



Engineered for Excellence

Magnetorheological Finishing (MRF) sets the industry standard for finishing high precision optical components, enabling optics manufacturers to make high precision aspheres, flats, high-NA spheres, cylinders and freeform optics. MRF is a scalable technology where the size of the removal function (spot) of the tool can be tailored to meet the precision and throughput requirements for the optic that is being polished.

Q-flex Compatible MRF Heads

Q-flex systems offer flexibility and repeatability in modular, production-ready platforms. Q-flex heads are designed for fast, tool-free changeovers and can be shared between all Q-flex machines. The diameters of commercially available polishing wheels for Q-flex systems range from 10 mm to 150 mm, enabling MRF users to manufacture a wide variety of optical geometries. In minutes, MRF heads can be changed between 10 mm, 20 mm, 50 mm and 150 mm sizes to accommodate your polishing needs.

The modularity, capabilities and range of head sizes of Q-flex systems means you can match the machine to your workload, bringing greater efficiency to your precision optics shop.

Features of all Q-flex Heads:

Tool-less changeovers

Automatic raise/lower/lock & automatic probing for alignment allows heads to be installed without tools or special skills

Kinematic mounting interface to base machine

Enables repeatable head position (in X, Y, Z) without the need for manual alignment

Fast changeovers

Go from fluid over one wheel to fluid over another wheel in < 15 min!

Single cable connection

All power and I/O goes through a single umbilical to simplify and speed up changeovers.

All heads have two orientations

Enables both rotational polishing (X-orientation) and freeform raster polishing (Y-orientation)

Permanent magnet design

Enables modularity, as well as around-the-wheel polishing via large magnetic field half angles

Nozzle & Scraper combined into a single unit

Repeatably mounts/unmounts without tools, enabling greater day-to-day and operator-to-operator repeatability

Head Cart included with each wheel

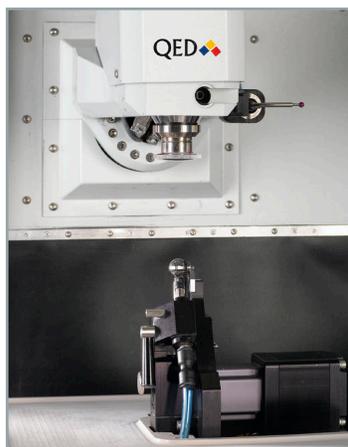
Carts offer off-machine head storage, and the ability to rotate head between X- and Y- orientations. They also include storage drawers for consumables, tools or accessories.

Q-flex MRF Head Comparison Chart

| Wheel size | Average Spot Size (length x width) (mm) | Minimum Concave Radius of Curvature | Minimum Correctable Surface Feature Size (mm) | Minimum Edge Exclusion (mm)** | Magnetic Field Half Angle (deg) | Vol. Removal Rate Example, C12 on BK-7 (mm ³ /min) | MR fluid Compatibility |
|------------|---|-------------------------------------|---|-------------------------------|---------------------------------|---|-------------------------------|
| 10 mm | 1.4x0.7 | 7 | 1 | 1 | 40 | 0.003 | C12, C30*, D10, D11, D20 |
| 20 mm | 2.5x1.3 | 14 | 2 | 2 | 40 | 0.01 | C10+, C12, C30, D10, D11, D20 |
| 50 mm | 6x4 | 35 | 4 | 3 | 45 | 0.03 | C10+, C12, C30, D10, D11, D20 |
| 150 mm | 12x6 | 105 | 8 | 5.5 | 30 | 0.1 | C10+, C12, C30, D10, D11, D20 |



10 mm



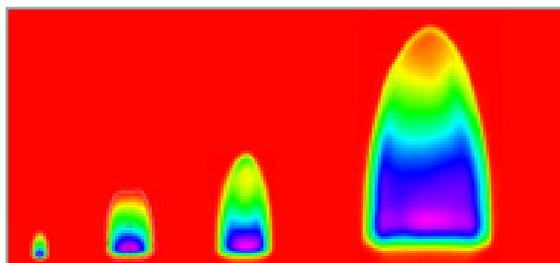
20 mm



50 mm



150 mm



Relative nominal spot sizes from left to right: 10 mm wheel, 20 mm wheel, 50 mm wheel and 150 mm wheel

*may have limitations
** numbers can vary depending on part geometry

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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