

**Revision: 3**  
**Date: 03<sup>rd</sup> November, 2015**

**Schedule No.: 7**  
**Pump Set**

**1. Scope**

This schedule specifies the requirements for participating in the energy labeling scheme for pump sets covering Electric mono set pumps, submersible pump sets and open well submersible pump sets.

**2. Normative Reference**

(i) The referred Indian Standards are IS 9079 : 2002 for Electric Mono set pumps for clear, cold water and water supply purposes, IS 8034: 2002 for Submersible pump sets, IS 14220: 1994 Open well submersible pump sets and IS 11346:2002 for testing purposes of the above mentioned pump sets.

(ii) The standard ratings covered under the energy labeling scheme are as follows:

Sl. No.	Product detail Electrical Pumps	Range kW	No. of Poles	Applicable IS
1.	3 Phase open well submersible pump sets	1.1kW, 1.5kW, 2.2kW, 3.0 kW, 3.7kW, 4.5kW, 5.5kW, 7.5kW, 9.3kW, 11kW, 13kW & 15kW	2 Pole	IS 14220:1994
2.	3 Phase submersible pump sets	1.1kW, 1.5kW, 2.2 kW, 3.0kW, 3.7 kW, 4.5KW, 5.5 kW, 7.5kW, 9.3kW, 11kW, 13kW, 15kW & up to 75kW	2 Pole	IS 8034:2002
3.	3 Phase Mono-set pumps	1.1kW, 1.5kW, 2.2kW, 3.7 kW & 5.5kW, 7.5kW, 9.3kW, 11kW & 15kW & up to 22kW	2 Pole	IS 9079:2002
4.	Single phase open well submersible	0.37kW to 2.2kW	2 Pole	IS 14220:1994
5.	Single phase submersible pump set	0.37kW to 2.2kW	2 Pole	IS 8034:2002
6.	Single phase mono set pumps	0.37kW to 2.2kW	2 Pole	IS 9079:2002

### 3. Terms and Definitions

- (i) Label means any written, printed, marked, stamped or graphic matter affixed to, or appearing upon the Pumps.
- (ii) Performance Factor means relative improvement of the pump efficiency with respect to BIS specified benchmark efficiency.
- (iii) Overall efficiency of the pump set is including the efficiency factor for induction motors. The overall efficiency is calculated as per IS 14220:1998, IS 8034:2002 and IS 9079: 2002 for pump sets and IS 12615: 2004, IS: 4029 – 1967, IS 325: 1996 for induction motors.
- (iv) NABL means National Accreditation Board For Testing And Calibration Laboratories
- (v) ILAC means International Laboratory Accreditation Cooperation
- (vi) APLAC means Asia Pacific Laboratory Accreditation Cooperation

### 4. Eligibility Criteria

- (i) BIS License mark certification for the product is mandatory.
- (ii) Quality Certification such as ISO/BIS is mandatory.
- (iii) Only BIS/BIS approved lab/NABL/ILAC/APLAC approved lab test report is acceptable.

### 5. Testing Guideline

**5.1. Method of Tests:** The testing code and procedure for Electric Mono set pumps, Submersible pump sets and Open well submersible pump sets would be as per IS 11346: 2000 all amendments as on date.

**5.2. Parameters to be tested:** Parameters for check verification and challenge testing are guaranteed performance of nominal volume rate of flow, nominal head and overall efficiency of the pump set at the duty point.

- a) The Open well submersible pump sets shall meet the requirements of performance in Clause 10.2 (10.21 through 10.23) of IS 14220: 1994.
- b) The submersible pump sets shall meet the requirements of performance in Clause 15.2 (15.21 and 15.22) of IS 8034:2002.
- c) The Electric Mono set pump shall meet the requirements of performance in Clause 13.2 (13.2.1 and 13.2.2) of IS9079:2002.

#### 5.3. Test Report:

- a) The test reports shall be reported as per the format in Annexure C & D of IS 11346:2002
- b) Supporting document for minimum BIS efficiency declared is required along with test reports.

