



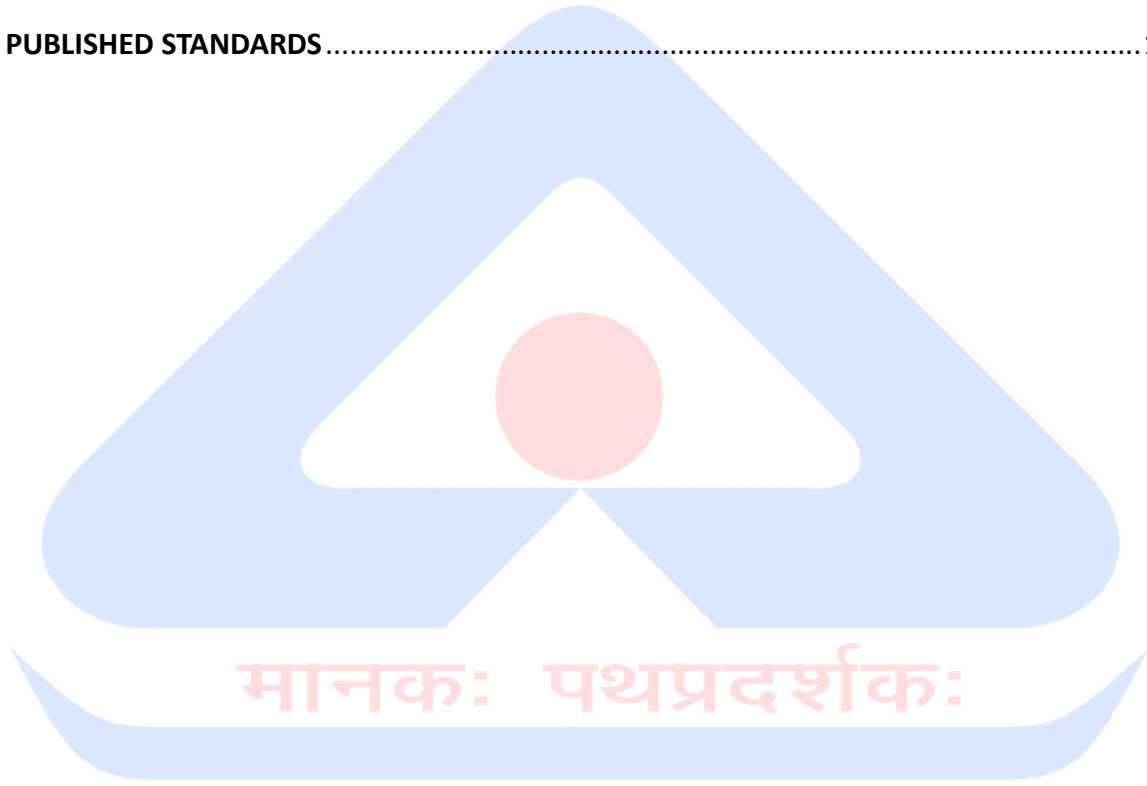
COMPENDIUM
Of
INDIAN STANDARDS
On
Wire Ropes and Wire Products



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1. INTRODUCTION

The MED 10 Sectional Committee functions under the Mechanical Engineering Division Council of the Bureau of Indian Standards and is entrusted with the responsibility of formulation, revision, reaffirmation, and harmonization of Indian Standards pertaining to steel wire ropes, steel wire strands, galvanized steel wires, rope slings, and allied wire products.

The scope of MED 10 covers the entire technical framework associated with wire rope engineering, including:

- a) Product specifications
- b) Technical supply conditions
- c) Manufacturing requirements
- d) Constructional classifications
- e) Designation systems
- f) Mechanical performance criteria
- g) Testing and inspection procedures
- h) Marking and certification requirements

Wire ropes and related wire products are highly critical mechanical elements designed to transmit tensile loads safely and reliably. They operate under severe service conditions involving dynamic loading, bending fatigue, abrasion, corrosion, and impact forces. Because failure of these components can lead to catastrophic consequences such as collapse of lifting systems, mining accidents, elevator failures, or structural instability, standardization becomes essential.

