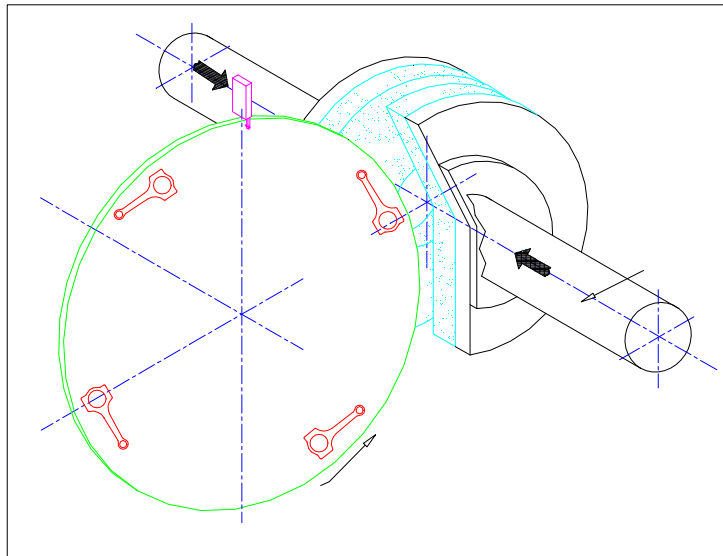


NEWS RELEASE

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The Unique RotaPass™ Process Takes Disc Grinding to New Levels of Quality, Productivity and Cost-Effectiveness.

Waynesboro, PA – Since the inception of Double Disc Grinding by Fredrick W. Gardner in the early 1900's, little has changed to improve machine tolerance and throughput abilities. Yes the basic machines and controls have evolved to provide more rigidity and accuracy, but the basic principals of grinding and methods of stock removal have remained virtually unchanged.

That is until the engineers of Cinetic Landis in the USA and Cinetic Giustina in Italy jointly developed a process that provides parts that are:

“Flatter, More Parallel with Better Part Size Repeatability”

And, all this at a high throughput.

Called RotaPass™, the company's engineers believe the process, first introduced 14 years ago and ever evolving, provides all of the above and more.

- The “RotaPass” combines the best of two of the traditional methods of Disc Grinding: Rotary & Plunge, in a single process from which **parallelism**, **flatness** and **profile** are dramatically improved.

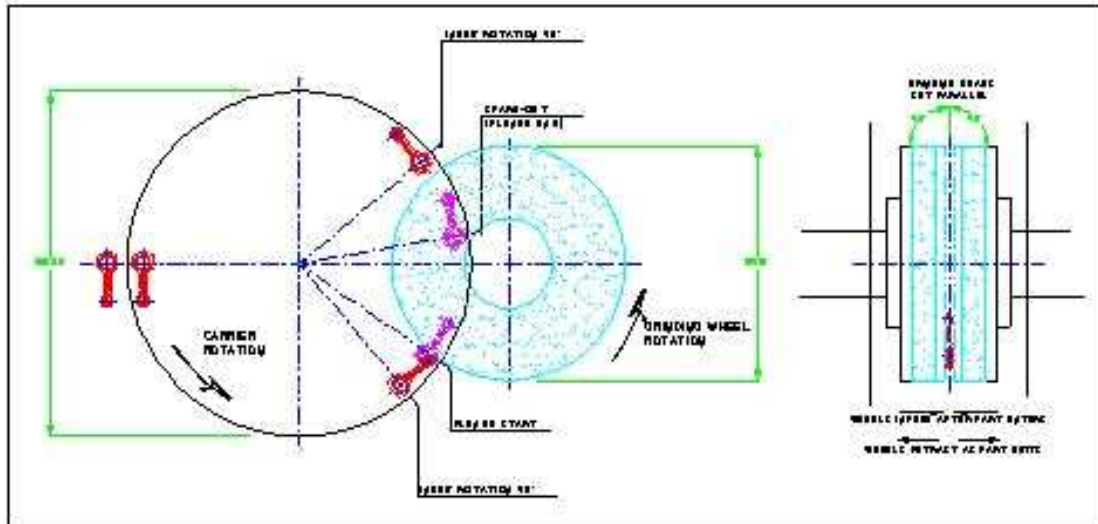


Fig-1

Operating Sequence:

- The rotary carrier disc arranged with three or four stations.
- One (1) workpiece is processed at a time.
- The grinding wheels are retracted to allow entry into the grind zone
- Workpiece enters between the grinding wheels, from below wheel horizontal axis.
- Both grinding wheels begin to feed simultaneously toward the vertical centerline of the workpiece, at the same rate. Feed continues as the carrier rotates in a single continuous movement.
- When the abrasives feed reaches the programmed end point, feed stops and sparkout occurs.
- Part exits and wheels will open.
- The part is gauged for thickness and signals are fed back to the PLC (or CNC).
- Cycle repeats.

