

§ 431.465

10 CFR Ch. II (1–1–21 Edition)

(E) For ST pumps, a 6-inch or smaller bowl diameter; and

(F) For ESCC and ESFM pumps, a specific speed less than or equal to 5,000 when calculated using U.S. customary units.

(iii) Except for the following pumps:

- (A) Fire pumps;
- (B) Self-priming pumps;
- (C) Prime-assist pumps;
- (D) Magnet driven pumps;

(E) Pumps designed to be used in a nuclear facility subject to 10 CFR part 50, “Domestic Licensing of Production and Utilization Facilities”; and

(F) Pumps meeting the design and construction requirements set forth in Military Specifications: MIL–P–17639F, “Pumps, Centrifugal, Miscellaneous Service, Naval Shipboard Use” (as amended); MIL–P–17881D, “Pumps, Centrifugal, Boiler Feed, (Multi-Stage)” (as amended); MIL–P–17840C, “Pumps, Centrifugal, Close-Coupled, Navy Standard (For Surface Ship Application)” (as amended); MIL–P–18682D, “Pump, Centrifugal, Main Condenser Circulating, Naval Shipboard” (as amended); and MIL–P–18472G, “Pumps, Centrifugal, Condensate, Feed Booster, Waste Heat Boiler, And Distilling Plant” (as amended). Military specifications and standards are available for review at <http://everyspec.com/MIL-SPECS>.

(2) *Testing and calculations.* Determine the applicable constant load pump energy index (PEI<sub>CL</sub>) or variable load pump energy index (PEI<sub>VL</sub>) using the test procedure set forth in appendix A of this subpart.

(b) *Dedicated-purpose pool pumps*—(1) *Scope.* This paragraph (b) provides the test procedures for determining the weighted energy factor (WEF), rated hydraulic horsepower, dedicated-purpose pool pump nominal motor horsepower, dedicated-purpose pool pump motor total horsepower, dedicated-purpose pool pump service factor, and other pump performance parameters for:

(i) The following varieties of dedicated-purpose pool pumps:

- (A) Self-priming pool filter pumps;
- (B) Non-self-priming pool filter pumps;
- (C) Waterfall pumps; and
- (D) Pressure cleaner booster pumps;

(ii) Served by single-phase or poly-phase input power;

(iii) Except for:

(A) Submersible pumps; and

(B) Self-priming and non-self-priming pool filter pumps with hydraulic output power greater than or equal to 2.5 horsepower.

(2) *Testing and calculations.* Determine the weighted energy factor (WEF) using the test procedure set forth in appendix B or appendix C of this subpart, as applicable.

[82 FR 36923, Aug. 7, 2017]

**§ 431.465 Pumps energy conservation standards and their compliance dates.**

(a) For the purposes of paragraph (b) of this section, “PEI<sub>CL</sub>” means the constant load pump energy index and “PEI<sub>VL</sub>” means the variable load pump energy index, both as determined in accordance with the test procedure in § 431.464. For the purposes of paragraph (c) of this section, “BEP” means the best efficiency point as determined in accordance with the test procedure in § 431.464.

(b) Each pump that is manufactured starting on January 27, 2020 and that:

(1) Is in one of the equipment classes listed in the table in paragraph (b)(4) of this section;

(2) Meets the definition of a clean water pump in § 431.462;

(3) Is not listed in paragraph (c) of this section; and

(4) Conforms to the characteristics listed in paragraph (d) of this section must have a PEI<sub>CL</sub> or PEI<sub>VL</sub> rating of not more than 1.00 using the appropriate C-value in the table in this paragraph (b)(4):

