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भारतीय मानक मसौदा
मजल लोडिंग शॉट गन, एकल और दुनाली के लिए विशिष्टि
(IS 10491 का पहला पुनरीक्षण)

Draft Indian Standard
SPECIFICATION FOR
MUZZLE LOADING SHOT GUNS, SINGLE AND
DOUBLE BARREL
(First revision of IS 10491)

UDC 623.442.1 : 623.442.6

Arms and Ammunition for Civilian Use
Sectional Committee PGD 28

Last Date for Comments: XXXX

NATIONAL FOREWORD

This Indian Standard (First Revision) will be adopted by the Bureau of Indian Standards after the draft finalized by the Arms and Ammunition for Civilian Use Sectional Committee will be approved by the Production and general Engineering Division Council.

This Indian Standard originally published by the Indian Standards Institution on 1983, The first revision of this standard has been taken up to include the last methods for Arms and Ammunition for Civilian Use being practiced across the globe.

This standard covers the dimensional, material and testing requirements for muzzle loading shot guns, single and double barrel. Shot guns are required by civilians for games and hunting purposes.

Proof testing of each gun is a statutory requirement under Arms Act 1958 and Arms Rules 1962 (New 2016) and is to be carried out in accordance with the Rules, Regulations and Scales Applicable to the Proof of Sporting Arms in India as amended from time to time and issued by the Ministry of Defence. For this purpose the procedure to be followed for submission of shot guns for proof testing has been laid down by the Controllerate of Inspection (Small Arms), Ichapur and the procedure booklet as well as inspection gauges are available with them. Proof testing and marking is done as per above rules and procedure.

In preparation of this standard, assistance has been derived from the Arms Act 1958 and Arms Rules 1962 of Government of India.

In this revision, the following changes have been made:

- a) New figures have been added;
- b) Practices of fitting removal and cleaning have been updated; and
- c) Structure of the document 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 revised*).' 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
**SPECIFICATION FOR MUZZLE LOADING SHOT GUNS,
SINGLE AND DOUBLE BARREL**

1 SCOPE

Covers the dimensional, material and testing requirements for muzzle loading shot guns, single and double barrel.

2 REFERENCES

<i>IS No.</i>	<i>Title</i>
IS 6005 : 1998	Code of practice for phosphating of iron and steel

3 DIMENSIONS AND NOMENCLATURE

3.1 Dimensions

Shall be as shown in Fig. 1.

A — Length of breech plug (hut)	= 19.05 mm Min.
B — Bore diameter at 229 mm from breech end	= 19.075 mm 18.034 mm
C — Outside diameter at 76 mm from muzzle end	= Actual diameter to be recorded and no machining to be done after proof test.
L — Barrel lengths	= 762, 813, 864, and 914 mm (single barrel) 660, 711, 762, and 813 mm (double barrel)

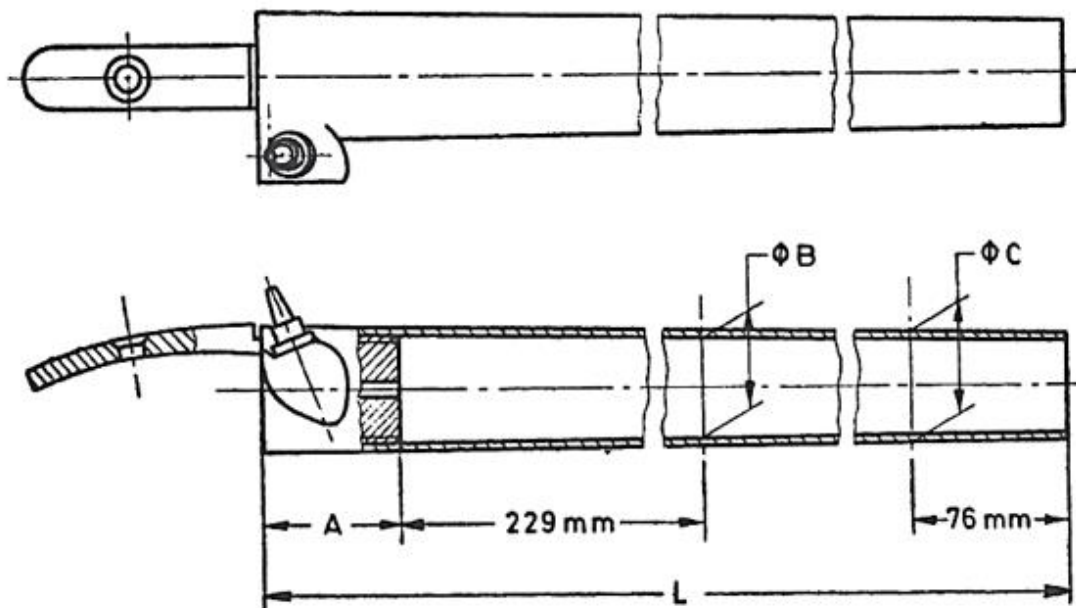


FIG. 1 DIMENSIONS FOR BARREL FOR MUZZLE LOADING SHOT GUN

3.2 Nomenclature

Illustrative sketches of single barrel and double barrel muzzle Loading shot guns along with the nomenclature of parts are shown in Fig. 2 and 3 respectively.