The standards formulated under MED 10 ensure:

- a) *Uniformity in Product Quality*: Clear specifications regarding raw material, tensile strength, construction type, dimensional tolerances, and surface finish eliminate ambiguity in manufacturing and procurement.
- b) *Safety Assurance*: Defined minimum breaking forces, safe working load concepts, proof testing requirements, and inspection criteria ensure operational safety in lifting and hoisting systems.
- c) *Performance Reliability*: Fatigue resistance, torsional properties, elongation characteristics, and corrosion resistance are controlled through standardized testing methods.
- d) *Interchangeability and Standardization*: Uniform designation systems and construction classifications allow compatibility across equipment manufacturers and industries.
- e) *Alignment with International Practices*: Where appropriate, Indian Standards are harmonized with ISO standards to facilitate global trade and technical equivalence.

Wire ropes standardized under MED 10 are widely used in:

- a) Underground and open-cast mining hoisting systems
- b) Tower cranes and mobile cranes
- c) Passenger and freight elevators
- d) Ropeway transport systems
- e) Marine and offshore installations
- f) Power transmission and telecommunication towers
- g) Infrastructure and heavy engineering applications

Given their widespread industrial importance and safety implications, the role of MED 10 is foundational to mechanical and structural engineering sectors in India.

2. IMPORTANT COMPONENTS OF WIRE ROPE

Understanding the basic components of a wire rope is fundamental to interpreting construction, designation, manufacturing processes, and testing requirements as specified in MED 10 standards.

A wire rope is not a single solid element; it is a structured mechanical assembly composed of multiple hierarchical components. Each level contributes to strength, flexibility, fatigue resistance, and load-bearing capacity.

The primary components are:

- a) Wire
- b) Strand
- c) Core
- d) Rope

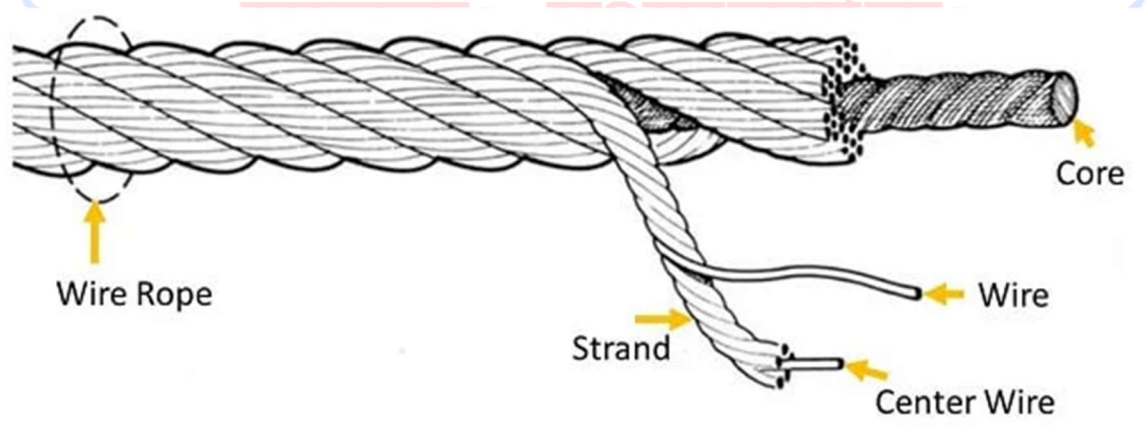


Fig. 1 Primary Component of Wire Rope

2.1 Wire

A wire is the smallest and most fundamental element of a wire rope.

2.1.1 Definition

A wire is a single, continuous, cylindrical metallic filament of uniform cross-section, produced by drawing metal through a die to reduce its diameter.

2.1.2 Manufacturing of Wire

- a) Produced from high-carbon steel wire rod
- b) Reduced in diameter through cold drawing
- c) Heat treated (patenting) for strength and ductility
- d) May be galvanized for corrosion resistance

2.1.3 Mechanical Characteristics

- a) High tensile strength (1570 MPa, 1770 MPa, 1960 MPa etc.)
- b) Defined torsion and wrapping properties
- c) Controlled surface finish

2.1.4 Functional Role

Each individual wire carries a portion of the tensile load. The collective performance of all wires determines the rope's breaking strength and fatigue life.

2.2 Strand

A strand is the second-level assembly in a wire rope.

2.2.1 Definition

A strand is an assembly of two or more wires helically laid together in one or more layers around a central wire.

2.2.2 Structure

- a) Central wire (core of strand)
- b) One or more surrounding layers of wires
- c) Helical arrangement

Example:

A 6×19 rope means each strand contains 19 wires.

2.2.3 Importance of Strand Construction

The arrangement of wires within a strand (Seale, Warrington, Filler, Mixed) determines:

- a) Flexibility
- b) Fatigue resistance
- c) Abrasion resistance

d) Load distribution

Strand design directly affects rope performance under bending and dynamic loading.