Equipment class <sup>1</sup>	Maximum PEI <sup>2</sup>	C-value <sup>3</sup>
ESCC.1800.CL .....	1.00	128.47
ESCC.3600.CL .....	1.00	130.42
ESCC.1800.VL .....	1.00	128.47
ESCC.3600.VL .....	1.00	130.42
ESFM.1800.CL .....	1.00	128.85
ESFM.3600.CL .....	1.00	130.99
ESFM.1800.VL .....	1.00	128.85
ESFM.3600.VL .....	1.00	130.99
IL.1800.CL .....	1.00	129.30
IL.3600.CL .....	1.00	133.84
IL.1800.VL .....	1.00	129.30
IL.3600.VL .....	1.00	133.84
RSV.1800.CL .....	1.00	129.63
RSV.3600.CL .....	1.00	133.20
RSV.1800.VL .....	1.00	129.63
RSV.3600.VL .....	1.00	133.20

Equipment class <sup>1</sup>	Maximum PEI <sup>2</sup>	C-value <sup>3</sup>
ST.1800.CL .....	1.00	138.78
ST.3600.CL .....	1.00	134.85
ST.1800.VL .....	1.00	138.78
ST.3600.VL .....	1.00	134.85

<sup>1</sup> Equipment class designations consist of a combination (in sequential order separated by periods) of: (1) An equipment family (ESCC = end suction close-coupled, ESFM = end suction frame mounted/own bearing, IL = in-line, RSV = radially split, multi-stage, vertical, in-line diffuser casing, ST = submersible turbine; all as defined in § 431.462); (2) nominal speed of rotation (1800 = 1800 rpm, 3600 = 3600 rpm); and (3) an operating mode (CL = constant load, VL = variable load). Determination of the operating mode is determined using the test procedure in appendix A to this subpart.

<sup>2</sup> For equipment classes ending in .CL, the relevant PEI is PEI<sub>CL</sub>. For equipment classes ending in .VL, the relevant PEI is PEI<sub>VL</sub>.

<sup>3</sup> The C-values shown in this table must be used in the equation for PER<sub>STD</sub> when calculating PEI<sub>CL</sub> or PEI<sub>VL</sub>, as described in section II.B of appendix A to this subpart.

(c) The energy efficiency standards in paragraph (b) of this section do not apply to the following pumps:

- (1) Fire pumps;
- (2) Self-priming pumps;
- (3) Prime-assist pumps;
- (4) Magnet driven pumps;
- (5) Pumps designed to be used in a nuclear facility subject to 10 CFR part 50, "Domestic Licensing of Production and Utilization Facilities";
- (6) Pumps meeting the design and construction requirements set forth in Military Specification MIL-P-17639F, "Pumps, Centrifugal, Miscellaneous Service, Naval Shipboard Use" (as amended); MIL-P-17881D, "Pumps, Centrifugal, Boiler Feed, (Multi-Stage)" (as amended); MIL-P-17840C, "Pumps, Centrifugal, Close-Coupled, Navy Standard (For Surface Ship Application)" (as amended); MIL-P-18682D, "Pump, Centrifugal, Main Condenser Circulating, Naval Shipboard" (as amended); MIL-P-18472G, "Pumps, Centrifugal, Condensate, Feed Booster, Waste Heat Boiler, And Distilling Plant" (as amended). Military speci-

fications and standards are available for review at <http://everyspec.com/MIL-SPECS>.

(d) The energy conservation standards in paragraph (b) of this section apply only to pumps that have the following characteristics:

- (1) Flow rate of 25 gpm or greater at BEP at full impeller diameter;
- (2) Maximum head of 459 feet at BEP at full impeller diameter and the number of stages required for testing;
- (3) Design temperature range from 14 to 248 °F;
- (4) Designed to operate with either:
  - (i) A 2- or 4-pole induction motor; or
  - (ii) A non-induction motor with a speed of rotation operating range that includes speeds of rotation between 2,880 and 4,320 revolutions per minute and/or 1,440 and 2,160 revolutions per minute; and
  - (iii) In either case, the driver and impeller must rotate at the same speed;
- (5) For ST pumps, a 6-inch or smaller bowl diameter; and
- (6) For ESCC and ESFM pumps, specific speed less than or equal to 5,000 when calculated using U.S. customary units.

