



उत्पाद मैनुअल
भा . मा . 8034: 2018 के अनुसार
निम्जनीय पम्पसेट के लिए
दस्तावेज़ संख्या-पी एम/आई एस 8034/4/जुलाई 2024

भारतीय मानक ब्यूरो की स्कीम-I (अनुरूपता मूल्यांकन) विनियम, 2018 के तहत यह उत्पाद मैनुअल प्रमाणीकरण के प्रचालन में रीति और पारिश्रिता की सुसंगतता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसी द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस प्रमाणीकरण लाइसेंस/प्रमाणपत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग किया जा सकता है।

PRODUCT MANUAL FOR
SUBMERSIBLE PUMPSETS
ACCORDING to IS 8034:2018

Document No.-PM/IS 8034/4/ July 2024

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

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1.	Product	:	IS 8034:2018
	Title	:	Submersible Pumpsets
	No. of Amendments	:	Two
2.	Sampling Guidelines:		
a)	Raw material	:	Materials for Components – Clause. 6.2 of IS 8034 Gaskets, Seals and Packings – Clause. 5.2 of IS 5120
b)	Grouping guidelines	:	Please refer <u>ANNEX – A.</u>
c)	Sample Size	:	One Pump set
3.	List of Test Equipment	:	Please refer <u>ANNEX – B</u>
4.	Scheme of Inspection and Testing	:	Please refer <u>ANNEX – C</u>
5.	Possible tests in a day	:	All tests
6.	Scope of the Licence	:	Please refer <u>ANNEX – D</u>

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ANNEX - A

Grouping Guidelines

1. The following guidelines shall be followed for grouping of Submersible Pumpsets as per IS 8034:2018 for GoL/CSoL:
 - (a) A 'series' may be defined as a group of pump sets having the same Head per Stage, Discharge, Bore Size, Delivery Size, Category, Type of Duty, No. of Phases, Rated Voltage, No. of Poles, Type of Cooling. Any change in these parameters will be treated as a different series.
 - (b) For assessing conformity of a particular series, pump set having the highest number of stages for every motor rating in a particular series shall be tested for all the requirements.
 - (c) In case the motors for submersible pump sets are ISI Marked, even then the same shall be tested since IS 8034 stipulates more stringent conditions with respect to temperature rise test.
 - (d) In case of extension of a particular series of pump sets already covered in the licence, samples shall be tested for all the requirements as per the above plan.
2. The Firm shall declare the varieties of submersible pump sets intended to be covered in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
3. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

ANNEX - B**List of Test Equipments****Major test equipment required to test as per the Indian Standard**

Sl. No.	Test Equipment	Tests used in with Clause Reference
1	Dial Vernier Calliper	<i>Clause. 7 of IS 9283</i>
2	Outside Micrometer 0 – 25 mm	
3	Outside Micrometer 25 – 50 mm	
4	Bore Gauge With Dial Gauge.	
5	Fixture for run-out concentricity & face run-out	
6	Dial Indicator (Lever Type Dial)	
7	Dynamic Balance Machine	<i>Clause. 8.5</i>
8	Auto Transformer	<i>Clause. 16.1 (d, f, g, h, j, k) of IS 9283 & 11 of IS 8034</i>
9	High Voltage Tester	<i>Clause. 16.1 (b) of IS 9283</i>
10	Thermocouple/Thermometer	<i>Clause. 9.5</i>
11	Insulation Tester	<i>Clause. 16.1 (a) of IS 9283</i>
12	Torque Testing Set up with Spring Balance	<i>Clause. 16.2 (d) of IS 9283</i>
13	Hydrostatic Test unit	<i>Clause. 9.1 & 9.2 of IS 11346</i>
14	Pressure Gauge	
15	Digital Flow Meter	<i>Clause. 11</i>
16	Digital Flow Meter	
17	Multi Meter	
18	Tachometer	
19	Digital Power Panel	
20	Surface Roughness Comparator	<i>Clause. 5.5 of IS 9283 & Clause 8.4 of IS 8034</i>
21	Measuring tape	<i>Clause 11 of IS 8034</i>
22	Water Sump	

The above list is indicative only and may not be treated as exhaustive.

