



Energy Efficiency Regulations for Dedicated-Purpose Pool Pumps

Our webinar will begin at the top of the hour.

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California Energy Commission

Dedicated-Purpose Pool Pumps

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Goals of Webinar

- Understand dedicated purpose pool pump (DPPP) efficiency regulations
- Highlight effective date of regulations
- Explain testing requirements
- Identify additional resources
- Answer questions



Topic Areas

- Scope
- Definitions
- Test Method
- Performance Requirements
- Marking and Certification Requirements



Scope





Scope

Dedicated-purpose pool pumps (DPPP) in scope include:

1. Pumps with efficiency and prescriptive requirements:



Self-Priming Pool Filter Pump



Non-Self-Priming Pool Filter Pump



Pressure Cleaner
Booster Pumps



Scope

Continued:

2. Pumps with only prescriptive requirements:



Waterfall Pumps



Integral Sand-Filter
Pool Pumps



Integral Cartridge-
Filter Pool Pumps



Scope

Continued:

3. Pumps that are defined but not regulated:



Storable Electric Spa Pumps



Rigid Electric Spa Pumps



Scope

Continued:

3. Pumps that are defined but not regulated:



Storable Electric Spa Pumps



Rigid Electric Spa Pumps



Definitions



Definitions (Section 1602)

“**Dedicated-purpose pool pump**” comprises self-priming pool filter pumps, non-self-priming pool filter pumps, waterfall pumps, pressure cleaner booster pumps, integral sand-filter pool pumps, integral-cartridge filter pool pumps, storable electric spa pumps, and rigid electric spa pumps



Definitions (Section 1602)

“Self-priming pool filter pump” means a pool filter pump that is certified under NSF/ANSI 50–2015, to be self-priming or is capable of re-priming to a vertical lift of at least 5.0 feet with a true priming time less than or equal to 10.0 minutes, when tested with section 1604(g)(3)(B) of this Article and is not a waterfall pump

“Non-self-priming pool filter pump” means a pool filter pump that is not certified under NSF/ANSI 50–2015, “Equipment for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities”, to be self-priming and is not capable of re-priming to a vertical lift of at least 5.0 feet with a true priming time less than or equal to 10.0 minutes, when tested in accordance with section 1604(g)(3)(B) of this Article and is not a waterfall pump



Definitions (Section 1602)

“**Pool filter pump**” means an end suction pump that:

(A) Either:

1. Includes an integrated basket strainer
2. Does not include an integrated basket strainer, but requires a basket strainer for operation, as stated in manufacturer literature provided with the pump

(B) May be distributed in commerce connected to, or packaged with, a sand filter, removable cartridge filter, or other filtration accessory, provided that the filtration accessory is connected with consumer-removable connections that allow the filtration accessory to be bypassed



Definitions (Section 1602)

“Basket strainer” means a perforated or otherwise porous receptacle, mounted within a housing on the suction side of a pump that prevents solid debris from entering a pump. The basket strainer receptacle is capable of passing spherical solids of 1 millimeter (mm) in diameter and can be removed by hand or using only simple tools such as a screwdriver, pliers, or an open-ended wrench



Definitions (Section 1602)

“Pressure cleaner booster pump” means an end suction dry rotor pump designed and marketed for pressure-side pool cleaner applications, and which may be UL listed under UL 1081–2016

“Designed and marketed” means that the equipment is designed to fulfill the indicated application and, when distributed in commerce, is designated and marketed for that application, with the designation on the packaging or any publicly available documents such as product literature, catalogs, and packaging labels



Definitions (Section 1602)

“Integral cartridge-filter pool pump” means a pump that requires a removable cartridge filter, installed on the suction side of the pump, for operation, and the cartridge filter cannot be bypassed

