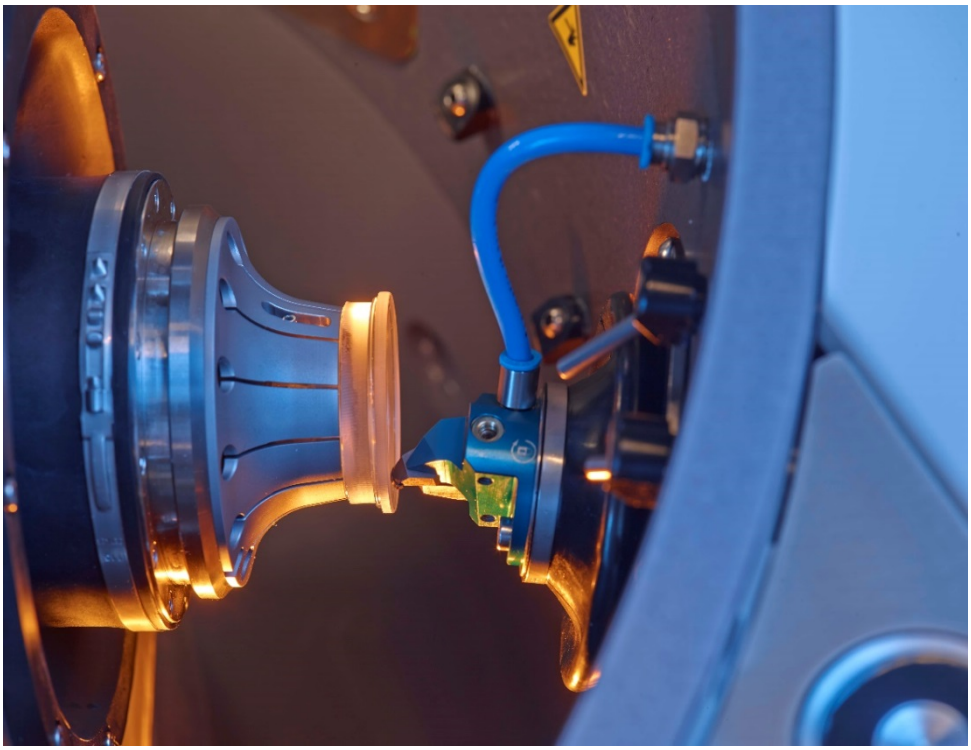
satisloh®

Technical Paper

Diamond Performance Kit VFT-orbit-2



Author: Mark Hollmann and Tobias Gelada

Version: V1.0 / December 2021

satisloh.com

The need for speed, broader range and easiest handling

Satisloh knows how to make good lenses but is still driven to continually innovate.

Because the demand for faster processing and better quality surfaces never subsides, we created the Diamond Performance Kit for the VFT-orbit-2. It includes a revolutionary tool-holder design utilizing the benefits of existing Satisloh tool-holders and a novel approach to the diamond portfolio.

This approach reduces set-up time for the tool-holder, minimizes errors during diamond installation, and provides higher throughput.

Diamond Performance Kit for VFT-orbit-2 overview:

- Pre-measured diamond tools with RFID tags
- Diamonds on the tool-holder are accessible from the top for easier service
- Tool-holder is through-tool-cooling ready
- More consistent cutting force during processing because of tool-holder's new design
- 20° tilt of tool-holder enables extended working range
- New diamond tool portfolio (e.g. extended working range and ECO version)

