

# doubleMOT

## PRODUCT HIGHLIGHTS

- **Ultra-high vacuum system** with integrated ion pump, passive getter and built-in dispenser
- **Active and passive pumps** to maintain vacuum
- Two MOT operation for **improved vacuum and control**
- Available with a **standard or custom** UHV glass cell

The doubleMOT is a self-contained, tabletop, ultrahigh vacuum system designed to enable the easy production of cold matter. The doubleMOT utilizes two chambers, isolated by a silicon pinhole disc: a lower chamber to achieve high atom number and create a 2D MOT, and an upper chamber to maintain an ultra-high vacuum and create a 3D MOT. The doubleMOT source cell is compatible with Infleqtion's fixed or adjustable PICAS for an easy and complete solution for 2D MOT generation. The doubleMOT is designed to fit inside of Infleqtion's Physics Platform for 3D MOT generation, and a rail system allows for easy integration of Infleqtion's TriCoil. The doubleMOT is shipped under vacuum.



## PRODUCT SPECIFICATIONS

<b>External Dimensions (W x D x H)</b>	12.7 cm x 12.7 cm x 39.4 cm 5.0 in x 5.0 in x 15.5 in
<b>Weight</b>	3.9 kg (8.6 lbs) with all mounting hardware
<b>Typical MOT Size*</b>	> 5 x 10 <sup>8</sup> atoms
<b>Typical MOT Lifetime*</b>	>40 1/e seconds
<b>Typical Flux* (Cs and Rb)</b>	1 x 10 atoms / sec
<b>Science Cell Vacuum</b>	< 0.8 nTorr
<b>Ion Pump Speed</b>	2 L/s
<b>Alkali Source Resistance</b>	< 1 Ohm
<b>Residual Magnetic Field from Ion Pump</b>	<0.5 G
<b>Dispenser Operating Current</b>	2.0–3.5 Amps
<b>Alkali Metal Source (for Dispensing Rates)</b>	Natural abundance

\*These values are all dependent on the exact experimental configurations.

## RELATED PRODUCTS

<b>TriCoil</b>	CAMCTC	<b>Physics Platform</b>	CPXXXX
<b>Picas</b>	CPPXXx2Xms	<b>2D MOT Coils</b>	CAMAPA
<b>2D MOT Magnets</b>	CAMV2D	<b>Adjustable Picas adapter plate</b>	CAAMPAD

## PRODUCT OPTIONS

<b>Species</b>	<ul style="list-style-type: none"> <li>• Rubidium</li> <li>• Cesium</li> </ul>
<b>Cell Type</b>	<ul style="list-style-type: none"> <li>• Square cell</li> <li>• Imaging cel</li> <li>• Custom geometry can be considered</li> </ul>
<b>Coating Options</b>	<ul style="list-style-type: none"> <li>• AR Targeted (H)</li> <li>• AR Broadband (K)</li> <li>• Uncoated</li> <li>• Custom coatings can be considered</li> </ul>

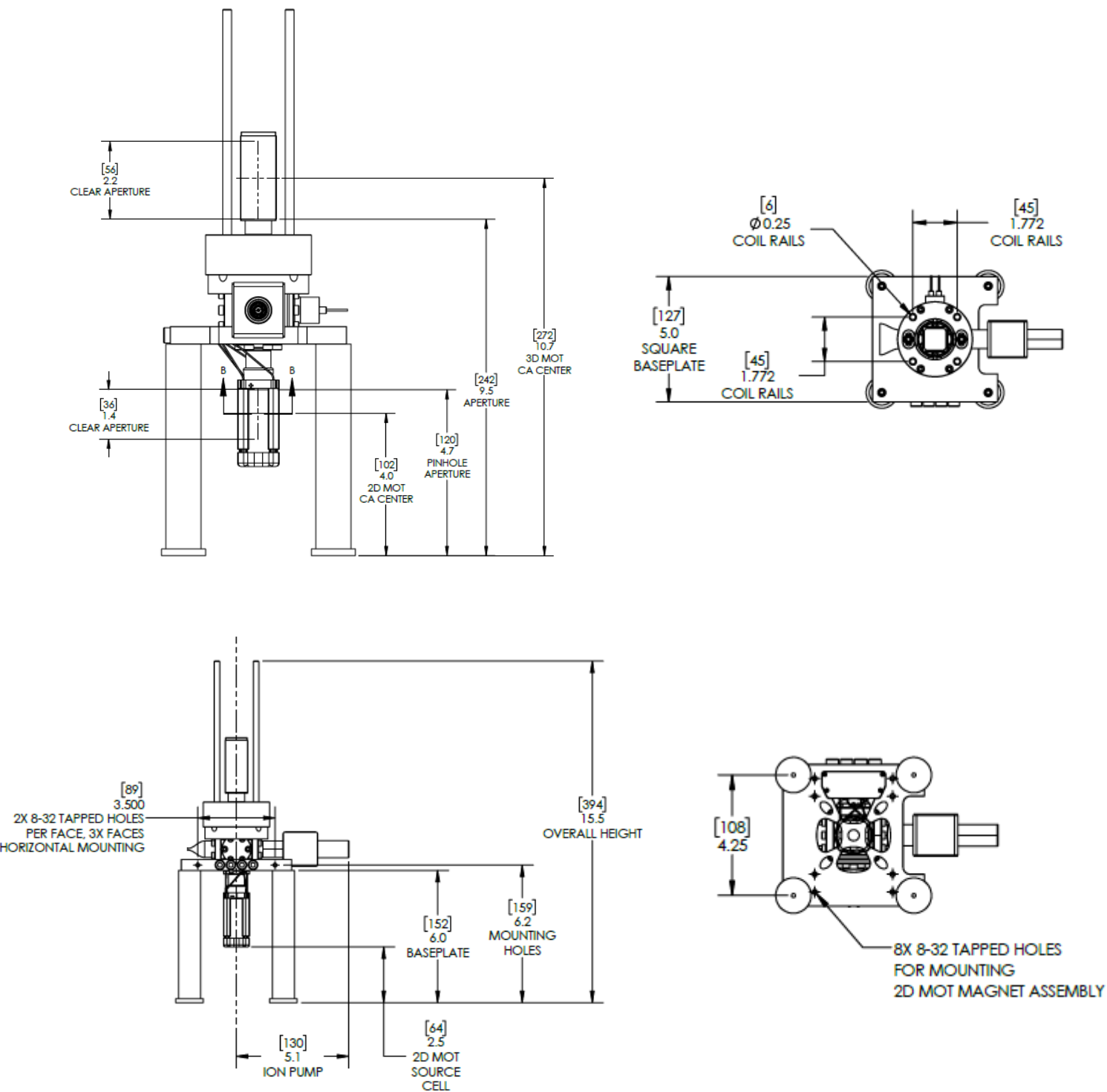


[doubleMOT AR Tour](#)

For more information,  
please contact  
**[sales@infleqtion.com](mailto:sales@infleqtion.com)**

MECHANICAL DRAWINGS

Measurements in mm and [inches]



UNCONTROLLED SALES DRAWING

For more information, please contact [sales@infleqtion.com](mailto:sales@infleqtion.com)

