IS 9376 (1979): Specification for apparatus for measuring aggregate crushing value and ten percent fines value [CED 2: Cement and Concrete]

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Indian Standard

SPECIFICATION FOR APPARATUS FOR MEASURING AGGREGATE CRUSHING VALUE AND TEN PERCENT FINES VALUE

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BUREAU OF INDIAN STANDARDS
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Indian Standard

SPECIFICATION FOR APPARATUS FOR MEASURING AGGREGATE CRUSHING VALUE AND TEN PERCENT FINES VALUE

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Indian Standard

SPECIFICATION FOR APPARATUS FOR MEASURING AGGREGATE CRUSHING VALUE AND TEN PERCENT FINES VALUE

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 20 December 1979, after the draft finalized by the Cement and Concrete Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 The Indian Standards Institution has already published a series of standards on methods of testing cement and concrete. It has been recognized that reproducible and repeatable test results can be obtained only with standard testing equipment capable of giving the desired level of accuracy. The Sectional Committee has, therefore, decided to bring out a series of specifications covering the requirements of equipments used for testing cement and concrete, to encourage their development and manufacture in the country.

0.3 Accordingly, this standard has been prepared to cover the requirements of equipment used for measuring aggregate crushing value and ten percent fines value. The aggregate crushing value and the ten percent fines value give a relative measure of the resistance of an aggregate to crushing. The methods of measuring aggregate crushing value and ten percent fines value using the equipment covered in this standard have been specified in IS : 2386 (Part IV)-1963*.

0.4 In the formulation of this standard, due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

0.5 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 : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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*Methods of test for aggregates for concrete: Part IV Mechanical properties.
†Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard covers requirements of the apparatus for measuring aggregate crushing value and ten percent fines value.

1.1.1 Two sizes of apparatus are covered in this standard, one with 150 mm cylindrical cell and the other with 75 mm cylindrical cell.

2. APPARATUS

2.1 The apparatus shall consist of an open-ended cell with base plate and plunger, metal measure and tamping rod as described in Fig. 1.

3. MATERIALS

3.1 The material of construction of different parts of the apparatus, specified in **2** shall be as given in Table 1.

TABLE 1 MATERIAL OF CONSTRUCTION

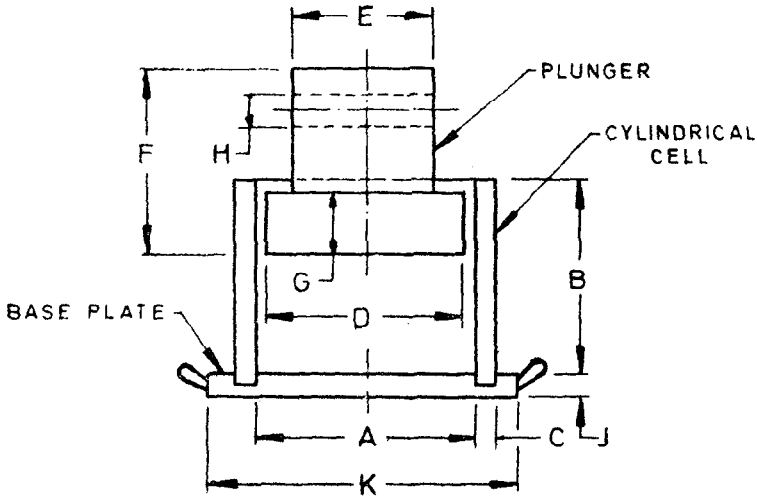
Sl No.	Part	Material	Special Requirements, if Any
(1)	(2)	(3)	(4)
i)	Cylindrical cell	Mild steel Case hardened or tempered tool steel	Hardness of inside surface shall not be less than 650 VH or equivalent
ii)	Base plate	do	do
iii)	Plunger	do	do
iv)	Tamping rod	do	do
v)	Metal measure	do	Shall have sufficient rigidity to retain its form under rough usage

