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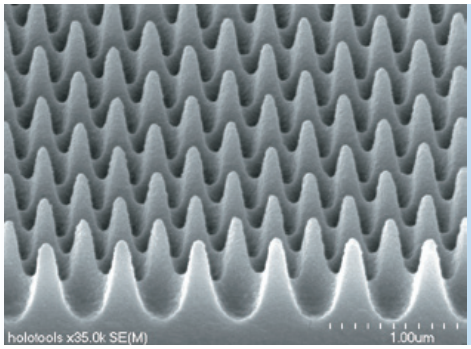
Near Infrared Antireflection Mold

HT-NIR-02

High-performance AR structures

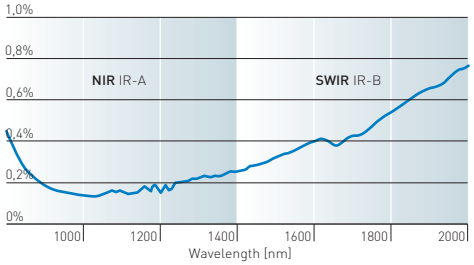
HT-NIR-02 is an expansion of our antireflection solution portfolio towards wavelengths in the infrared. Its surface structures reduce the specular reflectivity from polymer surfaces down to an average of 0.2% in the NIR-A range. Our state of the art nano-optical imprinting molds represent the result of years of optical design work and cutting edge origination process development. HT-NIR-02 molds have been specifically designed for infrared applications used in R&D work, as well as for product and process development. Molds are available up to a size of 100mm x 100mm.



How HT-AR works

Imprinted HT-AR and HT-NIR 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. All HT-AR nanostructures make use of the bio-inspired moth-eye effect. The surface topography creates a graded index profile, which reduces the reflectance of a surface with n=1.5 at a wavelength of 900nm in the near IR-A from about 4.2% down to below 0.2% reflectance in the HT-NIR-02 version.

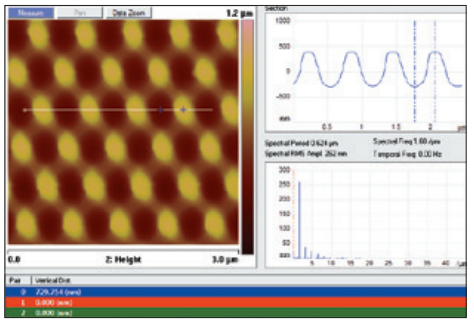
Specular Reflectance



HT-NIR-02 applications

- Low-loss in- and outcoupling of NIR signals for optical fibers and other wave guides
- Wireless communication systems using NIR
- Detector devices like NIR photodiodes, photoresistors or phototransistors
- High efficiency NIR-LED
- Optical films

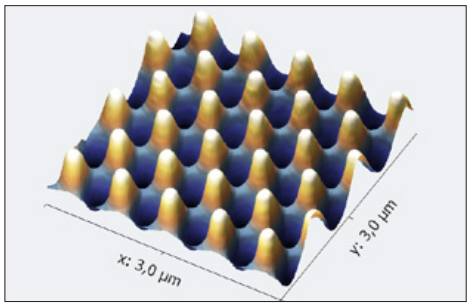
2D



Users of HT-NIR-02 molds

- Manufacturer of optoelectronic devices
- Film producer – for product and process development work
- R&D institutes – for research activities on micro-optical structures
- Manufacturer of optical components using NIR light

3D



HT-AR standard molds are for use in Research & Development.
Commercial use requires a royalty agreement.

Specifications

	HT-NIR-02
Optical function	Near Infrared AR High Performance
Grating type	Hexagonal Array
Pitch	500 nm
Average depth	> 700 nm
Material	Nickel
Expected %R acrylic polymer (@900nm)	Less than 0.2%
Expected %R acrylic polymer (@1500nm)	Less than 0.3%
Mold size*	100 mm x 100 mm
Active area*	80 mm x 80 mm
Mold thickness*	300 µm

*Customised sizes and thicknesses upon request

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