



**Expert Service**

**Radiation Products Design Inc**

## **INSTRUCTIONS**

### **RPD INFORMATION**

**Address** 5218 Barthel Industrial Drive  
Albertville, MN 55301

**Website** [www.rpdinc.com](http://www.rpdinc.com)

**Email** [sales@rpdinc.com](mailto:sales@rpdinc.com)

**Phone** 763-497-2071 or 800-497-2071

**Fax** 763-497-2295

### **RPD PRODUCT INFORMATION**

<b>Item Number</b>	<b>Tungsten Eye Shield with Aluminum Caps</b>
936-583	11.6mm Inside Diameter x 2mm Thick
936-585	13.3mm Inside Diameter x 2mm Thick
936-587	15.0mm Inside Diameter x 2mm Thick
936-589	16.7mm Inside Diameter x 2mm Thick
936-591	18.4mm Inside Diameter x 2mm Thick
936-596	11.0mm Inside Diameter x 3mm Thick
936-598	12.7mm Inside Diameter x 3mm Thick
936-601	14.4mm Inside Diameter x 3mm Thick
936-623	16.1mm Inside Diameter x 3mm Thick
936-627	17.8mm Inside Diameter x 3mm Thick

### **DISCLAIMER**

**SHIPPED NON-STERILE**  
**THESE PRODUCTS ARE NOT STERILE AND ARE TO BE USED BY**  
**AUTHORIZED PERSONNEL ONLY.**

**RX ONLY**

**Federal law (USA) restricts the sale of this device for use only by (or at the order of) a physician.**

RADIATION PRODUCTS DESIGN INC assumes no liability for consequential damages of any kind for this material when used interchangeably with products of other manufacturers/suppliers or for any direct or indirect results and consequences of its use or misuse by the customer.

## INDICATIONS OF USE

These Tungsten eye shields with aluminum caps are designed to protect the lens and cornea of the eye when treating the eyelid with electrons. Use the aluminum cap (.5mm or 1mm-included with eye shield) for reduction of backscatter. Aluminum cap thickness used for treatment is to be determined by radiation physicist. A non-prescription contact lens may be placed directly over the eye for added protection when deemed necessary. These devices may also be as an External Shield of Eye or Superficial Shield by being placed over the eyelid for external shielding during facial treatments. The aluminum cap is not used during this type of treatment. The hole through the knob on the eye shield can be used with a suture string to secure the eye shield to the patient's forehead using tape. Tape can also be used to hold the eyelid closed over the top of the eye shield.

## INTRODUCTION

### **Tungsten eye shields have less transmission than other eye shields**

The Tungsten Eye Shield can use either the 0.5 mm or 1 mm thick anodized aluminum cap (both are included with each tungsten eye shield) to reduce the electron backscatter to the eyelid. The eye shield can be used without the aluminum cap when placed superficially.

### **Recommendations Based on Transmission Values:**

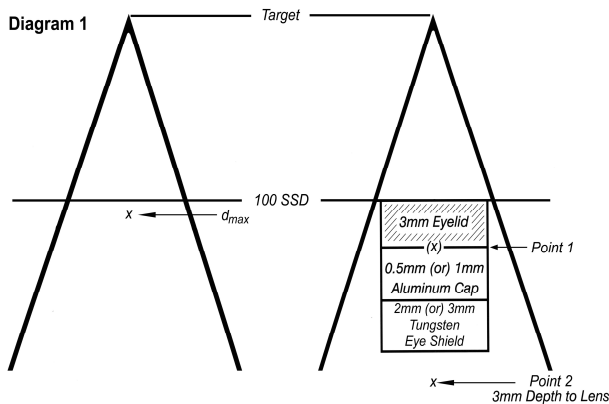
The 2 mm tungsten eye shield should be used for 6 MeV, and the 3 mm tungsten eye shield should be used for 9 MeV. **These tungsten eye shields are not recommended for use above 9 MeV.**

### **Specifications:**

Tungsten Density:  $17 \text{ g/cm}^3$

Aluminum Density:  $2.718 \text{ g/cm}^3$

The user will have to determine an acceptable amount of backscatter to decide whether to use the 0.5 mm or 1 mm aluminum cap. See diagram 1 and table 1.



The doses are normalized to  $d_{max}$  without the eye shield (Diagram 1) using a 10 x 10 cone. When 1.00 Gy is delivered to  $d_{max}$  using 6 MeV with the shield, you get 1.08 Gy to the undersurface of the eyelid (Point 1) and 3.4% transmission to the lens (Point 2) (See table 1).