2.3 Core

The core is the central supporting element of a wire rope.

2.3.1 Definition

The core is the central element around which strands are helically laid, providing support, stability, and shape to the rope.

2.3.2 Types of Core

- 1) Fibre Core (FC)
 - a) Made of natural or synthetic fiber
 - b) Provides flexibility
 - c) Acts as lubricant reservoir
 - d) Lower strength compared to steel core
- 2) Independent Wire Rope Core (IWRC)
 - a) A small wire rope used as core
 - b) Higher strength
 - c) Better crush resistance
 - d) Suitable for heavy-duty applications

2.3.3 Function of Core

- a) Maintains rope geometry
- b) Prevents strand collapse
- c) Enhances load distribution
- d) Improves dimensional stability

The choice of core significantly influences rope strength and durability.

2.4 Rope

A rope is the final assembly stage.

2.4.1 Definition

A wire rope is an assembly of several strands helically laid around a core to form a strong, flexible lifting or load-bearing component.

2.4.2 Construction Hierarchy

Wire → Strand → Rope

2.4.3 Characteristics of Wire Rope

- a) High tensile strength
- b) Flexibility

- c) Resistance to bending fatigue
- d) Ability to withstand dynamic loads
- e) Controlled elongation

2.4.4 Function in Industry

Wire ropes transmit tensile forces safely in:

- a) Lifting systems
- b) Hoisting equipment
- c) Elevators
- d) Mining systems
- e) Structural applications

3. DESIGNATION OF WIRE ROPE

Wire rope designation is a standardized method of describing the complete construction, strength, and characteristics of a rope in a single line. It ensures uniform identification during manufacturing, procurement, inspection, and certification.

A typical designation looks like:

20 mm 6×36 WS IWRC 1770 RHOL Galvanized

Let us break this down in detail.

3.1 Nominal Diameter

20 mm

- a) Indicates the nominal outside diameter of the rope.
- b) Measured across the widest cross-section.
- c) Tolerance limits are defined in standards such as IS 2266.

Diameter directly influences:

- a) Load carrying capacity
- b) Sheave compatibility
- c) Minimum breaking force

3.2 Rope Construction (6×36)

6 × 36

This means:

- a) 6 → Number of strands
- b) 36 → Total number of wires per strand

More wires per strand means higher flexibility

Fewer wires per strand means higher abrasion resistance

3.3 Construction Type (S, W, F, M, WS)

This defines the internal arrangement of wires in each strand.

- a) Seale (S)
 - i. Same number of wires in inner and outer layers
 - ii. Outer wires larger than inner wires
 - iii. Good abrasion resistance
 - iv. Less flexible than Warrington
- b) Warrington (W)
 - i. Alternating large and small wires in outer layer
 - ii. Better flexibility
 - iii. Improved bending fatigue resistance
- c) Filler (F)
 - i. Small filler wires placed between layers
 - ii. Compact construction
 - iii. Good load distribution
- d) Mixed (M)
 - i. Combination of different constructions
 - ii. Balanced properties
- e) Warrington-Seale (WS)
 - i. Combination of Warrington inner and Seale outer layer
 - ii. Very common construction
 - iii. Good fatigue + abrasion resistance

3.4 Wire Distribution (Example: 12/6-1)

Sometimes internal distribution is shown like:

(12/6-1)

Meaning:

- a) 12 outer layer wires
- b) 6 intermediate layer wires
- c) 1 central wire

This gives complete structural detail of strand design.

3.5 Core Type

The core supports the rope and maintains its shape.

There are three main types of core:

- a) Fibre Core (FC)
 - i. Made from natural fiber (sisal) or synthetic fiber (polypropylene)
 - ii. High flexibility

- iii. Acts as lubricant reservoir
- iv. Lower strength and crush resistance

Used in:

- i. Light duty cranes
 - ii. General engineering
- b) Wire Strand Core (WSC)
- i. A single strand used as the core
 - ii. Higher strength than fibre core
 - iii. Moderate flexibility
 - iv. Moderate crush resistance

Used in:

Medium duty applications

- c) Independent Wire Rope Core (IWRC)
- i. A small independent wire rope used as the core
 - ii. Highest strength
 - iii. High crush resistance
 - iv. Better fatigue performance
 - v. Better heat resistance

Used in:

- i. Mining
- ii. Tower cranes
- iii. Heavy lifting

3.6 Tensile Grade (1770)

Indicates minimum tensile strength of wires in MPa.

