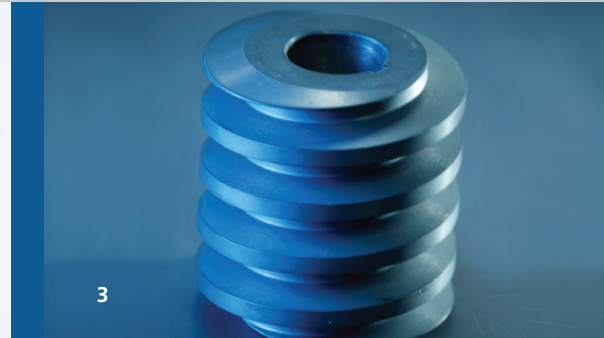
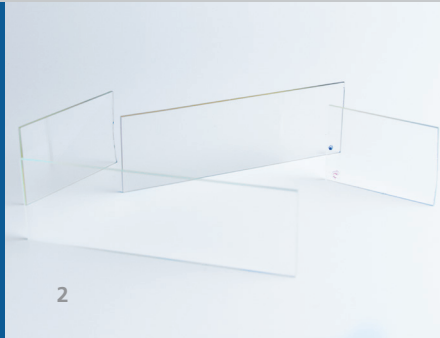




Fraunhofer USA

FRAUNHOFER USA CENTER FOR COATINGS AND DIAMOND TECHNOLOGIES



- 1. CCD engineer peering into a coating system
- 2. Transparent coatings
- 3. Diamor® coated auger

COATING SERVICES

Fraunhofer USA
Center for Coatings and
Diamond Technologies (CCD)

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 East Lansing, MI 48824, USA

Contact

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Coatings for Increased Productivity

As production demands are greater than ever, manufacturers and users of industrial tools and parts are under constant pressure to increase their productivity. High performance coatings have become increasingly important in manufacturing to achieve this goal.

Fraunhofer leads the field of thin film coating technologies (physical vapor deposition, PVD) and offer the development of high performance wear coatings and the associated coating services.

Our customers include end users as well as manufacturers of cutting tools and wear components.

- Cathodic arc evaporation
- RF/DC magnetron sputtering
- Linear ion beam sources
- Laser-Arc plasma system

Chamber Load Capacities

- Ø14" by H16" for single parts
- 240 x 0.5" or 120 x 1" round tools
- 800 x 0.5" or 400 x 1" cutting tool in- serts (w/ hole)

Combinations of various parts per run is possible. Different part and tool sizes are offered upon request.

IN COOPERATION WITH

MICHIGAN STATE
UNIVERSITY

Equipment

Our coating center is equipped with PVD technology including:



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Premium Quality

Customers turn to us because we provide them with high quality coatings, fast turn-around times, careful handling of their products, and thorough inspections throughout the coating process. We are able to dedicate machines for orders to avoid cross contamination. In addition to visual inspection, we use Fraunhofer's LAwave® quality control machine, an innovative and non-destructive testing system, as part of our inspection process.

As specialists for smaller coating batches, we deliver:

- Premium quality service tailored to your specific requirements
- High degree of flexibility
- Fast turn-around time
- Thorough inspection
- Dedicated machines and team
- Assurance of no cross contamination

Coating & Process Development Solutions

Here at Fraunhofer CCD we dedicate all resources and expertise of our operation to meet the needs of our customers. With our extensive experience in industrial, applied research and our state-of-the-art equipment, we are able to provide first rate technology solutions for your coating and process development needs in areas such as machining and wear problems.

We also offer coating characterization and consulting services. Typical technology solutions include:

- PVD coating development for machining and wear issues
- In-house performance and machining tests
- Coating characterization
- Consulting services to support your coating, cleaning and characterization needs

Capability

We provide all standard plus custom designed coatings. Tailoring coatings to customer specific requirements is one of our key strengths. Our facility is equipped with fully automated PVD systems using the latest plasma sources. Batch size capabilities are listed on the front page of this flyer.

Coatings Offered

Coatings offered include standard coatings:

- AlTiN, TiAlN, TiN, ZrN, AlCrN

Other possibilities include:

- Metal nitrides, metal alloy nitrides, metal carbides, metal carbonitrides and borides
- Fraunhofer's Diamor® (ta-C) and other DLC coatings.
- Nanostructure and nanolayer coatings for highly stressed surfaces on forming and forging tools.

Please contact us at 517-432-8173 to learn how we can help you with your specific

1. Diamor® coated end mills