LEAD CABINET FOR NUCLEAR MEDICINE

955-036

955-037

955-037

The cabinet is 1/2" (1.27 cm) thick lead encased in steel, so there is no exposed lead. The work surface is stainless steel with a 5" (12.7 cm) tall backsplash and 1/2" (1.27 cm) beveled edge on the other three sides to prevent any spills from draining off the top. The vertical supports of the cabinet are steel filled with lead. There is a 4" (10.16 cm) diameter chute to dispose of used syringes into a Sharps container (not included) that sits on a sliding pullout shelf in the cabinet. The chute has a stainless steel encased 1/2" 1.27 cm) lead cover.

The unit includes a well for the dose calibrator well chamber.

The two stainless steel shelves are height adjustable and have a 5/8" (1.59 cm) spill lip on all four sides. A fixed shelf below the Sharps container does not pull out but is height adjustable. The other shelf can be pulled out 18" (45.7 cm) and is also height adjustable. The floor surface inside the cabinet is stainless steel.

The two doors on the cabinet open from center to 180°. Both are 1/2" (1.27 cm) lead encased in steel and have an L-handle with a key lock. The latching feature on the L-handle allows closing the door when it is locked. The doors have a 7/8" (2.2 cm) overlap on the cabinet openings.

The L-block is also made of 1/2" (1.27 cm) lead encased with steel and a steel framework around the 1/2" (1.27 cm) thick leaded glass. The viewing window is bent to a 45° angle from the front of the L-block. The L-block is attached to the cabinet with two bolts that screw into mounting plates that are adjustable left and right.

The cabinet is painted with tan textured paint except for the stainless work surface, shelves and inside cabinet floor.

Two base options are available. It can sit on a 3" (7.6 cm) steel frame base that provides a toe kick (Item 955-036) or it can have four (4) 3" (7.6 cm) high adjustable leveling legs (Item 955-037).

An optional Side Shield System is available for the top of the cabinet. The Side Shield System is 1/2" (1.27 cm) lead covered with stainless steel. It fits together using "L" brackets and vertical corner gussets (included).

Specifications

Cabinet Dimensions
Work Surface: 36" L x 30" D x 36 1/8" H (91 x 76 x 91.8 cm)
Top of Backsplash: 41 1/8" H (104.5 cm)
Cabinet Openings: 14.25" W x 24.5" H (36.2 x 62.2 cm)

Shelf Sizes
Container Shelf: 5.5" W x 8.5" D x 15/16" H (14 x 21.6 x 2.4 cm)
Pullout Shelf: 12.25" W x 25.25" D x 5/8" H (31.1 x 64.1 x 1.6 cm)
Fixed Shelf: 13.75" W x 25.25" D x 5/8" H (35 x 64 x 1.6 cm)
Well for Dose Calibrator: 8.0" Dia. x 9.5" D (20.3 x 24 cm)

L-Block Dimensions
Front Size: 14.625" W x 18.5" H x 0.75" Thick (37.2 x 47 x 1.9 cm)
Window Viewing Area: 13.5" W x 12" H (34.3 x 30.5 cm)
Overall Height: 28.5" H (72.4 cm)
Window Angle: 45°
Lead Glass Thickness: 0.5" (1.27 cm)
Lead Equivalency of Glass: 1/8" (0.32 cm)

Optional Side Shield System
Each Side: 27" L x 18.5" H x 0.5" T (68.6 x 47 x 1.27 cm)
Back: 30" L x 18.5" H x 0.5" T (76.2 x 47 x 1.27 cm)
Material: 1/2" (1.27 cm) Lead covered with Stainless Steel and framed in stainless steel channels

Item #	Description	Lead Thickness	Size
955-036	Cabinet for Nuclear Medicine with 3" (7.6 cm) Steel Base	0.5" (1.27 cm)	36" L x 30" D x 41 1/8" H (91 x 76 x 104.5 cm)
955-037	Cabinet for Nuclear Medicine with Four 3" (7.6 cm) Legs	0.5" (1.27 cm)	36" L x 30" D x 41 1/8" H (91 x 76 x 104.5 cm)
995-012	Optional Side Shield System	0.5" (1.27 cm)	(2) 27" L x 18.5" H x 0.5" T (68.6 x 47 x 1.27 cm) (1) 30" L x 18.5" H x 0.5" T (76.2 x 47 x 1.27 cm)

PET WORKSTATION

L-Block sold separately

994-036

W

The PET Workstation consists of a steel table with a drawer, lower shelf, container well, and side and back shields. The L-Block must be ordered separately.

The workstation table is made of 2" (5.08 cm) steel tubing. The sides and back walls are 2" (5.08 cm) thick lead bricks covered with steel panels on both sides. The four corner posts are filled with lead.

The container well is 19.5" (49.5 cm) from the front of the table and has 2.5" (6.35 cm) thick lead walls for the detector chamber to be placed into. The 2.5" (6.35 cm) leaded bottom of the container well rotates to accommodate the insertion of the detector chamber from the bottom. The container well bottom then rotates back and is bolted in place. The container well rises 4" (10.16 cm) above the table top and is 16" (40.64 cm) deep. The overall diameter of the container well is 13.5" (34.29) with an inside diameter of 7" (17.8 cm). This size container well accommodates the Capintec CRC®-15PET detector chamber.

The workstation has 4 heavy duty casters. The two rear casters are fixed and the two front casters are swivel and locking. Each caster is rated at 2,000 lb (909 kg).

Options for PET Workstation

Item 990-488: 2" (5.08 cm) Thick lead L'Block with a 8" W x 8" L x 4" thick (20.3 x 20.3 x 10.2 cm) lead glass window.
L-Block Dimensions: 14" W x 17.5" D x 24.75" H (35.6 x 44.5 x 63 cm)

Item 994-036 and 994-036-1: Stainless steel tray that holds the dose calibration display unit.

Item 994-021: Pair of steel channels that distribute the heavy weight of this workstation over a large floor area.

Item 994-020-21: 2.5" Thick (6.35 cm) Leaded Rotating Well Top Cover

Specifications

Workstation:
Overall Dimensions: 27.75" W x 35.75" L x 61" H (70.5 x 90.8 x 155 cm)
Table Top Dimensions: 23.25" W x 31.25" L x 34.75" H (59 x 79 x 88 cm)
Side/Back Wall Height: 16" (40.6 cm)
Color: Durable tan textured polyurethane enamel paint
Approximate Weight: 2,650 lb (1205 kg)

Note: The workstation can be manufactured to fit other dose detector chambers. When placing an order please specify manufacturer of dose calibrator detector, model, outside diameter and height.

Item #	Description
994-020	PET Workstation w/ Drawer, Container Well & Side Shields
994-020-21	2.5" (6.35 cm) Thick Leaded Rotating Well Top Cover
994-021	Floor Channels for Weight Distribution - 2/Set
994-036	Tray for Dose Calibrator, 10.75" Square (27.3 cm)
994-036-1	Tray for Dose Calibrator, 12" Square (30.5 cm)
990-488	"L" Block - 2" Thick (5.08 cm) Lead
990-900	Stainless Steel Tray for "L" Block

DUAL WORKSTATION
with Lead Side Shields

Lead Walls: 2" thick (5.08 cm)
Frame: 2" (5.08 cm) steel tubing
Overall Size: 64" W x 36" D x 50.25" H (162.6 x 91.4 cm x 127.6)
Side Shields: 2" thick x 16 7/16" H (5.1 x 41.8 cm)
Work Surfaces: 28" W x 34" D (71.1 x 86.4 cm) and 30" W x 34 " D (76.2 x 86.4 cm)
Work Surface Height: 34 1/8" (86.7 cm) from floor
Drawer Inside Size: 20" W x 20" D x 5" H (50.8 x 50.8 x 12.7 cm)
Clearance Under Drawer to Bottom Shelf: 15 1/8" (38.4 cm)
Bottom Shelf: 32" W x 36" D (81.2 x 91.4 cm), 9 5/8" (24.5 cm) from floor
Casters: Four rear fixed 6" (15.24 cm) diameter, two front swivel 6" (15.24 cm) diameter, two front swivel 6" (15.24 cm) diameter w/brakes
Finish: Durable tan textured polyurethane enamel paint
Weight: 475 lb (216 kg)

Item #	Description
992-140	Dual Workstation with Lead Side Shields (Made from Items 992-138 and 992-139)
992-138	Workstation with 3 Side Shields
992-139	Workstation with 2 Side Shields

STEEL TABLE

This steel table has smooth, round edges and the top shelf will support both a Storage Safe (Item 994-300) and a L-Block Shield (Item 990-488). The table has a locking storage drawer and a heavy duty lower shelf for storing radiation pigs and supplies. The support frame of the table is tubular steel with welded joints for maximum strength. The table is welded to four 6" (15.24 cm) diameter swivel locking casters rated at 1,200 pounds (545 kg) each.

Specifications

Dimensions: 28" W x 36" D x 33.75" H (71.1 x 91.4 x 85.7 cm)
Inside Drawer Size: 20" W x 20" D x 5" H (50.8 x 50.8 x 12.7 cm)
Finish: Durable tan textured polyurethane enamel paint
Weight: 150 lb (68.2 kg)

Item #	Description
992-020	Steel Table with Drawer and Shelf

STEEL TABLES

These Steel Tables are made with a 2" (5.08 cm) square steel tubing framework and Stainless Steel shelves. The two front legs have adjustable leveling feet. The two back legs are a fixed length.

Item	Steel Table, 2 Shelves
992-060	36" W x 24" D x 36" H (91.44 x 60.96 x 94.44 cm)
992-147	48" W x 24" D x 36" H (121.92 x 60.96 x 94.44 cm)

CABINET 6mm (1/4") LEAD-LINED

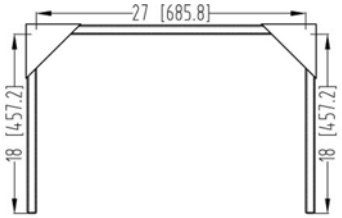
The cabinet is made of 0.25" (6.37 mm) sheet lead and covered on both sides with steel. The doors are also 0.25" (6.37 mm) sheet lead covered with stainless steel and have a key lock handle on each door. The outside of the cabinet and the interior walls are painted with a tan textured polyurethane enamel paint. A toe kick at the bottom prevents anything from sliding underneath the cabinet.

Specifications

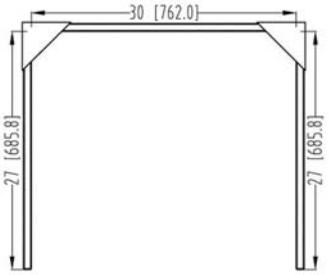
Overall size: 40" W x 24" D x 28" H (102 x 61 x 71 cm)
Finish: Durable tan textured polyurethane enamel paint
Approximate weight: 1200 lb (545.5 kg)

Item #	Description
955-041	Stainless Steel Covered Lead Cabinet

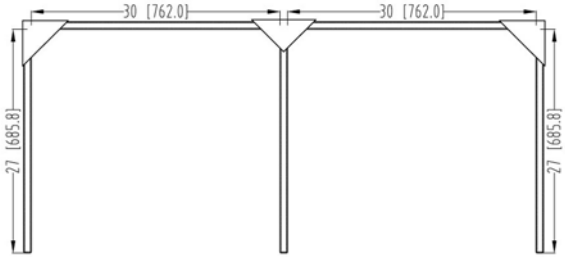
STAINLESS STEEL COVERED SIDE SHIELD SYSTEMS FOR CABINET TOP OR TABLE



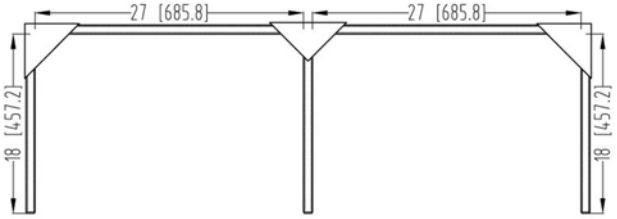
995-011



995-012



995-013



995-014

Side Shield Systems are available for the top of a cabinet, counter or table. The Side Shield Systems are 1/2" (1.27 cm) lead covered with stainless steel. It fits together using "L" brackets and vertical corner gussets (included).

Material: 1/2" (1.27 cm) Lead covered with Stainless Steel and framed in stainless steel channels

Item	Description	Lead Thickness	Dimensions	Weight
995-011	Side Shield System, Single	0.5" (1.27 cm)	Each Side: 18" L x 18.5" H x 0.5" T (45.7 x 47 x 1.27 cm) Back: 27" L x 18.5" H x 0.5" T (68.6 x 47 x 1.27 cm)	125 lb (57 kg)
995-012	Side Shield System, Single	0.5" (1.27 cm)	Each Side: 27" L x 18.5" H x 0.5" T (68.6 x 47 x 1.27 cm) Back: 30" L x 18.5" H x 0.5" T (76.2 x 47 x 1.27 cm)	355 lb (162 kg)
995-013	Side Shield System, Double	0.5" (1.27 cm)	Each Side: 27" L x 18.5" H x 0.5" T (68.6 x 47 x 1.27 cm) Each Back: 30" L x 18.5" H x 0.5" T (76.2 x 47 x 1.27 cm)	595 lb (271 kg)
995-014	Side Shield System, Double	0.5" (1.27 cm)	Each Side: 18" L x 18.5" H x 0.5" T (45.9 x 47 x 1.27 cm) Each Back: 27" L x 18.5" H x 0.5" T (68.6 x 47 x 1.27 cm)	475 lb (216 kg)

L-BLOCK LEAD SHIELD

With Wide View Window

Shown with Optional Stainless Steel Tray (Item 990-900)

The L-Block Lead Shield's tilted wide view leaded glass window provides easy viewing of the radiation loading area. 3" (7.6 cm) of lead on each side of the viewing window give maximum protection to the head. The 8" (20.3 cm) square window is made of 4" (10.2 cm) thick leaded glass that has a density of 5.2 g/cm³. The L-Block is made of sheet steel with 2" (5.08 cm) of lead shielding inside. Two holes are provided for lifting the unit.

