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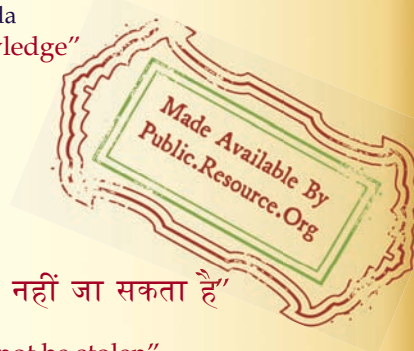
IS 2438 (1963): Specification for roller pan mixer [MED 18: Mechanical Engineering]



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(Reaffirmed 2009)

Indian Standard

SPECIFICATION FOR ROLLER PAN MIXER

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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Indian Standard

SPECIFICATION FOR ROLLER PAN MIXER

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Indian Standard

SPECIFICATION FOR ROLLER PAN MIXER

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 26 July 1963, after the draft finalized by the Construction Plant and Machinery Sectional Committee had been approved by the Building Division Council.

0.2 Roller pan mixers are commonly employed for mixing masonry mortars, and are particularly suited for mixing lime mortar where in addition to mixing, grinding and kneading is also required to achieve uniformity of mixing and workability. This standard is intended to deal with the essential features of this type of mixer to serve as guidance both for manufacturers and purchasers.

0.3 The Sectional Committee responsible for the preparation of this standard has taken into consideration the views of producers, consumers and technologists and has related the standard to the manufacturing and trade practices followed in the country in this field. Due weightage has also been given to the need for international co-ordination among standards prevailing in different countries of the world.

0.4 Wherever a reference to any Indian Standard appears in this specification, it shall be taken as a reference to its latest version.

0.5 Metric system has been adopted in India and all quantities and dimensions in this standard have been given in this system.

0.6 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 shall be rounded off in accordance with IS : 2-1960 Rules for Rounding Off Numerical Values (*Revised*). The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

0.7 This standard is intended chiefly to cover the technical provisions relating to the roller pan mixer, and it does not cover all the necessary provisions of a contract.

1. SCOPE

1.1 This standard lays down requirements for materials, sizes, construction and power unit for roller pan mixers.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Discharge Door — A door which provides an opening in the pan for discharging the mixed materials.

2.2 Pan — An annular trough where mixing of the materials takes place.

2.3 Scraping Blades — Blades fixed to the swivel bracket for the purpose of sweeping the material into the path of rollers and to the discharge door.

2.4 Swivel Bracket — An arm centrally mounted and carrying roller axle.

3. MATERIALS

3.1 Steel Sections, Bars and Rivets

3.1.1 Steel sections and bars shall conform to IS : 226-1962 Specification for Structural Steel (Standard Quality) (*Third Revision*).

3.1.2 Rivet bars shall conform to IS: 1148-1957 Specification for Rivet Bars for Structural Purposes.

3.2 Grey Iron Castings — Grey iron castings shall conform to IS : 210-1962 Specification for Grey Iron Castings (*Revised*).

4. SIZES

4.1 Size of the mixer shall be specified by the diameter of the pan of the mixer and shall be one of the following:

1.2 m
1.5 m
1.8 m

4.1.1 If so desired by the purchaser, the supplier shall also specify the mixed material output capacity in litres per batch for mixers of different diameters.

5. CONSTRUCTION

5.1 Pan — The pan shall be of the dimensions specified in **4.1**. The height of the pan shall be enough to prevent the spillage of material while mixing and shall be generally between 33 to 40 percent of diameter. It shall be constructed from steel sheet not less than 3.15 mm thick at the circumference and 6 mm at the bottom and shall be reinforced by a cast iron plate of minimum 20 mm thickness or steel plates of minimum 8 mm

thickness at the bottom and renewable steel sheet lining of minimum thickness of 6 mm on the inside circumference. Steel sheets up to 3.15 mm thickness shall conform to Grade 1 of IS : 1079-1958 Specification for Light Gauge Structural Quality Hot Rolled Carbon Steel Sheet and Strip. Sheets of thickness more than 3.15 mm shall conform to IS : 226-1962 Specification for Structural Steel (Standard Quality) (*Third Revision*) or IS : 1977-1962 Specification for Structural Steel (Ordinary Quality). The minimum height of the lining shall be one-third of the height of the pan. The pan shall be fixed on the chassis in such a way that the deflection of the pan shall not exceed 3 mm with full working load. The pan shall have a removable section for cleaning.

