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## TPS16 - July 29, 2016

Item # TPS16 was discontinued on July 29, 2016. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

### ALUMINUM PROTECTIVE SCREENS

- ▶ Flat and Curved Profiles for Tailored Shielding
- ▶ Joiners Available for Flat Profile Barriers
- ▶ Bead Blasted to Ensure Consistently High Diffusion
- ▶ Versions with Laser-Engraved Target Grid Available



TPS5



TPS9



TPS4  
 Centered Through Hole for 8-32 (M4) Post Mounting



TPSM2

[Hide Overview](#)

#### OVERVIEW

Thorlabs' Aluminum Protective Screens prevent stray or unwanted light from entering or exiting an experimental setup. The aluminum is treated prior to anodization to create a homogeneously diffusive surface that is superior to textured surfaces, which scatter light unevenly. These screens are available with flat and curved surfaces. The curved screens are particularly useful for shielding laser beams that might be reflected upwards. For applications that require laser alignment and beam blocking, we offer flat screens that feature an imperial or metric laser-engraved target grid on one side and powerful magnets in the base for flexibility when positioning the screen on magnetic surfaces.

These screens are not intended to serve as permanent beam dumps. For such applications, Thorlabs offers a comprehensive family of beam traps and beam blocks.



Click to Enlarge  
 Aluminum Screen Mounted to an  
 Optical Table

[Hide Test Data](#)

#### TEST DATA

The laser optical density and barrier threshold of the material and coating used to manufacture the products featured here were tested at various wavelengths in accordance with EN 12254 and ANSI Z136.7. The results are tabulated below:

EN 12254

Test Wavelength	Spot Diameter	Exposure Duration	Laser Optical Density
532 nm	910 $\mu\text{m}$	100 Seconds	D,AB7
1070 $\mu\text{m}$	910 $\mu\text{m}$	100 Seconds	D,AB7
10.6 $\mu\text{m}$	956 $\mu\text{m}$	100 Seconds	D,AB5

## ANSI Z136.7

Test Wavelength	Spot Diameter	Exposure Duration	Test Irradiance	Laser Barrier Threshold
532 nm	532 $\mu\text{m}$	100 Seconds	2546 W/cm <sup>2</sup>	No Penetration
1070 $\mu\text{m}$	910 $\mu\text{m}$	100 Seconds	150 KW/cm <sup>2</sup>	No Penetration
10.6 $\mu\text{m}$	956 $\mu\text{m}$	100 Seconds	27.4 Wcm <sup>2</sup>	No Penetration

[Hide Straight Aluminum Protective Screens](#)

## Straight Aluminum Protective Screens

- ▶ Bead-Blasted Anodized Aluminum Barriers
- ▶ Five Sizes Available (W x H):
  - 8" x 6" (203 mm x 152 mm)
  - 12" x 6" (305 mm x 152 mm)
  - 12" x 12" (305 mm x 305 mm)
  - 24" x 6" (610 mm x 152 mm)
  - 24" x 12" (610 mm x 305 mm)

Thorlabs' Aluminum Protective Screens prevent stray or unwanted light from entering or exiting an experimental setup. The aluminum is bead blasted prior to anodization to create a homogeneously diffusive surface. With walls just 0.08" (2 mm) thick and bases that are 0.79" (20 mm) wide, these compact, lightweight screens are easily integrated into a laser setup.

The base of each screen contains several slotted mounting holes for 1/4"-20 (M6) cap screws that are each 2" (50.8 mm) long, providing flexible mounting options. The TPS4 additionally contains a centered through hole designed for 8-32 or M4 cap screws, allowing the TPS4 to be mounted to a post. Joiner plates (sold separately below) allow the straight laser safety screens to be joined together to form a continuous barrier.

Item #	TPS4	TPS13	TPS5	TPS14	TPS6
<b>Size (W x H)</b>	8" x 6" (203 mm x 152 mm)	12" x 6" (305 mm x 152 mm)	12" x 12" (305 mm x 305 mm)	24" x 6" (610 mm x 152 mm)	24" x 12" (610 mm x 305 mm)
<b>Mounting Holes<sup>a</sup></b>	2 Slotted + 1 Through	2 Slotted	2 Slotted	4 Slotted	4 Slotted
<b>Weight</b>	0.23 kg (0.51 lbs)	0.27 kg (0.59 lbs)	0.5 kg (1.10 lbs)	0.55 kg (1.21 lbs)	1 kg (2.20 lbs)
<b>Compatible Joiner Plates</b>	TPSJ3 and TPSJ4	TPSJ3 and TPSJ4	TPSJ1 and TPSJ2	TPSJ3 and TPSJ4	TPSJ1 and TPSJ2
<b>Damage Threshold</b>	>350 J/cm <sup>2</sup> (1064 nm, 20 ns, 20 Hz, Ø1.14 mm)				

- Slotted mounting holes are compatible with 1/4"-20 or M6 cap screws, while the through hole only accommodates an 8-32 or M4 cap screw.

