



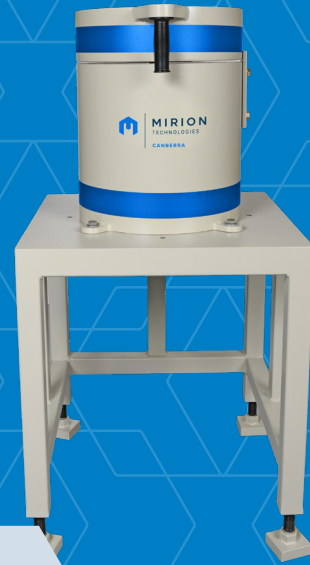
707A™

Compact Lead Shield for Small Samples

The 707A Lead Shield is a compact, cost-optimized shielding solution for high-purity germanium (HPGe) gamma spectroscopy systems measuring small sample geometries. Designed to provide a reliable measurement environment for routine analysis, it delivers accurate and consistent spectroscopy results.

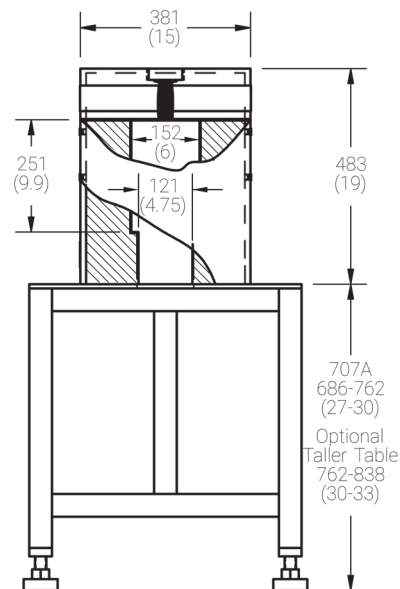
The 707A supports applications such as radiopharmaceutical isotope impurity measurements, where samples are typically small and positioned close to the detector.

The compact shield geometry reduces the total lead volume required, lowering overall shield weight while maintaining shielding performance. This can simplify installation in laboratories where floor load requirements are an important consideration.



FEATURES

- ✓ **Optimized for Small-Sample Spectroscopy**
Reduced cavity dimensions support measurements where samples are positioned close to the detector
- ✓ **Reliable Background Suppression**
4-inch low-background lead shielding helps reduce external radiation and improve detection limits
- ✓ **Cost-Optimized Shield Design**
Reduced cavity dimensions minimize lead volume and overall shield weight
- ✓ **Flexible Detector Compatibility**
Compatible with Slimline™ cryostats and Remote Detector Chamber (RDC) detector configurations with optional accessories to optimize performance
- ✓ **Reduced Shield Weight**
Reduced lead volume lowers overall weight, helping simplify installation and reduce floor load requirements in laboratory environments



TYPICAL APPLICATIONS

- Radiopharmaceutical isotope impurity measurements
- Small-sample gamma spectroscopy in radiochemistry laboratories
- Low-level lab measurements in geology and oceanography

Designed for use with HPGe detectors measuring small sample geometries, the 707A shield reduces background radiation from external sources, helping lower background count rates, improve detection limits, and reduce measurement times.

The shield incorporates **10 cm (4 in.) thick low-background lead** to provide effective attenuation of external radiation sources.

A graded liner consisting of **1 mm (0.040 in.) tin and 1.6 mm (0.062 in.) copper** prevents interference from lead X-rays. The interior is coated with clear polyurethane to prevent oxidation and facilitate cleaning.

The shield floor includes a **12.1 cm (4.75 in.) diameter opening** to accommodate **Slimline cryostats or electrically refrigerated Flanged™ cryostats**.

Design Optimized for Small-Sample Spectroscopy

The 707A is purpose-built for small-sample measurements. Unlike larger Mirion Technologies shielding systems, the 707A features a reduced internal cavity that optimally matches typical small-sample workflows.

While maintaining the same 4-inch lead thickness for effective shielding, the internal cavity dimensions are optimized for compact samples:

- Height: **10 in. (25 cm)**
- Diameter: **6 in. (15 cm)**

This optimized geometry reduces the total lead volume required, lowering shield weight and overall system cost while maintaining the shielding performance needed for many small-sample spectroscopy applications.

SHIELD-DETECTOR CONFIGURATIONS

STANDARD CONFIGURATION – Effective Side Shielding for Routine Measurements

A shield table compatible with 7500SL Slimline cryostats is included as part of the standard package.

The short 7500SL cryostat model is recommended when sample-to-endcap distances up to approximately 10 cm must be accommodated by positioning the preamplifier within the shield floor opening. **This configuration provides shielding that is particularly effective against radiation from the sides.**

Because the preamplifier is positioned within the shield floor opening, a radiation streaming path remains through the shield floor opening.

Shielding performance in this configuration remains adequate for many practical applications, particularly when measuring samples with activity levels above typical natural background levels.

OPTIONAL CONFIGURATION – Enhanced Background Suppression for Low Level Measurements

When short sample-to-detector distances (<10 cm) and small sample sizes are used, shielding performance can be further optimized using RDC cryostat configurations, including:

- 7500SL-RDC
- Cryo-Pulse® 5 Plus-RDC

These configurations can be used together with the optional Model 707A-3 split annular lead plug, which reduces radiation streaming through the shield floor opening and improves background suppression.

In addition, RDC detector configurations position the detector preamplifier outside the shield cavity, providing additional shielding from naturally occurring radiation in the detector preamplifier.

An optional tall table (Model 707A-5) is available to support RDC detector configurations inside the shield.

SPECIFICATIONS

MATERIALS

- Outer Jacket:
 - 9.5 mm (3/8 in.) thick low-carbon steel
- Bulk Shield
 - 10 cm (4 in.) thick low-background lead
- Graded Lining
 - 1 mm (0.040 in.) tin
 - 1.6 mm (0.062 in.) copper

WEIGHT

Description	Weight (lbs)
Standard Configuration: Shield without plug + Standard Table	1310
Optional Configuration: Shield with plug + Tall table	1350
Standard Configuration shipping: Shield without plug + Standard Table	1350
Optional Configuration shipping: Shield with plug + Tall table	1390

FINISH

- Mirion light gray textured epoxy coating
- The paint (RAL7032) specification is C1 Spec A-12196, Class 2, Paint, Light Gray

MECHANICAL

- Door hinge
- Oiled bronze bushings

OPTIONS

- **Model 7415 Detector Lift**
For use with Cryo-Pulse 5 -Plus, Aegis™ spectrometer, and MAC cryostats
- **Model 707A-3 Split Annular Plug**
For RDC detector configurations
- **Model 707A-5 Tall Table**
Supports RDC detector configurations

ORDERING INFORMATION

The standard 707A package includes:

- 707A lead shield
- Standard shield table

OPTIONAL ACCESSORIES:

- Model 7415 Detector Lift
- Model 707A-3 Split Annular Plug
- Model 707A-5 Tall Table

For Aegis HPGe spectrometers, an additional adapter plate is required for mounting to the 7415 Detector Lift:

- AEGIS-7415ADAPT



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