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Mazdoor Kisan Shakti Sangathan

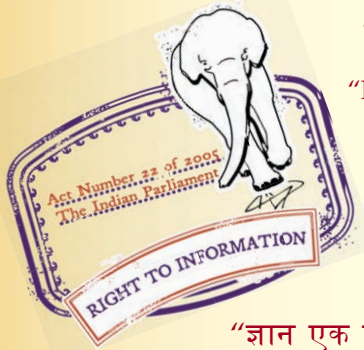
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“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 3761 (1983): Metal Side Racks (Adjustable Type) -  
Specification [CED 35: Furniture]



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Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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IS : 3761 - 1983

*Indian Standard*

SPECIFICATION FOR  
METAL SIDE RACKS ( ADJUSTABLE TYPE )

*( First Revision )*

UDC 684'464'044



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

# Indian Standard

## SPECIFICATION FOR METAL SIDE RACKS ( ADJUSTABLE TYPE )

( *First Revision* )

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( *Continued on page 2* )

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# *Indian Standard*

## SPECIFICATION FOR METAL SIDE RACKS ( ADJUSTABLE TYPE )

### *( First Revision )*

#### 0. FOREWORD

**0.1** This Indian Standard ( First Revision ) was adopted by the Indian Standards Institution on 30 December 1983, after the draft finalized by the Furniture Sectional Committee had been approved by the Civil Engineering Division Council.

**0.2** Sheet metal furniture is being made in the country for over a number of years. However, the sizes, finish and function of furniture items as made by various manufacturers require to be co-ordinated. This standard was, therefore, first prepared in 1966 to rationalize the sizes and to specify the finishes consistent with corrosion protection. In this revision the grade of materials to be used in the components have been incorporated.

**0.3** This standard contains clauses which require the purchaser to supply certain technical information at the time of placing order ( *see 8* ).

**0.4** In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

**0.5** 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 - 1960\*. 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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#### 1. SCOPE

**1.1** This standard lays down the requirements for metal side racks.

\*Rules for rounding off numerical values ( *revised* ).

## 2. MATERIALS

**2.1 Mild Steel Sheet** — Mild steel sheet shall conform to grade 0 of IS : 1079-1973\* or grade 0 of IS : 513-1973†.

**2.2 Mild Steel Angle** — Mild steel for hot rolled angle section shall conform to IS : 226-1975‡. Hot rolled mild steel angles shall conform to IS : 808-1964§. Angle sections may also be cold formed from strip steel conforming to grade 0 of IS : 4030-1973||.

**2.3 Bolts** — The bolts used for assembly of side racks shall be M6 ( 6 mm in diameter ) and the thickness of the square nut shall be 6 mm.

**2.4 Wood Particle Boards** — Wood particle boards shall conform to type FPTH of IS : 3087-1965¶.

**2.5 Veneered Particle Boards** — Veneered particle boards shall conform to type EX SO GP of IS : 3097-1980\*\*.

**2.6 Blockboards** — Blockboards shall conform to Grade 2 of IS : 1659-1979††.

**2.7 Plywood** — Plywood shall conform to grade BWR and type BB of IS : 303-1975‡‡.

## 3. DIMENSIONS AND TOLERANCES

**3.1 Dimensions** — The overall dimensions of side racks shall be as below:

Height	710 mm or height of table
Width	900 mm
Depth	375 mm

**3.1.1** The side racks shall have three shelves; the top shelf shall be flush with the top of the angle posts and, therefore, the first hole shall be appropriately located. The bottom shelf shall be fixed at the second hole from the bottom.

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\*Specification for hot rolled carbon steel sheet and strip ( *third revision* ).

†Specification for cold rolled carbon steel sheets ( *second revision* ).

‡Specification for structural steel ( *standard quality* ) ( *fifth revision* ).

§Specification for rolled steel beam, channel and angle sections ( *first revision* ).

||Specification for cold rolled carbon steel strip for general engineering purposes ( *first revision* ).

¶Specification for wood particle boards ( *medium density* ) for general purposes.

\*\*Specification for veneered particle boards ( *first revision* ).

††Specification for blockboards ( *second revision* ).

‡‡Specification for plywood for general purposes ( *second revision* ).

**3.2 Tolerances** — The dimensions specified in 3.1 shall not vary by more than  $\pm 5$  mm.

## 4. FABRICATION

**4.1 Components** — Metal side racks shall be assembled from the following components as given in 4.2 to 4.4.

**4.2 Angle Posts** — The length of angle posts shall correspond to height of rack. The thickness of post when made from sheet shall be not less than 3.0 mm. Rolled steel angle posts shall be of  $40 \times 40 \times 3$  size. Angle posts shall be free from twist, sharp edges and burrs.

