIA X WTH	MANDREL STD. DIA							SHAPE
			25-99	100-249	250-499	500-999	1000-2499	2500+	
A1	3/4 x 2-1/2	1/4	5.43	4.34	3.47	3.04	2.58	2.06	A1
A2	1 x 1-1/4	1/4	3.29	2.63	2.10	1.84	1.56	1.24	A2
A3	1 x 2-3/4	1/4	5.86	4.68	3.74	3.28	2.78	2.23	A3
A4	1-1/4 x 1-1/4	1/4	3.72	2.97	2.37	2.08	1.77	1.42	A4
A5	3/4 x 1-1/8	1/4	3.15	2.51	2.01	1.76	1.49	1.20	A5
A6	3/4 x 1-1/8	1/4	3.15	2.51	2.01	1.76	1.49	1.20	A6
A11	7/8 x 2	1/4	4.00	3.20	2.56	2.24	1.90	1.52	A11
A12	11/16 x 1-1/4	1/4	3.15	2.51	2.01	1.76	1.49	1.20	A12
A13	1-1/8 x 1-1/8	1/4	3.72	2.97	2.37	2.08	1.77	1.42	A13
A14	11/16 x 7/8	1/4	2.36	1.88	1.51	1.32	1.12	0.90	A14
A15	1/4 x 1-1/16	1/8 or 1/4	3.00	2.40	1.92	1.68	1.43	1.05	A15
A21	1 x 1	1/4	2.57	2.06	1.64	1.44	1.22	0.97	A21
A22	3/4 x 5/8	1/4	2.29	1.83	1.46	1.28	1.09	0.87	A22
A23	3/4 x 1	1/4	2.36	1.88	1.51	1.32	1.12	0.90	A23
A24	1/4 x 3/4	1/8 or 1/4	2.14	1.71	1.37	1.20	1.02	0.81	A24
A25	1 x 1	1/4	2.57	2.06	1.64	1.44	1.22	0.97	A25
A26	5/8 x 5/8	1/8 or 1/4	2.29	1.83	1.46	1.28	1.09	0.87	A26
A31	1-3/8 x 1	1/4	3.15	2.51	2.01	1.76	1.49	1.20	A31
A32	1 x 5/8	1/4	2.36	1.88	1.51	1.32	1.12	0.90	A32
A33	1 x 1/2	1/4	2.29	1.83	1.46	1.28	1.09	0.87	A33
A34	1-1/2 x 3/8	1/4	2.72	2.17	1.73	1.52	1.29	1.03	A34
A35	1 x 3/8	1/4	2.29	1.83	1.46	1.28	1.09	0.87	A35
A36	1-5/8 x 3/8	1/4	3.15	2.51	2.01	1.76	1.49	1.20	A36
A37	1-1/4 x 1/4	1/4	2.36	1.88	1.51	1.32	1.12	0.90	A37
A38	1 x 1	1/4	2.14	1.71	1.37	1.20	1.02	0.81	A38
A39	3/4 x 3/4	1/4	1.79	1.43	1.14	1.00	0.85	0.69	A39
A40	3/4 x 3/4	1/4	2.29	1.83	1.46	1.28	1.09	0.87	A40

The A, B & W quantity net prices are for “120” grit or coarser in regular, pink or white aluminum oxide abrasives being mounted on 1/4 x 1", 1/4 x 1-1/2" or 1/8 x 1-1/2" shanks. Prices for other abrasive types and sizes are explained below.

INCREASE THE QUANTITY NET PRICE FROM THE TABLES AS INDICATED FOR FINE GRIT AND PREMIUM ABRASIVES AS FOLLOWS:

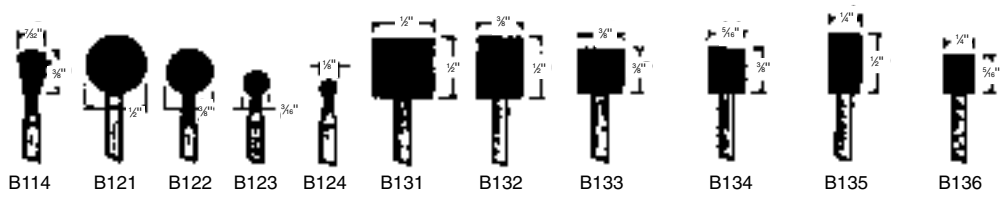
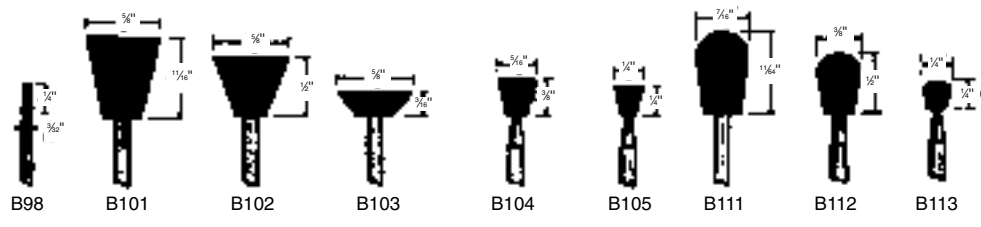
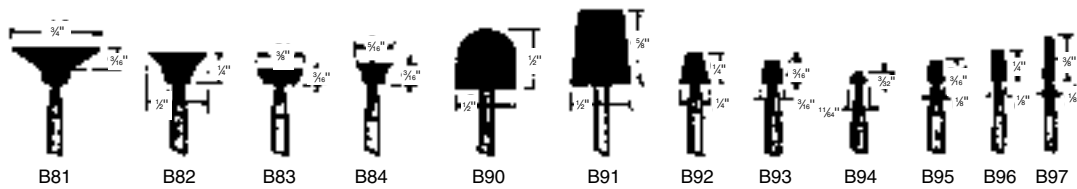
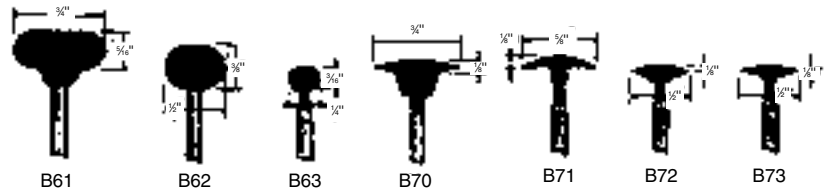
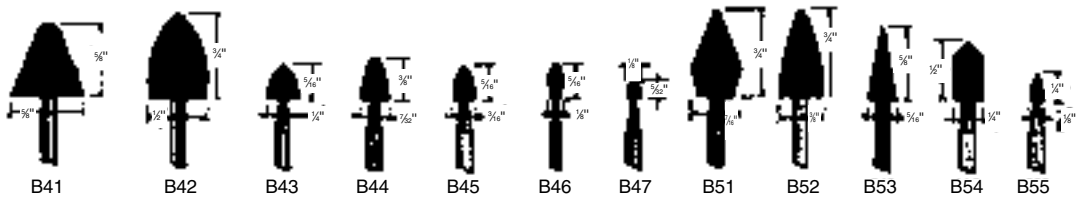
150-220 grit size	add 20%	Green silicon carbide	add 35%
320 grit size	add 60%	Zirconia	add 20%
Black silicon carbide	add 25%	Gray	add 15%
Ruby aluminum oxide	add 25%		

If both premium and fine abrasives are required apply both increases.

**PRICES FOR SPECIAL MOUNTED WHEELS OR MANDRELS ARE AVAILABLE ON REQUEST
NEVER EXCEED THE MAXIMUM SAFE SPEED LISTED IN THE ANSI B 7.1 CODE.**

"B" SHAPES GRADE SPECIFIED

*SPECIAL SHAPES...ALL 1/8" MANDRELS...mandrel length 1 1/2" standard



GRINDING WHEEL INDUSTRY STANDARD "B" SHAPES

SHAPE	SIZE DIA X WTH	MANDREL STD. DIA	25-99	100-249	250-499	500-999	1000-2499	2500+	SHAPE
B41	5/8 x 5/8	1/8 or 1/4	2.29	1.83	1.46	1.28	1.09	0.87	B41
B42	1/2 x 3/4	1/8 or 1/4	2.14	1.71	1.37	1.20	1.02	0.81	B42
B43	1/4 x 5/16	1/8	2.00	1.60	1.28	1.12	0.95	0.76	B43
B44	7/32 x 3/8	1/8	2.00	1.60	1.28	1.12	0.95	0.76	B44
B45	3/16 x 5/16	1/8	2.00	1.60	1.28	1.12	0.95	0.76	B45
B46	1/8 x 5/16	1/8	2.00	1.60	1.28	1.12	0.95	0.76	B46
B47	1/8 x 5/32	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B47
B51	7/16 x 3/4	1/8 or 1/4	2.14	1.71	1.37	1.20	1.02	0.81	B51
B52	3/8 x 3/4	1/8 or 1/4	2.14	1.71	1.37	1.20	1.02	0.81	B52
B53	5/16 x 5/8	1/8 or 1/4	2.14	1.71	1.37	1.20	1.02	0.81	B53

“B” SHAPES GRADE SPECIFIED con't.

SHAPE	SIZE DIA X WTH	MANDREL STD. DIA	25-99	100-249	250-499	500-999	1000-2499	2500+	SHAPE
B54	1/4 x 1/2	1/8 or 1/4	2.00	1.60	1.28	1.12	0.95	0.76	B54
B55	1/8 x 1/4	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B55
B61	3/4 x 5/16	1/8 or 1/4	2.14	1.71	1.37	1.20	1.02	0.81	B61
B62	1/2 x 3/8	1/8 or 1/4	2.00	1.60	1.28	1.12	0.95	0.76	B62
B63	1/4 x 3/16	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B63
B68	1/4 x 3/32	1/8	1.86	1.48	1.19	1.04	0.88	0.70	B68
B69	5/16 x 1/16	1/8	1.86	1.48	1.19	1.04	0.88	0.70	B69
B70	3/4 x 1/8	1/8 or 1/4	2.00	1.60	1.28	1.12	0.95	0.76	B70
B71	5/8 x 1/8	1/8 or 1/4	2.00	1.60	1.28	1.12	0.95	0.76	B71
B72	1/2 x 1/8	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B72
B73	1/2 x 1/8	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B73
B81	3/4 x 3/16	1/8 or 1/4	2.00	1.60	1.28	1.12	0.95	0.76	B81
B82	1/2 x 1/4	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B82
B83	3/8 x 3/16	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B83
B84	5/16 x 3/16	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B84
B90	1/2 x 1/2	1/8 or 1/4	2.00	1.60	1.28	1.12	0.95	0.76	B90
B91	1/2 x 5/8	1/8 or 1/4	2.14	1.71	1.37	1.20	1.02	0.81	B91
B92	1/4 x 1/4	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B92
B93	3/16 x 3/16	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B93
B94	11/64 x 3/32	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B94
B95	1/8 x 3/16	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B95
B96	1/8 x 1/4	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B96
B97	1/8 x 3/8	1/8	2.00	1.60	1.28	1.12	0.95	0.76	B97
B98	3/32 x 1/4	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B98
B101	5/8 x 11/16	1/8 or 1/4	2.29	1.83	1.46	1.28	1.09	0.87	B101
B102	5/8 x 1/2	1/8 or 1/4	2.14	1.71	1.37	1.20	1.02	0.81	B102
B103	5/8 x 3/16	1/8 or 1/4	2.00	1.60	1.28	1.12	0.95	0.76	B103
B104	5/16 x 3/8	1/8 or 1/4	2.00	1.60	1.28	1.12	0.95	0.76	B104
B105	1/4 x 1/4	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B105
B111	7/16 x 11/64	1/8 or 1/4	2.14	1.71	1.37	1.20	1.02	0.81	B111
B112	3/8 x 1/2	1/8 or 1/4	2.00	1.60	1.28	1.12	0.95	0.76	B112
B113	1/4 x 1/4	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B113
B114	7/32 x 3/8	1/8	2.00	1.60	1.28	1.12	0.95	0.76	B114
B121	1/2	1/8 or 1/4	2.00	1.60	1.28	1.12	0.95	0.76	B121
B122	3/8	1/8	2.00	1.60	1.28	1.12	0.95	0.76	B122
B123	3/16	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B123
B124	1/8	1/8	1.79	1.43	1.14	1.00	0.85	0.69	B124
B125	1/4	1/8	1.79	1.43	1.14	1.00	0.95	0.69	B125
B131	1/2 x 1/2	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	B131
B132	3/8 x 1/2	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	B132
B133	3/8 x 3/8	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	B133
B134	5/16 x 3/8	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	B134
B135	1/4 x 1/2	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	B135
B136	1/4 x 5/16	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	B136
B137	1/2 x 1/4	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	B137

The above quantity net prices are for “120” grit or coarser in regular, pink or white aluminum oxide abrasive grain, being either vitrified or resin bonded.

SEE BOTTOM OF PAGE 5 FOR FINE GRIT AND PREMIUM ABRASIVE PRICING.

ALWAYS WEAR SAFETY GLASSES WHEN USING PORTABLE TOOLS.

“W” SHAPES GRADE SPECIFIED

SHAPE	SIZE DIA X WTH	MANDREL STD. DIA	25-99	100-249	250-499	500-999	1000-2499	2500+	SHAPE
W141	3/32 x 5/32	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W141
W142	3/32 x 1/4	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W142
W143	1/8 x 1/8	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W143
W144	1/8 x 1/4	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W144
W145	1/8 x 3/8	1/8	1.57	1.26	1.00	0.88	0.75	0.60	W145
W146	1/8 x 1/2	1/8	1.57	1.26	1.00	0.88	0.75	0.60	W146
W149	5/32 x 1/4	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W149
W150	3/16 x 1/16	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W150
W151	3/16 x 1/8	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W151
W152	3/16 x 1/4	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W152
W153	3/16 x 3/8	1/8	1.57	1.26	1.00	0.88	0.75	0.60	W153
W154	3/16 x 1/2	1/8	1.57	1.26	1.00	0.88	0.75	0.60	W154
W155	13/64 x 1/4	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W155
W158	1/4 x 1/8	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W158
W159	1/4 x 3/16	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W159
W160	1/4 x 1/4	1/8 or 1/4	1.43	1.14	0.91	0.80	0.68	0.54	W160
W161	1/4 x 5/16	1/8	1.57	1.26	1.00	0.88	0.75	0.60	W161
W162	1/4 x 3/8	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W162
W163	1/4 x 1/2	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W163
W164	1/4 x 3/4	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W164
W165	5/16 x 1/16	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W165
W166	5/16 x 1/8	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W166
W167	5/16 x 1/4	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W167
W168	5/16 x 5/16	1/8	1.57	1.26	1.00	0.88	0.75	0.60	W168
W169	5/16 x 3/8	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W169
W170	5/16 x 1/2	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W170
W171	5/16 x 3/4	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W171
W172	3/8 x 1/16	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W172
W173	3/8 x 1/8	1/8	1.43	1.14	0.91	0.80	0.68	0.54	W173
W174	3/8 x 1/4	1/8 or 1/4	1.43	1.14	0.91	0.80	0.68	0.54	W174
W175	3/8 x 3/8	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W175
W176	3/8 x 1/2	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W176
W177	3/8 x 3/4	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W177
W178	3/8 x 1	1/8 or 1/4	1.79	1.43	1.14	1.00	0.85	0.68	W178
W179	3/8 x 1-1/4	1/8 or 1/4	2.29	1.83	1.46	1.28	1.09	0.87	W179
W181	1/2 x 1/16	1/8 or 1/4	1.43	1.14	0.91	0.80	0.68	0.54	W181
W182	1/2 x 1/8	1/8 or 1/4	1.43	1.14	0.91	0.80	0.68	0.54	W182
W183	1/2 x 1/4	1/8 or 1/4	1.43	1.14	0.91	0.80	0.68	0.54	W183
W184	1/2 x 3/8	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W184
W185	1/2 x 1/2	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W185
W186	1/2 x 3/4	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W186
W187	1/2 x 1	1/8 or 1/4	1.79	1.43	1.14	1.00	0.85	0.68	W187
W188	1/2 x 1-1/2	1/4	2.72	2.19	1.73	1.52	1.29	1.03	W188
W189	1/2 x 2	1/4	3.43	2.74	2.19	1.92	1.63	1.30	W189
W190	5/8 x 1/16	1/8	1.57	1.26	1.00	0.88	0.75	0.60	W190
W191	5/8 x 1/8	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W191
W192	5/8 x 1/4	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W192
W193	5/8 x 3/8	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W193
W194	5/8 x 1/2	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W194
W195	5/8 x 3/4	1/8 or 1/4	1.79	1.43	1.14	1.00	0.85	0.68	W195

The above quantity net prices are for “120” grit or coarser in regular, pink or white aluminum oxide abrasive grain, being either vitrified or resin bonded.

