

Indian Standard
**SPECIFICATION FOR
 GALVANIZED STEEL BARBED WIRE FOR FENCING**

(*Third Revision*)

(Incorporating Amendment Nos. 1, 2, 3 & 4)

1. Scope — Covers the requirements for two types of galvanized steel barbed wire with two strands of wire.

2. Terminology

2.1 Length of the Barb — Shall mean the distance of the barb point from the axis of the line wire or wires around which the point wire is wound.

2.2 Line Wire — Shall mean a wire of specified diameter of which the barbed wire is made.

2.3 Point Wire — Shall mean a wire of specified diameter of which the barbs are made.

2.4 Reel — Shall mean a coil of wire wound round a frame.

3. Types

3.1 Type A (Iowa Type) — The barbs shall have four points and shall be formed by twisting two point wires, each two turns, tightly around both line wires making altogether four complete turns (see Fig. 1).

3.2 Type B (Glidden Type) — The barbs shall have four points and shall be formed by twisting two point wires, each two turns, tightly around one line wire making altogether four complete turns (see Fig. 1).

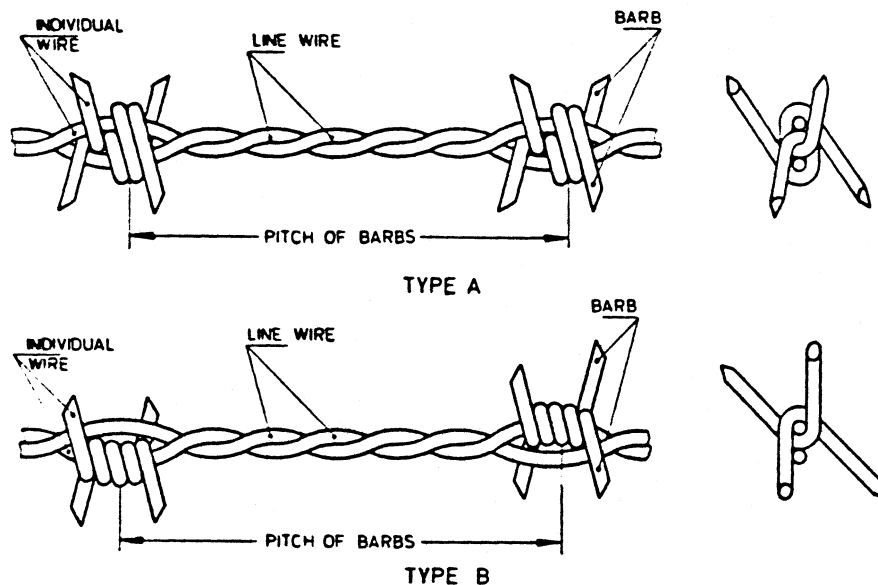


FIG. 1 DETAILS OF BARBED WIRE

Wire Ropes and Wire Products Sectional Committee, EDC 32; Wire Products (Other than Wire Ropes) Subcommittee, EDC 32 : 3 [Ref : Doc : EDC 32 (2520)]

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Price Group 2

BUREAU OF INDIAN STANDARDS
 MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
 NEW DELHI 110002

4. Sizes

Size Designation	Diameter of Wire				Mass of Completed Barbed Wire		Distance Between Two Barbs mm	No. of Lays Between the Two Consecutive Barbs
	Line Wire		Point Wire		Max g/m	Min g/m		
	Nom mm	Tol mm	Nom mm	Tol mm				
1	2.50	± 0.08	2.50	± 0.08	155	136	75 ± 12	2 to 7
2	2.50	± 0.08	2.50	± 0.08	120	108	150 ± 12	2 to 7
3	2.50	± 0.08	2.00	± 0.08	125	108	75 ± 12	2 to 7
4	2.50	± 0.08	2.00	± 0.08	103	89	150 ± 12	2 to 7
5	2.24	± 0.08	2.00	± 0.08	106	97	75 ± 12	2 to 7
6	2.24	± 0.08	2.00	± 0.08	85	78	150 ± 12	2 to 7

Note — The mass in g/m shall be obtained by dividing the total mass of the reel by the linear length in metres.

5. Material — The galvanized barbed wire shall be manufactured from galvanized mild steel wire conforming to IS : 280-1978 'Mild steel wire for general engineering purposes (*third revision*)'. The galvanizing shall conform to the requirements as laid down for medium coated wire in IS : 4826-1979 'Hot-dipped galvanized coatings on round steel wires (*first revision*)'.

6. Manufacture

6.1 The barbed wire shall be formed by twisting together two line wires, one or both containing the barbs.

6.2 The barbs shall be so finished that the four points are set and located or locked as far as possible at right angles to each other (*see Fig. 1*). The barbs shall have a length of not less than 13 mm and not more than 18 mm. The points shall be sharp and cut at an angle not greater than 35° to the axis of the wire forming the barb.

7. Chromating

7.1 Clause deleted

7.2 The barbed wire may also be given chromating dip when agreed to between the manufacturer and the purchaser. In case chromating dip is to be given, the same shall conform to IS : 1340-1959 'Code of practice for protective coating of zinc base alloys'.

8. Freedom From Defects

8.1 The line and point wires shall be circular in section, free from scales and other defects and shall be uniformly galvanized.