Common grades:

- a) 1570 MPa
- b) 1770 MPa
- c) 1960 MPa

मानक: पथप्रदर्शक:

Higher grade means higher breaking strength but slightly reduced flexibility.

3.7 Lay Direction (RHOL / LHOL / RRL / LRL)

Lay defines direction in which strands are twisted.

Two aspects:

- a) Direction of Lay
 - i. Right Hand (RH)
 - ii. Left Hand (LH)
- b) B. Type of Lay
 - i. Regular Lay (RL)
 - a. Wires twisted opposite to strand lay direction
 - b. More stable

- c. Less rotation
- ii. Lang Lay (LL)
 - a. Wires twisted in same direction as strand lay
 - b. More flexible
 - c. Better abrasion resistance

Example:

- a) RHOL → Right Hand Ordinary Lay
- b) RRL → Right Regular Lay

3.8 Surface Condition

Indicates protective coating.

Types:

- a) Bright (Uncoated)
- b) Galvanized
- c) PVC Coated

Galvanization improves corrosion resistance.

3.9 Complete Designation Example

20 mm 6×19M (12/6-1) 1770 IWRC RRL Galvanized

Meaning:

- a) 20 mm diameter
- b) 6 strands
- c) 19 wires per strand
- d) Mixed construction
- e) 12 outer / 6 inner / 1 core wire
- f) 1770 MPa tensile grade
- g) Independent Wire Rope Core
- h) Right Regular Lay
- i) Zinc coated

This single line gives complete structural and mechanical identity

4. KEY STANDARDS UNDER MED 10

The following standards represent the core technical framework of the committee:

- a) IS 2266 – Steel Wire Ropes for General Engineering Purpose
- b) IS 6594 – Technical Supply Conditions for Steel Wire Ropes
- c) IS 2365 – Steel Wire Ropes for Lifts
- d) IS 16014 – Steel Wire Rope Slings

- e) IS 278 – Galvanized Steel Wire for General Engineering Purposes
- f) IS 4521 – Galvanized Steel Strands

Together, these standards provide a comprehensive coverage from basic galvanized wire production to finished rope assemblies and lifting accessories.

4.1 IS 2266 – Steel Wire Ropes for General Engineering Purpose

Scope

Specifies requirements for steel wire ropes including construction, tensile grade, core type, lay type, minimum breaking force, dimensional tolerance, and testing requirements.

Applications

- a) Cranes and hoists
- b) Winches
- c) Marine handling equipment
- d) Construction machinery

4.2 IS 6594 – Technical Supply Conditions for Steel Wire Ropes

Scope

Defines manufacturing and supply requirements including raw material quality, heat treatment, galvanization, lubrication, inspection, sampling, and acceptance criteria.

This standard supports all rope product specifications.

4.3 IS 2365 – Steel Wire Ropes for Lifts

Scope

Covers ropes used in passenger and goods lifts, specifying flexibility, fatigue resistance, diameter tolerance, and minimum breaking load.

Applications

- a) Passenger elevators
- b) Freight lifts

4.4 IS 16014 – Steel Wire Rope Slings

Scope

Specifies requirements for rope slings including construction, proof load testing, safe working load (SWL), end terminations, and marking.

Applications

- a) Industrial lifting
- b) Heavy equipment handling
- c) Shipyards

4.5 IS 278 – Galvanized Steel Wire

Scope

Specifies requirements for galvanized steel wires including tensile strength, zinc coating mass, torsion test, and wrapping test.

Applications

- a) Wire rope manufacturing
- b) Fencing
- c) Structural applications

4.6 IS 4521 – Galvanized Steel Strands

Scope

Specifies construction and tensile requirements for galvanized steel strands.

Applications

- a) Guy wires
- b) Transmission towers
- c) Stay cables
- d) Structural support systems

5. MANUFACTURING PROCESS OF STEEL WIRE ROPES

The manufacture of steel wire ropes is a carefully controlled metallurgical and mechanical process designed to achieve the required strength, flexibility, fatigue resistance, and dimensional stability. The entire manufacturing process is governed primarily by IS 6594 - Technical Supply Conditions for Steel Wire Ropes, while product-specific requirements are defined in standards such as IS 2266, IS 2365, IS 16014, IS 278, and IS 4521.

The process begins with the selection of suitable high-carbon steel wire rod. The chemical composition and surface quality of the rod are critical, as internal defects or improper carbon content can significantly affect the tensile strength and fatigue life of the finished rope. IS 6594 requires that raw materials used for rope manufacture meet specified quality parameters, ensuring consistency in performance.

