

RADIATION  
PRODUCTS  
DESIGN INC.



TUNGSTEN EYE SHIELDS WITH ALUMINUM CAPS  
INSTRUCTIONAL & INFORMATION BOOKLET



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## PRODUCT INFORMATION

Item #	Tungsten Eye Shield with Aluminum Caps
936-583	Extra Small - 2mm Thick with 11.6mm Inside Diameter
936-585	Small - 2mm Thick with 13.3mm Inside Diameter
936-587	Medium - 2mm Thick 15.0mm Inside Diameter
936-589	Large - 2mm Thick with 16.7mm Inside Diameter
936-591	Extra Large - 2mm Thick with 18.4mm Inside Diameter
936-596	Extra Small - 3mm Thick with 11.0mm Inside Diameter
936-598	Small - 3mm Thick with 12.7mm Inside Diameter
936-601	Medium - 3mm Thick with 14.4mm Inside Diameter
936-623	Large - 3mm Thick with 16.1mm Inside Diameter
936-627	Extra Large - 3mm Thick with 17.8mm Inside Diameter



## DISCLAIMERS



### SHIPPED NON-STERILE

These products are not shipped sterile but should be cleaned and sterilized before each use by authorized personnel.

### RX ONLY

Federal law (USA) restricts the sale of these devices for use only by, or at the order of, a physician.

### LIABILITY

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.

Radiation Products Design, Inc. assumes no liability or responsibility resulting from the use of cleaning agents or disinfection products.

(CHART-4: Disclaimers - Rev. 2024-07-01)



## SAFETY INFORMATION

### WARNINGS

**⚠ WARNING:** 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.

### PRECAUTIONS

**Do not** soak tungsten eye shields in Betadine Solution, as this will cause corrosion.

**Do not** assemble damp/wet eye shield parts because an electrolytic effect that takes place between two dissimilar metals causing parts to pit.

**Do not** store in liquid - store dry and disassembled.

**Do not** use or store in saline (sodium chloride) solution.

**Do not** use or soak in any sodium, sodium nitrite, sodium chloride, or chloride products.

### CONTRAINDICATIONS OF USE



**MR Unsafe:** This product should not be used in an MR environment due to potential presence of magnetic material in tungsten alloy.

## 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 used as Superficial Shields. The aluminum cap is not used during this type of treatment. Alternatively, these devices may also be used as External Shield of Eye by being placed over the eyelid during facial treatments. 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.



## **ASSEMBLY**

1. Unscrew fastener from tungsten shield
2. Place desired aluminum cap over the shield
3. Screw fastener on and tighten to tungsten shield

## **INSTRUCTIONS FOR USE**

1. Review Warnings and Precautions before use
2. The radiation physicist decides and instructs the physician or approved staff member the correct backscatter cap to be used during the treatment.
3. If the device was not reprocessed and stored in sterile packaging, follow the reprocessing methods by cleaning, inspecting, then sterilizing or disinfecting the device according to instructions. Steam sterilization is preferred, however, other methods of sterilization and high level disinfection are listed if steam sterilization is unavailable. The device should be dried completely before reassembly.
4. Optional: A non-prescription contact lens may be inserted to prevent possible scratches to the cornea and iris. Wax is not necessary to coat the eye shields.
5. 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 the eye thoroughly to remove any soap residue or contaminants.
6. 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.
7. After use, clean the eye shield according to instructions. If sterilized packing is to be used, the device can then be inspected, followed by sterilization or disinfecting according to the provided instructions. Steam sterilization is preferred, however, other methods of sterilization and high level disinfection are listed if steam sterilization is unavailable. The device should be dried completely before use or being put in storage. Store the device disassembled.

## INFORMATION

### 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 used superficial treatments. The use of these aluminum caps should be determined by the radiation physicist.

