

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

Not to be reproduced without permission of BIS or use as Standard

Doc No.: PGD 41 (21784)

May 2024

भारतीय मानक मसौदा

जेवलिन् – विशिष्ट

(IS 4613 का दूसरा पुनरीक्षण)

Draft Indian Standard

Javelin Specification

(*Second Revision of IS 4613*)

ICS 97.220.30

Sports Goods Sectional Committee, PGD 41 Last date of comment is May 31st, 2024

FOREWORD

This Indian Standard (Second Revision) will be adopted by the Bureau of Indian Standards, after the draft finalized by the Sports Goods Sectional Committee is 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 involve throwing a javelin as far as possible.

This standard was first published in 1968 and 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:

- 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.

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*)’.

JAVELINS — SPECIFICATION
(*Second Revision of IS 4613*)

1 SCOPE

This standard prescribes the requirements of javelins 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
- e) SM — Recommended for senior men

3 MANUFACTURE, WORKMANSHIP, AND FINISH

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

3.2 The shaft may be constructed 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.

3.3 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° .

3.4 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.

3.5 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 may not exceed 2.5 mm and this departure from the longitudinal profile requirement may 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 must 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 immediately behind the joint between the head and the shaft. At this point it must 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*

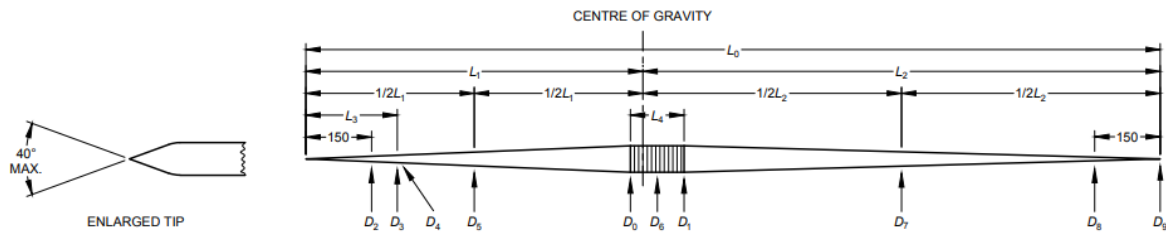
Cord grip shall be as per **3.4**.

4.2 Shape and Dimension

Typical shape of the javelins is shown in Fig. 1. The dimensions of the javelins for men and women 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
L_0	Overall length	D_0	In front of grip	—	—
L_1	Tip to C of G	D_1	At rear of grip	D_0	$D_0 - 0.25\text{mm}$
$\frac{1}{2} L_1$	Half L_1	D_2	150 mm from trip	$0.8 D_0$	—
L_2	Tail to C of G	D_3	At rear of head	—	—
$\frac{1}{2} L_2$	Half L_2	D_4	Immediately behind head	—	$D_0 - 2.5\text{mm}$
L_3	Head	D_5	Half way tip to C of G	$0.9 D_0$	—
L_4	Grip	D_6	Over grip	$D_0 + 8\text{mm}$	—
		D_7	Half way tail to C of G	—	$0.9 D_0$
		D_8	150mm from tail	—	$0.4 D_0$
C of G	Centre of Gravity	D_9	At tail	—	3.5mm

Note — All measurements of diameters must 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, <i>Min</i>	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

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 supplier.

5.2 Marking

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

- a) The manufacturer's name;
- b) Weight;
- c) Type of Javelin; and
- d) 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.