ANNEX C

Scheme of Inspection and Testing

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit i.e. Batch and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4 below.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 **Levels of Control:** For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.2 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in-house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer, and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in-house as “R” or other tests which can be sub-contracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as “R” in Column 2 of Table 1) also is optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. LABELLING AND MARKING – As per the requirement of IS 8034:2018. The Standard Mark, as given in the Schedule of the licence, shall be marked on each Pump provided always that the product thus marked conforms to all the requirement of the specification. In addition, the licence no. CM/L-_____ and details of BIS website shall be marked at an appropriate place on product or package as follows: “For details of BIS certification please visit www.bis.gov.in”.

4. REJECTION - All the production which conforms to the Indian Standard and covered under scope of the licence shall be marked with Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016

Table 1

Table 1

(1)				(2)	(3)		
Test Details				Test equipment requirement	Levels of Control		
Cl.	Requirement	Test Methods		R: required (or) S: Sub-contracting permitted	No. of Sample	Frequency	Remarks
		Clause	Reference				
6	Material of Construction	6.2	IS 8034	S	One	Each consignment	Conformity to the relevant Indian Standard may be established
	Gaskets, Seals and Packings	5.2	IS 5120				
8	GENERAL REQUIREMENTS						
8.1	General Requirements	17	IS 5120	R	Manufacturer shall exercise adequate levels of control to ensure that entire production should conform to the Standard. Appropriate records of testing indicating conformity shall be maintained		
8.2	Casing	10.3	IS 8034	R	Every Pump Casing		
8.4	Shaft	8.4.2	IS 8034	S	One shaft from each consignment for each size, subject to number of shafts not exceeding 100		If more than 100 shafts are received in one consignment then one more sample per each 100 shafts to be tested

8.5	Balancing	8.5	IS 8034	S	One Rotor/ Impeller from each consignment for each size, subject to number of Rotors/ Impellers not exceeding 100	If more than 100 Rotor/ Impeller are received in one consignment then one more sample per each 100 Rotors/ Impellers to be tested
8.6	Cable	8.6	IS 8034 IS 694	S	Cable shall be ISI Marked.	
8.7	Direction of Rotation	8.7	IS 8034	R	Manufacturer shall exercise adequate levels of control to ensure that entire production should conform to the Standard. Appropriate records of testing indicating conformity shall be maintained	
8.8	Terminal Marking	8.8	IS 8034	R		
8.9.4	Provision for Earthing	8.9.4	IS 8034	R	Every motor	
9	TEST FOR ELECTRICAL PERFORMANCE ON SUBMERSIBLE MOTOR					
9.9	ROUTINE TEST					
	Insulation resistance Test (Before high voltage test only)	9.2	IS 8034	R	Every Motor	No further testing is required, if motor is ISI marked.
	High Voltage Test	9.3	IS 8034			
	No load running of motor and reading of current, voltage, power and speed		IS 9283			

	Locked rotor reading of voltage, current and power		IS 9283	R	Every Motor	No further testing is required, if motor is ISI marked.
9.10	TYPE TEST					
	Insulation resistance Test (Both before and after the high voltage test)	9.2	IS 8034	S	Once in a month for each type and design	
	High Voltage Test	9.3	IS 8034			
	Measurement of stator resistance		IS 9283			
	Reduced Voltage Test					
	Locked rotor reading of voltage, current and power and torque of motors					
	Breakaway (starting) torque	9.7	IS 8034			

	Leakage Current Test at rated voltage at no load	9.4	IS 8034	S	Once in a month for each type and design	
	Temperature rise test at rated voltage	9.5	IS 8034	S		
	Temperature rise test at reduced voltage	9.5	IS 8034	S		
	Momentary over-load Test		IS 9283	As per agreement between the manufacturer and purchaser.		
7	Design Features	7	IS 8034	S	Once in a month for each type and design	
10	Testing for Hydraulic Performance on Pump for Monoset	10.2	IS 8034			
11	Guarantee and Tolerance on Pumpset Performance	11	IS 8034	S	Once in a month for each type and design	

ANNEX-D**SCOPE OF LICENCE**

Name of the product : Submersible Pump sets													
Model	Size (mm)		No. of Stages	Nominal Duty Point			Type of Motor: Category of Motor: Type of Duty: Rated Frequency:						Head Range (m)
	Bore	Delivery		Head (m)	Discharge (lps)	Overall Efficiency (%)	Rated Speed (rpm)	Rating (kW)	Maximum Current (A)	Winding Connection	No. of Phases	Rated Voltage (V)	