भारतीय मानक
Indian Standard

IS 4613 : 2024

जैवलिन — विशिष्टि

(दूसरा पुनरीक्षण)

Javelin — Specification

(Second Revision)

ICS 97.220.30; 97.220.40

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
www.bis.gov.in www.standardsbis.in

September 2024 Price Group 7

Sports Goods Sectional Committee, PGD 41

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Sports Goods Sectional Committee was approved by the Production and General Engineering Division Council.

Javelin throw is one of the four throwing events in regular track and field competitions, along with the shot put, hammer throw and discus. Javelin throw event involves throwing a javelin as far as possible.

This standard was first published in 1968 and was subsequently revised in 1993. This revision has been brought out to align the standard with the latest rules of the International Association of Athletics Federations. The major changes in this revision are as follows:

a) Javelin has been classified into different types based on its uses;
b) Material has been updated; and
c) Manufacturing and workmanship clause has been updated.

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 (s*econd revision*)’. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard.

Indian Standard

JAVELINS — SPECIFICATION

(Second Revision)

1 SCOPE

This standard specifies the requirements of javelins used in javelin throw as a sport for men and women.

2 TYPES

Based on the requirements of different age group, javelins are classified into following types:

a) GU18 — Recommended for girls under 18 years of age;
b) GU20/SW — Recommended for girls under 20 years of age or senior women;
c) BU18 — Recommended for boy under 18 years of age;
d) BU20 — Recommended for boy under 20 years of age; and
e) SM — Recommended for senior men.

3 MANUFACTURE, WORKMANSHIP, AND FINISH

The javelin shall consist of three parts, namely a shaft, a head, and a cord grip.

3.1 Shaft

The shaft may be constructed as solid or hollow. The surface of the shaft shall have no dimples or pimples, grooves or ridges, holes or roughness and the finish shall be smooth and uniform throughout. The surface average height must be less than 1.6 μm, that is a roughness number N7 or less.

3.2 Head

The shaft shall have fixed to it a metal head terminating in a sharp point. It may contain a reinforced tip of other metal alloy fixed to the front end of the head provided that the completed head is smooth and uniform along the whole of its surface. The angle of tip shall not exceed 40°.

3.3 Grip

The grip, which shall cover the centre of gravity, shall not exceed the diameter of the shaft by more than 8 mm. It may have a regular non-slip pattern surface but without thongs, notches or indentations of any kind. The grip shall be of uniform thickness.

3.4 The cross-section shall be regularly circular throughout (*see* Note 1). The maximum diameter of the shaft shall be immediately in front of the grip. The central portion of the shaft, including the part under the grip, may be cylindrical or slightly tapered towards the rear but in no case the reduction in diameter, from immediately in front of the grip to immediately behind, may exceed 0.25 mm. From the grip, the javelin shall taper regularly to the tip at the front and the tail at the rear. The longitudinal profile from the grip to the front tip and to the tail shall be straight or slightly convex (*see* Note 2) and there shall be no abrupt alteration in the overall diameter, except immediately behind the head and at the front and rear of the grip, throughout the length of the javelin. At the rear of the head, the reduction in diameter shall not exceed 2.5 mm and this departure from the longitudinal profile requirement shall not exceed more than 300 mm behind the head.

NOTES

1 Whilst the cross-section should be circular, a maximum difference between the largest and smallest diameters of 2 percent is permitted. The mean value of these two diameters must correspond to the specification given for a circular javelin.

2 The shape of the longitudinal profile may be quickly and easily checked using a metal straight edge least 500 mm long and two feeler gauges 0.20 mm and 1.25 mm thick. For slightly convex sections of the profile, the straight edge will rock while being in firm contact with a short section of the javelin. For straight sections of the profile, with the straight edge held firmly against it, it shall be impossible to insert the 0.20 mm gauge between the javelin and the straight edge anywhere over the length of contact. This shall not apply to the point immediately behind the joint between the head and the shaft. At this point it shall be impossible to insert the 1.25 mm gauge.

3.5 The javelin shall have no mobile parts or other apparatus, which during the throw, could change its centre of gravity or throwing characteristics.

3.6 The tapering of the javelin to the tip of the metal head shall be such that the angle of the point shall be not more than 40°. The diameter, at a point 150 mm from the tip, shall not exceed 80 percent of the maximum diameter of the shaft. At the midpoint between the centre of gravity and the tip of the metal head, the diameter shall not exceed 90 percent of the maximum diameter of the shaft.

3.7 The tapering of the shaft to the tail at the rear shall be such that the diameter, at the midpoint between the centre of gravity and the tail, shall be

not less than 90 percent of the maximum diameter of the shaft. At a point 150 mm from the tail, the diameter shall not be less than 40 percent for men and 30 percent for women of the maximum diameter of the shaft. The diameter of the shaft at the end of the tail shall not be less than 3.5 mm.