Part Number	Description	Price	Availability
TPS4	Customer Inspired!8" x 6" (203 mm x 152 mm) Straight Laser Safety Screen	\$38.60	Today
TPS13	12" x 6" (305 mm x 152 mm) Straight Laser Safety Screen	\$55.00	Today
TPS5	Customer Inspired!12" x 12" (305 mm x 305 mm) Straight Laser Safety Screen	\$57.20	Today
TPS14	24" x 6" (610 mm x 152 mm) Straight Laser Safety Screen	\$83.00	Today
TPS6	Customer Inspired!24" x 12" (610 mm x 305 mm) Straight Laser Safety Screen	\$91.70	Today

[Hide Joiner Plates for Straight Protective Screens](#)

## Joiner Plates for Straight Protective Screens

- ▶ Aluminum Joiner Plates for Straight Protective Screens
- ▶ Used to Form a Continuous Barrier
- ▶ Straight and Corner Options Available
- ▶ Damage Threshold:  $>350 \text{ J/cm}^2$  (1064 nm, 20 ns, 20 Hz,  $\varnothing 1.14 \text{ mm}$ )

Joiner Plate Compatibility			
Item #	Type	Height	Compatible Screens
TPSJ1(M)	Straight	12" (305 mm)	TPS5 and TPS6
TPSJ2(M)	Corner		
TPSJ3(M)	Straight	6" (152 mm)	TPS4, TPS13, and TPS14
TPSJ4(M)	Corner		



Click to Enlarge  
TPS5 and TPS6 Joined to Form a  
Continuous Enclosure

These Joiner Plates allow our straight laser safety screens to be joined together to form a continuous barrier or complete enclosure around an experiment; please refer to the table to the right for compatible screens. Flat and 90° corner plates are available.

Both joiners comprise of a front and back plate that fit in front of and behind the screens to be joined. The joiner plates overlap the screens by about 1/4" (6 mm) on each side. The plates are then bolted together using the two black 1/4"-20 (M6) cap head screws supplied to sandwich the screens between the plates.

The plates are manufactured from anodized aluminum to maintain laser safety across the joint. Please note that these joiner plates cannot be used with the curved protective screens detailed below.

Part Number	Description	Price	Availability
TPSJ1/M	305 mm Height Laser Safety Screen Straight Joiner Plate, M6 Cap Screws Included	\$37.10	Today
TPSJ2/M	305 mm Height Laser Safety Screen Corner Joiner Plate, M6 Cap Screws Included	\$42.20	Today
TPSJ3/M	152 mm Height Laser Safety Screen Straight Joiner Plate, M6 Cap Screws Included	\$35.00	Today
TPSJ4/M	152 mm Height Laser Safety Screen Corner Joiner Plate, M6 Cap Screws Included	\$40.00	Today
TPSJ1	12" Height Laser Safety Screen Straight Joiner Plate, 1/4"-20 Cap Screws Included	\$37.10	Today
TPSJ2	12" Height Laser Safety Screen Corner Joiner Plate, 1/4"-20 Cap Screws Included	\$42.20	Today
TPSJ3	6" Height Laser Safety Screen Straight Joiner Plate, 1/4"-20 Cap Screws Included	\$35.00	Today
TPSJ4	6" Height Laser Safety Screen Corner Joiner Plate, 1/4"-20 Cap Screws Included	\$40.00	Today

[Hide Curved Aluminum Protective Screens](#)

## Curved Aluminum Protective Screens

- ▶ Bead-Blasted Anodized Aluminum Barriers
- ▶ Curved Screen Deflects Stray Laser Beams
- ▶ Five Sizes Available (W x H):
  - 8" x 6" (203 mm x 152 mm)
  - 12" x 6" (305 mm x 152 mm)
  - 12" x 12" (305 mm x 305 mm)
  - 24" x 6" (610 mm x 152 mm)
  - 24" x 12" (610 mm x 305 mm)

Relative to the straight protective screens sold above, Thorlabs' Curved Protective Aluminum Screens offer additional blackout and shielding for stray laser beams that might be reflected upwards. The aluminum is bead blasted prior to anodization to create a homogeneously diffusive surface. With walls just 0.08" (2 mm) thick and bases that are 0.79" (20 mm) wide, these compact, lightweight screens are easily integrated into a laser setup.