Specifications

Leaded Glass Dim: 8" Sq. x 4" T (20.3 x 10.2 cm)
Lead Glass Density: 5.2 g/cm³
Tenth Value Thickness (Cesium^{137}) = 4.8 cm leaded glass
4" T (10.2 cm) leaded glass = 4 cm lead equivalence
Overall Dim: 14" W x 17 1/2" D x 24 3/4" H x 2" T
(35.6 x 44.5 x 62.9 x 5.08 cm)
Finish: Durable tan textured polyurethane enamel paint
Weight: 450 lb (205 kg)

Item #	Description
990-488	L-Block Lead Shield
990-900	Stainless Steel Tray

LEAD "L" BLOCK SHIELD

With Extra Wide View

The 1 1/2" (3.8 cm) thick Lead "L" Block Shield provides protection to the clinician when working with 511 KeV nuclides.

The face shielding is made of optically clear 12" W x 8" L x 2" thick (30.5 x 20.3 x 5.08 cm) lead glass, cantilevered for unimpaired viewing of the work area. The leaded glass has a density of 5.2 g/cm³ to give maximum eye and face protection.

Specifications

Leaded Glass Dim: 12" W x 8" H x 2" T (30.5 x 20.3 x 5.08 cm)
Lead Glass Density: 5.2 g/cm³
Lead Glass: 2 cm lead equivalent (^{137}Cs energy)
Lead Thickness: 1 1/2" (3.8 cm)
Lead Density: 11.35 g/cm³
Overall Dim: 12 3/8" W x 13 1/2" D x 16 7/8" H (31.5 x 34.3 x 42.9 cm)
Front Shield Dim: 12 3/8" W x 11 1/8" H (31.5 x 28.3 cm)
Finish: Durable tan textured polyurethane enamel paint
Weight: 210 lb (95.5 kg)

Item #	Description
989-415	Lead L-Block Shield

PET STORAGE SAFE

This Storage Safe is ideal for storing large quantities of high activity radioisotopes. Shielded with a thickness of 2" (5.08 cm) of lead, the safe is encased in a powder coated steel jacket and features an adjustable shelf. The lead lined door is hung with heavy duty non-sagging hinges and is key-locked to prevent unauthorized access.

Transporting this half-ton safe is made easier with the built-in lifting handles for use with a hoist or other means.

Specifications

Exterior Dim: 17.4" W x 17" D x 19" H (44.2 x 43.2 x 48.3 cm)
Inside Dim: 12" x 12" x 12" (30.5 x 30.5 x 30.5 cm)
Wall Thickness: 2" (5.08 cm)
Finish: Durable, powder coat paint
Weight: 1,050 lb (477.3 kg)

Item #	Description
994-300	PET Storage Safe with Door

W

PET WASTE WELL

The PET Waste Well stores used syringes and vials used in PET applications until proper disposal.

The Waste Well has 2" (5.08 cm) thick lead brick walls covered with steel panels on the outside and inside. The bottom is lead covered with stainless steel. The frame of the waste well is 2" (5.08 cm) square steel tubing welded together.

Optional: Half cover made of stainless steel filled with lead. The cover has rollers that allow the user to easily roll the cover forward or backward using the handle.

Note: The Waste Well can be custom made to your specifications.

Specifications

Overall Dimensions: 24" W x 24" L x 51.5" H (61 x 61 x 131 cm)
Inside Well Dimensions: 20" W x 20" L x 16" Deep (51 x 51 x 41 cm)
Wall Thickness: 2" (5.08 cm) Lead
Weight: Approx 1,250 lbs (569 kg)
Color: Durable tan textured polyurethane enamel paint.

Item #	Description	Lead Thickness
994-010	PET Waste Well	2" (5.08 cm) Lead Walls and 1/2" (1.27 cm) Lead Floor
994-011	Half Cover for PET Waste Well	1/2" (1.27 cm) Lead
994-012	PET Waste Well	2" (5.08 cm) Lead Walls and 1" (2.54 cm) Lead Floor
994-013	Half Cover for PET Waste Well	1" (2.54 cm) Lead

SHARPS CONTAINER SHIELD FOR PET

The Sharps Container Shield for PET is a simple, safe and convenient solution for disposal of syringes that have been contaminated with high energy radionuclides. The shield is constructed of steel and lined with 1" thick (2.54 cm) lead.

The shield is designed to be used with Item 994-413 Monoject Sharps Containers. It features a lockable sliding cover for container removal and a hinged top door for syringe disposal.

The shield can stand independently or can be recessed into a cabinet or countertop. It uses one Monoject Sharps Container.

Specifications

Item 994-412 Sharps Container Shield, PET
Dimensions: 12" H x 8.75" Dia (30.5 x 22.2 cm)
Lead Shielding:
Sides and Bottom: 1" thick (2.5 cm)
Rotating Cover: .875" thick (2.2 cm)
Hinged Door: .625" thick (1.5 cm)
Weight: 175 lb (79.5 kg)

Item #	Description
994-412	Sharps Container Shield, PET
994-413	Sharps Container, Monoject, 12/Pkg

ADJUSTABLE HEIGHT ROLLING RADIATION SHIELD FOR PET

2" (5.08 cm) Thick Lead

- **Only adjustable shield with 36" W x 24" H (91 x 61 cm) lead**
- **Easy-to-adjust**

The Adjustable Lead Shield can be moved over a 9" (23 cm) height range by using a screw jack. The jack is operated by a hand crank or a flat blade (both included) for a 3/8" Drill. The shield is set in a metal frame and mounted on a base with four 6" (15.24 cm) diameter swivel, locking, ball bearing casters that provide easy mobility.

Specifications

Lead Size: 36" W x 24" H x 2" T (91 x 61 x 5.08 cm)
Overall Size: 42.5" W x 24" D (108 x 61 cm)
Base Height: 10.5" (26.7 cm)
Casters: Four 6" (15.24 cm) dia. swivel locking ball bearing
Finish: Durable tan textured polyurethane enamel paint
Weight: 850 lb (387 kg)

Item #	Description
964-030	Adjustable Height Rolling Radiation Shield Height Adjusts 39" to 48" (99 to 122 cm)

INTERLOCKING RADIATION SHIELDS FOR PET

2" (5.08 cm) Thick Lead

These radiation shields for PET are made of 2" (5.08 cm) thick lead with lead-filled posts. The base of each shield has four 6" (15.24 cm) diameter swivel locking ball bearing casters. The base of the bed end shield is higher for placement over the base of the side shield. This allows the shields to abut to each other. Each shield has handles on both sides and both ends.

Specifications

Lead Size: 36" W x 24" H x 2" T (91 x 61 x 5.08 cm)
Overall Size: 40" W x 45" H x 24" D (102 x 114 x 61 cm)
Casters: Four 6" (15.24 cm) diameter swivel locking ball bearing
Finish: Durable tan textured polyurethane enamel paint
Approximate Weight: 850 lb (387 kg)

Item #	Description
964-340	Interlocking Bed End Shield 40" W x 40" H x 24" D (101.96 x 101.96 x 61.18 cm)
964-342	Interlocking Bed End Shield 40" W x 42" H x 24" D (101.96 x 107.06 x 61.18 cm)
964-345	Interlocking Bed End Shield 40" W x 45" H x 24" D (101.96 x 114.71 x 61.18 cm)
964-348	Interlocking Bed End Shield 40" W x 48" H x 24" D (101.96 x 122.35 x 61.18 cm)
964-355	Interlocking Bed End Shield 40" W x 55" H x 24" D (101.96 x 140.2 x 61.18 cm)
964-930	Optional Two Lead-Filled Posts
964-940	Optional Shield Interlock, 1.75" (4.5cm) Lead Thickness

W

RADIATION SHIELDS FOR PET

2" (5.08 cm) Thick Lead

These radiation shields for PET are made of 2" (5.08 cm) thick lead with lead-filled posts. The base of each shield has four 6" (15.24 cm) diameter swivel locking ball bearing casters.

Specifications

Lead Size: 36" W x 24" H x 2" T (91 x 61 x 5.08 cm)
Base Height: 10.5" (26.7 cm)
Casters: Four 6" (15.24 cm) dia. swivel locking ball bearing
Finish: Durable tan textured polyurethane enamel paint
Approximate Weight: 850 lb (387 kg)

Item #	Description
964-240	Fixed Rolling Radiation Shield 40" W x 40" H x 24" D (101.6 x 101.6 x 61 cm)
964-242	Fixed Rolling Radiation Shield 40" W x 42" H x 24" D (101.6 x 106.7 x 61 cm)
964-245	Fixed Rolling Radiation Shield 40" W x 45" H x 24" D (101.6 x 114.3 x 61 cm)
964-248	Fixed Rolling Radiation Shield 40" W x 48" H x 24" D (101.6 x 121.9 x 61 cm)
964-255	Fixed Rolling Radiation Shield 40" W x 55" H x 30" D (101.6 x 139.7 x 76 cm)
964-940	Optional Shield Interlock, 1.75" (4.5cm) Lead Thickness

Custom Size Shields Available

COMPACT PET SHIPPING SYSTEM FOR ONE TO THREE UNIT DOSE PIGS

For Shipping Syringes With or Without Needles Attached

994-726 994-727 994-728

These compact PET shipping systems transport one to three 3 cc or 5 cc syringes containing high-energy radionuclides such as FDG F-18. Syringes fit into the pigs with or without an attached needle. This system is designed to conserve space and minimize weight. An important feature is that the shipping container can be left at a convenient height while the pig (9 lb or 4.1 kg) can be easily removed from the container. The pig is then placed behind an L-Block for dose loading and unloading.

The Unit Dose Pig is encapsulated in high-impact lexan and polypropylene, making the pig durable, easy to clean and compatible with automatic washing systems. A single twist opens or closes the pig, reducing handling time.

Compact PET Shipping System Includes

- PET Unit Dose Pig (1 to 3)
- Absorbent Sheets, 100/Pkg
- Shipping Container with Lead Shielding

Specifications

Item 994-726 Single Unit Pet Shipping System
Container Size: 11.75" L x 11.75" W x 12.5" H (29.8 x 29.8 x 31.8 cm)
Cubic Feet: ~ 1 cu ft (.03 cu meters)
Weight (Combined): 38.3 lb (17.5 kg)
Regulations: Meets DOT II Type A packaging requirements when shipping up to 500 mCi (18.5 GBq) of FDG F-18

Item 994-727 Double Unit PET Shipping System
Container Size: 11.75" L x 11.75" W x 12.5" H (29.8 x 29.8 x 31.8 cm)
Cubic Feet: ~1 cu ft (.03 cu meters)
Weight (Combined): 55.2 lb (25.2 kg)
Regulations: Meets DOT II Type A packaging requirements when shipping up to 160 (5.92 GBq) and 235 (8.70 GBq) mCi of FDG F-18.

Item 994-728 Triple Unit PET Shipping System
Container Size: 11.75" L x 11.75" W x 12.5" H (29.8 x 29.8 x 31.8 cm)
Cubic Feet: ~1 cu ft (.03 cu meters)
Weight (Combined): 95 lb (43.1 kg)
Regulations: Meets DOT II Type A packaging requirements when shipping up to 235 (8.70 GBq), 160 (5.92 GBq) and 140 mCi (5.18 GBq) of FDG F-18.

Item 994-729 Unit Dose Pig
Size: 10.2" H x 2.4" Dia. (26 x 6 cm)
Lead Shielding:
Body: 0.5" thick (1.3 cm)
Ends: 1.2" thick, bottom; 1.44" thick, top (3 cm and 3.6 cm)
Weight: 8.7 lb (4 kg)
Regulations: Meets IATA Dangerous Goods Regulations, 53rd Edition Sections 5.0.4.3, 10.5 and 10.6.1 thru 10.6.3.5.

Item #	Description
994-726	PET Shipping System, Single PIG
994-727	PET Shipping System, Double PIG
994-728	PET Shipping System, Triple PIG
994-729	Unit Dose Pig, 3/5 cc, 0.5" (1.3 cm) Lead
994-730	Transport Cart for PET Shipping System
994-732	Absorbent Sheets, 100/Pkg
994-733	Tags, Wire Security, 25/Pkg

COMPACT PET SHIPPING SYSTEM FOR VIAL PIG

994-750 994-205

The Compact PET Shipping System for Vial Pigs is designed to transport a 10 ml or 30 ml vial containing high energy radionuclides. Designed to conserve space and minimize weight, the entire system weighs only 50 lb (22.7 kg). An important feature is that the shipping container can be placed at a convenient height while the pig is easily removed from the shipping case. For added safety and convenience, the vial pig can then be placed in the Dose Drawing System (Item 994-465) for drawing doses from the vial.

Item 994-750 PET Shipping System for Vial Pig Includes
- PET Vial Pig (Item 994-205 and 994-206)
- Absorbent Sheets (Item 994-732)
- Shipping Container with Lead Shielding (Item

The Vial Pig Adapter (Item 994-206) allows the 30 ml Vial Pig (Item 994-205) to accommodate 10 ml vials, one Vial Pig Adapter is included with the Vial Pig.

