

## FAQ Diamond Belt Grinding / GEM Microfinishing - Hard Coatings

### Diamond Grinding with Belts

#### 1. Can Diamond Belts replace Diamond Stone Wheels?

Yes. Diamond Belt can replace Diamond Wheels

- Much faster grinding, predictable, consistent, reliable finishing of coatings
- Better finishes than stone grinding
- Recognized proven technology used by all major producers of paper rolls like Voith, Metso,
- Easy to change Diamond Abrasive grades to achieve the finish you desire.
- Diamond Belts can be used in a variety of Grinding and Lathe machines,
- Predictable, consistent, reliable finishing of coatings

#### 2. What Grinding Tolerances are possible with Diamond Belts?

Diamond belts are used in all applications, grinding of hydraulic rams, pistons, shafts, granite, roll grinding and large cylinder grinding. Diamond belts can reach the same tolerances as Stone Wheels. The tolerances achieved by belt process depend on the tolerances of the grinding machine where the belts are used.

#### 3. What Ra, Rz can be reached?

Depends on the coating, and the final grades of the belts used. Yet achieving surface finishes of 0.11 or 0.08 Ra micron is common on HVOF/HVAF Tungsten Carbide coatings

However, for best control of the surface finish GEM Microfinisher must be used.



#### 4. How cost effective is Diamond Belts.

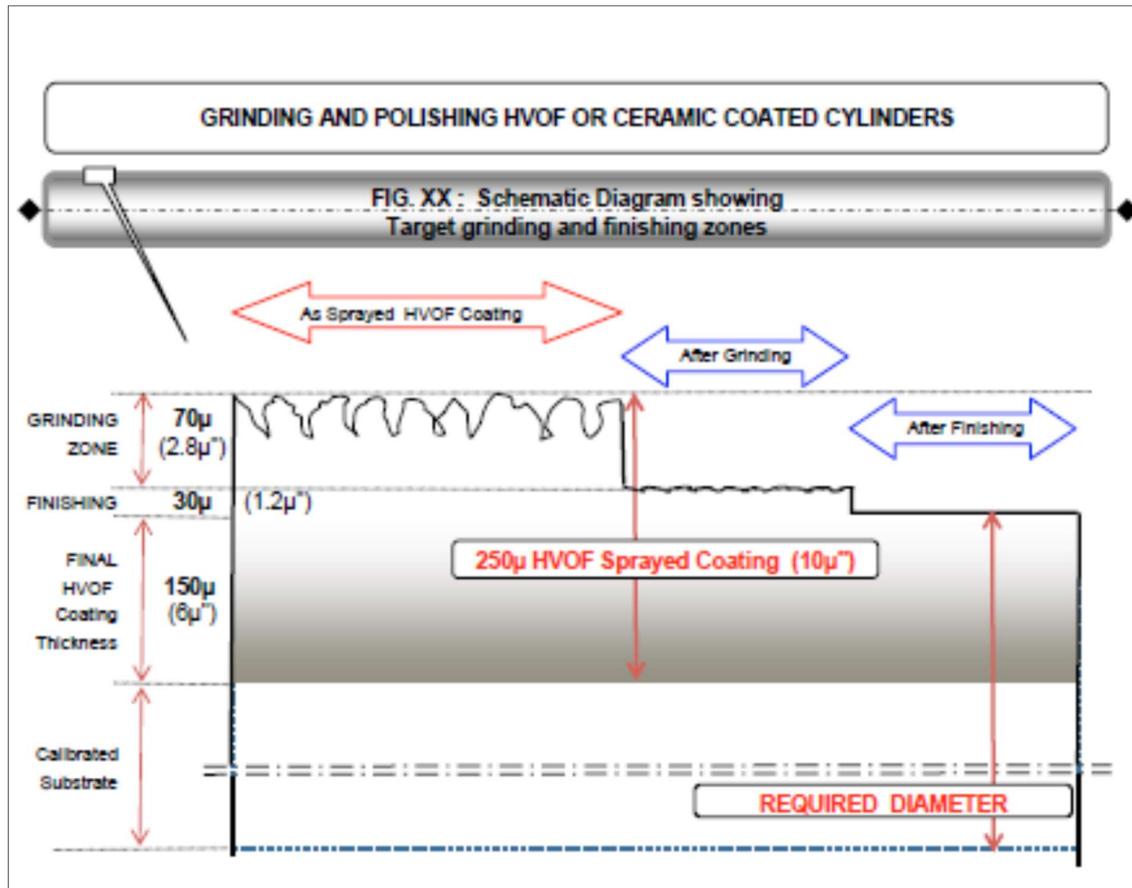
Typically diamond belts are so much faster than Diamond Wheels that the overall cost is far lower. Individual belts are much cheaper than a wheel.

#### 5. What are the technical considerations in Belt Grinding of HVOF hard coatings?

The Grinding procedure usually will involve 2-4 grades of belts depending on the starting Ra value, and the final value of the Ra required.

If super finishes are required, then you need to consider the GEM Microfinisher that we also sell.

## Grinding Process with Diamond Belt



## GEM Microfinishing Frequently Asked Questions

Many different terms are used for Microfinishing. Polishing, Superfinishing, finishing and mirror finishing, also sanding, finishing or just finishing.

### 1) What is Microfinishing?

Microfinishing is a finishing process using Microfinishing Film to achieve target surface finish requirements, every time.

Microfinishing quickly and efficiently achieves any Ra, Rz, Rmax, Bearing Ratio Area and other surface finish parameters that might be specified.

Microfinishing is the most consistent method of obtaining these surface finishes.

### 2) How does Microfinishing work?

The Microfinishing process utilizes a precision-coated abrasive called Microfinishing Film. Microfinishing Films are available from 0.05 micron to 180-micron mineral size. (Note: That's 60 mesh up to 10,000 mesh) The micro abrasives are applied to the workpiece in a constantly indexing fashion, therefore all areas of a large roll are always in contact with new fresh abrasive.

The micron grade of abrasive used determines the surface finish.



**Microfinishing**

### 3) What materials can be Micro finished?

Microfinishing can finish any material: from soft rubber and urethane to HVOF/HVAF hard tungsten carbide. Stainless steel, copper, chrome plating, ceramic coating and cast iron

### 4) What types of parts or rolls can be Microfinished?

Virtually any size part can be Microfinished. Companies are finishing fuel injector parts, transmission components, shock absorber rods, valve stems and many other small components. Paper mills are Microfinishing rolls that can be up to 5-meter diameter and 14-meter long. Very large Copper foil drums and Yankee dryer drums are also finished using this process.

### 5) Can I afford to implement Microfinishing into my production process?

If a very consistent surface finish is required on your parts, this process is the most economical method. It is productive, cost efficient and easy to operate. .

### 6) What types of Microfinishing machinery are available?

Any industry can use Microfinishing in their operation. Microfinishing attachments can be mounted on any lathe or cylindrical grinder.

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Many styles of production machines are also available, including thru feed and plunge Centerless, center driven, and turnkey roll finishing and custom machines built to a customer's specification.

7) **Is this Microfinishing a new technology that is still in the experimental stage?**

Microfinishing has been used for over 30 years. The automotive industry has been using this process to Microfinish camshafts and crankshafts for many years. Steel mills and paper mills have been Microfinishing rolls for over 20 years.

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