

भारतीय मानक ब्यूरो  
BUREAU OF INDIAN STANDARDS

*Draft for comments only*

Doc. No: TXD 14 (24788)  
July 2024

*(Not to be reproduced without permission of BIS or used as Standard)*

भारतीय मानक मसौदा

वस्त्रादि — धातुशील कार्ड क्लोथिंग — विशिष्टि  
भाग 1 शब्दावली

[ आई एस 9568 (भाग 1) पहला पुनरीक्षण ]

*Draft Indian Standard*

TEXTILES — METALLIC CARD CLOTHING — SPECIFICATION  
PART 1 TERMINOLOGY

[ *First Revision of IS 9568 (Part 1)* ]

ICS 59.120.10

---

Textile Machinery and Accessories  
Sectional Committee, TXD 14

Last date for receipt of comment is  
24 September 2024

---

**FOREWORD**

*(Formal clauses will be added later)*

This standard has been prepared with the intention of eliminating ambiguity and confusion arising from local interpretations of terms and expressions used in relation to saw-tooth wire for metallic card clothing.

This standard originally published in 1980. This standard is based on ISO 5234 'Textile machinery and accessories — Metallic card clothing — Definitions of dimensions, types and mounting', issued by the International Organization for Standardization (ISO). The present revision has been made to include the definition of Serrations with saw tooth roller.

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.

## 1 SCOPE

This standard (Part 1) covers the definitions of terms relating to saw-tooth wire of various cross sections and tooth forms for metallic card clothing.

## 2 DEFINITIONS

### 2.1 Cross Section of Metallic Saw-Tooth Wire

2.1.1 The definitions of terms relating to section of wire, as shown in Fig. 1, for mounting in a grooved roller or on the surface of an ungrooved roller are given in Table 1.

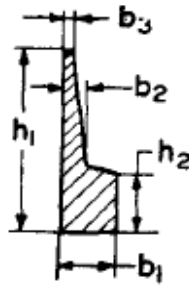


FIG. 1 WIRE WITH NORMAL RIB

2.1.2 The definitions of terms relating to different sections of wire, as shown in Fig. 2 and Fig. 3, for mounting on an ungrooved roller are given in Table 1.

### 2.2 Serrations with saw tooth roller

Serrations are a series of sharp, tooth-like projections along the edge of a roller used in carding machines. These saw tooth rollers are designed to grip, separate, align, and clean fibers during the carding process, ensuring efficient fiber processing and preparation for subsequent textile manufacturing stages.

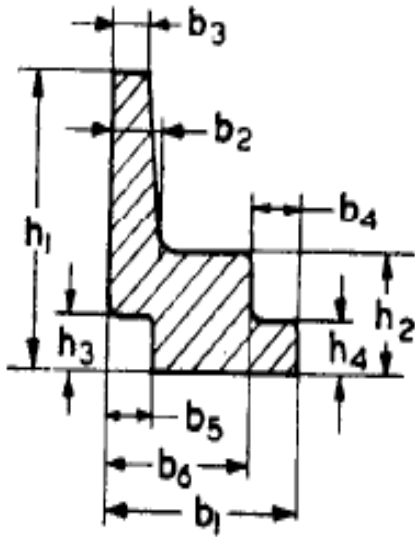


FIG. 2 WIRE WITH E-TYPE INTERLOCKING RIB

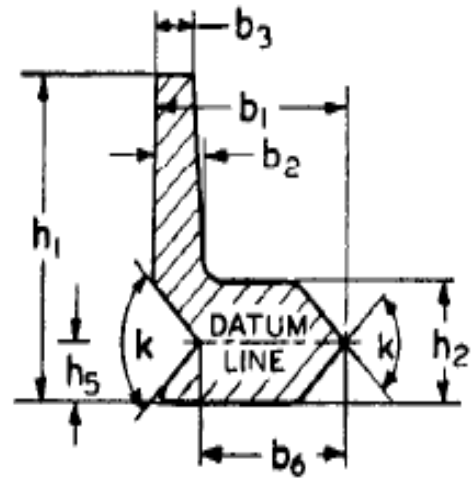


FIG. 3 WIRE WITH INTERCHANGING (V-TYPE INTERLOCKING) RIB

**Table 1 Definitions of Terms Relating to Different Sections of Wire**  
(Clauses 2.1.1 and 2.1.2)

Sl No.	Symbol	Term	Definition
(1)	(2)	(3)	(4)
i)	$h_1$	Total height of wire	Height of wire from base to top of wire
ii)	$h_2$	Rib height	Height of rib from base of wire
iii)	$h_3$	Height of undercut	Height of undercut, measured from base of the wire
iv)	$h_4$	Height of tenon	Height of tenon, measured from base of the wire
v)	$h_5$	Rib datum line	Measured from base of the wire point of V
vi)	$b_1$	Rib width	Width of wire from back to front at the base
vii)	$b_2$	Blade root width	Blade width measured at blade root
viii)	$b_3$	Blade tip width	Blade width measured at the blade tip
ix)	$b_4$	Width of tenon	Width of tenon from rib body
x)	$b_5$	Width of undercut	Width of undercut from back of wire to rib body
xi)	$b_6$	Pitch width of rib	Width from back of wire to tenon
xii)	$k$	Included angle of V-rib	—

### 2.3 Tooth Forms

The terms relating to tooth forms are defined in 2.3.1 to 2.3.3; wire forms have been shown facing the rib.