Specifications

Item 994-205 10/30 ml Vial Pig, 1" (2.54 cm) Lead
Outside Dimensions: 6.63" H x 4.15" dia. (16.8 x 10.5 cm)
Inside Dimensions: 2.76" H x 1.51" dia (7 x 3.8 cm)
Lead Shielding Sides and Bottom: 1" thick (2.5 cm)
Lead Shielding Top: 1.75" (4.4 cm)
Weight: 21.3 lb (9.7 kg)

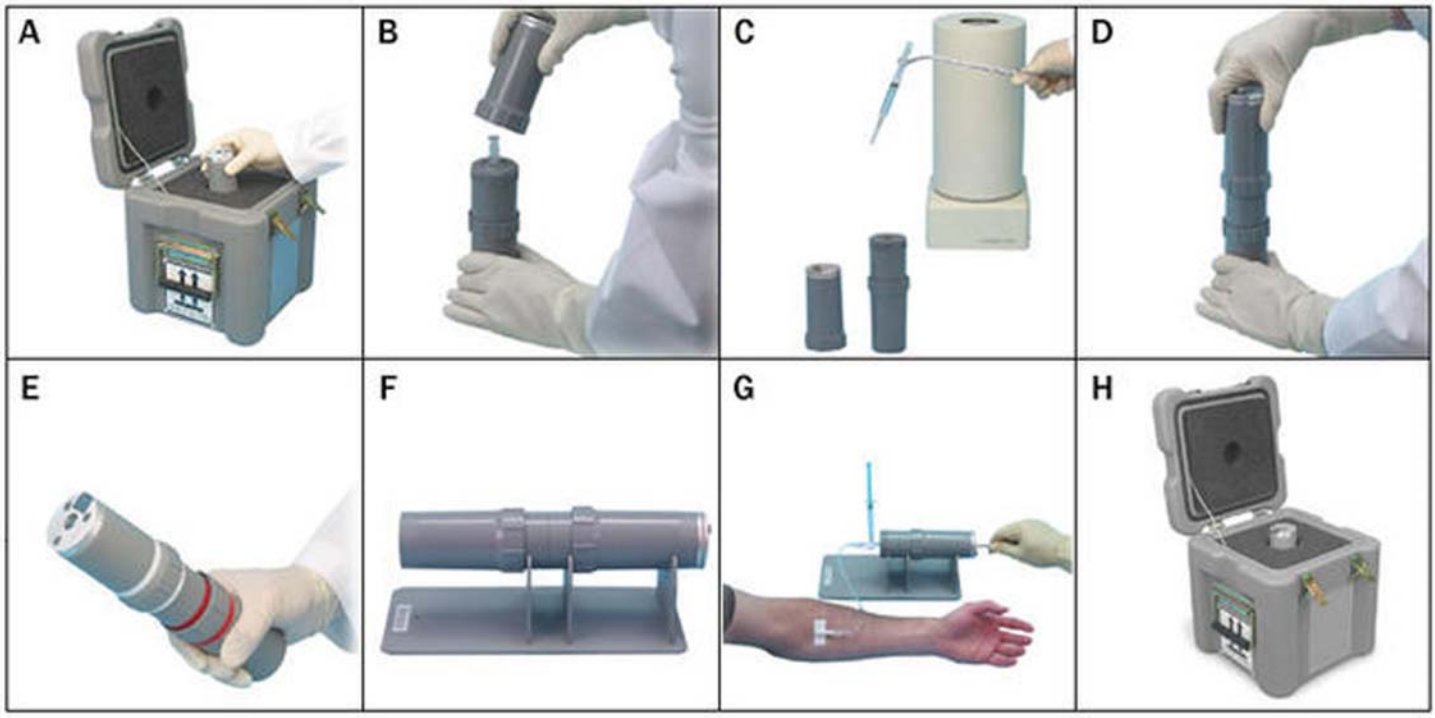
Item 994-750 PET Shipping System, Vial and Pig
Container Size: 11.75" L x 11.75" W x 12.5" H (29.8 x 29.8 x 31.8 cm)
Cubic Feet: 1.0 cu ft (.03 cu meters)
Weight (Combined): 49.7 lb (22.5 kg)

Regulations: Meets DOT II Type A packaging requirements when shipping up to 2.5 Ci FDG F-18. Meets IATA Dangerous Goods Regulations, 53rd Edition Sections 5.0.4.3, 10.5, and 10.6.1 thru 10.6.3.5.

Note: System requires Absorbent Sheet to meet required DOT and IATA standards.

Item #	Description
994-750	Compact PET Shipping System for Vial Pig
994-205	10/30 ml Vial Pig, 1" (2.54 cm) Lead
994-206	Vial Pig Adapter - 10 ml
994-730	Transport Cart, PET Shipping System
994-732	Absorbent Sheets, 100/Pkg
994-733	Tag, Wire Security, 25/Pkg

PET SHIPPING SYSTEM FOR DOUBLE-ENDED PET PIG



- **One system for shipping and injecting FDG F-18**
- **Pig accommodates 5cc syringes with or without needle**

The Double-Ended PET Pig is an all-in-one solution for the safe transport and administration of 511 keV radionuclides, such as FDG F-18. The pig is constructed in three sections of 0.6" (1.5 cm) lead enclosed in durable Lexan. Depending on the stage of the injection process, only one section of the pig is removed. The injection itself is accomplished without removing the syringe from the pig. Simply open the administration port and push the tungsten plunger against the syringe plunger. During injection the pig is positioned on a stand. The Double-Ended Pig accommodates a 5 cc syringe and fits into its own compact shipping container. The system employs a unique design that decreases the weight and size of the container.

How it Works

1. Remove the Double-Ended Pig from the compact shipping container. (Fig A)
2. Place behind an L-Block Shield.
3. Unscrew the top. (Fig B)
4. Remove the syringe and place into a dose calibrator. (Fig C)
5. Return the syringe to the pig and put the top back on. (Fig D)
6. Transport the pig to the patient injection area. (Fig E)
7. Place the pig into the Pig Cradle so the top section of the pig is over the long section of the cradle. (Fig F)
8. Remove the bottom of the pig and connect to your preferred injection device, butterfly, etc. (Fig G)
9. Open the plunger lock located on the top section by pulling the slide toward the edge of the pig. With a pen-like device, push the tungsten plunger to administer the dose. (Fig G)
10. Recap the syringe.
11. Put the bottom back on the pig.
12. Return the pig to the compact shipping container. (Fig H)

PET Shipping System for Double-Ended PET Pig Includes

- Double-Ended PET Pig
- Shipping Container with Lead Shielding

Specifications

Item 994-762 Double-Ended PET Pig
Size: 9.5” H x 2.3” Dia at the maximum point (24 x 5.8 cm)
Lead Shielding Sides: 0.6” thick (1.5 cm) lead
Lead Shielding Bottom: 1.44” thick (3.7 cm) lead
Lead Shielding Top: 0.875” thick (2.2 cm) tungsten
Weight: 9 lb (4 kg)

Item 994-760 Shipping System Container for Double-Ended Pig
Container Size: 11.75” L x 11.75 W x 12.5” H(29.8 x 29.8 x 31.8 cm)
Cubic Feet: ~1 cu ft (0.3 cu meters)
Weight: 36 lb (16.3 kg)
Regulations: Meets DOT II Type A packaging requirements when shipping up to 475mCi (17.58 GBq) of FDG F-18. Meets IATA Dangerous Goods Regulations 53rd Edition Sections 5.0.4.3, 10.5, and 10.6.1 through 10.6.3.5.

Item #	Description
994-760	PET Shipping System for Double-Ended PET Pig
994-762	Double-Ended PET Pig
994-764	Pig Cradle for Double-Ended PET Pig
994-732	Absorbent Sheets, 100/Pkg

LEAD LINED STORAGE CONTAINER

The Lead Lined Storage Container can be used to store radioactive materials that require lead shielding of 1/8" (0.3 cm) or less. The container is made of steel and has 1/8" (0.3 cm) thick lead on all sides, top and bottom. Two latches secure the lid shut and allow for the use of locks for security. The container has a bail handle on the lid for lifting the lid and two bail handles on the sides to carry the container.

Specifications

Material: Steel and 1/8" (0.3 cm) thick lead
Inside Dimension: 9.5" L x 9.5" W x 9.5" H (24.1 x 24.1 x 24.1 cm)
Finish: Durable tan textured polyurethane enamel paint
Weight: 44 lb (20 kg)

Item #	Description
929-200	Lead Lined Storage Container

UNIVERSAL 511 T-VIAL SHIELD

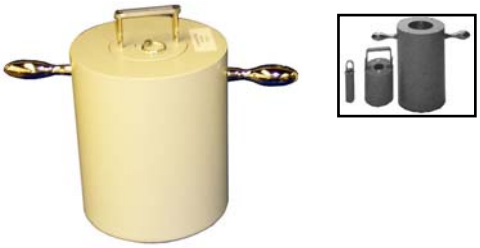
The Universal 511 "T" Vial Shield is made entirely of Tungsten to provide the best protection for the user. The shield offers 1" (2.54 cm) lead equivalent on all sides. "T" lifting handle is removable. The Universal 511 "T" Vial Shield holds 10, 20 and 30 cc vials.

Specifications

Dimenstions: 3.1" Dia. x 4.7" H (8 x 12 cm)
Weight: 16 lb (7 kg)

Item #	Description
994-041	Universal 511 "T" Vial Shield - 10, 20 and 30 cc Vials

PIG - 30 AND PIG - 50



Pig 30 inside Pig 50

These lead Pigs for PET store vials of radiotracers for daily use, ensuring staff safety and reducing background levels. Built with 2.38" (60 mm) lead shielding. Pig-30 holds vials up to 30 ml; PIG-50 holds vials up to 50 ml.

Specifications

Item 994-066 PIG-30
O.D.: 6.4" dia x 8" H (16 x 20 cm)
I.D.: 1.65" dia x 3" H (4.2 x 7.6 cm)
Weight: 109 lb (50 kg)

Item 994-068 PIG-50
O.D.: 6.75" dia x 9.75" H (17 x 25 cm)
I.D.: 2.0" dia x 5" H (5.08 x 12.7 cm)
Weight: 148 lb (68 kg)

Item #	Description
994-066	PIG - 30
994-068	PIG - 50

ROTUND LEAD CONTAINER

1" (2.54 cm) Lead Wall

The Rotund Container with 1" thick (2.54 cm) Lead Wall, can be used to store syringes or vials that contain or have residue radiopharmaceuticals. This container is for use in nuclear medicine and PET departments. The container has a 1" (2.54 cm) lead wall with a 4" (10.16 cm) inside diameter. The lid has a 1 1/16" x 4" dia. (2.7 x 10.2 cm) center that protrudes into the container which prevents the lid from sliding and firmly seats the lid on the container.

Specifications

Inside Dimensions: 4" dia. x 5.5" D (10.2 x 14 cm)
Outside Dimensions: 6" dia. x 7.5" H (15 x 19 cm), not including handle
Lead Wall: 1" thick (2.54 cm)
Finish: Durable tan textured polyurethane enamel paint
Weight: 60 lb (27.3 kg)

Note: The Rotund container can be custom made to any size per customer's specifications. Please call Radiation Products Design for more information on custom sizes.

Item #	Description
994-070	Rotund Lead Container

SPATIAL REGISTRATION SOURCE HOLDERS

994-248 - Top View

994-248 - Bottom View

994-2481

The Spatial Registration Source Holders are designed to hold a 10 cc or 3 cc vial of radionuclide to test the spatial registration of a nuclear medicine camera. The holders are made of lead and have a 5mm diameter hole at the bottom of each holder. Two thumb screws tighten the cover.

Specifications

Item 994-248 for 10cc Vial
Overall Size: 5.3 cm diameter x 9.5 cm H
Cavity Size: 2.8 cm diameter x 5.7 cm D
Cover thickness: 1.27 cm
Bottom thickness: 2.54 cm
Material: Lead
Finish: Tan textured polyurethene paint

Item 994-2481 for 3cc Vial
Overall Size: 4.5 cm diameter x 7.9 cm H
Cavity Size: 1.8 cm diameter x 4.0 cm D
Cover thickness: 1.27 cm
Bottom thickness: 2.54 cm
Material: Lead
Finish: Tan textured polyurethene paint

Item	Description
994-248	Spatial Registration Source Holder for 10cc Vial
994-2481	Spatial Registration Source Holder for 3cc Vial

W

COUNT RATE CALIBRATOR SOURCE HOLDER

Shown with Optional Handle
(Item 994-249-5)

This is a source holder for multiple spatial window registration measurements. The holder and cover are made of 1" lead painted with a smooth tan polyurethane. Three (3) copper plates are included with the source holder. One copper plate is 1.59 mm thick and two(2) plates are 2.38 mm thick. Two (2) Pan head screws hold the copper plates and cover on the holder. An allen wrench is also included.

The handle is optional and ordered separately.

Specifications

Overall Dimensions: 3.14" Diameter x 4.2" H
(7.98 cm diameter x 10.67 cm H)
Inside Hole dimesions: 1.075" Diameter x 2.2" H
(2.73 cm diameter x 5.59 cm H)
Lead Thickness: 1" Lead
Finish: Tan polyurethene paint
Copper Plates:
One (1) Plate: 7.98 cm diameter x 1.59 mm T
Two (2) Plates: 7.98 cm diameter x 2.38 mm T
Weight: 12.8 lb (6 kg)

Item	Description
994-249	Count Rate Calibrator - Source Holder
994-249-5	Optional Handle

LEAD STORAGE CONTAINER

1" (2.54 cm) Lead Walls

994-073

Precision Ge-68 Phantom

Optional 950-020

The Lead Storage container was designed as a storage holder for the Precision Ge-68 Phantom for PET camera quality assurance.

The container has an outside wall of ¼" (.64 cm) steel with 1" (2.54 cm) lead shielding on the inside and the chamfer top allows for the cover to sit snuggly on top. Two (2) U-handles welded to the side of the container allow for easy movement. The cover is 1" (2.54 cm) lead with a chamfer bottom to fit into the container. Two (2) U-handles welded to the cover allow for easy removal. The container is welded to the 16" (40.6 cm) diameter steel base plate. Easy mobility is achieved by the five (5) 3" (7.6 cm) non-locking swivel casters that are bolted to the base plate.

Optional: An optional "Stay Anywhere " Handle can be welded to the the base plate of Item 994-073. The "Stay Anywhere Handle" is friction held in any position and allows for easy steering and pulling.

Specifications

Overall Dimensions: 16" Dia. x 19 1/4" H (49 x 40.6 cm)
Container Dimensions
Outside: 12" Dia. x 13" H (30.5 x 33 cm)
Inside: 9 5/16" Dia. x 11 1/2" Deep (23.6 x 29.2 cm)
Container Wall Material: 1" Thick Lead (2.54 cm) and 1/4" Steel (.64 cm)
Container Cover: 1" Thick Lead (2.54 cm)
Container Bottom: 1" Thick Lead (2.54 cm)
Base Plate: 16" Dia. x 1/4" Thick Steel (40.6 x .64 cm)
Casters: Five (5) 3" (7.6 cm) Swivel casters, non-locking
Finish: Outside-Tan Textured Polyurethane
Inside-Tan Smooth Polyurethane
Weight: 288 lb (131 kg)

Item #	Description
994-073	Lead Storage Container
950-020	Optional "Stay Anywhere" Handle System

LEAD SHIELDED CART WITH COVER FOR PET VIALS

Shown with Optional
10/30 Vial Pig Item 994-205

The shielded cart with cover is designed to transport vial pigs used with PET radionuclides.

