BUREAU OF INDIAN STANDARDS
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भारतीय मानक मसौदा

ब्रीच लोडिंग शॉट गन, एकल और दुनाली के लिए विशिष्टि

(*IS 10490 का पहला पुनरीक्षण*)

Draft Indian Standard

SPECIFICATION FOR BREECH LOADING SHOT GUNS SINGLE AND DOUBLE BARREL

(*First revision of IS 10490*)

UDC 623.442.6.047

Arms and Ammunition for Civilian Use Sectional Committee PGD 28	Last Date for Comments: XXXX

NATIONAL FOREWORD
(*Formal clauses will be added later*)

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 breech 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 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, Government of India. 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. They have also laid down the procedure to be followed for pattern shooting test which is available with them.

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 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.

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Indian Standard

SPECIFICATION FOR BREECH LOADING SHOT GUNS SINGLE AND DOUBLE BARREL

1 SCOPE

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

2 REFERENCES

IS No.	*Title*
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.

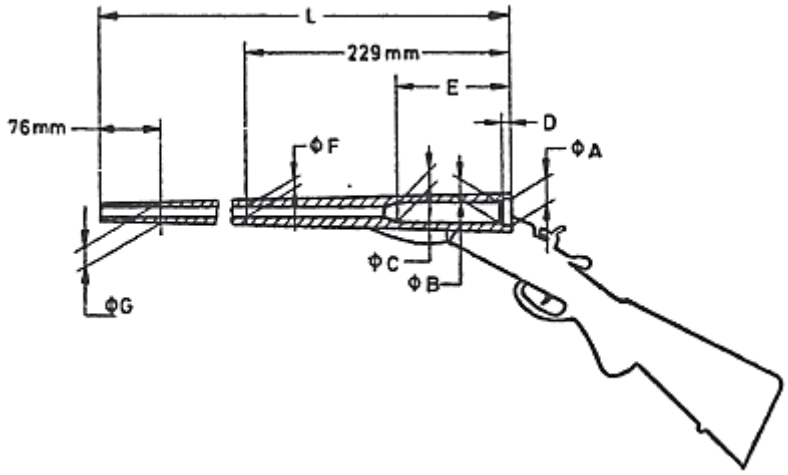

FIG. 1 DIMENSIONS FOR BREECH LOADING SHOOT GUN

A – Head recess diameter	22.76 mm = 22.50 mm
B — Under head diameter	20.90 mm = 20.65 mm
C — Forward diameter	20.57 mm = 20.32 mm
D — Depth of head recess	2.007 mm = 1.880 mm
E — Chamber lengths	= 64, 70 and 76 mm
F — Bore diameter at 229 mm from breech end	19.075 mm = 18.034 mm
G — Outside diameter at 76 mm from muzzle end	= Actual to be recorded and no machining to after proof test
L — Lengths of barrel	762, 813, 864 and 914 mm (single barrel) = 660, 711, 762 and 813 mm (double barrel)

