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TECHNOLOGIES

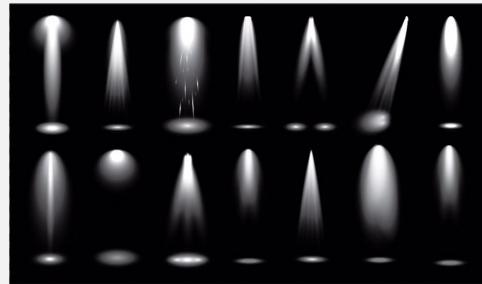*DESIGN BRILLIANCE MEETS*
VISUAL INTELLIGENCE[TM]

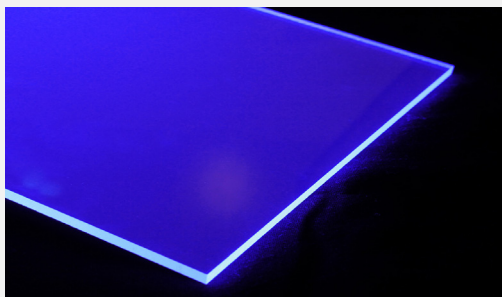Your Partner For
High Performance Optics

Diffuse & Hide

High efficiency diffusion that can include aesthetic differentiation

Control & Spread

Optical management using MLAs for angle bending, glare control, ellipticity, tiling, and more
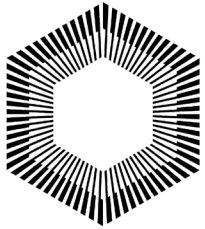
Guide

High Efficiency, uniformity, and cost effective light guide plates - both ready to ship and custom designs

Reflect

High reflectivity, diffuse white reflector in both film and metal form factors

Product Overview

BrightView High Performance Optics

Product Line	Description	Diffuser Strength (degrees)	Efficiency in Typical Luminaire	Comments
Diffuse & Hide				
C-Series	Circular Diffuser	5 - 110	90 - 98 %	General Purpose for smoothing, lamp hiding, and color mixing
V-Series	Symmetric Diffuser	80-105	90 - 98 %	
S-Series	Textured Diffusion Lens	5 - 15	91 - 95 %	Replaces textured glass such as Solite™ and Industrex™ popular in PAR, spot, flood, and downlights
P-Series	Patterned Diffusers	Patterns may be combined with other optical functions listed to create a unique aesthetic look while maintaining high performance		
Control & Spread				
A-Series	Angle Bending	20 x 60	88 - 96 %	Up to 20-degrees bend with crosswise spreading for wall wash, cove, specialty
B-Series	Batwing	Batwing Distribution	88 - 96 %	Linear/2D Batwing distributions for creating uniform illumination on flat surfaces
E-Series	Elliptical Diffusers	1 - 90	91 - 96 %	Spreads light elliptically. Mixes lines of LEDs and homogonizes fluorescent lamps.
M-Series	Spot and Flood Beam Mixing	3 - 15	91 - 95 %	Beam mixing for narrow-angle lights. Provides smooth far field without excess spreading
G-Series	Glare Control and On-Axis Gain	65° Cutoff 30 - 60% Gain	89 - 95 %	Suppresses light above 65 degrees to reduce glare while enhancing central (on-axis) intensity
Guide				
L-Series[1]	Light Guide Plates for Edge-Lit	Custom designed Light Guide Plates (LGPs) for edge-lit downlights, linears, troffers - possible customization for up and/or down distribution patterns		
Reflect				
Bright-White™	Diffuse White Reflector	Up to 30% Increase		Aluminum and plastic film, ultra-high reflectivity increases luminaire efficiency

[1] L-Series product note available upon request, email sales@brightviewtech.com

Material Overview

Material and Thickness Options

BrightView diffusers are offered on a variety of materials and thicknesses. Unlike some volumetric (hazy plastic) diffusers, BrightView diffusers maintain their high performance regardless of material thickness.
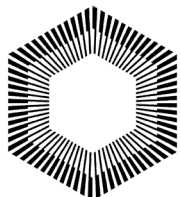
Material		Standard Thickness[1]		Thermal Stability	UV Resistance	Description
		in	mm			
Thin Film	PET	.003" .007"	.075 .175	80°C	Indoor	Excellent for indoor LED applications
	UV-PET	.005"	.125	80°C	Excellent	UV resistant for LED or Fluorescent
Semi-Rigid	Polycarbonate	.010" .020" .030"	.255 .510 .765	80°C	Indoor	Semi-Rigid for downlights, panels, etc.
Rigid	PMMA (Acrylic)	.060" .080" .120" .150"	1.5 2.0 3.0 3.8	70°C	Excellent	Rigid ultra-clear PMMA
	Polycarbonate	.060" .080" .120"	1.5 2.0 3.0	80°C	Good / Excellent	Polycarbonate in standard and UV grades

[1] Substrate thickness, actual thickness varies by product

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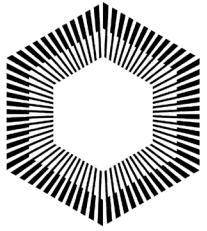
High-Efficiency Diffusers

C-Series High Performance Diffusers

C-Series diffusers efficiently hide lamps and provide smooth illumination in both LED and fluorescent applications. They provide excellent depixellation, angle control, color mixing, and color uniformity. An applications engineer will be happy to help select the correct product for your application.
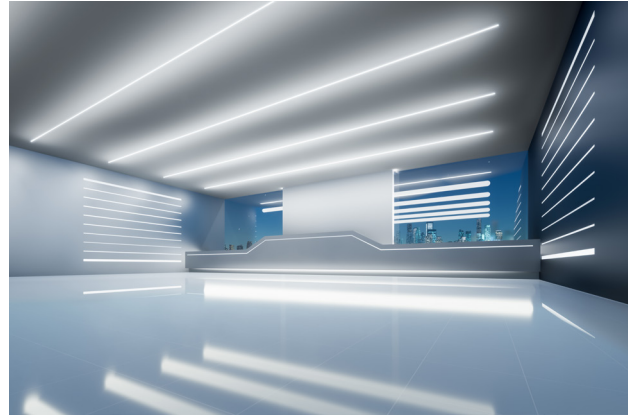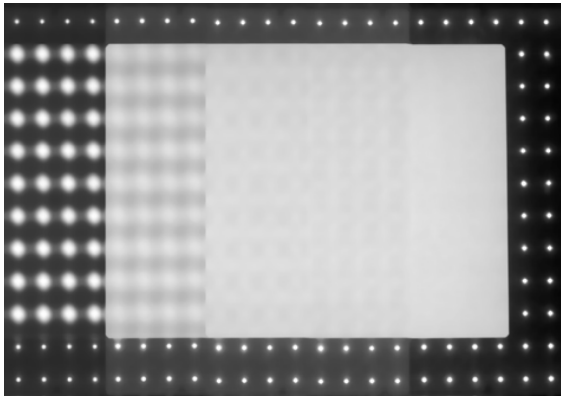
Standard Single-side Diffusers (C-HE): The Industry Standard for Efficiency

Product	Distance for total LED hiding *(Distance between lamps : Working distance to diffuser)*	Diffuser Strength (in degrees)	Comments
C-HE05		93 - 96 %	Diffusers toward the top of this table have high efficiency, and are used for softening LED images and smoothing light distributions
C-HE10		93 - 96 %	
C-HE15	1 : 4	93 - 96 %	
C-HE20	1 : 3.5	92 - 96 %	
C-HE30	1 : 2.5	91 - 95 %	Higher Efficiency ↑ ↓ More Hiding
C-HE40	1 : 2.3	90 - 94 %	
C-HE55	1 : 2	89 - 93 %	
C-HE80	1 : 1.5	88 - 92 %	Diffusers toward the bottom of this table are used when strong, smooth hiding of LED sources is desired
C-HE90	1 : 1.3	87 - 92 %	