“Removable cartridge filter” means a filter component with fixed dimensions that captures and removes suspended particles from water flowing through the unit. The removable cartridge filter is not capable of passing spherical solids of 1 mm in diameter or greater and can be removed from the filter housing by hand or using only a simple tool such as a screwdriver, plier, or open-ended wrench



Definitions (Section 1602)

“**Integral sand-filter pool pump**” means a pump distributed in commerce with a sand filter that cannot be bypassed

“**Sand filter**” means a device designed to filter water through sand or an alternate sand-type media

“**Waterfall pump**” means a pool filter pump with a certified maximum head less than or equal to 30.0 feet, and a maximum speed less than or equal to 1,800 revolutions per minute (RPM)



Definitions (Section 1602)

“Rigid electric spa pump” means an end suction pump that does not contain an integrated basket strainer or require a basket strainer for operation as stated in manufacturer literature provided with the pump and that meets the following three criteria:

- A. Is assembled with four through bolts that hold the motor rear endplate, rear bearing, rotor, front bearing, front endplate, and the bare pump together as an integral unit
- B. Is constructed with buttress threads at the inlet and discharge of the bare pump
- C. Uses a casing or volute and connections constructed of a non-metallic material



Definitions (Section 1602)

“**Storable electric spa pump**” means a pump that is distributed in commerce with the following:

- (A) An integral heater; and
- (B) An integral air pump

“**Integral**” means a part of the device that cannot be removed without compromising the device’s function or destroying the physical integrity of the unit



Definitions (Section 1602)

“Dedicated-purpose pool pump motor total horsepower” means the product of the dedicated purpose pool pump nominal motor horsepower and the dedicated-purpose pool pump service factor of a motor used on a dedicated-purpose pool pump based on the maximum continuous duty motor power output rating allowable for the motor’s nameplate ambient rating and insulation class

“Dedicated-purpose pool pump service factor” means a multiplier applied to the rated horsepower of a pump motor to indicate the percent above nameplate horsepower at which the motor can operate continuously without exceeding its allowable insulation class temperature limit



Definitions (Section 1602)

“Freeze protection control” means a pool pump or replacement motor control that, at a certain ambient temperature, turns on the dedicated-purpose pool pump or replacement motor to circulate water for a period of time to prevent the pool and water in plumbing from freezing

“Pool pump timer” means a pool pump control that automatically turns off a dedicated-purpose pool pump after a run-time of no longer than 10 hours

“Submersible pump” means a pump that is designed to be operated with the motor and bare pump fully submerged in the pumped liquid



Test Method



Test Method

Title 20 section 1604(g)(3)(B)

DPPP test procedure can be found at [10 C.F.R. 431.464\(b\)\(Appendix C to subpart Y of part 431\)](#)

- For DPPPs manufactured on or after July 19, 2021
- Served by single-phase or polyphase input power



Performance Requirements



Performance Requirements Title 20 section 1605.1(g)(7)

Efficiency standards for each DPPP that is not a submersible pump:

Equipment class			Minimum allowable WEF score [kgal/kWh]
Dedicated-purpose pool pump variety	hhp Applicability	Motor phase	
Self-priming pool filter pumps	0.711 hp ≤ hhp <2.5 hp	Single	$WEF = -2.30 * \ln (hhp) + 6.59.$
Self-priming pool filter pumps	hhp <0.711 hp	Single	$WEF = 5.55, \text{ for } hhp \leq 0.13 \text{ hp}$ $-1.30 * \ln (hhp) + 2.90, \text{ for } hhp > 0.13 \text{ hp}.$
Non-self-priming pool filter pumps	hhp <2.5 hp	Any	$WEF = 4.60, \text{ for } hhp \leq 0.13 \text{ hp}$ $-0.85 * \ln (hhp) + 2.87, \text{ for } hhp > 0.13 \text{ hp}.$
Pressure cleaner booster pumps	Any	Any	$WEF = 0.42.$



Performance Requirements

Title 20 section 1605.1(g)(7)(C)

(C) Each integral cartridge-filter pool pump and integral sand-filter pool pump that is manufactured on or after July 19, 2021, shall be distributed in commerce with a pool pump timer that is either integral to the pump or a separate component that is shipped with the pump.



