



**PRODUCT MANUAL FOR  
SHOVELS (GENERAL PURPOSE SHOVELS  
AND HEAT-TREATED SHOVELS)  
ACCORDING TO IS 274 (Parts I and II):1981**

*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.	<b>Product</b>	:	IS 274 (Parts I and II):1981
	<b>Title</b>	:	General Purpose Shovels – Part I Heat-Treated Shovels - Part II
	<b>No. of Amendments</b>	:	3
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	As per Clause 4 of the respective Part of IS 274
b)	<b>Grouping guidelines</b>	:	Please refer ANNEX - A
c)	<b>Sample Size</b>	:	Mechanical testing- 5 Pieces Chemical testing- 1 Pieces or 50g Drillings
3.	<b>List of Test Equipment</b>	:	Please refer ANNEX – B
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer ANNEX – C
5.	<b>Possible tests in a day :</b>		
	All tests (as per the respective Parts of IS 274)		
6.	<b>Scope of the Licence :</b>		
	“Licence is granted to use Standard Mark as per IS 274 (Parts I and II):1981 with the following scope:		
	Name of the product	General Purpose Shovel/ Heat-Treated Shovel	
	Type		
	Mass		

**ANNEX A****Grouping Guidelines****Part 1: General Purpose Shovels**

1. General Purpose Shovels as per Part 1 of IS 274 are classified into the following types:

<b>Type</b>	<b>Nominal Mass of Blade (kg)</b>
Square Nose Shovel	1.8, 2
Round Nose Shovel	1.6

2. For considering GoL/CSoL, separate samples of each type shall be tested to cover shovels of all Nominal mass of Blade of that particular type.
3. The Firm shall declare the varieties of Shovels 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.

**Part 2: Heat - Treated Shovels**

1. Heat - Treated Shovels as per Part 2 of IS 274 are classified into the following types:

<b>Type</b>	<b>Nominal Mass of Blade (kg)</b>
Square Nose Shovel	1.8, 2
Round Nose Shovel	1.6
Long Blade Firing Shovel	2
Short Blade Firing Shovel	1.25, 1.5

2. For considering GoL/CSoL, separate samples of each type shall be tested to cover shovels of all Nominal mass of Blade of that particular type.
3. The Firm shall declare the varieties of Shovels 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***General Purpose Shovels according to IS 274 (Part I)**

<b>Sl. No.</b>	<b>Tests used in with Clause Reference</b>	<b>Test Equipment</b>
1.	Shapes and Dimensions (Clause 5.1 and 5.2, Table 1 and 2)	Vernier Calliper , Steel Scale, Height Gauge, Micrometre Measuring Tape, Angle Protractor
2.	Mass (Clause 7)	Weighing Balance
3.	Bending test (Clause 14.2)	Arrangement for Bending test as per Fig 2 Load range of 50 kg approx. Scale at extreme end of shovel handle of 100 mm Stop watch
4.	Flexing test (Clause 14.3)	Arrangement for Flexing test as per Fig 3, Vernier Calliper Angle Protractor

**Heat- Treated Shovels according to IS 274 (Part II)**

<b>Sl. No.</b>	<b>Tests used in with Clause Reference</b>	<b>Test Equipment</b>
1.	Shapes and Dimensions (Clause 5, Table 1 and 2)	Vernier Calliper , Steel Scale, Height Gauge, Micrometre, Measuring Tape, Angle Protractor
2.	Mass (Clause 7)	Weighing Balance
3.	Bending test (Clause 15.2)	Arrangement for Bending test as per Fig 2 of Part I Load range of 50 kg approx. Scale at extreme end of shovel handle of 13 mm Stop watch
4.	Flexing test (Clause 15.3)	Arrangement for Flexing test as per Fig 3 of Part I Vernier Calliper, Angle Protractor
5.	Hardness (Clause 9)	Hardness Tester.

*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 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 requirement of IS 274 (Parts I and II).

**4. CONTROL UNIT**

- a. General Purpose Shovels of one type and nominal mass of blade produced in one day shall constitute a control unit.
- b. Heat- Treated Shovels of one type and nominal mass of blade produced in one day shall constitute a control unit.

**5. LEVELS OF CONTROL** - The tests as indicated in column 1 of Table 1A and Table 1B and the levels of control in column 3 of Table 1A and Table 1B, 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 1A****General Purpose Shovels according to IS 274(Part I)**

(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				
4.1	Blade Material	4.1	IS 274(Part I)	S	One	Each Consignment	No further testing is required if accompanied with the Test Certificate or ISI marked
4.2	Rivets, Pins, Clasps and Crutches	4.2	IS 274(Part I)	S	One	Each Consignment	
9	Handles	9.2	IS 274(Part I)	S	One	Each Consignment	
		9.3		-	One	Each control unit	-
5	Shapes and Dimensions	5 & Table 1 and Table 2	IS 274(Part I)	R	2%	Each control unit	-
7	Mass	7	IS 274(Part I)	R	One blade	Each hour production	-
8	Manufacture	8	IS 274(Part I)	R	One blade	Each hour production	-
11	Workmanship and Finish	11	IS 274(Part I)	-	Each Blade	Each Blade	-
12	Preservative treatment	12	IS 274(Part I)	-	Each Shovel	Each Shovel	-
14.2	Bending test	14.2	IS 274(Part I)	R	Five Blade	Each control unit	If any sample fails, retesting shall be done as per clause 14.4
14.3	Flexing test	14.3	IS 274(Part I)	R	Five Blade	Each control unit	If any sample fails, retesting shall be done as per clause 14.4

**TABLE 1B****Heat - Treated Shovels according to IS 274(Part II)**

(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				
4.1	Blade Material	4.1	IS 274(Part I)	S	One	Each Consignment	No further testing is required if accompanied with the Test Certificate or ISI marked
4.2	Rivets, Pins, Clasps and Crutches	4.2	IS 274(Part I)	S	One	Each Consignment	
10	Handles	9.2	IS 274(Part I)	S	One	Each Consignment	
		9.3		-	One	Each control unit	-
5	Shapes and Dimensions	5 & Table 1 and Table 2	IS 274(Part I)	R	2%	Each control unit	-
7	Mass	7	IS 274(Part I)	R	One blade	Each hour production	-
8	Manufacture	8	IS 274(Part I)	R	One blade	Each hour production	-
9	Hardness	9	IS 274(Part I)	R	Five Blade	Each control unit	-
12	Workmanship and Finish	11	IS 274(Part I)	-	Each Blade	Each Blade	-
13	Preservative treatment	12	IS 274(Part I)	-	Each Shovel	Each Shovel	-
15.2	Bending test	14.2	IS 274(Part I)	R	Five Blade	Each control unit	If any sample fails, retesting shall be done as per clause 15.4
15.3	Flexing test	14.3	IS 274(Part I)	R	Five Blade	Each control unit	If any sample fails, retesting shall be done as per clause 15.4

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.