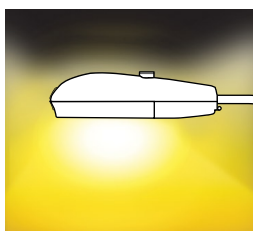
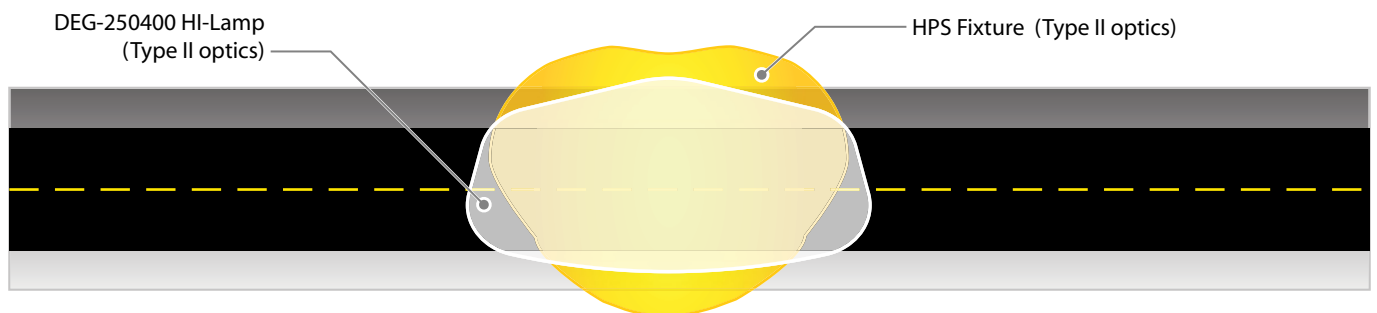
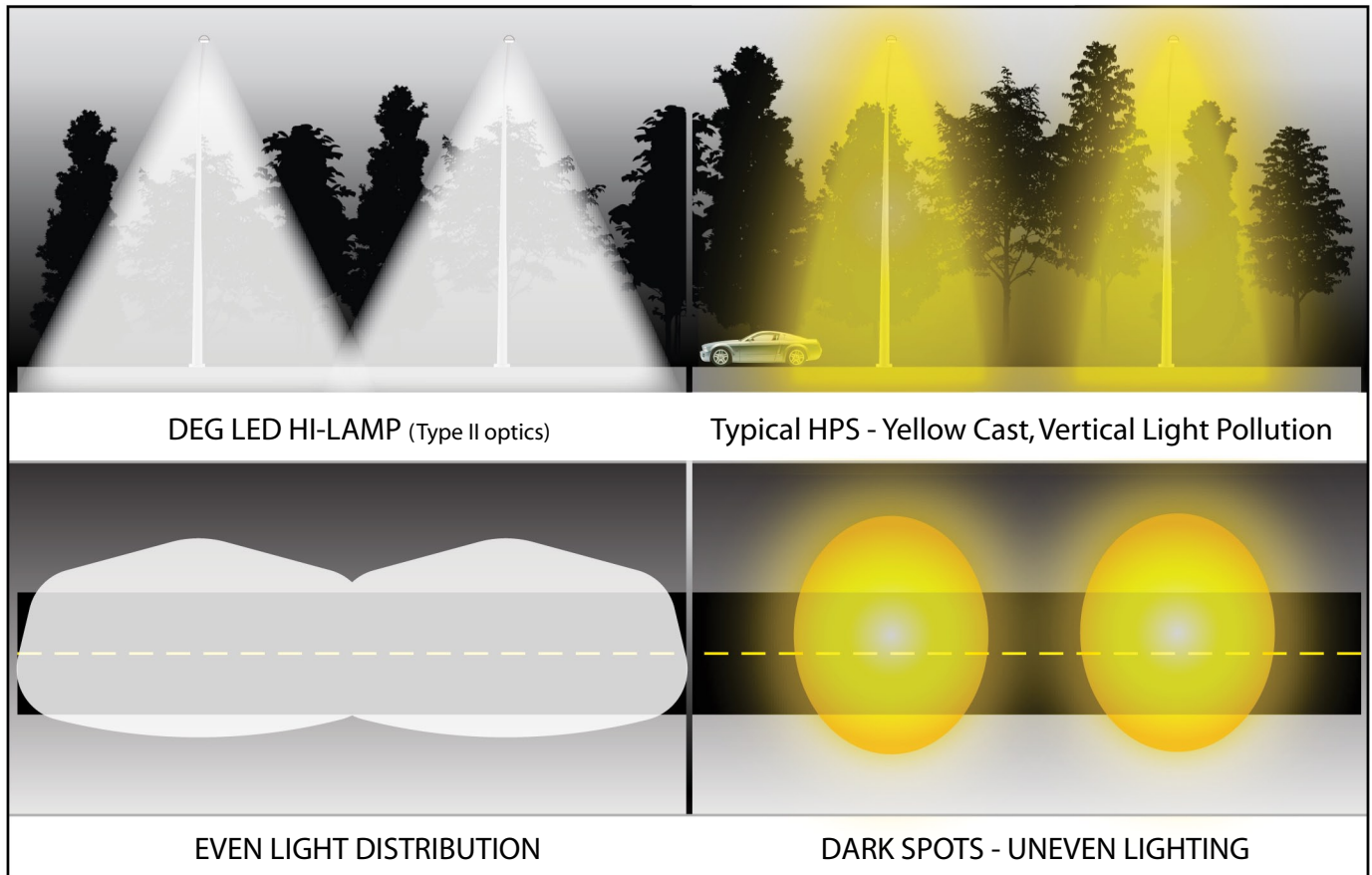
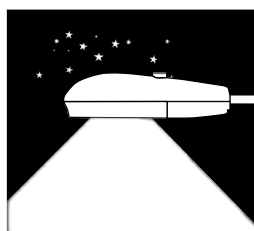


