

Mastering Custom Lens Design for a Broad Range of Markets

An IEN Europe interview with Rob Watkinson, Sales Manager at Resolve Optics Ltd, on custom lenses and the upcoming vision show in Stuttgart

IEEN Europe: Why is Resolve Optics a regular exhibitor at the biennial Vision shows in Stuttgart, Germany?

Rob Watkinson: High-quality optics underpin the performance of any vision system. They capture light, form the physical image, and define the raw data quality delivered to the sensor. If the optics in your vision set-up fails to capture sharp details or proper contrast, software cannot fix or recreate that lost information. As a developer and supplier of application optimised lenses - Resolve Optics have exhibited at this international event for many years now because we find it attracts people from a large variety of industries that require some form of optics in their vision application.

IEEN Europe: Do you have any new product / service / capabilities that you will be highlighting on your stand?

Rob Watkinson: Resolve Optics is a leading supplier of radiation tolerant lenses into the nuclear power and space industries. Traditionally these industries used relatively low-resolution tube cameras for moni-



Resolve Optics has over 20 years design experience for lenses that are used in aircraft and satellites and their requirements to survive the temperature, mechanical, radiation and vacuum challenges in this environment.



*Rob Watkinson,
Sales Manager –
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toring purposes. In recent years, radiation resistant camera developers are increasingly turning to CMOS sensors. To meet the higher resolution demands of CMOS sensors, we have been developing a range of High Definition (HD) radiation tolerant fixed focus lenses. At Vision 2026, we are showing for the first time, a new 9mm f/2.1 radiation tolerant HD lens (the Model 419) with more focal lengths to follow shortly.

IEEN Europe: What benefits can visitors get from visiting your Vision show stand?

Rob Watkinson: Resolve Optics specialise in application optimised lenses. So, if your vision application is out of the ordinary or particularly challenging it is worth speaking to us to see if a custom designed solution may solve your problems. We are always happy to discuss applications and try and point you towards the best solution. Taking advantage of cutting-edge optical design expertise, our vision lens design service ensures top imaging performance for vision systems used in a wide array of applications.





All Resolve Optics radiation resistant non-browning lenses are made from 100% radiation hard materials to guarantee a long product life.

IEN Europe: What are the key market areas that Resolve Optics specialises in?

Rob Watkinson: Though we supply custom lenses and optical systems to customers operating in an ever-expanding range of different markets – we are internationally renowned for our expertise and knowledge of the aerospace / space and nuclear industries. Designing high-performance optical systems for aerospace projects is something that we have done for over 20 years. Lenses that are used in aircraft and satellites must meet certain basic requirements to survive the temperature, mechanical, radiation and vacuum challenges that space places upon components and systems working in this remote environment. Our expertise in radiation resistant optical materials has made Resolve Optics the leading supplier of fixed and zoom lens for monitoring applications in nuclear reprocessing and power generation.

IEN Europe: Why should developers of optical products consider a bespoke rather than an off-the-shelf lens?

Rob Watkinson: If there is an off-the-shelf lens that meets all your vision needs, then this is the way you should go. However, if there is no off-the-shelf solution available, maybe you have harsh environmental requirements, are limited on space or have a non-standard format sensor. This is where a bespoke solution comes into play. Also, unlike an off-the-shelf lens which can be discontinued at any time (leaving you to find a replacement), we guarantee security of supply of the lenses we supply for your optical product. All application optimised lenses we design and manufacture on your behalf, are guaranteed to be available for as long as they are required, giving you guaranteed security of supply. If required we can also offer you design exclusivity, meaning nobody else can purchase the lens securing you a competitive edge not possible with an 'off-the-shelf' solution.



Non Browning Fixed Focus Lens Designed specially for a 2/3" format. All Resolve Optics radiation resistant non-browning lenses are made from 100% radiation hard materials

IEN Europe: Do you have an interesting optical design and manufacture case study you can share with us.

Rob Watkinson: We regularly publish case studies illustrating custom lens design projects we have completed for customers operating in nuclear, space, defence, aerospace, industrial and medical applications – see <https://www.resolveoptics.com/case-studies/>. While most optical design and manufacture projects undertaken by Resolve Optics Ltd. are subject to confidentiality undertakings we can share the following case study with IEN readers. We were approached by a satellite camera core manufacturer to develop a new 6mm lens for use in space. The lens needed to be radiation resistant to withstand prolonged use in space, athermalized to deliver consistent performance across a wide temperature range and ruggedised to withstand the rigors of launch. Due to the camera core manufacturers tight delivery requirements designing a new optimised lens from scratch was not an option. Using the pre-existing optical design from our 6mm fixed focus radiation tolerant nuclear lens, we redesigned the mechanics to produce a new space ready lens which would be suitable. This approach allowed us to develop a new camera optimised lens in a fraction of the time that would have been required for designing a lens from the ground up.

Resolve Optics at Vision 2026: Hall 10, Booth 10G44

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