



**PRODUCT MANUAL FOR
CENTRIFUGAL JET PUMP
ACCORDING to IS 12225:1997**

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.

1.	Product	:	IS 12225:1997
	Title	:	CENTRIFUGAL JET PUMP
	No. of Amendments	:	2
2.	Sampling Guidelines:		
a)	Raw material	:	As per clause 6 of IS 12225
b)	Grouping guidelines	:	Each Type of Centrifugal Jet Pump shall be tested for GoL/CSoL.
c)	Sample Size	:	One Pump and Jet Assembly
3.	List of Test Equipment	:	Please refer ANNEX – A
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – B
5.	Possible tests in a day	:	All tests
6.	Scope of the Licence	:	Please refer ANNEX – C

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ANNEX - AList 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.	Insulation Resistance Tester	Tests as per Clause 5.2, 9.1 and 9.2
2.	High Voltage Tester	
3.	Digital Ohm Meter	
4.	Voltmeter	
5.	Ammeter	
6.	Watt Meter	
7.	Digital Frequency Meter	
8.	Current Transformer	
9.	Digital Tacho Meter	
10.	Thermometer	
11.	Pressure Gauge	
12.	Stop Watch	
13.	a) Torque Test Bench with Brake drum/ Lever Arm b) Spring Balance	
14.	Pipes for Testing	Tests as per Clause 9.1 and 9.2
15.	Sump tank	
16.	Flow Meter/ Volumetric tank	
17.	Hydro Static Pressure Test Set-up	Tests as per Clause 9.3
18.	Dynamic Balancing Machine	Tests as per Clause 5.2
19.	Orifice Plate	Tests as per Clause 9.1 and 9.2

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

ANNEX B

Scheme of Inspection and Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipment.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING AND MARKING – As per the requirements of IS 12225:1997.

4. LEVELS OF CONTROL - The tests as indicated in column 1 of [Table 1](#) and the levels of control in column 3 of [Table 1](#), shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

4.1 All the production which conforms to the Indian Standard and covered by the licence should be marked with Standard Mark.

5. REJECTIONS – 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

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
6	Materials of construction	6	IS 12225	Conformity to the relevant Indian Standard may be established.			
5.1	Constructional features of Centrifugal Pumps	5.1	IS 12225	Conformity to the relevant Indian Standard may be established.			
5.2	PRIME MOVERS						
5.2.1	Motor Drive (Monoset)						
	ROUTINE TEST						
	High Voltage Test	11.3	IS 9079	R		Each motor	No further testing required, if motor is ISI marked.
	Insulation resistance Test	11.2	IS 9079	R			
	Test for no load current and power input at rated voltage and supply frequency	11.7 (c)	IS 9079	R			
	Locked rotor test for locked rotor current, power input at suitable voltage and supply frequency	11.5	IS 9079	R			
	Reduced voltage running up test	11.7(e)	IS 9079	R			

TYPE TEST						
Measurement of stator winding resistance	11.8.1(a)	IS 9079	R	One Sample of each Identical design and type. (Out of every 100 motors or every month, whichever is earlier)	—	Temperature rise test shall be conducted at the maximum current in the operating DLWL range. Temperature rise test at rated voltage and reduced voltage to be carried out on same Sample.
High Voltage Test	11.3	IS 9079	R			
Insulation resistance Test	11.2	IS 9079	R			
Breakaway (starting) torque	11.5	IS 9079	R			
Temperature rise test at rated voltage	11.4.1.1	IS 9079	R			
Temperature rise test at reduced voltage	11.4.1.2	IS 9079	R			
5.2.2 Prime Mover Engine Drive (Monoset)						
Critical Components	As per approved drawings	IS 10001/ IS 11170/ IS 7347	R	Please see note 1	No further testing is required, if accompanied with the Test Certificate or ISI Marked.	
Other Components			R	Each Flywheel		
Flywheel Size and weight						
Routine Test Fuel Consumption Test, Output Power and Governing Test		IS 10001/ IS 11170/ IS 7347	R	Each Engine		

	Performance Test 12 h rating test , Fuel Consumption Test and Governing Test			R	One Sample of each Identical design and type. (Out of every 100 engines or every month, whichever is earlier)	—
	Type Test			R	One engine of each type/ design in a year	Whenever there is a functional change in type/design of the engine or functional change in design of critical component, one engine from same model to be tested
5.2.3	Prime mover Coupled and belt driven	—	—	S	—	Calibrated prime mover shall be used for testing.
8	Performance Test	9.1 and 9.2	IS 12225	As per sampling plan given at Note 2.		
9.3	Pressure test	9.3	IS 12225		Each Pump, Casting and Jet unit	—

NOTE-1: (a) 100 % (as far as possible) for critical dimensions.

(b) Single Sampling method with an AQL between 1% to 4% for non-critical dimensions of critical components and other components.

NOTE-2:

No. of Pumps produced in a fortnight of same size and type and rating	No. of pumps to be tested	Acceptance No.
up to 100	5	0
101 to 150	8	0
151 to 300	13	0
301 to 500	20	0
501 to 1001	32	1
1001 and above	50	1

NOTE-3: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

NOTE-4: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.

ANNEX-C

SCOPE OF LICENCE

Name of the product : Centrifugal Jet Pump									Motor Type: No. of Phases : No. of poles: Rated Frequency (Hz): Rated Voltage (V): Type of Duty: Class of Insulation: Maximum Current (A):				
Model	Size (mm)	Type of Jet	Total Head (m)	Discharge (lph)	Rated Speed (rpm)	DLWL (m)	DLWL Range (m)	Power Input (kW)	Submergence at duty point(m)	Minimum Bore Size (mm)	Motor Rating/ Prime Mover Rating (kW)	Minimum Operating Pressure (kg/cm ²)	Starting Torque