### 2.3.1 Hand of Teeth

Wires with left-hand and right-hand points are shown in Fig. 4 and Fig. 5.

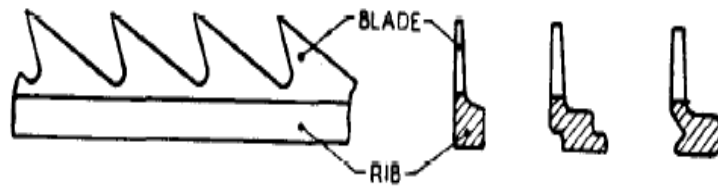


FIG. 4 WIRE WITH LEFT-HAND POINTS



FIG. 5 WIRE WITH RIGHT-HAND POINTS

### 2.3.2 Angles of Wire

Definitions of angles of wire are given in Table 2.

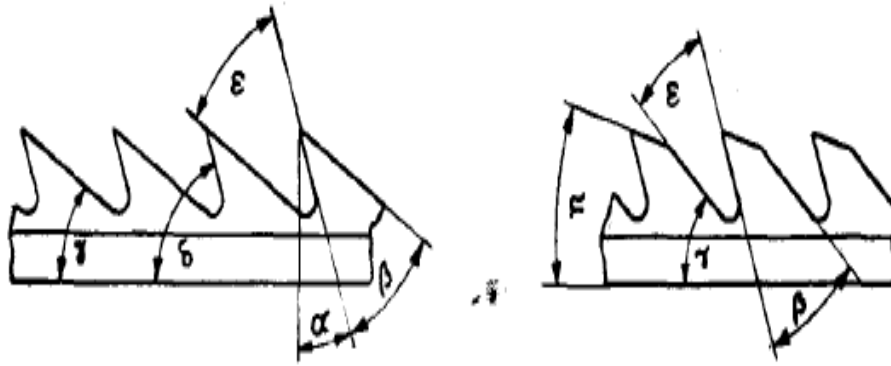
### 2.3.3 Types of Wire

Definitions of terms relating to types of wire are given in Table 3 read with Fig. 6 to Fig.12.

## 2.4 Method of Mounting the Foregoing Wire Sections

2.4.1 Mounting of wire sections on the surface of an ungrooved roller is shown in Fig. 13 and Fig. 14.

2.4.2 Mounting of wire section in a grooved roller is shown in Fig. 15.



**Table 2 Definitions of Angles of Wire**  
(Clause 2.3.2)

SI No.	Symbol	Term	Definition
(1)	(2)	(3)	(4)
i)	$\alpha$	Front angle (Rake angle)	Angle between front of tooth and a perpendicular to the base
ii)	$\beta$	Wedge angle	Angle between front angle and back angle of tooth
iii)	$\gamma$	Back angle	Angle between back of tooth and base of wire
iv)	$\delta (90-\alpha)$	Front angle	Angle between front of tooth and base of wire
v)	$\epsilon$	Included angle	Angle between front and back of two adjacent teeth ( $\epsilon=\beta$ )
vi)	$\eta$	Back point angle	Angle between flat on top of tooth and base of wire

