NUT INSERTED DISC

BACKGROUD

Nut Inserted Disc Wheels are used to generate flat surfaces on a variety of materials. Disc grinding covers a wide range of applications but is used extensively in automotive, bearing, foundry, tile (ceramic), tool, knife and spring tolerance work. The flat surface generated by disc grinding is a much truer flat than that generated by the periphery of a wheel. If a piece part is to be lapped after grinding, the surface of a part ground on a conventional surface grinder takes up to ten times longer to lap than a surface generated by a disc wheel. Producing a flat surface from a flat abrasive has other distinct advantages. Besides the obvious of grinding two surfaces at the same time, the two flat surfaces are also parallel. With conventional surface grinders or rotary surface grinders, where one side of a piece is ground at a time on a magnetic chuck, parallelism can be maintained but it is more difficult to generate a flat surface. Parts must be repeatedly turned over in an effort to achieve flatness. When both sides of a part are ground at the same time, heat is created equally on each side, holding warpage to a minimum. As the residual strains tend to cause warpage are relieved, warpage is in fact ground out of the piece.

MARKET INFORMATION

MARKET POTENTIAL : Nut inserted Disc Wheels are used throughout the industry to grind parts of varying configurations, flat & parallel.

COMMONLY GROUND MATERIALS

- Various Steels
- Cast Iron
- Aluminum
- Stainless Steel
- Powdered Metal
- Ceramics
- Alloys

USERS

- Bearings Mfg.
- Automotive Industry
- Spring Mfg.
- Brick & Tile Mfg.
- Job Shops
- Powdered Metal Parts

COMMONLY GROUND PARTS

- Bearing Cups, cones & rings
- Washer Type Parts
- Plates
- Springs
- Piston Rings
- Saw Blades
- Hand Tools
- Tile

MOST COMMON DIAMETERS

30" , 26" , 23" , 18"

Buffalo Abrasives
Experience. Performance. Service.

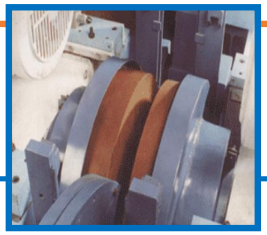
NUT INSERTED DISC GRINDER OPERATION

DOUBLE HORIZONTAL SPINDLE - THRU-FEED

On this grinder, parts to be ground enter the front of the machine by way of a chute, pass between the two disc wheels and exit at the rear. Compared to other disc grinders, "thru-feed" is capable of the highest production rates as work is fed in a continuous stream through the grinder by means of a feeding mechanism located at the front of the machine. A variety of feeding methods is available, including roll feed, chain feed, belt feed and push feed. A pair of guide bars confine the work pieces as they pass through the grinding zone. Some double horizontal spindle disc grinders are equipped with an oscillating fixture mechanism. This type fixture is found in use where production requirements are not great but extreme accuracy is necessary. A work holding fixture is attached to a swinging arm and oscillates between the two disc wheels. The fixture then retracts from its grinding position and the ground part is removed.

In thru-feed grinding, parts to be ground enter the feed mechanism from a chute by gravity. The feed mechanism usually consists of rubberized, power driven feed belts which drive the parts between them into the grinding zone. Entrance guides support the parts vertically and allow for a smooth transfer to the disc wheels. Exit guides perform the same function as entrance guides except that they allow a smooth transfer from the disc wheels as the parts leave the grinding zone.

In thru-feed grinding a round part, the horizontal alignment of one or both wheel heads is changed so that the wheels are tight at the front where the part to be ground first enters the grinding zone. Round parts are ground with this setup because they are brought to size as they pass the tightest point between the two discs and then spin and roll freely as they exit the machine.



ROTARY FEED

Where other than round parts are to be ground, the horizontal alignment of one or both wheel heads is opposite the setup for round parts. The heads are set to be tighter at the exit point, as square or rectangular parts are unable to spin or roll as they pass through the grinding zone. This setting allows the parts to be progressively ground and brought to final size just as they exit the grinding zone. If a square or rectangular part were ground on a machine set to grind round parts, there is a tendency for the parts to tip between the two grinding discs and become badly marked with grinding swipes.

DOUBLE HORIZONTAL SPINDLE - ROTARY FEED

With a rotary feed disc grinder, parts are inserted in the fixture openings at the top of the machine. The fixture rotates clockwise, carries the parts between the two discs and exits at the bottom where the parts are removed and dropped into a discharge chute.

DOUBLE VERTICAL SPINDLE - ROTARY FEED

With this type grinder, there is a rotary fixture turning in a horizontal plane. The parts to be ground are inserted at one side of the machine. As the fixture rotates, the parts are carried between the two discs and exit at the opposite side.

Rotary fixtures work well for small to medium, irregular shaped parts where high production rates are a significant factor as this type fixture lends itself to automatic loading and unloading. A continuously rotating feed mechanism, provided with proper openings or fixtures, carries the work between the two wheels.