The container is constructed of 0.25" (0.6 cm) thick steel and shielded with 1" (2.54 cm) lead. The cover is also steel and has a 1" (2.54 cm) thickness of lead with a bayonet latch to hold the cover tight on the container. The container and cover can be locked using the provided pad lock. The cart has two 8" (20 cm) diameter, roller bearing rear wheels and a 5" (13 cm) diameter, swivel, locking ball bearing front caster. The 36" (91.5 cm) long 'Stay Anywhere Handle' is friction held at any position.

An optional removable paper and forceps holder (Item 349-312) attaches to the cart on the rear axle.

This cart will accommodate Item 994-205, the 10/30 ml Vial Pig

Specifications

Inside Container Size: 4.25" dia. x 8.0" H (10.8 x 20.3 cm)
Outside Container Size: 7.0" dia. x 9.32" H (17.8 x 23.7 cm)
Finish: Durable tan textured polyurethane enamel paint
Weight: 133 lb (61 kg)

Item #	Description
949-320	Lead Shielded Cart With Cover
949-312	Optional Paper Forceps Holder for Item 949-320
994-205	10/30ml Vial Pig, 1" (2.54 cm) Lead

511 TRANSPORT CONTAINER AND CART

994-060

994-059

Item 994-060 511 Transport Container

- **Fits into box on Transport Cart, Item 994-059**
- **Designed with over 1.5" (3.8 cm) of safety shielding**
- **Lift rings for easy removal of lid**
- **Holds up to 30 cc vial**
- **Ball handle fastens to secure top**
- **6.5" H x 5" Dia. (16.5 x 13 cm)**

The 511 Transport Container is designed to fit into the Transport Cart and holds vials of 511 emitters.

Item 994-059 Transport Cart

- **Long, self-standing handle**
- **Low center of gravity for stability**
- **Removable insert included to subdivide box into two smaller sections**
- **Locking front wheels**

The High Radiation Transport Cart is a safe way to transport heavy lead containers within your facility without risk of the cart turning over or struggling with a container too heavy to carry safely. The cart has a single box measuring 12 5/8" x 9 3/8" square and 3 3/8" (12.6 x 24 x 8.6 cm) high to hold lead canisters up to 6.75" (17 cm) in diameter safely, close to the floor. To handle weighty loads the unit has heavy duty roller bearing rear wheels and a locking front caster. The self-standing handle is held by friction in any position. Weighing only 25 pounds (11 kg) and with a small footprint, the unit is easily lifted in and out of a vehicle and stored in a small space.

Item #	Description
994-060	511 Transport Container
994-059	Transport Cart for Radiation Container 994-060

NIPTONGS

These low-cost tongs are used to handle small radioactive or otherwise dangerous objects. The tongs have a 45° v cut groove on each jaw. The compression spring maintains a strong grip on the object until the tension is released by squeezing the finger bar. Chrome-plated, high carbon steel with hardwood handles, the “tongs” are easily disassembled for decontamination and cleaning.

Niptongs can hold objects up to 1" diameter (2.54 cm).

Item #	Description	Length
994-120	Niptongs	12" (30 cm)
994-122	Niptongs	36" (91 cm)

511 C-TEC™ SYRINGE SHIELDS

This special Syringe Shield is manufactured to provide shielding for 511 keV nuclides. The 511 Syringe Shield is made of Tungsten with a 0.5" (12.7 mm) lead equivalency.

It has a viewing area of 0.75" (19 mm) thick lead glass surrounded by a rubber grommet to prevent damage to the glass. Fluorescent gold gloss covers the interior of the syringe shield for exceptional visibility of the syringe contents.

Item #	Description
994-045	511 C-Tec™ Syringe Shields, 5 cc
994-046	511 C-Tec™ Syringe Shields, 10 cc
994-047	511 C-Tec™ Syringe Shields, 20 cc

511 DOSE-DRAWING SYRINGE SHIELDS

The 511 Dose Drawing Syringe Shields are constructed with the same featured shielding as the 511 C-Tec™ Syringe Shields. The needle end of the syringe shield has a Tungsten disc that protects the user’s hands during the dose drawing procedure.

There are 2 pins in the end disc that secure the shield to the Drawing Station. This allows the user to withdraw a dose using only one hand.

Item #	Description
994-050	511 Dose Drawing Syringe Shield - 5 cc
994-051	511 Dose Drawing Syringe Shield - 10 cc
994-052	511 Dose Drawing Syringe Shield - 20 cc

Z-PET SYRINGE SHIELD

Extra thick wall for extra protection

- **Constructed of 0.55" thick (14 mm) tungsten, attenuates FDG F-18 by 97%**
- **Easily sanitized with alcohol wipes**

The Z-PET Syringe Shield greatly reduces hand exposure from syringes containing 511 KeV radionuclides. The barrel of the shield is constructed of 0.55" thick (14 mm) tungsten that attenuates FDG F-18 by 97%. The shield accommodates standard 5 cc syringes. The Z-PET Syringe Shield fits the Manual Dose Injector (Item 994-997).

Specifications

Z-PET Syringe Shield*, 5 cc
Dimensions: 2.75" L x 1.7" dia. (7 x 4.3 cm)
Shielding: 0.55" thick (14 mm) tungsten
Weight: 3.7 lb (1.7 kg)

**Z-PET Syringe Shield was conceived by Michael Zimmer, Ph.D.

Item #	Description
994-270	Z-PET Syringe Shield, 5 cc

W

PRO-TEC® PET SYRINGE SHIELDS

- **Constructed of 0.34" thick (9 mm) tungsten, attenuates FDG F-18 by 88%**
- **Available with or without a high density lead glass window**
- **Fits most disposable syringes**
- **Easily sanitized with alcohol wipes**

The Pro-Tec® PET Syringe Shield reduces hand exposure from syringes containing 511 KeV radionuclides. The barrel of the shield is constructed of 0.34" thick (9 mm) tungsten that attenuates FDG F-18 by 88%.

The syringe shield is offered with or without a high density (5.6) flush mounted lead glass window that provides protection and visibility. A white reflective surface on the shield interior improves viewing of the syringe's markings and fluid content. A thumbscrew holds syringes firmly in place.

Pro-Tec® PET Syringe Shields accommodate standard sized 3 cc, 5 cc and 10 cc syringes. The Pro-Tec® Syringe Shield fits the Manual Dose Injector (Item 994-997).

Shipping Weights

994-228 and 994-258: 1.4 lb (0.64 kg)
994-229 and 994-259: 1.7 lb (0.83 kg)
994-230 and 994-260: 2.3 lb (1.05 kg)

Item #	Description
994-228	Syringe Shield, 3 cc with Lead Glass Window
994-229	Syringe Shield, 5 cc with Lead Glass Window
994-230	Syringe Shield, 10 cc with Lead Glass Window
994-258	Syringe Shield, 3 cc without Lead Glass Window
994-259	Syringe Shield, 5 cc without Lead Glass Window
994-260	Syringe Shield, 10 cc without Lead Glass Window

PET DOSE DRAWING SYSTEM

For drawing FDG F-18 from a vial into a syringe

W

The Dose Drawing System is used to draw FDG F-18 doses from a vial. It consists of a specially designed Dose Drawing Syringe Shield, Vial Shield and stand.

When drawing FDG F-18, the Vial Shield and Syringe Shield remain on the stand. The stand allows the Vial Shield to rotate and has a fixed stop at the 45° downward angle. The Vial Shield is constructed of 1" (2.54 cm) lead encased in steel. The shield's top is threaded to allow quick insertion and removal of vials. The top cover incorporates a pivoting shield for septum access that allows the use of a vent needle, if desired, along with the needle from a 5 cc syringe.

The Syringe Shield mounts on a stainless steel rotating platform that slides the syringe into the vial and locks in position. The dose can then be drawn with forceps to minimize hand exposure. The Syringe Shield is constructed of 0.55" (1.3 cm) tungsten. A high-density lead glass window allows viewing up to the 5 cc mark on a 5 cc syringe.

The PET Dose Drawing System provides a safe and shielded environment while making it easy to draw a FDG F-18 dose.

How it Works

If transported in a PET Vial Shipping System, the Vial shield is placed in the stand and secured with the tightening knob.

Vial Shield shipping cover is replaced with the drawing shield cover.

Syringe is placed in the Dose Drawing Syringe Shield. The Vial Shield rotates to 45° downward angle. Swing open the cover for Vial Septum access.

Syringe Shield slides upward, allowing the syringe to puncture the Vial Septum. Dose is drawn.

Item 994-465 PET Dose Drawing System Includes

- Item 994-466 - Dose Drawing Syringe Shield
- Item 994-467 - Dose Drawing Vial Shield
- Item 994-468 - Dose Preparation Stand
- Item 994-206 - Vial adapter to accommodate 10 ml vials

Specifications

Dose Drawing Syringe Shield
Size: 1.7" Dia x 5.5" L (4.3 x 14 cm)
Shielding: 0.55" Thick tungsten (1.3 cm)
Lead Glass Window: 0.25" Thick (0.64 cm), 5.6 density

Construction
Exterior: Tungsten
End Cap Mechanism: Stainless Steel
Finish: Powder coat
Weight: 4 lb (1.8 kg)

Dose Drawing Vial Shield
Outside Dimensions: 6.1" H x 4" Dia. (15.5 x 10.2 cm)
Inside Dimensions: 2.76" H x 1.51" Dia. (7 x 3.8 cm)

Lead Shielding
Cylinder: 1" Thick (2.54 cm)
Top End Cap: 1" Thick (2.54 cm)
Cover: 0.75" Thick (1.9 cm)

Construction
Outside: Steel
Inside: Molded lead
Top End Cap: Aluminum
Bottom End Cap: Plastic
Finish: Powder coat
Weight: 20 lb (9 kg)

Dose Preparation Stand
Dimensions: 12.6" W x 10.6" D x 12.6" H (32 x 26.9 x 32 cm)
Construction: Stainless Steel and Steel
Finish: Stainless Steel and Powder coat
Weight: 21 lb (9.5 kg)

Item #	Description
994-465	Dose Drawing System, PET
994-466	Syringe Shield, Dose Drawing, PET, 5 cc
994-467	Vial Shield, Dose Drawing, PET, 30 ml
994-468	Dose Preparation Stand

PET STAINLESS STEEL SYRINGE CARRIER

Lead Lined With Handle

- **Constructed of Stainless Steel Inside and Out**
- **All Lead is Enclosed by Stainless Steel, Not Painted**

The PET Syringe Carrier is designed to store and transport syringes or vials of PET radionuclides. The top, bottom and sides are 1/4" thick (0.64 cm) lead. The ends are 1/2" thick (1.27 cm) lead. This unit is constructed of stainless steel **inside** and **out**, with **ALL** lead enclosed, not painted. The double thickness shielding at the ends provides increased protection during transport of a filled syringe with a syringe shield. The lid opens 180° for easy access. There are four (4) rubber feet attached to the bottom of the carrier.

Note: Some Manufacturers just paint the lead.

Specifications

Overall Size with Handle:
10.9" L x 3.4" W x 6.7" H (27.7 x 8.6 x 17 cm)
Carrier Size: 10.35" L x 2.9" W x 2.76" H (26.3 x 7.4 x 7 cm)
Inside Dim: 9" L x 2" W x 2" H (22.9 x 5.1 x 5.1 cm)
Material: Lead Enclosed with Stainless Steel
Lead Shielding Top, Bottom and Sides: 1/4" T (0.64 cm)
Lead Shielding Ends: 1/2" T (1.3 cm)
Weight: 16 lb (7.3 kg)

Item #	Description
994-065	PET Stainless Steel Syringe Carrier

SHIELDED SYRINGE CARRIER

The Shielded Syringe Carriers reduce exposure while storing or transporting radioactive material. The overlapping lid design with snap-latch closure prevents streaming. The ends of the carrier are double thick to reduce the exposure from the ends of the syringes.

Specifications

994-225
Inside Dim: 2.6" W x 7.7" L x 2.7" H (6.6 x 19.6 x 6.9 cm)
Outside Dim: 4.4" W x 9.5" L x 3.5" H (11.2 x 24.1 x 8.9 cm)
Lead Shielding Sides, top and bottom: 0.25" thick (.64 cm)
Lead Shielding Ends: 0.5" thick (1.3 cm)
Weight: 17 lb (7.7 kg)

994-226
Inside Dim: 1.7" W x 7.5" L x 1.7" H (4.3 x 19 x 4.3 cm)
Outside Dim: 3.4" W x 9.25" L x 2.6" H (8.6 x 23.5 x 6.6 cm)
Lead Shielding Sides, top and bottom: 0.25" thick (.64 cm)
Lead Shielding Ends: 0.5" thick (1.3 cm)
Weight: 11 lb (4.9 kg)

Item #	Description
994-225	Lead-Lined Syringe Carrier, Large
994-226	Lead-Lined Syringe Carrier, Small

MULTI-MODALITY MARKERS

462-029 462-030

Item 462-029 Multi-Modality Markers for CT/MRI
- Appears as bright object on CT, MRI and Diagnostic Imaging scans
- Inner center hole affords passage of needle through central hole
- 15 mm outer diameter and 3.5 mm thick
- 5 mm axial hole with 2 mm central hole
- Composed from hydrogel with medical grade adhesive

Item 462-030 Multi-Modality Markers for Nuc Med/PET
- Visible on Nuclear Medicine, CT and MRI scans
- Liquid-containing well suitable for injection of short-life radionuclide using a conventional hypodermic needle
- 15 mm outer diameter and 3.5 mm thick
- 5 mm axial hole
- Composed from hydrogel with medical grade adhesive

Item #	Description	Quantity
462-029	Multi-Modality Markers for CT/MRI	50
462-030	Multi-Modality Markers for Nuc Med/PET	50

MULTIMODAL SPOT MARKERS

Written Verification of Radioactive Materials License is Required When Placing an Order

The Multimodal Spot Markers are used for patient orientation and image registration in camera studies. The Co-57 is used for CT-SPECT and Ge-68 and Na-22 for CT-PET fusion imaging.