Performance Requirements

Title 20 section 1605.1(g)(7)(D)

(D) For all dedicated-purpose pool pumps manufactured on or after July 19, 2021, with freeze protection controls, the pump shall be shipped with freeze protection disabled or with all the following default, user-adjustable settings:

1. The default dry-bulb air temperature setting shall be no greater than 40 °F
2. The default run time setting shall be no greater than 1 hour (before the temperature is rechecked)
3. The default motor speed shall not be more than one half of the maximum available speed



Marking and Certification Requirements



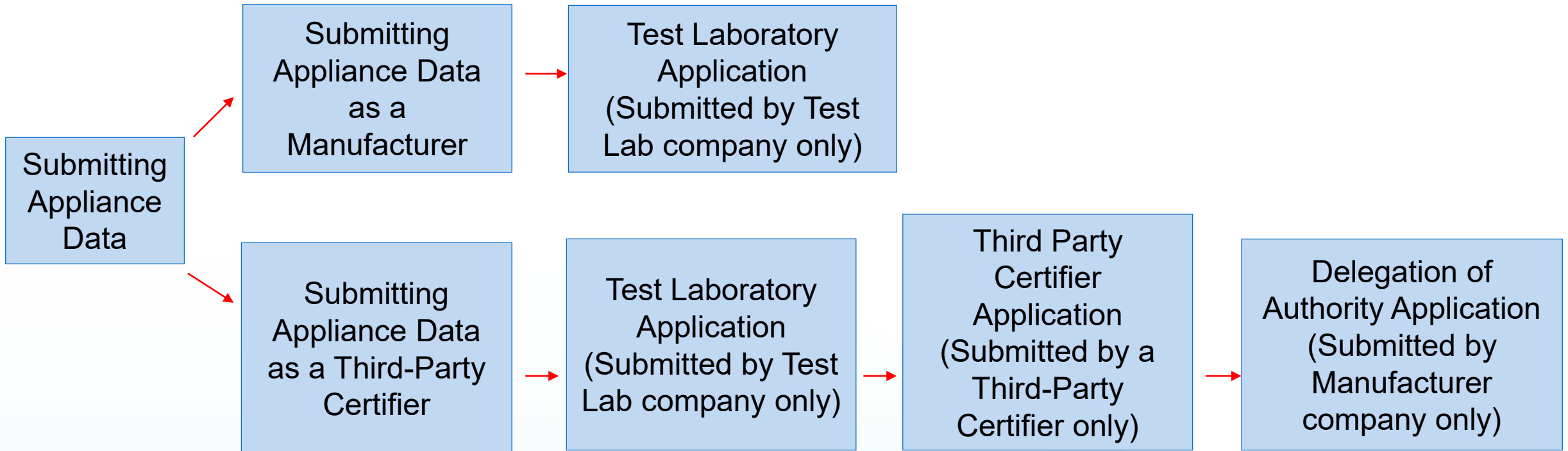
Certification Requirements

Title 20 section 1606

- All models must be certified to the Modernized Appliance Efficiency Database System (MAEDbS)
- Failure to certify is an enforceable violation
- Fines can be levied for regulated appliances sold or offered for sale in California and not certified to MAEDbS



Data Submittal Requirements



General instructions for certifying to MAEDbS can be found at:
[MAEDbS general instructions](#)



Test Lab Application

- For information on how to submit test lab applications to MAEDbS see [general instructions](#)
- Manufacturer may act as a test lab
- Manufacturer may delegate third-party lab as test lab
- Test labs must appear in MAEDbS



Certification Requirements

- All residential pool pumps and motor combinations submitted before July 19, 2021, will be archived around August 19, 2021
- All compliant residential pool pumps and motor combinations models can sell through, as long as they were manufactured before July 19, 2021, and certified to MAEDbS.