Table 1

TRANSMISSION USING XV-2 FILM*		DOSE IN Gy When 1.00 Gy is Delivered to $d_{max}$ AT 3mm DEPTH*** USING TLD'S**			
		6 MeV	9 MeV		
6 MeV	9 MeV	6 MeV	9 MeV	Surface, No Shield	
		0.72	0.77	No Shield, Dose at Interface	Point 1
		0.79	0.81	2mm Tungsten	Point 1
3.4%	5.6%	1.08	1.11	2mm Tungsten + 0.5mm Aluminum	Point 1
3.0%	4.8%	1.03	1.06	2mm Tungsten + 1.0mm Aluminum	Point 1
3.0%	4.4%	0.95	1.02	3mm Tungsten	Point 1
2.5%	3.3%	1.12	1.13	3mm Tungsten + 0.5mm Aluminum	Point 1
2.4%	2.9%	1.02	1.05	3mm Tungsten + 1.0mm Aluminum	Point 1
2.5%	2.8%	0.97	1.06		

Unreferenced data on this product is preliminary findings of Radiation Products Design, Inc. and is not to be used as a technical reference.

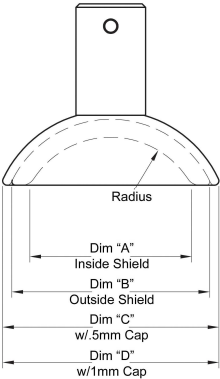
\*XV-2 Film placed under/below tungsten eye shield at 3 mm depth (anterior surface of lens).

\*\*TLD Micro cubes placed under simulated eye lid using tungsten eye shields.

REFERENCES

Evaluation of Eye Shields made of Tungsten and Aluminum in High-Energy Electron Beam – Randi D. Weaver B.S. Fairview University Med. Ctr. PO Box 494, 420 Delaware St SE, Mpls., MN 55455 Int. J. Radiation Oncology Biol. Phys., Vol. 41 Nal, pp 233-237-1998.

DIMENSIONS



Item #	Size	Thickness	Radius	Dim A	Dim B	Dim C	Dim D
936-583	XS	2	6.5	11.6	15.7	17.3	18.3
936-585	S	2	7.5	13.3	17.4	18.7	20.0
936-587	M	2	8.5	15.0	19.1	20.6	21.7
936-589	L	2	9.5	16.7	20.8	22.7	23.2
936-591	XL	2	10.5	18.4	22.5	23.9	25.1
936-596	XS	3	6.5	11.0	17.4	18.9	19.9
936-598	S	3	7.5	12.7	19.1	20.8	21.7
936-601	M	3	8.5	14.4	20.8	22.7	23.5
936-623	L	3	9.5	16.1	22.5	23.9	25.1
936-627	XL	3	10.5	17.8	24.2	25.9	27.1

All Dimensions In Millimeters

## SPECIAL PRECAUTIONS

Immediately remove the eye shield if the patient has any of the following problems:

- Unusual eye secretions
- Eye pain such as: stinging, burning, itching, excessive watering, etc.

These problems are usually caused by soap residue left on the eye shield.

<b>Note:</b>	<b>DO NOT</b>	soak tungsten eye shields in Betadine Solution, as this will cause corrosion.
	<b>DO NOT</b>	assemble damp/wet eye shield parts because an electrolysis effect will take place between two dissimilar metals causing parts to pit.
	<b>DO NOT</b>	store in liquid - store dry and disassembled.
	<b>DO NOT</b>	use or store in saline (sodium chloride) solution.
	<b>DO NOT</b>	use or soak in any sodium, sodium nitrite, or sodium chloride products.

## INSPECTION

Before each use and prior to sterilizing, examine eye shields and caps for burrs or rough edges, which could have occurred through normal use. Tungsten normally oxidizes over time, causing a discoloration of the eye shield. This does not affect performance of the eye shield. However, discoloration can be removed with Scotch-Brite Cleaning Pads, Item 878-160.

## CLEANING

- All eye shields must be thoroughly cleaned before being disinfected or sterilized.
- The presence of organic matter can protect bacteria from the action of the disinfectant or sterilant, or react with the agent and make it ineffective.
- Cleaning can be done with 1) water alone, 2) with soap or detergent and water or 3) water and soap or detergent and disinfectant.
- Cleaning with a disinfectant reduces the risk of contamination to the cleaning staff, but does not eliminate them completely.
- Automated wash cycles can be used.

Be sure to rinse thoroughly with water to remove all soap or detergent and/or disinfectant residue from eye shield. **DO NOT** assemble damp/wet eye shield parts because an electrolysis effect will take place between two dissimilar metals causing parts to pit.