8.2 The line wire shall be in continuous lengths and shall not contain any welds other than those in the rod before it is drawn. The distance between two successive weldings in the line wire of finished barbed wire shall not be less than 15 m. There shall be no splicings.

9. Designation — A galvanized steel barbed wire of Type A and of size designation 1 shall be designated:

Steel Barbed Wire, A-1 IS : 278

10. Sampling — Unless otherwise agreed to between the manufacturer and the purchaser the sampling plan as given in Appendix A shall be followed.

11. Tests

11.1 Tensile Test — The completed barbed wire and the individual line wires shall have minimum breaking loads as specified in Table 1. The test on the line wire shall be carried out in accordance with IS : 1521-1972 'Method for tensile testing of steel wire (*first revision*)'. The method of testing the completed barbed wire shall be subject to agreement between the manufacturer and the purchaser.

TABLE 1 TENSILE PROPERTIES

(Clause 11.1)

Size of Line Wire mm	Tensile Strength of Line Wire N/mm ²	Minimum Breaking Load of Completed Barbed Wire kN
2.50	390 to 590	3.7
2.24	390 to 590	3.0

11.2 Zinc Coating

11.2.1 Line Wire — The zinc coating on line wire shall satisfy the requirements as laid down for minimum medium coated wire conforming to IS : 4826-1979 'Specification for galvanized coatings on round steel wires' subject to a reduction of not more than 5 percent of the values specified in IS : 4826-1979.

11.2.2 Point Wire — The point wire shall be tested only for mass of zinc coating. The wire shall meet the requirements as laid down for minimum 'medium coated' wire of IS : 4826-1979 subject to reduction of not more than 15 percent of the values specified in IS : 4826-1979. A total number of 5 barbs shall be employed for conducting the test and the points of the barbs shall be cut before subjecting them to the test.

Note

1 If wire is tested for uniformity as per IS : 2633 after barbing, the requirements of preece test is to be reduced by one dip of half minute.

2 The preece test as per IS : 2633 shall not be applicable in case of aged and weathered barbed wire.

11.3 Ductility Test — The wire shall be subjected to the wrapping test in accordance with IS : 1755-1961 'Method for wrapping test of wire'. The line wire shall withstand wrapping and unwrapping eight turns round its own diameter without fracture.

12. Marking — Every reel of barbed wire shall be marked legibly with the name of the manufacture, the type of barbed wire, the diameters of the line and point wires, barb spacing and length and/or mass of the reel.

12.1 Certification Marking — Details available with the Bureau of Indian Standards.

13. Coiling and Packing

13.1 Unless otherwise agreed to between the supplier and the purchaser, the barbed wire shall be supplied in metal or wooden reels.

13.2 Each reel of barbed wire shall be wound and fastened compactly.

APPENDIX A

(Clause 10)

A-1. Scale of Sampling

A-1.1 Lot — All the reels of galvanized steel barbed wire of the same type and same size designation manufactured under essentially similar conditions shall constitute the lot.

A-1.2 For ascertaining the conformity of the lot to the requirements of the specifications, tests shall be carried out on each lot separately. The number of reels to be selected at random for this purpose shall be in accordance with Table 2.

TABLE 2 SCALE OF SAMPLING

Number of Reels in the Lot (1)	Number of Reels to be Selected (2)
Up to 25	3
26 to 50	4
51 to 150	5
151 to 300	7
301 and above	10

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A-2. Number of Tests and Criteria for Conformity

A-2.1 All the reels selected according to **A-1.2** shall be examined for wire diameter, distance between barbs, length of barbs and freedom from defects. If all the reels are found satisfactory for each of the above characteristics the lot shall be considered conforming to the requirements of these characteristics.

A-2.2 When the lot is found satisfactory in **A-2.1**, one test specimen each from every selected reel shall be taken and subjected to tensile test (see **11.1**), zinc coating test (see **11.2**) and ductility test (see **11.3**). The lot shall be declared conforming to the requirements of these characteristics if all the test specimens satisfy the relevant requirements.

A-2.3 When so desired by the purchaser one sample for the chemical analysis shall be drawn. The lot shall be declared conforming to the requirements when the test results satisfy the relevant requirements.

A-2.4 The lot shall be declared conforming to the requirements of this specification if it is found satisfactory according to **A-2.1** to **A-2.3**.

A-2.5 In case the lot is not found satisfactory according to **A-2.1** to **A-2.3**, then the lot shall be subjected to 100 percent retesting.

E X P L A N A T O R Y N O T E

This standard was first issued as a tentative standard in 1951 and revised in 1962. The main modifications made in the second revision of the standard were:

- a) restriction of the size of point wire to 2 mm diameter,
- b) revision of table of tensile properties,
- c) rationalization of the galvanization requirements for line and point wire, and
- d) reduction in the number of types of galvanized steel barbed wire from four to two.

The experience gained during the last few years in the implementation of this standard has necessitated the third revision of the specification. The size designations 1, 2, 3 and 4 as laid down in 1969 issue of the standard now conform to size designations 3, 4, 5 and 6 respectively. The main modifications made in third revision are:

- a) Two additional sizes have been added,
- b) The zinc coating requirements have been thoroughly revised, and
- c) The various values have been given in SI units.

This edition 4.4 incorporates Amendment No. 1 (October 1983), Amendment No. 2 (January 1987), Amendment No. 3 (October 1992) and Amendment No. 4 (August 1993). Side bar indicates modification of the text as the result of incorporation of the amendments.