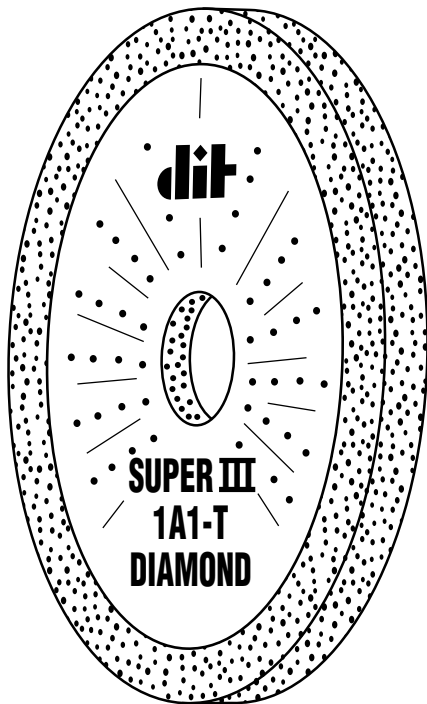


1A1-T Superabrasive Series CBN and Diamond Precision Abrasive Diamond Grinding Wheels

Harry G. Sachsel, C.A.E.
Certified in Abrasive Engineering



The 1A1-T is the "work horse" of all grinding wheel shapes. Straight type wheels are manufactured and available in sizes from 3/4" diameter on up to 48" and thicknesses from 1/8" to 12" wide. Wheels over 1" thick are made in 1" sections and bias ground in order so that it doesn't leave any marks when infeed grinding.

The "T" is the relief behind the Superabrasive wheel section so that side wheel grinding is possible. D.I.T. straight wheels are made for the application oriented conditions. All 1A1-T's are checked for balance after finishing and truing. Final truing, forming, conditioning, and dressing is to be done when on the grinding machine spindle, as there is always a bit of, out of round, initially. This out of round condition is due to the wheel bore tolerance being .002 to .004 oversize, so that the wheel can slip easily onto the arbor, shaft, and or wheel adapter. Most arbors, shafts, and wheel adapters are also ground .0005 under size.

Once the Superabrasive grinding wheel is mounted check the O.D. for T.I.R. (Total Indicator Runout). This is easily done, by turning the wheel, by hand, against a solid object. Mark the spot or high spots with a black felt tip marker. Then either index the wheel 1/6th of a turn till the surface is more concentric or begin to true the surface with either a brake dresser, D.I.T. moly stick, D.I.T. diamond grit tool, or a motorized diamond roll dresser depending also on the Superabrasive mesh (grit) size of the wheel. Get a copy of how to do this from us for truing, forming, conditioning, dressing, and balancing.

-Continued with Grinding Brief G266-

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-Continued from Grinding Brief G265-

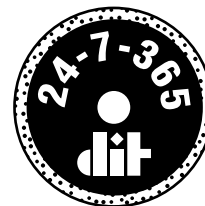
There is quite a lot in the manufacture of Superabrasive precision abrasive grinding wheels. Core materials and choice are critical depending on the application whether it is a wet or dry application and the many CNC motions being generated. Example: In dry grinding, with a Type 1 or 3A1 (hub one side), use a ceramic/abrasive core material. When wet grinding glass or crystals a bronze or steel core is more stable. When wet grinding carbide or ceramics a molded aluminum, bakelite, brown or green molded core, or solid aluminum core is selected. All this is necessary in order to develop the swarf generated in a consistent, continuous fashion. This is also why the grinding wheel O.D. has to grind within .001 down to .000 040 T.I.R. depending on the mesh size and bond.

There is still a lot more to the Superabrasive wheel. Selection of mesh (grit) type, and size (screening and or micro sizing), their Superabrasive manufacture, bond, hardness, porosity, percent per volume, abrasive depth, molding, plating, baking or firing, finishing, and inspection. Then still comes marking, packaging, and shipping. Details of these procedures is in further briefs along with how to use them.



Get the answers to your grinding applications.

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