## DISINFECT

(Chart #5 09.19.2022)

**Automated Wash Cycles can be used.**

1. **Cidex® OPA**, 1 Gal. Item 486-401  
Cidex OPA Solution Test Strips, 60 Strips/Bottle Item 466-403  
Separate parts prior to disinfection. Wash with water and soap or detergent and disinfectant. Soak in Cidex OPA for 12 minutes. Then rinse in three different batches of sterile water to remove all traces of **Cidex® OPA**. Note: This product does not require ACTIVATION.

**2. OPTIPRO™ Multi-enzymatic Manual Detergent Concentrate**

Follow Manufactures Directions on Presoak and Manual Cleaning.

Separate parts prior to disinfection. Wash with water and soap or detergent and disinfectant. Than rinse in three different batches of sterile water to remove all traces of **OPTIPRO™**

**3. neodisher® MediClean forte**

Follow Manufactures Directions on Presoak and Manual Cleaning.

Separate parts prior to disinfection. Wash with water and soap or detergent and disinfectant. Than rinse in three different batches of sterile water to remove all traces of **neodisher®**

**4. Revital-Ox® Resert® High Level Disinfectant**

Follow Manufactures Directions on Presoak and Manual Cleaning.

Separate parts prior to disinfection. Wash with water and soap or detergent and disinfectant. Than rinse in three different batches of sterile water to remove all traces of **Revital-Ox® Resert®**

**5. AST Association of Surgical Technologists Standards of Practice for the Decontamination of Surgical Instrument**

**DO NOT** assemble damp/wet metal parts because an electrolysis effect may take place between two dissimilar metals causing parts to pit.

**REPROCESSING DISCLAIMER**

This information is not a guarantee and does not relieve the user from the responsibility of the proper and safe use of cleaning agents. The use of certain agents can be harmful on the surface appearance.

**Restrictions on use:**

For Professional and Hospital Use.

Wear Barrier protection: protective gloves, gowns, masks and eye coverings.

Radiation Products Design, Inc. assumes no responsibility resulting from the use of such cleaning agents to the Product.

## STERILIZATION METHODS

<b>STERRAD®</b>	<p>Separate all parts prior to sterilization. Sterrad® uses Hydrogen Peroxide solution.</p> <p>This type of sterilization will cause discoloration of some materials. The blue aluminum caps will discolor and tungsten will darken. This will not affect the density of the aluminum caps or the tungsten. Tungsten discoloration can be removed with Scotch-Brite Cleaning Pads, Item 878-160.</p> <p><b>DO NOT</b> assemble damp/wet eye shield parts because an electrolysis effect will take place between two dissimilar metals causing pitting of the eye shield and the aluminum cap.</p>
<b>STERRAD®</b>	<b>Approved Cycles</b>
<b>100S</b>	Cleared for Short and Long cycles
<b>NX™</b>	Cleared for Standard and Advanced cycles
<b>100NX</b>	Cleared for Standard cycle

**Steris®****Not recommended****System 1®**

Separate all parts prior to sterilization. **DO NOT** assemble when wet or damp. This sterilization process uses Peracetic Acid solution and will cause oxidation of some metals including aluminum, brass, nickel or silver. **Aluminum caps may oxidize if this method of sterilization is used.**



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Separate all parts prior to sterilization.

**(Sterilization Chart #2 09.19.2022)**

**Peek Dome Cylinder Applicators Sterilization Chart**

**Sterilization for Peek, Ultem, Stainless Steel, Titanium, Tungsten, Aluminum & Lead.**

**Nonporous and Porous Items with Lumens**

<b>Sterilization Method</b>	<b>Temperature</b>	<b>Pressure</b>	<b>Time</b>	<b>Dry Time</b>
<b>Steam Autoclave</b>	(250°F)	15 psi	15 Min.	30-40 Min.
<b>Steam Autoclave (Gravity Displacement)</b>	121°C (250°F)	15 psi	15 Min.	30-40 Min.

<b>Steam Autoclave (prevacuum)</b>				
Unwrapped Items	121°C (250°F)	30 psi	3 Min.	30-40 Min.
Unwrapped Items	132°C (270°F)	30 psi	3 Min.	30-40 Min.
Unwrapped Items	132°C (270°F)	30 psi	5 Min.	30-40 Min.
Unwrapped Items	135°C (275°F)	30 psi	3 Min.	30-40 Min.
Lightly Wrapped Items	132°C (270°F)	30 psi	4 Min.	30-40 Min.
Medium Wrapped Items	132°C (270°F)	30 psi	8 Min.	30-40 Min.
Heavily Wrapped Items	132°C (270°F)	30 psi	10 Min.	30-40 Min.
Steam Flush Pressure-Pulse	132°C (270°F)	N/A	4 Min.	30-40 Min.

