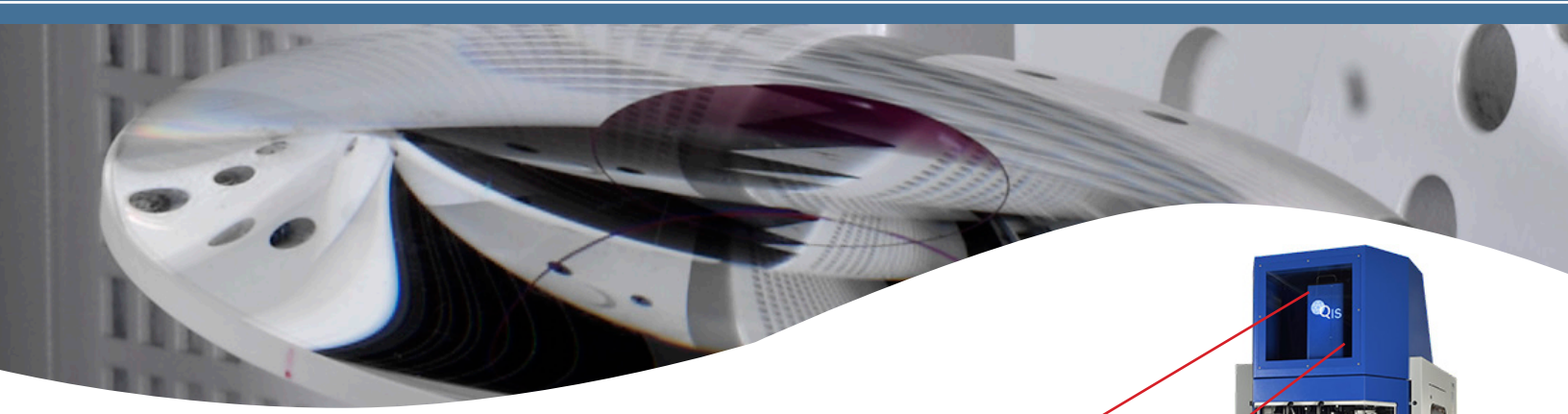
ASI(Q) / Aspheric Stitching Interferometer with QIS

PRODUCT BULLETIN

QED Technologies™



ASI(Q)

Aspheric Stitching Interferometer with QIS

QED innovation and ingenuity brings expanded capabilities and versatility to optics metrology. With the ASI(Q), optics manufacturers can measure a wider range of aspheres and freeforms with more accuracy and faster, without relying on dedicated, expensive null-optics.

The ASI(Q) is powered by QIS, the QED Interferometer for Stitching. QIS is designed and engineered by QED Technologies and takes asphere metrology to the next level of performance. QIS is optimized for stitching and allows the user to collect high quality data on parts with even higher fringe densities, shorter radii, with better resolution and with less retrace error.

QIS is a standard offering on the ASI(Q) platform, or available as a field upgrade to existing ASI and SSI-A platforms. The ASI(Q) allows users to measure high departure aspheres and freeforms over the full aperture. Contact us if you would like to learn more about the ASI(Q) metrology system.

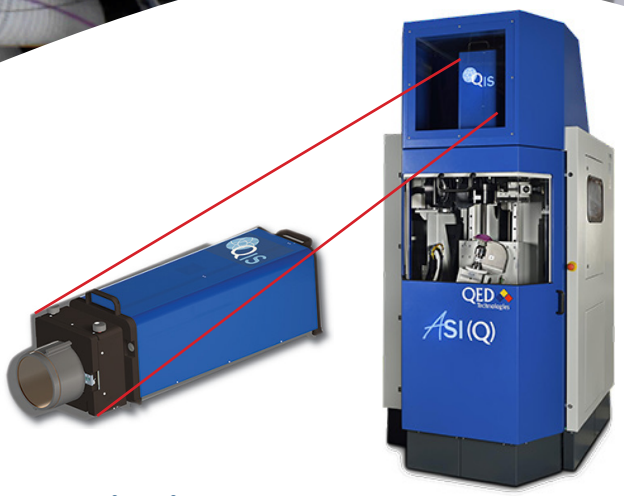
The ASI(Q) with QIS is:

- Full aperture, for deterministic correction of the whole surface
- Accurate, to achieve tighter optical specifications
- Flexible, to minimize custom tooling and lead time
- Automated and easy-to-use
- Capable of testing aspheres without dedicated nulls

Configure the ASI(Q) that best fits your needs:

- Measure planos, spheres, aspheres and freeforms
- Measure diameters from 300 mm to 550 mm.