### 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

Material Listing:

Tungsten (AMS 7725F, Class 1, Type 2)

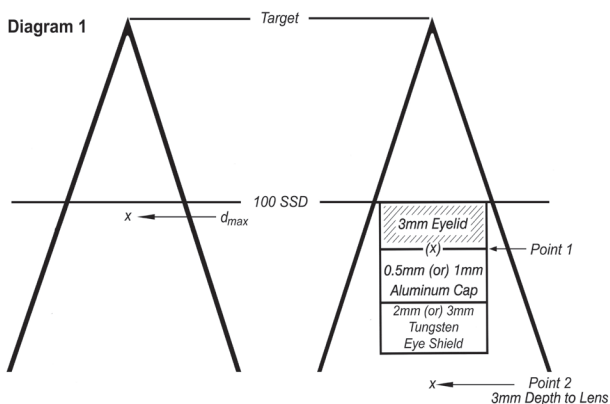
Composition: W (90+), Ni (0–10), Fe (0–10), Cu (0–10), Co (0–10) wt%

Typical Density: 17 g/cm<sup>3</sup> (16.85–17.3 g/cm<sup>3</sup>)

Aluminum

Typical Density: 2.718 g/cm<sup>3</sup>

Finish: Anodized



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.

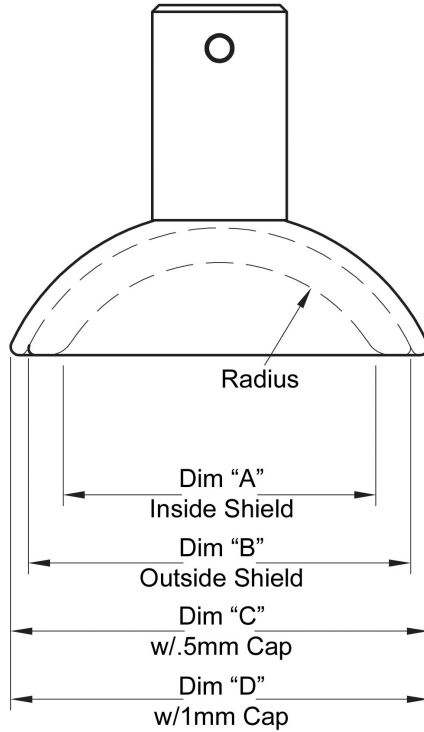


The doses are normalized to  $d_{max}$  without the eye shield (Diagram 1) using a 10 x 10 cone. When 1.00 Gy is delivered to  $d_{max}$  using 6 MeV with the shield, you get 1.08 Gy to the under-surface of the eyelid (Point 1) and 3.4% transmission to the lens (Point 2) (See table 1).

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		
		0.72	0.77	Surface, No Shield	
		0.79	0.81	No Shield, Dose at Interface	Point 1
3.4%	5.6%	1.08	1.11	2mm Tungsten	Point 1
3.0%	4.8%	1.03	1.06	2mm Tungsten + 0.5mm Aluminum	Point 1
3.0%	4.4%	0.95	1.02	2mm Tungsten + 1.0mm Aluminum	Point 1
2.5%	3.3%	1.12	1.13	3mm Tungsten	Point 1
2.4%	2.9%	1.02	1.05	3mm Tungsten + 0.5mm Aluminum	Point 1
2.5%	2.8%	0.97	1.06	3mm Tungsten + 1.0mm Aluminum	Point 1

## 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.



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.

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**



## **REPROCESSING INSTRUCTIONS**

If applicable, products should be disassembled before cleaning, disinfecting and sterilization. Cleaning and inspection processes are always mandatory before each use. Use of a sterilization method or a disinfectant is also mandatory before each use.

Always follow AST (Association of Surgical Technologists) Standards of Practice for the Decontamination of Surgical Instruments.

### **RESTRICTIONS ON USE**

Product is to be handled by medical industry professional and approved hospital employees only. Use proper protection indicated by sterilant or cleaner SDS and department standards, which may include but is not limited to: protective gloves, gowns, masks and eye protection. Always follow the instructions indicated by the sterilant or cleaning agent. Refer to the "Safety Information" section of this document for chemicals that may have adverse reactions with these products.

### **LIABILITY**

Radiation Products Design, Inc. assumes no responsibility resulting from the use of unapproved cleaning agents or sterilants or improper use of approved agents or sterilants. Instructions and provided information per sterilant or cleaner SDS and department standards delimit but do not supersede what is approved by this document.

(CHART-13: Reprocessing Instructions - Rev. 2026-02-20)

## **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.



## CLEANING

These products must be thoroughly cleaned with water and detergent, or with water and enzymatic cleaners before high-level disinfection or sterilization procedures. This removes the presence of organic matter that can protect bacteria from contact of the disinfectant or sterilant, or react with the cleaning agent in a way that may render it ineffective. Automated wash cycles can be used. Always follow the manufacturer's instructions on pre-soak and cleaning processes. If necessary, separate parts prior to cleaning.

