

# Master of optics

A Senior Optics Specialist with 3M, Kristina Magnusson found her calling when she was still at school. “I wasn’t really interested in school,” she says. “But when I started studying light rays and lenses I found that this was an area that I easily understood compared to others in my class.”

Kristina Magnusson went on to earn a master’s degree in engineering physics, focusing on the field of optics. She then got involved in a summer project for Speedglas products to develop a test instrument for measuring the light diffusion of welding filters. She hasn’t looked back since.



Today, Magnusson is one of a four-strong optics team at 3M Welding Centre of Excellence in Gagnef, Sweden. She specialises in designing and adapting optical parts for Speedglas welding helmets. These include the welding filter and its components such as interference filter, liquid crystal cells and polarizers.

3M manufactures many of its own Speedglas welding filter components, including liquid crystal cells and interference filters, which Magnusson mentions as a great advantage. “By having this connection to manufacturing we can easily test and transfer new technology,” she adds. “That helps us get a better understanding and control of the entire process.”

Safety is a prime consideration. Magnusson is leading an international ISO task group made up of experts focusing on automatic welding filters, within eye and face protection standards. 3M strives to improve optical quality even further to support welders in their work. “You never know what new technologies will bring,” Magnusson says with enthusiasm.



## What is LCD?

Liquid crystal cells are probably best known for their use in liquid crystal display (LCD) screens.

3M mainly uses the cells to manipulate the light in the Speedglas auto-darkening welding filters, with the liquid crystal molecules sandwiched between two glass substrates in the welding lens.

“When you change the orientation of the liquid crystal molecules you can change the amount of light that will be absorbed by the polarizer,” Kristina Magnusson says. “This helps reduce the glare generated from welding.”