psi = Pounds Per Square Inch

**STERILIZATION SYSTEM. For Acrylic, Polycarbonate, Ertalyte, Delrin, Teflon, Polyethylene and Low Temperature Plastics, Peek, Ultem, Stainless Steel, Titanium, Tungsten, Aluminum, Lead and a single lumen with an inside diameter of >1mm (3/64") and a length of <1050 mm (41") Or two lumens with: One lumen with an inside diameter of >1 mm (3/64") and a length of < 990 mm (39") and the other lumen with inside diameter of > 1 mm (3/64") and a length of <850 mm (33").**

STERIS®, AMSCO®, V-PRO®	MAX LOW TEMPERATURE STERILIZATION SYSTEM			
	Lumen Cycle	50°C (122°F)		55 Min. 30-40 Min.
	Non Lumen Cycle	50°C (122°F)		28 Min. 30-40 Min.
	Flexible Cycle	50°C (122°F)		35 Min. 30-40 Min.

## INSTRUCTIONS

1. The physicist must do calculations to determine which aluminum cap to use (0.5 mm or 1.0 mm).
2. Clean the eye shield with soap and water. Be sure to rinse thoroughly to remove all soap residues from the eye shield.
3. Inspect eye shield and cap carefully for scratches.
4. Disinfect and sterilize according to the instructions.
5. Optional: May insert a non-prescription contact lens to prevent possible scratches to the cornea and iris.
6. Hold eyelids open and insert the eye shield directly on the eye or over a non-prescription soft contact lens. Note: Ask patient if they are experiencing any burning sensation in the eye. If so, remove the eye shield immediately and rinse thoroughly to remove all soap residues.

7. The hole through the knob on the eye shield can be used with suture string to secure the eye shield to the patient's forehead using tape. Tape can also be used to hold the eyelid closed over the top of the eye shield.
8. After use, separate parts, wash per cleaning instructions, then rinse thoroughly to remove all soap or detergent and/or disinfectant residue from eye shield.
9. Store eye shields dry with parts disassembled.
10. The eye shields must be sterilized between patients.

**Wax is not necessary to coat the eye shields. A soft contact lens can be used to protect the eye.**

## **SUPERFICIAL SHIELDING**

### **Superficial Shield or External Shield of Eye**

- Tungsten eye shields may be placed under the eyelid when treating the eyelid.
- Tungsten eye shields may be placed over the eyelid for external shielding during facial treatments.
- The aluminum cap is not used during these types of treatment.

**CT EYE SHIELDS**

<b>Item #</b>	<b>Description</b>
935-5831	Simulates a 936-583 with 0.5 mm Al Cap
935-5832	Simulates a 936-583 with 1.0 mm Al Cap
935-5851	Simulates a 936-585 with 0.5 mm Al Cap
935-5852	Simulates a 936-585 with 1.0 mm Al Cap
935-5871	Simulates a 936-587 with 0.5 mm Al Cap
935-5872	Simulates a 936-587 with 1.0 mm Al Cap
935-5891	Simulates a 936-589 with 0.5 mm Al Cap
935-5892	Simulates a 936-589 with 1.0 mm Al Cap
935-5911	Simulates a 936-591 with 0.5 mm Al Cap
935-5912	Simulates a 936-591 with 1.0 mm Al Cap
935-5961	Simulates a 936-596 with 0.5 mm Al Cap
935-5962	Simulates a 936-596 with 1.0 mm Al Cap
935-5981	Simulates a 936-598 with 0.5 mm Al Cap
935-5982	Simulates a 936-598 with 1.0 mm Al Cap
935-6011	Simulates a 936-601 with 0.5 mm Al Cap
935-6012	Simulates a 936-601 with 1.0 mm Al Cap
935-6231	Simulates a 936-623 with 0.5 mm Al Cap
935-6232	Simulates a 936-623 with 1.0 mm Al Cap
935-6271	Simulates a 936-627 with 0.5 mm Al Cap
935-6272	Simulates a 936-627 with 1.0 mm Al Cap



## ACCESSORIES

Item #	Description
466-401	Cidex OPA, 1 gal
466-403	Cidex OPA Solution Test Strips, 60 strips/ bottle
878-160	Scotch-Brite Cleaning Pads, 10/Pkg
937-700	Soft Contact Lenses, 6/Pkg
937-706	Contact Lens Cases, 3/Pkg
937-711	Opti-Free Pure Moist Contact Lens Solution, 4 oz
936.520	Micro Sterilization Tray, 1.5 x 2.65 x 1.25 in
934-020	Storage Box for Eye Shields, 8 Compartments

**Micro Sterilization Tray**  
**Item # 936-520**



**Storage Box**  
**Item # 934-020**



## WARRANTY

1 year from date of purchase.

**End of Document**