Lighting Distribution with Targeted Optics (typical 2-lane street lighting)

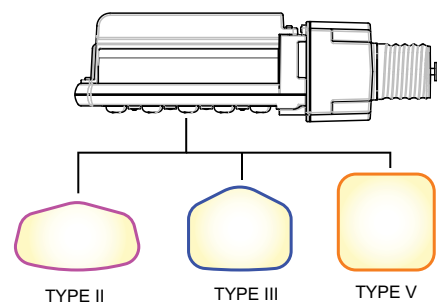
DEG's targeted optics allow you to place targeted light where you need it - on the road and walkways and not wasted where you do not need it. The DEG-250400 is an excellent solution to replace existing lamps in High Pressure Sodium (HPS) street light fixtures. These typical HPS fixtures have a yellow cast and vertical light pollution. The DEG lamp has 4500K color temperature, the best combination of brightness for security and spectral content for accurate color representation. DEG's replacement lamp optics lands a high percentage of useful lumens from your fixture to your target area. The DEG HI-Lamp also helps to eliminate dark spots and provide even, quality targeted lighting with the additional benefit of significant energy savings. (80 to 100 Lumens per watt Cree XLamp, XM-L2 depending on light output setting)



HPS Cobrahead lighting
Yellow cast and light pollution



Cobrahead with DEG HI-LAMP
Targeted light with 4500K color

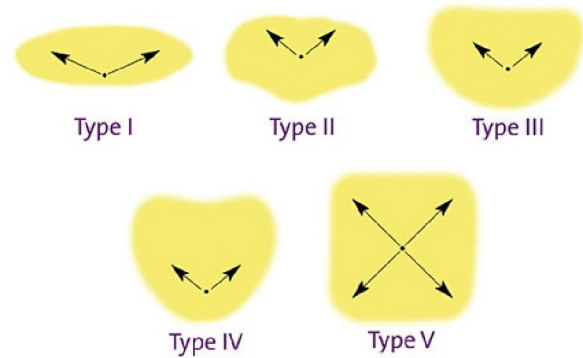


Lighting Distribution Patterns for Outdoor Lighting

When specifying lighting fixtures for outdoor applications it is often useful to know the type of lighting distribution a specific fixture has, most of the time the type of distribution is governed by the application it is used for. But how exactly is a distribution defined? The IESNA (**Illuminating Engineering Society of North America**) defines lighting distribution based on the horizontal pattern or lateral distribution and the amount of light at different vertical angles.