**4.2.1 Holes in Angle Posts** — Angle posts shall have 8 mm diameter holes provided at 50-mm centres.

**4.3 Shelves** — Shelves shall be made from mild steel sheets not less than 1.0 mm in thickness. Shelves shall have lipped flanges, width of flange being 30 mm and depth of lip 15 mm. The size of shelves shall be derived from the dimensions of racks given in 3.1 and the thickness of angles and gussets where used.

**4.3.1 Holes in Shelves** — Shelves shall have 8 mm corresponding holes for fixing them to angle posts. In addition, shelves shall have 8-mm holes for corner gussets.

**4.3.2 Wood based panel shelf** is made from wood particle board or veneered particle board, or blockboard or plywood not less than 20 mm in thickness with four brackets fixed on the ends and sides near the corners (see Fig. 1). The brackets shall be made of mild steel sheeting not less than 1.6 mm thick and shall have 8-mm corresponding holes for fixing them to the angle posts. The wood based panel shelf may have additional 8-mm holes and fixtures, if required.

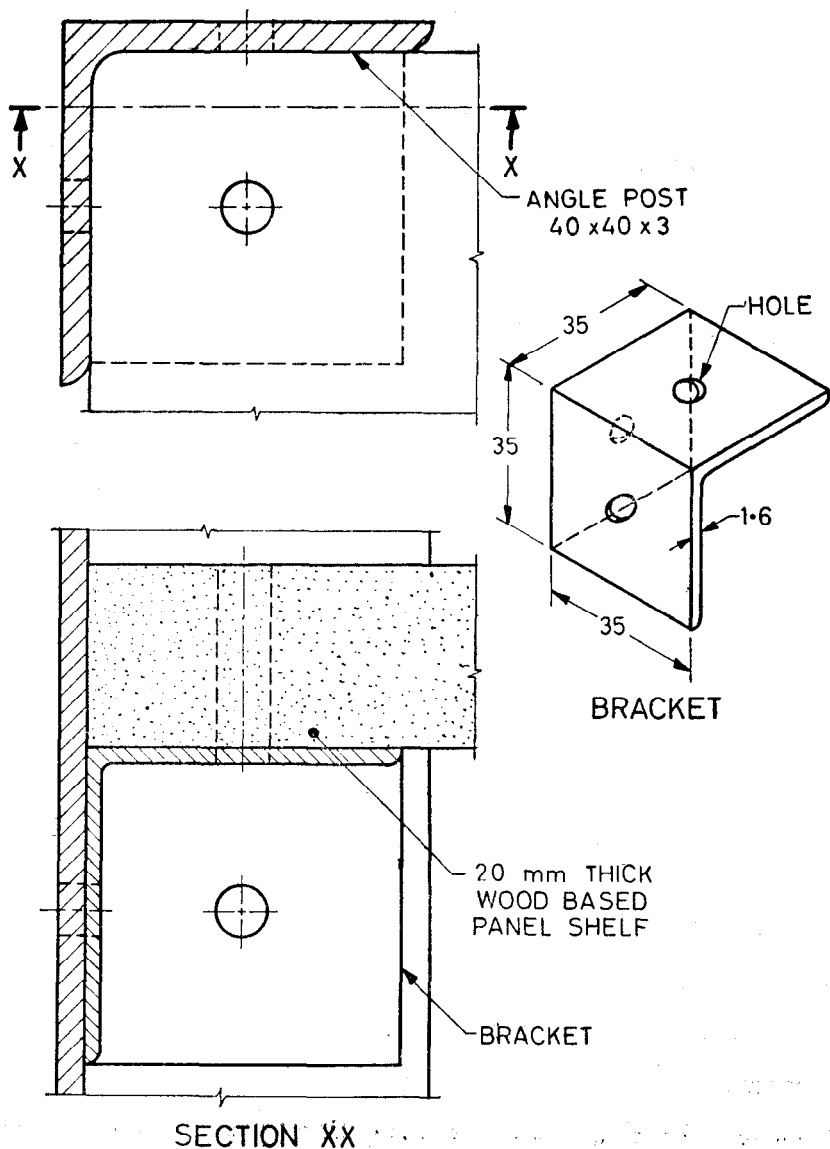
**4.4 Gussets** — Eight gussets, four on each face of the rack shall be fitted. Gussets shall be made of 1.0 mm minimum thick mild steel sheet and shall be not less than 75 mm long at each end joining to the shelf and the angle post.

## 5. ASSEMBLY

**5.1** The various components shall be assembled by means of bolting.

## 6. FINISH

**6.1** All dents, burrs and sharp edges shall be removed from the various components. The components shall be individually pickled, scrubbed and rinsed to remove grease, rust, scale or any other foreign element.



