



**World Leader in
Superabrasive
Finishing Systems**

Lapping of Silicon Carbide Seals

MATERIAL

Sintered Silicon Carbide

CHALLENGE

Unacceptable flatness, surface finish and stock removal

ENGIS ADVANTAGE

Utilizing Hyprez® lapping technology, combined with composite plate technology, benefits include:

- Excellent edge-to-edge flatness control
- Low slurry usage, easy to clean
- Superior cut rates with minimal sub-surface damage

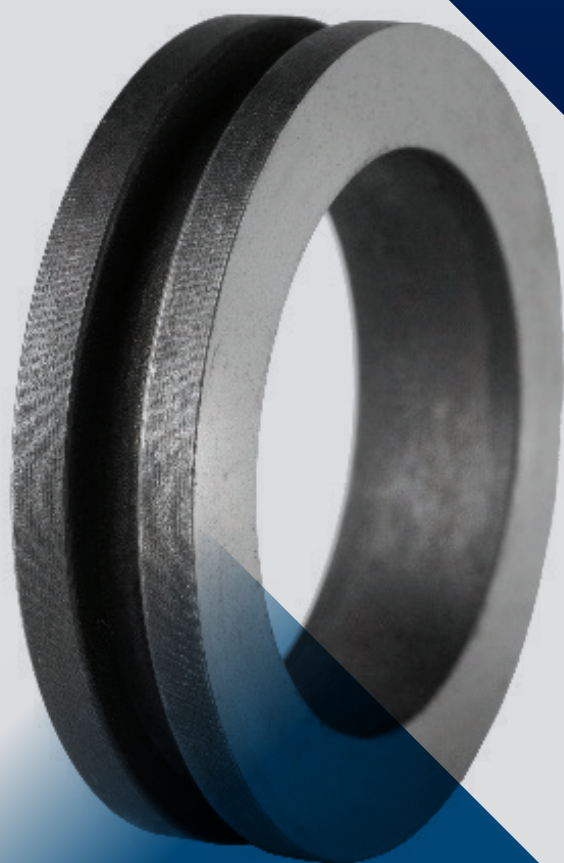
Seals that were previously lapped and polished by hand following grinding are now finished to exacting flatness and finish requirements using FastLap™ lapping machines, Hyprez HY metal composite plates and engineered slurries. The extremely flat surfaces results in improved seal performance and reliability. Engis also offers solutions in flat lapping of carbon graphics, precision ceramics and metallic seals for other applications.

| | RESULTS AFTER STEP #1 | RESULTS AFTER STEP #2 |
|-----------------------------|----------------------------|-------------------------------|
| Slurry / Lap Plate Used: | 9 PC / Copper Composite | 1 PC / TX10A Tin Composite |
| Surface Finish: | 4μ" - 5μ" Ra | 1 – 2nm Ra |
| Stock Removal: | 2.5 μ/min | 0.05 μ/min |
| Flatness: | < 1 light band | < 1 light band |

ENGIS® HYPREZ® LAPPING & POLISHING SYSTEMS

Engis is known throughout the world as a leader in the design and manufacture of precision flat lapping and polishing systems. Our Hyprez name, representing **Hyprez Precision**, is recognized as a mark of excellence and quality for a wide range of capital equipment, machine accessories and consumables.

At Engis, we engineer the right solution to any lapping and polishing application utilizing our in-depth knowledge of industrial diamonds, our process development laboratories and our end-to-end full system approach.



Engis is a global leader in the design and manufacture of complete lapping and polishing systems that offer the highest quality finished components, processed in the quickest cycle times while minimizing manufacturing costs.



Hyprez Lapping & Polishing Complete Systems



Our Hyprez® System Offers a COMPLETE SOLUTION—Machine, Accessories, Consumables and Process Development – For the Most Demanding Surface Finishing Needs

Our systems are suitable for processing a vast range of materials: metals, ceramics, glass, semiconductor substrates, plastics, and other advanced materials. We have developed solutions for many industries, improving quality, efficiency, and cost.

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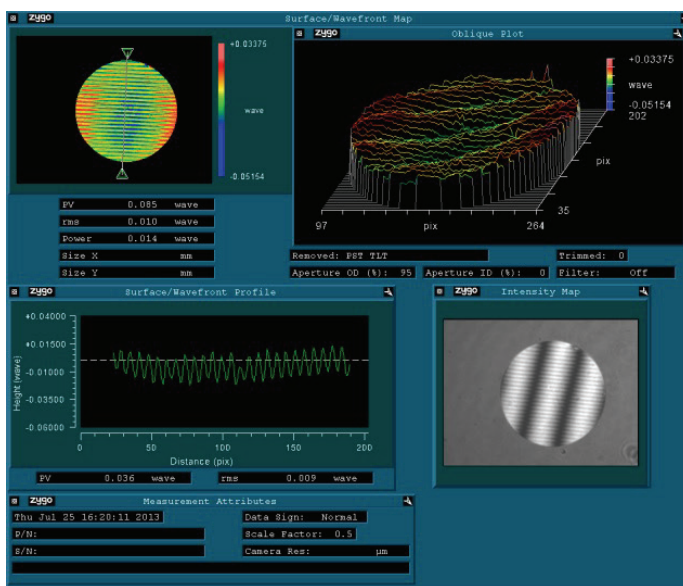
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SMART MANUFACTURING BEGINS WITH SMART PROCESSES

One of the unique features of Engis is our ability to provide technical and engineering assistance to our customers through our three Process Development Laboratories. This is where we work with customers to:

- Improve part quality
- Reduce cycle times
- Lower overall costs

The technicians in our Labs have decades of experience solving the most challenging polishing applications, and in most cases, Engis provides this service at no cost to our customers. Let the Engis Process Development Labs show you how the cutting and polishing power of diamond can be the key to achieving your manufacturing objectives.



Interferogram of a sapphire wafer processed with the Engis Hyprez System exhibiting superior edge-to-edge flatness control with no edge roll-off.

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