

Revision: 4

Effective Date: 1<sup>st</sup> February, 2020

**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 (with all amendments as on date) for Electric Mono set pumps for clear, cold water and water supply purposes, IS 8034(with all amendments as on date) for Submersible pump sets, IS 14220(with all amendments as on date) Open well submersible pump sets and IS 11346(with all amendments as on date) 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(with all amendments)
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(with all amendments)
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(with all amendments)
4.	Single phase open well submersible	0.37kW to 2.2kW	2 Pole	IS 14220(with all amendments)
5.	Single phase submersible pump set	0.37kW to 2.2kW	2 Pole	IS 8034(with all amendments)
6.	Single phase mono set pumps	0.37kW to 2.2kW	2 Pole	IS 9079(with all amendments)

### 3. Terms and Definitions

- a. Label means any written, printed, marked, stamped or graphic matter affixed to, or appearing upon the Pumps.
- b. Performance Factor means relative improvement of the pumpset overall efficiency with respect to BIS specified benchmark efficiency.
- c. Overall efficiency of the pump set is including the efficiency factor for induction motors. The overall efficiency is calculated as per IS 14220 (with all amendments), IS 8034 (with all amendments) and IS 9079(with all amendments) for pump sets and IS 12615(with all amendments), IS: 4029 (with all amendments), IS 325 (with all amendments) for induction motors.
- d. NABL means National Accreditation Board For Testing And Calibration Laboratories
- e. ILAC means International Laboratory Accreditation Cooperation
- f. 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

**51. 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 all amendments as on date.

**52. 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 16 (16.1 through 16.7) of IS 14220: 2018 all amendments as on date.
- b) The submersible pump sets shall meet the requirements of performance in Clause 11 (11.1 through 11.5) of IS 8034:2018 all amendments as on date.
- c) The Electric Mono set pump shall meet the requirements of performance in Clause 13 (13.1 and 13.6) of IS9079:2018 all amendments as on date.

### 53. Test Report:

- a) The test reports shall be reported as per the format in Annexure C & D of IS 11346:2002 all amendments as on date
- 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	$\geq 1.00$ & $< 1.10$
2 Star	$\geq 1.10$ & $< 1.20$
3 Star	$\geq 1.20$ & $< 1.30$
4 Star	$\geq 1.30$ & $< 1.40$
5 Star	$\geq 1.40$

The above star rating plan for pump sets is valid from 1<sup>st</sup> February 2020 to 31<sup>st</sup> January 2023.



### 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.
- (ii) The sample label on the name plate is as follows:

#### POWER CONSUMPTION STAR LABEL – ELECTRICAL PUMPS (Fig.1)

		<b>Performance factor:</b>		<b>Overall Efficiency of the pumpset*:</b> _____ %		 BEE/XXX/XXX/XX	
<b>Label Period : 1<sup>st</sup>February 2020 – 31<sup>st</sup> January 2023</b>							
<b>Submersible/openwell/monoset Pump</b>		<b>Brand: XXXX</b>				<b>Min. Sub. : m</b>	
<b>Type</b>		<b>Model / Year :</b>		<b>Rated Power :</b> kW/ HP			
<b>Del. Size : mm</b>		<b>Head : m</b>	<b>Dis. : lps</b>	<b>Operating Head Range : m</b>			
<b>Max. Current : A</b>		<b>Speed : RPM</b>		<b>CONN.</b>		<b>No. of Stages :</b>	
<b>Min. Bore Size: mm</b>		_____ V, _____ PH, 50 Hz, Duty-S1, Category-AB				<b>S. No. :</b>	
<small>* Under test conditions when tested in accordance with IS : 8034, the actual energy consumption will depend on how the equipment is being used.</small>							

**Fig: 1**

**\*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 in 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)-239o 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)-150o 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

**i. Fees**

a. Application fee is payable on application for authority to affix labels is INR 2000/- (Rupees two thousand only)

b. Renewal/Degradation fee is payable on application for renewal/degradation to affix labels is INR 1000/- (Rupees one thousand only)

c. 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)

**j. Tolerances**

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