भारतीय मानक

Indian Standard

IS 13561 : 2024

वस्त्रादि — रिंग डबलिंग और ट्विस्टिंग के लिए कान आकार के नायलॉन ट्रैवेलर्स — विशिष्टि

(पहला पुनरीक्षण)

Textiles — Ear-Shaped Nylon Travellers for Ring Doubling and Twisting — Specification

(First Revision)

ICS 59.120.10

भारतीय मानक ब्यूरो
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September 2024 **Price Group 4**

Textile Machinery and Accessories Sectional Committee, TXD 14

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Textile Machinery and Accessories Sectional Committee had been approved by the Textiles Division Council.

Travellers are components that guide yarn during the winding process onto bobbins. As they move around the spinning rings, they create friction, allowing them to hold the fibers tightly. This friction imparts twist to the yarn, resulting in high-quality yarn production. While the energy to drive the twisting mechanism comes from the bobbin, the level of twist is controlled by the traveller. Each revolution of the traveller inserts one turn of twist into the yarn. Achieving the perfect balance in spinning tension is essential. By minimizing the friction coefficient, rings and travellers work together to create an ideal spinning geometry. This balance ensures consistent smooth running behavior, high-speed spinning, and better yarn quality.

This standard was first published in 1992. This revision has been made to incorporate the following changes:

a) References to Indian standards have been updated; and

b) Marking clause has been modified.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

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.

Indian Standard

TEXTILES — EAR-SHAPED NYLON TRAVELLERS FOR RING DOUBLING AND TWISTING — SPECIFICATION

(First Revision)

1 SCOPE

This standard prescribes the requirements of ear-shaped travellers of different forms made of nylon (Polyamide artificial synthetic resin) used on rings for doubling (*see* IS 3078). It also specifies the method of designation of these travellers.

2 REFERENCES

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

IS No.	*Title*
IS 1501 (Part 1) : 2020/ISO 6507-1 : 2018	Metallic materials — Vickers hardness test: Part 1 Test method (*fifth revision*)
IS 3078 : 2023	Textiles — Rings for spinning and doubling frames — Specification (*fifth revision*)

3 NOMENCLATURE

For the purpose of this standard the nomenclature of the terms associated with travellers for doubling and twisting shall be as shown in Table 1.

4 SPECIFICATION

4.1 Material

Suitable material shall be nylon 6.6 natural in virgin quality.

4.2 Traveller Numbering

The number of traveller represents the numerical value of the nominal mass, in grams, of 1 000 travellers of the same type.

4.3 Range of Number

The numerical values of the range correspond with those of R-20 series of preferred numbers. The range comprising of values from 25 to 2 000 inclusive.

4.4 Mass Tolerance

The admitted tolerance of the nominal mass for 1 000 travellers of the same type is $^{+5}_{-0}$ percent of the numerical values of the traveller number.

4.5 Hardness

Hardness of travellers shall be within a range of 10 HV to 20 HV.

4.5.1 The Vickers hardness shall be determined by the method prescribed in IS 1501 (Part 1) using 1 kg as test load.

4.6 Flexibility

Travellers shall not break or deform permanently while mounting on the ring of suitable depth.

4.7 Workmanship and Finish

The surface of the traveller shall be smooth and without sharp edges. Dimensional accuracy and mismatch is critical and to be controlled during moulding.

5 DESIGNATION

The designation of a traveller shall comprise, in order, traveller type, ring height, traveller number and the material of which it is made.

Example:

a) HZ traveller, no. 800 for ring height 16.7 mm in nylon shall be designated as follows:

HZ 16.7 — 800 nylon; and

b) J traveller, no. 400 for ring height 11.1 mm in nylon shall be designated as follows:

J 11.1 — 400 nylon.

Table 1 HZ and J Type Travellers and Rings

(*Clause* 3)

Sl No.	Traveller			Ring Height	
	Type	Form	Range of the numbers	Height, h	Designation
(1)	(2)	(3)	(4)	(5)	(6)
i)	HZ	*see* Fig. 1	(25), (28), 30, (3l.5), (35.5), 40, (45), 50, (56), 60, (63), 70, (71), 80, 90, 100, 110, (112), 120, (125), 130, 140, 160, (180), 195, 200, 220, (224), 240, 250, 270, (280), 310, (315), (335), 360, 400, (450), (500), 510, (560), 610, 620, 630, 710, 760, 800, 890, (900), 1000, 1125, 1250, (1400), 1580, (1600), 1780, (1800), 2000	6.3 9.5 10.3 11.1 16.7 25.4 38.1	HZ 6.3 HZ 9.5 HZ 10.3 HZ 11.1 HZ 16.7 HZ 25.4 HZ 38.1
ii)	J	*see* Fig. 2		11.1 17.4	J 11.1 J 17.4
NOTE — The sizes within parenthesis are not popular.					