*See next page for our C-HH Double Sided Diffusers for improved hiding

New High Hiding Double-Sided Diffusers (C-HH): Improved Efficiency and Hiding

Product	Distance for total LED hiding *(Distance between lamps : Working distance to diffuser)*	Diffuser Strength (in degrees)	Comments
C-HH20	1 : 2.5	93 - 97 %	
C-HH30	1 : 2.3	92 - 96 %	C-HH Series diffusers have a special double-sided coating that gives them stronger LED hiding and typically provides greater efficiency than their C-HE counterparts above. As above, higher numbers in the part number indicate increased amounts of diffusion and LED hiding.
C-HH40	1 : 2	91 - 95 %	
C-HH55	1 : 1.5	90 - 94 %	
C-HH80	1 : 1	89 - 93 %	
C-HH90	1 : .85	88 - 93 %	

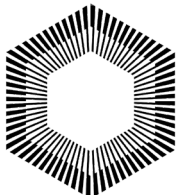*C-Series diffuser at different distances from LED array*

Usage Notes:
- Choose the highest efficiency diffuser that meets your lamp-hiding goals.
- C-Series diffusers are directional and are generally used with the microstructures facing away from the LEDs or lamps when LED hiding is desired; we recommend trying both orientations.
- When used for LED hiding (the microstructured side facing away from the LEDs), C-HH diffusers are recommended and provide best efficiency. When used for beam spreading (the microstructured side facing toward LEDs), C-HE diffusers are recommended and have best efficiency.
- BrightView applications engineers can assist with product choices and help your design achieve peak performance.
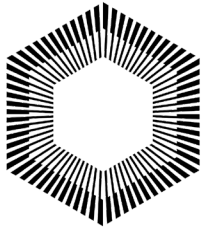
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Volumetric Diffuser
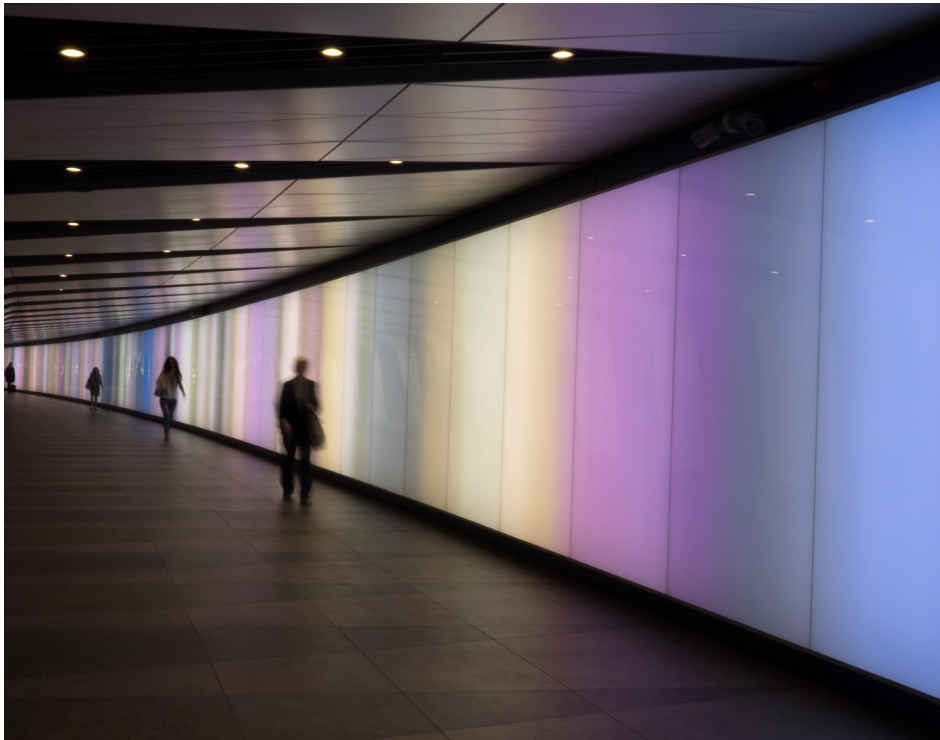
V-Series High Hiding Diffusers

V-Series diffusers provide uniform illumination with optimized hiding and efficiency. V-Series products are available in Polycarbonate (PC) based film and are available in continuous, seamless 25-inch (635 mm) width rolls.

A BrightView applications engineer will be happy to help select the best product for your application.

Applications

- General Purpose
- Symmetric diffuser LED hiding
- Seamless design applications
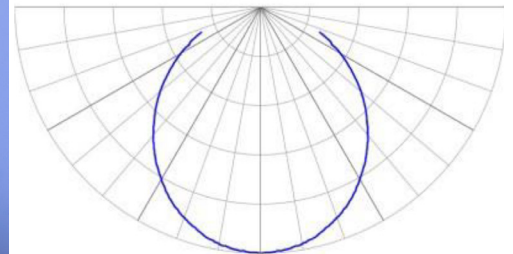
Products

Product	Thickness	Distance for total LED hiding (Distance between lamps : Working distance to diffuser)	Typical angle in a 90° downlight (FWHM: Full width half max)	Efficiency in typical LED Luminaire
V-H080-CV07	.007 in 0.18 mm	1 : 0.9	80°	88 - 95 %
V-H080-CV15	.015 in 0.38 mm	1 : 0.9	80°	88 - 95 %
V-H105-CV07	.007 in 0.18 mm	1 : 0.8	105°	87 - 94 %
V-H105-CV15	.015 in 0.38 mm	1 : 0.8	105°	87 - 94 %

Form Factor:
- Available in continuous (seamless) rolls, sheets, or converted parts
- V-Series Roll Width: 25 inch (other widths available upon request)

Usage Notes:
- V-Series diffusers are symmetric; either side can face toward the light source.
- Care should be taken not to kink the diffuser as surface blemishes can appear.
- Brightview applications engineers can assist with product choices and help your design achieve peak performance.
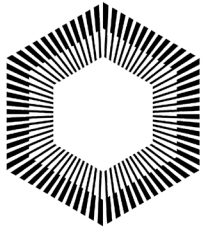
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Textured Diffusion Lenses

S-Series for Beam Angle Management

S-Series lenses can replace textured diffusers such as Solite™ and Industrex™ glass lenses, retaining their iconic textured appearance in a convenient and cost-effective plastic diffuser. They are typically used to soften or diffuse downlights, spot lights, and flood lights that require little to moderate diffusion.