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

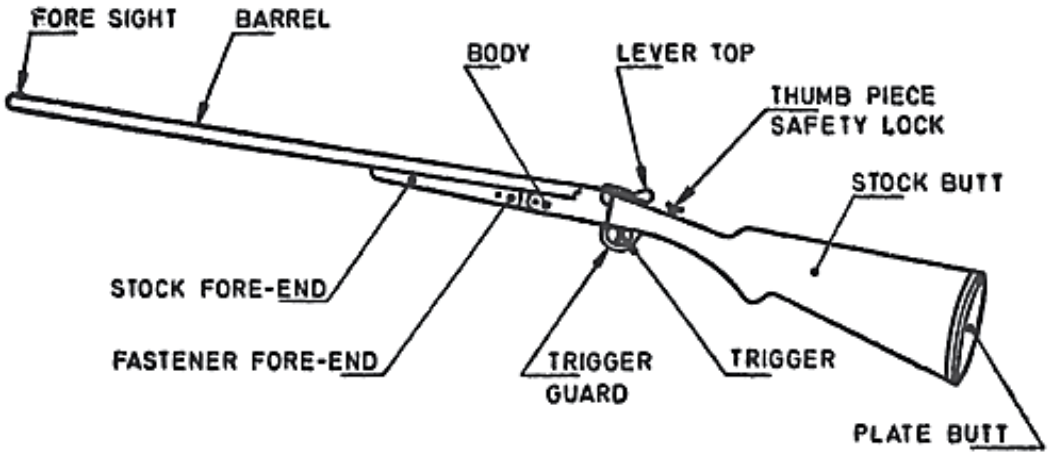

FIG. 2 SINGLE BARREL BREECH LOADING SHOT GUN

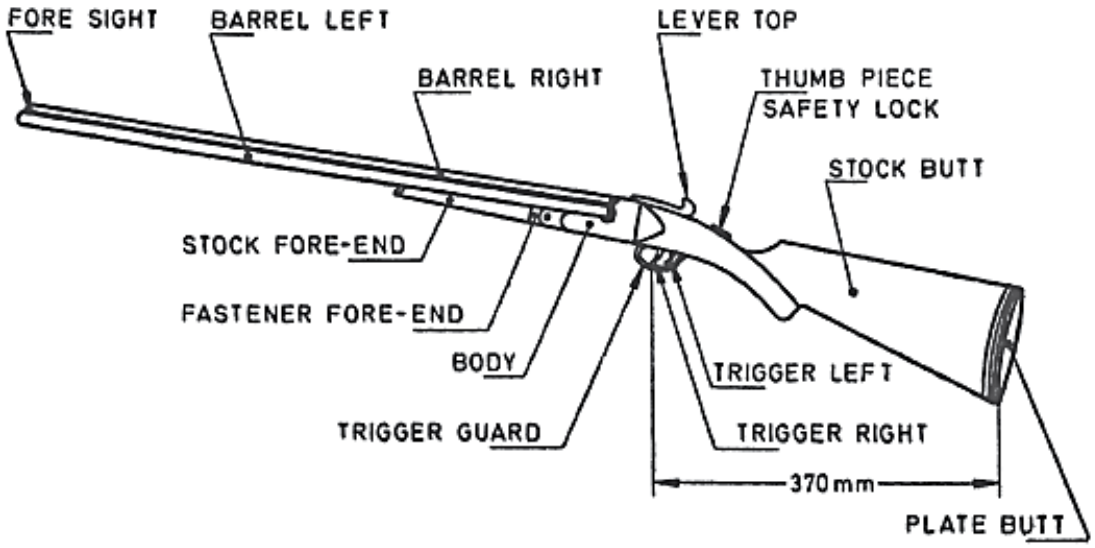

FIG. 3 DOUBLE BARREL BREECH LOADING SHOT GUN

4 MATERIAL

Barrel	IS 5517 : 1993 'Steel for hardening and tempering' grade 40Cr4Mo3or 40C8 or 45C8 or 50C8. If made by forging — IS 1875 : 1992 '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 percent Proof Stress = 480 MPa *Min.*

