***भारतीय मानक***

***Indian Standard***

**IS 4613 : 2024**

जैवलिन — विशिष्टि

( ***दूसरा पुनरीक्षण*** )

**Javelin** — **Specification**

( *Second Revision* )

ICS 97.220.30; 97.220.40

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भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

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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 is 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:

1. Javelin has been classified into different types based on its uses,
2. Material has been updated, and
3. Manufacturing and workmanship clause has been updated.

The composition of the Committee, responsible for the formulation of this standard is listed 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:

1. GU18 — Recommended for girls under 18 years of age.
2. GU20/SW — Recommended for girls under 20 years of age or senior women.
3. BU18 — Recommended for boy under 18 years of age.
4. BU20 — Recommended for boy under 20 years of age.
5. 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.

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

**3.7** 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.

**3.8** 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*

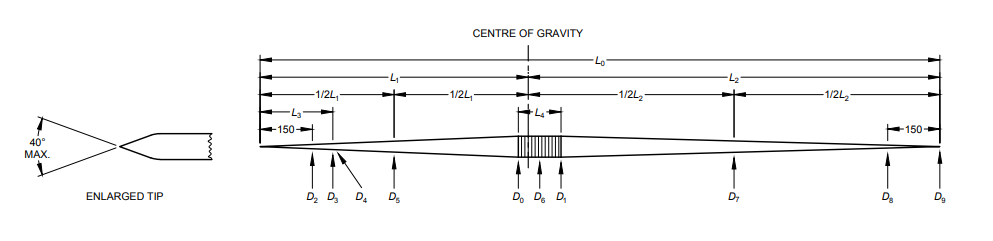
Cord grip shall be as per **3.4**.

**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.



| **Lengths** | | **Diameters** | | **Maximum** | **Minimum** |
| --- | --- | --- | --- | --- | --- |
| L0 | Overall length | D0 | In front of grip | — | — |
| L1 | Tip to C of G | D1 | At rear of grip | D0 | D0-0.25mm |
| L1 | Half L1 | D2 | 150 mm from trip | 0.8 D0 | — |
| L2 | Tail to C of G | D3 | At rear of head | — | — |
| L2 | Half L2 | D4 | Immediately behind head | — | D.-2.5mm |
| L3 | Head | D5 | Half way tip to C of G | 0.9 D0 | — |
| L4 | Grip | D6 | Over grip | D0+8mm | — |
|  |  | D7 | Half way tail to C of G | — | 0.9 D0 |
|  |  | D8 | 150mm from tail | — | 0.4 D0 |
| C of G | Centre of Gravity | D9 | At tail | — | 3.5mm |
| Note — All measurements of diameters shall be at least 0.1 mm. | | | | | |

All dimensions are 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 (L0),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 (L1), mm | 780 - 880 | 800 - 920 | 860 - 1 000 | 900-1 060 | 900 – 1 060 |
| iv) | Distance from tail to centre of gravity (L2), 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 (L3), mm | 220 - 270 | 250 - 330 | 250 - 330 | 250 - 330 | 250 - 330 |
| vi) | Width of cord grip (L4), mm | 135 - 145 | 140 - 150 | 150 - 160 | 150 - 160 | 150 - 160 |
| vii) | Diameter of shaft at thickest point (D0), mm | 20 - 24 | 20 - 25 | 23 - 28 | 25 - 30 | 25 - 30 |

**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.

### 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)*  Shri Vinit Pundir (*Alternate)* | |
| 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, Gurgaon | 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 | |
| SGS India Private Limited, Mumbai | Shri Amit Saluja  Shri Sailesh Sharma (*Alternate)* | |
| Sanspareils Greenlands Pvt Ltd, Meerut | SHRI PUNEET ANAND  Shri Puneet Arora (*Alternate*) | |
| Shri Ram Institute For Industrial Research, Delhi | Ms. Archana Bisht  Shri Dr. Manmohan Kumar | |
| Soccer International Pvt Ltd, Jalandhar | MS SHAALINI GUPTA | |
| Softball Association of India | | MS SHIBANI TAGORE |
| Sports Authority of India | | Shri K.C. Meena  Shri Vishnubhtla Sharma (*Alternate)* |
| Sports and Toys Exporters Association, Jalandhar | | Shri Nitin Mahajan |
| 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