SEE BOTTOM OF PAGE 5 FOR FINE GRIT AND PREMIUM ABRASIVE PRICING.

REVIEW THE SAFETY GUIDE SUPPLIED WITH EACH BOX OF MOUNTED WHEELS.

“W” SHAPES GRADE SPECIFIED con’t.

SHAPE	SIZE DIA X WTH	MANDREL STD. DIA	25-99	100-249	250-499	500-999	1000-2499	2500+	SHAPE
W196	5/8 x 1	1/4	2.00	1.60	1.28	1.12	0.95	0.76	W196
W197	5/8 x 2	1/4	3.58	2.86	2.28	2.00	1.70	1.36	W197
W198	5/8 x 2-1/2	1/4	4.43	3.54	2.83	2.48	2.10	1.68	W198
W199	3/4 x 1/16	1/8	1.57	1.26	1.00	0.88	0.75	0.60	W199
W200	3/4 x 1/8	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W200
W201	3/4 x 1/4	1/8 or 1/4	1.57	1.26	1.00	0.88	0.75	0.60	W201
W202	3/4 x 3/8	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W202
W203	3/4 x 1/2	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W203
W204	3/4 x 3/4	1/8 or 1/4	1.79	1.43	1.14	1.00	0.85	0.68	W204
W205	3/4 x 1	1/4	2.00	1.60	1.28	1.12	0.95	0.76	W205
W206	3/4 x 1-1/4	1/4	2.36	1.88	1.51	1.32	1.12	0.90	W206
W207	3/4 x 1-1/2	1/4	2.86	2.28	1.83	1.60	1.36	1.09	W207
W208	3/4 x 2	1/4	3.58	2.86	2.28	2.00	1.70	1.36	W208
W209	3/4 x 2-1/2	1/4	4.43	3.54	2.83	2.48	2.10	1.68	W209
W210	7/8 x 1/16	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W210
W211	7/8 x 1/8	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W211
W212	7/8 x 1/4	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W212
W213	7/8 x 3/8	1/8 or 1/4	1.79	1.43	1.14	1.00	0.85	0.68	W213
W214	15/16 x 1/4	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W214
W215	1 x 1/8	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W215
W216	1 x 1/4	1/8 or 1/4	1.64	1.31	1.05	0.92	0.78	0.62	W216
W217	1 x 3/8	1/4	1.79	1.43	1.14	1.00	0.85	0.68	W217
W218	1 x 1/2	1/4	1.79	1.43	1.14	1.00	0.85	0.68	W218
W219	1 x 3/4	1/4	2.00	1.60	1.28	1.12	0.95	0.76	W219
W220	1 x 1	1/4	2.14	1.71	1.37	1.20	1.02	0.81	W220
W221	1 x 1 1/2	1/4	3.00	2.40	1.92	1.68	1.43	1.14	W221
W222	1 x 2	1/4	3.72	2.97	2.37	2.08	1.77	1.41	W222
W223	1 x 2-1/2	1/4	4.58	3.65	2.92	2.56	2.17	1.74	W223
W224	1 x 3	1/4 or 3/8	5.29	4.23	3.38	2.96	2.51	2.01	W224
W225	1-1/4 x 1/4	1/4	2.00	1.60	1.28	1.12	0.95	0.76	W225
W226	1-1/4 x 3/8	1/4	2.14	1.71	1.37	1.20	1.02	0.81	W226
W227	1-1/4 x 1/2	1/4	2.14	1.71	1.37	1.20	1.02	0.81	W227
W228	1-1/4 x 3/4	1/4	2.29	1.83	1.46	1.28	1.09	0.87	W228
W229	1-1/4 x 1	1/4	2.57	2.06	1.64	1.44	1.25	0.98	W229
W230	1-1/4 x 1-1/4	1/4	3.00	2.40	1.92	1.68	1.43	1.14	W230
W231	1-1/4 x 1-1/2	1/4	3.58	2.86	2.28	2.00	1.70	1.36	W231
W232	1-1/4 x 2	1/4	4.43	3.54	2.83	2.48	2.10	1.68	W232
W233	1-1/4 x 2-1/2	3/8	5.43	4.34	3.47	3.04	2.58	2.06	W233
W234	1-1/4 x 3	3/8	6.29	5.02	4.02	3.52	2.99	2.39	W234
W235	1-1/2 x 1/4	1/4	2.14	1.71	1.37	1.20	1.02	0.81	W235
W236	1-1/2 x 1/2	1/4	2.29	1.83	1.46	1.28	1.09	0.87	W236
W237	1-1/2 x 1	1/4	2.72	2.17	1.73	1.52	1.29	1.03	W237
W238	1-1/2 x 1-1/2	1/4	3.72	2.97	2.37	2.08	1.77	1.41	W238
W239	1-1/2 x 2	1/4 or 3/8	4.58	3.65	2.92	2.56	2.17	1.74	W239
W240	1-1/2 x 2-1/2	3/8	5.58	4.45	3.56	3.12	2.65	2.12	W240
W241	1-1/2 x 3	3/8	6.44	5.14	4.11	3.60	3.06	2.44	W241
W242	2 x 1	1/4 or 3/8	3.43	2.74	2.19	1.92	1.63	1.30	W242
W243	2 x 1-1/2	3/8	4.58	3.65	2.92	2.56	2.17	1.74	W243
W244	2 x 2	3/8	5.72	4.56	3.64	3.20	2.72	2.16	W244
W245	2 x 2-1/2	3/8	6.86	5.48	4.38	3.84	3.26	2.59	W245
W246	2 x 3	3/8	8.01	6.40	5.11	4.48	3.80	3.04	W246

The above quantity net prices are for “120” grit or coarser in regular, pink or white aluminum oxide abrasive grain, being either vitrified or resin bonded.

SEE BOTTOM OF PAGE 5 FOR FINE GRIT AND PREMIUM ABRASIVE PRICING.

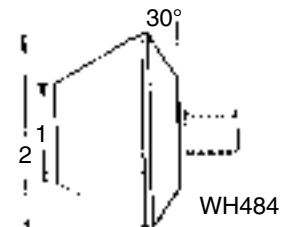
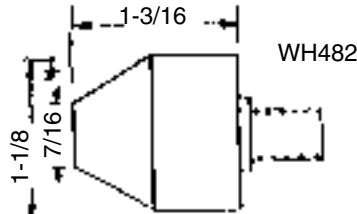
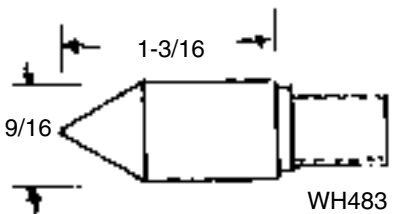
DO NOT USE EXCESSIVE FORCE LET THE ABRASIVE DO THE WORK

STANDARD CENTER LAPS WITH 60 DEGREE TIPS



SHAPE	SIZE	GRADING	6 PCS	25 PCS	100 PCS
W189CL	1/2 X 2	51A80-RVA / VT	9.81	6.16	4.94
W189CL	1/2 X 2	51A120-RVA / VT	9.81	6.16	4.94
W247CL	1/2 X 2-1/2	51A80-RVA / VT	11.65	7.30	5.85
W247CL	1/2 X 2-1/2	51A120-RVA / VT	11.65	7.30	5.85
W248CL	1/2 X 3	51A80-RVA / VT	13.24	8.29	6.64
W248CL	1/2 X 3	51A120-RVA / VT	13.24	8.29	6.64
W197CL	5/8 X 2	51A80-RVA / VT	10.06	6.31	5.06
W197CL	5/8 X 2	51A120-RVA / VT	10.06	6.31	5.06
W198CL	5/8 X 2-1/2	51A80-RVA / VT	11.65	7.30	5.85
W198CL	5/8 X 2-1/2	51A120-RVA / VT	11.65	7.30	5.85
W249CL	5/8 X 3	51A80-RVA / VT	13.24	8.29	6.64
W249CL	5/8 X 3	51A120-RVA / VT	13.24	8.29	6.64
W208CL	3/4 X 2	51A60-RVA / VT	10.06	6.31	5.06
W208CL	3/4 X 2	51A120-RVA / VT	10.06	6.31	5.06
W209CL	3/4 X 2-1/2	51A60-RVA / VT	11.65	7.30	5.85
W209CL	3/4 X 2-1/2	51A120-RVA / VT	11.65	7.30	5.85
W255CL	3/4 X 3	51A60-RVA / VT	13.24	8.29	6.64
W255CL	3/4 X 3	51A120-RVA / VT	13.24	8.29	6.64
W222CL	1 X 2	51A60-RVA / VT	10.34	6.48	5.20
W222CL	1 X 2	51A120-RVA / VT	10.34	6.48	5.20
W223CL	1 X 2-1/2	51A60-RVA / VT	11.93	7.47	5.99
W223CL	1 X 2-1/2	51A120-RVA / VT	11.93	7.47	5.99
W224CL	1 X 3	51A60-RVA / VT	13.24	8.29	6.64
W224CL	1 X 3	51A120-RVA / VT	13.24	8.29	6.64
W239CL	1-1/2 X 2	51A60-RVA / VT	11.93	7.47	5.99
W239CL	1-1/2 X 2	51A120-RVA / VT	11.93	7.47	5.99
W240CL	1-1/2 X 2-1/2	51A60-RVA / VT	13.77	8.62	6.85
W240CL	1-1/2 X 2 1/2	51A120-RVA / VT	13.77	8.62	6.85
W241CL	1-1/2 X 3	51A60-RVA / VT	15.35	9.60	7.69
W241CL	1-1/2 X 3	51A120-RVA / VT	15.35	9.60	7.69

THE ABOVE ITEMS HAVE BEEN "VT" TREATED TO REDUCE LOADING AND IMPROVE FINISH. THEY ARE MOUNTED ON SPECIAL 1/2 X 1" SHANKS DESIGNED FOR THE UNUSUAL GRINDING CONDITIONS. PRICES FOR SIZES AND GRADINGS NOT LISTED ARE AVAILABLE UPON REQUEST.



WHEELS FOR THE BRYANT CENTER HOLE GRINDER, 60 DEGREE

SHAPE	SIZE	GRADING	6 PCS	25 PCS	100 PCS
WH483	9/16 X 1-3/16	53A120-NVBH	6.92	4.40	3.56
WH482	1-1/8 X 1-3/16	53A100-MVBH	7.96	5.04	4.07
WH484	2 X 1-3/16	53A80-MVBH	9.57	6.04	4.87

THE ABOVE ARE MOUNTED ON 3/8-16 THREADED SHANKS.

MOUNTED WHEELS FOR PROFILE GRINDERS



WHEEL SIZE	SPECIFICATION	3-24 PCS	25-99 PCS	100-149 PCS
1/4 x 1	51A60-LVBH	5.75	3.58	2.85
3/8 x 1-1/4	51A60-LVBH	6.56	4.08	3.25
1/2 x 1	51A60-LVBH	5.75	3.58	2.85
1/2 x 2-1/4	51A60-LVBH	9.67	6.14	4.97
1/2 x 3	51A60-LVBH	11.73	7.43	5.99
5/8 x 2-1/4	51A60-LVBH	9.67	6.14	4.97
5/8 x 3	51A60-LVBH	11.73	7.43	5.99
3/4 x 1	51A60-LVBH	6.10	3.79	3.02
3/4 x 2-1/4	51A60-LVBH	9.67	6.14	4.97
3/4 x 3	51A60-LVBH	11.73	7.43	5.99
1 x 2-1/4	51A403-KVBH	9.89	6.28	5.08
1 x 2-1/2	51A403-KVBH	10.59	6.71	5.42
1 x 3	51A403-KVBH	11.73	7.43	5.99
1-1/4 x 2-1/4	51A403-KVBH	11.16	7.07	5.71
1-1/4 x 3	51A403-KVBH	13.35	8.43	6.79
1-1/2 x 2-1/4	51A403-KVBH	11.39	7.21	5.82
1-1/2 x 3	51A403-KVBH	13.57	8.57	6.91
1-3/4 x 2-1/2	51A403-KVBH	14.03	8.86	7.13
1-3/4 x 3	51A403-KVBH	15.87	10.00	8.05
2 x 2-1/2	51A363-JVBH	14.27	9.00	7.76
2 x 3	51A363-JVBH	16.11	10.15	8.16
2-1/4 x 2-1/2	51A363-JVBH	16.79	10.57	8.50
2-1/4 x 3	51A363-JVBH	19.09	12.00	9.64
2-1/2 x 2 1/2	51A363-JVBH	16.79	10.57	8.50
2-1/2 x 3	51A363-JVBH	19.09	12.00	9.64
3 x 3	51A363-JVBH	22.77	14.29	11.47

*FIRST THREE SIZES AND THE 3/4 x 1 ARE MOUNTED ON 1/4 x 1-1/2 SHANKS.
ALL OTHER SIZES ARE ON 1/2 X 1-1/2 SPECIAL PROFILE SHANKS.

Profile wheels require special shanks that extend almost through the wheel. The items listed are the ones we supplied to Boyer-Schultz for many years. The minimum order for the items listed above is three pieces per item ordered. Combining for quantity pricing is allowed only on items of 25 pieces or more per line item. Additional sizes and gradings are available provided the minimum quantity is 25 pieces per item. Send us a sketch or description of your profile grinding problem and we will suggest wheel sizes and gradings. A net charge of \$0.35 is added for each of the special 1/2 x 1-1/2 shanks, the above price includes the \$0.35 charge.

SOL GEL ABRASIVE GRAIN

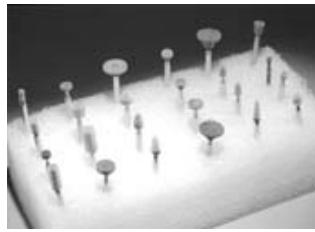
SHAPE	LIST PRICE	SHAPE	LIST PRICE	SHAPE	LIST PRICE	SHAPE	LIST PRICE	SHAPE	LIST PRICE
A1	3.80	B62	1.40	B132	1.10	W175	1.10	W216	1.10
A2	2.20	B63	1.25	B133	1.10	W176	1.10	W217	1.25
A3	3.80	B64	1.25	B134	1.10	W177	1.10	W218	1.25
A4	2.60	B65	1.25	B135	1.10	W178	1.25	W219	1.25
A5	2.20	B68	1.25	B136	1.10	W179	1.60	W220	1.60
A6	2.20	B69	1.25	B137	1.10	W180	1.00	W221	2.20
A11	2.60	B70	1.40			W181	1.00	W222	2.60
A12	2.20	B71	1.40	W141	1.00	W182	1.00	W223	3.10
A13	2.60	B72	1.25	W142	1.00	W183	1.00	W224	3.80
A14	1.60	B73	1.25	W143	1.00	W184	1.10	W225	1.25
A15	1.60	B74	1.25	W144	1.00	W185	1.10	W226	1.60
A21	1.60	B81	1.40	W145	1.10	W186	1.10	W227	1.60
A22	1.60	B82	1.25	W146	1.10	W187	1.25	W228	1.60
A23	1.60	B83	1.25	W147	1.00	W188	1.90	W229	1.90
A24	1.60	B84	1.25	W148	1.00	W189	2.20	W230	2.20
A25	1.60	B90	1.40	W149	1.00	W190	1.10	W231	2.60
A26	1.60	B91	1.40	W150	1.00	W191	1.10	W232	3.10
A31	2.20	B92	1.25	W151	1.00	W192	1.10	W233	3.80
A32	1.60	B93	1.25	W152	1.00	W193	1.10	W234	4.40
A33	1.60	B94	1.25	W153	1.10	W194	1.10	W235	1.60
A34	2.20	B95	1.25	W154	1.10	W195	1.25	W236	1.60
A35	1.60	B96	1.25	W155	1.00	W196	1.25	W237	1.90
A36	2.20	B97	1.40	W156	1.00	W197	2.60	W238	2.60
A37	1.60	B98	1.25	W157	1.00	W198	3.10	W239	3.10
A38	1.60	B101	1.60	W158	1.00	W199	1.10	W240	3.80
A39	1.60	B102	1.40	W159	1.00	W200	1.10	W241	4.40
A40	1.60	B103	1.40	W160	1.00	W201	1.10	W242	2.20
		B104	1.40	W161	1.10	W202	1.10	W243	3.10
B41	1.60	B105	1.25	W162	1.10	W203	1.10	W244	4.40
B42	1.40	B106	1.25	W163	1.10	W204	1.25	W245	5.00
B43	1.40	B111	1.60	W164	1.10	W205	1.25	W246	6.00
B44	1.40	B112	1.40	W165	1.00	W206	1.60	W250	3.10
B45	1.40	B113	1.25	W166	1.00	W207	1.80	W251	4.40
B46	1.40	B114	1.40	W167	1.00	W208	2.60	W252	5.00
B47	1.25	B115	1.25	W168	1.10	W209	3.10	W253	6.00
B51	1.60	B121	1.40	W169	1.10	W210	1.10	W254	6.90
B52	1.40	B122	1.40	W170	1.10	W211	1.10	W260	3.80
B53	1.40	B123	1.25	W171	1.10	W212	1.10	W261	5.00
B54	1.40	B124	1.25	W172	1.00	W213	1.25	W262	6.00
B55	1.25	B125	1.25	W173	1.00	W214	1.10	W263	7.30
B61	1.60	B131	1.10	W174	1.00	W215	1.10	W264	8.50