ADVANTAGES –

The “RotaPass” method of disc grinding offers the following advantages over conventional rotary systems:

- Referring to Fig-2, the grinding wheels are backed out of the way as a part enters the grind zone. No shear grinding is executed; therefore no lead is generated into the grinding wheels.
- Setup of the entrance guides is less critical – less chance of part swiping.
- Both the outer and inner portions of the wheel(s) wear at a uniform rate. This is a contributing factor for better wheel life, less need for dressing of the wheels and less down time.
- Since the need for dressing the wheels is diminished, life of the diamond dressers is also extended. Additionally, the use of diamond roll dressing further extends diamond life up to 1000%. The diamond roll far outlasts conventional diamonds because there is not only more diamonds, but a higher concentration of diamonds as well. In addition to longer life, the diamond rolls allow for better maintaining correct dress to grind-line ratios.
- Tooling cost per piece can be significantly reduced.
- Size is controlled better because only one part is ground at a time, thus more forgiving for incoming stock (to be removed) and bend & twist variation. Gage feedback is 100% for every part.

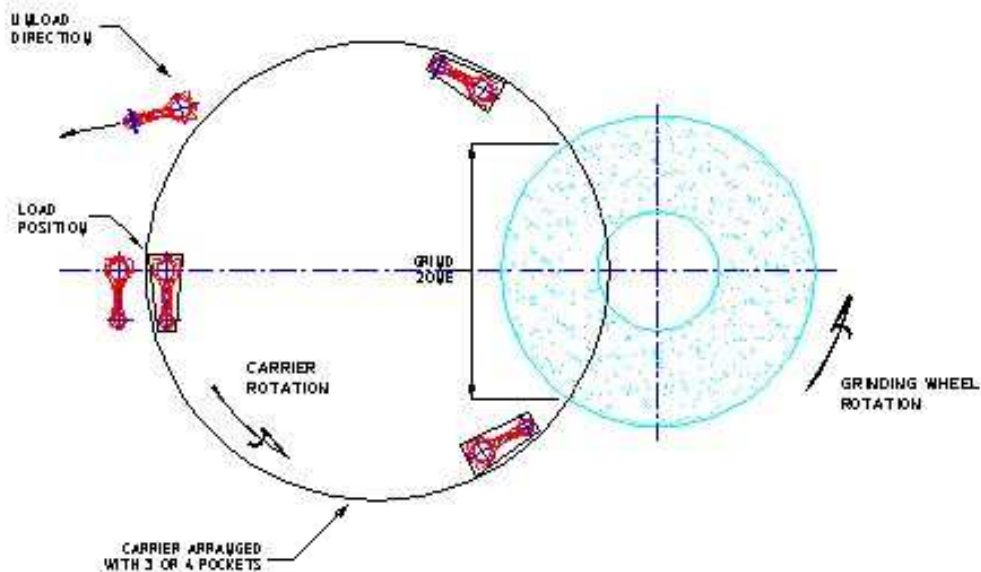


Fig-2

The following table is a comparison of typical expectations of tolerances held by both methods of grinding (based on finish operation stock removal)

Specification Process	RotaPass	Conventional
SIZE	± .010 MM	± .025 MM
PARALLELISM	.010 MM	.025 MM
FLATNESS	.010 MM	.025 MM
SYMMETRICAL STOCK REMOVAL	± .03-.05 MM	± .10 MM
BEND & TWIST	WITHIN .005 MM	WITHIN .050MM
PRODUCTION W/ONE SET OF WHEELS	≈ 500,000 PARTS	≈ 250,000 PARTS
CPK EXPECTATIONS	UP TO 6.0 ON SIZE UP TO 9.0 FLAT & PARALLEL	1.67 AT MACHINE TEST 1.33 IN PRODUCTION

Not satisfied with just improving the disc grinding process, Cinetic engineers decided to take what was already recognized as the most rigid machines available on the market to a higher level. Taking a look at the whole machine, engineers completed the following changes:

OVERALL IMPROVEMENTS

In addition to “RotaPass”, other improvements were made to the grinder as well increasing overall machine stiffness by 21%:

- Re-design of the spindle - increased mass and stroke. New precision ballscrew feed.
- Elimination of the rough positioning sub-slide. Spindle is bolted to machine base.
- Simplification of head setting system.
- Over all increased rigidity - more than two (2) tons of mass added.
- Elimination of all hydraulics.
- Direct servo drive for rotary carrier.
- CNC type wheel feed moves.

More information about Landis Giustina Double Disc Grinders featuring the RotaPass™ rotary plunge process can be obtained by contacting the company by toll-free telephone at: 1-877-557-6677 or on the company’s web site at: www.cinetic-industries.com/Disc

Cinetic Landis manufactures, installs and supports grinding machines and systems and related tooling for the production of precision components throughout the world. The company is part of Fives Cinetic, a subsidiary of Fives Group, a leading international supplier of processing equipment, production lines and plant facilities for a broad range of industries. Fives Group provides solutions combining technology, safety, cost-effectiveness and sustainable environmental stewardship.