Specifications

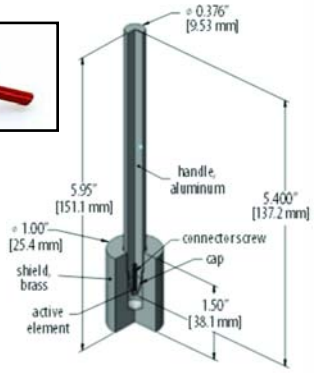
MMS02
Capsule: 1" dia. x 1/4" thick (2.54 x 0.64 cm) clear cast acrylic
Active Dimensions: 1.5 x 1.5 mm cylinder
CT Target: 1/4" (6.37 mm) OD bone-equivalent ring (surrounds active element)
Suggested Usage: Multimodal fiducial marker for image coregistration

MMS03
Capsule: 1" dia. x 1/4" thick (2.54 x 0.64 cm) clear cast acrylic with etched "crosshairs" centered on active element for laser alignment
Active Dimensions: 1 mm diameter sphere
CT Target: 2 mm OD bone-equivalent ring (surrounds active element)
Suggested Usage: Multimodal fiducial marker for image coregistration

	Nuclide	10 µCi .37 MBq	25 µCi .925 MBq	50 µCi 1.85 MBq	100 µCi 3.7 MBq
MMS02	Co-57	Item 680-200	Item 680-201	Item 680-202	Item 680-203
	Ge-68	Item 680-210	Item 680-211	Item 680-212	Item 680-213
	Na-22	Item 680-220	Item 680-221	Item 680-222	Item 680-223
MMS03	Co-57	Item 680-230	Item 680-231	Item 680-232	Item 680-233
	Ge-68	Item 680-240	Item 680-241	Item 680-242	Item 680-243
	Na-22	Item 680-250	Item 680-251	Item 680-252	Item 680-253

PEN POINT MARKERS

Written Verification of Radioactive Materials License is Required When Placing an Order



The Pen Point Marker is used to mark a point or region of interest during a camera study. The Pen Point Marker contains Co-57 in a resin matrix at the end of a 5.4" (13.7 cm) anodized aluminum rod. The pen-shaped rod screws into a brass cap which shields the active point. The Pen Point Marker is used in tracing the outlines of anatomical features on a patient. The trace appears almost instantly on the camera display. Contained activity is supplied as a nominal value ±15%.

Item #	Nuclide	Activity (µCi)	Activity (MBq)
680-260	C0-57	100	3.7
680-265	C0-57	200	7.4
680-268	C0-57	250	9.25

W

PET PHANTOM

NEMA 2007 / IEC 2008

- **Complies with NEMA 2007 Standard**
- **Simulation of whole-body imaging using PET and camera-based coincidence imaging techniques**
- **Evaluation of reconstructed image quality in whole-body PET and camera-based coincidence imaging**
- **Determination of the coincidence count rate characteristics in brain and cardiac imaging**
- **Evaluation of the relationship between true coincidence count rate and radioactivity**
- **Determination of the address errors caused by address pile up**
- **Evaluation of the count loss correction scheme**

Performance Measurements of Positron Emission Tomographs, NEMA Standards Publication No. NU2, National Electrical Manufacturers Association (NEMA) Washington, DC, 2007.

International Standard: Radionuclide imaging devices - Characteristics and test conditions - Part 1: Positron Emission Tomographs, International Electrotechnical Commission (IEC), 61676-1, Geneva, Switzerland, 1998 and IEC 61675-1 1.1 (2008).

Specification

Dimensions: 9.5" H x 12" W x 9.5" D (24.01 x 30.5 x 24.1 cm)
Interior Length of Phantom: 180 mm
Fillable Spheres (six) Inner Diameter: 10 mm, 13 mm, 17 mm, 22 mm, 28 mm and 37 mm
Distance From Sphere Plane to Inside Wall: 70 mm
Volume of Empty D Shaped Cylinder: 9.7 L
Cylindrical Insert Dimension: O.D.: 51 mm dia x 180 mm L
Shipping Weight: 11 lb (4.9 kg)

Item #	Description
994-240	PET Phantom, NEMA 2007 / IEC 2008

PET SENSITIVITY PHANTOM™

NEMA 2007

- **Complies with NEMA 2007 Standard**
- **Ideal for PET camera sensitivity**

Performance Measurements of Positron Emission Tomographs, NEMA Standards Publication No. NU2, National Electrical Manufacturers Association (NEMA) Washington, DC, 2007.

Specifications

Five internally stacked concentric aluminum tubes, all 700 mm in length
1st Tube: Inside Dimension: 3.9mm and Outside Diemsion: 6.4 mm
2nd Tube: Inside Dimension: 7.0mm and Outside Diemsion: 9.5 mm
3rd Tube: Inside Dimension: 10.2mm and Outside Diemsion: 12.7 mm
4th Tube: Inside Dimension: 13.4mm and Outside Diemsion: 15.9 mm
5th Tube: Inside Dimension: 16.6mm and Outside Diemsion: 19.1 mm
6th Innermost Tube (a fillable polyethylene tube):
Inside Dimension: 1mm and Outside Diemsion: 3mm
Shipping Weight: 3 lb (1.3 kg)

Item #	Description
994-241	PET Sensitivity Phantom, NEMA 2007

NEMA PET SCATTER PHANTOM
NEMA-NU2-2007

W

- **Designed to test scatter fraction, count losses and random measurements in accordance with NEMA-NU2-2007**
- **Three piece construction for easier handling**
- **Hard sided, foam lined carry case included**

The PET Scatter Phantom is a solid right circular polyethylene cylinder with a specific gravity of 0.96 ±0.01. A hole measuring 6.4 ±0.2 mm is drilled parallel to the central axis of the cylinder, at a radial distance of 45 ±1 mm.

For ease of handling the cylinder consists of three segments that are assembled during testing.

The test phantom line source insert is a clear polyethylene plastic tube 800 mm in length, with an inside diameter of 3.2 ±0.2 mm and outside diameter of 4.8 ±0.2 mm. The central tube can be filled with a known quantity of activity and threaded through the 6.4 mm hole in the test phantom.

NEMA PET Scatter Phantom Includes:

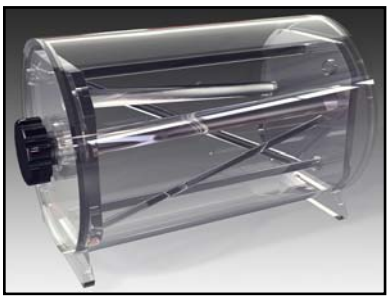
- (3) Polyethylene section drilled to accommodate assembly rod and line source
- (1) Line Source
- (1) Threaded rod for phantom assembly
- (2) Knurled knobs for phantom assembly
- (2) End plates for phantom assembly
- (1) Hard-sided, foam-lined carrying case
- (1) NEMA NU2-2007 Standard

Specifications

Total Length (3 pieces): 27.6" (70 cm)
Diameter: 8.0" (20.3 cm)
Phantom Weight: 80 lb (29.9 kg)
Material: Polyethylene
Density: 0.96 g/cc

Item #	Description
994-242	PET Scatter Phantom, NEMA-NU2-2007

GILLIAN QA PHANTOM
Evaluate Image Distortion and Alignment in SPECT/CT, PET/CT and MRI

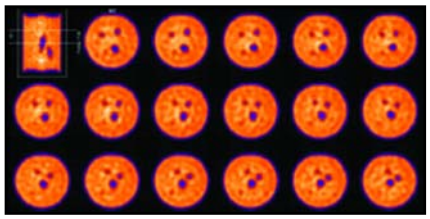


CT Image

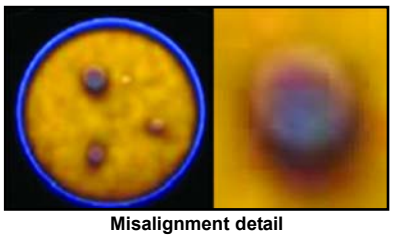
SPECT Image

Combined Image showing verticle misalignment

Combined Image showing more serious alignment problem



Transverse SPECT of Phantom



Misalignment detail

- **Compatible with SPECT/CT, PET/CT and MRI**
- **Check alignment and distortion across the entire imaging field**
- **Easy to fill and drain**
- **Allows for independent assessment of equipment function**
- **Simple geometry allows for quick visual interpretation**

Hybrid scanning systems such as SPECT/CT and PET/CT are increasingly being used to improve tumor identification, treatment delivery and monitor treatment effectiveness. By combining images from two different imaging modalities, hybrid scanning systems take advantage of the strengths of individual imaging modalities while minimizing their respective weaknesses. Proper alignment of the fused images is an ongoing concern.

The Gillian QA Phantom provides a simple and cost effective solution to verify image alignment and distortion. The phantom consists of a water tight acrylic cylinder that can be filled with a variety of fluids. Four non-parallel rods of varying diameter run the entire length of the cylinder. Images produced with the phantom can quickly and clearly show if there is any mismatch in the fused images.

Gillian QA Phantom Includes

(1) Phantom body with rods
(1) Plug
(1) Stand
(1) User Guide
48 Month Warranty

Specifications

Overall Dimensions: 10" x 10.75" x 16" (25.4 x 27.3 x 40.7 cm)
Weight: 14 lb (6.4 kg)
Materials: Acrylic
Rod Diameters: 0.5", 0.75", 0.87" and 1.26" (12.75, 19, 22 and 32 mm)

Item #	Description
682-850	Gillian QA Phantom

FEATHERLITE™ FLOOD SOURCE

NRC Radioactive Materials License Required

- FeatherLite Co-57 flood sources consist of cobalt chloride uniformly dispersed onto a thin substrate which is then placed in an ABS encapsulation and ultrasonically welded.
- FeatherLite weighs up to 60% less than other rigid flood sources, making it even easier to handle and reducing strain on your back.
- Available for all popular cameras.
- A return kit is included with each order to ensure safe return and disposal for your old flood source.
- Manufactured according to the following specifications: CV< 1.0% INU< 3.6%.
- Many circular and rectangular flood sources are in stock and ready for fast delivery.
- Each source is carefully measured for activity and analyzed to ensure a homogenous distribution with a standard deviation of less than 1%.
- Each new flood source is supplied with a fully shielded lead-lined storage case and is also shipped with a certificate of calibration that highlights specifications of the flood source.

Item	FeatherLite™ Co-57 Flood Source
680-500	16.5" x 24", For Millenium MPR, VG & MG, GE Hawkeye, Infinia, Myosite, Philips Argus, Forte, Skylight & Siemens E-Cam, **Specify Activity:** 5mCi, 10mCi, 15mCi, or 20mCi
680-505	14" x 18", For SMV-DST, Multispect 3, Millenium MPS & DSTi/Dsi, **Specify Activity:** 5mCi, 10mCi, 15mCi, or 20mCi
680-510	10" x 16", For CardioMD, Siemens C-Cam, GE Ventri & GE Optima, **Specify Activity:** 5mCi, 7.5mCi or 10mCi
680-515	10" x 10", For Digirad Cardius, Dilon & GVI Clear Vision **Specify Activity:** 5mCi or 10mCi
680-520	16.6" x 13.2", For Digirad Ergo **Activity:** 10mCi
680-525	18.5" Round, For GE Starcam XCT, ACT, Adac ARC 3000, Cirrus, Siemens Orbiter, **Specify Activity:** 5mCi or 10mCi
680-530	10" x 10", For GE Discovery GE530c, NM/CT570 **Activity:** 20mCi

W

PERFLEXION™ FLEXIBLE FLOOD SOURCES

NRC Radioactive Materials License Required

- Perflexion flood source eliminates bulk and weight with its unique flexible design and tungsten composite WolfGuard™ shield.
- Perflexion has superior source uniformity, low impurities, and excellent durability.
- Perflexion is the world's only flexible flood source.
- Perflexion lays flat for calibration use, but rolls into a compact cylinder for storage.
- Perflexion provides the most convenient, ergonomic flood source and case with optimum shielding protection.
- Perflexion can be folded, bent, crushed and pulled without the material deforming, damaging, creasing, cracking, flaking or tearing over time.
- Perflexion polymer "memory" ensures that the source will return to flatness even after being stored in a rolled configuration.
- Lightest weight—weighs less than 29 lbs including the tungsten shield and hard case.
- Smallest form factor—source rolls to fit in a 6"x6"x22" tube for convenient storage
- Best shielding—5-10x better than lead cases
- A return kit is included with each order to ensure safe return and disposal for your old flood source.

Item	Perflexion Co-57 Flood Source
680-540	9" x 9" Square, For Digirad Cardius, Dilon & GVI Clear Vision, **Activity:** 10mCi
680-545	10.5" x 16", For CardioMD, Siemens C-Cam, GE Ventri & GE Optima, **Specify Activity:** 5mCi, 7.5mCi or 10mCi
680-550	16.5" x 24", For Millenium MPR, VG & MG, GE Hawkeye, Infinia, Myosite, Philips Argus, Forte, Skylight & Siemens E-Cam, **Specify Activity:** 5mCi, 10mCi, 15mCi, or 20mCi
680-555	18.5" Round, For GE Starcam XCT, ACT, Adac ARC 3000, Cirrus, Siemens Orbiter, **Specify Activity:** 5mCi, 10mCi, 15mCi, or 20mCi

C-THRU™ FLOOD SOURCES

NRC Radioactive Materials License Required

- C-Thru source holder is made of transparent, durable plastic.
- The radioactive area is clearly visible, enabling the C-Thru source to be easily positioned on the camera head.
- The manufacturing process ensures that Nuclear Medicine customers will receive the highest quality flood source available to perform quality control on gamma cameras.
- Flood sources are scanned using a gamma camera. The camera images each flood source for parameters including differential and integral non-uniformity in accordance with ANSI N42.27.
- Visual checks are performed to detect any distortions of the active element and the outside capsule. A leak test is performed on all sources prior to shipment.
- A return kit is included with each order to ensure safe return and disposal for your old flood source.

Item	C-Thru Co-57 Flood Source
680-570	8.9" x 8.9" Square, For Digirad Cardius, Dilon & GVI Clear Vision, **Activity:** 10mCi
680-575	10" x 16", For CardioMD, Siemens C-Cam, GE Ventri & GE Optima, **Specify Activity:** 10mCi, 15mCi or 20mCi
680-580	16.5" x 24.4", For Millenium MPR, VG & MG, GE Hawkeye, Infinia, Myosite, Philips Argus, Forte, Skylight & Siemens E-Cam, **Specify Activity:** 5mCi, 10mCi, 15mCi, or 20mCi
680-585	18.5" Round, For GE Starcam XCT, ACT, Adac ARC 3000, Cirrus, Siemens Orbiter, **Specify Activity:** 5mCi, 10mCi, 15mCi, or20 mCi

ATOMLAB™ 400 DOSE CALIBRATOR

Designed for Facilities Receiving Unit Doses Including PET and Beta

- **Pre-programmed for 88 most commonly used radionuclides**
- **Large, easy-to-read backlit LCD**
- **Small footprint economizes workspace**
- **Ultra-fast response**
- **Automatic range selection; ranges up to 40 Curies of Tc-99m or 10 Curies of F-18**
- **Displays in Curies or Becquerels**
- **Remote Ionization Chamber**
- **Self-Diagnostic Software**
- **Desktop or wall mount display**
- **Two-year warranty**
- **RS-232 bi-directional serial communications port**

New low pressure chamber. Atomlab Dose Calibrators are shipped air or ground as standard goods.