MOUNTED WHEEL QUANTITY MULTIPLIERS FOR POLYCRYSTALLINE ABRASIVE GRAINS

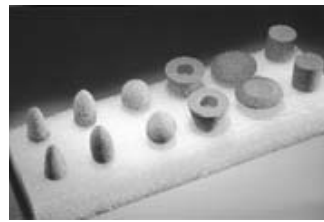
	25 pcs	100 pcs	250 pcs	500 pcs	1000 pcs	2500 pcs	5000 pcs
30% SOL GEL	4.77	3.94	3.23	2.92	2.56	2.11	1.73
50% SOL GEL	5.72	4.73	3.88	3.85	3.38	2.53	2.08
70% SOL GEL	7.16	5.91	4.85	4.38	3.84	3.16	2.60

The sol gel abrasive grain we purchase from 3M Corp. has a polycrystalline micro structure with an additional element that increases the toughness. This results in the grain micro chipping with a very rough irregular surface. Usually sol gel abrasive is blended with white aluminum oxide of the same grit size in the ratio of 30% sol gel and 70% white. The combination gives more room for chip clearance and takes advantage of the toughness of the sol gel and friability of the white abrasive. This combination produces a long lasting, self sharpening grinding wheel that is light blue. If sol gel grain is combined with a less friable abrasive like our dark pink "ruby", the wheel is tougher, may last longer, with only a small reduction in the stock removal rate and a color that is almost purple.

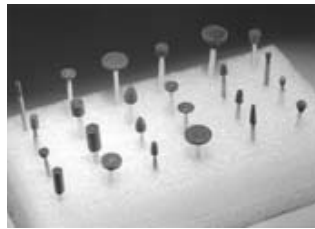
SANDUSKY-CHICAGO MOUNTED WHEELS SETS



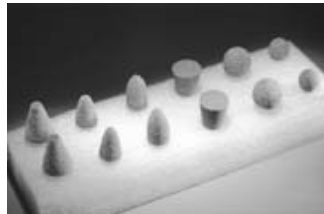
1814-24 **62001**
24 PIECE ALUMINUM OXIDE ABRASIVE
 • 3/32" x 1-1/2" shanks
 • Stock red for general purpose grinding
 • One each of W142, W149, W150, W154, W157, W160, W163, W172, W181, B43, B45, B55, B63, B64, B69, B73, B82, B93, B96, B97, B105, B106, B115 and B123.
 • **\$42.80**



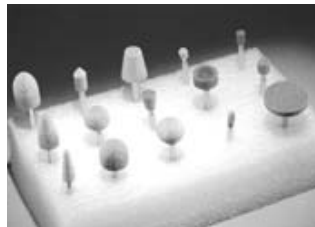
3721 **62021**
12 PIECE ALUMINUM OXIDE ABRASIVE
 • 1/4" x 1-1/2" shanks
 • Stock red for general purpose grinding
 • Two each of A5, A12, A25, A31, A36 and W220.
 • **\$30.00**



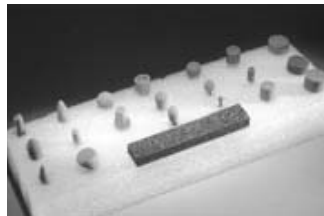
1814C-24 **62002**
24 PIECE SILICON CARBIDE ABRASIVE
 • 3/32" x 1-1/2" shanks for grinding cast iron and non-ferrous materials.
 • Shapes same as #1814-24 above.
 • **\$46.00**



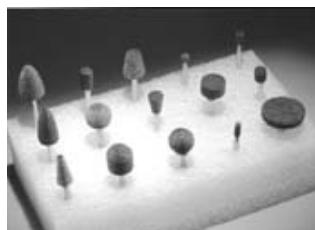
3722 **62022**
12 PIECE ALUMINUM OXIDE ABRASIVE
 • 1/4" x 1-1/2" shanks
 • Stock red for general purpose grinding
 • Two each of A2, A5, A12, SS14A, A25 and A40.
 • **\$30.00**



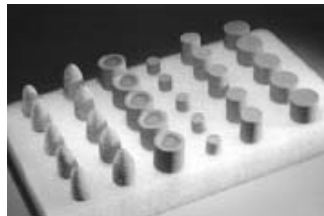
3 **62003**
15 PIECE ALUMINUM OXIDE ABRASIVE
 • 1/8" x 1-1/2" shanks
 • Stock red for general purpose grinding
 • One each of B42, B52, B53, B54, B62, B90, B91, B104, B121, B123, B137, W144, W152, W160 and W211.
 • **\$29.00**



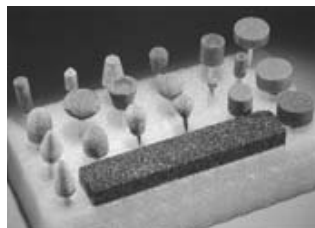
6530 **62007**
20 PIECE ALUMINUM OXIDE ABRASIVE
 • 1/4" x 1-1/2" shanks
 • Stock red for general purpose grinding
 • Shapes same as #6525, but on 1/4" shanks.
 • **\$46.75**



3C **62004**
15 PIECE SILICON CARBIDE ABRASIVE
 • 1/8" x 1-1/2" shanks for grinding cast iron and non-ferrous materials.
 • Shapes same as #3 above.
 • **\$31.25**



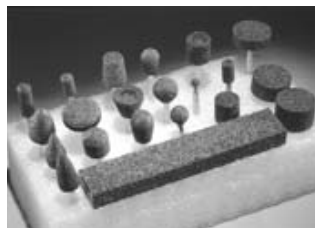
62011-30 **62011**
30 PIECE ALUMINUM OXIDE ABRASIVE
 • 1/4" x 1-1/2" shanks
 • Stock red for general purpose grinding
 • Five each of A5, A12, A38, W185, W205 and W219.
 • **\$60.90**



6525 **62005**
20 PIECE ALUMINUM OXIDE ABRASIVE
 • 1/8" x 1-1/2" shanks
 • Stock red for general purpose grinding
 • One each of A24, B42, B51, B52, B54, B61, B90, B91, B102, B111, B112, B121, B122, B123, B131, B135, W185, W201, W202, W203 and a #204 Dressing Stick.
 • **\$41.15**



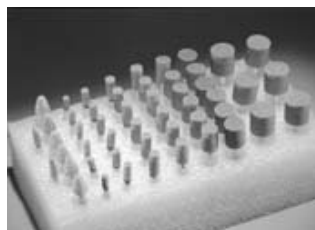
62009-50 **62009**
50 PIECE ALUMINUM OXIDE ABRASIVE
 • 1/4" x 1-1/2" shanks
 • Stock red for general purpose grinding
 • Five each of A2, A5, A12, A37, A38, W185, W186, W187, W205 and W219.
 • **\$74.50**



6525C **62006**
20 PIECE SILICON CARBIDE ABRASIVE
 • 1/8" x 1-1/2" shanks for grinding cast iron and non-ferrous materials.
 • Shapes same as #6525 above.
 • **\$45.00**



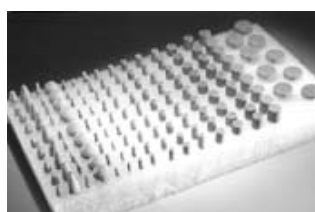
62029-1/8 **62029**
BULK PACKED, ECONOMICAL SET OF MOUNTED WHEELS
 • 1/8" x 1-1/2" shanks
 • Ten each of ten items for general use on portable power tools.
 • Items are vitrified bonded.
 • Grits, grades and shapes may vary from set to set.
 • **\$36.00**



4524-50 **62027**
50 PIECE ALUMINUM OXIDE ABRASIVE
 • 1/8" x 1-1/2" shanks
 • Stock red for general purpose grinding
 • Two each of B97's plus six each of B44, W144, W145, W154, W163, W170, W176 and W185.
 • **\$59.75**



62028-1/4 **62028**
BULK PACKED, ECONOMICAL SET OF MOUNTED WHEELS
 • 1/4" x 1-1/2" shanks
 • Five each of ten items for general use on portable power tools.
 • Items are vitrified bonded.
 • Grits, grades and shapes may vary from set to set.
 • **\$40.00**



4524-144 **62025**
144 PIECE ALUMINUM OXIDE ABRASIVE
 • 1/8" x 1-1/2" shanks
 • Stock red for general purpose grinding
 • Nine each of B44, B52, B97, B121, W142, W144, W145, W153, W154, W162, W163, W170, W175, W176, W185 and W200.
 • **\$155.50**

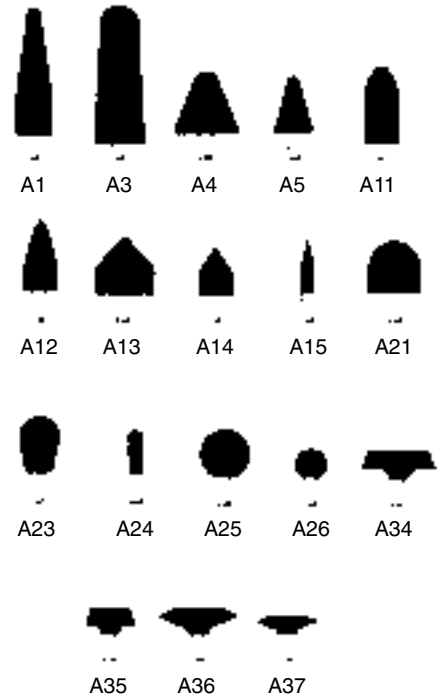
“MTX” & “GFX” (DEBURRING & POLISHING MOUNTED POINTS)

GROUP “A” SHAPES WITH 1/4” MANDRELS

MAX RPM

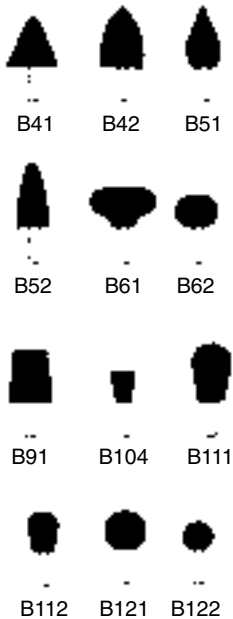
SHAPE	5 pcs	100 pcs	250 pcs	500 pcs	1250 pcs	1/2” overhang	1” overhang
A1	30.60	27.24	23.42	22.10	21.02	19,800	16,500
A3	34.04	30.30	26.04	24.58	23.36	16,100	13,080
A4	28.06	24.92	21.46	20.24	19.24	30,560	24,750
A5	17.52	15.60	13.44	12.64	12.04	45,000	33,750
A11	25.44	22.60	19.44	18.32	17.44	19,860	15,100
A12	17.52	15.60	13.44	12.64	12.04	48,000	35,250
A13	28.06	24.92	21.46	24.24	19.24	33,950	32,250
A14	14.96	13.32	11.46	10.82	10.26	55,560	40,500
A15	13.54	12.04	10.36	9.80	9.28	72,750	47,620
A21	18.30	16.28	13.98	13.20	12.54	34,500	26,250
A23	14.82	13.20	11.36	10.72	10.20	39,370	30,370
A24	10.48	9.32	8.02	7.54	7.18	76,500	49,500
A25	21.18	18.84	16.22	15.30	14.56	35,620	27,370
A26	14.96	13.32	11.46	10.82	10.26	61,120	46,500
A34	12.48	11.12	9.56	9.00	8.56	25,470	25,470
A35	10.00	8.90	7.64	7.20	6.84	38,200	38,200
A36	17.06	15.20	13.06	12.30	11.70	23,520	23,520
A37	10.00	8.90	7.64	7.20	6.84	30,560	30,560

Standard Group “A” Shapes



STANDARD SHANKS 1/4” X 1 1/2”

Standard Group “B” Shapes



GROUP “B” SHAPES WITH 1/8” MANDRELS

MAX RPM

SHAPE	5 pcs	100 pcs	250 pcs	500 pcs	1250 pcs	1/2” overhang	1” overhang
B41	13.08	11.62	10.04	9.46	8.98	33,750	23,250
B42	10.48	9.32	8.02	7.54	7.18	33,750	23,250
B51	10.48	9.32	8.02	7.54	7.18	45,370	28,500
B52	10.48	9.32	8.02	7.54	7.18	45,370	28,500
B61	8.78	7.82	6.74	6.32	6.00	38,250	24,370
B62	7.88	7.00	6.06	5.68	5.40	41,020	26,400
B91	10.48	9.32	8.02	7.54	7.18	34,500	22,500
B104	10.48	9.32	8.02	7.54	7.18	68,400	42,370
B111	10.48	9.32	8.02	7.54	7.18	33,750	23,250
B112	8.44	7.52	6.46	6.08	5.78	45,370	28,500
B121	8.78	7.82	6.74	6.32	6.00	45,370	28,500
B122	8.54	7.58	6.52	6.16	5.84	61,650	37,720

STANDARD SHANKS 1/8” X 1 1/2”

The above prices are for 36, 54, 80, 120 or 180 grit aluminum oxide abrasives. You may combine different line items for higher quantity pricing.

INCREASE PRICES 20% FOR “320” GRIT

INCREASE PRICES 25% FOR BLACK SILICON CARBIDE.

“MTX” & “GFX” POINTS con’t.

