# DOCKETED

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|---|---|
| **Docket Number:** | 15-AAER-02 |
| **Project Title:** | Pool Pumps and Spa Labeling |
| **TN #:** | 214476 |
| **Document Title:** | Test Report for Residential Swimming Pool Pumps intended for inflatable storable pool. |
| **Description:** | N/A |
| **Filer:** | Sean Steffensen |
| **Organization:** | IAPMO EGS |
| **Submitter Role:** | Public |
| **Submission Date:** | 11/14/2016 11:52:09 AM |
| **Docketed Date:** | 11/14/2016 |

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**Report Number:** Intex002016004-002 **Project No.:** 00083

**Report Issued:** March 8, 2016

**Client:** INTEX DEVELOPMENT COMPANY LIMITED **Contact:** Mr. Allen Xie
9F DAH SING FINANCIAL CENTRE
108 GLOUCESTER RD
WANCHAI HONG KONG, CHINA

**Source of Samples:** The samples were sent by Intex Development Company and received by IAPMO EGS in good condition on December 1, 2015

**Date of Testing:** December 4, 2015 through January 26, 2016

**Sample Description:** Residential Swimming Pool Pumps intended for inflatable storable pool.

Model - See page 2 for model specifications.

**Scope of Testing:** The purpose of the testing was to determine if the sample tested of the Portable Electric Spa met the requirements of 2015 California Appliance Efficiency Regulations when tested in accordance with California Energy Commission Article 1604, G(3)

**CONCLUSION:** **Refer to Test Results of this test report.**

By our signatures below we certify that all the testing and sample preparation for this report was performed under continuous, direct supervision of IAPMO EGS unless stated otherwise.

Tested by,

Jason Tsan, Test Engineer

Reviewed by,

Tony Zhou, VP, Electrical Engineering

Model Nos.

28601EG (601) - Epoxy Motor Type, Cartridge Filter Pump
28603EG (603) - Epoxy Motor, Cartridge Filter Pump
28635EG (635T) - Epoxy Motor, Cartridge Filter Pump
28637EG (637) - Epoxy Motor, Cartridge Filter Pump

Primary Regulation: 2015 California Appliance Efficiency Regulations

Test Results: All tests and evaluations were conducted per the written procedures specified in the Regulation and its reference standard.

2015 California Appliance Efficiency Regulations

**Model Nos. 28601EG (601)**

| | |
|---|---|
| Action | A |
| Manufacturer | Intex Development Co., Ltd |
| Brand | INTEX |
| Model Number | 28601EG (601) |
| Motor Construction<br><br>C: capacitor start-capacitor run<br>D: capacitor start-induction run<br>E: Electronically-commutated motor<br>P: Permanent-split capacitor motor<br>S: Split-phase | **PMSM (CEC currently does not allow this motor type)** |
| Motor Design<br><br>D: Dual-speed<br>M: Multiple-Speed<br>S: Single-speed<br>V: Variable-speed | S |
| Frame (whole number) | |
| Speed RPM (whole number) | 3600 |
| Motor Capability (T or F) | F |
| Pool Pump Unit Type<br><br>PC: Residential Pool Pump and Motor Combination<br><br>PM: Replacement Residential Pool Pump Motor | PC |
| Pool Pump Motor Capacity (two decimal places) | 0.01 |
| Motor Service Factor (two decimal places) | 1.00 |
| Motor Efficiency % (one decimal place) | 41.3 |
| Name Plate HP (two decimal places) | 0.01 |
| Pump Control Speed | F |
| Curve-A Flow (GPM, whole number) | 5 |
| Curve-A Power (Watts, whole number) | 23 |
| Curve-A Energy Factor (gallons/Wh, two decimal places) | 13.04 |
| Curve-B Flow (GPM, whole number) | 5 |
| Curve-B Power (Watts, whole number) | 23 |
| Curve-B Energy Factor (gallons/Wh, two decimal places) | 13.04 |
| Curve-C Flow (GPM, whole number) | 5 |
| Curve-C Power (Watts, whole number) | 23 |
| Curve-C Energy Factor (gallons/Wh, two decimal places) | 13.04 |
| Regulatory Status (N) | N |

