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Precision Abrasive Grinding in the 21st Century

Conventional, Ceramic,
Semi Superabrasive and Superabrasive



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The SFPM (Surface Feet Per Minute) When Precision Abrasive Grinding

The SFPM (surface feet per minute) when precision abrasive grinding is determined by the application, the grit or mesh size, the wheel diameter, the material, the stage of the application, and the precision ground end result needed. All of these positions in the past were done manually by wheel diameter, down feed, single speed (RPM), cross feed, table speed, and resulted in a slow fashion by usually the toolmakers (grinding personnel), who didn't know these procedures broadly.

In 1969, I received my first 220 volt, 3 phase, 60 cycle AC hertz inverter which could convert the 220 AC current into DC then back into the new cycle in AC for a different RPM and surface feet per minute. With this capability lower friction and heat were attainable which immediately made the wheel grind cooler and faster. This could now happen when precision abrasive grinding wet or dry. This also happened with conventional abrasives, semi-superabrasives (ceramics) and superabrasive (CBN and diamond) mandrels, saws, and wheels.

The reverse was also attainable. When increasing the RPMs the mandrel, saw, and wheel begins to act harder as the SFPM rises and the friction rises, and the mandrel, saw, and wheel ground hotter. Therefore, control of the SFPM has to be such that too much heat, chatter, and burn doesn't begin. This is where lubricic lubrication and high-pressure coolant systems come into operation with coherent jet coolant nozzles that are laser guided inside a closed, completely contained precision abrasive grinding machine tool. Now one is in abrasive grinding control in a completely different way and manner. Now one can definitely control the SFPM

for all the actions from roughing to finishing in a production profitable fashion.

Today, many years later, there are quite a few regular AC hertz inverters that change the speeds of AC motors, but ours is for precision abrasive applications. Our D.I.L. AC hertz inverter reads out in volts, amperes, watts, cycles (hertz), and RPM. With these five capabilities, the precision abrasive grinding toolmaker can knowingly adjust the direction and speed for a finished product quickly.

For a complete review of your precision abrasive grinding application, call our "Tech Services" Department at 800-227-5905.

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