GROUP “W” SHAPES”

MAX RPM

SHAPE	SIZE DIA X WTH	5-PCS	100-PCS	250-PCS	500-PCS	1250-PCS	1/2" overhang	1" overhang
W160	1/4 X 1/4	6.08	5.40	4.66	4.38	4.18	81,370	51,000
W161	1/4 X 5/16	6.90	6.12	5.28	4.96	4.72	77,250	45,970
W162	1/4 X 3/8	6.90	6.12	5.28	4.96	4.72	68,370	42,370
W163	1/4 X 1/2	7.34	6.50	5.60	5.28	5.04	60,000	38,020
W164	1/4 X 3/4	7.50	6.70	5.78	5.44	5.16	43,900	30,000
W175	3/8 X 3/8	6.90	6.12	5.28	4.96	4.72	54,000	33,000
W176	3/8 X 1/2	7.34	6.50	5.60	5.28	5.04	45,370	28,500
W177	3/8 X 3/4	8.84	7.88	6.80	6.40	6.08	33,750	23,250
W184	1/2 X 3/8	6.90	6.12	5.28	4.96	4.72	41,020	26,400
W185	1/2 X 1/2	7.34	6.50	5.60	5.28	5.04	34,500	22,500
W186	1/2 X 3/4	8.84	7.88	6.80	6.40	6.08	26,250	17,400
W187	1/2 X 1	10.30	9.18	7.88	7.44	7.08	20,260	13,870
W192	5/8 X 1/4	6.90	6.12	5.28	4.96	4.72	43,120	27,370
W193	5/8 X 3/8	7.52	6.70	5.78	5.44	5.16	32,250	23,020
W194	5/8 X 1/2	8.84	7.88	6.80	6.40	6.08	29,400	19,120
W195	5/8 X 3/4	10.94	9.76	8.40	7.88	7.52	22,120	14,250
W196	5/8 X 1	12.48	11.08	9.52	9.00	8.56	35,250	27,000
W201	3/4 X 1/4	8.06	7.18	6.16	5.82	5.50	38,250	24,370
W202	3/4 X 3/8	7.52	6.70	5.78	5.44	5.16	30,600	19,500
W203	3/4 X 1/2	8.84	7.88	6.80	6.40	6.08	25,500	15,900
W204	3/4 X 3/4	10.94	9.76	8.40	7.88	7.32	18,900	12,000
W205	3/4 X 1	12.48	11.08	9.52	9.00	8.56	34,500	25,870
W206	3/4 X 1 1/4	14.72	13.18	11.26	10.64	10.10	28,720	21,520
W207	3/4 X 1 1/2	16.66	14.82	12.76	12.04	11.46	24,000	18,520
W216	1 X 1/4	7.34	6.50	5.60	5.28	5.04	30,520	18,600
W217	1 X 3/8	8.78	7.78	6.74	6.32	6.00	38,200	38,200
W218	1 X 1/2	10.00	8.90	7.64	7.24	6.86	38,200	32,770
W219	1 X 3/4	12.48	11.08	9.52	9.00	8.56	35,100	24,520
W220	1 X 1	15.10	13.44	11.52	10.88	10.36	25,500	19,120
W221	1 X 1 1/2	20.46	18.20	15.68	14.78	14.04	19,120	14,620
W222	1 X 2	26.24	23.36	20.10	18.94	18.02	15,900	12,370
W226	1 1/4 X 3/8	10.82	9.62	8.26	7.78	7.42	30,560	30,560
W228	1 1/4 X 3/4	16.26	14.44	12.40	11.72	11.16	30,520	22,500
W230	1 1/4 X 1 1/4	22.92	20.40	17.54	16.56	15.74	20,400	15,900
W236	1 1/2 X 1/2	12.48	11.08	9.52	9.00	8.56	25,470	25,470
W237	1 1/2 X 1	19.34	17.24	14.82	13.98	13.30	22,500	17,620
W238	1 1/2 X 1 1/2	22.96	20.40	17.54	16.56	15.74	15,600	12,000
W242	2 X 1	24.52	21.80	18.78	17.68	16.84	19,100	15,950

The standard mandrel size for small “W” shapes is 1/8" x 1-1/2", the larger sizes are on 1/4" x 1-1/2".

Prices are for 36, 54, 80, 120 or 180 grit aluminum oxide abrasives, add 25% for black silicon carbide. Items of 25 pieces or more may be combined for higher quantity pricing. “MTX” products are aluminum oxide or silicon carbide grain and non-woven cotton with a resin bond, “GFX” products have a latex bond. Prices for sizes or shapes not listed are available on request. Prices subject to change without notice.

RECOMMENDATIONS FOR TYPICAL APPLICATIONS

Material	Light Deburring Resin Bond	Polishing / Finishing Latex Bond
Aluminum	A 36 MTX	A 80 GFX
Non-Ferrous	A 36 MTX	A 80 GFX
Stainless	A 54 MTX	A 80 GFX
Steel	A 36 MTX	A 54 GFX
Fine Finish	A 80 MTX	A 120 GFX
Mold Polishing	A 120 MTX	A 180 GFX

The maximum allowable “RPM” varies with wheel size, mandrel diameter and overhang. See ANSI B7.1 code for allowable “RPM” or consult the speed chart supplied with each box of mounted wheels.

“MTX” AND “GFX” DEBURRING & POLISHING - TYPE 1 WHEELS

Cotton reinforced abrasive products for medium to light metal removal, deburring and finishing have a unique construction. Raw cotton fibers are blended with a resin or latex bond and the resulting non-woven material is impregnated with abrasive grain. About eight sheets of this material are required for an 1/8” thick wheel. The stack of material is compressed and heated to bond the sheets into a large slab. After cooling the slabs are cut using circular diamond hole cutters to make the finished wheel.

The unique construction and resiliency of the material reduces vibration and chatter resulting in a soft cushion-like grinding action. New abrasive grain is continually exposed during use resulting in cool cutting and NO LOADING of the wheel even when used on soft metals or alloys. This product has the ability to grind and finish in one operation. The resin bonded “MTX” grade is used for aggressive stock removal and the “GFX” latex bond for finishing and surface grinding.

DIAM. X THICK.		5-PCS	100-PCS	250-PCS	500-PCS	1000-PCS	RPM “GFX”	RPM “MTX”
1	1/8	5.70	5.20	5.00	4.30	3.80	36,290	54,240
	3/16	7.60	7.00	6.60	5.80	5.10	36,290	54,240
	1/4	9.60	8.80	8.10	7.20	6.30	36,290	54,240
	3/8	13.00	12.00	11.10	9.90	8.70	36,290	54,240
	1/2	13.50	12.30	11.40	10.00	9.00	36,290	54,240
1 1/2	1/8	5.70	5.20	5.00	4.30	3.80	24,190	36,160
	3/16	7.60	7.00	6.60	5.80	5.10	24,190	36,160
	1/4	9.60	8.80	8.10	7.20	6.30	24,190	36,160
	3/8	13.00	12.00	11.10	9.90	8.70	24,190	36,160
	1/2	15.90	14.20	13.50	12.00	10.50	24,190	36,160
2	1/8	5.70	5.20	5.00	4.30	3.80	18,140	27,120
	3/16	7.60	7.00	6.60	5.80	5.10	18,140	27,120
	1/4	9.60	8.80	8.10	7.20	6.30	18,140	27,120
	3/8	13.00	12.00	11.10	9.90	8.70	18,140	27,120
	1/2	20.80	19.00	17.50	15.60	13.80	18,140	27,120
2 1/2	1/8	7.50	6.90	6.30	5.70	4.90	14,510	21,690
	3/16	9.70	8.50	7.80	7.00	6.10	14,510	21,690
	1/4	11.50	10.60	9.70	8.70	7.60	14,510	21,690
	3/8	15.90	14.50	13.30	11.80	10.50	14,510	21,690
	1/2	28.30	26.10	24.00	21.30	18.70	14,510	21,690
3	1/8	8.70	8.10	7.50	6.60	5.80	12,090	18,080
	3/16	10.90	10.00	9.30	8.20	7.20	12,090	18,080
	1/4	13.90	12.90	11.80	10.50	9.30	12,090	18,080
	3/8	18.90	17.40	16.00	14.20	12.60	12,090	18,080
	1/2	35.50	32.70	30.10	26.70	23.50	12,090	18,080
4	1/8	12.60	11.50	10.60	9.40	8.20	9,075	13,560
	3/16	16.30	15.00	13.80	12.30	10.80	9,075	13,560
	1/4	19.80	18.30	16.80	15.00	13.20	9,075	13,560
	3/8	27.00	24.70	22.80	20.20	17.80	9,075	13,560
	1/2	44.10	40.60	37.35	33.30	29.20	9,075	13,560
5	1/8	17.20	15.90	14.70	13.00	11.50	7,260	10,850
	3/16	22.20	20.40	18.70	16.80	14.60	7,260	10,850
	1/4	26.70	24.70	22.80	20.20	17.80	7,260	10,850
	3/8	36.70	32.70	31.20	27.70	24.30	7,260	10,850
	1/2	54.70	50.40	46.50	41.20	36.30	7,260	10,850

The above net prices are for 36, 54, 80, 120 or 180 grit aluminum oxide abrasives. Increase prices 20% for 320 grit aluminum oxide abrasive. Silicon carbide abrasive is available as special order at 25% higher price.

“MTX” & “GFX” APPLICATION CHART FOR COMMON USES

OPERATION	ALUMINUM & NON-FERROUS	DIE CASTINGS	MILD STEEL	STAINLESS	TURBINE BLADES
BEVELING	A80-MTX	A80-MTX	A54-MTX	A54-MTX	A80-MTX
BLENDING	A80-MTX	A80-MTX	A80-GFX	A80-MTX	A80-MTX
CHAMFER HOLES	A80-MTX	A80-MTX	A54-MTX	A54-MTX	
CORNER BLENDING	A54-GFX / A80-GFX	A80-MTX	A54-MTX	A54-GFX	A80-MTX
DEBURRING	A54-MTX	A54-MTX	A80-MTX	A80-MTX	A80-MTX
EDGE BREAKING	A80-MTX	A80-MTX	A54-MTX	A54-MTX	A80-MTX
FINISHING	A120-GFX		A80-GFX / A120-GFX	A80-GFX	A120-MTX
GEAR DEBURRING	A80-MTX / A120-MTX	A80-MTX	A54-MTX	A54-MTX	
GRINDING	A54-MTX	A80-MTX	A36-GFX	A36-GFX	A80-MTX
THREAD CLEANING	A80-GFX	A80-MTX	A54-GFX	A54-GFX	

SQUARE STICKS FOR MOLD POLISHING AND REMOVAL OF SURFACE IMPERFECTIONS

SIZE OF STICK	5-PCS	100-PCS	250-PCS	500-PCS	1250-PCS
1/4 X 1/4 X 4	7.50	6.80	6.00	5.40	4.80
3/8 X 3/8 X 4	8.10	7.40	6.60	6.00	5.10
1/2 X 1/2 X 4	9.00	8.00	7.20	6.60	5.40
3/4 X 3/4 X 4	9.80	8.70	7.80	7.20	6.50
1 X 1 X 4	13.20	12.00	10.80	10.20	9.00
3/8 X 3/8 X 6	11.10	10.40	9.60	9.00	8.10
1/2 X 1/2 X 6	12.00	11.00	10.20	9.60	8.40
3/4 X 3/4 X 6	14.70	13.10	11.20	10.20	9.00
1 X 1 X 6	18.00	16.50	15.00	13.50	12.00

SPECIFY QUANTITY, SIZE OF STICK, GRIT SIZE AND GRADING.
 “MTX” GRADE FOR DEBURRING AND SURFACE CONDITIONING.
 “GFX” GRADING FOR POLISHING AND BLENDING CONTOURS.



VITRIFIED WHEELS & MULTIPLIERS

VITRIFIED BONDED WHEELS - LIST PRICES

DIAM.	THICKNESS OF WHEELS IN INCHES																								
	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-3/4	3	3-1/4	3-1/2	3-3/4	4					
	A40	B80	C200	D400	E1000	A30	B80	C150	D300	E750	A20	B40	C100	D200	E500	A10	B20	C50	D100	E250	A10	B20	C50	D10	E250
1	0.70	0.70	0.80	0.80	0.85	0.85	0.95	0.95	1.30	1.65	2.00	2.35	2.70	3.05	3.40	3.75	4.10	4.45	4.80	5.20					
1-1/2	0.90	0.90	1.00	1.00	1.05	1.05	1.15	1.25	1.70	2.10	2.55	2.95	3.40	3.80	4.25	4.70	5.10	5.55	5.95	6.40					
2	1.05	1.05	1.15	1.25	1.35	1.35	1.40	1.50	1.95	2.40	2.85	3.30	3.80	4.30	4.80	5.30	5.80	6.30	6.80	7.40					
2-1/2	1.55	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.65	3.20	3.80	4.40	5.00	5.60	6.20	6.80	7.40	8.05	8.70	9.40					
3	1.85	1.85	1.95	2.15	2.25	2.45	2.55	2.65	3.30	3.90	4.60	5.30	6.00	6.70	7.40	8.10	8.80	9.50	10.20	11.00					
	A20	B40	C100	D200	E500	A15	B30	C75	D150	E375	A10	B20	C50	D100	E250	A10	B20	C50	D100	E250	A5	B10	C25	D50	E125
3-1/2	3.50	2.90	3.10	3.30	3.50	3.70	3.90	4.10	4.75	5.45	6.15	6.85	7.55	8.30	9.05	9.80	10.55	11.30	12.05	12.80					
4	3.80	3.20	3.40	3.60	3.90	4.20	4.50	4.85	5.55	6.35	7.20	8.05	8.90	9.75	10.60	11.45	12.30	13.15	14.00	14.90					
4-1/2	4.60	3.75	4.05	4.35	4.70	5.10	5.55	5.95	6.85	7.80	8.80	9.80	10.85	11.90	12.95	14.00	15.05	16.10	17.15	18.20					
5	5.10	4.50	4.90	5.35	5.75	6.20	6.80	7.05	8.10	9.05	10.20	11.40	12.60	13.80	15.00	16.20	17.40	18.60	19.80	21.00					
	A10	B20	C50	D100	E250	A10	B20	C50	D100	E250	A5	B10	C25	D50	E125	A4	B8	C20	D40	E100	A3	B6	C15	D30	E75
6	6.10	5.30	5.80	6.35	6.85	7.40	7.90	8.55	10.15	11.70	13.30	14.90	16.45	18.05	19.65	21.20	22.80	24.40	25.95	27.55					
7	7.70	6.10	6.85	7.60	8.35	9.10	9.70	10.45	12.50	14.55	16.60	18.65	20.70	22.70	24.75	26.80	28.85	30.90	32.95	35.00					
8	9.40	7.35	8.30	9.10	9.90	10.85	11.70	12.80	15.35	17.90	20.45	23.05	25.60	28.15	30.70	33.25	35.80	38.40	40.95	43.50					

DIAMETERS AND THICKNESSES BETWEEN THOSE SHOWN TAKE THE LIST PRICE OF THE NEXT GREATER DIAMETER OR THICKNESS.

VITRIFIED QUANTITY MULTIPLIERS

VITRIFIED INTERNAL WHEELS 4" DIAMETER OR LESS, 2-1/2" THICK OR LESS. TYPE: 1, 5, 6, 7, 11 & 12 ONLY.
(TYPE: 6, 7, 11, 12 & SPECIAL FACES - ADD "LIST PRICE ADDITIONS" FROM NEXT PAGE TO LIST PRICE)

GRAIN TYPE 120 AND COARSER	LESS THAN A	A	B	C	D	E
REGULAR	3.089	2.060	1.607	1.446	1.302	1.173
WHITE / PINK	3.432	2.289	1.786	1.607	1.447	1.303
GRAY (32A)	3.947	2.632	2.054	1.848	1.664	1.498
BLACK / RUBY	4.290	2.861	2.232	2.009	1.809	1.629
GREEN	4.633	3.090	2.411	2.169	1.953	1.759
30% CERAMIC	6.178	4.120	3.215	2.893	2.605	2.345
50% CERAMIC	6.864	4.578	3.572	3.214	2.894	2.606

VITRIFIED INTERNAL WHEELS OVER 4" DIAMETER AND ALL WHEELS OVER 2-1/2" THICK.
(TYPE: 5, 6, 7, 11, 12 & SPECIAL FACES - ADD "LIST PRICE ADDITIONS" FROM NEXT PAGE TO LIST PRICE)

GRAIN TYPE 120 AND COARSER	LESS THAN A	A	B	C	D	E
REGULAR	3.664	2.443	1.905	1.715	1.543	1.389
WHITE / PINK	4.071	2.714	2.117	1.906	1.714	1.543
GRAY (32A)	4.682	3.121	2.435	2.192	1.971	1.774
BLACK / RUBY	5.089	3.392	2.646	2.382	2.142	1.929
GREEN	5.496	3.664	2.858	2.573	2.314	2.083
30% CERAMIC	7.328	4.885	3.811	3.431	3.085	2.777
50% CERAMIC	8.143	5.428	4.239	3.812	3.428	3.086