**Model Nos. 28603EG (603)**

| | |
|---|---|
| Action | A |
| Manufacturer | Intex Development Co., Ltd |
| Brand | INTEX |
| Model Number | 28603EG (603) |
| Motor Construction<br><br>C: capacitor start-capacitor run<br>D: capacitor start-induction run<br>E: Electronically-commutated motor<br>P: Permanent-split capacitor motor<br>S: Split-phase | **PMSM (CEC currently does not allow this motor type)** |
| Motor Design<br><br>D: Dual-speed<br>M: Multiple-Speed<br>S: Single-speed<br>V: Variable-speed | S |
| Frame (whole number) | |
| Speed RPM (whole number) | 3600 |
| Motor Capability (T or F) | F |
| Pool Pump Unit Type<br><br>PC: Residential Pool Pump and Motor Combination<br><br>PM: Replacement Residential Pool Pump Motor | PC |
| Pool Pump Motor Capacity (two decimal places) | 0.02 |
| Motor Service Factor (two decimal places) | 1.00 |
| Motor Efficiency % (one decimal place) | 35.6 |
| Name Plate HP (two decimal places) | 0.02 |
| Pump Control Speed | F |
| Curve-A Flow (GPM, whole number) | 7 |
| Curve-A Power (Watts, whole number) | 45 |
| Curve-A Energy Factor (gallons/Wh, two decimal places) | 9.33 |
| Curve-B Flow (GPM, whole number) | 6 |
| Curve-B Power (Watts, whole number) | 44 |
| Curve-B Energy Factor (gallons/Wh, two decimal places) | 8.18 |
| Curve-C Flow (GPM, whole number) | 8 |
| Curve-C Power (Watts, whole number) | 47 |
| Curve-C Energy Factor (gallons/Wh, two decimal places) | 10.21 |
| Regulatory Status (N) | N |

**Model Nos. 28635EG (635T)**

| | |
|---|---|
| Action | A |
| Manufacturer | Intex Development Co., Ltd |
| Brand | INTEX |
| Model Number | 28635EG (635T) |
| Motor Construction<br><br>C: capacitor start-capacitor run<br>D: capacitor start-induction run<br>E: Electronically-commutated motor<br>P: Permanent-split capacitor motor<br>S: Split-phase | **PMSM (CEC currently does not allow this motor type)** |
| Motor Design<br><br>D: Dual-speed<br>M: Multiple-Speed<br>S: Single-speed<br>V: Variable-speed | S |
| Frame (whole number) | |
| Speed RPM (whole number) | 3600 |
| Motor Capability (T or F) | F |
| Pool Pump Unit Type<br><br>PC: Residential Pool Pump and Motor Combination<br><br>PM: Replacement Residential Pool Pump Motor | PC |
| Pool Pump Motor Capacity (two decimal places) | 0.11 |
| Motor Service Factor (two decimal places) | 1.00 |
| Motor Efficiency % (one decimal place) | 35.2 |
| Name Plate HP (two decimal places) | 0.11 |
| Pump Control Speed | F |
| Curve-A Flow (GPM, whole number) | 17 |
| Curve-A Power (Watts, whole number) | 144 |
| Curve-A Energy Factor (gallons/Wh, two decimal places) | 7.08 |
| Curve-B Flow (GPM, whole number) | 11 |
| Curve-B Power (Watts, whole number) | 132 |
| Curve-B Energy Factor (gallons/Wh, two decimal places) | 5.00 |
| Curve-C Flow (GPM, whole number) | 21 |
| Curve-C Power (Watts, whole number) | 156 |
| Curve-C Energy Factor (gallons/Wh, two decimal places) | 8.08 |
| Regulatory Status (N) | N |