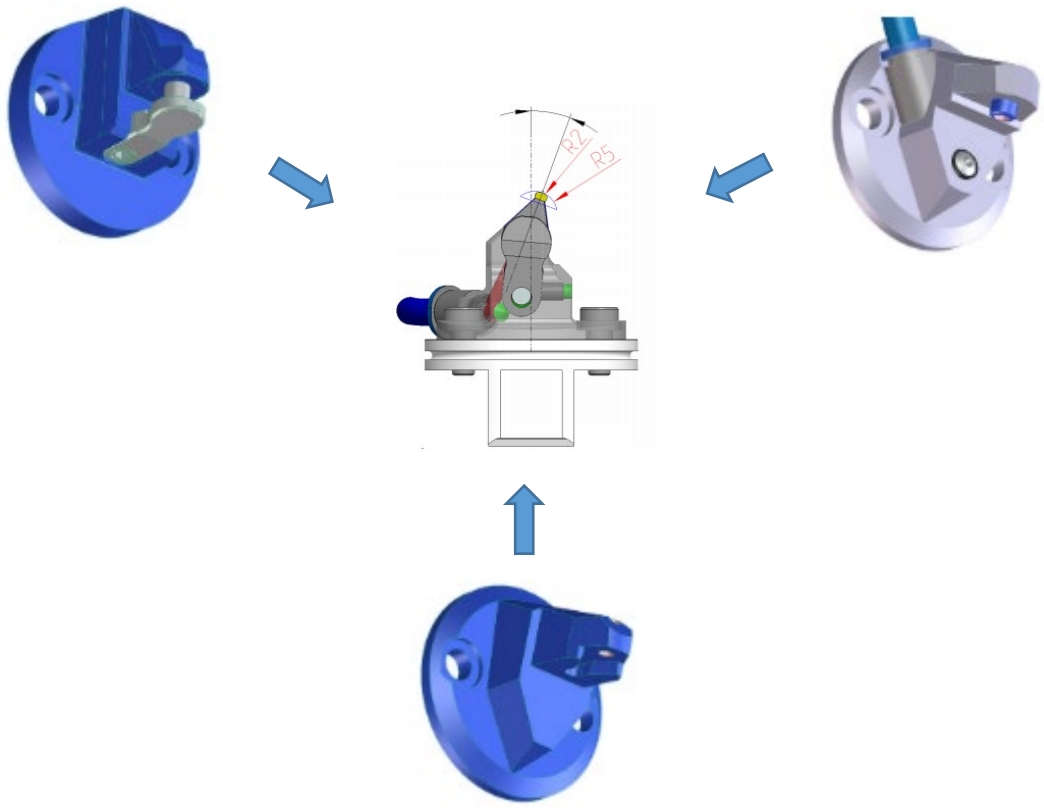


Figure 1: New tool-holder utilizes benefits from other SL tool-holder designs

New diamond tool portfolio

Based on several decades of experience, the Diamond Performance Kit includes a new portfolio of diamond tools in addition to a new tool-holder design. The portfolio gives users the freedom to pick the best diamond tool combination for their manufacturing environment.

The following objectives were considered in developing the portfolio:

- Achieve the most economic and sustainable solution due to lowest raw material usage (MCD R2 90°)
- Extend working range (MCD R2 125°)
- Increase throughput (MCD R5 90°)

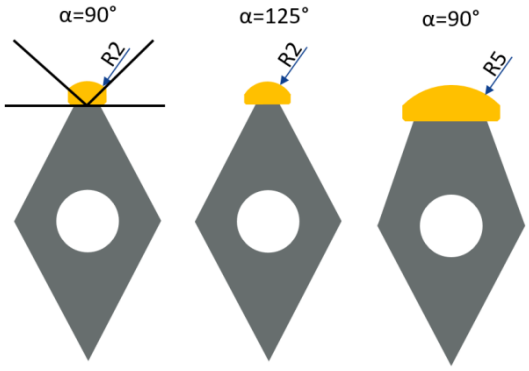


Figure 2: new diamond tool portfolio

Diamond	**MCD R2 90°**	**MCD R2 125°**	**MCD R5 90°**
Working range	Up to 14.5 dpt.	Up to 16.5 dpt.	Up to 14.5 dpt.
Aperture angle	90°	125°	90°
Effective angle	65°	82.5°	65°
Benefits	- Less raw material use due to smaller diamond disc - Ecological & economical	- Larger working range	- Highest throughput due to larger peak to valley distance
Prism limit	2°	2°	1.5°*
Lifetime	Up to 2500 cuts	Up to 2500 cuts	Up to 2500 cuts + 40-50% more
RFID	yes	yes	yes

*Satisloh recommends a setup with two Fast-Tools, one with an R5 and one with an R2 diamond, to maintain the full generated prism range. See details below.