FOR "150" TO "220" GRIT, ADD 15%

FOR "240" TO "320" GRIT, ADD 30%

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

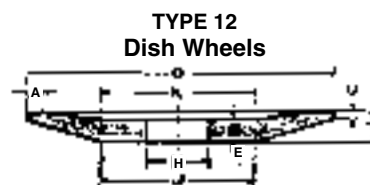
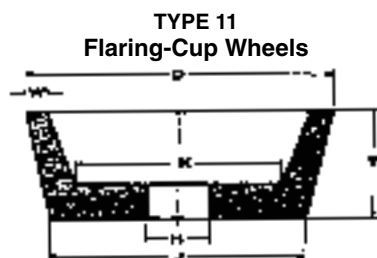
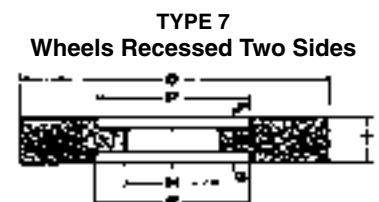
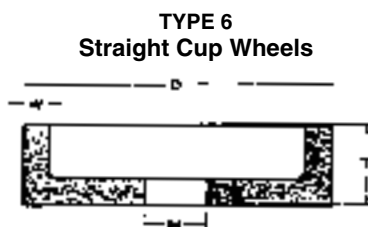
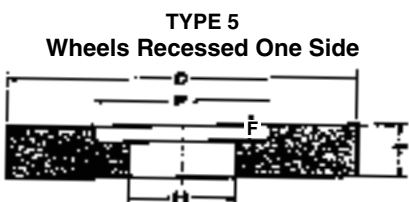
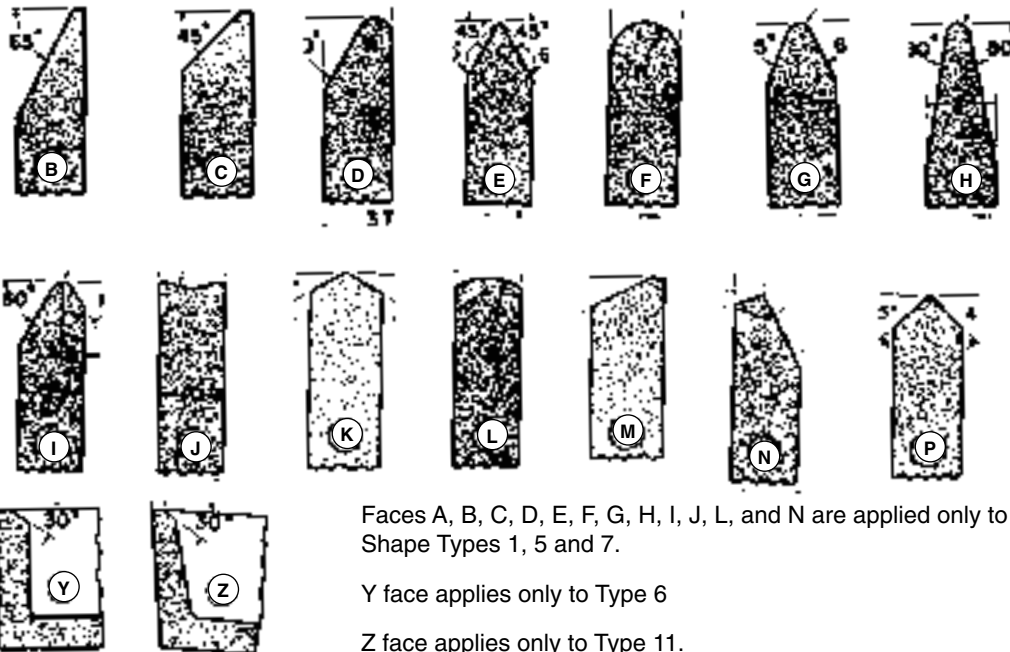
VITRIFIED AND RESIN LIST PRICE ADDITIONS

LIST PRICE ADDITIONS

DIAM. IN INCHES	THICKNESS			
	1" AND LESS	OVER 1" TO 2"	OVER 2" TO 3"	OVER 3" TO 4"
LESS THAN 4	0.70	1.10	1.60	2.00
4	1.10	1.60	2.30	2.90
5	1.40	2.00	2.90	4.10
6	1.60	2.50	3.60	4.70
7	1.80	2.90	4.30	5.60
8	2.00	3.40	5.00	6.50

1. Using wheel diameter and thickness note the list price.
2. Note quantity bracket for the item.
3. Add "LIST PRICE ADDITION" from table at left, if applicable.
4. Use appropriate multiplier based on product, abrasive type and quantity.
5. Diameters 3" and over add countersink charge from table at left to the list price.

SHAPE TYPES OF GRINDING WHEELS



RESINOID BONDED WHEELS - LIST PRICES AND MULTIPLIERS

DIAM.	THICKNESS OF WHEELS IN INCHES																								
	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-3/4	3	3-1/4	3-1/2	3-3/4	4					
	A40	B80	C200	D400	E1000	A30	B80	C150	D300	E750	A20	B40	C100	D200	E500	A10	B20	C50	D100	E250	A10	B20	C50	D100	E250
1	1.35	1.60	1.75	1.85	1.90	1.95	2.10	2.25	2.45	2.65	2.90	3.15	3.30	3.45	3.60	3.80	4.05	4.30	4.55	4.80	4.05	4.30	4.55	4.80	
1-1/2	1.40	1.65	1.85	2.00	2.10	2.20	2.35	2.45	2.65	2.85	3.05	3.30	3.55	3.80	4.05	4.30	4.55	4.80	5.10	5.40	4.55	4.80	5.10	5.40	
2	1.45	1.70	1.95	2.20	2.35	2.45	2.55	2.65	2.85	3.05	3.25	3.50	3.80	4.15	4.50	4.85	5.15	5.45	5.75	6.00	5.15	5.45	5.75	6.00	
2-1/2	1.55	1.80	2.15	2.45	2.60	2.70	2.85	3.00	3.25	3.55	3.85	4.15	4.55	5.00	5.45	5.90	6.25	6.60	6.95	7.40	6.25	6.60	6.95	7.40	
3	1.65	1.95	2.35	2.75	2.90	3.00	3.20	3.40	3.75	4.10	4.45	4.80	5.30	5.85	6.40	6.95	7.35	7.75	8.15	8.60	7.35	7.75	8.15	8.60	
	A20	B40	C100	D200	E500	A15	B30	C75	D150	E375	A10	B20	C50	D100	E250	A10	B20	C50	D100	E250	A5	B10	C25	D50	E125
3-1/2	1.75	2.05	2.60	3.15	3.35	3.50	3.70	3.90	4.55	5.20	5.85	6.50	7.00	7.50	8.05	8.60	9.15	9.70	10.25	10.80	9.15	9.70	10.25	10.80	
4	1.90	2.20	2.90	3.55	3.80	4.05	4.25	4.45	5.40	6.35	7.30	8.25	8.75	9.25	9.75	10.25	10.95	11.65	12.35	13.20	10.95	11.65	12.35	13.20	
4-1/2	2.25	2.55	3.40	4.15	4.45	4.75	5.10	5.45	6.55	7.70	8.85	9.80	10.70	11.40	12.40	12.80	13.80	14.80	15.80	16.80	13.80	14.80	15.80	16.80	
5	2.60	3.00	3.90	4.75	5.15	5.45	5.95	6.45	7.75	9.10	10.35	11.20	12.70	13.60	14.50	15.40	16.65	17.95	19.25	20.60	16.65	17.95	19.25	20.60	
	A10	B20	C50	D100	E250	A10	B20	C50	D100	E250	A5	B10	C25	D50	E125	A4	B8	C20	D40	E100	A3	B6	C15	D30	E75
6	3.30	3.95	4.80	5.65	6.30	6.95	7.70	8.40	9.70	10.90	12.20	13.40	15.20	16.90	18.75	20.55	22.40	24.30	26.20	28.20	22.40	24.30	26.20	28.20	
7	3.70	4.65	5.75	6.85	7.65	8.45	9.45	10.30	12.25	14.10	16.05	17.95	19.95	21.95	23.95	26.05	28.40	30.80	33.25	35.80	28.40	30.80	33.25	35.80	
8	4.15	5.40	6.75	8.05	9.00	10.00	11.20	12.30	14.85	17.20	19.90	22.45	24.70	26.95	29.25	31.55	34.45	37.40	40.35	43.40	34.45	37.40	40.35	43.40	

* DIAMETERS AND THICKNESSES BETWEEN THOSE SHOWN TAKE THE LIST PRICE OF THE NEXT GREATER DIAMETER OR THICKNESS.

* TYPE 5, 6, 11, 12 AND SPECIAL FACES REQUIRE AN ADDITION TO THE ABOVE LIST PRICE.

* THE "LIST PRICE ADDITIONS" CAN BE FOUND ON PAGE 19. THERE ARE ALSO ILLUSTRATIONS OF THE DIFFERENT SHAPES AND FACES WE OFFER.

TYPE 1 "SNAGGING WHEELS" RESINOID BONDED, NON-REINFORCED 1" - 4" IN DIAMETER / 1/8" - 4" IN THICKNESS

GRAIN TYPE 120 AND COARSER	LESS THAN A	A	B	C	D	E
REGULAR	2.143	1.429	1.143	0.971	0.826	0.743
CA / WHITE	2.357	1.572	1.257	1.069	0.909	0.817
BLACK	2.679	1.786	1.729	1.214	1.031	0.929
GREEN	2.893	1.929	1.543	1.311	1.114	1.003
30% CERAMIC	3.857	2.572	2.057	1.749	1.486	1.337
ZIRCONIA	4.286	2.858	2.286	1.942	1.652	1.486

TYPE 1 - NON-REINFORCED, RESIN BONDED, INCLUDING CUT-OFF WHEELS 1" - 8" IN DIAMETER / 1/8" - 4" IN THICKNESS

GRAIN TYPE 120 AND COARSER	LESS THAN A	A	B	C	D	E
REGULAR	3.429	2.286	1.829	1.554	1.321	1.189
CA / WHITE	3.771	2.514	2.011	1.709	1.453	1.308
BLACK	4.286	2.858	2.286	1.942	1.651	1.486
GREEN	4.629	3.086	2.469	2.098	1.783	1.605
30% CERAMIC	6.171	4.114	3.291	2.797	2.378	2.140
ZIRCONIA	6.858	4.572	3.658	3.108	2.642	2.378

FOR "150" TO "220" GRIT, ADD 15%

FOR "240" TO "320" GRIT, ADD 30%

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

TYPE 1 - RESIN REINFORCED BOTH SIDES

REGULAR ALUMINUM OXIDE “”120”” - GRIT OR COARSER / ADD 25% FOR BLACK SILICON CARBIDE

DIAM. X THICK	-A	A - 40	B - 80	C - 200	D - 400	E - 1000	MAX. RPM	
2" OR LESS	1/16	3.92	2.61	2.09	1.78	1.51	1.36	27,099
	1/8	4.31	2.87	2.30	1.95	1.66	1.49	27,099
	3/16	5.29	3.52	2.82	2.40	2.04	1.83	27,099
	1/4	6.46	4.31	3.45	2.93	2.49	2.24	27,099
	3/8	7.83	5.22	4.18	3.55	3.02	2.72	27,099
	1/2	9.40	6.27	5.01	4.26	3.62	3.26	27,099
2-1/2	1/16	4.31	2.87	2.30	1.95	1.66	1.49	21,679
	1/8	4.70	3.13	2.51	2.13	1.81	1.63	21,679
	3/16	5.88	3.92	3.13	2.66	2.26	2.04	21,679
	1/4	7.25	4.83	3.86	3.29	2.79	2.51	21,679
	3/8	8.81	5.87	4.70	4.00	3.40	3.06	21,679
	1/2	10.58	7.05	5.64	4.80	4.08	3.67	21,679
3	1/16	4.90	3.26	2.61	2.22	1.89	1.70	20,356
	1/8	5.29	3.52	2.82	2.40	2.04	1.83	20,356
	3/16	6.46	4.31	3.45	2.93	2.49	2.24	20,356
	1/4	8.03	5.35	4.28	3.64	3.10	2.79	20,356
	3/8	9.79	6.53	5.22	4.44	3.78	3.40	20,356
	1/2	11.75	7.83	6.27	5.33	4.53	4.08	20,356

DIAM. X THICK	-A	A - 20	B - 40	C - 100	D - 200	E - 500	MAX. RPM	
3-1/2	1/16	6.07	4.05	3.24	2.75	2.34	2.11	15,267
	1/8	6.85	4.57	3.66	3.11	2.64	2.38	15,267
	3/16	8.42	5.61	4.49	3.82	3.25	2.92	15,267
	1/4	10.18	6.79	5.43	4.62	3.93	3.53	15,267
	3/8	11.95	7.96	6.37	5.42	4.61	4.14	15,267
	1/2	14.10	9.40	7.52	6.39	5.44	4.89	15,267
4	1/16	6.66	4.44	3.55	3.02	2.57	2.31	13,634
	1/8	7.44	4.96	3.97	3.37	2.87	2.58	13,634
	3/16	9.01	6.01	4.80	4.08	3.47	3.13	13,634
	1/4	10.97	7.31	5.85	4.97	4.23	3.81	13,634
	3/8	12.93	8.62	6.89	5.86	4.98	4.48	13,634
	1/2	15.47	10.31	8.25	7.02	5.96	5.37	13,634
5	1/16	11.75	7.83	6.27	5.33	4.53	4.08	9,549
	1/8	12.53	8.36	6.68	5.68	4.83	4.35	9,549
	3/16	14.30	9.53	7.62	6.48	5.51	4.96	9,549
	1/4	16.45	10.97	8.77	7.46	6.34	5.71	9,549
	3/8	18.80	12.53	10.03	8.52	7.25	6.52	9,549
	1/2	23.11	15.40	12.33	10.48	8.91	8.02	9,549

DIAM. X THICK	- A	A - 10	B - 20	C - 50	D - 100	E - 250	MAX. RPM	
6	1/16	15.67	10.44	8.36	7.10	6.04	5.44	7,958
	1/8	17.63	11.75	9.40	7.99	6.80	6.12	7,958
	3/16	20.56	13.71	10.97	9.32	7.93	7.13	7,958
	1/4	24.87	16.58	13.27	11.28	9.59	8.63	7,958
	3/8	30.55	20.37	16.29	13.85	11.78	10.60	7,958
7	1/16	17.63	11.75	9.40	7.99	6.80	6.12	6,821
	1/8	19.98	13.31	10.65	9.06	7.70	6.93	6,821
	3/16	23.50	15.67	12.53	10.66	9.06	8.15	6,821
	1/4	28.40	18.93	15.15	12.88	10.95	9.85	6,821
	3/8	34.86	23.24	18.59	15.81	13.44	12.10	6,821
8	1/16	20.56	13.70	10.97	9.32	7.93	7.13	5,968
	1/8	23.70	15.79	12.64	10.74	9.14	8.22	5,968
	3/16	28.01	18.67	14.94	12.70	10.80	9.72	5,968
	1/4	33.49	22.32	17.86	15.18	12.91	11.62	5,968
	3/8	40.74	27.15	21.73	18.47	15.70	14.13	5,968

CALL FOR ZIRCONIA ALUMINA OR CERAMIC-SOL-GEL PRICES

VALUE LINE REINFORCED CUT-OFF WHEELS

DIAM. X THICK.	GRADING	STD. PACK	A-50	B-200	C-500	D-1000	MAX. RPM	
1	1/32	A60T	100	1.90	1.35	1.05	0.90	61,115
	1/16	A46T-A60R	100	1.90	1.35	1.05	0.90	61,115
1 1/2	1/32	A60T	100	2.00	1.40	1.10	0.95	40,744
	1/16	A46T-A60R	100	2.00	1.40	1.10	0.95	40,744
2	1/32	A60T	100	2.20	1.55	1.20	1.05	30,558
	1/16	A46T-A60R	50	2.20	1.55	1.20	1.05	30,558
	3/32	A36R	50	2.50	1.75	1.35	1.20	30,558
	1/8	A36R-A60R	50	2.50	1.75	1.35	1.20	30,558
	3/16	A36R	50	3.10	2.20	1.70	1.45	30,558
	1/4	A36R	50	3.70	2.60	2.00	1.75	30,558
	3/8	A36R	50	3.80	2.70	2.10	1.80	27,120
2 1/2	1/32	A60T	100	1.95	1.40	1.05	0.90	24,446
	1/16	A46T-A60R	50	1.95	1.40	1.05	0.90	24,446
	3/32	A36R	50	2.75	1.95	1.50	1.30	24,446
	1/8	A36R-A60R	50	2.75	1.95	1.50	1.30	24,446
	3/16	A36R	50	3.50	2.45	1.90	1.65	24,446
	1/4	A36R	50	4.10	2.90	2.25	1.95	24,446
	3/8	A36R	50	5.25	3.70	2.85	2.50	21,696
3	1/32	A60T	100	2.40	1.70	1.35	1.15	20,372
	1/16	A46T-A60R	50	2.50	1.75	1.45	1.20	20,372
	3/32	A36R	50	2.90	2.05	1.55	1.35	20,372
	1/8	A36R-A60R	50	2.90	2.05	1.55	1.35	20,372
	3/16	A36R	50	4.25	3.00	2.30	2.00	20,372
	1/4	A36R	50	5.05	3.55	2.75	2.40	20,372
	3/8	A36R	50	6.20	4.35	3.35	2.95	18,080
3 1/2	1/32	A60T	100	3.30	2.30	1.80	1.55	17,461
	1/16	A46T-A60R	50	3.30	2.30	1.80	1.55	17,461
	3/32	A36R	50	4.15	2.90	2.30	2.00	17,461
	1/8	A36R-A60R	50	4.15	2.90	2.30	2.00	17,461
4	1/32	A60T	100	3.60	2.55	1.95	1.70	15,278
	1/16	A46T-A60R	50	3.60	2.55	1.95	1.70	15,278
	3/32	A36R	50	4.15	2.90	2.25	1.95	15,278
	1/8	A36R-A60R	50	4.15	2.90	2.25	1.95	15,278
	3/16	A36R	50	5.75	4.05	3.20	2.75	15,278
	1/4	A36R	50	7.00	4.95	3.80	3.35	15,278
	3/8	A36R	50	8.35	5.85	4.55	4.00	13,560
5	1/32	A60T	100	6.35	4.45	3.45	3.05	12,224
	1/16	A46T-A60R	50	6.35	4.45	3.45	3.05	12,224
	3/32	A36R	50	7.65	5.35	4.30	3.70	12,224
	1/8	A36R-A60R	50	7.65	5.35	4.30	3.70	12,224

VALUE LINE CUT-OFF WHEELS ARE A PERFORMANCE TESTED PRODUCT FOR INDUSTRIAL USE ON PORTABLE AND STATIONARY MACHINES. STANDARD SIZES AND GRADINGS IN BOTH REINFORCED AND NON-REINFORCED WHEELS ARE INCLUDED. THE WHEELS ARE MADE IN THE U.S.A. BUT PRICED TO BE COMPETITIVE WITH IMPORTS. BECAUSE OF THE WAY THIS PRODUCT IS PRODUCED AND PRICED, SPECIAL RULES APPLY TO THE SHIPMENT AND SALE.