The wire rod is then subjected to cold drawing through a series of dies to reduce its diameter to the required size. This process increases the tensile strength of the material through work hardening and improves dimensional accuracy. For galvanized wire used in rope manufacture, IS 278 specifies the requirements for tensile strength, coating mass, and surface finish. The mechanical properties achieved during drawing must conform to the tensile grade specified in IS 2266 for general engineering ropes and IS 2365 for lift ropes.

After drawing, the wires undergo heat treatment, commonly referred to as patenting. This controlled heating and cooling process improves ductility while maintaining high tensile strength. Proper heat treatment is essential to prevent brittleness and ensure satisfactory torsion and reverse bending performance. IS 6594 requires that manufacturing processes ensure uniform mechanical properties across the wire length.

Where corrosion resistance is required, wires are galvanized by hot-dip coating. The zinc coating mass, uniformity, and adhesion are verified as per IS 278 for wires and IS 4521 for galvanized strands. Adequate coating thickness enhances service life in marine, mining, and outdoor environments.

The wires are then helically twisted to form strands. The arrangement of wires within each strand such as Seale, Warrington, Filler, Mixed, or Warrington-Seale constructions must comply with the constructional requirements specified in IS 2266 and IS 2365. Proper control of lay length and tension during stranding is essential to ensure balanced load distribution and flexibility.

Following stranding, the strands are laid helically around a core to form the rope. The core may be a fibre core (FC), wire strand core (WSC), or independent wire rope core (IWRC), depending on application requirements. The selection of core type and lay configuration must conform to the relevant product standard. For example, heavy-duty and mining applications typically require IWRC for higher crush resistance and strength, as permitted under IS 2266.

Lubrication is applied during and after closing. Internal lubrication reduces friction between wires and strands, while external lubrication protects against corrosion and abrasion. IS 6594 mandates adequate lubrication to enhance fatigue life and service performance.

Finally, the finished rope undergoes inspection and testing before dispatch. Dimensional tolerances, construction conformity, and surface condition are verified to ensure compliance with the relevant Indian Standard.

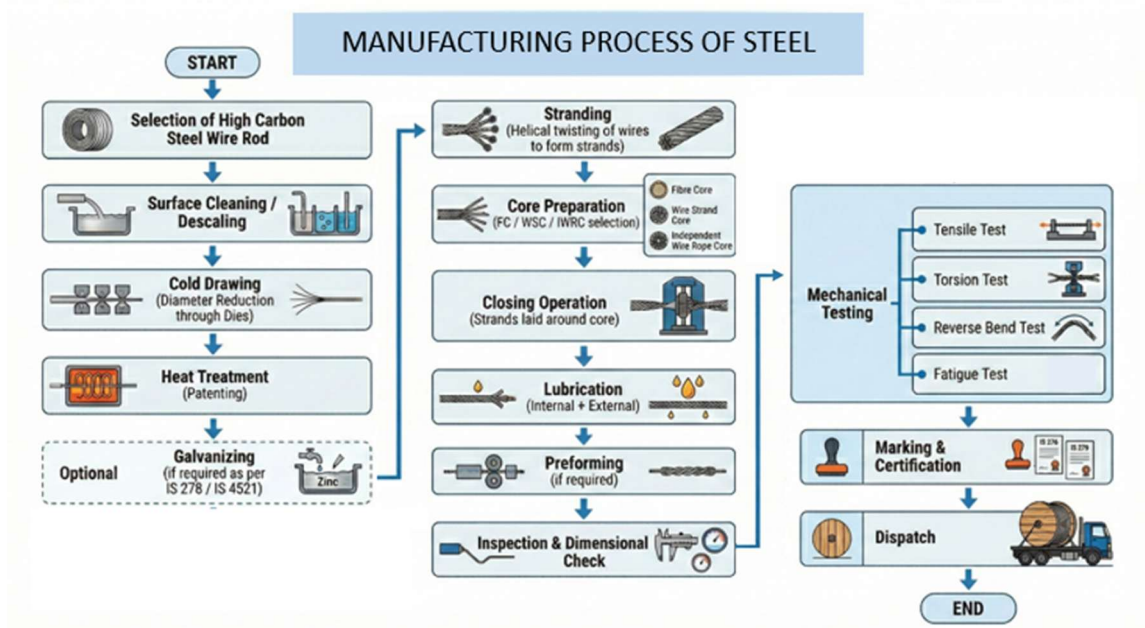


Fig. Flowchart of Manufacturing Process of Steel

6. TESTING

Testing is a critical component of quality assurance in wire rope manufacture. The objective of testing is to verify that the rope meets the mechanical, dimensional, and performance requirements specified in the applicable Indian Standard.

