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भारतीय मानक मसौदा

खानों में प्रयुक्त खुरचनी — विशिष्टि

(आई एस 10202 का पहला पुनरीक्षण)

Draft Indian Standard

SCRAPERS USED IN MINES — SPECIFICATION

(First Revision of IS 10202)

ICS 73.100.01

**Mining Techniques and Equipment
Sectional Committee, MED 08**

**Last date for receipt of
comments is 24 February 2023**

FOREWORD

(Formal clause to be added later)

This standard was first published in 1982. This standard is being revised again to keep pace with the latest technological developments and international practices. In this revision, the following major changes have been made:

1. A reference clause has been added mentioning the latest version of all the referred standards.
2. Editorial corrections have been done.

The relevant SI units and corresponding conversion factors are given below for guidance:

$1 \text{ kgf/cm}^2 = 98.066 \text{ 5 kPa (kilopascal) = 10 m of Water column (WC)}$

$= 0.098 \text{ 066 5 MPa (Megapascal)}$

$= 0.980 \text{ 665 bar}$

$1 \text{ Pa} = 1 \text{ N/m}^2$

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded-off value should be the same as that of the specified value in this standard.

1 SCOPE

This standard covers the requirements for scrapers used in mines for loading loosened rock onto the conveyor system.

2 REFERENCE

The standard listed below contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated were valid. All standards are subject to revision and parties to the agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
1570 (Part 6) : 1996	Schedules for wrought steels: Part 6 carbon and alloy tool steels (<i>first revision</i>)

3 GRADES

3.1 Light Grade

Suitable for rock of bulk density less than 2 t/m³ and having ratio of 2.5 or more between the width of scraper and the maximum size of rock to be handled by the scraper.

3.2 Heavy Grade

Suitable for rock of bulk density more than 2 t/m³ and having a ratio of less than 2.5 between the width of scraper and maximum size of rock to be handled by the scraper.

4 TYPES, MAIN PARAMETERS AND DIMENSIONS

As specified in Table 1.

5 DESIGNATION

A light grade paddle type scraper of rigid, multi-sectional construction with a theoretical capacity of 1.00 m³ shall be designated as:

Scraper, Light/PRM 1.00 IS 10202

NOTE — Letters 'P' 'B' and 'S' shall be employed to indicate paddle, box and scoop-type scrapers and letters 'R' and 'A' shall be used to indicate rigid and articulated construction. Letter 'M' shall be used only if multi-sectional construction is desired.

6 GENERAL REQUIREMENTS

6.1 The design of the scraper shall ensure quick assembling or dismantling under actual mining conditions.

6.2 The design of scraper shall permit rapid changing of the detachable cutting edges, if used, under actual mining conditions.

6.3 The detachable cutting edges, if used, shall be manufactured from wear-resistant steel conforming to IS 1570 (Part 6).

6.4 Before assembling, the seating surfaces of the components of the scrapers shall be cleaned.

6.5 Scrapers shall be supplied in assembled conditions. Scrapers of capacity greater than 0.4 m³ may be supplied in dismantled condition, if required by purchaser.

6.6 An instruction manual shall be supplied with each scraper which shall lay down the Instructions for use, proper maintenance, spare parts lists and other relevant information.

7 MARKING

7.1 Each scraper shall be marked with manufacturer's name or trade-mark or identification mark, year and month of manufacture and the designation of the scraper.

7.2 BIS Certification Marking.

The scrapers may also be marked with the Standard Mark.

7.2.1 The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the standard mark.

Table 1 Type, Main Parameters and Dimensions of Scrapers

(Clause 4)

Sl No.	Type	Construction	Theoretical Capacity <i>Min</i> m ³	No. of Section	Overall Dimensions, Max mm				Mass <i>Max</i> kg		Angle of Introduction in Degrees
					Length	Width	Height		Light Grade	Heavy Grade	
							Under operating condition	Under No load			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
i)	Paddle	Single section, Rigid	0.10	1	950	710	400	400	85	160	45°, 60°
ii)			0.16	1	1 250	850	500	500	160	265	
iii)			0.25	1	1 400	950	560	560	265	400	
iv)			0.40	1	1 700	1 120	670	670	400	500	
v)			0.60	1	2 000	1 250	800	800	500	800	
vi)			1.00	1	2 360	1 500	900	900	800	1 180	
vii)			1.60	1	2 650	1 700	1 060	1 060	1 180	1 600	
viii)			2.50	1	3 000	1 900	1 250	1 250	1 600	2 120	
ix)			4.00	1	3 550	2 240	2 120	1 500	2 120	3 000	
x)		Single section, Articulated collapsible	0.25	1	1 700	950	500	265	400	560	
xi)			0.40	1	2 000	1 120	670	360	560	800	
xii)			0.60	1	2 360	1 250	800	450	800	1 180	
xiii)			1.00	1	2 650	1 500	900	500	1 180	1 600	
xiv)			1.60	1	3 000	1 700	1 060	670	1 600	2 120	
xv)			2.50	1	3 550	1 800	1 250	800	2 120	3 000	
xvi)		Multi-sectional, Rigid	0.60	2	2 650	950	500	500	800	—	30°, 45°
xvii)			1.00	2	4 500	1 120	670	670	1 180	—	
xviii)			1.60	3	5 600	1 120	670	670	1 600	—	
xix)		Box		0.16	1	800	710	360	360	85	160

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xx)		Single section, Rigid	0.25	1	950	850	400	400	160	265	30°, 45°
xxi)			0.40	1	1 120	950	450	450	265	400	
xxii)			0.60	1	1 400	1 120	500	500	400	560	
xxiii)			1.00	1	1 700	1 250	500	500	560	800	
xxiv)			1.60	1	2 000	1 500	630	630	830	1 180	
			2.50	1	2 360	1 700	710	710	1 180	1 600	
xxv)	Scoop*	Single section, Rigid	0.16	1	—	—	—	—	—	—	—
xxvi)			0.25	1	—	—	—	—	—	—	
xxvii)			0.40	1	—	—	—	—	—	—	
xxviii)			1.00	1	—	—	—	—	—	—	
NOTE — * The dimensions, mass and angle of introduction for scoop-type scrapers will be included at a later date.											