4. DIMENSIONS

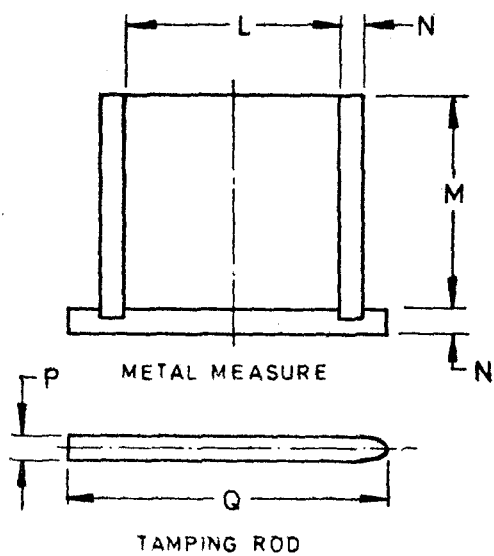
4.1 The dimensions with tolerances of the different parts (*see* **2.1**) for the two sizes of apparatus specified in **1.1.1** shall be as given in Table 2.

5. CONSTRUCTION

5.1 The cylindrical cell shall be open ende[illegible] plunger and base plate. The inside faces of the cell and the faces o[illegible] t[illegible] plungers and base plates which come in contact with aggregates shall be machined.



ASSEMBLY OF CYLINDRICAL CELL WITH BASE PLATE AND PLUNGER



NOTE — The symbols in the figures are described in Table 2.

FIG. 1 APPARATUS FOR MEASURING AGGREGATE CRUSHING VALUE AND TEN PERCENT FINES VALUE

5.1.1 The base plate shall be provided with a 1·5 mm groove to ensure proper seating of the cylindrical cell. The base plate shall also be provided with slant handles.

5.1.2 A scale with graduations in mm and 50 mm long shall be suitably attached to the stem of the plunger.

5.2 Metal measure shall be machined smooth inside.

5.3 The tamping rod shall be of circular cross section and rounded at one end.

TABLE 2 DIMENSIONS

(*Clause* 4.1, and *Fig.* 1)

Sl No.	Part	150 mm Cylindrical Cell	75 mm Cylindrical Cell
(1)	(2)	(3) mm	(4) mm
i)	*Cylindrical cell:*		
	a) Internal diameter *A*	150 ± 0·5	75 ± 0·5
	b) Height *B*	130 to 140	70 to 80
	c) Wall thickness *C*, *Min*	15	10
ii)	*Plunger:*		
	a) Diameter of piston *D*	148 ± 0·5	73 ± 0·5
	b) Diameter of stem *E*	100 to 145	50 to 70
	c) Height *F*	100 to 115	65 to 75
	d) Depth of piston *G**	25	20
	e) Diameter of hole *H**	20	10
iii)	*Base plate:*		
	a) Thickness *J*, *Min*	6	6
	b) Side length of square *K*†	200 to 230	110 to 115
iv)	*Tamping rod:*		
	a) Diameter *P**	16	8
	b) Length *Q*	450 to 600	300 to 350
v)	*Metal measure:*		
	a) Diameter *L*	115 ± 0·5	60 ± 0·5
	b) Height *M*	180 ± 0·5	90 ± 0·5
	c) Wall thickness *N*, *Min*	5	5

NOTE — The Italic Capital letters in col 2, succeeding the descriptions of dimensions specified in this Table correspond to those indicated in Fig. 1.

*Dimensions *G*, *H* and *P* are nominal.
†Dimension *K* is not critical.

6. MARKING

6.1 The following information shall be clearly and indelibly marked on each component of the apparatus in a way that it does not interfere with the performance of the apparatus:

a) Name of manufacturer or his registered trade-mark or both,
b) Date of manufacture, and
c) Size of apparatus.

6.2 BIS Certification Marking

The product may also be marked with Standard Mark.

6.2.1 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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