6.1 Tensile Test

The tensile test is the primary mechanical test conducted on wire ropes to determine the Minimum Breaking Force (MBF). This test verifies whether the rope meets the specified strength requirements given in the relevant Indian Standards. Under IS 2266 and IS 2365, the breaking force values are specified according to rope diameter, construction, and grade (for example 1570, 1770 or 1960 MPa). IS 6594 specifies the general technical supply conditions and testing requirements for verification.

The test is performed on a complete rope specimen of adequate length, generally between one and two metres, ensuring sufficient gripping length. The setup consists of a calibrated Universal Testing Machine (UTM) of suitable capacity, equipped with specialized wedge grips or conical socket terminations to prevent slippage. Proper axial alignment is essential to ensure that only tensile stress is applied without inducing bending stresses. A load indicator records the applied force, and elongation measuring devices may be used where required.

During testing, the specimen is mounted carefully in the testing machine and a small preload is applied to remove slack. Thereafter, tensile load is applied gradually and continuously until complete fracture of the rope occurs. The maximum load attained before failure is recorded as the breaking force. The measured breaking force must be equal to or greater than the minimum breaking force specified in the applicable standard. This test ensures that the rope is capable of safely sustaining service loads in cranes, hoists, elevators, and mining installations.

6.2 Torsion Test

The torsion test is conducted on individual wires extracted from the rope to evaluate their ductility and torsional strength. Since wire ropes experience rotational stresses during installation and service, the constituent wires must possess adequate resistance to twisting without brittle fracture. IS 6594 requires mechanical verification of wires, while IS 1835 specifies the torsion testing method for round steel wires.

The test specimen consists of a straightened wire of specified length, typically proportional to its diameter. The setup includes a torsion testing machine with one end of the wire firmly clamped in a fixed chuck and the other end secured in a rotating chuck. A twist counter is provided to measure the number of complete rotations applied before fracture. Slight axial tension is maintained to keep the wire straight during testing.

During the test, one end of the wire is rotated at a uniform speed until fracture occurs. The total number of complete twists sustained before failure is recorded. The fracture characteristics are also observed to assess ductility. The number of twists achieved must meet

or exceed the minimum specified in the relevant standard tables, depending upon wire diameter and tensile grade. This test ensures that the wires possess sufficient torsional flexibility to withstand operational stresses without premature failure.

6.3 Reverse Bend Test

The reverse bend test is performed on individual wires to determine their flexibility and resistance to repeated bending stresses. In service, wire ropes continuously pass over sheaves and drums, causing cyclic bending of the wires. This test simulates such service conditions and evaluates the fatigue resistance of the wire material.

The specimen is a straightened wire of prescribed length. The test apparatus consists of a clamping device and a mandrel of specified diameter over which the wire is bent. The mandrel diameter is selected according to the wire diameter as prescribed in the standard. Some setups may include mechanical bending arrangements for uniformity.

In this test, the wire is bent 90 degrees in one direction over the mandrel and then bent in the opposite direction. This alternating bending process is continued until fracture occurs. The total number of reverse bends sustained before failure is recorded. The wire must withstand a minimum number of reverse bends as specified in the applicable standard. This test ensures that the wire has sufficient flexibility and resistance to crack initiation during repeated bending in service conditions.

6.4 Fatigue Test

The fatigue test, also known as the bending fatigue test, evaluates the endurance of a complete wire rope under cyclic bending over sheaves. This test closely replicates actual working conditions in elevators, cranes, and hoisting systems. IS 2365 specifies fatigue requirements particularly for lift ropes, while IS 2266 may include fatigue provisions depending on application.

The test setup consists of two or more sheaves arranged according to the specified D/d ratio, where D is the sheave diameter and d is the rope diameter. A drive motor is used to rotate the system, and a loading arrangement such as dead weights or hydraulic tensioning devices applies a specified tensile load, often expressed as a percentage of the minimum breaking force. A cycle counter records the number of bending cycles completed, and monitoring systems detect broken wires.

During testing, the rope is installed over the sheaves under controlled tension. The system is operated continuously, causing the rope to undergo repeated bending cycles. The number of cycles completed before a specified failure criterion such as a defined number of broken wires or complete failure is recorded. The rope must satisfy the minimum cycle requirement specified in the standard. This test is critical for determining service life and ensuring operational safety in dynamic loading applications.