**Model Nos. 28637EG (637)**

| | |
|---|---|
| Action | A |
| Manufacturer | Intex Development Co., Ltd |
| Brand | INTEX |
| Model Number | 28637EG (637) |
| Motor Construction<br><br>C: capacitor start-capacitor run<br>D: capacitor start-induction run<br>E: Electronically-commutated motor<br>P: Permanent-split capacitor motor<br>S: Split-phase | **PMSM (CEC currently does not allow this motor type)** |
| Motor Design<br><br>D: Dual-speed<br>M: Multiple-Speed<br>S: Single-speed<br>V: Variable-speed | S |
| Frame (whole number) | |
| Speed RPM (whole number) | 3600 |
| Motor Capability (T or F) | F |
| Pool Pump Unit Type<br><br>PC: Residential Pool Pump and Motor Combination<br><br>PM: Replacement Residential Pool Pump Motor | PC |
| Pool Pump Motor Capacity (two decimal places) | 0.06 |
| Motor Service Factor (two decimal places) | 1.00 |
| Motor Efficiency % (one decimal place) | 34.9 |
| Name Plate HP (two decimal places) | 0.06 |
| Pump Control Speed | F |
| Curve-A Flow (GPM, whole number) | 13 |
| Curve-A Power (Watts, whole number) | 97 |
| Curve-A Energy Factor (gallons/Wh, two decimal places) | 8.04 |
| Curve-B Flow (GPM, whole number) | 10 |
| Curve-B Power (Watts, whole number) | 88 |
| Curve-B Energy Factor (gallons/Wh, two decimal places) | 6.82 |
| Curve-C Flow (GPM, whole number) | 13 |
| Curve-C Power (Watts, whole number) | 98 |
| Curve-C Energy Factor (gallons/Wh, two decimal places) | 7.96 |
| Regulatory Status (N) | N |

**Section 1607 Marking of Appliances**

Name, Model Number and Date –**COMPLIED**

The product or its package [per Section 1607(c) (1)] shall be permanently, legibly, and conspicuously marked with the following information on an accessible place:

(1) Manufacturer's name or brand name or trademark;

(2) Model number; and

(3) Date of manufacture, indicating (i) year and (ii) month or smaller (e.g. week) increment.

Finding:

| Marking Requirement | On Product | On Package | Status |
|---|---|---|---|
| Manufacturer's Name / Brand Name / Trademark | Yes | Yes | Passed |
| Model Number | Yes | Yes | Passed |
| Date of Manufacture | Yes | N/A | Passed |

**Residential Pool Pumps**

**COMPLIED** - Each residential pool pump shall be marked, permanently and legibly on an accessible and conspicuous place on the unit, in characters no less than 1/4", the nameplate HP of the pump.

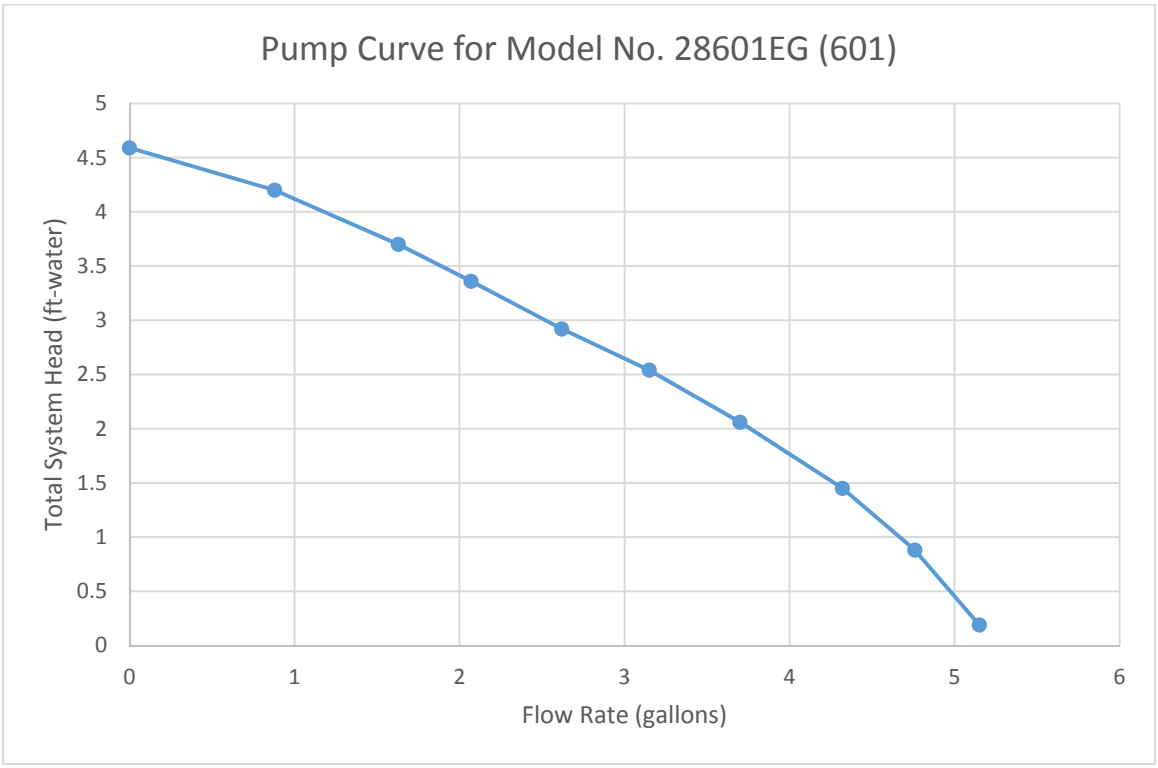
Findings: HP rating was on product's nameplate label.

