

QCage Accessories

Supports flexible system integration with solutions for fridge mounting, shielding, cabling and accommodating different chip sizes



**Accelerate your quantum research and
development to unrivaled speeds**

Bring Out the Best of Your Qubits

Magnetic Shielding

Magnetic Shielding is available for both QCage.24 and QCage.64, providing unparalleled flux-noise protection and thermalization. The shielded cold finger mounting eliminates all stray magnetic fields and radiation from the outside.

It incorporates both an outer mu-metal shielding for avoiding flux trapping and an inner superconducting aluminum can to provide full Meissner effect shielding. The aluminum can is surface-treated and fully sleeved by copper to ensure the best possible thermalization. A special cryogenic alloy and annealing process is used for the mu-metal shield.

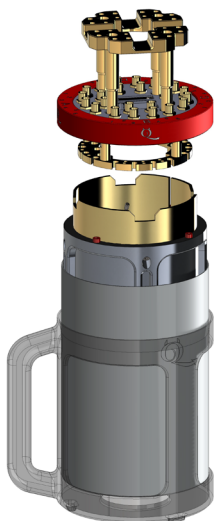
Two variants with either 24 SMA or 64 SMP connections offer the flexibility to accommodate either QCage.24, QCage.64, or even two QCage.24 in the same shielding.

Additionally, 25-way micro-D connections are available for DC connections, making it easy to supply currents to the magnet coil in the QCage sample holder or interface with DC-enabled sample boards, enhancing the versatility of your experiments.

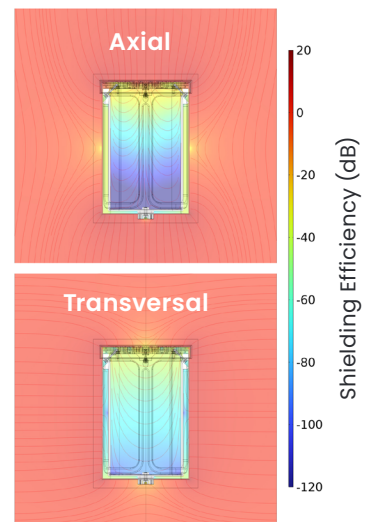


Features

- Magnetic shielding by both mu-metal and superconducting aluminum can
- Cold finger thermalizing to mixing chamber via rods and flanges
- 24-way SMA or 64-way SMP connectivity and 25-way Micro-D
- Shielding thermalized by a complete copper sleeve
- Holds up to two QCage.24 systems



Magnetic shielding with copper-sleeved aluminum can and outer mu-metal shield



Shielding efficiency of combined solution simulated with COMSOL Multiphysics

Field Orientation	Suppression Factor	Shielding Efficiency
Axial (z-axis)	5.42×10^{-5}	-85.3 dB
Transversal (x/y)	12.62×10^{-5}	-78.0 dB