The distribution names are represented by roman numerals:

Type I, Type II, Type III, Type IV & Type V. DEG provides Type II, III and V Optics for its DEG-150175 & DEG-250400 LED HI-Lamps only (Type I and IV are not available). So when lighting manufacturers say Type II or V this is what they are referring to. Each distribution is outlined below:



Type I [DEG does not provide Type I Optics, instead a unique Micro-Prismatic lens with control wings may be available]

This distribution is ideal for **lighting sidewalks** and **narrow walkways**, usually placed at the centre of the pathway and provides a lighting distribution that is symmetrical. The width of the light thrown is approximately equal to the mounting height of the fixture.

Type II [This Optic is provided for the DEG-150175 & DEG-250400 HI-Lamps]

Type II has a distribution suited for **wider paths (side streets and jogging paths)** and driveways, usually placed on the edge of the area. It lights up an area 1.5 times wider than the mounting height of the fixture.

Type III [This Optic is provided for the DEG-150175 & DEG-250400 HI-Lamps]

This type of distribution is meant for **roadways, general parking, lawns** and other areas where large quantity of lighting is needed. Also placed at the edge of the area and light is projected on to the area. It lights up an area approximately **2.75 times** wider than the mounting height.

Type IV [DEG does not provide Type IV Optics, instead a unique Micro-Prismatic lens with control wings may be available]

Works well for lighting fixtures **mounted on walls**, best for illuminating the **perimeter of parking areas and buildings**. Also known as **Forward Throw** or **Asymmetric** this optic lights up an area approximately **2.75 times** wider than the mounting height.

Type V [This Optic is provided for the DEG-150175 & DEG-250400 HI-Lamps]

This distribution is meant for large **commercial parking areas** or any area where **evenly distributed light** is required. Type V has a characteristic square or circular distribution with equal intensity at all angles.

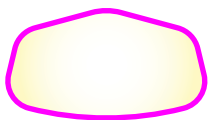
Forward Throw (FT) - *Forward throw distributions provide sharp house-side cut-off and can be used for perimeter lighting applications with minimal spill light.*

House shielding - *Typically a consideration for decorative lighting, house shielding refers to the ability to add a reflector next to the lamp to direct light away from the "house-side."* DEG's unique "barn door" wings are provided for on certain lenses for the DEG-150175 & DEG-250400 LED HI-Lamps. These clear and micro-prism lenses allow cut-off control if an optic lens is not required. Also, all of DEG's products are provided with its patent-pending spring-loaded contact that allows for full 360° rotation of lamp; this feature in conjunction with its unique "barn door" wings allow for total control of the light distribution pattern in certain lighting applications.

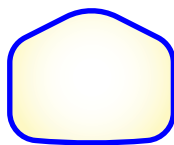
DEG Optics – Options for Outdoor Lighting

When planning to improve your existing site lighting, it is important to select the type of replacement lamp with the optics that will produce a focused light in the desired lighted zones and not wasted where you don't need it. It may not always be possible to get "perfect" distribution patterns, but by choosing lamps that can produce efficient light distribution patterns using a combination of Type II, Type III, and Type V optic lenses, the result can be a very focused and effective lighting solution.

The benefits of configuring your site with proper optics to be luminated using DEG HI-Lamps are many...



Type II Light Distribution



Type III Light Distribution



Type V Light Distribution

These Optics are provided with the DEG-150175 & DEG-250400 HI-Lamps.

Below (Figure 1) is an example of ways to use three different combinations of light distribution patterns (Type II, Type III and Type V optics) to maximize and focus light into the desired lighted zones using your existing fixtures.