The Atomlab™ 400 provides fast, accurate radionuclide activity measurements with performance that easily complies with the most stringent regulatory requirements.

The unit is simple to operate. There is a routine list of ten pre-programmed isotopes plus another seven that are user selected from the library. The library contains 88 isotopes listed alphabetically, including Y-90 and Sr-89. Four isotopes are displayed at a time.

Activity is displayed on a LCD panel in either Curie or Becquerel units. Background correction is performed at the touch of a button. Range selection is automatic.

Activity measurements are performed by a microprocessor-controlled electrometer located within the detector assembly of the ionization chamber. The chamber is shielded with .25" (6.3 mm) lead. It can be located up to eight feet (2.4 m) away from the display unit. Chamber bias is generated within the display unit by an electronic high voltage supply, eliminating the need for expensive battery changes.

The RS-232 port enables the Atomlab™ 400 Dose Calibrator to communicate with most commercially available nuclear medicine management systems.

Item 993-000 Atomlab™ 400 Dose Calibrator Includes

- Smart Display
- Ionization Chamber
- RS-232 Port
- Vial/Syringe Dipper
- Well Insert

Item #	Description
993-000	Atomlab™ 400 Dose Calibrator
993-050	Dose Calibrator Shielding Rings, Interlocking, 2.25" Lead
993-052	Moly Assay Shield for Syringe, 0.3" Lead
993-054	Moly Assay Shield for Vial, 0.3" Lead
993-056	Lineator for Atomlab™ Dose Calibrators

Specifications

Isotope Selection Keys: Ten pre-programmed – Tc-99m, Tl-201, Co-57, Cs-137, I-131, In-111, Ga-67, Xe-133, I-123, and Mo-99; seven additional keys for user-set isotopes; two new isotope keys and a full alphabetical list of 88 isotopes.
Activity Range: 0.01 µCi to 40Ci (.0004 MBq to 1500 GBq) of Tc-99m or 10 Ci of F-18
Energy Range: 25 keV to 3 MeV photons
Response Time: One to two seconds for doses greater than 200 uCi; three seconds for doses greater than 20 uCi; 50-100 seconds below 20 uCi of Tc-99m with default threshold, threshold adjustable to reduce counting time
Detector Linearity: ±1% or 0.2 µCi, whichever is greater
Electrometer Linearity: ±1% or 0.2 µCi, whichever is greater
Electrometer Accuracy: ±1% or 0.2 µCi, whichever is greater
Overall Accuracy: ±3% or 0.3 µCi, whichever is greater; overall accuracy is affected by such factors as the accuracy of the specific source calibration, geometric variations due to sample volume or configuration, detector linearity, electrometer accuracy and readout accuracy
Repeatability: ±0.3% above 1 mCi short term (24 hr); 1% long term (one yr); exclusive of background
Digital Calibration Dial: Four-digit LED dial display with increment/decrement keys to change the value; range is from 0.0 to 999.9
Detector: Well-type pressurized ionization chamber, with Argon fill gas; well opening 2.75" (7 cm), well depth 10.25" (26 cm)
Chamber Gas Pressure: 149KPa gauge (21.6 psig) at 20°C or 250KPa absolute (36.3 psia) at 20°C. IATA regulation 3.2.2.4 Exempts Gases of Division 2.2 from Dangerous Goods Regulations when transported at pressure less than 200KPa gauge (29 psig) at 20°C. Device is shipped standard goods.
Detector Shielding: .25" (6.3 mm) lead on all sides except top well opening; supplementary shielding available
Chamber Bias: 355 ±5 volts
Environmental Operating Conditions:
Temperature: 0-40°C
Humidity: 0-90% rh, non-condensing
Power Requirements: 100 to 240 VAC, 0.6 – 0.3 amps, auto switching; APS Power Supply (APS22ES-150160), for medical use.
Line Frequency: 50/60 Hz; detachable line cord; built-in EMI filter and transient suppression
Detector and Interface Cables: 8' (243 cm) long, six conductor cables (two carry power, two for chassis ground, two carry serial data for digital I/O)
Display Unit:
Dimensions: 6.75" W x 6" depth x 5" H (17.1 x 15.3 x 12.7 cm)
Weight: 3.6 lb (1.64 kg); desktop or wall mountable
Detector Unit:
Dimensions: 6" Dia x 15.5" H (15.24 x 39.37 cm)
Well I.D.: 2.75" Dia x 10.5" H (7 x 26.7 cm)
Well I.D. with Liner: 2.5" Dia x 10.25" H (6.35 x 26 cm)
Lead Shielding: .25" thick (6.3 mm)
Weight: 35 lb (16 kg)
Approvals: ETL to UL 60601-1 and cETL to CAN/CSA C22.2 No. 601-1-M90 IEC 60601-1, IEC 60601-1-4 and IEC 60601-1-2
Warranty: Two Year

CE ETL

Item #	Description
993-058	Syringe Reference Source Set for Atomlab™ Calibrators
993-060	Vial Reference Source Set for Atomlab™ Calibrators
993-062	Vial/Syringe Dipper, Replacement for Atomlab™ Calibrators
993-064	Well Insert, Replacement for Atomlab™ Calibrators

ATOMLAB™ 500 DOSE CALIBRATOR

W

An extensive selection of quality assurance applications streamlines and simplifies hot lab administration requirements

- Easy to use, large color touch screen display with intuitive menus
- Automatic range selection; ranges up to 100 Curies of Tc-99m or 25 Curies of F-18
- Pre-programmed for 88 most commonly used radionuclides; any 12 can be conveniently touch selected
- Displays in Curies or Becquerels
- Small footprint economizes workspace
- Ultra-fast response
- Robust software and extensive functionality
- Report and label printers available
- The USB ports also allow software upgrades via USB memory devices
- Desktop or wall mount display
- Communicates with most commercially available NM management systems via bi-directional serial communications port
- USB ports offer the ability to accommodate a USB mouse and printing devices
- Two-year warranty

Standard APPs for Atomlab 500 include:

- Automated Quality Assurance APPs
  -Constancy and Expanded Constancy
  -Linearity and Auto Linearity
  -Accuracy
  -Geometry
- Nuclear Pharmacy APPs:
  -Future dose computation
  -Volume determination
  -Inventory control of 25 samples, correcting volume, activity and moly concentration
- Multiple Detector APPs:
  -Manages multiple ionization chambers
- Wipe Test Counter APPs:
  -Upgradeable at any time to include a wipe test counter

New low pressure chamber. Atomlab Dose Calibrators are shipped air or ground as standard goods.

The Atomlab™ 500 provides fast, accurate radionuclide activity measurements with performance that easily complies with the most stringent regulatory requirements. The system consists of a new low pressure ionization chamber with redesigned seal, electrometer with extraordinary linearity and an autoranging touch screen color display. Now one dose calibrator can be used for a wide variety of nuclear medicine, PET and radioimmunotherapy applications. Additionally, there are advanced, but easy-to-use programs for nuclear pharmacy, radiochemistry and radiochromatography.

Activity measurements are performed by the microprocessor controlled electrometer located within the chamber assembly. The chamber is shielded with .25" (6.3 mm) lead. It can be located up to eight feet (2.4m) away from the display unit. Chamber bias is generated by an electronic high voltage supply, eliminating the need for expensive battery changes.

Every element of the design and technical development will increase dose accuracy, department productivity and regulation compliance. The attractive and intuitive human interface guides the user through each operation. Software can easily be updated via the Biodex website or by using a convenient memory card. The touch-screen display can rest on a bench or mount on the wall of a hot lab, hot cell or laminar flow hood.

In addition to powerful self diagnostics, the Atomlab™ 500 includes an exclusive chamber monitoring technology to assure longer life and accuracy. Integrated pressure and temperature sensors feedback data so that the influence of gas pressure change will not effect an accurate reading.

OPERATION
The system is easy to use. There are 12 isotope selection touch keys pre-programmed for the most commonly used radionuclides. Any of those keys can be reprogrammed by the user for a desired isotope. There are 88 isotope-specific dial values listed in the library. Dial values can easily be changed if required.

Activity is displayed on the touch screen color display in either curie or becquerel units. Background correction is performed at the touch of a button. Range selection is automatic, from .01 microcurie to 100 Curies of Tc-99m or 25 Curies of F-18.

ACCURACY
Atomlab Dose Calibrators have consistently proven to be highly accurate. Biodex and chamber manufacturer Sun Nuclear Corporation have participated in the isotope program sponsored by National Institute of Standards and Technology. Each month a certified isotope is received from National Institute of Standards and Technology and is measured in the Atomlab™ Dose Calibrator, producing direct traceability to National Institute of Standards and Technology.

QUALITY ASSURANCE
The Atomlab™ 500 has been designed to make life easier. The extensive selection of quality assurance applications streamlines and simplifies hot lab administration requirements. The system stores and decay corrects multiple reference sources and compares the measured activity to the calculated activity for the daily constancy test.

Linearity tests can be performed in the traditional manual method or by a fully automated program that allows for readings from a source to be taken, and automatically recorded at specified intervals. The system will graph the results.

The attenuation tube test for linearity can be performed using software that will guide the user through the procedure, store the values and make all calculations.

COMMUNICATIONS
The RS-232 port and two USB ports communicate in real time with most commercially available nuclear medicine management systems, connect to external monitor or upload software upgrades.

COMMERCIAL NUCLEAR PHARMACY
The Atomlab™ 500 Dose Calibrator features a nuclear pharmacy "Dose Calculation Screen" to meet the needs of a commercial nuclear pharmacy. All the information needed to draw doses efficiently is readily available on one screen. The feature easily performs pre- and post-decay calculations, volume calculations for specific times and isotope changes all with minimal screen touches. No calculators needed! Atomlab Dose Calibrators can read up to 100 Curies of Tc-99m, thereby eliminating the need for an aliquot preparation, a significant time saver every time a generator is milked.

INDUSTRIAL NUCLEAR PHARMACY
The Atomlab™ 500 provides inventory control for 25 samples, storing and correcting the volume, activity, and moly concentration. The system will perform both volume and future dose calculations. In addition to inventory management, the Atomlab™ 500 provides quality assurance and record keeping functions. The inkjet printer allows hard copy records to be produced for all functions. The label printer allows the user to print labels for the syringe or vial.

RADIOCHROMATOGRAPHY
The radiopharmaceutical quality control program is exceptional. The Atomlab 500 performs all counting and calculations for paper chromatography tests, computing the percentages of free pertechnetate, hydrolyzed reduced Tc-99m and labeled radiopharmaceuticals.

RADIOCHEMISTRY
Up to seven ionization chambers, or six ionization chambers and a well counter can be connected via daisy chain to a single display. The activity in each detector can be selected and viewed from the single display.

DATA DOWNLOAD
The Atomlab™ Data Manager is available as an option. The Windows™ based utility allows wipe test and dose calibrator QA results to be downloaded using a USB/serial converter. The results can be viewed and printed from the data manager software as required. In addition, information stored in the data manager can be exported into Microsoft® Excel or to department management systems.

Item 993-010 Atomlab™ 500 Dose Calibrator Includes

- Smart Display
- Ionization Chamber
- RS-232 Port
- Vial/Syringe Dipper
- Well Insert

Specifications

Display: LCD Touch Panel 6.5" x 5" (16.5 cm x 12.7 cm), function keys are displayed for the operation being performed
Connectors: RJ-12 for well cable
Power: This system uses XP Power Supply for Medical Use, Model #PDM60US15
Line Voltage: 100 to 240 VAC, auto selectable by the power supply, 1.5-0.75 amps
Line Frequency: 50/60 Hz, detachable line cord, built-in EMI filter and transient suppression
Auxiliary Port: Two USB ports, one RS-232 port
Memory: Stores: Inventory and QA tests
Isotope Selection Keys: Twelve pre-programmed – Tc-99m, Tl-201, I-123, I-131, Cs-137, Co-57, Xe-133, Ga-67, In-111, F-18, Y-90, Mo-99; 25 user-defined isotopes and a full alphabetical list of 88 isotopes.
Activity Range: : 0.01 uCi to 100 Ci (.0004 MBq to 3700 GBq) of Tc-99m or 25Ci of F-18
Energy Range: 25 keV to 3 MeV photons
Response Time: One to two seconds for doses greater than 200 uCi; three seconds for doses greater than 20 uCi; 50-100 seconds below 20 uCi of Tc-99m with default threshold; threshold adjustable to reduce counting time
Detector Linearity: ± 1% or 0.2 µCi, whichever is greater
Electrometer Linearity: ± 1% or 0.2 µCi, whichever is greater, up to 40 curies of Tc-99m, ± 1.5% up to 100 curies of Tc-99m
Electrometer Accuracy: ± 1% or 0.2 µCi, whichever is greater
Overall Accuracy: ± 3% or 0.3 µCi, whichever is greater; overall accuracy is affected by such factors as the accuracy of the specific source calibration, geometric variations due to sample volume or configuration, detector linearity, electrometer accuracy and readout accuracy
Repeatability: ± 0.3% above 1 mCi short term (24 hr); 1% long term (one yr)
Digital Calibration Dial: Four-digit dial with increment/decrement keys to change the value; range is from 0.0 to 999.9
Detector: Well-type pressurized ionization chamber, with Argon fill gas; well opening 2.75" (7 cm), well depth 10.25" (26 cm). Up to seven chambers can be serially connected to one display.
Chamber Gas Pressure: 149KPa gauge (21.6 psig) at 20°C or 250KPa absolute (36.3 psia) at 20°C. IATA regulation 3.2.2.4 Exempts Gases of Division 2.2 from Dangerous Goods Regulations when transported at pressure less than 200KPa gauge (29 psig) at 20°C. Device is shipped standard goods.
Detector Shielding: .25" (6.3 mm) lead on all sides except top well opening; supplementary shielding available
Chamber Bias: 355 ± 5 volts
Environmental Operating Conditions: Temperature: 0-40°C; Humidity: 0-90% rH, non-condensing
Power Requirements: 100 to 240 VAC, 0.38 – 0.15 amps, auto switching; XP Power Supply (PDM60US15), for medical use.
Line Frequency: 50/60 Hz; detachable line cord; built-in EMI filter and transient suppression
Detector and Interface Cables: 8' (243 cm) long, six conductor cables (two carry power; two chassis ground; two carry serial data for digital I/O)
Display Unit:
Dimensions: 9.5" W x 12" depth x 12" H (24.1 x 30.5 x 30.5 cm)
Weight: 6.3 lb (2.9 kg); desktop or wall mountable
Detector Unit:
Dimensions: 6" dia x 15.5" H (15.24 x 39.37 cm)
Well I.D.: 2.75" dia x 10.5" H (7 x 26.7 cm)
Well I.D. with Liner: 2.5" dia x 10.25" H (6.35 x 26 cm)
Lead Shielding: 0.25" lead (6.3 mm)
Weight: 35 lb (16 kg)
Approvals: ETL to UL 60601-1 and cETL to CAN/CSA C22.2No. 601-1-M90 IEC 60601-1, IEC 60601-1-4 and IEC 60601-1-2 and CE marked
Warranty: Two-year

