



fives cinetic

Guide to Improving Cutting and
Grinding Productivity and Performance

CITCO

Diamond & CBN Products

Gardner Abrasives



Commodity vs. Custom – It's Your Choice

Let's face it—most cutting tools or grinding wheels in use today are compromises in terms of design and material to satisfy a wide range of applications and to maximize profitability for their manufacturers and suppliers. Consequently, in many cases, end users of these commodity tools and wheels sacrifice production throughput and tooling cost-per-part. CITCO and Gardner Abrasives offer an alternative: intelligently analyze the unique requirements of our customers' applications and rapidly deliver a tooling solution that is optimized for each job. Bottom line: a CITCO or Gardner custom engineered tool or wheel can help you meet productivity, quality and cost targets on your most challenging applications.



Rapid Cycle Engineered Solutions

CITCO and Gardner Abrasives are organized much like a highly efficient “job shop” in order to rapidly respond to customers’ needs for high quality, cost effective tooling products for cutting and grinding applications. The program begins with a highly experienced team of product specialists who analyzes the details of your particular part, machine and process application. We use state-of-the-art CAD engineering programs to rapidly design and simulate performance of the finished products. Then we draw from a broad range of suppliers to select the best materials to satisfy the application parameters. This no-compromise approach ensures that the cutting tool, grinding wheel or dressing product you receive is best suited to your specific requirements. Finally, our in-house facilities



employ the most advanced manufacturing and production control technology and skilled operators to instill the quality and reliability that our customers demand.



Customer Service Second-to-None

At CITCO and Gardner Abrasives, we pride ourselves on our dedication to superior Customer Service. This commitment to prompt, friendly and efficient response to customer inquiries, application advice, troubleshooting and service requirements differentiates our business from the competition. We have a team of well-trained regional sales and service professionals strategically located in key manufacturing centers. And our in-house staff of experienced Application Engineers stands ready to respond to your questions, no matter how simple or complex.



Diamond & cBN Cutting Tools



- (5) Unique PCD grades—recommended for machining non-ferrous metals and highly abrasive nonmetallic materials.
- Up to 300 times tool life of carbide.
- Used in turning, boring, facing, forming, milling, grooving, reaming, parting, fly-cutting, and wear parts.
- Numerous unique PCBN grades—tipped and solid PCBN cutting tools.

- Bring similar economies to the machining of tool steels, hardened ferrous metals, high temperature alloys, powdered metals and gray cast irons.
- Replace carbide or ceramic tools and can be used in a broad range of machining applications.

Conventional Abrasive Grinding Wheels



- Disc Grinding Wheels
- Cylinder Grinding Wheels
- Centerless & Roll Grinding Wheels

Gardner Abrasives leads the industry with custom-formulated ceramic, aluminum oxide, silicon carbide, and hybrid abrasive discs. Grinding wheels are available in various bonds: resinoid, epoxy,

shellac and oxychloride bond types, as well as superabrasive diamond and cBN crystal in vitrified, metal, resin, polyimide and patented bonds. Each disc or wheel is designed using decades of abrasives application and processing experience to satisfy the customer’s particular requirements.

Diamond & cBN Grinding Wheels



CITCO/Gardner Abrasives offer a complete line of superabrasive grinding products, including:

- Double Disc
- Fine Grinding
- Centerless
- Fluting
- Insert Grinding

Our superabrasive wheels may include metal, vitrified, resin and hybrid bonds, plus abrasive shapes, configurations and patented technologies available only from CITCO and Gardner. Specially designed using advanced construction methods, CITCO wheels meet the needs of manufacturers producing everything from high-volume automotive engine components to high-technology electronics and advanced ceramic composites.

Diamond Dressing Tools



CITCO offers the broadest standard line of quality Diamond Dressing Tools in the industry, including:

- Natural Diamond
- CVD
- Monocrystal
- Vacuum Brazed
- Hot Pressed
- Hand Set

- Pelletized
- Multi- and Single-Use

Often copied but never duplicated after over 50 years, CITCO’s patented “Turnable” single point dresser provides continual diamond cost savings for industrial users. All ISO/ANSI standard shapes are available and a broad inventory of the most popular items is carried in stock for immediate delivery.

Rotary Diamond Dressers



CITCO Rotary Diamond Dressers ensure consistent performance and maximum life because each application is carefully reviewed for selection of diamond size, concentration, type of diamond and reinforcement, then swiftly and accurately designed on our CAD/CAM system. Available types include:

- Sintered
- Hand Set

- Random Set
- Pelletized
- Reinforced
- CVD

CITCO models 1-B (air driven) and 1-B-E (electric driven) Rotary Dresser Drive Units, easily retrofit to many existing grinders.

Let's Get Started

For a free no-obligation evaluation of your cutting, grinding or diamond truing applications, contact us by toll-free telephone at 1.800.242.7366 or visit our website at www.fivesgroup.com/tools



CITCO Products Headquarters

357 Washington Street
Chardon, OH 44024 USA
Tel: 440.285.9181
Fax: 440.285.7975
E-mail: citcoinfo@fivesgroup.com

Gardner Abrasives Headquarters

481 Gardner Street
South Beloit, IL 61080 USA
Tel: 815.389.2251
Fax: 815.389.5024
E-mail: gardnerinfo@fivesgroup.com