See also M-Series (non-textured) Beam Mixing Diffusers from BrightView.
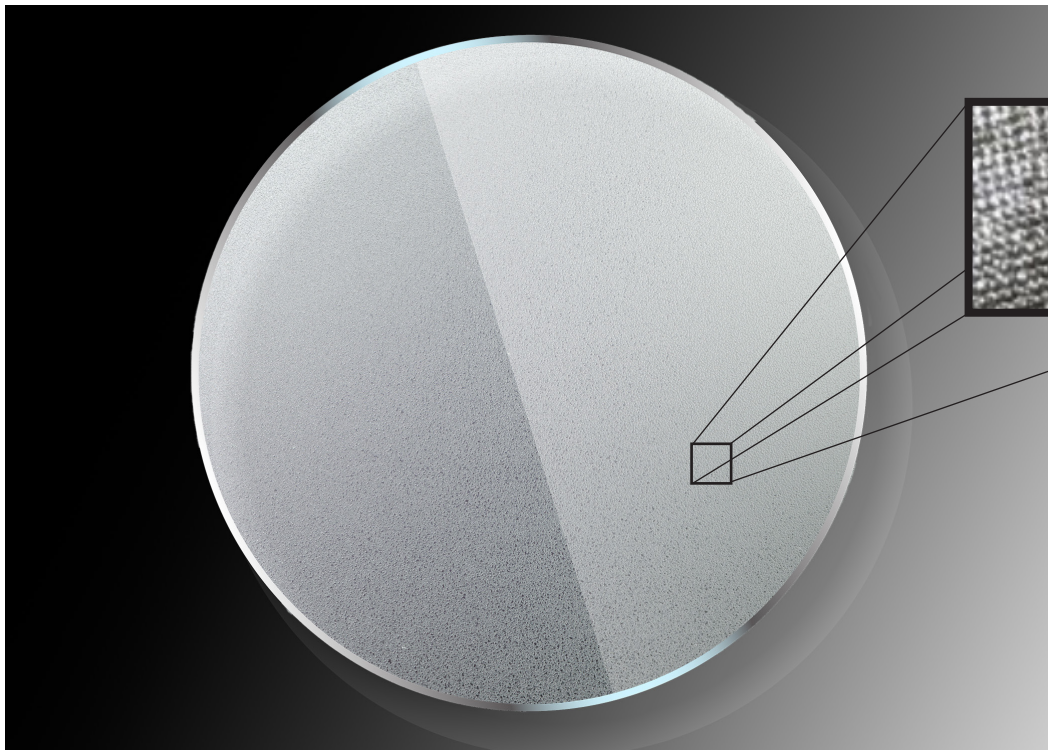
S-Series products are available in a wide range of thicknesses and materials - detailed information on the next page.

Products

Product	Description	Efficiency in Typical LED Luminaire
S-SC06	Narrow (6°) softening / diffusing lens similar to Solite™ glass	90 - 96 %
S-SH12	Narrow (12°) softening / diffusing lens similar to Solite™ glass	90 - 96 %

Usage Notes:
- S-Series lenses can be used with the textured surface facing either in or out
- BrightView applications engineers can assist with product choices and help your design acheive peak performance.

Materials

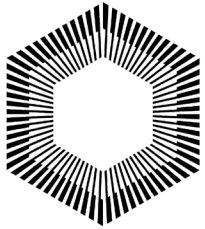| Each product is available in the following materials and thicknesses		
Material	**Thickness (mm)**	**Thickness (in)**
Acrylic (PMMA)	1.5, 2, 3, 3.8 mm	.060, .080, .120, .150 in
Polycarbonate	.25, .5, .75, 1.5, 2, 3 mm	.010, .020, .030, .060, .080, .120 in
PET	.075, .125 (UV), .175 mm	.003, .005 (UV), .007 in

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Patterned Diffusers

## P-Series Aesthetically-Patterned Diffusers

P-Series diffusers offer outstanding visual and asethetic appeal with the same high performance as other BrightView products. Patterns can be applied to most BrightView products including general-purpose diffusers, ellipticals, and anti-glare diffusers. They are frequently used in architectural, office, hospitality, and decorative applications. Numerous patterns are in stock and unique custom patterns are available upon request.

Standard Patterns
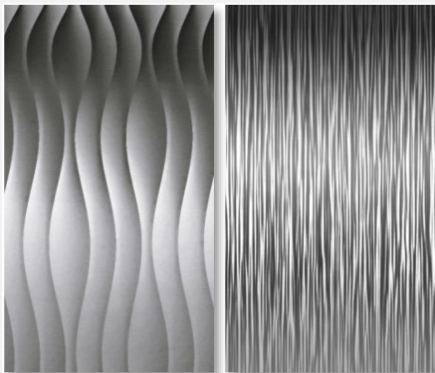
Triple Wave
P-TW01

Brushed Metal
P-MB01
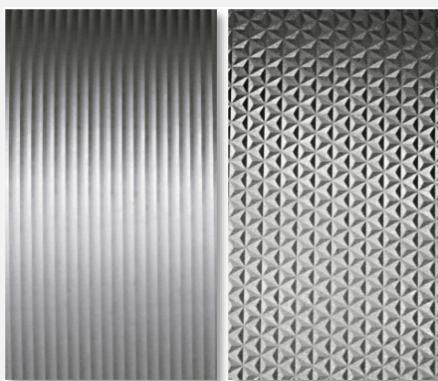
Stripe
P-ST02

Tri Pyramid
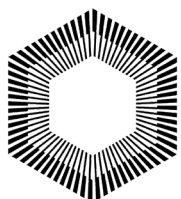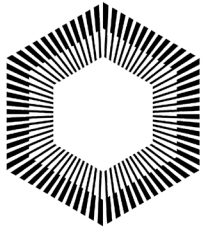P-PY01

Custom Patterns
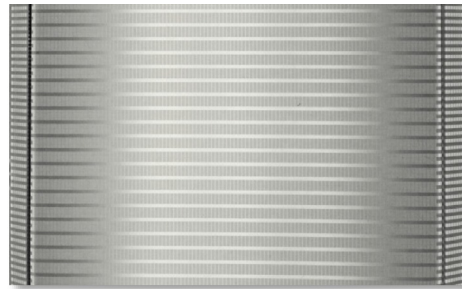
Custom
Striped Diffuser

Bonsai Sconce

Single diffuser with multiple patterned zones

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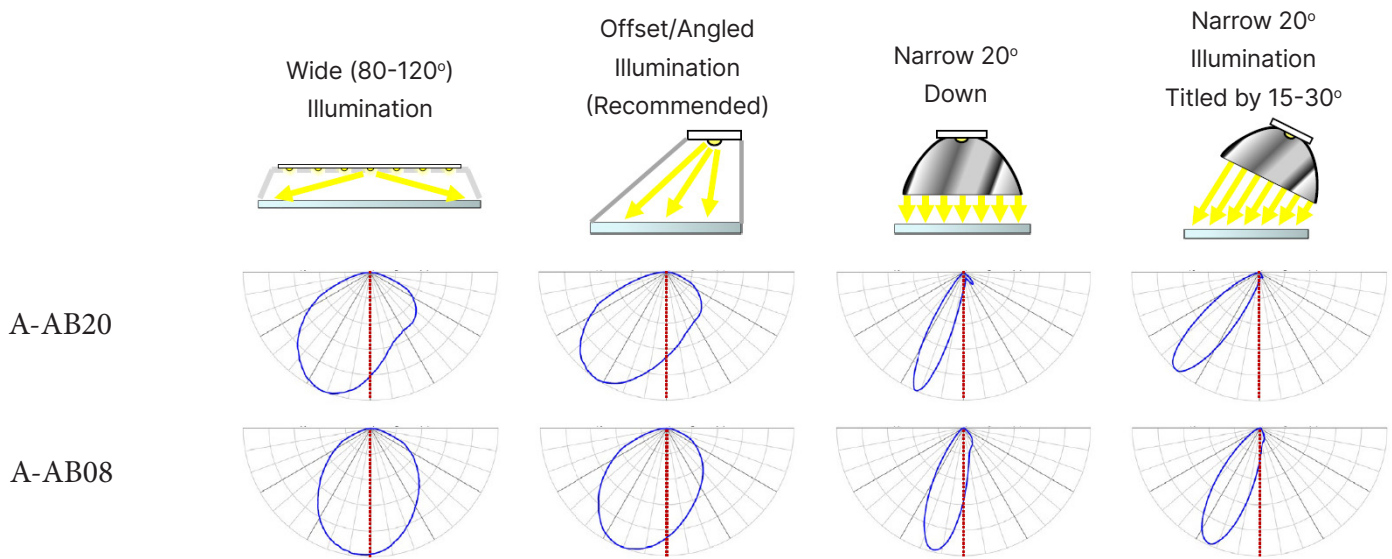
Angle Bending Diffusers

A-Series Asymmetric Direction Turning Diffusers

A-Series Angle Bending Diffusers (also known as Direction Turning Films or Image Directing Films) provide an elegant solution for wall-wash, cove, medical, sign, and specialty applications. These diffusers provide an angle bend to direct the light toward a wall or surface. The A-AB08 diffuser adds simultaneous cross-wall diffusion, to eliminate scalloping and increase uniformity.


