

# Q22-1200 MRF™ Polishing Machine

## PRODUCT SPECIFICATIONS



**Polish and finish ground freeform optics up to 1.2 meters in size to high precision... with one machine!**

### Advantages of MRF Polishing

- Works by magnetically manipulating the properties of the MR polishing fluid and adjusting the workpiece position and polishing dwell time via computer control.
- Conforms to complex surfaces, providing the ability to polish aspheric shapes
- Reduces overall finishing times due to its high convergence and peak removal rate
- Maintains process stability with constant recirculation of the MR fluid (no dulling of the polishing tool)
- Provides a deterministic process that can be characterized to very high precision
- Provides a turnkey system for precision optics manufacturing that broadens your design options and improves cost effectiveness

### The Q22-1200 includes the latest MRF Technology:

- Expanded size capability
- Polish aperture sizes up to 1200 mm
- QED.NET software
- EFMS fluid control system

### Technical capabilities include:

- Polishing plano sphere, asphere, cylinder and freeform optics up to 1200 mm x 1200 mm.
- Multi-part batch polishing software
- 4 different axes configurations available

### Interchangeable polishing heads for high flexibility:

- The 50 mm MRF wheel can polish small surface features and reduce edge effects.
- The 370 mm MRF wheel has high material removal rates to cover large surfaces quickly.
- The Pad Polisher allows for pre-polishing or smoothing:
  - Variable orbit and spin RPM
  - Variable pressure
  - 50 mm and 100 mm pad polishing heads



## Polish aperture sizes up to 1200 mm



### References:

1. Actual machine capabilities will vary based on part geometry. Contact QED for detailed capability charts.
2. Requires purchase of Pad Head, Pad FCM, and Software License
3. Requires purchase of Freeform Polishing Software License
4. Requires purchase of Extended Range Polishing Software License. If this license is not purchased, part size is limited to 950 mm x 1200 mm

Specifications subject to change without notice.

\* Workpiece geometry and weight specifications are approximate values to be used as general guidelines. Due to other factors such as workpiece inertia that are difficult to quantify, there are parts outside this range that can be run under certain circumstances, as well as parts within this range that may not run under all circumstances. Use caution when attempting parts outside these limits, or contact QED for further guidance.

\*\* Vacuum generation is supplied with machine.

\*\*\* Axes are applicable to machine model and configuration.

† Distilled water must be used for the chiller. The use of DI water (De-ionized Water) is prohibited due to its reaction with metals in the lines, couplings and chiller unit.

## Technical Capabilities

Maximum workpiece size*:	1200 mm
Maximum workpiece weight*:	400 kg (including lens holder)
Maximum half angle:	30 degrees
Workpiece attachment means**:	Mechanical (vacuum optional)
Axes***:	X, Y, Z, A, B, C, Q, Zp
Moving Range***:	
(X)	1606 mm
(Y)	1016 mm
(Z, Z prime)	740 mm
(B, C)	B +/-32 degrees C +/-35 degrees
(Q, A)	Continuous or 360 degrees
Positioning Accuracy***:	
(X, Y, Z)	+/- 0.0076 mm
(B, Q)	+/- 20 arc sec
(C)	+/- 10 arc sec

Q22-1200 Configurations <sup>1</sup>	3-axes	4-axes	5-axes	6-axes
Coordinated Axes	X, Y, Z	X, Y, Z, C	X, Y, Z, B, C	X, Y, Z, B, C, Q
MRF polishing of plano optics	950 x 1200	950 x 1200	1200 x 1200 <sup>4</sup>	1200 x 1200 <sup>4</sup>
Pad polishing of plano optics	950 x 1200 <sup>2</sup>	950 x 1200 <sup>2</sup>	950 x 1200 <sup>2</sup>	950 x 1200 <sup>2</sup>
MRF polishing of "mild" sphere, asphere and freeform optics	950 x 1200 <sup>3</sup>			
MRF polishing of cylinder, sphere, asphere and freeform optics		950 x 1200	1200 x 1200 <sup>3,4</sup>	1200 x 1200 <sup>3,4</sup>
Pad polishing of plano, sphere and asphere optics				1200 x 1200 <sup>2</sup>

## Product Specifications

Machine footprint:	4.08 m width x 3.72 m depth
Minimum floor space required:	5.56 m width x 5.76 m depth
Machine height installed:	3.67 m height
Total machine weight:	13,636 kg
Minimum Door Opening (w x h)	3.69 m x 2.97 m
Electrical:	210 VAC, 50/60 Hz, 63A, 3ph+N+PE (5-wire)
Water†:	Self-contained chiller included
Compressed air:	87 psi (6 bar), 3cfm (85 l/min), dried and filtered to 10 µm

### Get in touch

We would love to hear from you! For more information, please visit us at [www.qedmrf.com](http://www.qedmrf.com) or contact us directly.



#### North America Sales

+1 978 460 8004  
sales@qedmrf.com

#### Europe Sales

+33 6 31 20 33 87  
sales\_europe@qedmrf.com

#### Japan Sales

+81 59 212 0911  
sales\_japan@qedmrf.com

#### Korea Sales

+82 10 8910 9457  
sales\_korea@qedmrf.com

#### Rest of Asia Sales

+8618802122555  
sales\_asia@qedmrf.com