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**PGD 34(17592) WC**  
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*भारतीय मानक मसौदा*

**किनारे से काटने के संयुक्त प्लास – विशिष्ट**

**( IS 3650 का तीसरा पुनरीक्षण )**

*Draft Indian Standard*

**COMBINATION SIDE CUTTING PLIERS — SPECIFICATION**

*( Third Revision of IS 3650 )*

ICS 25.140.30

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Hand Tools Sectional Committee, PGD 34

**FOREWORD**

*(Formal clause will be added later)*

This standard was first published in 1966 and revised subsequently in 1973 and 1981 to bring it in line with the manufacturing practices being followed in Indian Industry at that time. The present revision has been taken up to incorporate more sizes of pliers and better varieties of steel which can have higher values of the hardness of the Side Cutters at the same level of strength.

In this revision, the following changes have been made:

- a) Clause on references has been added;
- b) The hardness of pliers near the cutting edges has been modified; and
- c) Table 1 has been modified

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 values should be the same as that of the specified value in this standard.

*Draft Indian Standard*

**COMBINATION SIDE CUTTING PLIERS — SPECIFICATION**

( *Third Revision of IS 3650* )

**1 SCOPE**

This draft standard specifies the dimensions and other requirements for combination side cutting pliers.

**2 REFERENCES**

The following Indian Standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
1501 (Part 1): 2020	Metallic materials — Vickers hardness test : Part 1 Test method ( <i>fifth revision</i> )
1586 (Part 1): 2018	Metallic materials — Rockwell hardness test : Part 1 Test method ( <i>fifth revision</i> )
2615( Part 2): 2023	Pliers and nippers : Part 2 Method of Test

**3 DIMENSIONS**

**3.1** The dimensions of the pliers shall be as per Table 1.

**3.2** The pliers shall have either flat or raised surface for side cutter and the cutting angle shall be from 90° to 120°.

**4 NOMENCLATURE**

The nomenclature for the pliers shall be as per Fig 1.

**5 GENERAL REQUIREMENTS**

The material, manufacture, workmanship and finish, preservation, packing and sampling shall conform to IS 2615 (Part 2).

**6 INSULATION**

The pliers having insulated handles shall be supplied as agreed to between the supplier and the purchaser. The insulating material shall be PVC or any other suitable material as agreed to between the supplier and the purchaser. The insulation shall cover the whole of the handle including the outer ends and may be shoulder at the head end. The insulating material shall

adhere firmly to the handles and shall be such that it does not easily splinter or get damaged. The insulation shall successfully withstand the test laid down in **11** of IS 2615 (Part 2). The test voltage shall not be marked on the tool or insulation.

## **7 HARDNESS**

**7.1** The hardness of pliers when tested at three points on flat and parallel surfaces to each of cutting edges (not beyond 3 mm away) and for body adjacent to gripping surfaces (not more than 1 mm away) shall be within the limits as given below:

Body (gripping surfaces)	: 350 to 510 HV ( $\approx$ 35 to 50 HRC)
Near the cutting edges	: 510 to 770 HV ( $\approx$ 50 HRC to 65 HRC)

**7.2** The hardness of pliers shall be determined in accordance with IS 1586 (Part 1) or IS 1501 (Part 1) as applicable.

