

HT-AR-02 High Performance Antireflective Molds

High-performance AR structures

HT-AR-02 surface structures reduce the specular reflectivity from polymer surfaces down to below 0.2%. Our state of the art nano-optical imprinting molds represent the result of years of optical design work and cutting edge origination process development. HT-AR-02 molds have been specifically designed for high-performance AR applications used in R&D work, as well as for product and process development. Molds are available up to a size of 250mm x 250mm. HT-AR-02 is a successive development of HT-AR-05 and HT-AR-06 with improved structure shape and parameters.

How HT-AR works

Imprinted HT-AR nanostructures are able to modify the optical properties of any formable material and reduce the reflection from this surface. As opposed to AR-coatings no additional material is required to be applied. Thus there is no costly coating process required. The AR effect is just achieved by modification of the surface topography on a sub-wavelength scale through nano-imprinting. HT-AR nanostructures make use of the bio-inspired moth-eye effect. The surface topography creates a graded index profile, which reduces visual reflectance of a surface with $n=1.5$ from 4% down to below 0.2% specular reflectance in the HT-AR-02 version.

HT-AR applications

- Optical components, windows and covers in optical systems
- Surfaces and covers of flat panel displays and other display surfaces
- Transparent covers used in industrial equipment, automotive, consumer electronics, architecture
- Optical films
- Thin film and organic photovoltaics

Users of HT-AR molds

- Film manufacturers and component manufacturers – for product and process development work
- R&D institutes – for research activities on nanostructured surfaces
- Manufacturers of equipment for injection molding, thermal embossing and roll-to-roll production – as a reference to demonstrate the technical capabilities and homogeneity of their production processes

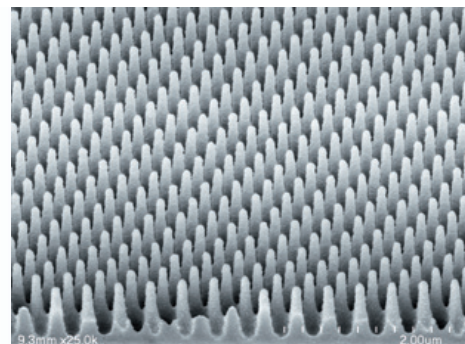
HT-AR-standard molds are for use in Research & Development. We offer royalty arrangements for commercial use upon request.

Specifications

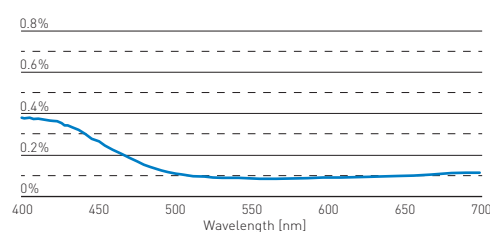
	HT-AR-02A	HT-AR-02C
Optical function	AR High Performance	AR High Performance
Grating type	Hexagonal Array	Hexagonal Array
Pitch	250 nm	250 nm
Average depth	>350 nm	>350 nm
Peak-to-peak	290 nm	290 nm
Material	Nickel	Nickel
Mold thickness*	300 μ m	300 μ m
Expected %R PMMA**	Less than 0.2%	Less than 0.2%
Mold size*	120 mm x 120 mm	250 mm x 250 mm
Active area*	100 mm x 100 mm	200 mm x 200 mm

* Customised sizes and thicknesses upon request ** averaged visual specular single-side reflectance)

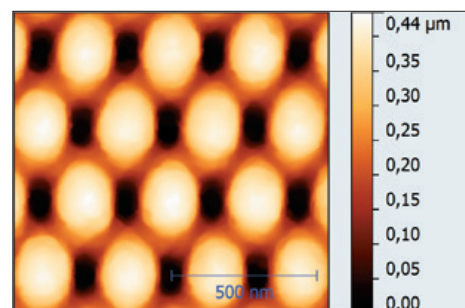
HT-AR-02



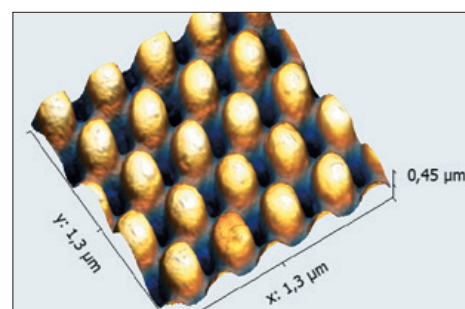
Specular Reflectance



2D



3D



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