7. INDUSTRIAL APPLICATIONS OF WIRE ROPES UNDER MED 10

Steel wire ropes and allied wire products standardized under MED 10 are extensively used across critical industrial sectors where safe transmission of tensile loads is essential. Their applications span mining, construction, transportation, marine systems, power infrastructure, and heavy engineering industries. The performance requirements in each sector vary depending on loading conditions, environmental exposure, fatigue cycles, and safety considerations. The relevant Indian Standards define constructional features and mechanical properties suitable for these applications.

In the mining sector, wire ropes are primarily used in vertical shaft hoisting systems, inclined haulage systems, and dragline operations. These ropes are subjected to high static loads combined with dynamic shock loading and continuous bending over sheaves. High tensile grade ropes with Independent Wire Rope Core (IWRC) are generally preferred for such applications due to superior strength and crush resistance. The construction and minimum breaking force requirements for such ropes are governed by IS 2266, while technical supply conditions are specified under IS 6594. Corrosion resistance may also be critical in underground mining environments.

In construction and material handling industries, wire ropes are widely used in tower cranes, mobile cranes, winches, and hoists. These ropes undergo repeated bending cycles and must exhibit good fatigue resistance and flexibility. General engineering ropes manufactured in accordance with IS 2266 are typically used in such applications. Where lifting accessories are involved, such as rope slings, compliance with IS 16014 is mandatory to ensure safe working load and proof load verification. The reliability of these ropes directly impacts lifting safety and structural stability on construction sites.

In elevator systems, wire ropes serve as traction and suspension elements in passenger and goods lifts. Lift ropes must maintain precise diameter tolerances, consistent flexibility, and high fatigue resistance to ensure smooth traction over sheaves. IS 2365 specifically addresses the requirements for steel wire ropes used in lifts, including breaking load, elongation limits, and construction characteristics. Any deviation in rope diameter or flexibility can affect traction efficiency and safety, making strict adherence to the standard essential.

Ropeway systems, including passenger and material ropeways, rely on wire ropes for load carrying and haulage functions. These systems operate continuously under varying environmental conditions, including moisture, temperature variation, and wind loads. Corrosion protection and fatigue resistance are key performance parameters. Although ropeway-specific standards may apply, general construction and performance requirements are derived from IS 2266 and related technical supply conditions under IS 6594.

Marine and offshore operations represent another critical application area. Wire ropes are used in mooring lines, dockside cranes, offshore lifting systems, and cargo handling equipment. These environments demand high corrosion resistance, often requiring galvanized ropes or protective lubrication. Zinc coating requirements specified under IS 278 and IS 4521

for galvanized wires and strands are particularly relevant in such applications. The durability of ropes in saline and humid environments significantly affects service life and safety.

In power transmission and telecommunication infrastructure, galvanized steel strands are used as guy wires, stay wires, and structural support elements. IS 4521 governs the requirements for galvanized steel strands used in such structural applications, ensuring adequate tensile strength and coating thickness. These strands must withstand environmental exposure, wind loads, and long-term tension without significant degradation.

Heavy engineering industries, including shipyards, manufacturing plants, and large-scale fabrication units, utilize wire ropes in lifting, pulling, and tensioning operations. The selection of rope construction, tensile grade, and core type depends on operational load, bending cycles, and environmental conditions. IS 2266 provides the foundational requirements for general engineering ropes, while IS 6594 ensures consistent manufacturing quality.

Thus, the industrial applications of wire ropes under MED 10 are diverse and critical. The Indian Standards developed by the committee ensure that ropes used in these sectors meet defined safety, performance, and durability requirements. By linking constructional parameters, manufacturing controls, and testing protocols to real-world applications, MED 10 standards play a vital role in supporting infrastructure development, industrial growth, and operational safety across India.