Body	IS 5517 : 1993 Grade 55C8 or 40N1 14 or IS 3930 : 1979 (1994) 'Flame and induction hardening steels' Grade 55C 6 or 37 Mn 6 or 47 Mn 6.
Trigger	IS 5517 : 1993 grade 35Mn6Mo3 or 35Mn6Mo4 or 40Cr4Mo3 or 40Cr4. If made by forgings — IS 4369 : 1967 'Alloy steel billets, blooms and slabs for forgings for general engineering purposes' Grade 40Crl or 35Mn 2Mo28. Heat treatment — To be heat treated to achieve mechanical properties given below: UTS = 800 MPa *Min.* 0.2 Percent proof stress = 600 MPa *Min.* Elongation on 5.65 √ A = 16 percent *Min.* Load impact = 55J Hardness = 250 *HV* generally and 400 *HV* locally at the catch point
Sear	IS 5517 : 1993 Grade 3INil0Cr3Mo6 or IS 3431 : 1975 (1982)'Steel for volute, helical and laminated springs for automotive suspension' Grade 50Cr4V2 or 55Si7 or 60Si7 or 65Si7 or IS 3885 (Part 1) : 1992 'Steel for manufacture of laminated springs (railway rolling stock): Part I Flat sections (*first revision*)' Grade 55Si7. Heat treatment — To be heat treated to achieve hardness of 350-450 HV generally and 600-700 *HV* locally at catch point.
Hammer / Pin Firing	IS 5517 : 1993 Grade 55C8 or 40Cr4 or 37C15. If made by forging — IS 1875 : 1992 Grade 55C8 or IS 4368 : 1967 Grade 40Crl or IS 2004 : 1991 'Carbon steel forgings for general purposes' Grade 55C8. Heat treatment — To be heat treated to achieve hardness of 350-450 *HV* generally and 500-550 *HV* locally at striking face.
Main spring	IS 3431 : 1982 'Steel for volute, helical and laminated springs for automotive suspension (*first revision)*' Grade 55S17 or 60S17 or 65S17 or IS 3885 (Part 1) : 1993 'Steel for the manufacture of laminated springs (railway rolling stock) Part I Flat sections (first *revision):*Grade 55S17. Heat treatment — To be heat treated to achieve hardness 450-550 *HV.*
Fastener fore-end	IS 4432 : (1988) 'Case hardening steels' Grade C10 or C14. Heat treatment — To be heat treated to achieve hardness of 400-500 *HV*

Spring lever Cop	IS 3431 : 1982 Grade 55Si7 or 60Si7 or 65Si7 or IS 3885 (Part 1) : 1993 Grade 55Si7. Heat treatment — To be heat treated to achieve hardness of 500-550 *HV*
Catch hook	IS 5517 : 1993 Grade 55C8. Heat treatment — To be heat treated to achieve hardness of 400-450 *HV.*
Stock butt and stock fore-end	IS 7549 : 1975 'Timber half wrought for sporting rifles'.

5 FUNCTIONAL REQUIREMENTS

5.1 Clearance between body and barrel after engagement shall not be more than 0.05 mm.

5.2 Concentricity of the firing pin has to be more or less centred and the eccentricity shall not be more than 0.25 mm.

5.3 The protrusion of the pin firing shall be within 1.40 to 1.70 mm. Diameter of the pin firing shall be 1.40 to 1.75 mm with spherical radius at pin firing point.

5.4 The pin firing impact shall be 0.212 Nm.

5.5 For mechanical safety, the gun shall be so designed that it must not fire until and unless it is fully locked in case the gun is internally cocked.

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) Weight of any gun shall not exceed 3.50 kg except that weight of 813 mm double (side by side) barrel gun shall not exceed 3.80 kg.
d) Trigger pull shall be 25 to 35 N (in case of double barrel, front trigger for right barrel to be kept 2.5 N less than rear trigger for left 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 (*see also* Explanatory Note).

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.

7.3 Pattern Shooting Test

In order to achieve accuracy in the gun, barrel bore is choked towards the muzzle end. However, provision of choke is optional. Gun manufacturers have the choice to select the type of choke to be incorporated in the gun and the same has to be indicated.

At 36.5 m range on a target having 762 mm diameter, the pellets shall hit the target as follows:

Type of Choke	**Amount of Choke/ Constriction in Bore** Mm	**Percentage of Original Number of Pellets in the Shot Charge percent Min**
Full choke	1.020	70
Three quarter choke	0.762	65
Half choke	0.508	60
Quarter choke	0.254	55
Improved cylinder	0.76 to 0.127	50
True cylinder	Nil	40

8 MARKING

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

a) Maker's name and registered trade - mark, if any;
b) Serial number (registered number) of the gun; 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.

9 SURFACE PROTECTION

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