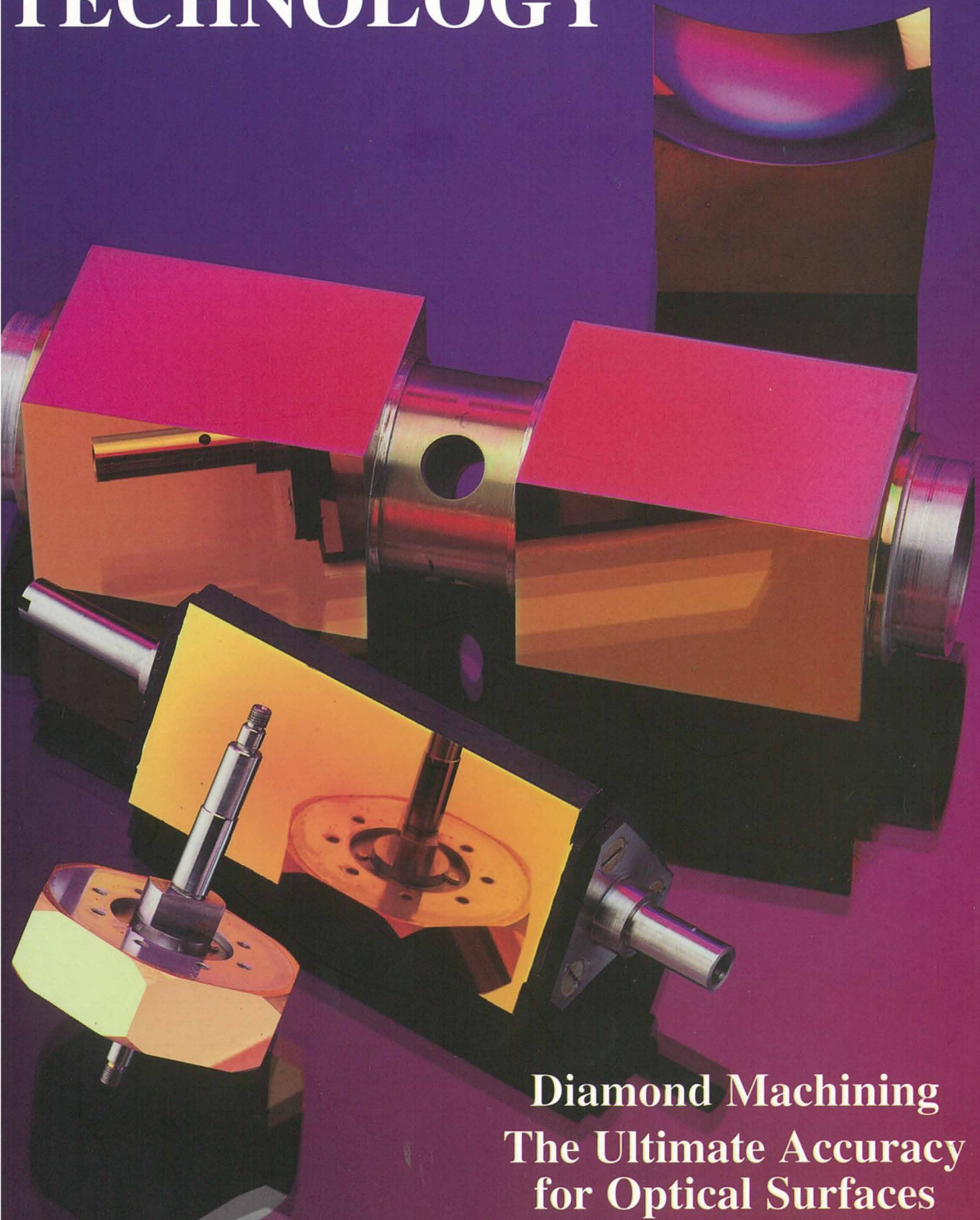


SYMONS MIRROR TECHNOLOGY



Diamond Machining
The Ultimate Accuracy
for Optical Surfaces



**Spherical • Cylindrical
• Toroidal**

**Diamond Machinable
Materials (not complete)**

Aluminium • Copper • Brass •
Electroless Nickel • Gold •
Silver • Germanium • Zinc
Sulphide • Zinc Selenide •
Acrylic and other plastics.

The choice of material and the quality of the blank has a direct influence on the ultimate accuracy and form stability of the finished precision diamond machined optical component. Therefore it is important to understand and allow for the diamond machining manufacturing operations at the concept of the component to optimise the accuracy and cost.

