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Appliance Standards and Rulemaking Federal Advisory Committee
Dedicated Purpose Pool Pumps Working Group
Term Sheet – Energy Conservation Standards
June 23, 2016

Background

On August 25, 2015, DOE issued a Notice of Intent to Establish the Dedicated Purpose Pool Pumps Working Group to Negotiate a Notice of Proposed Rulemaking (NOPR) for Energy Conservation Standards. 80 FR 51483. This working group was established under the Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) in accordance with the Federal Advisory Committee Act (FACA) and the Negotiated Rulemaking Act (NRA). The working group consists of representatives of parties having a defined stake in the outcome of the energy conservation standards, and consulted as appropriate with a range of experts on technical issues. DOE received 14 nominations for membership. Ultimately, the working group consisted of 13 members, including one member from ASRAC and one DOE representative (see Appendix A). The working group was expected to discuss available industry data, scope of pool pumps in question, and potential test procedure or metric, and present a term sheet to ASRAC on progress. The working group approved a term sheet related to these items December 8, 2015.

On January 20, 2016, ASRAC reauthorized the working group to establish federal standards for pool pumps and to consider freeze protection, industry-led training, and labeling. This second phase of the working group was reauthorized for four months, with the option to extend 2 more months. The working group met four times: March 21-22, April 17-18, May 18-19, and June 22-23, 2016. This term sheet contains recommendations related to the second phase of the working group.

Energy Conservation Standards

Recommendation #1. Each dedicated-purpose pool pump shall be required to meet the applicable minimum energy efficiency standards (WEF) set forth in the following table on and after [INSERT DATE 54 MONTHS FOLLOWING PUBLICATION OF THE DIRECT FINAL RULE]:

Equipment Class	Eff. Level	WEF Equation
Self-priming pool filter pumps <2.5 HHP and >=0.711 HHP	6 (uncorrected)	$WEF = -2.30 * \ln(HHP) + 6.59$
Self-priming pool filter pumps <0.711 HHP	2	$WEF = \begin{cases} 5.55, & HHP \leq 0.13 \\ -1.30 * \ln(HHP) + 2.90, & HHP > 0.13 \end{cases}$
Non-self-priming pool filter pumps <2.5 HHP	1	$WEF = \begin{cases} 4.60, & HHP \leq 0.13 \\ -0.85 * \ln(HHP) + 2.87, & HHP > 0.13 \end{cases}$
Pressure cleaner booster pumps	1	DOE will recalculate WEF based on the updated test procedure in Recommendation #8

	to be equivalent to EL1 (where the EL1 WEF with the previous test procedure was 0.73).
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The working group does not recommend standards for: (1) waterfall pumps of any size or (2) self-priming and non-self-priming pool filter pumps greater than or equal to 2.5 HHP.

All instances of HHP refer to hydraulic horsepower on Curve C at Max Speed.

Vote results: Consensus¹ (0 ‘no’ votes) on 06/23/16

Recommendation #2. On and after [INSERT DATE 54 MONTHS FOLLOWING PUBLICATION OF THE DIRECT FINAL RULE], integral cartridge-filter pool pumps and integral sand-filter pool pumps must be distributed in commerce with a timer. Timer may be integral to the pump or a separate component that is shipped with the pump.

Vote results: Consensus (0 ‘no’ votes) on 06/23/16

Scope

Recommendation #3. The scope of the recommended standards for self-priming pool filter pumps are only applicable to self-priming pool filter pumps served by single-phase power.

The recommended test procedure and reporting requirements would be applicable to all self-priming pool filter pumps (served by single- and three-phase power).

The recommended hydraulic horsepower limitation (<2.5 hydraulic hp) still applies.

Vote results: Consensus (0 ‘no’ votes) on 6/23/16

Definitions

Recommendation #4. For the purposes of establishing compliance with the standards for integral cartridge-filter and integral sand-filter pool pumps discussed in Recommendation #2, pool pump timer is defined as follows:

- **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.

The recommended definition captures the intent of the working group and should be adopted as-written or as modified in a manner that captures the same intent.

Vote results: Consensus (0 ‘no’ votes) on 5/19/16

¹ There are 13 members of the working group. Consensus has been defined as no more than 2 negative votes.

