

B-308(5) ballasts requirements

All products offered must satisfy the following requirements.

Environmental criteria. All products sold under this Contract must meet the minimum environmental requirements contained in the ballast specifications. Contract Vendors are prohibited from offering non-compliant products that do not satisfy the environmental criteria and ballast specifications. The Contract Vendor may assist customers by offering alternative products that satisfy all environmental criteria and specifications when non-compliant products are requested. All products offered to any customer must satisfy all solicitation requirements.

Product specifications

- I. Prohibited Products. The following types of ballasts will **not** be provided nor permitted for purchase on this contract:
 - ☐ Mercury Vapor (all)
 - ☐ Metal Halide (probe-start for 150-500 watt lamps)
 - ☐ Low-pressure Sodium (all)
 - ☐ Magnetic T12 and T9 circular (all)
 - ☐ Two pin (magnetic) fluorescent (all)
 - ☐ Preheat (magnetic) fluorescent (all)
- II. Manufacturing and Compliance Requirements. All ballasts must meet or exceed the following requirements:
 - ☐ All ballasts must be UL-listed under UL 935: Standard for Fluorescent Lamp Ballasts, UL 1029: Standard for High-Intensity Discharge Lamp Ballasts, and/or other applicable UL standards.
 - ☐ 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.
 - ☐ All ballasts should be ROHS-compliant (i.e., compliant with the European Union's Restriction on Hazardous Substances Directive), to the greatest extent practicable.
 - ☐ 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).
- III. Product Technical 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 linear fluorescent ballasts shall meet applicable federal acquisition guidance established by the U.S. Department of Energy's (US DOE's) Federal Energy Management Program (FEMP); see www.energy.gov/eere/femp/purchasing-energy-efficient-fluorescent-ballasts. The FEMP energy-efficiency standards for fluorescent ballasts are summarized in the table below.

TABLE 1. EFFICIENCY REQUIREMENTS FOR FLUORESCENT BALLASTS			
LAMP TYPE	# OF LAMPS	BALLAST TYPE	
		INSTANT AND RAPID START	PROGRAMMED START
F32T8	1	Meet 2014 Federal Standard	BLE \geq 0.87
	2	BLE \geq 0.93	BLE \geq 0.91
	3	BLE \geq 0.93	BLE \geq 0.91
	4	BLE \geq 0.94	Meet 2014 Federal Standard
F96T8	1	Meet 2014 Federal Standard	NA ^b
	2	BLE \geq 0.93	NA
F28T5	1	NA	Meet 2014 Federal Standard
	2	NA	BLE \geq 0.92
F54T5HO	1	NA	Meet 2014 Federal Standard
	2	NA	BLE \geq 0.93

Compliance with the FEMP standards can be verified using the US DOE's Compliance Certification Database for Ballasts, which can be accessed at: www.regulations.doe.gov/certification-data/.

All Fluorescent Ballasts that are not listed in the table above shall have a minimum efficiency rating of 90% or higher if non-dimming or 85% or higher if dimming.

- 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 2-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 and Coil ballasts must be designed with class "H" (180°C) or higher insulation system
- ☐ All coils must be precision wound
- ☐ Core and Coil ballasts should be designed to operate for 60,000 hours of continuous operation at their maximum rated temperature.
- ☐ Core and 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-rated life: 50,000 hours
- ☐ Minimum warranty: 5 years
- ☐ RoHS-compliant