Bends light towards the wall

Spreads light across the wall
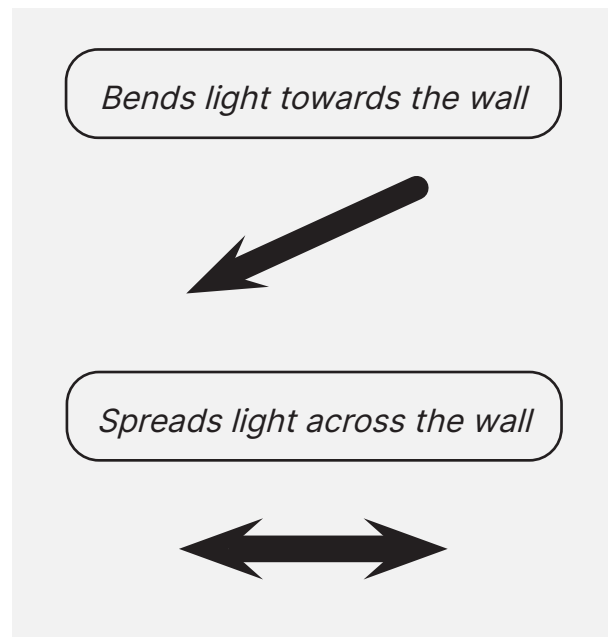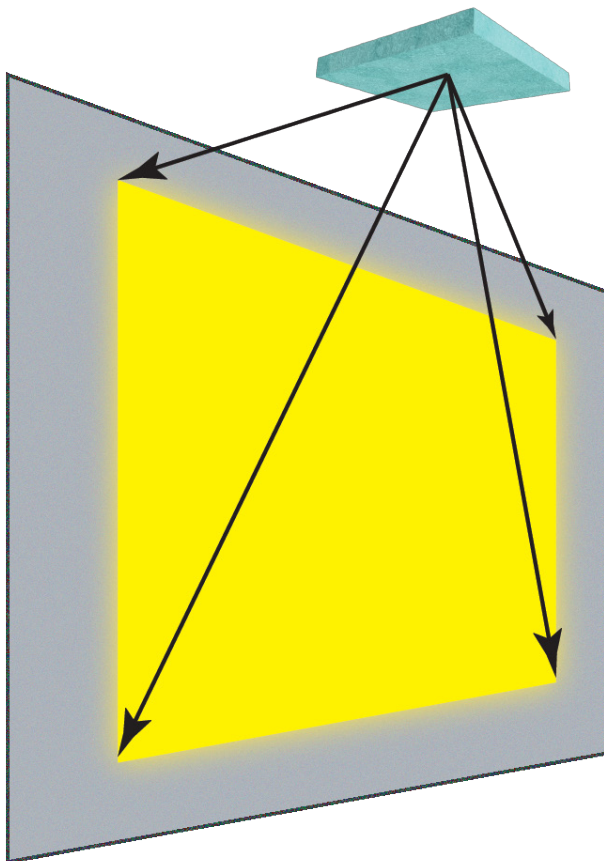
Products

Product	Description	Bend Angle	Additional Diffusion	Efficiency in typical LED Luminaire
A-AB20	Strong angle bend with limited backscatter	21°	5° (cross-wall and toward wall diffusion)	90 - 94 %
A-AB08	Slight bend with strong cross-wall diffusion	8°	60° (cross-wall diffusion) 20° (toward-wall diffusion)	90 - 94 %

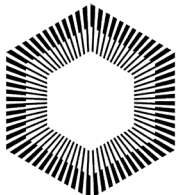|	Wide (80-120°) Illumination	Offset/Angled Illumination (Recommended)	Narrow 20° Down	Narrow 20° Illumination Titled by 15-30°
A-AB20				
A-AB08				

Usage Notes:
- A-Series diffusers are generally used with the microstructures facing *toward* the LEDs or lamps.
- Angle can be adjusted by adjusting the source angle (narrow to wide), the source position (offset is preferred to centered), and the source angle tilt. Tilt in the angle bend direction will reduce undesired backscattering.
- BrightView applications engineers can assist with your product choices and help your design achieve peak performance.
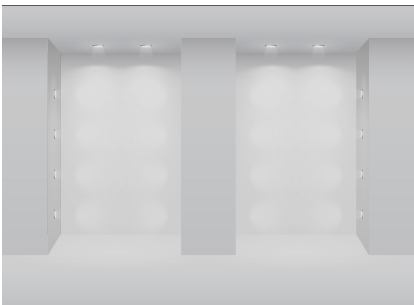
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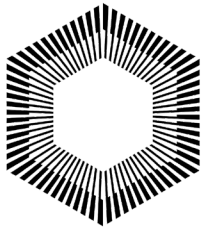
Linear Batwing Diffusers

B-Series Linear Batwing Distributions for Flat-Field Illumination

BrightView BrightWing™ diffusers provide an efficient "batwing" distribution to help luminaires achieve a flat-field beam profile, uniformly illuminating a floor or work surface without a central hot-spot. They work equally well with LED and fluorescent sources.

Luminaires with flat-field distributions can usually provide highly-uniform illumination at a greater ceiling spacing than their lambertian counterparts. This allows you to achieve the same overall brightness with fewer luminaires.

Light distributions are determined by the light source, cavity geometry, and choice of diffuser. For this reason, Bright View offers several options in the B-series as well as application engineering to help optimize light designs.
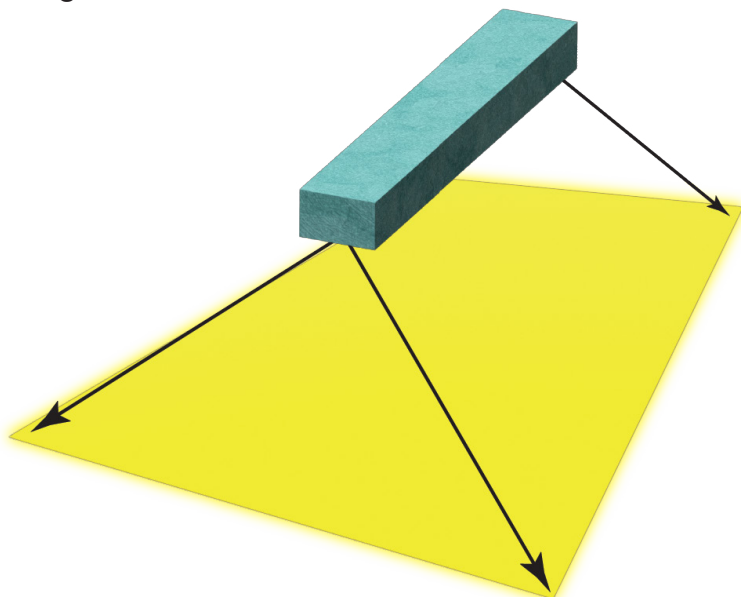
Lighting Profile: Top Down View