Item #	Description
993-010	Atomlab™ 500 Dose Calibrator
993-030	Data Manager Software for Atomlab™ 500
993-032	Copper Dipper for Atomlab™ 500
993-035	Printer, Dymo (Label) for Atomlab™ 500
993-036	Printer, Ink Jet (Report) for Atomlab™ 500
993-050	Dose Calibrator Shielding Rings, Interlocking, 2.25" Lead
993-052	Moly Assay Shield for Syringe, 0.3" Lead

Item #	Description
993-054	Moly Assay Shield for Vial, 0.3" Lead
993-056	Lineator for Atomlab™ Dose Calibrators
993-058	Syringe Reference Source Set for Atomlab™ Calibrators
993-060	Vial Reference Source Set for Atomlab™ Calibrators
993-062	Vial/Syringe Dipper, Replacement for Atomlab™ Calibrators
993-064	Well Insert, Replacement for Atomlab™ Calibrators

ATOMLAB™ 500*PLUS* - DOSE CALIBRATOR
and Wipe Test Counter

The Atomlab™ 500*Plus* combines the Atomlab™ 500 Dose Calibrator and Atomlab™ Wipe Test Counter, bringing it all together – science, technology and application. It's a complete Hot Lab Management System.

Combine the Atomlab 500™ Dose Calibrator with the Atomlab™ Wipe Test Counter and create a complete, efficient and cost effective radioactivity measurement system... the Atomlab™ 500*Plus.*

Consider the software that is supplied with the Atomlab™ 500*Plus*. It's comprehensive, easy-to-use and feature rich. The software mirrors the way you think and work. It guides when necessary, but does not burden the advanced user. The touch-screen and easy-to-follow on-screen prompts mean you won't need "cheat sheets."

When required, you can be confident that every operation is captured and documented. That documentation makes compliance a breeze.

Your Atomlab™ 500 Dose Calibrator is upgradable. You can easily install software updates via the Biodex website or by using a convenient memory card.

- **Easy-to-use, large, color touch-screen display with intuitive menus**
- **Automatic range selection; ranges up to 100 Curies of Tc-99m or 25 Curies of F-18**
- **Pre-programmed for 88 most commonly used radionuclides; any 12 can be conveniently touch selected**
- **Displays in Curies or Becquerels**
- **Small footprint economizes workspace**
- **Ultra-fast response**
- **Robust software and extensive functionality**
- **Report and label printers available**
- **USB ports offer the ability to accommodate a USB mouse and printing devices.**
- **The USB ports also allow software upgrades via USB memory devices**
- **Communicates with most commercially available NM management systems via bi-directional serial communications port**
- **64 Channel MCA**
- **Adjustable wide window and individual isotopes**
- **2x2 NaI drilled-well detector**
- **Remote shielded well**
- **Energy spectrums with individual ROI**
- **Ability to help identify isotopes causing contamination**
- **User-specific wipe locations and trigger levels**
- **Wipes that exceed trigger levels are immediately recognized: flashes on screen and prints in red**
- **Detailed wipe reports including cpm and dpm**
- **Wipe testing results stored**
- **Desktop or wall mount display**
- **Two-year warranty**

Standard APPs for Atomlab 500*Plus* include

- Automated Quality Assurance APPs
  Constancy and Expanded Constancy
  Linearity and Auto Linearity
  Accuracy
  Geometry
- Nuclear Pharmacy APPs:
  Future dose computation
  Volume determination
  Inventory control of 25 samples, correcting volume, activity and moly concentration
- Multiple Detector APPs
  Manages multiple ionization chambers
- Wipe Test Counter APPs
  Automated Quality Assurance Apps
  Full Width at Half Max (FWHM)
  Chi Square
  Minimum Detectable Activity (MDA)

New low pressure chamber. Atomlab Dose Calibrators are shipped air or ground as standard goods.

Item 993-015 Atomlab™ 500*Plus* - Dose Calibrator and Wipe Test Counter Includes

- Smart Display
- Ionization Chamber
- Well Counter
- RS-232 Port
- Vial/Syringe Dipper
- Well Insert

Specifications

DISPLAY (A single "Smart Display" controls both Dose Calibrator and Wipe applications)

Display: LCD Touch Panel 6.5" x 5", function keys are displayed for the operation being performed

Display Unit:

Dimensions: 9.5" W x 12" H x 12" depth (24.1 x 30.5 x 30.5 cm)

Weight: 4.2 lb (1.9 kg)

Connectors: RJ-12 for well cable

Power: This system uses XP Power Supply for Medical Use, Model #PDM60US15

Line Voltage: 100 to 240 VAC, auto selectable by the power supply, 1.5 – 0.75 amps

Line Frequency: 50/60 Hz, detachable line cord, built-in EMI filter and transient suppression

Auxiliary Port: Two USB ports and one RS-232 port

Memory: Stores for Wipe Test Counter: Calibration, background, high voltage, isotope specification, isotope efficiency, Chi-Square testing results, technologist list, wipe locations list and latest MDA calculation. Results can be displayed and printed.

Memory: Stores for Dose Calibrator: Inventory and QA tests

ATOMLAB™ 500 DOSE CALIBRATOR

Isotope Selection Keys: Twelve pre-programmed – Tc-99m, Tl-201, I-123, I-131, Cs-137, Co-57, Xe-133, Ga-67, In-111, F-18, Y-90, Mo-99; 25 user-defined isotopes and a full alphabetical list of 88 isotopes.

Activity Range: : 0.01 uCi to 100 Ci (.0004 MBq to 3700 GBq) of Tc-99m or 25Ci of F-18

Energy Range: 25 keV to 3 MeV photons

Response Time: One to two seconds for doses greater than 200 uCi; three seconds for doses greater than 20 uCi; 50-100 seconds below 20 uCi of Tc-99m with default threshold, threshold adjustable to reduce counting time

Detector Linearity: ± 1% or 0.2 µCi, whichever is greater

Electrometer Linearity: ± 1% or 0.2 µCi, whichever is greater, up to 40 curies of Tc-99m, ± 1.5% up to 100 curies of Tc-99m

Electrometer Accuracy: ± 1% or 0.2 µCi, whichever is greater

Overall Accuracy: ± 3%or 0.3 µCi, whichever is greater; overall accuracy is affected by such factors as the accuracy of the specific source calibration, geometric variations due to sample volume or configuration, detector linearity, electrometer accuracy and readout accuracy

Repeatability: ± 0.3% above 1 mCi short term (24 hr); 1% long term (one yr)

Digital Calibration Dial: Four-digit dial with increment/decrement keys to change the value; range is from 0.0 to 999.9

Detector: Well-type pressurized ionization chamber, with Argon fill gas; well opening 2.75" (7 cm), well depth 10.25" (26 cm). Up to seven chambers can be serially connected to one display.

Chamber Gas Pressure: 149KPa gauge (21.6 psig) at 20°C or 250KPa absolute (36.3 psia) at 20°C. IATA regulation 3.2.2.4 Exempts Gases of Division 2.2 from Dangerous Goods Regulations when transported at pressure less than 200KPa gauge (29 psig) at 20°C. Device is shipped standard goods.

Detector Shielding: .25" (6.3 mm) lead on all sides except top well opening; supplementary shielding available

Chamber Bias: 355 ±5 volts

Environmental Operating Conditions: Temperature: 0-40°C; Humidity: 0-90% rH, non-condensing

Power Requirements: 100 to 240 VAC, 0.38 – 0.15 amps, auto switching; XP Power Supply (PDM60US15), for medical use.

Line Frequency: 50/60Hz; detachable line cord; built-in EMI filter and transient suppression

Detector and Interface Cables: : 8' (243 cm) long, six conductor cables (two carry power; two chassis ground; two carry serial data for digital I/O)

Detector Unit:

Dimensions: 6" Dia x 15.5" H (15.24 x 39.37 cm)

Well I.D.: 2.75" Dia x 10.5" H (7 x 26.7 cm)

Well I.D. with Liner: 2.5" Dia x 10.25" H (6.35 x 26 cm)

Lead Shielding: 0.25" lead (6.3 mm)

Weight: 35 lb (16 kg)

Approvals: ETL to UL 60601-1 and cETL to CAN/CSA C22.2No. 601-1-M90, IEC 60601-1, IEC 60601-1-4 and IEC 60601-1-2 and CE Marked

Warranty: Two-year

ATOMLAB™ WIPE TEST COUNTER

Detector Cable

Length: Standard 8 ft. (243 cm); custom cable lengths available up to 20 meters

Conductors: Six total – 2 for power, two for chassis ground, two for serial data

Connectors: RJ-12

Well Counter

Detector: 2" x 2" NaI (Tl) integral line scintillation detector with a 0.75" dia. x 1.44 " depth well (1.9 x 3.7 cm)

Style: Remote Detector

Channels: 64

MCA: Integral to Well Counter

Spectral Resolution: FWHM 10%

Count Rate: (Maximum) 30,000 cps

Connectors: RJ-12 for power and signal

Lead Shielding: 0.5" (1.2 cm) integral lead shield

Optional Calibration Source: 0.1 µCi Cs-137 Rod Source

Optional Additional Shield: 0.5" (1.2 cm) lead shield, slides over integral shield for total of 1.0" of shielding – includes cover

Cover: Fits optional additional lead shield, has 0.25" (.6 cm) lead shielding

Physical Data

Display Unit

Size: 9.5" W x 12" H x 12" D (24.1 x 30.5 x 30.5 cm)

Weight: 4.2 lb (1.9 kg)

Well Counter

Size: 6" D x 11" H (15.24 x 27.9 cm)

Weight: 29 lb (3.2 kg)

Approvals: ETL listed to UL 60601-1 and CAN/CSA C22.2 No. 601-1M90, IEC 60601-1, IEC 60601-1-4 and IEC 60601-1-2 and CE marked

Item #	Description
993-015	Atomlab™ 500*Plus* - Dose Calibrator & Wipe Test Counter
993-030	Data Manager Software for Atomlab™ 500
993-032	Copper Dipper for Atomlab™ 500
993-035	Printer, Dymo (Label) for Atomlab™ 500
993-036	Printer, Ink Jet (Report) for Atomlab™ 500
993-040	Rod Source, Cs-137, for AtomLab™ Wipe Test Counter
993-042	Wipe Test Kit for Atomlab™ 500*Plus* Wipe Test Counter
993-050	Dose Calibrator Shielding Rings, Interlocking, 2.25" Lead

Item #	Description
993-052	Moly Assay Shield for Syringe, 0.3" Lead
993-054	Moly Assay Shield for Vial, 0.3" Lead
993-056	Lineator for Atomlab™ Dose Calibrators
993-058	Syringe Reference Source Set for Atomlab™ Calibrators
993-060	Vial Reference Source Set for Atomlab™ Calibrators
993-062	Vial/Syringe Dipper, Replacement for Atomlab™ Calibrators
993-064	Well Insert, Replacement for Atomlab™ Calibrators

ATOMLAB™ WIPE TEST COUNTER

Eliminate the tedium of wipe testing with the Atomlab™ Wipe Test Counter

- Easy-to-use, large touch screen display with intuitive menus
- 64 Channel MCA
- Adjustable wide window and individual isotopes
- 2x2 NaI drilled-well detector
- Remote shielded well
- Energy spectrums with individual ROI
- Ability to help identify isotopes causing contamination
- User-specific wipe locations and trigger levels
- Wipes that exceed trigger levels are immediately recognized: flashes on screen and prints in red
- Detailed wipe reports including cpm and dpm
- Wipe testing results stored
- Upgradable at any time to a dose calibrator by adding an ionization chamber
- Optional printer for hard-copy archives
- Two-year warranty
- Communicates with most commercially available NM management systems. USB Ports allow connection with external monitor and facilitate software upgrades

Standard APPs for Atomlab Wipe Test Counter include:

- Automated Quality Assurance APPs
  -Full Width at Half Max (FWHM)
  -Chi Square
  -Minimum Detectable Activity (MDA)

Finally, a wipe test counter that's easy to use, easy to understand, fast and dependable. A color touch-screen display utilizing intuitive software eliminates the tedium of wipe testing. Simply perform a daily calibration and background count, then count the wipe for each predetermined location. Trigger levels can be set for any isotope at any location including 200 dpm for iodine. In seconds the system will determine if the location is above or below the user defined trigger level.

When performing a wipe test, the full spectrum is displayed. A wide window that includes the isotope energies expected in a particular department is set by the user. The efficiencies of the isotopes selected for the window can be either factory defaults or user determined using an integrated detector efficiency program. Individual isotope ROIs along with the wide window can be set. This feature helps identify the isotope(s) causing contamination.

Up to 50 wipe locations can be entered as a restricted area, unrestricted area, sealed source or package. The results are displayed in dpm, cpm, µCi or kBq.

The system consists of a lead shielded 2" x 2" (5 x 5 cm) (sodium iodide (NaI) well detector and a 64 channel multi-channel analyzer. The displayed energy range (spectrum) is 0-800 KeV, which is typically found in nuclear medicine departments.

