Compendium of Indian Standards
on
Hand Tools

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Introduction

Hand tools are fundamental instruments that have shaped mechanical work and craftsmanship for centuries. This section of the compendium presents a focused overview of Indian Standards relating to four core categories of hand tools: wrenches, pliers and nippers, hammers, and screwdrivers. These tools are indispensable in applications spanning industrial manufacturing, construction, infrastructure maintenance, automotive repair, electrical and plumbing services, and household use.

Each tool category fulfills a distinct functional need:

- Wrenches enable precise torque application on nuts and bolts across critical industries such as aerospace, automotive, and heavy machinery.
- Pliers and nippers provide gripping, cutting, bending, and crimping capabilities essential in electrical, mechanical, and assembly operations.
- Hammers, one of the oldest tools, are crucial for impact-driven tasks in carpentry, forging, demolition, and installation.
- Screwdrivers are vital for driving and extracting screws in electronics, appliances, joinery, and general maintenance.

A. Wrenches

The list of major product standards published related to wrenches till date are:

1. **IS 2028 : 2004, Open Jaw Wrenches (Spanners) Specification**

   The standard specifies the dimensions, material, mechanical properties, and marking requirements for open jaw (open-end) wrenches.

   Key features:
   The standard covers various types of spanners, including single-ended, double-ended, and ISO series open jaw wrenches. It provides detailed guidelines to ensure uniformity in design and performance, enabling proper fitment with fasteners, minimizing the risk of slipping, and enhancing user safety. The standard helps manufacturers produce wrenches that meet consistent quality and performance benchmarks, promoting interchangeability and durability in hand tool usage.

2. **IS 2029 : 1998, Ring Wrenches (Spanners) – Specification**

   The standard covers the technical requirements, dimensions, and performance criteria for ring wrenches used on hexagonal or square fasteners.

   Key features:
   It includes details for single and double-ended ring spanners, ensuring compatibility with standard fasteners and promoting safe operation. The objective of IS 2029 is to provide uniform guidelines to manufacturers and users, facilitating quality control, interchangeability, and safe usage in industrial, automotive, and general mechanical applications.

3. **IS 6131 : 1980, Technical Requirements for Hand Operated Wrenches (Spanners) and Sockets**

   The standard lays down the general technical and dimensional requirements for hand-operated wrenches and socket tools.

   Key features:
   The standard ensures that wrenches are manufactured with consistent jaw sizes, proper hardness, and sufficient strength to withstand operational torque without failure. It promotes uniformity, interchangeability, and safety in tool use, providing guidance for both manufacturers and users to maintain quality and reliability in hand tools used for tightening or loosening nuts and bolts.

4. **IS 4508 : 2024 Open Ended Slugging Wrenches (Spanners) – Specification**

   The Indian Standard specifies the quality parameters for the slugging wrenches for sizes ranging between 19 mm to 230 mm.

   Key features:
   Open ended slugging wrenches are short, thick wrenches with a block-shaped end on the handle. These are used for tightening and loosening of bolts/nuts by impact load which is applied by hammering on the striking end of the spanner arm. These are commonly used in refineries, pipelines, chemical plants, flanges, and for other similar applications.

5. IS 4509 : 2024 Ring Slugging Slugging Wrenches (Spanners) – Specification

Indian Standard that specifies the requirements for ring-type slugging wrenches, which are designed to be struck with a hammer for applying high torque to fasteners.

Key features:

This standard includes dimensions, material properties, hardness requirements, and performance criteria to ensure strength, durability, and safety during heavy-duty industrial applications. The specification supports the manufacturing of reliable tools used particularly in assembly and maintenance work where controlled force is needed, such as in construction, oil and gas, and heavy machinery sectors.

6. IS 4003 (Part 1) : 2024, Pipe Wrenches — Specification Part 1 General Purpose

The standard details the specifications for general-purpose pipe wrenches, including design, material, and performance tests.

Key features:

This standard specifies requirements for general-purpose pipe wrenches used for gripping and turning pipes and pipe fittings. This standard outlines the dimensional requirements, material specifications, hardness, and performance criteria for key components such as the frame, movable jaw, adjusting nut, and springs.