Fast-Tool setup and automatic tool management

For maximum results, Satisloh strongly recommends operating the machine with two Fast-Tools. The MCD R5 90° diamond has limitations regarding generated prism because of its larger radius. By using the R5 diamond on one Fast-Tool and one of the R2 tools on the second Fast-Tool labs enjoy the advantage of highest throughput with the R5 diamond while maintaining the ability to generate the full prism range with the R2 diamond.

The machine software analyzes the prescription and automatically switches to the needed diamond tool.

Machine setup recommendations

With the new diamond tool portfolio it is possible to set up the VFT-orbit-2 for different applications. The following examples give an overview of Satisloh´s recommendations.

1. **Higher throughput + extended working range**

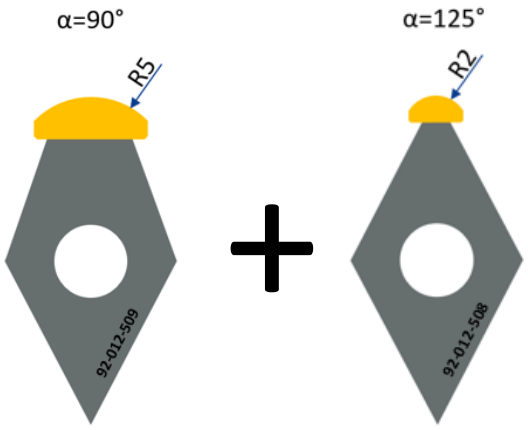


Figure 3: Recommendation #1 tool setup

This combination increases throughput using an MCD R5 instead of a conventional MCD R2 on the first Fast-Tool.

On the second Fast-Tool, an MCD R2 125°, covers an extended working range up to 16.5 dpt. due to the effective aperture angle of 82.5°.

2. **Higher throughput + maximum cost efficiency**

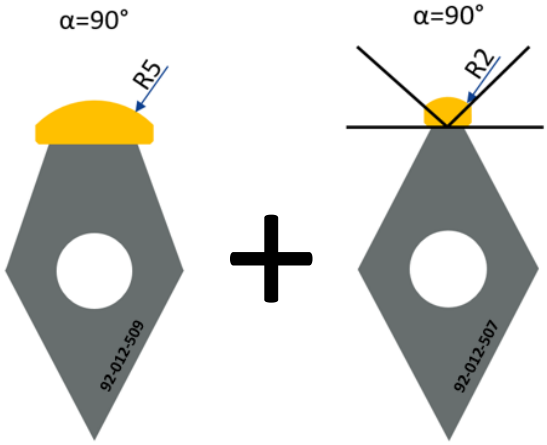


Figure 4: Recommendation #2 tool setup

Also in this combination throughput increases by using an MCD R5 instead of a conventional MCD R2 on Fast-Tool 1.

Using an MCD R2 90° on the second Fast-Tool, is the most cost efficient option due to its minimized diamond disc blade. Additionally the R2 diamond tool can process a higher prism than the R5.

SUMMARY

The Diamond Performance Kit for the VFT-orbit-2 generator is based on Satisloh's broad generator design experience and market research. Labs adding this kit to their VFT-orbit-2 generators will have reduced set-up time for the tool-holder, minimized errors during diamond installation, and higher throughput.

The **Diamond Tool Portfolio** features three diamond tool options and a new tool-holder design. This gives labs the freedom to pick the best diamond tool combination for their manufacturing environment.

Automatic Tool Management Software analyzes the prescription and automatically switches to the needed diamond tool. For maximum results, Satisloh strongly recommends operating with two Fast-Tools.

Machine Setup recommendations can be based on what a lab needs using available diamond tools from the portfolio. Examples include:

- Higher throughput + extended working range
- Higher throughput + maximum cost efficiency

Contact your local Satisloh representative or visit www.satisloh.com for details about how adding the Diamond Performance Kit to your VFT-orbit-2 generators can improve both lab productivity and surface quality consistency.