*Request the Batwing Applications Notes for more detailed information.*

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Products

Product	Typical Luminaire FWHM Angle[1]	Degree of Nadir Suppression	LED Hiding Power	Efficiency in Typical LED Luminaire[1]
B-LM5E-XXXX-HE20	127°	Strong	Light	92 - 96 %
B-LM5E-XXXX-HE30	124°	Medium	Medium	92 - 96 %
B-LM5E-XXXX-HE40	120°	Light	Med-Strong	91 - 95 %

[1]Angle and efficiency data are typical, varies greatly depending on luminaire design

Usage Notes:
- B-Lxxx have two different sides. Light should enter the more specularly-reflective (glossy) side – please see the BrightView Application Note on Batwing Diffusers for details.
- BrightView B-series diffusers help sculpt light into an efficient linear "batwing" distribution.
- Light distributions are determined by the light source, cavity geometry, and choice of diffuser, and may vary significantly depending on the specific luminaire design.
- BrightView applications engineers can help optimize designs to achieve desired performance, assist with product choices, and help your design achieve peak performance.
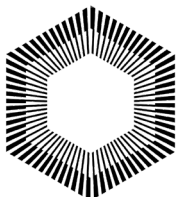- Other angles and degrees of nadir suppression are available on a custom basis.

40 Degree Source
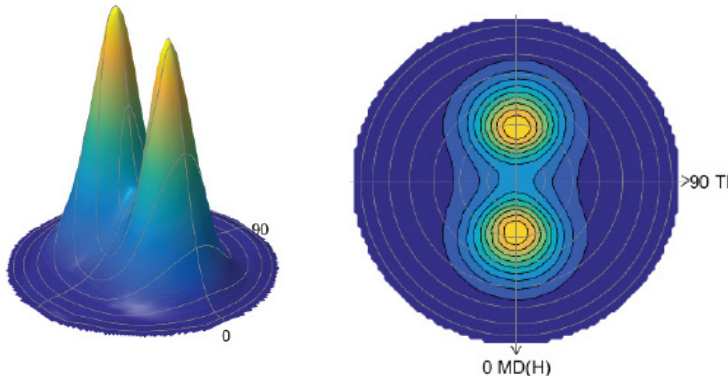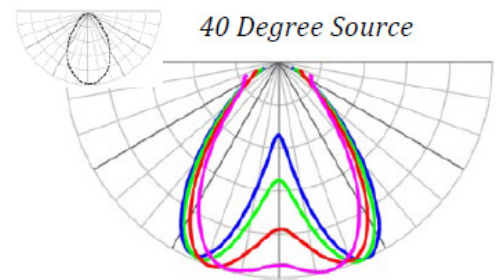
Different light sources will produce different distributions – an applications engineer can help with your particular design

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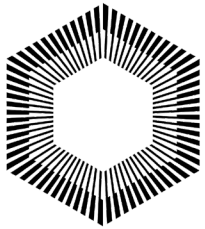
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DESIGN BRILLIANCE MEETS
VISUAL INTELLIGENCE™

BRIGHTWING DIFFUSERS

2D BATWING DISTRIBUTIONS FOR FLAT-FIELD ILLUMINATION

Building on BrightView Technology's industry leading family of linear batwing diffuser products, we introduce our new 2D Batwing diffuser. This patent pending, unique in the market, solution enables batwing beam shaping in all azimuthal directions, creating illumination at a greater fixture spacing than their Lambertian counterparts. With 2D Batwing spacing ratios of 1.2 – 1.5, you will use fewer fixtures while saving money and energy.
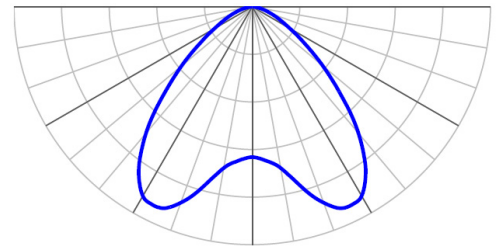
All BrightView BrightWing™ diffusers provide an efficient "batwing" distribution to help luminaires achieve a flat-field beam profile, uniformly illuminating a floor or work surface without a central hot-spot. The work equally well with LED and fluorescent light sources.

Lighting Profile: Top down View

Linear Batwing

2D Batwing

By making a special micro lens array on the surface of the film, these diffusers provide an efficient 2D Batwing distribution to help luminaires achieve a flat-field beam profile, uniformly illuminating a floor or work surface without a central hot spot.

Advantages

- Excellent lamp hiding
- Homogeneous light on the table
- No color shifts
- Great for both direct and indirect lighting