5.1.1 Discharge Arrangement — A door for discharging the contents shall be provided. The door shall be capable of being opened promptly to its fullest extent by manual operation.

5.1.2 Discharge Height — The height from ground level to the point of discharge shall be such as to facilitate easy removal of the mixed material and shall in no case be less than 32 cm.

NOTE — Where it is desired to discharge the mixed material directly into a wheelbarrow a height greater than 32 cm will be necessary.

5.1.3 The height of the top of rim of the pan shall be not more than 120 cm from ground.

5.2 Rollers — Each mixer shall be provided with two rollers capable of revolving at the desired speed. The rollers shall be of suitable material such as cast iron. The weight of the rollers shall be sufficient to obtain satisfactory mixing. The minimum weight for each roller for the different sizes of mixer shall be as follows:

<i>Diameter of the Pan</i>	<i>Minimum Weight of Roller</i>
m	kg
1.2	100
1.5	120
1.8	160

5.2.1 Arrangement for adjusting the roller pressure shall be made in the mixer. For this purpose, the rollers shall be spring loaded. The springs used, shall be such as to be capable of adding a minimum of 200 kg extra pressure per set of rollers. Pressure adjustment control arrangement shall be such that it will allow rollers to lift to a minimum extent of 5 cm when mixing.

5.2.2 The roller axle shall not have an axial play of more than 6 mm on either side.

5.2.3 Speed of Rollers — The peripheral speed of the rollers shall not be less than 1.2 metres per second.

IS : 2438 - 1963

5.3 Scraping Blades — Suitable scraping blades with hardened steel edges shall be provided for the purpose of sweeping the material into the path of the roller and to the discharge door. The blades shall be so constructed as to be readily replaceable and mounted in a manner allowing them to be adjusted relative to the bottom of the pan.

5.4 Bearings — The swivel bracket shall be fitted to the vertical shaft mounted on suitable roller bearings designed to take radial and axle loads.

5.5 Water Tank — If specified by the purchaser, water tank may be provided for the mixer. It shall be either fixed or tilting type.

5.6 Travelling Wheels — The mixers may be supplied as follows:

- a) Fitted with metal or rubber tyred wheels for towing at slow speeds,
- b) Fitted with flanged metal wheels for travelling on rails, and
- c) Fitted with pneumatic road wheels complete with ball and roller bearings for towing at higher speeds.

5.6.1 The front wheels of the mixer shall be steerable.

5.7 Towing Bar — Towing bar shall be of adequate strength and shall have circular eye at the end.

5.8 Lifting Arrangements — The mixers shall be fitted with suitable means for attachment of chains and ropes required for lifting.

5.9 Safety Guards — Safety guards shall be provided for moving parts in accordance with the appropriate requirements of relevant safety regulations.

6. POWER UNIT

6.1 Mixers may have suitable integral power units or means of connection to an external power unit. Integral power units shall comply with the relevant Indian Standards. The rating of the power unit will be related to the mixing efficiency and the minimum period of mixing per charge. Recommendations for minimum rating of the power unit are given below:

<i>Diameter of the Pan</i>	<i>Rating of power Unit</i>
m	kW
1.2	2.2
1.5	3.7
1.8	5.6

7. TOOLS

7.1 A strong tool box, with lock and key, containing the necessary tools for normal running adjustments and lubrication of the mixer, together with instructions and an inventory of the tools, shall be provided with the mixer.

8. MARKING PLATE

8.1 Each mixer shall have a plate firmly attached to some part not easily removable. The plate shall have clearly marked on it the following particulars:

- a) Manufacturer's Name,
- b) Mixer Reference No.,
- c) Size of Mixer,
- d) Year of Manufacture, and
- e) Rating of the Power Unit in kilowatts.

8.1.1 The mixer may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that Standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the Standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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