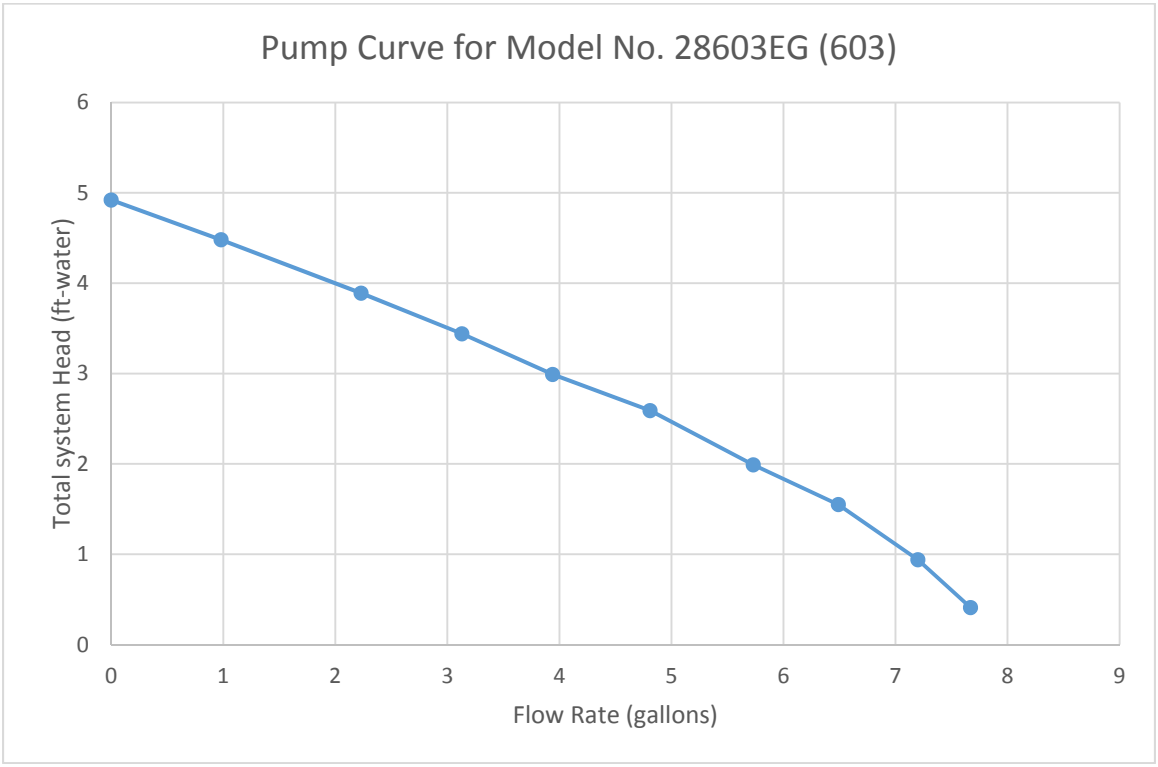
**COMPLIED** - Each residential pool pump motor shall be marked, permanently and legibly on an accessible and conspicuous place on the unit, in characters no less than 1/4", the pool pump motor capacity of the motor.