4 REQUIREMENTS

4.1 Materials

4.1.1 *Shaft*

Shaft shall be constructed of aluminium or any other suitable material.

4.1.2 *Head*

The head of javelin shall be made of mild steel or aluminium alloy.

4.1.3 *Cord Grip*

Cord grip shall be as per **3.4**.

4.2 Shape and Dimension

Typical shape of javelins is shown in Fig. 1. The dimensions of javelins shall conform to those given in Table 1 and Fig. 1.

4.3 Mass

The mass of the javelins shall be as given in Table 1.

4.4 Balance Test

When suspended from the centre of gravity, the javelin shall balance in a perfectly horizontal plane.

5 PACKING AND MARKING

5.1 Packing

The javelins shall be packed as agreed to between the purchaser and the manufacturer.

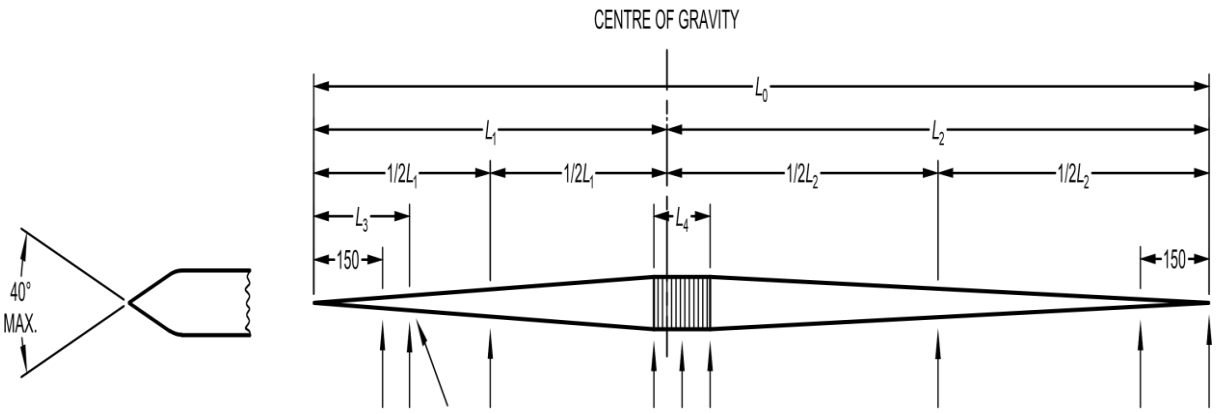
5.2 Marking

5.2.1 Each javelin or its packaging shall be marked with the following information:

a) The manufacturer's name;
b) Weight;
c) Month and year of manufacturing;
d) Type of javelin; and
e) Initial(s) or recognized trademark(s).

5.2.2 *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.



ENLARGED TIP D_2 D_3 D_4 D_5 D_0 D_6 D_1 D_7 D_8 D_9

Sl No.	Lengths		Diameters		Maximum	Minimum
(1)	(2)		(3)		(4)	(5)
i)	L_0	Overall length	D_0	In front of grip	—	—
ii)	L_1	Tip to C of G	D_1	At rear of grip	D_0	D_0 – 0.25 mm
iii)	$\frac{1}{2} L_1$	Half L1	D_2	150 mm from trip	0.8 D_0	—
iv)	L_2	Tail to C of G	D_3	At rear of head	—	—
v)	$\frac{1}{2} L_2$	Half L2	D_4	Immediately behind head	—	D_0 – 2.5 mm
vi)	L_3	Head	D_5	Half way tip to C of G	0.9 D_0	—
vii)	L_4	Grip	D_6	Over grip	D_0 + 8 mm	—
viii)			D_7	Half way tail to C of G	—	0.9 D_0
ix)			D_8	150 mm from tail	—	0.4 D_0
x)	C of G	Centre of Gravity	D_9	At tail	—	3.5 mm

NOTE — All measurements of diameters shall be at least 0.1 mm.

All dimensions in millimetres.

FIG. 1 JAVELIN

Table 1 Requirements for Different Types of Javelin

(*Clauses* 4.2 *and* 4.3)

SI No.	Requirement	GU18	GU20/SW	BU18	BU20	SM
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Weight, g, *Min*	500	600	700	800	800
ii)	Overall Length (L_0),mm	2 000 – 2 100	2 200 – 2 300	2 300 – 2 400	2 600 – 2 700	2 600 – 2 700
iii)	Distance from tip of metal head to centre of gravity (L_1), mm	780 – 880	800 – 920	860 – 1 000	900 – 1 060	900 – 1 060
iv)	Distance from tail to centre of gravity (L_2), mm	1 120 – 1 320	1 280 – 1 500	1 300 – 1 540	1 540 – 1 800	1 540 – 1 800
v)	Length of metal head (L_3), mm	220 – 270	250 –330	250 – 330	250 – 330	250 – 330
vi)	Width of cord grip (L_4), mm	135 – 145	140 – 150	150 – 160	150 – 160	150 – 160
vii)	Diameter of shaft at thickest point (D_0), mm	20 – 24	20 – 25	23 – 28	25 – 30	25 – 30

