



Applied Physics Specialties Ltd.

Applied Physics Specialties Ltd., an all Canadian company, has been manufacturing high quality optical elements and instruments for the industrial and scientific community since 1964. The company specializes in the design and small scale production of optical elements and assemblies of all types including complete systems and instruments.

PRODUCT RANGE

Lenses

Surfaces can be spherical, cylindrical or aspheric. Tooling is available for a large number of spherical radii; a list of these radii is available on request. Diameters to 460mm can be accommodated in all normal optical materials.

Prisms

Non-Standard sizes, angles, tolerances or materials are a specialty.

Windows, Flats, Étalons

These can be supplied in all optical qualities. For items requiring optically worked surfaces, limiting size is approximately 460mm equivalent diameter. Special shapes, edge configurations, material, or other requirements can be accommodated.

Mirrors

First or second surface may be coated with gold, aluminum or other metal and overcoated for protection or enhanced reflectance. Dichroic and other coatings are available. Present vacuum plant limitations restrict sizes to the equivalent of approximately 400mm diameter.

Reticles

Photographic or photo-etched metal (normally chromium) reticles on glass or other substrate can be made to specifications or from customer-supplied artwork.

APPLIED PHYSICS SPECIALTIES LTD.

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President

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Vacuum Coating

Single and multilayer, dielectric, metal and composite coatings for reduced or enhanced reflection, partial transmission, filters, electrical conductivity and other requirements can be applied to any compatible substrate.

Tolerances

For work of the highest precision the following tolerances represent normal limits but may be finer in special cases:

Flatness: $1/20$ wavelength (at 550 nanometers)

Regularity: $1/20$ wavelength (at 550 nanometers)

Radius of Curvature: $.001 \times$ radius

Parallelism: 1 arc second

Angles (Prisms): 10 arc seconds (1 arc second in special cases)

Dimensions: Can be held to a few microns if required (depending on size and location)

Lens Centering: 1 arc minute

SHOP FACILITIES

Complete machining facilities are available for prototype and limited production quantities of both glass and metal parts. A large stock of diamond tooling permits sawing, drilling, milling, grinding and radius generating of glass and similar materials.

The glass grinding and polishing shop has a variety of machine spindles, permitting the manufacture of a full range of curvatures and diameters, as single or multiple blocks. A cylinder machine provides for the grinding and polishing of convex and concave cylindrical surfaces. Cast iron grinding tools and fused silica master test plates are available for over 300 radii. Measuring equipment includes autocollimators, Foucault tests (for normal and short radius elements), electronic spherometer, Fizeau interferometer (280mm aperture) and precise divided circles for angle determination.

Vacuum coating with metals and dielectrics is carried out in a separate clean area. Three 45cm coaters are available. The recent addition of a 12kw electron gun evaporation source permits deposition of hard multilayer coatings.

Optical assembly and mountings of components is taken care of in special areas where cleanliness is maintained.

The precision photography section produces reticles and similar items. Several copy cameras of different sizes allow for a wide range of photographic work. A major product of this section is master fonts for use in phototypesetting machines and a number of special cameras, alignment fixtures and other similar items have been developed for this work.

DESIGN CAPABILITIES

Optical

Applied Physics Specialties is able to design simple fixed