6. **Energy Labeling Plan:** The star rating plan for pump sets is as below:

Star Rating	Performance Factor of the Pump Set
1 Star	$\geq 1.00$ & $< 1.05$
2 Star	$\geq 1.05$ & $< 1.10$
3 Star	$\geq 1.10$ & $< 1.15$
4 Star	$\geq 1.15$ & $< 1.20$
5 Star	$\geq 1.20$


7. **Sampling Plan**

The samples will be picked up by Bureau of Energy Efficiency or its designated agency for testing from either manufacturing facility or warehouse or the dealer. Sample size would be 2 pump sets per rating.

8. **Manner of Display:**

- (i) The rating plate details will be as per the requirements of relevant Indian Standards with all its latest amendments.
- (iii) The sample label on the name plate is as follows:

**POWER CONSUMPTION STAR LABEL – ELECTRICAL PUMPS (Fig)**

	Overall Efficiency of the Pump set* :		Manufacturers Logo if available	IS - 8034 
<b>SUBMERSIBLE PUMPSET</b>				
TYPE <input type="text"/>	S.NO <input type="text"/>	Model No/ Year <input type="text"/>	kW/HP <input type="text"/>	
Del. SIZE mm <input type="text"/>	HEAD m <input type="text"/>	Dis. IPS <input type="text"/>	CAPACITY RANGE lps <input type="text"/>	IPkW <input type="text"/>
rpm <input type="text"/>	OVERALL EFF. % <input type="text"/>	Operating Head Range m <input type="text"/>	Min.Sub m: <input type="text"/>	
V <input type="text"/> +6% -15%	Hz <input type="text"/>	Min.Bore Size mm <input type="text"/>	No.of Stages <input type="text"/>	Max Current <input type="text"/>
DUTY <input type="text"/> S1	CONN <input type="text"/>	Phase <input type="text"/>	MONTH <input type="text"/>	YEAR <input type="text"/>
Name of the manufacturer with complete address				
*Under test conditions when tested in accordance with relevant IS No., the actual energy Consumption will depend on how the equipment is being used				

**Fig**

**\*Aspect ratio of label shall remain same while printing**

Note: Please fill Electric Submersible/ Open well Submersible/ Monoset Pumps and respective Indian standards as actual besides the star rating logo.

(iii) The label shall be applied on the front base of the equipment on the nameplate as shown above, so as to be prominently visible on the equipment.

(iv) Colour Scheme for Logo

**BLUE –**

Hue (H)-239° Saturation(S):64% Brightness (B):59%  
Luminance or lightness (L):28, chromatic components -a: 24 b: 54  
Red(R):54 Green (G):55 Blue (B):151  
Cyan(C):97% Magenta (M):95% Yellow(Y):6% Black (K):1%  
Web color code - #363797

**GREEN –**

Hue (H)-150° Saturation(S):10% Brightness (B):67%  
Luminance or lightness (L):61, chromatic components -a: 53 b: 32  
Red(R):0 Green (G):170 Blue (B):87  
Cyan(C):81% Magenta (M):10% Yellow(Y):90% Black  
(K):1% Web color code - #00AA56

## 9. Fees

- (i) Registration fee is payable on application for authority to affix labels is Rs. 1000/- However, w. e. f. 1<sup>st</sup> January, 2016 application fee will be INR 2000/- (Rupees one thousand only)
- (ii) Registration fee is payable on application for renewal of authority to affix labels is INR 500/- (Rupees five hundred only)
- (iii) Labeling fee for affixation of label on each pump set is as follows.
  - (a) Submersible Pump sets INR 20/- (Twenty rupees only)
  - (b) Openwell submersible Pumps sets INR 10/- (Ten rupees only)
  - (c) Electric Monoset pumps INR 10/- (Ten rupees only)

## 10. Tolerances

The tolerance shall be as specified in IS 11346: 2002. However, there shall be no tolerance for star rating band, the average of products tested must be at par or better than the label threshold.