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Sports Goods Sectional Committee, PGD 41

Organization	*Representative(s)*
Sports Goods Export Promotion Council, New Delhi	SHRI TARUN DEWAN **(*Chairperson*)**
All India Lawn Tennis Association, New Delhi	SHRI ZEESHAN ALI SHRI VIVEK SHARMA (*Alternate* I) SHRI VINIT PUNDIR (*Alternate* II)
Anand & Anand, Jalandhar	SHRI ASHISH ANAND
Athletic Federation of India, New Delhi	SHRI SANDEEP MEHTA SHRI GOPALA KRISHNAN (*Alternate*)
Bhalla International Vinex, Meerut	SHRI SANJAY BHALLA
Central Institute of Plastics Engineering &Technology (CIPET), Murthal	SHRI K. A. RAJESH SHRI VIVEK KUMAR (*Alternate*)
COSCO India Pvt Ltd, Gurugram	SHRI PANKAJ JAIN SHRI AMIT JAIN (*Alternate*)
Freewill Sports Pvt Ltd, Jalandhar	SHRI RAJESH KHARBANDA
Government e Market Place, New Delhi	MS DEEPIKA SHOKEEN SHRI ABHISHEK KAKKAR (*Alternate*)
Gymnastic Federation of India, Mumbai	SHRI RIAZ BHATI
Micro, Small and Medium Enterprises, Technology Development Centre, New Delhi	SHRI ADITYA PRAKASH SHARMA SHRI V. K. SINGH (*Alternate*)
NELCO (India) Pvt Ltd, Meerut	SHRI AMBER ANAND
Premier Leg Guard Works, Meerut	SHRI SUMESH AGARWAL SHRI KSHITIJ AGARWAL (*Alternate*)
Ranson Sports Industry, Jalandhar	SHRI ARVIND SINGH RANA
Sanspareils Greenlands Pvt Ltd, Meerut	SHRI PUNEET ANAND SHRI PUNEET ARORA (*Alternate*)
SGS India Private Limited, Mumbai	SHRI AMIT SALUJA SHRI SAILESH SHARMA (*Alternate*)
Shri Ram Institute For Industrial Research, Delhi	MS ARCHANA BISHT DR MANMOHAN KUMAR
Soccer International Pvt Ltd, Jalandhar	MS SHAALINI GUPTA
Softball Association of India, Indore	MS SHIBANI TAGORE
Sports and Toys Exporters Association, Jalandhar	SHRI NITIN MAHAJAN

Organization	*Representative(s)*
Sports Authority of India, New Delhi	SHRI K. C. MEENA SHRI VISHNUBHTLA SHARMA (*Alternate*)
Sports Goods Manufacturers and Exporters Association (SGMEA), Jalandhar	SHRI VIPIN MAHAJAN
Stag International Sports, Meerut	SHRI RAKESH KOHLI SHRI VIVEK KOHLI (*Alternate*)
Universal Sports, Jalandhar	SHRI MAHESH CHADHA
Voluntary Organisation In Interest Of Consumer Education (Voice), New Delhi	SHRI M. A. U. KHAN
Yonker Skates Private Limited, Delhi	SHRI OJASVI NAGPAL
BIS Directorate General	SHRI R. R. SINGH, SCIENTIST 'F'/SENIOR DIRECTOR AND HEAD (PRODUCTION AND GENERAL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary

SHRI AJAY KUMAR
SCIENTIST 'B'/ASSISTANT DIRECTOR
(PRODUCTION AND GENERAL ENGINEERING), BIS

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-www.bis.gov.in or www.standardsbis.in.

This Indian Standard has been developed from Doc No.: PGD 41 (21784).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.gov.in

Regional Offices:		*Telephones*
Central	: 601/A, Konnectus Tower -1, 6th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	2323 7617
Eastern	: 8th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	2367 0012 2320 9474
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	265 9930
Southern	: C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	2254 1442 2254 1216
Western	: 5th Floor/MTNL CETTM, Technology Street, Hiranandani Gardens, Powai Mumbai 400076	25700030 25702715

Branches : AHMEDABAD, BENGALURU, BHOPAL, BHUBANESHWAR, CHANDIGARH, CHENNAI, COIMBATORE, DEHRADUN, DELHI, FARIDABAD, GHAZIABAD, GUWAHATI, HARYANA (CHANDIGARH), HUBLI, HYDERABAD, JAIPUR, JAMMU, JAMSHEDPUR, KOCHI, KOLKATA, LUCKNOW, MADURAI, MUMBAI, NAGPUR, NOIDA, PARWANOO, PATNA, PUNE, RAIPUR, RAJKOT, SURAT, VIJAYAWADA.

Published by BIS, New Delhi