Certification Requirements

Title 20 section 1606

To comply with information found in the California Code of Regulations, Title 20, Section 1606 table X, submit information certifying:

1. Dedicated-purpose pool pump product group
2. Freeze Protection Controls when Shipped

When “Freeze Protection Controls when Shipped” = Enabled:

3. Default Dry-Bulb Air Temperature Setting (degrees F)
4. Default Run-Time Setting (minutes)
5. Default Motor Speed (rpm)
6. Default Motor Speed is More than 1/2 of the Maximum Available Speed



Certification Requirements

Title 20 section 1606

Self-Priming Pool Filter Pumps, Non-Self-Priming Pool Filter Pumps, Pressure Cleaner Booster Pumps or Waterfall Pumps:

1. Weighted Energy Factor (WEF) in kilogallons per kilowatt-hour (kgal/kWh)
2. Rated Hydraulic Horsepower in horsepower (hp)
3. Speed Configuration for which the pump is being rated
4. True Power Factor at High Load Point
5. Dedicated-Purpose Pool Pump Nominal Motor Horsepower
6. Dedicated-Purpose Pool Pump Motor Total Horsepower
7. Dedicated-Purpose Pool Pump Service Factor
8. Input Power at the High Flow Load Point (watts)
9. Flow Rate at the High Flow Load Point (gpm)
10. Speed at the High Flow Load Point (rpm)



Certification Requirements

Title 20 section 1606

Self-priming pool filter pumps, non-self-priming pool filter pumps, or pressure cleaner booster pumps:

1. Input Power at Maximum Rotating Speed (watts)
2. Flow Rate at Maximum Rotating Speed (gpm)
3. Speed at Maximum Rotating Speed (rpm)



Certification Requirements

Title 20 section 1606

Self-priming pool filter pumps or Non-self-priming pool filter pumps:

1. True Power Factor at Low Load Point
2. Pump Certified with NSF/ANSI 50-2015

When “Pump Certified with NSF/ANSI 50-2015” = False:

3. Vertical Lift (feet)
4. True Priming Time (minutes)
5. Input Power at the Low Flow Load Point (watts)
6. Flow Rate at the Low Flow Load Point (gpm)
7. Speed at the Low Flow Load Point (rpm)



Certification Requirements

Title 20 section 1606

Self-priming pool filter pumps, non-self-priming pool filter pumps, or waterfall pumps:

1. Maximum Head (feet)

Integral cartridge-filter pool pumps or Integral sand-filter pool pumps:

1. Pool pump control is either integral to the pump or a separate component that is sold or offered for sale with the pump
2. Maximum Run-Time (hours) of the Pool Pump Control



Marking Requirements

Title 20 section 1607(b)(2)

The following information shall be permanently, legibly, and conspicuously displayed on an accessible place on each unit:

1. Manufacturer's name or brand name or trademark
2. Model number
3. Date of manufacture



Marking Requirements

Title 20 section 1607(d)(2)

Energy Performance Marking Requirements in Title 20 section 1607(d)(2) Table Y:

Self-priming pool filter pumps, non-self-priming pool filter pumps, pressure cleaner booster pumps, and waterfall pumps	WEF, dedicated-purpose pool pump motor total horsepower
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Resources

Title 20 Compliance Assistance Hotline
Toll free inside California **(888) 838-1467**
From outside of California **(916) 651-7100**
appliances@energy.ca.gov

Title 20 Compliance Assistance List Serve
[Efficiency Division List Serve](#)

Webinar documents
[Appliances outreach and education webinars](#)

General Instructions for Submitting Appliance Data
[MAEDbS general instructions for submitting appliance data](#)

Energy Code Ace Information
[Energy Code Ace Pool Pump Training](#)



Questions?





Routing Log

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