7. IS 4003 (Part 2) : 1986, Specification for Pipe Wrenches — Part 2 Heavy Duty

The standard specifies the requirements for heavy-duty pipe wrenches used in demanding industrial applications such as oil and gas pipelines, mechanical contracting, power plants, and heavy equipment maintenance, where high gripping force and durability are essential.

Key features:

This standard ensures that components such as the handle, movable jaw, adjusting mechanism, and gripping teeth are manufactured for enhanced strength, durability, and safety. The standard supports manufacturers in producing reliable and robust tools suitable for professional plumbing, mechanical, and maintenance operations involving large or high-strength piping.

The table listing some other Indian Standards related to wrenches, published under the Hand Tools Sectional Committee (PGD 34):

S. No.	IS No. & Year	Last reaffirmed year	Title
1.	IS 2030 : 1989	2024	Box Spanners – Specification
2.	IS 5167 : 1981	2021	Punched Open-Jaw Wrenches (Spanners) – Specification
3.	IS 6129 : 1971	2025	Square Box Wrenches (Spanners) – Specification
4.	IS 6130 : 1989	2025	Single Square Socket Tee Wrenches (Spanners) – Specification
5.	IS 6149 : 1984	2021	Single-Ended Open-Jaw Adjustable Wrenches – Specification
6.	IS 6374 : 1971	2021	Hexagonal Box Wrenches (Spanners) – Specification
7.	IS 6379 : 1989	2021	Single-Ended Ring Wrenches (Spanners) – Specification
8.	IS 6389 : 1998	2025	Combination Wrenches with Equal Openings – Specification

B. Pliers and Nippers

The list of major product standards published related to pliers and nippers till date are:

4. **IS 13323:2018, Pliers and Nippers – Slip Joint Pliers- Dimensions and Test Values**
   The standard specifies dimensions, strength, and performance test requirements for slip joint pliers

   Key features:
   It includes mechanical performance tests such as load capacity and durability to ensure the pliers meet safety and reliability benchmarks. This standard helps ensure consistency in manufacturing and promotes interchangeability and user safety across various industrial and domestic applications.

5. **IS 13610:2018, Pliers and Nippers for Electronics – Nomenclature: Defines terminology for different electronic pliers and nippers.**
   The standard establishes clear terminology for pliers and nippers used in electronic applications.

   Key features:
   The standard establishes a common vocabulary, IS 13610 facilitates accurate product specification, selection, and training in the electronics and precision engineering sectors, promoting clarity and reducing the risk of misapplication in delicate electronic assembly and repair tasks.

6. **IS 13636:1993, Pliers and Nippers for Electronics – Technical Supply Conditions: Specifies material, hardness, and construction details.**
   The standard specifies material quality, hardness, and construction standards for electronic pliers and nippers.

   Key features:
   The standard aims to ensure durability, accuracy, and safe handling during delicate operations, helping manufacturers deliver consistent quality and enabling users to select tools that meet stringent performance criteria required in the electronics industry.

7. **IS 4378 (Part 1):2017, Diagonal Cutting Nippers – Dimensions and Test Values**
   The standard details dimensional standards and test values for diagonal cutting nippers.

   Key features:
   This standard outlines mechanical test procedures to verify the strength and durability of the tool under typical working conditions, thereby ensuring consistency in quality and promoting user safety and efficiency in industrial and professional use.

8. **IS 4378 (Part 2):2018, End Cutting Nippers – Dimensions and Test Values**
The standard covers dimensional specifications and performance tests for end cutting nippers.

Key features:
The standard outlines precise measurements for components such as jaw shape, cutting edge, and handle configuration, along with mechanical test values to assess tool strength, durability, and cutting efficiency.

The list of major code of practice standards published related to pliers and nippers till date are:

i) **IS 2615:2023, Pliers and Nippers – Part 1 – General technical requirements**
The standard specifies general technical requirements for pliers and nippers, including material, hardness, construction, and functional performance.

ii) **IS 2615:2023, Pliers and Nippers – Part 2 – Method of test**
The standard lays down standardized methods of testing for evaluating the performance, durability, and safety of pliers and nippers.

