



PRODUCT MANUAL FOR HAND, MECHANICAL ACCORDING TO IS 11708: 1986

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 11708: 1986
	Title	:	Hand, Mechanical
	No. of Amendments	:	4
2.	Sampling Guidelines:		
a)	Raw material	:	As per Cl.3 of IS 11708: 1986
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	One
3.	List of Test Equipment	:	Please refer ANNEX – B
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	Possible tests in a day	:	All tests
6.	Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 11708: 1986 with the following scope:		
	Name of the product	Mechanical Hand	
	Type		
	Size		

ANNEX A**Grouping Guidelines**

1 Mechanical Hands as per IS 11708 are classified based on the following:

Type	Size
Functional hand with movable three fingers chuck grip (thumb, index and middle fingers)	<ul style="list-style-type: none"> • Size I (Small) • Size II (Large)
Functional hand with movable all fingers clasp grip (thumb and all fingers).	
Functional hand with movable thumb (a) Pinch type, and (b) Grasp type	

2. Considering the above, sample of higher size from the sizes intended to be covered in the licence, for each type of Mechanical Hands shall be tested to cover all sizes for that particular type of Hand.

3. For Functional hand with movable thumb, both the sub-types (Pinch type/ Grasp type) shall be tested separately.

4. The Firm shall declare the varieties of various Mechanical Hands they intend to cover in the Licence. The Scope of Licence may be restricted based on the manufacturing and testing capabilities of the manufacturer.

4. During 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 Equipment***Major test equipment required to test as per the Indian Standard*

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Dimensions, Cl. 2, Table 1	Steel Scale, Dial Vernier Caliper, Digital Vernier Caliper, Ball Point Micro Meter, Outside Micro Meter, Inside Micro Meter
2.	Functional requirements, Cl. 4	Cylinder, Cylindrical object, Spring
3.	Construction requirements, Cl. 5	Weighing balance, Thred gauge
4.	Workmanship and finish, Cl. 6	Test equipment, chemicals as per IS 1868, as applicable Test equipment, chemicals as per IS 1068, as applicable
5.	Cycle test, Cl. 7.1	Cycle test bench
6.	Load test, Cl. 7.2	Hook grasp with weights, 5 Kg and 10 Kg

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

ANNEX C

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 equipments.

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

3. LABELLING AND MARKING – As per the requirement of IS 11708:1986.

4. CONTROL UNIT – All the mechanical hands of the same type and size manufactured from the same raw material in a day shall constitute a control unit.

5. 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.

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

6. 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 Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
3	Material	Cl. 3,	IS 11708	S	One	Each consignment	No further testing is required if accompanied with test certificate or ISI marked.
2	Dimensions	Cl. 2, Table 1	IS 11708	R	Each hand		Any hand not meeting the requirement shall not be marked and shall be rejected.
4	Functional requirements	Cl.4	IS 11708	R	Each hand		-
5	Constructional Requirements	Cl. 5	IS 11708	R	Each hand		-
6	Workmanship and Finish (Visual)	Cl.6.1	IS 11708	-	Each hand		-
	Finish (Other requirements)	Cl.6.2, Cl. 6.3	IS 11708	R	One	From each batch of material finished together	
7	Cycle test	Cl. 7.1	IS 11708	R	One	Every 30th control unit	If any sample fails, two more samples to be tested. The control unit shall be accepted only if both the samples pass.
	Load test	Cl. 7.2	IS 11708	R	One	Every control unit	

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: 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.