

INTER PLANT STANDARD - STEEL INDUSTRY		
 IPSS	SPECIFICATION FOR CLAY MIXING MACHINES	IPSS:1-07-029-14 <i>(First Revision)</i>
	<i>Based on IS: 2438-1963</i>	Formerly IPSS: 1-07-029-85

0. FOREWORD

- 0.1 This Inter Plant standard has been prepared by the Standards Committee on Portable Maintenance Equipment, IPSS 1:7, with the active participation of the representatives of all the steel plants, reputed consultants and established manufacturers of clay mixing machines and was adopted in 1985 and revised in July, 2014 keeping in view of latest technologies.
- 0.2 Inter Plant Standards for steel industry primarily aims at achieving rationalisation and unification of parts and sub-assemblies used in steel plant equipment and accessories, and provide guidance in indenting stores or equipment for existing (or while placing orders for additional requirements) by individual steel plants. For exercising effective control on the inventories, it is advisable to select a fewer number of sizes (or types) from among mentioned in this standard for the purpose of Company Standards of individual steel plants. It is not desirable to make deviation in technical requirements.

1. SCOPE

- 1.1 This standard covers the portable clay mixing machines only, dealing with mixing, grinding and kneading the clay to form into an almost workable paste which is required in the foundry, steel melting shop, blast furnace, etc in the steel industries.

2. TECHNICAL REQUIREMENTS

- 2.1 *Drive* – ac motor (see IPSS:1-03-003 `Specification for ac mill / crane duty slip ring induction motors driving the machine through:
- flexible coupling through a worm gear unit, and
 - roller transmission chain drive through a counter shaft
- 2.2 The clay mixing machines shall have stationary pans. The drive may be either under driven or over driven.
- 2.3 *Structural Frames* – It shall have a strong frame work, rigidly braced.
- 2.4 *Driving Crown Gear & Pinion* – Gears shall be of two types as follows:

- a) Straight spur gearing, and
 - b) Straight bevel gearing
- 2.5 *Crown Pinion Shaft* – It shall be supported by two cast iron bearing housings complete with phosphor bronze sleeve bearings.
- 2.6 *Pan* – The depth of the pan shall be such that whilst the ground mix will rise to the height of overflow and be carried away, the mix, which is too heavy to rise to this height remains at the lower part of the pan.
- 2.7 *Pan Bottom* – It shall be provided with hard cast iron or manganese steel or mild steel renewable false bottom wearing plats. Wearing plates on the pan base are secured by locating screws. Wearing plates are made in sections.
- 2.8 *Rollers* – Rollers shall rise if any unduly hard lump is met with and should be self-adjusting to take up any wear on the roller bushes.
- 2.9 *Roller Bearing Bushes* – Rollers shall be equipped with renewable bushes of cast iron.
- 2.10 *Roller Axles* – Steel axles shall be provided with special axle sleeves, roller bearings on the inside and ball thrust bearings on the outside.
- 2.11 *Rocker Arms* – All rollers shall be mounted on rocker arms which shall be fitted by adjustable pins so that the runner can be set at any desired height above the pan bottom so as to prevent crushing of the material while mixing.
- 2.12 *Mixing Scraper Blades / Scoops / Stirrers / Ploughs* – Two sets of strong scrappers shall be provided to deflect and deliver the mix to the runners and beaters and also have a strong additional mixing action. Adjustable scraper blades or ploughs shall be firmly attached to the head of the frame arranged at suitable angle to continuously feed the material being ground and mixed directly under the rollers.
- 2.13 *Under Carriage* – *The under carriage shall comprise of the following:*
- a) *Chassis* – The steel fabricated chassis shall be such that it can accommodate the prime mover motor with its base.
 - b) *Wheels* – Pair of rear wheels shall be placed almost under the centre of the pan and the front pair right in the front of the carriage. Spacing between the wheels shall be such that the clay machine remains stationary during operation.
 - c) *Turntable* – The turntable and toe bar shall be provided in accordance to the specification.

- d) *Draw Bar / Toe Bar* – For hand trolley, see IPSS:1-07-025-14 `Specification for hand trolley`.
 - 3. **MATERIAL OF ROLLERS** – Special hard chrome alloy cast iron or any other suitable hard metal.
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