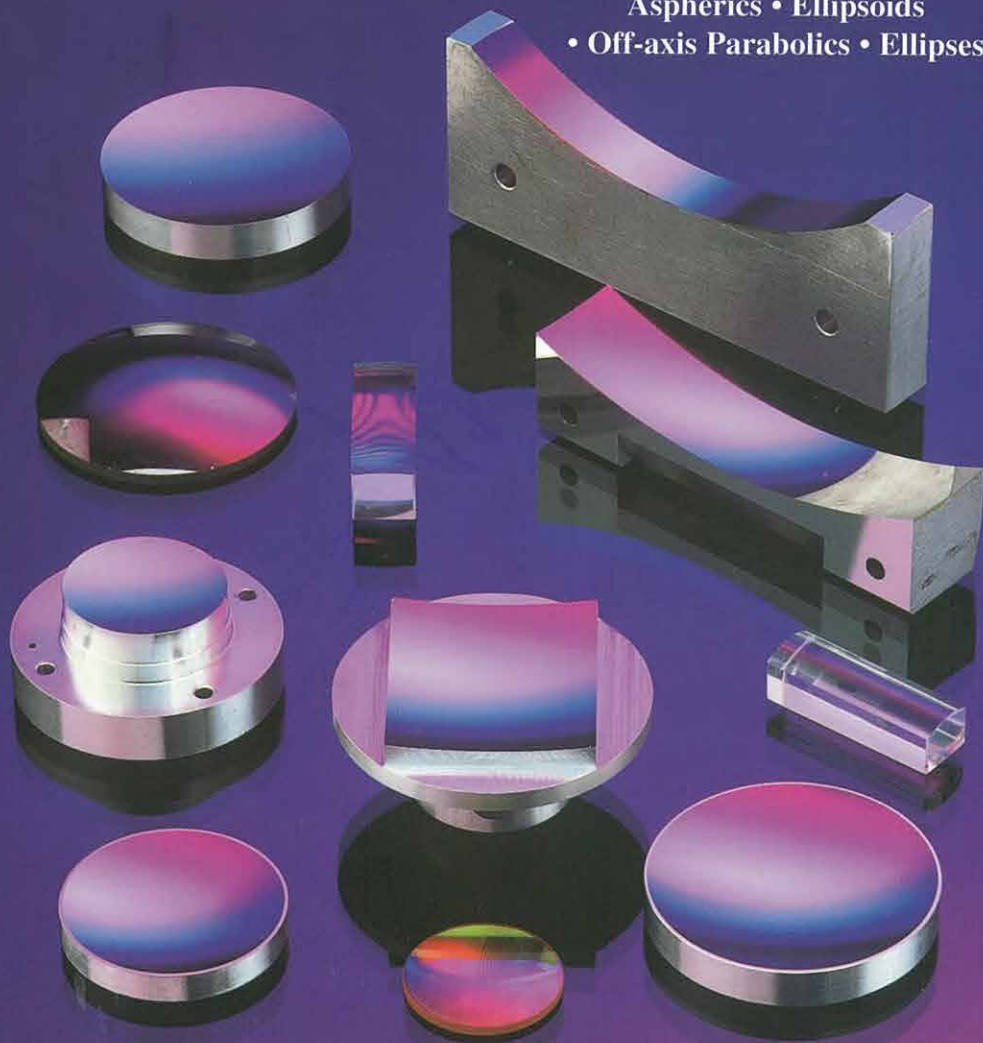
Optical designers should be aware that the material specified must be compatible with diamond machining and also properly stabilised. The component material structure should have sufficient mechanical strength and a thickness ratio to achieve the designed form accuracy and surface finish of optical quality.

Introduction

Symons Mirror Technology staff have more than seventy combined years experience in the art of diamond machining. We are at the fore-front of the application of nano-technology in the field of optical and high precision mechanical component machining with natural diamond tools. This utilisation of single point diamond machining enables the manufacture of conventional and advanced shapes required by today's system designers.

Diamond machining is executed by specially developed and designed machines to meet the high precision requirements of optical and mechanical components. Our facility comprises of six diamond machines which are used for the manufacture of mirrors, polygons, infrared domes and lenses, flats, aspherics, high precision mechanical components etc.

**Aspherics • Ellipsoids
• Off-axis Parabolics • Ellipses**



Optical Coating

Diamond machined components are available with or without protective and enhanced reflectivity coatings.

Protective Vacuum Deposited:-
Silicon Oxide • Carbon etc.

Enhanced Reflectivity Vacuum
Deposited:- Gold • Silver • Silflex
• Aluminium etc.

