CORNING

Varioptic® Lenses

Liquid lens solution for metrology applications

The Corning® Varioptic® business has worked with an industrial manufacturer of small components with a need for a custom optical control method. Optical metrology does not merely require an optimal image quality but also extremely low optical aberrations such as distortion to accurately perform measurement on the image acquired. Our liquid lens solution benefits from a fast and well controlled autofocus.

Customer's expectations

Our customer's request was a specific optical system capable of the following performance:

- Focusing range of a few millimeters
- Telecentric lens with extremely low distortion
- Automatic best focus image extraction

An additional request was to have a solution compatible with a large sensor (1") to maximize light efficiency.

Selection of a liquid lens optical module

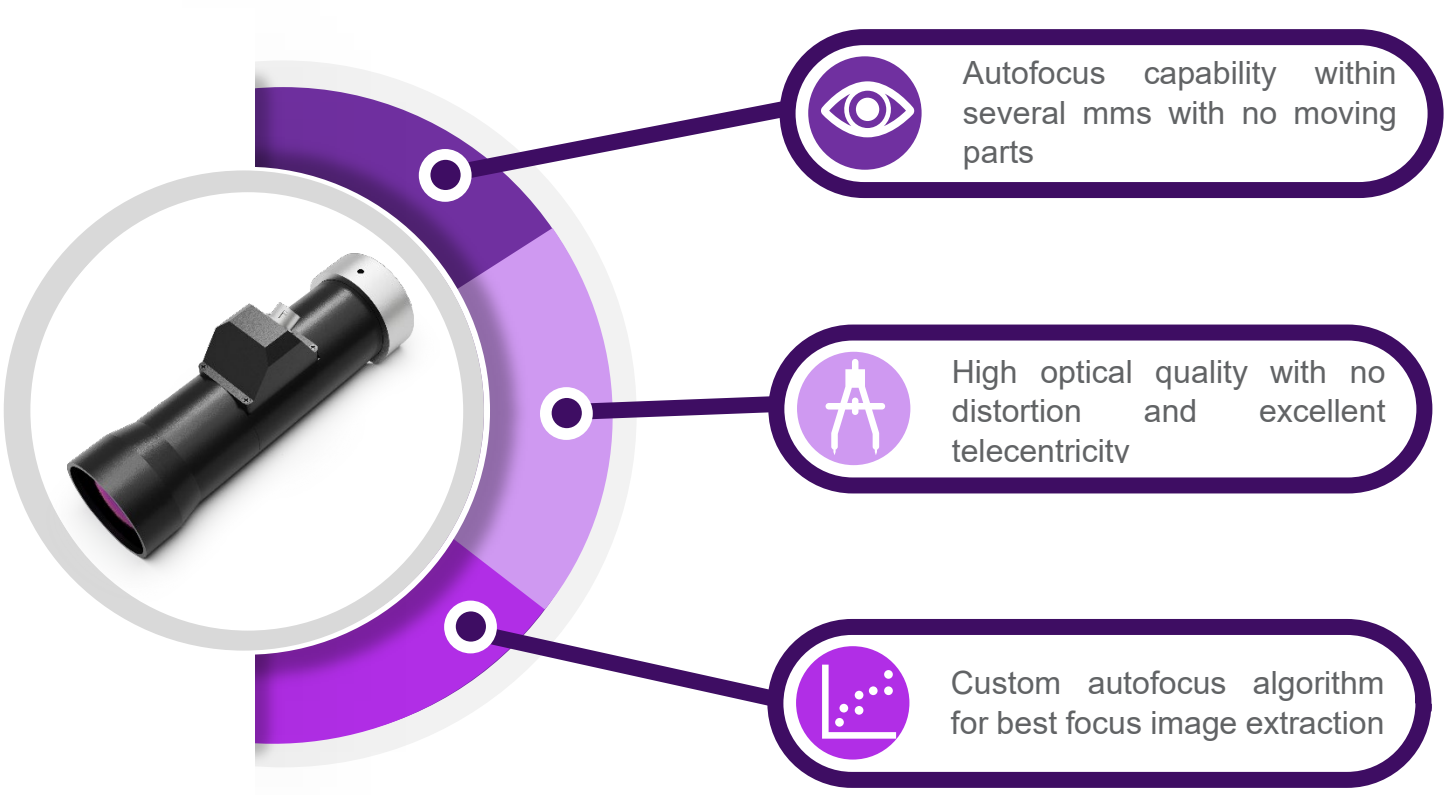
Based on the customer's optical requirements, Corning Varioptic was able to provide an off-the-shelf telecentric optical module that fitted the technical specifications: the x1 telecentric module.

The compliance with the range of focus was possible thanks to the optical dynamic range of the liquid lens integrated in the module which allows a refocusing of more than 10mm in the object space, thus capturing different depths in focus despite the extremely narrow depth of field.

Thanks to the autofocus capability and the low wave front error of liquid lenses, the optical system can capture high quality images with low distortion and excellent telecentricity.

The automatic best focus image extraction is made possible thanks to the dedicated electronics provided by Corning Varioptic. A ramp focus algorithm has been optimized for this specific use-case which scans the entire working range periodically. A sharpness detection algorithm was developed by the industrial manufacturer to extract the sharpest image for his use-case.

Key solution highlight



Contact us

You would like to know more about our products, or you have a specific use-case in mind?

Please visit our website: Corning® Varioptic® Lenses

Or contact us at varioptic@corning.com

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