

# LEYSOP LTD

Manufacturers and suppliers of electro-optic components

## AR Coating and Metallization Services



In the course of manufacture of the varied range of Leysop products, we are required to apply both anti-reflection coatings for reduction of Fresnel optical losses at air-dielectric interfaces, as well as metal film layers so that electric fields may be applied to the electro-optic devices. We have dedicated coating vacuum plants for each of these processes to eliminate the risk of cross contamination.

Our dielectric coating rig has both optical and crystal monitoring facilities built into the chamber; thicknesses can thus be monitored against the theoretical curves as well as the practical results. This eliminates errors due to the variable stoichiometry which may occur with some thermally evaporated films.

The majority of our anti-reflection coatings are single layers of a thickness equal to a quarter wavelength of light at the operating wavelength. This simple coating offers good adhesion and high laser damage resistance in most cases. Typically, magnesium fluoride is used for glasses and low refractive index substrates such as calcite, whereas yttrium fluoride is used for higher index substrates such as lithium niobate and lithium tantalate. This offers an excellent match to these substrates and a very low loss can be achieved over quite a broad bandwidth. One major advantage of single layer coatings is that even outside the range of optimum performance, the coating performance will never degrade to the point where the substrate is worse than if un-coated. This however may occur with multi-layer coatings.

For applications where loss is critical and the user only wishes to operate at a single wavelength, we

can often deposit suitable multi-layer a/r coatings to offer the lowest possible loss. Please be aware however, that these films are usually more highly stressed than the simpler single layer coatings so may not be suitable for some applications. Adhesion may also be compromised, although this is not necessarily the case.

Please feel free to enquire about coatings for your substrates. We do not claim to be coating specialists, our equipment and practices are largely dictated by the requirements of our own devices (particularly the water soluble XDP crystal isomorphs on which we have vast experience of applying coatings). However, for the simpler requirements we can be more flexible than many of the specialists and can offer the turn around and lower chamber costs that make us more cost effective, especially for experimental and short run work.