### Approved Detergents and Cleaning Agents:

- ASP™ CIDEZYME™ XTRA Multi-Enzymatic Detergent
- ASP™ ENZOL™ Enzymatic Detergent
- Dr. Weigert neodisher® MediClean forte
- ECOLAB® Asepti Neutrazyme
- ECOLAB® OPTIPRO™ Multi-enzymatic Manual Detergent Concentrate
- STERIS® PRE-KLENZ™ Instrument Transport Gel
- STERIS® Prolystica® 2X Concentrate Enzymatic Presoak and Cleaner
- STERIS® Valsure® Enzymatic Cleaner

Be sure to rinse thoroughly with water to remove all soap or detergent and/or disinfectant residue.

(CHART-6: Cleaning - Rev. 2026-03-11)



## HIGH TEMPERATURE STERILIZATION

### APPROVED HIGH TEMPERATURE STERILIZATION METHODS

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

Steam Autoclave (Pre-Vacuum)	Temperature	Pressure	Time Minutes	Dry Time Minutes
Unwrapped Items	121°C to 136°C (250°F to 277°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 Unwrapped Items	132°C (270°F)	N/A	≥4 Min.	30-40 Min.

psi = Pounds Per Square Inch

(CHART-2: Sterilization - Rev. 2025-12-01)



**LOW TEMPERATURE STERILIZATION**

**APPROVED STERRAD® STERILIZATION FOR NON-POROUS AND POROUS ITEMS**

<b>STERRAD® VAPORIZED HYDROGEN PEROXIDE (VHP) STERILIZATION SYSTEMS</b>			
<b>Sterrad® Unit</b>	<b>Temperature</b>	<b>Cleared Cycles</b>	<b>Dry Time (Minutes)</b>
<b>Sterrad® 50 &amp; 200</b>	50°C (122°F)	All Cycles	30-40 Min.
<b>Sterrad® 100S</b>	50°C (122°F)	Short and Long Cycles	30-40 Min.
<b>Sterrad® NX™</b>	50°C (122°F)	Standard and Advanced Cycles	30-40 Min.
<b>Sterrad® 100NX™</b>	50°C (122°F)	Standard Cycle	30-40 Min.

**APPROVED STERIS® STERILIZATION METHODS**

<b>STERIS® VAPORIZED HYDROGEN PEROXIDE (VHP) STERILIZATION SYSTEMS</b>				
<b>V-PRO®</b>	<b>Temperature</b>	<b>Pressure</b>	<b>Time Minutes</b>	<b>Dry Time Minutes</b>
<b>Lumen Cycle</b>	50°C (122°F)	N/A	55 Min	30-40 Min.
<b>Non-Lumen Cycle</b>	50°C (122°F)	N/A	28 Min	30-40 Min.
<b>Flexible Cycle</b>	50°C (122°F)	N/A	35 Min	30-40 Min.

(CHART-3: Low Temp Sterilization - Rev. 2025-01-29)



## HIGH LEVEL DISINFECTING

(Optional Processes: Sterilization is recommended)

### APPROVED HIGH LEVEL DISINFECTANTS:

- **ASP Cidex® OPA, 1 Gal.** (RPD Item # 466-401)  
Cidex OPA Solution Test Strips, 60 Strips/Bottle  
(RPD Item # 466-403)  
Note: This product does not require ACTIVATION.
- **Metricide OPA Plus™ Solution**
- **ASP AERO-OPA™ Solution**
- **RAPICIDE™ High-Level Disinfectant and Sterilant & Test Strips**

### SPECIAL INSTRUCTIONS

Separate parts prior to disinfection. Wash with water and soap or detergent prior to disinfecting. After pre-cleaning the instrument to remove gross filth, follow the disinfectant's instructions to disinfect the instrument. Unless the instructions advise otherwise, devices should be rinsed in three separate batches of sterile water and or/use a neutralizer, to remove all traces of the disinfectant.

(CHART-5: Disinfecting - Rev. 2026-03-11)

## ACCESSORIES

### CT/MR DUMMY EYE SHIELDS

Item #	Description
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

### INFORMATION

The CT/MR Compatible Dummy Eye Shields for simulating the Tungsten Eye Shields are made of a non-metallic material and can be used in CT and MR environments for treatment planning.

### SPECIFICATIONS

**Material:** Ultem™ 1000

**Density:** 1.28 g/cm<sup>3</sup>





## 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

One year from date of purchase.





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