Chip Handling and Wire Bonding

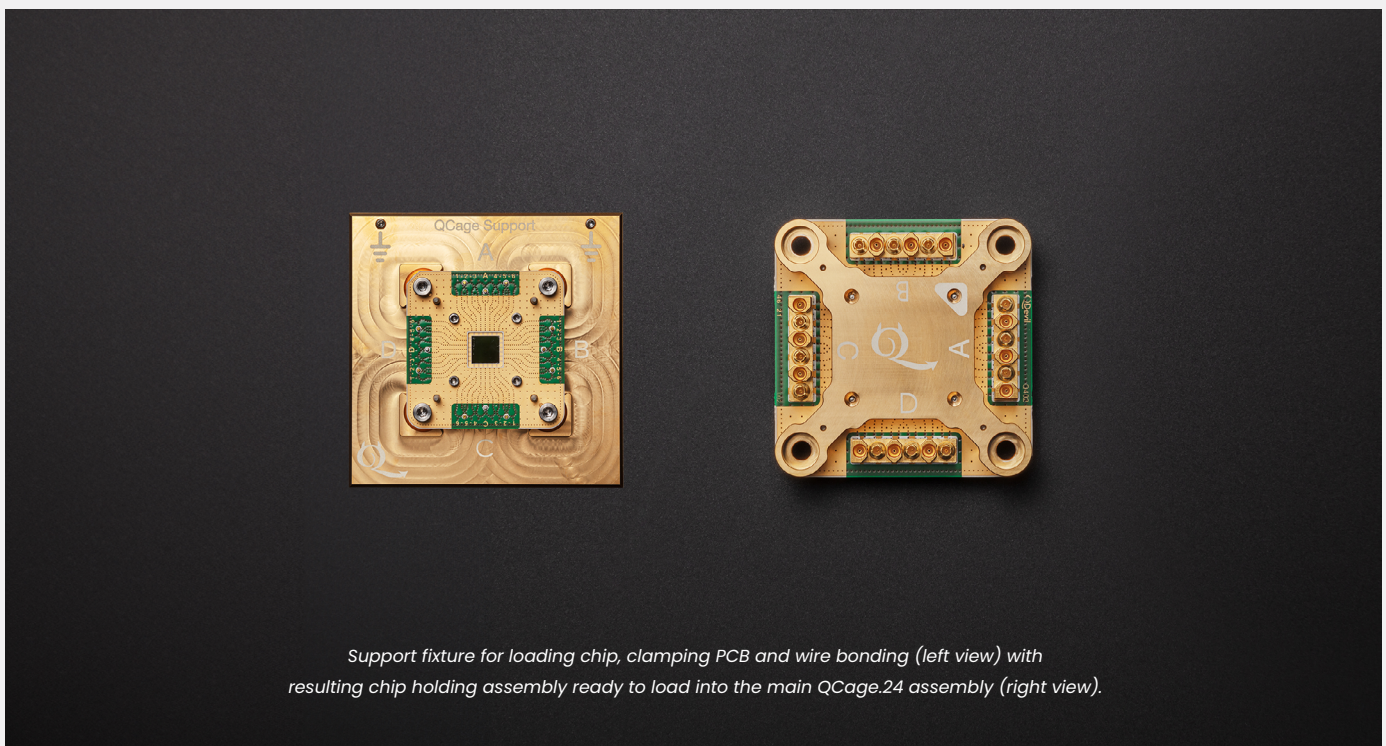
QCage.24 has room for a chip size of 10x10 mm², while QCage.64 has for 22x22 mm². Both QCages support a die thickness of 525 µm. Adapters for smaller and thinner chips are available.

	QCage.24	QCage.64
Adaptors for smaller chip sizes	Q408 - Adaptor for 5 × 5 mm ²	Q436 - Adaptor for 15 × 15 mm ²
	Q409 - Adaptor for 6 × 6 mm ²	
	Q410 - Adaptor for 7 × 7 mm ²	
Adaptors for different die thickness	Q419 - Spacer for thinner chips (125 µm)	Q437 - Spacer for thinner chips (125 µm)
	Q427 - Spacer for thicker chips (125 µm)	Q448 - Spacer for thicker chips (125 µm)
Wire bonding and handling support	Q415 - Support fixture for wire bonding	Q440 - Support fixture for wire bonding

Coaxial Cables

Different cable assemblies are available for connectivity and interface to either SMP or SMA.

	QCage.24	QCage.64
Coaxial cables (to SMP)	Q406 - 6-channel Mini-Coax (straight) to SMP (jack) - 10/20/30 cm length	Q432 - 8-channel Mini-Coax (straight) to SMP (jack) - 20 cm length
	Q407 - 6-channel Mini-Coax (right-angled) to SMP (jack) - 10/20/30 cm length	Q433 - 8-channel Mini-Coax (right-angled) to SMP (jack) - 20 cm length
Coaxial cables (to SMA)	Q416 - 6-channel Mini-Coax (straight) to SMA (plug) - 30/50 cm length	Q434 - 8-channel Mini-Coax (straight) to SMA (plug) - 30 cm length
	Q417 - 6-channel Mini-Coax (right-angled) to SMA (plug) - 30/50 cm length	Q435 - 8-channel Mini-Coax (right-angled) to SMA (plug) - 30/40/50 cm length



Contact us for more
information and demos

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Quantum Control Systems

OPX+

- Processor-based quantum controller™
- Powerful real-time computations and ultra-fast feedback
- All-in-one unit, control and readout



Octave

- Auto-calibrated IQ mixing and local oscillator system
- Up/Down conversion signals
- Extends the OPX+ range to 18 GHz



QDAC-II

- Advanced signal generation
- Ultra-low noise, high stability
- High bandwidth, many channels



QSwitch

- Software-controlled break-out box
- Configuring 24 outputs, by floating, grounding, and connecting to 24 inputs or 8 BNCs



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Quantum Machines (QM) accelerates the realization of practical quantum computing that will disrupt all industries. Our comprehensive portfolio includes state-of-the-art control and cryogenic electronic solutions that support a wide span of qubit technologies. QM's OPX family of processor-based quantum controllers™ leverages a unique Pulse Processing Unit (PPU) technology to deliver unprecedented performance, scalability, and productivity.

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