The wipe counter is designed to meet or exceed all NRC (10 CFR 35.70, 10 CFR 20.1906 and 10 CFR 35.2067) and state wipe test requirements. There are automated programs for the quality assurance functions: calibration, FWHM, chi-square and minimum detectable activity (MDA).

Wipe test results and QA test data can be stored in memory and printed at any time.

Item 993-020 Atomlab™ Wipe Test Counter Includes

- Smart Display
- Well Counter
- RS-232 Port

Specifications

DISPLAY

Display: LCD Touch Panel 6.5" x 5" (16.5 x 12.7 cm), function keys are displayed for the operation being performed
Connectors: RJ-12 for well cable
Power: This system uses XP Power Supply for medical use, Model #PDM60US15
Line Voltage: 100 to 240 VAC, auto selectable by the power supply, 1.5 – 0.75 amps
Line Frequency: 50/60 Hz, detachable line cord, built-in EMI filter and transient suppression
Auxiliary Port: Two USB ports, one RS-232 port
Memory: Stores wipe, calibration, background, high voltage, isotope specification, isotope efficiency, Chi-Square testing results, technologist list, wipe locations list and latest MDA calculation. Results can be displayed and printed.
Preset Radionuclides: 27 including Tc-99m, Co-57, Cs-137, Ga-67, Tl-201, I-123, I-125, I-131, In-111, F-18

DETECTOR CABLE

Length: Standard 8 ft. (243 cm); custom cable lengths available up to 20 meters
Conductors: Six total – 2 for power, two for chassis ground, two for serial data
Connectors: RJ-12

WELL COUNTER

Detector: 2" x 2" (5 x 5 cm) NaI (Tl) integral line scintillation detector with a 0.75" dia x 1.44 " depth well (1.9 x 3.7 cm)
Style: Remote Detector
Channels: 64
MCA: Integral to Well Counter
Spectral Resolution: FWHM 10%
Count Rate: (Maximum) 30,000 cps
Connectors: RJ-12 for power and signal
Lead Shielding: 0.5" (1.2 cm) integral lead shield
Optional Calibration Source: 0.1 µCi Cs-137 Rod Source
Optional Lead Shield: 0.5" (1.2 cm) lead shield, slides over integral shield for total of 1.0" of shielding - includes cover
Optional Additional Shield: 0.5" (1.2 cm) lead shield, slides over integral shield for total of 1.0" (2.5 cm) of shielding – includes cover
Cover: Fits optional additional lead shield, has 0.25" (.6 cm) lead shielding

PHYSICAL DATA

Display Unit
Size: 9.5" w x 12" h x 12" d (24.1 x 30.5 x 30.5 cm)
Weight: 4.2 lb (1.9 kg)

Well Counter
Size: 6" d x 11" h (15.24 x 27.9 cm)
Weight: 29 lb (3.2 kg)

Approvals: ETL listed to UL 60601-1 and CAN/CSA C22.2 No. 601-1M90, IEC 60601-1, IEC 60601-1-4 and IEC 60601-1-2 and CE marked
Warranty: Two Year

Item #	Description
993-020	Atomlab™ Wipe Test Counter
993-036	Printer, Ink Jet (Report) for Atomlab™ 500
993-040	Rod Source, Cs-137, for AtomLab™ Wipe Test Counter
993-042	Wipe Test Kit for Atomlab™ 500Plus Wipe Test Counter
993-044	Lead Shield for Wipe Test Chamber
993-046	Well Liners, Disposable, 100/Pkg

COPPER SYRINGE DIPPER

- For use with I-123 and In-111
- Eliminate variations

Designed for use with I-123 and In-111, the Copper Dipper removes variation in readings caused by attenuation differences from different materials and thicknesses used in syringes and vials.

Specifications

Dimensions: 10.25" H x 1.63" Dia (26 x 4.1 cm)
Weight: 0.75 lb (.34 kg)

Item #	Description
993-032	Copper Syringe Dipper

ROD SOURCES

To calibrate well type scintillation crystals, Biodex offers a variety of Rod Sources to meet department needs. You can count on consistent accuracy. Rod Sources are calibrated as NIST traceable with an accuracy of ±5% at the 95% confidence level.

Specifications

Dimensions: 2.96" L x .47" dia (76 x 11.9 mm)
Nominal Total Activity: 0.1 µCi

Item #	Description
993-040	Rod Source, Cs-137 for Atomlab™ Wipe Test Counter

Radioactive Material License is required

WIPE TEST KIT

Wipe Test Kits may be used to perform wipe tests as indicated in NRC and Agreement State Regulations. They provide an efficient, convenient means of sampling contaminated areas with radioactivity on either wet or dry surfaces.

Each box of wipes includes 500 record folders which may be used to
- identify each sample wipe
- prevent cross-contamination of smears
- transfer the wipe to the counting facility
- store the wipe until discarded

Specifications

Size: 1.75" (4.4 cm) Dia.
Quantity: 500/Box

Item #	Description
993-042	Wipe Test Kit for Atomlab™ 500 Plus Wipe Test Counter

DOSE CALIBRATOR SHIELDING RINGS

Especially Suited for PET and Applications

The Dose Calibrator Shielding Rings offer an additional 2.25" (5.7 cm) of lead shielding around the remote chamber for working with 511 keV radionuclides, such as FDG F-18.

Specifications

Dimensions: 10.6" dia x 14.9" h (27 cm x 37.9 cm)
I.D.: 6.1" dia (15.5 cm)
Lead Shielding: 2.25" thick (5.7 cm)
Weight: 359 lb (162.5 kg)
Shipping Weight: 388 lb (175.7 kg)

Item #	Description
993-050	Dose Calibrator Shielding Rings

MOLY ASSAY SHIELD

Moly Assay Shields are a convenient method to a unit dose. Whether working with syringes or vials, either unit will fit into the well chamber of any Atomlab™ Dose Calibrator.

The leaded shields are cradled by a metal holder for easy handling to ensure proper placement inside the chamber.

Specifications

Moly Assay Shield for Syringe, Item 993-052
Dimensions: 9.125" H x 2.125" Dia (23.2 x 5.4 cm)
Lead Shielding: .3" Thick (7.6 mm)

Moly Assay Shield for Vial, Item 993-054
Dimensions: 3.5" H x 2" Dia (8.9 x 5.1 cm)
Lead Shielding: .3" Thick (7.6 mm)

Item #	Description
993-052	Moly Assay Shield for Syringe
993-054	Moly Assay Shield for Vial

LINEATOR

Simulates eight different source strengths - using only one source!

- Simplifies compliance with NRC and state requirements
- Checks linearity without sample decay or fractioning
- Covers diagnostic or therapeutic quantities in a single pass

The Lineator is a simple device to accurately and reliably verify the linearity of your dose calibrator. Test results are available in minutes, without waiting days for decay, making it feasible to perform a linearity test more often. Early identification can prevent problems before they occur.

The Lineator is a set of five tubes. Four tubes are used to perform the test and an interchangeable tube is used depending on the dynamic range needed to cover.

To perform a linearity test, insert a source of Tc-99m of the maximum activity to be measured into the central tube, then place the tube into the chamber of your dose calibrator and count. The remaining lead-lined tubes are placed, one at a time, concentrically over the central tube and counted individually or in combination. The readings are then normalized with predetermined factors, and the degree of linearity can be seen virtually at a glance.

Using only one source, the Lineator can simulate up to eight different source strengths. Each outer tube absorbs a portion of the source radiation and reduces the effective source activity seen by the dose calibrator.

Item #	Description	Weight
993-056	Lineator	6 lb (3 kg)

SYRINGE REFERENCE SOURCE SET

The daily calibration of your dose calibrator is recommended to ensure accurate and reproducible instrument response. Calibration, using long-lived standards, should be performed in a manner that most closely represents how you use your dose calibrator. The Syringe Dose Calibrator Source was designed for imaging facilities that obtain their radiopharmaceuticals in unit dose syringes.

The sources are solid cast epoxy, 3 ml active volume in a 5 cc “mock” syringe. They are calibrated within ± 5% accuracy at 99% confidence level, NIST traceable.

Each source includes a certificate of calibration, leak test certificate, and radiation safety and handling sheet. The source is packaged in an individual lead shield that is color coded to the source. Syringe Dose Calibrator Sources are available individually or as an economical set.

Syringe Dose Calibrator Reference Sources:
All sources calibrated to ±5%.

Item 993-058 Syringe Reference Source Set Includes

- Ba-133, 250 µCi
- Cs-137, 200 µCi
- Co-57, 5 mCi

Note: A photocopy of your NRC or Agreement State License must accompany orders for radioactive sources and must clearly indicate your authority to possess the source being ordered.

Item #	Description
993-058	Syringe Reference Source Set for Atomlab™ Calibrators

VIAL REFERENCE SOURCE SET

The daily calibration of dose calibrators is recommended to ensure accurate and reproducible instrument response. Calibration is easily achieved and maintained by the use of long-lived reference sources.

These sources are solid cast epoxy, 20 ml active volume in the 27 ml Vial E. They are calibrated with ±5% accuracy at the 99% confidence level, NIST traceable. Dose Calibrator Reference Sources are registered with the U.S. Food and Drug Administration Center for Devices and Radiological Health and the U.S. Nuclear Regulatory Commission.

Each source includes a certificate of calibration, a leak test certificate, and a radiation safety and handling sheet. The source is packaged in an individual lead shield that is color coded and vinyl covered to eliminate exposure to the lead. Dose Calibrator Reference Sources are available individually or as an economical set.

Vial Dose Calibrator Reference Sources:
All sources calibrated to ±5%.

Item 993-058 Syringe Reference Source Set Includes

- Ba-133, 250 µCi
- Cs-137, 200 µCi
- Co-57, 5 mCi

Note: A photocopy of your NRC or Agreement State License must accompany orders for radioactive sources and must clearly indicate your authority to possess the source being ordered.

Item #	Description
993-060	Vial Reference Source Set for Atomlab™ Calibrators

VIAL/SYRINGE DIPPER

This rugged,Vial/Syringe Dipper has a comfortable handle and it will hold 1 cc to 10 cc syringes or up to a 30 ml vial. Included with every Atomlab™ Dose Calibrator, the Vial/Syringe Dipper will also fit any well chamber with 2.5" x 10" interior dimension. The material used will not cause attenuation problems and is very resistant to breaking.

Item #	Description
993-062	Vial/Syringe Dipper, Replacement for Atomlab™ Calibrators

WELL INSERT

The Well Insert is included with the purchase of any Atomlab™ Dose Calibrator. The durable, clear Plexiglas insert is designed to protect the chamber from contamination and can be easily removed for cleaning. The insert will fit any well chamber with 2.5" x 10" (6.35 x 25.4 cm) interior dimension.

Keep a spare on hand for use while the other insert is being decontaminated.

Item #	Description
993-064	Well Insert, Replacement for Atomlab™ Calibrators

DECONTAMINATION KIT

The Atomlab Decontamination Kit contains all the equipment needed to cope with a radioactive spill or routine decontamination problem in the laboratory. The drum serves as a container for the kit components and as a waste transfer/storage vessel.

Kit Includes

(1) 30 gallon fiber drum
(2) Coverall, Disposable, Pair
(2) Shoe Covers, Disposable, Pair
(2) Respirators
(4) Filters
(2) Gloves, Reusable, Pair
(1) Radiacwash™, 1 Gallon
(1) Radiacwash™ Towelettes, 100/Box
(1) Radiacwash™ Spray Mist, 1 Liter
(10) Poly Bags
(1) 12" Niptong
(1) Sponge
(1) Mop
(1) Scrub Brush
(1) Pail
(1) Rope
Assorted Signs

Specifications

Shipping Weight: 40 lb (18.5 kg)
Drum Dimensions: 20" d x 29.5" h (50.8 x 74.9 cm)

Item #	Description
995-500	Decontamination Kit

RADIACWASH™

995-520

995-525

995-530

Radiacwash™ has been used extensively in hospitals, universities, laboratories and reactor facilities since 1951. It is the first and most popular general purpose decontamination solution specifically created for the fast and safe removal of the entire spectrum of nuclidic radioactivity.

Radiacwash™ is a concentrated solution designed to rapidly control radioactive contamination and remove radioactive particles from surfaces by a two-way action. First, it will sequester metallic ions which contaminate surfaces. Second, it lifts up and firmly suspends the contaminating particles, allowing contamination to be rinsed away with hard, soft or salt water.

Radiacwash™ will remove general laboratory contaminants such as soil, grease, oil, blood, resides, resins, and tissue and can be used safely on all surfaces, either straight or diluted, including skin, cloth, all metals, glass, floors, walls, leather, rubber, porcelain, plastic, laboratory instruments, utensils and equipment.

Radiacwash™ is a synergic liquid compound that optimally combines a number of different chemical and physical principles causing it to act as a surface-wetting sequestering agent, chelater, carrier, ion-exchanger, emulsifier, solvent, complexer, peptizer and detergent.

Radiacwash™ has a pH of 5, less than .008% Halides, contains no phosphates, chromates, silicates, enzymes, borates, aluminates, carbonates, and inert fillers that can interfere with sensitive analytical procedures.

Radiacwash™ is non-alkaline, non-corrosive, and biodegradable.

Item 995-520
The Radiacwash™ compound is formulated to decontaminate the widest possible range of contamination from radioisotopes and fission products, without affecting surfaces as acids and reagents do.

Item 995-525
Radiacwash™ Spray Mist combines the power and economy of Radiacwash™ with the convenience of aerosols. Radiacwash™ Spray Mist is a Radiacwash™ Solution packed into a special high pressure mist applicator. When the activator is depressed, over 200 lb of pressure is created at the nozzle. The pressure misting effect allows Radiacwash™ to penetrate around and under contaminants and lift them off the surface into solution to be wiped up and disposed.

Item 995-530
Radiacwash™ Towelettes are the most efficient and safest way to remove radiocontamination from hands and small objects. Radiacwash™ Towelettes are individually packaged paper towels saturated in a special Radiacwash™ solution. Simply remove the towelette from the foil packet, scrub hands thoroughly and wash the contamination away with running water.

Item #	Description
995-520	Radiacwash™, 1 Gallon
995-525	Radiacwash™ Spray Mist, 1 Liter Bottle
995-530	Radiacwash™ Towelettes, 100/Pkg