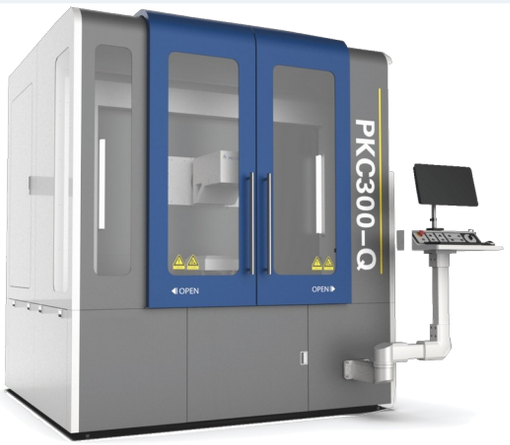
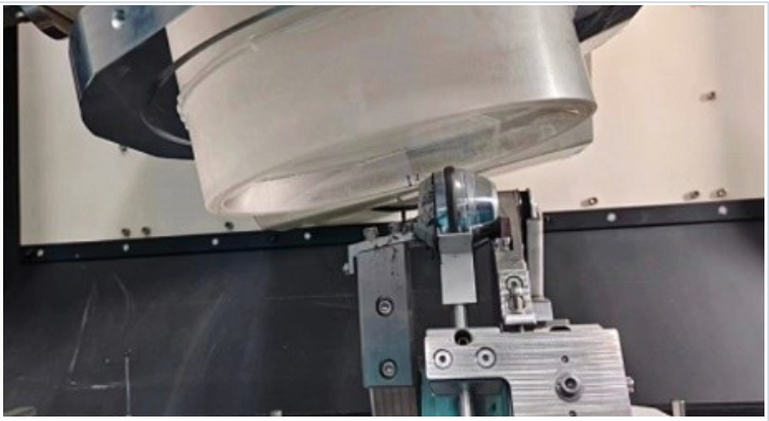
PKC300-Q

MAGNETORHEOLOGICAL FINISHING MACHINE

Deterministic Finishing for Complex Optical Surfaces

The PKC300-Q is a five-axis MRF platform for deterministic figure correction and precision polishing of small- to medium-aperture optics. Its nominal 300 × 300 mm XY processing envelope supports flats, spheres, aspheres and freeforms, subject to workpiece, fixture and head-interference review.





INVERTED WORKPIECE / BOTTOM-MOUNTED HEAD

The PKC300-Q Advantage

Deterministic workflow:
Metrology, data processing, removal-function calibration, dwell-time calculation, polishing and verification.

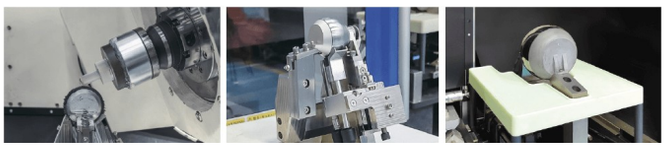
Five-axis architecture:
X/Y/Z/B/C motion with continuous C-axis rotation; no A axis.

Steep-surface access:
Approx. 90° convex / 60° concave normal-slope coverage for qualified workpieces, subject to collision-free reach review.

Guided operation:
Ribbon characterization, removal-function calibration, tool setting and polishing workflows.

Adaptable MRF Head Platform

The standard Ø50 mm polishing wheel can be configured with optional Ø20 mm or Ø150 mm head/wheel assemblies. Final mechanical interface, calibration and collision-free processing range are confirmed for each project.



Representative head and wheel configurations

Deterministic Process Chain

Metrology > Data processing > Removal function > Dwell solve > Polishing > Re-measurement

Application Flexibility

Designed for a broad range of optical finishing requirements:

Surface forms:
flats, spheres, aspheres and freeforms

Complex geometry:
steep convex/concave surfaces and edge-zone correction

Optical sectors:
precision optics, infrared optics, laser optics and process development

Production mix:
multi-variety development, small batches and configured production

Fluid handling:
1 mobile independent circulation unit included; additional units/abrasive systems optional

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Specifications are subject to project configuration and technical agreement.

Typical Capabilities

Capability	Published / typical value
Nominal XY processing envelope	300 × 300 mm
Surface figure error (RMS)	Typical ≤4.2 nm RMS (equivalent to λ/150 at 632.8 nm)
Surface roughness	Typical Ra ≤0.15 nm
Volume removal rate	Typical 0.05–0.15 mm³/min
Polishing wheel	Standard Ø50 mm; optional Ø20 mm / Ø150 mm
Surface-normal slope coverage	Approx. 90° convex / 60° concave

QUALIFICATION NOTE

Typical values depend on material, starting condition, clear aperture, wheel/fluid configuration, metrology and data processing. Ra is a profile parameter; scan and filter conditions must be declared. Project guarantee values are defined in the technical agreement and sample validation plan.

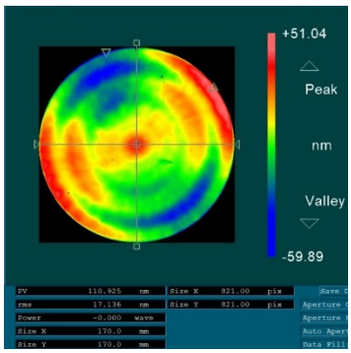
Technical Specifications

Parameter	Specification
Axis configuration	X / Y / Z / B / C (no A axis)
Travel	X ≥650 mm; Y ≥350 mm; Z ≥420 mm; B –180° to +180°; C continuous
Positioning accuracy*	X/Y/Z ≤12 μm; B/C ≤12 arcsec
Positioning repeatability*	X/Y/Z ≤8 μm; B/C ≤8 arcsec
Maximum speed	X/Y/Z 5 m/min; B 12 r/min; C 100 r/min
Straightness*	X 8 μm/650 mm; Y 8 μm/350 mm; Z 8 μm/420 mm
Workpiece arrangement	Inverted workpiece; bottom-mounted polishing head
Fluid circulation	1 mobile independent circulation unit
Site / utilities	Defined in the project technical proposal

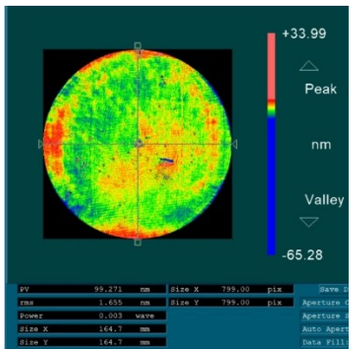
* Source terminology is retained. Statistical definition, measurement direction and acceptance method shall be defined in the technical agreement using the applicable ISO 230 method.

Representative Process Case

Ø170 mm sphere | R = 158 mm | Edge slope = 32.55°



BEFORE | RMS 17.136 nm



AFTER | RMS 1.655 nm

CASE-SPECIFIC RESULT

Displayed analysis sizes differ (170.0 mm before; 164.7 mm after); direct comparison requires consistent aperture/mask and data processing. Material, wavelength, removed terms, filtering, wheel/fluid, process time and uncertainty are undisclosed.

System Configuration & Project Boundary

Standard scope includes the granite machine base, enclosed process area, X/Y/Z/B/C axes, standard Ø50 mm polishing head/wheel, quick workholding device, one mobile circulation unit, MRF control system and process software. Final footprint, mass, utilities, environment, safety interfaces, options and acceptance criteria are project-specific.

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