Product Data

Product Number: B-QW45-xxxx

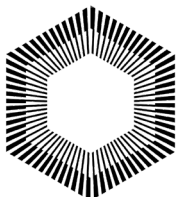|	
Material	PET
Thickness	0.21 mm
Spreading Angle	65.1° ± 5% / 68.0° ± 5%
Efficiency	95%
Standard Dimensions	610 mm x 1830 mm
Backside	Smooth
Min. Bend Radius	12.7 mm
UL-94 Rating of Substrate Material	VTM-2
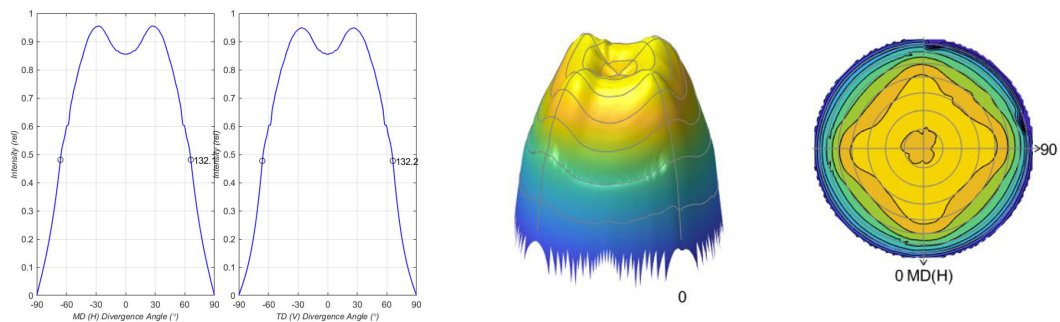
Profile measured using a Lambertian source
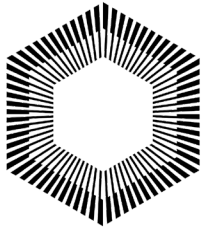
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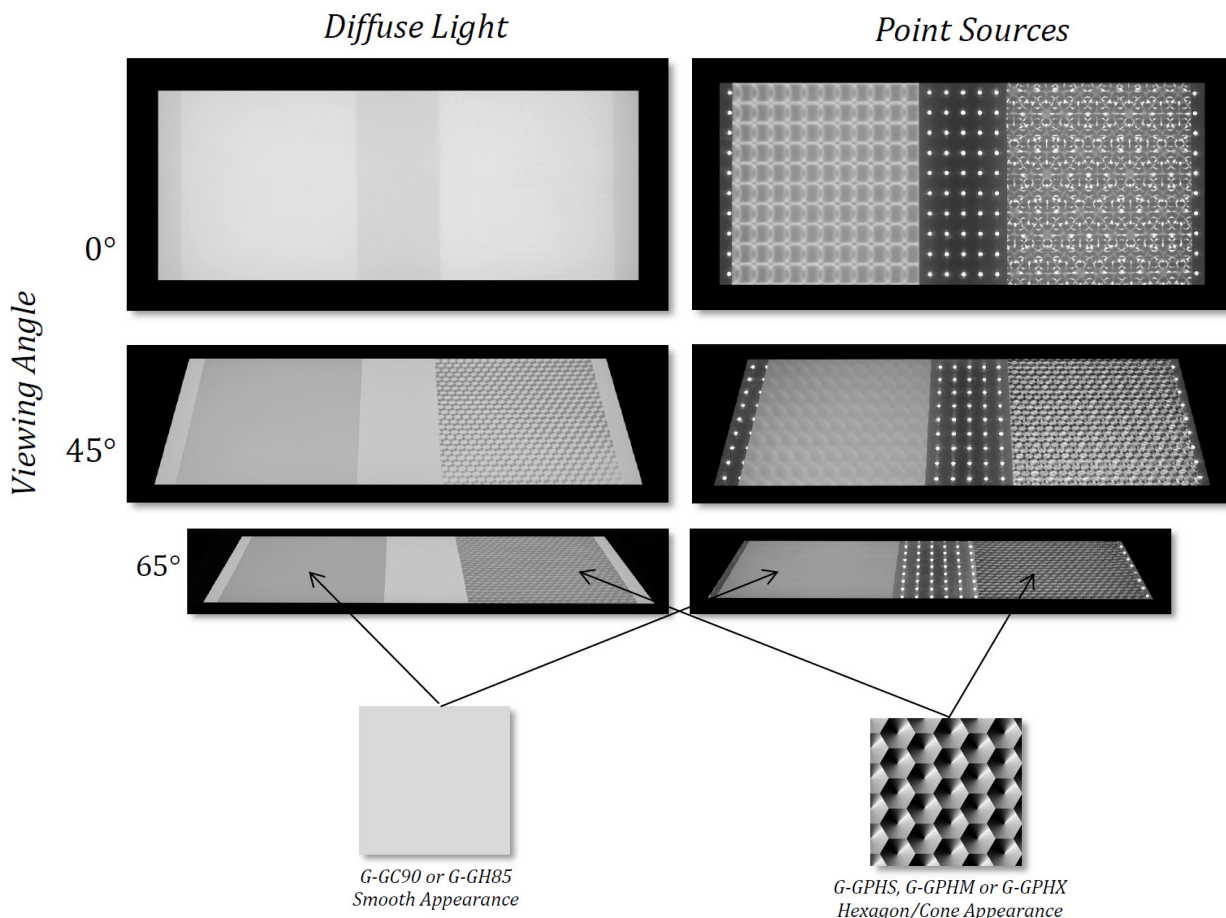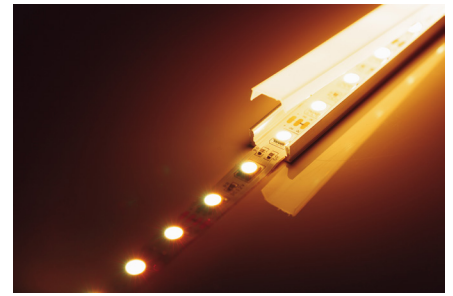
Glare Control Diffusers

G-Series Glare Control and Gain Diffusers

Glare Suppression

G-Series diffusers suppress high-angle light above 65 degrees to reduce visual glare and improve the Unified Glare Rating (UGR) of luminaires. This helps luminaires comply with IESNA RP1-04 and EN12464 glare specifications. These patented and patent-pending diffusers, unlike conventional prismatic sheets, have a soft cutoff with no color separation thereby increasing visual appeal and LED hiding ability.

Gain

G-Series Diffusers can increase central (on-axis) candela intensity up to 30%, or as high as 60% when used with C-HE55 or C-HE80 diffusers.
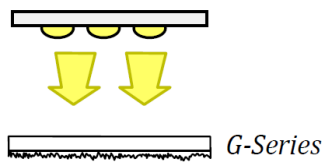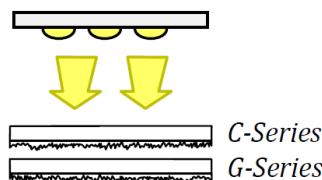
Diffuse Light   *Point Sources*

Viewing Angle

0°

45°

65°

*G-GC90 or G-GH85
Smooth Appearance*

*G-GPHS, G-GPHM or G-GPHX
Hexagon/Cone Appearance*

Products

Product	Appearance	Glare L65° / L0° (% of CBCP, typical. Lower is better)[1]	UGR 2'x2' 4000 Lumens typical	Gain L0° G-Series / L0° Lambertian (Typical Edge-Lit Panel)[1]		Angle FWHM (Typical)[1]	Efficiency in LED luminaire (Typical)[1]
				G-Series	G-Series with C-HE80		
G-GC90	Smooth	15%	17.7	125%	150%	90°	89-93%
G-GPHS	1.5mm Hex Pattern	15%	17.5	130%	160%	90°	89-93%
G-GPHM	2.4mm Hex Pattern	13%	17.3	130%	160%	90°	89-93%
G-GPHX	10mm Hex Pattern	12%	17.2	130%	160%	90°	89-93%
G-GH85	Smooth + LED Hiding	13%	17.5	135%	160%	85°	89-93%
G-GH85 + G-GPHM	2-Layer Solution	9%	16.3		180%	75%	85-91%
Lambertian	(Provided for Reference)	40%		100%	100%	120°	100%

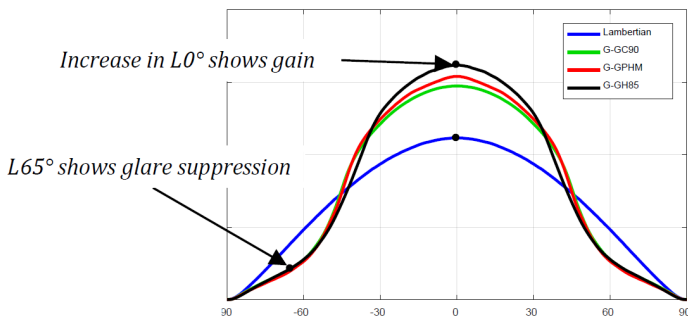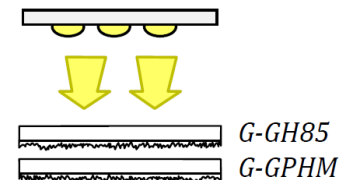[1]Angle and efficiency data are typical, varies greatly depending on luminaire design

Basic glare suppression

G-Series

Enhanced glare suppression With source hiding

C-Series
G-Series

Best glare suppression With source hiding

G-GH85
G-GPHM

Increase in L0° shows gain

L65° shows glare suppression

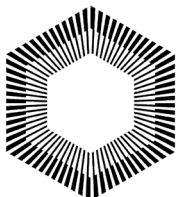Legend: Lambertian, G-GC90, G-GPHM, G-GH85

Usage Notes:

• G-Series diffusers must be flat to achieve glare control, they cannot be formed in curves around lamps.
• G-Series diffusers must be used with the microstructure facing away from the LED or lamp.
• Helps luminaries meet ANSI/IESNA RP-1-04 and EN12464 glare standards for office/indoor lighting.
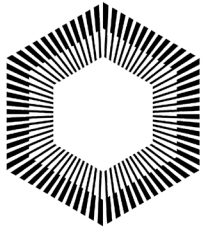
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Elliptical Diffusers

E-Series Elliptical (Asymmetric) Diffusers

E-Series elliptical diffusers spread asymmetrically -
more strongly in one direction than the other.
They are frequently used to generate a wide variety
of beam angles for indoor and architectural lighting
as well as automotive interior lighting.
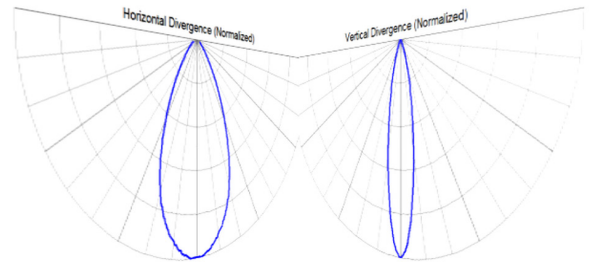
Elliptical Application Examples
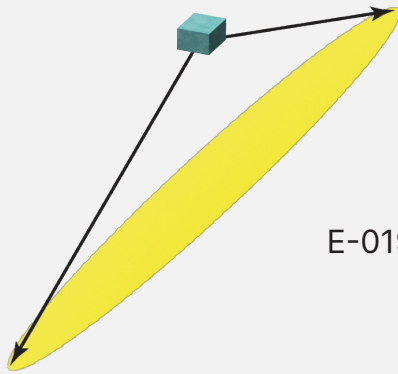
E-0190

E-1560

*Complete list of elliptical diffusion options can be found on the following page.

Products

Product	Symbol	Diffuser Strength[1] (in degrees)	Efficiency in typical LED luminaire
E-0110		0.3 x 10	92 - 96%
E-0115		0.3 x 15	91 - 95%
E-0190		1 x 90	92 - 96%
E-0140 E-4001		0.3 x 40	91 - 96%
E-0160 E-6001		0.3 x 60	90 - 96%
E-7001		0.1 x 70	90 - 96%
E-1020		10 x 20	91 - 95%
E-1040		10 x 40	91 - 95%
E-1560		15 x 60	90 - 95%
E-1324		13 x 24	91 - 95%
E-3060 E-6030		30 x 60	89 - 93%
E-6010 E-1060		60 x 10	91 - 95%

[1] For exact elliptical measurements, see each product's data sheet

Usage Notes:
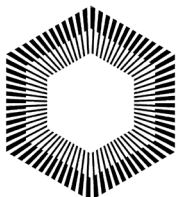- For angle control and light spreading in architectural, wall-wash and cove applications, E-Series diffusers are generally used with the microstructures facing toward the LEDs or lamps; please try both orientations.
- For lamp hiding, E-Series diffusers are directional and are generally used with the microstructures facing away from the LEDs or lamps; please try both orientations.
- Elliptical numbers specify direction of the elliptical. First two numbers indicate long side elliptical degrees (dims up to 72") while the second two numbers indicate short side elliptical degrees (dims up to 24"). Please specify elliptical direction on all drawings.
- BrightView engineers can assist with product choices and help designs achieve peak performance.

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Beam Mixing Diffusers

M-Series for Downlight, Spot, and Flood Applications

M-Series diffusers are used in spot and narrow flood lighting to smooth beam artifacts caused by parabolic, Fresnel, or TIR lens collimators without significant broadening. The unique mixing design provides superior far-field smoothing and color mixing with high on-axis brightness. Compared with traditional diffusers, M-Series diffusers maintain higher central beam candlepower (CBCP), and produce less undesirable "field light" at higher angles.

See also S-Series (Textured) Diffusion Lenses from BrightView.

Preserve high center-beam candlepower

Reduce undesired light at higher angles
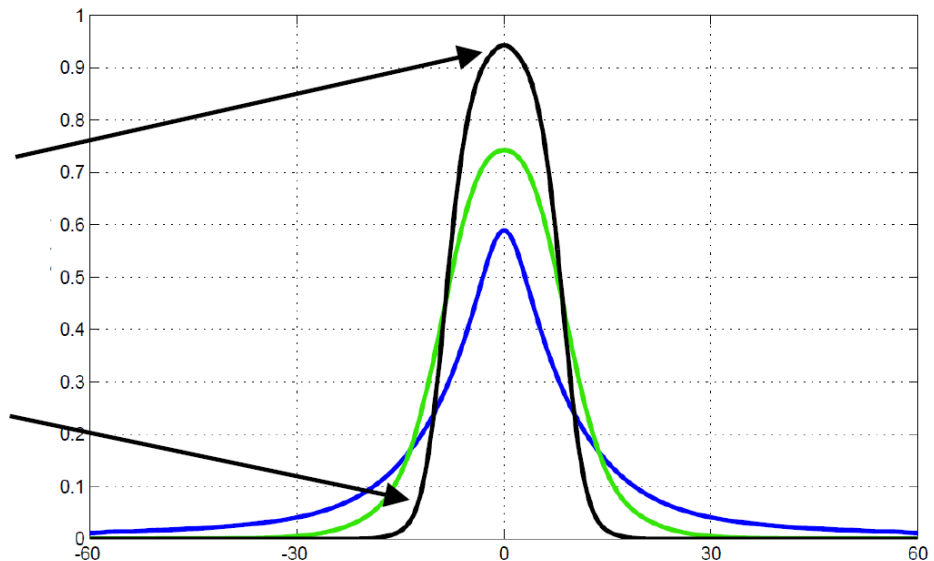
C-Series Microstructured Diffuser
Volumetric Diffuser
M-Series Mixing Diffuser

Products

Product	Typical Transmission (narrow collimated light)	Use for Lights with Angles in the Range of	Comments
M-PR01	90 - 96 %	0º - 20º	Provides smooth spot on work surface with minimal widening and minimal brightness penalty.
M-PR03	90 - 96 %	0º - 20º	
M-PR04	90 - 96 %	0º - 20º	
M-PR05	90 - 96 %	8º - 20º	
M-PR10	89 - 95 %	15º - 30º	
M-PR15	88 - 94 %	20º - 50º	

Spot From Collimated Light
(no diffuser)

Collimated Light with
M-Series Mixing Diffuser

Usage Notes:

- BrightView recommends using the microstructures facing *toward* the LEDs or lamps. M-Series diffusers may be used in either orientation.
- Choose the minimum-strength M-Series diffuser that provides the needed smoothing.
- M-Series diffusers do not have focusing power. They are designed for use in conjuction with parabolic, Fresnel, TIR, or other collimation optics.
- BrightView applications engineers can assist with product choices and help your design achieve peak performance.

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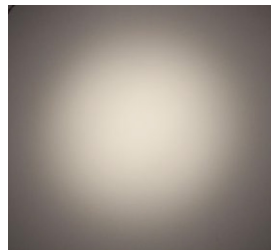Tel: +1-919-228-4370

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DESIGN BRILLIANCE MEETS
VISUAL INTELLIGENCE™

BrightWhite™ Diffuse Reflector

Ultra-high Reflectivity Increases Luminaire Efficiency

BrightWhite™ diffuse, white reflectors provide ultra-high reflectivity for use in lighting, illumination, displays, and signage. Luminaires lined with BrightWhite™ reflectors can provide up to 30% more light output than those lined with other materials.

