

Technical Committee Recommendations for S & L - Agricultural Pump Set

1. Products range covered:

Sl. No.	Product detail Electrical pumps	Range kW	No. of Poles	Discharge range at duty point in LPS	Applicable IS
1.	3 Phase Mono-bloc	2.2 kW, 3.7 kW & 5.5 kW	2 Pole	5 to 14	IS 9079
2,	3 Phase submersible pump set for 150mm (6") bore wells	3.7 kW, 4.5 kW, 5.5 kW & 7.5 kW	4 Pole	3 to 6	IS 8034
3.	3 Phase submersible pump set for 200mm (8") bore wells	3.7 kW, 4.5 kW, 5.5 kW & 7.5 kW	4 Pole	6 to 15	IS 8034
4.	3 Phase open well submersible pump sets	2.2 kW, 3.7 kW & 5.5 kW	4 Pole	6 to 15	IS 14220

2. Test procedure

The testing code and procedure for agricultural pump sets would be as per IS 11346.

3. Efficiency values

The committee have finalised the efficiency values and curves for the same have been plotted.

4. Qualifications

The products should conform to minimum requirements of relevant BIS (ISI) specifications to participate in BEE S&L Programme.

BIS product certification is a pre requisite to participate in BEE S&L Programme. Alternatively, Quality Certification such as ISO -9000 and above may be treated in par with BIS certification as prequalification.

5. Sampling Plan

For Mono-block Pumps:	Any two kW rating (one sample per KW rating)
For open well submersible Pumps:	One sample per rating or minimum 2 samples.
For bore well Submersible Pumps:	One sample per rating or minimum 2 samples.

It was also agreed that one sample would be drawn and tested in the NABL accredited laboratory for labelling purposes. As recourse, in the event the manufacturer is not satisfied with the efficiency rating, the manufacturer can opt for testing two more samples and both the samples should now comply with the efficiency ratings. In the event any one sample out of the two samples falls into a lower efficiency rating, then the lower efficiency rating would be allocated.

6. Tolerance limits

No negative tolerances for efficiency levels of agricultural pump sets.

It was also agreed that the efficiency figures for Wide voltage variation motors, motors are nominal values and the tolerance limits of test values should be as per relevant IS specification.

7. Approved laboratories:

The approved NABL accredited test facilities for BEE S & L testing are

- Small Industries' Testing and Research Centre, Coimbatore
- Electrical Research & Development Association (ERDA), Vadodhra
- National Test House, Calcutta

8. Contents of Label

Since the agricultural pump set consumers represents the general public, it was decided to use star marking in the label.

The contents of the label with dimensions and technical details have been frozen.

9. Certification Testing

Parameters for initial testing approved by the committee are the type test parameters set out in the relevant IS standards.

10. Challenge Testing Protocol

Protocol for initial, challenge and check testing of motors under S&L Programme have been discussed in the appropriate committees.

PENDING TASK:

1. The standard normally provides for declaring efficiency at BEP, which represents the maximum achievable pump efficiency. When the operating head is different than head at BEP, the pump efficiency is lower than the declared efficiency. For well designed pumps such fall in efficiency can be small, i.e. the efficiency curve is flat in relation to variation in total head. The committee is looking into the above aspect for reflecting the same in the star rating plan.
2. Change in efficiency with change in suction head:

Pump efficiency also deteriorates at high suction heads. The maximum suction head of a pump depends on its 'Net Positive Suction Head' (NPSH) characteristics. When suction head approaches the maximum suction head, the pump efficiency can dramatically fall. The maximum suction head of ill designed pumps can be substantially lower than that of the well designed pumps. For open dug wells, the change in water level (and hence the suction head) can frequently be 3 to 4 meters. The change in efficiency for two pumps, having same efficiency, with change in suction head could be to a level of 15% extra power consumption. The committee is looking into the above aspect for reflecting the same in the star rating plan.
3. Although the laboratories approved by NABL have been identified, after the label regulation is notified, recognition of laboratories would be done as per the regulation.
4. All other activities are complete in respect of labelling programme for motors.