The table listing some other Indian Standards related to pliers and nippers, published under the Hand Tools Sectional Committee (PGD 34):

S. No.	IS Number	Last reaffirmed year	Title
1	IS 11526:2013	2024	Pliers and nippers - Nomenclature
2	IS 13761:1993	2024	End cutting nippers - Specification
3	IS 13762:1993	2024	Diagonal cutting nippers - Specification
4	IS 13763:1993	2024	Oblique cutting nippers - Specification
5	IS 13764:1993	2024	Round nose pliers - Specification
6	IS 13765:1993	2025	Flat nose pliers - Specification
7	IS 13766:1993	2025	Snipe nose pliers - Specification
8	IS 13887:1993	2025	Diagonal cutting nippers - Lever assisted - Specification
9	IS 13888:1993	2025	End cutting nippers - Lever assisted - Specification
10	IS 3552:2023	2023	Pliers for gripping and manipulating – Dimensions and test values
11	IS 3650:1981	2022	Combination side cutting pliers - Specification
12	IS 5995:1971	2021	Pipe grip pliers - Specification
13	IS 4481:1988	2025	Duck-bill pliers - Specification
14	IS 5087:1969	2021	Wire stripping pliers - Specification
15	IS 7989:1976	2025	Pliers for internal circlips - Specification
16	IS 7990:1976	2025	Pliers for external circlips - Specification
17	IS 4806:1968	2021	Heat coil pliers - Specification
18	IS 12577:1989	2024	Sealing pliers - Specification
19	IS 8672:1989	2025	Flat nose pliers without cutter - Specification

C. Hammers

The list of major product standards published related to hammers till date are:

9. IS 10838 : 1984 Specification for nylon faced hammers

This standard specifies requirements for nylon-faced hammers, including dimensions, material properties, and performance criteria suitable for non-marring applications.

Key features:
The aim of the standard is to maintain the integrity of drinking water throughout its shelf life, preventing contamination and ensuring compliance with health regulations. This standard is vital for manufacturers, quality controllers, and regulatory authorities involved in the

10. IS 11940 : 1987 Specification for hide - Faced hammers

This standard covers specification for hide-faced hammers, detailing construction, dimensions, and material requirements for applications requiring soft striking surfaces.

Key features:
Faced hammers typically made with rolled rawhide faces, these hammers are commonly used in metalworking, automotive, and assembly operations. The standard ensures consistency in quality, durability, and safety of the hammers, providing manufacturers and users with clear guidelines for production and usage.

11. IS 13189 : 1991 Lead hammers - Specification

This standard defines specifications for lead hammers, focusing on their construction, dimensions, and suitability for applications requiring non-sparking and non-marring tools.

Key features:
This standard covers important aspects such as material composition, dimensions, hardness, construction, and performance to ensure uniform quality, safety, and reliability in use. The specification provides guidance for manufacturers and quality control personnel to produce hammers that meet consistent performance and safety standards.

12. IS 6546 : 1989 Claw hammers - Specification

This standard specifies requirements for claw hammers, including dimensions, material characteristics, and performance standards for general-purpose use.

Key features:
This standard ensures that claw hammers meet quality and safety standards, offering durability, proper balance, and effective functionality. This specification helps manufacturers produce reliable tools and provides users with confidence in the hammer’s performance during everyday tasks.

13. IS 841 : 1983 Specification for steel hammers

This standard covers specification for steel hammers, detailing their dimensions, material properties, and performance criteria for various industrial applications.

Key features:
This standard covers aspect such as the materials, dimensions, design, hardness, and testing methods to ensure the hammers deliver reliable performance, durability, and safety during use. Steel hammers, known for their strength and impact resistance, are essential tools for striking, shaping, and driving tasks. IS 841:1983 helps manufacturers maintain consistent quality and provides users with guidelines to select and use steel hammers effectively in different working conditions.

14. IS 9064 : 1979 Specification for copper hammers

This standard specifies requirements for copper hammers, including construction, dimensions, and material properties suitable for applications requiring non-sparking tools.

