Indian Standard

TEXTILES — BOTTOM ROLLERS FOR DRAFTING SYSTEMS — SPECIFICATION

(Fourth Revision)

1 SCOPE

1.1 This standard prescribes requirements for both plain and antifriction bearing bottom rollers having fluted, knurled or saw-toothed bosses for use in drafting systems.

1.2 This standard does not lay down details of flutes, knurls and saw-teeth.

2 REFERENCES

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

IS No.	*Title*
IS 1586 (Part 1) : 2018/ISO 6508-1 : 2016	Metallic materials — Rockwell hardness test: Part 1 Test method (*fifth revision*)
IS 3190 : 1993 / ISO 92 : 1976	Textile machinery and accessories — Spinning machinery — Definition of side (left or right) (*second revision*)
IS 4474 : 2003	Textile machinery — Glossary of terms relating to drafting in spinning machinery (*first revision*)
IS 4905 : 2015/ISO 24153 : 2009	Random sampling and randomization procedures (*first revision*)

3 NOMENCLATURE AND TERMINOLOGY

For the purpose of this standard, the nomenclature relating to bottom rollers shall be as indicated in Fig. 1 and definitions as given in IS 4474.

4 MANUFACTURE

4.1 Material

A suitable steel shall be chosen according to the method employed fin the generation of flutes, knurls or saw-teeth and according to the hardening process utilized.

4.2 Layout of Rollers

The layout of bottom rollers shall be as illustrated in Fig. 1.

4.3 Workmanship and Finish

In the case of fluted rollers, the flutes shall not have any burrs or broken edges. However, at the edges of the boss broken flutes of less than 2 mm shall be permitted. In case of knurled and saw-toothed rollers, the knurls and saw-teeth shall be free from sharp edges.

5 REQUIREMENTS

5.1 Dimensions

Recommended dimensions of bottom rollers and antifriction bearings are given in Table 1. The width and diameter of neck for plain bearing bottom rollers shall be as agreed to between the buyer and the seller.

5.1.1 The dimensions of rollers shall be subject to the following tolerances:

Roller diameter	± 0.05 mm		—
Staff length	± 0.1 mm		—
Width of neck	± 0.2 mm	mm	For plain bearing only and in case of antifriction bearing as per recommendations of the bearing manufactures
Diameter of neck	+ 0.00 / − 0.05	mm	

NOTES

1 In conversion and modernization, it is preferable to keep the tolerance on staff length and overall length on the minus side only.

2 When assembled, deviation of centre of flutes from centre of spindle shall not be more than 3 mm.

essentially similar conditions delivered to one buyer against one dispatch note shall constitute a lot.

6.2 Unless otherwise agreed to between the buyer and the seller, the number of rollers to be selected for inspection shall be according to col (1) and col (2) of Table 3. To ensure the randomness of selection, the methods given in IS 4905 shall be followed.

Table 2 Requirements of Bottom Rollers

(*Clause* 5.2)

Sl No.	Characteristic	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Hardness:		IS 1586 (Part 1)
	a) Plain bearing Neck and boss (*see* Note 4) of bottom roller	50 HRC to 63 HRC	
	b) Anti-friction bearing		
	1) Neck		
	i) With inner race	30 HRC, *Min*	
	ii) Without inner race	60 HRC, *Min*	
	2) Boss (*see* Note 4) of bottom roller	50 HRC to 63 HRC	
ii)	Depth of case after grinding and polishing, mm	0.3, *Min*	Using a suitable microscope with a magnifying power of × 10 and capable of measuring the depth of case to an accuracy of 0.05 mm.
iii)	Run-out (TIR) (*see* Note 1 and Note 2)		With a suitable micrometer dial gauge.
	a) Fluted roller	0.05 mm	
	b) Knurled roller		
	1) Neck portion (plain bearing)	0.05 mm	
	2) Boss	0.08 mm	

NOTES

1 Run-out after assembly on bosses shall be within the limit prescribed as under:

a) For anti-friction bearing	0.06 mm
b) For plain bearing	0.10 mm

2 After 3 years from the date of adoption of the standard the run-out requirement will stand amended as under:

a) For anti-friction bearing	0.03 mm
b) For plain bearing	0.05 mm

3 It should be the responsibility of the manufacturer to ensure 'run-out' of rollers within the prescribed limits at the time of erection in the mills.

4 Hardness on boss is not applicable for knurled rollers.

Table 3 Sample Size and Criteria for Conformity

(*Clauses* 6.2 *and* 6.3)

Sl No.	Lot Size	Sample Size	Acceptance No.
(1)	(2)	(3)	(4)
i)	Up to 100	13	0
ii)	101 to 150	20	0
iii)	151 to 300	32	1
iv)	301 and above	50	1