SECTION XX

All dimensions in millimetres.

FIG. 1 ARRANGEMENT FOR FIXING OF WOOD BASED PANEL SHELVES

**6.2** Immediately after pickling all the mild steel parts shall be given phosphating treatment conforming to Class C of IS : 3618-1966<sup>1</sup>. The process for application of phosphate coating shall be in accordance with IS : 6005-1970<sup>2</sup>.

NOTE — Putty shall be applied to all the surfaces requiring filling and shall conform to IS : 110-1968<sup>3</sup>. Aluminium primer shall conform to IS : 5660-1970<sup>4</sup>.

**6.3** Coat/coats of enamel paint shall then be applied as follows:

Finish coat with enamels conforming to IS : 151-1950<sup>5</sup>, IS : 2932-1974<sup>6</sup> or IS : 2933-1975<sup>7</sup>.

**6.3.1** The finish shall be smooth, uniformly applied and free from visible defects. It shall not readily chip or flake. The dry film thickness shall be not less than 0.10 mm.

**6.4** All other components shall be finished in colour as agreed to between the purchaser and the supplier.

**6.5** Wood Based Panel Components

**6.5.1** Wood putty conforming to IS : 419-1967<sup>8</sup> shall be applied to all wood based surfaces requiring filling, followed by a coat of suitable primer paint, before the finishing coat of paint is applied.

**6.5.2** Wood based panels may be finished either with transparent gloss french polish or stained dark and polished (see also IS : 2338 (Part 1) 1967<sup>9</sup>).

## 7. PERFORMANCE REQUIREMENTS OF FINISH

**7.1** Scratch Hardness Test — A sample of mild steel plate 150 × 50 mm in size and thickness 0.315 mm and finished as given in 6 shall be subjected to scratch hardness test in accordance with 15.1 of IS : 101-1964<sup>10</sup>. A scratch showing the bare metal shall not be produced on the test sample.

**7.2** Pressure Test — Samples prepared from mild steel plates of thickness of 0.315 mm and finished as given in 6 shall be subjected to pressure test in accordance with 15.2 of IS : 101-1964<sup>10</sup>. The metal surface shall not be rendered visible when the test pieces are separated after the test.

<sup>1</sup>Specification for phosphate treatment of iron and steel for protection against corrosion.

<sup>2</sup>Code of practice for phosphating of iron and steel.

<sup>3</sup>Specification for ready mixed paint, brushing, grey filler for enamels, for use over primers (first revision).

<sup>4</sup>Specification for ready mixed paint, brushing, aluminium red oxide primer.

<sup>5</sup>Specification for ready mixed paint, spraying, finishing, stoving, enamel, for general purposes, colour as required.

<sup>6</sup>Specification for enamel, synthetic, exterior (a) undercoating (b) finishing (first revision).

<sup>7</sup>Specification for enamel, exterior (a) undercoating (b) finishing (first revision).

<sup>8</sup>Specification for putty for use on window frames (first revision).

<sup>9</sup>Code of practice for finishing of wood and wood based materials : Part 1 Operation and workmanship.

<sup>10</sup>Methods of test for ready mixed paints and enamels (second revision).

**7.3 Flexibility and Adhesion Test** — A sample of mild steel plate 150 × 50 mm in size and thickness 0.315 mm and finished as given in 6 shall be subjected to flexibility and adhesion test in accordance with 16 of IS : 101-1964\*. The paint film on the test piece shall not show damage, detachment or cracking when examined under × 10 magnification.

**7.4 Stripping Test** — A sample of mild steel plate 150 × 50 mm in size and thickness 0.315 mm and finished as given in 6 shall be subjected to stripping test in accordance with 17 of IS : 101-1964\*. The scratch produced after the test shall be free from jagged edges.

**7.5 Test for Protection Against Corrosion Under Conditions of Condensation** — A mild steel panel of size 150 × 100 mm and thickness 1.25 mm and finished as given in 6 shall be subjected to test for protection against corrosion under conditions of condensation in accordance with 18 of IS : 101-1964\*. A metal surface shall show no signs of corrosion after the test.

## **8. INFORMATION TO BE SUPPLIED BY THE PURCHASER**

**8.1** The purchaser shall supply the following information to the supplier along with the order:

- a) Colour and finish; and
- b) Where alternate method of construction and finish are specified, they shall be clearly stated in the order.

## **9. PACKING**

**9.1** All the component parts shall be packed in such a way that no damage is caused to them during transit.

## **10. MARKING**

**10.1** All steel racks shall be marked with a suitable mark identifying the manufacturer.

**10.1.1** The steel racks may also be marked with the ISI Certification Mark

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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\*Methods of test for ready mixed paints and enamels ( *second revision* ).