

NEWS RELEASE

24 June 2021

Nippon Sheet Glass Co., Ltd.

New SELFOC® Micro Lens as Fine as Optical Fibers

– Fine component for all-optical-network devices in the “Beyond 5G” era –

The NSG Group has successfully developed a new ultra-thin type of **SELFOC® Micro Lens** with the diameter of 125µm (0.125mm), which is as fine as optical fibers. (*1 & 2)

In the Beyond 5G era, where the number of network-connected devices as well as network traffic is expected to increase explosively, opticalization of network infrastructure is being considered a solution to address such challenges as ensuring high speed and large capacity communication and, at the same time, drastically reducing electricity consumption.

The newly developed ultra-thin SELFOC® Micro Lens, with the same diameter as that of optical fibers, will be able to make various devices that connect optical fibers and various terminals smaller, simpler and more cost competitive. By helping the realization of all-optical network, which could reduce power usage significantly as optical signal is used instead of electrical one, the Group also aims to contribute to the mitigation of climate change impacts.

SELFOC® Micro Lens, the unique cylindrical and flat-end-shaped glass lens with a gradient-index, was developed by the Group in 1968 and has been used in a wide range of applications such as coupling and collimating lens for telecommunication devices, imaging lens for various endoscopes and microscopes used in the medical, life science and industrial areas because of its easy-to-handle shape and minimal transmission loss.

While the diameter of conventional SELFOC® Micro Lens ranged from 1.0mm to 4.0mm for telecommunication devices and from 0.25mm to 2.70mm for imaging devices, the new product’s diameter is much smaller at 125µm, 0.125mm, which is only a half of the thinnest of conventional lens. Being finer and having the same diameter as optical fibers, optical devices can be designed smaller and simpler with new ultra-thin SELFOC® Micro Lens. The NSG Group is now preparing for its commercial production and, going forward, plans to develop new applications in the imaging area as well.

Under its Medium Term Vision, the NSG Group aims to be a global glass supplier contributing to the world with high value-added glass products and services and has identified the three areas to which it intends to contribute: “Safety & Comfort”; “Eco Society”; and “Information and Telecommunication”. The Group will strive to achieve the Vision by supporting the development of information and telecommunication technology that can make people’s lives more convenient and advance the society, as well as by protecting the environment.

About the NSG Group (Nippon Sheet Glass Co., Ltd. and its group companies)

The NSG Group is the world's leading supplier of glass and glazing systems in the business areas of Architectural, Automotive and Creative Technology.

Architectural manufactures and supplies architectural glass as well as glass for the solar energy and other sectors. Automotive serves the original equipment (OE) and aftermarket replacement (AGR) glazing markets.

Creative Technology comprises several discrete businesses, including lenses and light guides for printers and scanners, and specialty glass fiber products such as glass cord for timing belts and glass flake. <https://www.nsg.com>

MEDIA CONTACT:

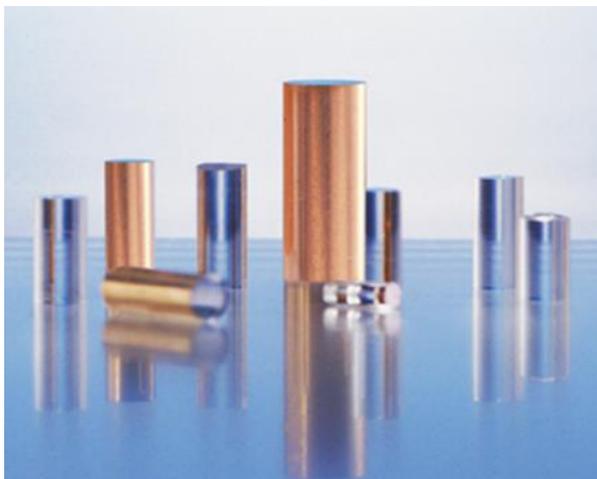
Phone: +81-(0)3-5443-0100 or please use the contact form on the web (<https://www.nsg.com/en/media/media-contacts>).

CUSTOMER CONTACT:

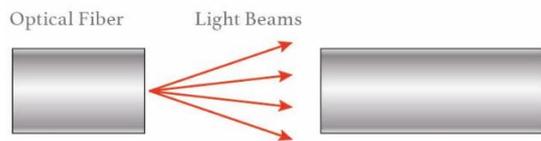
Information & Telecommunication Device Division
Phone: +81-(0)42-775-1546 or please use the following contact form on the SELFOC website (<https://selfoc.jp/eng/contact/>)

[References]

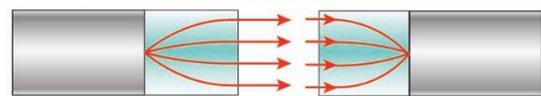
*1: SELFOC® Micro Lens
<https://selfoc.jp/eng/product/sml/>



Application: Collimating lens



Light spreading out of optical fiber causes significant loss.



SELFOC® lens turns this light into parallel rays once and efficiency captures them into the optical fiber. Also, the same diameter as optical fiber enables the devices to be much smaller.

***2: Specifications for ultra-fine SELFOC® Micro Lens**

Outer Diameter	125µm
Effective Diameter	0.9R (R=Radius of lens)
Core Refractive Index	1.58 to 1.63 @λ1310nm
NA	0.25 to 0.60 @λ1310nm