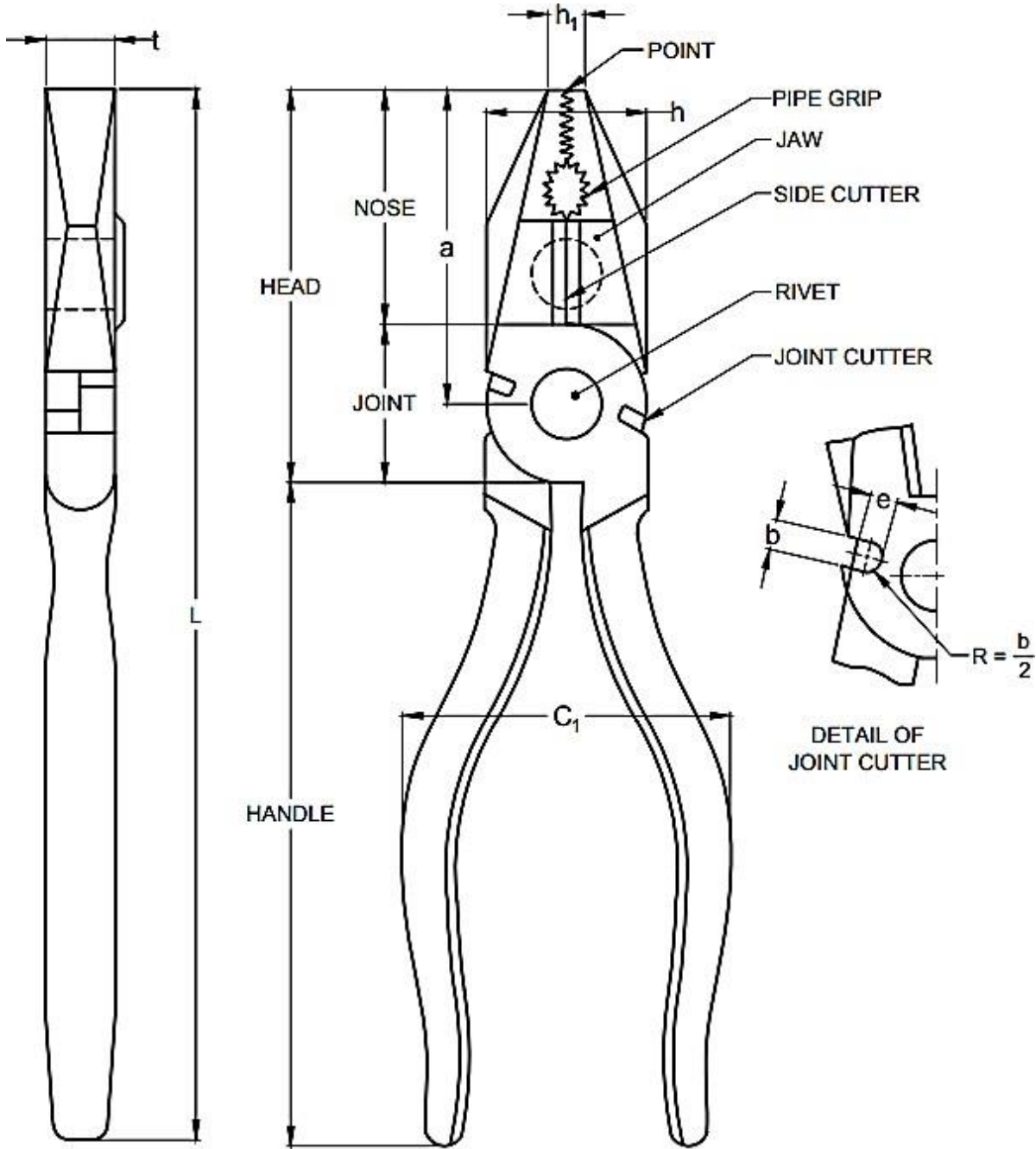


FIG. 1 NOMENCLATURE FOR COMBINATION SIDE CUTTING PLIERS

**Table 1 Dimensions of Combination Side Cutting Pliers**  
(Clauses 3 and 4)

Nominal Size (L) <sup>-0</sup> <sub>10</sub>	a ±5	b Min	C <sub>1</sub> <sup>1)</sup> ±5	e Min.	h ±3	h <sub>1</sub> ±3	t Min.
160	48	2	48	2.5	28	7	8.5
180	50	2	50	2.5	27	7.5	9.5
200	55	2	50	2.5	30	8	10.0
250	65	2	50	2.5	36	12	11.0

All dimensions are in millimeters.

<sup>1)</sup>C<sub>1</sub> shall be mentioned without sleeve.

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## 8 DESIGNATION

The combination side cutting pliers of nominal size 200 mm shall be designated as:

Combination Plier 200, IS 3650

## 9 TEST

When tested in accordance with the methods described in 9 of IS 2615 (Part 2), the combination side cutting pliers shall pass the following tests:

### 9.1 Cutting Test for Side Cutter and Joint Cutter

The side cutter and joint cutter of the pliers shall pass the cutting test for hard material, given in 5.3.3 of IS 2615 (Part 2). The side cutter shall further pass the cutting test for soft material given in 7 of IS 2615 (Part 2).

### 9.2 Tube Gripping Test

The pliers shall pass the tube gripping test given in 9 of IS 2615 (Part 2).

### 9.3 Shock Test

The pliers shall pass the shock test given in 10 of IS 2615 (Part 2).

### 9.4 Torsion Test

The pliers shall pass the torsion test given in 6 of IS 2615 (Part 2). The testing torque to be applied shall be as specified in Table 2.

### 9.5 Handle Load Test

The pliers shall pass the handle load test for deflection and permanent set as given in 4 of IS 2615 (Part 2). The test load, the combined deflection and the combined permanent set shall be as specified in Table 2.

### 9.6 Bend Test

The pliers when tested by bending hard drawn 1.25 mm diameter steel wire with the help of its gripping portion shall work satisfactorily and shall not show any sign of damage, distortion or indentation on the noses on completion of the test.

### 9.7 Insulation Test

The pliers with insulated handles shall pass the insulation test given in 11 of IS 2615 (Part 2).

**Table 2 Test Requirements for Combination Side Cutting Pliers**  
(Clauses 9.4 and 9.5)

Sl. No.	Nominal Size $L$ (mm)	Torsion Totting Torque ( $W \times R$ ) <sup>1)</sup> (Nm)		Handle Load Test	
			( $W \times L$ ) <sup>2)</sup> (Nm)	Max Combined Deflection (mm)	Max Combined Permanent Set, (mm)
(1)	(2)	(3)	(4)	(5)	(6)
1	160	9.4	94	9.60	0.76
2	180	11.7	117	12.50	0.76
3	200	13.5	135	15.24	0.76
4	250	15.8	158	19.00	0.76

<sup>1)</sup>See Fig. 2 of IS 2615.

<sup>2)</sup>See Fig. 3 of IS 2615.

## 10 MARKING

**10.1** The pliers shall be clearly and legibly stamped with the manufacturer's name, initials or recognized trade-mark. The year of manufacture, if required by the purchaser, shall also be marked.

### 10.2 BIS Certification Marking

The Pliers may also be marked with Standard Mark.

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 product(s) may be marked with the standard mark.