BrightWhite™ reflectors are available as a film, tape, or laminated to metal. They are easily and cleanly cut using laser, die, shear, or blade cutters. Shapes can be created with standard thermoforming techniques to line the interior surfaces of luminaires. Metal versions are compatible with shear, punch, roll, and other standard sheet metal processes.

Measured performance in edge-lit LED panel

Conventional Reflector   *BrightWhite™ Reflector*

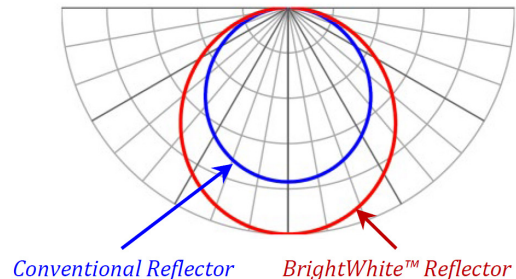| BrightWhite™ White Reflector Materials				
Product	**Form**	**Typical Thickness**	**Typical Reflectivity**	**Part Number**
BrightWhite™ Film	Thin Film	0.19mm / .007in	98%	R-MG98-xx06-AD00
	Thin Film with Adhesive and Liner	0.23mm / .009in	98%	R-MG98-xx06-AD01
	Thermoformable Film	0.41mm / .016in	98%	R-MG98-xx15-AD00
BrightWhite™ Metal	Aluminum or Steel Sheet/Coil	various	98%	Call your BrightWhite™ Sales Representative

Available Width	Continuous rolls up to 50" wide, with optional adhesive and removable liner
Form Factors	Roll, sheet, metal coil, cut part, thermoformed shapes
Masking	Available with an easily-removable protective masking film. Many customers elect to operate with no masking due to the durability and cleanability of the film. (Masking has a 6-month shelf life from ship date)

Film Environmental Data

Test	Conditions
UV Weatherability	Displays no discoloration from exposure to UV light. Less than 0.5" reflectance change after 2.4MJ/m² of UVA at 60°C
Thermal Stability	Less than 0.5% reflectance change after 1000 hours exposure to 80°C
Humidity Stability	Less than 0.5% reflectance change after 1000 hours exposure to 60°C and 95% RH
Cleaning	Water and gentle detergent recommended. Tolerates general household cleaners containing chlorin or ammonia cleaning agents.
Mechanical	Easily cut, folded, thermoformed, etc. Inquire for details.

Form Factors and Converting

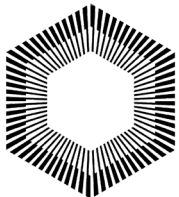|	
Reflective Tape	BrightWhite™ reflectors are available with an adhesive liner, custom widths available.
Roll and Sheet	BrightWhite™ reflectors are avialable in roll and sheet form, up to 50" wide. Available with protective masking film. Also available with adhesive and easily-removed liner.
Cut Parts	BrightWhite™ reflectors are easily cut by standard methods, and leave clean edges with no fraying. BrightView can provide BrightWhite™ reflectors precisely cut to customer drawings or can work with your preferred converter.
Thermoformed Parts	BrightWhite™ reflectors can be easily thermoformed into 3D shapes using standard processes and equipment. Thicker grades are offered specifically for thermoforming. BrightView can supply formed parts or provide process parameters to customers' preferred converter/thermoformer
Metals	BrightWhite™ reflectors are available on steel or aluminum, and are readily formable using industry-standard processes.

Usage Notes:
- BrightWhite™ reflectors can increase the output of light fixtures by up to 30% when installed properly.
- BrightWhite™ reflectors are most effective when combined with high-efficiency BrightView diffusers.
- For best performance, cover all interior surfaces of the luminaire with BrightWhite™ reflector and avoid creating narrow corners or overlaps that could serve as "light traps."
- For best performance, angle the sides of the BrightWhite™ reflector outward toward the diffuser.

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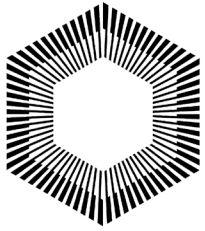
Material Data: Film Products

Film Material Choices for BrightView Diffuser Products

BrightView diffusers are offered on a variety of materials including film, semi-rigid, and rigid sheets to meet most lighting needs. Optical performance is nearly identical for the various materials.

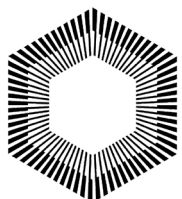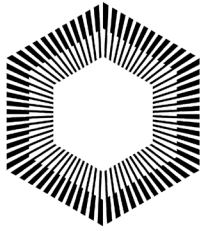|	PET (standard)	UV PET	Semi-Rigid Polycarbonate (PC)
Usage	Excellent for indoor LED applications	UV resistant for LED or Fluorescent	Low cost solution for downlights, PAR, panels, etc.
Nominal Thickness	.075 / .175 mm	.127 mm	.255 / .510 / .765 mm
	.003 / .007 in	.005 in	.010 / .020 / .030 in
Bend Radius[1]	0.5 in	0.5 in	1.5 / 1.5 / 2.25 in
UV Resistance color change UVA ($2400KJ/m^2$)	$\Delta a^* = -2.1$	$\Delta a^* = -0.4$	$\Delta a^* = -4.0$
	$\Delta b^* = 8$	$\Delta b^* = 6$	$\Delta b^* = 21$
Temperature Range	-40ºC - 80ºC	-40ºC - 80ºC	-40ºC - 80ºC
UL-94 Flammability Rating of substrate material[2]	VTM-2	VTM-2	V-2

1 Bend Radius values are at room temperature operation. Radius should increase as temperature increases.
2 UL Rating is for substrate material as provided by substrate vendor. Yellow cards for these substrates are available. BrightView diffusers have not been tested or rated by UL. BrightView applies a thin (approx. 50 micron) coating to these substrate materials.

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PNL-US-004 Rev AD

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Material Data: Rigid Products

Rigid Material Choices for BrightView Diffuser Products

BrightView diffusers are offered on a variety of materials including film, semi-rigid, and rigid sheets to meet most lighting needs. BrightView rigid sheet products are constructed by laminating a thin film to a rigid sheet.

	Acrylic (PMMA) General Purpose (RAxx)	Polycarbonate General Purpose (CGxx)	Polycarbonate Sign Grade (CSxx)
Usage	Highest Efficiency UV Resistant	Impact Resistant	Impact Resistant UV Resistant
Nominal Thickness	1.5 / 2 / 3 / 3.8 mm	1.5 / 2 / 3 mm	3 mm
	.060 / .080 / .120 / .150 in	.060 / .080 / .120 in	.120 in
UV Resistance color change UVA (2400KJ/m^2)	$\Delta a^* = -1.6$	$\Delta a^* = -2.0$	$\Delta a^* = -1.0$
	$\Delta b^* = 6.8$	$\Delta b^* = 16$	$\Delta b^* = 6$
Temperature Range	-40ºC - 70ºC	-40ºC - 80ºC	-40ºC - 80ºC
UL-94 Flammability Rating of substrate material[1]	HB	HB	HB
Glow-Wire Flammability Rating of subsrate material[1] (IEC 60695-2-12) GWFI	N/A	800ºC (1.5 mm) 850ºC (≥ 2.0 mm)	850ºC
Outdoor Weatherability	F1	F1	F1

1 UL Rating is for substrate material as provided by substrate vendor. Yellow cards for these substrates are available. BrightView diffusers have not been tested or rated by UL. Work with a BrightView applications engineer to discuss your material needs.

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