

## WORKREST BLADES MANUFACTURING CO.

is a privately owned engineering company situated in the Heart of Industrial Town Faridabad (HARYANA) INDIA. Our dedicated, specialist staff are engaged exclusively in the manufacture, repair and refurbishment of Workrest Blades for any make of Centerless Grinding Machines including Cincinnati, Paragon, Strata, Toss, Mikroša, WMW, Micron, Koyo, Norton, HMT, KMT, Bhagwansons, Riyat, MIC, Micrometic, Parishudh, Scarlo, Mikroša, Lidkoping, Royal Master and so many others.

*We also undertake the grinding & retipping of used and worn out Workrest Blades which brings blades back to their original form. This service lets the buyer achieve the maximum value for the blade investment.*

**MAXIMUM BLADE LENGTH - 1400 MM.**

**Tolerance as close as + .05 mm over a length of 1000 MM**

### Applications

Bolts	Shafts	Bearings
Hubs	Piston Rods	Tubes
Cylinders	Rotors	Needles
Engine Valves	Bright Bars	Piston Pins

## ADVANTAGES OF CENTERLESS GRINDING

- By line wise support of the work piece it is possible to grind soft or brittle work pieces (low tension).
- It is not necessary to prepare the work piece for fixing in the grinding machine (faults cause by fixing are eliminated).
- Loading/Unloading of the work piece is simple and easy to automate.
- When using continues through feed grinding there is no time loss for changing the work piece.
- Long work pieces can be handled with ease.

## TYPES OF GRINDING

### In-Feed Grinding / Step Grinding

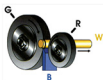
The work piece can have different outer diameters over the length and either only part of the work piece is ground or the total work piece is ground using an adapted grinding wheel.

### Through-Feed Grinding

Cylindrical work pieces can be ground using this method. The work piece can be longer than the grinding wheel and will still be ground over the full length. It is also possible to grind small work pieces with this method. In this case, several work pieces are ground same time in the machine and high throughput can be achieved.

## Principle of Centreless Grinding

Centreless grinding is an OD (outer diameter) grinding process. In difference from other cylindrical processes, where the work piece is held in the grinding machine, while grinding between centers, the workpiece is not mechanically constrained during centreless grinding. Therefore the parts to be ground on a centreless grinder do not need center holes, drivers or workhead fixtures at the ends. Instead, the workpiece is supported in the grinding machine on its own outer diameter by a workblade and by the regulating wheel. The work piece is rotating between a high speed grinding wheel and a slower speed regulating wheel with a smaller diameter.



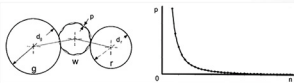
The blade of the grinding machine is usually positioned in a way that the center of the work piece is higher than the virtual line between the centers of the regulating wheel and the grinding

wheel. Also the blade is designed with an angle in order to ensure that the work piece is fixed between the blade and the regulating wheel. The regulating wheel consists of soft material like rubber and can contain some hard grain material to achieve good traction between work piece and regulating wheel.

## Roundness

Centreless grinding can perform excellent roundness of the work piece. However, caused by the simultaneous suspending and machining of the work piece surface it is possible that process typical roundness errors are generated. Proper adjustment of the grinding machine and the grinding slot geometry is essential. When a high spot comes in contact with the regulating wheel, then on the other side of the work piece a low point will be ground. However this low point must not be exactly in the opposite side of the work piece. The grinding machine has to be set up in a way that a polygon form is ground with so many corners that it is almost round finally.

G: grinding wheel - R: regulating wheel  
W: work piece - DG: diameter grinding wheel  
DR: diameter regulating wheel  
P: penetration depth - N: polygon order



## WORKREST BLADES MANUFACTURING CO.

(AN ISO 9001:2008 CERTIFIED CO.)

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