See details on the following page.



The Stitching Advantage

Stitching technology has four major advantages over standard interferometry:

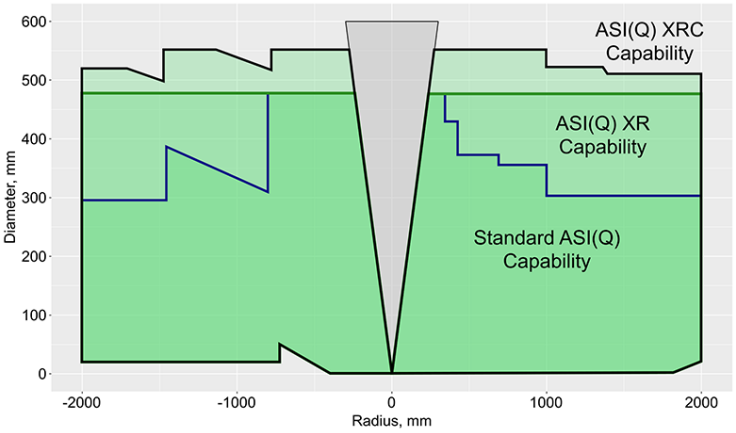
1. Larger field of view—you can see more of the surface.
2. Higher lateral spatial frequencies—you can see a better picture of the surface.
3. Improved accuracy—automatically calibrates systematic instrument errors.
4. Asphere and freeform measurement capability without null optics

Additional Information and Equipment

For additional information reference:

- QIS document MKT1049
- Attenuation Filter document MKT1046
- QRc document MKT1044

ASI(Q) Configurations
Measurable Diameter vs. Spherical Radius



ASI(Q) Technical Capabilities

Materials:	Optical glasses, crystals, metals, ceramics, plastics
Surface finishes:	Specular
Part reflectivity:	1% - 100% (attenuation filter required)
Part geometries:	Plano, spherical, aspheric, freeform
	Concave or convex up to full hemisphere (depending on transmission sphere availability)
Max aspheric departure *:	≤ 1000 waves (0.6 mm) typical, from best-fit-sphere
	(≤ 4000 waves (2.5 mm) departure from vertex sphere)
Max freeform departure *:	≤ 1600 waves (1 mm) typical, from best-fit-sphere
Measurements performed:	Form deviation from nominal prescription
	Radius of curvature (with accessible cats-eye)
	Stitching mismatch map
	Reference wave error

ASI(Q) Configurations/Purchase Options

	ASI(Q)**	ASI(Q) XR	ASI(Q) XRC
Measurement	300 mm Ø	480 mm Ø[1]	550 mm Ø[1]
QIS	Standard	Standard	Standard
Plano/Sphere	Standard	Standard	Standard
Asphere	Option	Option	Option
Freeform	Option	Option	Option
VON * **	Option	N/A	N/A
QRc Compatibility	Yes	Yes	No

* Specifications may vary depending on system options and part prescription.

** A QIS interferometer is required. The ASI(Q) is field upgradeable to an ASI(Q) XR if there is no VON.

*** Variable Optical Null (VON) technology

[1] Gravity sag compensation not included

ASI(Q) Product Specifications

Machine footprint ASI(Q), XR:	53" width x 73" depth (1.34 m width x 1.85 m depth)
Machine footprint ASI(Q), XRC:	53" width x 80" depth
	(1.34 m width x 2.03 m depth)
Machine height Installed:	107.5" height (2.73 m height)
Total machine weight:	4019 lbs. (1823 kg)
Measurement method:	Subaperture Stitching Interferometry (SSI), incorporating a Variable Optical Null (VON) device. (VON not available with XR or XRC models.)
Machine type:	11-axis, automated motion control platform (ASI(Q) XR and XRC are 6-axis)
Interferometer type:	QIS (QED Interferometer for Stitching)
Part fixturing:	25 mm diameter hydro-expansion chuck with variable vacuum feed-through (0 to -40 KPa), part holder kit included. (Customer-provided fixturing might be required for larger parts.)
Z-Axis travel:	820 mm
Test beam diameter:	6 inches (152 mm)
Orientation:	Downward looking
Software:	QED.NET control and analysis software

Get in touch

We would love to hear from you! For more information, please visit us at www.qedmrf.com or contact us directly.

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