

Two-Dimensional Magneto-Optical Trap **2D-MOT**

Plug-and-play 2D MOT cold atom beam

KEY FEATURES

- **Ultra-High Flux** Stable cold-atom beam flux exceeding 1×10^9 atoms/s (Rb / Cs), dramatically shortening cold-atom loading time in science chambers.
- **Fixed Optical Path** Internal optics are pre-aligned and fixed at the factory in optimal condition, eliminating time-consuming beam alignment.
- **Plug-and-Play** Connect the laser via optical fiber and power the field coils to output a stable 2D cold atom beam; portable with the vacuum system, improving flexibility while greatly reducing maintenance costs.
- **Compact & Rugged** A fraction of the size of traditional lab-built table-top systems, with a rugged integrated build for long-term operation and transport with the vacuum system — ideal for portable quantum sensors and neutral-atom quantum computing platforms.
- **Active Coil Design** Low power consumption minimizes coil heating for better thermal stability; supports rapid tuning and switching for complex timing sequences.
- **Multiple Atom Sources · Fast Swap** Up to 3 alkali metal dispensers in the source cell: mix Rb and Cs for dual-species operation, or fit several of one metal for longer service life. Modular design for quick replacement (requires venting, followed by pump-down and bakeout).



$\geq 1 \times 10^9$ /s

Cold-atom beam flux (Rb / Cs)

100×125×160 mm

Dimensions

3.2 kg

Weight

CF35

Vacuum interface

PRODUCT SPECIFICATIONS

Dimensions	100 mm × 125 mm × 160 mm
Weight	3.2 kg
Vacuum interface	CF35
Differential pumping stages	3 (replaceable and customizable)
End-face clear aperture	Ø10 mm (removable end cap)
Fiber optic interface	FC/APC
Central magnetic field gradient	0~25 G/cm (adjustable)
Center height	60 mm
Atomic species	⁸⁷ Rb, ⁸⁵ Rb, ¹³³ Cs (optional)
Atom source	Alkali metal dispensers — up to 3 per unit (Rb / Cs can be mixed)
Cold-atom beam flux	≥ 1×10 ⁹ atoms/s (Rb / Cs)
Relative magnetic permeability (housing)	≤ 1.05

Appearance and specifications are subject to the delivered product and its accompanying documents.

APPLICATION FIELDS

- **Quantum Sensing** High-performance cold atom source for atom interferometers, gravimeters, magnetometers and gyroscopes.
- **Atomic Clocks** Atom supply for laboratory-grade and portable atomic frequency standards.
- **Fundamental Physics** Rapid preparation of Bose–Einstein condensates (BEC).
- **Quantum Computing** Front end of neutral-atom-array quantum processors.

“We transform cutting-edge technology into batch-deliverable standard products through engineering — so you can focus on exploring physics instead of building systems.”

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