8. PUBLISHED STANDARDS

TABLE 1: PRODUCT SPECIFICATION STANDARDS

Sl. No.	Standard Number	Title
1	IS 2721:2025	Galvanized PVC / Polyolefin Coated Steel Wire Ropes – Specification
2	IS 3626:2025	Locked Coil Winding Ropes – Specification (Fourth Revision)
3	IS 10891 (Part 2):2025	Steel Wire Ropes for Aerial Ropeways – Specification
4	IS 19363:2025	Metallic or Polymer Coated Welded Wire Mesh – Specification
5	IS 10891 (Part 1):2025	Steel Wire Ropes for Aerial Ropeways – Specification
6	IS 1855:2024	Stranded Steel Wire Ropes for Winding and Man-Riding – Specification

7	IS 2266:2024	Steel Wire Ropes for General Engineering Purpose – Specification
8	IS 16014:2024	Mechanically Woven Double-Twisted Hexagonal Wire Mesh – Specification
9	IS 6594:2024	Technical Supply Conditions for Steel Wire Ropes
10	IS 2365:2024	Steel Wire Ropes for Lifts – Minimum Requirements
11	IS 4521:2024	Wire Ropes Used in Oil Wells and Oil Well Drilling – Specification
12	IS 9282:2024	Wire Ropes and Strands for General Structural Applications – Specification
13	IS 3626:2024	Locked Coil Winding Ropes – Specification (Third Revision)
14	IS 3623:2024	Guide and Rubbing Ropes – Specification
15	IS 18532:2024	Round Steel Wire Rope Used as Balance Ropes – Specification
16	IS 2315:2023	Thimbles for Wire Ropes – Specification
17	IS 3121:2023	Rigging Screws and Stretching Screws – Specification
18	IS 2140:2022	Stranded Galvanized Steel Wire – Specification
19	IS 2485:2022	Drop Forged Sockets for Wire Ropes – Specification
20	IS 1856:2021	Steel Wire Ropes for Haulage Purposes – Specification
21	IS/ISO 2408:2017	Steel Wire Ropes – Requirements
22	IS 4948:2020	Welded Steel Wire Fabric for General Use – Specification
23	IS/ISO 17746:2016	Steel Wire Ring Net Panels – Definitions and Specifications
24	IS/ISO 17745:2016	Steel Wire Ring Net Panels – Definitions and Specifications
25	IS 16013:2018	Welded Wire Gabions – Specification
26	IS 3374:2013	Preformed Steel Wire Ropes for Aircraft Control – Specification
27	IS 278:2009	Galvanized Steel Barbed Wire for Fencing – Specification

28	IS 2762:2009	Wire Rope Slings and Sling Legs – Specification
29	IS 3459:2004	Small Wire Ropes – Specification
30	IS 2721:2003	Galvanized Steel Chain Link Fence Fabric – Specification
31	IS 2361:2002	Bulldog Grips – Specification
32	IS 10891 (Part 1):2001	Steel Wire Ropes for Aerial Ropeways – Specification
33	IS 10887:2001	Steel Wire Ropes for Winches and Ropeways – Specification
34	IS 2141:2000	Hot Dip Galvanized Stay Strand – Specification
35	IS 10942:2000	Ferrule – Specification
36	IS 5836:1977	Inner Wire Ropes for Automobiles – Specification
37	IS 2265:2009	Galvanized Steel Wire Strand – Specification
38	IS 12776:2002	Galvanized Strand for Earthing – Specification
39	IS 10891 (Part 2):2018	Steel Wire Ropes for Aerial Ropeways – Specification

TABLE 2: CODE OF PRACTICE

Sl. No.	Standard Number	Title
1	IS 3973:2022	Code of Practice for Selection, Installation and Maintenance of Wire Ropes
2	IS 3937 (Part 1):2022	Recommendations for Socketing of Wire Ropes
3	IS 13902 (Part 1):2022	Sockets for Wire Ropes
4	IS 5245 (Part 1):2022	Methods for Splicing of Wire Ropes – Hand Splicing
5	IS 13902 (Part 2):2022	Sockets for Wire Ropes
6	IS 3937 (Part 3):2022	Recommendations for Socketing of Wire Ropes
7	IS 3937 (Part 2):2022	Recommendations for Socketing of Wire Ropes
8	IS 2363:2022	Glossary of Terms Relating to Wire Ropes
9	IS 5245 (Part 2):2013	Methods for Splicing of Wire Ropes
10	IS 13917:2003	Stranded Wire Ropes for Mine Hoisting – Technical Requirements

11	IS 12735:1994	Wire Rope Slings – Safety Criteria and Inspection
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TABLE 3: METHODS OF TEST (STANDARDS)

Sl. No.	Standard Number	Title
1	IS 18281:2023	Electromagnetic Examination of Ferromagnetic Steel Wire Ropes – Methods of Test
2	IS/ISO 3155:1976	Stranded Wire Ropes for Mine Hoisting – Fibre Core – Methods of Test
3	IS/ISO 3156:1976	Stranded Wire Ropes for Mine Hoisting – Impregnated Fibre Core – Methods of Test