Key features:
Copper hammers are commonly used in electrical, mechanical, and assembly work where non-sparking tools are essential for safety. IS 9064:1979 specifies details related to the material quality, dimensions, construction, and performance of copper hammers to ensure consistent quality, durability, and safe usage. This standard assists manufacturer in producing reliable copper hammers and guides users in selecting the appropriate tool for specific tasks.

The list of major code of practice standards published related to hammers till date are:

i) IS 13093 : 2002 Sheet metal body repair steel hammers - General requirements

This standard specifies general requirements for steel hammers used in sheet metal body repair, including design, dimensions, and material properties.

The table listing some other Indian Standards related to hammers, published under the Hand Tools Sectional Committee (PGD 34):

S. No.	IS No.	Last reaffirmed year	Title
1.	IS 12578:1989	2021	Specification for Watch Maker's Hammer, Flat Face
2.	IS 9065:1979	2021	Specification for aluminum hammers

B. Screw drivers

The list of major product standards published related to Screw drivers till date are:

1. **IS 12153 : 1987 Specification for adapters for hexagonal insert bits for use with ratchet screw drivers**

   This standard specifies the requirements for adapters used with hexagonal insert bits in ratchet screwdrivers. It ensures compatibility and interchangeability in assembly tools.

   Key features:
   This standard specifies the requirements for adapters that connect hexagonal insert bits to ratchet screwdrivers, ensuring secure fitting and efficient torque transmission during use. These adapters play a crucial role in providing versatility to ratchet screwdrivers by allowing the use of interchangeable bits of various sizes and types, which enhances the tool's functionality in fastening and loosening screws. IS 12153:1987 covers dimensions, materials, mechanical properties, and performance criteria to ensure durability, compatibility, and safety.

2. **IS 12167 : 1987 Specification for spiral ratchet screw drivers**

   This standard covers the design and dimensional specifications for spiral ratchet screwdrivers, which allow efficient tightening and loosening with minimal wrist movement.

   Key features:
   This standard specifies details related to the design, materials, dimensions, mechanical performance, and safety aspects to ensure durability, ergonomic handling, and reliable operation. This standard serves as a guideline for manufacturers to produce quality tools and helps users select appropriate screwdrivers for various industrial, mechanical, and household applications.

3. **IS 12168 : 1987 Specification for screw driver bits for the use with ratchet screw drivers**

   This standard provides specifications for screwdriver bits used with ratchet drivers, specifically for cross-recessed (Phillips-type) head screws.

   Key features:
   This standard covers aspect such as material quality, dimensions, mechanical properties, and performance criteria to guarantee reliable torque transmission and long service life. The standard provides essential guidelines for manufacturers and users to maintain consistency, safety, and effectiveness in mechanical and assembly work.

4. **IS 12412 : 1988 Specification for screw driver bits for the use with ratchet screw drivers**

This standards requirements for screwdriver bits compatible with ratchet drivers, particularly for use with cross-recessed head screws.

Key features:
By adhering to this standard, manufacturers may ensure that screwdriver bits are compatible with ratchet screwdrivers and meet consistent quality and safety standards, enabling users to perform precise and efficient work across various industrial and domestic applications.

5. **IS 8668 : 1984 Dimensions for spiral ratchet screw driver shanks**

This standard lays down the dimensional for spiral ratchet screwdriver shanks to ensure proper alignment and secure tool engagement.

Key features:
This standard provides manufacturers with detailed guidelines on tolerances, lengths, diameters, and other geometric features to maintain uniformity and interchangeability. Adherence to this standard helps improve tool quality, user comfort, and efficiency in applications involving fastening and unfastening screws.

The table listing some other Indian Standards related to screw driver, published under the Hand Tools Sectional Committee (PGD 34):

S. No.	IS No.	Last reaffirmed year	Title
1.	IS 12166:1987	2020	Specification for ratchet screwdrivers
2.	IS 844 (Part 1):1979	2021	Screwdrivers – Technical Supply Conditions
3.	IS 844 (Part 2):1979	2021	Screwdrivers – Dimensions
4.	IS 844 (Part 3):1979	2021	Screwdrivers for recessed head screws – Dimensions
5.	IS 8670:1977	2025	Specification for screwdrivers for hexagon insert bits