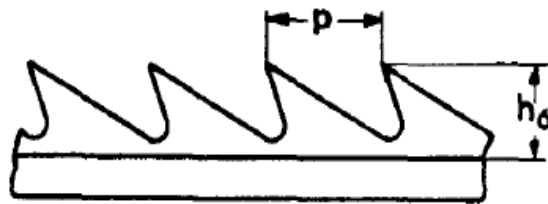


FIG. 6 POINTED WIRE

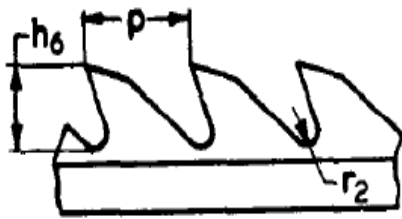


FIG. 7 DIAMOND POINT WIRE

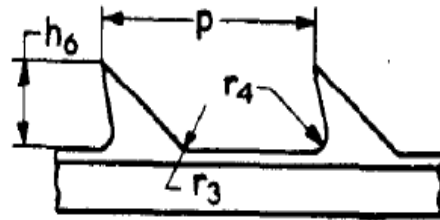


FIG. 8 EXTENDED PITCH WIRE

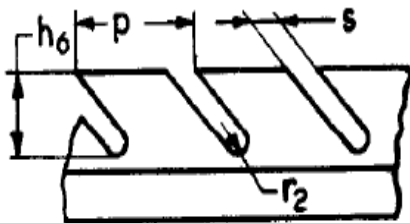


FIG. 9 MOREL WIRE

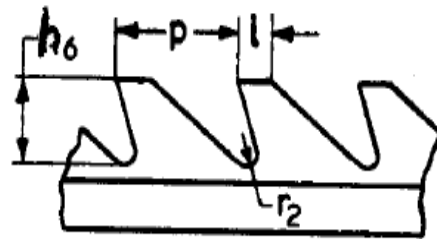


FIG. 10 FLAT TOP WIRE

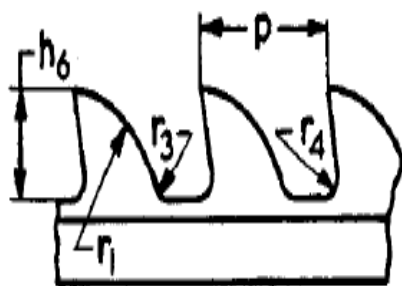


FIG. 11 POINTED CURVED BACK WIRE

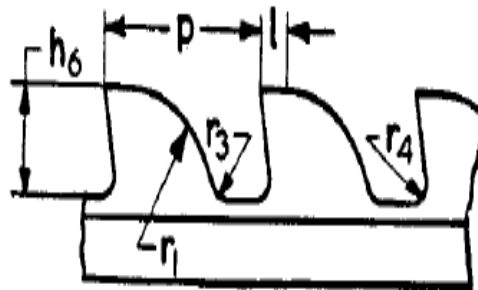


FIG. 12 CURVED BACK WITH FLAT TOP WIRE

**Table 3 Definitions of Terms Relating to Types of Wires**  
(Clause 2.3.3)

Sl No.	Symbol	Term	Definition
(1)	(2)	(3)	(4)
i)	$h_6$	Tooth depth	Depth of tooth cut out measured from tip of tooth
ii)	$p$	Tooth pitch	The distance from tip to tip of the wire point parallel to the base of wire
iii)	$l$	Land	Length of flat on top of the tooth

iv)	s	Slot width	Width of punch blade
v)	$r_1$	Back radius	—
vi)	$r_2$	Tooth root radius	Radius at the root of the tooth
vii)	$r_3$	Back radius	Radius blending into back of tooth
viii)	$r_4$	Front radius	Radius blending into front of tooth

2.5 Definitions of terms relating to mounting of metallic card wire are given in Table 4 read with Fig. 15.

2.5.1 Single wire winding and multiple wire winding are shown in Fig. 16 and Fig. 17 respectively.

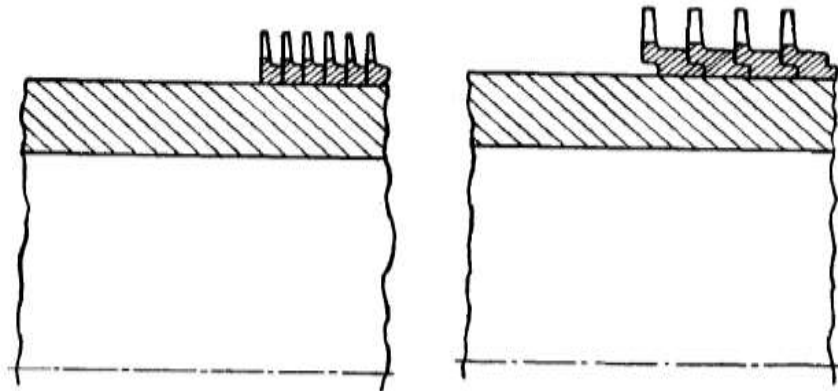


FIG. 13 MOUNTING OF WIRE WITH NORMAL RIB ON AN UNGROOVED ROLL (see FIG. 1)

FIG. 14 MOUNTING OF WIRE WITH INTERLOCKING RIB ON AN UNGROOVED ROLLER (see FIG. 2)