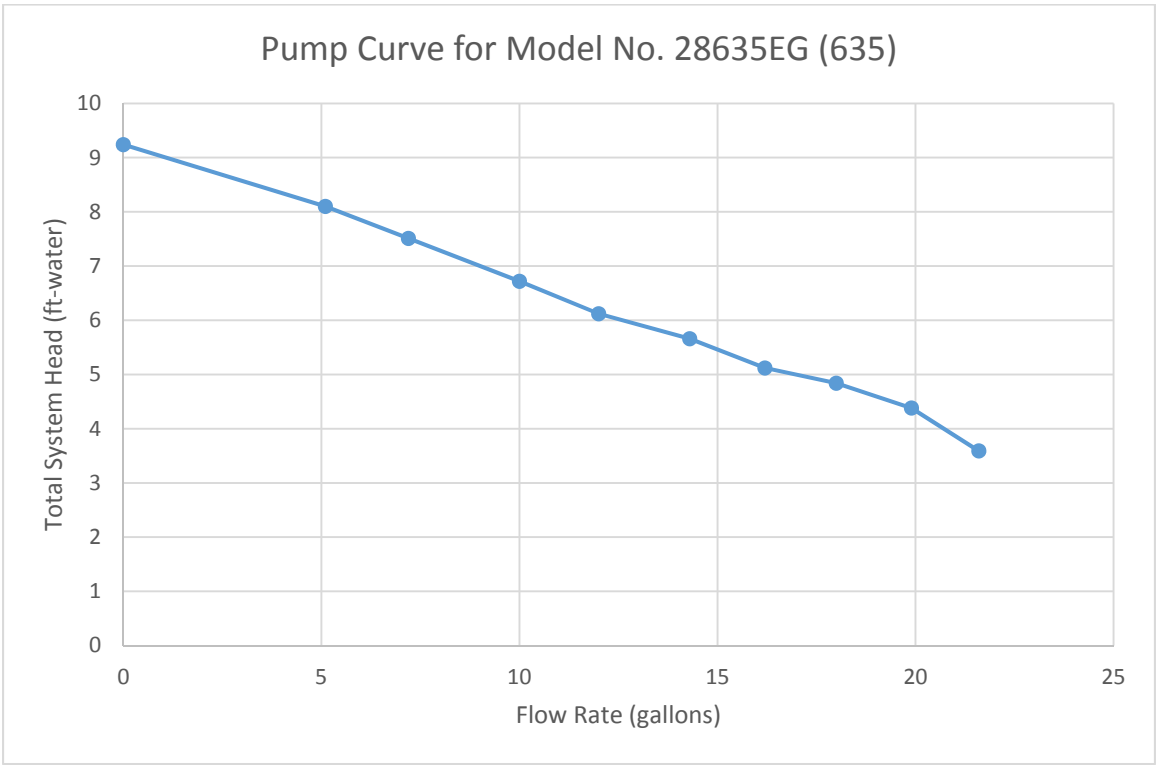
Findings: Pump motor capacity was product's nameplate label.