The base of each screen contains several slotted mounting holes for 1/4"-20 (M6) cap screws that are each 2" (50.8 mm) long, providing flexible mounting options. Additionally, the TPS8 contains a centered through hole designed for an 8-32 or M4 cap screw, allowing the TPS8 to be mounted to a post.

Item #	TPS8	TPS15	TPS7	TPS16	TPS9
Size (W x H)	8" x 6" (203 mm x 152 mm)	12" x 6" (305 mm x 152 mm)	12" x 12" (305 mm x 305 mm)	24" x 6" (610 mm x 152 mm)	24" x 12" (610 mm x 305 mm)
Mounting Holes <sup>a</sup>	2 Slotted + 1 Through	2 Slotted	2 Slotted	4 Slotted	4 Slotted
Weight	0.3 kg (0.66 lbs)	0.35 kg (0.77 lbs)	0.7 kg (1.54 lbs)	0.7 kg (1.54 lbs)	1.4 kg (3.08 lbs)
Damage Threshold	$>350 \text{ J/cm}^2$ (1064 nm, 20 ns, 20 Hz, $\varnothing 1.14 \text{ mm}$ )				

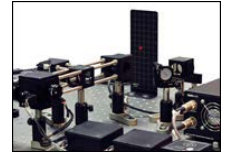
- Slotted mounting holes are compatible with 1/4"-20 or M6 cap screws, while the through hole only accommodates an 8-32 or M4 cap screw.

Part Number	Description	Price	Availability
TPS8	8" x 6" (203 mm x 152 mm) Curved Laser Safety Screen	\$51.50	Today
TPS15	12" x 6" (305 mm x 152 mm) Curved Laser Safety Screen	\$60.00	Lead Time
TPS7	12" x 12" (305 mm x 305 mm) Curved Laser Safety Screen	\$67.00	Today
TPS16	24" x 6" (610 mm x 152 mm) Curved Laser Safety Screen	\$90.00	Lead Time
TPS9	24" x 12" (610 mm x 305 mm) Curved Laser Safety Screen	\$97.90	Today

[Hide Magnetic Laser Safety Screens](#)

### Magnetic Laser Safety Screens

- ▶ Aluminum Laser Safety Screen with Laser-Engraved Target Grid
- ▶ Available in Two Sizes:
  - TPSM1(M): 7.87" x 2.95" (200.0 mm x 75.0 mm), Footprint: 2.95" x 1.38" (75.0 mm x 35.0 mm)
  - TPSM2(M): 11.81" x 2.95" (300.0 mm x 75.0 mm), Footprint: 2.95" x 1.38" (75.0 mm x 35.0 mm)
- ▶ Two Magnets on Underside Provide Holding Force
- ▶ Slotted Mounting Hole for Non-Magnetic Surfaces
- ▶ Homogeneously Diffusive Anodized Coating
- ▶ Damage Threshold: >350 J/cm<sup>2</sup> (1064 nm, 20 ns, 20 Hz, Ø1.14 mm)



Click to Enlarge  
TPSM1 in a Beam  
Stabilization Setup

Our Magnetic Laser Safety Screens are laser engraved on one side with a 1/2" (10 mm for metric versions) target grid for rough laser alignment, while the other side is blank to provide a complete beam blocking option. The base of the screen is fitted with a pair of magnets that hold the screen to magnetic work surfaces and provide flexibility of movement. A through hole is also provided to allow the screen to be tightened down using a cap screw for more permanent placement or for use in non-magnetic applications. The compact size of the screen allows it to fit into small gaps between your accessories, enabling easy integration into a laser setup. This screen is constructed from bead-blasted aluminum to remove any sharp edges, which is then anodized to create a homogeneously diffusive surface.

Please note: Due to the presence of strong magnets, these laser screens should not be used in the vicinity of pacemakers, credit cards, or other devices affected by magnetic fields.

Part Number	Description	Price	Availability
TPSM1/M	Magnetic Laser Safety Screen, 200 mm x 75 mm, Metric Engraving	\$29.40	Today
TPSM2/M	Customer Inspired!Magnetic Laser Safety Screen, 300 mm x 75 mm, Metric Engraving	\$36.10	Today
TPSM1	Magnetic Laser Safety Screen, 7.87" x 2.95", Imperial Engraving	\$29.40	Today
TPSM2	Customer Inspired!Magnetic Laser Safety Screen, 11.81" x 2.95", Imperial Engraving	\$36.10	Today

Visit the *Aluminum Protective Screens* page for pricing and availability information:

[https://www.thorlabs.com/newgrouppage9.cfm?objectgroup\\_id=6413](https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=6413)