

# NWS Instruments AG; Lenzburg, Switzerland

Developing Groundbreaking Wide Angle and Telephoto Lenses Using CODE V

*“CODE V is an incredibly helpful tool for designing professional, high-end optics. The optimization routines are unbeatable, especially for our complex lenses with many individual optical elements. Furthermore, the solutions with CODE V’s Global Synthesis optimization lead to high-performance systems. CODE V is one of the enabling technologies that allows NWS instruments to offer imaging tools for experts.”*

~Dr. Christoph Horneber, Co-Founder and Director of Optical Design, NWS Instruments AG



Photo courtesy of NWS Instruments AG

CODE V customer NWS Instruments AG was founded in 2016 and is headquartered in Lenzburg, Switzerland. The company is dedicated to making high-performance, ergonomic optical and mechanical instrument systems for experts with demanding requirements for commercial and technical photography. The company recently introduced their state-of-the-art, patent-pending wide-angle and telephoto lenses for use with the latest DSLR and mirrorless cameras equipped with 50Mp full-frame sensors.

## 23mm Wide-Angle and 110mm Telephoto Lenses for Experts, by Experts

Dr. Christoph Horneber, a co-founder of NWS Instruments AG and designer of the iconic Leica 0.95 Noctilux lens, used CODE V to design, optimize, and provide fabrication support for NWS’ groundbreaking new wide-angle and telephoto lenses.

- The sophisticated design of the 23APO provides 120 lp/mm resolution with at least 50% MTF and a 70 mm image circle. The instrument has a fully manual aperture and focusing control to ensure its compatibility with all camera systems. Other innovative features include a built-in leveling feature invented by NWS, as well as a 2mm-thick reversible and retractable lens hood. Applications include architectural, automotive, industrial, and landscape photography.
- The 110APO macro telephoto lens features 120 lp/mm resolution and a 55 mm image circle, and also includes fully manual aperture and focusing controls. The instrument has a torque adjustment knob feature invented by NWS to facilitate precise, fine focus adjustments. Applications include advertising, automotive, jewelry, and industrial photography.

The 23APO and 110APO lenses are designed, refined, and handmade by experts, for experts. CODE V supported the superior performance of these lenses with the software's powerful algorithms, including global optimization with Global Synthesis® and glass substitution with Glass Expert.

To learn more about NWS Instruments AG and its precision optics and mechanics, visit [nws-instruments.ch](https://www.nws-instruments.ch).

To learn more about CODE V, visit [synopsys.com/optical-solutions/codev.html](https://synopsys.com/optical-solutions/codev.html).