



A Merger of Exotic Electro-Optics & LightWorks Optics

CAPABILITY ANNOUNCEMENT

SCOOPING OF HEMISPHERICAL DOME BLANKS



LightWorks Optical Systems (LWOS) is pleased to announce a newly established capability to scoop multiple hemispherical dome blanks out of a single block of material.

LWOS is the leading solutions partner for the advanced integrated optical systems, focusing on the complex optics needs of top medical technology, space, defense and commercial companies. We closely collaborate with our customers to integrate the design and manufacture of optical systems for the most demanding projects.

As missiles become more sophisticated, the demand for durability and accuracy of the domes increase. Harsh environments, fluctuation of temperatures, and vibration, must be addressed to achieve mission success. A dome made of Sapphire is a viable solution offering optical performance and durability over other substrate materials. Sapphire has the strength required and is useful over a wide transmission band (150 μ m - 6000 μ m).

In the past, the conventional approach of manufacturing a single dome blank from a block of material by grinding away 70-90% of the original volume has been a time-consuming, wasteful, and expensive operation. By employing a scooping approach, significant time and cost savings can be achieved, particularly for high volume products

Through the use of multi-axis CNC platform and a specially-designed scooping tool, LWOS has successfully demonstrated the manufacturing of a sapphire dome blank of practical size (~6" diameter with ~2" sag). The resulting blank is ideal for subsequent fabrication operations through LWOS' existing high-speed grinding and polishing equipment.

The fact that LWOS demonstrated this capability using a sapphire block means the technique can be readily applied to other optical materials of interest including, but not limited to, silicon, germanium, sapphire and various glasses that come in boule form.

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