



GUIDE for Selecting EISA-Compliant Alternatives to 175W Probe Start Metal Halide Products

Executive Summary

- In an effort to make 175W Metal Halide compliant with EISA, the dimension of the ballast is larger, preventing application in many common fixtures types.
- No 175W pulse start, medium-base lamps are available for horizontal and universal burning orientations. In such applications, the larger mogul-base lamps are required. Consult the appropriate Acuity Brands product group to verify that mogul-based lamps will fit the desired luminaire.
- As a potential alternative to 175W pulse start in wet location-listed luminaires, consider using 150W. Under certain circumstances, EISA excludes 150W from achieving the required 88% efficiency requirement. Consult the appropriate Acuity Brands product group for 150W application alternatives.

The goal of the Energy Independence and Security Act of 2007 (EISA) was to improve energy efficiency of products sold or consumed in the United States. A portion of this law regulates popular Metal Halide luminaires, mandating system efficiencies greater than or equal to 88%.

In most instances, achieving EISA compliance is accomplished by shifting demand from probe start technology to a more energy efficient pulse start ballast/lamp combination. In many cases, this is easily accomplished, however, many users of Metal Halide products are having difficulty determining the best alternative for applications where a probe start 175W system has historically been applied.

Why can't I simply add "SCWA" to 175W luminaires and receive an EISA-compliant fixture? This works for all other wattages (200, 250, 320, 350, 400 & 450).

1. It is more difficult to engineer and produce low wattage Metal Halide ballasts that are capable to achieve EISA's 88% efficiency. In preparation for EISA, many ballasts were redesigned to utilize higher grade and greater quantities of steel and copper. This not only significantly increased the ballasts' cost, but the dimension of the ballasts increased to a point where they will no longer fit in many existing luminaires, thus excluding 175W as a viable option for some luminaire families.
2. There are no commercially available medium-base 175W pulse start lamps capable of horizontal or universal burning orientations. This limits medium base 175W pulse start applications to base-up orientations. While 175W pulse start lamps are available with a mogul-base, the dimension of these lamps is significantly larger compared to a medium-base lamp, which prevents installation in many existing luminaires.

What other options are available if I need a viable alternative to the 175W probe start systems that I used in the past?

1. EISA's language includes an exception that allows the application of 150W metal halide lamps, which may be a suitable alternative to 175W probe start products. The exception allows the use of 150W systems when the following conditions are met:

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- Use regulated lag ballasts
- Use electronic ballasts rated for 480 volts
- **Meet all the following criteria: rated only for 150W lamps; **AND** rated for wet location use as defined by National Electric Code 2002 Section 410.4(A); **AND** contain a ballast rated to operate at an ambient air temperature above 50°C as specified by UL 1029-2001.**



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Please note that the third exception requires that all three conditions must be present: Rated only for 150W and a luminaire with a wet location listing and a luminaire that contains a ballast rated for an ambient temperature above 50°C.

Also, note that the ballast ambient requirement applies to the temperature in the ballast housing — not the ambient temperature surrounding the luminaire. This exception does not require the use of luminaires rated for high ambient temperatures.

2. Because 150W Metal Halide lamps generally provide equal or better light levels with lower energy consumption, where possible, Acuity Brands Lighting recommends the use of 150W Metal Halide ballast/lamps as a direct cross-over for applications where a 175W probe start system was traditionally applied.

Luminaires that utilize a 150W system are, by default, pulse start systems, which provide greater efficacy (more light with less energy consumption), longer life and improved color rendering. Please consult the appropriate Acuity Brands Lighting product division for more information on the applicability of this option in the luminaires required for your application.

What's the difference between standard pulse start and pulse start with Super Constant Wattage Autotransformers (SCWA)? Do I need to specify "SCWA" with all 150W Metal Halide luminaires?

1. The standard 150W Metal Halide circuit type is High Reactance – High Power factor (HX-HPF). You do not need to add specific nomenclature to receive an HX-HPF system.

While this standard configuration is suitable for many applications, if your application requires a significant number of luminaires to be added to one circuit (i.e. parking garages or parking lots), you should consider the selection of an SCWA system, as SCWA will reduce the maximum current draw. Please consult a licensed electrical engineer for assistance with your circuit design and direction regarding the use of an HX-HPF system versus SCWA.

I have heard that there are advantages when "Ceramic Metal Halide" is used instead of standard Metal Halide lamps. What is the difference between standard Metal Halide (Quartz) and Ceramic Metal Halide lamps?

1. Since many users of Metal Halide luminaires are specifying or stocking 150W as an alternative to 175W systems, there is increased interest in the advantages of a Ceramic Metal Halide lamp. Both standard Metal Halide (Quartz) and Ceramic Metal Halide provide improved light levels and lower energy consumption compared to traditional probe start 175W systems. The newer Ceramic technology optimizes the benefits for the end user.

The two alternatives differ in the material used to contain the chemicals required to strike an arc for illumination. Ceramic arc tubes improve lamp efficacy by providing more light while saving energy and improving lumen maintenance. In addition Ceramic Metal Halide improves color rendering, provide more color stability over time and more consistent color from one luminaire to the next.

Both Quartz and Ceramic Metal Halide lamps operate on the same pulse start metal halide ballast (Note: both lamp types work on SCWA and HX-HPF circuits).

Please consult the appropriate Acuity Brands Lighting, Inc. product division if you have questions about your purchase of products that achieve the EISA requirements.