4 MATERIAL

Barrel — IS 5517 : 1993 'Specification for steel for hardening and tempering' Grade 40Cr4Mo3 or 40C8 or 45C8 or 50C8. If made by forging — IS 1875 : 1992 'Specification for carbon steel billets, blooms, slabs and bars for forging', Grade 45C8 or 55C8.

Heat treatment — To be heat treated to achieve mechanical properties given below:

UTS=700 to 850 MPa

0.2% proof stress — 480 Mpa *Min.*

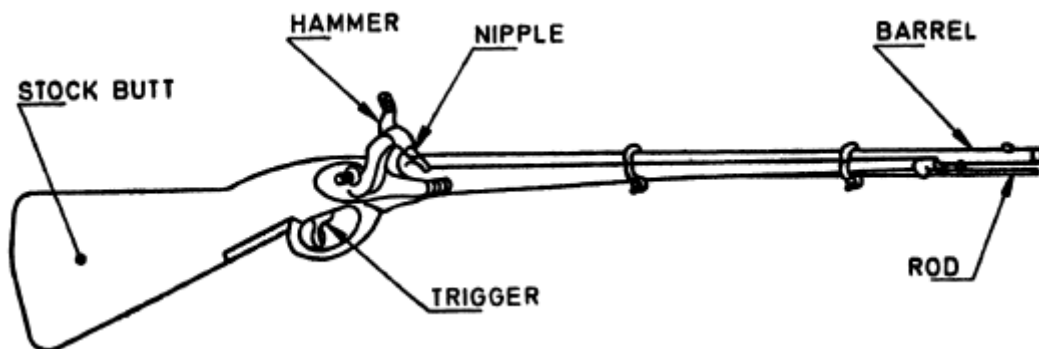


FIG. 2 SINGLE BARREL MUZZLE LOADING SHOT GUN

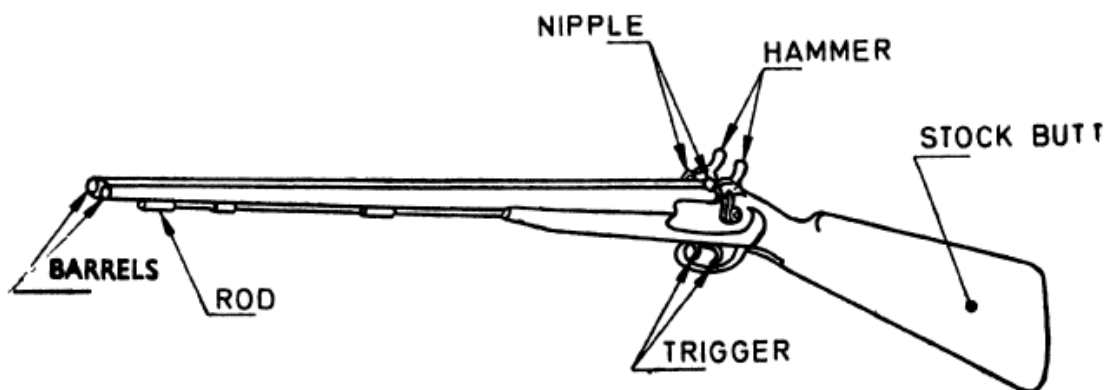


FIG. 3 DOUBLE BARREL MUZZLE LOADING SHOT GUN

Body — IS 5517 : 1993 Grade 55C8 or 40Ni 14 or IS : 3930- 1994 'Specification for flame and induction hardening steels' Grade 55C6 or 37 Mn6 or 47Mn6.