* NO VARIATION IN WHEEL DIAMETER, THICKNESS OR GRADING.

* SELECTED THICKNESSES ARE AVAILABLE AS "ULTRA THIN" IN EACH DIAMETER AT A SOMEWHAT HIGHER PRICE.

* SELECTED SIZES ARE AVAILABLE FOR SPECIAL APPLICATIONS MADE WITH ZIRCONIA OR CERAMIC ABRASIVE.

* B, C & D QUANTITIES WITHIN A SINGLE TABLE MAY BE COMBINED FOR LOWEST PRICE.

* SHIPMENT IS F.O.B. OUR MICHIGAN CITY, INDIANA FACTORY.

* ALL TRIAL ORDERS WILL BE INVOICED AT NORMAL ORDERING QUANTITY.

TABLE I 1-5 INCH REINFORCED FOR PORTABLE OR STATIONARY MACHINES.
"A" QUANTITY IS THE MINIMUM ORDER PER ITEM.

TABLE II 6-20 INCH REINFORCED FOR STATIONARY MACHINES.
"A" QUANTITY IS THE MINIMUM ORDER PER ITEM.

TABLE III 6-12 INCH NON-REINFORCED FOR STATIONARY MACHINES.
"A" QUANTITY IS THE MINIMUM ORDER PER ITEM.

VALUE LINE REINFORCED CUT-OFF WHEELS

DIAM. X THICK.	GRADING	STD. PACK	A-25	B-50	C-100	D-250	MAX. RPM	
6	1/32	A60T	50	8.45	6.75	6.35	5.10	10,186
	1/16	A46T	50	8.45	6.75	6.35	5.10	10,186
	3/32	A36R	50	8.90	7.15	6.65	5.35	10,186
	1/8	C36Q-A36R	50	8.90	7.15	6.65	5.35	10,186
7	1/32	A60T	50	9.95	8.00	7.45	6.00	8,732
	1/16	A46T	50	9.95	8.00	7.45	6.00	8,732
	1/8	C36Q-A36R	50	11.25	9.00	8.40	6.75	8,132
8	1/32	A60T	50	10.90	8.75	8.15	6.55	7,640
	1/16	A46T	50	10.90	8.75	8.15	6.55	7,640
	1/8	C36Q-A36R	50	12.60	10.10	9.45	7.60	7,640
9	1/16	A46T	50	13.85	11.10	10.35	8.35	6,792
	1/8	C36Q-A36R	50	13.85	11.10	10.35	8.35	6,792
DIAM. X THICK.	GRADING	STD. PACK	A-25	B-50	C-100	D-250	MAX. RPM	
10	1/16	A46T-A54N	20	12.80	10.25	9.60	7.65	6,112
	3/32	A36R	20	12.80	10.25	9.60	7.65	6,112
	1/8	A36R	20	12.80	10.25	9.60	7.65	6,112
12	1/16	A46T	20	17.60	14.10	13.20	10.55	5,092
	3/32	A36R	20	17.60	14.10	13.20	10.55	5,092
	1/8	C36Q-A36R	20	17.60	14.10	13.20	10.55	5,092
14	1/8	A36Q-A36R	20	24.35	19.50	18.25	14.60	4,365
16	1/8	A46R	20	26.55	21.25	19.90	15.95	3,820
	5/32	A36R	20	27.90	22.35	20.90	16.75	3,820
18	1/8	C36Q-A36R	20	39.65	31.72	29.75	23.80	3,013
	5/32	A36R	20	41.75	33.40	31.35	25.05	3,013
20	1/8	A36R	20	48.30	38.65	36.20	28.95	2,712
	5/32	A36R	20	50.65	40.55	37.95	30.35	2,712

NON-REINFORCED CUT-OFF WHEELS WELL GUARDED, STATIONARY MACHINES ONLY

DIAM. X THICK.	GRADING	STD. PACK	A-25	B-50	C-100	D-250	MAX. RPM	
6	1/32	A60N-A80 O	50	9.50	7.60	7.10	5.70	7,639
	1/16	A60N	50	9.50	7.60	7.10	5.70	7,639
7	1/32	A60N-A80 O	50	10.55	8.45	7.90	6.30	6,548
	1/16	A60N	50	10.55	8.45	7.90	6.30	6,548
	3/32	A46 O	50	10.55	8.45	7.90	6.30	6,548
	1/8	A46 O	50	10.55	8.45	7.90	6.30	6,548
8	1/32	A60N-A80 O	50	11.80	9.45	8.85	7.10	5,729
	1/16	A60N	50	11.80	9.45	8.85	7.10	5,729
	3/32	A46 O	50	11.80	9.45	8.85	7.10	5,729
	1/8	A46 O	50	11.80	9.45	8.85	7.10	5,729
10	1/16	A60 O	50	13.90	11.15	10.40	8.35	4,584
	3/32	A46 O	20	13.90	11.15	10.40	8.35	4,584
12	3/32	A46 O	20	16.80	13.45	12.60	10.10	3,820
	1/8	A46 O	20	16.80	13.45	12.60	10.10	3,820

GRADING

A 60 T
A 46 T
A 60 R
A 36 R
C 36 Q

GENERAL USAGE DESCRIPTION

FINE FINISH / FAST CUTTING / MINIMUM BURR / THIN WALL TUBING / STAINLES
GOOD FINISH / LONGER LIFE / SHEET METAL / STAINLESS
BETTER FINISH / FASTER CUTTING THAN A60T
GENERAL PURPOSE / GOOD LIFE / AGGRESSIVE CUTTING / MILD STEEL & IRON
MASONRY / CONCRETE / LIMITED AVAILABILITY

NON-REINFORCED ITEMS TABLE III

A 60 N EXCELLENT GENERAL PURPOSE WORK / COOL CUTTING / TOOL BITS / HARD & SOFT STEEL
A 80 O LONGER LIFE THAN A60N / TUBING / MINIMUM BURR
A 60 T LONG LIFE / PRODUCTION CUTTING
A 60 O LONGER LIFE THAN A60N / LIGHT STRUCTURALS & SOLIDS
A 46 O FAST CUTTING / COMMERCIAL FINISH / ALL PURPOSE GRADE

FOR EACH WHEEL SIZE AND THICKNESS ONLY ONE OR TWO GRADINGS ARE AVAILABLE. THE ABOVE DESCRIPTION IS A GUIDE FOR SELECTING THE GRADING BY THE INTENDED USE.

DO NOT USE TYPE ONE WHEELS ON RIGHT ANGLE GRINDERS

RUBBER BONDED WHEELS

DIAM. X THICK.	A-40	B-80	C-200	D-500	E-1000	MAX. RPM	
1	1/32	3.10	2.79	2.51	2.26	2.04	36,287
	1/16	3.21	2.89	2.60	2.34	2.10	36,287
	1/8	3.41	3.07	2.77	2.49	2.24	36,287
	1/4	3.83	3.44	3.10	2.79	2.51	21,008
	3/8	4.45	4.00	3.60	3.24	2.92	21,008
	1/2	5.17	4.66	4.19	3.77	3.39	21,008
1 1/2	1/32	3.31	2.98	2.68	2.41	2.17	24,192
	1/16	3.41	3.07	2.77	2.49	2.24	24,192
	1/8	3.83	3.44	3.10	2.79	2.51	24,192
	1/4	4.45	4.00	3.60	3.24	2.92	14,006
	3/8	5.17	4.66	4.19	3.77	3.39	14,006
	1/2	6.21	5.59	5.03	4.52	4.07	14,006
2	1/32	3.41	3.07	2.77	2.49	2.24	18,144
	1/16	3.62	3.26	2.93	2.64	2.37	18,144
	1/8	4.14	3.72	3.35	3.02	2.71	18,144
	1/4	4.86	4.38	3.94	3.54	3.19	10,504
	3/8	5.69	5.12	4.61	4.15	3.73	10,504
	1/2	6.83	6.14	5.53	4.98	4.48	10,504
2 1/2	1/32	3.72	3.35	3.02	2.71	2.44	14,515
	1/16	4.03	3.63	3.27	2.94	2.65	14,515
	1/8	4.76	4.28	3.85	3.47	3.12	14,515
	1/4	5.90	5.31	4.78	4.30	3.87	8,403
	3/8	6.93	6.24	5.61	5.05	4.55	8,403
	1/2	8.28	7.44	6.70	6.04	5.42	8,403
3	1/32	3.93	3.54	3.18	2.87	2.58	12,096
	1/16	4.24	3.81	3.44	3.09	2.78	12,096
	1/8	5.07	4.56	4.11	3.69	3.32	12,096
	1/4	6.21	5.59	5.03	4.52	4.07	7,003
	3/8	7.45	6.70	6.03	5.43	4.89	7,003
	1/2	9.00	8.10	7.29	6.56	5.90	7,003

DIAM. X THICK.	A-20	B-40	C-100	D-250	E-500	MAX. RPM	
3 1/2	1/32	4.76	4.28	3.85	3.47	3.12	10,368
	1/16	5.28	4.75	4.27	3.85	3.46	10,368
	1/8	6.31	5.68	5.11	4.60	4.14	10,368
	1/4	7.55	6.80	6.12	5.50	4.95	6,082
	3/8	9.52	8.57	7.71	6.94	6.24	6,082
	1/2	12.10	10.89	9.80	8.82	7.94	6,082
4	1/32	5.17	4.66	4.19	3.77	3.39	9,072
	1/16	5.79	5.21	4.69	4.22	3.80	9,072
	1/8	6.83	6.14	5.53	4.98	4.48	9,072
	1/4	8.48	7.63	6.87	6.18	5.56	5,252
	3/8	10.55	9.50	8.55	7.69	6.92	5,252
	1/2	13.03	11.73	10.56	9.50	8.55	5,252
5	1/32	6.62	5.96	5.36	4.82	4.34	7,257
	1/16	7.45	6.70	6.03	5.43	4.89	7,257
	1/8	8.90	8.01	7.21	6.48	5.84	7,257
	1/4	11.17	10.05	9.05	8.14	7.32	4,202
	3/8	14.07	12.66	11.40	10.25	9.22	4,202
	1/2	17.17	15.45	13.91	12.52	11.26	4,202
6	1/32	8.48	7.63	6.87	6.18	5.56	6,048
	1/16	9.52	8.57	7.71	6.94	6.24	6,048
	1/8	11.17	10.05	9.05	8.14	7.32	6,048
	1/4	14.67	12.66	11.40	10.25	9.22	6,048
	3/8	17.59	15.83	14.25	12.82	11.53	3,501
	1/2	21.72	19.55	17.60	15.83	14.25	3,501

RUBBER BONDED WHEELS

DIAM. X THICK.	A-20	B-40	C-100	D-250	E-500	MAX. RPM	
7	1/32	10.34	9.31	8.38	7.54	6.78	5,184
	1/16	12.41	11.17	10.06	9.05	8.14	5,184
	1/8	14.48	13.03	11.73	10.56	9.50	5,184
	1/4	18.62	16.76	15.08	13.57	12.21	3,001
	3/8	22.76	20.48	18.43	16.59	14.93	3,001
	1/2	26.90	24.21	21.79	19.60	17.64	3,001

DIAM. X THICK.	A-10	B-20	C-50	D-100	E-250	MAX. RPM	
8	1/32	12.41	11.17	10.06	9.05	8.14	4,536
	1/16	14.48	13.03	11.73	10.56	9.50	4,536
	1/8	16.55	14.90	13.41	12.06	10.86	4,536
	1/4	22.76	20.48	18.44	16.59	14.93	2,626
9	1/32	14.48	13.03	11.73	10.56	9.50	4,032
	1/16	16.55	14.90	13.41	12.06	10.86	4,032
	1/8	18.62	16.76	15.08	13.57	12.21	4,032
10	1/32	16.55	14.90	13.41	12.06	10.86	3,629
	1/16	18.62	16.76	15.08	13.57	12.21	3,629
	1/8	20.69	18.62	16.76	15.08	13.57	3,629
12	1/32	21.72	19.55	17.60	15.83	14.25	3,024
	1/16	24.83	22.34	20.11	18.10	16.28	3,024
	1/8	27.93	25.14	22.63	20.36	18.32	3,024
14	1/32	24.83	22.34	20.11	18.10	16.28	2,592
	1/16	27.93	25.14	22.63	20.36	18.32	2,592
	1/8	31.04	27.93	25.14	22.62	20.36	2,592
16	1/16	32.07	28.86	25.98	23.37	21.03	2,268
	1/8	35.17	31.65	28.49	25.64	23.07	2,268

ABOVE NET PRICES ARE FOR REGULAR ALUMINUM OXIDE ABRASIVE 120-GRIT OR COARSER.

* ADD 10% FOR WHITE ALUMINUM OXIDE.

* ADD 25% FOR BLACK SILICON CARBIDE.

* ADD 10% FOR 150-240 GRIT.

* ADD 25% FOR 280-320 GRIT.

* ADD 25% IF TOLERANCE IS CLOSER THAN STANDARD OR THICKNESS IS LESS THAN 1/32 OF AN INCH.

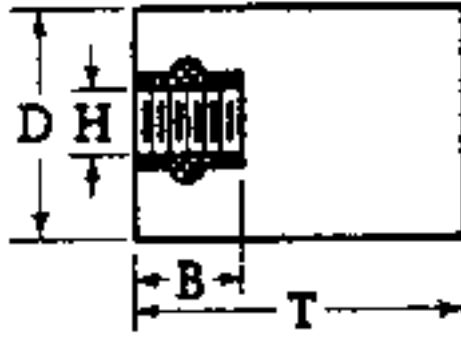
INTERMEDIATE SIZES: TAKE PRICE OF NEAREST, HIGHER PRICED ITEM.

THE HIGHER RPM LISTED IS FOR CUT-OFF AND HARD RUBBER GRINDING WHEELS AT 9,500 SFPM.

THE LOWER RPM IS FOR SOFT RUBBER POLISHING AND BLENDING WHEELS AT 5,500 SFPM.

