



# Energy Efficiency Regulations for Dedicated-Purpose Pool Pumps

Our webinar will begin at the top of the hour.

This slide deck will be posted on  
our webpage after the presentation at

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# California Energy Commission

Dedicated-Purpose Pool Pumps

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July 13, 2021



# Participation Guidelines

To ensure successful webinar for participants:

- Use the chat feature / raise hand feature for questions / comments:
  - **Online: Raise your hand**, host will give you the ability to speak, then caller must push unmute
  - **Cell phone: Raise your hand by pushing \*9**, host will give you the ability to speak, then **caller must push \*6 to mute and unmute**
- Provide your **name and affiliation** when speaking
- All **lines are muted**, to comment – **raise hand to speak**
- For clarifying questions, **type your question in the Q&A section**
- Please hold questions until the end of the webinar

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# Goals of Webinar

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



# Topic Areas

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- 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 Cartridge-Filter Pool 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; or
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; and
- 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, for hhp ≤ 0.13 hp -1.30 * ln (hhp) + 2.90, for hhp >0.13 hp.
Non-self-priming pool filter pumps	hhp <2.5 hp	Any	WEF = 4.60, for hhp ≤ 0.13 hp -0.85 * ln (hhp) + 2.87, for hhp >0.13 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



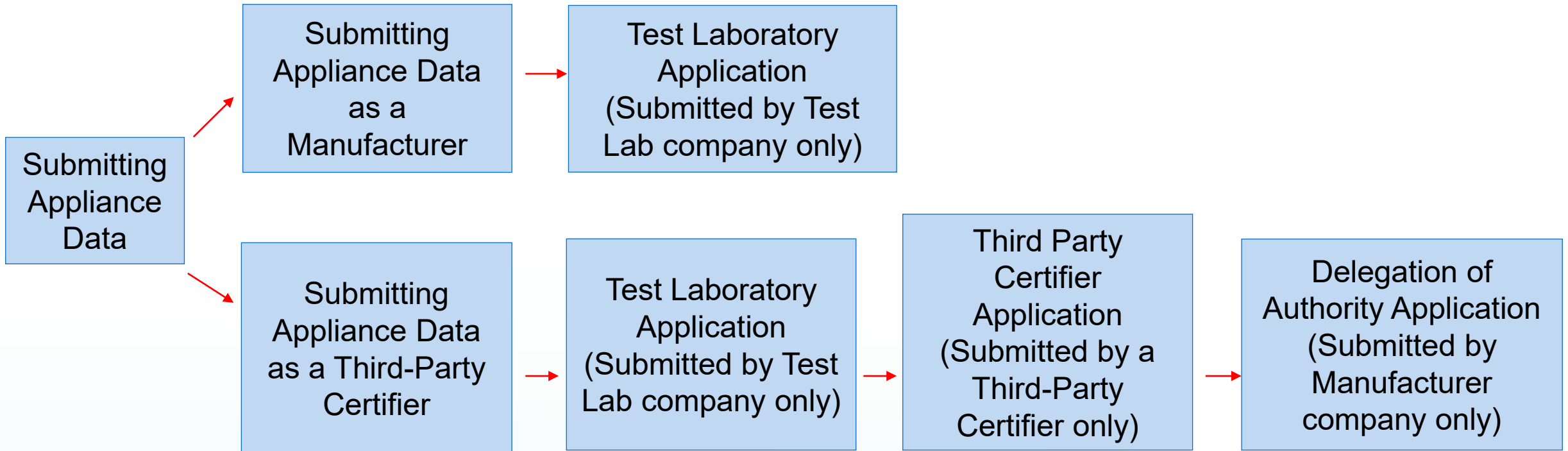
# **Certification Requirements**

## **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



# Company Account Setup

Help | Back To Login

**CA**.GOV CALIFORNIA ENERGY COMMISSION

SEARCH

### Create new company

**Instructions**

- Please fill out all the required fields marked by \*
- Please select all company types that apply.

**Company Information**

\*Company Name

\*Company Website (Follow Format: <https://www.energy.ca.gov>)

**Company Type**

Manufacturer  Test Lab  3rd Party Certifier

(Note: Selecting a company type does not grant immediate access by the California Energy Commission. A company will still need to submit an approval application before they are able to submit data. Checking a company type box allows access to applications specific to that company type.)