(e) For the purposes of paragraph (f) of this section, "WEF" means the weighted energy factor and "hhp" means the rated hydraulic horsepower, as determined in accordance with the test procedure in § 431.464(b) and applicable sampling plans in § 429.59 of this chapter.

(f) Each dedicated-purpose pool pump that is not a submersible pump and is manufactured starting on July 19, 2021 must have a WEF rating that is not less than the value calculated from the following table:

Equipment class		Minimum allowable WEF score [kgal/kWh]	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.

§ 431.466

10 CFR Ch. II (1–1–21 Edition)

(g) Each integral cartridge filter pool pump and integral sand filter pool pump that is manufactured starting on July 19, 2021 must 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.

(h) For all dedicated-purpose pool pumps distributed in commerce with freeze protection controls, the pump must be shipped with freeze protection disabled or with the following default, user-adjustable settings:

(1) The default dry-bulb air temperature setting is no greater than 40 °F;

(2) The default run time setting shall be no greater than 1 hour (before the temperature is rechecked); and

(3) The default motor speed shall not be more than 1/2 of the maximum available speed.

[81 FR 4431, Jan. 26, 2016, as amended at 82 FR 5742, Jan. 18, 2017]

§ 431.466 Pumps labeling requirements.

(a) *General pumps.* For the pumps described in § 431.464(a), the following requirements apply to units manufactured on the same date that compliance is required with any applicable standards prescribed in § 431.465.

(1) *Pump nameplate—(i) Required information.* The permanent nameplate must be marked clearly with the following information:

(A) For bare pumps and pumps sold with electric motors but not continuous or non-continuous controls, the rated pump energy index—constant load (PEI<sub>CL</sub>), and for pumps sold with motors and continuous or non-continuous controls, the rated pump energy index—variable load (PEI<sub>VL</sub>);

(B) The bare pump model number; and

(C) If transferred directly to an end-user, the unit’s impeller diameter, as distributed in commerce. Otherwise, a space must be provided for the impeller diameter to be filled in.

(ii) *Display of required information.* All orientation, spacing, type sizes, typefaces, and line widths to display this required information must be the same as or similar to the display of the other performance data on the pump’s permanent nameplate. The PEI<sub>CL</sub> or

PEI<sub>VL</sub>, as appropriate to a given pump model, must be identified in the form “PEI<sub>CL</sub> \_\_\_\_\_” or “PEI<sub>VL</sub> \_\_\_\_\_.” The model number must be in one of the following forms: “Model \_\_\_\_\_” or “Model number \_\_\_\_\_” or “Model No. \_\_\_\_\_.” The unit’s impeller diameter must be in the form “Imp. Dia. \_\_\_\_\_ (in.)”

(2) *Disclosure of efficiency information in marketing materials.* (i) The same information that must appear on a pump’s permanent nameplate pursuant to paragraph (a)(1)(i) of this section, must also be prominently displayed:

(A) On each page of a catalog that lists the pump; and

(B) In other materials used to market the pump.

(ii) [Reserved]

(b) *Dedicated-purpose pool pumps.* For the pumps described in § 431.464(b), the following requirements apply on the same date that compliance is required with any applicable standards prescribed in § 431.465.

(1) *Pump nameplate—(i) Required information.* The permanent nameplate must be marked clearly with the following information:

(A) The weighted energy factor (WEF); and

(B) The dedicated-purpose pool pump motor total horsepower.

(ii) *Display of required information.* All orientation, spacing, type sizes, typefaces, and line widths to display this required information must be the same as or similar to the display of the other performance data on the pump’s permanent nameplate.

(A) The WEF must be identified in the form “WEF \_\_\_\_\_.”

(B) The dedicated-purpose pool pump motor total horsepower must be identified in one of the following forms: “Dedicated-purpose pool pump motor total horsepower \_\_\_\_\_,” “DPPP motor total horsepower \_\_\_\_\_,” “motor total horsepower \_\_\_\_\_,” “motor THP \_\_\_\_\_,” or “THP \_\_\_\_\_.”

(2) [Reserved]

[82 FR 36923, Aug. 7, 2017]