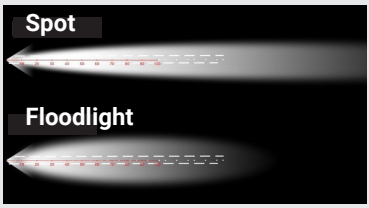
Spotlights and Floodlights:
The Fundamentals

When it comes to vehicle work lights, it's important to understand the differences between spotlights and floodlights and the best applications for each.

Difference in Light Patterns

Spotlights and floodlights represent two types of light patterns, or ways the light is projected. The narrower the pattern, the further the light travels. Floodlights have short, wide patterns, generally used to illuminate a wide area, while a spotlight is designed to travel a longer distance but in a much narrower beam. For optimal visibility in different situations, many work vehicles have at least one floodlight and spotlight, incorporating both types of lighting patterns.



LED or Halogen

Most makers of floodlights and spotlights have transitioned fully to LED offerings. LED lights have many advantages over halogen including longer product lifetime, less heat output, and substantial energy efficiency. LEDs usually perform as well as or better than halogen in terms of light output. However, halogen is still an option when lower price is the most important factor, or when heat generation is not considered a drawback.

Lumens and Candlepower

Brightness of floodlight and spotlights is measured in terms of either "candlepower" or "lumens." Candlepower is typically applied to spotlights. A spotlight with a candlepower of 200,000 means it emits the equivalent of 200,000 candles. Floodlights are usually measured in lumens. Floodlights for work vehicles typically range from 800 to 37,000 lumens.

One candlepower is technically the equivalent of 12.57 lumens, although it is not an "apples to apples" comparison. Candlepower is the intensity of light at the center of a spotlight beam when measured in one direction. Lumens is a measure of how much light a lamp produces in all directions.

All motor vehicle lamps are required to meet federal specifications regulating the brightness of lamps. These regulations require that each lamp be designed to meet certain intensity values at various angles.

Spotlight Applications

Spotlights for work vehicles typically range from 30-100 watts and provide a light strength of 215,000 candlepower or more. Typically mounted on the front of a work vehicle, spotlights are used in everything from police cruisers and municipal vehicles to agricultural vehicles and locomotives.

Floodlight Applications

Floodlights (commonly known as work lights) are often mounted on the sides of vehicles. Floodlights are commonly found on slow-moving vehicles or those performing tasks at night such as roadwork, street-sweeping, or harvesting. They are useful for helping vehicles move through fog. They can also be used to illuminate underwater areas and are common on commercial boats for rescue operations and general night use.

Combining Floodlights and Spotlights

Flood lights and spotlights are often used in combination on work vehicles. Together they serve as beacon, locator, and tracking tool for various types of night work. Floodlights can be activated to drive through fog, for example, with a spotlight also turned on to spot obstacles in the distance.

Specs and Standards

When selecting work lights for work vehicle, consider the visibility needed for the task at hand and whether you need a pattern of breadth (floodlight) or depth (spotlight). Other considerations include material, dimension size, color output, number of diodes, wattage, and expected life of the product.

Note that light intensity is not the only factor relative to Federal Motor Vehicle Safety Standards. Make sure you are aware of specific requirements when reviewing lighting applications for upcoming builds. For more information see https://www.nhtsa.gov/laws-regulations/fmvss.