"Manufacturer" means any person engaged in the original production or assembly of an appliance or any person that assumes the complete legal responsibility for the original production or assembly of an appliance, which includes, but is not limited to, the responsibility normally held by the manufacturer for product liability, warranty, and compliance with State and federal law. "Manufacturer" also means a private brand packager or reassembler.

By checking this box I hereby certify that I am NOT a test lab or third party that is setting up an account for a manufacturer

Company Information →

Company Type →





# Company Account Setup

Categories →

Address →

**Categories Manufactured, Certified or Tested**

<input type="checkbox"/> None	<input type="checkbox"/> Computers	<input type="checkbox"/> Heating Products	<input type="checkbox"/> Non-Central AC & HP Products	<input type="checkbox"/> Refrigeration Products
<input type="checkbox"/> Search Only	<input type="checkbox"/> Cooking and Washing Products	<input type="checkbox"/> Lighting Products	<input type="checkbox"/> Plumbing Products	<input type="checkbox"/> Transformer Products
<input type="checkbox"/> Central Air Conditioners	<input type="checkbox"/> Electronics	<input type="checkbox"/> Motor Products	<input type="checkbox"/> Pool Products	<input type="checkbox"/> Water Heater Products
<input type="checkbox"/> Central Heat Pumps	<input type="checkbox"/> Fans and Dehumidifiers			

**Address**

\*Country  
USA ▼

\*Address Line 1  Address Line 2

\*City  \*USA State  ▼ Foreign State/Province  \*ZIP/Postal Code

[Create User](#)

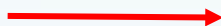


# Test Lab Application

Company Information



Appliance type and test method selection



California Appliance Efficiency Program 2020 Test Laboratory Application Submit Cancel

**Company Information**

\*Test Laboratory Name  Search

Address 1  Address 2

City  State  ZIP/Postal Code  Country

Company Website (URL)

\*Contact First Name  \*Contact Last Name  Search

Phone Number  Fax  Email Address

**Appliance Type and Test Method Selection**

<input type="checkbox"/>	Appliance Type	Test Method
No records found		

Add



# CERTIFICATION REQUIRES SIGNING A BINDING DECLARATION ON BEHALF OF YOUR COMPANY

## Declaration

- I declare under penalty of perjury of the laws of the State of California, that: All the information in this statement is true, complete, accurate, and in compliance with all applicable provisions of Sections 1601-1609 of Title 20 of the California Code of Regulations; and I am authorized to make this declaration, and to file this application, on behalf of (Test Lab Not Selected)
- It agrees to and does interpret and apply the applicable test method set forth in Section 1604 precisely as written;
- It has, and keeps properly calibrated and maintained, all equipment, material, and facilities necessary to apply the applicable test method precisely as written;
- It agrees to and does maintain copies of all test reports, and provided any such report to the Executive Director on request, for all basic models that are still in commercial production; and
- It agrees to and does allow the Executive Director to witness any test of such an appliance on request, up to once per calendar year for each basic model.
- It has conducted tests using the applicable test method(s) specified on the first page of this application within the previous 12 months;
- It agrees to, and will follow, all applicable provisions of the California Energy Commission's Appliance Regulations (Section 1601-1609 of Title 20 of the California Code of Regulations), in carrying out all testing pursuant to this application.

**NOTICE: Test labs approvals are valid until December 31st of each year and then expire. Test labs must apply annually for approval to the California Energy Commission. Test lab applications for the next certification year become available on November 1st each year.**

\*Name

\*Title

\*Date





# 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. Input Power at the Low Flow Load Point (watts)
3. Flow Rate at the Low Flow Load Point (gpm)
4. Speed at the Low Flow Load Point (rpm)
5. Pump Certified with NSF/ANSI 50-2015