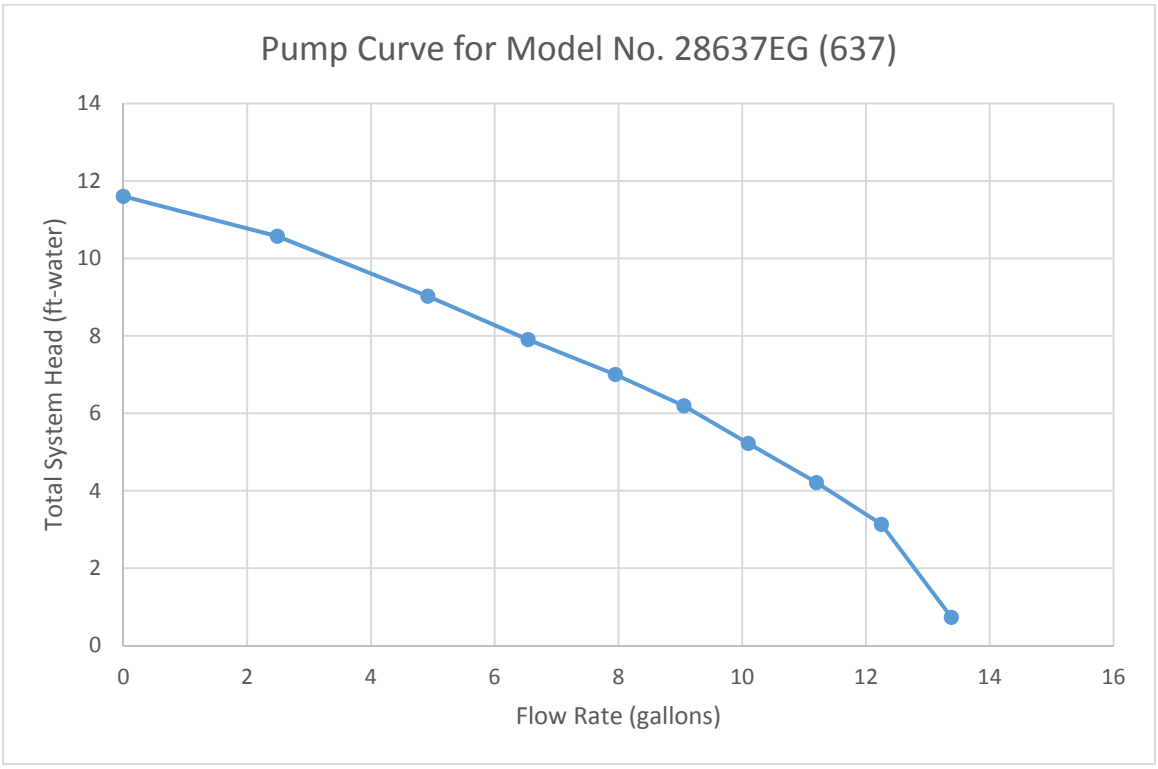
**NOT APPLICABLE** - Two-, multi-, or variable-speed residential pool pumps certified under Section 1606 of this Article on or after January 1, 2010 shall be marked, permanently and legibly on an accessible and conspicuous place on the unit, in characters no less than 1/4",

Findings: Pool pumps are single speed operation only.


Pump Curve for Model No. 28601EG (601)
Total System Head (ft-water)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
0
1
2
3
4
5
6
Flow Rate (gallons)


Pump Curve for Model No. 28603EG (603)
Total system Head (ft-water)
0
1
2
3
4
5
6
0
1
2
3
4
5
6
7
8
9
Flow Rate (gallons)


Pump Curve for Model No. 28635EG (635)
Total System Head (ft-water)
10
9
8
7
6
5
4
3
2
1
0
0
5
10
15
20
25
Flow Rate (gallons)


Pump Curve for Model No. 28637EG (637)
Total System Head (ft-water)
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
Flow Rate (gallons)

Photos of Samples Tested:

Model # 28601EG (601)

Model # 28603EG (603)

Model # 28635EG (635)

Model # 28637EG (637)

Test Equipment Used

| Inst. ID Nos. | Inst. Type | Function/Range | Last Cal. Date | Next. Cal. Date | Mfg | Model | S/N |
|---|---|---|---|---|---|---|---|
| 1015 | Power Meter | Voltage: 0-1000 V;Current: 0-200 A; Power: 0-200 kW | 3/2/2015 | 3/2/2016 | Yokogawa | CW240 | T1H8512 |
| 1167 | Current Clamp | 200 Amp (goes with 1015) | 3/2/2015 | 3/2/2016 | Yokogawa | 960-30 | T1H9030 |
| 1244 | Measuring Tape | Length: 6.25-144 inches | 11/9/2015 | 11/9/2016 | Stanley | 33-212 | N/A |
| 1254 | Stopwatch | Hours: 0-24 hrs | 8/18/2014 | 8/18/2016 | VWR Intl. | 62379-460 | 140548007 |
| 996 | Pressure Guage | Pressure: 0-15 psi | 8/21/2015 | 8/21/2016 | US Guage | - | - |
| 1027 | Flow Meter | Flow: 0-100 GPM | 4/10/2015 | 4/10/2016 | GPI | S150N | 3400107 |