



Environmental specifications

Contract release B-308(5) ballasts – electronic and limited use magnetic

General requirements

- a) Manufacturer should carry a full line of each commonly used type and wattage of ballast models, including both fixed output and dimming ballasts.
- b) Responders should offer ballasts from a manufacturer capable of providing a full line of models for each of the following types of ballasts: fluorescent and compact fluorescent (electronic only) and electronic and magnetic HID.
- c) All ballasts must meet or exceed the following requirements.
 - All ballasts must be UL-listed.
 - All ballasts should be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
 - All ballasts must contain auto restart circuitry in order to restart lamps without resetting power.
 - All ballasts must be able to tolerate sustained open circuit and short circuit output conditions without becoming damaged.
 - All ballasts must be rated for a starting temperature down to 32 degrees F and/or 0 degrees C or less.
 - All ballasts shall contain no exposed live parts.
 - To the greatest extent practicable, all ballasts should be ROHS-compliant (i.e., compliant with the European Union's Restriction on Hazardous Substances Directive).
 - All ballasts must be made in a factory that is certified to ISO 9002 Quality System Standards or equivalent.
 - All ballasts sold on this contract must not contain polychlorinated biphenyls (PCBs).

Specific requirements

- a) Fluorescent ballast
 - All fluorescent ballasts must be electronic, instant start or program start only. (No magnetic fluorescent ballasts.)
 - All fluorescent ballasts must have a Class A sound rating.
 - All electronic instant start and programmed start fluorescent ballasts with standard or low ballast factors for 32-watt 4-foot T8 lamps should be "extra efficient." (The extra-efficient ballasts are those that are labeled as "NEMA Premium Efficiency" and can be found on the following list, which is maintained by the Consortium for Energy Efficiency: <http://www.cee1.org/com/com-It/>. Click on "lamps-ballasts.xls.")
 - All linear and U-bent fluorescent ballasts must have a power factor of >0.90. (According to the U.S. Department of Energy, "Power factor indicates how effectively the input power and current are converted into usable watts of power delivered to the ballast. High-power-factor ballasts reduce current loads on building wiring and transformers.")

- All ballasts must be high-frequency and operate lamps at a frequency above 42k Hz to avoid interference with infrared devices and to eliminate visible flicker.
- All ballasts for fluorescent lamps must have a lamp current crest factor (ratio of peak to RMS) not to exceed 1.7 crest factor.
- All linear and U-bent fluorescent ballasts should be designed to enable light output to be maintained such that it does not vary more than +/- 5% within operating ranges of +/- 10% of rated system voltage.
- Bidders must make available for sale under the resulting contract, instant start ballasts that can run on 120V or 277V or both. All Program Start ballasts must be multi-voltage and run on 120V, 230V and 277V.
- Compact fluorescent and T5 fluorescent ballasts must employ end-of-life (EOL) circuitry to shut down the circuit at the end of the lamp life. This removes power from the obsolete lamp and prevents lamp overheating.
- Ballasts for T8, T5 and 4-pin compact fluorescent lamps must have a total harmonic distortion (THD) of <10% at full light output. Ballasts for induction fluorescent lamps should have a THD of <15% at full light output.
- Instant start ballasts must provide independent Lamp Operation, which enables the remaining lamp or lamps to maintain full light output when one or more lamps fails.
- Warranty for fluorescent ballast <70 degrees C to be a minimum of five (5) years from date of manufacture.
- Warranty for fluorescent ballast >70 degrees C to be a minimum of three (3) years from date of manufacture.

b) HID ballast

- Have a power factor greater than 90%.
- Have a minimum efficiency of 88%.
- Be designed in accordance with all applicable ANSI specifications including ANSI C82.4.
- Provide a "Lamp Current Crest Factor" of less than 1.7.
- Employ end-of-life (EOL) circuitry to shut down the circuit at the end of the lamp life.
- All HID lamps must have a minimum two-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70C.

1) Green electronic HID ballasts

- The electronic HID ballast input current should have Total Harmonic Distortion (THD) of less than 15%.
- Electronic HID ballasts must have a lamp end-of-life detection and shutdown circuit.
- Electronic HID ballasts must be Sound Rated A.

2) Limited use magnetic HID ballasts

- Core & Coil ballasts must be designed with class "H" (180°C) or higher insulation system.
- All coils must be precision wound.
- Core & Coil ballasts should be designed to operate for 60,000 hours of continuous operation at their maximum rated temperature.
- Core & Coil ballasts and starter combinations should be designed to provide a reliable lamp starting down to -40°C for High Pressure Sodium and -30°C for Metal Halide at nominal line voltage of plus or minus 10%.

c) LED driver

- UL listed
- Minimum warranty: Five years
- RoHS-compliant

d) Ballasts, "Prohibited"

The following types of ballasts will not be provided on this contract nor permitted to be purchased.

- Mercury vapor (all)
- Metal halide (probe-start for 150-500 watt lamps)
- Low-pressure sodium (all)
- Magnetic T12 and T9 circular (all)
- 2 pin (magnetic) fluorescent (all)
- Preheat (magnetic) fluorescent (all)

e) Warranty

All products offered must include manufacturer's standard warranty, unless otherwise stated in the specifications.