TYPE 18 PLUG WHEELS

CONSUMER NET PRICES

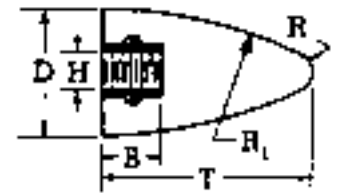


DIAMETER & THICKNESS		"A" 20	"B" 50	"C" 100	"D" 200	"E" 500	"F" 1000	"G" 2000
1" X	1-1/2"	4.03	3.47	3.06	2.70	2.37	2.10	2.06
	2"	4.66	4.07	3.54	3.11	2.74	2.43	2.38
	2-1/2"	5.34	4.61	4.07	3.58	3.16	2.80	2.73
	3"	5.78	5.00	4.40	3.87	3.41	3.03	2.96
1-1/2" X	1-1/2"	4.27	3.68	3.26	2.87	2.53	2.23	2.18
	2"	4.84	4.18	3.68	3.24	2.86	2.53	2.47
	2-1/2"	5.78	5.00	4.40	3.87	3.41	3.03	2.96
	3"	6.41	5.54	4.88	4.30	3.78	3.36	3.28
	3-1/4"	6.97	6.03	5.31	4.67	4.13	3.64	3.57
	3-1/2"	7.28	6.30	5.55	4.88	4.32	3.81	3.73
2" X	1-1/2"	4.53	3.91	3.44	3.03	2.67	2.37	2.31
	2"	5.08	4.40	3.87	3.41	3.01	2.66	2.60
	2-1/2"	6.23	5.37	4.74	4.17	3.67	3.27	3.18
	3"	7.10	6.13	5.41	4.75	4.20	3.71	3.63
	3-1/4"	7.73	6.67	5.88	5.18	4.57	4.04	3.96
	3-1/2"	8.11	7.00	6.17	5.44	4.78	4.24	4.14
	4"	8.80	7.60	6.70	5.90	5.20	4.60	4.50
2-1/2" X	2"	5.91	5.10	4.50	3.96	3.48	3.08	3.03
	2-1/2"	7.28	6.30	5.55	4.88	4.31	3.81	3.73
	3"	8.43	7.27	6.41	5.64	4.97	5.43	4.31
	3-1/4"	9.11	7.87	6.94	6.11	5.38	4.77	4.66
	3-1/2"	9.55	8.25	7.27	6.40	5.64	5.00	4.88
3" X	2"	6.73	5.81	5.11	4.51	3.97	3.51	3.44
	2-1/2"	8.35	7.21	6.37	5.60	4.94	4.37	4.27
	3"	9.74	8.41	7.41	6.53	5.75	5.10	4.98
	3-1/4"	10.49	9.06	7.98	7.04	6.20	5.48	5.37
	3-1/2"	11.00	9.50	8.37	7.37	6.50	6.00	5.63
4"	12.07	10.40	9.18	8.08	7.13	6.31	6.17	

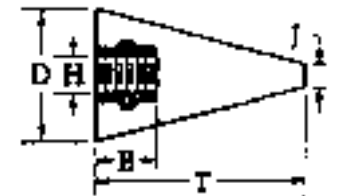
NET PRICES APPLY TO "120" - GRIT AND COARSER REGULAR ALUMINUM OXIDE AND COMBINATION (CA) GRAIN. ADD 20% FOR ZIRCONIA. ADD 25% FOR BLACK SILICON CARBIDE, WHITE AND PINK ALUMINUM OXIDE. INTERMEDIATE DIAMETERS AND/OR LENGTHS PRICE AT NEXT LARGER SIZE. STOCK INSERTS INCLUDE: 1/4-20, 3/8-16, 3/8-24, 1/2-13, 1/2-20 AND 5/8-11. FINE GRAIN, SPECIAL SIZES, SHAPES AND INSERTS QUOTED ON REQUEST.

TYPES 16, 17, 17R, 18R, 19, 19R

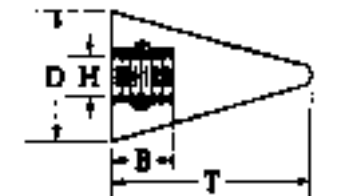
DIAMETER & THICKNESS	"A"	"B"	"C"	"D"	"E"	"F"	"G"
	20	50	100	200	500	1000	2000
1" X 1-1/2"	4.71	4.07	3.58	3.16	2.78	2.46	2.41
2"	5.34	4.61	4.07	3.58	3.16	2.80	2.73
2-1/2"	6.34	5.48	4.83	4.26	3.76	3.31	3.24
3"	6.78	5.85	5.17	4.56	4.01	3.54	3.47
1-1/2" X 1-1/2"	4.97	4.28	3.78	3.33	2.93	2.60	2.54
2"	5.53	4.77	4.21	3.71	3.27	2.88	2.83
2-1/2"	6.78	5.85	5.17	4.56	4.01	3.54	3.47
3"	7.41	6.40	5.64	4.97	4.38	3.87	3.80
3-1/4"	8.23	7.11	6.27	5.51	4.87	4.43	4.21
3-1/2"	8.54	7.38	6.51	5.73	5.04	4.47	4.38
4"	9.30	8.03	7.08	6.24	5.50	4.86	4.76
2" X 2"	5.78	5.00	4.40	3.87	3.41	3.03	2.90
2-1/2"	7.23	6.24	5.50	4.84	4.27	3.77	3.70
3"	8.11	7.00	6.17	5.44	4.78	4.24	4.14
3-1/4"	8.98	7.75	6.84	6.03	5.31	4.70	4.60
3-1/2"	9.37	8.08	7.13	6.28	5.53	4.90	4.78
4"	10.05	8.68	7.65	6.74	5.94	5.26	5.14
2-1/2" X 2-1/2"	8.30	7.17	6.31	5.55	4.90	4.34	4.24
3"	9.42	8.14	7.17	6.31	5.57	4.93	4.83
3-1/4"	10.37	8.95	7.90	6.95	6.13	5.43	5.30
3-1/2"	10.81	9.34	8.25	7.24	6.38	5.65	5.53
4"	11.81	10.20	9.00	7.93	6.98	6.17	6.04
3" X 3"	10.74	9.28	8.18	7.71	6.38	5.61	5.50
3-1/4"	11.75	10.15	8.94	7.88	6.94	6.14	6.01
3-1/2"	12.25	10.58	9.32	8.21	7.24	6.40	6.27
4"	13.32	11.51	10.14	8.93	7.87	6.97	6.81



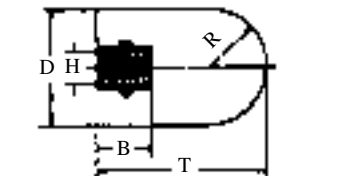
cone, curved side: type 16



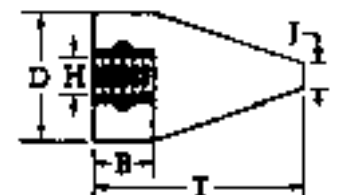
cone, square tip: type 17



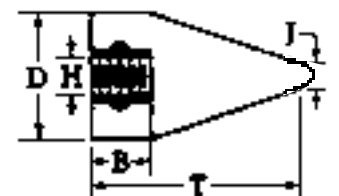
cone, round tip: type 17R



cone, round end: type 18R



plug conical, flat tip: type 19



plug conical, round tip: type 19R

NET PRICES APPLY TO "120" - GRIT AND COARSER REGULAR ALUMINUM OXIDE AND COMBINATION (CA) GRAIN. ADD 20% FOR ZIRCONIA. ADD 25% FOR BLACK SILICON CARBIDE, WHITE AND PINK ALUMINUM OXIDE. INTERMEDIATE DIAMETERS AND/OR LENGTHS PRICE AT NEXT LARGER SIZE. STOCK INSERTS INCLUDE: 1/4-20, 3/8-16, 3/8-24, 1/2-13, 1/2-20 AND 5/8-11. FINE GRAIN, SPECIAL SIZES, SHAPES AND INSERTS QUOTED ON REQUEST.

VITRIFIED BONDED ABRASIVE STICKS

Vitrified bonded dressing sticks are unfinished and primarily used to clean or reshape grinding wheels and mounted points. Coarse grain, hard grade, silicon carbide abrasive sticks are for dressing conventional abrasive grinding wheels. Finer, softer sticks made with aluminum oxide or silicon carbide abrasive are used to clean CBN and diamond grinding wheels. A coarse, hard aluminum oxide stick with 30% Sol-Gel abrasive is a replacement for silicon carbide sticks in applications where silicon carbide is not allowed. A medium grit with 30% Sol-Gel is also proving successful cleaning and dressing diamond wheels.



BLACK SILICON CARBIDE - 120 GRIT OR COARSER
WHITE, PINK OR REGULAR ALUMINUM OXIDE - 120 GRIT OR COARSER

SIZE	1-9 PCS	10-99 PCS	100-499 PCS	500-999 PCS	1000+ PCS
1/4 X 3/4 X 4	7.85	5.50	4.12	3.09	2.47
3/8 X 3/4 X 4	8.10	5.67	4.25	3.19	2.55
1/2 X 1/2 X 4	7.50	5.25	3.94	2.96	2.37
3/4 X 3/4 X 4	8.60	6.02	4.52	3.39	2.71
1 X 1 X 4	11.75	8.22	6.16	4.62	3.70
1/4 X 1/4 X 6	7.85	5.50	4.12	3.09	2.47
1/2 X 1/2 X 6	8.40	5.88	4.41	3.31	2.65
3/4 X 3/4 X 6	10.45	7.32	5.49	4.12	3.30
3/4 X 1 X 6	11.75	8.22	6.16	4.62	3.70
1 X 1 X 6	13.10	9.17	6.88	5.16	4.13
1 X 2 X 6	19.60	13.72	10.29	7.72	6.18
1 X 1 X 8	15.55	10.88	8.16	6.12	4.90
1 X 2 X 8	22.25	15.58	11.68	8.76	7.01

150 - 220 GRIT ALUMINUM OXIDE ADD 15%
 150 - 220 GRIT SILICON CARBIDE ADD 15%

320 GRIT ALUMINUM OXIDE ADD 60%
 320 GRIT SILICON CARBIDE ADD 300%

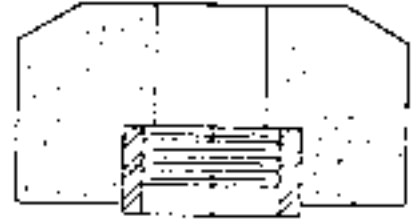
30% SOL GEL WITH 70% ALUMINUM OXIDE ADD 80%

RESIN OR RUBBER BONDED STICKS ARE AVAILABLE CALL FOR SIZES AND QUANTITY PRICES.
 FIBER BONDED STICKS ARE PRICED ON PAGE 17.

VALVE SEAT WHEELS

LIST PRICE - VITRIFIED BOND

DIAMETER	THICKNESS		
	7/8	1-1/4	1-1/2
1-1/4	3.50	4.50	5.00
1-1/2	3.50	4.50	5.00
2	4.00	5.40	6.00
2-1/2	4.75	6.40	7.15
3	5.75	7.50	8.25
3-1/2	6.75	8.75	9.75
4	8.00	10.25	11.50



*SIZES BETWEEN THOSE LISTED TAKE THE NEXT LARGER SIZE PRICE.

- BD** Black & Decker wheels are 7/8 tall with a 9/16-16 threaded bushing and a 9/16 pilot hole.
- KW** Kwickway wheels are 1-1/4 tall with a 13/16-13 threaded bushing and a 13/16 pilot hole.
- KWX** Kwickway wheels are 1-1/4 tall with a 21/32-18 threaded bushing and a 11/16 pilot hole.
- SX** Sioux wheels are 7/8 tall with a 11/16-16 threaded bushing and a 13/16 pilot hole.
- SX-TALL** Sioux tall wheels are 1-1/2 tall with a 11/16-16 threaded bushing and a 9/16 pilot hole.
(1-1/8 , 1-1/4 & 1-3/8 Diameters are tall)
- SO** Snap-On wheels are 7/8 tall with a 5/8-18 threaded bushing and a 11/16 pilot hole.

Common face angles are 30, 45 or 90 degree with 15 and 60 also available.

COMMON VALVE SEAT WHEEL GRADINGS

- GP** General purpose grading also used on cast iron seats. BLUE
- R** Finishing wheel also used on materials between cast iron and stellite in hardness. RUBY
- S** Stellite valve seats and very hard materials. WHITE
- NC** Nickel-Chrome valve seats also a roughing wheel. SALT / PEPPER
- F** Finishing wheel - very little stock removal. BLUE

To order valve seat wheels indicate the machine, wheel diameter, face angle and grading.

EX: KW-2-45-R - Indicates a 2" diameter wheel, 1-1/4" tall with a 45 degree face angle and a 13/16-13 threaded bushing that is ruby in color.

If you require a size or grading not described above, please call as we make many sizes and gradings for special applications.

VALVE SEAT WHEEL QUANTITY MULTIPLIERS

GRADING	COLOR	QUANTITY				
		A-5	B-10	C-25	D-100	E-250
GP	BLUE	2.060	1.607	1.447	1.303	1.171
R	RUBY	2.862	2.233	2.009	1.809	1.629
S	WHITE	2.289	1.786	1.607	1.447	1.303
NC	SALT/PEPPER	2.060	1.607	1.447	1.303	1.171
F	BLUE	2.060	1.607	1.447	1.303	1.171



HANDEE® AIR GRINDER

OUTSTANDING FEATURES

- Rugged construction
- Efficient, compact design
- Lightweight - 11 ounces
- Easy to handle
- 17,500 r.p.m. @ 90 p.s.i.
- Low cost
- Attractive appearance
- High stall torque - 14 inch/ounces (90 p.s.i.)
- 90 Day Guarantee against defective parts and workmanship
- Excellent for both intermittent and continuous grinding
- Made in U.S.A.

(Unit shown actual size)

HANDEE MODEL 8000 AND 9000 AIR TOOLS

CAT. NO.	DESCRIPTION		PRICE
8000C	GRINDER - 1/8" CAPACITY CHUCK	58008	105.00
9000C	GRINDER - 1/4" CAPACITY CHUCK	58009	105.00
HA-1	AIRLINE REDUCER (1/4" F X 1/8" M)	58021	2.50
HA-2	AIR REGULATOR	58022	14.00
HA-3	"O" RING	58023	0.65
HA-8	8 FT. AIR HOSE WITH 1/8" MALE FITTINGS	58028	18.50
HA-10	10 FT. AIR HOSE WITH 1/8" MALE FITTINGS	58030	21.50
HA-12	12 FT. AIR HOSE WITH 1/8" MALE FITTINGS	58032	24.50

HANDEE® SUPER AIR GRINDER



The HANDEE® Super Air Grinder is a powerful, smooth running, easy to handle tool. Rugged construction assures years of trouble-free service. Designed to give maximum power output with minimum air consumption. Light weight and low exhaust noise result in minimum operator fatigue. Quality materials and excellent engineering are combined to produce a low maintenance tool with unequaled operating economy. Precise dimensional tolerances allow the user to accomplish repairs in five minutes, by motor unit replacement, preventing costly down time. a variety of optional features are available allowing the buyer to select the proper combination for each application.

Recommended Air Pressure90-100 psi
 Tool Size6-1/2 x 1-1/2
 WeightTwo pounds
 Motor.....Four vanes
 Air Line.....1/4" pipe thrds
 Maximum Wheel Size.....1-1/4"
 Air Consumption.....4 cfm
Made in U.S.A.