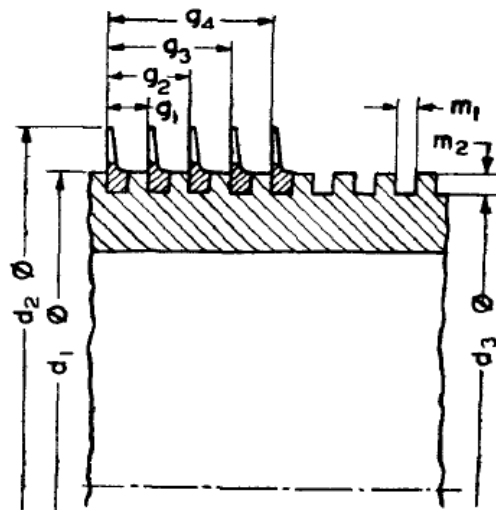
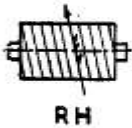
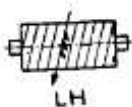


FIG. 15 MOUNTING OF WIRE WITH NORMAL RIB IN A GROOVED ROLLER (see FIG. 1)

**Table 4 Definition of Terms Relating to Wire Mounting**  
(Clause 2.5)

System	Formula	Term	Definition
d <sub>1</sub>	—	Bare diameter	Diameter of bare roller on which the wire is mounted or in which the groove is cut
d <sub>2</sub>	—	Diameter over wire or top diameter	Diameter measured over the tips of the wire when mounted
d <sub>3</sub>	$d_3 = d_1 - 2m_3$  $d_3 = d_2 - 2h_1$	Groove root diameter	Diameter of bare roller (d <sub>2</sub> ) minus twice the groove depth (m <sub>2</sub> )  or Diameter over tips (d <sub>2</sub> ) minus twice the total height of wire (h <sub>1</sub> )
m <sub>1</sub>	—	Width of groove	
m <sub>2</sub>	—	Depth of groove	Depth to which the groove is cut below the surface of the bare roller
g <sub>1</sub>	—	Pitch of wire rows	Distance from face to face of adjacent wires measured parallel to the roller axis
g <sub>2</sub> g <sub>3</sub> g <sub>4</sub> etc.	—	Lead	Distance from face to face of one individual wire measured parallel to the roller axis. The index indicates the number of starts
R.H.	—	Right-hand lead	The helix angle of the card wire is inclined from right-hand to left-hand with the roller axis viewed laterally  
L.H.	—	Left-hand lead	The helix angle of the card wire is inclined from left-hand to right-hand with the roller axis viewed laterally  
T	$T = \frac{\text{unit of length}}{p}$	Teeth per unit length	Teeth per unit length, measured on straight wire
R	$R = \frac{\text{unit of length}}{g_1}$	Rows of wire per unit length	Number of rows of wire per unit length, measured across the face of the roller parallel to the roller axis
D	$D = T \times R$	Point density or number of point per length	Teeth per unit length × row of wire per unit length



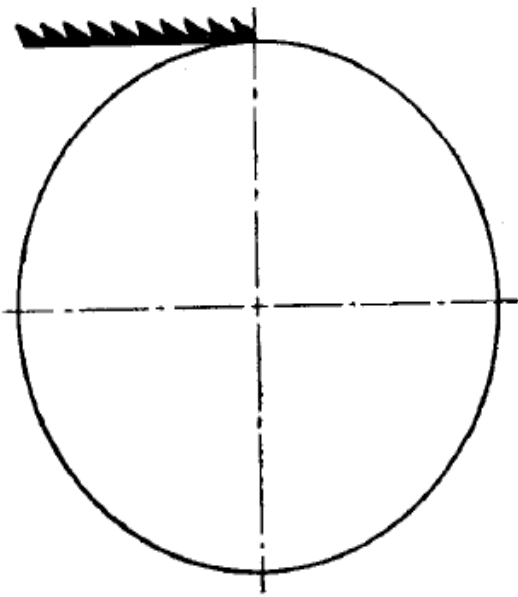


FIG. 16 SINGLE WIRE WINDING

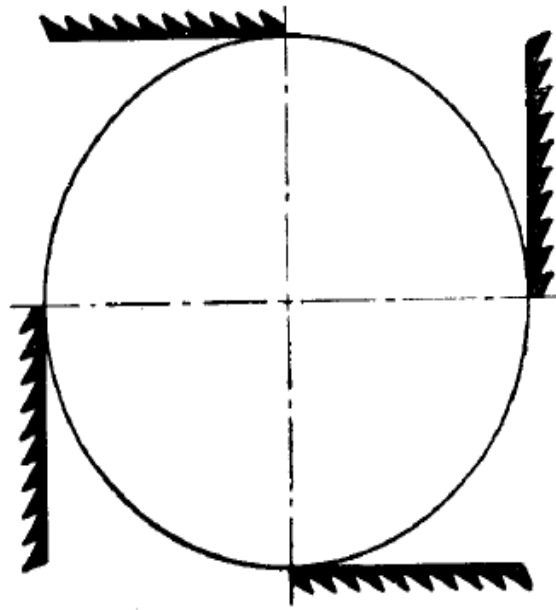


FIG. 17 MULTIPLE WIRE WINDING