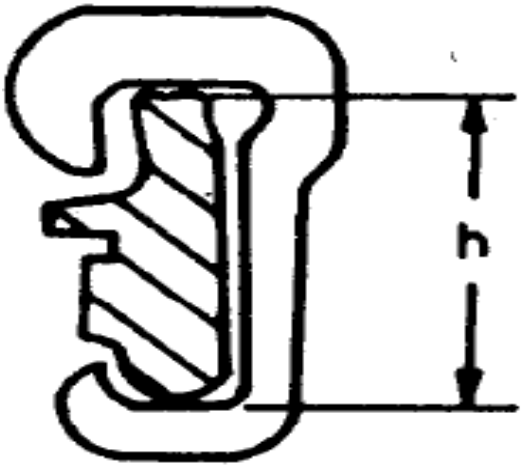

FIG. 1 TRAVELLERS TYPE HZ ON VERTICAL RING

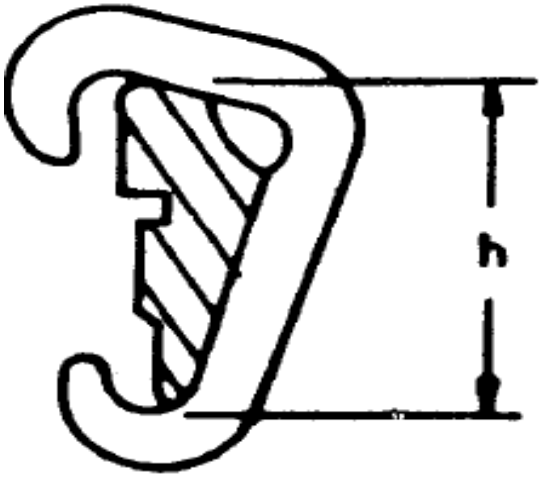

FIG. 2 TRAVELLERS TYPE J ON CONICAL RING

6 SAMPLING

6.1 Lot

The number of travellers of the same type, size and designation manufactured in a batch by the manufacturer shall constitute a lot.

6.2 The conformity of the lot to the requirements of this standard shall be determined on the basis of the tests carried out on the samples selected from it.

6.3 Unless otherwise agreed to between the buyer and the seller, the number of boxes of travellers to be selected at random shall be in accordance with Table 2.

Table 2 Sample Size

(*Clauses* 6.3 *and* 6.4)

Sl No.	**No. of Boxes in the Lot**	**No. of Boxes to be Selected**
(1)	(2)	(3)
i)	Up to 15	2
ii)	16 to 25	3
iii)	25 to 100	5
iv)	101 and above	8

6.4 The boxes selected according to Table 2 shall constitute the gross sample.

6.4.1 From each box in the gross sample, two groups of ten or hundred travellers each shall be selected and examined for mass.

6.4.2 From each box in the gross sample, two travellers shall be collected at random and tested for hardness and flexibility.

6.4.3 From each box in the gross sample, ten travellers shall be collected at random and examined for workmanship and finish.

6.5 Criteria for Conformity

The lot shall be considered conforming to the requirements of this specification if the following conditions are satisfied:

a) All the groups tested for weight and hardness satisfy the relevant requirements; and

b) The number of travellers failing to satisfy the requirements for workmanship and finish does not exceed the corresponding number given below:

Sl No.	*No. of Travellers Tested*	*Permissible No. of Non-conforming Travellers*
(1)	(2)	(3)
i)	20	1
ii)	30	2
iii)	50	3
iv)	80	5

7 MARKING

7.1 All containers of traveller shall be marked with the following:

a) Designation of traveller;

b) Type of traveller;

c) Numerical quantity of travellers in the container;

d) Indication of the source of manufacture;

e) Month and year of packing; and

f) Lot number.

7.2 BIS Certification Marking

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.

8 PACKING

Travellers shall be packed in suitable containers to withstand normal hazards encountered during handling and transport. Travellers shall be suitably protected so that their finish does not deteriorate on storage. The number of travellers in each container for different sizes be as agreed to between the buyer and the seller.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Textile Machinery and Accessories Sectional Committee, TXD 14

Organization	*Representative*(*s*)
Central Manufacturing Technology Institute, Bengaluru	DR NAGAHANUMAIAN (***Chairperson***)
National Safety Council, Navi Mumbai	SHRI LALIT R. GABHANE SHRI R. R. DEOGHARE (*Alternate*)
ATE Enterprises Private Limited, New Delhi	SHRI ABHIJIT KULKARNI SHRI ANIL KUMAR SHARMA (*Alternate*)
Bajaj Industries Private Limited, Kolkata	REPRESENTATIVE
Bhowmick Calculator, Kolkata	SHRI GOUTAM BHOWMICK SHRI VIVEKANANDA BHOWMICK (*Alternate*)
Bombay Textile Research Association, Mumbai	SHRI VIJAY GAWDE SHRI R. A. SHAIKH (*Alternate*)
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ICAR-Central Institute for Research on Cotton Technology, Mumbai	DR N. SHANMUGAM DR T. SENTHIL KUMAR (*Alternate*)
India ITME Society, Mumbai	SHRI S. SENTHIL KUMAR SHRIMATI SEEMA SRIVASTAVA (*Alternate*)
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Indian Textile Accessories and Machinery Manufacturers Association, Mumbai	SHRI N. D. MHATRE SHRI CHANDRESH SHAH (*Alternate*)
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Kusters Calico Machinery Limited, Karjan	SHRI DEVANG PARIKH SHRI SHUBHASIS SUR (*Alternate*)
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Organization	*Representative*(*s*)
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Ludlow Jute Limited, Kolkata	REPRESENTATIVE
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Office of the Textile Commissioner, Mumbai	SHRI N. K. SINGH SHRI NAROTTAM KUMAR (*Alternate*)
Peass Industrial Engineers Private Limited, Navsari	SHRI RAVI S. RAO SHRI NAIMISHKUMAR RAMANLAL TANDEL (*Alternate*)
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Member Secretary
SHRI SWAPNIL
SCIENTIST 'B'/ASSISTANT DIRECTOR
(TEXTILES), BIS

Bureau of Indian Standards

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Amend No.	Date of Issue	Text Affected

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