Trigger	<p>— IS 5517 : 1993 Grade 35Mn6Mo3 or 35Mn6Mo4 or 40Cr4Mo3 or 40Cr4. If made by forgings — IS 4368 : 1967 'Specification for alloy steel billets, blooms and slabs for forgings for general engineering purposes' Grade 40Cr1 or 35Mn2Mo28.</p> <p>Heat treatment — To be heat-treated to achieve mechanical properties given below: UTS=800 MPa <i>Min.</i> 0.2% proof stress = 600 MPa <i>Min.</i> Elongation on $5.65\sqrt{A}$ = 16% <i>Min.</i> Izod Impact = 55J. Hardness = 250 HV generally and 400 HV locally at the catch pont.</p>
Sear	<p>— IS 5517 : 1993 Grade 3INi10Cr3Mo6 or IS 3431 : 1982'Specification for steel for volute, helical and laminated springs for automotive suspension' Grade 50Cr4V2 or 55Si7 or 60Si7 or 65Si7 or IS 3885 (Part 1) : 1992 'Specification for steel for manufacture of laminated springs (railway rolling stock), Part I, Flat sections (<i>first revision</i>)' Grade 55Si7.</p> <p>Heat treatment — To be heat-treated to 350-450 HV generally and 600-700 HV locally at catch point.</p>
Hammer	<p>— IS 5517 :1993 Grade 55C8 or 40Cr4 or 37C15. If made by forging — IS 1875 : 1992 Grade 55C8 or IS 4368 : 1967 Grade 40Cr1 or IS 2004 : 1991 'Specification for carbon steel forgings for general purposes' Grade 55C8.</p> <p>Heat treatment — To be heat-treated to 350-450 HV generally and 500-550 HV locally at striking face.</p>
Main Spring	<p>— IS 3431 : 1982 Grade 55Si7 or 60Si7 or 65Si7 or IS 3885(Part 1) : 1992 Grade 55Si7.</p> <p>Heat treatment — To be heat-treated to 450-550 HV.</p>
Fastener Fore-end	<p>— IS 4432 : 1988 'Specification for case hardening steels' Grade C10 or C14.</p> <p>Heat treatment — To be heat-treated to 400-500 HV.</p>
Spring Lever Top	<p>— IS 3431 : 1982 Grade 55Si7 or 60Si7 or 65Si7 or IS 3885 (Part 1) : 1977 Grade 55Si7.</p> <p>Heat treatment — To be heat-treated to 500-550 HV.</p>
Catch Hook	<p>— IS 5517 : 1993 Grade 55C8.</p> <p>Heat treatment — To be heat-treated to 400-450 HV.</p>
Stock Butt and Stock Fore-end	<p>— IS 7549 : 1975 'Specification for timber half wrought for sporting rifles'.</p>

5 FUNCTIONAL REQUIREMENTS

5.1 While fitting the nipple, care shall be taken so that there is no leakage to affect gas pressure.

5.2 For mechanical safety, gun shall be so designed that it shall not fire until and unless it is fully locked.

6 WORKMANSHIP AND FINISH

6.1 The guns shall be finished with good surface and smoothness all over preventing sharp corners/edges.

6.2 Timber for wooden parts of gun shall be tough, close and straight grained and it shall be properly seasoned. It shall be free from worm or insect holes, knots, warps or other imperfections. It shall be easily machine able and capable of taking high degree of polish.

7 INSPECTION AND TESTING

7.1 The following aspects shall be checked:

- a) Condition of the barrel bore to be checked visually. The bore shall be free from any blemishes like cracks, dents, bulge, damage, rust, pit marks and tool marks.
- b) In case of double barrel guns, soldering condition of ribs at top and bottom shall be checked for their soundness.
- c) Mass of any gun shall not exceed 3.50 kg.
- d) Trigger pull shall be 25 N to 35 N (in case of double barrel, front trigger for right barrel to be kept 25 N less than rear trigger for left barrel).
- e) Mass of hut
0.19 kg (single barrel)
0.25 kg (double barrel)
- f) Mass of Barrel
0.90 kg (single barrel, without furniture)
2.48 kg (double barrel).

7.2 Proof Testing

7.2.1 Proof-testing of each gun is a statutory requirement under the Arms Act 1958 and Arms Rules 1962 and is to be carried out in accordance with the Rules, Regulations and Scales Applicable to the Proof of Sporting Arms in India issued by the Ministry of Defence.

7.2.2 After proof-testing, final inspection shall be carried out to ascertain any damage, deformation or deviation as a result of proof-firing.

7.2.3 After proof-testing no further machining inside the bore or on outside diameter shall be carried out.

8 MARKING

8.1 Identification marks shall be stamped on every gun so as to show distinctly:

- a) The maker's name and registered trade-mark, if any;

- b) The serial number (registered number) of the gun as entered in the maker's register;
and
- c) Year of manufacture.

8.2 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. Details available with the Indian Standards Institution.

9 SURFACE PROTECTION

All metal surfaces shall be protected from rust by phosphating followed by appropriate sealing by paint/oil according to IS 6005 or alternatively all metal surfaces shall be protected by suitable process of blueing/browning to ensure same results as obtained by phosphating according to IS 6005.