HANDEE MODEL 8500, 9500J AND 9500 AIR TOOLS

CAT. NO.	DESCRIPTION		PRICE
8500E	GRINDER - 1/4" COLLET	59045	179.85
E125	1/8" COLLET	59042	16.75
E187	3/16" COLLET	59043	16.75
E250	1/4" COLLET	59044	16.75
9500J	GRINDER - INDUSTRIAL (0-1/4") KEY CHUCK	59010	171.93
9500	GRINDER - (0-1/4") KEY CHUCK	59015	147.95
CS-2	KEY HOLDER	59022	2.75
C-3	MUFFLER	59023	1.90
CS-8	8 FT. AIR HOSE WITH 1/4" MALE FITTINGS	59028	20.25
CS-10	10 FT. AIR HOSE WITH 1/4" MALE FITTINGS	59030	23.50
CS12	12 FT. AIR HOSE WITH 1/4" MALE FITTINGS	59032	26.50
C-412	REPLACEMENT AIR MOTOR	59080	77.75

HANDEE ACCESSORIES

Mandrels



- 60100**
No. 17 Mandrel $\frac{3}{32}$ " Dia. shank for accessories with $\frac{3}{4}$ " hole including Nos. 25 or 3018. **\$2.25**
- 60101**
No. 17A Mandrel $\frac{1}{8}$ " Dia. shank for accessories with $\frac{3}{4}$ " hole including Nos. 25 or 3018. **\$2.60**
- 60102**
No. 17A spc. mandrel $\frac{3}{16}$ " Dia. shank for accessories with $\frac{3}{4}$ " hole. **\$3.00**
- 60105**
No. 21 Shoulder type mandrel $\frac{3}{32}$ " Dia. for felt tip No. 31. **\$2.95**
- 60106**
No. 21A Shoulder type mandrel $\frac{1}{8}$ " Dia. for felt tips. **\$3.75**
- 60111**
No. 39 Heavy $\frac{1}{8}$ " Dia. mandrel for accessories with $\frac{1}{8}$ " hole including Nos. 29, 33, 56, 58 and 3019. **\$2.95**
- 60115**
No. 3013C screw type mandrel $\frac{1}{8}$ " dia. for rubber polishing tips Nos. 30, 41, SS32, SS33, and SS37. **\$2.80**
- 60214**
No. 3014 Mandrel $\frac{1}{8}$ " Dia. shank for accessories with $\frac{1}{4}$ " hole and including the 27A saw. **\$3.75**
- 61048**
No. 112 Special $\frac{1}{8}$ " Mandrel for mounting sanding discs including Nos. 71, 72 and 73. **\$3.20**
- 60215**
No. 3015 Mandrel with $\frac{1}{4}$ " shank for accessories with $\frac{3}{16}$ " hole. **\$3.90**
- 60253**
No. 53 $\frac{1}{4}$ " Dia. mandrel for accessories up to 2 $\frac{1}{2}$ " Dia., $\frac{1}{4}$ " thick with $\frac{1}{4}$ " hole. **\$4.15**

Brushes



- 60311**
No. 11 Bristle-type $\frac{3}{8}$ " Dia., on $\frac{3}{32}$ " shank. **\$2.20**
- 60312**
No. 12 Cup shaped Bristle Brush on $\frac{3}{32}$ " shank. **\$2.40**
- 60313**
12S Cup shaped Steel Brush on $\frac{3}{32}$ " shank. **\$3.75**
- 60314**
No. 14 Bristle Brush $\frac{1}{4}$ " Dia. on $\frac{3}{32}$ " shank. **\$2.10**
- 60324**
No. 14S Steel brush .005" wire $\frac{1}{4}$ " Dia. on $\frac{3}{32}$ " shank. **\$3.75**
- 60315**
No. 15 Steel brush, .005" wire 1" Dia. on $\frac{3}{32}$ " shank. **\$5.10**
- 60325**
No. 15A Steel brush, .005" wire 1" Dia. on $\frac{1}{8}$ " shank. **\$4.50**
- 60335**
No. 15 $\frac{1}{2}$ " Steel brush, .005" wire 1" Dia. on $\frac{3}{32}$ " shank. **\$5.20**
- 60349**
No. 49 Steel brush, .0075" wire 1" Dia., $\frac{1}{8}$ " hole may be used on No. 39 mandrel. **\$8.25**
- 60412**
No. 3012 Fine wire brush 2" Dia., .0025" wire $\frac{3}{16}$ " hole. Use on No. 3015 mandrel. **\$34.00**

Saws



- 60519**
No. 19A Steel saw $\frac{1}{4}$ " Dia., $\frac{3}{32}$ " thick, on $\frac{1}{8}$ " shank. For non-metals and soft metals. **\$12.50**
- 60520**
No. 20A Steel saw $\frac{3}{8}$ " Dia., $\frac{1}{32}$ " thick, on $\frac{1}{8}$ " shank. Commutator under-cutting saw. **\$16.50**
- 60525**
No. 25 Cutting disc $\frac{7}{8}$ " Dia., $\frac{1}{64}$ " thick, $\frac{3}{64}$ " hole. Use with Nos. 17 or 17A. For cutting hard and soft metal. Box of 12 **\$3.20**
- 60524**
100 pack **\$17.15**
- 60526**
No. 26 $\frac{1}{2}$ " Dia., saw, .023" thick, $\frac{1}{8}$ " hole use with No. 39 mandrel. For non-metals. **\$8.50**
- 60527**
No. 27A $\frac{3}{8}$ " Dia. saw, .023" thick, $\frac{1}{4}$ " hole. Use on 3014 mandrel. For non-metals. **\$7.90**
- 60518**
No. 3018 $\frac{7}{8}$ " Dia. saw, .005" thick, $\frac{5}{64}$ " hole. Use with Nos. 17 or 17A mandrel. **\$6.05**
- 60514**
No. 3019 1 $\frac{1}{2}$ " Dia., $\frac{1}{16}$ " thick, $\frac{1}{8}$ " hole. Cutting disc for all types of metal. Use with No. 39. **\$1.75**
- HANDEE PLASTIC CUTTERS**
Ground from the-solid high speed steel cutters with ground spirals cut faster, last longer, do better work.
- 61139** No. 7739 $\frac{1}{16}$ " shank **\$6.50**
- 61140** No. 7749 $\frac{3}{32}$ " shank **\$6.50**
- 61141** No. 7759 $\frac{1}{8}$ " shank **\$6.50**

Polishing



- 60713**
No. 13 $\frac{3}{8}$ " Dia. felt wheel with $\frac{3}{32}$ " shank. Use with HANDEE polishing compound 60. **\$2.40**
- 60729**
No. 29 Soft rubber polishing wheel. $\frac{7}{8}$ " Dia., $\frac{1}{8}$ " thick, $\frac{1}{8}$ " hole. Use on No. 39. **\$1.55**
- 60730**
No. 30 Soft rubber polishing tip. Use on No. 3013C. **\$1.90**
- 60731**
No. 31 Felt polishing tip. Mount on Nos. 21 or 21A. Use with HANDEE Polishing compound. **\$4.00**
- 60733**
No. 33 Felt polishing wheel 1" Dia., $\frac{1}{8}$ " thick, $\frac{1}{8}$ " hole, use with HANDEE polishing compound. **\$2.50**
- 60741**
No. 41 Soft rubber polishing tip. Use on No. 3013C. **\$1.90**
- 60728**
No. 45 Hard rubber grinding wheel $\frac{7}{8}$ " dia. $\frac{1}{8}$ " thick $\frac{1}{8}$ " hole. Use on No. 39. **\$1.75**
- 60756**
No. 56 Felt polishing wheel 1" Dia., $\frac{1}{4}$ " thick, $\frac{1}{8}$ " hole, use with HANDEE polishing compound No. 60, mount on No. 39 shank. **\$2.40**
- 60760**
No. 60 polishing compound. **\$3.50**
- 60757**
No. 57 Cloth polishing buff $\frac{7}{8}$ " Dia., mount on No. 39 shank. **\$2.50**
- 60758**
No. 58 Cloth polishing buff 1" Dia., mount on No. 39 shank. **\$2.80**
- 60759**
No. 59 Cloth polishing buff 1 $\frac{1}{4}$ " Dia., mount on No. 39 shank. **\$3.10**

PRICE SUBJECT TO CHANGE WITHOUT NOTICE

HANDEE ACCESSORIES



DRUM SANDERS AND BANDS

CAT. #	DESCRIPTION	CODE	PRICE
36	1/4" X 1/2" ON 3/32" SHANK	62050	\$5.95
36A	1/4" X 1/2" ON 1/8" SHANK	62051	\$5.95
34	3/8" X 1/2" ON 3/32" SHANK	62052	\$5.40
34A	3/8" X 1/2" ON 1/8" SHANK	62053	\$5.25
44A	1/2" X 1/2" ON 3/32" SHANK	62054	\$5.45
44	1/2" X 1/2" ON 1/8" SHANK	62055	\$5.15
1212	1/2" X 1/2" ON 1/4" SHANK	62056	\$8.50
23A	3/4" X 1/2" ON 1/8" SHANK	62058	\$9.50
3412	3/4" X 1/2" ON 1/4" SHANK	62059	\$9.75
11DS	1" X 1" ON 1/4" SHANK	62060	\$9.75

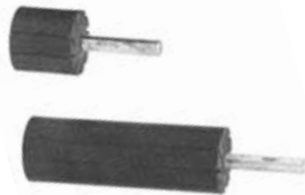
SANDING BANDS

36B	1/4" X 1/2" BANDS PER DOZ.	62065	\$6.55
34B	3/8" X 1/2" BANDS PER DOZ.	62070	\$6.55
44B	1/2" X 1/2" BANDS PER DOZ.	62075	\$6.55
23B	3/4" X 1/2" BANDS PER DOZ.	62080	\$7.10
11DSB	1" X 1" BANDS PER DOZ.	62085	\$8.95

**BANDS ARE AVAILABLE IN
FINE, MEDIUM, OR COARSE**

SANDING DISK, 1-1/4 DIA. (USE WITH #112 MANDREL)

#71	COARSE / PER DOZEN	61121	\$3.65
#72	MEDIUM / PER DOZEN	61122	\$3.65
#73	FINE / PER DOZEN	61123	\$3.65



SLOTTED EXPANDER WHEELS
CENTRIFUGAL FORCE EXPANDS WHEEL. 1/4" SHANKS.

	DIAMETER & WIDTH		
60771	3/4 X 1	60771	\$29.00
60772	3/4 X 1-1/2	60772	\$33.50
60773	1 X 1	60773	\$29.00
60774	1 X 1-1/2	60774	\$33.50
60775	1-1/2 X 1	60775	\$32.30
60776	1-1/2 X 1-1/2	60776	\$37.25
60777	2 X 1	60777	\$35.90
60778	2 X 2	60778	\$47.00



SPECIAL DRILL SET

MODEL MAKERS FIND THIS ASSORTMENT OF HAIR-LINE DRILLS WITHOUT EQUAL. SET CONTAINS 20 DRILLS #61-80 AND #38A DRILL CHUCK, 1/8" SHANK.

61101	#7001 DRILL SET	61101	\$38.60
61030	#38A CHUCK ONLY	61030	\$12.55

UNMOUNTED RUBBER POLISHING TIPS

ACTUAL SIZES AND SHAPES



No. 3013C
1/8" mandrel



SS-32
1/8" x 3/8"

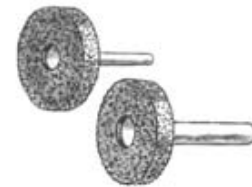


SS-33
1/8" x 9/16"



SS-37
1/4" x 1/8"

SS32	3/8" X 5/8" RUBBER TIP	62032	\$1.90
SS33	3/8" X 9/16" RUBBER TIP	60730	\$1.90
SS37	1/4" X 7/8" RUBBER TIP	60471	\$1.90
51	SET 8 EA. RUBBER TIPS-24 PCS.	62037	\$37.50
52	SET 16 EA. RUBBER TIPS-48 PCS.	62039	\$49.00
3013C	1/8" DIA. - FOR RUBBER TIPS	60115	\$2.80



MINI-BOBS
NONWOVEN, UNITIZED WHEELS FOR DEBURRING/FINISHING

CODE#		CODE#	
61144	1 X 1/4 1/4" SH COARSE	61144	\$4.95
61145	1 X 1/4 1/8" SH COARSE	61145	\$4.85
61146	1 X 1/4 1/4" SH MEDIUM	61146	\$4.95
61147	1 X 1/4 1/8" SH MEDIUM	61147	\$4.85
61148	1 X 1/4 1/4" SH FINE	61148	\$4.95
61149	1 X 1/4 1/8" SH FINE	61149	\$4.85

ABRASIVE GRAINS AND BOND TYPES

GRAIN CODE	DESCRIPTION
A - 51A	Tough, regular aluminum oxide for heavy duty work. Best general purpose abrasive for grinding or cutting metals. Heavy stock removal rates.
TA - 53A	Friable, white aluminum oxide abrasive. Coolest cutting, excellent for heat sensitive parts. Light stock removal rates. A premium abrasive.
32A - 55A	Polycrystalline, gray aluminum oxide abrasive. Excellent for internal and tool room wheels. Medium stock removal rates. A premium abrasive.
PA - 12A	Semi-friable, light pink aluminum oxide abrasive. Good on heat sensitive or exotic materials. Medium stock removal rates.
RA	Tough, ruby colored aluminum oxide abrasive. Good for rough grinding, form holding, tool & cutter cups. Heavy stock removal rates. A premium abrasive.
AAT - 54A	Mix of regular and white aluminum oxide abrasives. The "salt" & "pepper" colored tool room wheels. Light to medium stock removal rates.
RA/TA - RA/53A	Mix of ruby and white aluminum oxide abrasive. Multi-purpose abrasive for tool and cutter cups, also form holding. Medium stock removal rates.
3WTC	Mix of 30% ceramic with 70% white. Excellent form holding. Very good on heat sensitive steels. Heavy stock removal rates. A premium abrasive.
5WTC	Mix of 50% ceramic with 50% white. Very durable wheels. Heavy stock removal rates. A premium abrasive.
3C/RA	Mix of 30% ceramic and 70% ruby. Very durable combination for high rockwell materials. Heavy stock removal rates. A premium abrasive.
C - 49C	Black silicon carbide abrasive. Used to grind cast iron, gray iron, copper, bronze, aluminum, glass, rubber and stone. Medium to heavy stock removal rates. A premium abrasive.
GC - 49CG	Green silicon carbide abrasive. More friable than black. Used to grind tungsten carbide, cemented carbide, ceramics and titanium. Light to medium stock removal rates. A premium abrasive.
CA	Mix of black silicon carbide and regular aluminum oxide. Available with resin bonds only. Good for foundry snagging wheels such as plugs and cones. Heavy stock removal rates.
AZ	Mix of zirconia abrasive and regular aluminum oxide abrasive. Resin bonded snagging wheels for foundry applications. Large mounted wheels, plugs and cones for use on steel castings with rough, sharp surfaces. Heavy stock removal rates.

BOND CODE	DESCRIPTION
VR - VA	Strong tough vitrified bond. Most used general purpose bond. Gives "red" wheel when used with TA or 53A abrasive.
VE - VBH	Colorless glass bond. Wheels made in this bond tend to be a little more free-cutting than with VR or VA.
V V	Very free-cutting. Excellent "grinding action" on hard steels.
V B	Colorless free-cutting glass bond. Preferred by many for jig grinding and surface grinding wheels.
VA1 - VC	Standard porcelain bond for silicon carbide. Makes very durable wheel.

GRINDING WHEEL SPECIFICATION & MARKING SYSTEM

Grinding wheel companies use the same standard marking system and buy abrasives from the same few producers, but each of us name our own bonds and decide how much to use and what density we will compress it to for a specific grinding wheel formula. When Sandusky Abrasives purchased Chicago Wheel it was decided to continue using the bonds and formulas of both. Customers have access to both grading and bond systems rather than being forced to adjust to one system. The differences may be small but they often result in major differences in the final results. This is why we ask for the markings or specifications of the wheel you are using and if a sample or used stub is available. With a sample we can usually select a substitute grading on the first try, with only the markings it may take three trials to develop a satisfactory substitute grading.

Sandusky	TA	60	K	5	V	E
&						
Chicago	53A	60	K	5	V	BH

SANDUSKY & CHICAGO ABRASIVE TYPES	GRAIN SIZES	GRADES	STRUCTURE	BOND PROCESS	SANDUSKY & CHICAGO BOND CODES
<u>ALUMINUM OXIDE</u>					
YA regular 51A	16	F	2 dense	V-Vitrified	<u>VITRIFIED</u> Aluminum Oxide high heat R red A E clear BH R+ dark red —
AA semi-friable 52A	20	G	3		
TA friable 53A	24	H	4 std.	B-Resin	<u>LOW HEAT</u> — red V — clear B
32A gray 55A	36	J			
PA pink 12A	46	K	5	R-Rubber	<u>SILICON CARBIDE</u> A clear C
RA ruby RA	60	L			
AAT combinations 54A	70	M	6	B-Resin	<u>RESINOID</u> Aluminum Oxide B brown B1 B2 BXF
— combinations 50A	80	N			
	90	O	7 open	B-Resin	<u>SILICON CARBIDE</u> B brown B5 B15
	100	P			
	120	Q	8	R-Rubber	<u>REINFORCED RESIN</u> BF brown BR
	150	R			
	180	S	9 very porous	R-Rubber	<u>RUBBER</u> HR hard HR SR soft SR
WTC sol-gel WTC	220	T			
AZ alumna-zirconia AZ	320	U	10		
			11		
			12		
<u>SILICON CARBIDE</u>					
C black 49C					
GC green 49CG					

DRESSING STICKS and TRUEING WHEELS for DIAMOND and CBN WHEELS



WE MANUFACTURE:

MOUNTED POINTS
SMALL GRINDING WHEELS
DRESSING STICKS
TRUEING WHEELS

ALUMINUM OXIDE
OR
SILICON CARBIDE

WE OFFER:

✓ **QUALITY PRODUCTS**
✓ **EXCELLENT PRICES**
✓ **ON TIME DELIVERY**

Call or Write for Prices - Your Sizes



Made by Through
I.D.A. Members