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

6. Vertical Lift (feet)
7. True Priming Time (minutes)





# 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



# Data Submittal Requirements

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	
1	Action	Manufacturer	Brand	ModelNumber	RegulatoryStatus	Dedicated-PurposePoolPumpProductGroup	FreezeProtectionControlsWhenShipped	DefaultDry-BulbAirTemperatureSetting(F)	DefaultRun-TimeSetting(minutes)	DefaultMotorSpeed(rpm)	DefaultMotorSpeedMoreThanHalfMaximumAvailableSpeed	WEF(kgal/kWh)	RatedHydraulicHorsepower(hp)	SpeedConfiguration	TruePowerFactorAtHighLoadPoint	DPPNominalMotorHorsepower(hp)	DPPTotalHorsepower(hp)	DPPServiceFactor	InputPowerAtHighFlowLoadPoint(watts)	FlowRateAtHighFlowLoadPoint(gpm)	SpeedAtHighFlowLoadPoint(rpm)	InputPowerAtMaximumRotatingSpeed(watts)	FlowRateAtMaximumRotatingSpeed(gpm)	SpeedAtMaximumRotatingSpeed(rpm)	TruePowerFactorAtLowLoadPoint	PumpCertifiedWithNSF/ANSI50-2014	VerticalLift(feet)	TruePrimingTime(minutes)	InputPowerAtLowFlowLoadPoint(watts)	FlowRateAtLowFlowLoadPoint(gpm)	SpeedAtLowFlowLoadPoint(rpm)	MaximumHead(feet)	PoolPumpControlIntegralOrSeparateComponent	PoolPumpControlMaximumRun-Time(hours)	
2																																			
3																																			



# Data Submittal Requirements

Dedicated-Purpose Pool Pumps (manufactured on or after July 19, 2021)

Save

Cancel

## Instructions

- Key in appliance data according to associated fields in the import template provided in the instructions for this specific appliance type. If the appliance brand name does not appear in the dropdown, enter it in the free entry field, this will be added to the system after CEC staff processing.
- Model data must first be processed by CEC prior to any submissions to change or delete previously submitted model data.
- Brand codes are not accepted.

\*Action

Please Select

\*Model Number

Manufacturer

Add Date

Brand

Please Select

New Brand

\*Regulatory Status

Please Select

Reference Number

Dedicated-Purpose Pool Pump Product Group

Please Select

Freeze Protection Controls When Shipped

Please Select

Default Dry-Bulb Air Temperature Setting (F)

Default Run-Time Setting (Minutes)

Default Motor Speed (Rpm)

Default Motor Speed is More Than Half Of The Maximum Available Speed

None

Weighted Energy Factor (Kgal/Kwh)

Rated Hydraulic Horsepower (Hp)

Speed Configuration For Which The Pump is Being Rated

Please Select

True Power Factor At High Load Point

Dedicated-Purpose Pool Pump Nominal Motor Horsepower (Hp)



# Data Submittal Requirements

Dedicated-Purpose Pool Pump Total Horsepower (Hp)	Dedicated-Purpose Pool Pump Service Factor
<input type="text"/>	<input type="text"/>
Input Power At The High Flow Load Point (Watts)	Flow Rate At The High Flow Load Point (Gpm)
<input type="text"/>	<input type="text"/>
Speed At The High Flow Load Point (Rpm)	Input Power At Maximum Rotating Speed (Watts)
<input type="text"/>	<input type="text"/>
Flow Rate At Maximum Rotating Speed (Gpm)	Speed At Maximum Rotating Speed (Rpm)
<input type="text"/>	<input type="text"/>
True Power Factor At Low Load Point	Pump Certified With NSF/ANSI 50-2015
<input type="text"/>	None <input type="button" value="v"/>
Vertical Lift (Feet)	True Priming Time (Minutes)
<input type="text"/>	<input type="text"/>
Input Power At The Low Flow Load Point (Watts)	Flow Rate At The Low Flow Load Point (Gpm)
<input type="text"/>	<input type="text"/>
Speed At The Low Flow Load Point (Rpm)	Maximum Head (Feet)
<input type="text"/>	<input type="text"/>
Pool Pump Control Is Integral Or Separate Component	Pool Pump Control Maximum Run-Time (Hours)
None <input type="button" value="v"/>	<input type="text"/>



# 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](mailto:appliances@energy.ca.gov)

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

## Webinar documents

[Appliance 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?

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