



**PRODUCT MANUAL
FOR
HAND-OPERATED UNIVERSAL GEARLESS PULLING AND
LIFTING MACHINES
ACCORDING TO IS 5604:1984**

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 5604: 1984
	Title	:	Hand operated Universal Gearless Pulling and Lifting Machines
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	As per Cl 3 of IS 5604:1984 Bearings as per Cl. 5.4 of IS 5604: 1984
b)	Grouping guidelines	:	Please refer ANNEX-A
c)	Sample Size	:	2 Machines
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:		
	(i) Proof loading (Clause 9.1) (ii) Operational test (Clause 9.2) (iii) Break Load Testing (Clause 9.3) (iv) Examination (Clause 9.4)		
6.	Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 5604: 1984 with the following scope:		
	Name of the product	Hand-Operated Universal Gearless Pulling and Lifting Machine	
	Lifting capacity of machine in Tonnes		

ANNEX A

Grouping Guidelines

1. IS 5604: 19884 covers Hand-Operated Universal Gearless Pulling and Lifting Machines with the following lifting capacities:
0.8 T, 1 T, 1.6 T, 2 T, 3.2T, 5 T
2. One sample of machine with highest lifting capacity shall be tested to cover all the machines with capacities up to and including the capacity tested.
3. The Firm shall declare the varieties of machines 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 the operation of the Licence, BO shall ensure that all the capacities 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.	Proof Load test (Clause 9.1)	Load cell of desired capacity
2.	Operational test (Clause 9.2)	Load cell of desired capacity
3.	Break load Testing(Clause 9.3)	Load testing machine
4.	Other Dimensional measurements (Clause 5.5,2.4,8.1,3.2,3, 5.6)	a)Steel tape(CI 5.5) b)Steel scale(CI 5.5) c)Spring balance (CI 2.4 & 8.1) d)Vernier calliper (CI 5.5) e)Vernier height gauge(CI 3.2) f)Dial Bore guage(CI 3) g)Digital temperature controller(CI 5.6) h)External micrometer(CI 3) i)Dial indicator(CI 3) j)Digimatic Calliper(CI 3) k)Rockwell hardness testing machine(CI 5.6)

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 requirements of IS 5604:1984.

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 Standards 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-Contacting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of samples	Frequency	Remarks
		Clause	Reference				
3	MATERIAL						
	Steel Bars, plates and sections	3.1	IS 5604 IS 2062	S	One	Each consignment	No further testing is required if accompanied with test certificate or ISI marked.
	Steel forgings	3.1	IS 5604 IS 2004 IS 2611 IS 4367	S			
	Aluminium and Aluminum alloys	3.1	IS 5604 IS 617	S			
	Coil springs	3.1	IS 5604 IS 4454 (Pt 1)	S			
	Hooks	3.1	IS 15560	S			

	Wire ropes	3.1	IS 2266	S	One	Each consignment	No further testing is required if accompanied with test certificate or ISI marked.
	Jaws	3.2	IS 5604	S			
5	CONSTRUCTION and WORKMANSHIP						
5.1	Machine	5.1	IS 5604	R	Each unit, as applicable		One out of every 50 machines produced shall be checked for its factor of safety
5.4	Bearings						
5.4.1	Ball and Roller Bearings		IS 5669 IS 5692	S	5 bearings	Each Consignment	No further testing is required if accompanied with test certificate or ISI marked.
5.4.2	Plain bearing	5.4.2	IS 3832	S	5 bearings	Each Consignment	
5.5	Wire Rope		IS 2266	S	One	Each consignment	
5.6	Heat treatment	5.6	IS 5604	R	All components		
5.7	Rust prevention	5.7	IS 5604	R	All steel components		
7.4	Back slippage	7.4	IS 5604	R	Each machine		
9	TESTS						
9.1	Proof loading	9.1	IS 5604	R	Each Machine		

9.2	Operational test	9.2	IS 5604	R	Each machine	
9.3	Break load test	9.3	IS 5604	S	One	To be done if desired by the purchaser The test shall be conducted at the time of initial approval of the machine or when there is a change in the material or design of the components of the machine.
9.4	Examination	9.4	IS 5604	R	Each machine	

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

Note-2: The control unit and levels of control as decided by the Bureau are obligatory, to which the licensee shall comply with.