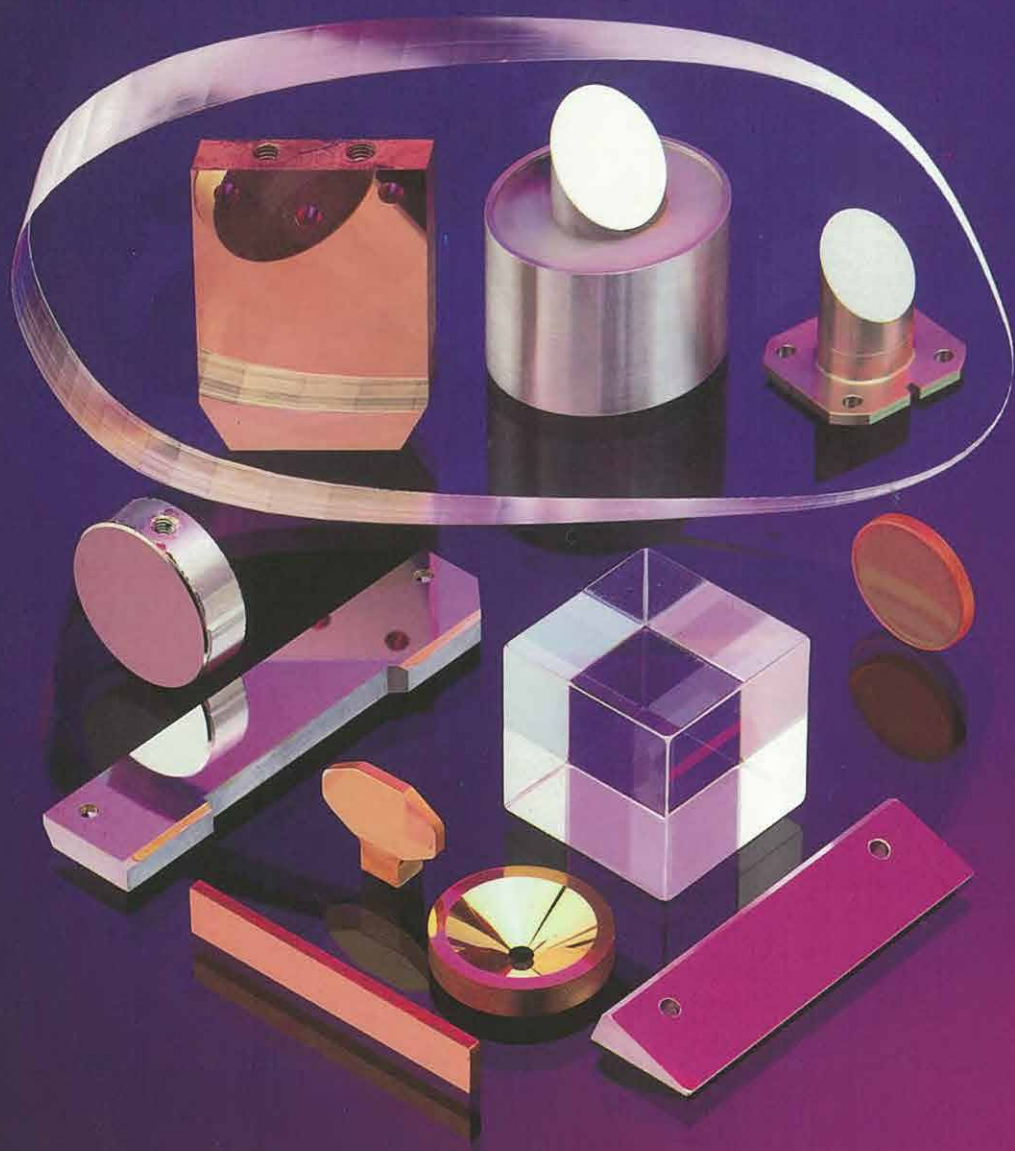
Plating:- Electroless Nickel • Gold

Applications Include

Military • Astronomy & Astrophysics • Space & Airborne Optics • Scanning Systems • Thermal Imaging Systems • Laser Systems • Infrared Missile Systems • High Precision Mechanical Components • Optical Components • Scientific Special Components for Research Laboratories • Moulds for Plastic Components & Replica Optics.



Polygon & Pyramid
Scanning Mirrors



Flats • Windows • Axicons
• Cones • Scanning Mirrors

Quality Control

Symons Mirror Technology is committed to maintaining its position as one of the UK's leading diamond machining manufacturers by its continued adherence to a quality standard designed to meet the requirements of B.S. EN I.S.O. 9002. It also aims to meet some of the more exacting quality requirements of the blue chip optical and high precision Industries to which it is a major supplier.

Our goal is to fully understand our customers' needs, supply suitable quality products and to be proactive in terms of introducing improved optical technology.

Our advanced manufacturing processes and stringent quality control are continuously perfected and enhanced to ensure a highly exacting optical and mechanical accuracy control.

Typical Specification Achievements

- Surface Roughness • 50Å Ra. (0.005 microns).
- Surface Accuracy • $\lambda/4$ at 633 nm over Ø100mm.
- Angle Accuracy • 2 seconds of arc.
- Roundness • 0.1 microns.
- Dimensional Tolerance • ± 1.5 microns.
- Reflectivity • 98% at 10.6 microns (uncoated Al.)

Typical specification achievements are as stated. However it is impossible to outline definitive specifications without seeing the component or drawing since the actual results obtained depend on various factors such as stiffness of structure, material, size and substrate geometry etc.

Each component requires individual consideration so please contact us to discuss your diamond machining requirement • we are only a fax or phone call away.

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