

# Diamond tools for Electro Optics

Contour Fine Tooling has developed a complete range of tools to meet the requirements of today's electro optics manufacturers. For optimum cutting efficiency the correct tool geometry and diamond material must be used for any given material. Available with either natural or synthetic single crystal diamond, a range of radius size and rake angle is offered. Tools can either be solid shank or insert style. Contour orientates the diamond to maximise the wear-resistant characteristics.

## POSSIBILITIES

- Diffractive tools
- Fresnel tools
- Facet tools
- Milling tools
- Form tools
- Half-radius tools
- Unusual shanks
- ... and many more!

## OPTIONS

- Natural or synthetic single crystal diamond
- Various geometries
- Solid shank/insert system

## FEATURES

- Certificate of conformance
- Chip free at 500x Nomarski
- Guaranteed quality
- Optimum tool life



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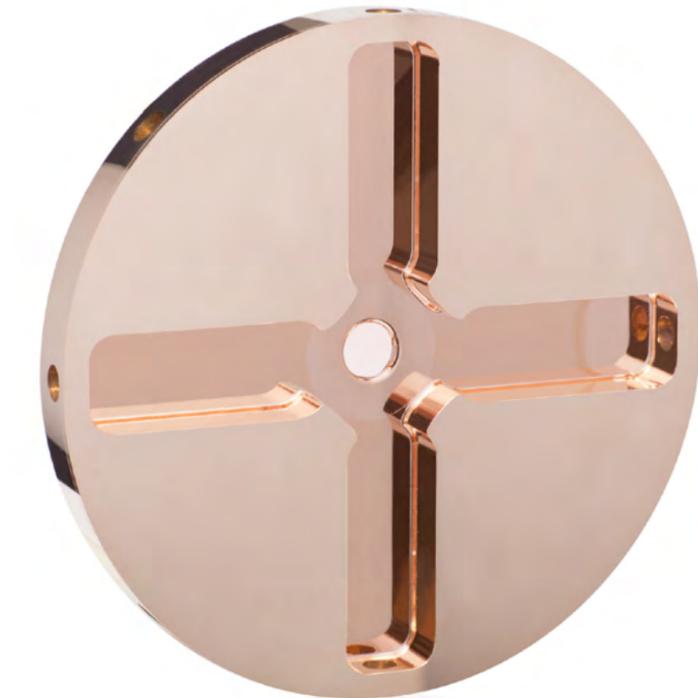
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# Pre-finishing & Single Axis turning tools

These tools can be supplied in the same geometry as the required finishing tool. But having a more open tolerance on radius shape (controlled waviness is only necessary on the finishing tool) it is an economical tool for bulk removal of material prior to finishing for two axis applications.



## Controlled-waviness

Contour Fine Tooling is a pioneer in the development and manufacture of controlled waviness tools.

We have developed a wide range of tools, which are available with conical or cylindrical clearance. "Controlled waviness" dictates that the radius shape deviates from a true circle by a guaranteed value. The standard waviness value for Electro-Optics tools is  $<0.5\mu\text{m}$ . However, Contour Fine Tooling can offer an extensive range from  $<1.0\mu\text{m}$  down to  $<0.05\mu\text{m}$

These tools come complete with a 'controlled-waviness' certificate showing the actual radius size, amount of arc, shape and deviation value, measured 'peak to valley' (not averaged). They are available with natural or synthetic single crystal diamond and with the traditional solid shank or the insert system.

When using an ultra precision two-axis machining method, the type of tool utilised requires careful consideration. Final work piece accuracy is dictated by several error sources, including the machine's inherent precision, fixturing, tool setting, environmental conditions, and tool waviness. While many error sources remain more random in nature, Contour Fine Tooling is able to provide predictably high accuracy controlled waviness tools that eliminate that source of error, allowing to focus on other aspects of process optimisation. In addition, production costs can be dramatically reduced by effective tool selection, usage and planning.



## Fly-cutting

Characteristics of these tools are a cylindrical clearance and a larger radius. Since the point of contact between the tool and the work piece remain static, a larger radius can be used to give benefits in surface texture.

