



High power laser beam focusing

Using proprietary production techniques, and benefiting from an ultra-stable production facility, **Optical Surfaces Ltd** has established itself as a leading supplier of fast focusing **on-axis parabolic mirrors** for high power laser experiments.



Image caption: An F0.8 on-axis parabolic mirror of 175-mm diameter with surface accuracy better than $\lambda/10$ P-V and smoothness of 20/10 scratch/dig. Produced for the Central Laser Facility (CLF) at the STFC Rutherford Appleton Laboratory (RAL) the mirror was coated with a UV-silver coating providing >98% reflectivity across the 300 to 800 nm wavelength range.

Inherently on-axis parabolic mirrors

allow a higher f-number (<0.7) to be achieved than off-axis designs therefore more laser energy can be concentrated on an experimental target. Generally, alignment of on-axis parabolic mirrors is less critical, thus they are also easier to use.

Generations of customers

have sourced on-axis parabolic mirrors from Optical Surfaces Ltd. The company's heritage goes back over 50 years to the production of large astronomical telescope optics, larger than 1 metre in diameter, for the Royal Greenwich Observatory (UK) and other prestigious customers.



Due to their completely achromatic performance,

on-axis parabolic mirrors are suitable for both broadband and multiple wavelength laser applications. Manufactured from materials including glass, ceramic, and silica –on-axis parabolic mirrors from Optical Surfaces are designed to optimise the performance of ultra-high power pulsed lasers. All surface accuracies are checked by interferometer and are guaranteed to be better than $\lambda/10$ p-v wave accuracy with low scatter.

In combination with the latest dielectric coating technology

– Optical Surfaces on-axis mirrors provide minimum pulse distortion and the maximum usable bandwidth. For use with high-power femtosecond lasers operating at 750 to 850 nm, these fast-focusing mirrors can be used at power densities of greater than 100 mJ/cm² for pulsed 50-fs pulses without deterioration. Production approved to ISO 9001-2015 the quality and performance of fast focusing on-axis parabolic mirrors from Optical Surfaces Ltd. is second to none.

For further information

please visit <https://optisurf.com/on-axis-paraboloids/> or contact Optical Surfaces Ltd. on +44-208-668-6126 / sales@optisurf.com.

Optical Surfaces Ltd

has been producing optical components and systems for nearly 60 years and is today accepted as one of the world's leading manufacturers of high precision mirrors and optics for plasma physics research.

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