Recommendation #5A. The various speed configurations of dedicated-purpose pool pumps should be defined as follows:

- Single-speed dedicated-purpose pool pump means a dedicated-purpose pool pump that is capable of operating at only one speed.
- Two-speed dedicated-purpose pool pump means a dedicated purpose pool pump that is capable of operating at only two different pre-determined operating speeds, where the low operating speed is less than or equal to half of the maximum operating speed and greater than zero, and must be distributed in commerce either: (1) with a pool pump control (variable speed drive and user interface or switch) that is capable of changing the speed in response to user-preferences or (2) without a pool pump control with such capability but is unable to operate without the presence of such a pool pump control.
- Multi-speed dedicated-purpose pool pump means a dedicated-purpose pool pump that is capable of operating at more than two discrete pre-determined operating speeds separated by speed increments greater than 100 rpm, where the lowest speed is less than or equal to half of the maximum operating speed and greater than zero, and must be distributed in commerce with an on-board pool pump control (variable speed drive and user interface or programmable switch) that changes the speed in response to pre-programmed user-preferences and allows the user to select the duration of each speed and/or the on/off times.
- Variable-speed dedicated-purpose pool pump means a dedicated-purpose pool pump that is capable of operating at a variety of user-determined speeds, where all the speeds are separated by at most 100 rpm increments over the operating range and the lowest operating speed is less than or equal to one-third of the maximum operating speed and greater than zero. Such a pump must include a variable speed drive (equipment capable of varying the speed of the motor) and be distributed in commerce either: (1) with a user interface that changes the speed in response to pre-programmed user-preferences and allows the user to select the duration of each speed and/or the on/off times or (2) without a user interface but is unable to operate without the presence of a user interface.

The recommended definitions capture the intent of the working group and should be adopted as-written or as modified in a manner that captures the same intent.

Vote results: Consensus (0 'no' votes) on 6/23/16

Recommendation #5B. In order to use the two-speed test procedure, self-priming pool filter pumps that are greater than or equal to 0.711 HHP (and less than 2.5 HHP) and are two-speed must also be distributed in commerce either: (1) with a pool pump control (variable speed drive and user interface or switch) that changes the speed in response to pre-programmed user-preferences and allows the user to select the duration of each speed and/or the on/off times or (2) without a pool pump control with such capability but is unable to operate without the presence of such a pool pump control.

Vote results: Consensus (0 'no' votes) on 6/23/16

Freeze Protection

Recommendation #6A. All dedicated-purpose pool pumps with freeze protection controls distributed in commerce with the pump shall 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 ½ of the maximum available speed

As part of certification reporting, manufacturers must include the default dry-bulb air temperature setting (in °F), default run time setting (in minutes), and default motor speed (in rpm).

Vote results: Consensus (0 ‘no’ votes) on 5/19/16

Recommendation #6B. Manufacturers would certify compliance to the applicable design statement and make available publicly as part of their literature the details by which they have met the applicable design standard. DOE would include a verification procedure in case there was ever an issue regarding whether a product distributed in commerce actually had such features

Vote results: Consensus (0 ‘no’ votes) on 5/19/16

Reporting

Recommendation #7. The Working Group recommends that DOE require reporting of true power factor at all applicable test procedure load points in the public information provided in the certification report for all dedicated-purpose pool pumps to which the test procedure is applicable (i.e., self-priming and non-self-priming pool filter pumps, waterfall pumps, and pressure cleaner booster pumps).

Vote results: Consensus (0 ‘no’ votes) on 06/23/16

Test Procedure

Recommendation #8. The Working Group revises its recommendation #6 in the December 8, 2015 term sheet related to pressure cleaner booster pumps.

The revised recommended operating points (i,j) used in determining WEF should be:

Pool Pump Varieties	Speed Type	# of Points	Flow Rate (i)	Head (j)
Pressure Cleaner	All	One	10 gpm	Minimum head the pump can

Booster Pump				achieve ≥ 60 ft
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Vote results: Consensus (0 ‘no’ votes) on 06/23/16

Labeling

Recommendation #9. DOE should investigate a label that would facilitate proper application and include specified horsepower information.

Vote results: Consensus (0 ‘no’ votes) on 06/23/16

Training

Non-Binding Recommendation #1. DOE should investigate its resources with respect to supporting trade education.

Vote results: Consensus (0 ‘no’ votes) on 06/23/16

This term sheet has been approved by the ASRAC DPPP working group by consensus (0 ‘no’ votes) on 06/23/16.

Appendix A—Members

U.S. Department of Energy—ASRAC Dedicated Purpose Pool Pumps Negotiated Rulemaking Working Group

1. Jeff Farlow, Pentair Aquatic Systems
2. Gary Fernstrom, California Investor-Owned Utilities
3. Patrizio Fumagalli, Bestway USA, Inc.
4. Paul Lin, Regal Beloit Corporation
5. Joanna Mauer, Appliance Standards Awareness Project
6. Ray Mirzaei, Waterway
7. Doug Philhower, Hayward Industries, Inc.
8. Meg Waltner, Natural Resources Defense Council
9. Kristen Driskell, California Energy Commission
10. Scott Durfee, Nidec Motor Corporation
11. Shajee Siddiqui, Zodiac Jandy
12. John Cymbalsky, U.S. Department of Energy
13. John Caskey, ASRAC/ National Electrical Manufacturers Association